THE BRITISH TRUST FOR ORNITHOLOGY

England & Wales · Charity number 216652

Details

Other names	B T O
Status	Registered
Legal form	Charitable company
Company number	00357284
Registered	1964-03-23
Register	View on the Charity Commission register

Contact

Address	British Trust For Ornithology The Nunnery Thetford IP24 2PU
Phone	01842750050
Email	info@bto.org
Website	www.bto.org

Activities

Objects: TO PROMOTE, ORGANISE, CARRY ON AND ENCOURAGE STUDY AND RESEARCH AND PARTICULARLY FIELD WORK FOR THE ADVANCEMENT OF KNOWLEDGE IN ALL BRANCHES OF THE SCIENCE OF ORNITHOLOGY. PERMANENTLY TO PRESERVE AND PROTECT LANDS AND OBJECTS WHICH BY THEIR NATURAL FEATURES ARE SUITABLE FOR THE PRESERVATION AND STUDY OF BIRD LIFE AND OF FAUNA AND FLORA GENERALLY.

Activities: Ornithological research

Classification

- **How:** Sponsors Or Undertakes Research
- **What:** Environment/conservation/heritage
- **Who:** The General Public/mankind

Downloaded from opencharities.uk/ew/216652

Geography

- **Area of benefit:** NATIONAL
- Northern Ireland
- Scotland
- Throughout England And Wales

Finances

Period end	Income	Expenditure	Assets	Employees
2025-03-31	£8,712,000	£9,028,000	£6,538,000	163
2024-03-31	£9,463,000	£8,037,000	£6,703,000	155
2023-03-31	£7,134,000	£7,035,000	£4,812,000	151
2022-03-31	£7,842,000	£6,572,000	£2,090,000	149
2021-03-31	£6,187,000	£6,127,000	£-734,000	133

Trustees

Name	Role	Appointed
Dominic Edward Buscall		2024-01-01
Dr Geeta Ludhra		2026-01-02
Dr Rachel Clara Thomas		2026-01-07
Emma Dresser		2023-01-01
Emma Jane Thornton		2023-01-01
Iain Coucher		2022-01-01
Jamie Dunning		2026-01-05
Jane Elizabeth Miller		2023-01-01
Joel Meade Ziff		2023-01-01
Prof Zoe Georgina Davies		2023-01-01
Professor Stephen Geoffrey Willis		2024-01-01
Simon Marquis		2020-01-01
Stephen Jonathan Metcalfe		2025-01-01

Downloaded from opencharities.uk/ew/216652

THE BRITISH TRUST FOR ORNITHOLOGY

England & Wales - Charity number 216652

Accounts

BTO Birds Science People

Trustees' Annual Report & Financial Statements 2024/25

CONTENTS

Opening words	3
At a glance	4
Seeking solutions	6
Embracing everyone	8
Charting change	10
Delivering data	12
Sustaining supporters	14
Framing futures	16
Our volunteers	18
Our partnerships	20
Focus on England	22
Focus on Wales	24
Focus on Scotland	26
Focus on Northern Ireland	28
Being fit for the future	30
Thank you for your support	32
Our supporters	34
Our scientific output: 2024	36
Financial overview	38

YORKSHIRE CURLEW FIELDWORK, BY RICH BUNCE / WALKING PHOTOGRAPHER; SHORT-EARED OWL, BY DAVID TIPLING / BIRDPHOTO.CO.UK; SETTING NETS FOR RINGING, BY LEE BARBER / BTO

Birds Science People

FROM OUR CHAIR: PROFESSOR ZOE DAVIES

BTO continues to go from strength to strength, with staff, volunteers and members striving towards a better future for both birds and people, mediated through high-quality and impactful science. There have been many highlights during the year, as work to deliver our new strategy gained momentum.

BTO Youth collaborated with RSPB and WWF-UK to organise the second UK *Youth in Nature Summit*, which united almost 150 young people in their shared passion for protecting and enhancing biodiversity. This event is an important forum to inspire the next generation, given that young adults are increasingly less engaged with nature. Similarly, BTO joined forces with more than 400 organisations for the Restore Nature Now march in London, which called on politicians to step up and take meaningful action to recover biodiversity across the UK. Closer to home, on the doorstep of BTO HQ in Thetford, staff have been forging deeper connections with our local community and showcasing our work. This has included running a range of activities – such as outdoor fieldcraft sessions and arts projects – for groups of people that BTO has under-served in the past. All these activities underpin our desire to ensure that everyone feels a genuine sense of belonging. As such, BTO has a zero-tolerance approach to abuse of any kind, something that was underscored by the powerful *A Girl & Birds* blog, published during the year.

On a final, personal note, I would like to thank both Board and BTO staff for their kindness and support while I underwent breast cancer treatment throughout 2024. In particular, I am grateful to Iain Coucher for deputising as Chair.

FROM OUR CEO: PROFESSOR JULIET VICKERY

We celebrated 30 years of the BTO/JNCC/RSPB Breeding Bird Survey – a survey that has accumulated almost eight million records of nearly 300 species, from approximately 9,000 volunteers. It now underpins official government statistics, a range of approaches setting conservation priorities in the UK and Europe, and countless scientific publications to help better understand and conserve birds. It's an extraordinary tribute to the power of the partnership BTO represents between scientists and volunteer observers. BTO Garden BirdWatch isn't far behind in longevity and, like many of our schemes, is detecting threats to birds that were unknown or unforeseen at its inception. In this case, the vulnerability of Blackbirds to Usutu virus – a vector-borne disease more usually associated with the tropics. Garden BirdWatch's surveillance network is helping to document the spread and impact of this disease on Blackbird numbers in and around Greater London and beyond.

While much of the value of these long-term schemes is their constancy between years, BTO science is always innovating. This year we deployed a flock of model birds to help improve the accuracy of seabird flight height estimates and hence better understand the risk of collision with offshore turbines. We launched a new raptor monitoring scheme in Wales with novel approaches to help engage diverse audiences in counting and conserving these charismatic species. And, thanks to a novel partnership and aviary and field techniques, 12 of our head-started Curlews returned to East Anglia and attempted to breed. As is evident throughout this report, ***Birds Science People*** is a powerful combination – thank you for being part of it.

AT A GLANCE

Thanks to our members, funders and supporters, **£7.3 million** was spent during the ye carrying out, supporting d communicating our nithological research and delivering engagem

Through our *Bird Study* journal, we brought together **22 important scientific papers** that shed new light on the avian influenza outbreak and help direct our response to this devastating disease.

During 2024/25, we received just under **£800,000** through gifts in Wills, something for which we are phenomenally grateful.

Our Together Through Nature (Thetford) project has given us the foundations needed for a successful community project, working with people who don't usually have the opportunity to engage with nature and BTO.

ar

ent.

"BTO is working with Natural England to inform the adaptive response to climate change on SSSIs."
Professor James Pearce-Higgins, Director of Science

Some **43,679 BTO volunteers** have contributed to Garden BirdWatch, which has celebrated 30 years of recording this year, generating 10.6 million weekly observations.

Volunteers contributed **2,643,682** hours to BTO work during the year, mainly through our bird surveys and monitoring schemes. This incredible effort has an estimated financial value of more than £54 million.

NUTHATCH, BY LIZ CUTTING / BTO; WETLAND RESERVE, BY DAVID TIPLING / BIRDPHOTO.CO.UK; TOGETHER THROUGH NATURE PROJECT EVENT, BY ANNA DUPONT-CRABTREE / BTO

SEEKING SOLUTIONS

How we manage our land and seas to meet our needs and those of the natural world is one of the most pressing conservation issues in the UK today, and BTO science is at the forefront of work to tackle this issue.

PROTECTED AREAS AND MIGRANT BIRDS

Under the 1979 Convention on Migratory Species, countries must protect migratory wildlife and the habitats upon which they rely. Well-managed protected areas are a vital conservation tool for this work, safeguarding species, supporting biodiversity, and reducing threats such habitat loss and hunting pressure. However, the role of protected areas in the conservation of migratory birds has proved difficult to establish, not least because of the dynamic nature of migratory populations.

By using data from across Europe, collated through the EuroBirdPortal, BTO's Dr Jennifer Border and colleagues analysed the weekly distributions of 30 species, examining the degree of overlap with Europe's protected areas and then comparing this to conservation policy targets. The study revealed that 13 of the species were inadequately covered by protected areas for some, or all, of the European part of their annual cycle under a target based on the 2020 Convention on Biodiversity framework, and none was adequately covered under a target based on the 2030 Convention on Biodiversity framework. Species associated with farmland had the lowest percentage of their weekly distribution protected.

The percentage of a species' distribution within protected areas was positively correlated with its long-term population trend, even after accounting for confounding factors, suggesting a positive influence of protected areas on long-term trends. This work emphasises the positive contribution that an informed expansion of the European protected area system could play for the future conservation of migratory birds.

WHEATEAR, BY LIZ CUTTING / BTO

INFORMING BETTER PLANNING

Increasing demands on land for housing are contributing to biodiversity loss, both here in the UK and elsewhere in the world. There are, however, opportunities to use our knowledge of species and their habitat requirements to secure a more wildlife-friendly approach to urban planning, reducing its impacts on biodiversity.

Such an approach has the potential to deliver both conservation outcomes and the ecosystem services that benefit human well-being. To do this effectively, we need knowledge of the types of habitats and management practices that support the range of bird or other species of interest. This knowledge can be secured by analysing the data collected by BTO volunteers participating in our core schemes, but we then need to share this knowledge in ways that are relevant and accessible to those responsible for planning new housing developments.

In a 2024 study, BTO researchers used data from 160 urban sites in England, collected by volunteers taking part in the Wider Countryside Butterfly Survey, in which BTO is a partner (Cooper et al. 2024). Butterflies were chosen as the species group to investigate because they can be sensitive to small changes in habitat and are commonly seen in urban settings. These data were then used to quantify how individual butterfly species responded to 32 different measures of the urban environment.

Most of the species were found to respond more positively to urban greenspaces where management is less frequent, and higher butterfly counts were also found at urban sites with larger areas of semi-natural grassland, other managed greenspaces or adjacent arable land. Fewer butterflies were seen where the land was highly built up, and the greenspaces were more fragmented.

The results of this work can be used alongside related BTO research on birds in urban spaces, and there is the opportunity to develop a dedicated urban-environment biodiversity prediction tool. Practitioners could receive digestible species information, based upon the nature of their development site and the configuration of habitats within their plan.

When used over multiple plans, the developer should see which plan supports the most species or has the highest likelihood of encounters with particular species or species groups. This could help support developers in creating biodiverse spaces for people to live in, and reduce the reliance on off-site offsetting schemes, meeting the demand for new homes in a way that benefits both humans and the natural world alike. If anyone reading this is involved in landscape planning and would like to help us develop this tool, please get in touch.

CASE STUDY: CLIMATE CHANGE

Marine renewables are an important part of our climate change response, but their construction and operation can impact birds and other marine life. BTO has continued its work in this area, improving the evidence base and working with partners across government, the NGO sector and industry to support both policy and practice.

SANDWICH TERN, BY DAVID TIPLING / BIRDPHOTO.CO.UK

TERNS IN A CHANGING WORLD?

Climate change is a key threat facing many of our seabirds, and offshore renewables are an important tool in mitigating its impacts. But these offshore developments can also pose a risk to seabirds, either through direct mortality or by reducing the accessibility of important foraging areas. Understanding these impacts is vital if we are to minimise these risks. A 2024 study of Sandwich Terns on the Norfolk coast used long-life GPS tags to follow movements over multiple years in an area with growing wind farm development. When the study began, there were five operational offshore wind farms within the distance that Sandwich Terns are known to commute on foraging trips. Two more offshore wind farms were under construction, and became operational during the course of the study.

The results revealed that Sandwich Terns entered offshore wind farms, but the extent to which they used these areas was found to vary over time and between sites. For the two wind farms that were completed during the study, there was a marked reduction in the amount of time birds spent at these sites. Although birds sometimes entered offshore wind farms while foraging, they appeared to avoid them when commuting between foraging areas and their colony. This created an apparent 'funnelling' effect between important feeding locations. The study informs future decisions about the placement of new wind farms and their potential impacts on seabirds (Thaxter et al. 2024).

ENHANCING THE EVIDENCE BASE

Back in 2012, BTO published an influential review using information from tracking studies and marine surveys to estimate how far seabirds travel from their colonies to feed during the breeding season. These estimates of seabird foraging ranges have been widely used to assess the potential for birds to interact with planned offshore wind farms, and to apportion any predicted impacts to individual breeding colonies. There has, however, been a rapid expansion in seabird GPS-tracking studies since this review, which means that the evidence base for assessing the interactions between seabirds and wind farms is now much improved.

Working with colleagues from the RSPB Centre for Conservation Science and NIRAS Group (UK) Ltd, BTO researchers have updated the 2012 work to bring in the new information for 27 seabird species (Woodward et al. 2024). Among other findings, this BTO-led study shows that, thanks to tracking data, the foraging ranges for eight species, including Kittiwake and Puffin, are more than 50% larger than those calculated previously.

This improved understanding of seabird foraging ranges ensures that decisions on the placement of wind farms are being made on the basis of the best available evidence. BTO's ongoing work, tracking seabirds at different breeding colonies, will further refine our understanding and improve the evidence base that supports decision-making in the marine environment.

GUILLEMOT, BY SAM LANGLOIS / BTO

EMBRACING EVERYONE

One of our strengths is the breadth of opportunities for people to be part of our community through a shared love of birds. We are continuing our work to broaden our community, and co-creating opportunities with audiences that are new to us.

TOGETHER THROUGH NATURE

Over the past year, we've worked closely with partner organisations to support local communities – including many for whom access to nature is a new and transformative experience. By opening the door to birds and the natural world, we've not only introduced people to our work but also helped them build confidence and connection, additionally improving well-being in other aspects of their lives.

Our *Together Through Nature* pilot project took place in Thetford, Norfolk – the town where we have our headquarters, and where many of our staff live. Thetford has vibrant but often under-served communities, facing a range of economic, health and well-being challenges. We know that regular access to nature can play a powerful role in supporting mental and physical health, so this project set out to explore how we could make that access more inclusive and meaningful.

TOGETHER THROUGH NATURE EVENT / BTO

Delivered in partnership with Civil Society Consulting, and with support from the John Swire 1989 Charitable Trust, we co-created this initiative with four grassroots community organisations. Using a bottom-up, collaborative approach, we listened to what communities were already doing, where the gaps were, and how we could add value – whether by integrating nature-based activities, creating welcoming spaces, or offering engaging introductions to BTO's work.

Rather than reinventing the wheel, we built on existing community strengths – embedding nature and bird-focused engagement into ongoing programmes. This approach not only fostered a sense of ownership but also helped to embed our work in ways that were relevant and genuinely beneficial.

This pilot has laid strong foundations for future work. It has shown us how we can genuinely engage people who haven't traditionally had access to nature, or to BTO. Looking ahead, we're committed to offering more of these opportunities locally, and to exploring how this community-first approach can be expanded to new areas and partnerships across the UK.

BIRDS IN GREENSPACES

Urban areas are often overlooked in conservation, but they are where most people encounter nature in their daily lives. For many people, local parks and greenspaces offer the only connection to wildlife, playing a vital role in well-being, health, and community identity. We believe these spaces can – and should – be managed to better meet the needs of both people and wildlife. Over the past year, we've been laying the foundations for a new UK-wide initiative to do just that.

Through pilot work with communities and partners, we've been exploring how urban greenspaces can support thriving bird life while remaining welcoming and valuable to the people who use them. These spaces mean different things to different people – places to relax, to play, to connect, or to reflect – and their design and management must reflect that richness of purpose.

At the heart of our approach is community involvement. By working closely with local groups, including Fields in Trust in Scotland, we've been testing methods and gathering insights to ensure our survey is relevant, inclusive, and locally informed. This groundwork is preparing us for the full launch of *Birds in Greenspaces* in 2026. We are deeply grateful to the late Denis Summers-Smith, whose generous gift in Will has made this work possible. His legacy will help shape healthier, greener cities for generations to come.

TELLING BETTER STORIES

To better understand our impact, and deliver the right opportunities, we need diverse evidence – including personal stories that show how our work empowers, engages, and enables people. These narratives are powerful: they amplify voices, reveal what matters to different communities, and help us understand how change happens from the perspective of those with whom we work. They are an important part of our work to become a more inclusive organisation. Over the past year, we've trained staff in storytelling techniques, helping them to better capture and integrate these insights into our work.

GREY HERON, BY DAVID TIPLING / BIRDPHOTO.CO.UK

"Our partnership with the experts at BTO will enable us to learn more about the value and benefits that our parks and greenspaces provide. By working together through our complementary projects, we will be able to learn more about how hard our parks are working for us by offsetting carbon emissions and providing valuable habitats for wildlife."
Fields in Trust

CHARTING CHANGE

Over the year, we have continued to add to our high quality and long-term data about birds across countries and regions, thanks in large part to our amazing volunteer networks and a range of other partners.

GARDEN BIRDWATCH

Launched in January 1995, BTO's weekly Garden BirdWatch survey celebrated three decades of monitoring the birds and other common wildlife found in the UK's gardens. By the end of 1995, some 2,526 people had joined the project and were submitting data. Incredibly, three decades on from that first year of recording, 407 of those participants are still with us and entering their weekly counts. Over the intervening period we have received Garden BirdWatch data from 43,679 participants across 47,530 different gardens, from Land's End to John O'Groats, and from the middle of London to the wilds of the Hebrides.

Garden BirdWatch continues to generate much-needed information on gardens, contributing data on seasonal and longer-term patterns of garden use, as well as contributing to our understanding of wildlife diseases – such as finch trichomonosis and Usutu virus – and the influence of gardening practices on our wildlife. The project is funded by its participants, to whom we are hugely grateful.

FILLING GAPS FOR RAPTORS

Despite the dedicated work of many volunteers and organisations, significant gaps remain in our knowledge of birds of prey and their populations. These species have faced long-term threats, including illegal persecution, habitat change and declines in prey populations, with new pressures – such as avian influenza – emerging in recent years. Without enhanced monitoring, declines in raptor populations may go unnoticed, and the success of conservation efforts could be overlooked.

To support effective conservation, more detailed data are needed, not just at the national level but also within specific countries and regions. While valuable BTO/JNCC/RSPB Breeding Bird Survey trends exist for some species, they do not offer the comprehensive information on breeding pairs, locations, and productivity that is essential for informed conservation management. Although many individuals and groups collect these data, they are not currently collated or made easily accessible to support conservation efforts. Additionally, scarcer raptor species often receive more monitoring, leaving widespread species less well studied, and there is a shortage of new volunteers to continue or expand long-term monitoring efforts.

KESTREL, BY PHILIP CROFT / BTO

To address these challenges, we are delivering new projects that build on 20 years of experience with the Scottish Raptor Monitoring Scheme and other long-term monitoring work. The launch of Cudyll Cymru in Wales (see page 25) is one such example, but we are also exploring other opportunities. We want to streamline data collection, storage and reporting, making it more accessible and efficient for volunteers, and better at delivering the information needed by decision-makers and conservation practitioners.

Ultimately, improved monitoring of birds of prey will contribute to better-informed conservation policy and action, ensuring that these majestic birds grace our skies nationwide, now and into the future.

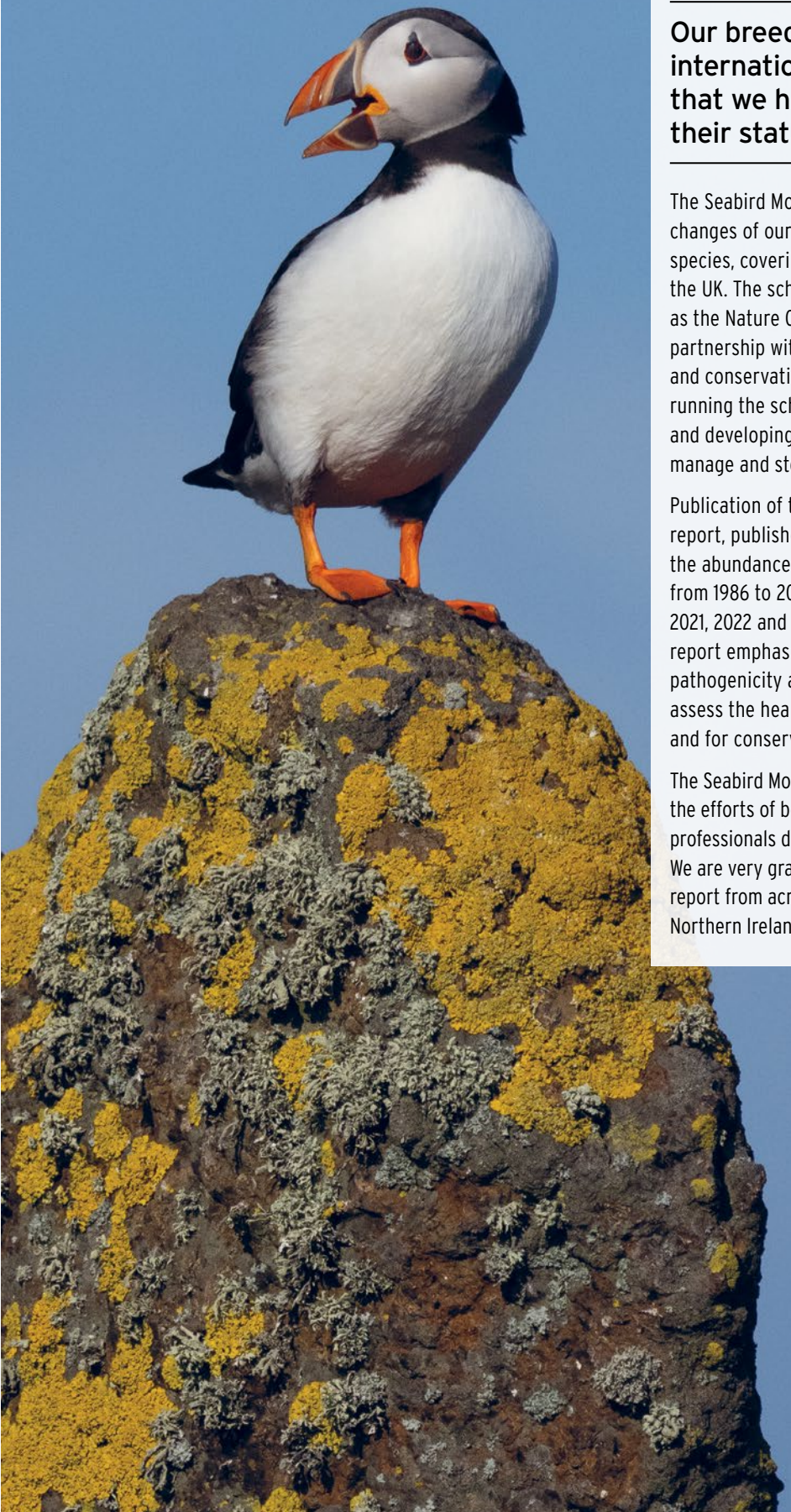
THE STATE OF NATURE

The monitoring schemes coordinated by BTO provide crucial information on the status of bird species at a range of spatial scales. The evidence that we generate is used for assessing conservation status and for identifying sites that are important for particular species. Many readers will be aware of how such data feed into high profile national reports, such as the *State of Nature* report published by a very broad suite of NGOs and other stakeholders.

However, the same data sources can also be used at smaller scales, and a report published in June 2024 provides a good example of this capability. The *State of Yorkshire's Nature*, published by Yorkshire Wildlife Trust, is the first of its kind – a county-based multi-taxa assessment – and one that will help to evaluate and direct conservation and policy action. The BTO data that have gone into this report come from core surveys, including the BTO/JNCC/RSPB Breeding Bird Survey, and collectively they underline the importance of Yorkshire for birds in a wider context. Of the 191 bird species that regularly breed or winter in Yorkshire, a quarter have major strongholds there.

The report provides a vital snapshot of how Yorkshire's nature is faring, and it will help to direct conservation efforts over the coming years. For this reason, we are proud to have been part of this initiative and hope that it leads to similar approaches elsewhere within the UK.

PUFFIN, BY EDMUND FELLOWES / BTO



CASE STUDY:
SEABIRD MONITORING PROGRAMME

Our breeding seabird colonies are of international importance, and it is vital that we have up to date information on their status and health.

The Seabird Monitoring Programme monitors the population changes of our internationally important breeding seabird species, covering both coastal and inland colonies across the UK. The scheme was established by JNCC (then known as the Nature Conservancy Council) in 1986, working in partnership with a number of statutory government agencies and conservation organisations. BTO took on responsibility for running the scheme in July 2022, and has since been reviewing and developing the approaches used to support volunteers, manage and store data, and analyse and report on results.

Publication of the latest Seabird Monitoring Programme report, published in November 2024, documented changes in the abundance and productivity of breeding seabird species from 1986 to 2023, and included a detailed account of the 2021, 2022 and 2023 breeding seasons. The results from this report emphasised the impact of the recent outbreaks of high pathogenicity avian influenza, and are used more broadly to assess the health of the wider environment, to inform policy and for conservation action.

The Seabird Monitoring Programme is only possible thanks to the efforts of both professional fieldworkers and skilled non-professionals dedicated to the monitoring of the UK's seabirds. We are very grateful to all participants who make it possible to report from across the Channel Islands, England, the Isle of Man, Northern Ireland, Scotland, the Republic of Ireland and Wales.

DELIVERING DATA

We have been working to increase the value and impact of the data collected by BTO volunteers and staff. Having greater access to the right kinds of data will help and support more people to take positive action for birds.

SHARING RECORDS MORE WIDELY

The BTO/JNCC/RSPB Breeding Bird Survey (BBS) plays a central role within the UK's bird monitoring architecture. Each year, thanks to BBS volunteers, we are able to report on the population trends of close to 120 common terrestrial birds. The trends – which are official government statistics in their own right – are combined with those from the BBS's predecessor, the Common Birds Census, taking our knowledge of changing populations back to the 1970s. They have highlighted the long-term declines of farmland and (more recently) woodland birds, and are used widely in research, including in recent BTO work on the value of protected areas.

Although these BBS data have formed the backbone of over 180 peer-reviewed papers, they have only been available on request. As part of our efforts to ensure our data and science are doing the most that they can for birds and people, we have now published the raw data – generated over the 30 years of BBS. Making the data available in this way means that there are in excess of seven million records of 26 million individual birds of 200 plus species that can be downloaded and used. We hope that this initiative will facilitate more research, both nationally and regionally, for the benefit of the UK's birds.

THE M.C.H. BIRD ARCHIVE

At the beginning of October 2024, we welcomed the M.C.H. Bird Archive into the BTO Archives. This rich collection includes bird ledgers and natural history diaries kept over a period of five decades by the Reverend Maurice Bird (1857–1924). Bird was a well-respected ornithologist, who was good friends with Emma Turner and other contemporaries. We are very grateful to his family for entrusting us with this unique material.

WEBSITE RELAUNCH

During the year we began work to redevelop the BTO website, improving its structure, navigation, and responsiveness, and reducing its carbon footprint. We wanted to make the site even more accessible, so that as many people as possible can access the wealth of information that it contains. The new site is based on the foundations of meeting the Web Content Accessibility Guidelines (WCAG) AA standard or better, with other guidance and best practice material – for example, dyslexia accessibility guidance – also shaping the end result.

Phase One of the work was completed just after year end, with the new website launched in early summer 2025. This phase dealt with structural elements, including delivering a site designed for mobile devices, reflecting that two-thirds of our visitor traffic already uses the site on mobiles and we expect this proportion to increase in future. Phase Two of the work involves reviewing and reworking content, so that it is more informative and more accessible.

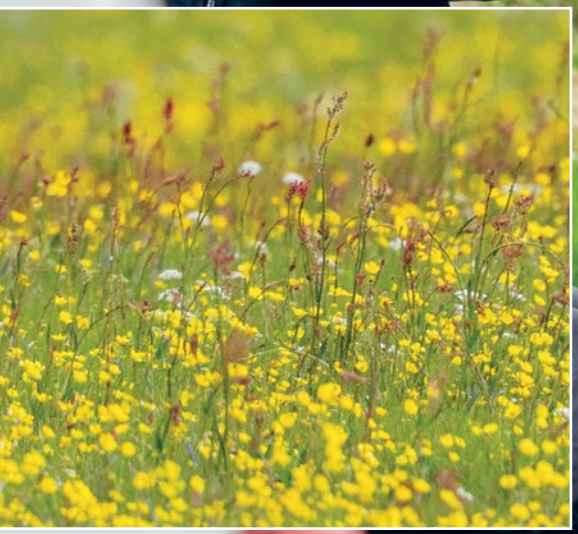
The website work also enabled us to relaunch our BirdFacts pages (www.bto.org/birdfacts), which bring together a wealth of information on the UK's birds, much of which has been generated from BTO surveys and schemes, supported by our partners. These pages are particularly well used and we are looking at opportunities to bring more material into them, and into associated tools, such as the Trends Explorer – which allows anyone to access and interact with the latest information on our bird populations.

The work on our website is a core step in delivering our strategic objective to make it possible for anyone to access information about bird populations where they live throughout the UK. Associated with this is an expectation that will we see the use of BTO website-based data increase four-fold by 2030. We are particularly grateful to our members and supporters, whose financial support enabled us to direct core funds to this important piece of work.

CURLEW FIELDWORK, BY RICHARD BUNCE / WALKING PHOTOGRAPHER

BIRDS: BRILLIANT AND BIZARRE

BTO research, including that on bird ringing, disease surveillance and the tracking of migrant birds, featured in the *Birds: Brilliant and Bizarre* exhibition at the Natural History Museum in London. The exhibition showcased both the wonder of birds and the science that has delivered our understanding of their lives and the threats that they face. With just over 107,000 visitors, *Birds: Brilliant and Bizarre* was the most successful single group exhibition in the Museum's history, and it was fantastic to have BTO science and data feature in such a high profile event.



SUSTAINING SUPPORTERS

We want to ensure that everyone who works with us feels valued, and knows that they are playing an important role in tackling the biodiversity and climate crises. Over the past year we have continued to deliver projects that are helping us to do this.

LOOKING AFTER VOLUNTEER NETWORKS

Volunteers are the beating heart of our community, contributing an extraordinary 2.64 million hours to our work over the past year. Their dedication powers everything we do. This incredible effort is supported locally by the BTO Regional Network – itself made up of volunteers – who provide a local point of contact across 125 regions throughout England, Scotland, Wales, Northern Ireland, Isle of Man and the Channel Islands.

Recognising the pivotal role of volunteers in our mission, lifetime BTO member and Witherby Custodian Gillian Wills reached out to explore how she could help strengthen this vital network. Gillian visited us to discuss and refine a funding plan that met with our shared ambitions. Thanks to a multi-year commitment from Gillian, we have been able to employ Drew Lyness to improve support to the overall Regional Network, working closely with engagement staff in Scotland, Wales and Northern Ireland. In June 2024, Gillian visited BTO again, to meet Drew and other staff, and to see first-hand how this new role is already enhancing support for our dedicated volunteers across the UK.

We are deeply grateful to Gillian for her commitment and for making such a meaningful and lasting difference to the lives and work of our volunteer community.

GILLIAN WILLS AND DREW LYNESS, BY JON CARTER / BTO

A GIRL & BIRDS

We want everyone who works with us to feel valued, and know that they are playing an important role in tackling the biodiversity and climate crises. Our values, those that underpin how we work and how we behave when we interact with others, help us to deliver these aspirations, and they are shared with our staff, volunteers and supporters through our Code of Conduct. There are, however, occasions when individuals fall short of expected standards of behaviour, and it is important that we are open about such failings, learn from them, and work to address them.

Early in 2024, we were invited by Alicia Hayden to support her in the publication of a blog relating her experiences as a young person in birding. The blog relates an incident of abuse that had, and continues to have, a devastating effect on her. Although Alicia's story is difficult to read, it raises important issues that need to be heard. We chose to support her to share her experience because we believe it will help us do, and be, better in the future.

Alicia's story was told through a blog on the BTO website, and through an art exhibition which was shown at our Thetford office before moving elsewhere. In addition to the support that we gave, we are very grateful to the support given to Alicia and her project by the Eric Hosking Trust. Sharing stories and experiences can help us, and others, to deliver positive change in our communities.

DEVELOPING SKILLS

Over the past year we have continued to deliver a variety of training opportunities, enabling participants to develop their birdwatching and surveying skills. These opportunities support individuals at different levels of knowledge, helping them to become better birdwatchers and to get more out of their hobby. This approach also benefits BTO and our work, increasing the pool of birdwatchers willing to participate in our surveys and long-term monitoring schemes. Both are equally important, and both contribute to our objective of enabling individuals to play a role in tackling the biodiversity and climate crises.

In addition to online and face-to-face training sessions, we have also been working to deliver other relevant resources and materials. Some of these have been aimed at specific audiences, such as those participating in particular projects. For BTO Garden BirdWatch, for example, we have produced targeted identification resources covering the other wildlife species monitored in this garden-based survey. These have been presented as an ongoing series in the quarterly magazine sent to paying participants.

Working with animator Will Rose – who delivered our strategy animation – we have used some of our training and identification expertise to support a series of You Tube videos that provide a very accessible way into bird identification. The series, written, animated and produced by Will and titled 'What Bird is That?', is rapidly becoming an engaging channel, which is helping people to recognise and enjoy the birds around them. The project is supported by Leica and fact-checked by BTO.

A GIRL AND BIRDS, ALICIA HAYDEN

I REALLY LIKE
BIRDS, BUT THEY
CAN STIR UP
PAINFUL MEMORIES

FRAMING FUTURES

As recent work demonstrates, BTO expertise and extensive monitoring capabilities are helping us to understand the impacts of new and novel drivers of change in bird populations and their distribution.

RESPONDING TO AVIAN INFLUENZA

High pathogenicity avian influenza (HPAI) has emerged as a rapidly escalating threat to wild bird populations around the world. Within the UK, we have witnessed significant levels of mortality in our internationally important breeding seabirds and wintering waterfowl, as well as impacts on vulnerable bird of prey populations. The last three years have shown the power of surveyors and bird ringers, combined with BTO analysis, to track the spread of the disease and its impact on bird populations.

Being able to quickly bring together data and expertise from across BTO and its partner organisations has enabled us to respond to a rapidly evolving situation, and to then reflect on the lessons learned. During the year we published two special issues of our scientific journal *Bird Study*, bringing together 22 papers that shed new light on the scale of the outbreak and help to direct our response to this devastating disease. Our collective findings call for urgent investment in long-term monitoring, improved approaches to disease response, and greater integration of wildlife disease surveillance into public health and environmental policy. The papers have also been published as a 'virtual collection' online, where they will form a valuable resource for researchers and practitioners alike.

While we tend to think of HPAI as a disease of waterbirds and seabirds, three papers in the special issues highlight its impact on bird of prey populations. Because these birds tend to occur at low densities and live in remote areas they can be difficult to study. However, given their susceptibility to persecution, birds of prey are often covered by long-term monitoring programmes. The papers demonstrate the importance of long-term studies in helping to identify HPAI impacts in bird of prey populations and to then place these into context.

In Scotland, notable declines were found in the breeding productivity of several bird of prey species. The productivity of White-tailed Eagles and Golden Eagles was significantly reduced, significantly so in coastal areas where the likelihood of contact with infected prey or carrion was highest. Buzzards in the Easter Ross Peninsula, an otherwise stable population, experienced a sudden reduction in occupied territories and fledging success during 2022 and 2023, coinciding with confirmed HPAI cases in Pink-footed Geese, and Peregrine Falcons in southern Scotland showed reduced productivity and increased breeding turnover post-outbreak. Without the efforts of the volunteers monitoring these populations we would have been unable to identify the impacts of the disease.

HUMAN CONFLICTS AND WILDLIFE

Human conflicts can have impacts on wildlife, as research published during the year and involving BTO staff reveals (Russell et al. 2024). When Russia invaded Ukraine on 24 February 2022, Greater Spotted Eagles from an important breeding population in southern Belarus were already on their spring migration, the first birds entering Ukraine over the following days. Some of these birds were carrying GPS tracking devices as part of a wider project studying the breeding behaviour and migration of this population.

The movements of 19 tagged birds were analysed alongside conflict data from the Armed Conflict Location and Event Data project. The analyses revealed that migrating eagles were exposed to conflict events along their migration through Ukraine and responded by exhibiting different migratory behaviour compared with previous years. They used fewer stopover sites within Ukraine and made large deviations from their usual routes, which ultimately delayed their arrival at the breeding grounds and likely carried an additional energetic cost. These birds fly at relatively low altitudes during this part of their migration, which would have brought them closer to the human conflict taking place. The study provides a rare glimpse into how human conflicts can impact other species in less obvious ways.

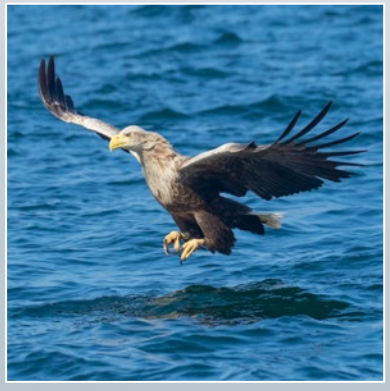
SUPPORTING DECLINING MIGRANTS

Our ongoing work, tracking the migrations of Cuckoos, has continued to deliver valuable new insights into the pressures that these birds face. One aspect of this work has involved collaboration with colleagues working on the species elsewhere within its European breeding range. The work set out to establish to what extent these birds use the same sites in different years.

Data from satellite-tracked adult male Cuckoos shows that, although all of the tracked birds returned to the same breeding grounds in consecutive years, they were much less faithful to sites used at other times of year. In only 18% of instances did the tagged individuals return to within 50 km of a previously visited non-breeding site.

Like many other migratory birds, the Cuckoo is undergoing a substantial population decline in the UK and other parts of its breeding range. Understanding the drivers of site selection throughout their annual cycle is important, because such knowledge can be used to guide conservation efforts – such as the size and placement of protected areas along migration routes – to address such declines in this, and other, species.

GANNET COLONY, BY LIZ CUTTING / BTO; COMMON TERN, BY EDMUND FELLOWES / BTO; BARNACLE GOOSE, BY EDMUND FELLOWES / BTO; WHITE-TAILED EAGLE, BY LIZ CUTTING / BTO



OUR VOLUNTEERS

BTO's volunteers work in partnership with our scientists and survey organisers to deliver the evidence base that supports conservation action and decision-making processes, for the benefit of birds and people. Their knowledge, generosity and enthusiasm enable us to make a significant contribution to society.

REGIONAL ORGANISERS

Many of BTO's core surveys are coordinated at the local level by Regional Organisers, volunteers who take on the responsibility for finding people to cover survey squares and submit returns. Being able to tap into their local knowledge and local connections makes a big difference to our ability to secure the levels of survey participation needed to deliver robust datasets.

A good example of the difference that our Regional Organisers are making is the level of coverage achieved for the 2023 UK Breeding Woodcock Survey, the peer-reviewed results from which were published in 2024. Over 1,000 volunteers took part in the survey, which made this the largest survey ever for this species in the UK. With its nocturnal habits and cryptic plumage, this is a challenging species to survey during the breeding season. The 1,192 survey squares covered by volunteers represents a 43% increase in coverage compared to the previous survey in 2013. For the first time, and thanks in particular to the coverage achieved in Northern Ireland, it has been possible to produce a Woodcock population estimate for the entire UK. A great deal of the thanks for this result is due to the volunteer Regional Organisers.

NESTING WOODCOCK, BY JOHN PROUDLOCK / BTO

YAP AND BTO YOUTH

BTO's Youth Advisory Panel sits at the heart of the work that we are doing to inspire and support the next generation of birdwatchers and survey participants. Comprised of young volunteers, the Panel has played a key role in developing a comprehensive and inclusive Youth Engagement Strategy, as well as taking on broader strategic responsibilities that inform the work that our charity does with young people.

Working alongside the Youth Advisory Panel are our Youth Representatives, who engage other young people with nature and science by organising events within their regions. They also work with their local communities and other stakeholders, and are part of the wider BTO Regional Network teams. Collectively, our young volunteers bring much-needed perspectives on birdwatching and volunteering to BTO, supporting and encouraging their peers to get involved in the opportunities that we are now able to offer. Importantly, they have identified and shaped ways for the organisation to deliver events and resources that meet the needs of younger people.

Another example of the incredible difference that our younger volunteers are making comes in the form of the Youth in Nature Summit. This two-day event, which seeks to inspire, empower and unite young people and leaders from across the environmental sector, takes significant planning and organisation. Members of our Youth Advisory Panel play a key role in the organising committee for the event, which has partnered BTO with RSPB and WWF-UK. The last event was held early in 2024, and the next is planned for 2026.

DELIVERING VALUE FOR NATURE

During 2024, volunteers contributed a staggering 2,758,402 hours to BTO work, mainly through our bird surveys and monitoring schemes. This represents an increase of 26% on the previous year and has an estimated monetary value of more than £54 million. The contribution of our volunteers to biodiversity monitoring is hugely important, especially when viewed against a backdrop of falling public spending on biodiversity, and the twin threats of climate change and biodiversity loss. Our data are needed now more than ever, and it is our amazing volunteers who enable us to collect our robust evidence and to leverage this for the public good.

We are working hard to provide more support to our volunteers and to offer increased opportunities for more people – from more backgrounds – to get involved in our work. By better understanding our volunteers and their reasons for supporting us, we hope to further develop the volunteering experience, so that individuals can clearly see the difference that they are making for birds, and for people.

WATCHING WADERS ON THE WASH, BY DAVID TIPLING / BIRDPHOTO.CO.UK

OUR PARTNERSHIPS

We are collaborative, working in partnerships with individuals and organisations to achieve our collective goals. During the year, these partnership have enabled us to reach and engage with new audiences.

RECOGNISING ACHIEVEMENT

Our ongoing partnership with the Marsh Charitable Trust has continued to celebrate contributions to different aspects of ornithological study, covering both the professional and voluntary sectors. This year, through these awards, we recognised the incredible work of Dirk Raes, the founder and driving force behind www.cr.birding.com. Through this website, Dirk facilitates nearly 7,000 colour-ringing projects across Europe entirely in his free time. We were also able to celebrate the work of Ken and Linda Smith, who lead the Woodpecker Network, working to understand and conserve the increasingly rare Lesser Spotted Woodpecker. Finally, we celebrated the efforts of BTO Youth Advisory Panel member Katie Monk and her engagement and fundraising work.

CELEBRATING A PIONEER

In October we partnered with Norfolk Wildlife Trust (NWT) to deliver *Emma Turner at Hickling*, celebrating this pioneering bird photographer and writer. A series of local events about her extraordinary life ended with the unveiling of an interpretation panel at NWT's Hickling Broad reserve. We are fortunate to hold the Emma Turner Archive, including important photographic materials and notebooks. The project was recognised in The National Archives *A Year in Archives* review.

EMMA TURNER AT HICKLING, BY MIKE TOMS / BTO

VINE HOUSE FARM

It is estimated that more than half of all households in the UK engage in feeding birds in their gardens. BTO has long been at the forefront of monitoring and researching the effects of this form of food provision on wild birds. This work has yielded fascinating insights into how the UK public's bird feeding habits have impacted wild bird populations, and helped to produce best practice guidance for feeding birds safely. Our ongoing partnership with Vine House Farm provides an opportunity to engage with people feeding garden birds and to help them learn how to do this in the best ways for their birds. Vine House Farm is a conservation-award-winning farm, managed with wildlife in mind and environmental responsibility to the fore, and the partnership is based around a shared aim of making a positive impact for birds.

WORKING WITH OUR TRUSTEES

We remain deeply grateful to our Board of Trustees for their advice and expertise throughout the year. BTO benefits enormously from their commitment, support and challenge, and we deliver more and better as a result. For the first time in our organisational history the Trustees of BTO and RSPB met for an evening of discussion at the Cambridge Conservation Initiative offices in Cambridge. The meeting provided an opportunity for the two Boards to learn more about the work that is already being delivered in partnership by the two organisations, as well as paving the way for even closer working in the future.

RESTORING NATURE NOW

In June 2024, the Wildlife and Countryside Link convened the 'Restore Nature Now' march in London, and BTO staff, members and volunteers were among the more than 100,000 demonstrators who took part. This was the first time that the organisation had formally 'signed up' to a demonstration like this one, and it was an important step for us.

As an organisation we have a duty to generations of observers, who have contributed to our long-term monitoring schemes, to ensure that the evidence they have helped to collate is listened to and acted upon. BTO was at the march, in part, as an 'advocate for evidence'. There is growing debate in academic circles about the role of scientists in the climate and biodiversity emergency, and an increasing sense that "scientists can and should advocate for one course of action over another if this is based upon their expert interpretation of the scientific evidence." While we have traditionally laid out the facts and afforded decision makers complete freedom of choice, our role as honest advocates enables us to contribute to decision making in an evidence-led and well-informed way. If we are to deliver our strategic goal of using our science and our data to "secure the future for birds and nature" then this is a role we will increasingly need to play. Changing times and new challenges call for BTO to change too and to rise to those challenges. How we do this will be carefully considered in consultation with the BTO Board.

CLOCKWISE, FROM TOP LEFT: MARSH AWARDS, AND YOUNG ORNITHOLOGIST RECIPIENT, BOTH BY ANTHONY SAJDLER; EMMA TURNER / BTO ARCHIVES; RESTORE NATURE NOW, BY NICK MORAN / BTO, BOARD OF TRUSTEES AND STAFF, BY JON CARTER / BTO

BTO
BTO Awards Evening
Natural Eye 2024
Programme
MARSH
BTO Awards Evening
Natural Eye 2024
Programme

MARSH
Charitable Trust
BTO
Birds
Science
People
The Marsh Awards
Celebrating outstanding
achievements in ornithology

RESTORE
NATURE NOW
JUNE 22
LET
NATURE
GROW

ENGLAND

BTO's scientific work in England demonstrates the value of national long-term monitoring schemes in addressing local questions and, more broadly, highlights our role in bringing together stakeholders from different backgrounds to deliver for birds and people. You will find examples of engagement projects on pages 8 and 9.

STOUR VALLEY TURTLE DOVES

Turtle Doves have suffered a c. 98% decline in their UK population since the 1960s, with just 3,600 breeding territories thought to remain. A temporary four-year moratorium on hunting in France, Spain and Portugal appears to have helped the species, but efforts to improve feeding opportunities during the breeding season are also needed.

With support from Defra, a project to create and maintain suitable Turtle Dove habitat is now running across a wide range of farms in the Stour Valley Farm Cluster farmer members' area. BTO has been working with the Cluster to trial passive acoustic monitoring as a tool for assessing the status of Turtle Doves at these sites Because of the very low number of Turtle Doves remaining, it is not expected that Turtle Dove will be found at many of the sites, so these acoustic devices could provide a good means of assessing Turtle Dove presence, as they offer a better chance of detecting rare species than might be possible from short duration visits by human surveyors.

Turtle Dove was found at one site, Bombose Farm, holding territory for 21 days in 2024. Additionally, presence was confirmed for a further 73 bird species over the 10 sites. 191,213 ultrasonic recordings were also collected which, following analyses and validation, were found to include 46,386 detections of 10 bat species, and 295 detections of three small terrestrial mammal species. Four bush-cricket species and an audible moth species were also detected, underlining the value of this technology for the detection of these otherwise difficult to monitor species.

HEN HARRIERS IN ENGLAND

The Hen Harrier has been a species of significant conservation concern for several decades. Populations have been suppressed by illegal activities, including the killing of adult and immature birds and interference with nesting attempts. One consequence of this is that the English Hen Harrier population reached a historic low of just two breeding pairs in 2013, and the English population remains orders of magnitude lower than the estimated carrying capacity of 323–340 pairs. Attempts to reduce persecution of Hen Harriers in order to permit the recovery of the English population have been ongoing for many years but, until recently, have not resulted in any noteworthy population increase.

The population underwent a sudden and rapid increase from 2018, concurrent with a trial of a new management approach – termed 'brood management'. The reasons for this increase were uncertain and the trial itself proved particularly controversial. Set against this background, BTO was commissioned by Natural England to carry out a population modelling study. This work modelled likely trends in the English Hen Harrier population under a range of scenarios, in order to evaluate the likelihood of each of these mechanisms having contributed to the observed increase in breeding attempts.

The results of the analysis suggest that improvements in one or both of survival and settlement rates were more likely reasons for the observed increase in the English Hen Harrier population, rather than any uplift in productivity from the direct effects of brood management. The direct benefits of brood management and diversionary feeding to Hen Harrier productivity appear to have been minimal, a finding that provided valuable evidence to Natural England's review of the trial.

YORKSHIRE DALES CURLEWS

Ongoing fieldwork in the Yorkshire Dales, carried in partnership with a broad range of other organisations, is continuing to explore the feasibility of potential Curlew-friendly Environmental Land Management Scheme (ELMS) options. The fieldwork has involved tracking GPS-tagged birds to explore their use of local habitats and to determine breeding success. The project is also trialling novel, farmer-led approaches to the monitoring of this species.

It is vital that wader-friendly farming is actively supported and incentivised, otherwise it is likely that increases in woodland planting and changes in the timing of grass cropping and livestock grazing would reduce the value of many Yorkshire Dales farms for Curlews and other breeding waders.

YORKSHIRE DALES CURLEW FIELDWORK, BY RICH BUNCE / WALKING PHOTOGRAPHER

OYSTERCATCHERS ON THE EXE

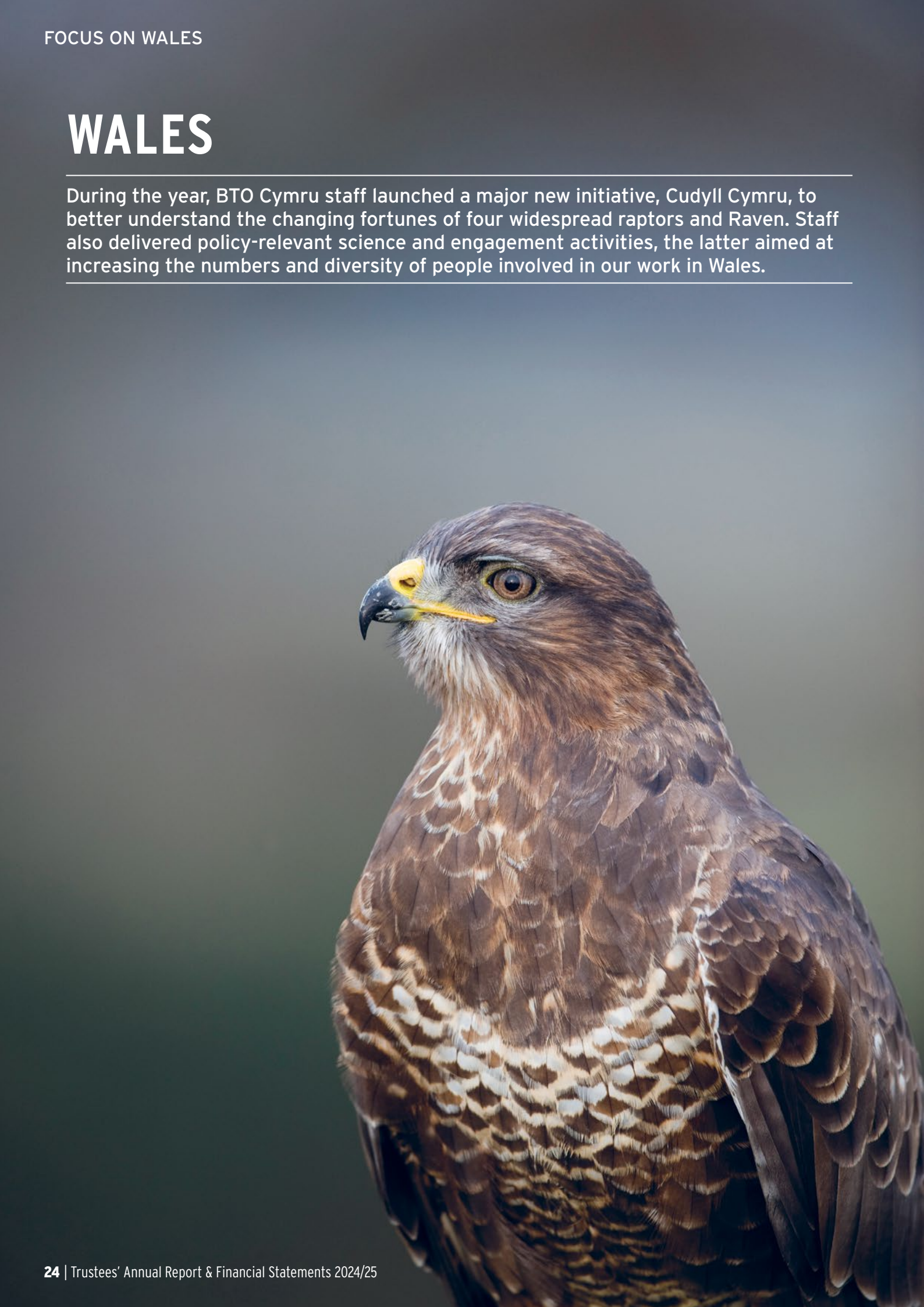
The Exe Estuary in Devon is a nationally important site for Oystercatchers wintering in the UK. However, the proportion of this species found in south-west England and wintering on the Exe declined from 60% in the late 1980s to 35% by the late 2010s. A study, published in 2024, used 45 years of data collected by volunteers taking part in the Wetland Bird Survey (WeBS) to investigate why.

The study found that kleptoparasitism by Carrion Crows and Herring Gulls could help to explain the trends observed on the Exe Estuary. Carrion Crows and Herring Gulls are known steal food from the Oystercatchers, and juvenile Oystercatchers suffer more than adults, resulting in them spending time on sites away from the Exe in order to meet their food requirements. This study demonstrates the value of long-term monitoring schemes in understanding species trends in specific areas. Comparisons of regional and national data allow for the formulation of targeted conservation measures to prevent future population declines.

TURTLE DOVE, BY DAVID TIPLING / BIRDPHOTO.CO.UK

WALES

During the year, BTO Cymru staff launched a major new initiative, Cudyll Cymru, to better understand the changing fortunes of four widespread raptors and Raven. Staff also delivered policy-relevant science and engagement activities, the latter aimed at increasing the numbers and diversity of people involved in our work in Wales.



MONITORING WELSH RAPTORS

Wales is home to 17 breeding raptor species which, given their position at the top of the food chain and public appeal, lend themselves to dedicated monitoring efforts. Additionally, some of these birds of prey are designated features of a number of protected areas in Wales, including Sites of Special Scientific Interest and Special Protection Areas.

Current bird monitoring approaches often struggle to provide information on raptors, which typically live at low population densities and which can be difficult to monitor through our core, multi-species schemes. Cudyll Cymru aims to address the gaps in the current data provision for some of these iconic birds in Wales. The project is using a patch-based monitoring approach for four widespread raptor species (Buzzard, Red Kite, Sparrowhawk and Kestrel) and Raven – which shares many ecological traits and is similarly under-monitored within Wales.

In order to deliver the level of geographical coverage required, the project is working to expand the available volunteer network. For this reason, there has been a strong focus this year on recruiting, training and upskilling potential volunteers, ahead of the first field season. The data collected through Cudyll Cymru will serve as a baseline for monitoring future population trends, and will also provide essential information to underpin effective conservation action. Through this project we are supporting the Welsh Government's legal commitments to wildlife protection. The project is being funded by the Nature Networks Programme, delivered by the Heritage Fund on behalf of the Welsh Government.

TRACKING DISEASE IMPACTS

BTO Cymru staff have led on work to explore the extent to which the records of birdwatchers can be used to identify the impacts of avian influenza (Macgregor et al. 2024). Using observations of seabirds, recorded at locations around the North Sea during the autumn migration period, the BTO team tested for differences in migration counts before and after the onset of recent avian influenza outbreaks. The observations used came from semi-structured sea-watching counts, submitted to Trektellen – an online database through which individuals store their migration counts in a standardised manner. Although a private initiative, Trektellen works in partnership with BTO and similar organisations in other countries.

The analysis revealed changes in the migration counts for four species that were known to have suffered from significant avian influenza mortality, together with declines in two additional species thought to have been unaffected by the disease. The work demonstrates that sea-watching observations can contribute to monitoring the ongoing impacts of avian influenza on seabird populations.

The results also highlight the value in using information from multiple sources, not least because our response to avian influenza has largely been informed by the evidence of mortalities at monitored seabird colonies. Using sea-watching records may pick up declines in colonies that are not monitored, perhaps because they are located in other countries or in remote locations. In this respect, these data are complementary to the structured seabird monitoring taking place through initiatives such as the Seabird Monitoring Programme. The study also identified opportunities to further enhance the value of these data, by improving sea-watching coverage and increasing our understanding of seabird migration routes.

SHAG, BY DAVID TIPLING / BIRDPHOTO.CO.UK

THE STATE OF WELSH ENVIRONMENT

Over the last decade, BTO has been involved in a project assessing the state of the Welsh environment, bringing its expertise and evidence into the Environment and Rural Affairs Monitoring and Modelling Programme (ERAMMP). Funded by Welsh Government, ERAMMP provides a range of scientific evidence to support the development of relevant policies, as well as helping to evaluate the effectiveness of the resulting delivery mechanisms within the farming and land use sectors. BTO is one of 23 partner organisations involved in this project.

While the primary purpose of ERAMMP is to provide national trend information for a range of habitats and (largely) natural resources, it has also reported on the outcomes achieved by Glastir – a sustainable land management scheme. Reporting on policy outcomes was a requirement of the European Union funding which supported the Glastir scheme. Although Glastir has come to an end, the results are also being used to inform the development of a new scheme, being implemented in Wales as a consequence of our leaving the European Union.

The bird data used in this work come from just over 300 Welsh squares covered in the BTO/JNCC/RSPB Breeding Bird Survey. Long-term trends for 60 bird species have been produced and these have been used in a series of indicators for particular groups (e.g. birds of lowland farmland). This enables assessment of the policy delivery mechanisms at the heart of Glastir. Being able to make comparisons between survey squares where policy interventions have been used and those elsewhere, reveals whether or not the interventions are having their desired effect, an important consideration for policy development.

BUZZARD, BY DAVID TIPLING / BIRDPHOTO.CO.UK

SCOTLAND

Throughout the year, BTO Scotland staff and volunteers continued to deliver important research on some of the country's most iconic species, and worked to upskill our existing volunteer base and attract new participants and supporters.

ADDRESSING WADER DECLINES

Low rates of nest and chick survival have driven large declines in breeding wader populations across Scotland (and elsewhere). While habitat availability and quality have played an important role in wader population trends over the long term, the most common direct cause of wader nest and chick failure is predation. Remaining strongholds of wader breeding success are generally found in areas where the rates of nest and chick predation are relatively low, such as on islands, near intensively-managed grouse moors, and in nature reserves managed for breeding waders.

Landowners and managers can become frustrated when the conclusions reached by scientists and policy-makers run counter to their own understanding and experience, and this is particularly the case with contentious issues, such as the impacts of predators. Using cameras to monitor the outcome of wader nesting attempts can help to make the information gathered accessible to a wide range of stakeholders, additionally providing more definitive information on predator identities than data generated by most other kinds of monitoring.

During the year, BTO Scotland staff published a BTO Research Report on a pilot project trialling the use of trail cameras by land managers and other wader conservation stakeholders to monitor the outcome of wader nesting attempts. As well as collecting valuable information on the outcomes of 87 wader nesting attempts, made over two years, the project demonstrated that land managers are well placed to contribute wader nest camera records that can be usefully combined with those of individuals from environmental non-governmental organisations or academic backgrounds.

The approach outlined in the report can deliver cost-effective, inclusive monitoring and robust, co-produced datasets. It can also help to overcome some of the challenges that exist when working on these species within the political and social frameworks that currently dominate much of the debate around wader conservation.

UNDERSTANDING SHORT-EARED OWLS

Short-eared Owl populations are poorly understood, but their numbers are thought to have decreased in many parts of their range. Work by BTO Scotland staff on Short-eared Owls, published during the year through two peer-reviewed papers, adds further vital knowledge to our understanding of these birds and their requirements. Such knowledge can then be used to inform conservation action.

John Calladine, working with researchers from other European countries, used tracking technology to study Short-eared Owl movements. The results revealed the pronounced plasticity in the movement patterns of these birds, both individually and across wider populations. For example, distances between sequential breeding areas of individual owls were found to range from 41 to 4,216 km, and there was similarly low fidelity to areas used at other times of the year. Conservation planning and assessment for this species and its habitats must, therefore, acknowledge the uncertainties associated with such nomadic behaviour.

SHORT-EARED OWL, BY DAVID TIPLING / BIRDPHOTO.CO.UK

In a second paper, John Calladine and BTO colleagues were able to quantify Short-eared Owl use of moorland habitats in Britain, and to make comparisons between these sites and the more natural dwarf shrub habitats the birds also use in Norway. The results showed that a preference for the owls to hunt over grass-dominated areas within managed moorland here, contrasted with a tendency to hunt over dwarf shrubs in Norway. The observed differences likely reflect the availability of small mammal prey and how this varies between largely single-species stands of managed heather in Britain and the more diverse dwarf shrubland in Norway. The work indicates that how we manage habitats within our moorland landscapes has implications for Short-eared Owl conservation. This will be of particular importance should changes in land use and associated management approaches be introduced.

WORKING ACROSS BORDERS

The power of working collaboratively across countries, again to better understand the challenges facing our migrant birds, was also evident in other BTO Scotland work this year. The Arctic Skua, which has experienced substantial population declines across the European part of its range and which is now Red-listed as a Bird of Conservation Concern, has been a particular focus for our work in Scotland. It is thanks to a number of generous individuals that our work on this species has been possible.

One aim of this project has been to improve our understanding of Arctic Skua migratory routes and strategies, and the new work delivers this. Together with researchers from Norway, the Netherlands, Germany and the Faroe Islands, Nina O'Hanlon and her BTO colleagues were able to follow the movements of 131 Arctic Skuas from breeding colonies located in Scotland, the Faroe Islands, Norway and Svalbard. The study revealed that the birds from these colonies use several discrete staging areas during migration, with an area of high marine productivity in the mid North Atlantic being of particular importance. Identifying the non-breeding distribution, migratory strategies and degree of connectivity between Arctic Skua populations provides a vital step towards linking conditions during migration to population dynamics. From this, it is then possible to prioritise future research and conservation actions.

ARCTIC SKUA, BY SARAH HARRIS / BTO

NORTHERN IRELAND

BTO Northern Ireland work has ranged from the monitoring of breeding seabirds to research into farmland birds and hosting public events – the latter open to everyone, to help increase engagement with our work across the country.

BARRIERS TO BIOLOGICAL RECORDING

Northern Ireland has its own country-specific environmental policies and biodiversity strategy, which are implemented and monitored by the Department of Agriculture, Environment and Rural Affairs (DAERA). As elsewhere within the UK, biodiversity monitoring is mainly coordinated by environmental NGOs, such as BTO, with data collected by volunteers. However, when it comes to biodiversity data, Northern Ireland is considered to be relatively data-poor and BTO has led on a project to understand why this might be, and what to do about it.

BTO staff – working with colleagues from JNCC as part of the Terrestrial Surveillance Development and Analysis programme – assessed current barriers to participation in biological recording in Northern Ireland. The work involved an initial questionnaire to stakeholders, semi-structured interviews, collation of relevant information on biological recording in the country, and a workshop to discuss and verify the findings. Through this process it was possible to identify a number of initiatives and actions that would address the key barriers.

A lack of staff capacity across the environmental NGOs in Northern Ireland was one of the barriers identified, with knock-on effects on volunteer support, engagement and training. Another important barrier was social and cultural issues, which could be addressed by increasing awareness of the natural environment amongst the wider population of Northern Ireland's 1.9 million residents. BTO's Ripple Project is already demonstrating how such engagement can work in practice, working with individuals and communities in a supported bottom-up approach. A significant education and awareness programme, supported by training and backed by increased staff resource within the environmental NGOs, should help to grow capacity to collect the biodiversity monitoring data that is urgently needed.

INFORMING FARMING POLICIES

Fieldwork continued as part of a six-year project to explore the responses of birds to the agri-environment scheme approaches being used in Northern Ireland. Agri-environment schemes seek to support farmers to deliver management that boosts biodiversity on farmed land and delivers other environmental benefits. The project involves surveying 202 1-km survey squares, and focusing on plots managed to support breeding waders, seed-eating birds and upland species.

So far the work suggests that a number of bird species could be benefiting from scheme measures, but it will not be until the final formal analyses have been completed that firm conclusions can be drawn. Earlier work by BTO Northern Ireland staff showed that, despite previously being a highly important habitat for breeding Lapwing, Curlew, Redshank and Snipe, Northern Ireland's lowland damp grasslands have undergone a drastic decline in their breeding wader numbers. Such evidence of decline underlines the urgency of finding the right policy solutions to support Northern Ireland's bird communities. BTO's continued work in this area, identifying declines and testing possible solutions, is now more important than ever.

YELLOWHAMMER, BY LIZ CUTTING / BTO

A FIRST OFFICE IN NORTHERN IRELAND

In March we opened our first-ever office in Northern Ireland, reflecting our growing staff team – including our first intern – and the need for a permanent base for our community of members, volunteers and partners. The office, which is located in Lisburn, will enable us to better support the work we do within Northern Ireland, as well as those who work with us.

RIBBON CUT BY RICHARD GRAY, FROM NIEA – WHO FUNDED MUCH OF OUR SCIENCE AND ENGAGEMENT WORK IN NORTHERN IRELAND, BY SORREL LYALL / BTO

ENGAGING NEW PEOPLE WITH WILDLIFE

BTO's Ripple Project seeks to engage new people with their local wildlife in Northern Ireland. This is a three-year pilot project, launched in 2022 and funded by the National Lottery Heritage Fund. A particular focus of the project over the past year has been to reach people who are under-represented in the conservation sector, providing them with opportunities to learn new skills and to secure the well-being and social benefits of experiencing nature with like-minded people.

Key to the success of this project has been our approach of partnering with community organisations, other nature organisations, and interested individuals to run introductory-level nature events across Northern Ireland. An important aspect of this approach has been the successful recruitment of local volunteers, who facilitate monthly 'Wildlife Wander' events in different locations across Northern Ireland. These events involve relaxed walks in local greenspaces, where individuals can enjoy and learn about their local wildlife in a friendly group that welcomes both those new to nature and those looking to develop their wildlife skills. The volunteers are passionate about sharing nature experiences with others and helping more people to learn about local wildlife.

The Ripple Project has been recognised more broadly for how it is addressing the societal and cultural challenges of getting more people involved in biodiversity monitoring. With the support of our funders and partners we have been able to put in place the staff resources within Northern Ireland which then leverage additional support from volunteers, working together for the benefit of Northern Ireland's birds and people.

BEING FIT FOR THE FUTURE

As our response to the threat of avian influenza proves, we are well-placed to detect, diagnose and even solve new and emerging problems. As work delivering our strategy continues to demonstrate, we are playing a stronger role, making our voice heard, and welcoming more people into our community.

ONGOING WORK AND FUTURE PROJECTS

Our overarching strategic objectives are to increase the impact of our work and grow the number and diversity of people working with us. Over the past year we have continued work on priority projects within our six Action Areas. These Action Areas, and the associated initiatives delivering the greatest returns for birds and people are:

Sustaining Supporters: We are ensuring that everyone who works with us feels valued, and knows they are playing an important role in tackling the biodiversity and climate crises. Over the past year we have continued our efforts to further improve the support that we give to our Regional Network, helping them to better serve our members and volunteers. This has included bringing our Garden BirdWatch Ambassadors and Youth Representatives more formally into the Network, which has increased the cohesion of our regional teams. We have also continued our programme of online and face-to-face training events, developing volunteers for the future. Work to tailor our communications to our supporters – recognising their individual contributions, needs and interests – is ongoing.

Charting Change: We are tracking changes in bird populations to understand their health, and that of the wider natural world. One important component of the work being delivered through this Action Area is a review of the monitoring needs for the UK's birds. BTO staff have been developing a framework to ensure that we can provide the evidence needs for key species at both national and regional levels. Alongside this, there is an ongoing parallel review of BTO and partner monitoring scheme outputs, including analysis of gaps in species coverage at the country level. Our strategy has set targets for improving coverage to fill gaps and to move towards closer equity in coverage across the four countries of the UK. The gap analysis, due to be published in 2025, has highlighted key species groups on which to focus efforts in each country.

Framing Futures: We are using our science to track the impacts of, and inform responses to, future climate change and new environmental threats to birds. A strong focus over the past year has been on our response to the emergence of avian influenza and its impact. Alongside this, we have been exploring ways to better communicate the impacts that climate change is having on UK birds, using our long-term datasets to develop annual metrics that make these data easier to understand and interpret. We have also been working in partnership to explore the effectiveness of climate change mitigation and adaptation efforts, including in the field of restoration ecology.

Seeking Solutions: We are using our science to find ways to better manage land, coasts and seas, meeting the needs of both birds and people. We have continued to develop the evidence base needed to understand how land use and management affect our bird populations, testing policy approaches and highlighting potential solutions. Within the marine environment, we have identified opportunities to collect better data on seabird distributions, and evaluated approaches for using new information to make better predictions about the likely impact of proposed renewable developments on seabird populations.

Delivering Data: We are working with partners and communities to ensure our data and science are doing the most that they can for birds and people. The relaunch of our website, the bulk of the work for which took place over the year, is part of our efforts to make our work more accessible. Work to review our data provision began during the year, and the resulting report will help us to identify opportunities to make it easier for more people to access our data and information. We are also working to understand how best to use acoustic monitoring in our monitoring and research work.

Embracing Everyone: We are inspiring, engaging and empowering a greater diversity of people to discover and value nature. Work over the year to demonstrate our approach to inclusivity included the development of an accessible and engaging animation, which was then launched to our members and supporters in 2025. Our framework for becoming more inclusive provided the foundations for our new approach to project development – and we have used it in both the development of our Birds in Greenspaces survey and the community approach of Together Through Nature. An important thread within this Action Area is the ongoing work to develop our youth engagement programme, for which our aim is to secure sustainable funding to ensure that it continues to deliver for the next generation of birdwatchers and BTO volunteers.

STILL FROM BTO ANIMATION, BY VIOLA WANG

BLACK-WINGED STILT, BY EDMUND FELLOWES / BTO

THANK YOU FOR YOUR SUPPORT

Each year we need to raise millions of pounds to fund our work so that we can deliver the charitable outcomes for birds that are so important to our supporters. We are grateful for the wonderful financial support we receive from our members, donors, funders, partners, corporate members and customers.

LASTING LEGACIES

We remain deeply grateful for the unfailing generosity of our supporters. Once again, we received a remarkable level of support through gifts in Wills, this year totalling £798,827. Thanks to generous supporters remembering BTO in their Wills we have been incredibly fortunate to have received an average of £1 million annually over the last 10 years.

Income from gifts in Wills has an enormous impact on the work that we are able to do and ensures that our long-term surveys, such as the BTO/JNCC/RSPB Breeding Bird Survey, continue to thrive. We have made excellent progress towards the launch of our new Birds in Greenspaces survey which will start in spring 2026. This survey is only possible thanks to a generous gift from the estate of long-term BTO member, the late Denis Summers-Smith. Denis supported BTO generously in his life and we are so grateful to receive this gift, which is funding a community science project for all, one that we and his executor feel he would heartily approve of.

The Youth Engagement Team was awarded a 50% share of a gift in Will which they were able to use alongside other funding to support Bird Camps in England and Wales. Our Bird Camps have proved to be transformational for the young people who attend, providing a special opportunity for them to immerse themselves in nature, connect with like-minded peers, and develop their skills and passion for birdwatching and conservation.

Two gifts in Wills awareness events were held during the year, an online 'Seabirds' event, and an in-person event held at the Nunnery, on 75 years of monitoring wetland birds. Both events were well attended and we were even treated to a live 'visit' to a Scottish seabird colony with BTO ecologist, Sophie Bennet, who presented on camera, accompanied by an incredible soundtrack generated by the very vocal seabirds on the cliffs around her.

TRUSTS AND FOUNDATIONS

Making a positive difference in the local community around our Thetford headquarters has been a focus over the last two years, thanks to a generous grant from the John Swire 1989 Charitable Trust. Our Together Through Nature Thetford project has helped inspire hundreds more people about birds and nature, including many people who were new to BTO and even new to nature. In addition to providing an immediate benefit to participants, the project has allowed us to trial new ways of engaging different audiences and to bring the local Thetford community into our work place and onto our nature reserve.

A grant from the Esmée Fairbairn Foundation has also supported our efforts to make BTO accessible to more people. It has additionally allowed us to accelerate our efforts to reverse the fortunes of our breeding waders and to develop robust monitoring approaches for land that is being rewilded or managed for nature.

WITHERBY CUSTODIANS

The BTO Witherby Custodians are supporters who have matched Harry Forbes Witherby's donation of £1,400 (from the sale of his collection of bird skins), which was used to fund the setup of BTO in 1933. In addition to helping to fund important pieces of BTO work, this group of committed supporters share their experiences and input to our plans in meetings with BTO staff.

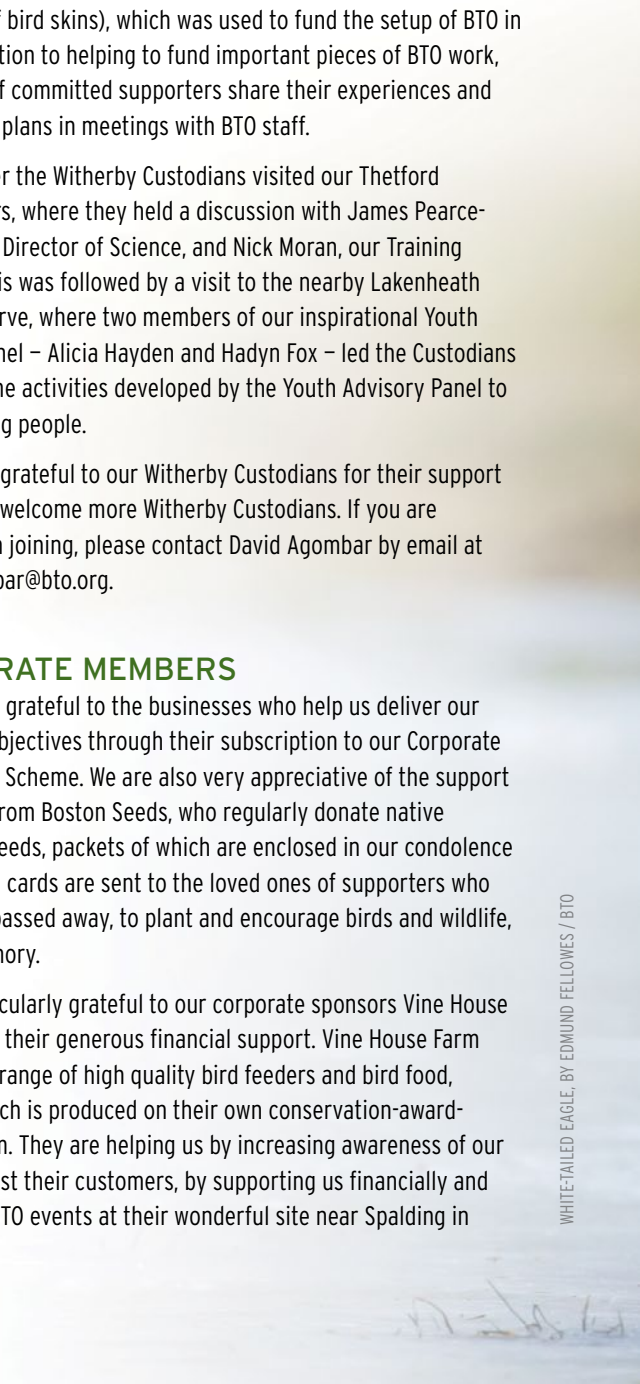
In September the Witherby Custodians visited our Thetford headquarters, where they held a discussion with James Pearce-Higgins, our Director of Science, and Nick Moran, our Training Manager. This was followed by a visit to the nearby Lakenheath Nature Reserve, where two members of our inspirational Youth Advisory Panel – Alicia Hayden and Hadyn Fox – led the Custodians through some activities developed by the Youth Advisory Panel to inspire young people.

We are very grateful to our Witherby Custodians for their support and warmly welcome more Witherby Custodians. If you are interested in joining, please contact David Agombar by email at david.agombar@bto.org.

CORPORATE MEMBERS

We are most grateful to the businesses who help us deliver our charitable objectives through their subscription to our Corporate Membership Scheme. We are also very appreciative of the support we receive from Boston Seeds, who regularly donate native wildflower seeds, packets of which are enclosed in our condolence cards. These cards are sent to the loved ones of supporters who have sadly passed away, to plant and encourage birds and wildlife, in their memory.

We are particularly grateful to our corporate sponsors Vine House Farm Ltd for their generous financial support. Vine House Farm sells a wide range of high quality bird feeders and bird food, much of which is produced on their own conservation-award-winning farm. They are helping us by increasing awareness of our work amongst their customers, by supporting us financially and by hosting BTO events at their wonderful site near Spalding in



WHITE-TAILED EAGLE, BY EDMUND FELLOWES / BTO

Lincolnshire. We thank Lucy Taylor and Nicholas Watts, Charlotte Yeung and the rest of the staff and customers of Vine House Farm for supporting BTO.

RAISING FUNDS FOR RAPTORS

Our Winter Appeal in 2024 focused on the work we are doing with partners and volunteers to support the conservation of birds of prey in the UK. Despite our best efforts, significant gaps in our knowledge remain in relation to this iconic group of birds. Raptor monitoring is difficult, and birds of prey have large territories, can be very secretive, and often breed in remote and sometimes inaccessible locations.

We need to develop and support robust raptor monitoring across the whole of the UK, in the same way that we have successfully developed high-quality monitoring schemes like the Wetland Bird Survey and the Breeding Bird Survey. We promoted our appeal through mail, email, social media posts and Facebook adverts to reach a wider audience, gaining us many new supporters. It was one of our most successful appeals, raising over £100,000 – which will go a long way to supporting much needed raptor monitoring. We are grateful to everyone who kindly donated to help our raptors.

If you would like to know more about any of the projects or how you might support our work, please contact fundraising@bto.org

OUR SUPPORTERS

We are very grateful for the generous support that we have received, both in time and money, in the past year. In addition to members and other fieldworkers, there are many other individuals and companies who support BTO work with financial contributions. The Trust is particularly pleased to acknowledge the following corporate and other supporters.

CORPORATE SUPPORTERS 2024/25

BiOME Consulting Ltd, Boston Seeds, Brinvale Bird Foods, Eddowes Aviation Safety Limited, Garden Silhouettes Limited, Harvest Pet Products Ltd, Northumbrian Water, Nurture Landscapes Group, Opticron, Outdoor Alternative Ltd, P & R Seeds, Samuel McCausland Ltd t/a The Grass People, Severn Trent Water, Swallowtail Print, The Garden and Home Trading Company Limited, Vine House Farm.

CHARITABLE TRUSTS 2024/25

A G Leventis Foundation, Birdsong Walk, Painshill Park Trust Ltd, Cameron Bespolka Trust, Cecil Pilkington Charitable Trust, Downton Banister Trust, Esmée Fairbairn Foundation, Harris Charitable Trust, The John Swire 1989 Charitable Trust, Marsh Charitable Trust, Norfolk Wildlife Trust (Wymondham Branch), Primrose Hill Trust Fund, The British Birds Charitable Trust, The Dovehouse Trust, The Edinburgh Trust, The Emily Weircroft Charitable Trust, The Gilander Foundation, The Helen And Horace Gillman Trusts, The Lizandy Charitable Trust, The Mitchell Trust, The Penchant Foundation, The Saxham Trust, Woodpeckers Trust.

LEGACIES 2024/25

Avril R Allen, Dr A Robin Atherton, David A Bateman, Peter Beard, Joan W Blundell, Marian Braithwaite, Margaret A Bousfield, Frances C Cooke, Peter N Crawshaw, Brian Dougherty, Moira Duncan, Amelia M Durham, Peter H Dymott, Peter Firth, Robert W H Fletcher, Janet S A Griffiths, Margery Hannigan, Patricia E Harris, Sonia J Hearn, Stephen C Hibbard, Brian A Hinds, Nigel M Howland, Gordon M Ireson, Anthony Jevons, Mary Jobbins, Sheila M Kay, Brian Little, Rosemary Mason, Lesley Matthews, Enid Marion Mercer, Clive J Mills-Hicks, Christopher Murray, Ruth E Pryce, Kevin J Rees, Pamela Rhodes, Joyce Roberts, Thomas B Sedgwick, Mrs J Shears, Philip A L Souster, Robert J Stevens, Peggy Thorne, Richard M Tite, Christine M Purves, Douglas J Stevenson, Joyce A Tudor-Hughes, Kenneth E Russell, Anne H Walshaw.

IN MEMORIAM 2024/25

Stuart Matthew Barratt, Graham Ashley Birkin, Frank Brimblescombe, Jenny Brotherton, Brian Boyland, John & Anne Butterwick, Elizabeth (Liz) Clinton, Graham Cooper, David Cowan, Peter Leon Dykes, Anne Goodall, Frank Edwards, Jim Flegg, Margaret Galvin, Amanda Gibbs, Michael Goddard, Anne Goodall, Keith Wall Graham, Maximillian Slater Grant, Peter Heald, Colin & Jane Heape, Jean Hopwood, Joyce & Bob Howell, William (Bill) Hughes, Diana Jermyn, David Maxwell Jones, Richard Knightbridge, Tony Lewis, Brenda Palmer, Terry Paternoster, Elizabeth Prior, Jennifer Mary Rees, Stephen Roberts, Alma Russell, Tony Soper, Prudence Tapply, Barbara Thurgood, David Turner, Graham Vine, Doreen Waslin, Elizabeth 'Pinkle' Werner, Geraldine Wickson, Brian Wilson.

FUNDERS OF BTO WORK 2024/25

Aberdeen Offshore Wind Farm Limited, John Allen, Anguilla National Trust, Animal Plant Health Agency, Mike Archer, Bangor University, BBSRC, Bernwood Ecology, Jane Bradbury, Bureau Waardenburg bv, Butterfly Conservation, Cambridge Conservation Initiative, Carbon Trust, Catalan Ornithological Institute, Sir Charles Chadwyck-Healey, Richard Chadwick, Chilterns Conservation Board, Mike Clark, Nigel & Jacquie Clark, Derek Coleman, Simon Cooke, The Crown Estate, Mark Constantine, Curlew Recovery South Lakes, DAERA, Department of the Environment, Food and Rural Affairs, Department for Business Energy and Industrial Strategy, Department for Communities Northern Ireland, Devon Wildlife Trust, Duchy of Cornwall, Essex Birdwatching Society, EURING, European Commission, European Food Safety Authority, Marion Faulds, FERA, Forestry England, Forestry & Land Scotland, Frankfurt Zoological Society, Game & Wildlife Conservation Trust, Hartley Anderson Ltd., Heather Trust, Frank Hibbert, David Hodgson, Horizon Europe, ICF Consulting Services, Innovate UK, Institute of Avian Research, Helena Jefferson, Joint Nature Conservation Committee (on behalf of the statutory nature conservation agencies: Natural England, Natural Resources Wales, NatureScot and the Department of the Environment Northern Ireland), Devinder Kapur, Jenny Kingsland, Helen Lumley, MacArthur Green, Anne Masters, Muséum National d'Histoire Naturelle, National Trust, Natural England, Natural Resources Wales, Natural Environment Research Council, NatureScot, John Neighbour, North Wales Wildlife Trust, North York Moors National Park Authority, Northern Ireland Environment Agency, Ørsted, Jon Pavey, Pell Frishmann Consultants Ltd., Alex Rafinski, Rewilding Britain, Royal Society for the Protection of Birds, Sanger, Jane Schonveld, Scottish Government, Scottish Raptor Study Group, Scottish Ornithologists' Club, Jeremy Shindler, Ken & Linda Smith, SOVON, Spoor, States of Guernsey, Suffolk Wildlife Trust, Swedish University of Agricultural Sciences, UK Centre for Ecology & Hydrology, UK Health Security Agency (UKHSA), University of Bristol, University of Cambridge, University of East Anglia, University of Edinburgh, University of Exeter, University of Stirling, University of Torino, Vattenfall, Nicholas Watts, Welsh Government, Wildfowl & Wetlands Trust, Gillian & Justin Wills, Working with Waders, WSP UK Ltd, Franziska Vogel, Diana Yardley, Yorkshire Dales National Park Authority, Zoological Society of London.

CLOCKWISE FROM TOP LEFT: MARSH AWARDS EVENING, BY ANTHONY SAJDLER; LUCY AND NICHOLAS WATTS, BY VINE HOUSE FARM, BTO REGIONAL NETWORK MEETINGS, BY DAWN BALMER / BTO

Society of Wildlife Artists
The Natural Eye 2024

Workshop
Workshop

Peer-review is an important process, establishing the validity of research through review by other expert researchers in the field. It also provides valuable feedback, enabling researchers to improve their papers before publication. BTO reports annually across a number of indicators relating to its scientific work; three of these relate to scientific publications, reflecting the quality of the publications being produced, their impact, and the degree to which the work has been delivered through collaboration.

Our staff produced 52 papers (one a week!) that were first published in 2024, of which 46 were in ISI-listed journals and 17 were published in high impact publications (with an impact factor of 3.5 or greater). Twenty-seven of the publications were BTO-led, and 47 were in collaborative in nature, underlining the strong partnership approach to our work.

Abraham, A., Doughty, C., **Plummer, K.** & Duvall, E. 2024. Supplementary bird feeding as an overlooked contribution to local phosphorus cycles. *Frontiers in Ecology and the Environment* **22**: 2793. https://doi.org/10.1002/fee.2793

Allain, S.J.R., **Leech, D.I.,** Hopkins, K., Seilern-Moy, K., Rodriguez-Ramos Fernandez, J., Griffiths, R.A. & Lawson, B. 2024. Characterisation, prevalence and severity of skin lesions caused by ophidiomycosis in a population of wild snakes. *Scientific Reports* **14**: 5162. https://doi.org/10.1038/s41598-024-55354-5

Bateman, I.J., Binner, A. Addicott, E.T., Balmford, B., Cho F.H.T., Daily, G.C., De-Gol, A., Eisenbarth, S., Faccioli, M., Ferguson-Gow, H., Ferrini, S., Fezzi, C., Gannon, K., Groom, B., Harper, A.B., Harwood, A., Hillier, J., Hulme, M.F., Lee, C.F., Liuzzo, L., Lovett, A., Mancini, M.C., Matthews, R., Morison, J.I.L., Owen, N., Pearson, R.G., Polasky, S., **Siriwardena, G.**, Smith, P., Snowdon, P.P., Tippett, P., Vetter, S.H., Vinjili, S., Vossler, C.A., Watson, R.T., Williamson, D. & Day, B.H. 2024. How to make land use policy decisions: integrating science and economics to deliver connected climate, biodiversity, and food objectives. *Proceedings of the National Academy of Sciences* **121**: e2407961121. https://doi.org/10.1073/pnas.2407961121

Boersch-Supan P.H., Hanmer H.J. & **Robinson R.A.** 2024. Extended molt phenology models improve inferences about molt duration and timing. *Ornithology* **141**: ukae003. https://doi.org/10.1093/ornithology/ukae003

Boersch-Supan, P.H., Brighton, C.H., Thaxter, C.B., Cook, A.S.C.P. 2024. Natural body size variation in seabirds provides a fundamental challenge for flight height determination by single-camera photogrammetry. A comment on Humphries et al. 2023. *Marine Biology* **171**: 122. https://doi.org/10.1007/s00227-024-04396-4

Boetzl, F.A., Sponsler, D., Albrecht, M., Batáry, P., Birkhofer, K., Knapp, M., Krauss, J., Maas, B., Martin, E.A., Sirami, C., Sutter, L., Bertrand, C., Bosem Baillod, A., Bota, G., Bretagnolle, V., Brotons, L., Frank, T., Fusser, M., Giralt, D., González, E., Hof, A.R., Luka, H., Marrec, R., Nash, M.A., Ng, K., Plantegenest, M., Poulin, B., **Siriwardena, G.M.,**Tscharntke, T., Tschumi, M., Vialatte, A., Van Vooren, L., Zubair-Anjum, M., Entling, M.H., Steffan-Dewenter, I. & Schirmel, J. 2024. Distance functions of carabids in cropfields depend on functional traits, croptype and adjacent habitat: a synthesis. *Proceedings of the Royal Society B*. **291**: 20232383. https://doi.org/10.1098/rspb.2023.2383

Bonaldi, C., Vardanis, Y., Willemoes, M., **Hewson, C.M., Atkinson, P.W.**, Nilsson, J-Å., Klaassen, R.H.G., Strandberg, R., Tøttrup, A.P., Howey, P.W., Alerstam, T. & Thorup, K. 2024. Recurrence, fidelity and proximity to previously visited sites throughout the annual cycle in a trans-Saharan migrant, the Common Cuckoo. *Journal of Avian Biology* **2024**: e03183. https://doi.org/10.1111/jav.03183

Border, J.A., Boersch-Supan, P., Pearce-Higgins, J.W., Hewson, C., Howard, C., Stephens, P.A., Willis, S.G., Houston, A., Gargallo, G. & **Baillie, S.R.** 2024. Spatial variation in spring arrival patterns of Afro-Palearctic bird migration across Europe. *Global Ecology & Biogeography* **33**: e13850. https://doi.org/10.1111/geb.13850

Bowler, D.E., Boyd, R.J., Callaghan, C.T., **Robinson, R.A.**, Isaac, N.J.B. & Pocock, M.J.O. 2024. Treating gaps and biases in biodiversity data as a missing data problem. *Biological Reviews* **100**: 50–67. https://doi.org/10.1111/brv.13127

Brides, K., Wood, K.A., **Leighton, K.**, Barbour, J., Petrek, S.W., Cooper, J., Vickers, S.H., Christmas, S.E., Middleton, J. & Grogan, A. 2023. Moult migration, site fidelity and survival of Canada Geese *Branta canadensis* caught at Lake Windermere, Cumbria. *Wildfowl* **73**: 43–63.

Brighton, C.H., Massimino, D., Boersch-Supan, P., Barnes, A.E., Martay, B., Bowler, D.E., Hoskins, H.M.J. & **Pearce-Higgins, J.W.** 2024. The benefits of protected areas for bird population trends may depend on their condition. *Biological Conservation* **292**: 110553. https://doi.org/10.1016/j.biocon.2024.110553

Calladine, J., Hallgrimsson, G.T., Morrison, N., Southall, C., Gunnarsson, H., Jubete, F., Sergio, F. & Mougeot, F. 2024. Remote tracking unveils intercontinental movements of nomadic Short-eared Owls *Asio flammeus* with implications for resource tracking by irruptive specialist predators. *Ibis* **166**: 896–908. https://doi.org/10.1111/ibi.13304

Calladine, J., Southall, C., Wetherhill, A. & Morrison, A. 2024. Use of dwarf shrubland – grassland mosaics by a nomadic predatory bird, the Short-eared Owl *Asio flammeus*. *Journal of Ornithology* **165**: 1039–1049. https://doi.org/10.1007/s10336-024-02174

Clark, B.L., Vigfúsdóttir, F., Wanless, S., Hamer, K.C., Bodey, T.W., Bearhop, S., Bennison, A., **Blackburn, J.**, Cox, S.L., d'Entremont, K.J. & Garthe, S. 2024. Northern Gannet foraging trip length increases with colony size and decreases with latitude. *Royal Society Open Science* **11**: 240708. https://doi.org/10.1098/rsos.240708

Cooper, J.E.J., Plummer, K.E., Middlebrook, I. & **Siriwardena, G.M.** 2024. Using butterfly survey data to model habitat associations in urban developments. *Journal of Applied Ecology* **61**: 773–783. https://doi.org/10.1111/1365-2664.14583

Davies, J.G., Boersch-Supan, P.H., Clewley, G.D., Humphreys, E.M., O'Hanlon, N.J., Shamoun-Baranes, J., **Thaxter, C.B.**, Weston, E. & **Cook, A.S.C.P.** 2024. Influence of wind on Kittiwake *Rissa tridactyla* flight and offshore wind turbine collision risk. *Marine Biology* **171**: e191. https://doi.org/10.1007/s00227-024-04508-0

Davies, J.G., Dytham, C., **Robinson, R.A.** & Beale, C.M. 2024. Estimating the distribution of reed *Phragmites australis* in Britain demonstrates challenges of remotely sensing rare habitat types at large spatial scales *Scientific Reports* **14**: 22271. https://doi.org/10.1038/s41598-024-73030-6

Duffield, S.J., Morecroft, M.D., **Pearce-Higgins, J.W.** & Taylor, S.D. 2024. Species- or habitat- based assessments of vulnerability to climate change? Informing climate change adaptation in special protection areas for birds in England. *Biological Conservation* **291**: 110460. https://doi.org/10.1016/j.biocon.2024.110460

Gardner, E., **Robinson, R.A.,** Julian, A., Boughey, K., Langham, S., Tse-Leon, J., Petrovskii, S., Baker, D.J., Bellamy, C., Buxton, A., **Franks, S.**, Monk, C., Morris, N., Park, K.J., Petrovan, S., Pitt, K., Taylor, R., Turner, R.K., Allain, S.J.R., Bradley, V., Broughton, R.K., Cartwright, M., Clarke, K., Cranfield, J., Fuentes-Montemayor, E., Gandola, R., Gent, T., Hinsley, S.A., Madsen, T., Reading, C., Redhead, J.W., Reveley, S., Wilkinson, J., Williams, C., **Woodward, I.**, Baker, J., Briggs, P., Dyason, S., Langton, S., Mawby, A., Pywell, R.F. & Bullock, J.M. 2024. A family of process-based models to simulate landscape use by multiple taxa. *Landscape Ecology* **39**: e102. https://doi.org/10.1007/s10980-024-01866-4

Gordon, I.J., Sollmann, R., Rantanen, E.M., Johnson, J.A., Evans, K.L., Penteriani, V. & **Boersch-Supan, P.** 2024. Ten years on for the Letter from the Conservation Front Line. *Animal Conservation* **27**: 139–140.

Goss-Custard, J.D., **Austin, G.E., Frost, T.M.**, Sitters, H.P. & Stillman, R.A. 2024. Decline in the numbers of Eurasian Oystercatchers *Haematopus ostralegus* on the Exe estuary Special Protection Area. *Ardea* **112**: 267–283. https://doi.org/10.5253/arde.2023.a23

Groh, C., **Siriwardena, G.M.** & McMahon, B.J. 2024. Diversity in Irish and British avifauna assemblages: what can variation in diversity profiles reveal about the forces that drive assemblage composition and structure? *Ecology and Evolution* **14**: e70143. https://doi.org/10.1002/ece3.70143

Hereward, H.F.R., Brenchley, A., Facey, R.J., Hughes, J., Lindley, P.J., **Taylor, R.C., Wilson, M.W.** & **Macgregor, C.J.** 2024. Status and distribution of Rook *Corvus frugilegus* in Wales in 2022/23. *Milvus* 3: 32–50.

Hereward, H.F.R., Macgregor, C.J., Gabb, O., Connell, A., Thomas, R.J., Cross A.V. & **Taylor, R.C.** 2024. Modelling population-level impacts of wind farm collision risk on Welsh Red Kites. *Milvus* **3**: 75–99.

Heward, C.J., **Conway, G.J.**, Hoodless, A.N., **Norfolk, D.** & Aebischer, N.J. 2024. Population and distribution change of Eurasian Woodcocks *Scolopax rusticola* breeding in the UK: results from the 2023 Breeding Woodcock Survey. *Bird Study* **79**: 109–123. https://doi.org/10.1080/00063657.2024.2345272

Hua, F., Wang, W., Nakagawa, S., Liu, S., Miao, X., Yu, L., Du, Z., Abrahamczyk, S., Arias-Sosa, L.A., Buda, K. & Budka, M., Carrière, S.M., Chandler, R.B., Chiatante, G., Chiawo, D.O., Cresswell, W., Echeverri, A., Goodale, E., Huang, G., **Hulme, M.F.**, Hutto, R.L., Imboma, T.S., Jarrett, C., Jiang, Z., Kati, V.I., King, D.I., Kmecl, P., Li, N., Lövei, G.L., Macchi, L., MacGregor-Fors, I., Martin, E.A., Mira, A., Morelli, F., Ortega-Álvarez, R., Quan, R.-C., Salgueiro, P.A., Santos, S.M., Shahabuddin, G., Socolar, J.B., Soh, M.C.K., Sreekar, R., Srinivasan, U., Wilcove, D.S., Yamaura, Y., Zhou, L. & Elsen, P.R. 2024. Ecological filtering shapes the impacts of agricultural deforestation on biodiversity. *Nature Ecology and Evolution* **8**: 251–266.

Kirkland, M., Atkinson, P.W., Aliácar, S., Saavedra, D., De Jong, M.C., Dowling, T.P.F. & **Ashton-Butt, A.** 2024. Protected areas, drought, and grazing regimes influence fire cccurrence in a fire-prone Mediterranean region. *Fire Ecology* **20**: 88. https://doi.org/10.1186/s42408-024-00320-9

Lonero, I., Eddowes, M.J., Burgess, M.D., **Pearce-Higgins, J.W.** & Phillimore, A.B. 2024. Temperature sensitivity of breeding phenology and reproductive output of the Common Redstart (*Phoenicurus phoenicurus*). *Ibis* **167**: 418–436. https://doi.org/10.1111/ibi.13376

Macgregor, C.J., Gillings, S., Balmer, D.E., Boersch-Supan, P.H., Harris, S.J., Hereward, H.F.R., Humphreys, E.M., Pearce-Higgins, J.W., Taylor, R.C., Troost, G. & **Atkinson, P.W.** 2024. Impacts of highly-pathogenic avian influenza on seabird populations in the North Sea are detectable in seawatchers' migration counts. *Bird Study* **71**: 311–325. https://doi.org/10.1080/00063657.2024.2440826

MacIsaac, J., **Newson, S., Ashton-Butt, A.**, Pearce, H. & Milner, B. 2024. Improving acoustic species identification using data augmentation within a deep learning framework. *Ecological Informatics* **83**: 102851. https://doi.org/10.1016/j.ecoinf.2024.102851

Macphie, K.H., Samplonius, J.M., Hadfield, J.D., **Pearce-Higgins, J.W.** & Phillimore, A.B. 2024. Tree taxon effects on the phenology of caterpillar abundance and biomass. *Oikos* **2025**: e10972. https://doi.org/10.1111/oik.10972

Martín Vélez, V., Cano-Povedano, J., Cañuelo-Jurado, B., López-Calderón, C., Céspedes, V., Ros, M., Sánchez, M.I., Shamoun-Baranes, J., Müller, W., **Thaxter, C.B.**, Camphuysen, C.J., Cózar & Green, A.J. 2024. Leakage of plastics and other debris from landfills to a highly protected lake by wintering gulls. *Waste Management* **177**: 13–23. https://doi.org/10.1016/j.wasman.2024.01.034

Massimino, D., Baillie, S.R., Balmer, D.E., Bashford, R.I., Gregory, R.D., **Harris, S.J., Heywood, J.J.N.**, Kelly, L.A., **Noble, D.G., Pearce-Higgins, J.W.**, Raven, M.J., Risely, K., Woodcock, P., Wotton, S.R. & **Gillings, S.** 2024. The Breeding Bird Survey of the United Kingdom. *Global Ecology and Biogeography* **34**: e13943. https://doi.org/10.1111/geb.13943

Merondun, J., Marques, C.I., Andrade, P., Meshcheryagina, S., Galván, I., Afonso, S., Alves, J.M., Araújo, P.M., Bachurin, G., Balacco, J., Bán, M., Fedrigo, O., Formenti, G., Fossøy, F., Fülöp, A., Golovatin, M., Granja, S., **Hewson, C.**, Honza, M., Howe, K., Larson, G., Marton, A., Moskát, C., Mountcastle, J., Procházka, P., Red'kin, Y., Sims, Y., Šulc, M., Tracey, A., Wood, J.M.D., Jarvis, E.D., Hauber, M.E., Carneiro, M. & Wolf, J.B.W. 2024. Evolution and genetic architecture of sex-limited polymorphism in cuckoos. *Scientific Advances* **10**: eadl5255. https://doi.org/10.1126/sciadv.adl5255

Montràs-Janer, T., Suggitt, A.J., Fox, R., Jönsson, M., **Martay, B.**, Roy, D.B., Walker, K.J. & Auffret, A.G. 2024. Anthropogenic climate and land-use change drive short- and long-term biodiversity shifts across taxa. *Nature Ecology and Evolution* **8**: 739–751. https://doi.org/10.1038/s41559-024-02326-7

O'Hanlon, N.J., van Bemmelen, R.S.A., Snell, K.R.S., **Conway, G.J., Thaxter, C.B.**, Aiton, H., Aiton, D., **Balmer, D.E.**, Are Hanssen, S., **Calladine, J.R.**, Hammer, S., **Harris, S.J.**, Moe, B., Schekkerman, H., Tulp, I. & **Humphreys, E.M.** 2024. Atlantic populations of a declining oceanic seabird have complex migrations and weak migratory connectivity to staging areas. *Marine Ecology Progress Series* **730**: 113–129. https://doi.org/10.3354/meps14533

O'Hanlon, N.J., Thaxter, C.B., Clewley, G.D., Davies, J.G., Humphreys, E.M., Miller, P.I. Pollock, C.J., Shamoun-Baranes, J., Weston, E. & **Cook, A.S.C.P.** 2024. Challenges in quantifying the responses of Black-legged Kittiwake to habitat variables and local stressors due to individual variation. *Bird Study* **71**: 48–64. https://doi.org/10.1080/00063657.2024.2305169

O'Hanlon, N.J., van Bemmelen, R.S.A., **Conway, G.J., Thaxter, C.B.**, Aiton, H., Aiton, D., **Balmer, D.E., Calladine, J.R., Harris, S.J.** & **Humphreys, E.M.** 2024. New insights into the migration and wintering areas of Scottish-breeding Arctic Skuas. ***British Birds*** **117**: 488–497.

Pickett, H.R.W., **Robinson, R.A.** & Nudds, R.L. 2024. Differential changes in the morphology and fuel loads of obligatory and partial migrant passerines over half a century in Britain. *Movement Ecology* **12**: 60. https://doi.org/10.1186/s40462-024-00497-3

Pirzio-Biroli, A., Crowley, S.L., **Siriwardena, G.M., Plummer, K.E.**, Schroeder, J. & White, R.L. 2024. Not in the countryside please! Investigating UK residents' perceptions of an introduced species, the ring-necked parakeet (*Psittacula krameri*). *NeoBiota* **93**: 1–24. https://doi.org/10.3897/neobiota.93.110122

Pollock, C.J., **Johnston, D.T., Boersch-Supan, P.H., Thaxter, C.B., Humphreys, E.M., O'Hanlon, N.J., Clewley, G.D.**, Weston, E.D., Shamoun-Baranes, J.Z. & **Cook, A.S.C.P.** 2024. Avoidance and attraction responses of Kittiwakes to three offshore wind farms in the North Sea. *Marine Biology* **171**: e217. https://doi.org/10.1007/s00227-024-04542-y

Rivers, E.M., Short, M.J., Page, A., Potts, P.M., Hodder, K., Hoodless, A., **Robinson, R.** & Stillman, R. 2024. Factors influencing nest site selection in a rapidly declining shorebird, the Eurasian Curlew. *Journal of Avian Biology* e03286. https://doi.org/10.1111/jav.03286

Robinson, R.A. 2024. Understanding population change: the value of the EuroCES constant-effort ringing programme. *Ringing & Migration* **38**: 29–37. https://doi.org/10.1080/03078698.2024.2311771

Russell, C., Franco, A., **Atkinson, P.**, Väli, Ü. & **Ashton-Butt, A.** 2024. Active European warzone impacts raptor migration. *Current Biology* **34**: 2,272–2,277. https://doi.org/10.1016/j.cub.2024.04.047

Sandal, L., Sæther, B.E., Freckleton, R.P., **Noble, D.G.**, Schwarz, J., Leivits, A. & Grøtan, V. 2024. Species richness and evenness of European bird communities show differentiated responses to measures of productivity. *Journal of Animal Ecology* **93**: 1,212–1,224. https://doi.org/10.1111/1365-2656.14136

Stanbury, A.J., Burns, F., Aebischer, N.J., Baker, H., **Balmer, D.**, Brown, A.F., Dunn, T., Lindley, P., Murphy, M., **Noble, D.G.**, Owens, R. & Quinn, L. 2024. The status of the UK's breeding seabirds: an addendum to the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* **117**: 471–487.

Sutherland, W.J. Bennett, C., Brotherton, P.N.M., Butchart, S.H.M., Butterworth, H.M., Clarke, S.J., Esmail, N., Fleischman, E., Gaston, K.J., Herbert-Read, J.E., Hughes, A., Kaartokallio, H., Le Roux, X., Lickorish, F.A., Newport, S., Palardy, J.E., **Pearce-Higgins, J.W.**, Peck, L.S., Pettorelli, N., Primack, R.B., Primack. W.E., Schloss, I.R., Spalding, M.D., ten Brink, D., Tew, E., Timoshyna, A., Tubbs, N., Watson, J.E.M., Wentworth, J.E., Wilson, J.D. & Thornton, A. 2024. A horizon scan of global biological conservation issues for 2024. *Trends in Ecology & Evolution* **39**: 89–100. https://doi.org/10.1016/j.tree.2023.11.001

Thaxter, C.B., Green, R.M.W., Collier, M.P., **Taylor, R.C.**, Middelveld, R.P., Scragg, E.S., Wright, L.J., **Cook, A.S.C.P.** & Fijn, R.C. 2024. Behavioural responses of Sandwich Terns following the construction of offshore wind farms. *Marine Biology* **171**: 58. https://doi.org/10.1007/s00227-023-04353-7

Tirozzi, P., **Massimino, D.** & Bani, L. 2024. Avian responses to climate extremes: insights into abundance curves and species sensitivity using the UK Breeding Bird Survey. *Oecologia* **204**: 241–255. https://doi.org/10.1007/s00442-023-05504-9

van Bemmelen, R., Moe, B., Schekkerman, H., Hanssen, S.A., Snell, K., **Humphreys, L.**, Mäntylä, E., Hallgrimsson, G.T., Gilg, O., Ehrich, D., **Calladine, J.**, Hammer, S., **Harris, S.**, Lang, J., Vignisson, S., Kolbeinsson, Y., Kimmo, N., Sillanpää, M., Sittler, B., Sokolov, A., Klaassen, R., Phillips, R. & Tulp, I. 2024. Synchronous timing of return to breeding sites in a long-distance migratory seabird with ocean-scale variation in migration schedules. *Movement Ecology* **12**: 22. https://doi.org/10.1186/s40462-024-00459-9

Walker, R.H., Robinson, R.A., Barimore, C.J., Blackburn, J.R., Barber, L.J., Bugg, N.R., McCambridge, H.E., Grantham, M.J., Griffin, B.M., Leighton, K. & **Schäfer, S.** 2024. Bird ringing and nest recording in Britain and Ireland in 2021. *Ringing & Migration* **38**: 44–88. https://doi.org/10.1080/03078698.2023.2284510

Woodward, I.D., Thaxter, C.B., Owen, E., Bolton, M., Ward, R.M. & **Cook, A.S.C.P.** 2024. The value of seabird foraging ranges as a tool to investigate the impact of offshore wind farms. *Ocean and Coastal Management* **254**: 107192. https://doi.org/10.1016/j.ocecoaman.2024.107192

FINANCIAL OVERVIEW

Overall, there was a net income deficit of £307k, (2023/24 £1,487k surplus). Following a record year in 2023/24, there was a £1,212k drop in legacy income. This was not unexpected given the unpredictable nature of this income stream. Other fundraising was £125k lower than 2023/24. This included a slight drop in membership income. In total, voluntary income formed 32% of total group income for the year (2023/24 44%). We aim to raise this to over 50% in the longer term. This was offset by increased income from contract work which rose by £651k (16%) to £4,618k (2023/24 £3,967k).

A total of £7,270k (2023/24 £6,215k) was spent during the year on carrying out, supporting and communicating ornithological research. Further increases in bond yields led to another reduction in the present value of the defined benefit pension obligation, taking the deficit to a comfortably manageable level.

The Board has a free reserves target range of three to four months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Free reserves are total General funds less Tangible fixed assets less Designated funds. At 31 March 2025 these stood at £2,670k (2024: £3,112k), equivalent to 4.4 months' running costs (2024: 6.0 months). The Board has earmarked the funds for the 2025 pension deficit recovery payment, IT infrastructure and hardware refresh, the *Bird Atlas 2027–2031*, and other initiatives arising in response to the new strategy.

TRUSTEES' STATEMENT

These are summarised accounts. To gain a full understanding of the financial affairs of the Trust please refer to the Annual Report and Accounts published on the BTO website or request a printed copy from the Director of Finance & Governance, BTO, The Nunnery, Thetford, Norfolk IP24 2PU.

The Annual Report and Accounts were approved by the Board on 27 August 2025 and will be submitted to the Registrar of Companies, the Charity Commission and the Office of the Scottish Charity Regulator. The auditor's report by Helen Rumsey (FCA), Senior Statutory Auditor, Ensors, was unqualified.

SUMMARISED ACCOUNTS: 2024/25

	£'000	£'000
INCOME	**2024/25**	**2023/24**
		as restated
Donations and legacies	2,801	4,138
Charitable activities	4,618	3,967
Other trading activities	1,189	1,266
Investments	104	92
Total income & endowments	**8,712**	**9,463**
EXPENDITURE	**2024/25**	**2023/24**
Raising funds	1,735	1,783
Charitable activities	7,270	6,215
Other – defined benefit pension scheme	23	50
Total expenditure	**9,028**	**8,048**
Net income / expenditure	**-316**	**1,415**
Net gains on investments	9	72
Actuarial gain / loss on defined benefit pension scheme	180	393
Net movement in funds	**-127**	**1,880**
Total funds brought forward	6,665	4,785
Total funds carried forward	**6,538**	**6,665**
REPRESENTED BY	**2024/25**	**2023/24**
Fixed assets	2,960	2,946
Net current assets	3,847	4,406
Creditors due after one year	-89	-100
Defined benefit pension liability	-180	-587
	6,538	**6,665**

GREEN WOODPECKER, BY EDMUND FELLOWES / BTO

The British Trust for Ornithology
Board of Trustees and Management
2025

Patron	HRH The Prince of Wales	
President	F R Gardner OBE TD VR FRGS	
Board of Trustees		
Chair	Prof Z G Davies	*2023-26*
Honorary Treasurer	J E Miller FCCA	*2023-26*
Chair of Finance & Risk Committee	I Coucher	*2022-25*
Chair of Governance, Safeguarding & Inclusion Committee (Co-optee Board Member)	Dr G Ludhra	*2025-28*
Chair of Regional Network Committee	S Metcalfe	*2025-28*
Chair of Ringing Committee	Dr L Wright	*2022-25*
Ordinary Board Members	D Buscall	*2024-27*
	E Dresser	*2023-26*
	R du Feu	*2022-25*
	S J Marquis	*2020-27*
	E Thornton	*2023-26*
	Prof S Willis	*2024-27*
	J M Ziff	*2023-26*
Vice Presidents	Dr F Barclay	*2022-30*
	Prof S Bearhop	*2019-26*
	D C Jardine	*2020-27*

Finance & Risk Committee
Chair I Coucher; J E Miller; J M Ziff.

Governance, Safeguarding & Inclusion Committee
Chair Dr G Ludhra; E Dresser, E Thornton.

Regional Network Committee
Chair S Metcalf ; H Crabtree; A Jarratt-Knock; E Tigwell.

Ringing Committee
Chair Dr L Wright; R du Feu; H Franklin; P Kirmond; L Hatton; J Lennon; S Vickers; R Walsh; *Representatives*: H James; E Smart.

Senior Leadership Team
Chief Executive Officer Prof J Vickery;
Director of Science Prof J W Pearce-Higgins; *Director of Engagement* Dr D I P Evans; *Director of Finance & Governance, Company Secretary* S D Bradfield ACA; *Director of Information Services* G N Hatt; *Director Country Offices* Dr C V Wernham; *Director Head of People and Organisational Development* S Knott.

Past Presidents and Chairs

Presidents		*Chairs*	
1958-60	R C Homes	1933-39	The Right Hon. Lord Scone MP, 7th Earl of Mansfield and Mansfield
1961-64	C A Norris	1940-41	The Right Hon. Malcolm MacDonald MP
1965-68	R C Homes	1942-47	Dr A Landsborough Thomson CB OBE DSc
1969-72	I J Ferguson-Lees	1948	Dr E M Nicholson CB CVO
1973-76	R A O Hickling	1949	A W Boyd MC
1977-80	J M McMeeking MBE	1950	Sir Norman Kinnear
1981-84	S M Taylor	1951-56	Major-General H P W Houston
1985-89	J A Hancock OBE	1957	R C Homes
1990-93	R P Howard	1958-87	No Chair
1994-96	Sir William Wilkinson	1988-91	G H Green
1997-2001	Sir Frederick Holliday	1992-96	I C Castle
2002-05	Lord Blakenham	1996-2000	Dr H P Sitters
2006-13	Baroness Young of Old Scone	2001-04	A J Martin
2014-18	C G Packham	2005-08	Dr S Hunter
2019-	F R Gardner OBE TD VR FRGS	2009-13	Prof I Newton FRS OBE
		2014-16	Prof A D Fox
		2016-22	Prof J A Gill
		2023-	Prof Z G Davies

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report)
For the Year Ended 31 March 2025

For the purposes of Section 162 of the Charities Act 2011 and the Directors' Report for the purposes of Section 415 of the Companies Act 2006.

Objectives and Activities

Charitable Objects

The objects of the Trust, as set out in its Memorandum of Association are, for the benefit of the nation:

(i) To promote, organise, carry on and encourage study and research and particularly field work for the advancement of knowledge in all branches of the Science of Ornithology.

(ii) Permanently to preserve and protect lands and objects which by their natural features are suitable for the preservation and study of bird life and of fauna and flora generally.

Public Benefit

The trustees have complied with the duty in Section 17 of the Charities Act 2011 to have due regard to public benefit guidance published by the Charity Commission. The following paragraphs set out in detail the aims, activities and performance of the Trust, and the way in which they provide public benefit.

Objectives and Activities

The BTO's purpose and public benefit is to deliver objective information and advice, through undertaking impartial research and analysis about birds, other wildlife and habitats, to advance the understanding of nature. We inform policies and evidence-based decisions that impact on the environment such that future generations can benefit from a healthy and wildlife-rich environment. The BTO does this by:

- Sustaining long-term extensive programmes and smaller scale intensive research to study the population trends, movements, breeding, survival, ecology and behaviour of wild birds;
- Encouraging, enthusing, training and supporting volunteers to take part in scientific studies;
- Bringing together professional scientists and volunteer birdwatchers in surveys of wildlife (particularly, but not exclusively, birds); and
- Analysing the data gathered through these studies, making information available to Government and other bodies, and publishing the results in the primary scientific literature and via the internet, the birdwatching and conservation press and the media more generally.

Strategic Report

The Strategic Report (Achievements and Performance, Plans for Future Periods) is contained in Part A of this document.

Principal Risks and Uncertainties

The trustees consider that the principal risks and uncertainties which could affect BTO's ability to deliver its objectives in the short term are public expenditure reductions leading to reduced contract, grant and partnership funding, and in the medium to long term, inflation and the final salary pension scheme deficit. These are able to be mitigated through the continued growth strategy and careful cash management.

Financial Review

The Directors' Report, the consolidated financial statements and the accompanying notes thereto comprise Part B of this document.

Overall, there was a net income deficit of £307k, (2023/24 £1,487k surplus). Following a record year in 2023/24, there was a £1,212k drop in legacy income. This was not unexpected given the unpredictable nature of this income stream. Other fundraising was £125k lower than 2023/24. This included a slight drop in membership income. In total voluntary income formed 32% of total group income for the year (2023/24 44%). We aim to raise this to over 50% in the longer term. This was offset by increased income from contract work which rose by £651k (16%) to £4,618k (2023/24 £3,967k).

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2025

Financial Review Cont'd

A total of £7,270k (2023/24 £6,215k) was spent during the year on carrying out, supporting and communicating ornithological research. Further increases in bond yields led to another reduction in the present value of the defined benefit pension obligation, taking the deficit to a comfortably manageable level.

Reserves

The Board has a free reserves target range of 3 to 4 months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Free reserves are total General funds less Tangible fixed assets less Designated funds. At 31 March 2025 these stood at £2,670k (2024: £3,112k), equivalent to 4.4 months' running costs (2024: 6.0 months). The Board have earmarked the funds for the 2025 pension deficit recovery payment, IT infrastructure and hardware refresh, the Bird Atlas 2027-2031, and other initiatives arising in response to the new Strategy.

Structure, Governance and Management

Company number:	00357284 (England and Wales)
Charity number:	216652 (England and Wales) SC039193 (Scotland)
Registered Office:	The Nunnery, Thetford, Norfolk IP24 2PU
Principal Advisers:	
Auditors	Ensors Accountants LLP, Connexions, 159 Princes Street, Ipswich IP1 1QJ
Principal Bankers	National Westminster Bank plc, 7 Cornhill, Bury St Edmunds, Suffolk IP33 1BQ
Solicitors	Browne Jacobson LLP, Castle Meadow Road, Nottingham NG2 1BJ
Pensions Advisers	Hughes Price Walker, Pembroke House, 15 Pembroke Rd, Clifton, Bristol BS8 3BA
Investment Advisers	The Progeny Group Ltd, 1 The Triangle, NG2 Business Park, Nottingham NG2 1AE
Insurance Brokers	One Broker, Discovery House, 4 Norwich Business Park, Whiting Road, Norwich, NR4 6DJ

Governing Document

The British Trust for Ornithology (known generally as the BTO) is a company limited by guarantee governed by its Memorandum and Articles of Association. It is registered as a charity with the Charity Commission and the Office of the Scottish Charity Regulator. Membership is open to any person whose application is approved by the Board upon payment of the requisite subscription. Members undertake to contribute up to £1 each in the event of an insolvent winding up, which represents the limit of their guarantee.

Trustees

The members of the Board are the directors of the charitable company under company law and the trustees for the purpose of charity law. Those serving during the year were as follows:

Prof Z G Davies	S J Metcalfe (appointed 1 January 2025)
D Buscall	J E Miller
I Coucher	E Thornton
E Dresser	Prof S Willis
R du Feu	Dr L Wright
Dr P Fitzpatrick (retired 31 December 2024)	J M Ziff
S J Marquis	Dr G Ludhra (co-optee board member – from 1 January 2025)

Trustees are nominated by the Board, on the recommendation of the Governance and Nominations Committee, following open advertisement, or by members and elected by the members at the Annual General Meeting each year, to serve from the following 1 January. The normal term of office is four years, with a limit of two consecutive terms. New trustees receive a comprehensive information pack and undergo induction to brief them on the BTO and their role as company directors and trustees.

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2025

Organisation and Key Management Remuneration

The Board of Trustees is the governing body of the BTO. It meets at least four times a year. The Board is supported by the Finance & Risk Committee, Governance, Safeguarding & Inclusion Committee, Regional Network Committee and Ringing Committee. The day-to-day operational management of the BTO is delegated to the Senior Leadership Team, led by the Chief Executive Officer (CEO).

The salary of the CEO is determined on the basis of comparability to relevant benchmarks. The remuneration of all other staff is set according to a bespoke job evaluation scheme, benchmarked as appropriate. All salaries are subject to annual cost of living review. There is no bonus scheme.

Related Parties

The BTO's wholly owned subsidiary, BTO Services Ltd, was established to undertake commercial activities to support the work of the BTO, and gifts its profits to the Trust. On 30 August 2017 BTO Services Ltd acquired the ring manufacturer Porzana Ltd. The net assets and activities of Porzana Ltd were subsequently hived up to BTO Services Ltd and it then became dormant. On 15 November 2019 BTO Services Ltd incorporated BTO Consulting Ltd which company is dormant. 'Porzana' and 'BTO Consulting' are trading names of BTO Services Ltd.

The BTO co-operates with many other charities, with government agencies and other bodies in pursuit of its objectives, as illustrated in Parts A and B of this document.

Volunteers

The Trust depends on the contributions of many thousands of volunteers who participate in BTO surveys and other activities. The Trust is greatly indebted to them, and especially to the Regional Representatives and other regional volunteers who organise so much activity at a local level. BTO volunteers contributed the equivalent of approximately 357,254 days of work in calendar year 2024 (2023: 284,181 days). The increase in 2024 is due to a change in the way the contribution made through BirdTrack has been calculated. This has resulted in a 70% increase in the estimate of volunteer hours to that scheme which is the largest single contributor to overall volunteering.

Risk Management

A risk register is maintained which identifies the significant risks faced by the BTO and the measures in place to manage and mitigate those risks. These are monitored by the Senior Leadership Team and regularly reviewed and amended as appropriate by the Finance & Risk Committee and the Board.

Fundraising Standards

BTO is registered with the Fundraising Regulator and follows the Fundraising Regulator's Code of Fundraising Practice. All fundraising from individual giving is undertaken by BTO staff, and during the year we used the services of a specialist consultancy to help us research and approach charitable trusts and foundations. We have not received any complaints regarding our fundraising practices. We take all reasonable steps to treat supporters fairly and transparently, especially if we believe they may be in a vulnerable position.

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report)
For the Year Ended 31 March 2025

Investments

The Memorandum of Association permits the Trust to invest monies not immediately required for its purposes as the trustees see fit. The trustees' investment policy is to maximise long term total return by investing in a combination of 40% high quality short-dated bonds and 60% globally diversified equities. The equities part of the portfolio is invested in a sustainable fund (see Note 10). Investment performance against benchmark was as follows:

	Portfolio	Benchmark
Year ended 31 March 2025	+3.04%	+4.03%
Since inception (28 August 2014)	+93.48%	+94.23%

Pensions

The Trust operates a Group Self-invested Personal Pension Scheme run by Aegon. Staff contribute to this defined contribution scheme at a minimum rate of 4% of salary, and the BTO contributes at a flat rate of 11%.

The Trust's defined benefit pension scheme, a 'final salary' scheme, is closed. The last triennial actuarial valuation of the scheme was carried out as at 31 March 2024. At that date there was a net funding deficit of £1,613k and a funding level of 87%. A deficit recovery plan was subsequently agreed between the Board and the pension fund trustees, by which the shortfall would be made good by annual lump sum deficit repair payments spread over the years to 2031. The scheme was managed by Progeny Ltd up to 31 March 2025. From 1 April 2025 Hughes Price Walker took over scheme management.

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2025

Statement of Board Members' Responsibilities

The Board members are responsible, as Directors of the Company, for preparing the Annual Report (including the Strategic Report) and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Board members to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company and the group at the year end and of the incoming resources and application of resources, including the income and expenditure, of the charitable company and the group for the year.
In preparing these financial statements, Board members are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in SORP (FRS 102);
- make judgements and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charitable company and the group will continue in operation.

Board members are responsible for keeping adequate accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and the group and enable them to ensure that the financial statements comply with the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and the Charities Accounts (Scotland) Regulations 2006 (as amended). They are also responsible for safeguarding the assets of the charitable company and the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Board members are responsible for the maintenance and integrity of the corporate and financial information included on the Trust's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

In so far as Board members are aware:

- there is no relevant audit information of which the Trust's auditors are unaware; and
- Board members have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditors are aware of that information.

Auditors

A resolution to appoint the auditors will be proposed at the Annual General Meeting under section 485 of the Companies Act 2006.

The Trustees' Report (incorporating the Strategic Report) was approved by the Board as Directors and Trustees and authorised for issue on 27 August 2025.

Z. G. Davies

Prof Z G Davies
Chair

J E Miller FCCA
Honorary Treasurer

Independent Auditors' Report to the Members of The British Trust for Ornithology

Opinion

We have audited the group financial statements of The British Trust for Ornithology (the 'parent charitable company') and its subsidiaries (the 'group') for the year ended 31 March 2025 which comprise the Consolidated Statement of Financial Activities, the Charity Statement of Financial Activities, the Consolidated Group and Charity Balance Sheets, the Consolidated Group and Charity Statement of Cash Flows, and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards including FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the group's and the parent charitable company's affairs as at 31 March 2025
- and of the group's and the parent charitable company's incoming resources and application of resources, including its income and expenditure for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and regulations 6 and 8 of the Charities Accounts (Scotland) Regulations 2006 (as amended).

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We are independent of the group and parent charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the group financial statements, we have concluded that the trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the group or parent charitable company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

Other information

The other information comprises the information included in the annual report other than the group financial statements and our auditors' report thereon. The trustees are responsible for the other information. Our opinion on the group financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. In connection with our audit of the group financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinion on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Trustees' Annual Report, which includes the Directors' Report and the Strategic Report prepared for the purposes of company law, for the financial year for which the group financial statements are prepared is consistent with the group financial statements; and
- the Strategic Report and the Directors' Report included within the Trustees' Annual Report has been prepared in accordance with applicable legal requirements.

Independent Auditors' Report to the Members of
The British Trust for Ornithology - Continued

Matters on which we are required to report by exception
In the light of our knowledge and understanding of the group and the parent charitable company and their environment obtained in the course of the audit, we have not identified material misstatements in the Strategic Report or the Directors' Report included within the Trustees' Annual Report.

We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 and the Charities Accounts (Scotland) Regulations 2006 (as amended) require us to report to you if, in our opinion:

- adequate and proper accounting records have not been kept by the parent charitable company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent charitable company's financial statements are not in agreement with the accounting records or returns; or
- certain disclosure of trustees' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit; or
- the trustees were not entitled to prepare the financial statements in accordance with the small companies regime and take advantage of the small companies' exemptions in preparing the trustees' report.

Responsibilities of Board Members
As explained more fully in the Statement of Board Members' Responsibilities set out on page B9, the trustees (who are also the directors of the British Trust for Ornithology for the purposes of company law) are responsible for the preparation of the group financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of group financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the group financial statements, the trustees are responsible for assessing the group's and parent charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the group or the parent charitable company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements
We have been appointed as auditor under section 44(1)(c) of the Charities and Trustee Investment (Scotland) Act 2005 and under the Companies Act 2006 and report in accordance with the Acts and relevant regulations made or having effect thereunder.

Our objectives are to obtain reasonable assurance about whether the group financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Our audit was designed, after obtaining sufficient and appropriate knowledge and understanding of the group and parent charitable company, its charitable nature, its income streams and the sector operated within. We undertook an assessment of the control environment and the systems and procedures put in place by the senior management team, combined with our detailed audit testing and supportive analytical work, to obtain reasonable assurance about whether the group financial statements as a whole are free from material misstatement due to fraud. Our work has included considering areas of higher risk of fraud, including transactions with related parties, revenue recognition and areas where there is a risk of management override of systems and controls.

To address the risk of fraud we performed the following audit procedures:

- Assessment of key accounting estimates within the group financial statements in order to assess their reasonableness and determine whether there is any bias in management's estimates.

Independent Auditors' Report to the Members of
The British Trust for Ornithology - Continued

- All team members were informed of the relevant laws and regulations and potential fraud risks at the planning stage and reminded to remain alert to any indications of fraud or non-compliance.
- Enquiring of management whether there have been any alleged, suspected or actual instances of fraud during the year.
- Enquiring of management and those charged with governance whether there have been any actual or potential litigation or claims.
- Reviewing correspondence with relevant legal authorities.
- Reviewing legal expense accounts for any indicators of litigation or claims.
- Review of journal entries and other adjustments for appropriateness and evaluating the rationale of any transactions outside the normal course of business.

A further description of our responsibilities for the audit of the group financial statements is located on the Financial Reporting Council's website at www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of our report
This report is made solely to the parent charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and to the charitable company's trustees, as a body, in accordance with regulation 10 of the Charities Accounts (Scotland) Regulations 2006 (as amended). Our audit work has been undertaken so that we might state to the parent charitable company's members and trustees those matters we are required to state to them in an auditors' report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the parent charitable company, the parent charitable company's members as a body and its trustees as a body, for our audit work, for this report, or for the opinions we have formed.

Helen Rumsey, Senior Statutory Auditor
For and on behalf of
Ensors Accountants LLP
Connexions
159 Princes Street
Ipswich
IP1 1QJ

The British Trust for Ornithology
Consolidated Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2025

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2025 £'000	Total 2024 As restated £'000
Income and endowments from:					
Donations and legacies	3	2,296	505	**2,801**	**4,138**
Charitable activities	3	4,607	11	**4,618**	**3,967**
Other trading activities	3	1,189	-	**1,189**	**1,266**
Investments	3	92	12	**104**	**92**
Total income and endowments		**8,184**	**528**	**8,712**	**9,463**
Expenditure on:					
Raising funds	4	1,718	17	**1,735**	**1,783**
Charitable activities	4	6,664	606	**7,270**	**6,215**
Other – Amounts recognised as expenditure on defined benefit pension scheme	23	23	-	**23**	**50**
Total expenditure		**8,405**	**623**	**9,028**	**8,048**
Net income/(expenditure) before net gain/(loss) on investments		(221)	(95)	**(316)**	**1,415**
Net gain/(loss) on investments	10	9	-	**9**	**72**
Net income/ (expenditure)		**(212)**	**(95)**	**(307)**	**1,487**
Transfers between funds	16,17	(89)	89	**-**	**-**
Other recognised gains/(losses):					
Actuarial gain/(loss) on defined benefit pension scheme	23	180	**-**	**180**	**393**
Net movement in funds		**(121)**	**(6)**	**(127)**	**1,880**
Reconciliation of funds					
Total funds brought forward		5,453	1,212	**6,665**	**4,785**
Total funds carried forward	16,17	**5,332**	**1,206**	**6,538**	**6,665**

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages 54 to 75 form part of these financial statements

The British Trust for Ornithology
Charity Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2025

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2025 £'000	Total 2024 As restated £'000
Income and endowments from:					
Donations and legacies	3	2,556	505	**3,061**	**4,346**
Charitable activities	3	4,607	11	**4,618**	**3,967**
Other trading activities	3	690	-	**690**	**741**
Investments	3	92	12	**104**	**92**
Total income and endowments		**7,945**	**528**	**8,473**	**9,146**
Expenditure on:					
Raising funds	4	1,475	17	**1,496**	**1,451**
Charitable activities	4	6,668	606	**7,270**	**6,230**
Other – Amounts recognised as expenditure on defined benefit pension scheme	23	23	-	**23**	**50**
Total expenditure		**8,166**	**623**	**8,789**	**7,731**
Net income/(expenditure) before net gain/(loss) on investments		(221)	(95)	**(316)**	**1,415**
Net gain/(loss) on investments	10	9	-	**9**	**72**
Net income/ (expenditure)		**(212)**	**(95)**	**(307)**	**1,487**
Transfers between funds		(89)	89	-	-
Other recognised gains/(losses):					
Actuarial gain/(loss) on defined benefit pension scheme	23	180	-	**180**	**393**
Net movement in funds		**(121)**	**(6)**	**(127)**	**1,880**
Reconciliation of funds					
Total funds brought forward		5,453	1,212	**6,665**	**4,785**
Total funds carried forward	16,17	**5,332**	**1,206**	**6,538**	**6,665**

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages 54 to 75 form part of these financial statements

The British Trust for Ornithology
Consolidated Group and Charity Balance Sheets
as at 31 March 2025

	Note	Group 2025	Group 2024 As restated	Charity 2025	Charity 2024 As restated
		£'000	£'000	£'000	£'000
Fixed assets					
Tangible assets	9	2,431	2,427	2,431	2,427
Investments	10	529	519	529	519
		2,960	2,946	2,960	2,946
Current assets					
Stocks	11	248	244	-	-
Debtors	12	1,082	2,270	1,309	2,511
Cash at bank and in hand		4,967	4,132	4,853	4,024
		6,297	6,646	6,162	6,535
Creditors:					
Amounts falling due within one year	13	(2,450)	(2,240)	(2,315)	(2,129)
Net current assets		3,847	4,406	3,847	4,406
Total assets less current liabilities		6,807	7,352	6,807	7,352
Creditors:					
Amounts falling due after one year	14	(89)	(100)	(89)	(100)
Net assets excluding defined benefit pension liability		6,718	7,252	6,718	7,252
Defined benefit pension liability	23	(180)	(587)	(180)	(587)
Net assets/(liabilities) including defined benefit pension liability	18	6,538	6,665	6,538	6,665
Represented by:					
Restricted funds	16	1,206	1,212	1,206	1,212
Unrestricted funds excluding Pension reserve	17	5,512	6,040	5,512	6,040
Pension reserve	17	(180)	(587)	(180)	(587)
Total funds	18	6,538	6,665	6,538	6,665

Approved by the Board and authorised for issue on 27 August 2025 and signed on its behalf by:

Chair — Prof Z G Davies

Honorary Treasurer — J E Miller FCCA

Company registration number 00357284

The notes on pages 54 to 75 form part of these financial statements

The British Trust for Ornithology
Consolidated Group and Charity Statement of Cash Flows
For the Year Ended 31 March 2025

	Note	Group 2025 £'000	Group 2024 £'000	Charity 2025 £'000	Charity 2024 £'000
Net cash inflow / (outflow) from operating activities	20	755	514	749	491
Cash flow from investing activities					
Payments to acquire tangible fixed assets	9	(24)	(12)	(24)	(12)
Proceeds from the sale of tangible fixed assets		-	-	-	-
Investment income received		104	92	104	92
Net cash flow from investing activities		80	80	80	80
Net increase/(decrease) in cash for the year		835	594	829	571
Cash at bank and in hand at 1 April		4,132	3,538	4,024	3,453
Cash at bank and in hand at 31 March		4,967	4,132	4,853	4,024

Analysis of Cash at Bank and in Hand This comprises:	**2025** £'000	**2024 £'000**	**2025** £'000	**2024** £'000
Bank current accounts and cash in hand	814	327	700	219
Bank deposits	4,153	3,805	4,153	3,805
Cash at bank and in hand at 31 March	4,967	4,132	4,853	4,024

Bank deposits carry variable rates of interest.

The notes on pages 54 to 75 form part of these financial statements

The British Trust for Ornithology
Notes to the Consolidated Financial Statements
For the Year Ended 31 March 2025

1. ACCOUNTING POLICIES

a) Accounting Convention

The charity constitutes a public benefit entity as defined by FRS 102. The financial statements have been prepared in accordance with *Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102)* (SORP (FRS102)) effective 1 January 2019, the Charities Act 2011, the Charities and Trustee Investment (Scotland) Act 2005, the Charities Accounts (Scotland) Regulations 2006, the Companies Act 2006 and UK Generally Accepted Practice as it applies from 1 January 2015.

The financial statements are prepared in pounds sterling (rounded to the nearest thousand) which is the functional currency of the charitable company and the group.

The charity operates on a weekly basis and the Financial Statements have been made up to 30 March 2025, being the last Sunday in March.

b) Going Concern

The trustees have prepared the financial statements on a going concern basis under the historical cost convention, modified to include certain items at fair value. In their opinion the pension scheme deficit does not give rise to material uncertainties that could cast doubt upon the appropriateness of this policy.

c) Group Financial Statements

These financial statements consolidate the results of the charity and its wholly owned trading subsidiary BTO Services Limited on a line-by-line basis.

d) Income

Income from donations, gifts and legacies is recognised immediately when received in cash and as receivable where there is entitlement, the amount can be measured reliably, and it is probable that the income will be received.

Income from charitable activities includes income receivable under contracts which is recognised as earned as the related work is performed. Income from grant funding supporting charitable activities is recognised where there is entitlement, probability of receipt, and the amount can be measured with sufficient reliability.

Income is deferred when it is received in advance of the services it relates to. Life membership income is released to the Statement of Financial Activities in equal instalments over ten years.

Income from commercial activities of the trading subsidiary is recognised as earned as the related goods and services are provided.

Investment income, sponsorship and royalty income and membership subscription income are recognised on a receivable basis.

e) Expenditure

Expenditure is recognised when a liability is incurred. Costs are allocated directly to activity cost categories. The cost of holiday pay not taken at the year end is accrued.

Costs of raising funds are those incurred in attracting voluntary income, including membership subscriptions, in carrying out trading activities, and in receiving royalties and sponsorship income.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

Costs of charitable activities include those incurred on scientific research contracts, and on allocated and restricted fund research work. They also include volunteer surveyor support and science communication costs.

Governance costs include those incurred in the governance of the charity and the safeguarding of its assets, and are primarily associated with constitutional and statutory requirements.

Support costs include central functions and have been allocated to activity cost categories on a staff cost basis.

VAT is reclaimed on allowable expenses under the Business/Non-Business and the partial exemption rules. Where not reclaimable it is included within expenses.

f) Tangible Fixed Assets

Individual assets costing £1k or more are initially capitalised at cost. Tangible fixed assets (except freehold property and land) are depreciated on a straight line basis over their estimated useful lives as follows:

Asset Category	Annual Rate
Furniture and Equipment	25%
Computer Equipment	25%
Motor Vehicles	25%

The freehold property is stated at fair value under the revaluation model using sufficiently regular revaluations to ensure that the carrying amount does not differ materially from the fair value at the reporting date. Revaluations are performed every five years, or as the trustees consider necessary, by qualified external valuers. The increase or decrease on revaluation is credited or charged to the fund holding the asset. The property is not depreciated as it is considered to have an indefinite remaining useful life.

At each reporting end date, the trustees review the carrying amounts of the tangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any).

g) Investments

Investments are recognised initially at fair value which is normally the transaction price excluding transaction costs. Subsequently, they are measured at fair value with changes recognised in 'Net gain/(loss) on investments' in the Statement of Financial Activities if the shares are publicly traded or their fair value can otherwise be measured reliably. Other investments are measured at cost less impairment.

h) Stock

Stock is valued at the lower of cost and net realisable value. Net realisable value is based on estimated selling price less further costs to completion and sale. Cost is calculated on a first in first out basis.

i) Debtors and creditors falling due within one year

Debtors and creditors with no stated interest rate and falling due within one year are recorded at transaction price. Any losses arising from impairment are recognised in expenditure.

j) Financial instruments

The group only has financial assets and liabilities that qualify as basic financial instruments, such as debtors and creditors with no stated interest rate and payable within one year, which are recorded at transaction price. Any losses arising from impairment are recognised as expenditure in the Statement of Financial Activities.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

k) Foreign Currency Translation

Monetary assets and liabilities denominated in foreign currencies are translated into pounds sterling at the rates of exchange ruling at the balance sheet dates. Transactions in foreign currencies are recorded at the rate ruling at the transaction date. All exchange differences are taken to the Statement of Financial Activities.

l) Funds Structure

The Trust has a number of restricted funds to account for situations where funds have been raised for a specific purpose. All other funds are unrestricted funds. Where the trustees intend to use part of the unrestricted funds to provide longer-term funding for BTO projects and core activities, designated funds are set up to reflect this. A Pension reserve fund has been created so that movements and balances relating to the defined benefit pension scheme valuations can be separately identified. The funds in each of these categories are disclosed in Notes 16 and 17.

m) Retirement Benefits

The defined benefit pension scheme provides benefits for staff based on final pensionable salary. The scheme was closed to future accrual with effect from 1 April 2013. The assets of the scheme are held separately from those of the Trust, being invested with independent fund managers and are measured at fair value with changes recognised in the Statement of Financial Activities as set out in Note 23. Defined benefit pension liabilities are measured using the projected unit cost method and discounted at the current rate of return on a high quality corporate bond of equivalent term and currency to the liability. Under FRS 102, any net liability arising based on these valuations is the best estimate of the present value of the actual amounts to be paid out of the scheme, less the fair value of the scheme assets. The net of the interests on the scheme assets and liabilities is charged to the Statement of Financial Activities. Past service costs are recognised as expenditure when a liability is incurred and are charged to the Statement of Financial Activities. Actuarial gains and losses are recognised in the Statement of Financial Activities.

The Trust as employer also makes payments in respect of employees' own defined contribution schemes, through a group self-invested personal pension arrangement. For these schemes, the amount charged to the Statement of Financial Activities in respect of pension costs is the contributions payable in the year. Differences between contributions payable in the year and contributions actually paid are included as either accruals or prepayments in the Balance Sheet.

n) Judgements and key sources of estimation uncertainty

In the application of the group and parent charitable company's accounting policies, the trustees are required to make judgements, estimates and assumptions about the carrying amount of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the year in which the estimate is revised where the revision affects only that year, or in the year of the revision and future years where the revision affects both the current and future years.

Key sources of estimation uncertainty
The estimates and assumptions which have a significant risk of causing a material adjustment to the carrying amount of assets and liabilities are as follows:

Percentage completion on contracts
The degree of completion on the contracts is an estimate by the relevant project manager. This estimate relies on their professional opinion on the level of work completed in the whole contract, which impacts the level of income recognised, accrued and deferred. These estimates are reviewed by the Senior Leadership Team on a regular basis.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

n) Judgements and key sources of estimation uncertainty (continued)

Defined benefit pension scheme
The group has a defined benefit pension scheme which is closed to future accrual. The valuation of the defined benefit pension obligation necessarily involves a calculation which depends on the expected future outflow of economic benefits that the group expects to make to satisfy this obligation. The calculation depends on a number of factors such as the methodology, discount rate and mortality assumptions used. The group use a qualified independent actuary to assist in preparing the necessary calculation in accordance with the requirements of FRS102.

Property valuation
The Nunnery is valued at fair value by the directors with reference to recent property transactions and their knowledge of the site. The directors obtain third party valuations at regular intervals to ensure that the fair value of the property is kept up to date.

o) Leases
Rentals payable under operating leases, including any lease incentives received, are charged to profit or loss on a straight line basis over the term of the relevant lease except where another more systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

p) Employee benefits
The costs of short-term employee benefits are recognised as a liability and an expense unless those costs are required to be recognised as part of the cost of stock or fixed assets. The cost of any unused holiday entitlement is recognised in the year in which the employee's services are received. Termination benefits are recognised immediately as an expense when the charity is demonstrably committed to terminate the employment of an employee or to provide termination benefits.

q) Cash at bank and in hand
Cash at bank and in hand are basic financial assets and includes cash in hand, deposits with banks, other short-term liquid investments with original maturities of three months or less, and bank overdrafts.

r) Legacies
Legacy receipts are recognised when there has been grant of probate, the executors have established that there are sufficient assets in the estate, after settling any liabilities, to pay the legacy, any conditions attached to the legacy are either within the control of the Trust or have been met, and the amount receivable is determined.

2. MEMBERS' LIABILITY

Under the Memorandum of Association of the Trust, members are required to undertake to contribute to the assets of the Trust in the event of its being wound up while they are members, and within one year after they cease to be members, for payment of the debts and liabilities of the Trust contracted whilst they were still members, and of the costs, charges and expenses of winding up, such amount as may be required but not exceeding £1 each. This represents the limit of their guarantee to the company.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

3. ANALYSIS OF INCOME

	Group 2025	Group 2024	Charity 2025	Charity 2024 As restated
	£'000	£'000	£'000	£'000
Donations and legacies				
Membership subscriptions & donations	1,005	1,030	1,005	1,030
Individual donations	654	668	654	668
Corporate & trust donations & grants	343	429	603	637
Legacies	799	2,011	799	2,011
	2,801	4,138	3,061	4,346
Charitable activities				
Core surveys - JNCC Partnership	1,418	1,358	1,418	1,358
Core surveys - Other	56	37	56	37
Other surveys & research - Contract funded	2,909	2,376	2,909	2,376
Research communication	109	77	109	77
General volunteer survey support	102	96	102	96
Nunnery Lakes Reserve	24	23	24	23
	4,618	3,967	4,618	3,967
Other trading activities				
Ringing & tagging sales	448	491	-	-
Publications & general sales	22	30	-	-
Corporate sponsorship & royalties	61	26	-	-
Consultancy	419	558	-	-
Data-related sales	237	156	-	-
Other	2	5	2	5
Income from charges to subsidiary	-	-	688	736
	1,189	1,266	690	741
Investment income				
Bank interest receivable	104	92	104	92

Analysis by fund type	Group 2025	Group 2024	Charity 2025	Charity 2024 As restated
	£'000	£'000	£'000	£'000
Donations and legacies				
Unrestricted	2,296	3,508	2,556	3,716
Restricted	505	630	505	630
	2,801	4,138	3,061	4,346
Charitable activities				
Unrestricted	4,607	3,929	4,607	3,929
Restricted	11	38	11	38
	4,618	3,967	4,618	3,967
Other trading activities				
Unrestricted	1,189	1,266	690	741
Restricted	-	-	-	-
	1,189	1,266	690	741
Investment income				
Unrestricted	92	81	92	81
Restricted	12	11	12	11
	104	92	104	92

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

4. ANALYSIS OF EXPENDITURE

	Group 2025	Group 2024 As restated	Charity 2025	Charity 2024
	£'000	£'000	£'000	£'000
Raising funds				
Donations and legacies				
Membership subscriptions & donations	310	306	310	306
Individual donations	304	262	304	262
Corporate & trust donations & grants	85	52	85	52
Legacies	120	96	120	96
	819	716	819	716
Other trading activities				
Ringing & tagging costs	456	474	-	-
Publications & general costs	26	25	-	-
Corporate sponsorship & royalties	-	1	-	-
Consultancy	290	453	-	-
Data-related costs	137	113	-	-
Other	7	1	-	-
Costs recharged to subsidiary	-	-	677	735
	916	1,067	677	735
	1,735	1,783	1,496	1,451
Charitable activities				
Core surveys - JNCC Partnership	2,054	1,816	2,054	1,817
Core surveys - Other	280	313	280	313
Other surveys & research - Voluntary funded	830	791	830	791
Other surveys & research - Contract funded	3,018	2,258	3,018	2,272
Research communication	797	777	797	777
General volunteer survey support	246	215	246	215
Nunnery Lakes Reserve	45	45	45	45
	7,270	6,215	7,270	6,230

Analysis by fund type	Group 2025	Group 2024 As restated	Charity 2025	Charity 2024
	£'000	£'000	£'000	£'000
Raising funds				
Unrestricted	1,718	1,783	1,479	1,451
Restricted	17	-	17	-
	1,735	1,783	1,496	1,451
Charitable activities				
Unrestricted	6,664	5,488	6,664	5,503
Restricted	606	727	606	727
	7,270	6,215	7,270	6,230

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

5. NET INCOME / (EXPENDITURE)

	2025	2024
	£'000	£'000
Net income for the year is stated after (crediting)/charging:		
Auditors' remuneration:		
Audit of the charity's annual accounts	22	21
Audit of the trading subsidiary's annual accounts	10	8
Audit of the charity's defined benefit pension scheme	3	3
Depreciation (Note 9)	19	18
(Profit)/loss on disposals of fixed assets	1	-

6. STAFF COSTS

	Group and Charity 2025	Group and Charity 2024
	£'000	£'000
Wages and salaries	5,319	4,595
Social security costs	490	412
Defined contribution pension plan costs (Note 23)	560	480
Expenditure recognised on defined benefit pension scheme (Note 23)	23	50
	6,392	5,537

The number of employees whose emoluments exceeded £60,000 fell within the following bands:	2025	2024
£70,001 - £80,000	1	1
£60,001 - £70,000	5	4

The emoluments of the CEO for the year were £81k (2024 £80k), with the same pension and other benefits as were applicable to all other staff. The total remuneration including social security costs and pension contributions of the Senior Leadership Team was £553k (2024: £529k). Trustees receive no remuneration. Trustees made donations totalling less than £1k during the year (2024 less than£1k). There were no other related party transactions requiring disclosure. Other expenses were reimbursed to trustees as follows:

	2025	2024
	£'000	£'000
Travel and subsistence	1	1

Average numbers of staff and full time equivalents (FTE)

	2025		2024	
	No	FTE	No	FTE
Permanent posts	159	145.3	148	133.6
Seasonal fieldworkers	4	1.0	7	1.6
	163	146.3	155	135.2

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

7. TOTAL EXPENDITURE

	Direct costs	Support costs	2025 Total	2024 Total As restated
	£'000	£'000	£'000	£'000
Raising funds	1,551	184	1,735	1,783
Charitable activities	6,497	773	7,270	6,215
Other – Amounts recognised as expenditure on defined benefit pension scheme	23	-	23	50
	8,071	957	9,028	8,048

8. SUPPORT COSTS

	Premises	IT & Office Services	People & OrgDev	Manage-ment & Finance	Govern-ance	2025 Total	2024 Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Raising funds	2	9	76	81	16	184	205
Charitable activities	10	37	320	338	68	773	720
	12	46	396	419	84	957	925

All support costs are apportioned on a staff cost basis.
Governance costs include auditors' remuneration, the meeting expenses of the Board and its committees, and the staff cost of servicing those meetings.

9. TANGIBLE FIXED ASSETS - GROUP

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2024	2,400	191	448	92	3,131
Additions	-	-	24	-	24
Disposals	-	(37)	(124)	-	(161)
At 31 March 2025	2,400	154	348	92	2,994
Depreciation at 1 April 2024	-	186	427	91	704
Depreciation charge	-	2	16	1	19
Disposals	-	(37)	(123)	-	(160)
At 31 March 2025	-	151	320	92	563
Net book value at 31 March 2025	2,400	3	28	-	2,431
Net book value at 1 April 2024	2,400	5	21	1	2,427

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

9. TANGIBLE FIXED ASSETS - CHARITY

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2024	2,400	187	448	92	3,127
Additions	-	-	24	-	24
Disposals	-	(37)	(124)	-	(161)
At 31 March 2025	2,400	150	348	92	2,990
Depreciation at 1 April 2024	-	182	427	91	700
Depreciation charge	-	2	16	1	19
Disposals	-	(37)	(123)	-	(160)
At 31 March 2025	-	147	320	92	559
Net book value at 31 March 2025	2,400	3	28	-	2,431
Net book value at 1 April 2024	2,400	5	21	1	2,427

The Nunnery and Nunnery Lakes Reserve, the freehold property and land owned and occupied by The British Trust for Ornithology, were valued by qualified external valuers, Fenn Wright Chartered Surveyors, on 31 March 2022 on the basis of fair value, at £2,400k. The trustees have considered the condition and value of the freehold property at the year end and believe there to have been no material change since the last external valuation in March 2022.

On an historical cost basis, the freehold property and land would have been included at a cost and net book value of £2,284k (2024: £2,284k).

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

10. INVESTMENTS

The Group

Listed Investment Funds

	Market value 1 April 2024	Disposals	Additions	Gain/(loss)	Market value 31 March 2025
	£'000	£'000	£'000	£'000	£'000
Birds in Trust Fund					
Dimensional Global Short Dated Bond	76	-	-	-	76
Dimensional Global Sustainability Core Equity	152	-	-	4	156
Wrap Cash	4	-	-	-	4
	232	-	-	4	236
General Funds					
Dimensional Global Short Dated Bond	93	-	-	-	93
Dimensional Global Sustainability Core Equity	188	-	-	5	194
Wrap Cash	6	-	-	-	6
	287	-	-	5	293
	519	-	-	9	529

On an historical cost basis, the investments would have been included at £298k (2024: £298k).

The Charity

	2025	2024
	£'000	£'000
Listed Investment Funds as above	529	519
Fixed asset unlisted investments - BTO Services Ltd	-	-
	529	519

The Trust wholly owns its subsidiary undertaking, BTO Services Ltd, which is incorporated in England & Wales, company registration number 02907282. This company operates to promote the work of The British Trust for Ornithology by undertaking commercial activities to support such work. The aggregate value of the share capital and reserves at 31 March 2025 was £100 (2024: £100) and the company reported a £nil result after profit distributions made under a Deed of Covenant for the year (2024: £nil). The value of the investment in the subsidiary undertaking is £100 (2024: £100) under the equity method of valuation.

The following is a summarised statement of income for the subsidiary for the financial year:

	2025	2024 As restated
	£'000	£'000
Turnover	1,187	1,261
Cost of sales	(870)	(992)
Gross profit	317	269
Net administrative expenses	(63)	(61)
Net profit before payment under Deed of Covenant	254	208

Turnover of the subsidiary includes sales to overseas markets of £249k (2024: £192k).

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

10. INVESTMENTS (Continued)

BTO Services Ltd has two dormant wholly owned subsidiaries, both registered in England and Wales, and with Registered Office at The Nunnery, Thetford, Norfolk IP24 2PU, Porzana Ltd Company No.04175071 and BTO Consulting Ltd Company No.12317596.

11. STOCKS

	2025	2024 As restated
	£'000	£'000
The Group		
Finished goods, goods for resale and materials	248	244

The Charity

The charity holds no trading stock.

12. DEBTORS

	2025	2024
	£'000	£'000
The Group		
Trade and contract debtors	569	1,503
Taxes recoverable	61	22
Prepayments	116	123
Accrued income	336	622
	1,082	2,270

	2025	2024 As restated
	£'000	£'000
The Charity		
Trade and contract debtors	412	1,257
Amounts due from Group undertakings	479	522
Taxes recoverable	61	22
Prepayments	114	121
Accrued income	242	589
	1,309	2,511

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

13. CREDITORS – AMOUNTS FALLING DUE WITHIN ONE YEAR

	2025	2024
	£'000	£'000
The Group		
Trade creditors	460	309
Taxes and Social security costs	298	288
Other creditors	153	63
Accruals	157	190
Deferred income	1,382	1,390
	2,450	2,240

	2025	2024
	£'000	£'000
The Charity		
Trade creditors	404	265
Taxes and Social security costs	278	288
Other creditors	151	61
Accruals	145	177
Deferred income	1,337	1,338
	2,315	2,129

14. CREDITORS – AMOUNTS FALLING DUE AFTER ONE YEAR

	2025	2024
	£'000	£'000
The Group		
Deferred income	89	100

	2025	2024
	£'000	£'000
The Charity		
Deferred income	89	100

15. DEFERRED INCOME RECONCILIATION

	2025	2024
	£'000	£'000
The Group		
Opening balance at 1 April	1,490	1,673
Amount released to income	(2,404)	(2,271)
Amount deferred in year	2,385	2,088
Closing balance at 31 March	1,471	1,490

	2025	2024
	£'000	£'000
The Charity		
Opening balance at 1 April	1,438	1,598
Amount released to income	(2,350)	(1,206)
Amount deferred in year	2,337	2,046
Closing balance at 31 March	1,425	1,438

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

16. RESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include restricted funds comprising the following balances of donations and appeal monies given for specific purposes. The opening and closing fund balances for the group and the charity are identical.

As at 31 March 2025

	Balance at 1 Apr 2024	Income	Expenditure	Transfers	Balance at 31 Mar 2025
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond Maps Appeal	108	3	-	1	112
Northern Ireland Fund	14	-	(9)	-	5
Dilys Breese Fund	36	2	(8)	-	30
Migration Fund	30	2	(13)	-	19
Nightingale Appeal	11	3	(19)	5	-
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	20	-	(16)	-	4
Garden Research Fund	72	8	(5)	-	75
Out of Africa Fund	32	76	(91)	3	20
Thrush Fund	1	-	-	-	1
Curlew Appeal	14	-	(3)	-	11
Arctic Skua Fund	13	-	(13)	-	-
BTO Wales Fund	15	3	(6)	-	12
Sound Approach Fund	54	19	(32)	-	41
Tasso Leventis Fund	-	19	(39)	20	-
Spotted Flycatcher Appeal	20	-	(3)	-	17
Chaffinch	34	-	-	-	34
Seabird Appeal	49	29	(48)	-	30
Urban Appeal	250	5	(47)	-	208
BBS Appeal	-	91	-	-	91
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	2	-	-	-	2
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales	11	-	(1)	-	10
Bats Fund	24	7	(2)	-	29
Youth Engagement	2	20	(122)	100	-
Wader Project Officer	27	1	-	3	31
Insect Decline	18	11	-	-	29
Eddowes PhD	-	15	(1)	-	14
Thetford Engagement Fund	29	29	(37)	(12)	9
Kestrels	28	3	(22)	-	9
Gillian Wills Trust	29	36	(36)	-	29
Derek Coleman Fund	51	10	(21)	-	40
David Hodgson Fund	121	-	-	(30)	91
Raptor Monitoring Appeal	-	104	(18)	5	91
Youth 25	-	35	(14)	-	21
Ringers' Bursary Fund	5	-	(3)	-	2
Small Specific Donations	48	11	(8)	(6)	45
	1,212	528	(623)	89	1,206

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2025

16. RESTRICTED FUNDS (Continued)

The purposes of the funds are as follows:
The Atlas Beyond the Maps Appeal continues to support research into Atlas data.
The Northern Ireland Fund has been set up to support the BTO in Northern Ireland.
The Dilys Breese Fund is for projects relating to nesting birds.
The Boddy & Sparrow Fund is for awards to the best amateur contribution(s) to either or both of the Bird Study and Ringing & Migration publications.
The Migration Fund is for research into migrating birds.
The Nightingale Appeal is to fund work on Nightingales and woodland birds. £5k was transferred from Birds in Trust to support this work.
The Swallow Appeal is to fund work on Swallows and migration.
The Young Scientists' Fund is to support the career development of young scientists.
The Garden Research Fund is to support young scientists work on garden birds.
The Out of Africa Fund is to fund work on African migrants. £3K was transferred from Birds in Trust to support this work.
The Thrush Fund is to fund work on Thrushes.
The Curlew Appeal is to fund projects on Curlews.
The Arctic Skua Fund is to support Arctic Skua work.
The BTO Wales Fund is to support the BTO in Wales.
The Sound Approach Fund is to support a number of specific projects.
The Tasso Leventis Fund is to support a number of specific projects. £20k was transferred from Birds in Trust to support these projects.
The Spotted Flycatcher Appeal is to support work on Spotted Flycatchers.
The Chaffinch Appeal is to fund work on Chaffinches.
The Seabird Appeal raises funds for work on seabirds.
The Urban Appeal is to support studies of birds in towns and cities.
The BBS Appeal is to fund work for Breeding Bird Surveys.
The Rhodes Training Fund is to support survey training courses.
The Migrant Swallows & Insect Feeding Paper donation is to fund a paper on Swallows.
The Postcode Lottery Grant is for the Nunnery Lakes Reserve.
The Cuckoos & Nightingales Fund is for research on Cuckoos and Nightingales.
The Bats Fund was set up from specific donations to support work on Bats and the development of the BTO acoustic work.
The Youth Engagement Fund has been set up to support our work with young people. £27.5K was allocated from the David Hodgson Fund to support Youth Staff and Projects. £2.6K was transferred from Birds in Trust as per expression of wish of a legator. £68K was transferred from General funds to support Youth work.
The Short Eared Owl Fund is for work on Short Eared Owls in Scotland.
The Wader Project Officer Appeal Fund is for work on waders. £2.6K was transferred from Birds in Trust as per expression of wish of a legator.
The Insect Decline Fund is to support work on the decline in insects.
The Eddowes PhD fund was established to support a specific PhD project.
The Thetford Engagement Fund is for working with local communities to enhance BTOs engagement with them. £12k was transferred to General funds for consultancy costs to support this work.
The Kestrels Fund is to support work on Kestrels.
The Gillian Wills Trust is to support the recruitment and employment of a Development and Engagement Coordinator.
The Derek Coleman Fund is to support Upland Monitoring.
The David Hodgson Fund provides support for our Youth Engagement Officer, Youth Birdcamp and Youth Engagement projects. £27.5k was transferred to Youth Engagement in accordance with the donor's wishes.
The Raptor Monitoring Appeal is for work on birds of prey. £5K was transferred in from the Small Specific Donations fund in accordance with donor's wishes.
The Youth 25 Fund supports Youth Engagement.
The Ringers' Bursary Fund is to support ringing.
Small Specific Donations are small individual donations for specific purposes. £5K was transferred to the Raptor Monitoring Appeal as requested by donor.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2025

16. RESTRICTED FUNDS (Continued)

As at 31 March 2024

	Balance at 1 Apr 2023	Income	Expenditure	Transfers	Balance at 31 Mar 2024
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond Maps Appeal	12	4	-	92	108
Northern Ireland Fund	17	49	(52)	-	14
Dilys Breese Fund	36	3	(11)	8	36
Boddy & Sparrow Fund	2	-	-	(2)	-
Migration Fund	47	17	(34)	-	30
Nightingale Appeal	22	3	(14)	-	11
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	19	11	(10)	-	20
Garden Research Fund	77	8	(13)	-	72
Out of Africa Fund	85	64	(84)	(33)	32
Thrush Fund	1	-	-	-	1
Farmland Bird Appeal	-	-	(2)	2	-
Curlew Appeal	13	6	(5)	-	14
Arctic Skua Fund	1	35	(23)	-	13
BTO Wales Fund	20	1	(6)	-	15
Bird Track	-	1	(1)	-	-
Sound Approach Fund	60	1	(35)	28	54
Tasso Leventis Fund	25	20	(62)	17	-
Spotted Flycatcher Appeal	20	-	-	-	20
Chaffinch	40	-	(6)	-	34
Seabird Appeal	81	15	(47)	-	49
Urban Appeal	20	7	(27)	250	250
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	2	-	-	-	2
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales	19	-	(8)	-	11
Bats Fund	5	28	(11)	2	24
Youth Engagement	6	65	(196)	127	2
Short Eared Owl	13	2	(27)	12	-
Wader Project Officer	28	4	(5)	-	27
Insect Decline	10	10	(2)		18
Eddowes PhD	-	27	(27)	-	-
Thetford Engagement Fund	-	29	-	-	29
Kestrels	-	14	(5)	19	28
Gillian Wills Trust	-	36	(7)	-	29
Derek Coleman Fund	-	51	-	-	51
David Hodgson Fund	-	127	-	(6)	121
Ringers' Bursary Fund	1	5	(1)	-	5
Small Specific Donations	51	36	(6)	(33)	48
	777	679	(727)	483	1,212

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2025

17. UNRESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include unrestricted funds comprising the following balances. The opening and closing fund balances for the group and the charity are identical.

As of 31 March 2025

	Balance at 1 Apr 2024 As restated	Income	Expend-iture	Other Gains/ (Losses)	Fund transfers	Balance at 31 Mar 2025
	£'000	£'000	£'000	£'000	£'000	£'000
General funds:						
Birds in Trust fund	4,184	874	(259)	4	(626)	4,177
General fund	1,355	7,303	(8,026)	5	287	924
	5,539	8,177	(8,285)	9	(339)	5,101
Designated funds:						
Welch fund	501	7	(97)	-	-	411
Unrestricted funds excluding Pension reserve	6,040	8,184	(8,382)	9	(339)	5,512
Pension reserve	(587)	-	(23)	180	250	(180)
	5,453	8,184	(8,405)	189	(89)	5,332

The Birds in Trust fund is intended primarily to provide long-term funding for BTO projects. Income from legacies is credited to this fund unless the wills provide otherwise. £593k was released to the General fund in support of JNCC Partnership projects. Other transfers totalling £34k were made in support of projects in the Youth Engagement, Tasso Leventis, Wader Projects, Out of Africa and Nightingales funds.
In the General fund, £12k was received from Thetford Engagement to fund consultancy costs.
£68k was released in support of Youth Engagement. £593k was received from Birds in Trust in support of JNCC Partnership projects. £250k was transferred to the Pension Reserve fund in respect of the pension deficit repair contribution.
The Welch fund is for migration research.
The Pension Reserve fund reflects the defined benefit pension scheme deficit. £250k was transferred from the General fund in respect of the pension deficit repair contribution. Other pension reserve movements are disclosed in Note 23.

As of 31 March 2024
As restated

	Balance at 1 Apr 2023	Income	Expend-iture	Other Gains/ (Losses)	Fund transfers	Balance at 31 Mar 2024
	£'000	£'000	£'000	£'000	£'000	£'000
General funds:						
Birds in Trust fund	3,129	2,080	(290)	32	(767)	4,184
General fund	1,441	6,697	(6,927)	40	104	1,355
	4,570	8,777	(7,217)	72	(663)	5,539
Designated funds:						
Welch fund	547	8	(54)	-	-	501
Unrestricted funds excluding Pension reserve	5,117	8,785	(7,271)	72	(663)	6,040
Pension reserve	(1,110)	-	(50)	393	180	(587)
	4,007	8,785	(7,321)	465	(483)	5,453

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

18. ANALYSIS OF FUNDS ACROSS NET ASSETS

The Group and Charity
As of 31 March 2025

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
General funds:					
Birds in Trust fund	-	236	3,941	-	4,177
General fund	2,431	293	(1,620)	(180)	924
	2,431	529	2,321	(180)	5,063
Designated funds:					
Welch fund	-	-	411	-	411
Unrestricted funds excluding Pension reserve	2,431	529	2,732	(180)	5,512
Pension reserve	-	-	(180)	-	(180)
	2,431	529	2,552	(180)	5,332
Restricted Funds	-	-	1,206	-	1,206
Total	2,431	529	3,758	(180)	6,538

As at 31 March 2024

As restated	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
General funds:					
Birds in Trust fund	-	232	3,952	-	4,184
General fund	2,427	287	(772)	(587)	1,355
	2,427	519	3,180	(587)	5,539
Designated funds:					
Welch fund	-	-	501	-	501
Unrestricted funds excluding Pension reserve	2,427	519	3,681	(587)	6,040
Pension reserve	-	-	(587)	-	(587)
	2,427	519	3,132	(587)	5,453
Restricted Funds	-	-	1,212	-	1,212
Total	2,427	519	4,306	(587)	6,665

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2025

19. OPERATING LEASE COMMITMENTS

	2025	2024
	£'000	£'000
At the year end the group had outstanding lease commitments for future minimum lease payments under non-cancellable leases, as follows:		
Due within one year	64	47
Due within two to five years	118	110
	182	157

20. RECONCILIATION OF NET INCOME/(EXPENDITURE) TO NET CASHFLOW FROM OPERATING ACTIVITIES

	Group 2025	Group 2024 As restated	Charity 2025	Charity 2024 As restated
	£'000	£'000	£'000	£'000
Net income per Statement of Financial Activities	(307)	1,498	(307)	1,498
Adjustments for:				
Items representing cash movements				
(Increase)/decrease in stocks	(4)	23	-	-
(Increase)/decrease in debtors	1,188	(590)	1,202	(612)
Increase/(decrease) in creditors	200	(130)	175	(108)
Investment income	(104)	(92)	(104)	(92)
Items not representing cash movements				
Depreciation	19	18	19	18
(Gains)/losses on investments	(9)	(72)	(9)	(72)
Expenditure on defined benefit pension plan liability	23	50	23	50
	1,005	694	999	671
Cash movements not appearing in the Statement of Financial Activities				
Pension deficit repair contribution	(250)	(180)	(250)	(180)
Net cash inflow/(outflow) from operating activities	755	514	749	491

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2025

21. FINANCIAL INSTRUMENTS

The carrying amounts of the groups and the charity's financial instruments are as follows:

	Group 2025 £'000	Group 2024 £'000	Charity 2025 £'000	Charity 2024 £'000
Financial assets				
Measured at fair value through net income/expenditure:				
Fixed asset listed investments (Note 10)	529	519	529	519
Equity instruments measured at cost less impairments:				
Fixed asset unlisted investments (Note 10)			-	-

22. CONTINGENT ASSET

The Trust has been notified of a legacy involving a property, which has not been recognised in the financial statements as at 31 March 2025, as the income recognition criteria under the Charities SORP (FRS 102) have not yet been met.

Specifically, the Trust has been named as a beneficiary in the will of a deceased individual, with an entitlement to a residential property. At the year end, entitlement was not confirmed, the estate was still in the process of administration, legal title had not yet transferred to the charity and the timing and amount of any potential benefit remained uncertain. The property is expected to achieve a value of around £850k in an open market sale.

The legacy will be recognised when entitlement is confirmed, receipt is probable, and a reliable measurement of value can be made.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

23. PENSIONS

The Group and the Charity

Defined contribution pension plan

The Trust operates a Group Self-invested Personal Pension Scheme run by Aegon. Staff contribute to this defined contribution scheme at a minimum rate of 4% of salary, and the BTO contributes at a flat rate of 11%. The Trust made contributions of £560k during the year (2024: £480k).

Defined benefit pension scheme

The Trust's defined benefit pension scheme, a 'final salary' scheme, is closed. The last triennial actuarial valuation of the scheme was carried out as at 31 March 2024. At that date the assets were valued at £11,102k and the liabilities at £12,715k, giving a net deficit of £1,613k and a funding level of 87%. A deficit recovery plan was subsequently agreed between the Board and the pension fund trustees, by which the shortfall would be made good by annual lump sum deficit repair payments spread over the years to 2031.

For the purposes of the group financial statements a separate valuation is carried out at the balance sheet date by a qualified independent actuary in accordance with Financial Reporting Standard 102 (FRS 102). The amounts recognised in the statements of financial activities for the year and the balance sheets were as follows:

Recognised in the statements of financial activities:	**2025**	**2024**
	£'000	£'000
Expenditure:		
Interest income	546	517
Interest cost on liabilities	(569)	(567)
Net interest on net defined benefit liability	(23)	(50)
Other recognised gains/(losses):		
Actual return on scheme assets (excluding interest income)	(953)	149
Actuarial gain/(loss) on liabilities	1,133	244
	180	393

Recognised in the balance sheets:

	2025	**2024**
	£'000	£'000
Fair value of scheme assets	10,557	11,103
Present value of defined benefit obligations	(10,737)	(11,690)
Defined benefit pension scheme liability at 31 March	(180)	(587)

Reconciliation of funded status:

	2025	**2024**
	£'000	£'000
(Deficit) at 1 April	(587)	(1,110)
Employer pension deficit repair payment	250	180
Net interest on net defined benefit liability	(23)	(50)
Remeasurement gain	180	393
(Deficit) at 31 March	(180)	(587)

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

23. PENSIONS (Continued)

Changes in the fair value of the pension scheme assets were as follows:

	2025	2024
	£'000	£'000
Fair value of scheme assets at 1 April	11,103	10,672
Interest income	546	517
Actual return on scheme assets (excluding interest income)	(953)	149
Employer pension deficit repair payment	250	180
Benefits paid to members	(389)	(415)
Fair value of scheme assets at 31 March	10,557	11,103

Changes in the defined benefit obligations were as follows:

	2025	2024
	£'000	£'000
Present value of defined benefit obligations at 1 April	(11,690)	(11,782)
Interest cost on liabilities	(569)	(567)
Benefits paid	389	415
Actuarial gain/(loss)	1,133	244
Present value of defined benefit obligations at 31 March	(10,737)	(11,690)

The amount of each major class of pension scheme assets within the total fair value of the scheme assets was as follows:

	2025	2024
	£'000	£'000
Equities	3,298	6,012
Bonds	6,689	4,379
Annuities	115	135
Cash	455	577
	10,557	11,103

The total return on scheme assets was as follows:

	2025	2024
	£'000	£'000
Interest income	546	517
Actual return on scheme assets (excluding interest income)	(953)	149
Total return on scheme assets	(407)	666

The principal actuarial assumptions used were as follows:

	2025	2024
Discount rate	5.90%	4.95%
Inflation assumption (RPI)	3.25%	3.25%
Inflation assumption (CPI)	2.75%	2.70%
Rate of increase for non-GMP pensions in deferment	2.75%	2.70%
Rate of increase for pensions in payment (RPI, min 3% max 5%)	3.65%	3.65%

Expected future lifetime from age 65:	2025	2024
	No of years	No of years
Male – currently aged 65	21.5	21.6
Female – currently aged 65	23.6	23.8
Male – currently aged 45	23.1	23.2
Female – currently aged 45	24.8	24.9

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2025

24. Prior period adjustment

Overstatement of stock

A prior period adjustment has been recognised to correct historic overstatement of stock valuations.

The Group **Period ended 31 March 2024**	**As previously reported**	**Adjustment**	**As restated**
	£'000	£'000	£'000
Changes to the balance sheet			
Current assets			
Stocks	282	(38)	244
Reserves			
Unrestricted reserves b/fwd	5,145	(27)	5,117
Unrestricted reserves c/fwd	6,078	(38)	6,040
Changes to the Statement of Financial Activities			
Ringing and tagging costs	463	11	474
Net income/(expenditure)	1,498	(11)	1,487

The Charity **Period ended 31 March 2024**	**As previously reported**	**Adjustment**	**As restated**
	£'000	£'000	£'000
Changes to the balance sheet			
Current assets			
Amounts due from Group undertakings	560	(38)	522
Reserves			
Unrestricted reserves b/fwd	5,145	(27)	5,117
Unrestricted reserves c/fwd	6,078	(38)	6,040
Changes to the Statement of Financial Activities			
Corporate & trust donations & grants	648	(11)	637
Net income/(expenditure)	1,498	(11)	1,487

Birds Science People

British Trust for Ornithology
The Nunnery, Thetford, Norfolk IP24 2PU
Tel: +44 (0)1842 750050 Web: www.bto.org
Email: info@bto.org Bluesky: btobirds.bsky.social
Registered Charity Number 216652 (England & Wales), SC039193 (Scotland)

COVER IMAGE: BLACK-HEADED GULL, DAVID TIPLING / BIRDPHOTO.CO.UK

THE BRITISH TRUST FOR ORNITHOLOGY

England & Wales - Charity number 216652

Accounts

BTO Birds Science People

Birds Science People

Trustees' Annual Report & Financial Statements 2023/24

CONTENTS

Opening words	3
At a glance	4
Seeking solutions	6
Embracing everyone	8
Charting change	10
Delivering data	12
Sustaining supporters	14
Framing futures	16
Our volunteers	18
Our partnerships	20
Focus on England	22
Focus on Wales	24
Focus on Scotland	26
Focus on Northern Ireland	28
Being fit for the future	30
Thank you for your support	32
Our supporters	34
Our scientific output: 2023	36
Financial overview	38

YOUNG LEADERS COURSE, BTO; SEABIRD RINGING, BY MIKE TOMS / BTO; WATER RAIL, BY DAVID TIPLING / BIRDPHOTO.CO.UK

Birds Science People

FROM OUR CHAIR: PROFESSOR ZOE DAVIES

I am thrilled to say that it has been another very positive year for BTO. Our 90th anniversary provided the perfect opportunity to reflect on our rich history, celebrate our achievements and acknowledge all the fantastic people who make BTO such a success. It also set the direction for the next important phase of our organisation's work, as we launched the new strategy through to 2030. One particular highlight of the strategy launch was producing a fabulous animated film in collaboration with Will Rose (page 9). The beautifully illustrated format was an instant hit, helping BTO engage with a broader audience, and highlighting how everyone can be part of delivering our charitable and strategic objectives.

Indeed, BTO has really stepped up to the challenge of learning how to involve a greater number of people, and a more diverse section of society, with birds. This is exemplified by the Ripple project in Northern Ireland. This initiative is striving to inspire individuals from all backgrounds to appreciate and monitor the species that can be found in their local area (page 29). Similarly, the BTO Youth Reps continue to lead the way by organising a diverse array of popular events. We have also developed a digital communication tool that is accessible to all. 'Birds on Your Doorstep' is an interactive webpage that allows everyone to explore how bird populations have changed in their local area through time (page 12). Based on BTO monitoring data, it clearly shows the breadth and depth of the scientific evidence collated and curated by our organisation.

FROM OUR CEO: PROFESSOR JULIET VICKERY

BTO data are often referred to as our crown jewels and they are remarkable in both their quality and quantity. This is epitomised by the facts and figures highlighted as we celebrated 30 years of the BTO/JNCC/RSPB Breeding Bird Survey: eight million records of 300 species from 176,000 visits (page 10). And that's just one facet of the precious data that generations of skilled observers and staff have worked to collect and analyse.

This year we have continued work to add to the value of these 'crown jewels', particularly through supporting a greater diversity of people to collect, understand and use BTO data, as we collectively seek to conserve birds and foster greater engagement with the natural world. We've invested in projects to help 'new-to-us' communities get involved in observing and recording (page 8). We continue to develop new technologies, such as tracking devices and acoustic monitoring, in ways that will enhance and complement more traditional approaches to data collection (page 10). We've progressed towards making more data open access, and re-packaged information on web-site-based Bird Facts to make it more attractive and easier to interrogate. (page 12).

Ultimately the true value of these data will be measured through the extent to which they make a positive impact for birds. Much of this will be through effective partnerships with those who inform, develop or implement policies. Our trusted relationships with partners, such as the Joint Nature Conservation Committee, Defra and the Country Nature Conservation Bodies, as well as academic and NGO partners such as those within the Cambridge Conservation Initiative, are central to this pathway to impact (page 20). Through these we can be confident that we are addressing the right questions and that BTO science is playing an ever stronger role in delivering positive impacts for both birds and people.

AT A GLANCE

During 2023–24 there were almost 9,000 downloads of BTO data from NBN Atlas, cumulatively totalling over **400 million records**, and used for education, research and commercial purposes.

Volunteers contributed **2,102,943** hours to our work in 2023, an increase of 7% compared with 2022 and the equivalent of 1,292 staff years and £42.6 million, an incredible contribution and powerful resource.

The 2024 Youth Summit, a collaboration between BTO's Youth Advisory Panel, RSPB's Youth Council, and WWF-UK's Youth Ambassadors, empowered and inspired young people and organisations to do more.

Thanks to our members, funders and supporters,

£6.2 million

was spent during the year carrying out, supporting and communicating our ornithological research & delivering engagement.

"Through Garden Wildlife Health, our long-running partnership with the Institute of Zoology, RSPB and Froglife, we have been able to identify the impacts of disease on populations of familiar garden birds, including Chaffinch"

Dr Kate Plummer, Senior Research Ecologist

During 2023–24, we received just over **£2 million** through gifts in Wills, something for which we are phenomenally grateful.

Some **8,890 BTO volunteers** have contributed to the BTO/JNCC/RSPB Breeding Bird Survey, which celebrated 30 years of survey vists in 2024 and now covers nearly 4,000 sites annually.

YOUNG RINGER, BY DAWN BALMER / BTO; CHAFFINCH, BY TOM STREETER / BTO; BTO WALES REGIONAL NETWORK MEMBERS, BY DAWN BALMER.

SEEKING SOLUTIONS

Potential conservation solutions at the population or landscape level usually require some form of policy action, and BTO evidence supports policy development and evaluation at multiple spatial scales and across multiple habitats

Recent and ongoing initiatives include national-scale models informing governments in Wales and England about the consequences of different options for post-Brexit land management schemes, field-scale evaluation of the performance of key arable agri-environment options providing spring and winter resources for birds, analyses of BTO demographic data to inform hedge management policy that safeguards nesting birds, assessment of the drivers of population and distributional change of waders to inform landscape-scale solutions to their recovery, and improvement of the evidence-base used for assessing the impacts of human activities on marine birds.

LINNET, BY LIZ CUTTING / BTO

ARABLE MANAGEMENT FOR BIRDS

BTO research into solutions for farmland bird decline has continued, via in-depth evaluations of the performance of both AB14 Low-input Harvested Cereals and AB9 Wild Bird Seed Mix Crops in the Countryside Stewardship scheme, under Natural England funding. Although designed using sound evidence, how well do they work in practice? We have looked at the relevant plant and invertebrate resources that determine value for birds, as well as the birds themselves. Via our partners, the Countryside and Community Research Institute, we have also investigated crop agronomy and farmer attitudes, which have major influences on where and how these scheme options are implemented.

The Wild Bird Seed Mix project will report in 2024. However, the results show that most Low-input Harvested Cereals were on mixed or grass-dominated farms. This reflects crop use primarily for stock-feed, as the weediness that benefits biodiversity makes it uneconomical to harvest and so this option is a poor fit on arable farms. Biodiversity responses were generally positive, so the option broadly achieves its aims, although effects were most apparent for plants and pollinators, potentially reflecting more direct effects than on birds, which use landscapes at larger spatial scales.

MANAGING HEDGES TO PROTECT BIRDS

Hedgerows are an important semi-natural habitat for wildlife and are maintained through regular cutting, with most management activities prohibited from 1 March to 31 August to protect breeding birds. These rules were derived from EU legislation and lapsed in 2023, following Brexit, providing a need for replacement and an opportunity for revision. As part of a wider Defra consultation, we analysed Nest Record Scheme and Ringing Scheme data from England to inform this process, assessing the effectiveness of the current regulations and the potential impact of possible changes in management on breeding birds. Using data from England from 2011 to 2021, BTO researchers estimated the timing of the nesting cycle for 15 hedge-nesting birds. The analyses revealed that 14 species still had active nests in August, with Yellowhammer, Bullfinch and Linnet being the most likely species to be affected by any advance in the timing of hedgerow management. As a result of the consultation, new regulations will be introduced into English legislation when Parliamentary time allows.

ASSESSING THREATS TO SEABIRDS

Our seabirds face a multitude of pressures, from disease, climate change and direct anthropogenic threats, such as the development of renewable energy projects, overfishing and habitat loss, which are recognised through the current development of country-level seabird conservations strategies, such as the English Seabird Conservation and Recovery Pathway (ESCaRP). A key challenge in the conservation of seabirds is quantifying the impacts of these multiple pressures, which operate through effects on the birds' breeding success, survival and phenology (the timing of events during the annual cycle).

A recent BTO-led paper considered the well-studied Kittiwake as a case study to highlight knowledge gaps in our understanding. The study identified key monitoring and research requirements for this and other seabirds, revealing those species and regions for which key information is currently lacking. Obtaining accurate data on demographic rates and movement patterns, for example, will help us and others to identify and develop solutions that will support thriving seabird populations. It improves our ability to predict the impacts of climate change or fisheries management on seabirds, and informs the placement of Marine Protected Areas and marine development.

CURLEW NEST, BY RICH BUNCE WALKING PHOTOGRAPHER

CASE STUDY:
BREEDING WADERS

BTO research is enabling the delivery of effective management solutions for breeding waders, many of whose populations are in decline.

As with seabirds, our waterbird populations may also be impacted by pressures throughout their annual cycles. The Curlew has been described as the UK's highest bird conservation priority and previous analysis of Ringing Scheme data, published in *Biological Conservation*, highlighted that the species' survival rates were high, and that current population declines are, therefore, likely to be driven by low breeding productivity. Current work, being undertaken in collaboration with the Curlew Recovery Partnership as part of the Natural England/BTO Research Memorandum of Agreement established in 2023, explores the effectiveness of management interventions aimed at increasing Curlew breeding productivity within its rapidly declining populations in central and southern England.

This builds on established regional studies in varying landscapes, including a recent PhD study in the East Anglian Brecks, supported through BTO's Curlew Appeal. In this grassland- and arable-dominated region, the majority of nest failures (86%) were caused by (primarily nocturnal) predation. Fencing to exclude mammalian nest predators can increase wader nest success, but too few Curlews currently nest within fenced areas in Breckland to produce an observable benefit. Fencing sites containing high densities of nesting Curlews could potentially double the number of chicks hatched each year within the Breckland study area, something that would help to maintain these populations. However, landscape-scale actions to reduce predator impacts on nests and chicks will be needed to maintain breeding numbers within the wider countryside.

EMBRACING EVERYONE

As evident in our strategy animation, launched during the year, we are working to inspire, engage and empower a greater diversity of people to discover and value nature through active engagement with our work.

BECOMING (MORE) INCLUSIVE

Over the past year we have continued to work on projects that support and enable our strategic commitment to become a more inclusive organisation. These projects seek to reach a greater number and diversity of people, from across different geographical locations and with different experiences, with a range of opportunities that are developed with inclusion principles and practices in mind.

It is our ambition to equip and empower individuals across BTO staff and our wider community, enabling them to recognise opportunities for greater inclusion within their areas of work or involvement with BTO. We are doing this through our *Becoming (more) Inclusive* framework and its accompanying action plan, which has been co-developed over the past year with a broad group of collaborators.

BTO BIRD RACE 2023

Through our work with Dr Anjana Khatwa, and through co-developing our framework for inclusion with Helen Bown, we recognise that there are core elements that will better enable us to deliver against this action area. In particular we need to:

- increase understanding and confidence about what inclusion and being inclusive means;
- distil evidence and develop examples (including stories) that show why inclusion matters, and how being inclusive benefits birds and people;
- focus on understanding and addressing barriers to inclusion.

Focusing on our internal approach to inclusion is foundational, and we have been developing a rolling programme of initiatives and activities to increase equity, diversity and inclusion for our workforce, seeking input via staff forums, staff meetings and staff surveys. Importantly, we recognise that we are on a journey to become more inclusive and that we will need to take existing staff and supporters with us, explaining why the changes we are making are important, and helping them to see why an inclusive BTO will be better placed to deliver more strongly on our charitable and strategic objectives.

This action area is prioritising projects that have the greatest likelihood of delivering genuinely inclusive outcomes and sustainable change; for example, projects that do not make assumptions about what people and communities currently under-served in BTO and our sector want, but instead seek to engage those communities and ask them. This approach has been particularly valuable in our *Together through nature* project in Thetford, where we are working with Civil Society Consulting and local partners to provide opportunities for local residents who do not normally engage with birds, nature or science.

A FOCUS ON SOUND

We have gained valuable experience over the past year of working with blind and partially sighted people. Our Ripple Northern Ireland project delivered an Auditory Birdsong Training day for people with visual impairments, run in partnership with RNIB Northern Ireland. Our Training team ran a similar event for Vision Norfolk as part of the Brecks Fen Edge and Rivers project. A group of individuals with visual impairments, along with their guides and dogs, joined Nick Moran and Jenny Donelan for a guided walk around RSPB Lakenheath Fen, with a focus on bird songs and calls. We are keen to offer more auditory-focused activities in the future.

INTERGENERATIONAL ACTIVITIES

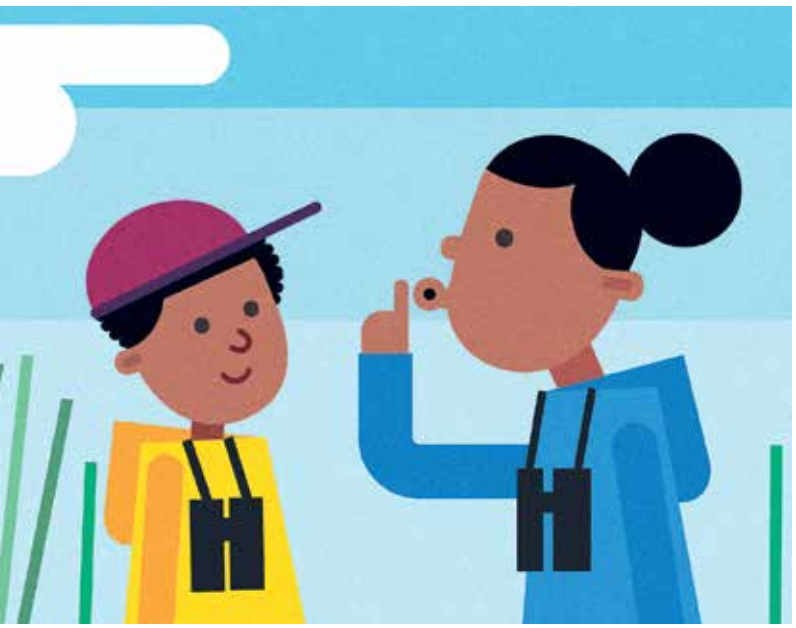
Over 100 people from across the UK came together to share their excitement about birds and celebrate BTO's 90th anniversary in the Big Bird Race 2023. The event, which was organised by BTO Youth Representatives saw 117 people, ranging from total beginners to experienced birdwatchers, going on birdwatching races in a range of habitats to identify as many species as possible in four hours, using only green means of travel. BTO Youth's aim was to make everyone feel like birdwatching and nature can be for them. By bringing together a whole host of experience levels and ages, everyone will have learned something new, made some great memories and, hopefully, grown a greater appreciation for birds.

CASE STUDY:
EQUIPMENT DONATION SCHEME

One of the barriers to participation faced by young people is access to the optical equipment – binoculars and telescopes – that is so central to the birdwatching hobby. We have addressed this through a new scheme.

The BTO Equipment Donation Scheme (EDS) supports young people across the UK who cannot afford birdwatching equipment and guides, by donating binoculars, telescopes and bird books to individuals, schools, and university groups. It is managed by BTO Youth, and aims to pass on the passion for birdwatching to the next generation.

Thanks to the generosity of hundreds of donors, EDS has now benefited over 2,300 young people across the UK. Applications to receive donated equipment are reviewed by a panel of staff and Youth Advisory Panel members so that we can prioritise the young people who will benefit most. The scheme has been kindly supported by Opticron, a family-owned business with over 50 years of experience in consumer optics. The company has helped repair some of the used equipment donated to the scheme and has also supported the purchase of new equipment for onward donation. We are incredibly grateful for this support, and for the generosity of BTO supporters whose donations of pre-loved equipment are enabling a new generation of birdwatchers to take up the hobby.



BTO STRATEGY ANIMATION, BY WILL ROSE / BTO; EQUIPMENT DONATION SCHEME RECIPIENT, BY CLAIRE FAULKNER.

CHARTING CHANGE

We are tracking changes in bird populations to understand their health and that of the wider natural world. During the year we celebrated three decades of the Breeding Bird Survey and trialled new methods to enhance our core monitoring.

GOOSE AND SWAN COUNTS

The latest results of the Goose and Swan Monitoring Programme were presented in the *Waterbirds in the UK 2022/23* report published this spring. The scheme is organised by BTO in partnership with JNCC and NatureScot, with BTO taking over the lead in summer 2022. There are two key areas of results presented: goose and swan age assessments and censuses of migratory geese. Age assessments comprise information on the proportion of young and the mean brood size for Whooper and Bewick's Swan, plus six populations of geese. Counts of Pink-footed Geese and Greylag Geese are made in the autumn and are collated from across the range to form the Icelandic-breeding Goose Census. Counts of Taiga Bean Goose, Greenland White-fronted Goose, Svalbard Barnacle Goose and Greenland Barnacle Goose are made in the winter by volunteers and organised 'goose groups'. Britain and Ireland host important numbers of wintering geese. The global population of Greenland White-fronted Goose in spring 2023 was 18,027 birds, made up of 7,792 in Ireland and 10,235 in Britain.

HAPPY 30TH BIRTHDAY BBS!

2023 marked the 30th year of fieldwork for the BTO/JNCC/RSPB Breeding Bird Survey (BBS). Nearly 9,000 skilled and dedicated volunteers have submitted some eight million records of 300 species of bird from 176,000 visits, amounting to over 300,000 hours of volunteer effort – a staggering acheivement. The survey remains central to UK bird monitoring and reporting, contributing to a broad range of publications, papers and metrics.

Although designed as a UK monitoring scheme, thanks to the level of volunteer support, trends are delivered at a country and regional level for varying numbers of species, contribute to the Pan-European Common Bird Monitoring Scheme and are increasingly used in local initiatives. BBS provides the infrastructure for the Tracking the Impact project in the Chilterns, which is an exciting landscape-scale wildlife surveying programme running across the central Chilterns as part of the Chalk, Cherries and Chairs Landscape Partnership scheme. To empower and contribute to regional initiatives of this kind underlines the value of the BBS, and the power of BTO-led citizen science to deliver information across a broad range of spatial scales.

DEVELOPING MONITORING METHODS

Passive acoustic monitoring (PAM) provides a means of collecting data on birds, as well as other wildlife, in areas with few expert bird surveyors, often for species poorly monitored through diurnal surveys. It also has the potential to be deployed for long time periods, hence increasing species detection and capturing data over the full daily and annual cycles. BTO is currently undertaking a suite of projects designed to explore the potential of this emerging technology. These include: (i) supporting BBS volunteers to deploy acoustic devices alongside normal BBS surveys in Scotland, (ii) comparing traditional survey methods with acoustic devices for use by farmers and landowners in Dorset, as part of a broader European project, (iii) deploying acoustic devices on BBS squares to measure and compare soundscapes in different landscapes, and (iv) trialling the use of acoustic recorders to detect a potentially invasive non-native bird species.

An overarching aim across these projects is to assess the pros and cons of this technology, given that AI-based PAM will miss individuals or species that are not vocalising and may deliver false positives, the latter due to imperfect classification. Moreover, although very useful for detecting presence, PAM cannot yet be easily used to measure relative abundance as effectively as human observers. Solving these issues and delivering improvements in the use of Passive Acoustic Monitoring will make this technology a valuable tool in our arsenal for monitoring birds, as well as bats, other mammals, amphibians and insects in the future.

AVIAN DEMOGRAPHIC SCHEME (ADS)

Over the past year we have continued to focus on the development of Demography Online (DemOn), a system that greatly improves the quality of ringing and nest record data submitted to BTO, and makes these data more accessible to volunteers, while simultaneously reducing data processing and reporting costs. The first phase build was completed in March 2024, and the remaining 30% of scheme participants using the previous electronic system will be migrated to DemOn by March 2025.

Reduced future expenditure on database development has allowed the ADS Team to expand in other areas, with an ADS Engagement Manager employed for the first time in November 2023. That recruitment has significantly increased capacity to progress the revision and publication of the online guidance that replaces the Ringers' Manual, a process underpinned by extensive discussions with the Country Nature Conservation Body licensing teams over the past few years; production of additional, seabird-specific material has also been delivered through funding from the Seabird Appeal. During the year, work was also completed on a review of the programs used to analyse Nest Record Scheme data, enabling geographic and habitat variation to be accounted for when producing outputs, and delivering even better outputs for end users.

PINK-FOOTED GEESE, BY CHRIS KNIGHTS / BTO

BBS SURVEYING, BY DAWN BALMER / BTO; RINGED WHEATEAR, BY LIZ CUTTING / BTO; UPLAND BBS SURVEYING, BY TRACY MUNRO / BTO

DELIVERING DATA

We want to increase the availability, synthesis, use and impact of BTO data. Our goal is for BTO data to be used in environmental policy and practice through active and effective partnerships, and widely drawn-upon by a diverse range of end users.

In a typical year, BTO receives around 15 million bird observations through our ongoing monitoring and demographic surveys and schemes. Our tracking projects produce around a million positional fixes each year, and we are collating in excess of 50 million records through acoustic projects annually. Collating and managing these large and growing datasets efficiently is an important job and we are investing in improved facilities to secure these data for posterity. Most of these datasets are collected with a particular purpose in mind, such as producing the population trends presented in the annual *Breeding Bird Survey Report* and the *Wetland Bird Survey and Goose & Swan Monitoring Programme Report*. The main goal of the Delivering Data Action Area is to ensure that these data have value and impact beyond their primary use.

SHARING RECORDS MORE WIDELY

One of the key ways we can do this is to share records with the wider world for reuse. Currently around 120 million records from 1950 onwards are shared on the National Biodiversity Network (NBN) Atlas. During 2023–24 there were almost 9,000 downloads of BTO data from NBN Atlas, cumulatively totalling over 400 million records, with the majority used for education, research and commercial purposes.

We also operate a Data Request Service and in 2023–24 received 358 requests and delivered around 14 million records to a range of end users. Not all uses are best served by large extracts of raw records and for the last three years we have been producing BTO Data Reports, a commercial product aimed squarely at the environmental impact assessment industry: in 2023–24 we produced 74 Data Reports, generating a modest surplus to reinvest in the monitoring schemes that underpin the Reports.

MODERNISING OUR DATA SERVICES

In November 2023, we created a new Biological Data Manager role to help modernise our data services. One goal is to remove barriers to the reuse of BTO data. Where appropriate, we intend to make more of our data self-service and open access. We have already published an open access dataset covering the bird atlases (Gillings *et al.* 2019) and soon hope to release an equivalent dataset containing 25 years of BBS data. Open access is not without its challenges, including the sensitive treatment of rare breeding birds, the protection of intellectual property and loss of revenue from data sales. Some of these issues can be alleviated by releasing products that share aggregated or derived information rather than the raw data themselves.

EMPOWERING KNOWLEDGE

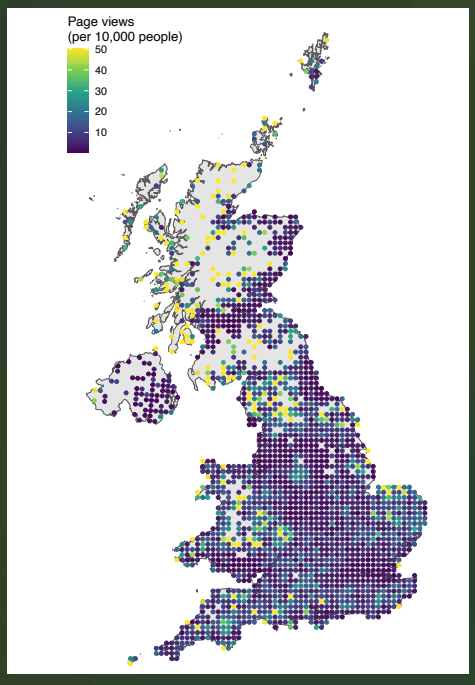
We have carried out a major overhaul of our BirdFacts web pages to provide a more comprehensive data-based encyclopaedia for UK birds. Existing information on population trends, demography and biometrics is now complemented by Bird Atlas maps, BirdTrack phenology graphs, identification information and commentaries about causes of change, conservation actions and relevant publications for many species. Already these pages have been viewed 40 times more often than their predecessors .

WIND TURBINES, BY DAVID TIPLING / BIRDPHOTO.CO.UK

BirdFacts provides information by species and already provides a self-service option for many users interested in species information. Another common request is for information about places. In May 2023, we produced a new tool called Birds on your Doorstep that aimed to highlight how bird populations have changed where people live. Users enter their postcode to see a summary of changes from Bird Atlases and current information from BirdTrack The tool has been used almost 30,000 times to see changes in all populated parts of the UK (see map). We plan to build on this with more place-based information in the coming year.

As we review our current data policies and practices we will identify more ways to increase the value and impact of data collected by BTO volunteers and staff. We hope having greater access to the right kinds of data will empower more people to take positive action for birds and people.

WREN, BY EDMUND FELLOWES / BTO; INSET: BIRDS ON YOUR DOORSTEP ACCESS


Page views
(per 10,000 people)
50
40
30
20
10

SUSTAINING SUPPORTERS

We want to ensure that everyone who works with us feels valued, and knows that they are playing an important role in tackling the biodiversity and climate crises. Over the past year we have continued to invest in our supporters in many different ways.

SUPPORTERS MATTER

BTO's thousands of supporters help us in a range of ways. Their 2,102,943 hours of dedication during the last year provided data that have improved our understanding of changing bird populations, the drivers of those changes, and the effectiveness of conservation interventions. People participating in our work have also benefited directly, through their learning, and from the well-being advantages of time spent outdoors. By kindly supporting us with memberships, donations and legacies, our supporters also enable us to do much more, including important self-directed research to answer the most pressing questions.

COUNTING OYTSERCATCHERS, BY DAVID TIPLING / BIRDPHOTO.CO.UK

IN WITH THE OLD, IN WITH THE NEW

To underpin Charting Change and other strategy action areas we need to increase the number of BTO volunteers throughout the UK. It's also essential that we recognise the needs and values of our existing supporters to ensure that we retain them, so we can build on that solid foundation. Accordingly, our work within Sustaining Supporters encompasses both recruitment and retention. Over the past year, for example, we have continued to invest in the tools, such as Demography Online and BirdTrack, used by our volunteers to enter and manage their survey data. It is essential that these tools are easy to use and that they provide the functionality that our volunteers want, enabling them, for example, to report back to the landowners who so kindly grant access to survey sites.

SUPPORTING THE REGIONAL NETWORK

Our network of ~350 Regional Representatives, Survey Organisers and Ambassadors is critical, providing local points of contact for survey organisation and engagement. Thanks to the generosity of the Gillian Wills Development Fund we have been able to establish a new full-time post to support the Regional Network. We have been improving communications, organising local get-togethers, and building towards a recruitment drive to fill vacancies. We hope that many more people will experience the benefits of an engaged and active Regional Network team in their area as this work bears fruit.

It is essential that our Regional Network volunteers have opportunities to share their knowledge and experience with each other, as well as with BTO staff. To this end, we have continued to host meetings that enable face-to-face discussion, something that has proved popular with those attending.

"Just to say how much I enjoyed the meeting on Saturday. I came away energised and full of good intentions. The format was great, and the value of having a face-to-face meeting was obvious. In my view these kinds of meetings should be held regularly in the future."

Stephen Metcalfe – Regional Rep for Lothian, following a gathering of the Scottish Regional Network

INVESTING IN TRAINING

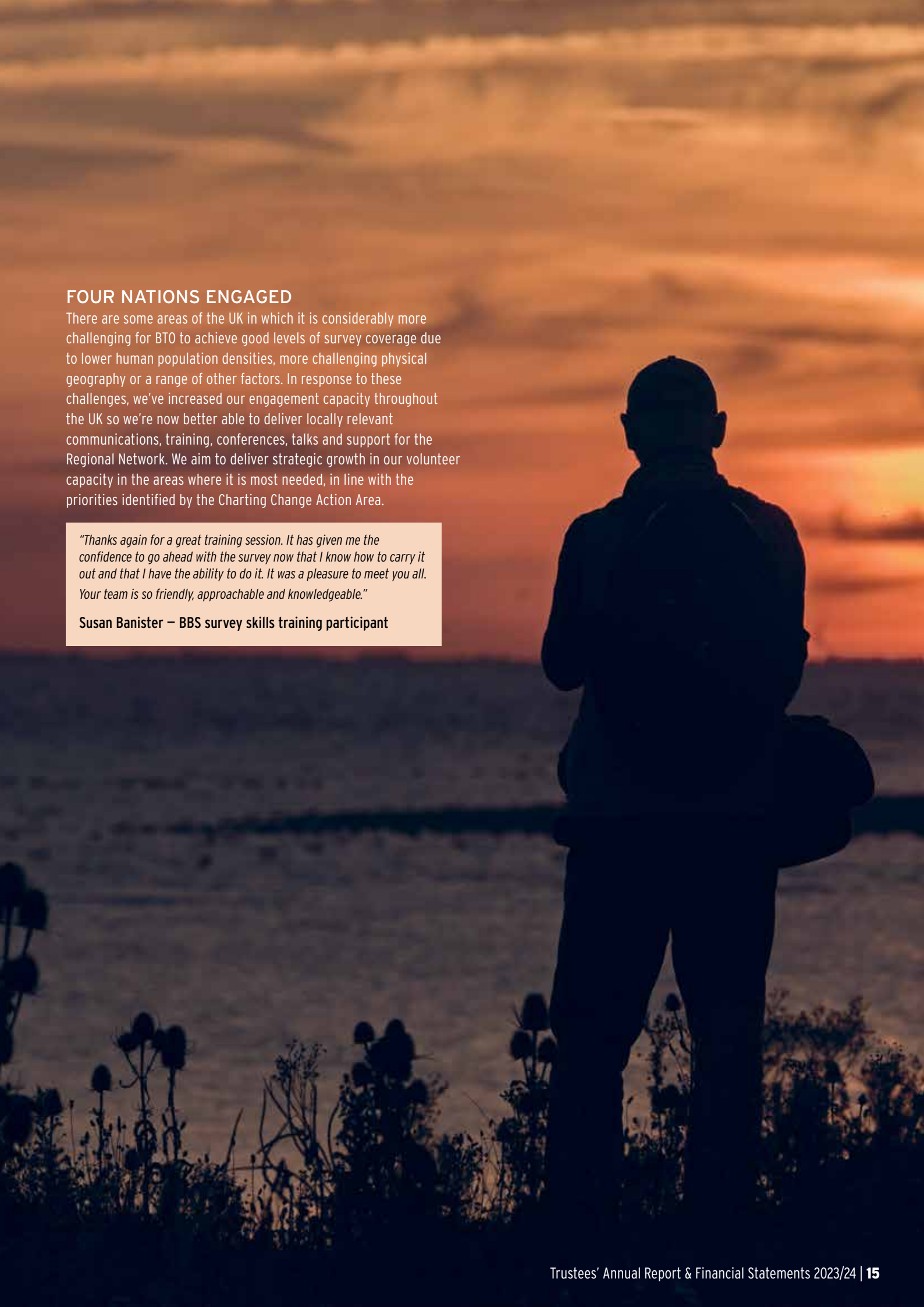
By investing in training we have welcomed more people into BTO, supported their development and, in so doing, we have laid foundations for growth in our volunteer schemes and surveys.

During the last year we had 4,393 registrations across 33 different training events (involving 75 online sessions and 34 in person ones). 3,133 unique individuals accessed our training, with an average age of 54 – our youngest participant was 11 and our oldest 92. People joined online or in person sessions from 1,109 10-km squares around the UK, 37% of the total.

We also delivered face-to-face training in bird ID and survey skills in some of the higher priority areas for volunteer development.

"These courses are consistently excellent. The trainers are so knowledgeable, clear, enthusiastic and friendly – and they really do know how to teach. The composition of the sessions maintains interest and moves logically from one topic to the next"

BIRDWATCHER, BY DAVID TIPLING / BIRDPHOTO.CO.UK



FOUR NATIONS ENGAGED

There are some areas of the UK in which it is considerably more challenging for BTO to achieve good levels of survey coverage due to lower human population densities, more challenging physical geography or a range of other factors. In response to these challenges, we've increased our engagement capacity throughout the UK so we're now better able to deliver locally relevant communications, training, conferences, talks and support for the Regional Network. We aim to deliver strategic growth in our volunteer capacity in the areas where it is most needed, in line with the priorities identified by the Charting Change Action Area.

"Thanks again for a great training session. It has given me the confidence to go ahead with the survey now that I know how to carry it out and that I have the ability to do it. It was a pleasure to meet you all. Your team is so friendly, approachable and knowledgeable."

Susan Banister – BBS survey skills training participant

FRAMING FUTURES

BTO's expertise and extensive monitoring and surveillance datasets enable us to carry out large-scale analyses to address important questions about the factors that are driving change in bird populations and their distribution, both now and into the future.

RESPONDING TO EMERGING DISEASES

BTO has continued to play a central role in the response to the emergence of highly pathogenic avian influenza (HPAI) in our waterbird, seabird, and bird of prey populations – the latter covered on page 31, where data from the Scottish Raptor Monitoring Scheme have proved particularly valuable.

During 2023 we saw HPAI devastate Black-headed Gull and Common Tern colonies, many of which were located inland and away from the coastal seabird colonies hit the previous year. We continued to work with partners in Government and other NGOs to understand the impacts of this disease outbreak and to identify ways in which we might tackle the challenges posed by HPAI.

COMMON TERN CHICKS, BY MOSS TAYLOR / BTO

We have been able to use the data collected by our volunteers to assess the impact of HPAI on bird populations. We have also carried out vulnerability assessments, identifying the species and populations at greatest risk from the outbreak, which in consultation with others we have used to inform changes to our ringing guidance. This information is being used to direct conservation responses and the prioritisation of resources. BTO has also been developing tools to inform future decision making, including the development of predictive models that can highlight likely spread in poultry based on wild bird abundance and movements across Europe, something of great importance to the poultry industry.

During the year, we also recognised the need to bring together the knowledge and data being generated as researchers from across the world responded to HPAI outbreaks in wild birds. We launched a call for papers for a special issue of our journal *Bird Study*, which attracted significant interest and which will appear in late 2024. By bringing this information together in one place we will also deliver an opportunity to raise awareness of the work being done as we respond to this disease.

HPAI is not the only disease with which BTO has been involved over the past year. In November 2023, we celebrated 10 years of the Garden Wildlife Health project, operated by BTO in partnership with the Zoological Society of London, RSPB, and Froglife. The project monitors the health of, British wildlife, identifying disease threats and bringing together both opportunistic and systematic monitoring, the latter delivered by participants in BTO Garden BirdWatch. An event at London Zoo brought together a host of researchers and NGOs to both celebrate the project's many achievements and discuss the most pressing disease threats, one of which is Usutu virus in Blackbirds – the subject of a project that was initiated in summer 2023.

DELIVERING LANDSCAPE RESTORATION

Thanks to the Cambridge Conservation Initiative's Endangered Landscapes and Seascapes Programme and the generosity of Arcadia – a charitable fund of Lisbet Rausing and Peter Baldwin – BTO has continued its partnership working to restore and protect ecologically important landscape within Polesia. Polesia, which is located in Eastern Europe and contains some of Europe's last pristine peatlands and lowland forests, has suffered from devastating large-scale fires.

By using satellite data, the team was able to explore the prevalence of large fires – some of which extended over more than 100 km^2 – and the factors causing them. A key question was whether work to restore some of the landscape's damaged wetlands could reduce the risk of large and damaging fires, which have been increasing because of climate change.

Frequent spring and summer fires were found to have predominantly started in agricultural areas, where farmers burn the land to clear it after harvest or before planting. The fires then spread into neighbouring peatlands and floodplain meadows, which hold globally threatened species such as Greater Spotted Eagle and Aquatic Warbler. The largest fires, however, burned in the native deciduous forests, threatening protected old-growth oak and beech forests. Overall, more than a fifth of protected land burned during the period studied, highlighting the conservation impacts of the fires.

The results of the study indicate that restoration of Polesia's wetlands would help to limit the spread and intensity of these large and damaging fires. One of the challenges has been the years of land drainage for agriculture and forestry, which has left this important landscape drier and more susceptible to fire. Restoring these landscapes would deliver significant benefits for people and for wildlife.

CASE STUDY: CLIMATE CHANGE

As well as identifying the impacts of climate change on biodiversity, we are increasing understanding of how climate change interacts with other drivers, including land-use change.

CUCKOO AND MEADOW PIPIT, BY EDMUND FELLOWES, / BTO

PUTTING MIGRANTS ON A GLOBAL STAGE

Climate change is already having catastrophic impacts on many migratory species, including birds, and BTO has been leveraging its datasets and expertise to both help identify these effects and the potential for climate change adaptation or mitigation. In December 2023, for example, a landmark report was launched at the United Nations Framework Convention on Climate Change CoP in Dubai. The report was commissioned by JNCCt, funded by Defra, and delivered by BTO scientific staff.

This report presented strong evidence that global increases in temperature are already affecting most migratory species groups, impacting the distribution of species, the timing of migration, and disrupting the food webs on which migrants rely. In some species there is a risk that global temperature increases will cause a mis-match between the timing of breeding and the time when prey species are most abundant. There is also strong evidence that migratory seabirds and marine mammals will be impacted by changes in oceanic currents, which are also likely to alter the nature and functioning of many ecological systems. The report reviewed potential conservation actions, and highlighted the importance of conserving migrants because of the benefits they provide for ecosystem function and nature-based solutions.

Being able to present this robust evidence at such an important conference provided a global platform for BTO work and, more importantly, saw this evidence feed through into the key Convention of the Conservation of Migratory Species CoP14 in Uzbekistan in February 2024, where it influenzed global policy-making. The report reinforces the need for immediate and concerted global action to tackle climate change and its impacts on migratory species.

LITTLE ROOM FOR MANOEUVRE

BTO data reveal that the average spring arrival dates of many summer migrants have advanced over recent decades, but the Cuckoo is one of a handful of species in which this has not happened. The long-term decline in UK Cuckoo populations, together with the link between a changing climate and changing spring arrival dates more generally, raises the question as to why there has been such a limited shift in Cuckoo arrival times. This is something that has been addressed through a piece of BTO research, published during the year.

The team used 11 years of tracking data from 87 male Cuckoos, tagged as part of the BTO Cuckoo Tracking Project, to explore the timing of Cuckoo migration. The analyses revealed that the major determinant of the timing of spring arrival in the UK was departure from West African stopover sites. Individuals that left West Africa earliest arrived back on the breeding grounds earliest. The high level of synchrony evident in Cuckoo departures from West Africa suggests a relatively narrow optimal window for departure from these sites, and limited flexibility with which to adjust the timing of this event. It is likely that environmental conditions in West Africa constrain the timing of Cuckoo departure; worryingly, it looks as if the birds are doing all they can already to advance their UK arrival, and may already be suffering increased mortality at some stages of their annual cycle as a consequence. This new knowledge allows for better prediction of future responses to a changing climate, and reveals how conservation measures might mitigate the consequences of timing sresses at different points of the Cuckoo's annual cycle.

SHARING CUCKOO TAGGING WITH THE ONE SHOW, BY JON CARTER / BTO

OUR VOLUNTEERS

BTO is fortunate to have amazing volunteers, working across the organisation to deliver our charitable objectives. From the volunteers who make up BTO's Board, through those who coordinate participation and enagement opportunities, to those who collect and submit data that form the evidence base to our work, a huge thank you to you all.

GOVERNANCE

The BTO Board governs the charity and directs and drives our work, and we are incredibly lucky to have such a dedicated, knowledgeable and passionate group of individuals working in this vital role. Our Board members bring a diversity of experience, something that ensures that our governance is robust and that the different facets of our work are represented.

Recognising the growing work of BTO Youth, for example, we appointed our first Young Trustee, Emma Thornton, in 2023. Emma has been part of BTO's Youth Advisory Panel since its formation in 2020, and was inspired to set up and lead the Oxford Ornithological Student Society. Emma is passionate about creating opportunities for young people to connect with nature and science, particularly around improving mental health.

"By presenting this opportunity, BTO has demonstrated its commitment to embedding young people into the organisation and I hope that my fresh perspective will contribute to ensuring BTO has its feet firmly on the escalator of our fasting moving world."

Emma Thornton – BTO Young Trustee

Governance is central to the running of BTO, as it is to any charity, and the Trustees work closely with BTO staff to review and evaluate performance against our goals and objectives. Together with staff, they help us to respond to a changing economic, political and technological landscape. In the past year, for example, the Trustees worked with BTO Communications staff on a new policy for social media, prompted by a Charity Commission consultation. The resulting framework ensures that we can maintain and protect BTO's reputation, and the beneficiaries of our charitable objectives, within what has become a polarised and challenging communications channel.

Sub-committees of BTO Board help to ensure the effective delivery of particular aspects of our work; for example our Regional Network and Ringing committees. These bring in other volunteers and the necessary experience to help inform and shape our work in these important areas. Our Regional Network, through which we coordinate and deliver much of our monitoring and engagement work, remains a central component of our volunteer networks. Over the past year we have been able to strengthen the staffing resource for this network, which will help us to provide greater support to our regional volunteers, and to all of our members, survey volunteers and supporters (see page 14).

BTO BOARD MEMBERS AND SENIOR LEADERS ON A VISIT TO BTO SCOTLAND / BTO

INCREDIBLE CONTRIBUTIONS

During 2023, BTO volunteers contributed an incredible 2,102,943 hours of work in support of delivering our charitable objectives, an increase of 7% compared with the previous year. This significant level of volunteer contribution represents the equivalent of 1,292 staff years, and has an estimated monetary value of £42.6 million.

At a time when public sector spending on biodiversity in the UK has been falling as a proportion of GDP, the increasing contribution of volunteers to biodiversity monitoring is hugely important. Thanks to the incredible efforts of our volunteers, we are well placed to ensure that our robust evidence base is used to deliver for both birds and people, whether that is through informing planning policy, testing the effectiveness of nature-based approaches to land management, or improving human health and well-being.

While recognising the collective contributions of our volunteers underlines the difference that we are making as a charity, it is also vital that we acknowledge and celebrate each volunteer's unique contributions. We continue to do this through survey and project reporting, for example in the form of the 'Year in review' emails that we send to participants in BirdTrack and Garden BirdWatch, but there is more that we want to do around reporting across the totality of the projects with which an individual is involved. This is an area of work for the coming period.

NEST RECORD SCHEME VOLUNTEERS, BY MIKE TOMS / BTO

OUR PARTNERSHIPS

We are collaborative, working in partnership with individuals and organisations to achieve our collective goals. During the past year this approach has enabled us to contribute and share our expertise across a number of important projects.

INFORMING RENEWABLES

The key role of renewables in efforts to mitigate climate change impacts brings with it a need to understand the possible effects of renewable infrastructure on birds and other wildlife. BTO's work in this area has benefited from long-running partnerships, including with other NGOs, academics, industry, and statutory bodies. The diversity of the partnerships with which we are involved underlines the trusted role that BTO plays in delivering robust evidence and advice, and the convening power that comes from this.

Collision risk is an important consenting issue for offshore wind farms. However, we still have limited understanding of the factors influencing collision risk, especially in relation to seabird avoidance behaviour and how this varies through the year. By using tracking devices, and by working in partnership, BTO has been able to provide much-needed knowledge. Working on behalf of the UK Government's Department for Business, Energy and Industrial Strategy, for example, BTO has delivered a series of projects evaluating the potential interaction of gulls and skuas with offshore wind farms.

GRIFFON VULTURE, BY DAVID TIPLING / BIRDPHOTO.CO.UK

Importantly, we are seeing the results of this work feeding through into policy and management decisions, both here in the UK and more widely across the globe. A BTO-led global review of the collision risk associated with wind farms for birds and bats (Thaxter *et al.* 2017), used traits to identify the most vulnerable species to collision mortality – particularly large soaring birds such as vultures, buzzards and kites. For many parts of the world, these estimates of vulnerability are the only estimates available. They have been used by BirdLife International as the basis for estimating species sensitivity to wind farms in the Avistep project (**avistep.birdlife.org**), that so far provides guidance for renewable energy placement in India, Vietnam, Nepal and Thailand.

JOINT RESPONSE TO A KNOWLEDGE GAP

Information on the non-breeding season numbers and distribution of gulls has not been updated for nearly 20 years. The lack of up-to-date information has implications for the designation of protected sites and the development of country-level seabird conservation strategies. It is also needed to help us respond to the recent outbreak of highly pathogenic avian influenza in wild bird populations.

We have been able to address this important knowledge gap because of our well-established partnerships with Defra and the Country Nature Conservation Bodies, who – together with BTO – have been able to direct financial and other resources to a new national Winter Gull Survey (WinGS), the fieldwork for which began during the 2023/24 winter.

The survey will provide updated population estimates for Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull and Great Black-backed Gull wintering in the UK, its constituent countries and the Crown Dependencies of the Channel Islands and the Isle of Man. It will also deliver additional information on the populations of other, less common, gull species wintering here. From this, we will be able to update the thresholds used to identify sites of national importance for these species, supporting the designation of protected sites and the conservation of these birds.

Promotion of this volunteer-based survey has also been supported by long-running partnerships, in this instance those that we have with local and national media. These have delivered high profile pieces on BBC News and in the papers. Not only is it important to secure sufficient volunteers to carry out the fieldwork, but it is also important to highlight the value of this work to the wider public.

GREATER THAN THE SUM OF OUR PARTS

BTO is part of a unique collaborative partnership between the University of Cambridge and leading biodiversity conservation organisations. Based in the David Attenborough Building in Cambridge, the Cambridge Conservation Initiative (CCI) is the largest cluster of conservation organisations in the world. Its strong convening power enables BTO to directly engage with a wide global audience, from leaders in government, business, academia and NGO communities, to the general public.

Through the CCI partnership, we have come together with other organisations to tackle complex and challenging issues with innovative approaches, using a multi-disciplinary approach that cannot be achieved by any one organisation alone.

A WINTER GULL ROOST, BY NEIL CALBRADE / BTO

ENGLAND

Many policy decisions have a strong country- or regional-focus, and BTO's work reflects this. We continue to deliver projects from our Country Offices, often working with country-level partners and other stakeholders.

INFORMING HOW LAND IS MANAGED

Post-Brexit, there has been considerable government interest in scoping what different policy decisions would mean for how land is used, and the wider environmental effects of this. A key approach to predicting the possible impacts of different policies is Defra's Ecosystem Value Assessment Scenario Tool (EVAST). It has the ability to simulate the effects of policies focussing on biodiversity, climate, water quality, and air quality.

BTO has provided bird models, based on the BTO/JNCC/RSPB Breeding Bird Survey data, to EVAST, to compare future scenarios with the current baseline. These models help us to understand how bird communities are likely to change and how such changes may, or may not, help meet important environmental targets.

EVAST builds on the Integrated Modelling Platform developed within the Environment and Rural Affairs Monitoring and Modelling Programme (ERAMP), an ongoing project in which BTO is conducting analogous modelling for the Welsh Government. Like EVAST, this work has been led by the UK Centre for Ecology and Hydrology, a core BTO partner. It is providing information on the likely consequences of different policy scenarios, and informing plans for the developing Sustainable Farming Scheme in Wales.

IDENTIFYING IMPORTANT HABITATS

Intertidal habitats are often well-used by waders outside the breeding season, but some species also make use of other adjacent habitats during this period, including agricultural fields. Understanding the importance of these non-tidal habitats for waders is crucial, especially as such land is rarely included within the protected areas designated for these species.

A study published in 2023 investigated the use of non-tidal habitats bordering The Wash, an estuary in eastern England, by Curlew and Bar-tailed Godwit. Information on the winter-feeding distribution of the two species was collated from resightings of individually colour-marked birds, initially caught and ringed at sites around The Wash by the Wash Wader Research Group.

The resightings revealed that Bar-tailed Godwits were only seen on intertidal habitats. In contrast, colour-marked Curlews were regularly observed feeding on agricultural fields, the colour-marks revealing that the majority of individuals were feeding on both fields and mud flats. Importantly, those Curlews seen feeding in fields were significantly more likely to be male and those on the estuary more likely to be female. Although there is a small degree of overlap, female Curlews have longer bills than males. The difference in habitat use evident in the resighting data probably reflects the fact that the longer-billed females can access more intertidal worms and are more efficient feeders when probing.

That inland fields are used by increasing numbers of Curlews, particularly males, through the winter months has implications for existing conservation approaches. The Wash is protected by various national and international designations, but these relate primarily to the intertidal habitats; the inland fields are not protected and are subject to pressure on land for development. Should these inland feeding sites be lost this is likely to affect males (particularly those with the shortest bills) disproportionately, which may have implications for the wider Curlew population. The study's findings suggest that consideration should be given to extending the area around The Wash receiving protection.

LARGE SKIPPER, BY MIKE TOMS / BTO

TRACKING ENGLAND'S BUTTERFLIES

England's butterflies can be categorised as either habitat specialists or species of the wider countryside. The changing fortunes of the latter are monitored through the Wider Countryside Butterfly Survey, operated by BTO and its partners in the UK Butterfly Monitoring Scheme. English data from the Wider Countryside Butterfly Survey are used by Defra in their annual Official Statistics, reporting separately on abundance trends for the butterflies using farmland and woodland habitats.

Large fluctuations in numbers between years are characteristic of butterfly populations as they respond to weather conditions. Having a robust long-term monitoring protocol provides a much-needed measure of the underlying and longer-term changes, and BTO is able to contribute to this through its existing schemes.

Roughly 700 survey squares are covered annually in England, and about a third of these involve BTO volunteers making butterfly counts on their BTO/JNCC/RSPB Breeding Bird Survey squares. The additional visits that BBS participants make to carry out butterfly recording underlines the willingness of our volunteers to contribute to wider biological monitoring.

ARABLE FARMLAND IN NORFOLK, BY DAVID TIPLING / BIRDPHOTO.CO.UK

WALES

During 2023 staff at BTO Cymru were actively involved in using BTO and partnership data to inform and support policy-makers, underpinning policy decisions that have implications for Welsh birds.

SUPPORTING POLICY DECISIONS

An enduring theme of BTO Cymru activities in the past several years has been providing scientific support to policy and decision-makers, particularly Natural Resources Wales. Major changes to bird species' conservation status may be identified though our volunteer monitoring programmes.

In 2022 the decline in Welsh Rook populations highlighted by BTO/JNCC/RSPB Breeding Bird Survey data resulted in the species' status changing directly from Green to Red as part of the Birds of Conservation Concern Wales review. National Resources Wales responded by removing the species from the General License, and the Welsh Ornithological society (with advice and support from BTO scientists and from BTO's Welsh Regional Network) organised and delivered a national Rook survey, completed in 2023. BTO was then asked to analyse the survey data, comparing Rook populations between 1994 and 2022–23, and considering spatial and ecological changes over that time period. Colonial species are particularly challenging to survey, and a single-species dataset provides a useful comparison with the Breeding Bird Survey trend. Both show strong decline in the Rook population, and the survey also highlighted different rates of change in different parts of Wales, with a parallel decline in rookery size and changes in nesting tree species over time.

RED KITE, BY SARAH KELMAN / BTO

RED KITES AND WIND FARMS

A second application of population and spatial modelling was brought to the Cymru team by a consortium of renewables developers, concerned about improving understanding of the potential impacts of onshore wind development on Red Kites. Their focus was at national and population scales, given the importance of renewable energy generation and the number and spatial distribution of wind farms being proposed. BTO staff led the analysis, using data from *Bird Atlas 2007–11* and the Breeding Bird Survey to build a spatial model of Red Kite density across Wales. This model, applied to the developers' future portfolios was used to predict and estimate local, regional and national population impacts from turbine-related mortality.

ROOK, BY EDMUND FELLOWES / BTO

The national Welsh Red Kite population, still recovering strongly from near-extinction and now widely distributed enough to be monitored through the Breeding Bird Survey, is resilient enough to tolerate the small amount of additional mortality risk from onshore wind developments. However, the analysis predicted detectable local impacts, particularly where planned sites were closest to the buffer zones surrounding the two Special Protection Areas designated for breeding Red Kites in Wales. The next stage of this reassuring, though cautionary, work is to ensure it reaches the audiences best-placed to make use of the results. BTO reported to the consortium of developers and communicated the main results to Natural Resources Wales (as the licensing authority for renewables developments in Wales). Wider publication in 2024 will be in the Welsh Ornithological Society journal (*Milvus*) and also in an industry-specific publication. It has also attracted wider media interest, underlining how broader audiences value these birds.

INFORMING CONSERVATION ACTION

Tracking a shy or cryptic species sheds light on more facets of the bird's ecology than their habitat choices. Tracking data, for example, can deliver a much more detailed understanding of breeding decisions, which in turn can inform conservation management and help site managers. Curlew chicks are near-impossible to count because they are cryptic and highly mobile. Around 50% of chicks are lost between hatching and fledging, and the standard measure of productivity (reactive male birds) cannot distinguish between birds guarding a single or multiple chicks. Since productivity is the metric most-needed to monitor conservation delivery, we urgently need to link productivity thresholds to data that can be measured in the field.

Support for Welsh Curlew work from a private donor allowed BTO Cymru staff to build on previous behavioural analysis with a new model of the Curlew breeding season. This model is detailed enough to describe how nest success rates change through the season, as some birds respond to early nest loss by making second or even third attempts. Tracking data from birds tagged before nest establishment provide a sample of breeding trajectories, including for individuals making no attempt to breed at all, those making one or more failed attempts, and the small number (of males) succeeding in rearing at least one chick to fledging. We calibrated the model against the productivity required to stabilise the Curlew population (which is approximately two fledged chicks in three years per pair), and calculated site-level minimum hatching rates for nests established in different periods through the season, the latter a metric measurable by local Curlew conservation projects.

Additional funding under the Environment Agency contract in England supported an exciting additional application of this model, in understanding how effective conservation interventions are in improving productivity. Habitat management, nest-fencing and predator management impact different parts of the Curlew breeding cycle in measurable or predictable ways. If we model them alone or in combination, we can estimate the level of national effort required to stabilise Curlew populations using these interventions.

SCOTLAND

During 2023 science staff at BTO Scotland harnessed the power of some of our long-term citizen science datasets to help evaluate the monitoring potential of acoustic surveys and to look for evidence of HPAI impacts on raptors. The engagement team continued to invest in the future with a programme of training and outreach aimed particularly at young people and at upskilling and encouraging new volunteers.

ACOUSTIC PERFORMANCE

As noted on page 14, wildlife sound recording could make a significant contribution to monitoring, particularly in situations where participation in surveys like the BTO/JNCC/RSPB Breeding Bird Survey (BBS) is limited by the local availability of skilled bird surveyors, including substantial tracts of the Scottish uplands. However, before we can really get acoustic monitoring off the ground, we need to know how to process and interpret acoustic datasets, and understand how these compare with more traditional monitoring data.

In 2023, generous funding from Mark Constantine and Ken and Linda Smith enabled us to do this. We asked BBS volunteers in Scotland to help by deploying acoustic recorders on their BBS squares during the early season visit and collecting them on the late season visit. We got a fantastic response and arranged for surveyors to collect recordings in 28 BBS squares, across a wide variety of habitats. Over 2,000 hours of recordings were processed using an automated classifier called BirdNET, yielding over three quarters of a million identifications of birds.

We manually checked a subset of these, confirming that, for most species, confidence scores assigned by BirdNET can allow us to filter out most incorrect classifications, leaving us with a reliable set of detections. Comparison of this acoustic dataset with BBS data collected from the same sites will allow us to evaluate the performance of acoustic and traditional surveys, informing decisions about how we use and develop this tool to improve our monitoring. As BTO strives to increase bird survey coverage in Scotland, and to make this more representative, the use of acoustic devices could form an important part of our monitoring tool kit.

IMPACTS OF AVIAN FLU ON RAPTORS

In 2022, an outbreak of highly pathogenic avian influenza (HPAI) resulted in high mortality of many seabird and wildfowl populations in Scotland and across the wider UK. During this outbreak, HPAI was also detected in a wide range of terrestrial species, but its prevalence and effects on these is poorly understood. Investigating the effects of HPAI in these other groups could help us to predict how it spreads in the future, as well as to understand the full cost of this anthropogenic disease for wild bird populations.

In 2023, researchers at BTO Scotland used Scottish Raptor Monitoring Scheme (SRMS) data to look for evidence of apparent impacts of the HPAI outbreak on the numbers and breeding productivity of a range of raptors. Breeding success of Golden Eagles and White-tailed Eagles was much lower in 2022 than in previous years and was lowest in areas close to coastal and marine habitats. This suggests the possibility of HPAI transmission through scavenging and predation on infected seabirds or wildfowl. The analysis will be repeated with data from the 2024 breeding season to assess whether Scottish eagles appear to be recovering from HPAI, and to check for any evidence of impacts in other raptor populations. Having a core monitoring scheme in place for Scotland's raptors, in the form of SRMS, enables this kind of important work to be carried out, and it is a model we are looking to deploy elsewhere.

GOLDEN EAGLE, BY DAVID TIPLING / BIRDPHOTO.CO.UK

VOLUNTEER ENGAGEMENT & TRAINING

We continue to invest in engaging new people, and supporting their development towards participation in BTO's schemes and surveys. We adopted a hybrid approach this year, providing online training, coupled with face-to-face opportunities to fine-tune bird ID and practise survey skills. These face-to-face sessions were delivered in areas of Scotland where we particularly need more volunteers.

Youth engagement work was also a significant focus, delivered in partnership with our friends at the Scottish Ornithologists' Club. We delivered a programme of monthly online sessions throughout autumn, winter and early spring to bring young people from throughout Scotland together to learn and be inspired. In June the partnership also delivered the second Scottish Bird Camp, giving 14 young people a fantastic opportunity to get to know one another and experience bird ringing, nest monitoring and a boat trip to Bass Rock, among other things. Towards the end of the financial year the partnership delivered the spring Scottish Birdwatchers' Conference in Troon, Ayrshire. Attendance numbers were up near pre-Covid-19 levels, and the field outings on Sunday were also popular.

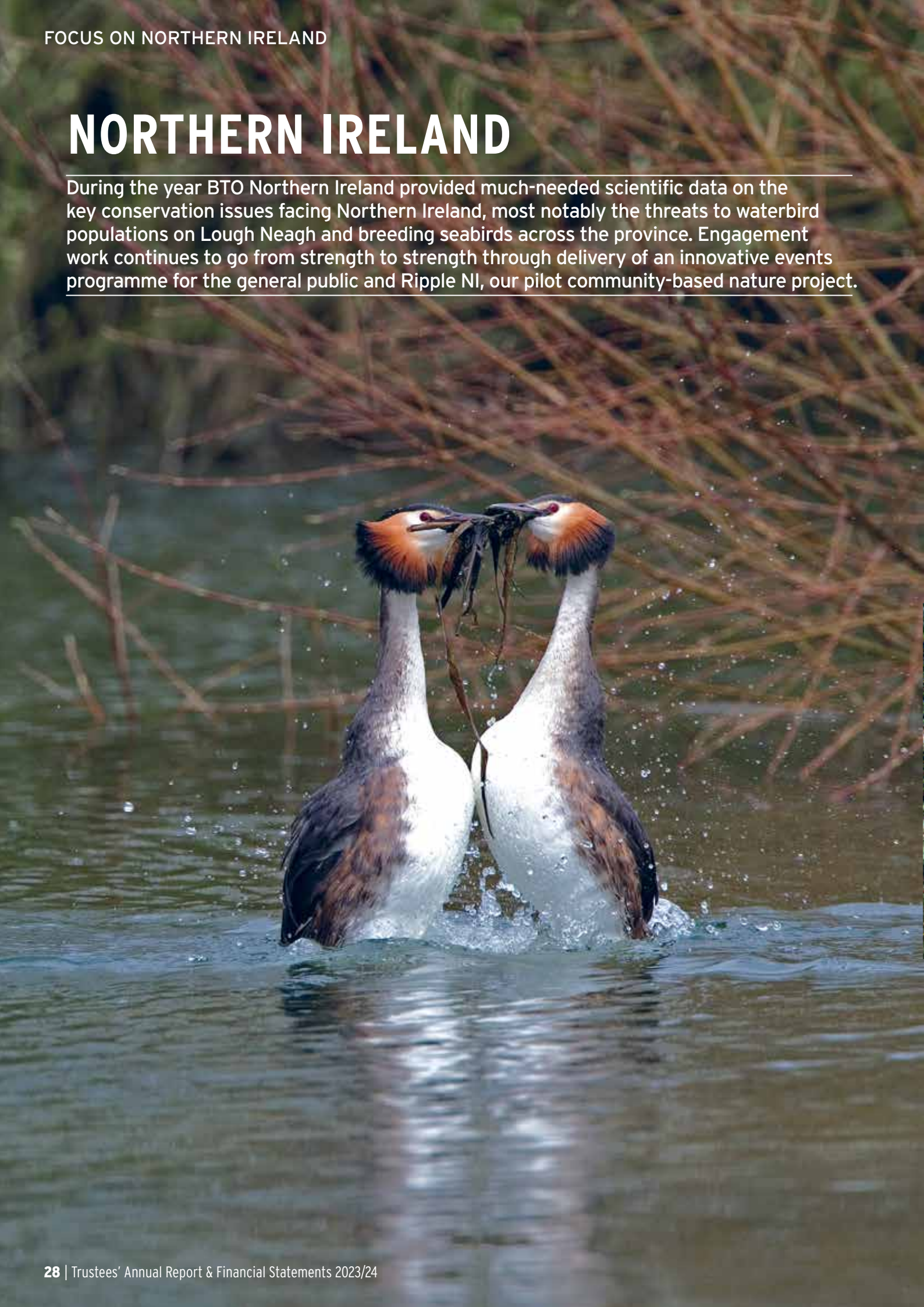
SCOTTISH BIRD CAMP, BY STEVE WILLIS / BTO

SCOTLAND'S BREEDING WADERS

The machair habitats of North Uist, Benbecula and South Uist are important for breeding waders, including Dunlin, Ringed Plover, Oystercatcher and Redshank. Periodic surveys by BTO staff have charted the fortunes of these populations since 1983. The latest survey, carried out in 2022 and for which the results were published in 2023, reveals a 25% decline in the total number of breeding waders recorded. Dunlin and Ringed Plover showed the most marked declines, while Oystercatcher and Redshank both increased. Changes in breeding numbers up to 2014, the date of the previous survey, tended to be more negative in South Uist and Benbecula, where introduced Hedgehogs are important predators of wader eggs. However, the changes recorded between 2014 and 2022 were less clearly defined, and included some marked declines in North Uist and Berneray, where Hedgehogs are absent. At a time when populations of breeding waders are declining across much of Britain, the assemblage remains exceptionally important and there is a need to better understand the different drivers of change.

NORTHERN IRELAND

During the year BTO Northern Ireland provided much-needed scientific data on the key conservation issues facing Northern Ireland, most notably the threats to waterbird populations on Lough Neagh and breeding seabirds across the province. Engagement work continues to go from strength to strength through delivery of an innovative events programme for the general public and Ripple NI, our pilot community-based nature project.



WETLANDS UNDER THREAT

Lough Neagh hit the headlines during the year as multiple factors led to record blooms of blue-green algae. All of this led to questions about how the largest freshwater lake in the UK should be managed. Lough Neagh is designated as a Special Protection Area and under the Ramsar Convention for its importance to wetland biodiversity. The Lough is internationally important for wintering waterbirds and during the breeding season it supports internationally important numbers of Black-headed Gull and the largest concentration of breeding Great Crested Grebes on the island of Ireland.

BTO staff, led by Hala Haddad, have improved our understanding of how waterbirds use Lough Neagh through an analysis of BTO/RSPB/JNCC Wetland Bird Survey data. The work, published as a BTO Research Report, provides details of waterfowl population changes around the Lough and assists in identifying potential research questions to be pursued.

Working in partnership with the Northern Ireland Environment Agency and Lough Neagh Partnership, staff from BTO in Northern Ireland have started a stakeholder engagement and co-production project with local wildfowling clubs; this will assess factors influencing breeding productivity of waterbirds on the Lough.

BLACK-HEADED GULL AND CHICK, BY EDMUND FELLOWES / BTO

TRIALLING NEW TECHNOLOGY

Northern Ireland is internationally important for a number of breeding seabirds. Whilst much work is focused on annual counts through the BTO-led Seabird Monitoring Programme, there is relatively little work done on the monitoring of breeding seabird productivity within Northern Ireland. BTO staff have been trialling new technologies to address this and other data gaps relating to Northern Ireland's breeding seabirds.

During the 2023 breeding season, time-lapse trail cameras were deployed on Rathlin Island and the Copeland Islands to monitor predation of Black Guillemots. BTO staff, led by Daniel Johnston, installed time-lapse cameras early in 2024 on Bird Island, located on Strangford Lough, to monitor breeding Cormorants as a trial project. BTO staff have also been working in partnership with an RSPB team on a trial acoustic monitoring project on Rathlin Island. Static passive acoustic monitoring devices were deployed to explore the possibility of using acoustics to detect the presence of Brown Rats on the Island. Brown Rat has been a problem on Rathlin, because of its impact on breeding seabird populations. The monitoring devices, which were deployed as part of a wider RSPB-led eradication project, confirmed the presence of three small mammal species, including Brown Rat, and four bat species. The results were published as a BTO Research Report in 2023.

DETECTOR ON RATHLIN ISLAND, BY KATHERINE BOOTH JONES / BTO

ENGAGING THE PUBLIC

BTO's engagement work with the public went from strength to strength, led by Jemma Davies. The events programme included our second Bird Camp, attended by 15 young people, the 'Wild Weekend' attended by 50 participants, and the annual Northern Ireland Birdwatchers' Conference, which attracted over 120 attendees. Opportunities to engage with those who aren't familiar with BTO have included Ballynature Day, a World Wetlands Day walk and a partnership event with Translink that saw approximately 50 people join us on a train platform for some informal birdwatching.

Ripple NI is BTO's pilot community-based nature engagement project in Northern Ireland, aiming to reach out to new people and led by Sorrel Lyall. The project delivered 26 introductory-level nature events during 2023/24, involving 915 participants. The second half of the project will focus on establishing more Wildlife Wander events (currently running in east Belfast). These are monthly relaxed walks in an accessible green space focusing on building connections with local nature and like-minded people. They are run by a team of local volunteer leaders, supported by the BTO Project Officer, with the intention of becoming self-sustaining. Upcoming locations are Cookstown, Comber, Lisburn, with future targets of Derry/Londonderry and Enniskillen.

GREAT-CRESTED GREBES, BY CHRIS KNIGHTS / BTO

BEING FIT FOR THE FUTURE

We continue to face complex challenges, resulting from climate change and pressures on our environment to meet growing demands on the planet's resources. Ensuring that society can respond effectively depends on organisations like BTO playing a strong role and making our voice heard; our Action Area priorities will enable us to do this.

DELIVERING SUSTAINABLY

BTO's strategy is intrinsically linked to making a net-positive impact on the environment and people, and sustainability underpins how we work. All new staff receive a sustainability induction, and we collate and report on a suite of measures through our annual sustainability report. During 2023/24, our electricity use (which is entirely from renewables) was down 59% on baseline, and 8.5% of that used at our headquarters was generated by on-site solar panels.

Our new travel and offsetting policy is supporting reductions in journeys made by car and plane, down 13% and 6% respectively, and greater use of rail and ferries, up 16% and 631%. Any staff seeking to travel by plane for work must take a case to the senior leadership team; in the small number of instances where aviation is used for business travel, carbon offsetting is used to reduce its impacts. From April 2024, staff will be able to book up to two days of additional leave for time spent travelling for holidays when choosing low carbon transport options instead of flights.

We can expect jobs throughout the entire workforce, as well as individuals' lives, to be impacted by climate change in the coming years. This is why it is vital to empower our staff through education and access to information. We share updates on BTO's sustainability journey, as well as information and ideas around making sustainable choices in the workplace and at home, through regular newsletters and staff meeting updates. Our sustainability work is proactive, seeking to support behaviour change. We now offer staff 19p per mile cycled for business travel, have a Cycle to Work scheme, and BTO Scotland has now achieved Cycle Friendly Employer accreditation.

FUTURE PROJECTS

Our strategic Action Areas set out priorities for future work, identifying initiatives that will deliver the greatest returns for birds and people. These priorities are as follows, grouped by Action Area:

Seeking Solutions

- Secure an evidence base for the possible effects of short-rotation willow coppice and *Miscanthus* grass on birds, two novel crops that are now taking up more and more land.
- Increase our understanding of the distributions of our seabirds during winter and on migration, so we can inform policy decisions around renewables and fisheries.
- Better understand the effects of land use and habitat on the important breeding wader populations on the Uists, in order to inform future management.

Framing Futures

- To better communicate the impacts that climate change has on UK birds by developing annual metrics for changes in distribution, phenology, and demography using BTO's long-term datasets.
- Inform conservation responses to climate change and develop approaches to monitor and evaluate their success.
- Using BTO's long-term datasets, we will evaluate the impact the recent outbreak of HPAI has had on the UK's wild birds.

Sustaining Supporters

- Improve support for and management of the BTO Regional Network, so members and volunteers are better served.
- Increasingly tailor communications to supporters, recognising contributions, needs and interests.
- Continue our programme of online and face-to-face training initiatives, developing volunteers for the future.

Charting Change

- Carry out a gap analysis to identify the most pressing gaps in our knowledge of UK bird populations, so that we can address these.
- Further invest in key internal systems to increase their security and robustness, while ensuring that they are efficient.
- Initiate work to map the distributions of British and Irish birds, including measures of relative abundance and change, which will form BirdAtlas 2027–31).

Embracing Everyone

- Share our framework for BTO becoming more inclusive with existing and new members, volunteers, funders and partners.
- Align and integrate with the Sustaining Supporters Action Area so that we engage and involve our long-term members and supporters in being part of the change we are aiming for.
- Develop a clear vision for the future of our youth engagement programme and sustainable funding to achieve this.

Delivering Data

- Release more open access datasets, so that our data will be used by more people.
- Produce a county-based version of BirdFacts, so that individuals can quickly see what has happened to bird populations locally to them.
- Make it easier for people to access BTO datasets.

CATTLE EGRET, BY DAVID TIPLING / BTO

THANK YOU FOR YOUR SUPPORT

Each year we need to raise thousands of pounds to fund our work so that we can deliver the charitable outcomes that are so important to our supporters. We are grateful to receive wonderful support from members, funders, trusts, corporate partners and many others, all of which help to make our work possible.

THE CENTRAL ROLE OF YOUNG PEOPLE

In May 2023, BTO communicated the important role that young people are playing in our work to address the threats faced by the UK's wild birds. We did this through both the BTO Strategy and the Youth Strategy, the latter developed by BTO's amazing Youth Advisory Panel (YAP). As our Chief Executive, Professor Juliet Vickery, notes, "*BTO Youth is part of our present and our future and we will strive to ensure that Youth Volunteers build skills, experience and friendships through working with us. I have already seen, first-hand, the knowledge, passion and sense of fun of BTO Youth in action and this gives me absolute confidence in their ability*."

Between 2021 and 2022, BTO Youth Representatives reached over 2,300 young people at 75 events across four UK countries, with a focus on providing opportunities to give young people the skills, knowledge, confidence, and access to contribute to BTO science now and in the future.

Recognising the central role that young people will play as we work to secure a better future for birds and for people, we launched a Youth Appeal in June 2023, the aim of which was to fund projects that grow the number of young people who engage with and benefit from BTO Youth.

Living the values and behaviours communicated in the Youth Strategy, the appeal was developed in collaboration with Emma Thornton, YAP member and BTO Trustee. Using our collaborative approach to developing fundraising communications, Emma explained to supporters the positive effects of being out in nature and participating in citizen science with BTO, outlining how these have helped her, fellow YAP members and many other young people. She also highlighted the activities that BTO Youth facilitate more broadly, including the Equipment Donation Scheme and UK Bird Camps. Supporters generously donated over £54,000 to the BTO Youth Appeal, which is funding ongoing work programmes to support, encourage and involve young people from across society.

GIFTS IN WILLS

BTO received just over two million pounds from Gifts in Wills in 2023/24. We are humbled by this phenomenal support we receive, in addition to the valuable time, expertise and financial support that BTO members and volunteers give so generously.

Long-term BTO Member, Harold Smith, passed away aged 99 years in January 2023. He had a long association with BTO, joining as a member in May 1947, and was a regular at the BTO members' conference in the days when everyone gathered annually at Swanwick Conference Centre on a cold December weekend. Harold was one of the familiar faces who attended year-on-year, with a passion for all that BTO stands for, robust science and long-term monitoring.

Harold's name is synonymous with natural history recording in Sheffield. As quoted in his eulogy, printed in the Sorby Natural History Society's March Newsletter, he left an incredible legacy: 420,000 local bird records, over two dozen published papers on birds and the Limb Valley, over 160 monthly bird reports, and he also pioneered the use of computers for biological recording. He was a visionary and encouraged so many others to collect and submit ornithological and natural history data because he was acutely aware of its value.

Harold headed up the Limb Valley Study Group, which began in 1977, and started his BTO Common Birds Census (CBC) site in the valley back in 1979. He continued monitoring this site annually up until 2000. The area was woodland with good numbers of Wren (peak 34 territories), Robin (30), Chaffinch (21) and Blue Tit (29). The plot regularly had four pairs of Wood Warbler, peaking at six in 1999. Also a few pairs each year of Redstart and Pied Flycatcher. (The CBC was eventually superseded by the BTO/JNCC/RSPB Breeding Bird Survey.)

Harold achieved so much during his life and we feel honoured that he remained a committed BTO member for over 70 years. During his life Harold was kind enough to let us know that he had included a gift to BTO in his Will, so we were able to personally say thank you to him at that time. Harold's wonderful gift is very much valued and appreciated, and it's comforting to know that we were able to express our gratitude to him. We would like to acknowledge his unfailing support and vote of confidence in our work.

As always, we would like to express our heartfelt thanks to all those supporters, like Harold, whose life-long love of birds and nature led them to include a bequest to BTO in their Wills.

CONTRIBUTING TO OUR WORK

One of BTO's greatest strengths is the incredible support we receive from our dedicated community. This comes in many forms, including the sharing of knowledge and experience, the countless hours of volunteering, and the generous financial contributions.

In 2019, we introduced the Witherby Custodians, a group of supporters named after Harry Forbes Witherby, a visionary ornithologist and one of BTO's founders. In 1933, Harry donated

WOOD WARBLER, BY EDMUND FELLOWES / BTO

£1,400 (equivalent to about £125,000 today) from the sale of his bird skins to the Natural History Museum, which helped establish the UK bird ringing scheme and the BTO.

In 2023, we highlighted the Witherby Custodians in *BTO News* and on our website, attracting 14 new supporters to the group. These Custodians play a crucial role by funding our work and sharing their expertise, advice, and support, helping us sustain and grow BTO. They are invited to contribute to our plans and strategy through meetings with BTO board and staff.

Special trips are organised for the Witherby Custodians to deepen their connection with the organisation and its charitable activities. Last year, they visited our headquarters in Thetford, met with scientists and board members, and went on birding trips to spot some of the rarer species in Breckland, such as Stone-curlew, Woodlark, and Nightjar.

Another highlight was a visit to our company, Porzana, in East Sussex, where we manufacture bird rings for ringing organisations worldwide. The group witnessed bird ringing and even helped release some ringed birds, including a Water Rail, which is rarely seen up close.

A particularly special event was an event at the Natural History Museum in London, where Custodians met with Juliet Vickery, CEO, and James Pearce-Higgins, Director of Science. They also heard from Dawn Balmer, Head of Surveys, and attended our awards ceremony at the Mall Galleries.

Learn more about the Witherby Custodians at **bto.org/witherby** or email **david.agombar@bto.org** for more information.

CORPORATE SUPPORT

Over the year we reviewed and enhanced our Corporate Membership Scheme offer, resulting in growth in the number of Corporate Members. This is not the only way in which businesses support our work, with a mix of new and long-established partnerships with the corporate sector helping us to deliver on our charitable objectives.

We were delighted to launch a corporate partnership with bird care company Vine House Farm in 2023. Vine House Farm sells a wide range of high quality bird feeders and bird food, much produced on their own conservation-award-winning farm. The partnership with Vine House Farm is helping to raise our profile with their large customer base, in addition to making valuable financial contributions to support our work.

If you would like to know more about any of the projects or how you might support our work, please contact: fundraising@bto.org

OUR SUPPORTERS

We are very grateful for the generous support that we have received, both in time and money, in the past year. In addition to members and other fieldworkers, there are many other individuals and companies who support the work of the BTO with financial contributions. The Trust is particularly pleased to acknowledge the following corporate and other supporters.

CORPORATE SUPPORTERS 2023/24

BiOME Consulting Ltd, Boston Seeds, Brinvale Bird Foods, Eddowes Aviation Safety Limited, Garden Silhouettes Limited, Harvest Pet Products Ltd, Northumbrian Water, Nurture Landscapes Group, Opticron, Outdoor Alternative Ltd, P & R Seeds, Samuel McCausland Ltd t/a The Grass People, Swallowtail Print, Swarovski UK Limited, The Garden and Home Trading Company Limited, Vine House Farm.

CHARITABLE TRUSTS 2023/24

GivingForce Foundation, John Swire 1989 Charitable Trust, Keith Ewart Charitable Trust, Marsh Charitable Trust, Peter Smith Charitable Trust for Nature, Temple Tree Foundation, The Compton Charitable Trust, The Dovehouse Trust, The Emily Weircroft Charitable Trust, The Gilander Foundation, The Jarratt Trust, The Lizandy Charitable Trust, The Penchant Foundation, The Saxham Trust, Woodpeckers Trust, Woolhope Dome Environmental Trust.

LEGACIES 2023/24

Elizabeth Adams, Mrs J Andrews, David Bateman, Gwen Bishop, Rosemary Bloxam, Pauline Brooking, Kathleen Brownlie, Gary Caine, Ernest Edward Chapman, Steve Chastell, John Arthur Cook, Eva Falconer, Willliam Farley-Hills, Ronald Gash, Beatrice Gillam, Anne Goodall, Nigel Gower, Margaret Granger, Roger Gregory, Kenneth Hall, Margery Hannigan, Jennifer Harris, Charles Maurice Heighway, Edward Julian Holdroyd, Joyce Hughes-Laing, Doris Maud James, Viola Mary Matthews, John Macfarlane, Wendy Mason, Anthony May, Robert McKittrick, Enid Marion Mercer, Clive Mills-Hicks, Irene Negus, Dave Okill, Peter Oliver, Jane Parkinson, Faith Parker, George Parsons, Jill Pearson, Dorothy Percival, Ruth Pryce, John Ewart Rednall, Enid Riches, Pamela Rhodes, Douglas Scorey, Prof Neville Skinner, Dr A H V Smith, Bronwen Mary Smith, Hilary South, Michael Standing, Chris Stroud, James Denis Summers-Smith, Dr Charles Thomas, Peggy Thorne, Lesley Trodd, Charles Walmsley, Joan Edith Wilcox.

IN MEMORIAM 2023/24

Jake Allsop, William John Bartley, Mike Boddy, Fran Bowman, David 'Ian' Brotherton, Peter Coates, Ron Chorlton, Mike Ewart, Eva Falconer, Paul Fawcett, Peter Firth, Mike Beresford Fitch, Lynette Gammage, Beryl George, Jacqueline Linda George, Mike Gibbons, Jean Doris Goodchild, Laura Haddock, Alison Hall, Michael Harrison, Brian Charles Holton, Robert James Howells MBE, David Hughes, William (Bill) Jennings, Ron Jones, Richard Mackie, Timothy Edwin Manville, Glynn Middleton, David Mills, Brian Neath, Brenda Palmer, Pamela Joy Pasotti, David Hewitt Sadler, David Saunders MBE,Penelope Snape, Mark Stanley, Clarice Stubbs, Roger Taylor, Mr E M Turner, Terrence Sidney Watson, Geraldine Wickson, Wendy Jean Wiseman, Derek Wright.

FUNDERS OF BTO WORK 2023/24

Anguilla National Trust, Animal Plant Health Agency, Bangor University, Bat Conservation Trust, BBSRC, Bernwood Ecology, BSG Ecology Ltd., Bureau Waardenburg bv, Butterfly Conservation, Cairngorm National Park, Cambridge Conservation Initiative, Carbon Trust, Chilterns Conservation Board, Mark Constantine, Derek Coleman, Simon Cooke, Curlew Recovery South Lakes, DAERA, Department of the Environment, Food and Rural Affairs, Department for Business, The Department for Communities Northern Ireland, Energy and Industrial Strategy, Devon Wildlife Trust, Duchy of Cornwall, EURING, European Commission, European Food Safety Authority, FERA, Forestry England, Forestry & Land Scotland, Frankfurt Zoological Society, Game & Wildlife Conservation Trust, Hampshire Ornithological Society, Hartley Anderson Ltd., Heather Trust, Hi-Def Aerial Surveying Ltd., David Hodgson, Horizon Europe, Innovate UK, Institute of Avian Research, Interreg, Joint Nature Conservation Committee (on behalf of the statutory nature conservation agencies: Natural England, Natural Resources Wales, NatureScot and the Department of the Environment Northern Ireland), Jenny Kingsland, Helen Lumley, John McCaig, Muséum National d'Histoire Naturelle, National Trust, Natural England, Natural Resources Wales, Natural Environment Research Council, NatureScot, John Neighbour, North York Moors National Park Authority, Northern Ireland Environment Agency, ORSTED, Jon Pavey, Pell Frishmann Consultants Ltd., Alex Rafinski, Renewable UK, Royal Society for the Protection of Birds, Sanger, Scottish Government, Scottish Raptor Study Group, Scottish Ornithologists' Club, SOVON, States of Guernsey, Suffolk Wildlife Trust, Swedish University of Agricultural Sciences, UK Centre for Ecology & Hydrology, UK Health Security Agency (UKHSA), University College Dublin, University of Bristol, University of Cambridge, University of East Anglia, University of Edinburgh, University of Exeter, University of Stirling, University of Torino, Vattenfall, Vine House Farm, Franziska Vogel, Nicholas Watts, Welsh Government, Wildfowl & Wetlands Trust, Gillian & Justin Wills, Woodland Trust, WSP UK Ltd., Yorkshire Dales National Park Authority, Zoological Society of London.

CLOCKWISE FROM TOP LEFT: YOUTH IN NATURE SUMMIT, BY SENNEN POWELL, JULIET VICKERY AND STEPHANIE TYLER, BY ANTHONY SAJDLER, YOUTH IN NATURE, BY FAYE VOGELY, YOUTH IN NATURE, BY ALICIA HAYDEN, BBC ONE SHOW, BY JON CARTER

I pledge to...
bring more young voices into our organisation's decision making!

Peer-review is an important process, establishing the validity of research through review by other expert researchers in the field. It also provides valuable feedback, enabling researchers to improve their papers before publication. BTO reports annually across a number of indicators relating to its scientific work; three of these relate to scientific publications, reflecting the quality of the publications being produced, their impact, and the degree to which the work has been delivered through collaboration.

During 2023, our staff produced 57 peer-reviewed papers, of which 51 were in ISI-listed journals and 24 were published in high impact publications (with an impact factor of 3.5 or greater). Twenty-one of the publications were BTO-led, and 51 were collaborative in nature, underlining the strong partnership approach to our work.

Azhar, B., Oon, A., Lechner, A.M., **Ashton-Butt, A.**, Yahya, M.S. & Lindenmayer, D.B., 2023. Large-scale industrial plantations are more likely than smallholdings to threaten biodiversity from oil palm replanting spatial disturbances. *Global Ecology & Conservation* **45**: e02513. https://doi.org/10.1016/j.gecco.2023.e02513

Barnes, A.E., Robinson, R.A. & **Pearce-Higgins, J.W.** 2023. Collation of a century of soil invertebrate abundance data suggests long-term declines in earthworms but not tipulids. *PLoS ONE* **18**: e0282069. https://doi.org/10.1371/journal.pone.0282069

Barton M.G., Henderson, I., Border, J.A. & **Siriwardena, G.** 2023. A review of the impacts of air pollution on terrestrial birds. *Science of the Total Environment* **873**: 162136. https://doi.org/10.1016/j.scitotenv.2023.162136

Boersch-Supan, P.H., Lee, A.T.K & Oschadleus, H.D. 2023. A demonstration of the value of recapture data for informing moult phenology models for avian species with imperfect moult data. *Ostrich* **94**: 315–323. https://doi.org/10.2989/00306525.2023.2248396

Branston, C.J., Whittingham, M.J., Phillimore, A.B., **Leech, E.** & Willis, S.G. 2024. The phenology and clutch size of UK Blue Tits does not differ with woodland composition. *Ibis* **116**: 487–503. https://doi.org/10.1111/ibi.13248

Bristow, T.G., McHugh, N.M., Heward, C.J., Jenkins, D.L., **Newson, S.E.** & Snaddon, J.L. 2023. Vocal individuality measures reveal spatial and temporal variation in roding behaviour in Woodcock (*Scolopax rusticola*). *Ibis* **165**: 959–973.

Buchan, C., Gilroy, J.J., Catry, I., Hewson, C.M., **Atkinson, P.W.** & Franco, A.M. 2023. Combining remote sensing and tracking data to quantify species' cumulative exposure to anthropogenic change. *Global Change Biology* **29**: 6,679–6,692 https://doi.org/10.1111/gcb.16974.

Calladine, J., Fuller, R., Hodkinson, D., **Franks, S.** & Boyle, J. 2023. Changes in breeding wader populations of the Uist machair and adjacent habitats between 1983 and 2022. *Scottish Birds* **43**: 132–140.

Clark, J.A., Gillings, S., Clark, N.A., Cole, K.B., Breese, G., Woods, J.L., Bellman, H.A. & **Robinson, R.A.** 2023. How important is it to standardise the measured mass of shorebirds weighed at varying intervals after capture? *Wader Study* **130**: 64–73.

Clark, B.L., Carneiro, A.P.B., Pearmain, E.J. ... **Booth Jones, K.A.**, et al. 2023. Global assessment of marine plastic exposure risk for oceanic birds. *Nature Communications* 14: e3665

Cleasby, I.R., Owen, E., Butler, A., Baer, J., **Blackburn, J.**, Bogdanova, M.I., Coledale, T., Daunt, F., Dodd, S., Evans, J.C. & Green, J.A. 2024. Assessing the importance of individual- and colony-level variation when using seabird foraging ranges as impact assessment and conservation tools. *Ibis* **166**: 871–895. https://doi.org/10.1111/ibi.13284

Clewley, G.D., Thaxter, C.B., Scragg, E.S., Masden, E.A., **Barber, L.J., Conway, G.J., Clark, N.A.** & **Burton, N.H.** 2023. Daily, seasonal, and annual variation in area use of Lesser Black-backed Gulls *Larus fuscus* related to offshore renewable developments. *Bird Study* **70**: 13–24. https://doi.org/10.1080/00063657.2023.2190080

Cook, P., Alder, D., Hordley, L., **Newson, S.E.** & Pengelly, D. 2023. Seeing the wood for the trees, irregular silviculture supports bat populations in conifer plantations. *Forest Ecology & Management* **85**: 127951. https://doi.org/10.1016/j.ufug.2023.127951

Cooper, J.E.J., Garcia-del-Rey, E. & Lachlan, R.F. 2023. Evolution of female song and duetting in the chaffinch (*Fringilla*) species complex. *Journal of Avian Biology* 2023: e03069 https://doi.org/10.1111/jav.03069

Davies, J.G., Humphreys, E.M., Evans, T., Howells, R., O'Hara-Murray, R. & **Pearce-Higgins, J.W.** 2023. Seabird abundances projected to decline in response to climate change in Britain and Ireland. *MEPS* **725**: 121–140.

Davies, J.G., Kirkland, M., Miller, M.G.R., **Pearce-Higgins, J.W., Atkinson, P.W.** & **Hewson, C.M.** 2023. Spring arrival of the Common Cuckoo at breeding grounds is strongly determined by environmental conditions in tropical Africa. *Proc. Roy. Soc. B* **290**: 20230580.

Donnez, M., Schwemmer, P., Fort, J., Garthe, S., Boschert, M., Düttmann, H., Elts, J., Fartmann, T., Fiedler, W., **Franks, S.** & Jiguet, F. 2023. Small space but high diversity: spatial and temporal habitat use by endangered Eurasian Curlew at wintering sites throughout Europe. *Wetlands* **43**: 80. https://doi.org/10.1007/s13157-023-01728-w

Eaton, M. Stroud, D. Francis, I, Norman, D, Baker, H., Holling, M. King, A., Stanbury, A. & **Balmer, D.** 2023. Monitoring five decades of change in the UK's rarest breeding birds through citizen science: the Rare Breeding Birds Panel. *British Wildlife* 35: 335–345.

Evans, L.C., Melero, Y., Schmucki, S., **Boersch-Supan, P.H.**, Brotons, L., Fontaine, C., Jiguet, F., Kuussaari, M., **Massimino, D., Robinson, R.A.**, Roy, D.B., Schweiger, O., Settele, J., Stefanescu, C., van Turnhout, C.A.M. & Oliver, T.H. 2023. Mechanisms underpinning community stability along a latitudinal gradient: insights from a niche-based approach. *Global Change Biology* **29**: 3,271–3,284. https://doi.org/10.1111/gcb.16684

Ewing, H., Franks, S., Smart, J., Burton, N. & Gill, J.A. 2023. Nest survival of threatened Eurasian Curlew (*Numenius arquata*) breeding at low densities across a human-modified landscape. *Ibis* **165**: 753–766. https://doi.org/10.1111/ibi.13180

Fattorini, N., Costanzo, A., Romano, A., Rubolini, D., **Baillie, S.**, Bairlein, F., Spina, F., & Ambrosini, R. 2023. Eco-evolutionary drivers of avian migratory connectivity *Ecology Letters* **26**: 1,095–1,107. https://doi.org/10.1111/ele.14223

Finch, T., Bradbury, R.B., Bradfer-Lawrence, T., Buchanan, G.M., Copping, J.P., **Massimino, D.**, Smith, P., Peach, W.J. & Field, R.H. 2023. Spatially targeted nature-based solutions can mitigate climate change and nature loss but require a systems approach. *One Earth* **6**: 1,360–1,374. https://doi.org/10.1016/j.oneear.2023.09.005

Green, R.E., Taggart, M.A., Pain, D.J., **Clark, N.A.**, Clewley, L., Cromie, R., **Green, R.M.W.**, Guiu, M., Huntley, B., Huntley, J., Leslie, R., Porter, R., Roberts, J., Robinson, J.A., **Robinson, R.A.**, Sheldon, R., Smith, K.W., Smith, L., Spencer, J. & Stroud, D. 2023. Limited effectiveness of actions intended to achieve a voluntary transition from the use of lead to non-lead shotgun ammunition for hunting in Britain. *Conservation Evidence* **20**: 1–7.

Gregory, R.D., Eaton, M.A., Burfield, I.J., Grice, P.V., Howard, C., Klvaňová, A., **Noble, D.**, Šilarová, E., Staneva, A., Stephens, P.A., Willis, S.G., **Woodward, I.D.** & Burns, F. 2023. Drivers of the changing abundance of European birds at two spatial scales. *Phil Trans R. Soc* **378**: 20220198. http://doi.org/10.1098/rstb.2022.0198

Harrison, P.A., Beauchamp, K., **Cooper, J.,** Dickie, I., Fitch, A., Gooday, R., Hollaway, M., Holman, I.P., Hunt, M., Jones, L. & Mondain-Monval, T. 2023. An adaptable integrated modelling platform to support rapidly evolving agricultural and environmental policy. *Environmental Modelling & Software* **169**: 105821. https://doi.org/10.1016/j.envsoft.2023.105821

Havinga, I., Marcos, D., Bogaart, P., **Massimino, D.**, Hein, L. and Tuia, D 2023. Social media and deep learning reveal specific cultural preferences for biodiversity. *People & Nature* **5**: 981–998. https://doi.org/10.1002/pan3.10466

Howard, C., Mason, T.H., **Baillie, S.R., Border, J., Hewson, C.M.**, Houston, A.I., **Pearce-Higgins, J.W.**, Bauer, S., Willis, S.G. & Stephens, P.A. 2024. Explaining and predicting animal migration under global change. *Diversity & Distributions* **30**: e13797. https://doi.org/10.1111/ddi.13797

Howard, C., Marjakangas, E.-M., Morán-Ordóñez, A., Milanesi, P., Abuladze, A., Aghababyan, K., Ajder, V., Arkumarev, V., **Balmer, D.E.**, Bauer, H.-G., Beale, C.M., Bino, T., Ali Boyla, K., Burfield, I.J., Burke, B., Caffrey, B., Chodkiewicz, T., Del Moral, J.C., Dumbovic Mazal, V., Fernández, N., Fornasari, L., Gerlach, B., Godinho, C., Herrando, S., Ieronymidou, C., Johnston, A., Jovicevic, M., Kalyakin, M., Keller, V., Knaus, P., Kotrošan, D., Kuzmenko, T,, Leitão, D., Lindström, Å., Maxhuni, Q., Mihelič, T., Mikuska, T., Molina, B., Nagy, K., **Noble, D.**, Jostein Øien, I., Paquet, J.-Y., Pladevall, C., Portolou, D., Radišić, D., Rajkov, S., Rajković, D.Z., Raudonikis, L., Sattler, T., Saveljić, D., Shimmings, P., Sjenicic, J., Šťastný, K., Stoychev, K., Strus, I., Sudfeldt, C., Sultanov, E., Szép, T., Teufelbauer, N., Uzunova, D., van Turnhout, C.A.M., Velevski, M., Vikstrøm, T., Vintchevski, A., Voltzit, O., Vořišek, P., Wilk, T., Zurell, D., Brotons, L., Lehikoinen, A. & Willis, S.G. 2023. Local colonisations and extinctions of European birds are poorly explained by changes in climate suitability. N*ature Communications* **14**: 4,304. https://doi.org/10.1038/s41467-023-39093-1

Johnston, D.T., Thaxter, C.B., Boersch-Supan, P.H., Davies, J.G., Clewley, G.D., Green, R.M.W., Shamoun-Baranes, J., **Cook, A.S.C.P., Burton, N.H.K.** & **Humphreys, E.M.** 2023. Flight heights obtained from GPS versus altimeters influence estimates of collision risk with offshore wind turbines in Lesser Black-backed Gulls *Larus fuscus*. *Movement Ecology* **11**: 66. https://doi.org/10.1186/s40462-023-00431-z

Kenobi, K., Read, W., **Bowgen, K., Macgregor, C., Taylor, R.**, Cámaro García, W., Crona Hodges, C. & Dennis, P. 2023. Lasso penalisation identifies consistent trends over time in landscape and climate factors influencing the wintering distribution of the Eurasian Curlew (*Numenius arquata*). *Ecological Informatics* **77**: 102244 https://doi.org/10.1016/j.ecoinf.2023.102244

Kirkland, M., Atkinson, P.W., Pearce-Higgins, J.W., De Jong, M., Dowling, T.P.F., Grummoe, D., Critchley, M. & **Ashton-Butt, A.** 2023. Landscape fires disproportionally affect high conservation value temperate peatlands, meadows, and deciduous forests, but only under low moisture conditions. *Science of the Total Environment* **884**: 163849. https://doi.org/10.1016/j.scitotenv.2023.163849

Lopez, S.L., Clewley, G.D., Johnston, D.T., Daunt, F., Wildon, J.M., **O'Hanlon, N.J.** & Masden, E. 2024. Reduced breeding success in Great Black-backed Gulls (*Larus marinus*) due to harness-mounted GPS device. *Ibis* **116**: 69–81. https://doi.org/10.1111/ibi.13247

Lopez, S.L., Daunt, F., Wilson, J., **O'Hanlon, N.J.**, Searle, K.R., Bennett, S., Newell, M.A., Harris, M.P. & Masden, E. 2023. Quantifying the impacts of predation by Great Black-backed Gulls *Larus marinus* on an Atlantic Puffin *Fratercula arctica* population: Implications for conservation management and impact assessments. *Marine Environmental Research* **188**: 105994. https://doi.org/10.1016/j.marenvres.2023.105994

Lathouwers, M., Dendoncker, N., Artois, T., Beenaerts, N., **Conway, G., Henderson, I.**, Shewring, M., Cross, T., Ulenaers, E. & Evens, R. 2023. Multi-scale habitat selection throughout the annual cycle of a long-distance avian migrant. *Ecologcal Indicators* **156**: 111099. https://doi.org/10.1016/j.ecolind.2023.111099

Marjakangas, E.-L., Bosco, L., Versluijs, M., Xu, Y., Santangeli, A., Holopainen, S., Mäkeläinen, S., Herrando, S., Keller, V., Vořišek, P., Brotons, L., Johnston, A., Princé, K., Willis, S.G., Aghababyan, K., Ajder, V., **Balmer, D.E.**, Bino, T., Boyla, K.A., Chodkiewicz, T., del Moral, J.C., Mazal, V.D., Ferrarini, A., Godinho, C., Gustin, M., Kalyakin, M., Knaus, P., Kuzmenko, T., Lindström, Å., Maxhuni, Q., Molina, B., Nagy, K., Radišić, D., Rajkov, S., Rajković, D.Z., Raudoniki, L., Sjeničić, J., Stoychev, S., Szép, T., Teufelbauer, N., Ursul, S., van Turnhout, C.M., Velevski, M., Vikstrøm, T., Wilk, T., Voltzit, O., Øien, I.J., Sudfeldt, C., Gerlach, B. & Lehikoinen, A. 2023. Ecological barriers mediate spatiotemporal shifts of bird communities at a continental scale. *PNAS* **120**: e2213330120 https://doi.org/10.1073/pnas.2213330120

Martay, B., Leech, E., Shortall, C.R., Bell, J.R., Thackeray, S.J., Hemming, D.L. & **Pearce-Higgins, J.W.** 2023. Aerial insect biomass, but not phenological mismatch, is associated with chick survival of an insectivorous bird *Ibis* **165**: 790–807. https://doi.org/10.1111/ibi.13190

Maskell, L., Alison, J., Forbes, N., Jarvis, S., Robinson, D., **Siriwardena, G.**, Wood, C. & Smart, S. 2023. Inconsistent relationships between area, heterogeneity and plant species richness in temperate farmed landscapes. *Oikos* 2023: e09720 https://doi.org/10.1111/oik.09720

Maziarz, M., Broughton, R.K., Beck, K.B., **Robinson, R.A.** & Sheldon, B.C. 2023. Temporal avoidance as a means of reducing competition between sympatric species. *R. Soc. Open Sci.* 10230521. http://doi.org/10.1098/rsos.230521

Norton, B.A., Mears, M., Warren, P.H., **Siriwardena, G.M., Plummer, K.E.**, Turner, T., Hancock, S., Grafius, D.R. & Evans, K.L. 2023. Biodiversity and environmental stressors along urban walking routes. *Urban Foresty & Urban Greening* **85**: 127951. https://doi.org/10.1016/j.ufug.2023.127951

O'Hanlon, N.J., Johnston, D.T., Cook, A.S.C.P., Robinson, R.A. & **Humphreys, E.M.** 2023. A crowded ocean: the need for demographic and movement data in seabird conservation. *Ocean & Coastal Management* **244**: 106833. https://doi.org/10.1016/j.ocecoaman.2023.106833

O'Hanlon, N.J., Bond, A.L., Masden, E.A.,Boertmann, D., Bregnbelle, T., Danielsen, J., Descamps, S., Petersen, A., Strøm, H, Systad, G. & James, N.A. 2023. Using foraging range and colony size to assess the vulnerability of breeding seabirds to oil across regions lacking at-sea distribution data. *Ornithological Applications* **125**.

Oschadleus, H.D. & **Boersch-Supan, P.H.** 2023. Sunning in Yellow Bishops *Euplectes capensis*. *Ostrich* **94**: 70–72.

Pearce-Higgins, J.W. & Morris, K.A. (2023) Declines in invertebrates and birds – could they be linked by cliamte change? *Bird Study* **69**: 59–71.

Pell, R.J., **Clark, J.A.** & **Robinson, R.A.** 2023. Contrasting habitat use between and within Bar-tailed Godwit and Curlew wintering on the Wash, England. *Wader Study* **130**: 225–323.

Plummer, K.E., Dadam, D., Bretreton, T., Dennis, E.B., **Massimino, D., Risely, K., Siriwardena, G.M.** & **Toms, M.P.** 2023. Trends in butterfly populations in UK gardens – new evidence from citizen science monitoring. *Insect Conservation & Diversity* **17**: 345–357. https://doi.org/10.1111/icad.12645

Rigala, S., Dakos, V., Alonso, H., Auniņš, A., Benkőe, Z., Brotons, L., Chodkiewicz, T., Chylareck, P., de Carlil, E., del Moral, J.C., Domșa, C., Escandell, V., Fontaine, B., Foppen, R., Gregory, R., **Harris, S.**, Herrando, S., Husby, M., Leronymidou C., Jiguet, J., Kennedy, J., Klvaňová, A., Kmecl, P., Kuczyński, L. , Kurlavičius, P., Kålås J.A., Lehikoinen, A., Lindström, Å, Lorrillière, R., Moshø, C., Nellis, R., **Noble, D.**, Eskildsen, D.P., Paquet, J-Y., Pelissié, M., Pladevall, C., Portolou, D., Reif, J., Schmid, H., Seaman, B., Szabo, Z.D., Szép, T., Florenzano, G.T., Teufelbauer, N., Trautmann, S., van Turnhout, C., Vermouzek, Z., Vikstrøm, T., Vořišek, P., Weiserbs, A. & Devictor, V. 2023. Farmland practices are driving bird population decline across Europe. *PNAS* **120**: e2216573120. https://doi.org/10.1073/pnas.2216573120

Schwemmer, P., Mercker, M., Haecker, K., Kruckenberg, H., Kämpfer, S., Bocher, P., Fort, J., Jiguet, F., **Franks, S.**, Elts, J., Marja, R., Piha, M., Rousseau, P., Pederson, R., Düttmann, H., Fartmann, T. & Garthe, S. 2023. Behavioral responses to offshore windfarms during migration of a declining shorebird species revealed by GPS-telemetry. *Journal of Environmental Management* **342**: 118131. https://doi.org/10.1016/j.jenvman.2023.118131

Searle, K.R., O'Brien, S.H., Jones, E.L., **Cook, A.S.C.P.**, Trinder, M.N., McGregor, R.M., Donovan, C., McCluskie, A., Daunt, F. & Butler, A. 2023. A framework for improving treatment of uncertainty in offshore wind assessments for protected marine birds. *ICES Journal of Marine Science:* fsad025 https://doi.org/10.1093/icesjms/fsad025

Sharps, E., Hawkes, R., Bladon, A., Buckingham, D., **Border, J.**, Morris, A., Grice, P. & Peach, W. 2023. Reversing declines in farmland birds: how much agri-environment provision is needed at farm and landscape scales? *Journal of Applied Ecology* **60**: 565–580. https://doi.org/10.1111/1365-2664.14338

Suggitt, A.J., Wheatley, C.J., Aucott, P., Beale, C.M., Fox, R., Hill, J.K., Isaac, N.J.B., **Martay, B.**, Southall, H., Thomas, C.D., Walker, K.J. & Auffret, A.G. 2023. Linking climate warming and land conversion to species' range changes across Great Britain. *Nature Communications* **14**: e6759. https://doi.org/10.1038/s41467-023-42475-0

Stanbury, A.J., **Balmer, D.E.**, Eaton, M.A., Grice, P.V., Khan, N.Z., Orchard, J.M. & Wotton, S.R. 2023. The status of the UK breeding European Turtle Dove *Streptopelia turtur* population in 2021. *Bird Study* **70**: 183–194. https://doi.org/10.1080/00063657.2023.2256511

Stroud, D.A., Eaton, M.A., Francis, I.S, Baker, H., Holling, M., King, A., Norman, D., Stanbury, A.J. & **Balmer, D.E.** 2023. The Rare Breeding Birds Panel: five decades of monitoring the UK's rare breeding birds. *British Birds* **116**: 191–209.

Tucker, A.M., McGowan, C.P., Nuse, B.L., Lyons, J.E., Moore, C.T., Smith, D.R., Sweka, J.A., Anstead, K.A., DeRose-Wilson, A. & **Clark, N.A.** 2023. Estimating recruitment rate and population dynamics at a migratory stopover site using an integrated population model. *Ecosphere* **14**: e4439. https://doi.org/10.1002/ecs2.4439

van Bemmelen, R.A., Leemans, J.J., Collier, M.P., **Green, R.M.W.**, Middelveld, R.P., **Thaxter, C.B.** & Fijn, R.C. 2024. Avoidance of offshore wind farms by Sandwich Terns increases with turbine density. *Ornithological Applications* **126**: duad055. https://doi.org/10.1093/ornithapp/duad055

Vickery, J.A., Mallord, J.W., Adams, W.M., Beresford, A.E., Both, C., Cresswell, W., Diop, N., Gregory, R.D., Morrison, C.A., Sanderson, F.J., Thorup, K., van Wijk, R.E. & **Hewson, C.M.** 2023. The conservation of Afro-Palaearctic migrants: what we are learning and what we need to know? *Ibis* **165**: 717–738. https://doi.org/10.1111/ibi.13171

Wade, D., **Ashton-Butt, A.**, Scott, G., Reid, S., Coward, V., Hansen, R.D.E., Banyard, A.C. & Ward, A. 2023. High pathogenicity avian influenza: targeted active surveillance of wild birds to enable early detection of emerging disease threats. *Epidemiology & Infection* **151**: e15. https://doi.org/10.1017/S0950268822001856

Walker, R.H., Robinson, R.A., Barimore, C.J., Blackburn, J.R., Barber, L.J., Bugg, N.R., McCambridge, H.E., Grantham, M.J., Griffin, B.M., Leighton, K. & **Schäfer, S.** 2023. Bird ringing and nest recording in Britain and Ireland in 2021. *Ringing & Migration* **38**: 44–88.

FINANCIAL OVERVIEW

This was a record year for legacies, which together with strong demand for contract work led to an extraordinary surplus of £1,498k. Membership subscription income was flat, with new recruitment just balancing drop out, but an increase in major donations led to a significant increase in Other fundraising. Voluntary income formed 44% of total group income for the year (2023 43%). We aim to raise this to over 50% in the longer term. A total of £6,215k (2023 £5,608k) was spent during the year on carrying out, supporting and communicating ornithological research.

Further increases in bond yields led to another reduction in the present value of the defined benefit pension obligation, taking the deficit to a comfortably manageable level.

The Board has a free reserves target range of three to four months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Free reserves are total General funds less Tangible fixed assets less Designated funds. At 31 March 2024 these stood at £3,150k (2023: £2,165k), equivalent to 6.0 months' running costs (2023: 4.6 months'). The Board have earmarked the surplus funds for the 2024 pension deficit recovery payment, IT infrastructure and initiatives arising in response to the new strategy.

TRUSTEES' STATEMENT

These are summarised accounts. To gain a full understanding of the financial affairs of the Trust please refer to the Annual Report and Accounts published on the BTO website or request a printed copy from the Director of Finance & Services, BTO, The Nunnery, Thetford, Norfolk IP24 2PU.

The Annual Report and Accounts were approved by the Board on 20 August 2024 and will be submitted to the Registrar of Companies, the Charity Commission and the Office of the Scottish Charity Regulator. The auditor's report by Helen Rumsey (FCA), Senior Statutory Auditor, Ensors Accountants LLP, was unqualified.

SUMMARISED ACCOUNTS: 2023/24

	£'000	£'000
INCOME	**2023/24**	**2022/23**
Donations and legacies	4,138	3,038
Charitable activities	3,967	3,102
Other trading activities	1,266	977
Investments	92	16
Total income & endowments	**9,463**	**7,133**
EXPENDITURE	**2023/24**	**2022/23**
Raising funds	1,772	1,317
Charitable activities	6,215	5,608
Other –defined benefit pension scheme	50	110
Total expenditure	**8,037**	**7,035**
Net income / (expenditure)	1,426	98
Net gains on investments	72	(15)
Actuarial gain/(loss) on defined benefit pension scheme	393	2,639
Net movement in funds	**1,891**	**2,722**
Total funds brought forward	4,812	2,090
Total funds carried forward	**6,703**	**4,812**
REPRESENTED BY	**2023/24**	**2022/23**
Fixed assets	2,946	2,880
Net current assets	4,444	3,133
Creditors due after one year	(100)	(91)
Defined benefit pension liability	(587)	(1,110)
	6,703	**4,812**

REED WARBLER, BY DAVID TIPLING / BIRDPHOTO.CO.UK

The British Trust for Ornithology
Board of Trustees and Management
2024

Patron	HRH The Prince of Wales	
President	F R Gardner OBE TD VR FRGS	
Board of Trustees		
Chair	Prof Z G Davies	*2023-26*
Honorary Treasurer	J E Miller FCCA	*2023-26*
Chair of Finance & Risk Committee	I Coucher	*2022-25*
Chair of Governance, Safeguarding & Inclusion Committee	Dr P Fitzpatrick	*2023-26*
Chair of Regional Network Committee	S J Marquis	*2020-27*
Chair of Ringing Committee	Dr L Wright	*2022-25*
Ordinary Board Members	D Buscall	*2024-27*
	E Dresser	*2023-26*
	R du Feu	*2022-25*
	E Thornton	*2023-26*
	Prof S Willis	*2024-27*
	J M Ziff	*2023-26*
Vice Presidents	Dr F Barclay	*2022-30*
	Prof S Bearhop	*2019-26*
	D C Jardine	*2020-27*

Finance & Risk Committee
Chair I Coucher; J E Miller; J M Ziff.

Governance, Safeguarding & Inclusion Committee
Chair Dr P Fitzpatrick; E Dresser, E Thornton.

Regional Network Committee
Chair S J Marquis; H Crabtree; Dr P Fitzpatrick; A Jarratt-Knock; S Metcalfe; S Taylor; E Tigwell.

Ringing Committee
Chair Dr L Wright; L Clewley; R du Feu; P Kirmond; J Lennon; S Vickers; R Walsh; *Representatives*: H Land; A Phillips.

Senior Leadership Team
Chief Executive Officer Prof J Vickery;
Director of Science Prof J W Pearce-Higgins; *Director of Engagement* Dr D I P Evans; *Director of Finance & Services, Company Secretary* A T Scott ACIS; *Director of Information Services* G N Hatt; *Director Country Offices* Dr C V Wernham; *Director Head of People and Organisational Development* S Knott.

Past Presidents and Chairs

Presidents		*Chairs*	
1958-60	R C Homes	1933-39	The Right Hon. Lord Scone MP, 7th Earl of Mansfield and Mansfield
1961-64	C A Norris	1940-41	The Right Hon. Malcolm MacDonald MP
1965-68	R C Homes	1942-47	Dr A Landsborough Thomson CB OBE DSc
1969-72	I J Ferguson-Lees	1948	Dr E M Nicholson CB CVO
1973-76	R A O Hickling	1949	A W Boyd MC
1977-80	J M McMeeking MBE	1950	Sir Norman Kinnear
1981-84	S M Taylor	1951-56	Major-General H P W Houston
1985-89	J A Hancock OBE	1957	R C Homes
1990-93	R P Howard	1958-87	No Chair
1994-96	Sir William Wilkinson	1988-91	G H Green
1997-2001	Sir Frederick Holliday	1992-96	I C Castle
2002-05	Lord Blakenham	1996-2000	Dr H P Sitters
2006-13	Baroness Young of Old Scone	2001-04	A J Martin
2014-18	C G Packham	2005-08	Dr S Hunter
2019-	F R Gardner OBE TD VR FRGS	2009-13	Prof I Newton FRS OBE
		2014-16	Prof A D Fox
		2016-22	Prof J A Gill
		2023-	Prof Z G Davies

The British Trust for Ornithology
Staff List
As at 31 March 2024

CHIEF EXECUTIVE OFFICER
Prof Juliet Vickery
PA: Nicki Read

SCIENCE
Director: Prof James Pearce-Higgins
PA / Senior Secretary: Nicki Read
Senior Secretary: Jane Chase
Secretary: Maria Knight

Associate Director – Research	Dr Rob Robinson
Principal Ecologist	David Noble
Senior Ecological Statistician	Dr Philipp Boersch-Supan
Research Ecologist	Dr Jez Smith
Ecological Statistician	James Clarke
Secretary	Jane Chase

Terrestrial Ecology

Head & Principal Ecologist	Dr Gavin Siriwardena
Senior Research Ecologist	Dr Ian Henderson
Research Ecologist	Dr Greg Conway
Research Ecologist	Dr Kate Plummer
Research Ecologist	Dr Joseph Cooper
Research Ecologist	Dr Hugh Hanmer
Research Ecologist	Dr Charlotte Ward
Research Ecologist	Maddie Barton
Research Ecologist	*vacant*
Senior Research Officer	David Norfolk
Survey Officer	Jessica Stokes

Dispersed Threats

Head & Principal Ecologist	Dr Phil Atkinson
Senior Research Ecologist	Dr Chris Hewson
Senior Research Ecologist	Dr Adham Ashton-Butt
Senior Research Ecologist	Dr Blaise Martay
PhD student	Jen MacIsaac
Research Scientist	Máire Kirkland
Spatial Ecologist	Dr Jenni Border

MONITORING

Ringing & Nest Recording

Head	Dr Dave Leech
Ringing Licensing and Sales	
Licensing Officer	Mark Grantham
Licensing and Sales Manager	Nicola Bugg
Ringing Sales Officer	Anne Trewhitt
Ringing Data Management	
Ringing & Nest Recording Engagement Manager	Joe Morris
Ringing & Nest Recording Process Manager	Bridget Griffen
Ringing Officer	Louise Bacon
Ringing Officer	Kevin Leighton
Demographic Monitoring Projects	
Demographic Surveys Officer	Lee Barber
Ringing & Nest Record Database Officer	Carl Barimore
Ringing & Nest Record Comms Officer	Ruth Walker
Scheme Administrator	Hazel McCambridge

Surveys

Head of Surveys	Dawn Balmer
BirdTrack Organiser	*Vacant*
Breeding Bird Survey National Organiser	James Heywood
Seabird Monitoring Programme Organiser	Sarah Harris
Engagement Officer	David White
Wetland Bird Survey	
WeBS Manager	Dr Teresa Frost
Waterbirds Survey Officer	Neil Calbrade
WeBS Counter Network Organiser	Gillian Birtles

Wetland & Marine Research

Head & Principal Ecologist	Dr Niall Burton
Senior Research Ecologist Principal Ecologist /	*Vacant*
Senior Research Ecologist	Dr Sam Franks
Senior Research Ecologist	Dr Chris Thaxter
Research Ecologist	Ros Green
Research Ecologist	Harry Ewing
Senior Research Officer	Ian Woodward
Principal Ecologist-Sea Birds	Dr Liz Humphreys
Senior Research Ecologist	Dr Nina O'Hanlon
Research Ecologist	Dr Jacob Davies
Senior Research Ecologist	Dr Daniel Johnston
Senior Research Ecologist	Sophie Bennett
Research Ecologist	Emma Caulfield
Offshore Renewable Energy Research Ecologist	Alastair Feather
Research Ecologist	Samuel Langlois

Data Science and Bioacoustics

Head & Principal Ecologist	Dr Simon Gillings
Senior Research Ecologist	Dr Stuart Newson
Senior Data Scientist	Dr Dario Massimino
Research Ecologist	Dr Jez Smith
Research Ecologist	Caroline Brighton
Biological Data Manager	Elizabeth Tatham

The British Trust for Ornithology
Staff List
As at 31 March 2024

COUNTRY OFFICES
Director: Dr Chris Wernham

BTO Scotland

Senior Secretary	Rebecca Cranston
Senior Research Ecologist	John Calladine
Data and Admin. Officer	Katja O'Donnell
Head of Development and Engagement (BTO County Operations)	Dr Ben Darvill
Development and Engagement Coordinator	Steve Willis
Principal Ecologist - Sea Birds	Dr Liz Humphreys
Senior Research Ecologist	Dr Blaise Martay
Head of Science Scotland	Dr Mark Wilson
Senior Research Ecologist	*Vacant*
Senior Research Ecologist	Dr Daniel Johnston
Research Ecologist	Björn Beckmann
Fieldwork Coordinator (BTO Scotland)	Anthony Wetherhill
Research Ecologist	Dr Jacob Davies
Senior Research Ecologist	Dr Nina O'Hanlon
Senior Research Ecologist	Sophie Bennett
Research Ecologist	Alastair Feather
Research Ecologist	Samuel Langlois
Product Owner/Project Manager	Dr Amy Challis
Wader Project Officer	Paul Noyes

BTO Wales

Senior Ecologist	Dr Rachel Taylor
Research Ecologist	Dr Katharine Bowgen
Senior Research Ecologist	Dr Callum Macgregor
Research Ecologist	Hannah Hereward

BTO Northern Ireland

Scientific Officer	*Vacant*
Ripple Project Officer	Sorrel Lyall
Research Ecologist	Hala Haddad
Engagement Coordinator	Jemma Davies
Senior Research Officer	Andrew Upton

INFORMATION SYSTEMS
Director: Graham Hatt

Senior Secretary	Jane Chase
Lead Database Architect	Dr Andrew Joys
Senior Database Developer	Steve Pritchard
Database Developer	Justin Walker
Database Developer	*Vacant*
Database Developer	Steven Harrop
Website Manager	Lee Carnihan
Senior Website Developer	Tom Sage
Website Developer	Daniel Higgins
Website Editor	Miriam Lord
Senior Software Developer	Mark Hammond
Senior Software Developer	*Vacant*
Software Developer	Oliver Barrett
Junior Software Developer	Ewan Stacey
Software Developer	Hayden Woods
Senior Systems Manager	Matthew Nicholls
Computing Support Officer	Dom Render
Business Analyst	*vacant*
Product Owner/Project Manager	Dr Amy Challis

PORZANA

Business Director	David Agombar
Business Manager	Shane Muggridge
Production Assistant	Harvey Cornell
Production Assistant	Trupti Cornell
Production Assistant	Philippa Elson
Production Assistant	Elaine Ennis
Production Assistant	Lucy Willsher

ENGAGEMENT
Director: Dr Ieuan Evans

Fundraising	
Head of Income Generation	Michael Naidu
Trust & Foundation Fundraising Mngr	Kate Burton
Legacy Manager	Sam Rider
Fundraising Administrator	Melissa Caals
Supporter Relations Manager	David Agombar
Individual Giving Manager	Vincent Moran
Engagement	
Development and Engagement Coordinator	Drew Lyness
Supporter team	
Head of Income Generation	Michael Naidu
Snr. Supporter Administrator	Sam Graham
Supporter Development Officer	Caroline Foot
Supporter Administrator	Samantha Culverhouse
Supporter Administrator	Amanda Gee
Communications	
Head of Communications	Mike Toms
Media Manager	Jon Carter
Science Communications Manager	Dr Viola Ross-Smith
Social Media Officer	Alice Johnson
BTO Archivist	Lesley Hindley
GBW Manager	*Vacant*
GBW Supporter Development Officer	Robert Jaques
Training	
Training Manager	Nick Moran
Training Officer	*Vacant*
Training Officer	Jenny Donelan
Youth Engagement	
Youth Engagement Manager	*Vacant*
Youth Engagement Officer	Rachael Griffiths
Youth Engagement Coordinator	Chris Marais
Seasonal Youth Engagement Officer	Samuel Levy

FINANCE & SERVICES
Director: Andrew Scott

Accounts & Facilities	
Financial Accountant / Facilities Manager	Mary Gray
Management Accountant	Samantha Allen
	Irene Bowles (part-time)
Finance Assistant	Emma Raggett
General Sales Officer / Admin. & Finance Assistant	Sonya Calder
Admin. Assistant	*Vacant*
Maintenance Operative	Pat Sparkes
Receptionist	Ronnie Hatt
People and Organisation Development	
Director: Sian Knott	
People and Projects Officer	Holly Stevenitt
Senior People, Health and Safety Officer	Cheryl Wilson
People and EDI Officer	Anna Dupont-Crabtree
Research Support	
Resource Support Manager	Virginia Cates
Research Support Administrator	Sandra Sparkes
Research Support Officer	Penny Mitchell
Research Support Officer	Heidi Mellan
Research Support Officer	Dean McFarlane
Research Support Officer	*Vacant*
Nunnery Lakes Site Manager	Ian Henderson

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report)
For the Year Ended 31 March 2024

For the purposes of Section 162 of the Charities Act 2011 and the Directors' Report for the purposes of Section 415 of the Companies Act 2006.

Objectives and Activities

Charitable Objects

The objects of the Trust, as set out in its Memorandum of Association are, for the benefit of the nation:

(i) To promote, organise, carry on and encourage study and research and particularly field work for the advancement of knowledge in all branches of the Science of Ornithology.

(ii) Permanently to preserve and protect lands and objects which by their natural features are suitable for the preservation and study of bird life and of fauna and flora generally.

Public Benefit

The trustees have complied with the duty in Section 17 of the Charities Act 2011 to have due regard to public benefit guidance published by the Charity Commission. The following paragraphs set out in detail the aims, activities and performance of the Trust, and the way in which they provide public benefit.

Objectives and Activities

The BTO's purpose and public benefit is to deliver objective information and advice, through undertaking impartial research and analysis about birds, other wildlife and habitats, to advance the understanding of nature. We inform policies and evidence-based decisions that impact on the environment such that future generations can benefit from a healthy and wildlife-rich environment. The BTO does this by:

- Sustaining long-term extensive programmes and smaller scale intensive research to study the population trends, movements, breeding, survival, ecology and behaviour of wild birds;
- Encouraging, enthusing, training and supporting volunteers to take part in scientific studies;
- Bringing together professional scientists and volunteer birdwatchers in surveys of wildlife (particularly, but not exclusively, birds); and
- Analysing the data gathered through these studies, making information available to Government and other bodies, and publishing the results in the primary scientific literature and via the internet, the birdwatching and conservation press and the media more generally.

Strategic Report

The Strategic Report (Achievements and Performance, Plans for Future Periods) is contained in Part A of this document.

Principal Risks and Uncertainties

The trustees consider that the principal risks and uncertainties which could affect BTO's ability to deliver its objectives in the short term are public expenditure reductions leading to reduced contract, grant and partnership funding, and in the medium to long term, inflation and the final salary pension scheme deficit. These are able to be mitigated through the continued growth strategy and careful cash management.

Financial Review

The Directors' Report, the consolidated financial statements and the accompanying notes thereto comprise Part B of this document.

This was a record year for legacies, which together with strong demand for contract work led to an extraordinary net income surplus of £1,498k. Membership subscription income was flat, with new recruitment just balancing drop out, but an increase in major donations led to a significant increase in Other fundraising. Voluntary income formed 44% of total group income for the year (2023 43%). We aim to raise this to over 50% in the longer term. A total of £6,215k (2023 £5,608k) was spent during the year on carrying out, supporting and communicating ornithological research.

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2024

Financial Review Cont'd

Further increases in bond yields led to another reduction in the present value of the defined benefit pension obligation, taking the deficit to a comfortably manageable level.

Reserves

The Board has a free reserves target range of 3 to 4 months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Free reserves are total General funds less Tangible fixed assets less Designated funds. At 31 March 2024 these stood at £3,150k (2023: £2,165k), equivalent to 6.0 months' running costs (2023: 4.6 months'). The Board have earmarked the surplus funds for the 2024 pension deficit recovery payment, IT infrastructure and initiatives arising in response to the new Strategy.

Going Concern

The Board has reviewed the financial position and forecasts and the systems of financial control and risk management. The Board believes that BTO is well placed to manage operational and financial risks successfully. The Board therefore continues to support the going basis in preparing the financial statements.

Structure, Governance and Management

Company number:	00357284 (England and Wales)
Charity number:	216652 (England and Wales) SC039193 (Scotland)
Registered Office:	The Nunnery, Thetford, Norfolk IP24 2PU
Principal Advisers:	
Auditors	Ensors Accountants LLP, Connexions, 159 Princes Street, Ipswich IP1 1QJ
Principal Bankers	National Westminster Bank plc, 7 Cornhill, Bury St Edmunds, Suffolk IP33 1BQ
	The Royal Bank of Scotland plc, 2 Blenheim Place, Edinburgh EH7 5JH
Solicitors	Browne Jacobson LLP, Castle Meadow Road, Nottingham NG2 1BJ
Pensions Advisers	The Progeny Group Ltd, 1 The Triangle, ng2 Business Park, Nottingham NG2 1AE
Investment Advisers	The Progeny Group Ltd, 1 The Triangle, ng2 Business Park, Nottingham NG2 1AE
Insurance Brokers	Uttings Insurance Brokers, 16 The Fairland, Hingham, Norwich, Norfolk NR9 4HN

Governing Document

The British Trust for Ornithology (known generally as the BTO) is a company limited by guarantee governed by its Memorandum and Articles of Association. It is registered as a charity with the Charity Commission and the Office of the Scottish Charity Regulator. Membership is open to any person whose application is approved by the Board upon payment of the requisite subscription. Members undertake to contribute up to £1 each in the event of an insolvent winding up, which represents the limit of their guarantee.

Trustees

The members of the Board are the directors of the charitable company under company law and the trustees for the purpose of charity law. Those serving during the year were as follows:

Prof Z G Davies
D Buscall (appointed 1 January 2024)
I Coucher
E Dresser
R du Feu
Dr P Fitzpatrick
S J Marquis
J E Miller
Dr D J Reynolds (retired 31 December 2023)
E Thornton
Prof S Willis (appointed 1 January 2024)
Dr L Wright
J M Ziff

Trustees are nominated by the Board, on the recommendation of the Governance and Nominations Committee, following open advertisement, or by members and elected by the members at the Annual General Meeting each year, to serve from

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2024

Trustees Cont'd

the following 1 January. The normal term of office is four years, with a limit of two consecutive terms. New trustees receive a comprehensive information pack and undergo induction to brief them on the BTO and their role as company directors and trustees.

Organisation and Key Management Remuneration

The Board of Trustees is the governing body of the BTO. It meets at least four times a year. The Board is supported by the Finance & Risk Committee, Governance, Safeguarding & Inclusion Committee, Regional Network Committee and Ringing Committee. The day-to-day operational management of the BTO is delegated to the Senior Leadership Team, led by the Chief Executive Officer (CEO).

The salary of the CEO is determined on the basis of comparability to relevant benchmarks. The remuneration of all other staff is set according to a bespoke job evaluation scheme, benchmarked as appropriate. All salaries are subject to annual cost of living review. There is no bonus scheme.

Related Parties

The BTO's wholly owned subsidiary, BTO Services Ltd, was established to undertake commercial activities to support the work of the BTO, and gifts its profits to the Trust. On 30 August 2017 BTO Services Ltd acquired the ring manufacturer Porzana Ltd. The net assets and activities of Porzana Ltd were subsequently hived up to BTO Services Ltd and it then became dormant. On 15 November 2019 BTO Services Ltd incorporated BTO Consulting Ltd which company is dormant. 'Porzana' and 'BTO Consulting' are trading names of BTO Services Ltd.

The BTO co-operates with many other charities, with government agencies and other bodies in pursuit of its objectives, as illustrated in Parts A and B of this document.

Volunteers

The Trust depends on the contributions of many thousands of volunteers who participate in BTO surveys and other activities. We are greatly indebted to them, and especially to the Regional Representatives and other regional volunteers who organise so much BTO activity at a local level. BTO volunteers contributed the equivalent of approximately 284,181 days of work in calendar year 2023 (2022: 265,053 days).

Risk Management

A risk register is maintained which identifies the significant risks faced by the BTO and the measures in place to manage and mitigate those risks. These are monitored by the Senior Leadership Team and regularly reviewed and amended as appropriate by the Finance & Risk Committee and the Board.

Fundraising Standards

BTO is registered with the Fundraising Regulator and follows the Fundraising Regulator's Code of Fundraising Practice. All fundraising from individual giving is undertaken by BTO staff, and during the year we used the services of a specialist consultancy to help us research and approach charitable trusts and foundations. We have not received any complaints regarding our fundraising practices. We take all reasonable steps to treat supporters fairly and transparently, especially if we believe they may be in a vulnerable position.

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2024

Investments

The Memorandum of Association permits the Trust to invest monies not immediately required for its purposes as the trustees see fit. The trustees' investment policy is to maximise long term total return by investing in a combination of 40% high quality short-dated bonds and 60% globally diversified equities. The equities part of the portfolio is invested in a sustainable fund (see Note 10). Investment performance against benchmark was as follows:

	Portfolio	Benchmark
Year ended 31 March 2024	+13.33%	+13.39%
Since inception (28 August 2014)	+87.77%	+63.77%

Statement of Board Members' Responsibilities

The Board members are responsible, as Directors of the Company, for preparing the Annual Report (including the Strategic Report) and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Board members to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company and the group at the year end and of the incoming resources and application of resources, including the income and expenditure, of the charitable company and the group for the year.
In preparing these financial statements, Board members are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in SORP (FRS 102);
- make judgements and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charitable company and the group will continue in operation.

Board members are responsible for keeping adequate accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and the group and enable them to ensure that the financial statements comply with the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and the Charities Accounts (Scotland) Regulations 2006 (as amended). They are also responsible for safeguarding the assets of the charitable company and the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Board members are responsible for the maintenance and integrity of the corporate and financial information included on the Trust's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

In so far as Board members are aware:

- there is no relevant audit information of which the Trust's auditors are unaware; and
- Board members have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditors are aware of that information.

Auditors

A resolution to appoint the auditors will be proposed at the Annual General Meeting under section 485 of the Companies Act 2006.

The Trustees' Report (incorporating the Strategic Report) was approved by the Board as Directors and Trustees and authorised for issue on 20 August 2024.

Prof Z G Davies
Chair

J E Miller FCCA
Honorary Treasurer

Independent Auditors' Report to the Members of The British Trust for Ornithology

Opinion

We have audited the group financial statements of The British Trust for Ornithology (the 'parent charitable company') and its subsidiaries (the 'group') for the year ended 31 March 2024 which comprise the Consolidated Statement of Financial Activities, the Charity Statement of Financial Activities, the Consolidated Group and Charity Balance Sheets, the Consolidated Group and Charity Statement of Cash Flows, and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice) including FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the group's and the parent charitable company's affairs as at 31 March 2024
- and of the groups and the parent charitable company's incoming resources and application of resources, including its income and expenditure for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and regulations 6 and 8 of the Charities Accounts (Scotland) Regulations 2006 (as amended).

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We are independent of the group and parent charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the group financial statements, we have concluded that the trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the group or parent charitable company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

Other information

The other information comprises the information included in the annual report other than the group financial statements and our auditors' report thereon. The trustees are responsible for the other information. Our opinion on the group financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. In connection with our audit of the group financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinion on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Trustees' Annual Report, which includes the Directors' Report and the Strategic Report prepared for the purposes of company law, for the financial year for which the group financial statements are prepared is consistent with the group financial statements; and
- the Strategic Report and the Directors' Report included within the Trustees' Annual Report has been prepared in accordance with applicable legal requirements.

**Independent Auditors' Report to the Members of
The British Trust for Ornithology - Continued**

Matters on which we are required to report by exception
In the light of our knowledge and understanding of the group and the parent charitable company and their environment obtained in the course of the audit, we have not identified material misstatements in the Strategic Report or the Directors' Report included within the Trustees' Annual Report.

We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 and the Charities Accounts (Scotland) Regulations 2006 (as amended) require us to report to you if, in our opinion:

- adequate and proper accounting records have not been kept by the parent charitable company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent charitable company's financial statements are not in agreement with the accounting records or returns; or
- certain disclosure of trustees' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit; or
- the trustees were not entitled to prepare the financial statements in accordance with the small companies regime and take advantage of the small companies' exemptions in preparing the trustees' report and from the requirement to prepare a strategic report.

Responsibilities of Board Members
As explained more fully in the Statement of Board Members' Responsibilities set out on page B9, the trustees (who are also the directors of the British Trust for Ornithology for the purposes of company law) are responsible for the preparation of the group financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of group financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the group financial statements, the trustees are responsible for assessing the group's and parent charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the group or the parent charitable company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements
We have been appointed as auditor under section 44(1)(c) of the Charities and Trustee Investment (Scotland) Act 2005 and under the Companies Act 2006 and report in accordance with the Acts and relevant regulations made or having effect thereunder.

Our objectives are to obtain reasonable assurance about whether the group financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Our audit was designed, after obtaining sufficient and appropriate knowledge and understanding of the group and parent charitable company, its charitable nature, its income streams and the industry it operates within. We undertook an assessment of the control environment and the systems and procedures put in place by the senior management team, combined with our detailed audit testing and supportive analytical work, to obtain reasonable assurance about whether the group financial statements as a whole are free from material misstatement due to fraud. Our work has included considering areas of higher risk of fraud, including transactions with related parties, revenue recognition and areas where there is a risk of management override of systems and controls.

To address the risk of fraud we performed the following audit procedures:

- Assessment of key accounting estimates within the group financial statements in order to assess their reasonableness and determine whether there is any bias in management's estimates.
- All team members were informed of the relevant laws and regulations and potential fraud risks at the planning stage and reminded to remain alert to any indications of fraud or non-compliance.

**Independent Auditors' Report to the Members of
The British Trust for Ornithology - Continued**

- Enquiring of management whether there have been any alleged, suspected or actual instances of fraud during the year.
- Enquiring of management and those charged with governance whether there have been any actual or potential litigation or claims.
- Reviewing correspondence with relevant legal authorities.
- Reviewing legal expense accounts for any indicators of litigation or claims.

A further description of our responsibilities for the audit of the group financial statements is located on the Financial Reporting Council's website at www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of our report

This report is made solely to the parent charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and to the charitable company's trustees, as a body, in accordance with regulation 10 of the Charities Accounts (Scotland) Regulations 2006 (as amended). Our audit work has been undertaken so that we might state to the parent charitable company's members and trustees those matters we are required to state to them in an auditors' report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the parent charitable company, the parent charitable company's members as a body and its trustees as a body, for our audit work, for this report, or for the opinions we have formed.

Helen Rumsey, Senior Statutory Auditor
For and on behalf of
Ensors Accountants LLP
Connexions
159 Princes Street
Ipswich
IP1 1QJ

The British Trust for Ornithology
Consolidated Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2024

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2024 £'000	Total 2023 £'000
Income and endowments from:					
Donations and legacies	3	3,508	630	**4,138**	**3,038**
Charitable activities	3	3,929	38	**3,967**	**3,102**
Other trading activities	3	1,266	-	**1,266**	**977**
Investments	3	81	11	**92**	**17**
Total income and endowments		**8,784**	**679**	**9,463**	**7,134**
Expenditure on:					
Raising funds	4	1,772	-	**1,772**	**1,317**
Charitable activities	4	5,488	727	**6,215**	**5,608**
Other – Amounts recognised as expenditure on defined benefit pension scheme	22	50	-	**50**	**110**
Total expenditure		**7,310**	**727**	**8,037**	**7,035**
Net income/(expenditure) before net gain/(loss) on investments		1,474	(48)	**1,426**	**99**
Net gain/(loss) on investments	10	72	-	**72**	**(16)**
Net income/ (expenditure)		**1,546**	**(48)**	**1,498**	**83**
Transfers between funds	16,17	(483)	483	**-**	**-**
Other recognised gains/(losses):					
Actuarial gain/(loss) on defined benefit pension scheme	22	393	**-**	**393**	**2,639**
Net movement in funds		**1,456**	**435**	**1,891**	**2,722**
Reconciliation of funds					
Total funds brought forward		4,035	777	**4,812**	**2,090**
Total funds carried forward	16,17	**5,491**	**1,212**	**6,703**	**4,812**

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages 56 to 74 form part of these financial statements.

The British Trust for Ornithology
Charity Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2024

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2024 £'000	Total 2023 £'000
Income and endowments from:					
Donations and legacies	3	3,727	630	**4,357**	**3,280**
Charitable activities	3	3,929	38	**3,967**	**3,102**
Other trading activities	3	741	-	**741**	**535**
Investments	3	81	11	**92**	**17**
Total income and endowments		**8,478**	**679**	**9,157**	**6,934**
Expenditure on:					
Raising funds	4	1,451	-	**1,451**	**1,117**
Charitable activities	4	5,503	727	**6,230**	**5,608**
Other – Amounts recognised as expenditure on defined benefit pension scheme	22	50	-	**50**	**110**
Total expenditure		**7,004**	**727**	**7,731**	**6,835**
Net income/(expenditure) before net gain/(loss) on investments		1,474	(48)	**1,426**	**99**
Net gain/(loss) on investments	10	72	-	**72**	**(16)**
Net income/ (expenditure)		**1,546**	**(48)**	**1,498**	**83**
Transfers between funds		(483)	483	**-**	**-**
Other recognised gains/(losses):					
Actuarial gain/(loss) on defined benefit pension scheme	22	393	-	**393**	**2,639**
Net movement in funds		**1,456**	**435**	**1,891**	**2,722**
Reconciliation of funds					
Total funds brought forward		4,035	777	**4,812**	**2,090**
Total funds carried forward	16,17	**5,491**	**1,212**	**6,703**	**4,812**

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages 56 to 74 form part of these financial statements.

The British Trust for Ornithology
Consolidated Group and Charity Balance Sheets
as at 31 March 2024

	Note	Group 2024 £'000	Group 2023 £'000	Charity 2024 £'000	Charity 2023 £'000
Fixed assets					
Tangible assets	9	2,427	2,433	2,427	2,433
Investments	10	519	447	519	447
		2,946	2,880	2,946	2,880
Current assets					
Stocks	11	282	294	-	-
Debtors	12	2,270	1,680	2,549	1,926
Cash at bank and in hand		4,132	3,538	4,024	3,453
		6,684	5,512	6,573	5,379
Creditors:					
Amounts falling due within one year	13	(2,240)	(2,379)	(2,129)	(2,246)
Net current assets		4,444	3,133	4,444	3,133
Total assets less current liabilities		7,390	6,013	7,390	6,013
Creditors:					
Amounts falling due after one year	14	(100)	(91)	(100)	(91)
Net assets excluding defined benefit pension liability		7,290	5,922	7,290	5,922
Defined benefit pension liability	22	(587)	(1,110)	(587)	(1,110)
Net assets/(liabilities) including defined benefit pension liability	18	6,703	4,812	6,703	4,812
Represented by:					
Restricted funds	16	1,212	777	1,212	777
Unrestricted funds excluding Pension reserve	17	6,078	5,145	6,078	5,145
Pension reserve	17	(587)	(1,110)	(587)	(1,110)
Total funds	18	6,703	4,812	6,703	4,812

Approved by the Board and authorised for issue on 20 August 2024 and signed on its behalf by:

Chair Prof Z G Davies

Honorary Treasurer J E Miller FCCA

Company registration number 00357284

The notes on pages 56 to 74 form part of these financial statements.

The British Trust for Ornithology
Consolidated Group and Charity Statement of Cash Flows
For the Year Ended 31 March 2024

	Note	Group 2024 £'000	Group 2023 £'000	Charity 2024 £'000	Charity 2023 £'000
Net cash inflow / (outflow) from operating activities	20	514	(274)	491	(231)
Cash flow from investing activities					
Payments to acquire tangible fixed assets	9	(12)	(11)	(12)	(11)
Proceeds from the sale of tangible fixed assets		-	7	-	7
Investment income received		92	17	92	17
Net cash flow from investing activities		80	13	80	13
Net increase/(decrease) in cash for the year		594	(261)	571	(218)
Cash at bank and in hand at 1 April		3,538	3,799	3,453	3,671
Cash at bank and in hand at 31 March		4,132	3,538	4,024	3,453

Analysis of Cash at Bank and in Hand This comprises:	**2024** £'000	**2023** £'000	**2024** £'000	**2023** £'000
Bank current accounts and cash in hand	327	227	219	142
Bank deposits	3,805	3,311	3,805	3,311
Cash at bank and in hand at 31 March	4,132	3,538	4,024	3,453

Bank deposits carry variable rates of interest.

The notes on pages 56 to 74 form part of these financial statements.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements
For the Year Ended 31 March 2024

1. ACCOUNTING POLICIES

a) Accounting Convention

The charity constitutes a public benefit entity as defined by FRS 102. The financial statements have been prepared in accordance with *Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102)* (SORP (FRS102)) effective 1 January 2019, the Charities Act 2011, the Companies Act 2006 and UK Generally Accepted Practice as it applies from 1 January 2015. They also comply with the reporting requirements of the Charities and Trustee Investment (Scotland) Act 2005 and the Charities Accounts (Scotland) Regulations 2006 (as amended).

The financial statements are prepared in pounds sterling (rounded to the nearest thousand) which is the functional currency of the charitable company and the group.

The charity operates on a weekly basis and the Financial Statements have been made up to 31 March 2024, being the last Sunday in March.

b) Going Concern

The trustees have prepared the financial statements on a going concern basis under the historical cost convention, modified to include certain items at fair value. In their opinion the pension scheme deficit does not give rise to material uncertainties that could cast doubt upon the appropriateness of this policy.

c) Group Financial Statements

These financial statements consolidate the results of the charity and its wholly owned trading subsidiary BTO Services Limited on a line-by-line basis.

d) Income

Income from donations, gifts and legacies is recognised immediately when received in cash and as receivable where there is entitlement, the amount can be measured reliably, and it is probable that the income will be received.

Income from charitable activities includes income receivable under contracts which is recognised as earned as the related work is performed. Income from grant funding supporting charitable activities is recognised where there is entitlement, probability of receipt, and the amount can be measured with sufficient reliability.

Income is deferred when it is received in advance of the services it relates to. Life membership income is released to the Statement of Financial Activities in equal instalments over ten years.

Income from commercial activities of the trading subsidiary is recognised as earned as the related goods and services are provided.

Investment income, sponsorship and royalty income and membership subscription income are recognised on a receivable basis.

e) Expenditure

Expenditure is recognised when a liability is incurred. Costs are allocated directly to activity cost categories. The cost of holiday pay not taken at the year end is accrued.

Costs of raising funds are those incurred in attracting voluntary income, including membership subscriptions, in carrying out trading activities, and in receiving royalties and sponsorship income.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

Costs of charitable activities include those incurred on scientific research contracts, and on allocated and restricted fund research work. They also include volunteer surveyor support and science communication costs.

Governance costs include those incurred in the governance of the charity and the safeguarding of its assets, and are primarily associated with constitutional and statutory requirements.

Support costs include central functions and have been allocated to activity cost categories on a staff cost basis.

VAT is reclaimed on allowable expenses under the Business/Non-Business and the partial exemption rules. Where not reclaimable it is included within expenses.

f) Tangible Fixed Assets

Individual assets costing £1k or more are initially capitalised at cost. Tangible fixed assets (except freehold property and land) are depreciated on a straight line basis over their estimated useful lives as follows:

Asset Category	Annual Rate
Furniture and Equipment	25%
Computer Equipment	25%
Motor Vehicles	25%

The freehold property is stated at fair value under the revaluation model using sufficiently regular revaluations to ensure that the carrying amount does not differ materially from the fair value at the reporting date. Revaluations are performed every five years, or as the trustees consider necessary, by qualified external valuers. The increase or decrease on revaluation is credited or charged to the fund holding the asset. The property is not depreciated as it is considered to have an indefinite remaining useful life.

At each reporting end date, the trustees review the carrying amounts of the tangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any).

g) Investments

Investments are recognised initially at fair value which is normally the transaction price excluding transaction costs. Subsequently, they are measured at fair value with changes recognised in 'Net gain/(loss) on investments' in the Statement of Financial Activities if the shares are publicly traded or their fair value can otherwise be measured reliably. Other investments are measured at cost less impairment.

h) Stock

Stock is valued at the lower of cost and net realisable value. Net realisable value is based on estimated selling price less further costs to completion and sale. Cost is calculated on a first in first out basis.

i) Debtors and creditors falling due within one year

Debtors and creditors with no stated interest rate and falling due within one year are recorded at transaction price. Any losses arising from impairment are recognised in expenditure.

j) Financial instruments

The group only has financial assets and liabilities that qualify as basic financial instruments, such as debtors and creditors with no stated interest rate and payable within one year, which are recorded at transaction price. Any losses arising from impairment are recognised as expenditure in the Statement of Financial Activities.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

k) Foreign Currency Translation

Monetary assets and liabilities denominated in foreign currencies are translated into pounds sterling at the rates of exchange ruling at the balance sheet dates. Transactions in foreign currencies are recorded at the rate ruling at the transaction date. All exchange differences are taken to the Statement of Financial Activities.

l) Funds Structure

The Trust has a number of restricted funds to account for situations where funds have been raised for a specific purpose. All other funds are unrestricted funds. Where the trustees intend to use part of the unrestricted funds to provide longer-term funding for BTO projects and core activities, designated funds are set up to reflect this. A Pension reserve fund has been created so that movements and balances relating to the defined benefit pension scheme valuations can be separately identified. The funds in each of these categories are disclosed in Notes 16 and 17.

m) Retirement Benefits

The defined benefit pension scheme provides benefits for staff based on final pensionable salary. The scheme was closed to future accrual with effect from 1 April 2013. The assets of the scheme are held separately from those of the Trust, being invested with independent fund managers and are measured at fair value with changes recognised in the Statement of Financial Activities as set out in Note 22. Defined benefit pension liabilities are measured using the projected unit cost method and discounted at the current rate of return on a high quality corporate bond of equivalent term and currency to the liability. Under FRS 102, any net liability arising based on these valuations is the best estimate of the present value of the actual amounts to be paid out of the scheme, less the fair value of the scheme assets. The net of the interests on the scheme assets and liabilities is charged to the Statement of Financial Activities. Past service costs are recognised as expenditure when a liability is incurred and are charged to the Statement of Financial Activities. Actuarial gains and losses are recognised in the Statement of Financial Activities.

The Trust as employer also makes payments in respect of employees' own defined contribution schemes, through a group self-invested personal pension arrangement. For these schemes, the amount charged to the Statement of Financial Activities in respect of pension costs is the contributions payable in the year. Differences between contributions payable in the year and contributions actually paid are included as either accruals or prepayments in the Balance Sheet.

n) Judgements and Key Sources of Estimation Uncertainty

In the application of the group and parent charitable company's accounting policies, the trustees are required to make judgements, estimates and assumptions about the carrying amount of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the year in which the estimate is revised where the revision affects only that year, or in the year of the revision and future years where the revision affects both the current and future years.

Key sources of estimation uncertainty
The estimates and assumptions which have a significant risk of causing a material adjustment to the carrying amount of assets and liabilities are as follows:

Percentage completion on contracts
The degree of completion on the contracts is an estimate by the relevant project manager. This estimate relies on their professional opinion on the level of work completed in the whole contract, which impacts the level of income recognised, accrued and deferred. These estimates are reviewed by the Senior Leadership Team on a regular basis.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

n) Judgements and Key Sources of Estimation Uncertainty Cont'd

Defined benefit pension scheme
The group has a defined benefit pension scheme which is closed to future accrual. The valuation of the defined benefit pension obligation necessarily involves a calculation which depends on the expected future outflow of economic benefits that the group expects to make to satisfy this obligation. The calculation depends on a number of factors such as the methodology, discount rate and mortality assumptions used. The group use a qualified independent actuary to assist in preparing the necessary calculation in accordance with the requirements of FRS102.

Property valuation
The Nunnery is valued at fair value by the directors with reference to recent property transactions and their knowledge of the site. The directors obtain third party valuations at regular intervals to ensure that the fair value of the property is kept up to date.

o) Leases
Rentals payable under operating leases, including any lease incentives received, are charged to profit or loss on a straight line basis over the term of the relevant lease except where another more systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

p) Employee benefits
The costs of short-term employee benefits are recognised as a liability and an expense unless those costs are required to be recognised as part of the cost of stock or fixed assets. The cost of any unused holiday entitlement is recognised in the year in which the employee's services are received. Termination benefits are recognised immediately as an expense when the charity is demonstrably committed to terminate the employment of an employee or to provide termination benefits.

q) Cash at bank and in hand
Cash at bank and in hand are basic financial assets and includes cash in hand, deposits with banks, other short-term liquid investments with original maturities of three months or less, and bank overdrafts.

r) Legacies
Legacy receipts are recognised when there has been grant of probate, the executors have established that there are sufficient assets in the estate, after settling any liabilities, to pay the legacy, any conditions attached to the legacy are either within the control of the Trust or have been met, and the amount receivable is determined.

2. MEMBERS' LIABILITY

Under the Memorandum of Association of the Trust, members are required to undertake to contribute to the assets of the Trust in the event of its being wound up while they are members, and within one year after they cease to be members, for payment of the debts and liabilities of the Trust contracted whilst they were still members, and of the costs, charges and expenses of winding up, such amount as may be required but not exceeding £1 each. This represents the limit of their guarantee to the company.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

3. ANALYSIS OF INCOME

	Group 2024 £'000	Group 2023 £'000	Charity 2024 £'000	Charity 2023 £'000
Donations and legacies				
Membership subscriptions & donations	1,030	1,020	1,030	1,020
Individual donations	668	504	668	504
Corporate & trust donations & grants	429	362	648	604
Legacies	2,011	1,152	2,011	1,152
	4,138	3,038	4,357	3,280
Charitable activities				
Core surveys - JNCC Partnership	1,358	1,158	1,358	1,158
Core surveys - Other	37	39	37	39
Other surveys & research - Voluntary funded	-	3	-	3
Other surveys & research - Contract funded	2,376	1,674	2,376	1,674
Research communication	77	87	77	87
General volunteer survey support	96	116	96	116
Nunnery Lakes Reserve	23	25	23	25
	3,967	3,102	3,967	3,102
Other trading activities				
Ringing & tagging sales	491	448	-	-
Publications & general sales	30	71	-	-
Corporate sponsorship & royalties	26	53	-	-
Consultancy	558	202	-	-
Data-related sales	156	167	-	-
Other	5	36	5	10
Income from charges to subsidiary	-	-	736	525
	1,266	977	741	535
Investment income				
Bank interest receivable	92	17	92	17

Analysis by fund type	Group 2024 £'000	Group 2023 £'000	Charity 2024 £'000	Charity 2023 £'000
Donations and legacies				
Unrestricted	3,508	2,662	3,727	2,904
Restricted	630	376	630	376
	4,138	3,038	4,357	3,280
Charitable activities				
Unrestricted	3,929	3,096	3,929	3,096
Restricted	38	6	38	6
	3,967	3,102	3,967	3,102
Other trading activities				
Unrestricted	1,266	977	741	535
Restricted	-	-	-	-
	1,266	977	741	535
Investment income				
Unrestricted	81	17	81	17
Restricted	11	-	11	-
	92	17	92	17

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

4. ANALYSIS OF EXPENDITURE

	Group 2024 £'000	Group 2023 £'000	Charity 2024 £'000	Charity 2023 £'000
Raising funds				
Donations and legacies				
Membership subscriptions & donations	306	265	306	265
Individual donations	262	195	262	195
Corporate & trust donations & grants	52	37	52	37
Legacies	96	76	96	76
	716	573	716	573
Other trading activities				
Ringing & tagging costs	463	443	-	-
Publications & general costs	25	63	-	-
Corporate sponsorship & royalties	1	-	-	-
Consultancy	453	159	-	-
Data-related costs	113	79	-	-
Other	1	-	-	-
Costs recharged to subsidiary	-	-	735	544
	1,056	744	735	544
	1,772	1,317	1,451	1,117
Charitable activities				
Core surveys - JNCC Partnership	1,816	1,679	1,817	1,679
Core surveys - Other	313	328	313	328
Other surveys & research - Voluntary funded	791	844	791	844
Other surveys & research - Contract funded	2,258	1,897	2,272	1,897
Research communication	777	650	777	650
General volunteer survey support	215	167	215	167
Nunnery Lakes Reserve	45	43	45	43
	6,215	5,608	6,230	5,608

Analysis by fund type	Group 2024 £'000	Group 2023 £'000	Charity 2024 £'000	Charity 2023 £'000
Raising funds				
Unrestricted	1,772	1,300	1,451	1,100
Restricted	-	17	-	17
	1,772	1,317	1,451	1,117
Charitable activities				
Unrestricted	5,488	4,967	5,503	4,967
Restricted	727	641	727	641
	6,215	5,608	6,230	5,608

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

5. NET INCOME / (EXPENDITURE)

	2024	2023
	£'000	£'000
Net income for the year is stated after (crediting)/charging:		
Auditors' remuneration:		
Audit of the charity's annual accounts	21	19
Audit of the trading subsidiary's annual accounts	8	10
Audit of the charity's defined benefit pension scheme	3	3
Depreciation (Note 9)	18	23
(Profit)/loss on disposals of fixed assets	-	(7)

6. STAFF COSTS

	Group and Charity 2024	Group and Charity 2023
	£'000	£'000
Wages and salaries	4,595	4,101
Social security costs	412	373
Defined contribution pension plan costs (Note 22)	480	422
Expenditure recognised on defined benefit pension scheme (Note 22)	50	110
	5,537	5,006

The number of employees whose emoluments exceeded £60,000 fell within the following bands:	2024	2023
£70,001 - £80,000	1	1
£60,001 - £70,000	4	3

The emoluments of the CEO for the year were £80k (2023 £78k), with the same pension and other benefits as were applicable to all other staff. The total remuneration including social security costs and pension contributions of the Senior Leadership Team was £529k (2023: £508k). Trustees receive no remuneration. Trustees made donations totalling less than £1k during the year (2023 less than £1k). There were no other related party transactions requiring disclosure. Other expenses were reimbursed to trustees as follows:

	2024	2023
	£'000	£'000
Travel and subsistence	1	3

Average numbers of staff and full time equivalents (FTE)

	2024		2023	
	No	FTE	No	FTE
Permanent posts	148	133.6	141	126.5
Seasonal fieldworkers	7	1.6	10	2.3
	155	135.2	151	128.8

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

7. TOTAL EXPENDITURE

	Direct costs	Support costs	2024 Total	2023 Total
	£'000	£'000	£'000	£'000
Raising funds	1,567	205	1,772	1,317
Charitable activities	5,496	720	6,215	5,608
Other – Amounts recognised as expenditure on defined benefit pension scheme	50	-	50	110
	7,113	925	8,037	7,035

8. SUPPORT COSTS

	Premises	IT & Office Services	People & OrgDev	Manage-ment & Finance	Govern-ance	2024 Total	2023 Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Raising funds	3	8	78	99	17	205	147
Charitable activities	9	28	275	350	58	720	625
	12	36	353	449	75	925	772

All support costs are apportioned on a staff cost basis.
Governance costs include auditors' remuneration, the meeting expenses of the Board and its committees, and the staff cost of servicing those meetings.

9. TANGIBLE FIXED ASSETS - GROUP

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2023	2,400	204	442	92	3,138
Additions	-	6	6	-	12
Disposals	-	(19)	-	-	(19)
At 31 March 2024	2,400	191	448	92	3,131
Depreciation at 1 April 2023	-	204	413	88	705
Depreciation charge	-	1	14	3	18
Disposals	-	(19)	-	-	(19)
At 31 March 2024	-	186	427	91	704
Net book value at 31 March 2024	2,400	5	21	1	2,427
Net book value at 1 April 2023	2,400	-	29	4	2,433

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

9. TANGIBLE FIXED ASSETS - CHARITY

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2023	2,400	200	442	92	3,134
Additions	-	6	6	-	12
Disposals	-	(19)	-	-	(19)
At 31 March 2024	2,400	187	448	92	3,127
Depreciation at 1 April 2023	-	200	413	88	701
Depreciation charge	-	1	14	3	18
Disposals	-	(19)	-	-	(19)
At 31 March 2024	-	182	427	91	700
Net book value at 31 March 2024	2,400	5	21	1	2,427
Net book value at 1 April 2023	2,400	-	29	4	2,433

The Nunnery and Nunnery Lakes Reserve, the freehold property and land owned and occupied by The British Trust for Ornithology, were valued by qualified external valuers, Fenn Wright Chartered Surveyors, on 31 March 2022 on the basis of fair value, at £2,400k, giving a gain on revaluation of £550k for the year ended 31 March 2022. The trustees have considered the condition and value of the freehold property at the year end and believe there to have been no material change since the last external valuation in March 2022.

On an historical cost basis, the freehold property and land would have been included at a cost and net book value of £2,284k (2023: £2,284k).

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

10. INVESTMENTS

The Group

Listed Investment Funds

	Market value 1 April 2023	Disposals	Additions	Gain/(loss)	Market value 31 March 2024
	£'000	£'000	£'000	£'000	£'000
Birds in Trust Fund					
Dimensional Global Short Dated Bond	75	-	-	1	76
Dimensional Global Sustainability Core Equity	122	-	-	30	152
Wrap Cash	3	-	-	1	4
	200	-	-	32	232
General Funds					
Dimensional Global Short Dated Bond	92	-	-	1	93
Dimensional Global Sustainability Core Equity	151	-	-	37	188
Wrap Cash	4	-	-	2	6
	247	-	-	40	287
	447	-	-	72	519

On an historical cost basis, the investments would have been included at £298k (2023: £298k).

The Charity

	2024	2023
	£'000	£'000
Listed Investment Funds as above	519	447
Fixed asset unlisted investments - BTO Services Ltd	-	-
	519	447

The Trust wholly owns its subsidiary undertaking, BTO Services Ltd, which is incorporated in England & Wales, company registration number 02907282. This company operates to promote the work of The British Trust for Ornithology by undertaking commercial activities to support such work. The aggregate value of the share capital and reserves at 31 March 2024 was £100 (2023: £100) and the company reported a £nil result after profit distributions made under a Deed of Covenant for the year (2023: £nil). £218k (2023: £242k) was paid to the Charity under a Deed of Covenant. The value of the investment in the subsidiary undertaking is £100 (2023: £100) under the equity method of valuation.

The following is a summarised statement of income for the subsidiary for the financial year:

	2024	2023
	£'000	£'000
Turnover	1,261	966
Cost of sales	(974)	(664)
Gross profit	287	302
Net administrative expenses	(69)	(60)
Net profit before payment under Deed of Covenant	218	242

Turnover of the subsidiary includes sales to overseas markets of £192k (2023: £261k).

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

10. INVESTMENTS (Continued)

BTO Services Ltd has two dormant wholly owned subsidiaries, both registered in England and Wales, and with Registered Office at The Nunnery, Thetford, Norfolk IP24 2PU, Porzana Ltd Company No.04175071 and BTO Consulting Ltd Company No.12317596.

11. STOCKS

	2024	2023
	£'000	£'000
The Group		
Finished goods, goods for resale and materials	282	294

The Charity

The charity holds no trading stock.

12. DEBTORS

	2024	2023
	£'000	£'000
The Group		
Trade and contract debtors	1,503	1,085
Taxes recoverable	22	36
Prepayments	123	127
Accrued income	622	432
	2,270	1,680

	2024	2023
	£'000	£'000
The Charity		
Trade and contract debtors	1,257	1,011
Amounts due from Group undertakings	560	380
Taxes recoverable	22	36
Prepayments	121	111
Accrued income	589	388
	2,549	1,926

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

13. CREDITORS – AMOUNTS FALLING DUE WITHIN ONE YEAR

	2024	2023
	£'000	£'000
The Group		
Trade creditors	309	363
Taxes and Social security costs	288	198
Other creditors	63	119
Accruals	190	117
Deferred income	1,390	1,582
	2,240	2,379

	2024	2023
	£'000	£'000
The Charity		
Trade creditors	265	319
Taxes and Social security costs	288	202
Other creditors	61	116
Accruals	177	102
Deferred income	1,338	1,507
	2,129	2,246

14. CREDITORS – AMOUNTS FALLING DUE AFTER ONE YEAR

	2024	2023
	£'000	£'000
The Group		
Deferred income	100	91

	2024	2023
	£'000	£'000
The Charity		
Deferred income	100	91

15. DEFERRED INCOME RECONCILIATION

	2024	2023
	£'000	£'000
The Group		
Opening balance at 1 April	1,673	1,508
Amount released to income	(2,271)	(2,064)
Amount deferred in year	2,088	2,229
Closing balance at 31 March	1,490	1,673

	2024	2023
	£'000	£'000
The Charity		
Opening balance at 1 April	1,598	1,379
Amount released to income	(2,206)	(1,901)
Amount deferred in year	2,046	2,120
Closing balance at 31 March	1,438	1,598

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

16. RESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include restricted funds comprising the following balances of donations and appeal monies given for specific purposes. The opening and closing fund balances for the group and the charity are identical.

As at 31 March 2024

	Balance at 1 Apr 2023	Income	Expenditure	Transfers	Balance at 31 Mar 2024
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond Maps Appeal	12	4	-	92	108
Northern Ireland Fund	17	49	(52)	-	14
Dilys Breese Fund	36	3	(11)	8	36
Boddy & Sparrow Fund	2	-	-	(2)	-
Migration Fund	47	17	(34)	-	30
Nightingale Appeal	22	3	(14)	-	11
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	19	11	(10)	-	20
Garden Research Fund	77	8	(13)	-	72
Out of Africa Fund	85	64	(84)	(33)	32
Thrush Fund	1	-	-	-	1
Farmland Bird Appeal	-	-	(2)	2	-
Curlew Appeal	13	6	(5)	-	14
Arctic Skua Fund	1	35	(23)	-	13
BTO Wales Fund	20	1	(6)	-	15
Bird Track	-	1	(1)	-	-
Sound Approach Fund	60	1	(35)	28	54
Tasso Leventis Fund	25	20	(62)	17	-
Spotted Flycatcher Appeal	20	-	-	-	20
Chaffinch	40	-	(6)	-	34
Seabird Appeal	81	15	(47)	-	49
Urban Appeal	20	7	(27)	250	250
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	2	-	-	-	2
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales	19	-	(8)	-	11
Bats Fund	5	28	(11)	2	24
Youth Engagement	6	65	(196)	127	2
Short Eared Owl	13	2	(27)	12	-
Wader Project Officer	28	4	(5)	-	27
Insect Decline	10	10	(2)		18
Eddowes PhD	-	27	(27)	-	-
Thetford Engagement Fund	-	29	-	-	29
Kestrels	-	14	(5)	19	28
Gillian Wills Trust	-	36	(7)	-	29
Derek Coleman Fund	-	51	-	-	51
David Hodgson Fund	-	127	-	(6)	121
Ringers' Bursary Fund	1	5	(1)	-	5
Small Specific Donations	51	36	(6)	(33)	48
	777	679	(727)	483	1,212

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2024

16. RESTRICTED FUNDS (Continued)

The purposes of the funds are as follows:
The Atlas Beyond the Maps Appeal continues to support research into Atlas data. £92k was transferred from Birds in Trust in accordance with the wishes of a legator.
The Northern Ireland Fund has been set up to support the BTO in Northern Ireland.
The Dilys Breese Fund is for projects relating to nesting birds. £9k was transferred from Birds in Trust to fund awards costs.
The Boddy & Sparrow Fund is for awards to the best amateur contribution(s) to either or both of the Bird Study and Ringing & Migration publications.
The Migration Fund is for research into migrating birds.
The Nightingale Appeal is to fund work on Nightingales and woodland birds.
The Swallow Appeal is to fund work on Swallows and migration.
The Young Scientists' Fund is to support the career development of young scientists. £2k was transferred back to Birds in Trust on completion of a student's project.
The Garden Research Fund is to support young scientists work on garden birds.
The Out of Africa Fund is to fund work on African migrants. A £33k donation received last financial year was moved to the Birds in Trust (unrestricted) Fund at the donor's request.
The Thrush Fund is to fund work on Thrushes.
The Curlew Appeal is to fund projects on Curlews.
The Arctic Skua Fund is to support Arctic Skua work.
The BTO Wales Fund is to support the BTO in Wales.
The Sound Approach Fund is to support a number of specific projects. £9k was transferred to the Short Eared Owl Fund with the agreement of the donor.
The Tasso Leventis Fund is to support a number of specific projects. £17k was transferred from Birds in Trust to support these projects.
The Spotted Flycatcher Appeal is to support work on Spotted Flycatcher.
The Chaffinch Appeal is to fund work on Chaffinches.
The Seabird Appeal has been raising funds for work on seabirds.
The Urban Appeal is to support studies of birds in towns and cities. £250k was transferred from Birds in Trust in accordance with the expression of wish of a legator.
The Rhodes Training Fund is to support survey training courses.
The Migrant Swallows & Insect Feeding Paper donation is to fund a paper on Swallows.
The Postcode Lottery Grant is for the Nunnery Lakes Reserve.
The Cuckoos & Nightingales Fund is for research on Cuckoos and Nightingales.
The Bats Fund was set up from specific donations to support work on Bats and the development of the BTO acoustic work.
The Youth Engagement Fund has been set up to support our work with young people. £112k was transferred from General funds to support this work. £6k was allocated from the David Hodgson Fund to support Youth Staff and Projects.
The Short Eared Owl Fund is for work on Short Eared Owls in Scotland. £3k was transferred from General Funds and £9k from the Bats Fund to support this work.
The Wader Project Officer Appeal Fund is for work on waders.
The Insect Decline Fund is to support work on the decline in insects.
The Eddowes PhD fund was established to support a specific PhD project.
The Thetford Engagement Fund is for working with local communities to enhance BTOs engagement with them.
The Kestrels Fund is to support work on Kestrels.
The Gillian Wills Trust is to support the recruitment and employment of a Development and Engagement Coordinator.
The Derek Coleman Fund is to support Upland Monitoring.
The David Hodgson Fund provides support for our Youth Engagement Officer, Youth Birdcamp and Youth Engagement projects. £6k was transferred to Youth Engagement in accordance with the donor's wishes.
The Ringers' Bursary Fund is to support ringing.
Small Specific Donations are small individual donations for specific purposes.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2024

16. RESTRICTED FUNDS (Continued)

As at 31 March 2023

	Balance at 1 Apr 2022	Income	Expenditure	Transfers	Balance at 31 Mar 2023
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond Maps Appeal	10	2	-	-	12
Northern Ireland Fund	1	48	(32)	-	17
Dilys Breese Fund	44	-	(8)	-	36
Boddy & Sparrow Fund	2	-	-	-	2
Migration Fund	47	29	(29)	-	47
Nightingale Appeal	30	1	(9)	-	22
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	22	8	(11)	-	19
Garden Research Fund	79	9	(11)	-	77
Out of Africa Fund	60	78	(49)	(4)	85
Thrush Fund	1	-	-	-	1
Curlew Appeal	14	9	(10)	-	13
Arctic Skua Fund	21	-	(20)	-	1
BTO Wales Fund	25	1	(6)	-	20
Sound Approach Fund	82	-	(22)	-	60
Tasso Leventis Fund	43	20	(38)	-	25
Spotted Flycatcher Appeal	29	-	(9)	-	20
Chaffinch	56	1	(17)	-	40
Seabird Appeal	95	16	(34)	4	81
Urban Appeal	-	54	(34)		20
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	2	-	-	-	2
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales	22	-	(3)	-	19
Bats Fund	15	2	(12)	-	5
Short Eared Owl	45	-	(32)	-	13
Wader Project Officer	59	12	(43)	-	28
Dulverton Trust	2	-	(2)	-	-
Insect Decline	4	16	(12)	2	10
Eddowes PhD	-	1	(1)	-	-
Ringers' Bursary Fund	1	1	(1)	-	1
Youth Engagement	59	61	(200)	86	6
Small Specific Donations	51	13	(13)	-	51
	965	382	(658)	88	777

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2024

17. UNRESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include unrestricted funds comprising the following balances. The opening and closing fund balances for the group and the charity are identical.

As of 31 March 2024

	Balance at 1 Apr 2023	Income	Expend-iture	Other Gains/ (Losses)	Fund transfers	Balance at 31 Mar 2024
	£'000	£'000	£'000	£'000	£'000	£'000
General funds:						
Birds in Trust fund	3,129	2,080	(290)	32	(767)	4,184
General fund	1,469	6,697	(6,916)	40	104	1,394
	4,598	8,777	(7,206)	72	(663)	5,578
Designated funds:						
Welch fund	547	8	(54)	-	-	501
Unrestricted funds excluding Pension reserve	5,145	8,784	(7,260)	72	(663)	6,078
Pension reserve	(1,110)	-	(50)	393	180	(587)
	4,035	8,784	(7,310)	465	(483)	5,491

The Birds in Trust fund is intended primarily to provide long-term funding for BTO projects. Income from legacies is credited to this fund unless the wills provide otherwise. £398k was released to the General fund in support of JNCC Partnership projects. £250k was transferred to the Urban Appeal fund, and £92k to the Atlas fund in accordance with donor expressions of wish. Other transfers totalling £62k were made in support of projects in the Youth Engagement, Tasso Leventis, Dilys Breese and Farmland Bird funds. Unused allocations totalling £35k were returned from the Out of Africa and General funds. In the General fund, £87k was released in support of Youth Engagement, and a further £27k to support projects in the Sound Approach and Short-Eared Owl funds. £398k was received from Birds in Trust in support of JNCC Partnership projects. £180k was transferred to the Pension Reserve fund in respect of the pension deficit repair contribution.
The Welch fund is for migration research.
The Pension Reserve fund reflects the defined benefit pension scheme deficit. £180k was transferred from the General fund in respect of the pension deficit repair contribution. Other pension reserve movements are disclosed in Note 22.

As of 31 March 2023

	Balance at 1 Apr 2022	Income	Expend-iture	Other Gains/ (Losses)	Fund transfers	Balance at 31 Mar 2023
	£'000	£'000	£'000	£'000	£'000	£'000
General funds:						
Birds in Trust fund	2,668	1,168	(317)	(7)	(383)	3,129
General fund	1,626	5,583	(5,889)	(8)	157	1,469
	4,294	6,751	(6,206)	(15)	(226)	4,598
Designated funds:						
Welch fund	608	-	(61)	-	-	547
Unrestricted funds excluding Pension reserve	4,902	6,751	(6,267)	(15)	(226)	5,145
Pension reserve	(3,777)	-	(110)	2,639	138	(1,110)
	1,125	6,751	(6,377)	2,624	(88)	4,035

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

18. ANALYSIS OF GROUP AND CHARITY FUNDS ACROSS NET ASSETS

As of 31 March 2024

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
General funds:					
Birds in Trust fund	-	232	3,952	-	4,184
General fund	2,427	287	(734)	(587)	1,393
	2,427	519	3,218	(587)	5,577
Designated funds:					
Welch fund	-	-	501	-	501
Unrestricted funds excluding Pension reserve	2,427	519	3,719	(587)	6,078
Pension reserve	-	-	(587)	-	(587)
	2,427	519	3,132	(587)	5,491
Restricted Funds	-	-	1,212	-	1,212
Total	2,427	519	4,344	(587)	6,703

As at 31 March 2023

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
General funds:					
Birds in Trust fund	-	200	2,929	-	3,129
General fund	2,433	247	(101)	(1,110)	1,469
	2,433	447	2,828	(1,110)	4,598
Designated funds:					
Welch fund	-	-	547	-	547
Unrestricted funds excluding Pension reserve	2,433	447	3,375	(1,110)	5,145
Pension reserve	-	-	(1,110)	-	(1,110)
	2,433	447	2,265	(1,110)	4,035
Restricted Funds	-	-	777	-	777
Total	2,433	447	3,042	(1,110)	4,812

19. OPERATING LEASE COMMITMENTS

	2024	2023
	£'000	£'000
At the year end the group had outstanding lease commitments for future minimum lease payments under non-cancellable leases, as follows :		
Due within one year	47	17
Due within two to five years	110	11
	157	28

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

20. RECONCILIATION OF NET INCOME/(EXPENDITURE) TO NET CASHFLOW FROM OPERATING ACTIVITIES

	Group 2024 £'000	Group 2023 £'000	Charity 2024 £'000	Charity 2023 £'000
Net income per Statement of Financial Activities	1,498	83	1,498	83
Adjustments for:				
Items representing cash movements				
(Increase)/decrease in stocks	12	(1)	-	-
(Increase)/decrease in debtors	(590)	(334)	(623)	(344)
Increase/(decrease) in creditors	(130)	(9)	(108)	43
Investment income	(92)	(17)	(92)	(17)
Proceeds of sale of fixed assets	-	(7)	-	(7)
Items not representing cash movements				
Depreciation	18	23	18	23
(Gains)/losses on investments	(72)	16	(72)	16
Expenditure on defined benefit pension plan liability	50	110	50	110
	694	(136)	671	(93)
Cash movements not appearing in the Statement of Financial Activities				
Pension deficit repair contribution	(180)	(138)	(180)	(138)
Net cash inflow/(outflow) from operating activities	514	(274)	491	(231)

21. FINANCIAL INSTRUMENTS

The carrying amounts of the group's and the charity's financial instruments are as follows:

	Group 2024 £'000	Group 2023 £'000	Charity 2024 £'000	Charity 2023 £'000
Financial assets				
Measured at fair value through net income/expenditure:				
Fixed asset listed investments (Note 10)	519	447	519	447
Equity instruments measured at cost less impairments:				
Fixed asset unlisted investments (Note 10)			-	-

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

22. PENSIONS

The Group and the Charity

Defined contribution pension plan
The Trust operates a Group Self-invested Personal Pension Scheme run by Aegon. Staff contribute to this defined contribution scheme at a minimum rate of 5% of salary, and the BTO contributes at a flat rate of 11%. The Trust made contributions of £480k during the year (2023: £422k).

Defined benefit pension scheme
The Trust's defined benefit pension scheme, a 'final salary' scheme, is closed. The last triennial actuarial valuation of the scheme was carried out as at 1 April 2021. At that date the assets were valued at £11,722k and the liabilities at £18,104k, giving a net deficit of £6,382k and a funding level of 65%. A deficit recovery plan was subsequently agreed between the Board and the pension fund trustees, by which the shortfall would be made good by annual lump sum deficit repair payments spread over the years to 2044.

For the purposes of the group financial statements a separate valuation is carried out at the balance sheet date by a qualified independent actuary in accordance with Financial Reporting Standard 102 (FRS 102). The amounts recognised in the statements of financial activities for the year and the balance sheets were as follows:

Recognised in the statements of financial activities:	**2024**	**2023**
	£'000	£'000
Expenditure:		
Interest income	517	352
Interest cost on liabilities	(567)	(462)
Net interest on net defined benefit liability	(50)	(110)
Other recognised gains/(losses):		
Actual return on scheme assets (excluding interest income)	149	(1,454)
Actuarial gain/(loss) on liabilities	244	4,093
	393	2,639

Recognised in the balance sheets:

	2024	**2023**
	£'000	£'000
Fair value of scheme assets	11,103	10,672
Present value of defined benefit obligations	(11,690)	(11,782)
Defined benefit pension scheme liability at 31 March	(587)	(1,110)

Reconciliation of funded status:

	2024	**2023**
	£'000	£'000
(Deficit) at 1 April	(1,110)	(3,777)
Employer pension deficit repair payment	180	138
Net interest on net defined benefit liability	(50)	(110)
Remeasurement gain	393	2,639
(Deficit) at 31 March	(587)	(1,110)

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2024

22. PENSIONS (Continued)

Changes in the fair value of the pension scheme assets were as follows:

	2024	2023
	£'000	£'000
Fair value of scheme assets at 1 April	10,672	12,108
Interest income	517	352
Actual return on scheme assets (excluding interest income)	149	(1,454)
Employer pension deficit repair payment	180	138
Benefits paid to members	(415)	(472)
Fair value of scheme assets at 31 March	11,103	10,672

Changes in the defined benefit obligations were as follows:

	2024	2023
	£'000	£'000
Present value of defined benefit obligations at 1 April	(11,782)	(15,885)
Interest cost on liabilities	(567)	(462)
Benefits paid	415	472
Actuarial gain/(loss)	244	4,093
Present value of defined benefit obligations at 31 March	(11,690)	(11,782)

The amount of each major class of pension scheme assets within the total fair value of the scheme assets was as follows:

	2024	2023
	£'000	£'000
Equities	6,012	6,304
Bonds	4,379	4,101
Annuities	135	163
Cash	577	104
	11,103	10,672

The total return on scheme assets was as follows:

	2024	2023
	£'000	£'000
Interest income	517	352
Actual return on scheme assets (excluding interest income)	149	(1,454)
Total return on scheme assets	666	(1,102)

The principal actuarial assumptions used were as follows:

	2024	2023
Discount rate	4.95%	4.90%
Inflation assumption (RPI)	3.25%	3.50%
Inflation assumption (CPI)	2.70%	2.95%
Rate of increase for non-GMP pensions in deferment	2.70%	2.95%
Rate of increase for pensions in payment (RPI, min 3% max 5%)	3.65%	3.75%

Expected future lifetime from age 65:	2024	2023
	No of years	No of years
Male – currently aged 65	21.6	22.2
Female – currently aged 65	23.8	24.2
Male – currently aged 45	23.2	23.8
Female – currently aged 45	24.9	25.3

Birds Science People

British Trust for Ornithology
The Nunnery, Thetford, Norfolk IP24 2PU
Tel: +44 (0)1842 750050 Web: www.bto.org
Email: info@bto.org X (Twitter): @_BTO
Registered Charity Number 216652 (England & Wales), SC039193 (Scotland)

THE BRITISH TRUST FOR ORNITHOLOGY

England & Wales - Charity number 216652

Accounts

Trustees' Annual Report & Financial Statements 2022/23

BTO Birds Science People

BTO

CONTENTS

Opening words	3
At a glance	4
Delivering impact	6
Securing inclusion	8
Seeking solutions	10
Embracing everyone	12
Charting change	14
Delivering data	16
Sustaining supporters	18
Framing futures	20
Our staff	22
Our volunteers	24
Our community	26
Our partnerships	28
Focus on England	30
Focus on Wales	32
Focus on Scotland	34
Focus on Northern Ireland	36
Being fit for the future	38
Thank you for your support	40
Our supporters	42
Our scientific output: 2022	44
Financial overview	46

GANNET, BY PHILIP CROFT; BTO STAFF, BY RICH BUNCE; YOUNG BIRDWATCHER, BY DAVID TIPLING / BIRDPHOTO.CO.UK

Birds Science People

FROM OUR CHAIR: PROFESSOR ZOE DAVIES

As incoming Chair of the Board of Trustees, I have been delighted to witness BTO's determination to inspire a greater number and diversity of people to get engaged with birds and the power of science first-hand. This commitment has come from the top. The Senior Leadership Team has been working closely with consultant, Dr Anjana Khatwa, to develop their awareness of equity, diversity and inclusion, as well as embed it firmly within the new organisational strategy. Indeed, involving more people in BTO's work is critical to the future of the organisation, given that volunteers, and the robust data they collect, are at the heart of everything we do.

The pioneering work of BTO Youth is also ongoing. In October 2022, BTO Youth staff and volunteers co-led the design and delivery of the inaugural UK Youth in Nature Summit. The event brought together and empowered like-minded individuals with a passion for conserving biodiversity. They challenged current environmental leaders to hold onto our joy of nature, be ambitious for its future, and work in together in partnership to maximise our impact. Protecting and enhancing biodiversity is fundamental to changing the course of the ecological and climate crises we are currently experiencing, and safeguarding the natural world for future generations.

FROM OUR CEO: PROFESSOR JULIET VICKERY

Just as the last COVID-19 restrictions lifted in 2022, and BTO work adjusted to the new normal, the UK's breeding seabirds faced a devastating outbreak of Highly Pathogenic Avian Influenza (HPAI). BTO scientists and volunteers worked hard to monitor the spread of the disease and quantify mortality rates, helping inform responses. The long-term impacts will not be known for some time but this year we also assumed leadership of both the Seabird, and Goose and Swan Monitoring Programmes. Working with partners to develop these schemes will ensure better understanding of the impacts of a range of threats to seabirds and waterfowl, including that from disease.

To help increase the already remarkable value of BTO data in understanding and conserving birds, we invested in the redesign of BirdFacts. This one-stop-shop for key information about the UKs birds and their changing fortunes can now be easily accessed and interrogated by anyone, anywhere. A great deal of that data tells us that many of our birds are in trouble. *Into the Red*, published, this year portrayed the 74 Red listed species in words and art, conveying their plight beyond our traditional scientific audience – a plight we continue to actively address through our science. Our schemes provide unique 'surveillance capacity' for new and emerging threats to birds including diseases, such as Usutu virus and trichomonosis, as well as helping to identify and evaluate solutions to these threats. This year, BTO science has provided important evidence for the effectiveness of protected areas in the UK and of conservation interventions to help species survive in the face of climate change.

We will continue to work to maximise the value of the data our volunteers work so hard to collect, and I am confident you will see all of this, and more, in our annual report and in our plans for the future.

FRONT COVER IMAGE : GANNET BY DAVID TIPLING / BIRDPHOTO.CO.UK

AT A GLANCE

Volunteers contributed **1,961,394** hours to our work in 2022, the equivalent of 1,205 staff years and £39.8m, co-ordinated by a regional network of over 300 extraordinary regional representatives.

Our science and convening power was fundamental in understanding and informing our response to the new threat of HPAI, particularly to our breeding seabirds

Thanks to **140** amazing artists and writers, contributing to *Into the Red*, we have been able to raise the profile of Red-listed birds and funds to support important research.

Thanks to our members, funders and supporters, **£5.6 million** was spent during carrying out our work, collecting and delivering information about birds, and inspiring people.

"The data our tagged Cuckoos provide are helping us to understand the pressures these birds face on their extraordinary journeys. It's vital we learn more about these if we are to stop the Cuckoo's captivating sound from disappearing from our countryside"

Dr Chris Hewson, Senior Research Ecologist

BTO Youth designed and delivered the first ever ever UK Youth in Nature Summit, connecting and empowering young people for nature.

Since it launched in autumn 2018, the Witherby Custodians scheme has raised in excess of **£120,000** to support BTO's core activities.

CUCKOO TAGGING AND NEST BOX CHECKING, BY MIKE TOMS; GREAT WHITE EGRET AND SPOONBILL, BY PHILIP CROFT; HOUSE SPARROW, BY JOHN HARDING / BTO

DELIVERING IMPACT

The urgency to ensure a more secure future for nature demands us to do more with our wealth of data, knowledge and expertise. Our focus is on the most important causes of biodiversity loss and the greatest opportunities for positive change.

ENSURING THAT CONSERVATION WORKS

The loss of biodiversity is one of the most pressing issues globally. Efforts to tackle the issue include the use of protected areas, which are designated to protect species and/or their habitats from anthropogenic threats. But how effective are protected areas in achieving the desired biodiversity benefits?

An important piece of BTO research, published during the year and involving research staff from across the organisation, set out to answer this question (Barnes *et al.* 2022). By using data collected by volunteers contributing to the BTO/JNCC/RSPB Breeding Bird Survey, two Bird Atlas projects led by BTO, and the Constant Effort Sites ringing scheme, it was possible to test whether protected areas were delivering the desired conservation outcomes.

The results reveal that species occur more often and in higher numbers – and are more likely to colonise and persist – at sites with a greater extent of protected area coverage. Importantly, the most effective protected areas for birds were found to be those designated (and hence likely managed) specifically for them – i.e. Special Protection Areas, rather than Sites of Special Scientific Interest or Special Areas of Conservation.

Uniquely, the use of ringing data enabled BTO staff to test whether protected areas supported increased productivity (i.e. a greater number of young birds fledged per adult) and, through this, led to an increase in abundance over time. The results revealed that higher productivity in protected areas was associated with more positive trends in abundance.

The work demonstrates that species are not only more likely to occur in protected areas, over and above the surrounding land (a much-debated question), but also that the benefits of this network are greatest for those species most in need of conservation action.

This comprehensive assessment demonstrates that the UK's protected area network has had a positive impact on bird conservation over the last three decades. There is, however, the potential to do more; the UK is one of the least biodiverse nations globally and suffers from a significant shortfall in the extent of protected area coverage. The research also underlines the value of designating sites specifically for target species, as is evident in the results for Special Protection Areas, and this provides vital evidence that can be used to direct future policy decisions around the nature and designation of protected areas, both in the UK and elsewhere. Ultimately, this increases our chances of delivering protected areas that truly benefit biodiversity conservation.

RESPONDING TO CLIMATE CHANGE

BTO research into the impacts of climate change continues to deliver much-needed information, as papers published this year reveal. Thanks to funding from the Cambridge Conservation Initiative, and working with a number of academic and NGO partners, BTO staff led on a piece of work to quantify the effectiveness of conservation interventions aimed at managing the impacts of climate change on species' populations and communities (Bowgen *et al.* 2022).

The work, which delivers the first quantitative global assessment of biodiversity conservation interventions for climate change adaptation, reviewed published studies to identify approaches that delivered the best outcomes. The study revealed that interventions were more likely to be beneficial where the management was focused on a particular species, rather than being more general in nature. Reassuringly, the work suggests that climate change adaptation can successfully reduce the negative impacts of – or enhance positive responses to – climate change. This provides important evidence that will help to direct future decision-making around approaches to addressing the impacts of a changing climate.

Mountain and upland birds are thought to be among the most vulnerable to climate change, and a study published this year has highlighted how the lack of data on these species is limiting our ability to deliver the evidence base needed to secure their future. Working with partners at the Università di Torino, Cambridge University, RSPB and NatureScot, BTO's Director of Science James Pearce-Higgins, assessed the processes driving population change in this group of birds (Alba *et al.* 2022).

Within mountain and upland birds, it is the bird of prey and gamebird species that have been best studied, while mountain specialists and arctic-alpine species have received little attention. The assessment demonstrated the impact of a number of different drivers influencing the populations of these birds, and made recommendations to address them. Importantly, it also underlined the need for more long-term studies and for work looking at the effectiveness of conservation interventions that may support species under a changing climate.

PTARMIGAN, BY DAVID TIPLING / BIRDPHOTO.CO.UK

RED GROUSE AND DOTTEREL, BY EDMUND FELLOWES / BTO; GOLDEN EAGLE, BY LIZ CUTTING / BTO

SECURING INCLUSION

We are working to grow the number and diversity of people involved in securing the future of birds and nature through active engagement with our work, and equipping them with an understanding of the value of science and scientific discovery.

SECURING THE BENEFITS OF NATURE

Access to the natural world has mental and physical benefits for our own health and well-being, but these benefits are not equally accessible to everyone. Some parts of society face barriers that restrict access, and we are working to remove those that prevent individuals from accessing the natural world through involvement with BTO and our work. We need to understand the nature of these barriers before we can work to overcome them.

We also recognise that our existing community is not as diverse as it should be; for example, under-served communities are poorly represented in our current audiences. Diversity means different things to different people, the term embracing age, gender, ethnicity, sexuality and much, much more. If we are to secure large-scale solutions to the climate and biodiversity crises, then we need to maximise the number and diversity of hearts and minds in seeking these solutions, and that means enabling more of society to engage with our science. If BTO fails to reflect wider society, we risk becoming irrelevant and too narrow in our focus.

A SHARED JOURNEY

The sharing of lived-experience is a powerful tool for increasing awareness of the barriers faced by particular individuals and communities. Over the past year, we have been fortunate to work with Dr Anjana Khatwa on a series of sessions to develop our understanding of the barriers to equity, diversity and inclusion. While the initial sessions were targeted at senior leaders within BTO, over the coming year we will share the same opportunity with all our staff, Trustees and core volunteers.

Recognising that our approach to inclusion needs to be embedded across all that we do, we are also working with Helen Bown and a small group of staff - individuals with different roles, backgrounds and experiences - to help us paint a picture of what inclusion looks and feels like for BTO. This will help us to identify the actions that we need to ensure that BTO is an inclusive and welcoming organisation.

During the year, and thanks to the support of BTO staff, the organisation was able to participate in the first-ever RACE Report. This important initiative focuses on charities and funders working on environmental and conservation issues, highlighting the need for greater representation in sustainability and climate action. The RACE Report 2022 shows the racial diversity gap between the UK working population and staff in environment, conservation, climate and sustainability charities. Just 7% of the respondents from 91 organisations in the sector identified themselves as belonging to a minority ethnic group, compared to the 14% figure for those aged 16-64 employed in the wider UK population.

In the coming years we will be looking for new ways to cherish our existing members and engage with communities we haven't connected with before. We will also be recruiting to a role to help deliver our EDI work, and learning more about the diversity within our existing community.

BEING INCLUSIVE

As noted last year, we have taken steps to reduce unconscious bias when recruiting staff or volunteers. We provide guidance to recruiting managers, and use a system that removes identifying information from the application process. We also use initiatives that seek to reduce and remove barriers to those who are under-represented and under-served in BTO and the sector. For example, we are users of the Disability Confident scheme and guarantee first-round interviews for candidates from a minority ethnic background who meet the essential criteria for an advertised role. We have also adapted our ways of working to enable reasonable adjustments to be made to working practices, supporting those individuals who have additional needs.

The introduction of these approaches has been aided by the additional support and guidance provided to existing staff and volunteers. Dialogue has been a particularly valuable tool in this process, with the organisation as a whole contributing to our updated values. As a result we are:

- **Evidence-led** – using our science, data and expertise to make a positive difference for birds and for people.
- **Inclusive** – supporting, valuing and having respect for our staff and those who work with us.
- **Collaborative** – working in partnership with individuals and organisations to achieve our collective goals.
- **Empowering** – using our work to create opportunities through which individuals and communities can engage with science and the natural world, for the benefit of all.

BIRDWATCHERS, BY DAVID TIPLING / BIRDPHOTO.CO.UK

SEEKING SOLUTIONS

As work carried out in the year demonstrates, we are using our science to find ways to better manage our land, coasts and seas, meeting the needs of both birds and people.

BALANCING COMPETING INTERESTS

Land use policy attempts to manage benefits for different groups within society, balancing competing interests, such as the provision of food, recreational opportunities, carbon storage or flood mitigation. An important component of balancing these competing interests is to understand their relative importance to different parts of society, something that is addressed through a collaborative paper involving BTO, which uses peatland restoration in the North Pennines Area of Outstanding National Beauty as an example (Martino *et al.* 2022).

Peatland restoration provides some important ecosystem services, delivering for biodiversity and climate change mitigation, but may limit opportunities for the provision of others, such as recreation. By using a workshop and a choice experiment, the team was able to explore the views of different recreational users – walkers, cyclists, anglers, and birdwatchers. Walkers and cyclists were found to be more sensitive to changes in the availability of recreational facilities than to environmental quality, while the preferences of anglers and birdwatchers were more aligned with those values promoted by restoration policies. These results highlight a potential conflict between the benefits created by conservation action (e.g. rewetting) and those valued by some groups of recreational users (e.g. walkers and cyclists).

This work highlights the challenges faced when trying to balance different needs or varying perceptions of value. It also underlines the importance of collecting information from different stakeholders at an early stage, providing the evidence that is required to make informed land management decisions.

A DATA-DRIVEN APPROACH

One of the biggest challenges facing our national governments is balancing the competing need for more houses with that of improving the resilience, abundance and diversity of native species in the face of climate change and the global biodiversity crisis. New urban environments, designed with biodiversity in mind, have the potential to support resilient wildlife communities. In turn, these communities can deliver societal benefits, improving the well-being of human residents and removing the costs associated with securing compensatory land to offset biodiversity lost during the development process.

BTO's significant data holdings have the potential to support those designing and planning new housing developments, as a piece of BTO research published during the year demonstrates (Cooper *et al.*, 2022). Through this work, Joe Cooper, Kate Plummer and Gavin Siriwardena took previously developed species-habitat models and used these to examine what nine planned housing developments might deliver for 55 common bird species.

The team compared model predictions for the planned housing developments with designs that used different configurations of housing, greenspace and woodland cover, identifying components and approaches that delivered the best outcomes for birds. These comparisons showed that the scenario achieving the highest species diversity varied between sites, indicating that the best solutions for bird diversity will depend on the context of each planned development. Importantly, the work suggests that a similar data-driven approach could provide a cost-effective tool, supporting the development of green infrastructure and empowering urban planners in jurisdictions where such considerations are mandatory.

DELIVERING BAT-FRIENDLY PLANNING

BTO research has also been able to identify solutions for bat-friendly planning, this time using data collected through the Norfolk Bat Survey, devised and operated by BTO's Stuart Newson. This survey, made possible because of a legacy-funded research fellowship, has been foundational to much of BTO's wider work on acoustic monitoring, with the organisation now recognised for its leadership in this area.

Efforts to minimise the effects of urbanisation on bats are hampered by a lack of data, something that can be addressed through the use of passive acoustic monitoring devices, deployed by volunteers and coordinated through initiatives such as the Norfolk Bat Survey. By combining the data collected by these devices with fine-scale habitat data, the BTO team was able to create 'risk' and 'opportunity' maps for Norfolk, outlining those areas where planned development would be detrimental to bat populations, together with those that provided the best opportunities for habitat mitigation.

This modelling and mapping approach has great potential for use in the planning process to reduce impacts on the most important habitat features in the landscape and enable targeted habitat creation for bats (Border *et al.* 2022). The lessons learned from our work developing acoustic monitoring approaches for bats is feeding into our work on the uses of this technology for monitoring birds and other taxa.

WHITE STORK. BY DAVID TIPLING / BIRDPHOTO.CO.UK

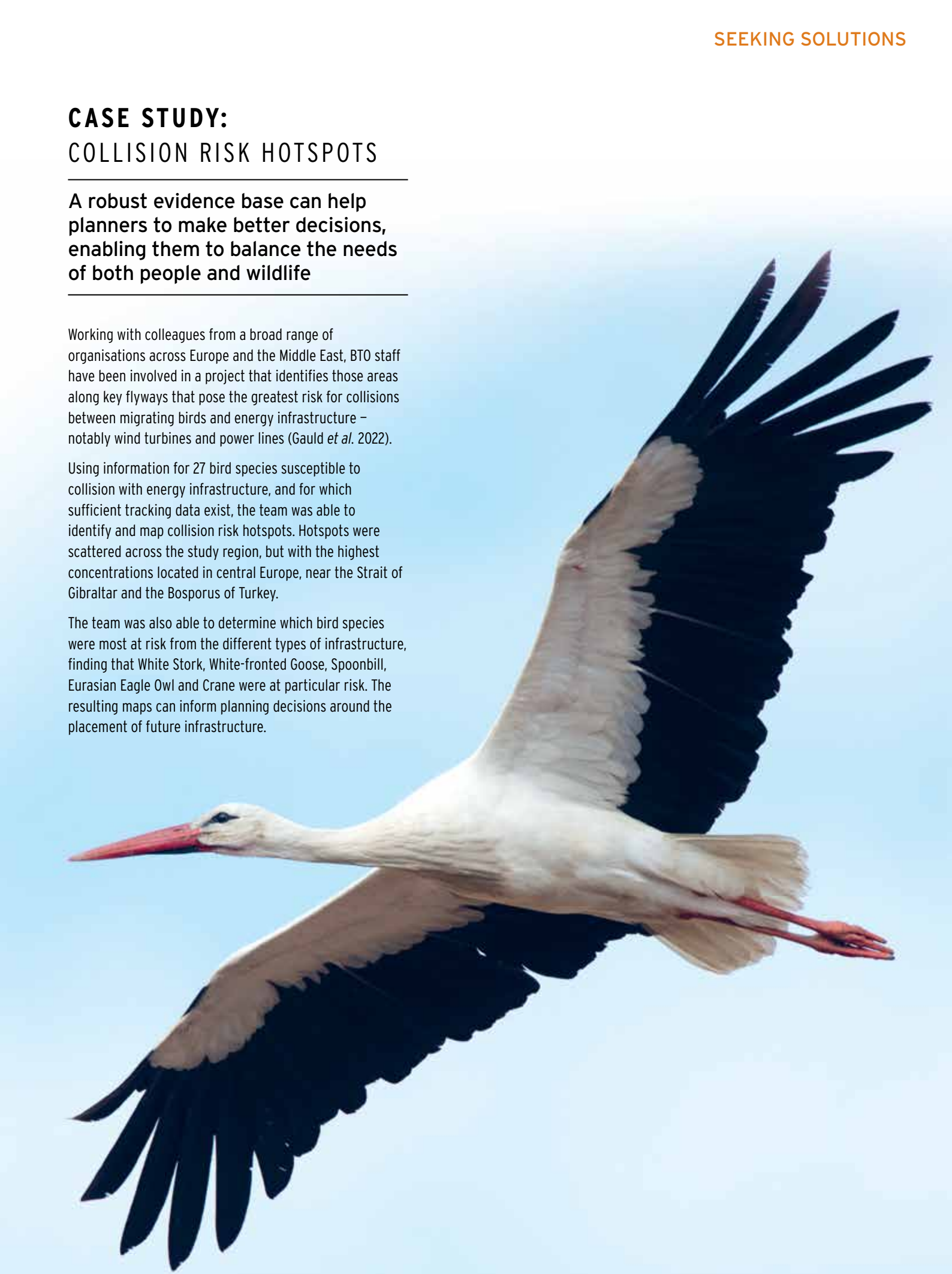
CASE STUDY:
COLLISION RISK HOTSPOTS

A robust evidence base can help planners to make better decisions, enabling them to balance the needs of both people and wildlife

Working with colleagues from a broad range of organisations across Europe and the Middle East, BTO staff have been involved in a project that identifies those areas along key flyways that pose the greatest risk for collisions between migrating birds and energy infrastructure – notably wind turbines and power lines (Gauld *et al.* 2022).

Using information for 27 bird species susceptible to collision with energy infrastructure, and for which sufficient tracking data exist, the team was able to identify and map collision risk hotspots. Hotspots were scattered across the study region, but with the highest concentrations located in central Europe, near the Strait of Gibraltar and the Bosporus of Turkey.

The team was also able to determine which bird species were most at risk from the different types of infrastructure, finding that White Stork, White-fronted Goose, Spoonbill, Eurasian Eagle Owl and Crane were at particular risk. The resulting maps can inform planning decisions around the placement of future infrastructure.



EMBRACING EVERYONE

We are working to inspire, engage and empower a greater diversity of people to discover and value nature. We have been able to build upon our Youth Programme, as well has take the first steps on a journey to foster a sense of belonging for all.

YOUTH IN ACTION

Youth engagement work received a massive boost from a £110,000 grant from the Government's Green Recovery Challenge Fund. The fund was developed by Defra and its Arm's-Length Bodies. It is being delivered by The National Lottery Heritage Fund in partnership with Natural England, the Environment Agency and Forestry Commission. The grant catalysed rapid acceleration and expansion of our youth programme, increasing the level of staff support for our growing network, providing support for events delivered by our Youth Representatives, and enabling our young volunteers to organise our first ever BTO Youth in Nature Summit.

The BTO Youth in Nature Summit attracted more than 100 people, from over a dozen wildlife organisations, and inspiring young people from across the UK. The Summit was designed for both young people and more senior leaders from the sector. It demonstrated the benefits of embedding youth voices in the strategic development of organisations to drive much-needed youth-led change, supported by leaders in the sector. Over 2,300 young people have now benefitted from the Equipment Donation Scheme, which sees pre-loved binoculars and scopes re-homed with young people unable to afford their own. By passing on unwanted equipment we are helping young people make the most of their birdwatching experience.

FOSTERING A SENSE OF BELONGING

We want to foster a sense of belonging for all, something that underpins the work described on pages 8–9 and which is also one of the foundations for our approach to communications more broadly. We genuinely want BTO to be a place for all. As part of this aspiration, and with the full support of our Chair of Board, we have started to use key awareness events (such as Disability Pride Month) to reinforce that approach more publicly.

During June 2022, we modified the BTO logo used on our social media and online platforms, and used the opportunity to initiate a conversation about the work that we are doing to demonstrate that we are an open and welcoming organisation. During Black Birders Week, we celebrated others who are doing so much to ensure those from minority ethnic backgrounds can benefit from engaging with birds. While we recognise that some people consider elements of 'movements' such as Pride to have become politicised, they remain, in general, a positive way for us to show support for communities who are still discriminated against. If we want our work and our communities to be inclusive, then we need to be proactive.

YOUTH IN NATURE SUMMIT, BY ALICIA HAYDEN / BTO

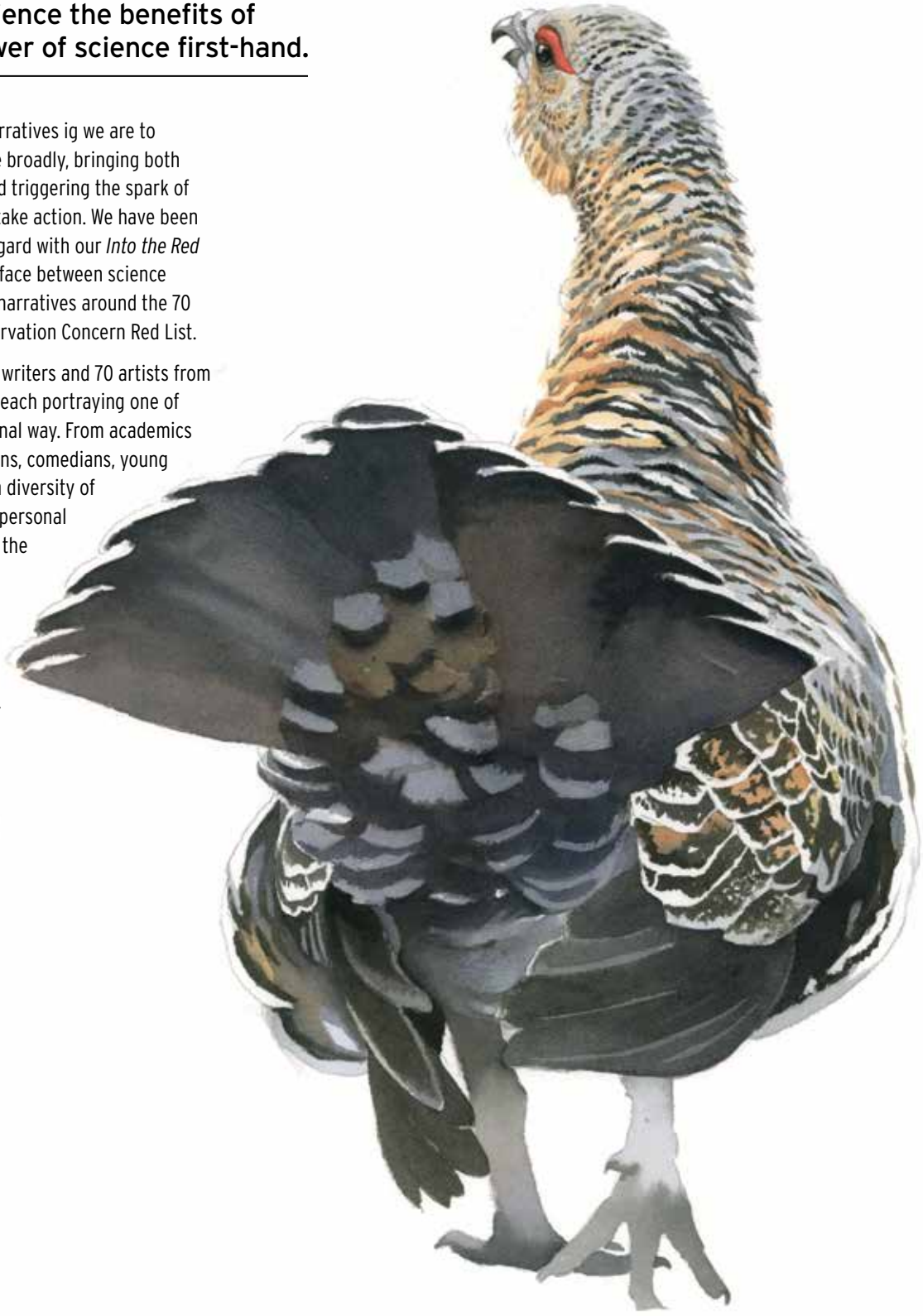
CASE STUDY:
INTO THE RED

A cornerstone of our new strategy is to inspire a greater number and diversity of people to engage actively with BTO, so that they can experience the benefits of biodiversity and power of science first-hand.

We need to develop engaging narratives ig we are to garner interest in our work more broadly, bringing both the birds and our data to life, and triggering the spark of interest that will lead people to take action. We have been particularly successful in this regard with our *Into the Red* project, which works at the interface between science and the arts to weave engaging narratives around the 70 species on the UK Birds of Conservation Concern Red List.

The project brought together 70 writers and 70 artists from a diverse range of backgrounds, each portraying one of the Red-listed species in a personal way. From academics and sound-recordists, to musicians, comedians, young naturalists and land-managers, a diversity of stories emerged, each rooted in personal experience and now shared with the book's readers.

Funds raised from sales of the book are being used to support both the work of BTO and that of the Rare Breeding Birds Panel.



CAPERCAILLLIE, BY FEDERICO GEMMA

CHARTING CHANGE

We are tracking changes in bird populations to understand their health and that of the wider natural world. During the year we took on leadership for monitoring seabirds, geese and swans through two important new partnerships.

A FUTURE FOR SEABIRDS

Britain and Ireland are home to the majority of Europe's breeding seabirds, so our seabird breeding colonies – both coastal and inland – are of international importance. It is vital, therefore, that we have up to date information on their status and health. As noted in last year's Annual Report, BTO has been working with partners to shape the future of the Seabird Monitoring Programme (SMP), the scheme which monitors breeding seabirds throughout the UK, the Isle of Man and the Channel Islands on an annual basis to provide data for the conservation of their populations.

In July, the Joint Nature Conservation Committee (JNCC) – which set up the Seabird Monitoring Programme in 1986 – announced a new partnership with BTO and RSPB. This has changed the way in which SMP is coordinated, with BTO the lead organisation, supporting the network of skilled volunteer and professional participants, and managing data collection, analysis and reporting.

The new partnership draws upon BTO's expertise in managing volunteer-based monitoring schemes and delivering robust evidence, and provides an opportunity to develop SMP and grow the network of participants. Organisations involved in the scheme in the past will form an important Advisory Group, helping to guide development, and underlining the strong partnerships that sit at the heart of this vital monitoring programme.

With our seabird populations facing the challenges of climate change and the recent outbreak of Highly Pathogenic Avian Influenza (HPAI), the SMP's function is more important than ever.

BIRDTRACK

Collecting data through the records of birds seen by birdwatchers provides an opportunity to address data gaps for species that are less commonly encountered through our core monitoring programmes. Such data also provide information from a broader range of sites, geographically, and from across a broader part of the year, adding to our ability to identify changing status and distribution. These records are also being actively shared with the County Bird Recorder network, mobilising them at the local level.

In August 2022, BTO launched a new version of the BirdTrack app, which featured a complete rebuild and redesign to make the app easier to navigate and use. The app enables birdwatchers to log and explore their birdwatching records, offering additional functionality through a web-based application. Following the launch of the new version we saw a significant up-tick in use of the app, with 3,829 new users and 698 returning users (the latter are users that have not submitted data in the previous three years).

The number of BirdTrack submissions has also increased, and the proportion of BirdTrack participants submitting via the smartphone app, as opposed to entering data online, has increased from 37% to 53% since launch. A further addition to the app, in the form of functionality to record observations of dead birds, is supporting our response to HPAI by providing vital data on where outbreaks are occurring.

BIRDTRACK APP, BY SCOTT MAYSON / BTO

A NEW UPLAND INDICATOR

Our breeding birds are a good indicator of overall biodiversity, sitting towards the top of food chains and quick to respond to changes in habitat quality. Because of this, and because they are generally widespread, relatively easy to survey and well covered by long-running monitoring schemes, they are used as indicators of environmental change.

The wild bird indicators published annually by the UK Government comprise multi-species indicators for breeding birds of farmland, woodland, waterways and wetlands, and seabirds. However, the UK also includes a large area of internationally important uplands, spread across all four countries, covering about 4.5 million hectares of land. During the year, BTO staff worked on a new Upland Bird Indicator.

The Upland Bird Indicator uses a range of survey data gathered since 1994, including from the BTO/JNCC/RSPB Breeding Bird Survey (BBS) and other specialist surveys. The indicator has been published as an 'experimental statistic' this year, meaning that it remains under development and subject to future change (Barnes & Noble, 2023) The inclusion of uplands in the suite of wild bird indicators increases the ability of those indicators to report comprehensively on the state of the UK and England's biodiversity.

BLACK GUILLEMOT, BY DAVID TIPLING / BIRDPHOTO.CO.UK

ARCTIC TERN, BY SARAH KELMAN / BTO; SEABIRD MOINTORING, BY KATHERINE BOOTH JONES / BTO; KITTIWAKES, BY PHILIP CROFT / BTO

DELIVERING DATA

We are working with partners and communities to ensure our data and science do the most that they can for birds and for people. Our core monitoring schemes sit at the heart of this, and a new agreement reaffirms the commitment to these schemes.

IDENTIFYING COVID-19 IMPACTS

An important piece of work, completed and published during the year, examined the impacts of COVID-19 lockdown restrictions on our capacity to deliver robust monitoring data for UK birds (Gillings *et al.* 2022). Using the BTO/JNCC/RSPB Breeding Bird Survey as a case study, BTO researchers were able to model the effects of the sharp drop in coverage during 2020 – which was 49% down on the previous year.

The reduced coverage had a significant effect on the monitoring trend information produced, typically introducing a negative bias to the results and being a particular problem for species more strongly associated with the 'early season' fieldwork visits.

The lockdown restrictions meant that it was not possible to produce the usual population trend information for the UK, Scotland, Wales or Northern Ireland. Trends could only be produced for a subset of c.40 species within England. The differences between countries have the roots in the differences in timing of the lockdowns imposed by respective governments.

UNDERSTANDING DATA LANDSCAPES

Monitoring biodiversity at large spatial scales and over long periods of time is central to understanding how populations change, and supports conservation planning and the prioritisation of resources by decision-makers. While we have a good understanding of the monitoring frameworks that exist for birds, such understanding is lacking for many other taxa, including reptiles and amphibians – taxa for which BTO Garden BirdWatchers collect valuable data on garden use.

Work led by PhD student Becky Turner, and involving BTO, UK Centre for Ecology & Hydrology, the Durrell Institute of Conservation and Ecology, Amphibian & Reptile Conservation Trust, and Amphibian and Reptile Groups of the UK, has greatly improved our understanding of the biodiversity data available for amphibians and reptiles. The study identifyied existing sources of biodiversity data for these taxa and then characterised the nature of the data management network within which they sit (Turner *et al.* 2022).

By using an approach known as network analysis, the team was able to visualise how the reptile and amphibian data were mobilised across the network, identifying key data sources and showing how data flowed across the network. The analysis revealed that the UK amphibian and reptile monitoring portfolio is dynamic and fragmented, with two data sources sitting outside of the network and many others receiving data but not then sharing this with others.

While the network as a whole may provide comprehensive information across species and regions, the complexity of the network and the degree of fragmentation means that opportunities to leverage information where and when it is needed are not as good as they could be. If such shortcomings can be addressed then this would benefit reptile and amphibian conservation within the UK.

BEARDED TIT, BY DAVID TIPLING / BIRDPHOTO.CO.UK; AGREEMENT SIGNING, TOM STEWART / BTO

DELIVERING THE EVIDENCE BASE

In September the chief executives of BTO, the Joint Nature Conservation Committee (JNCC) and RSPB reaffirmed their longstanding commitment to the long-term bird monitoring schemes that underpin so much conservation science and action. Thanks to the thousands of committed and highly skilled volunteers who give their time to record information about our bird populations, the data from these schemes continue to help us to understand more about the ongoing biodiversity crisis, the impacts of climate change, and the urgent need for evidence to guide what we can do to protect nature from these and other threats. The new agreement, a funding partnership that covers the period 2022–27, is surely needed now more than ever.

Over the year BTO volunteers gave some 1,961,394 hours of their time to BTO work, collecting the information that, with the input of BTO's scientific staff and their wealth of expertise, delivers the evidence base that is so essential to nature conservation and recovery. As JNCC Chief Excutive Gemma Harper made clear "*Only by identifying and understanding how biodiversity is changing can we strive for nature that is diverse, abundant and resilient.*"

A NEW HUB FOR BIRD INFORMATION

Thanks to funding from the Esmée Fairbairn Foundation, BTO was able to deliver a major upgrade to BirdFacts, its one-stop-shop for information on the UK's birds. This unique resource, which is free to access and use, brings together the extraordinary wealth of information collected by BTO and its volunteers through nearly 90 years of monitoring and research. In addition to information on different aspects of bird ecology, such as clutch size, longevity and movements, BirdFacts also provides vital information on population size, change and conservation status.

One aspects of the upgrade is the addition of BTO Trends Explorer, an interactive tool that enables anyone to explore how trends in UK bird abundance and other key measures are changing through time, both nationally and at the regional level. Over time, information from an increasing number of datasets and surveys will be added to the BTO Trends Explorer. **www.bto.org/birdfacts**

SUSTAINING SUPPORTERS

We want to ensure that everyone who works with us feels valued, and knows that they are playing an important role in tackling the biodiversity and climate crises. Over the past year we have continued to invest in our supporters in many different ways.

HELPING TO DEVELOP SKILLS

Birdwatching is one of those pastimes in which you are always learning, and BTO has continued to support individuals seeking to develop their birdwatching skills through a range of initiatives. Core among these have been the training courses developed and delivered by our Training Manager Nick Moran and his team, with additional support from other staff (notably those in the Country Offices). During the year we ran 26 virtual courses, attracting 5,287 registrations. While many of these were open UK-wide, a number were delivered for particular audiences, including a free course for students in Scotland, and courses in Northern Ireland and Devon.

With some signs of declining interest in the older online courses – some of which have been delivered more than 25 times – our training offering has been widened and the team has begun to identify ways to reach new audiences. Linking training offerings to particular surveys or projects, for example the courses on seabird identification and ecology linked to our wider strategic focus on seabirds, has been one successful approach. In addition to the virtual courses, we have been able to deliver more face-to-face training, including those supporting individuals interested in taking on BTO/JNCC/RSPB Breeding Bird Survey squares or looking to improve their nest monitoring skills.

INVESTING IN SOFTWARE

With the bulk of survey data submitted through online interfaces, it is essential that we continue to develop our website and web applications in line with the expectations of the volunteers using them. Ongoing development of the Demography Online system used by ringers and nest recorders, for example, has meant that 68% of ringing data and 67% of nest record data are now submitted through the system. Similarly, online now accounts for 83% of Garden BirdWatch submissions, compared with 51% a decade ago. The relaunch of the BirdTrack App (see Page 14) also emphasises the value in providing our volunteers with the tools that they need to make the most of their contributions.

A UNIQUE OPPORTUNITY

Being able to engage supporters more directly with our work is really important, since active participation greatly increases supporter satisfaction and retention. For one group of supporters who have funded BTO work on seabird monitoring, there was the opportunity to visit seabird colonies on Orkney with Supporter Relations Manager David Agombar. During the tripthey heard about BTO work from Research Ecologist Nina O'Hanlon, who is part of BTO's Wetland and Marine Research Team.

ORKNEY SEABIRD TRIP, BY KAREN GENTILE / BTO; CUCKOO EVENT, BY MIKE TOMS / BTO

TRACKING PROJECT PROGRESS

For those individuals supporting our Cuckoo tracking project we have used a combination of communications channels to keep them informed of the project's progress; from updates on our website and in a dedicated enewsletter, through to on-site events with the Cuckoo team.

FRAMING FUTURES

We are using our science to track the impact of, and inform responses to, future climate change and new environmental threats to birds, including disease. A focus of our work over the year has been the response to highly pathogenic avian influenza.

NON-NATIVES

The Government's substantially refreshed Invasive Non-Native Species Strategy was published in the first quarter of 2023, and places to the fore its vision for a strong partnership approach to addressing the risks that non-native species pose to biodiversty, people and the economy. BTO is one of the partners in the Non-native Species Information Portal, and data from the core monitoring schemes we operate provide vital information on the arrival, establishment and status of such species. In addition, BTO is well placed to provide robust evidence that can inform discussions on the impacts of invasives on native species.

A piece of work by Henrietta Pringle and Gavin Siriwardena considers the utility of BTO data in supporting evaluations of the risks that non-native species may pose (Pringle & Siriwardena 2022). Using case studies for Ring-necked Parakeet, Grey Squirrel and Muntjac, the study demonstrates that existing data from core schemes have the potential to measure impacts, as well as document arrival and spread. The study identified a number of limitations to the use of existing datasets, suggesting opportunities for mitigating at least some of these. The review, and our wider work in this area, help to guide responses to the challenges that invasive non-native species may bring.

MUNTJAC, BY LIZ CUTTING / BTO

ASSESSING DISEASE IMPACTS

Two important pieces of work on disease were published during the year. The first of these documented the emergence and potential impact of a Usutu virus outbreak in London (Lawson *et al.* 2022). Usutu virus has spread across mainland Europe since its incursion in 1996. Transmitted between mosquito vectors and birds, the virus has been shown to be responsible for mortality in Blackbirds at a scale sufficient to bring about a decline in their populations.

The virus was detected for the first time in the UK in August 2020, but the extent and impact of this incursion on local bird populations was unclear. A team, bringing together expertise from the Institute of Zoology, BTO, the Natural History Museum, the Animal and Plant Health Agency and the UK Health Security Agency, carried out intensive trapping of mosquitoes at the site where the infected birds had been found. They screened for the virus, examined submissions to three disease surveillance schemes – one of which was Garden Wildlife Health, and used long-term population monitoring data from BTO Garden BirdWatch and the BTO/JNCC/RSPB Breeding Bird Survey to investigate Blackbird population trends across the UK.

The mosquito surveillance confirmed that virus was circulating at the site, but none of the birds submitted to the surveillance schemes tested positive for the virus. However the BTO Garden BirdWatch data showed a decline in Blackbird numbers in London gardens that was contemporaneous with the outbreak. Whilst the results of the study do not provide any evidence of a wider outbreak, which is reassuring, they do highlight the benefit of ongoing disease surveillance through schemes like Garden Wildlife Health and the value of Garden BirdWatch and its weekly recording structure, which have the potential to provide an early indication of possible disease emergence.

A second piece of work provided vital new insight into the impacts of finch trichomonosis on UK finch populations (Hanmer *et al.* 2022). Hugh Hanmer and colleagues, working with partners from a number of other organisations, including the Institute of Zoology, used Chaffinch and Greenfinch data from core BTO schemes alongside post-mortem examination records to assess disease impacts following the original outbreak.

Using data from the BTO/JNCC/RSPB Breeding Bird Survey, the researchers were able to explore the pattern of changing abundance since 1994 and how this might differ between 'urban' and 'rural' habitats. Examination of Ringing Scheme and Nest Record Scheme data indicated that the large national population declines of Greenfinch and Chaffinch were largely driven by lower adult survival, associated with the emergence and epidemic spread of the disease.

In both species, adult survival fell to a greater extent in 'urban' than in 'rural' habitats following the onset of the outbreak, which suggests a link to garden feeding stations. While supplementary feeding has known population benefits for a range of species, the possibility of negative and counteracting effects on species conservation and animal welfare need to be considered, along with the promotion of appropriate mitigation measures.

CASE STUDY: RESPONDING TO AVIAN INFLUENZA

The 2022 outbreak of highly pathogenic avian influenza prompted a large-scale response, drawing on different aspects of BTO's work and expertise.

DEAD BLACK-HEADED GULL, BY DAWN BALMER / BTO

From late spring 2022, increasing numbers of reports of highly pathogenic avian influenza (HPAI) were received from seabird colonies around the northern UK, the news coming off the back of a devastating outbreak in some of our wintering goose populations. Very large numbers of breeding seabirds, including significant numbers of Great Skuas and Gannets, died as a result, and BTO mobilised staff resources and datasets to help understand the impacts on bird populations and address the challenge of this devastating disease.

BTO scientists coordinated regular meetings with other organisations, sharing our expertise and data, so that ongoing efforts to tackle the outbreak and address its longer-term impacts are informed by the available evidence. Our research staff have carried out vulnerability assessments, identifying those species and populations at greatest risk from the outbreak. This information is being used to inform conservation responses and the prioritisation of resources.

This outbreak has identified a lack of a centralised repository for the reporting of large wild bird mortalities. We asked our Wetland Bird Survey (WeBS) counters, who undertake monthly surveys of many of our larger wetlands and estuaries, to record bird mortalities alongside their usual recording, and we deployed an additional component to our BirdTrack app, enabling birdwatchers to quickly enter details of dead birds encountered while out birdwatching. These two approaches provide structured information on the potential spread of significant mortality, again helping to direct resources and shape the nature of any response.

BARNACLE GEESE, BY LIZ CUTTING / BTO

In November 2022, BTO co-hosted a meeting that brought together more than 100 bird and disease experts to discuss the impacts of the outbreak, reviewing management options and identifying information needs. The report from the meeting was published in March 2023 (Pearce-Higgins *et al.* 2023), and is being used by partners to inform the response to the outbreak.

We have also been developing tools to inform future planning and decision-making around the disease. Through a collaboration between EURING and EuroBirdPortal, funded by the European Food Safety Authority (EFSA), BTO has developed a migration mapping tool to inform the management of future avian anfluenza outbreaks. This approach can be extended to develop predictive models of HPAI spread in domestic birds based on wild bird abundance and movements across Europe (Gargallo *et al*. 2022).

More widely, BTO staff were part of a team that idenified the transatlantic spread of avian influenza by wild birds from Europe to North America (Caliendo *et al.* 2022).

HPAI will continue to be a major focus of BTO's work beyond 2022/23. Given the scale and potential impact of this disease, we have outlined an extensive programme of work in response. The organisation has been funding this work from our core funds, from scheme budgets, and through targeted fundraising efforts. An approach to major donors was mailed in August 2022, and a wider fundraising appeal was mailed to our supporters in November 2022.

OUR STAFF

BTO is fortunate to have dedicated and professional staff, whose expertise and commitment helps to drive forward our charitable activities. Working in partnership with volunteers, and staff at other organisations, they are a vital resource; engaged, enthusiastic and inspirational.

SHARING OUR EXPERTISE

BTO staff continue to share their expertise and skills through both their professional roles and outside interests, contributing to a very broad range of workshops, conferences, publications and events. Many of our scientific staff sit on the editorial boards of ornithological journals and/or act as peer-reviewers for scientific publications, giving their time to the wider research community through these activities. BTO Scotland's Liz Humphreys, for example, has been Chair of The Seabird Group since 2019, where she is supported by Viola Ross-Smith (BTO Science Communications Manager) who is Editor of The Seabird Group's scientific journal *Seabird*.

During the year, members of the Survey's Team attended the European Bird Census Council conference at Lucerne in Switzerland, presenting talks on a wide range of BTO's monitoring work, while the Wetland and Marine Team's Aonghais Cook attended a significant meeting in the USA exploring the biggest challenges facing the development of wind energy. This meeting enabled Aonghais and BTO to build on our collaborative international links.

WORKING ACROSS BORDERS

Our international collaborations were very much in mind following Russia's invasion of Ukraine. BTO's International Team has been working with colleagues in Ukraine and Belarus on an Endangered Landscapes Programme project. The project team is working to create a network of protected areas covering almost one million hectares of ecologically functioning natural landscape in the heart of Europe. This is one of Europe's largest protected natural wilderness areas, providing essential habitat to many threatened species. Although the project has largely been put on hold because of the invasion, some of the analysis work has continued, and a paper exploring the role of wetting up peatlands in reducing the size and intensity of wildfires has just been published (Kirkland *et al.* 2023).

POLESIA, BY DANIEL ROSENGREN

SAMANTHA FRANKS TAGGING A CURLEW / RICH BUNCE WALKING PHOTOGRAPHER

WAYS OF WORKING

One consequence of the COVID-19 pandemic has been a shift in how people work, with home-working now much more common across many sectors in the UK economy. Recognising that home-working can provide well-being and other benefits to many (though not all) staff, BTO has introduced a hybrid working policy, with staff able to work from home for part of each week. Well-received by staff, the approach has required BTO to think more innovatively about how it uses it office space. More remote working can ease capacity issues through the use of hot-desking, but additional space is needed to support the increased number of virtual meetings.

BTO's approach to how staff and the organisation operate is shaped by input from various staff groups. In the same way, the organisational culture has been developed by involving individuals from across the many different roles and offices. The introduction of electric vehicle charging points, for example, has emerged from discussions with staff and their wish to increase sustainability.

SAMANTHA FRANKS AND KATHARINE BOWGEN ON FIELDWORK / RICH BUNCE WALKING PHOTOGRAPHER

OUR VOLUNTEERS

BTO's amazing trustees and volunteers work in partnership with our scientists and survey organisers to deliver the evidence base that supports conservation action and decision-making processes, for the benefits of birds and people.

THE HEART OF BTO

The Regional Network sits at the very heart of BTO. Its amazing volunteers represent the organisation at the local level, engaging members and supporters, and organising and delivering many of our surveys. BTO has 128 separate regions across the UK, Isle of Man and the Channel Islands, and these regions vary enormously in size and population. Because of this, the Regional Network structure for each region is flexible and tailored to its needs. The different roles within a region typically comprise of:

- **A Regional Representative**, who leads the BTO Network in a given region and sometimes carries out all Regional Network tasks alone when a team has not been formed
- **Regional Ambassadors**, who assist with one or more tasks, e.g. promotion of BTO, or Garden BirdWatch
- **Regional Organisers**, who are responsible for one or more surveys e.g. the Heronries Census.

The Network is supported by BTO staff and overseen by the Regional Network Committee, a group that facilitates liaison between the members of the Regional Network, BTO staff and BTO Board. Without the dedication and commitment of our Regional Representatives, Regional Ambassadors and Regional Organisers the work of the BTO would simply not be possible, and we owe them a great deal of thanks for all of their hard work and enthusiasm.

Over the past year, the return to face-to-face meetings has enabled the Network to do more, and delivered opportunities for staff and volunteers to work alongside one another. We have continued to make the most of the 'virtual world', learning from the experiences of lockdown working, and this has enabled us to deliver additional training to members of the Network on, for example, the use of social media to engage and support others.

A BROADER NETWORK

Additional to the Regional Network is a broader web of committed volunteers, some of whom help to coordinate particular surveys at the local level. These include the Local Organisers coordinating the Wetland Bird Survey and the Breeding Bird Survey, and others who provide support and training to individuals in their respective schemes. For example, Ringing Trainers and Nest Record Scheme Mentors share their knowledge and experience with those taking their first steps with these surveys, and for whom having that personal support can be particularly welcome. Our volunteers, in all their different roles, will be key as we work to increase the number and diversity of people engaging with our work.

RECOGNISING ACHIEVEMENT

Underlining BTO's role within a wider volunteer network are the Marsh Awards, awarded annually and recognising both volunteer and professional contributions to the study of ornithology. The Marsh Awards are supported by the Marsh Charitable Trust and presented by BTO at the Society of Wildlife Artists annual exhibition at the Mall Galleries in London. We are particularly grateful for the generosity and support of both organisations, who enable us to recognise the contributions made by individuals and local groups.

AN AWARD PRESENTATION, BY NICK CARO / BTO

In 2022 the Marsh Award for Ornithology was presented to Alex Bond, curator in charge of birds at the Natural History Museum. Alex's career has focused on the conversation of seabirds, particularly on the pressures facing vulnerable seabird populations on remote islands. Over the course of his career he has been a tireless advocate for equity, diversity and inclusion. The Marsh Award for Local Ornithology went to 'Tracking The Impact' – the Chalk, Cherries & Chairs Landscape Partnership Scheme, which aims to connect local people to the wildlife and cultural heritage of the Central Chilterns. Through local events organised, more local people have been trained and are actively engaged in formal biodiversity monitoring, gaining a greater understanding of and engagement with their local wildlife. The Marsh Award for Young Ornithologist was awarded to Anna Webberley, a 20-year-old bioscience student from Cardiff University. Anna has done an extraordinary job of reviving the Ornithology Society at the university, actively inspiring a new generation of ornithologists and encouraging students from all different backgrounds to find an interest in birdwatching.

CHECKING A MARSH TIT NEST, BY MIKE TOMS / BTO

OUR COMMUNITY

One of our strengths is the breadth of opportunities for people to be part of our community through a shared love of birds. That we have such a vibrant community emphasises that what we are doing matters to a great many people.

SHARING OUR AMBITION

A major focus during the year was the development of the new BTO strategy, which will take the organisation through to 2030. A key component of the work to launch the strategy focused on the nature of the BTO community and our ambition to engage more people.

To this end, we took a rather different approach from previous BTO strategies, working with animator Will Rose to develop a short animation that captured our work and showcased opportunities for people to get involved. With the generous support of a small staff and Youth Advisory Panel (YAP) team, and contributions from sound recordist Geoff Sample and creative sound experts Fonic, we have been able to create something truly inspiring, attracting in excess of 10,000 views.

A COLLECTIVE MEMORY

BTO has long played a central role within the birdwatching and ornithological communities and our growing archive collections are important within a broader context. The BTO Archives hold institutional records, survey materials and data from BTO's 90-year history, as well as the internationally-important personal papers and photographic materials of prominent ornithologists, birdwatchers and bird photographers.

The materials in these collections, and the stories contained within them, empower us to deliver narratives that foster increased engagement with our work. They are the organisation's collective memory and have the potential to be the collective memory for the wider ornithological community of which we are a part.

LESLEY HINDLEY CLEANING GLASS PLATE NEGATIVES, BY MIKE TOMS / BTO

Birdwatching and the study of birds have provided structured access to the natural world over many decades, but the heritage and accumulated experience of participation is fragmented and not accessible to new audiences. We have a bold ambition, that our archives will bring the history of UK ornithology and its personalities to new audiences, accessible through our online catalogue, articles, social media, and events. Being able to highlight the stories of women in the development of bird photography and ornithological study, for example, can help us to address ackowledged gender-biases and provide role models for new generations.

Over the past 18 months, and following the appointment of BTO's first Archivist, Lesley Hindley, we have been able to put in place the foundations that will enable us to make the most of our shared heritage, increasing visibility and access. There were also four new accessions to our collections during the year, which included A.J.B. Thompson's incredible run of bird records from Slough Sewage Farm (1939–85), the Eric A. Simms archive, and the photographic collections of John Barlee and John W. Proudlock. Thank you to the family members who facilitated and donated these important collections.

YOUTH-LED

As is evident from the example provided on Page 12, we have been making huge steps forward in delivering opportunities for young people, recognising that they are the future of our community. What is absolutely core to this work is the degree to which it has been shaped, driven and delivered by young people. Also striking is the amount that has been delivered since BTO Youth was launched in February 2020. In 2021 and 2022, BTO Youth reached over 2,000 young people across the four UK countries, engaging them in nature and science through a range of over 70 local and online events. Building on the successes of the last three years, the Youth Advisory Panel (YAP) has just launched its BTO Youth Engagement Strategy, which will cover the period 2023 to 2028.

While YAP operates 'behind the scenes', focusing its efforts on logistical and strategic planning activities – from the strategy to larger events and projects – the BTO Youth Representatives (launched in 2021) are responsible for engaging people locally, creating community youth networks within their regions. The Youth Representatives put YAP's vision into action on the ground, working to make a tangible impact in their communities and, collectively, nationwide. With a Youth Appeal launching in 2023, and the work continuing to attract the financial support of external funders, we are seeing a continuing step change in this growing part of the wider BTO community.

KYOUNG BIRDERS / BTO; ANIMATION STILLS, BY WILL ROSE

OUR PARTNERSHIPS

We are collaborative, working in partnership with individuals and organisations to achieve our collective goals. During the past year this approach has enabled us to contribute and share our expertise across a number of important projects.

SECURING A FUTURE FOR CURLEWS

The UK is home to around a quarter of the global Curlew breeding population, but numbers here crashed by almost half between 1995 and 2018. Poor breeding success is responsible for much of this decline, so BTO has been working with partners Natural England, Pensthorpe Conservation Trust, the RAF, the Wildfowl & Wetlands Trust, the Sandringham Estate and Wild Ken Hill on an innovative project to support recovery of populations in eastern England.

Curlew eggs laid on RAF airfields would ordinarily be destroyed to mitigate risk to aircraft but a number have been collected, incubated and the young raised in captivity. These 'head-started' individuals are then released in ideal habitat along the Norfolk coast before they disperse further afield. BTO scientists are responsible for fitting the young Curlews with a mixture of radio and GPS tags, and then tracking them after release, to gather information on habitat use and survival. The fortunes of 37 tagged Curlew chicks were followed in 2022, as they left their release sites and joined other individuals at favoured feeding and roosting sites, both in East Anglia and further afield.

The project is just one aspect of BTO's wider involvement with Curlew conservation initiatives, which seek to address the challenge of halting the decline of a species that breeds across much of the UK, typically on land that is not directly managed for conservation. The suite of projects bring together researchers, landowners and managers, conservation organisations, and volunteers. These partnerships demonstrate that stakeholders from differing backgrounds, and with different priorities or perspectives, can work together effectively for the benefit of a species that is in trouble.

HEAD-STARTED CURLEW CHICKS: SAMANTHA FRANKS / BTO

MONITORING OUR GEESE AND SWANS

The UK supports 13 internationally important populations of native geese and migratory swans. Many of the species that comprise these populations are included on the UK's Birds of Conservation Concern Red or Amber Lists, and it is vital that we have up to date information on the status and health of their populations.

The Goose & Swan Monitoring Programme (GSMP) records the abundance and breeding success of these birds during the non-breeding season, bringing together a suite of species-specific surveys to monitor the different populations.

BTO took over coordination of GSMP in August 2022, following the decision of the Wildfowl & Wetlands Trust to concentrate its conservation activity for waterbirds and their wetland habitats in other areas. The change will enable GSMP to become more closely aligned with the Wetland Bird Survey (WeBS), particularly with regard to reporting. This should ensure that information on these and other waterbirds is presented in a more coordinated manner, something that should greatly aid landmanagers, policymakers and conservation practitioners.

The GSMP network brings together a variety of organisations, groups and individuals involved in goose and swan monitoring throughout the UK, as well as in other countries linked by the birds' migratory flyways. The different organisations typically lead on one or more of the component surveys, with the project as a whole funded jointly by BTO, JNCC and NatureScot. BTO is responsible for the Icelandic-breeding Goose Census, Goose and Swan Age Assessments and the Svalbard Barnacle Goose survey (which is primarily focused on the Solway Estuary), while, for example, the Irish Brent Goose Research Group lead on coordinated counts of east Canadian-breeding Light-bellied Brent Goose (including in Northern Ireland).

The complexities of the different goose and swan populations – in terms of their origins, flyways and wintering sites – require a coordinated partnership approach, and one that BTO is well-placed to facilitate and deliver.

WORKING TOGETHER FOR RARE BIRDS

During the year, the Rare Breeding Birds Panel (RBBP), which is funded by JNCC, RSPB and BTO, celebrated 50 years of charting the changing fortunes of our rarest birds. Since its launch in 1973, RBBP has delivered data for use in the Birds of Conservation Concern assessments, the designation of protected areas, and the targeting of habitat restoration work for species such as Bittern. This long-running partnership continues to support projects that help understand threats to birds and to recover or enhance populations.

WHOOPER SWAN : DAVID TIPLING / BIRDPHOTO.CO.UK

ENGLAND

Many policy decisions have a strong country- or regional-focus, and BTO's work reflects this. We continue to deliver projects from our Country Offices, often working with country-level partners and other stakeholders.

WOODLANDS WORKING

Agri-environment schemes have been used to direct state support of agriculture towards the delivery of public benefits, including those related to wildlife and the environment. These have delivered some notable successes for wildlife, and a recent piece of work has explored the effectiveness of a similar approach for woodland management (Bellamy *et al.* 2022).

Working as part of a team that included BTO, RSPB, the Forestry Commission, Forest Research and Natural England, the study used a combination of fieldwork – examining bird abundance on East Midlands woodland sites receiving Woodland Improvement Grant funding and nearby control sites without such funding – and data from the BTO/JNCC/RSPB Breeding Bird Survey to test whether funded management interventions were benefiting the target woodland bird species.

The study found an increase in the abundance of target species, including Willow Warbler and Marsh Tit, on the sites where woodland management was being directed towards them, while populations elsewhere were found to have declined. The work demonstrates that bespoke woodland management, funded through government agri-environment scheme initiatives, can have a positive impact on woodland birds.

ADDRESSING CURLEW DECLINE

BTO has been continuing its work in East Anglia to secure an evidence-based approach to the conservation of the region's breeding Curlew, a species whose national breeding population has declined by 48% since 1995. The work, carried out in partnership with colleagues at the University of East Anglia and RSBP, and delivered through a Natural Environment Research Council CASE studentship, has been part-funded by BTO and a Defence Infrastructure Organization Environmental Stewardship grant.

PhD student Harry Ewing has examined variation in Curlew nest survival in order to determine how targeted management interventions might boost this key component of breeding success. Up to 80 Curlew breeding attempts were monitored annually between 2019 and 2021 in eight locations across Breckland. The majority of breeding failures (86%) were found to be the result of (largely nocturnal) predation.

Based on these findings, Harry and his coauthors suggest that fencing those sites with high nesting densities to prevent access by mammalian predators could potentially double the number of chicks hatched each year within the study area. However, it is claer from Harry's work that landscape-scale actions to reduce predator impacts on nests and chicks are likely to be required if we are to support breeding Curlew populations more broadly across the wider countryside.

MAKING CONNECTIONS

Urban areas can and do hold significant populations of birds, but we know surprisingly little about how these populations are connected with those present within the wider countryside. It has been suggested that the populations using these different habitats may be linked through seasonal movements, with individuals breeding in rural areas moving into urban sites during the winter months to exploit the supplementary food provided at garden feeding stations. However, little work has been done to test this hypothesis.

Thanks to a Gift in Will from Jane Priest, and grants from The Edward Cadbury Charitable Trust, The Marjorie Coote Animal Charity Trust and The John Spedan Lewis Foundation, BTO Research Ecologist Hugh Hanmer and colleagues were able to carry out pilot work to explore the question of rural and urban connectivity in Blue and Great Tits (Hanmer *et al*. 2022).

Colour rings were fitted to Blue Tits and Great Tits, captured during winter at a series of sites along urban to rural gradients in the West Midlands. During the following breeding season, the study area was surveyed to identify the location and activity of any colour-ringed individuals found. The results suggest that urban breeding populations of Blue Tits and Great Tits are linked to rural wintering populations, whereas urban wintering individuals tend to be resident year-round.

The findings of this pilot study are important because they identify a possible mechanism for both gene flow between populations and disease transmission through wider populations. The patterns identified in this study could also suggest that urban areas act as 'population sinks' for birds from 'source' rural populations. More work is needed, however, to tease out the detail at an individual level and to extend the work to other species, as well as to other regions and cities to see if this pattern of movement is typical.

GREAT TIT, BY DAVID TIPLING / BIRDPHOTO.CO.UK

NEW INFORMATION ON WOOD WARBLERS

Wood Warblers have disappeared from much of their former UK breeding range, and populations have also declined more widely elsewhere in Europe. The causes of Wood Warbler decline remain unknown, despite targeted research efforts here in the UK, which could suggest that the declines are being driven by factors operating elsewhere, either on migration or in the winterting areas.

Two important gaps in our understanding, those of where Wood Warblers winter and the routes used during migration, have now been filled thanks to a partnership approach involving BTO, RSPB, and Wood Warbler expert and BTO volunteer Tony Davies (Burgess *et al*. 2022).

Using tiny tracking devices, deployed on male Wood Warblers on Dartmoor and in the New Forest, the team was able to identify migration routes, the location and duration of stopovers, and the location of wintering areas for the first time. The tracked individuals left their breeding sites in late July, spending most of August in central southern Europe, before crossing the Sahara to reach a stopover area in the Sahel of West Africa. The birds then moved to wintering sites in West Africa, covering Guinea, Sierra Leone and Liberia.

Two of the males were then tracked on spring migration, crossing the Sahara and migrating through Western Europe to complete a clockwise loop migration back to Britain. These initial results are an important first step in our efforts to understand Wood Warbler decline and to identify appropriate conservation action, though we need to build on this work by looking at the movements of individuals from other breeding populations.

REDSTART, BY EDMUND FELLOWES / BTO

WALES

BTO Cymru gives a Welsh voice and perspective on issues that are important to the birds of Wales. This is achieved by working closely with partners across Wales, including the Welsh Government, Natural Resources Wales, the Welsh Ornithological Society, RSPB, bird clubs, and our members and supporters.

COCKLE COLLAPSE

Well-known for its highly productive Cockle fishery, the Burry Inlet Special Protection Area (SPA) in South Wales faced an unprecedented issue in 2004, when Cockle stocks collapsed following significant mortality of the larger, older Cockles. While there has been some recovery in the stocks, the numbers of larger Cockles are still very low. In addition to the resulting economic damage, the collapse of Cockle stocks also had implications for the Oystercatcher populations on the estuary. BTO staff used survey data from the Wetland Bird Survey and survival and biometrics data from the Ringing Scheme to investigate how the wintering Oystercatcher population responded to this crash (Bowgen *et al*. 2022).

The work, which was led by BTO Cymru staff, revealed that both body condition and apparent survival of wintering adult Oystercatchers were reduced in the years following the Cockle crash, but both have since recovered.

The number of Oystercatchers using the Burry Inlet SPA decreased through the course of the Cockle decline, whilst numbers of birds in the adjacent Carmarthen Bay Special Area of Conservation increased.

The study demonstrates the importance of alternative sites in buffering the effects of such changes, underlining their role in delivering a resilient protected site network. In addition to helping us to develop resilient protected areas networks in the light of environmental change, the work has wide applicability in planning the management of coastal wetlands and fisheries.

SEA-LEVEL RISE AND BIRDS

Understanding how climate change and sea level rise will affect bird and human habitats around the coastline of the Irish Sea has been the focus of a three and a half year study, the ECHOES project, the research component of which was completed during 2022/23. Funded by the Ireland Wales INTERREG Programme of the European Regional Development Fund, this 2.6 million euro project brought together researchers from Aberystwyth University and University College Cork, BTO, Compass Informatics, and Geo Smart Decisions.

As reported in the 2020/21 Annual Report, BTO staff have been carrying out tracking studies of wintering Curlews and Greenland White-fronted Geese in Ireland and Wales. These two species are of key conservation interest on both sides of the Irish Sea. By using the information gained from the tracking studies, alongside that on the distribution of favoured habitats and climatic data, the project team has been able to assess the vulnerability of the existing habitats to different climate change scenarios. In addition to increasing the evidence-base for the protection of these coastal areas, and the strategies required to manage them effectively for future generations, the project has encouraged environmental citizenship and promoted cross-border collaboration amongst stakeholders – a clear example of BTO work benefiting both birds and people.

GREENLAND WHITE-FRONTED GEESE, BY DAVID TIPLING / BIRDPHOTO.CO.UK

GETTING BACK TOGETHER

The Welsh Ringers and Nest Recorders Conference was held in Mid Wales during February 2023, attracting 70 participants. It was clear that those attending the conference were delighted to see a resumption in face-to-face events, coming together to share their knowledge and expertise through the series of talks and much conversation. A post-conference 'round robin', outlining the ongoing activities of the different ringing and nest recording groups, was a particularly welcome output from the conference, enabling attendees to identify opportunities for developing their skills or towards which to direct their volunteering efforts. The joint BTO/Welsh Ornithological Society Conference, attracting nearly 100 delegates, was also very successful, with a significant number of individuals attending the event for the first time.

CURLEW EGGS, BY DAVID SCOTT / BTO

NEW WAYS TO HELP CURLEWS

Recent studies have highlighted that the declines seen in our breeding Curlew populations are likely to have been driven by low levels of breeding success and the subsequent recruitment of young birds into the breeding population. Understanding the factors affecting success at each stage of breeding is crucial and can inform appropriate management and protection. In a novel piece of work, BTO Cymru staff Katharine Bowgen and Rachel Taylor, used GPS tracking data to identify Curlew breeding behaviour from their movement patterns (Bowgen *et al.* 2022). While tracking studies have been used to distinguish and assess the length of nesting attempts in Black-tailed Godwit, they have not previously been used to identify breeding status once the young have left the nest.

Tags were fitted to 26 Curlews, caught at the start of the breeding season, and these provided locational data every 15 minutes throughout the day. These data were downloaded to nearby base stations whenever the birds were in range, delivering analysable data for 23 individuals and representing some 83,000 fixes. The tracking data indicated a high failure rate in the Curlew nesting attempts, with only a small proportion of individuals successfully raising young. The study also revealed a high proportion (26%) of non-breeders in the population.

The work involved the use of a 'training dataset' from an individual of known breeding status, and demonstrates that it is possible to identify both the locations of nesting attempts and the status of breeding of Curlews tagged with remote downloading GPS tags.

This proof of concept opens up the opportunity to increase the value of tracking data for waders, collected during the breeding period. It provides information on breeding parameters without the need for additional fieldwork effort directed towards finding wader nests or following up on the chicks in the days after hatching. Importantly, it adds another option to our toolkit for addressing breeding wader decline.

OYSTERCATCHER, BY DAVID TIPLING / BTO

SCOTLAND

BTO Scotland staff understand the specific needs of their country, providing an important point of contact for our regional volunteer network and our many members, funders and partners. Their deep Scottish knowledge is fed back to BTO's headquarters to ensure that UK-wide schemes are relevant to Scotland, its birds and people.

WHEN TO BURN?

The rotational burning of vegetation is a common form of land management in the UK's uplands, and one that is restricted to the colder half of the year. However, the permitted periods during which burning may be carried out vary between countries. In England and Scotland this period runs from the 1 October to 15 April, but in the latter jurisdiction permission can be granted to extend the burning season to 30 April. In Wales, the period runs from 1 October to 31 March.

Work led by BTO Scotland's Mark Wilson has provided vital evidence on the timing of breeding information for upland birds in England, Scotland and Wales, additionally assessing whether rotational burning poses a threat to populations of these species. Using data from the Nest Record Scheme and Ringing Scheme for 14 'moorland' species, the research team was able to calculate average first egg dates and to explore how these had changed over time. From these data they could determine whether there was any overlap between buring and nesting periods. In addition, the team used Bird Atlas data to look at the potential proportion of a species' breeding population nesting in areas with rotational burning, and BirdTrack data to look at the timing of burning in relation to the arrival of summer migrants, such as Ring Ouzel and Wheatear.

The results showed that, for most species, overlap between the burning season and the egg-laying period is small. Even for early-breeding species, the risk is low; early-breedng Golden Plover and Lapwing, for example, typically breed in short vegetation unlikely to be targeted for burning, while Golden Eagle and Peregrine breed on crags, most of which are unlikely to be included in rotational burns. However, populations of species that often nest in deep heather, such as Ring Ouzel and Merlin, are concentrated in areas where moorland burning takes place, especially in England. For such species, the study identified that while the proportion of breeding attempts impacted by burning is likely to be less than 1% where burning is restricted to the standard, it could rise to 5% for Merlin and 7% for Ring Ouzel if burning was extended to the end of April.

The study, which has been published as a BTO Research Report, provides an evidence base that will inform decisions around potential changes to the timing of burning seasons across the different countries. The work also demonstrates the value of being able to draw on different long-term datasets to bring together key information on different aspects of upland bird populations.

A TALE OF TWO WARBLERS

The impacts of climate change on UK breeding bird populations were highlighted by a piece of work led by Blaise Martay of BTO Scotland and using data from the BTO/JNCC/RSPB Breeding Bird Survey (BBS) for two familiar species, Willow Warbler and Chiffchaff (Martay *et al.* 2022). These two closely-related species show different trends in their populations: Willow Warbler populations are declining in the south of the UK and increasing in the north, while Chiffchaff populations are increasing across all of the UK. The populations of these two species are influenced by both climate and habitat but the relative impact of these on abundance is unknown, something that this new study addresses.

Using data from over 4,000 BBS sites monitored between 1994 and 2017, the team was able to model Willow Warbler and Chiffchaff population size and growth in relation to habitat, climate and weather. For both species, population size and growth correlated with habitat, climate and weather on the breeding grounds. Population measures correlated more strongly with climate than with weather, and both species were found to have an optimum breeding season temperature: 11°C for Willow Warbler and 13.5°C for Chiffchaff.

The study suggests that temperature increases on the breeding grounds could be behind some of the observed Willow Warbler declines in England (where the mean breeding season temperature was 12.7°C) and increases in Scotland (mean breeding season temperature was 10.2°C), but other factors could also be important (such as habitat and climate change on the wintering grounds and during migration). The findings do, however, provide evidence that the effects of climate change on a species may vary spatially and may switch from being beneficial to being detrimental if a temperature threshold is exceeded.

GREAT NORTHERN DIVER, BY PAUL HILLION / BTO

INFORMING MARINE USE

The volume of marine traffic is increasing globally, but there has been little research investigating the impact of shipping movements on seabirds, particularly during the winter months when many species gather together in near-shore environments. Work by BTO Scotland staff, published in the journal *Bird Study*, examined the behaviour of 11 seabird species in response to winter ferry passage around Orkney, increasing the evidence base available to inform impact assessments, planning and policy in the marine environment (Jarrett *et al.* 2022).

The study found that the likelihood of a response was greater for all the species when the ferry passed birds at closer distances, but responses varied between species and with sea conditions. In addition to providing comparative information for species' sensitivity to marine traffic, the study also demonstrated the importance of considering different behavioural responses in sensitivity assessments. The findings of this study will be used by regulatory bodies to inform the licencing process in the marine environment in Orkney and other similar marine areas.

GOLDEN PLOVER CHICKS, BY DAVID SCOTT / BTO

NORTHERN IRELAND

BTO Northern Ireland plays an active role, working with partners and our members and volunteers, to deliver much-needed information on Northern Ireland's birds. Our team works closely with BTO staff in other offices, sharing expertise and feeding into our wider strategic work.

NORTHERN IRELAND'S LOST WADERS

While breeding wader populations in the lowland wet grasslands of Britain have received much research and conservation interest, the same cannot be said for populations in Northern Ireland. Northern Ireland was formerly rich in wet grassland habitats, and these held sizable populations of breeding waders, such as Lapwing, Redshank and Curlew. Documenting how the breeding wader assemblages using these habitats have changed, and understanding why, will provide vital knowledge that can be used to direct and support conservation action.

Working in partnership with the Northern Ireland Environment Agency, staff from BTO Northern Ireland led on a project to resurvey 90 of the 198 lowland grassland sites originally surveyed for breeding waders in the 1980s. In addition to collecting data on breeding wader abundance, the team also collected information on habitat features and management. The results of the study, published this year in *Irish Birds* (Booth Jones *et al.* 2022) paint a stark picture of loss. Between 1986–87 and 2018–19 the total number of breeding wader pairs recorded declined by 73% to just 354 pairs.

Declines were most marked in the Blackwater Catchment of Counties Armagh and Tyrone, where 65% of surveyed sites no longer supported breeding waders. Breeding waders were less likely to be found in fields that contained improved grassland or silage. Importantly, this resurvey of a sample of former sites underlines the need for a more comprehensive assessment of Northern Ireland's breeding waders, including work to better understand the importance of habitat change and management in driving wader fortunes. The study is already delivering for breeding waders, with the information collected being used by the Northern Ireland Environment Agency to help target agri-environment scheme options aimed at preserving breeding wader habitats across Northern Ireland.

COMMUNITY-BASED ENGAGEMENT

Ripple NI is BTO's pilot community-based nature engagement project in Northern Ireland. The project aims to reach out to new people to engage them with their local wildlife and introduce new, more diverse audiences to biological recording of birds and other taxa. The project seeks to promote the well-being and community benefits of observing, appreciating and monitoring the ecosystems on our doorsteps. The work is led by Sorrel Lyall, BTO's Ripple Project (Communities) Officer. Sorrel has previously volunteered on the BTO's Youth Advisory Panel and is an active campaigner within the environmental sector, challenging organisations to move towards greater diversity and inclusivity.

The project's aims are delivered through events, managed in partnership with community groups and other organisations. These include both in-person events to explore wildlife at local sites and online events to provide entry-level training in identification and biological recording. The project will be developing a Local Leader scheme by recruiting and supporting local volunteers who will lead events in their areas, thus sharing enthusiasm and knowledge in a 'rippling' effect through local communities.

BREEDING CURLEW, BY DAVID TIPLING / BTO

INFORMING DEVELOPMENT PLANS

Northern Ireland's five sea loughs hold Special Protection Area (SPA) and Ramsar Convention designations for their importance to wetland biodiversity, including for their wintering waterbird populations. The loughs are also important sites in terms of human use. Recreational activities, such as boating, wildfowling and dog-walking have the potential to cause disturbance to wintering birds, while other activities, such as shellfish or seaweed harvesting and gravel extraction, may also modify the lough environments. One of the most commercially important and potentially impactful uses of the sea loughs is aquaculture.

BTO staff, led by Katherine Booth Jones, have improved our understanding of how waterbirds use some of these sea loughs across the year and in relation to other activities. Using data from the Wetland Bird Survey (WeBS), the BTO team has been able to establish the abundance trends for 35 waterbird species and identify those WeBS sectors (within the studied sites) where large numbers of species are declining or increasing contrary to or more rapidly than on the site as a whole.

As well as identifying those WeBS sectors that support important proportions of the species on a site, the team has also been able to identify the potential drivers of change and highlight areas of overlap betweem the birds and aquaculture. The work, published in a series of BTO Research Reports, informs the consenting and assessment of operations and development plans on these SPAs.

NORTHERN IRELAND WILD WEEKEND, BY SORREL LYALL / BTO

NEW OPPORTUNITIES

Two new events were launched during the year, aimed at increasing opportunities for young people within Northern Ireland and with the hope of building our volunteer base. One of these was the first-ever Northern Ireland Bird Camp, held in County Down and providing nine young people with a mix of bird and wildlife experiences. The other was the 'Wild Weekend', held at Oxford Island National Nature Reserve, where more than 60 participants had the opportunity to enjoy bird ringing and nest recording demonstrations, guided birding walks, and indoor talks on Black Guillemots and gulls.

BEING FIT FOR THE FUTURE

We continue to face complex challenges, resulting from climate change, and pressures on our environment to meet growing demands on the planet's resources. Ensuring that society can respond effectively depends on organisations like BTO playing a strong role and making our voice heard.

LOOKING TO THE FUTURE

As flagged by the BTO Trustees, the principal risks and uncertainties that could affect BTO's ability to deliver its objectives in the short term are public expenditure reductions leading to reduced contract, grant and partnership funding, and in the medium to long term, inflation and the final salary pension scheme deficit. These are able to be mitigated through the continued growth strategy and careful cash management.

BTO's new strategy, taking the organisation through to 2030, provides a significant opportunity to deliver for birds and for people. BTO will strengthen its role in the conservation sector, providing robust scientific evidence to support solution-orientated action. A fundamental part of this will be inspiring a greater number and diversity of people to engage actively with BTO, so they can experience the benefits of biodiversity and power of science first-hand.

TAKING RESPONSIBILITY

In our previous annual report, we underlined a commitment to develop and implement a stronger environmental sustainability strategy. As well as the work that we are doing as an organisation around the ways in which we work, and source and use resources, we have also been exploring some of the wider environmental impacts of our biodiversity monitoring activities – which are themselves key to assessing environmental change.

In an important peer-reviewed paper, published during the year, BTO staff Simon Gillings and Sarah Harris, set out to quantify the carbon footprint of a typical monitoring scheme (Gillings & Harris, 2022). Focusing on the travel associated with participation in the BTO/JNCC/RSPB Breeding Bird Survey (BBS), the pair used information on survey coverage to calculate road distances from volunteers' home addresses to their survey squares, collecting additional information on travel methods through an online questionnaire.

In 2019, the year used for the study, 2,765 volunteers made 7,520 visits to 3,914 survey squares, travelling over 286,000 km in the process. Travel required to visit individual squares was highly skewed and differed geographically. With 88% of the survey squares accessed by private car, the estimated total emissions produced during the 2019 survey equate to at least 46.8 tonnes of carbon emissions.

For the individuals participating in BBS, survey-related travel emissions may seem insignificant, on average amounting to less than 1% of their annual travel. In contrast, for BTO, the aggregated travel for all BBS squares is substantial, being 33% greater than all business-related surface travel undertaken by its staff in the financial year 2019/20. We hope that this study will not only shape how we think about survey design – BBS uses a stratified random sampling design – but will also prompt other organisations involved in biodiversity monitoring to examine the carbon emissions associated with their own activities.

GULLS, BY DAVID TIPLING / BIRDPHOTO.CO.UK

FUTURE PROJECTS

A key evidence gap in addressing the challenge of highly pathogenic avian influenza (HPAI) is the lack of information on wintering gull populations, for which updated population estimates and distributional information are urgently needed. The information currently available comes from a survey carried out over the winters of 2003/04 to 2005/06.

As BTO Director of Science James Pearce-Higgins commented in his evidence to a Parliamentary Select Committee, such information is vital to our understanding of how HPAI circulates between wild birds and the poultry industry. Additionally, given that wintering gull flocks are a common sight on pig fields, we also need to understand the potential role they could play, should the disease be identified in pigs.

Despite the challenge of finding the funds to carry out a national wintering gull survey, it is clearly an urgent priority and BTO has committed resources to running a Winter Gull Survey (WinGS) over the next two winters (2023/24 and 2024/25) with the primary aim of providing new population estimates for the principal species that winter in the UK.

MONITORING A STONECHAT NEST, BY MIKE TOMS / BTO

THANK YOU FOR YOUR SUPPORT

Each year we need to raise thousands of pounds to fund our work so that we can deliver the charitable outcomes that are so important to our supporters. We are fortunate to receive wonderful support from members, funders, trusts, corporate partners and many others, all of which help to make our work possible.

DONORS RESPOND TO HPAI

From late spring 2022, increasing numbers of reports of Highly Pathogenic Avian Influenza (HPAI) were received from seabird colonies around the northern UK. Thanks to funds received from our long standing partner, the Esmée Fairbairn Foundation BTO was able to respond immediately.

BTO worked with the Joint Nature Conservation Committee, Country Nature Conservation Bodies, DEFRA, APHA, Scottish Government, RSPB, and other NGOs and administrations to understand the impacts on bird populations and how to tackle the HPAI challenge.

In the Autumn of 2022, BTO launched our Avian Influenza Appeal, which raised over £98,000 net from a range of individuals and trusts to fund research to understand which species are most at risk of HPAI and assess how many of our breeding seabirds returned to their colonies. This work will enable us to estimate the length of time that it will take these vulnerable seabird populations to recover, and to prioritise data collection efforts so that we can track subsequent changes in population size.

James Pearce-Higgins, Director of Science said; *"I have worked in bird conservation for almost three decades and I have never experienced a more serious and urgent threat to our wild bird populations."*

HELPING US TO REACH NEW AUDIENCES

Our youth-led programme for engaging with more young people was able to develop apace, thanks to the Green Recovery Challenge Fund grant. This was DEFRA funding via the Natural Heritage Lottery Fund, which provided £110,200 over 19 months, for Youth leadership putting diversity at the heart of nature's future.

With the vision of creating a diverse, vibrant community, our young volunteers welcomed over 2,000 young people, drawn from a range of backgrounds, through resources and activities developed and delivered in a wide spread of locations, online and in-person, from cities to the coast.

The Cameron Bespolka Trust (CBT) were the first funders to back our youth work and we are extremely grateful for their ongoing support. They helped us to provide free Bird Camps in England, Wales, Scotland and Northern Ireland for the very first time, alongside funding from the D'Oyly Carte Charitable Trust, the British Birds Charitable Trust and the Hugh Fraser Foundation. CBT has also generously supported our young leader's course, and allowed us to host events at their fabulous new facility in the New Forest, Cameron's Cottage.

One of the founding members of BTO's Youth Advisory Panel, who was supported and trained through our youth programme, successfully applied for a new engagement post to connect more communities across Northern Ireland with the nature to be experienced locally. This was a fund offered by the Department for Communities, NI and administered by the Heritage Fund. We were awarded £83,543 to create a new, entry-level post to pilot community-based engagement approaches with younger generations and people in less advantaged urban areas. The three-year Ripple NI project, which began in August 2022, has made links with local groups and so far delivered a range of events for 693 participants of all ages. It seeks to reach communities which haven't traditionally engaged with our work and to boost COVID recovery by developing community connectedness and mutually supportive relationships that will increase concern for, and care of, the local natural environment.

Another project addressing the themes of widening our audience and collaboration came from our work focused in urban areas. We were invited to make an application to the Linder Foundation, through a Trustee who had come to know us through our *Into the Red* publication, that brought together 70 authors and 70 artists to raise funds to help reverse the declines of our most at-risk birds.

The Foundation awarded £13,443 to a people-bird study, to complete the analysis of field research carried out over two years in Luton, Bedford and Milton Keynes, working with universities under the National Environment Research Council (NERC) Biodiversity and Ecosystem Service Sustainability (BESS) programme. Data were collected on: 1) how bird numbers and species vary with the structure of developed and green areas, and 2) on the ways in which people in the urban study areas would perceive and experience the birds that are present. The two papers currently in development will provide recommendations for changes in urban design and management to support bird species that will make the most difference to human well-being.

MICHAEL'S LOVE FOR BIRDS LIVES ON

BTO received just over £1 million pounds from Gifts in Wills in 2022/23. We never cease to be amazed by this incredible support, in addition to the valuable time, expertise and financial support we already receive from BTO members and volunteers. As always, we would like to express our appreciation to those supporters whose life-long love of birds and nature led them to include a bequest to BTO in their Wills.

SPOTTED FLYCATCHER, BY DAVID TIPLING / BIRDPHOTO.CO.UK

Michael Holdsworth, a dedicated BTO supporter and long-term ringer, who passed away unexpectedly in 2021, generously left us a gift in his Will. His name was and still is synonymous with Spotted Flycatchers and his love of ringing this declining migrant bird led us to work with him on a four-year tracking project.

Michael wanted to understand the population size of the species in his home area of Cambridge, so he set about working with local people who he knew had nests in their gardens and ringed the chicks. Due to the sad decline of Spotted Flycatchers, BTO scientists wanted to learn more about their migratory routes by fitting small geolactors to adult birds. Chris Hewson reached out to Michael, whom he met previously at Wicken Fen whilst monitoring Cuckoos, as a precursor to the BTO Cuckoo tagging project.

Michael was incredibly dedicated to helping with the project; he wrote articles in parish magazines, for social media and for Cambridge Bird Club to request information on local Spotted Flycatcher sites. He diligently put together a large spreadsheet detailing the sites and, as well as participating in the fieldwork, he spent the evenings emailing people ready for the next day and planning the itinerary of the coming week's adventures. Lee Barber from the BTO Avian Demographic Scheme Team, would collect Michael and the two would travel together to the sites to ring and fit geolocators to the adult birds and ring the chicks in the nest. This became trickier as the project progressed, with the adult birds becoming wise to the perch traps and ringing nets!

The project continued for four years, with geolocators being retrieved, where possible, in the second and fourth years. The geolocators revealed new information about the migration journeys of these tiny birds, some of which we now know travel thousands of kilometres to Angola in Africa.

We are indebted to Michael for all of the time, energy and expertise he devoted to this project and ultimately for his generosity, through the gift in his Will.

MAKING SPACE FOR BIRDS

Urban areas present a huge opportunity for bird conservation. As many as 20% of all bird species, representing nearly three-quarters of all bird families, occur in cities worldwide. BTO was the first to document the impact of widespread increases in the use of garden feeders and to recognise the importance of feeding in influencing large-scale patterns of garden use by birds throughout Britain.

In the Spring of 2022, BTO launched our Urban Appeal to change the narrative around biodiversity in villages, towns and cities, to which BTO Supporters generously donated £40,000.

Head of Terrestrial Ecology, Gavin Siriwardena said; "*We cannot just focus on the threats that urbanisation presents; we must use our data and evidence to shape planning policy and practice, the ways in which urban green spaces are managed and how gardeners try to help wildlife. Then, we will help to ensure that our urban landscapes are as wildlife-friendly as they can be.*"

THANK YOU WESTLAND HORTICULTURE

We are grateful to Westland Horticulture Ltd for their support between 2019 and 2023. In that time, Westland Horticulture Ltd donated £200,000 and supported our aim to sign up new members and raise awareness of BTO across the UK. We would also like to thank Marshalls Garden (part of the Westland Group) for supporting our Remembrance Seeds initiative by providing free wildflower seeds throughout the year.

If you would like to know more about any of the projects or how you might support our work, please contact: fundraising@bto.org

OUR SUPPORTERS

We are very grateful for the generous support that we have received, both in time and money, in the past year. In addition to members and other fieldworkers, there are many other individuals and companies who support the work of the BTO with financial contributions. The Trust is particularly pleased to acknowledge the following corporate and other supporters.

CORPORATE SUPPORTERS 2022/23

Anglian Water PLC, Birdguides, Birdkind, Brinvale Bird Foods, CJ Wildbird Foods, Eddowes Aviation Safety Ltd, Gardman Ltd., Grant Arms Hotel, HR Wallingford Ltd, Microsoft employees giving programme, Natureguides, Northumbrian Water, Nurture Landscapes, Opticron, Outdoor Alternative, Roys of Wroxham, S. E. Marshall & Co. Ltd, Swallowtail Print, Swarovski UK Limited, Westland Horticulture Ltd, Wildland Ltd.

CHARITABLE TRUSTS 2022/23

The Aberbrothock Skea Charitable Trust, The Cameron Bespolka Trust, Cecil Pilkington Charitable Trust, The Downton Banister Trust, Edinburgh Trust, The Emily Weircroft Charitable Trust, Esmée Fairbairn Foundation, Evelyn Rose Fund, The Gilander Foundation, Harris Charitable Trust, The Linder Foundation, the Lizandy Charitable Trust, The Marsh Charitable Trust, The National Lottery Heritage Fund, John Swire 1989 Charitable Trust, The John & Pamela Salter Charitable Trust, Saxham Trust, The Shindler Trust, The Peter Smith Charitable Trust for Nature, Stewardship (UKET) Ltd, Tasso Leventis Conservation Foundation, The Tobit Trust, Udimore Charitable Trust, The Whaites Charitable Fund and Woodpeckers Trust.

LEGACIES 2022/23

Ann Adams, John Averns, Pamela Blackshaw, Helen Boynton, Audrey Butler, Peter Catchpole, Ann Cotton, Greg Cromar, Terence Bryan Curzon, Robin Cutts, Moira Duncan,Brian Fagg, Cynthia Floyd, Ian Frazier, Stella Goldberg, John Gould, Brian Hinds, John Hobson, Carole Hodgson, Michael Holdsworth, William Houston, Keith Hyatt, Sheila Ladell, Brian Little, Michael Malone, Lindsay Mather, John McLaren, Dorothy Percival, Malcolm Dow Porteous, Pamela Rhodes, Doreen Scivyer, Muriel Shaw, Deane Shelford, Rex Smith, Peggy Thorne, Anthony Thornton, Edward Tomblinson, Kenneth Trouth, Michael Welch, Patricia Winter.

IN MEMORIAM 2022/23

Peter Arbery, Mike Boddy, Fran Bowman, Ann Boyle, Robert Finlay Brown, Patricia Davies, Peter Deane, Amelie Dighton, Alison Hall, Kenneth Hall, Richard Heath, John Humphreys, Sheila Mary Manton, Douglas Paul Marshman, Shirley Maunder, Cyril Matthews, Peter William Mayes, Roger Norman, Roger Noyes, Ian Oliver, Charlie Owen, Brenda Palmer, Pamela Salter, Ernie Scarfe, Geoffrey Shaw, Hilary Roberta South, Judith Wakelam, Geoffrey White, Wendy Jean Wiseman.

FUNDERS OF BTO WORK 2022/23

Mark Constantine, Simon Cooke, Mark Eddowes, Jenny Kingsland, Helen Lumley, Anne Masters, John Neighbour, Ken & Linda Smith, Nicholas Watts. ABP Research & Consultancy, Agri-Food and Biosciences Institute (AFBI), APEM Ltd., Bat Conservation Trust, Bayer, Bookend Trust, BBSRC, Bureau Waardenburg bv, Butterfly Conservation, Cairngorm National Park, Cambridge Conservation Initiative, Carbon Trust, Centre for Ecology & Hydrology, Chilterns Conservation Board, Crown Estate, DAERA, Department of the Environment, Food and Rural Affairs, Department for Business, The Department for Communities Northern Ireland, Energy and Industrial Strategy, Devon Wildlife Trust, DONG Energy, Duchy of Cornwall, EURING, European Commission, European Food Safety Authority, Forest Sciences Centre of Catalonia, Forestry England, Forestry & Land Scotland, Frankfurt Zoological Society, Galloper Wind Farm Ltd., Game & Wildlife Conservation Trust, Hartley Anderson Ltd., Heather Trust, Hepple Estate, Heritage Lottery Fund, Hi-Def Aerial Surveying Ltd., Horizon Europe, Institute of Avian Research, Interreg, Joint Nature Conservation Committee (on behalf of the statutory nature conservation agencies: Natural England, Natural Resources Wales, NatureScot and the Department of the Environment Northern Ireland), KPMG LLP, Moors for the Future, Muséum National d'Histoire Naturelle, National Grid Hinkley, National Trust, Natural England, Natural Resources Wales, Natural Environment Research Council, NIRAS Consulting Ltd., North York Moors National Park Authority, Northern Ireland Environment Agency, ORSTED, Rifcon, Royal Society for the Protection of Birds, Scottish Government, NatureScot, Scottish Raptor Study Group, Scottish Ornithologists' Club, Sound Approach, SOVON, Star of the Sea Windfarm, States of Guernsey, Suffolk Wildlife Trust, Swedish University of Agricultural Sciences, Ulster Wildlife Trust, University of Cambridge, University of West England, University of East Anglia, University of Edinburgh, University of Exeter, University of Stirling, University College Dublin, Vattenfall, WEG, Welsh Government, Wildfowl & Wetlands Trust, WOOD Group UK Ltd; Infrastructure Solutions UK Ltd., Woodland Trust, Yorkshire Dales National Park Authority, Zoological Society of London.

CLOCKWISE FROM TOP LEFT: RINGING TRAINEE, DAWN BALMER; BTO YOUTH, NICK CARO; MARSH TRUST AWARDS, NICK CARO; SPURN MIGRATION FESTIVAL, DAWN BALMER, NORTHERN IRELAND WILD WEEKEND, STEVEN FYFFE

BTO

Welcome to the
WILD WEEKEND!

Peer-review is an important process, establishing the validity of research through review by other expert researchers in the field. It also provides valuable feedback, enabling researchers to improve their papers before publication. BTO reports annually across a number of indicators relating to its scientific work; three of these relate to scientific publications, reflecting the quality of the publications being produced, their impact, and the degree to which the work has been delivered through collaboration.

During 2022, our staff produced 73 peer-reviewed papers, of which 70 were in ISI-listed journals and 37 were published in high impact publications (with an impact factor of 3.5 or greater). Twenty-seven of the publications were BTO-led, and 60 were collaborative in nature, underlining the strong partnership approach to our work.

Acacio, M., **Atkinson, P.W.**, Silva, J.P. & Franco, A.M.A. 2022. Performance of GPS/GPRS tracking devices improves with increased fix interval and is not affected by animal deployment. *PLoS ONE* **17** e0265541.

Acacio, M., Catry, I., Soriano-Redondo, A., Silva, J.P., **Atkinson, P.W.** & Franco, A.M.A. 2022. Timing is critical: consequences of asynchronous migration for the performance and destination of a long-distance migrant. *Movement Ecology* **10**.

Adams, T.A., Ivande, S.T. & **Wilson, M**. 2022. Aspects of the non-breeding ecology of the Tree Pipit *Anthus trivialis* in and around Amurum Forest Reserve, Jos Plateau, Nigeria. *Ostrich* **93**: 187–191.

Alba, R., Kasoar, T., Chamberlain, D., Buchanan, G., Thompson, D. & **Pearce-Higgins, J.W.** 2022. Drivers of change in mountain and upland bird populations in Europe. *Ibis* **164**: 635–648.

Barnes, A.E., **Davies, J.G.**, **Martay, B.**, **Harris, S.J.**, **Noble, D.G.**, **Pearce-Higgins, J.W.** & **Robinson, R.A.** 2022. Rare and declining bird species benefit most from designating protected areas for conservation in the UK *Nature Ecology & Evolution* **7**: 92–101.

Bellamy, P.E., Charman, E.C., Riddle, N., Kirby, W.B., Broome, A.C., **Siriwardena, G.M.**, Grice, P.V., Peach, W.J. & Gregory, R.D. 2022. Impact of woodland agri-environment management on woodland structure and target bird species. *Journal of Environmental Management* **316**: e115221.

Booth Jones, K.A., **O'Connell, P.**, Wolsey, S., **Carrington-Cotton, A.**, **Noble, D.G.**, McCulloch, N. & **Calladine, J.R.** 2022. Loss of breeding waders from key lowland grassland sites in Northern Ireland. *Irish Birds* **44**: 11–22.

Border, J.A., **Gillings, S.**, Reynolds, T., Neeve, G. & **Newson, S.E.** 2022. Can citizen science provide a solution for bat friendly planning? *Landscape and Urban Planning* **223**: e104402.

Bowgen, K.M., Dodd, S.G., Lindley, P., **Burton, N.H.K.** & **Taylor, R.C**. 2022. Curves for Curlew: identifying Curlew breeding status from GPS tracking data. *Ecology and Evolution*. **12**: e9509.

Bowgen, K.M., **Kettel, E.F.**, Butchart, S.H.M., Carr, J.A., Foden, W.B., Magin, G., Morecroft, M.D., Smith, R.K., Stein, B.A., Sutherland, W.J., **Thaxter, C.B.** & **Pearce-Higgins, J.W.** 2022. Conservation interventions can benefit species impacted by climate change. *Biological Conservation* **269**: e109524.

Bowgen, K.M., Wright, L.J., **Calbrade, N.A.**, Coker, D., Dodd, S.G., Hainsworth, I., Howells, R.J., Hughes, D.S., Jenks, P., Murphy, M.D., Sanderson, W.G., **Taylor, R.C.** & **Burton, N.H.K.** 2022. Resilient protected area network enables species adaptation that mitigates the impact of a crash in food supply. *Marine Ecology Progress Series* **681**: 211–225.

Broughton, R.K., Searle, K.R., Walker, L.A., Potter, E.D., Glória Pereira, M., Carter, H., Sleep, D., **Noble, D.G.**, Butler, A. & Johnson, A.C. 2022. Long-term trends of second generation anticoagulant rodenticides (SGARs) show widespread contamination of a bird-eating predator, the Eurasian Sparrowhawk (*Accipiter nisus*) in Britain. *Environmental Pollution* **314**: e120269.

Burgess, M., Castello, J., Davis, T. & **Hewson, C.** 2022. Loop-migration and non-breeding locations of British breeding Wood Warblers *Phylloscopus sibilatrix*. *Bird Study* **69**: 1–11.

Caliendo, V., Lewis, N.S., Pohlmann, A., **Baillie, S.R.**, *et al.* 2022. Transatlantic spread of highly pathogenic avian influenza H5N1 by wild birds from Europe to North America in 2021. *Science Reports* **12**: e11729.

Calladine, J., **Border, J.**, **O'Connell, P.** & **Wilson, M.** 2022. Modelling important areas for breeding waders as a tool to target conservation and minimise conflicts with land use change. *Journal for Nature Conservation* **70**: e126267

Carreiro, A.R., Bried, J., Deakin, Z., **Jones, K.B.**, Thomas, R.J., Symondson, W.O.C., Ramos, J.A. & Medeiros, R. 2022. First Insights into the diet composition of Madeiran and Monteiro's Storm Petrels (*Hydrobates castro* and *H. monteiroi*) breeding in the Azores. *Waterbirds* **44**: 300–307.

Conners, M.G., Sisson, N.B., Agamboue, P.D., **Atkinson, P.W.** *et al.* 2022. Mismatches in scale between highly mobile marine megafauna and marine protected areas. *Frontiers in Marine Science* **9**: e897104.

Cooper, J.E.J., **Plummer, K.E.** & **Siriwardena, G.M.** 2022. Using species-habitat models to predict bird counts from urban developmental plans. *Journal of Landscape and Urban Planning* **230**: e104629

Costagliola-Ray, M.M., Lieber, L., Nimmo-Smith, W.A.M., Masden, E.A., Caplat, P., Wilson, J. & **O'Hanlon, N.J.** 2022. To fly or not to fly? Comparing vantage point and uncrewed aerial vehicle surveys for assessments of seabird abundance and fine-scale distribution. *Environmental Impact Assessment Review* **97**: e106906.

Critchlow, R., Cunningham, C.A., Crick, H.Q.P., Macgregor, N.A., Morecroft, M.D., **Pearce-Higgins, J.W.**, Oliver, T.H., Carroll, M.J. & Beale, C.M. 2022. Multi-taxa spatial conservation planning reveals similar priorities between taxa and improved protected area representation with climate change. *Biodiversity and Conservation* **31**: 683–702.

Croll, D.A., Ellis, A.A., Adams, J., **Cook, A.S.C.P.**, *et al.* 2022. Framework for assessing and mitigating the impacts of offshore wind energy development on marine birds. *Biological Conservation* **276**: e109795.

Dombrovski, V.C., Zhurauliou, D.V. & **Ashton-Butt, A.** 2022. Long-term effects of rewilding on species composition: 22 years of raptor monitoring in the Chernobyl Exclusion Zone. *Restoration Ecology* **30**: e13633.

Dufour, P., Åkesson, S., Hellström, M., **Hewson, C.**, Lagerveld, S., Mitchell, L., Chernetsov, N., Schmaljohann, H. & Crochet, P-A. 2022. The Yellow-browed Warbler (*Phylloscopus inornatus*) as a model to understand the mechanisms of vagrancy and its potential significance for the evolution of new migratory routes. *Movement Ecology* **10**: e59.

Evans, L.C., Melero, Y., Schmucki, R., **Boersch-Supan, P.H.**, Brotons, L., Fontaine, C., Jiguet, F., Kuussaari, M., **Massimino, D.**, **Robinson, R.A.**, *et al.* 2022. Bioclimatic context of species' populations determines community stability. *Global Ecology and Biogeography* **31**: 1,542–1,555.

Ewing, H., **Franks, S.**, Smart, J., **Burton, N.** & Gill, J.A. 2022. Nest survival of threatened Eurasian Curlew (*Numenius arquata*) breeding at low densities across a human-modified landscape. *Ibis*. **176**: 753–766

Fandos, G., Talluto, M., Fielder, W., **Robinson, R.A.**, Thorup, K. & Zurell, D. 2022. Standardised empirical dispersal kernels emphasise the pervasiveness of long-distance dispersal in European birds. *Journal of Animal Ecology* **92**: 158–170.

Fijn, R.C., **Thaxter, C.B.**, Aarts, G., Adema, J., Middelveld, R.P. & van Bemmelen, R.S.A. 2022. Relative effects of static and dynamic abiotic conditions on foraging behaviour in breeding Sandwich Terns. *Marine Ecology Progress Series* **692**: 137–150.

Finch, T., Bell, J.R., **Robinson, R.A.** & Peach, W.J. 2022. Demography of Common Swifts *Apus apus* breeding in the UK associated with local weather but not aphid abundance. *Ibis* **165**: 420–435.

Fuller, R.J. 2022. Population density and stability of breeding birds in English oak woodland over a 32-year period in relation to habitat structure and edges. *Acta Ornithologica* **57**: 49–70.

Gargallo, G., **Davies, J.G.**, Faverjon, C., Kampichler, C., **Baillie, S.R.**, Cameron, A., **Robinson, R.A.** & Sierdsema H. 2022. Development of a prototype early warning system for avian influenza in the EU based on risk-mapping. *EFSA Supporting Publications Volume* **19**: e7762E.

Gauld, J.G., Silva, J.P., **Atkinson, P.W.**, Record, P., Acacio, M., Arkumarev, V., Blas, J., Bouten, W., **Burton, N.** *et al.* 2022. Hotspots in the grid: avian sensitivity and vulnerability to collision risk from energy infrastructure interactions in Europe and North Africa. *Journal of Applied Ecology* **59**: 1,496–1,512.

Gillings, S., **Balmer, D.E.**, **Harris, S.J.**, **Massimino, D.** & **Pearce-Higgins, J.W.** 2022. Impacts of COVID-19 restrictions on capacity to monitor bird populations: a case study using the UK Breeding Bird Survey. *Bird Study* **68**: 220–232.

Gillings, S. & **Harris, S.J.** 2022. Estimating the carbon footprint of citizen science biodiversity monitoring. *People and Nature* **4**: 996–1,006.

Guilherme, J.L., Jones, V.R., Catry, I., Beal, M., Dias, M.P., Oppel, S., **Vickery, J.A.**, **Hewson, C.M.**, Butchart, S.H.M. & Rodrigues, A.S.L. 2022. Connectivity between countries established by landbirds and raptors migrating along the African-Eurasian flyway. *Conservation Biology* **37**: e14002.

Hakkinen, H., Petrovan, S.O., Sutherland, W.J., Dias, M.P., Ameca, E.I., Oppel, S., Ramírez, I., Lawson, B., Lehikoinen, A., **Bowgen, K.M.**, Taylor, N.G. & Pettorelli, N. 2022. Linking climate change vulnerability research and evidence on conservation action effectiveness to

safeguard European seabird populations. *Journal of Applied Ecology* **59**: 1,178–1,186.

Hanmer, H.J., **Boersch-Supan, P.H.** & **Robinson, R.A.** 2022. Differential changes in life cycle-event phenology provide a window into regional population declines. *Biology Letters* **18**: e20220186.

Hanmer, H.J., **Boothby, C.**,**Toms, M.P.**, **Noble, D.G.** & **Balmer, D.E.** 2022. Large-scale citizen science survey of common nocturnal raptor: urbanisation and weather conditions influence the occupancy and detectability of the Tawny Owl *Strix aluco*. *Bird Study* **68**: 233–244.

Hanmer, H.J., Cunningham, A.A., John, S.K., Magregor, S.K., **Robinson, R.A.**, Seilern-Moy, K., **Siriwardena, G.M.** & Lawson, B. 2022. Habitat-use influences severe disease-mediated population declines in two of the most common garden bird species in Great Britain. *Scientific Reports* **12**: e15055.

Hanmer, H.J., **Dadam, D.** & **Siriwardena, G.M.** 2022. Evidence that rural wintering bird populations supplement suburban breeding populations. *Bird Study* **69**: 12–27.

Hood, A.S.C., Aryawan, A.A.K., Advento, A.D., Suberkah, W.R., **Ashton-Butt, A.**, Ps, S., Caliman, J.P., Naim, M., Foster, W.A. & Turner, E.C. 2022. A whole-ecosystem method for experimentally suppressing ants on a small scale. *Methods in Ecology and Evolution* **13**: 852–865.

Hordley, L.A., Powney, G.D., Brereton, T., **Gillings, S.**, Petchey, O.L., Roy, D.B., Tobias, J.A., Williams, J. & Oliver, T.H. 2022. Developing a national indicator of functional connectivity. *Ecological Indicators* **136**: e108610.

Hunt, M.L., Blackburn, G.A., **Siriwardena, G.M.**, Carrasco, L. & Rowland, C.S. 2022. Using satellite data to assess spatial drivers of bird diversity. *Remote Sensing in Ecology and Conservation* e322.

Jarrett, D., **Calladine, J. Cook, A.S.C.P.**, Upton, A., Williams, J., Williams, S., Wilson, J.M., Jared, M., **Wilson, M.W.**, **Woodward, I.** & **Humphreys, E.M.** 2022. Behavioural responses of non-breeding waterbirds to marine traffic in the near-shore environment. *Bird Study* **68**: 443–454.

Johnston, D.T., **Thaxter, C.B.**, **Boersch-Supan, P.H.**, **Humphreys, E.M.**, Bouten, W., **Clewley, G.D.**, **Scragg, E.S.**, Masden, E.A., **Barber, L.**, **Conway, G.J.**, **Clark, N.A.**, **Burton, N.H.K.** & **Cook, A.S.C.P.** 2022. Investigating avoidance and attraction responses in Lesser Black-backed Gulls *Larus fuscus* to offshore wind farms. *Marine Ecology Progress Series* **686**: 187–200.

Langley, L.P., Bearhop, S., **Burton, N.H.K.**, Banks, A.N., Frayling, T., **Thaxter, C.B.**, **Clewley, G.D.**, **Scragg, E.**, Votier, S.C. 2022. Urban and coastal breeding lesser black-backed gulls (*Larus fuscus*) segregate by foraging habitat. *Ibis* **165**: 214–230.

Lathouwers, M., Artois, T., Dendoncker, N., Beenaerts, **N.**, **Conway, G.**, **Henderson, I.**, Kowalczyk, C., Davaasuren, B., Bayrgur, S., Shewring, M., Cross, T., Ulenaers, E., Liechti, F. & Evens, R. 2022. Rush or relax: migration tactics of a nocturnal insectivore in response to ecological barriers. *Scientific Reports* **12**: e4964.

Lawson, B., **Robinson, R.A.**, Briscoe, A.G., Cunningham, A.A., *et al.* 2022. Combining host and vector data informs emergence and potential impact of an Usutu virus outbreak in UK wild birds. *Scientific Reports* **12**: e10298.

Lopez, S.L., Bond, A.L., **O'Hanlon, N.J.**, Wilson, J.M., Vitz, A., Mostello, C.S., Hamilton, F., Rail, J.F., Welch, L., Boettcher, R., Wilhelm, S.I., Anker-Nilssen, T., Daunt, F. & Masden, E. 2022. Global population and conservation status of the Great Black-backed Gull *Larus marinus*. *Bird Conservation International* **33**: e23.

Mander, L., Nicholson, I., **Green, R.M.W.**, Dodd, S., Forster, R. & **Burton, N.H.K.** 2022. Individual, sexual and temporal variation in the winter home range sizes of GPS-tagged Eurasian Curlew *Numenius arquata*. *Bird Study* **69**: 39–52.

Martay, B., **Pearce-Higgins, J.W.**, **Harris, S.J.** & **Gillings, S.** 2022. Breeding ground temperature rises, more than habitat change, are associated with spatially variable population trends in two species of migratory bird. *Ibis* **165**: 34–54.

Martino, S., Kenter, J.O. Albers, N., Whittingham, M.J., Young, D.M., **Pearce-Higgins, J.W.**, Martin-Ortega, J., Glenk, K. & Reed, M.S. 2022. Trade-offs between the natural environment and recreational infrastructure: a case study about peatlands under different management scenarios. *Land Use Policy* **123**: e106401.

McLean, N., Kruuk, L.E.B., van der Jeugd, H.P., **Leech, D.**, van Turnhout, C.A.M. & van de Pol, M. 2022. Warming temperatures drive at least half of the magnitude of long-term trait changes in birds. *PNAS* **119**: e2105416119.

Morrison, C.A., Butler, S.J., **Clark, J.A.**, Arizaga, J., Balta, O., Cepak, J., Nebot, A.L., Piha, M., Thorup, K., Wenninger, T., **Robinson, R.A.** & Gill, J.A. 2022. Demographic variation in space and time: implications for conservation targeting. *Royal Society Open Science*, **9**: e211671.

Movalli, P., Koschorreck, J., Treu, G., Slobodnik, J., Alygizakis, N., ... **Wernham, C.**, *et al.* 2022. The role of natural science collections in the biomonitoring of environmental contaminants in apex predators in support of the EU's zero pollution ambition. *Environmental Sciences Europe* **34**: e88.

Nagy, S., Breiner, F.T., Anand, M., Butchart, S.H.M., Florke, M., Fluet-Chouinard, E., Guisan, A., Hilarides, L., Jones, V.R., Kalyakin, M., Lehner, B., **Pearce-Higgins, J.W.** & Voltzit, O. 2022. Climate change exposure of waterbird species in the African-Eurasian flyways. *Bird Conservation International* **32**: 1–26.

Nater, C.R., Burgess, M.D., Coffey, P., Harris, B., Lander, F., Price, D., Reed, M. & **Robinson, R.A.** 2022. Spatial consistency in drivers of population dynamics of a declining migratory bird. *Journal of Animal Ecology* **92**: 97–111.

Norman, D., Castell, R., Harmer, A. & **Marchant, J.** 2022. Grey Herons *Ardea cinerea* nesting among Greater Reedmace *Typha latifolia*. *British Birds* **115**: 452–455.

O'Hanlon, N.J., **Thaxter, C.B.**, **Burton, N.H.K.**, Grant, D., **Clark, N.A.**, **Clewley, G.D.**, **Conway, G.J.**, **Barber, L.J.**, McGill, R.A.R. & Nager, R.G. 2022. Habitat selection and specialisation of Herring Gulls during the non-breeding season. *Frontiers in Marine Science* **9**: e816811.

O'Reilly, E., Gregory, R.D., Aunins, A., Brotons, L., Chodkiewicz, T., Escandell, V., Foppen, R.P.B., Gamero, A., Herrando, S., Jiguet, F., Kalas, J.A., Kamp, J., Klvanova, A., Lehikoinen, A., Lindstrom, A., **Massimino, D.**, Oien, I.J., Reif, J., Silarova, E., Teufelbauer, N., Trautmann, S., van Turnhout, C., Vikstrom, T., Vorisek, P. & Butler, S.J. 2022. An assessment of relative habitat use as a metric for species' habitat association and degree of specialization. *Ecological Indicators* **135**: e108521.

Pearce-Higgins, J.W., Antao, L.H., Bates, R.E., **Bowgen, K.M.**, Bradshaw, C.D., Duffield, S.J., Ffoulkes, C., Franco, A.M.A., Geschke, J., Gregory, R.D., Harley, M.J., Hodgson, J.A., Jenkins, R.L.M., Kapos, V., Maltby, K.M., Watts, O., Willis, S.G., Morecroft, M.D. 2022. A framework for climate change adaptation indicators for the natural environment. *Ecological Indicators* **136**: e108690.

Pringle, H. & **Siriwardena, G.** 2022. The potential for analyses of monitoring scheme data to inform about the impacts of invasive on native species. *Biological Invasions* **24**: 2,457–2,476.

Redhead, J.W., Hinsley, S.A., Botham, M.S., Broughton, R.K., Freeman, S.N., Bellamy, P.E., **Siriwardena, G.**, Randle, Z., Nowakowski, M., Heard, M.S. & Pywell, R.F. 2022. The effects of a decade of agri-environment intervention in a lowland farm landscape on population trends of birds and butterflies. *Journal of Applied Ecology* **59**: 2,486–2,496.

Robinson, O.J., Socolar, J.B., Stuber, E.F., Auer, T., Berryman, A.J., **Boersch-Supan, P.H.**, Brightsmith, D.J., Burbidge, A.H., Butchart, S.H.M., Davis, C.L., Dokter, A.M., Di Giacomo, A.S., Farnsworth, A., Fink, D., Hochachka, W.M., Howell, P.E., La Sorte, F.A., Lees, A.C., Marsden, S., Martin, R., Martin, R.O., Masello, J.F., Miller, E.T., Moodley, Y., **Musgrove, A.**, **Noble, D.G.**, Ojeda, V., Quillfeldt, P., Royle, J.A., Ruiz-Gutierrez, V., Tella, J.L., Yorio, P., Youngflesh, C. & Johnston, A. 2022. Extreme uncertainty and unquantifiable bias do not inform population sizes. *PNAS* **119**: e2113862119.

Sandal, L., Grotan, V., Saether, B.E., Freckleton, R.P., **Noble, D.G.** & Ovaskainen, O. 2022. Effects of density, species interactions, and environmental stochasticity on the dynamics of British bird communities. *Ecology* **103**: e3731.

Sanderson, F.J., Wilson, J.D., **Franks, S.E.** & Buchanan, G.M. 2022. Benefits of protected area networks for breeding bird populations and communities. *Animal Conservation* e12832.

Soultan, A., Pavon-Jordan, D., Bradter, U., Sandercock, B.K., ... **Balmer, D.**, **Noble, D.**, *et al.* 2022. The future distribution of wetland birds breeding in Europe validated against observed changes in distribution. *Environmental Research Letters* **17**: e024025.

Street, S.E., **Jaques, R.** & De Silva & T.N. 2022. Convergent evolution of elaborate nests as structural defences in birds. *Proceedings of the Royal Society* (B) **289**: e20221734.

Sutherland, W.J. Bennett, C., Brotherton, P.N.M., Butterworth, H.M., **Pearce-Higgins, J.W.**, *et al.* 2022. A global biological conservation horizon scan of issues for 2023. *Trends in Ecology & Evolution* **38**: 96–107.

Tew, E.R., **Conway, G.J.**, **Henderson, I.G.**, Milodowski, D.T., Swinfield, T &, Sutherland, W.J. 2022. Recommendations to enhance breeding bird diversity in managed plantation forests determined using LiDAR. *Ecological Applications* **32**: e2678.

Turner, R.K., Griffiths, R.A., Wilkinson, J.W., Julian, A., **Toms, M.P.** & Isaac, N.J.B. 2022. Diversity, fragmentation and connectivity in the UK amphibian and reptile data landscape. *Biodiversity & Conservation* **32**: 37–64.

Ward, C.V., Heydon, M., Lakin, I., Sullivan, A.J. & **Siriwardena, G.M.** 2022. Breeding bird population trends during 2013–2019 inside and outside of European badger control areas in England. *Journal of Zoology*, **318**: 166–180.

Woodward, I.D., **Austin, G.E.**, **Boersch-Supan, P.H.**, **Thaxter, C.B.** & **Burton, N.H.K.** 2022. Assessing drivers of winter abundance change in Eurasian Curlews *Numenius arquata* in England and Wales. *Bird Study* **68**: 289–301.

Zhao, Y.Y., Zhao, X.R., Wu, L., Mu, T., Yu, F., Kearsley, L., Liang, X., Fu, J.P., Hou, X.R., Peng, P., Li, X.Y., Zhang, T., Yan, S., Newell, D., **Hewson, C.M.**, Townshend, T., Akesson, S. & Liu, Y. 2022. A 30,000-km journey by *Apus apus pekinensis* tracks arid lands between northern China and south-western Africa. *Movement Ecology* **10**: e29.

FINANCIAL OVERVIEW

The principal sources of funds continued to be contract research, membership subscriptions, individual donations and legacies, but an increase in the scope of the JNCC Partnership took income from related sources over £1m for the first time. The two previous years were exceptional, and this year was more comparable to 2019/20, the last year before the COVID-19 crisis, resulting in a modest surplus for the year. There was a slight dip in membership income, but fundraised income overall stood up remarkably well considering the cost of living squeeze. Legacies, although lower than last year, remained over £1m. Voluntary income formed 43% of total group income for the year (2022 43%). We aim to raise this to over 50% in the longer term. A total of £5,608k (2022 £5,301k) was spent during the year on carrying out, supporting and communicating ornithological research.

Further increases in bond yields led to a significant reduction in the present value of the defined benefit pension obligation, taking the deficit to a much more comfortable level.

The Board has a free reserves target range of three to four months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Free reserves are total General funds less Tangible fixed assets. At 31 March 2023 these stood at £2,165k (2022: £1,849k), equivalent to 4.6 months' expenditure (2022: 3.9 months'). The Board have earmarked the surplus funds for the 2023 pension deficit recovery payment, computing upgrades and additional EDI resourcing.

TRUSTEES' STATEMENT

These are summarised accounts. To gain a full understanding of the financial affairs of the Trust please refer to the Annual Report and Accounts published on the BTO website or request a printed copy from the Director of Finance & Services, BTO, The Nunnery, Thetford, Norfolk IP24 2PU.

The Annual Report and Accounts were approved by the Board on 12 July 2023 and will be submitted to the Registrar of Companies, the Charity Commission and the Office of the Scottish Charity Regulator. The auditor's report by Helen Rumsey (FCA), Senior Statutory Auditor, Ensors Accountants LLP, was unqualified.

SUMMARISED ACCOUNTS: 2022/23

	£'000	£'000
INCOME	**2022/23**	**2021/22**
Donations and legacies	3,038	3,334
Charitable activities	3,102	3,527
Other trading activities	977	970
Investments	16	1
Coronavirus Job Retention Scheme grants	–	10
Total income & endowments	**7,133**	**7,842**
EXPENDITURE	**2022/23**	**2021/22**
Raising funds	1,317	1,167
Charitable activities	5,608	5,301
Other - defined benefit pension scheme	110	104
Total expenditure	**7,035**	**6,572**
Net income / (expenditure)	98	1,270
Net gains on investments	(15)	18
Gain on revaluation of fixed assets	-	550
Actuarial gain/(loss) on defined benefit pension scheme	2,639	986
Net movement in funds	**2,722**	**2,824**
Total funds brought forward	2,090	(734)
Total funds carried forward	**4,812**	**2,090**
REPRESENTED BY	**2022/23**	**2021/22**
Fixed assets	2,880	2,908
Net current assets	3,133	3,059
Creditors due after one year	(91)	(100)
Defined benefit pension liability	(1,110)	(3,777)
	4,812	**2,090**

MARSH HARRIER, BY DAVID TIPLING / BIRDPHOTO.CO.UK

The British Trust for Ornithology
Board of Trustees and Management
2023

Patron	HRH The Prince of Wales	
President	F R Gardner OBE TD VR FRGS	
Board of Trustees		
Chair	Prof Z G Davies	*2023-26*
Honorary Treasurer	J E Miller FCCA	*2023-26*
Chair of Finance & Risk Committee	I Coucher	*2022-25*
Chair of Governance, Safeguarding & Inclusion Committee	Dr P Fitzpatrick	*2023-26*
Chair of Regional Network Committee	S J Marquis	*2020-23*
Chair of Ringing Committee	Dr L Wright	*2022-25*
Ordinary Board Members	E Dresser	*2023-26*
	R du Feu	*2022-25*
	Dr D J Reynolds	*2016-23*
	E Thornton	*2023-26*
	J M Ziff	*2023-26*
Vice Presidents	Dr F Barclay	*2022-30*
	Prof S Bearhop	*2019-26*
	D C Jardine	*2020-27*
	Prof I P F Owens	*2016-23*

Finance & Risk Committee
Chair I Coucher; J E Miller; Dr D J Reynolds.

Governance, Safeguarding & Inclusion Committee
Chair Dr P Fitzpatrick; E Dresser.

Regional Network Committee
Chair S J Marquis; H Crabtree; Dr P Fitzpatrick; A Jarratt-Knock; S Metcalf; S Taylor; E Tigwell.

Ringing Committee
Chair Dr L Wright; L Clewley; R du Feu; P Kirmond; J Lennon; S Vickers; R Walsh; *Representatives*: H Land; A Phillips.

Senior Leadership Team
Chief Executive Officer Prof J Vickery;
Director of Science Dr J W Pearce-Higgins; *Director of Engagement* Dr D I P Evans; *Director of Finance & Services, Company Secretary* A T Scott ACIS; *Director of Information Services* G N Hatt; *Associate Director Country Offices* Dr C V Wernham; *Head of People and Organisational Development* S Knott.

Past Presidents and Chairs

Presidents		*Chairs*	
1958-60	R C Homes	1933-39	The Right Hon. Lord Scone MP, 7th Earl of Mansfield and Mansfield
1961-64	C A Norris	1940-41	The Right Hon. Malcolm MacDonald MP
1965-68	R C Homes	1942-47	Dr A Landsborough Thomson CB OBE DSc
1969-72	I J Ferguson-Lees	1948	Dr E M Nicholson CB CVO
1973-76	R A O Hickling	1949	A W Boyd MC
1977-80	J M McMeeking MBE	1950	Sir Norman Kinnear
1981-84	S M Taylor	1951-56	Major-General H P W Houston
1985-89	J A Hancock OBE	1957	R C Homes
1990-93	R P Howard	1958-87	No Chair
1994-96	Sir William Wilkinson	1988-91	G H Green
1997-2001	Sir Frederick Holliday	1992-96	I C Castle
2002-05	Lord Blakenham	1996-2000	Dr H P Sitters
2006-13	Baroness Young of Old Scone	2001-04	A J Martin
2014-18	C G Packham	2005-08	Dr S Hunter
2019-	F R Gardner OBE TD VR FRGS	2009-13	Prof I Newton FRS OBE
		2014-16	Prof A D Fox
		2016-22	Prof J A Gill
		2023-	Prof Z G Davies

The British Trust for Ornithology
Staff List
As at 31 March 2023

CHIEF EXECUTIVE OFFICER
Prof Juliet Vickery
PA: Nicki Read

SCIENCE
Director: Prof James Pearce-Higgins
PA / Senior Secretary: Nicki Read
Senior Secretary: Jane Chase
Secretary: Maria Knight

Associate Director – Research: Dr Rob Robinson
Senior Research Fellow: Dr Stephen Baillie

Terrestrial Ecology

Head & Principal Ecologist	Dr Gavin Siriwardena
Senior Research Ecologist	Dr Ian Henderson
Research Ecologist	Dr Greg Conway
Research Ecologist	Dr Kate Plummer
Research Ecologist	Dr Joseph Cooper
Research Ecologist	Dr Hugh Hanmer
Research Ecologist	Dr Charlotte Ward
Research Ecologist	Maddie Barton
Research Ecologist	*vacant*
Senior Research Officer	David Norfolk

International Research

Head & Principal Ecologist	Dr Phil Atkinson
Senior Research Ecologist	Dr Chris Hewson
Senior Research Ecologist	Dr Adham Ashton-Butt
PhD student	Jen MacIsaac
Research Scientist	Máire Kirkland

Monitoring Research

Principal Ecologist	Dr David Noble
Research Ecologist	Dr Ailidh Barnes
Research Ecologist	Dr Blaise Martay

MONITORING

Ringing & Nest Recording

Head	Dr Dave Leech
Ringing Licensing and Sales	
Licensing Officer	Mark Grantham
Licensing Manager	Nicola Bugg
Ringing Sales Officer	Anne Trewhitt
Ringing Data Management	
Ringing & Nest Recs. Process Mngr	Bridget Griffin
Ringing Officer	Louise Bacon
Ringing Officer	Kevin Leighton
Demographic Monitoring Projects	
Demographic Surveys Officer	Lee Barber
Ringing & Nest Record Database Off	Carl Barimore
Ringing & Nest Record Comms Off.	Ruth Walker
Scheme Administrator	Hazel McCambridge

Surveys

Head of Surveys	Dawn Balmer
BirdTrack Organiser	Scott Mayson
Breeding Bird Survey National Organiser	James Heywood
Seabird Monitoring Programme Organiser	Sarah Harris
Engagement and Surveys Officer	David White
Wetland Bird Survey	
WeBS Manager	Dr Teresa Frost
Waterbirds Survey Officer	Neil Calbrade
WeBS Counter Network Organiser	Gillian Birtles

RESEARCH

Population Ecology & Modelling

Senior Ecological Statistician	Dr Philipp Boersch-Supan
Spatial Ecologist	Dr Jenni Border

Wetland & Marine Research

Head & Principal Ecologist	Dr Niall Burton
Senior Research Ecologist	Dr Graham Austin
Principal Ecologist / Offshore Renewable Energy	Dr Aonghais Cook
Senior Research Ecologist	Dr Sam Franks
Research Ecologist	Dr Harry Ewing
Research Ecologist	Dr Jacob Davies
Research Ecologist	Ros Green
Research Ecologist	Dr Nina O'Hanlon
Research Ecologist/ Offshore Renewable Energy	*Vacant*
Senior Research Ecologist	Dr Chris Thaxter
Research Officer	Ian Woodward

Data Science and Bioacoustics

Head & Principal Ecologist	Dr Simon Gillings
Senior Research Ecologist	Dr Stuart Newson
Senior Data Scientist	Dr Dario Massimino
Research Ecologist	Caroline Brighton
Research Ecologist	Dr Jez Smith
Junior Data Scientist	Page Huang

BTO SCOTLAND
Associate Director Country Offices: Dr Chris Wernham

Senior Secretary	Rebecca Cranston
Senior Research Ecologist	John Calladine
Data and Admin. Officer	Katja O'Donnell
Head of Development and Engagement	Dr Ben Darvill
Development and Engagement Officer	Steve Willis
Principal Ecologist - Sea Birds	Dr Liz Humphreys**
Research Ecologist	Dr Blaise Martay*
Acting Head of Science Scotland	Dr Mark Wilson
Senior Research Ecologist	Dr Gary Clewley**
Research Ecologist	Dr Daniel Johnston
Research Ecologist	Björn Beckmann
Research Ecologist	Anthony Wetherhill
Research Ecologist	Dr Jacob Davies**
Research Ecologist	Dr Nina O'Hanlon**
Research Ecologist/ Offshore Renewable Energy	*Vacant*
Scottish Raptor Monitoring Coordinator	Dr Amy Challis
Wader Project Officer	Paul Noyes

*PEM Team / ** Wetland & Marine Team

BTO CYMRU

Senior Ecologist	Dr Rachel Taylor
Research Ecologist	Dr Katharine Bowgen*
Research Ecologist	Dr Callum Macgregor
Research Ecologist	Hannah Hereward

* Wetland & Marine Team

BTO NORTHERN IRELAND

Scientific Officer	Dr Katherine Booth Jones
Ripple Project Officer	Sorrel Lyall
Research Ecologist	Hala Haddad
Engagement Coordinator	Jemma Davies

INFORMATION SYSTEMS
Director IS: Graham Hatt

Senior Secretary	Jane Chase
Senior Database Officer	Dr Andrew Joys
Database Developer	Steve Pritchard
Database Developer	Justin Walker
Database Developer	Charlotte Clark
Database Developer	Steven Harrop
Website Manager	Lee Carnihan
Senior Website Developer	Tom Sage
Website Developer	Daniel Higgins
Senior Software Developer	Mark Hammond
Senior Software Developer	Matthew Baxter
Software Developer	Oliver Barrett
Junior Software Developer	Ewan Stacey
Software Developer	Hayden Woods
Senior Systems Manager	Ben Brooke
Computing Support Officer	Dom Render
Business Analyst	*vacant*

PORZANA

Business Director	David Agombar
Business Manager	Shane Muggridge
Production Assistant	Harvey Cornell
Production Assistant	Trupti Cornell
Production Assistant	Philippa Elson
Production Assistant	Elaine Ennis
Production Assistant	Lucy Willsher

ENGAGEMENT
Director of Engagement: Dr Ieuan Evans

Fundraising

Head of Income Generation	Michael Naidu
Trust & Foundation Fundraising Mngr	Bonita Johnston
Legacy Manager	Sam Rider
Fundraising Administrator	Melissa Caals
Supporter Relations Manager	David Agombar
Individual Giving Manager	*Vacant*

Supporter team

Head of Income Generation	Michael Naidu
Snr. Supporter Administrator	Sam Graham
Supporter Development Officer	Caroline Foot
Supporter Administrator	Samantha Culverhouse
Supporter Administrator	Amanda Gee

Communications

Head of Communications	Mike Toms
Media Manager	Tom Stewart
Science Communications Manager	Dr Viola Ross-Smith
Social Media Officer	Jenna Woodford
Website Editor	Miriam Lord
BTO Archivist	Lesley Hindley
GBW Manager	Dr Michelle Reeve
GBW Supporter Development Officer	Robert Jaques

Training

Training Manager	Nick Moran
Training Officer	Kate Fox
Training Officer	Jenny Donelan

Youth Engagement

Youth Engagement Manager	Faye Vogely
Youth Engagement Officer	Rachael Griffiths
Youth Engagement Coordinator	Chris Marais

FINANCE & SERVICES
Director: Andrew Scott

Accounts & Facilities

Financial Accountant / Facilities Manager	Mary Gray
Management Accountant	Samantha Allen
	Irene Bowles
Finance Assistant	*Vacant*
General Sales Officer / Admin. & Finance Assistant	Sonya Calder
Admin. Assistant	Diane Bragg
Facilities Officer	Pat Sparkes
Receptionist	Ronnie Hatt

Human Resources

Head of People and Organisational Development	Sian Knott
People and Projects Officer	Holly Stevenitt
People, Health and Safety Officer	Cheryl Wilson

Research Support

Resource Support Manager	Virginia Cates
Research Support Administrator	Sandra Sparkes
Research Support Officer	Penny Mitchell
Research Support Officer	Heidi Mellan
Research Support Officer	Dean McFarlane

Nunnery Lakes Site Manager	Ian Henderson

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report)
For the Year Ended 31 March 2023

For the purposes of Section 162 of the Charities Act 2011 and the Directors' Report for the purposes of Section 415 of the Companies Act 2006.

Objectives and Activities

Charitable Objects

The objects of the Trust, as set out in its Memorandum of Association are, for the benefit of the nation:

(i) To promote, organise, carry on and encourage study and research and particularly field work for the advancement of knowledge in all branches of the Science of Ornithology.

(ii) Permanently to preserve and protect lands and objects which by their natural features are suitable for the preservation and study of bird life and of fauna and flora generally.

Public Benefit

The trustees have complied with the duty in Section 17 of the Charities Act 2011 to have due regard to public benefit guidance published by the Charity Commission. The following paragraphs set out in detail the aims, activities and performance of the Trust, and the way in which they provide public benefit.

Objectives and Activities

The BTO's purpose and public benefit is to deliver objective information and advice, through undertaking impartial research and analysis about birds, other wildlife and habitats, to advance the understanding of nature. We inform policies and evidence-based decisions that impact on the environment such that future generations can benefit from a healthy and wildlife-rich environment. The BTO does this by:

- Sustaining long-term extensive programmes and smaller scale intensive research to study the population trends, movements, breeding, survival, ecology and behaviour of wild birds;
- Encouraging, enthusing, training and supporting volunteers to take part in scientific studies;
- Bringing together professional scientists and volunteer birdwatchers in surveys of wildlife (particularly, but not exclusively, birds); and
- Analysing the data gathered through these studies, making information available to Government and other bodies, and publishing the results in the primary scientific literature and via the internet, the birdwatching and conservation press and the media more generally.

Strategic Report

The Strategic Report (Achievements and Performance, Plans for Future Periods) is contained in Part A of this document.

Principal Risks and Uncertainties

The trustees consider that the principal risks and uncertainties which could affect BTO's ability to deliver its objectives in the short term are public expenditure reductions leading to reduced contract, grant and partnership funding, and in the medium to long term, inflation and the final salary pension scheme deficit. These are able to be mitigated through the continued growth strategy and careful cash management.

Financial Review

The Directors' Report, the consolidated financial statements and the accompanying notes thereto comprise Part B of this document.

The principal sources of funds continued to be contract research, membership subscriptions, individual donations and legacies, but an increase in the scope of the JNCC Partnership took income from related sources over £1m for the first time. The two previous years were exceptional, and this year was more comparable to 2019-20, the last year before the Covid crisis, resulting in a modest surplus for the year. There was a slight dip in membership income, but fundraised income overall stood up remarkably well, considering the cost of living squeeze. Legacies, although lower than last year, remained over £1m. Voluntary income formed 43% of total group income for the year (2022 43%). We aim to raise this to over 50% in the longer term. A total of £5,608k (2022 £5,301k) was spent during the year on carrying out, supporting and communicating ornithological research.

Further increases in bond yields led to a significant reduction in the present value of the defined benefit pension obligation, taking the deficit to a much more comfortable level.

Reserves

The Board has a free reserves target range of 3 to 4 months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Free reserves are total General funds less Tangible fixed assets. At 31 March 2023 these stood at £2,165k (2022: £1,849k), equivalent to 4.6 months' expenditure (2022: 3.9 months'). The Board have earmarked the surplus funds for the 2023 pension deficit recovery payment, computing upgrades and additional EDI resourcing.

Structure, Governance and Management

Company number:	00357284 (England and Wales)
Charity number:	216652 (England and Wales) SC039193 (Scotland)
Registered Office:	The Nunnery, Thetford, Norfolk IP24 2PU
Principal Advisers:	
Auditors	Ensors Accountants LLP, Connexions, 159 Princes Street, Ipswich IP1 1QJ
Principal Bankers	National Westminster Bank plc, 7 Cornhill, Bury St Edmunds, Suffolk IP33 1BQ
	The Royal Bank of Scotland plc, 2 Blenheim Place, Edinburgh EH7 5JH
Solicitors	Browne Jacobson LLP, Castle Meadow Road, Nottingham NG2 1BJ
Pensions Advisers	The Progeny Group Ltd, 1 The Triangle, ng2 Business Park, Nottingham NG2 1AE
Investment Advisers	The Progeny Group Ltd, 1 The Triangle, ng2 Business Park, Nottingham NG2 1AE
Insurance Brokers	Uttings Insurance Brokers, 16 The Fairland, Hingham, Norwich, Norfolk NR9 4HN

Governing Document

The British Trust for Ornithology (known generally as the BTO) is a company limited by guarantee governed by its Memorandum and Articles of Association. It is registered as a charity with the Charity Commission and the Office of the Scottish Charity Regulator. Membership is open to any person whose application is approved by the Board upon payment of the requisite subscription. Members undertake to contribute up to £1 each in the event of an insolvent winding up, which represents the limit of their guarantee.

Trustees

The members of the Board are the directors of the charitable company under company law and the trustees for the purpose of charity law. Those serving during the year were as follows:

Prof Z G Davies (appointed 1 January 2023)
I Coucher
E Dresser (appointed 1 January 2023)
R du Feu
Dr P Fitzpatrick (appointed 1 January 2023)
Prof J A Gill (retired 31 December 2022)
F M Hurst (retired 31 December 2022)
S J Marquis
J E Miller (appointed 1 January 2023)
I Packer (retired 31 December 2022)
Dr D M Parker (retired 31 December 2022)
Dr D J Reynolds
N A Sherwin (retired 31 December 2022)
J Spencer (retired 31 December 2022)
E Thornton (appointed 1 January 2023)
Dr L Wright
J M Ziff (appointed 1 January 2023)

Trustees are nominated by the Board, on the recommendation of the Governance and Nominations Committee, following open advertisement, or by members and elected by the members at the Annual General Meeting each year, to serve from the following 1 January. The normal term of office is four years, with a limit of two consecutive terms. New trustees receive a comprehensive information pack and undergo induction to brief them on the BTO and their role as company directors and trustees.

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2023

Organisation and Key Management Remuneration

The Board of Trustees is the governing body of the BTO. It meets at least four times a year. The Board is supported by the Finance & Risk Committee, Governance, Safeguarding & Inclusion Committee, Regional Network Committee and Ringing Committee. The day-to-day operational management of the BTO is delegated to the Senior Leadership Team, led by the Chief Executive Officer (CEO).

The salary of the CEO is determined on the basis of comparability to relevant benchmarks. The remuneration of all other staff is set according to a bespoke job evaluation scheme, benchmarked as appropriate. All salaries are subject to annual cost of living review. There is no bonus scheme.

Related Parties

The BTO's wholly owned subsidiary, BTO Services Ltd, was established to undertake commercial activities to support the work of the BTO, and gifts its profits to the Trust. On 30 August 2017 BTO Services Ltd acquired the ring manufacturer Porzana Ltd. The net assets and activities of Porzana Ltd were subsequently hived up to BTO Services Ltd and it then became dormant. On 15 November 2019 BTO Services Ltd incorporated BTO Consulting Ltd which company is dormant. 'Porzana' and 'BTO Consulting' are trading names of BTO Services Ltd.

The BTO co-operates with many other charities, with government agencies and other bodies in pursuit of its objectives, as illustrated in Parts A and B of this document .

Volunteers

The Trust depends on the contributions of many thousands of volunteers who participate in BTO surveys and other activities. We are greatly indebted to them, and especially to the Regional Representatives and other regional volunteers who organise so much BTO activity at a local level. BTO volunteers contributed the equivalent of approximately 265,053 days of work in calendar year 2022 (2021: 274,250 days).

Risk Management

A risk register is maintained which identifies the significant risks faced by the BTO and the measures in place to manage and mitigate those risks. These are monitored by the Senior Leadership Team and regularly reviewed and amended as appropriate by the Finance & Risk Committee and the Board.

Fundraising Standards

BTO is registered with the Fundraising Regulator and follows the Fundraising Regulator's Code of Fundraising Practice. All fundraising from individual giving is undertaken by BTO staff, and during the year we used the services of a specialist consultancy to help us research and approach charitable trusts and foundations. We have not received any complaints regarding our fundraising practices. We take all reasonable steps to treat supporters fairly and transparently, especially if we believe they may be in a vulnerable position.

Investments

The Memorandum of Association permits the Trust to invest monies not immediately required for its purposes as the trustees see fit. The trustees' investment policy is to maximise long term total return by investing in a combination of 40% high quality short-dated bonds and 60% globally diversified equities. The equities part of the portfolio is invested in a sustainable fund (see Note 10). Investment performance against benchmark was as follows:

	Portfolio	**Benchmark**
Year ended 31 March 2023	-1.43%	-2.47%
Since inception (28 August 2014)	+65.69%	+63.77%

Statement of Board Members' Responsibilities

The Board members are responsible, as Directors of the Company, for preparing the Annual Report (including the Strategic Report) and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Board members to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company and the group at the year end and of the incoming resources and application of resources, including the income and expenditure, of the charitable company and the group for the year.
In preparing these financial statements, Board members are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in SORP (FRS 102);
- make judgements and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charitable company and the group will continue in operation.

Board members are responsible for keeping adequate accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and the group and enable them to ensure that the financial statements comply with the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and the Charities Accounts (Scotland) Regulations 2006 (as amended). They are also responsible for safeguarding the assets of the charitable company and the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Board members are responsible for the maintenance and integrity of the corporate and financial information included on the Trust's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

In so far as Board members are aware:

- there is no relevant audit information of which the Trust's auditors are unaware; and
- Board members have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditors are aware of that information.

Auditors

A resolution to re-appoint Ensors Accountants LLP as auditors will be proposed at the Annual General Meeting under section 485 of the Companies Act 2006.

The Trustees' Report (incorporating the Strategic Report) was approved by the Board as Directors and Trustees and authorised for issue on 12 July 2023.

Prof Z G Davies
Chair

J E Miller FCCA
Honorary Treasurer

Opinion
We have audited the group financial statements of The British Trust for Ornithology (the 'parent charitable company') and its subsidiaries (the 'group') for the year ended 31 March 2023 which comprise the Consolidated Statement of Financial Activities, the Charity Statement of Financial Activities, the Consolidated Group and Charity Balance Sheets, the Consolidated Group and Charity Statement of Cash Flows, and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice) including FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the group's and the parent charitable company's affairs as at 31 March 2023
- and of the group's and the parent charitable company's incoming resources and application of resources, including its income and expenditure for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and regulations 6 and 8 of the Charities Accounts (Scotland) Regulations 2006 (as amended).

Basis for opinion
We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We are independent of the group and parent charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern
In auditing the group financial statements, we have concluded that the trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the group or parent charitable company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

Other information
The other information comprises the information included in the annual report other than the group financial statements and our auditors' report thereon. The trustees are responsible for the other information. Our opinion on the group financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. In connection with our audit of the group financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinion on other matters prescribed by the Companies Act 2006
In our opinion, based on the work undertaken in the course of the audit:

- prepared for the purposes of company law, for the financial year for which the group financial statements are prepared is consistent with the group financial statements; and
- the Strategic Report and the Directors' Report included within the Trustees' Annual Report has been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception
In the light of our knowledge and understanding of the group and the parent charitable company and their environment obtained in the course of the audit, we have not identified material misstatements in the Strategic Report or the Directors' Report included within the Trustees' Annual Report.

We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 and the Charities Accounts (Scotland) Regulations 2006 (as amended) require us to report to you if, in our opinion:

- adequate and proper accounting records have not been kept by the parent charitable company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent charitable company's financial statements are not in agreement with the accounting records or returns; or
- certain disclosure of trustees' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit; or
- the trustees were not entitled to prepare the financial statements in accordance with the small companies regime and take advantage of the small companies' exemptions in preparing the trustees' report and from the requirement to prepare a strategic report.

Responsibilities of Board Members
As explained more fully in the Statement of Board Members' Responsibilities set out on page B9, the trustees (who are also the directors of the British Trust for Ornithology for the purposes of company law) are responsible for the preparation of the group financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of group financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the group financial statements, the trustees are responsible for assessing the group's and parent charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the group or the parent charitable company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements
We have been appointed as auditor under section 44(1)(c) of the Charities and Trustee Investment (Scotland) Act 2005 and under the Companies Act 2006 and report in accordance with the Acts and relevant regulations made or having effect thereunder.

Our objectives are to obtain reasonable assurance about whether the group financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Our audit was designed, after obtaining sufficient and appropriate knowledge and understanding of the group and parent charitable company, its charitable nature, its income streams and the industry operated within. We undertook an assessment of the control environment and the systems and procedures put in place by the senior management team, combined with our detailed audit testing and supportive analytical work, to obtain reasonable assurance about whether the group financial statements as a whole are free from material misstatement due to fraud. Our work has included considering areas of higher risk of fraud, including transactions with related parties, revenue recognition and areas where there is a risk of management override of systems and controls.

To address the risk of fraud we performed the following audit procedures:

- Assessment of key accounting estimates within the group financial statements in order to assess their reasonableness and determine whether there is any bias in management's estimates.
- All team members were informed of the relevant laws and regulations and potential fraud risks at the planning stage and reminded to remain alert to any indications of fraud or non-compliance.

- Enquiring of management whether there have been any alleged, suspected or actual instances of fraud during the year.
- Enquiring of management and those charged with governance whether there have been any actual or potential litigation or claims.
- Reviewing correspondence with relevant legal authorities.
- Reviewing legal expense accounts for any indicators of litigation or claims.

A further description of our responsibilities for the audit of the group financial statements is located on the Financial Reporting Council's website at www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of our report

This report is made solely to the parent charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and to the charitable company's trustees, as a body, in accordance with regulation 10 of the Charities Accounts (Scotland) Regulations 2006 (as amended). Our audit work has been undertaken so that we might state to the parent charitable company's members and trustees those matters we are required to state to them in an auditors' report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the parent charitable company, the parent charitable company's members as a body and its trustees as a body, for our audit work, for this report, or for the opinions we have formed.

Helen Rumsey, Senior Statutory Auditor
For and on behalf of
Ensors Accountants LLP
Connexions
159 Princes Street
Ipswich
IP1 1QJ

The British Trust for Ornithology
Consolidated Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2023

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2023 £'000	Total 2022 £'000
Income and endowments from:					
Donations and legacies	3	2,662	376	**3,038**	**3,334**
Charitable activities	3	3,096	6	**3,102**	**3,527**
Other trading activities	3	977	-	**977**	**970**
Investments	3	17	-	**17**	**1**
Coronavirus Job Retention Scheme grants		-	-	**-**	**10**
Total income and endowments		**6,752**	**382**	**7,134**	**7,842**
Expenditure on:					
Raising funds	4	1,300	17	**1,317**	**1,167**
Charitable activities	4	4,967	641	**5,608**	**5,301**
Other – Amounts recognised as expenditure on defined benefit pension scheme	22	110	-	**110**	**104**
Total expenditure	7	**6,377**	**658**	**7,035**	**6,572**
Net income/(expenditure) before net gain/(loss) on investments		375	(276)	**99**	**1,270**
Net gain/(loss) on investments	10	(16)	-	**(16)**	**18**
Net income/ (expenditure)		**359**	**(276)**	**83**	**1,288**
Transfers between funds	16,17	(88)	88	**-**	**-**
Other recognised gains/(losses): Gain on revaluation of fixed assets	9	-	-	**-**	**550**
Actuarial gain/(loss) on defined benefit pension scheme	22	2,639	**-**	**2,639**	**986**
Net movement in funds		**2,910**	**(188)**	**2,722**	**2,824**
Reconciliation of funds					
Total funds brought forward	16,17	1,125	965	**2,090**	**(734)**
Total funds carried forward	16,17	**4,035**	**777**	**4,812**	**2,090**

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages B17 to B36 form part of these financial statements.

The British Trust for Ornithology
Charity Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2023

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2023 £'000	Total 2022 £'000
Income and endowments from:					
Donations and legacies	3	2,904	376	**3,280**	**3,660**
Charitable activities	3	3,096	6	**3,102**	**3,527**
Other trading activities	3	535	-	**535**	**461**
Investments	3	17	-	**17**	**1**
Coronavirus Job Retention Scheme grants		-		**-**	**10**
Total income and endowments		**6,555**	**382**	**6,934**	**7,659**
Expenditure on:					
Raising funds	4	1,100	17	**1,117**	**984**
Charitable activities	4	4,967	641	**5,608**	**5,301**
Other – Amounts recognised as expenditure on defined benefit pension scheme	22	110	-	**110**	**104**
Total expenditure		**6,177**	**658**	**6,835**	**6,389**
Net income/(expenditure) before net gain/(loss) on investments		375	(276)	**99**	**1,270**
Net gain/(loss) on investments	10	(16)	-	**(16)**	**18**
Net income/ (expenditure)		**359**	**(276)**	**83**	**1,288**
Transfers between funds	16,17	(88)	88	**-**	**-**
Other recognised gains/(losses):					
Gains on revaluation of fixed assets	9	-	**-**	**-**	**550**
Actuarial gain/(loss) on defined benefit pension scheme	22	2,639	-	**2,639**	**986**
Net movement in funds		**2,910**	**(188)**	**2,722**	**2,824**
Reconciliation of funds					
Total funds brought forward	16,17	1,125	965	**2,090**	**(734)**
Total funds carried forward	16,17	**4,035**	**777**	**4,812**	**2,090**

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages B17 to B36 form part of these financial statements.

The British Trust for Ornithology
Consolidated Group and Charity Balance Sheets
as at 31 March 2023

	Note	Group 2023 £'000	Group 2022 £'000	Charity 2023 £'000	Charity 2022 £'000
Fixed assets					
Tangible assets	9	2,433	2,445	2,433	2,445
Investments	10	447	463	447	463
		2,880	2,908	2,880	2,908
Current assets					
Stocks	11	294	293	-	-
Debtors	12	1,680	1,346	1,926	1,582
Cash at bank and in hand		3,538	3,799	3,453	3,671
		5,512	5,438	5,379	5,253
Creditors:					
Amounts falling due within one year	13	(2,379)	(2,379)	(2,246)	(2,194)
Net current assets		3,133	3,059	3,133	3,059
Total assets less current liabilities		6,013	5,967	6,013	5,967
Creditors:					
Amounts falling due after one year	14	(91)	(100)	(91)	(100)
Net assets excluding defined benefit pension liability		5,922	5,867	5,922	5,867
Defined benefit pension liability	22	(1,110)	(3,777)	(1,110)	(3,777)
Net assets/(liabilities) including defined benefit pension liability	18	4,812	2,090	4,812	2,090
Represented by:					
Restricted funds	16	777	965	777	965
Unrestricted funds excluding Pension reserve	17	5,145	4,902	5,145	4,902
Pension reserve	17	(1,110)	(3,777)	(1,110)	(3,777)
Total funds	18	4,812	2,090	4,812	2,090

Approved by the Board and authorised for issue on 12 July 2023 and signed on its behalf by:

Chair — Prof Z G Davies

Honorary Treasurer — J E Miller FCCA

Company registration number 00357284

The notes on pages B17 to B36 form part of these financial statements.

The British Trust for Ornithology
Consolidated Group and Charity Statement of Cash Flows
For the Year Ended 31 March 2023

	Note	Group 2023 £'000	Group 2022 £'000	Charity 2023 £'000	Charity 2022 £'000
Net cash inflow / (outflow) from operating activities	20	(274)	1,506	(231)	1,506
Cash flow from investing activities					
Payments to acquire tangible fixed assets	9	(11)	(26)	(11)	(26)
Proceeds from the sale of tangible fixed assets		7	-	7	-
Investment income received		17	1	17	1
Net cash flow from investing activities		13	(25)	13	(25)
Net increase/(decrease) in cash for the year		(261)	1,481	(218)	1,481
Cash at bank and in hand at 1 April		3,799	2,318	3,671	2,190
Cash at bank and in hand at 31 March		3,538	3,799	3,453	3,671

Analysis of Cash at Bank and in Hand This comprises:	2023 £'000	2022 £'000	2023 £'000	2022 £'000
Bank current accounts and cash in hand	227	164	142	36
Bank deposits	3,311	3,635	3,311	3,635
Cash at bank and in hand at 31 March	3,538	3,799	3,453	3,671

Bank deposits carry variable rates of interest.

The notes on pages B17 to B36 form part of these financial statements.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements
For the Year Ended 31 March 2023

1. ACCOUNTING POLICIES

a) Accounting Convention

The charity constitutes a public benefit entity as defined by FRS 102. The financial statements have been prepared in accordance with *Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102)* (SORP (FRS102)) effective 1 January 2019, the Charities Act 2011, the Companies Act 2006 and UK Generally Accepted Practice as it applies from 1 January 2015.

The financial statements are prepared in pounds sterling (rounded to the nearest thousand) which is the functional currency of the charitable company and the group.

The charity operates on a weekly basis and the Financial Statements have been made up to 26 March 2023, being the last Sunday in March.

b) Going Concern

The trustees have prepared the financial statements on a going concern basis under the historical cost convention, modified to include certain items at fair value. In their opinion the pension scheme deficit does not give rise to material uncertainties that could cast doubt upon the appropriateness of this policy.

c) Group Financial Statements

These financial statements consolidate the results of the charity and its wholly owned trading subsidiary BTO Services Limited on a line by line basis.

d) Income

Income from donations, gifts and legacies is recognised immediately when received in cash and as receivable where there is entitlement, the amount can be measured reliably, and it is probable that the income will be received.

Income from charitable activities includes income receivable under contracts which is recognised as earned as the related work is performed. Income from grant funding supporting charitable activities is recognised where there is entitlement, probability of receipt, and the amount can be measured with sufficient reliability.

Income is deferred when it is received in advance of the services it relates to. Life membership income is released to the Statement of Financial Activities in equal instalments over ten years.

Income from commercial activities of the trading subsidiary is recognised as earned as the related goods and services are provided.

Investment income, sponsorship and royalty income and membership subscription income are recognised on a receivable basis.

Income from Coronavirus Job Retention Scheme grants is recognised on a receivable basis.

e) Expenditure

Expenditure is recognised when a liability is incurred. Costs are allocated directly to activity cost categories. The cost of holiday pay not taken at the year end is accrued.

Costs of raising funds are those incurred in attracting voluntary income, including membership subscriptions, in carrying out trading activities, and in receiving royalties and sponsorship income.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

Costs of charitable activities include those incurred on scientific research contracts, and on allocated and restricted fund research work. They also include volunteer surveyor support and science communication costs.

Governance costs include those incurred in the governance of the charity and the safeguarding of its assets, and are primarily associated with constitutional and statutory requirements.

Support costs include central functions and have been allocated to activity cost categories on a staff cost basis.

VAT is reclaimed on allowable expenses under the Business/Non-Business and the partial exemption rules. Where not reclaimable it is included within expenses.

f) Tangible Fixed Assets

Individual assets costing £1k or more are initially capitalised at cost. Tangible fixed assets (except freehold property and land) are depreciated on a straight line basis over their estimated useful lives as follows:

Asset Category	Annual Rate
Furniture and Equipment	25%
Computer Equipment	25%
Motor Vehicles	25%

The freehold property is stated at fair value under the revaluation model using sufficiently regular revaluations to ensure that the carrying amount does not differ materially from the fair value at the reporting date. Revaluations are performed every five years, or as the trustees consider necessary, by qualified external valuers. The increase or decrease on revaluation is credited or charged to the fund holding the asset. The property is not depreciated as it is considered to have an indefinite remaining useful life.

At each reporting end date, the trustees review the carrying amounts of the tangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any).

g) Investments

Investments are recognised initially at fair value which is normally the transaction price excluding transaction costs. Subsequently, they are measured at fair value with changes recognised in 'Net gain/(loss) on investments' in the Statement of Financial Activities if the shares are publicly traded or their fair value can otherwise be measured reliably. Other investments are measured at cost less impairment.

h) Stock

Stock is valued at the lower of cost and net realisable value. Net realisable value is based on estimated selling price less further costs to completion and sale. Cost is calculated on a first in first out basis.

i) Debtors and creditors falling due within one year

Debtors and creditors with no stated interest rate and falling due within one year are recorded at transaction price. Any losses arising from impairment are recognised in expenditure.

j) Financial instruments

The group only has financial assets and liabilities that qualify as basic financial instruments, such as debtors and creditors with no stated interest rate and payable within one year, which are recorded at transaction price. Any losses arising from impairment are recognised as expenditure in the Statement of Financial Activities.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

k) Foreign Currency Translation

Monetary assets and liabilities denominated in foreign currencies are translated into pounds sterling at the rates of exchange ruling at the balance sheet dates. Transactions in foreign currencies are recorded at the rate ruling at the transaction date. All exchange differences are taken to the Statement of Financial Activities.

l) Funds Structure

The Trust has a number of restricted funds to account for situations where funds have been raised for a specific purpose. All other funds are unrestricted funds. Where the trustees intend to use part of the unrestricted funds to provide longer-term funding for BTO projects and core activities, designated funds are set up to reflect this. A Pension reserve fund has been created so that movements and balances relating to the defined benefit pension scheme valuations can be separately identified. The funds in each of these categories are disclosed in Notes 16 and 17.

m) Retirement Benefits

The defined benefit pension scheme provides benefits for staff based on final pensionable salary. The scheme was closed to future accrual with effect from 1 April 2013. The assets of the scheme are held separately from those of the Trust, being invested with independent fund managers and are measured at fair value with changes recognised in the Statement of Financial Activities as set out in Note 22. Defined benefit pension liabilities are measured using the projected unit cost method and discounted at the current rate of return on a high quality corporate bond of equivalent term and currency to the liability. Under FRS 102, any net liability arising based on these valuations is the best estimate of the present value of the actual amounts to be paid out of the scheme, less the fair value of the scheme assets. The net of the interests on the scheme assets and liabilities is charged to the Statement of Financial Activities. Past service costs are recognised as expenditure when a liability is incurred and are charged to the Statement of Financial Activities. Actuarial gains and losses are recognised in the Statement of Financial Activities.

The Trust as employer also makes payments in respect of employees' own defined contribution schemes, through a group self-invested personal pension arrangement. For these schemes, the amount charged to the Statement of Financial Activities in respect of pension costs is the contributions payable in the year. Differences between contributions payable in the year and contributions actually paid are included as either accruals or prepayments in the balance sheet.

n) Judgements and key sources of estimation uncertainty

In the application of the group and parent charitable company's accounting policies, the trustees are required to make judgements, estimates and assumptions about the carrying amount of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the year in which the estimate is revised where the revision affects only that year, or in the year of the revision and future years where the revision affects both the current and future years.

Key sources of estimation uncertainty
The estimates and assumptions which have a significant risk of causing a material adjustment to the carrying amount of assets and liabilities are as follows:

Percentage completion on contracts
The degree of completion on the contracts is an estimate by the relevant project manager. This estimate relies on their professional opinion on the level of work completed in the whole contract, which impacts the level of income recognised, accrued and deferred. These estimates are reviewed by the Senior Leadership Team on a regular basis.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

Defined benefit pension scheme
The group has a defined benefit pension scheme which is closed to future accrual. The valuation of the defined benefit pension obligation necessarily involves a calculation which depends on the expected future outflow of economic benefits that the group expects to make to satisfy this obligation. The calculation depends on a number of factors such as the methodology, discount rate and mortality assumptions used. The group use a qualified independent actuary to assist in preparing the necessary calculation in accordance with the requirements of FRS102.

Property valuation
The Nunnery is valued at fair value by the directors with reference to recent property transactions and their knowledge of the site. The directors obtain third party valuations at regular intervals to ensure that the fair value of the property is kept up to date.

o) Leases
Rentals payable under operating leases, including any lease incentives received, are charged to profit or loss on a straight line basis over the term of the relevant lease except where another more systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

p) Employee benefits
The costs of short-term employee benefits are recognised as a liability and an expense unless those costs are required to be recognised as part of the cost of stock or fixed assets. The cost of any unused holiday entitlement is recognised in the year in which the employee's services are received. Termination benefits are recognised immediately as an expense when the charity is demonstrably committed to terminate the employment of an employee or to provide termination benefits.

q) Cash at bank and in hand
Cash at bank and in hand are basic financial assets and includes cash in hand, deposits with banks, other short-term liquid investments with original maturities of three months or less, and bank overdrafts.

r) Legacies
Legacy receipts are recognized when there has been grant of probate, the executors have established that there are sufficient assets in the estate, after settling any liabilities, to pay the legacy, any conditions attached to the legacy are either within the control of the Trust or have been met, and the amount receivable is determined.

2. MEMBERS' LIABILITY

Under the Memorandum of Association of the Trust, members are required to undertake to contribute to the assets of the Trust in the event of its being wound up while they are members, and within one year after they cease to be members, for payment of the debts and liabilities of the Trust contracted whilst they were still members, and of the costs, charges and expenses of winding up, such amount as may be required but not exceeding £1 each. This represents the limit of their guarantee to the company.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

3. ANALYSIS OF INCOME

	Group 2023 £'000	Group 2022 £'000	Charity 2023 £'000	Charity 2022 £'000
Donations and legacies				
Membership subscriptions & donations	1,020	1,094	1,020	1,094
Individual donations	504	584	504	584
Corporate & trust donations & grants	362	192	604	518
Legacies	1,152	1,464	1,152	1,464
	3,038	3,334	3,280	3,660
Charitable activities				
Core surveys - JNCC Partnership	1,158	837	1,158	837
Core surveys - Other	39	42	39	42
Other surveys & research - Voluntary funded	3	29	3	29
Other surveys & research - Contract funded	1,674	2,404	1,674	2,404
Research communication	87	76	87	76
General volunteer survey support	116	118	116	118
Nunnery Lakes Reserve	25	21	25	21
	3,102	3,527	3,102	3,527
Other trading activities				
Ringing & tagging sales	448	506	-	-
Publications & general sales	71	37	-	-
Corporate sponsorship & royalties	53	53	-	-
Consultancy	202	247	-	-
Data-related sales	167	125	-	-
Other	36	2	10	1
Income from charges to subsidiary	-	-	525	460
	977	970	535	461
Investment income				
Bank interest receivable	17	1	17	1

Analysis by fund type	Group 2023 £'000	Group 2022 £'000	Charity 2023 £'000	Charity 2022 £'000
Donations and legacies				
Unrestricted	2,662	2,873	2,904	3,199
Restricted	376	461	376	461
	3,038	3,334	3,280	3,660
Charitable activities				
Unrestricted	3,096	3,501	3,096	3,501
Restricted	6	26	6	26
	3,102	3,527	3,102	3,527
Other trading activities				
Unrestricted	977	970	535	461
Restricted	-	-	-	-
	977	970	535	461

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

4. ANALYSIS OF EXPENDITURE

	Group 2023 £'000	Group 2022 £'000	Charity 2023 £'000	Charity 2022 £'000
Raising funds				
Donations and legacies				
Membership subscriptions & donations	265	222	265	222
Individual donations	195	226	195	226
Corporate & trust donations & grants	37	33	37	33
Legacies	76	66	76	66
	573	547	573	547
Other trading activities				
Ringing & tagging costs	443	377	-	-
Publications & general costs	63	33	-	-
Corporate sponsorship & royalties	-	(4)	-	-
Consultancy	159	161	-	-
Data-related costs	79	53	-	-
Other	-	-	-	-
Costs recharged to subsidiary	-	-	544	437
	744	620	544	437
	1,317	1,167	1,117	984
Charitable activities				
Core surveys - JNCC Partnership	1,679	1,295	1,679	1,295
Core surveys - Other	328	297	328	297
Other surveys & research - Voluntary funded	844	757	844	757
Other surveys & research - Contract funded	1,897	2,302	1,897	2,302
Research communication	650	532	650	532
General volunteer survey support	167	103	167	103
Nunnery Lakes Reserve	43	15	43	15
	5,608	5,301	5,608	5,301

Analysis by fund type	Group 2023 £'000	Group 2022 £'000	Charity 2023 £'000	Charity 2022 £'000
Raising funds				
Unrestricted	1,300	1,159	1,100	976
Restricted	17	8	17	8
	1,317	1,167	1,117	984
Charitable activities				
Unrestricted	4,967	4,718	4,967	4,718
Restricted	641	583	641	583
	5,608	5,301	5,608	5,301

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

5. NET INCOME / (EXPENDITURE)

	2023	2022
	£'000	£'000
Net income for the year is stated after (crediting)/charging:		
Auditors' remuneration:		
Audit of the charity's annual accounts	19	12
Audit of the trading subsidiary's annual accounts	10	4
Audit of the charity's defined benefit pension scheme	3	2
Depreciation (Note 9)	23	29
(Profit)/loss on disposals of fixed assets	(7)	-

6. STAFF COSTS

	Group and Charity 2023	Group and Charity 2022
	£'000	£'000
Wages and salaries	4,101	3,782
Social security costs	373	326
Defined contribution pension plan costs (Note 22)	422	389
Expenditure recognised on defined benefit pension scheme (Note 22)	110	104
	5,006	4,601

The number of employees whose emoluments exceeded £60,000 fell within the following bands:	2023	2022
£70,001 - £80,000	1	1
£60,001 - £70,000	3	1

The emoluments of the CEO for the year were £78k (2022 £75k), with the same pension and other benefits as were applicable to all other staff. The total remuneration including social security costs and pension contributions of the Senior Leadership Team was £508k (2022: £481k). Trustees receive no remuneration. Trustees made donations totalling less than £1k during the year (2022 £5k). There were no other related party transactions requiring disclosure. Other expenses were reimbursed to trustees as follows:

	2023	2022
	£'000	£'000
Travel and subsistence	3	-

Average numbers of staff and full time equivalents (FTE)

	2023		2022	
	No	FTE	No	FTE
Permanent posts	141	126.5	134	121.3
Seasonal fieldworkers	10	2.3	15	3.2
	151	128.8	149	124.5

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

7. TOTAL EXPENDITURE

	Direct costs	Support costs	2023 Total	2022 Total
	£'000	£'000	£'000	£'000
Raising funds	1,170	147	1,317	1,167
Charitable activities	4,983	625	5,608	5,301
Other – Amounts recognised as expenditure on defined benefit pension scheme	110	-	110	104
	6,263	772	7,035	6,572

8. SUPPORT COSTS

	Premises	IT & Office Services	People & OrgDev	Manage-ment & Finance	Govern-ance	2023 Total	2022 Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Raising funds	2	7	55	69	14	147	125
Charitable activities	10	30	233	292	60	625	566
	12	37	288	361	74	772	691

All support costs are apportioned on a staff cost basis.
Governance costs include auditors' remuneration, the meeting expenses of the Board and its committees, and the staff cost of servicing those meetings.

9. TANGIBLE FIXED ASSETS - GROUP

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2022	2,400	204	431	105	3,140
Additions	-	-	11	-	11
Disposals	-	-	-	(13)	(13)
At 31 March 2023	2,400	204	442	92	3,138
Depreciation at 1 April 2022	-	204	394	97	695
Depreciation charge	-	-	19	4	23
Disposals	-	-	-	(13)	(13)
At 31 March 2023	-	204	413	88	705
Net book value at 31 March 2023	2,400	-	29	4	2,433
Net book value at 1 April 2022	2,400	-	37	8	2,445

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

9. TANGIBLE FIXED ASSETS - CHARITY

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2022	2,400	200	431	105	3,136
Additions	-	-	11	-	11
Disposals	-	-	-	(13)	(13)
At 31 March 2023	2,400	200	442	92	3,134
Depreciation at 1 April 2022	-	200	394	97	691
Depreciation charge	-	-	19	4	23
Disposals	-	-	-	(13)	(13)
At 31 March 2023	-	200	413	88	701
Net book value at 31 March 2023	2,400	-	29	4	2,433
Net book value at 1 April 2022	2,400	-	37	8	2,445

The Nunnery and Nunnery Lakes Reserve, the freehold property and land owned and occupied by The British Trust for Ornithology, were valued by qualified external valuers, Fenn Wright Chartered Surveyors, on 31 March 2022 on the basis of fair value, at £2,400k, giving a gain on revaluation of £550k for the year ended 31 March 2022. The trustees have considered the condition and value of the freehold property at the year end and believe there to have been no material change since the last external valuation in March 2022.

On an historical cost basis, the freehold property and land would have been included at a cost and net book value of £2,284k (2022: £2,284k).

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

10. INVESTMENTS

The Group

Listed Investment Funds

	Market value 1 April 2022	Disposals	Additions	Gain/(loss)	Market value 31 March2023
	£'000	£'000	£'000	£'000	£'000
Birds in Trust Fund					
Dimensional Global Short Dated Bond	77	-	-	(2)	75
Dimensional Global Sustainability Core Equity	126	-	-	(4)	122
Wrap Cash	4	-	-	(1)	3
	207	-	-	(7)	200
General Funds					
Dimensional Global Short Dated Bond	95	-	-	(3)	92
Dimensional Global Sustainability Core Equity	156	-	-	(5)	151
Wrap Cash	5	-	-	(1)	4
	256	-	-	(9)	247
	463	-	-	(16)	447

On an historical cost basis, the investments would have been included at £298k (2022: £298k).

The Charity

	2023	2022
	£'000	£'000
Listed Investment Funds as above	447	463
Fixed asset unlisted investments - BTO Services Ltd	-	-
	447	463

The Trust wholly owns its subsidiary undertaking, BTO Services Ltd, which is incorporated in England & Wales, company registration number 02907282. This company operates to promote the work of The British Trust for Ornithology by undertaking commercial activities to support such work. The aggregate value of the share capital and reserves at 31 March 2023 was £100 (2022: £100) and the company reported a £nil result after profit distributions made under a Deed of Covenant for the year (2022: £nil). £242k (2022: £326k) was paid to the Charity under a Deed of Covenant. The value of the investment in the subsidiary undertaking is £100 (2022: £100) under the equity method of valuation.

The following is a summarised statement of income for the subsidiary for the financial year:

	2023	2022
	£'000	£'000
Turnover	966	969
Cost of sales	(664)	(591)
Gross profit	302	378
Net administrative expenses	(60)	(52)
Net profit before payment under Deed of Covenant	242	326

Turnover of the subsidiary includes sales to overseas markets of £261k (2022: £182k).

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

10. INVESTMENTS (Continued)

BTO Services Ltd has two dormant wholly owned subsidiaries, both registered in England and Wales, and with Registered Office at The Nunnery, Thetford, Norfolk IP24 2PU, Porzana Ltd Company No.04175071 and BTO Consulting Ltd Company No.12317596.

11. STOCKS

	2023	2022
	£'000	£'000
The Group		
Finished goods, goods for resale and materials	294	293

The Charity

The charity holds no trading stock.

12. DEBTORS

	2023	2022
	£'000	£'000
The Group		
Trade and contract debtors	1,085	775
Taxes recoverable	36	7
Prepayments	127	96
Accrued income	432	468
	1,680	1,346

	2023	2022
	£'000	£'000
The Charity		
Trade and contract debtors	1,011	673
Amounts due from Group undertakings	380	446
Taxes recoverable	36	7
Prepayments	111	77
Accrued income	388	379
	1,926	1,582

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

13. CREDITORS – AMOUNTS FALLING DUE WITHIN ONE YEAR

	2023	2022
	£'000	£'000
The Group		
Trade creditors	363	572
Taxes and Social security costs	198	233
Other creditors	119	63
Accruals	117	103
Deferred income	1,582	1,408
	2,379	2,379

	2023	2022
	£'000	£'000
The Charity		
Trade creditors	319	533
Taxes and Social security costs	202	229
Other creditors	116	60
Accruals	102	93
Deferred income	1,507	1,279
	2,246	2,194

14. CREDITORS – AMOUNTS FALLING DUE AFTER ONE YEAR

	2023	2022
	£'000	£'000
The Group		
Deferred income	91	100

	2023	2022
	£'000	£'000
The Charity		
Deferred income	91	100

15. DEFERRED INCOME RECONCILIATION

	2023	2022
	£'000	£'000
The Group		
Opening balance at 1 April	1,508	1,624
Amount released to income	(2,064)	(2,331)
Amount deferred in year	2,229	2,215
Closing balance at 31 March	1,673	1,508

	2023	2022
	£'000	£'000
The Charity		
Opening balance at 1 April	1,379	1,520
Amount released to income	(1,901)	(2,165)
Amount deferred in year	2,120	2,024
Closing balance at 31 March	1,598	1,379

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

16. RESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include restricted funds comprising the following balances of donations and appeal monies given for specific purposes. The opening and closing fund balances for the group and the charity are identical.

As at 31 March 2023

	Balance at 1 Apr 2022	Income	Expenditure	Transfers	Balance at 31 Mar 2023
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond Maps Appeal	10	2	-	-	12
Northern Ireland Fund	1	48	(32)	-	17
Dilys Breese Fund	44	-	(8)	-	36
Boddy & Sparrow Fund	2	-	-	-	2
Migration Fund	47	29	(29)	-	47
Nightingale Appeal	30	1	(9)	-	22
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	22	8	(11)	-	19
Garden Research Fund	79	9	(11)	-	77
Out of Africa Fund	60	78	(49)	(4)	85
Thrush Fund	1	-	-	-	1
Curlew Appeal	14	9	(10)	-	13
Arctic Skua Fund	21	-	(20)	-	1
BTO Wales Fund	25	1	(6)	-	20
Sound Approach Fund	82	-	(22)	-	60
Tasso Leventis Fund	43	20	(38)	-	25
Spotted Flycatcher Appeal	29	-	(9)	-	20
Chaffinch	56	1	(17)	-	40
Seabird Appeal	95	16	(34)	4	81
Urban Appeal	-	54	(34)		20
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	2	-	-	-	2
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales	22	-	(3)	-	19
Bats Fund	15	2	(12)	-	5
Short Eared Owl	45	-	(32)	-	13
Wader Project Officer	59	12	(43)	-	28
Dulverton Trust	2	-	(2)	-	-
Insect Decline	4	16	(12)	2	10
Eddowes PhD	-	1	(1)	-	-
Ringers' Bursary Fund	1	1	(1)	-	1
Youth Engagement	59	61	(200)	86	6
Small Specific Donations	51	13	(13)	-	51
	965	382	(658)	88	777

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2023

16. RESTRICTED FUNDS (Continued)

The purposes of the funds are as follows:
The Atlas Beyond the Maps Appeal continues to support research into Atlas data.
The Northern Ireland Fund has been set up to support the BTO in Northern Ireland.
The Dilys Breese Fund is for projects relating to nesting birds.
The Boddy & Sparrow Fund is for awards to the best amateur contribution(s) to either or both of the Bird Study and Ringing & Migration publications.
The Migration Fund is for research into migrating birds.
The Nightingale Appeal is to fund work on Nightingales and woodland birds.
The Swallow Appeal is to fund work on Swallows and migration.
The Young Scientists' Fund is to support the career development of young scientists.
The Garden Research Fund is to support young scientists work on garden birds.
The Out of Africa Fund is to fund work on African migrants. £4k transferred to Seabird Appeal at request of donor.
The Thrush Fund is to fund work on Thrushes.
The Curlew Appeal is to fund projects on Curlews.
The Arctic Skua Fund is to support Arctic Skua work.
The BTO Wales Fund is to support the BTO in Wales.
The Sound Approach Fund is to support a number of specific projects.
The Tasso Leventis Fund is to support a number of specific projects.
The Spotted Flycatcher Appeal is to support work on Spotted Flycatcher.
The Chaffinch Appeal is to fund work on Chaffinches.
The Seabird Appeal has been raising funds for work on seabirds. £4K transferred from Out of Africa at request of donor.
The Urban Appeal is to support studies of birds in towns and cities.
The Rhodes Training Fund is to support survey training courses.
The Migrant Swallows & Insect Feeding Paper donation is to fund a paper on Swallows.
The Postcode Lottery Grant is for the Nunnery Lakes Reserve.
The Cuckoos & Nightingales Fund is for research on Cuckoos and Nightingales.
The Bats Fund was set up from specific donations to support work on Bats and the development of the BTO acoustic work.
The Short Eared Owl Fund is for work on Short Eared Owls in Scotland.
The Wader Project Officer Appeal Fund is for work on waders.
The Dulverton Trust Fund is to support a number of specific projects.
The Insect Decline Fund is to support work on the decline in insects. £2k donation was transferred as an expression of wish.
The Eddowes PhD fund was established to support a specific PhD project.
The Ringers' Bursary Fund is to support ringing.
The Youth Engagement Fund has been set up to support our work with young people. £86k was transferred from General funds to support this work.
Small Specific Donations are small individual donations for specific purposes.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2023

16. RESTRICTED FUNDS (Continued)

As at 31 March 2022

	Balance at 1 Apr 2021	Income	Expenditure	Transfers	Balance at 31 Mar 2022
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond Maps Appeal	8	2	-	-	10
Northern Ireland Fund	1	-	-	-	1
Dilys Breese Fund	51	-	(7)	-	44
Boddy & Sparrow Fund	2	-	-	-	2
Migration Fund	34	39	(39)	13	47
Nightingale Appeal	30	1	(1)	-	30
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	26	5	(9)	-	22
Garden Research Fund	84	8	(13)	-	79
Out of Africa Fund	58	58	(56)	-	60
Thrush Fund	1	-	-	-	1
Curlew Appeal	-	28	(14)	-	14
Arctic Skua Fund	56	3	(38)	-	21
BTO Wales Fund	26	1	(2)	-	25
Sound Approach Fund	72	21	(11)	-	82
Tasso Leventis Fund	82	-	(3)	(36)	43
Spotted Flycatcher Appeal	49	-	(20)	-	29
Chaffinch	64	10	(18)	-	56
Seabird Appeal	23	117	(45)	-	95
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	3	-	(1)	-	2
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales	22	1	(1)	-	22
EDF What's Under Your Feet	17	-	-	(17)	-
Bats Fund	21	10	(16)	-	15
Short Eared Owl	48	5	(8)	-	45
Wader Project Officer	100	26	(67)	-	59
Dulverton Trust	18	-	(16)	-	2
Insect Decline	20	16	(32)	-	4
Eddowes PhD	-	21	(21)	-	-
Ringers' Bursary Fund	-	2	(1)	-	1
Thorne Ringing Fund	1	-	-	(1)	-
Youth Engagement	80	95	(130)	14	59
Small Specific Donations	53	18	(22)	2	51
	1,094	487	(591)	(25)	965

The British Trust for Ornithology
Notes to the Consolidated Financial Statements – Continued
For the Year Ended 31 March 2023

17. UNRESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include unrestricted funds comprising the following balances. The opening and closing fund balances for the group and the charity are identical.

As at 31 March 2023

	Balance at 1 Apr 2022	Income	Expend-iture	Other Gains/ (Losses)	Fund transfers	Balance at 31 Mar 2023
	£'000	£'000	£'000	£'000	£'000	£'000
General funds:						
Birds in Trust fund	2,668	1,168	(317)	(7)	(383)	3,129
General fund	1,626	5,583	(5,889)	(8)	157	1,469
	4,294	6,751	(6,206)	(15)	(226)	4,598
Designated funds:						
Welch fund	608	-	(61)	-	-	547
Unrestricted funds excluding Pension reserve	4,902	6,751	(6,267)	(15)	(226)	5,145
Pension reserve	(3,777)	-	(110)	2,639	138	(1,110)
	1,125	6,751	(6,377)	2,624	(88)	4,035

The Birds in Trust fund is to provide long-term funding for BTO projects. Income from legacies is credited to this fund unless the wills provide otherwise. Transfers from the Birds in Trust Funds to the General Fund amounted to £381K in respect of the JNCC Partnership and £2k to Insect Decline as an expression of wish. £86K was released from General Funds to Youth Engagement. The Welch fund is for migration research. £138k was transferred from the General fund to the Pension reserve in respect of the pension deficit repair payment. Other pension reserve movements are disclosed in Note 22.

As of 31 March 2022

	Balance at 1 Apr 2021	Income	Expend-iture	Other Gains/ (Losses)	Fund transfers	Balance at 31 Mar 2022
	£'000	£'000	£'000	£'000	£'000	£'000
General funds:						
Birds in Trust fund	2,596	766	(263)	8	(439)	2,668
General fund	370	5,889	(5,522)	560	329	1,626
	2,966	6,655	(5,785)	568	(110)	4,294
Designated funds:						
Welch fund	-	700	(92)	-	-	608
Unrestricted funds excluding Pension reserve	2,966	7,355	(5,877)	568	(110)	4,902
Pension reserve	(4,794)	-	(104)	986	135	(3,777)
	(1,828)	7,355	(5,981)	1,554	25	1,125

For the Year Ended 31 March 2023

18. ANALYSIS OF GROUP FUNDS ACROSS NET ASSETS

As at 31 March 2023

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
General funds:					
Birds in Trust fund	-	200	2,929	-	3,129
General fund	2,433	248	(102)	(1,110)	1,469
	2,433	448	2,827	(1,110)	4,598
Designated funds:					
Welch fund	-	-	547	-	547
Unrestricted funds excluding					
Pension reserve	2,433	448	3,374	(1,110)	5,145
Pension reserve	-	-	(1,110)	-	(1,110)
	2,433	448	2,264	(1,110)	4,035
Restricted Funds	-	-	777	-	777
Total	2,433	448	3,041	(1,110)	4,812

As at 31 March 2022

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
General funds:					
Birds in Trust fund	-	207	2,461	-	2,668
General fund	2,445	256	2,702	(3,777)	1,626
	2,445	463	5,163	(3,777)	4,294
Designated funds:					
Welch fund	-	-	608	-	608
Unrestricted funds excluding					
Pension reserve	2,445	463	5,771	(3,777)	4,902
Pension reserve	-	-	(3,777)	-	(3,777)
	2,445	463	1,994	(3,777)	1,125
Restricted Funds	-	-	965	-	965
Total	2,445	463	2,959	(3,777)	2,090

19. OPERATING LEASE COMMITMENTS

	2023	2022
	£'000	£'000
At the year end the group had outstanding lease commitments for future minimum lease payments under non-cancellable leases, as follows :		
Due within one year	17	46
Due within two to five years	11	28
	28	74

For the Year Ended 31 March 2023

20. RECONCILIATION OF NET INCOME/(EXPENDITURE) TO NET CASHFLOW FROM OPERATING ACTIVITIES

	Group 2023 £'000	Group 2022 £'000	Charity 2023 £'000	Charity 2022 £'000
Net income per Statement of Financial Activities	83	1,288	83	1,288
Adjustments for:				
Items representing cash movements				
(Increase)/decrease in stocks	(1)	(14)	-	-
(Increase)/decrease in debtors	(334)	212	(344)	192
Increase/(decrease) in creditors	(9)	41	43	47
Investment income	(17)	(1)	(17)	(1)
Proceeds of sale of fixed assets	(7)	-	(7)	-
Items not representing cash movements				
Depreciation	23	29	23	29
(Gains)/losses on investments	16	(18)	16	(18)
Expenditure on defined benefit pension plan liability	110	104	110	104
	(136)	1,641	(93)	1,641
Cash movements not appearing in the Statement of Financial Activities				
Pension deficit repair contribution	(138)	(135)	(138)	(135)
Net cash inflow/(outflow) from operating activities	(274)	1,506	(231)	1,506

21. FINANCIAL INSTRUMENTS

The carrying amounts of the group's and the charity's financial instruments are as follows:

	Group 2023 £'000	Group 2022 £'000	Charity 2023 £'000	Charity 2022 £'000
Financial assets				
Measured at fair value through net income/expenditure:				
Fixed asset listed investments (Note 10)	447	463	447	463
Equity instruments measured at cost less impairments:				
Fixed asset unlisted investments (Note 10)			-	-

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

22. PENSIONS

The Group and the Charity

Defined contribution pension plan
The Trust operates a Group Self-invested Personal Pension Scheme run by Aegon. Staff contribute to this defined contribution scheme at a minimum rate of 5% of salary, and the BTO contributes at a flat rate of 11%. The Trust made contributions of £422k during the year (2022: £389k).

Defined benefit pension scheme
The Trust's defined benefit pension scheme, a 'final salary' scheme, is closed. The last triennial actuarial valuation of the scheme was carried out as at 1 April 2021. At that date the assets were valued at £11,722k and the liabilities at £18,104k, giving a net deficit of £6,382k and a funding level of 65%. A deficit recovery plan was subsequently agreed between the Board and the pension fund trustees, by which the shortfall would be made good by annual lump sum deficit repair payments spread over the years to 2044.

For the purposes of the group financial statements a separate valuation is carried out at the balance sheet date by a qualified independent actuary in accordance with Financial Reporting Standard 102 (FRS 102). The amounts recognised in the statements of financial activities for the year and the balance sheets were as follows:

Recognised in the statements of financial activities:	**2023**	**2022**
	£'000	£'000
Expenditure:		
Interest income	352	255
Interest cost on liabilities	(462)	(359)
Net interest on net defined benefit liability	(110)	(104)
Other recognised gains/(losses):		
Actual return on scheme assets (excluding interest income)	(1,454)	372
Actuarial gain/(loss) on liabilities	4,093	614
	2,639	986

Recognised in the balance sheets:

	2023	**2022**
	£'000	£'000
Fair value of scheme assets	10,672	12,108
Present value of defined benefit obligations	(11,782)	(15,885)
Defined benefit pension scheme liability at 31 March	(1,110)	(3,777)

Reconciliation of funded status:

	2023	**2022**
	£'000	£'000
(Deficit) at 1 April	(3,777)	(4,794)
Employer pension deficit repair payment	138	135
Net interest on net defined benefit liability	(110)	(104)
Remeasurement gain	2,639	986
(Deficit) at 31 March	(1,110)	(3,777)

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2023

22. PENSIONS (Continued)

Changes in the fair value of the pension scheme assets were as follows:

	2023	2022
	£'000	£'000
Fair value of scheme assets at 1 April	12,108	11,689
Interest income	352	255
Actual return on scheme assets (excluding interest income)	(1,454)	372
Employer pension deficit repair payment	138	135
Benefits paid to members	(472)	(343)
Fair value of scheme assets at 31 March	10,672	12,108

Changes in the defined benefit obligations were as follows:

	2023	2022
	£'000	£'000
Present value of defined benefit obligations at 1 April	(15,885)	(16,483)
Interest cost on liabilities	(462)	(359)
Benefits paid	472	343
Actuarial gain/(loss)	4,093	614
Present value of defined benefit obligations at 31 March	(11,782)	(15,885)

The amount of each major class of pension scheme assets within the total fair value of the scheme assets was as follows:

	2023	2022
	£'000	£'000
Equities	6,304	6,298
Bonds	4,101	4,889
Annuities	163	201
Cash	104	720
	10,672	12,108

The total return on scheme assets was as follows:

	2023	2022
	£'000	£'000
Interest income	352	255
Actual return on scheme assets (excluding interest income)	(1,454)	372
Total return on scheme assets	(1,102)	627

The principal actuarial assumptions used were as follows:

	2023	2022
Discount rate	4.90%	2.95%
Inflation assumption (RPI)	3.50%	3.95%
Inflation assumption (CPI)	2.95%	3.35%
Rate of increase for non-GMP pensions in deferment	2.95%	3.35%
Rate of increase for pensions in payment (RPI, min 3% max 5%)	3.75%	3.95%

Expected future lifetime from age 65:	2023	2022
	No of years	No of years
Male – currently aged 65	22.2	22.1
Female – currently aged 65	24.2	24.1
Male – currently aged 45	23.8	23.7
Female – currently aged 45	25.3	25.3

British Trust for Ornithology
The Nunnery, Thetford, Norfolk IP24 2PU
Tel: +44 (0)1842 750050 Web: www.bto.org
Email: info@bto.org Twitter: @_BTO
Registered Charity Number 216652 (England & Wales), SC039193 (Scotland)

COVER IMAGE: GANNET, BY DAVID TIPLING / BIRDPHOTO.CO.UK

THE BRITISH TRUST FOR ORNITHOLOGY

England & Wales - Charity number 216652

Accounts

BTO
Inspired by birds,
informed by science

TRUSTEES' ANNUAL REPORT & FINANCIAL STATEMENTS 2021/22

BIRDWATCHING, BY DAVID TIPLING / BIRDPHOTO.CO.UK

CONTENTS

Opening words	3
At a glance	4
Delivering scientific impact	6
Enabling people to learn & grow	8
Inspiring & empowering people	10
Our volunteers	12
Our staff	14
Our community	16
A partnership approach	18
Informing policy & practice	20
Sharing data & information	22
Climate change report	24
Spotlight on seabirds	26
Focus on England	28
Focus on Wales	30
Focus on Scotland	32
Focus on Northern Ireland	34
Across the world	36
Being fit for the future	38
Fundraising	40
Our supporters	42
Our scientific output: 2021	44
Financial overview	46

FRONT COVER IMAGE : GREAT TIT, BY DAVID TIPLING / BIRDPHOTO.CO.UK

Inspired by birds, Informed by science

FROM OUR CHAIR: PROFESSOR JENNY GILL

The United Nations Climate (CoP26) and Biodiversity (CoP15) meetings that took place during 2021 and 2022 were a timely reminder of the scale of the challenges that we face. As the world continues to adapt to the COVID-19 pandemic, the need to address these challenges is increasingly apparent. Protecting and recovering nature is fundamental to averting the impending ecological and climate crises and safeguarding future generations. BTO data and knowledge play a very important role in informing and influencing the policies and actions that can contribute to nature's recovery, and we are deeply committed to maintaining and enhancing these impacts of the extraordinary work of BTO volunteers. Working with our many partner organisations and building the collaborations that are needed to address these grand challenges are key elements, making the most of our data and knowledge, and we are proud of our trusted and respected status across the sector.

An important aspect of enhancing the impact of our work is broadening our reach and engagement. We are committed to ensuring that BTO is an inclusive organisation that welcomes, encourages and supports all communities, groups and individuals who share our concerns and interests. Delivering on this commitment will require actions, and we look forward to building on the experiences gained from working with our growing youth network to identify and remove barriers to access. The need for a better and more sustainable world for birds and for people is ever more urgent, and we will continue to work towards enhancing engagement, inclusion and the impact of BTO data to help meet these goals.

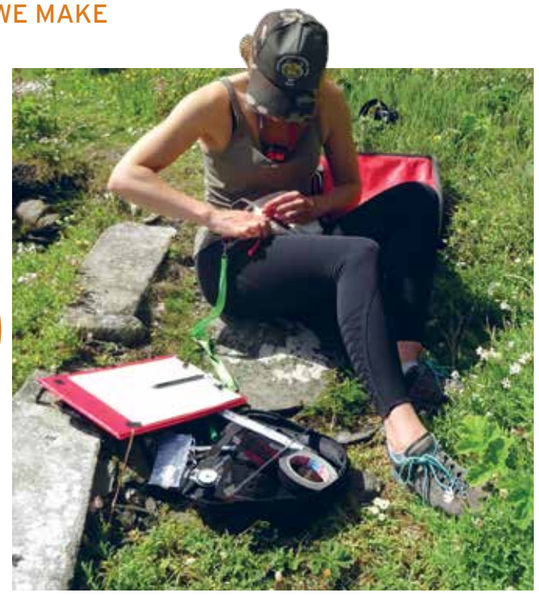
FROM OUR CEO: PROFESSOR JULIET VICKERY

The emergence from lock-down might have been wisely cautious but it saw a wonderful bounce back for BTO work. The BTO/JNCC/RSPB Breeding Bird Survey (BBS) achieved record levels of coverage in Scotland and Northern Ireland, and a remarkable 3,882 1-km squares were covered UK-wide. This is particularly welcome given the extent to which these long-term surveys are the bedrock of so much action for birds and biodiversity. For example, the results from core schemes provided the central evidence for a BTO report '*Climate Change and the UK's Birds*', published in November to coincide with CoP26 in Glasgow. The report highlighted the perilous future of our nationally important seabird populations if the world warms by over 2°C. BTO is already focusing on finding solutions that work for both birds and our own future, particularly through enhancing the monitoring of seabirds and using tracking studies to guide the development of offshore renewables in ways that minimise their impact on birds.

BTO impact comes not just through its data but also through the way these data are collected, and we are continuing to expand and refine opportunities to engage more volunteers in the joy of birds, birdwatching and participation in science. This sort of engagement, with its associated connection with nature, brings additional health and well-being benefits. These benefits should to be accessible to everyone but we know they are not, and BTO Youth are blazing a trail for us in this respect. There are now 36 Youth Volunteers (12 on the Youth Advisory Panel, and 24 Youth Reps) in England, Scotland, Wales and Northern Ireland, creating opportunities for young people to get involved with birds and wider nature, as well as advising the organisation on how to engage more young people with birds and the natural world.

THE DIFFERENCE WE MAKE

AT A GLANCE



A key BTO report showed how climate change is already impacting the UK's birds, particularly our internationally important breeding seabird populations and upland breeding birds.

During 2021, volunteers contributed **2,029,493** hours to BTO work, representing an in-kind contribution of £41 million. This generosity delivers a significant part of the UK's bird monitoring.

Thanks to the support of Breeding Bird Survey volunteers, we saw coverage bounce-back in 2021, post-pandemic, allowing UK population trends to be calculated once again.

BTO staff published more than one peer-reviewed paper each week throughout 2021, underlining the quality of our science.

Thanks to the generosity of BTO supporters, our Equipment Donation Scheme has provided over 1,800 young people with access to birdwatching field guides and optics.

Thanks to our members, funders and supporters,

£5.3 million

was spent during the year carrying out our work, collecting and delivering information about birds, and inspiring people.

"This is the first course I have attempted, and I have learnt a lot and am inspired to learn more. It has also given me confidence that I am doing the right things most of the time. Thanks for all your work to produce this."

Avril, Songbird identification course participant

SEABIRD RINGING : DANIEL JOHNSTON / BTO; GOLDEN PLOVER : PHILIP CROFT / BTO; BIRDWATCHER : SARAH HARRIS / BTO

DELIVERING SCIENTIFIC IMPACT

BTO continues to deliver impartial, impactful and relevant science, providing the information needed to plan and assess conservation action, and to inform decision-making processes for the benefits of birds, wildlife and people.

ENABLING RECOVERY

Wildlife conservation policies directed at common and widespread, yet declining, species are difficult to design and implement. In part this a consequence of the multiple environmental changes likely to have contributed to the declines in the first place. It may also reflect the fact that, in some instances, the actions needed to deliver the recovery of a population may not be those addressing the original cause(s) of the decline – i.e. tackling the original issue may fail to deliver the hoped-for outcome. BTO research has, for example, identified that some bird declines are a consequence of periods of low survival rates, but recovery of these populations has been constrained by subsequent levels of productivity (the number of young produced per breeding attempt). Low survival rates may have been the trigger but the solution lies in increasing productivity.

Such complexity makes it difficult to correctly target conservation measures; should we, to continue our example, target measures at increasing productivity or at improving survival rates, both of which may be key to reversing population declines. Recent BTO work, led by Cat Morrison at the University of East Anglia and bringing in collaborators from across Europe, sought to address this uncertainly, using information on breeding bird abundance and data on productivity and survival (Morrison *et al.* 2021).

The team was first able to examine the population trends of migrant and resident species breeding at sites across Europe, using data from the Pan-European Common Bird Monitoring Scheme (into which BTO/JNCC/RSPB Breeding Bird Survey data feed). These were found to be in step; sites that were good for resident species tended to be good for migrants, and vice versa. This implies that local breeding season conditions have a strong influence on local population changes in both resident and migratory species.

The team then examined the demographic parameters (productivity and survival), using data from Constant Effort Site ringing schemes. The productivity of migrant and resident species showed similar patterns across sites; there were some 'good' sites and some 'poor' sites in this regard. However, this was not the case for survival rates, where there was only weak covariation at the site-level. Taken together this suggests that conservation action, targeted at boosting local productivity within Europe, has the potential to benefit populations of both migrant and resident species, particularly where this action is directed towards improving productivity on currently 'poor' sites. The findings also imply that efforts to tackle migrant declines, directed at their breeding sites, could also improve the fortunes of the declining resident species that breed alongside them.

WORKING FOR WADERS

BTO's work on declining wader populations is coordinated through our Breeding Wader Focal Area, which brings together staff from across the organisation. The work involves many different strands, from coordinating and supporting PhD fieldwork on Curlew decline, through to developing new approaches for involving land-managers in the collection of data on breeding wader populations. Alongside this, BTO expertise in survey design and the use of tracking technology, is contributing major pieces of work that are providing vital evidence helping us to address the challenges faced by this group of declining species.

Working in partnership with the University of East Anglia, RSPB, and various landowners, Harry Ewing's PhD is using an evidence-based approach to develop conservation management strategies, designed to increase breeding productivity and reverse the decline of the UK's lowland Curlew populations. The PhD is not the only piece of Curlew work to be based in East Anglia over the year. BTO has been working with the Defence Infrastructure Organisation, the Royal Air Force, Natural England, Pensthorpe Conservation Trust, and the Wildfowl & Wetlands Trust, on a Curlew headstarting project. Curlew eggs, rescued from military and civilian airfields where the risk of bird-strike means that the nests would otherwise have been destroyed, are hatched and reared in a specialist facility, where they can be ringed and tagged before release into the wild. The tracking component delivered by BTO staff provides a unique insight into the behaviour and survival of young birds and is helping to improve our understanding of headstarting as a conservation tool for Curlew recovery.

EVALUATING POLICY TOOLS

Work on a number of significant field survey projects was undertaken in 2021, involving both fieldwork and data analysis. This included the projects on woodland management (England), pollinator monitoring in Wales (see page 30), and agri-environment scheme monitoring in Northern Ireland (see page 35), amongst others.

BTO research in these areas continues to inform agri-environment schemes and their design, not least by evaluating how well these schemes actually work. Agri-environment schemes have required a huge investment of public funds and, aside from their conservation value, there is a clear public interest in ensuring that they deliver returns on this substantial investment. BTO expertise will be equally valuable as new policy tools come on stream, following the UK's departure from the European Union.

CURLEW CHICKS AND CURLEW FIELDWORK : SAMANTHA FRANKS / BTO; SEDGE WARBLER : DAVID TIPLING / BIRDPHOTO.CO.UK

YELLOW WAGTAIL : DAVID TIPLING / BIRDPHOTO.CO.UK

ENABLING PEOPLE TO LEARN & GROW

We are working to provide more and better opportunities for people to contribute to our work, at the same time helping them to learn new things and to grow in confidence as they develop their skills as birdwatchers and survey volunteers.

TAKING TRAINING TO THE NEXT LEVEL

One of the big success stories of the past year has been the number of people taking advantage of our training workshops, notably those being delivered online by the BTO's Training Team, led by Nick Moran. During the year, the team ran 96 training courses, reaching 5,549 attendees. The sessions delivered a mix of bird identification and survey-specific training to individuals from a broad mix of backgrounds. While some of the training is provided for free, many of the courses carry a small fee, which helps to secure attendance – individuals are more likely to turn up to something they have paid for – and ensures that we can continue to deliver on and expand our training offering.

Although many of the sessions were virtual, the team has begun to introduce more face-to-face opportunities now that things have eased post-pandemic. This hybrid approach will continue, recognising that getting to face-to-face events can be a barrier for some potential participants. Virtual events mean that we can reach more people, engage with new audiences, and reduce the environmental costs of delivering training. Such has been the success of the BTO training programme that we have had to recruit new staff in order to meet the demand for training courses.

MEMBERSHIP MATTERS

We ended the financial year with 18,926 members. Our membership offer was refreshed in November 2021 so new joiners can contribute any amount they choose, from a minimum of £3 a month (£36 a year). New membership includes all adults at the registered address, which will become available to all members in due course. Another new benefit, to be the first to hear about most nationally organised bird ID training courses, has been well received with members making up around 70% of training course participants. A second year of online-only events, notably our annual conference, has given us pause to consider how best to engage with our supporters both new and existing as we go forward.

ONLINE RESOURCES

The BTO YouTube channel continues to be a significant draw for individuals seeking information on bird identification. Our bird identification videos, each of which features two or more similar species, received 884,217 views during 2021, with over 30,000 hours watched. The most-watched video was one on Nightingales and other nocturnal singers. Such figures underline the value of this resource to the online audience.

TRAINING : ROB READ / BTO; NIGHTINGALE : DAVID TIPLING / BIRDPHOTO.CO.UK; MENTORING : DAVID TIPLING / BTO

BIRDWATCHERS : DAVID TIPLING / BIRDPHOTO.CO.UK

INSPIRING & EMPOWERING PEOPLE

We seek to inspire and empower people with an understanding of birds and the importance of scientific, evidence-based knowledge. Over the past year we have been working to increase the accessibility of our science.

ENGAGING SCHOOLS WITH SCIENCE

There are many benefits to engaging young people with nature and science. BTO's *What's Under Your Feet* project demonstrated very clearly how it is possible to do this in schools, delivering both scientifically valuable data and great engagement. By providing a structured scheme for schools to measure the abundance of soil invertebrates and birds using school playing fields, *What's Under Your Feet* resulted in two scientific publications. The first showed how the abundance of soil invertebrates varies with season and habitat, and particularly the impact that drought can have on the availability of earthworms to birds in the surface of the soil. The second linked earthworm abundance to the numbers of the birds that feed on them, raising the tantalising prospect that changes in bird populations may indicate changes in soil health.

SCHOOL SCIENCE : FAYE VOGELY / BTO

In a paper published this year in the journal *School Science Review*, a themed journal for science teachers, BTO's Director of Science Professor James Pearce-Higgins described how schools can contribute to long-term biodiversity monitoring schemes, at the same time underlining the benefits to schools and students of participation. The paper identifies predictable and sustained opportunities for schools to participate in the collection of scientifically valuable data year on year (Pearce-Higgins 2021).

The benefits to the students include opportunities for training and feedback and to gain practical experience. Some schemes, such as BTO's BirdTrack, provide an online repository of submitted data, whilst others provide access to additional information resources. These data can be used to provide students with experience of scientific analysis, and the paper suggests how this can be achieved. It is hoped that this new publication will increase awareness of the potential for schools to contribute to long-term biodiversity monitoring in the UK. Recognising that many teachers are stretched, the paper notes how secondary school pupils can also help to support these activities, for example through natural history clubs. Being able to provide support for students in schools is one reason why BTO established its Youth Advisory Panel and is developing its work with younger people.

MAKING SCIENCE ACCESSIBLE

The primary outputs from our scientific research are peer-reviewed papers. Peer-review is an important arbiter of scientific quality, but scientific papers are rarely the most digestible form of scientific information for non-scientist audiences. Because of this, we also seek to deliver the science from these papers in other ways. Each BTO-authored paper gets its own page on the BTO website, with a more accessible summary of the work carried out and what it showed. The findings from individual papers may also be reported through our case studies and blogs, again communicated for a broader audience and often with the research presented within the wider context in which it sits.

In addition we place articles in a range of magazines and newspapers, often drawing several different pieces of research together to deliver a narrative exploring a particular issue or topic. In 2021, for example, we brought together the science from our work on bioacoustic monitoring for a feature article in the Chartered Institute of Ecology and Environmental Management's magazine *In Practice*. This showcased how the science that BTO is developing can be used in an applied field like environmental impact assessment. Being able to reach audiences and present our science in an appropriate way is key to securing the support needed to deliver our charitable objectives.

CASE STUDY:
OPENING UP OUR SCIENCE

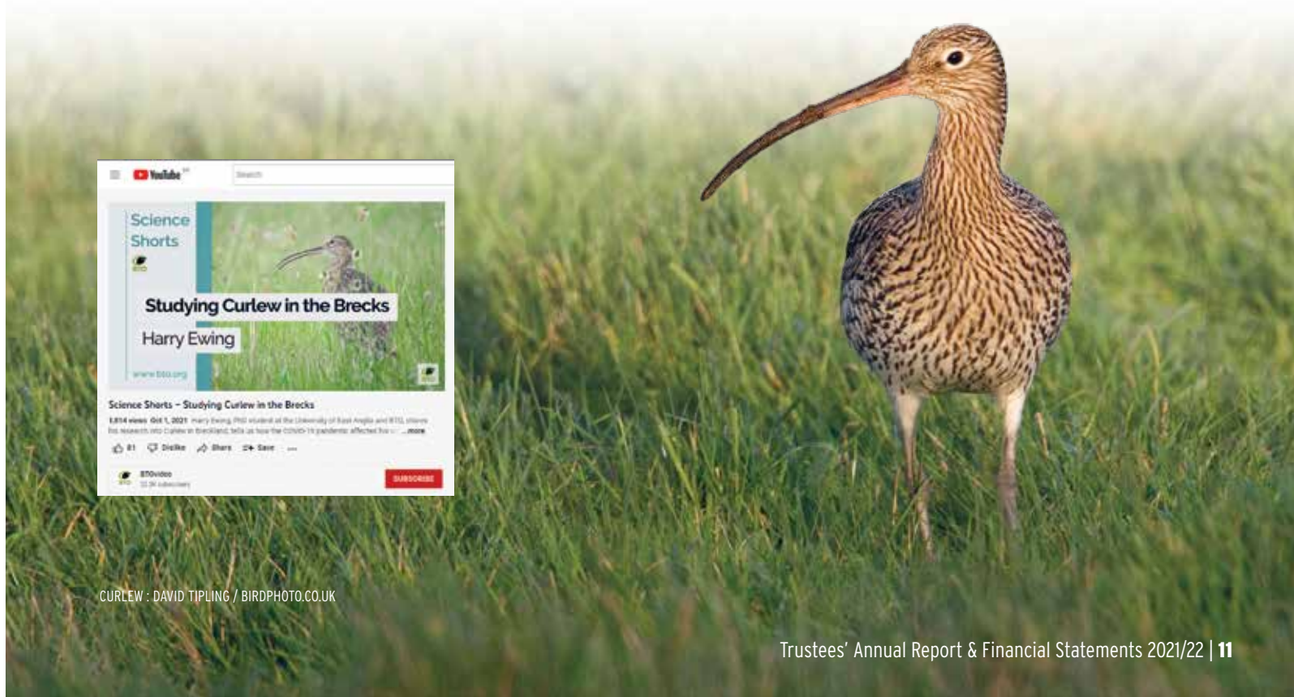
If our science is to have impact then it needs to be accessible to all of our audiences, from policy-makers and land-managers, to conservation practitioners, funders and the public.

Over the past year we have continued our work to make BTO's science more accessible to a wider range of audiences. We have, for example, sought to showcase the work of our scientists, putting them centre stage and getting them to talk about their research in a series of '*Science Shorts*'; videos that we can share on the BTO YouTube channel and across social media.

Being able to present our science in this bite-size way also enables us to demonstrate the passion and enthusiasm of our staff. In turn, this increases audience engagement with the science and provides role models for younger people thinking about a career in science or conservation. *Science Shorts* produced during the year included Harry Ewing talking about his PhD fieldwork on Curlews, Professor James Pearce-Higgins discussing the findings of our *Climate Change and the UK's Birds* report, and Hugh Hanmer and Michelle Reeve sharing the results of the BTO Tawny Owl Calling Survey. The BTO YouTube channel now has over 22,000 subscribers, and also hosts our extensive collection of video guides to bird identification.

Online channels have been of particular importance throughout the pandemic and are increasingly important more generally, as a greater proportion of information is sourced online. Online platforms provide an opportunity to do more things with our data and information than is possible when using offline channels, like books and papers. The annual Wetland Bird Survey outputs, delivered through WeBS Report Online, provide a powerful tool for those interested in the changing status and distribution of the birds using our coastal margins. In a similar way, the annual BirdTrends report delivers a suite of information on changing status, productivity and other metrics from our core terrestrial surveys, together with helpful commentary. The report has become something of a 'one-stop-shop' for anyone wanting the latest information on the UK's birds.

During 2021, work continued to develop the BTO Data Portal (a working title), which will bring together the core data from BTO schemes, extending back over many years, alongside other information on the UK's birds, the latter drawn from our BirdFacts pages. This ambitious project, seeking to leverage significant datasets to deliver something that truly is a one-stop-shop, will enable users to drill down into the data and to pull out information at a more local level. This initiative is only possible because of the incredible wealth of information collected by generations of BTO volunteers and contributed to a suite of surveys and monitoring programmes. The work being done now has been generously supported by the Esmée Fairbairn Foundation, who recognise the tremendous value in making this wealth of information available for a diverse audience of end users.



CURLEW : DAVID TIPLING / BIRDPHOTO.CO.UK

OUR VOLUNTEERS

What makes BTO different is the way we build and harness the passion, knowledge and curiosity of thousands of volunteers to tackle the urgent challenges of today by advancing our understanding of birds and their habitats.

VOLUNTEER BOUNCE BACK

It is a wonderful testament to our community of volunteers that, after the difficulties of the 2020 survey season, 2021 saw a strong return in survey coverage. This was particularly evident in the case of the BTO/JNCC/RSPB Breeding Bird Survey (BBS). COVID-19 restrictions had a significant impact on the survey in 2020, reducing our ability to report on the population trends of more common and widespread species, and requiring careful statistical examination of trend production for the annual report – an official government statistic. Thanks to the efforts of BBS volunteers, we saw UK coverage reach 3,919 squares, up from 2,029 squares in 2020 and not far short of the peak of 4,046 seen in 2018. 2021 also saw new record coverage levels in Scotland, Northern Ireland and the Isle of Man, at 625 squares, 152 squares and 10 squares respectively.

Some 275 of our 2,685 BBS volunteers visited their survey squares again later in the year to carry out the Wider Countryside Butterfly Survey, operated in partnership with Butterfly Conservation and with their volunteers taking coverage to 787 sites and recording 98,405 butterflies of 48 species. That our volunteers are making a significant contribution to the monitoring of a different taxonomic group underlines the willingness of our community to get involved and to make a difference for wildlife through the collection of that vital evidence base.

DELIVERING VALUE FOR NATURE

During 2021, volunteers contributed approximately 2,029,493 hours to our work, enabling us to deliver on our charitable objectives and to make a difference for birds. This represented an increase of 7% compared with 2020, and is the equivalent of 1,247 staff years. The estimated monetary value to society of this incredible contribution is at least £18 million (based on the UK National Living Wage of £8.91 per hour, introduced in April 2021).

As noted above, there was a recovery to pre-pandemic levels of participation in the BTO/JNCC/RSPB Breeding Bird Survey, as was also the case for the Heronries Census, the Waterways Breeding Bird Survey, the Nest Record Scheme and the two core Ringing Surveys – CES & RAS. Garden Birdwatch participation grew by a further 16% and young volunteers contributed over 3,500 hours to our youth programme. There were small declines in participation in BirdTrack and WeBS, and larger declines in the newly-introduced Garden CES ringing project and in Nesting Neighbours, the former perhaps reflecting increased opportunities for wider countryside ringing post-pandemic.

BTO VOLUNTEERS : DAVID TIPLING / BTO

While such top line figures provide a useful measure of the amazing contribution made by BTO volunteers, delivering so much for society, they hide the wealth of knowledge and expertise vested in these volunteers. As an organisation we need to continue to support, encourage and nurture our volunteer networks and, importantly, work to share this knowledge and expertise with others, growing opportunities for people to participate in science and to secure the well-being and other benefits that come from doing so.

As is evident throughout this year's annual report, there is a huge appetite to grow our volunteer networks and, alongside this, provides opportunities for more people from more backgrounds. The knowledge that, collectively, our passion, actions and financial contributions make a difference means that we are even more determined to inspire others, inform decision-makers and stimulate a deeper public understanding about the state of the natural world. In return, and through their involvement with us, our volunteers benefit from improved well-being, a stronger connection with nature, a better understanding of birds and the environment, and the knowledge that they are contributing positively to society.

RINGING CLOTHING FROM A SEABIRD SESSION : MIKE TOMS / BTO

OUR STAFF

BTO is fortunate to have dedicated and professional staff, whose expertise and commitment helps to drive forward our charitable activities. Working in partnership with volunteers, and staff at other organisations, they are a vital resource.

AT THE HEART OF WHAT WE DO

There has never been a time when our long-term data and rigorous scientific analyses have been more important, their use today helping us to address the urgent global crises of biodiversity loss and climate change. Our data, coupled with our distinctive approach, provide the impartial, impactful and evidence-based knowledge that empowers society to respond effectively to these and other challenges. That we are able to do this so effectively is down to the successful partnership between our hard-working volunteers and staff.

Most of our staff also participate in BTO surveys and schemes as volunteers themselves, something that enables them to understand the motivations for participation, and to share experiences with our wider volunteer network. Our survey organisers and scientists can talk with passion about their schemes and research because they share the excitement and passion of our volunteers, of people wanting to discover the answers to important questions.

We have been working to make our staff even more accessible to our members and volunteers, something that has been challenging with home-working an important tool for the business throughout the COVID-19 pandemic. Our website and social media channels have been of particular importance while the opportunities for face-to-face encounters have been restricted. We are learning the lessons from this, and bringing these into our working practices as we go forward. Online events, where supporters can meet and interact with staff, and other volunteers, have proved popular, and have enabled us to reach audiences that have traditionally not attended face-to-face events.

BTO STAFF IAN HENDERSON AND GREG CONWAY SETTING NETS FOR NIGHTJARS : MIKE TOMS / BTO

REFLECTING SOCIETY BETTER

We recognise that candidates from minority ethnic groups are under-represented in our organisation, and that there are often additional barriers present for people from these groups when applying for roles in the charity sector. It is our policy to help under-represented groups get into the conservation and environmental sector. This policy also defines our approach to staffing and recruitment, and we now guarantee first stage interviews to any candidate from an ethnic background who meets the essential criteria for a role. As a member of the Disability Confident Scheme a similar guarantee is made to applicants with a disability. We have also introduced blind hiring and have put resources in place to address unconscious bias during recruitment.

YELLOWHAMMER : JOHN HARDING / BTO

ROYAL RECOGNITION

The societal contribution of BTO staff was recognised during the year through honours bestowed by Her Majesty The Queen. Dr Andy Clements, former BTO Chief Executive, and a career conservationist, was awarded an Order of the British Empire medal in the Queen's Birthday Honours for his services to conservation and policy.

Dr Gavin Siriwardena also received an Order of the British Empire medal in the Queen's Birthday Honours, this time for services to biodiversity. Gavin leads BTO's Land-Use Research team, whose work focuses on the pure and applied research of terrestrial bird ecology. His work on farmland birds, in particular on testing the agri-environment solutions to farmland bird conservation problems and on measuring the effects of current issues in farmland such as the disappearance of set-aside, has made a significant contribution.

BTO STAFF ON FIELDWORK : STEVE WILLIS / BTO

OUR COMMUNITY

One of our strengths is the breadth of opportunities for people to be part of our community through their shared love of birds. That we have such a vibrant community emphasises that what we are doing matters to a great many people.

RECOGNISING CONTRIBUTIONS

The contribution made by each of our supporters is highly valued and gratefully received, but it is right that we should sometimes single out particular individuals who have made a significant contribution to our work. We do this through two awards, presented at our Annual Conference.

The first of these awards is the Jubilee Medal, awarded to an individual who has shown outstanding and committed devotion to BTO. This year's recipients were Tony Cross and Mike Archer. Tony's inspirational enthusiasm for ornithology has been passed on to many individuals through numerous projects across Wales and beyond. Mike Archer recognised the need to support and encourage young ornithologists and has helped to set up, and continues to support, several key initiatives. These include initiatives that support young people attending the BTO Annual Conference, and provide young people with opportunities to spend time at one of the country's network of Bird Observatories. The Bernard Tucker Medal is awarded in recognition of outstanding contributions to BTO's scientific work, and this year's recipient Tony Davis was recognised for his significant contributions to BTO work on migrant birds, and for the huge amount of time that he has put into training the next generation of ringers and nest recorders.

LISTENING TO YOUNG PEOPLE

In December 2021, His Royal Highness the Duke of Cambridge invited a group from the BTO's Youth Advisory Panel to meet with him at Kensington Palace so that he could hear first-hand about the work they do in a voluntary capacity for BTO. His Royal Highness heard about the importance of the work they do with BTO, as well as the way they are working to help the organisation 'grow younger'. He also heard about the benefits of encouraging more young people to connect with nature, including the positive effect on their mental health. Lastly, he learned about their desire to address their concerns for the climate and the need for clear scientific data to help do so.

The BTO Youth Advisory Panel has proven a springboard for new projects and schemes for young people. These schemes help them develop their skills and enjoyment of birdwatching and to become more actively involved in collecting the information that underpins our understanding of what is happening to the UK's bird populations. One of the most popular schemes that the Panel has initiated is the Equipment Donation Scheme. The scheme enables birdwatchers to donate surplus binoculars, telescopes and bird identification guides, to BTO to distribute to young people who cannot access or afford such equipment themselves. So far over 1,800 young people have benefited from the scheme.

BTO YOUTH ADVISORY PANEL MEMBERS MEETING HRH THE DUKE OF CAMBRIDGE : KENSINGTON PALACE

A COMMON INTEREST

During the first year of the pandemic we sought to provide lock-down households with the motivation to engage with the wildlife in their gardens, and to contribute meaningful data through participation in citizen science. We did this by opening up our Garden BirdWatch scheme, removing the payment barrier so that more people could be part of this amazing project. Thousands of people signed up as a result, joining the existing community of BTO Garden BirdWatchers whose generosity continues to enable the collection, analysis, and reporting of vital information on the UK's garden birds.

The ongoing response to opening up this weekly survey has been so positive that we have decided to continue with an option for free participation going forwards post-pandemic. Of course we still need to cover the costs of running the survey, so a donation-based option is continuing alongside the free option. Those participants who are so generously supporting the project, and enabling our research into urban birds, receive additional feedback through a quarterly magazine, which also had a refresh during the year.

The impact that this now extended community of BTO Garden BirdWatchers is having is neatly demonstrated through a series of research outputs submitted for peer-review publication, likely to emerge next year. For the individuals who participate there are likely to be various well-being benefits resulting from structured and regular time spent engaging with the natural world.

GARDEN BIRDWATCHER AND ROBIN : DAVID TIPLING / BIRDPHOTO.CO.UK

A PARTNERSHIP APPROACH

Partnership is at the heart of our approach. With our impartial, evidence-based position, delivering robust science, we are able to work with a very broad range of partners and to tackle important questions.

SHIFTING SOUNDSCAPES

A particularly interesting example of partnership working can be seen in a piece of research published in 2021 that looked at the extent to which our avian soundscapes have changed. Bird song helps us to build and maintain connections with the natural world and is a core component of the natural soundscapes that define the landscapes around us.

The diversity of bird song at a given location plays an important role in defining the quality of our engagement with these soundscapes. Long-term declines in bird populations across the globe are likely to have reduced the diversity and scale of avian soundscapes, but the lack of historical recordings makes it difficult to assess the impact of these changes over time. This is something that has been explored through work led by Cat Morrison at the University of East Anglia, working with a broader partnership, including BTO.

The study uses a novel approach, reconstructing 'lost' soundscapes from the information collected by volunteers for bird surveys operated across Europe and North America. By combining survey data, including those submitted through the BTO/JNCC/RSPB Breeding Bird Survey, with recordings for over 1,000 bird species, taken from the online Xeno Canto database of songs and calls, Cat and her colleagues were able to reconstruct soundscapes for more than 200,000 locations over the past 25 years. The acoustic properties of the reconstructed soundscapes could then be explored statistically through a series of standard measures, capturing the richness of each.

While these measures broadly mirror avian species richness and abundance, they are primarily driven by song complexity and diversity across the contributing species. Because of this, the measures are likely to describe those aspects of avian soundscapes that are most important to their perception by human listeners. The analysis reveals variation in soundscape quality, both across sites and over time, and demonstrates a chronic deterioration in soundscape quality over time. Sites that experienced the largest declines in total abundance and/or species richness also showed larger declines in acoustic diversity and sound intensity. Ongoing declines in bird populations are expected to cause further reductions in attributes of soundscape acoustics and, by extension, a continued decline in the quality of our experience of the natural world.

SUPPORTING UK BAT MONITORING

The UK has one of the best-developed bat monitoring programmes in the world, delivering vital information on their changing status. However, for six of the UK's 17 resident bat species the available data are insufficient to support the production of population trends. In a report to the Joint Nature Conservation Committee (Newson *et al*. 2021), BTO has been able to draw on its expertise in bioacoustic monitoring to provide advice on how this important knowledge gap could be filled.

Large-scale deployment of passive acoustic monitoring devices is an approach that BTO has already used successfully at the regional level, demonstrating the potential for the monitoring of bats, bush-crickets and small mammals. Key to this success has been the use of effective survey and sampling protocols, something that is again highlighted in this new report.

By analysing passive acoustic data collected by volunteers from a study area in the south-west of Britain, the BTO authors were able to quantify the ability of the approach to detect population declines in bat numbers in relation to a number of methodological considerations, such as whether recording is carried out across the whole night and the number of sites surveyed. The report's recommendations will inform possible approaches to the national monitoring of all 17 of our resident bat species.

PRIORITISING CONSERVATION ACTION

Perhaps the best example of effective partnership working is the periodic production and publication of the UK's Birds of Conservation Concern review, which reports on the status of our bird populations and assesses their conservation status (Stanbury *et al.* 2021). The most recent review, the fifth since 1990, assessed 245 species and assigned each to one of three lists of 'conservation concern'. Data from the core schemes operated by BTO enable each species to be assessed against criteria reflecting changing population size and changing range. In addition, global conservation status and evidence of an earlier historical decline are also used in the assessment process.

Some 70 species (nearly one in three of those assessed) were placed on the Red List, with 11 moving to the Red List since the last review. Included in these are three familiar species: Swift, House Martin and Greenfinch, whose population declines are of particular concern. More positively, six formerly Red-listed species moved to the Amber list, highlighting that directed conservation action can improve fortunes. The listing processes is a vital aid to identifying species and habitat conservation priorities, something that means that finite resources can be targeted most effectively.

GREENFINCH : LIZ CUTTING / BTO

HOUSE SPARROWS : DAVID TIPLING / BIRDPHOTO.CO.UK

INFORMING POLICY & PRACTICE

BTO evidence and expertise continues to inform policy and practice across a broad range of areas, supporting decision-making processes, as we seek to respond to the challenges of competing land-use needs and a changing climate.

SPEED MATTERS ...

Renewable energy is playing a vital role in attempts to counter the effects of climate change, but is not without its own impacts. BTO has continued its research into the effects of wind energy developments on birds, providing valuable evidence that is informing the placement and design of the infrastructure delivering renewable energy around the UK and beyond.

Whilst wind energy developments help to reduce carbon budgets, they may also impact bird populations through the increased mortality from collisions, the modification of habitats used by the birds, and changes to foraging behaviour, as birds avoid renewable infrastructure such as offshore wind farms. BTO work on collision risk models, which are used to estimate the potential mortality caused by wind turbines, has been of particular importance in this regard, as a study published in 2021 reveals (Masden *et al.* 2021).

GEESE AND WINDFARM : DAVID TIPLING / BIRDPHOTO.CO.UK

Collision risk models are widely used by the industry and those making judgements about the design and placement of new infrastructure. However, the value of these models is dependent upon the quality of the data available to test their underlying assumptions. New work, bringing together BTO researchers and colleagues from the University of the Highlands and Islands, RSPB, and the University of Amsterdam, explores the sensitivity of the models to differences in bird flight speed. By using GPS-derived flight speeds from tagged Lesser Black-backed Gulls, rather than a standard generic value, the team established that the models were sensitive to flight speed. By using site-specific flight speed data from tagged birds rather than a standard value reduced the predicted number of collisions. This underlines a need for need for more representative flight speed data and, where possible, site-specific data, so that decisions about possible future developments can be based on the most robust information.

USING THE RIGHT TOOLS

A related piece of work, this time partnering BTO with RSPB, the University of the Highlands and Islands, and the Norwegian Institute for Nature Research, reviewed the methods and technologies currently used to provide bird flight data for assessing the impact of wind energy developments (Largey *et al*. 2021). The review identified four tools, including radar and tracking technologies, that improved the estimation of bird flight parameters. Interestingly, the study also revealed that these empirical sensor-based tools were more often used in academic peer-reviewed studies than in report-based environmental statements. Where sensor-based tools were used in the report-based literature, their inconsistent application often resulted in an uncertain regulatory environment for practitioners. While sensor-based tools may not be the most cost-effective option for practitioners, these costs offer a good return on the investment required when viewed against the costs of a proposed development being refused consent.

SUPPORTING POLICY DEVELOPMENT

Policy development and implementation can be difficult, not least because of the dynamic nature of the wider political environment. An example of the dynamic nature of the environment in which policy development operates was highlighted by the UK's recent departure from the European Union. Understanding the possible impacts of that departure, and how these might differ depending upon what that departure looked like, would be key for identifying what this might mean for future land management opportunities and the associated environmental costs or benefits.

Working with staff from UKCEH, ADAS and Forest Research, BTO ecologists have combined existing agri-economic modelling approaches with well-tested environmental models, to explore potential Brexit impacts on land use, environmental outcomes and the agricultural labour pool in Wales (Thomas *et al.* 2021). Agriculture in Wales is dominated by animal production on grassland systems, so a particular focus was on potential changes in livestock numbers under three potential post-Brexit trade agreement scenarios (an EU Deal, No Deal, and the implementation of a Multilateral Free Trade Agreement) and what these might mean for levels of employment and pollution, as well as for biodiversity and sustainable development goals.

By working collaboratively, and involving the Welsh Government throughout the process, this work has delivered valuable evidence to support policy development. The outputs will support Welsh Government as it seeks to develop programmes that manage the Brexit transition pro-actively, while mitigating risks to the agricultural sector, the environment, and rural communities.

COMMON CRANES : DAVID TIPLING / BIRDPHOTO.CO.UK

CASE STUDY: WHICH SITES TO PROTECT?

Can managing sites that are specifically designated for a target community help to counter the effects of a changing climate and secure that community for the future?

The traditional approach to site-based conservation policy has been guided by three overarching aims: to prevent species from going extinct, to mitigate habitat degradation, and to counter the depletion of natural resources. More recently a fourth aim has been added: to facilitate species' responses to climatic warming. This new addition identifies a need for sites to support the 'movement' of a species through a landscape so that its distribution can track the changing climate. In simple terms, the species should be able to redistribute from sites that are no longer suitable to new sites that have become suitable because of the change in climate.

Protected area networks are a conservation tool that can facilitate these responses to climate change, but it is unclear which management approaches are most effective at delivering this. Two pieces of work published during the past year examine this question, both of which use data collected through the Wetland Bird Survey (WeBS) – a partnership jointly funded by BTO, RSPB and JNCC, with fieldwork conducted by volunteers. The WeBS data used are from the January count dataset, which forms the UK contribution to the International Waterbird Census – the wider dataset examined in these two papers.

BLACK-TAILED GODWITS : ALLAN DREWITT / BTO

Gaget *et al.* (2021) examined the effectiveness of the European Natura 2000 network of protected sites, which in the UK includes Special Protection Areas and Special Areas of Conservation. The authors found that, in the face of climate warming, it was those sites that were explicitly designated to protected waterbirds and those with management plans that were the most effective in enabling waterbird communities to respond. There was no evidence that effectiveness was linked to the length of time that a site had been protected, which implies that targeted conservation policies, identifying and protecting suitable sites, could be a particularly effective approach to adopt.

A paper in the journal *Nature* by Wauchope *et al.* (2022), using BTO data with other data sources at a global scale, looked at the value of protected areas for waterbirds at a larger spatial scale. Using International Waterbird Census data for over 27,000 waterbird populations from across the world, the study revealed a mixed impact for the 1,506 protected areas examined. Some of the less favourable outcomes were linked to poor management of the sites or to the impacts of effects operating outside of the area protected, and there was also only a weak signal that larger areas are more beneficial than smaller ones. However, the study also found that management for waterbirds or their habitats was more likely to benefit populations. While the study shows that protection alone does not guarantee good biodiversity outcomes, it does underline the value of managing these sites for their target species.

Such studies are only possible because of the thousands of hours that volunteers put into collecting data on waterbirds at sites across the UK, and beyond. These data are used to inform the designation of protected sites and, as seen here, to evaluate their effectiveness in delivering conservation objectives. Being able to combine such data at much wider spatial scales is testament to partnership working, and enables a global response to these planet-wide challenges.

SHARING DATA & INFORMATION

BTO data fed into a wide range of projects over the past year, supporting policy, land management and conservation work across the UK and beyond. Our long-term datasets, in particular, provide incredibly powerful evidence of the changes to our bird populations, and the reasons behind them.

A CONTINENTAL SCALE

BTO's long-term datasets continue to play a key role in identifying changes in our bird populations, and enabling the evaluation of conservation efforts and policy decisions. They are the evidence base used by a wide range of stakeholders. The long-term nature of these datasets is important, as is being able to collect data at large spatial scales. This is because identifying long-term population trends across the full range of a species can help to tease out variability in the processes driving the changes seen.

However, collecting long-term and broad-scale information on population changes for multiple species is challenging. Financial resources are often limiting, and there may be a lack of volunteers or paid staff with the right skills. The monitoring of birds benefits from the numbers of people for whom birdwatching is a hobby, but this is not necessarily the case in every country. It is reassuring, then, that thanks to datasets like those collected by BTO volunteers, it has been possible to report on the relative changes of widespread and common European species.

During 2021, the Pan-European Common Bird Monitoring Scheme (PECBMS) delivered its latest database of between-year and long-term changes for 170 species, the data collected by thousands of volunteers across 28 countries (Brlík *et al.,* 2021). This publicly available dataset is being used to answer research questions, report on international biodiversity targets, support policy work, and assess conservation efforts. That these data are available, and are continuing to play such a vital role, is testament to the incredible efforts of the volunteers who contribute each year.

BBS VOLUNTEER : JILL TARDIVEL / BTO

ACOUSTIC PIPELINE

The launch of BTO's Acoustic Pipeline provides a rather different example of the ways in which BTO has been able to mobilise data and information over the past year. The pipeline provides the infrastructure to allow audio recordings to be uploaded to a secure remote server in the cloud, where they are then processed to find and identify biological sounds, before returning the results back to the user. With a current focus on 34 species of European bat, the system also identifies 14 small mammal species, 18 bush-cricket species and two moth species, where these are recorded as by-catch.

The system not only delivers powerful cloud processing, running the recordings through a suite of acoustic classifiers to deliver an identification with an associated measure of confidence, but it also facilitates data storage and onwards use by researchers and others. The system has been developed with a range of end users in mind. For example, projects can be private and hidden, or public to allow any users to register and participate. This functionality provides support for both local atlases and commercial projects, ensuring that BTO expertise in the field of bioacoustic monitoring can be shared as widely as possible.

MONITORING OTHER WILDLIFE

During the quieter summer months many birdwatchers turn their attention towards other taxa, collecting records of butterflies, plants, dragonflies and damselflies. Such is the interest in of other taxa that several core BTO projects now enable the capture other taxa data by those observers wishing to contribute records. Mammal data are submitted from 90% of BTO/JNCC/RSPB Breeding Bird Survey sites, for example, while BTO Garden BirdWatchers have been adding records of butterflies, bumblebees, mammals, dragonflies and damselflies to their weekly counts since 2001. Users of BTO's BirdTrack app also have the option to record sightings of certain other taxa groups.

Collectively these records feed into the National Biodiversity Network Atlas, and they are also shared with other organisations, such as the British Dragonfly Society, contributing to atlas and other worthwhile projects. BTO's Hedgehog data, for example, form a vital component of the periodic *State of Britain's Hedgehogs* report, published by the People's Trust for Endangered Species and The British Hedgehog Preservation Society, and enabling the production of population trend figures for a species with an unfavourable conservation status. While birds remain our focus, we will continue to support partners working on other taxa through the collection of these additional data.

WHEATEAR : BETHAN CLYNE / BTO; YELLOW WAGTAIL : SARAH KELMAN / BTO; DARK BUSH-CRICKET : MIKE TOMS / BTO; HEDGEHOG : STEVE ROUND / BTO

CLIMATE CHANGE REPORT

The *Climate Change and the UK's Birds* report, published in November, provided a timely synthesis of climate change impacts, not only highlighting the species at greatest risk and how to respond, but also demonstrating the value of our science.

REVEALING CLIMATE CHANGE IMPACTS

An increasing body of research demonstrates the impacts of climate change on bird species across the globe, revealing a suite of responses. The timing of bird breeding and of migration have both become earlier, and there is a consistent poleward shift in the distribution of bird species, the rate of change exceeding 11 km per decade. Climate change is driving large-scale shifts in bird communities across the globe, and we are seeing a consistent simplification of bird communities as they become more similar to each other. BTO data provide the evidence base for many of these changes, underlining the vital role of our long-term monitoring and research work continue to play in understanding climate change impacts and identifying ways in which we can help bird populations adapt to these.

In November 2021, alongside the United Nations Climate conference in Glasgow (CoP26), we published an important report assessing the impact that climate change is having on UK bird populations. The work, carried out by BTO's Director of Science, Professor James Pearce-Higgins, showed how climate change is already having a widespread impact on UK bird populations. The report provides the most comprehensive synthesis of the likely future impacts of climate change on UK birds to date, whilst also highlighting examples of where large-scale climate mitigation work, such as woodland planting, has the potential to transform landscapes and impact on bird populations. It also demonstrated where conservation action might help species adapt to climate change.

PTARMIGAN : SARAH KELMAN / BTO

SEABIRDS AND UPLAND BIRDS AT RISK

The report identified that breeding seabirds and upland breeding birds are the two UK groups most vulnerable to climate change. Fourteen seabird species and nineteen upland breeding bird species are regarded as being at risk of negative climate change impacts. Tendencies for upland birds and seabirds to decline may be related to their more negative responses to warmer temperature. In contrast, positive impacts of temperature change may contribute to increases in wetland and non-native species.

Importantly, the report also highlighted the lack information about the extent to which climate change might be driving population trends for 132 (55%) of our breeding bird species and for most of our wintering birds. It is essential that we address these important knowledge gaps, and BTO staff have been considering what additional monitoring approaches might be able to deliver.

MANAGING MITIGATION

It is essential that we not only understand the potential future impacts of a changing climate on the populations of UK birds, but that we also identify any possible impacts that might arise from mitigation measures that we adopt to combat climate change. The report explored two of these, increasing renewable energy generation and woodland establishment to support net zero targets, by way of example.

If we are to identify where conflicts might arise between planned mitigation measures and the populations of birds that these areas currently support, then we need extensive data on the distribution and abundance of species. Such data are collected through the core surveys and schemes operated by BTO, but it is worth noting that attaining adequate survey coverage can be difficult for some of these locations (e.g. across our uplands). This is one reason why BTO has been seeking new ways to encourage and increase survey participation in our more remote areas.

PROTECTING THE RIGHT SITES

As is evident from some of the other BTO work reported in this Annual Report, BTO researchers have been working with others to understand the resilience of protected sites and reserves for birds under a changing climate. The *Climate Change and the UK's Birds* report underlines that the maintenance of an extensive network of large sites that protect important natural and semi-natural habitats, such as the Special Protection Areas established under the EU Birds Directive, will play an important continent-wide role in the conservation of birds in a changing climate. There is also growing evidence that how we manage that land will also be important.

DUNLIN : DAVID TIPLING / BTO; FIGURE SHOWS THE NUMBERS OF UPLAND BREEDING BIRDS IN EACH CATEGORY / FROM PEARCE-HIGGINS (2021)

SPOTLIGHT ON SEABIRDS

The UK is of particular importance because of its breeding seabird populations. Many of these are in decline and there is an urgent need to address gaps in our current understanding of these birds. Here we spotlight the work BTO has been doing.

IDENTIFYING AN URGENT NEED

The UK is home to eight million breeding seabirds and hosts some of the largest seabird colonies in Europe. With many of their populations suffering significant declines, and with seabirds highlighted as a group particularly vulnerable to the impacts of climate change (see page 24), it is essential that we have robust information on their numbers, breeding success, and survival. Only with this information can we understand the threats they face and target appropriate conservation action towards them.

Because of the gaps in our understanding, BTO identified an urgent need to recruit, train and support a new generation of volunteers. Thanks to the generosity of our supporters, contributing to the 'Our Lost Seabirds Appeal', we have been able to develop a series of new initiatives and resources directed towards seabird monitoring.

RAZORBILL : DAVID TIPLING / BIRDPHOTO.CO.UK

SHARING SKILLS

Thanks to the funding we have received, and having identified the key audiences to address, we are now working to increase the number of volunteers involved in seabird monitoring. Some 476 individuals signed up for our online seabird identification courses, delivered through June and July 2021. The courses covered all of the species monitored by the Seabird Monitoring Programme – the core programme for these species in the UK – and had a particular emphasis on the more common and accessible species. Unlike most of our other online training courses, which have a strong focus on identification, the seabird courses included significant material on the ecology and status of seabirds. This information provides valuable context to those wishing to become involved with seabirds, and helps to reinforce why monitoring these birds is so important for their future fortunes. Material was developed by the BTO Training Team, with support from BTO seabird scientists, who delivered the courses together. It is hoped that participants will go on to attend an advanced course on gull identification, already offered by BTO, and engage with survey and ringing training opportunities in the future. A second series of these courses is planned for 2022/23.

DEVELOPING NEW RESOURCES

The work to provide training on seabird survey methods ties in with other developmental work to update the *Seabird Monitoring Handbook*, last revised in 1995. Alongside this BTO has been working with partners to shape the future form of the Seabird Monitoring Programme, bringing into play our expertise in managing volunteer-based monitoring schemes and delivering a robust evidence base. This work is ongoing but should result in a new look programme to be launched in time for the 2023 breeding season.

In addition to the training being offered to volunteers, funding has been used to secure photographic and video resources that can be used in online training materials. The material has been sourced so that it is suitable for a range of different uses, including some more technical audiences who we hope will become involved in collecting new information on the ecology, behaviour and movements of our seabirds. As such, the emphasis here has been on methods to catch, handle, ring and tag seabirds.

TACKLING BARRIERS

Ringing provides vital information on changing survival rates for these often long-lived birds, but is not the most accessible of activities because of the locations in which many seabirds breed. In order to increase opportunities for seabird ringing we have first carried out work to understand the barriers that stop people from getting involved. This work included a focus group with experienced seabird ringers, and a wider questionnaire study.

One of the barriers identified was the funding needed to access the often remote seabird colonies. In response, BTO has made grants available so that more individuals and ringing groups can access colonies to collect vital data. Another key barrier was found to be the equipment used for ringing seabirds. The types of rings fitted to seabirds require a strong grip when using ringing pliers, which can be problematic for people with small to medium-sized hands. Thanks to appeal funding, we are developing an adaptor for existing pliers that will overcome this problem.

KITTIWAKES : DAVID TIPLING / BIRDPHOTO.CO.UK

ENGLAND

Many policy decisions have a strong country- or regional-focus, and BTO's work reflects this. We continue to deliver projects from our Country Offices, often working with country-level partners and other stakeholders.

SAFEGUARDING SHELDUCK

Having a working knowledge of the movements made by migratory birds is an essential first step in understanding the risks that these species face from development and changes in land management. Shelduck from across Britain and Ireland undertake an annual moult migration, which sees much of our breeding population migrate to moulting sites in the Wadden Sea, notably the Helgoland Bight. While it is clear that a significant proportion of the north-west European Shelduck population moves back and forth across the North Sea each year, there are no published data on the routes used, the time taken, or how fast and at what altitude Shelduck fly.

Given the scale of marine renewable development planned for the southern North Sea, and because the UK hosts internationally important numbers of Shelduck during the non-breeding season, there is an urgent need to address the gaps in our understanding of Shelduck movements, so that we can identify the magnitude of possible impacts on their populations from increasing numbers of wind turbines.

A team of BTO staff, led by Ros Green, have been addressing this question, first through an analysis of Shelduck ring-recovery data from the British and Irish Ringing Scheme, and then by carrying out a pilot GPS tracking study, in order to demonstrate the utility of this technology for collecting data on the migratory routes, flight speeds and altitudes of Shelduck (Green *et al.* 2021).

Through the pilot tracking work, four Shelduck were successfully tracked from East Anglia to the Wadden Sea, the birds using four separate routes, with previously unreported stopovers noted in the Dutch Wadden Sea, before birds continued on to moulting sites in the Helgoland Bight. Flight speeds averaged 30.3 knots, with the birds flying at altitudes of up to 354 m. An expansion to the tracking study is planned, to increase sample sizes and geographical coverage.

SHELDUCK : DAVID TIPLING / BIRDPHOTO.CO.UK

BADGERS AND BIRDS

The Badger is a highly adaptable and opportunistic forager, whose diet includes a wide range of animal and plant material. Although earthworms are the most important component of Badger diet, these robust mammals may also predate Hedgehogs, frogs, small mammals and small (often ground-nesting) birds. The Badger is thought to be the main wildlife transmitter of bovine tuberculosis to cattle in England and, as a result, has been the subject of control measures in areas where they have been identified as an important factor in spreading the disease to cattle.

The licensed reduction of Badger populations across large areas of the countryside to combat bovine tuberculosis is likely to have an effect on some other animals and plants, some of which may be ecologically significant. Investigating these consequences is of interest, both for evaluation of the culling policy itself and in terms of basic ecology. The existence of landscape-scale survey data from the BTO/JNCC/RSPB Breeding Bird Survey (BBS) provides an opportunity to explore the implications of the culling policy for bird populations, and this is something that BTO has done, resulting in a peer-reviewed publication this year (Kettel *et al.* 2021).

The study led by Esther Kettel set out to investigate whether there was any detectable effect of the Badger cull on birds, evident in the BBS dataset. There was no evidence for broad or consistent effects within the cull areas, but it is worth noting that the small sample sizes available, coupled with likely habitat and management differences between sites, may have limited the statistical power of the approach. This initial work is being followed up with additional analyses, with additional years of data and an increased sample size.

THE IMPACTS OF LIGHT POLLUTION

As noted opposite, migratory birds face many challenges during their annual movements between breeding and wintering areas. BTO research, led by Simon Gillings and published in 2021, has investigated whether artificial light at night could disrupt the movement patterns of migrant thrushes (Gillings & Scott 2021). Previous studies have shown that artificial light at night can disorientate nocturnally migrating birds and cause them to collide with structures such as oil platforms and tall buildings. This problem is particularly associated with skyscrapers in North America. While UK cities tend to have fewer tall buildings, we still need to understand possible impacts on this side of the Atlantic.

By using passive acoustic monitoring devices, deployed in the gardens of local birdwatchers to record the calls of nocturnally migrating Redwings, Blackbirds and Song Thrushes, Gillings and Scott examined a gradient of nocturnal illumination in Cambridgeshire – from the brightly lit city of Cambridge to the darker surrounding villages and countryside. The audio recordings were analysed using artificial neural networks, which had been trained to identify calls of the target species and differentiate them from other sources of night-time noise. The results showed that thrush call rates were up to five times higher over the brightest urban areas than in the darkest villages, suggesting a strong effect of artificial light on these migratory species. Although evidence

BADGERS : LIZ CUTTING / BTO

from studies involving radar indicates that this result can be explained by birds being attracted to brightly lit areas, it is also possible that individual birds call more often than normal in such environments if they are disorientated. The new work underlines the need to better understand the effects of artificial light on birds and other wildlife. It also demonstrates the potential for passive acoustic monitoring to help answer ecological questions.

SENSITIVITY MAPPING FOR WADERS

The creation of new woodlands provides opportunities for biodiversity (including birds) but it can also damage populations of other species dependent on the existing habitat at sites where the new woodland is being established. One group of birds that may be at particular risk from the establishment of new woodlands are our breeding waders, most of which now have an unfavourable conservation status.

A BTO report published in 2021 describes the development of a tool that can support decisions on where to establish new woodlands and, at the same time, minimise the risk to existing breeding wader populations (O'Connell *et al.* 2021). Using data from *Bird Atlas 2007–11*, John Calladine and Mark Wilson used predictive modelling to create 'wader sensitivity maps' for the whole of Britain. The performance of the models used to create the maps was examined by using both empirical data and ground-truthing surveys, the latter carried out in two areas of particular interest: Northumberland and the NE Cumbria Forest Investment Zone, and the Cairngorms National Park.

The best models were for species with more data underpinning them, for example, Curlew and Oystercatcher. In addition to guiding wader conservation and forest planning, the tool can be used to assess the relative importance of particular landscapes, land uses and areas with statutory designations for breeding waders. Being able to inform high-level policy decisions affecting breeding waders, including balancing wader conservation and forest expansion, should bring real benefits.

WALES

BTO Cymru gives a Welsh voice and perspective on issues that are important to the birds of Wales. This is achieved by working closely with partners across Wales, including the Welsh Government, Natural Resources Wales, the Welsh Ornithological Society, RSPB, bird clubs, and our members and volunteers.

MONITORING POLLINATORS IN WALES

The Welsh environment supports significant economic sectors, including agriculture, fisheries, tourism and forestry, which are also of importance to other key policy areas, including health and well-being, energy, and infrastructure. Understanding how the policies that shape these economic sectors deliver on their objectives requires a monitoring and reporting framework, to which BTO is contributing.

BTO is one of 22 partners undertaking the Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP) in Wales. Like its predecessor, which ran from 2013–2016, ERAMMP is collecting monitoring data across the Welsh landscape and will be a key source of data for future editions of the State of Natural Resources Report, published by Natural Resources Wales.

In 2021, BTO put together a team of fieldworkers to monitor pollinator abundance and habitat use in 80 survey areas spread across Wales. The outputs of these surveys – numbers of bees, butterflies and hoverflies, and their associated flora – will be added to the modelling work that will be submitted to Welsh Government, and later published in peer-reviewed papers. Because the study is repeating previous monitoring (2013–2016) of the Glastir agri-environment scheme, it will report on any changes that have occurred in abundance and community structure.

Fieldwork targeting birds is taking place in 2022, but this is the first time that BTO has been directly involved in running pollinator surveys of this kind, something that underlines the transferability of our expertise in monitoring work.

COMMON BLUE : MIKE TOMS / BTO

FISH-EATING BIRDS

Amongst the complex and inter-related reasons for the decline of migratory salmonids (Atlantic Salmon and Sea Trout) – which include changing land use, climate and rainfall, and alterations in the marine environment – it is important to understand any additional contribution made by the changing populations of fish-eating birds. This has been the subject of recent BTO work in Wales.

Migratory salmonid populations in Wales are classified as 'at risk' or 'probably at risk' and most populations are declining. The species are important to anglers and net fishers, supporting both recreational activities and the wider socioeconomic benefits that arise from well-run fisheries. In addition, these species have a broader societal value as iconic indicators of healthy river systems.

If the numbers of a species fall below safe biological limits, then predation may limit the population further or suppress any recovery. It is therefore important to document and understand the extent to which predation is impacting Salmon and Sea Trout populations in Wales. The main predators of these species in Welsh rivers are fish-eating birds, notably Cormorant and Goosander. Both the fish and the fish-eating birds are protected under national and international legislation, which again highlights the need to balance the conservation and human interest components linked to both the fish and the birds.

Welsh Government, Natural Resources Wales and a broad coalition of partners and stakeholders have been working to understand the multiple factors affecting Welsh salmonid populations. The interests of different stakeholders do not always align with one another, adding complexity to the work being done, and this is where BTO's scientific independence and political neutrality can bring benefits. Our independent and robust evidence base enables effective decision-making, supports the testing of solutions, and informs debate. Rachel Taylor (scientific lead for BTO Cymru) has participated as scientific advisor to the multi-stakeholder Wales Fish-eating Birds Advisory Group since its inception in 2018.

The Wales Fish-eating Birds Advisory Group has spent several years developing a shared understanding of both fish and bird ecology, the critical environmental pressures and the concerns of the relevant stakeholders; informed throughout by BTO data and scientific expertise. Several pieces of review, research and survey work have been commissioned, including the Winter River Survey delivered by BTO in 2020–21 (see below). These have informed cooperative development of a set of strategic recommendations to policy on the future management of this difficult conservation conflict in Wales. The Group recommendations will be presented to Natural Resources Wales and are expected to underpin a new policy for supporting salmonid recovery in future.

WINTER RIVER SURVEY

An early task identified by the Welsh Fish-eating Birds Advisory Group was to improve our understanding of both populations and distribution of Cormorant and Goosander in Welsh rivers through the winter months. Goosanders demonstrate a complex seasonal migratory pattern, which includes a sex-biased moult-migration, and we lack a detailed understanding of their winter movements. Cormorant populations also demonstrate complexity in their movements, with the majority of the Welsh breeding population being of the coastal-breeding *carbo* race. However, the winter population is thought to be supplemented by breeding birds from elsewhere in Britain (and of probably both the *carbo* and *sinensis* races), plus an unknown and variable number of *sinensis* race birds from the Continent.

The distributions of both species change seasonally but BTO's core long-term datasets do not provide a robust enough basis for management activities intended to reduce predation risk to critical salmonid populations. This is because the Wetland Bird Survey and the Non-estuarine Waterbirds Survey deliver much better winter coverage across estuaries and still-waters than on open rivers, where many Welsh Cormorants and Goosanders are thought to winter.

Natural Resources Wales tasked BTO Cymru with designing a survey capable of robustly assessing populations and winter distributions of these two highly mobile species, and subsequently delivering this challenging survey and providing population estimates for 10 principal salmonid rivers across Wales. The team, expertly supported by staff from across BTO and including six contracted field staff, surveyed 956 km of river channels through December, and a further 1,400 km of channels and tributaries through January and February. This was a challenging survey, especially against a backdrop of coronavirus restrictions, and the more predictable problems of snow, rain, flooding and remote fieldwork.

The project delivered modelled distributions and population estimates for both Cormorant and Goosander for the 10 rivers, their wider catchments and (extrapolated) population estimates for all-Wales, and provided these and the underpinning data to Natural Resources Wales and the Fish-eating Birds Advisory Group at the end of the winter (and BTO's financial year).

GOOSANDERS : DAVID TIPLING / BIRDPHOTO.CO.UK

SCOTLAND

The staff in our Scottish office understand the specific needs of their country. They provide an important point of contact for our regional volunteer network and our many members, funders and partners. Their deep Scottish knowledge is fed back to BTO's headquarters to ensure that UK-wide schemes are relevant to Scotland.

LOOKING FOR DIFFERENCES

Populations of some familiar summer migrants are faring better in the north of the UK than they are in the south. These differences could be rooted in conditions on the breeding grounds – perhaps there is more invertebrate prey available in the north – or they could be the result of factors operating elsewhere, either in the wintering areas or during migration. If birds from northern breeding populations use different wintering areas or migration routes to those in the south, then this might be contributing to the contrasting fortunes.

In order to tackle the latter possibility, BTO Scotland staff, led by Chris Hewson of BTO's International Team, have been fitting tiny tracking devices, called geolocators, to migrant Tree Pipits, Whinchats, Garden Warblers, Willow Warblers, Wood Warblers, and Spotted Flycatchers nesting in woodland and scrub habitats in central Scotland. We already have a good idea of where the birds from southern populations winter, and the sites they use along the way, so the data from this project should reveal any differences.

WOOD WARBLER : EDMUND FELLOWES / BTO

MONITORING SCOTTISH RAPTORS

Scotland is home to important bird of prey populations, whose changing fortunes are being monitored through the Scottish Raptor Monitoring Scheme. During 2021, the scheme was again funded by NatureScot, BTO, RSPB, FLS and SOC, with in-kind contributions from all the partners (the others being SRSG, RBBP, SF and JNCC). The scheme, which was launched in 2002, seeks to provide robust information on Scottish raptors, especially trends in numbers, range and productivity, and to understand the pressures faced.

Analyses using Scottish Raptor Monitoring Scheme data to produce the first set of national and regional trends for Scottish raptor populations were completed in 2021 and will be launched as part of the scheme's 20th anniversary in 2022. Such information is extremely valuable, not least because these species are often poorly represented in core, multi-species, monitoring schemes, and the work of the Scheme and its partners is making a significant contribution to the conservation of these iconic birds.

During 2021, as well as leading on trends development, Mark Wilson reviewed the information collected by Raptor Patch, the scheme's initiative to promote better monitoring coverage of widespread raptor species in Scotland, like Common Buzzard and Raven. In particular, analyses were carried out to assess the numbers of sample patches likely to be needed in future to contribute rigorous information on trends for the widespread species. The findings will be fed into plans for enhancing raptor monitoring in Scotland that will be developed further during 2022.

WHITE-TAILED EAGLE : LIZ CUTTING / BTO

STUDYING SAWBILLS

It is not just Welsh fish-eating birds (see page 30) that have been the focus of BTO research over the last year. BTO Scotland staff have carried out a pioneering piece of work to improve our understanding of Goosander movements. As noted earlier, the movements of these birds are complex and poorly understood, something that is now being addressed through the use of GPS–GSM tracking devices. These devices use either Global Positioning System (GPS) satellites or the Global System for Mobile Communications (GSM) to determine their location, which is transmitted to a base station at regular intervals through the day.

TAGGING GOOSANDERS / BTO

There are two particular challenges in deploying and using these devices on Goosanders; the first is that Goosanders are difficult birds to catch, the second is that they are adept at removing the devices, which typically only remain on the bird for a couple of weeks. The BTO Scotland team has developed a safe method for catching the Goosanders using mist nets positioned across shaded river sections. So far, 11 birds have been captured on two river systems, the River Devon – a tributary of the River Forth in Clackmannanshire – and the River Tweed in the Scottish Borders. Interesting differences in the movements of birds on the two rivers have been revealed, and it is hoped that the information gained will help to inform the debate about the impacts of these fish-eating birds on fish stocks. This important work was funded through the generosity of Mark Constantine, to whom we are extremely grateful.

ENGAGING YOUNG PEOPLE

BTO's efforts to engage more younger people in our work has seen a number of UK-wide initiatives, together with additional targeted work. BTO Scotland staff have been working in partnership with the Scottish Ornithologists' Club to provide more opportunities for Scotland's young people. A series of monthly Youth Engagement Events was launched in October 2021 and has proved to be very popular, with up to 60 young people booked on each session.

The online training delivered by BTO Scotland staff also increases opportunities for younger people, and others for whom the practicalities of attending face-to-face training events can be a barrier. During the year, BTO Scotland staff delivered virtual training events on bird songs and calls, upland birds, waders and waterbirds, together with training relating to particular BTO-led surveys. A programme of face-to-face sessions complemented the virtual courses. Virtual training has a particular benefit in Scotland, increasing accessibility, including for people living in more remote areas. The team also supported delivery of training for supporters in Northern Ireland, and helped the BTO's Training Team to deliver a series of UK-wide training events online.

NORTHERN IRELAND

BTO Northern Ireland plays an active role, working with partners and our members and volunteers, to deliver much-needed information on Northern Ireland's birds. Our team works closely with BTO staff in other offices, sharing expertise and feeding into our wider strategic work.

TAGGING A BLACK GUILLEMOT : DANIEL JOHNSTON / BTO

TRACKING BLACK GUILLEMOTS

Marine Protected Areas are a vital mechanism for seabird conservation, but high-quality evidence is required to ensure they are well placed and managed. To this end, BTO was contracted as part of the Marine Protected Areas Management and Monitoring (MarPAMM) Programme to study the at-sea distribution and habitat use of Black Guillemots in Northern Ireland, a charismatic species at the southerly limit of its global range, and one not typically included in traditional protected sites due to its non-migratory nature. This project has been supported by the EU's INTERREG VA Programme, managed by the Special EU Programmes Body. Using a novel combination of location and depth recorders, the sea floor foraging behaviour of Black Guillemots was described for the first time, and the findings of the study are being used to increase the protection afforded to the species in Northern Ireland.

BTO also oversaw censusing of Northern Ireland's largest and most challenging seabird colonies for the MarPAMM project. Field teams were kept busy counting over 150,000 Guillemots and around 23,000 Razorbills on Rathlin Island and the north Antrim coast. Considering Rathlin alone, records of 149,510 Guillemots and 22,421 Razorbills made the island the UK's largest Guillemot colony and third-largest Razorbill colony at the time of surveying. Red-listed Kittiwake has increasedon Rathlin by 38% since the Seabird 2000 census with ~13,700 pairs counted.

The picture was less rosy for Puffin, which continued to decline on the island, with only 407 individuals counted. The abundance and trend data collected will underpin conservation management plans for seabirds in the region and provide important context for future research.

DELIVERING ESSENTIAL EVIDENCE

Back on dry land, BTO is providing essential evidence on the impacts of agri-environment scheme (AES) interventions on Northern Ireland's birds, as part of a Department of Agriculture, Environment and Rural Affairs (DAERA) funded partnership project with the RSPB. The six-year project aims to assess the effectiveness of Northern Ireland's current AES, the Environmental Farming Scheme, in benefiting three groups of birds of special conservation importance in the region: waders, upland birds and seed-eating birds.

Surveys are similar in structure to the BTO/JNCC/RSPB Breeding Bird Survey (BBS), involving a random sample of 1 km squares, but each square includes 3 km of transects and more detailed habitat recording. The first two spring and summer survey seasons (2021 and 2022), and first round of winter surveys (2021/22), are now complete, enabling some reflection on progress so far. In particular, the support of DAERA in liaising with landowners and facilitating access has been exemplary, but as is often the case, achieving survey coverage in Northern Ireland has been a challenge compared to more populated parts of the UK.

This project highlights the importance of empowering and upskilling a greater number and diversity of people in bird survey techniques through our engagement work, so that we can continue to collect evidence essential to informed decision-making.

INCREASING VOLUNTEER NUMBERS

The BTO team achieved record BBS coverage in Northern Ireland in 2021, with 85 volunteers surveying at least 100 grid-squares. With the continued support of the Northern Ireland Environment Agency (NIEA), an additional 52 squares were surveyed by professional contractors, resulting in a total of 152 squares. The previous highest totals were 70 volunteers and 131 squares. This period also saw record numbers of active BTO Garden BirdWatch participants in Northern Ireland (116 in 2021).

It is thought that online training in both bird identification and BTO-led projects, introduced during the first lock-down in 2020 and latterly combined with field trips in a 'hybrid' approach, has helped BTO reach out to a new audience in Northern Ireland. Enthusiastic and knowledgeable local representatives, who can provide one-to-one mentoring and support, are absolutely vital in Northern Ireland. Building and maintaining this network has been a priority over the last few years. Engagement and training work continues, with hybrid courses in the Wetland Bird Survey, BBS and the Nest Record Scheme delivered this year.

SONG THRUSH : TOM CADWALLENDER / BTO

WORKING WITH COMMUNITY GROUPS

The team in Northern Ireland is working to reach new audiences through engagement with existing community groups and partnerships with other environmental NGOs. This has particular value when targeting monitoring gaps in Northern Ireland, including our understanding of Northern Ireland's woodland birds. A partnership project with the Woodland Trust in the Faughan Valley, Co. Londonderry, is providing a beginner-friendly introduction to monitoring for Woodland Trust volunteers interested in learning more about birds. By training new volunteers in simple point-count methods, we aim to boost the confidence and experience of fledgling birders and provide basic but under-recorded information on birds in native woodland.

BTO has also been developing its relationship with the Lough Neagh Partnership, which works to improve the environment (ecological, economic, social) in and around Lough Neagh. We are working towards a pilot joint project, to collate and interpret data on the lough's waterbirds, to build a shared understanding of threats and conservation action that can be taken.

ACROSS THE WORLD

BTO data and expertise continue to contribute to projects across the globe, reflecting our strong partnership approach and the regard in which our work is held. Working with international partners will continue to be a key component of our efforts to address the issues affecting migrant birds.

PROTECTING WATERBIRD FLYWAYS

The future of many migratory waterbirds depends on the conservation of a network of key wetland sites, situated along their flyways. The suitability of these sites is changing because of climate change, and it is essential that we understand what this means for the birds that use them.

A large international consortium, led by Wetlands International but also involving BTO and analysing BTO-data, developed a priority index to highlight sites that are currently important for waterbirds, for example because they harbour a high number of threatened species or a high proportion of the population. Using bioclimatic models the team found that projected climate change will reduce habitat suitability for waterbirds across 58% of existing Critical Sites within the African-Eurasian flyway. African and Middle East sites are particularly threatened, comprising 71 of the 100 most vulnerable sites (Breiner *et al.* 2021). By highlighting priority sites for conservation, and classifying Critical Sites into Climate Change Adaptation Strategy classes, the results can be used to support the climate change adaptation of both individual sites and the wider network.

PROTECTING SPOTTED EAGLES

We have been working with Ukrainian and Belarusian colleagues in Polesia since 2019 on a multinational, multi-partner project, funded by the Endangered Landscapes Programme and led by Frankfurt Zoological Society (FZS). The project aims to boost conservation efforts in the huge wet lowland region of Polesia. Polesia spans the border region of southern Belarus and northern Ukraine, and contains the largest national park in both countries: the Chernobyl Exclusion Zone.

We are appalled by Russia's invasion of Ukraine and stand in full support of those affected by this conflict. Our project partner Frankfurt Zoological Society (FZS) has been working to get partners and staff in Ukraine to safety, though most remain on-site, providing refugees with resources and supporting the protected areas' running costs at a time when other funding has been cut off. We hope that the global support of Ukraine will help bring an end to this terrible conflict, and that we will be able to continue to work with our colleagues to learn about and protect the country's precious habitats and wildlife.

Part of our work in Polesia has involved the GPS-tagging of Greater Spotted Eagles to find out why this species is declining in the region and what resources it needs to reverse these declines. A peer-reviewed paper, published in the journal *Bird Conservation International* during the year, provides the first systematic study of Greater Spotted Eagle migration (Vali *et al*. 2021). BTO's Adham Ashton-Butt and the team used GPS tracking devices to following the migrations of eagles from the three remaining European breeding populations in Estonia, Poland, and Belarus.

The tracked eagles wintered across three continents, with 46% wintering in Africa (mostly in the eastern part of the Sahel), 43% in southern Europe (mostly in Greece) and 11% in the Middle East. The three populations were found to differ in their migration strategies; while birds from the Estonian population wintered in Southern Europe, those from Poland and Belaruse were divided between southern Europe and Africa. Single birds from each of the breeding populations wintered in the Middle East.

The eagles chose to winter in wetland sites throughout their wintering range, with roughly half of the birds wintering within internationally or nationally protected sites (including 12 Ramsar sites). Interestingly, nearly a third of the birds wintering in southern Europe chose the same Greek national park, which might indicate a lack of other options in the region.

The findings of the study highlight the importance of protected wetlands to Great Spotted Eagles and, alongside this, the vulnerability of these populations to future wetland degradation. It also reveals that, with just two of the 14 wintering sites in Africa under some form of protection, male eagles are at greater risk than females because they are the ones more likely to winter at a greater distance from the breeding areas.

GARGANEY : DAVID TIPLING / BIRDPHOTO.CO.UK

LESSER KESTREL : DAVID TIPLING / BIRDPHOTO.CO.UK

SHOULD I STAY OR SHOULD I GO?

One consideration when planning conservation action for a migratory species is where to target that action; should it be targeted towards local factors or those acting on the species elsewhere, either of which may be driving a population decline. Migration may expose individuals to a range of anthropogenic threats, some of which may act to reduce future breeding success – perhaps because birds arrive back on their breeding grounds later than ideal or in poorer condition. Understanding these effects is important, and can inform conservation action.

One way to examine the potential impact of carry-over effects – those that affect an individual in one season but impact it in a subsequent season – is to compare the breeding parameters of two or more populations, where one is migratory and the other resident. Lesser Kestrels breeding in Spain provide a particularly good opportunity to test this approach, because resident individuals breed in mixed colonies alongside long-distance trans-Saharan migrants (Buchan *et al.* 2021).

BTO's Phil Atkinson, working with colleagues at the universities of East Anglia, Porto, and Lisbon, the Estación Biológica de Doñana, and the Tumbabuey Grupo de Anillamiento in Cádiz, combined tracking data, stable isotope analysis and resighting data to examine the effects of this stark difference in migratory strategy on body condition, breeding phenology and breeding success. Four Lesser Kestrel colonies in southern Spain were monitored for five consecutive years (2014–18), yielding 1,962 captures, and revealing the migratory strategy for 107 adults.

Despite a 3,000 km difference in distance travelled, and marked differences in the wintering experiences of migrant and resident Lesser Kestrels, the reproductive carry-over effects were limited, with conditions on the breeding grounds being of greater relevance for adult and chick body condition. There was little evidence to support the hypothesis that anthropogenic change could be having a disproportionate effect on migrants, and thereby disrupting the balance in reproductive fitness benefits of each strategy. However, because the study looked at reproductive success, rather than survival, recruitment or population trends, the choice of migratory strategy could still have important consequences for these populations, and this is something that will require future work.

BEING FIT FOR THE FUTURE

We continue to face complex challenges, resulting from climate change, and pressures on our environment to meet growing demands on the planet's resources. Ensuring that society can respond effectively depends on organisations like BTO playing a strong role and making our voice heard.

LOOKING TO THE FUTURE

BTO has extended its current strategy through 2021 and into 2022, and is continuing to deliver the commitments made, which coalesce around the following four core aims: i) to enable and deliver high quality, impartial and impactful science, ii) to share data information and knowledge through excellent communications, inspiring and empowering people with an understanding of birds and the importance of knowledge, iii) to enthuse and encourage existing and new members, enabling more people to learn and grow through participation and environmental discovery, and iv) to grow our financial independence. In addition to our current commitments, we will carry out other work to ensure that we are ready to deliver for birds; this work will focus on three areas: Staff and Supporters, Sustainability, and Impacts.

In 2023, BTO will celebrate its 90th anniversary. As part of those celebrations we will launch a new strategy that, whilst remaining true to the original core value of its central founder Max Nicholson, "recognising the potential of cooperative birdwatching to inform conservation", will focus to a much greater extent on the impact of BTO work.

We intend to reach this anniversary as a fit and healthy organisation, confident in its ability to deliver for birds. This will mean building on what BTO has always done best: the robust, long-term national monitoring schemes, capitalising on novel scientific approaches like tracking technology and acoustic monitoring, and engaging new supporters, particularly through our youth work.

RISKS AND UNCERTAINTIES

The transition to living with COVID-19 provides a moment to re-evaluate and reset our ways of working. The increase in people connecting with nature at this time suggests a unique opportunity and a responsibility to broaden, deepen and diversify our engagement. We have, for example, seen the opportunities that have come from virtual events, reaching new audiences and fostering new forms of engagement, and we will learn from these, broadening our offering so that we continue to support and engage with a wider section of society.

We recognise that the COVID-19 pandemic, together with growing recognition of the climate crisis, is both changing the ways in which society operates and reshaping individual behaviour. Our organisation must understand and reflect on these changes, so that we can continue to deliver appropriate opportunities for participation in our work. It is essential that we continue to demonstrate the impact of our work and how it delivers for birds, wildlife and people, and this will be a focus for our new strategy.

The financial environment remains challenging, but our work and the datasets we collect, curate and analyse have never been more important. With your support we will continue to direct our resources towards the pressing questions affecting birds and their environment, so that the results of our efforts deliver outcomes that are better for birds and society. We need to grow unrestricted income, diversifying income generation and addressing the pension deficit, and review the way we deliver our most impactful research through contracts and appeals.

RESPONDING TO CHANGE

We are conscious of both our environmental and social footprints, and will, for example, continue our work towards being a more inclusive organisation, attracting, supporting, developing and retaining excellent staff and volunteers (see page 14). We will develop and deepen links with existing supporters, and widen our reach to engage with new and more diverse communities.

We will develop and implement a stronger environmental sustainability strategy and integrate the drive towards greater equality, diversity and inclusiveness across all of our operations. New ways of working will require us to invest in business-critical digital infrastructure and systems, ensuring that we can sustain existing commitments and rise to the challenge of future demands and priorities.

FUTURE PROJECTS

We want BTO science to be more strongly focussed on addressing the issues of biodiversity loss, climate change, and human health and well-being. To do this we will consider the questions we want to answer, by strengthening our links to policy and environmental decision-makers to ensure we understand the key environmental questions, and raise awareness of the vital role that BTO science and data play in answering them.

We will review our long-term core surveys and contract research, to maximise their value in addressing emerging needs, supporting nature's recovery, meeting local and country level requirements, and engaging a diversity of supporters. We will build active links with social science, in particular, to better understand, quantify and improve the benefits of connecting to nature for people.

We will raise the profile of science communications with key audiences, including volunteers, collaborators, funders and decision-makers, to ensure our science is prominent and accessible. By doing all of this we will deliver the impact that is both needed and expected of us as a Registered Charity.

BIRDWATCHERS : DAVID TIPLING / BIRDPHOTO.CO.UK

THANK YOU FOR YOUR SUPPORT

Each year we need to raise thousands of pounds to fund our work so that we can deliver the charitable outcomes that are so important to our supporters. We are fortunate to receive wonderful support from members, funders, trusts, corporate partners and many others, all of which help to make our work possible.

SUPPORTERS FUND VITAL RESEARCH

This year thousands of supporters gave generously to appeals, played the spring raffle, sponsored Cuckoos and much more. These donations supported BTO staff and volunteers to produce important research like the *Climate Change & the UK's Birds Report* that launched during CoP26 to highlight how climate change is already impacting the UK's birds. Globally, up to 7% of birds are considered to be at risk of extinction due to climate change, and in the UK some of our most iconic species like Puffin are at serious risk from rising sea temperatures. Understanding the potential impact of climate change relies on our long-term monitoring efforts, which provide crucial evidence to explain and find solutions to some of the biggest threats to our wonderful wildlife. Our monitoring and research are fundamental to challenging policy-makers and governments to make the changes needed to reduce the impacts of climate change and pull these iconic species back from the brink.

Our spring appeal raised vital funds to help improve seabird monitoring efforts. UK breeding seabird populations have declined by a quarter since 1986, and we urgently need a better understanding of why. Due to the remote nature of many seabird colonies, there are significant gaps in the data that could provide crucial answers. Supporters responded generously, donating to fund a programme to recruit, train and support seabird surveyors across the UK, helping to provide compelling evidence to incite the action our seabirds so sorely need. We kicked this off with a series of online training courses for the public, aimed at increasing confidence in seabird identification, while raising awareness of their ecology and population declines. A total of 476 supporters joined us to learn about the 25 species that breed in the UK and the major conservation issues they face.

PUFFIN : SARAH KELMAN / BTO

SUPPORT FROM TRUSTS & FOUNDATIONS

BTO is fortunate to have the support of several trusts which generously fund us each year, often by making unsolicited donations despite the current economic pressures.

One key funder is the Esmée Fairbairn Foundation, which has supported BTO with substantial annual grants, plus discretionary Trustee awards to specific projects. During 2021/22, we were successful in securing a further large grant from the Foundation, providing £130,000 per annum over five years to fund monitoring, research and our growing programme of work with younger people.

We made a successful applications to Covid Recovery Grant funds set up by government departments through the Heritage Lottery Fund, securing a grant of £110,000 over 18 months from the Green Recovery Challenge Fund (GRCF/Defra) to recruit a Youth Engagement Coordinator, providing training for youth volunteers and organising events and activities for young people. Our application for a part-time Project Officer to develop our engagement with people in Northern Ireland was also approved by the Covid Recovery Employment and Skills Initiative for Heritage (CRESI/Dept. for Communities, NI), and we were awarded a grant of £83,500 over three years.

In Scotland, we received a grant for the very first time from the Hugh Fraser Foundation, towards our work with young people, and with the support of an Esmée Fairburn Foundation Trustee, we received a grant of £13,000 to support our project tracking migrating songbirds from Scotland (see page 32).

We are immensely grateful for all of this support, enabling BTO to continue with valuable work and to develop as an organisation.

THE WITHERBY CUSTODIANS MEET AGAIN

After two years of virtual events, the BTO Witherby Custodians finally met in person again in December 2021. The group of committed supporters, who not only support BTO financially but also share experience and input to our plans and strategy in meetings with the BTO board and staff, visited the Natural History Museum in Tring for a private viewing of Henry Forbes Witherby's collection of bird skins, sold in 1933 for an impressive sum of £1,400, which was then used to fund the start of BTO. BTO Chief Executive, Juliet Vickery. along with key wader researchers and members of the Youth Advisory Panel updated the Custodians on developments in research and how BTO is adapting to meet future challenges. If you are interested in becoming a Witherby Custodian, please contact: david.agombar@bto.org

OUR SUPPORTERS' MEMORIES LIVE ON

BTO has been incredibly fortunate to have received £1.46 million from gifts in Wills – 64% of our annual fundraised income. We are so grateful to all those supporters whose life-long love of birds and a concern for their future drove them to include a bequest to BTO in their Wills.

Peter Arbery was a valued member of the BTO family, whose passion for birds was ignited when he saw his very first Redwing. Eileen, Peter's partner of 43 years, remembers a walk through farmland one early spring, when they saw a flock of Lapwings displaying. Peter had never seen them before and Eileen remembers him being quite bewitched. Peter and Eileen loved to birdwatch on their hill-walking holidays in the Lakes, Yorkshire and Scotland. Eileen recalls a 'magical trip' to South Uist, where they watched Raven, Golden Eagle, migrating waders and Merlin, and a wonderful trip to the Isle of Mull, where (despite being bitten by midges) they looked on in wonder at a Golden Eagle hunting over the moorland. Peter loved taking part in fieldwork for *Bird Atlas 2007–11*, and at home he would look out for the returning Swallows and House Martins, noting down their numbers and dates of arrival. He was saddened over the years to notice the decline of birds like Golden Plover, Tree Sparrow and Yellowhammer, which were no longer common occurrences on his daily walks. We are so grateful to Peter for choosing to support BTO in this incredibly special way, to monitor the health of the birds that brought him and Eileen so much pleasure.

Linda Blenkinship, valued BTO member and Garden BirdWatcher, sadly passed away before she received a bequest from a late friend's Estate. Her husband, David, chose to pass on that gift from Linda's estate, to charities and groups that were precious to her during her life. We were touched to be one of those organisations whose values were appreciated by Linda. During her time as a BTO Garden BirdWatcher, Linda submitted an incredible 15,465 individual observations of birds from her garden. David, Linda's husband, told us that "*first thing in the morning, Linda would be there in the garden – putting food out for the ground-feeders, and checking that the feeders on the fence were full for those who flew in. The birds were her first call, whatever the weather.*" The data Linda submitted during her life are a wonderful legacy, alongside the gift in her Will which will support future BTO research on the birds that she had diligently counted for so many years.

We are grateful to both Eileen McLernon and David Hawtin for allowing us to share personal stories about Peter and Linda and the gifts they gave.

We continued to hold gifts in Wills awareness events online during 2021/22 due to COVID-19 restrictions. Three events were delivered: Celebrating your BirdTrack records, BTO's Youth Engagement Programme and Celebrating 10 Years of BTO Cymru. All three events were well attended and gave a special opportunity for guests to pose questions to BTO staff 'face-to-face'. We hope to begin to offer in person events later in 2022, COVID-19 permitting, as well as continuing to offer opportunities to attend online.

CORPORATE PARTNERSHIPS

This year, BTO has successfully raised funds through our partnership with Westland Horticulture and our Corporate Membership Scheme. Along with contributing vital funds towards our core work, Westland has helped raise awareness for the charity by displaying a wide range of BTO-endorsed goods throughout garden centres across the country, as well as providing several prizes for our spring raffle. Through their sister company, Marshalls, we received donations of wildflower seeds which are sent to the families of supporters who have passed away, to plant and attract birds and wildlife as a way to remember them.

If you would like to know more about any of the projects or how you might support our work, please contact: fundraising@bto.org

LAPWINGS : DAVID TIPLING / BIRDPHOTO.CO.UK

OUR SUPPORTERS

We are very grateful for the generous support that we have received, both in time and money, in the past year. In addition to members and other fieldworkers, there are many other individuals and companies who support our work with financial contributions. We are particularly pleased to acknowledge the following corporate and other supporters.

CORPORATE SUPPORTERS 2021/22

Anglian Water, Birding in Portugal, BirdGuides, Birdkind, Brinvale Bird Foods, CJ Wildbird Foods, Eddowes Aviation Safety Ltd., Gardman Ltd., Grant Arms Hotel, HR Wallingford Ltd., Natureguides, Northumbrian Water, Opticron, Outdoor Alternative, Roys of Wroxham, S. E. Marshall & Co. Ltd., Swallowtail Print, Swarovski UK Limited, Westland Horticulture Ltd.

CHARITABLE TRUSTS 2021/22

The British Birds Charitable Trust, Chapman Charitable Trust, Downton Banister Trust, The Dovehouse Trust, The D'Oyly Carte Charitable Trust, The Edinburgh Trust, Esmée Fairbairn Foundation, The Hugh Fraser Foundation, The Gilander Foundation, The Helen And Horace Gillman Trusts, The National Lottery Heritage Fund, Tasso Leventis Foundation, The Lizandy Charitable Trust, The Jack Patston Charitable Trust, The Penchant Foundation, Cecil Pilkington Charitable Trust, The Evelyn Rose Fund, Sandra Charitable Trust, The Saxham Trust, John Swire 1989 Charitable Trust, The Emily Weircroft Charitable Trust, The Whaites Charitable Fund.

LEGACIES 2021/22

Richard Allen, Peter Arbery, Dr Antony Robin Atherton, Yvonne Mary Rose Bishop, Linda Blenkinship, Gerard Burns, Gary Caine, Mary Kathleen Coates, Patricia Louise Collier, Ann Cotton, Jean Davis, Moira Duncan, Joan Margaret Edwards, Benjamin Flavel, Linton Gaunt, Joan Hollis, John Raymond Huntingford, Kathleen Joyce, Suzanne Kelsey, Margaret Kettlewell, Enid Marion Mercer, Stephen Metcalfe, Mrs E. M. Milton, Geoffrey Richard Moss, Peter Arthur Rawlins, John Ewart Rednall, Pamela Rhodes, Sarah Elisabeth Rowlands, Charles Edward Saxton, Marian Burr Smith, Kitty Southern, Jim Stevenson, Geoffrey William Stone, Sheila Mary Veronica Thompson, Wallace Thomas Thrower, Angela Triplett, Susie Diana Ullman, Dorothy Vincent, Michael John Welch.

IN MEMORIAM 2021/22

Myrna Anderson, Olga Andrews, Peter Arbery, Alwyn Arnold, Elaine Baker, Fran Bowman, Jill Bullock, Mr R. Bulman, Peter Catchpole, Heidi Chaterjee, John Claridge, James Cobb, Mary Crook, Allan Gaunt, David Harris, Mr Honour, Christine Hazel, Malcolm Higgin, Michael Holdsworth, Trevor Johnson, Sheila Mary Jones, Jane Kemp, Mary Kershaw, Frank Lowe, Paul Marshman, David Mason, Anne McKeever, Geoffrey Orton, Nicholas George Page, Helen Phipps, Lorraine Piercy, HRH Prince Philip, Duke of Edinburgh, Shane Robinson, Richard Simons, Mary Squires, Arthur John Welch, Peta Wright.

FUNDERS OF BTO WORK 2021/22

ABP Research & Consultancy, Agri-Food and Biosciences Institute (AFBI), APEM Ltd., Bat Conservation Trust, Bayer, Bookend Trust, Bureau Waardenburg bv, Butterfly Conservation, Cairngorms National Park Authority, Cambridge Conservation Initiative, UK Centre for Ecology & Hydrology, Chilterns Conservation Board, The Crown Estate, DAERA, Department of the Environment, Food and Rural Affairs, Department for Business, Energy and Industrial Strategy, Devon Wildlife Trust, DONG Energy, Duchy of Cornwall, EURING, European Commission, European Food Safety Authority, Forest Sciences Centre of Catalonia, Forestry England, Forestry & Land Scotland, Frankfurt Zoological Society, Galloper Wind Farm Ltd., Game & Wildlife Conservation Trust, Hartley Anderson Ltd., Heather Trust, Hepple Estate, Hi-Def Aerial Surveying Ltd., Institute of Avian Research, Interreg, John Neighbour, Joint Nature Conservation Committee (on behalf of the statutory nature conservation agencies: Natural England, Natural Resources Wales, NatureScot and the Department of the Environment Northern Ireland), Ken & Linda Smith, KPMG LLP, Mark Constantine, Moors for the Future, National Grid Hinkley, National Trust, Natural England, Natural Resources Wales, Natural Environment Research Council, NIRAS Consulting Ltd., North York Moors National Park Authority, Northern Ireland Environment Agency, ORSTED, Rifcon, Royal Society for the Protection of Birds, Scottish Government, NatureScot, Scottish Raptor Study Group, Scottish Ornithologists' Club, Sound Approach, Star of the Sea Windfarm, States of Guernsey, Swedish University of Agricultural Sciences, Tasso Leventis Foundation, Ulster Wildlife Trust, University of Cambridge, University of West England, University of East Anglia, University of Edinburgh, University of Exeter, University of Stirling, Vattenfall, WEG, Welsh Government, Wildfowl & Wetlands Trust, WOOD Environment & Infrastructure Solutions UK Ltd., Woodland Trust, Yorkshire Dales National Park Authority, Zoological Society of London.

CLOCKWISE FROM TOP LEFT: YOUNG LEADERS COURSE / BTO; YOUTH ADVISORY PANEL MEETING OUR PATRON / KENSINGTON PALACE; BTO YOUTH GET-TOGETHER : BTO; BTO/MARSH TRUST AWARDS : MARTIN SYLVESTER

Peer-review is an important process, establishing the validity of research through review by other expert researchers in the field. It also provides valuable feedback, enabling researchers to improve their papers before publication. BTO reports annually across a number of indicators relating to its scientific work; three of these relate to scientific publications, reflecting the quality of the publications being produced, their impact, and the degree to which the work has been delivered through collaboration.

During 2021 our staff produced 60 peer-reviewed papers, of which 47 were in ISI-listed journals and 22 were published in high impact publications (with an impact factor of 3.5 of greater). Twenty-one of the publications were BTO-led, and 53 were collaborative in nature, underlining the strong partnership approach to our work.

PHEASANT : EDMUND FELLOWES / BTO

Border, J.A. & **Calladine, J.** (2021) Sensitivities to land use change by breeding Short-eared Owl (*Asio flammeus*) in Britain. *Airo* **29**: 54–65.

Bradfer-Lawrence, T., Beresford, A., Anderson, G., Aung, P.P., Chang, Q., Chowdhury, S., **Clark, N.**, Gerasimov, Y., Green, R., Hilton, G., Hughes, B., Lappo, E., Li, J., Syroechkovskiy, E., Tomkovich, P., Zöckler, C. & Buchanan, G. (2021) Modelling the potential non-breeding distribution of Spoon-billed Sandpiper *Calidris pygmaea*. *Bird Conservation International* **31**: 169–184.

Breiner, F.T., Anand, M., Butchart, S.H.M., Flörke, M., Fluet-Chouinard, E., Guisan, A., Hilarides, L., Jones, V.R., Kalyakin, M., Lehner, B., Leeuwen, M., **Pearce-Higgins, J.W.**, Voltzit, O. & Nagy, S. (2021). Setting priorities for climate change adaptation of Critical Sites in the Africa-Eurasian waterbird flyways. *Global Change Biology* **28**: 739–752.

Brides, K., Wood, K.A., Hall, C., Burke, B., McElwaine, E., Einarsson, Ó., **Calbrade, N.**, Hill, O. & Rees, E.C. (2021) The Icelandic Whooper Swan *Cygnus cygnus* population: current status and long-term (1986–2020) trends in its numbers and distribution. *Wildfowl Journal* **71**: 29–57.

Brides, K., Wood, K.A., Petrek, S.W., Cooper, J., Christmas, S.E., Middleton, J., **Leighton, K.** & Grogan, A. (2021) Moult migration, site fidelity and survival of British Greylag Geese *Anser anser* at Windermere, Cumbria. *Ringing & Migration* **34**: 84–94.

Brlík, V., Šilarová, E., Škorpilová, J., Alonso, H., Anton, M., Aunins, A., Benkö, Z., Biver, G., Busch, M., Chodkiewicz, T., Chylarecki, P., Coombes, D., de Carli, E., del Moral, J.C., Derouaux, A., Escandell, V., Eskildsen, D.P., Fontaine, B., Foppen, R.P.B., Gamero, A., Gregory, R.D., **Harris, S.**, Herrando, S., Hristov, I., Husby, M., Ieronymidou, C., Jiquet, F., Kålås, J.A., Kamp, J., Kmecl, P., Kurlavičius, P., Lehikoinen, A., Lewis, L., Lindström, Å., Manolopoulos, A., Martí, D., **Massimino, D.**, Moshøj, C., Nellis, R., **Noble, D.**, Paquet, A., Paquet, J.-Y., Portolou, D., Ramírez, I., Redel, C., Reif, J., Ridzoň, J., Schmid, H., Seaman, B., Silva, L., Soldaat, L., Spasov, S., Staneva, A., Szép, T., Florenzano, G.T., Teufelbauer, N., Trautmann, S., van der Meij, T., van Strien, A., van Turnhout, C., Vermeersch, G., Vermouzek, Z., Vikstrøm, T., Voříšek, P., Weiserbs, A. & Klvaňová, A. (2021) Long-term and large-scale multispecies dataset tracking population changes of common European breeding birds. *Scientific Data View* **8** DOI: 10.1038/s41597-021-00804-2.

Brown, J.M., van Loon, E.E., Bouten, W., Camphuysen, K.C.J., Lens, L., Müller, W., **Thaxter, C.B.** & Shamoun-Baranes, J. (2021) Long-distance migrants vary migratory behaviour as much as short-distance migrants: an individual-level comparison from a seabird species with diverse migration strategies. *Journal of Animal Ecology* **90**: 1058–1070.

Buchan, C., Gilroy, J.J., Catry, I., Bustamante, J., Marca, A.D., **Atkinson, P.W.**, González, J.M. & Franco, A.M.A. (2021) Carryover effects of long-distance avian migration are weaker than effects of breeding environment in a partially migratory bird. *Scientific Reports* **11** DOI: 10.1038/s41598-020-80341-x.

Buchanan, G.M., Field, R.H., Bradbury, R.B., Luraschi, B. & **Vickery, J.A.** (2021) The impact of tree loss on carbon management in West Africa. *Carbon Management* **12**: 623–633.

Calladine, J. & **Jarrett, D.** (2021) Upward elevational shift by breeding Whinchat *Saxicola rubetra* in response to cessation of grazing in upland grassland. *Bird Study* **68**: 47–53.

Chang, Q., Ki, T.L.T., Anderson, G.Q.A., Brides, K., **Clark, N.A.**, Ding, J., Leung, K.K.S., Li, J., Melville, D.S., Phillips, J., Weston, E., Yang, Z. & Green, R.E. (2021) Numbers of Spoon-billed Sandpipers in Jiangsu Province, China, during the post-breeding moult in relation to recent changes in the intertidal zone. *Bird Conservation International* **31**: 169–184.

Clewley, G.D., **Barber, L.J.**, **Conway, G.J.**, **Clark, N.A.**, Donato, B.J., **Thaxter, C.B.** & **Burton, N.H.K.** (2021) Foraging habitat selection by breeding Herring Gull (*Larus argentatus*) from a declining coastal colony in the United Kingdom. *Estuarine, Coastal and Shelf Science* **261** DOI: 10.1016/j.ecss.2021.107564.

Clewley, G.D., **Clark, N.A.**, **Thaxter, C.B.**, **Green, R.M.**, **Scragg, E.S.** & **Burton, N.H.K.** (2021) Development of a weak-link wing harness for use on large gulls (Laridae): methodology, evaluation and recommendations. *Seabird* **33**: 18–34.

Cook, A.S.C.P., **Burton, N.H.K.**, Dodd, S.G., Foster, S., Pell, R.J., Ward, R.M., Wright, L.J. & , **Robinson, R.A.** (2021) Temperature and density influence survival in a rapidly declining migratory shorebird. *Biological Conservation* **20** DOI: 10.1016/j.biocon.2021.109198.

Douglas, D.J.T., Brown, D., Cohen, S., Colwell, M., Donaghy, A., Drewitt, A., Finney, K., **Franks, S.**, Heptinstall, D., Hilton, G., Kelly, S., Lindley, P., McCarthy, B., McCulloch, N., O'Donoghue, B., Sanders, S., Thompson, P. & Whitehead, S. (2021) Recovering the Eurasian Curlew in the UK and Ireland: progress since 2015 and looking ahead. *British Birds* **114**: 341–350.

Fuller, R. (2021) Woodland management and birds. Part 1. Sylvicultural systems and tree species. *Quarterly Journal of Forestry* **115**: 168–174.

Fuller, R. (2021) Woodland management and birds. Part 2. Conservation measures and strategies. *Quarterly Journal of Forestry* **115**: 238–244.

Fuller, R. & Freeman, G. (2021) Editorial: Letting nature take back control. *British Wildlife* **32**: 235–236.

Fuller, R. & Gilroy, J. (2021). Rewilding and intervention: complementary philosophies for nature conservation in Britain. *British Wildlife* **32**: 258–267.

Gaget, E., Pavón-Jordán, D., Johnston, A., Lehikoinen, A., Hochachka, W.M., Sandercock, B.K., Soultan, A., Azafzaf, H., Bendjedda, N., Bino, T., Božič, L., Clausen, P., Dakki, M., Devos, K., Domsa, C., Encarnação, V., Erciyas-Yavuz, K., Faragó, S., **Frost, T.**, Gaudard, C., Gosztonyi, L., Haas, F., Hornman, M., Langendoen, T., Ieronymidou, C., Kostyushin, V.A., Lewis, L.J., Lorentsen, S.-H., Luigujõe, L., Meissner, W., Mikuska, T., Molina, B., Musilová, Z., Natykanets, V., Paquet, J.-Y., Petkov, N., Portolou, D., Ridzoň, J., Sayoud, S., Šćiban, M., Sniauksta, L., Stīpniece, A., Strebel, N., Teufelbauer, N., Topić, G., Uzunova, D., Vizi, A., Wahl, J., Zenatello, M. and Brommer, J.E. (2021) Benefits of protected areas for nonbreeding waterbirds adjusting their distributions under climate warming. *Conservation Biology* **35**: 834–845.

Gaget, E.. Johnston, A., Pavón Jordán, D., Lehikoinen, A., Sandercock, B., Soultan, A., Božič, L., Clausen, P., Devos, K., Domsa, C., Encarnação, V., Faragó, S., Fitzgerald, N., **Frost, T.**, Gaudard, C., Gosztonyi, L., Haas, F., Hornman, M., Langendoen, T., Ieronymidou, C., Luiujoe, L., Meissner, W., Mikuska, T., Molina, B., Musilová, Z., Paquet, J.-Y., Petkov, N., Portolou, D., Ridzoň, J., Sniaukste, L., Stīpniece, A., Teufelbauer, N., Wahl, J.,; Zenatello, M. & Brommer, J. (2021) Protected area characteristics that help waterbirds respond to climate warming. *Conservation Biology* DOI: 10.1111/cobi.13877.

Gibbons, D.W., Sandbrook, C., Sutherland, W.J., Akter, R., Bradbury, R., Broad, S., **Clements, A.**, Crick, H.Q.P., Elliott, J., Gyeltshen, N., Heath, M., Hughes, J., Jenkins, R.K.B., Jones, A.H., Lopez de la Lama, R., Macfarlane, N.B.W., Maunder, M., Prasad, R., Romero-Muñoz, A., Steiner, N., Tremlett, J., Trevelyan, R., Vijaykumar, S., Wedage, I. & Ockendon, N. (2021) The relative importance of COVID-19 pandemic impacts on biodiversity conservation globally. *Biological Conservation* **36**: e13781.

Gillings, S. & Scott, C. (2021) Nocturnal flight calling behaviour of thrushes in relation to artificial light at night. *Ibis* **163**: 1379–1393.

Goddard, M.A. *et al.* (2021) A global horizon scan of the future impacts of robotics and autonomous systems on urban ecosystems . *Nature Ecology & Evolution* **5**: 219–230.

Gosal, A.S., McMahon, J.A., **Bowgen, K.M.**, Hoppe, C.H. & Ziv, G. (2021) Identifying and Mapping Groups of Protected Area Visitors by Environmental Awareness. *Land* **10** DOI: 10.3390/land10060560.

Green, R.M.W., **Burton, N.H.K.** & **Cook, A.S.C.P.** (2021) Migratory movements of British and Irish Common Shelduck *Tadorna tadorna*: a review of ringing data and a pilot tracking study to inform potential interactions with offshore wind farms in the North Sea. *Ringing & Migration* **34**: 71–83.

Green, R.E., Syroechkovskiy, E.E., Anderson, G.Q.A., Chang, Q., Chowdhury, S.U., **Clark, J.A.**, Foysa, M., Gerasimov, Y., Hughes, B., Kelly, C., Lappo, E., Lee, R., Leung, K.K.S., Li, J., Loktionov, E.Y., Melville, D.S., Phillips, J., Tomkovich, P.S., Weston, E., Weston, J., Yakushev, N. & **Clark, N.A.** (2021) New estimates of the size and trend of the world population of the Spoon-billed Sandpiper using three independent statistical models. *Wader Study* **128**: 22–35.

Green, R.E., Taggart, M.A., Pain, D.J., **Clark, N.A.**, Clewley, L., Cromie, R., Elliot, B., Green, R.M.W., Huntley, B., Huntley, J., Leslie, R., Porter, R., Robinson, J.A., Smith, K.W., Smith, L., Spencer, J. & Stroud, D. (2021) Effect of a joint policy statement by nine UK shooting and rural organisations on the use of lead shotgun ammunition for hunting common pheasants *Phasianus colchicus* in *Britain*. *Conservation Evidence* **18**: 1–9.

Gutiérrez-Cánovas, C., Worthington, T.A., Jâms, I.B., **Noble, D.G.**, Perkins, D.M., Vaughan, I.P., Woodward, G., Ormerod, S.J. & Durance, I. (2021) Populations of high-value predators reflect the traits of their prey. *Ecography* **44**: 690–702.

Hordley, L.A., **Gillings, S.**, Petchey, O.L., Tobias, J.A. & Oliver, T.H. (2021) Diversity of response and effect traits provides complementary information about avian community dynamics linked to ecological function. *Functional Ecology* **35**: 1938–1950.

Hughes, R., **O'Hanlon, N.J.**, **Calladine, J.** & Harvey, P.V. (2021) The Shetland Bird Survey: population trends for widespread breeding birds 2002–2019. *Bird Study* **67**: 521–530.

Humphreys, E., **Austin, G.**, **Frost, T.**, **Mellan, H.**, **Boersch-Supan, P.**, **Burton, N.** & **Balmer, D.** (2021) Wader populations on the United Kingdom's open coast: results of the 2015/16 Non-Estuarine Waterbird Survey (NEWS-III) and a review of population trends *Bird Study* **67**: 371–384.

Jellesmark, S., Ausden, M., Blackburn, T.M., Gregory, R.D., Hoffmann, M., **Massimino, D.**, McRae, L. & Visconti, P. (2021) A counterfactual approach to measure the impact of wet grassland conservation on UK breeding bird populations. *Conservation Biology* **35**: 1575–1585.

Kettel, E., Lakin, I., Heydon, M. & **Siriwardena, G.M.** (2021) A comparison of breeding bird populations inside and outside of European Badger *Meles meles* control areas *Bird Study* **67**: 279–291.

Laidlaw, R.A., Smart, J., Ewing, H., **Franks, S.E.**, Belting, H., Donaldson, L., Hilton, G.M., Hiscock, N., Hoodless, A.N., Hughes, B., Jarrett, N.S., Kentie, R., Kleyheeg, E., Lee, R., Roodbergen, M., Scott, D.M., Short, M.J., Syroechkovskiy, E.E., Teunissen, W., Ward, H., White, G. & Gill, J.A. (2021) Predator management for breeding waders: a review of current evidence and priority knowledge gaps. *Wader Study* **128**: 44–55.

Langley, L.P., Bearhop, S., **Burton, N.H.K.**, Banks, A.N., Frayling, T., **Thaxter, C.**, **Clewley, G.**, **Scragg, E.** & Votier, S.C. (2021) GPS tracking reveals landfill closures induce higher foraging effort and habitat switching in gulls. *Movement Ecology* **9**: 56.

Largey, N., **Cook, A.S.C.P.**, **Thaxter, C.B.**, McCluskie, A., Stokke, B.G., Wilson, B. & Masden, E.A. (2021) Methods to quantify avian airspace use in relation to wind energy development. *Ibis* **163**: 747–764.

Lehikoinen, A., Johnston A. & **Massimino, D.** (2021) Climate and land use changes: similarity in range and abundance changes of birds in Finland and Great Britain. *Ornis Fennica* **98**: 1–15.

Mander, L., Scapin, L., **Thaxter, C.B.**, Forster, R. & **Burton, N.H.K.** (2021) Long term changes in the abundance of benthic foraging birds in a restored wetland. *Frontiers in Ecology and Evolution* DOI: 10.3389/fevo.2021.673148.

Martín-Vélez, V., van Leeuwen, C.H.A., Sánchez, M.I., Hortas, F., Shamoun-Baranes, J., **Thaxter, C.B.**, Lens, L., Camphuysen, C.J. & Green, A.J. (2021) Spatial patterns of weed dispersal by wintering gulls within and beyond an agricultural landscape. *Journal of Ecology* **109**: 1947–1958.

Masden, E.A., **Cook, A.S.C.P.**, McCluskie, A., Bouten, W., **Burton, N.H.K.** & **Thaxter, C.B.** (2021) When speed matters: The importance of flight speed in an avian collision risk model. *Environmental Impact Assessment Review* **90** DOI: 10.1016/j.eiar.2021.106622.

Morrison, C.A., Auniņš, A., Benkő, Z., Brotons, L., Chodkiewicz, T., Chylarecki, P., Escandell, V., Eskildsen, D.P, Gamero, A., Herrando, S., Jiguet, F., Kålås, J.A., Kamp, J., Klvaňová, A., Kmecl, P., Lehikoinen, A., Lindström, Å., Moshøj, C., **Noble, D.G.**, Øien, I.J., Paquet, J-Y., Reif, J., Sattler, T., Seaman, B.S., Teufelbauer, N., Trautmann, S., van Turnhout, C.A.M., Voříšek, P. & Butler, S.J. 2021. Bird population declines and species turnover are changing the acoustic properties of spring soundscapes. *Nature Communications* **12**: 6217.

Morrison, C.A., Butler, S.J., **Robinson, R.A.**, **Clark, J.A.**, Arizaga, J., Aunins, A., Baltà, O., Cepák, J., Chodkiewicz, T., Escandell, V., Foppen, R.P.B., Gregory, R.D., Husby, M., Jiguet, F., Kålås, J.A., Lehikoinen, A., Lindström, Å., Moshøj, C.M., Nagy, K., Nebot, A.L., Piha, M., Reif, J., Sattler, T., Škorpilová, J., Szép, T., Norbert Teufelbauer, N., Thorup, K., van Turnhout, C., Wenninger, T. & Gill, J.A. (2021) Covariation in population trends and demography reveals targets for conservation action. *Proceedings of the Royal Society (B)* **288**: 1946.

Nagy, S., Breiner, F., Anand, M., Butchart, S., Florke, M., Fluet-Choinard, E., Guisan, A., Lammert, H., Jones, V.R., Kalyakin, M., Lehner, B., **Pearce-Higgins, J.W.** & Voltzit, O. (2021). Climate change exposure of waterbird species in the African-Eurasian flyways. *Bird Conservation International* **32**: 1–26.

Nguyen, K.H., **Boersch-Supan, P.H.**, Hartman, R.B. & Rohr, J.R. (2021) Interventions can shift the thermal optimum for parasitic disease transmission. *PNAS* **118**: e2017537118.

Nicolau, P.G., Burgess, M.D., Marques, T.A., **Baillie, S.R.**, **Moran, N.J.**, **Leech, D.I.** & Johnston, A. (2021) Latitudinal variation in arrival and breeding phenology of the pied flycatcher *Ficedula hypoleuca* using large-scale citizen science data. *Journal of Avian Biology* **52** DOI: 10.1111/jav.02646.

O'Brien, D.A., Talyor, M.L., Masonjones, H.D., **Boersch-Supan, P.H.** & O'Shea, O.R. (2021) An experimental assessment of social tolerance and den ecology in a high-density octopus population. *Marine Biology* **168**: 61.

O'Hanlon, N.J., Bond, A.L., Masden, E.A., Lavers, J.L. & James, N.A. (2021) Measuring nest incorporation of anthropogenic debris by seabirds: An opportunistic approach increases geographic scope and reduces costs. *Marine Pollution Bulletin* **171**: e112706.

Pearce-Higgins, J.W. (2021) Engaging schools with long-term monitoring of nature. *School Science Review* **102**: 32–36.

Petrusková, T., Kahounová, H., Pišvejcová, I., Čermáková, A., Brinke, T., **Burton, N.H.K.** & Petrusek, A. 2021. Evaluating the potential effects of capturing and handling on subsequent observations of a migratory passerine through individual acoustic monitoring. *Journal of Avian Biology* **52** DOI: 10.1111/jav.02739.

Robinson, R.A. & **Wilson, M** (2021) Contrasting long-term trends in age-specific survival of Peregrine Falcons (*Falco peregrinus*) in Britain using smoothed estimates of recovery probabilities. *Ibis* **163**: 890–898.

Staley, J.T.,Redhead, J.W., O'Connor, R.S., Jarvis, S.G., **Siriwardena, G.M.**, **Henderson, I.G.**, Botham, M.S., Carvell, C., Smart, S.M., Phillips, S., Jones, N., McCracken, M.E., Christelow, J., Howell, K. & Pywell, R.F. (2021) Designing a survey to monitor multi-scale impacts of agri-environment schemes on mobile taxa. *Journal of Environmental Management* **290**: 112589.

Stanbury, A.J., Eaton, M.A., Aebischer, N.J., **Balmer, D.**, Brown, A.F., Douse, A., Lindley, P., McCulloch, N., **Noble, D.G.** & Win, I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* **114**: 723–747.

Sutherland, W.J., **Atkinson, P.W.**, Broad, S., Brown, S., Clout, M., Dias, M.P., Dicks, L.V., Doran, H., Fleishman, E., Garratt, E.L., Gaston, K.J., Hughes, A.C., Le Roux, X., Lickorish, F.A., Maggs, L., Palardy, J.E., Peck, L.S., Pettorelli, N., Pretty, J., Spalding, M.D., Tonneijck, F.H., Walpole, M., Watson, J.E.M., Wentworth, J. & Thornton, A. (2021) A 2021 Horizon Scan of Emerging Global Biological Conservation Issues. *Trends in Ecology & Evolution* DOI: 10.1016/j.tree.2020.10.014.

Thomas, A., Cosby, B.J., Gooday, R., Lyons, H., **Siriwardena G.**, **Kettel, E.**, Matthews, R. Beauchamp, K., Petr, M. & Emmett, B.A. (2021) Rapid adaptive modelling for policy support towards achieving Sustainable Development Goals: Brexit and the livestock sector in Wales. *Environmental Science & Policy* **125**: 21–31.

Tucker, A.M., McGowan, C.P., Lyons, J.E., DeRose-Wilson, A. & **Clark, N.A.** (2021) Species-specific demographic and behavioral responses to food availability during migratory stopover. *Population Ecology* **64**: 19–34.

Väli, Ü., Dombrovski, V., Maciorowski, G., Sellis, U. & **Ashton Butt, A.** (2021) Spatial and temporal differences in migration strategies among endangered European Greater Spotted Eagles *Clanga clanga*. *Bird Conservation International* DOI: 10.1017/S0959270921000411.

Van Doren, B.M., **Conway, G.J.**, Phillips, R.J., Evans, G.C., Roberts, G.C.M., Liedvogel, M. & Sheldon, B.C. (2021) Human activity shapes the wintering ecology of a migratory bird. *Global Change Biology* DOI:10.1111/gcb.15597.

van Rees, C.B., Aragonés, D., Bouten, B., **Thaxter, C.B.**, Stienen, E., Bustamante, J. & Green, A.J (2021) Dynamic space use of Andalusian rice fields by Lesser Black-backed Gulls (*Larus fuscus*) is driven by flooding pattern. *Ibis* **163**, 1252–1270.

Wood, C.M., Alison, J., Botham, M.S., Burden, A., Edwards, F., Garbutt, R.A., George, P.B.L., Henrys, P.A., Hobson, R., Jarvis, S., Keenan, P., Keith, A.M., Lebron, I., Maskell, L.C., Norton, L.R., Robinson, D.A., Seaton, F.M., Scarlett, P., **Siriwardena, G.M.**, Skates, J., Smart, S.M., Williams, B. & Emmett, B.A. (2021) Integrated ecological monitoring in Wales: the Glastir Monitoring and Evaluation Programme field survey. *Earth System Science Data* **13**: 4155–4173.

FINANCIAL OVERVIEW

The principal sources of funds continued to be contract research, membership subscriptions, individual donations and legacies. Record legacies of £1,464k (2021 £856k) were received in the year, and the expected bounce back in contract work also generated exceptional income. Voluntary income formed 43% of total group income for the year (2021 41%). We aim to raise this to over 50% in the longer term.

A total of £5,301k (2021 £4,544k) was spent during the year on carrying out, supporting and communicating ornithological research, with a significant increase in youth related work. An uptick in bond yields (and thereby the discount rate) meant a significant reduction in the present value of the defined benefit pension obligation. A periodic external evaluation of the Nunnery land and buildings also boosted the balance sheet, so that net assets returned to a positive total.

The Board has a free reserves target range of 3 to 4 months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Free reserves are total General funds less Tangible fixed assets. At 31 March 2022 these stood at £1,849k (2021: £1,068k), equivalent to 3.9 months' budgeted expenditure (2021: 2.5 months').

TRUSTEES' STATEMENT

These are summarised financial statements. To gain a full understanding of the financial affairs of the Trust please refer to the Annual Report and Financial Statements published on the BTO website, or request a printed copy from the Director of Finance & Services, BTO, The Nunnery, Thetford, Norfolk IP24 2PU.

The Annual Report and Financial Statements were approved by the Board on 1 August 2022 and will be submitted to the Registrar of Companies, the Charity Commission and the Office of the Scottish Charity Regulator.

The auditors have issued an unqualified report on the full financial statements and on the consistency of the Trustees' Report with those financial statements. Their report on the full financial statements contained no statement under sections 498(2)(a), 498(2)(b) or 498(3) of the Companies Act 2006.

SUMMARISED ACCOUNTS: 2021/22

	£'000	£'000
INCOME	**2021/22**	**2020/21**
Donations and legacies	3,334	2,539
Charitable activities	3,527	2,486
Other trading activities	970	956
Investments	1	3
Coronavirus Job Retention Scheme grants	10	203
Total income & endowments	**7,842**	**6,187**
EXPENDITURE	**2021/22**	**2020/21**
Raising funds	1,167	1,463
Charitable activities	5,301	4,544
Other - defined benefit pension scheme	104	120
Total expenditure	**6,572**	**6,127**
Net income / (expenditure)	1,270	60
Net gains on investments	18	95
Gain on revaluation of fixed assets	550	–
Actuarial gain/(loss) on defined benefit pension scheme	986	(519)
Net movement in funds	**2,824**	**(364)**
Total funds brought forward	(734)	(370)
Total funds carried forward	**2,090**	**(734)**
REPRESENTED BY	**2021/22**	**2020/21**
Fixed assets	2,908	2,343
Net current assets	3,059	1,800
Creditors due after one year	(100)	(83)
Defined benefit pension liability	(3,777)	(4,794)
	2,090	**(734)**

INDEPENDENT AUDITORS' STATEMENT TO THE MEMBERS OF THE BRITISH TRUST FOR ORNITHOLOGY

We have examined the Financial Overview for the year ended 31 March 2022 set out on page 46.

RESPECTIVE RESPONSIBILITIES OF THE TRUSTEES AND THE AUDITORS

The trustees are responsible for preparing the Strategic Report in accordance with applicable United Kingdom law.

Our responsibility is to report to you our opinion on the consistency of the Financial Overview within the Strategic Report with the full financial statements and the Trustees' Report, and its compliance with the relevant requirements of section 427 of the Companies Act 2006 and the regulations made thereunder.

We also read the other information contained in the Strategic Report and consider the implications for our report if we become aware of any apparent misstatements or material inconsistencies with the Financial Overview.

We conducted our work in accordance with Bulletin 2008/3 issued by the Auditing Practices Board. Our report on the company's full financial statements describes the basis of our opinion on those financial statements and on the Trustees' Report.

OPINION

In our opinion the Strategic Report is consistent with the full financial statements and the Trustees' Report of the British Trust for Ornithology for the year ended 31 March 2022 and complies with the applicable requirements of section 427 of the Companies Act 2006, and the regulations made thereunder.

Ensors Accountants LLP, Connexions, 159 Princes Street, Ipswich IP1 1QJ 10 August 2022

FIELDFARE : DAVID TIPLING / BIRDPHOTO.CO.UK

The British Trust for Ornithology
Board of Trustees and Management
2022

Patron	HRH The Duke of Cambridge	
President	F R Gardner OBE TD VR FRGS	
Board of Trustees		
Chair	Prof J A Gill	*2016-22*
Honorary Treasurer	I Packer FCA	*2016-22*
Chair of Finance & Risk Committee	J Spencer	*2015-22*
Chair of Governance & Nominations Committee	F M Hurst	*2013-22*
Chair of Regional Network Committee	Dr D M Parker	*2014-22*
Chair of Ringing Committee	Dr L Wright	*2022-25*
Ordinary Board Members	I Coucher	*2022-25*
	R du Feu	*2022-25*
	S J Marquis	*2020-23*
	Dr D J Reynolds	*2016-23*
	N A Sherwin	*2017-22*
Vice Presidents	Dr F Barclay	*2022-30*
	Prof S Bearhop	*2019-26*
	D C Jardine	*2020-27*
	Prof I P F Owens	*2016-23*

Finance & Risk Committee
Chair J Spencer; I Coucher; I Packer; Dr D J Reynolds.

Governance & Nominations Committee
Chair F M Hurst; Dr D M Parker; N Sherwin.

Regional Network Committee
Chair Dr D M Parker; C Gunn; A Jarratt-Knock; S Marquis; Dr D McGarvie; S Taylor; E Tigwell.

Ringing Committee
Chair Dr L Wright; S Bayley; L Clewley; R du Feu; P Kirmond; S Vickers; R Walsh; *Representatives*: H Land; A Phillips.

Senior Leadership Team
Chief Executive Officer Prof J Vickery;
Director of Science Dr J W Pearce-Higgins; *Director of Engagement* Dr D I P Evans; *Director of Finance & Services, Company Secretary* A T Scott ACIS; *Director of Information Services* G N Hatt; *Associate Director Country Offices* Dr C V Wernham; *Head of People and Organisational Development* S Knott.

The British Trust for Ornithology
Board of Trustees and Management
2022 - Continued

Past Presidents and Chairs

Presidents		*Chairs*	
1958-60	R C Homes	1933-39	The Right Hon. Lord Scone MP, 7th Earl of Mansfield and Mansfield
1961-64	C A Norris	1940-41	The Right Hon. Malcolm MacDonald MP
1965-68	R C Homes	1942-47	Dr A Landsborough Thomson CB OBE DSc
1969-72	I J Ferguson-Lees	1948	Dr E M Nicholson CB CVO
1973-76	R A O Hickling	1949	A W Boyd MC
1977-80	J M McMeeking MBE	1950	Sir Norman Kinnear
1981-84	S M Taylor	1951-56	Major-General H P W Houston
1985-89	J A Hancock OBE	1957	R C Homes
1990-93	R P Howard	1958-87	No Chair
1994-96	Sir William Wilkinson	1988-91	G H Green
1997-2001	Sir Frederick Holliday	1992-96	I C Castle
2002-05	Lord Blakenham	1996-2000	Dr H P Sitters
2006-13	Baroness Young of Old Scone	2001-04	A J Martin
2014-18	C G Packham	2005-08	Dr S Hunter
2019-	F R Gardner OBE TD VR FRGS	2009-13	Prof I Newton FRS OBE
		2014-16	Prof A D Fox
		2016-	Prof J A Gill

The British Trust for Ornithology
Staff List
As at 31 March 2022

CHIEF EXECUTIVE OFFICER
Prof Juliet Vickery
PA to the Chief Executive Officer: Nicki Read

SCIENCE
Director: Dr James Pearce-Higgins
PA / Senior Secretary: Nicki Read
Senior Secretary: Jane Chase

Associate Director – Research: Dr Rob Robinson (Secretary: Jane Chase)
Senior Research Fellow: Dr Stephen Baillie (Secretary: Jane Chase)

Terrestrial Ecology

Head & Principal Ecologist	Dr Gavin Siriwardena
Senior Research Ecologist	Dr Ian Henderson
Research Ecologist	Dr Greg Conway
Research Ecologist	Dr Kate Plummer*
Research Ecologist	Dr Joseph Cooper
Research Ecologist	Dr Hugh Hanmer
Research Ecologist	Dr Charlotte Ward
Research Ecologist	Maddie Barton
Research Ecologist	*Vacant*
Senior Research Officer	David Norfolk
Survey Assistant	John Worthington-Hill
Secretary	Maria Knight/Nicki Read
**based at Exeter University*	

International Research

Head & Principal Ecologist	Dr Phil Atkinson
Senior Research Ecologist	Dr Chris Hewson
Senior Research Ecologist	Dr Adham Ashton-Butt
PhD student	Jen MacIsaac
Research Scientist	Máire Kirkland*
Secretary	Maria Knight/Nicki Read
*based at David Attenborough Building	

Monitoring Research

Principal Ecologist	Dr David Noble
Research Ecologist	Dr Ailidh Barnes
Research Ecologist	Dr Blaise Martay*
*based at BTO Scotland	

MONITORING
Demography

Head	Dr Dave Leech
Ringing Licensing and Sales	
Manager	Jez Blackburn
Licensing Data Manager	Nicola Bugg
Ringing Sales Officer	Anne Trewhitt
Ringing Data Management	
Ringing & Nest Records Process Manager	Bridget Griffin
Ringing Officer	Sabine Schäfer
Ringing Officer	Kevin Leighton
Demographic Monitoring Projects	
Demographic Surveys Officer	Lee Barber
Ringing & Nest Record Database Officer	Carl Barimore
Ringing & Nest Record Comms Officer	Ruth Walker
Scheme Administrator	Hazel McCambridge

Surveys

Head & National Survey Coordinator	Dawn Balmer
BirdTrack Organiser	Scott Mayson
BBS National Organiser	Sarah Harris
Engagement and Surveys Officer	David White
Wetland Bird Survey	
WeBS Manager	Dr Teresa Frost
Data Request Coordinator	Neil Calbrade
WeBS Counter Network Organiser	Gillian Birtles
Secretary	Maria Knight/Nicki Read

RESEARCH
Population Ecology & Modelling

Senior Ecological Statistician	Dr Philipp Boersch-Supan
Spatial Ecologist	Dr Jenni Border
Secretary	Jane Chase

Wetland & Marine Research

Head & Principal Ecologist	Dr Niall Burton
Senior Research Ecologist	Dr Graham Austin
Principal Ecologist - Offshore Renewable Energy	Dr Aonghais Cook
Principal Ecologist - Sea Birds	Dr Liz Humphreys*
Senior Research Ecologist	Dr Sam Franks
Research Ecologist	Dr Jacob Davies*
Research Ecologist	Ros Green**
Research Ecologist	Dr Nina O'Hanlon*
Research Ecologist - Offshore Renewable Energy	Christopher Pollock*
Senior Research Ecologist	Dr Chris Thaxter
Research Officer	Ian Woodward
Secretary	Maria Knight/Nicki Read
** based at BTO Scotland*	
***undertaking PhD part time*	

Data Science and Bioacoustics

Head & Principal Ecologist	Dr Simon Gillings
Senior Research Ecologist	Dr Stuart Newson
Research Ecologist	Dr Dario Massimino
Secretary	Jane Chase

The British Trust for Ornithology
Staff List
As at 31 March 2022 - Continued

BTO SCOTLAND
Associate Director Country Offices: Dr Chris Wernham
Senior Secretary: Rebecca Cranston

Senior Research Ecologist	John Calladine
Data and Admin. Officer	Anne Carrington-Cotton
Head of Development and Engagement	Dr Ben Darvill
Development and Engagement Officer	Steve Willis
Principal Ecologist - Sea Birds	Dr Liz Humphreys**
Research Ecologist	Dr Blaise Martay*
Research Ecologist	Dr Mark Wilson
Research Ecologist	Dr Gary Clewley
Research Ecologist	Dr Daniel Johnston
Research Ecologist	Peadar O'Connell
Research Ecologist/ Offshore Renewable Energy	Christopher Pollock**
Research Ecologist	Anthony Wetherhill
Research Ecologist	Dr Jacob Davies**
Research Ecologist	Dr Nina O'Hanlon**
Scottish Raptor Monitoring Coordinator	Dr Amy Challis
Wader Project Officer	Paul Noyes
**Monitoring Research Team*	
*** Wetland & Marine Team*	

BTO CYMRU

Senior Ecologist	Dr Rachel Taylor
Research Ecologist	Dr Katharine Bowgen
Research Ecologist	Dr Callum Macgregor
Development Coordinator	Kelvin Jones

BTO NORTHERN IRELAND

Northern Ireland Officer	Stephen Hewitt
Scientific Officer	Dr Katherine Booth Jones

INFORMATION SYSTEMS
Director IS: Graham Hatt
Senior Secretary: Jane Chase

Senior Database Officer	Dr Andrew Joys
Database Developer	Steve Pritchard
Database Developer	Justin Walker
Database Developer	Charlotte Clark
Website Manager	*Vacant*
Website Developer	Tom Sage
Website Developer	Daniel Higgins
Senior Software Developer	Mark Hammond
Senior Software Developer	Matthew Baxter
Software Developer	Oliver Barrett
Junior Software Developer	Ewan Stacey
Junior Software Developer	Hayden Woods
Senior Systems Manager	Ben Brooke
Computing Support Officer	Dom Render
Business Analyst	Dave Turvey

PORZANA

Business Director	David Agombar
Business Manager	Shane Muggridge
Production Assistant	Alex Court
Production Assistant	Philippa Elson
Production Assistant	Elaine Ennis
Production Assistant	Lucy Willsher

ENGAGEMENT
Director of Engagement: Dr Ieuan Evans

Engagement & Fundraising

Head of Income Generation	Mike Naidu
Senior Supporter Administrator	Sam Graham
Supporter Development Officer	Caroline Foot
Supporter Administrator	Samantha Culverhouse
Supporter Administrator	Amanda Gee
Trust & Foundation Fundraising Manager	Bonita Johnston
Legacy Manager	Sam Rider
Fundraising Administrator	Jessica Hooks
Major Giving Officer	David Agombar
Digital Marketing Manager	Jon Boardman
GBW Manager	Dr Michelle Reeve
GBW Supporter Development Officer	Robert Jaques

Communications

Head of Communications	Mike Toms
Media Manager	Tom Stewart
Media Manager	Paul Stancliffe
Science Communications Manager	Dr Viola Ross-Smith
Social Media Officer	Tom Stewart
Website Editor	Miriam Lord
BTO Archivist	Lesley Hindley

Training

Training Manager	Nick Moran
Training Officer	Emily Cuff

Youth Engagement

Youth Engagement Manager	Faye Vogely
Youth Engagement Officer	Anna Dupont
Youth Engagement Coordinator	Chris Marais

FINANCE & SERVICES
Director: Andrew Scott

Accounts & Facilities

Financial Accountant / Facilities Manager	Mary Gray
Management Accountant	Irene Bowles
Finance Assistant	Terri-Louise Montgomery
General Sales Officer / Admin. & Finance Assistant	Sonya Calder
Admin. Assistant	Diane Bragg
Facilities Officer	Pat Sparkes
Receptionist	Ronnie Hatt

Human Resources

Head of People and Organisational Development	Sian Knott
People and Projects Officer	Holly Stevenitt
People, Health and Safety Officer	Cheryl Wilson

Research Support

Resource Manager	Virginia Cates
Research Support Administrator	Sandra Sparkes
Research Support Officer	Penny Mitchell
Research Support Officer	Heidi Mellan
Research Support Officer	Dean McFarlane
Nunnery Lakes Site Manager	Ian Henderson

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report)
For the Year Ended 31 March 2022

For the purposes of Section 162 of the Charities Act 2011 and the Directors' Report for the purposes of Section 415 of the Companies Act 2006.

Company number:	00357284 (England and Wales)
Charity number:	216652 (England and Wales) SC039193 (Scotland)
Registered Office:	The Nunnery, Thetford, Norfolk IP24 2PU
Principal Advisers:	
Auditors	Ensors Accountants LLP, Connexions, 159 Princes Street, Ipswich IP1 1QJ
Principal Bankers	National Westminster Bank plc, 7 Cornhill, Bury St Edmunds, Suffolk IP33 1BQ
	The Royal Bank of Scotland plc, 2 Blenheim Place, Edinburgh EH7 5JH
Solicitors	Browne Jacobson LLP, Castle Meadow Road, Nottingham NG2 1BJ
Pensions Advisers	Russell Ulyatt Financial Services Ltd, 1 The Triangle, ng2 Business Park, Nottingham NG2 1AE
Investment Advisers	Russell Ulyatt Financial Services Ltd, 1 The Triangle, ng2 Business Park, Nottingham NG2 1AE
Insurance Brokers	Uttings Insurance Brokers, 16 The Fairland, Hingham, Norwich, Norfolk NR9 4HN

The members of the Board are the directors of the charitable company under company law and the trustees for the purpose of charity law. Those serving during the year were as follows:

Dr I P Bainbridge
Dr F Barclay
Mr I Coucher
Mr R du Feu
Professor J A Gill
Ms S R R Guy
Dr S Hunter
Ms F M Hurst
Mr S J Marquis
Mr I Packer
Dr D M Parker
Dr D J Reynolds
Mr N A Sherwin
Mrs J Spencer
Dr L Wright

Structure, Governance and Management

Governing Document

The British Trust for Ornithology (known generally as the BTO) is a company limited by guarantee governed by its Memorandum and Articles of Association. It is registered as a charity with the Charity Commission and the Office of the Scottish Charity Regulator. Membership is open to any person whose application is approved by the Board upon payment of the requisite subscription. Members undertake to contribute up to £1 each in the event of an insolvent winding up, which represents the limit of their guarantee.

Trustees

Trustees are nominated by the Board, on the recommendation of the Governance and Nominations Committee, following open advertisement, or by members and elected by the members at the Annual General Meeting each year, to serve from the following 1 January. The normal term of office is four years, with a limit of two consecutive terms. New trustees receive a comprehensive information pack and undergo induction to brief them on the BTO and their role as company directors and trustees.

Organisation and Key Management Remuneration

The Board of Trustees is the governing body of the BTO. It meets at least four times a year. The Board is supported by the Finance & Risk Committee, Governance & Nominations Committee, Regional Network Committee and Ringing Committee. The day-to-day operational management of the BTO is delegated to the Senior Leadership Team, led by the Chief Executive Officer (CEO).

The salary of the CEO is determined by the Board on the basis of comparability to relevant benchmarks. The remuneration of all other staff is set according to a bespoke job evaluation scheme, benchmarked to the Croner Charity Rewards database. All salaries are subject to annual cost of living review. There is no bonus scheme.

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2022

Related Parties

The BTO's wholly owned subsidiary, BTO Services Ltd, was established to undertake commercial activities to support the work of the BTO, and gifts its profits to the Trust. On 30 August 2017 BTO Services Ltd acquired the ring manufacturer Porzana Ltd. The net assets and activities of Porzana Ltd were subsequently hived up to BTO Services Ltd and it then became dormant. On 15 November 2019 BTO Services Ltd incorporated BTO Consulting Ltd which company is dormant. 'Porzana' and 'BTO Consulting' are trading names of BTO Services Ltd.

The BTO co-operates with many other charities, with government agencies and other bodies in pursuit of its objectives, as illustrated in Parts A and B of this document .

Volunteers

The Trust depends on the contributions of many thousands of volunteers who participate in BTO surveys and other activities. We are greatly indebted to them, and especially to the Regional Representatives and other regional volunteers who organise so much BTO activity at a local level. BTO volunteers contributed the equivalent of approximately 274,250 days of work in calendar year 2021 (2020: 255,500 days).

Risk Management

A risk register is maintained which identifies the significant risks faced by the BTO and the measures in place to manage and mitigate those risks. These are monitored by the Senior Leadership Team and regularly reviewed and amended as appropriate by the Finance & Risk Committee and the Board.

Fundraising Standards

BTO is registered with the Fundraising Regulator and follows the Fundraising Regulator's Code of Fundraising Practice. All fundraising from individual giving is undertaken by BTO staff, and during the year we used the services of a specialist consultancy to help us research and approach charitable trusts and foundations. We have not received any complaints regarding our fundraising practices. We take all reasonable steps to treat supporters fairly and transparently, especially if we believe they may be in a vulnerable position.

Investments

The Memorandum of Association permits the Trust to invest monies not immediately required for its purposes as the trustees see fit. The trustees' investment policy is to maximise long term total return by investing in a combination of 40% high quality short dated bonds and 60% globally diversified equities. The equities part of the portfolio is invested in a sustainable fund (see Note 10). Investment performance against benchmark was as follows:

	Portfolio	**Benchmark**
Year ended 31 March 2022	+3.93%	+6.79%
Since inception (28 August 2014)	+68.10%	+67.92%

Objectives and Activities

Charitable Objects

The objects of the Trust, as set out in its Memorandum of Association are, for the benefit of the nation:

(i) To promote, organise, carry on and encourage study and research and particularly field work for the advancement of knowledge in all branches of the Science of Ornithology.
(ii) Permanently to preserve and protect lands and objects which by their natural features are suitable for the preservation and study of bird life and of fauna and flora generally.

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2022

Public Benefit

The trustees have complied with the duty in Section 17 of the Charities Act 2011 to have due regard to public benefit guidance published by the Charity Commission. The following paragraphs set out in detail the aims, activities and performance of the Trust, and the way in which they provide public benefit.

Objectives and Activities

The BTO's purpose and public benefit is to deliver objective information and advice, through undertaking impartial research and analysis about birds, other wildlife and habitats, to advance the understanding of nature. We inform policies and evidence-based decisions that impact on the environment such that future generations can benefit from a healthy and wildlife-rich environment. The BTO does this by:

- Sustaining long-term extensive programmes and smaller scale intensive research to study the population trends, movements, breeding, survival, ecology and behaviour of wild birds;
- Encouraging, enthusing, training and supporting volunteers to take part in scientific studies;
- Bringing together professional scientists and volunteer birdwatchers in surveys of wildlife (particularly, but not exclusively, birds); and
- Analysing the data gathered through these studies, making information available to Government and other bodies, and publishing the results in the primary scientific literature and via the internet, the birdwatching and conservation press and the media more generally.

Strategic Report

The Strategic Report (Achievements and Performance, Plans for Future Periods) is contained in Part A of this document.

Principal Risks and Uncertainties

The trustees consider that the principal risks and uncertainties which could affect BTO's ability to deliver its objectives in the short term are public expenditure reductions leading to reduced contract, grant and partnership funding, and in the medium to long term, inflation and the final salary pension scheme deficit. These are able to be mitigated through the continued growth strategy and careful cash management.

Financial Review

The Directors' Report, the consolidated financial statements and the accompanying notes thereto comprise Part B of this document.

The principal sources of funds continued to be contract research, membership subscriptions, individual donations and legacies. Record legacies of £1,464k (2021 £856k) were received in the year, and the expected bounce back in contract work also generated exceptional income. Voluntary income formed 43% of total group income for the year (2021 41%). We aim to raise this to over 50% in the longer term.

A total of £5,301k (2021 £4,544k) was spent during the year on carrying out, supporting and communicating ornithological research, with a significant increase in youth related work.

An uptick in bond yields (and thereby the discount rate) meant a significant reduction in the present value of the defined benefit pension obligation. A periodic external evaluation of the Nunnery land and buildings also boosted the balance sheet, so that net assets returned to a positive total.

Reserves

The Board has a free reserves target range of 3 to 4 months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Free reserves are total General funds less Tangible fixed assets. At 31 March 2022 these stood at £1,849k (2021: £1,068k), equivalent to 3.9 months' budgeted expenditure (2021: 2.5 months').

The British Trust for Ornithology
Trustees' Annual Report (incorporating the Strategic Report) - Continued
For the Year Ended 31 March 2022

Statement of Board Members' Responsibilities

The Board members are responsible, as Directors of the Company, for preparing the Annual Report (including the Strategic Report) and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Board members to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company and the group at the year end and of the incoming resources and application of resources, including the income and expenditure, of the charitable company and the group for the year.
In preparing these financial statements, Board members are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in SORP (FRS 102);
- make judgements and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charitable company and the group will continue in operation.

Board members are responsible for keeping adequate accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and the group and enable them to ensure that the financial statements comply with the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and the Charities Accounts (Scotland) Regulations 2006 (as amended). They are also responsible for safeguarding the assets of the charitable company and the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Board members are responsible for the maintenance and integrity of the corporate and financial information included on the Trust's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

In so far as Board members are aware:

- there is no relevant audit information of which the Trust's auditors are unaware; and
- Board members have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditors are aware of that information.

Auditors

A resolution to re-appoint Ensors Accountants LLP as auditors will be proposed at the Annual General Meeting under section 485 of the Companies Act 2006.

The Trustees' Report (incorporating the Strategic Report) was approved by the Board as Directors and Trustees and authorised for issue on 1 August 2022.

Prof J A Gill
Chairman

I Packer FCA
Honorary Treasurer

Opinion
We have audited the financial statements of The British Trust for Ornithology (the 'parent charitable company') and its subsidiaries (the 'group') for the year ended 31 March 2022 which comprise the Consolidated Statement of Financial Activities, the Charity Statement of Financial Activities, the Consolidated Group and Charity Balance Sheets, the Consolidated Statement of Cash Flows, and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice) including FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the group's and the parent charitable company's affairs as at 31 March 2022 and of the group's and the parent charitable company's incoming resources and application of resources, including its income and expenditure for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and regulations 6 and 8 of the Charities Accounts (Scotland) Regulations 2006 (as amended).

Basis for opinion
We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We are independent of the group and parent charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern
In auditing the financial statements, we have concluded that the trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the group or parent charitable company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

Other information
The other information comprises the information included in the annual report other than the financial statements and our auditors' report thereon. The trustees are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact

We have nothing to report in this regard.

Opinion on other matter prescribed by the Companies Act 2006
In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Strategic Report and the Board Report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the Strategic Report and the Board Report have been prepared in accordance with applicable legal requirements.

INDEPENDENT AUDITORS' REPORT TO THE
MEMBERS OF THE BRITISH TRUST OF ORNITHOLOGY

Matters on which we are required to report by exception
In the light of our knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the Strategic Report and the Board Report.

We have nothing to report in respect of the following matters where the Companies Act 2006 and the Charities Accounts (Scotland) Regulations 2006 (as amended) require us to report to you if, in our opinion:

- adequate accounting records have not been kept by the parent charitable company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent charitable company's financial statements are not in agreement with the accounting records or returns; or
- certain disclosure of trustees' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

Responsibilities of Board Members
As explained more fully in the Statement of Board Members' Responsibilities set out on page B9, the trustees (who are also the directors of the British Trust for Ornithology for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the trustees are responsible for assessing the group's and parent charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the group or the parent charitable company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements
Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Our audit was designed, after obtaining sufficient and appropriate knowledge and understanding of the group and parent charitable company, its charitable nature, its income streams and the industry operated within. We undertook an assessment of the control environment and the systems and procedures put in place by the senior management team, combined with our detailed audit testing and supportive analytical work, to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement due to fraud. Our work has included considering areas of higher risk of fraud, including transactions with related parties, revenue recognition and areas where there is a risk of management override of systems and controls.

To address the risk of fraud we performed the following audit procedures:

- Assessment of key accounting estimates within the financial statements in order to assess their reasonableness and determine whether there is any bias in management's estimates.

- All team members were informed of the relevant laws and regulations and potential fraud risks at the planning stage and reminded to remain alert to any indications of fraud or non-compliance.

- Enquiring of management whether there have been any alleged, suspected or actual instances of fraud during the year.

- Enquiring of management and those charged with governance whether there have been any actual or potential litigation or claims.

- Reviewing correspondence with relevant legal authorities.
- Reviewing legal expense accounts for any indicators of litigation or claims.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of our report
This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and to the charitable company's trustees, as a body, in accordance with section 44(1) (c) of the Charities and Trustee Investment (Scotland) Act 2005 and regulation 10 of the Charities Accounts (Scotland) Regulations 2006 (as amended). Our audit work has been undertaken so that we might state to the charitable company's members and its trustees those matters we are required to state to them in an auditors' report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charitable company, the charitable company's members as a body and its trustees as a body, for our audit work, for this report, or for the opinions we have formed.

H Rumsey

10 August 2022

Helen Rumsey, Senior Statutory Auditor
For and on behalf of
Ensors Accountants LLP
Connexions
159 Princes Street
Ipswich IP1 1QJ

The British Trust for Ornithology
Consolidated Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2022

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2022 £'000	Total 2021 £'000
Income and endowments from:					
Donations and legacies	3	2,873	461	**3,334**	**2,539**
Charitable activities	3	3,501	26	**3,527**	**2,486**
Other trading activities	3	970	-	**970**	**956**
Investments	3	1	-	**1**	**3**
Coronavirus Job Retention Scheme grants		10	-	**10**	**203**
Total income and endowments		**7,355**	**487**	**7,842**	**6,187**
Expenditure on:					
Raising funds	4	1,159	8	**1,167**	**1,463**
Charitable activities	4	4,718	583	**5,301**	**4,544**
Other – Amounts recognised as expenditure on defined benefit pension scheme	22	104	-	**104**	**120**
Total expenditure	7	**5,981**	**591**	**6,572**	**6,127**
Net income/(expenditure) before net gain/(loss) on investments		**1,374**	**(104)**	**1,270**	**60**
Net gain/(loss) on investments	10	18	-	**18**	**95**
Net income/ (expenditure)	19	**1,392**	**(104)**	**1,288**	**155**
Transfers between funds	16,17	25	(25)	**-**	**-**
Other recognised gains/(losses): Gain on revaluation of fixed assets	9	550	-	**550**	-
Actuarial gain/(loss) on defined benefit pension scheme	22	986	-	**986**	**(519)**
Net movement in funds		**2,953**	**(129)**	**2,824**	**(364)**
Reconciliation of funds					
Total funds brought forward	16,17	(1,828)	1,094	(734)	(370)
Total funds carried forward	16,17	**1,125**	**965**	**2,090**	(734)

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages B17 to B36 form part of these financial statements.

The British Trust for Ornithology
Charity Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2022

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2022 £'000	Total 2021 £'000
Income and endowments from:					
Donations and legacies	3	3,199	461	**3,660**	**2,766**
Charitable activities	3	3,501	26	**3,527**	**2,486**
Other trading activities	3	461	-	**461**	**447**
Investments	3	1	-	**1**	**3**
Coronavirus Job Retention Scheme grants		10		**10**	**203**
Total income and endowments		**7,172**	**487**	**7,659**	**5,905**
Expenditure on:					
Raising funds	4	976	8	**984**	**1,181**
Charitable activities	4	4,718	583	**5,301**	**4,544**
Other – Amounts recognised as expenditure on defined benefit pension scheme	22	104	-	**104**	**120**
Total expenditure		**5,798**	**591**	**6,389**	**5,845**
Net income/(expenditure) before net gain/(loss) on investments		**1,374**	**(104)**	**1,270**	**60**
Net gain/(loss) on investments	10	18	-	**18**	**95**
Net income/ (expenditure)	19	**1,392**	**(104)**	**1,288**	**155**
Transfers between funds	16,17	25	(25)	**-**	**-**
Other recognised gains/(losses):					
Gains on revaluation of fixed assets	9	550	-	**550**	**-**
Actuarial gain/(loss) on defined benefit pension scheme	22	986	-	**986**	**(519)**
Net movement in funds		**2,953**	**(129)**	**2,824**	**(364)**
Reconciliation of funds					
Total funds brought forward	16,17	(1,828)	1,094	(734)	(370)
Total funds carried forward	16,17	**1,125**	**965**	**2,090**	**(734)**

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages B17 to B36 form part of these financial statements.

The British Trust for Ornithology
Consolidated Group and Charity Balance Sheets
as at 31 March 2022

	Note	Group 2022 £'000	Group 2021 £'000	Charity 2022 £'000	Charity 2021 £'000
Fixed assets					
Tangible assets	9	2,445	1,898	2,445	1,898
Investments	10	463	445	463	445
		2,908	2,343	2,908	2,343
Current assets					
Stocks	11	293	279	-	-
Debtors	12	1,346	1,558	1,582	1,774
Cash at bank and in hand		3,799	2,318	3,671	2,190
		5,438	4,155	5,253	3,964
Creditors:					
Amounts falling due within one year	13	(2,379)	(2,355)	(2,194)	(2,164)
Net current assets		3,059	1,800	3,059	1,800
Total assets less current liabilities		5,967	4,143	5,967	4,143
Creditors:					
Amounts falling due after one year	14	(100)	(83)	(100)	(83)
Net assets excluding defined benefit pension liability		5,867	4,060	5,867	4,060
Defined benefit pension liability	22	(3,777)	(4,794)	(3,777)	(4,794)
Net assets/(liabilities) including defined benefit pension liability	18	2,090	(734)	2,090	(734)
Represented by:					
Restricted funds	16	965	1,094	965	1,094
Unrestricted funds excluding Pension reserve	17	4,902	2,966	4,902	2,966
Pension reserve	17	(3,777)	(4,794)	(3,777)	(4,794)
Total funds	18	2,090	(734)	2,090	(734)

Approved by the Board and authorised for issue on 1 August 2022 and signed on its behalf by:

Chair Prof J A Gill

Honorary Treasurer I Packer FCA

Company registration number 00357284

The notes on pages B17 to B36 form part of these financial statements.

The British Trust for Ornithology
Consolidated Statement of Cash Flows
For the Year Ended 31 March 2022

	Note	Group 2022 £'000	Group 2021 £'000	Charity 2022 £'000	Charity 2021 £'000
Net cash inflow / (outflow) from operating activities	19	1,506	391	1,506	369
Cash flow from investing activities					
Payments to acquire tangible fixed assets	9	(26)	(25)	(26)	(25)
Investment income received		1	3	1	3
Net cash flow from investing activities		(25)	(22)	(25)	(22)
Net increase in cash for the year		1,481	369	1,481	347
Cash at bank and in hand at 1 April		2,318	1,949	2,190	1,843
Cash at bank and in hand at 31 March		3,799	2,318	3,671	2,190

Analysis of Cash at Bank and in Hand This comprises:	2022 £'000	2021 £'000	2022 £'000	2021 £'000
Bank current accounts and cash in hand	164	370	36	242
Bank deposits	3,635	1,948	3,635	1,948
Cash at bank and in hand at 31 March	3,799	2,318	3,671	2,190

Bank deposits carry variable rates of interest.

The notes on pages B17 to B36 form part of these financial statements.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements
For the Year Ended 31 March 2022

1. ACCOUNTING POLICIES

a) Accounting Convention

The charity constitutes a public benefit entity as defined by FRS 102. The financial statements have been prepared in accordance with *Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102)* (SORP (FRS102)) effective 1 January 2019, the Charities Act 2011, the Companies Act 2006 and UK Generally Accepted Practice as it applies from 1 January 2015.

The financial statements are prepared in pounds sterling (rounded to the nearest thousand) which is the functional currency of the charitable company and the group.

The charity operates on a weekly basis and the Financial Statements have been made up to 27 March 2022, being the last Sunday in March.

b) Going Concern

The trustees have prepared the financial statements on a going concern basis under the historical cost convention, modified to include certain items at fair value. In their opinion the pension scheme deficit does not give rise to material uncertainties that could cast doubt upon the appropriateness of this policy.

c) Group Financial Statements

These financial statements consolidate the results of the charity and its wholly owned trading subsidiary BTO Services Limited on a line by line basis.

d) Income

Income from donations, gifts and legacies is recognised immediately when received in cash and as receivable where there is entitlement, the amount can be measured reliably, and it is probable that the income will be received.

Income from charitable activities includes income receivable under contracts which is recognised as earned as the related work is performed. Income from grant funding supporting charitable activities is recognised where there is entitlement, certainty of receipt, and the amount can be measured with sufficient reliability.

Income is deferred when it is received in advance of the services it relates to. Life membership income is released to the Statement of Financial Activities in equal instalments over ten years.

Income from commercial activities of the trading subsidiary is recognised as earned as the related goods and services are provided.

Investment income, sponsorship and royalty income and membership subscription income are recognised on a receivable basis.

Income from Coronavirus Job Retention Scheme grants is recognised on a receivable basis.

e) Expenditure

Expenditure is recognised when a liability is incurred. Costs are allocated directly to activity cost categories. The cost of holiday pay not taken at the year end is accrued.

Costs of raising funds are those incurred in attracting voluntary income, including membership subscriptions, in carrying out trading activities, and in receiving royalties and sponsorship income.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

Costs of charitable activities include those incurred on scientific research contracts, and on allocated and restricted fund research work. They also include volunteer surveyor support and science communication costs.

Governance costs include those incurred in the governance of the charity and the safeguarding of its assets, and are primarily associated with constitutional and statutory requirements.

Support costs include central functions and have been allocated to activity cost categories on a staff cost basis.

f) Expenditure (continued)

VAT is reclaimed on allowable expenses under the Business/Non-Business and the partial exemption rules. Where not reclaimable it is included within expenses.

g) Tangible Fixed Assets

Individual assets costing £1k or more are initially capitalised at cost. Tangible fixed assets (except freehold property and land) are depreciated on a straight line basis over their estimated useful lives as follows:

Asset Category	Annual Rate
Furniture and Equipment	25%
Computer Equipment	25%
Motor Vehicles	25%

The freehold property and land are stated at fair value under the revaluation model using sufficiently regular revaluations to ensure that the carrying amount does not differ materially from the fair value at the reporting date. Revaluations are performed every five years, or as the trustees consider necessary, by qualified external valuers. The increase or decrease on revaluation is credited or charged to the fund holding the asset.

At each reporting end date, the trustees review the carrying amounts of the tangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any).

h) Investments

Investments are recognised initially at fair value which is normally the transaction price excluding transaction costs. Subsequently, they are measured at fair value with changes recognised in 'Net gain/(loss) on investments' in the Statement of Financial Activities if the shares are publicly traded or their fair value can otherwise be measured reliably. Other investments are measured at cost less impairment.

i) Stock

Stock is valued at the lower of cost and net realisable value. Net realisable value is based on estimated selling price less further costs to completion and sale. Cost is calculated on a first in first out basis.

j) Debtors and creditors falling due within one year

Debtors and creditors with no stated interest rate and falling due within one year are recorded at transaction price. Any losses arising from impairment are recognised in expenditure.

k) Financial instruments

The group only has financial assets and liabilities that qualify as basic financial instruments, such as debtors and creditors with no stated interest rate and payable within one year, which are recorded at transaction price. Any losses arising from impairment are recognised as expenditure in the Statement of Financial Activities.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

l) Foreign Currency Translation

Monetary assets and liabilities denominated in foreign currencies are translated into pounds sterling at the rates of exchange ruling at the balance sheet dates. Transactions in foreign currencies are recorded at the rate ruling at the transaction date. All exchange differences are taken to the Statement of Financial Activities.

m) Funds Structure

The Trust has a number of restricted funds to account for situations where funds have been raised for a specific purpose. All other funds are unrestricted funds. Where the trustees intend to use part of the unrestricted funds to provide longer-term funding for BTO projects and core activities, designated funds are set up to reflect this. A Pension reserve fund has been created so that movements and balances relating to the defined benefit pension scheme valuations can be separately identified. The funds in each of these categories are disclosed in Notes 17 and 18.

n) Retirement Benefits

The defined benefit pension scheme provides benefits for staff based on final pensionable salary. The scheme was closed to future accrual with effect from 1 April 2013. The assets of the scheme are held separately from those of the Trust, being invested with independent fund managers and are measured at fair value with changes recognised in the Statement of Financial Activities as set out in Note 21. Defined benefit pension liabilities are measured using the projected unit cost method and discounted at the current rate of return on a high quality corporate bond of equivalent term and currency to the liability. Under FRS 102, any net liability arising based on these valuations is the best estimate of the present value of the actual amounts to be paid out of the scheme, less the fair value of the scheme assets. The net of the interests on the scheme assets and liabilities is charged to the Statement of Financial Activities. Past service costs are recognised as expenditure when a liability is incurred and are charged to the Statement of Financial Activities. Actuarial gains and losses are recognised in the Statement of Financial Activities.

The Trust as employer also makes payments in respect of employees' own defined contribution schemes, through a group self-invested personal pension arrangement. For these schemes, the amount charged to the Statement of Financial Activities in respect of pension costs is the contributions payable in the year. Differences between contributions payable in the year and contributions actually paid are included as either accruals or prepayments in the balance sheet.

o) Judgements and key sources of estimation uncertainty

In the application of the group and parent charitable company's accounting policies, the trustees are required to make judgements, estimates and assumptions about the carrying amount of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the year in which the estimate is revised where the revision affects only that year, or in the year of the revision and future years where the revision affects both the current and future years.

Key sources of estimation uncertainty
The estimates and assumptions which have a significant risk of causing a material adjustment to the carrying amount of assets and liabilities are as follows:

Percentage completion on contracts
The degree of completion on the contracts is an estimate by the relevant project manager. This estimate relies on their professional opinion on the level of work completed in the whole contract, which impacts the level of income recognised, accrued and deferred. These estimates are reviewed by the Senior Leadership Team on a regular basis.

Defined benefit pension scheme

The group has a defined benefit pension scheme which is closed to future accrual. The valuation of the defined benefit pension obligation necessarily involves a calculation which depends on the expected future outflow of economic
benefits that the group expects to make to satisfy this obligation. The calculation depends on a number of factors such as the methodology, discount rate and mortality assumptions used. The group use a qualified independent actuary to assist in preparing the necessary calculation in accordance with the requirements of FRS102.

Property valuation
The Nunnery is valued at fair value by the directors with reference to recent property transactions and their knowledge of the site. The directors obtain third party valuations of property at regular intervals to ensure that the fair value of these properties is kept up to date.

p) Leases
Rentals payable under operating leases, including any lease incentives received, are charged to profit or loss on a straight line basis over the term of the relevant lease except where another more systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

q) Employee benefits
The costs of short-term employee benefits are recognised as a liability and an expense unless those costs are required to be recognised as part of the cost of stock or fixed assets. The cost of any unused holiday entitlement is recognised in the year in which the employee's services are received. Termination benefits are recognised immediately as an expense when the charity is demonstrably committed to terminate the employment of an employee or to provide termination benefits.

r) Cash at bank and in hand
Cash at bank and in hand are basic financial assets and includes cash in hand, deposits with banks, other short-term liquid investments with original maturities of three months or less, and bank overdrafts.

2. MEMBERS' LIABILITY

Under the Memorandum of Association of the Trust, members are required to undertake to contribute to the assets of the Trust in the event of its being wound up while they are members, and within one year after they cease to be members, for payment of the debts and liabilities of the Trust contracted whilst they were still members, and of the costs, charges and expenses of winding up, such amount as may be required but not exceeding £1 each. This represents the limit of their guarantee to the company.

3. ANALYSIS OF INCOME

	Group 2022 £'000	Group 2021 £'000	Charity 2022 £'000	Charity 2021 £'000
Donations and legacies				
Membership subscriptions & donations	1,094	960	1,094	960
Individual donations	584	438	584	438
Corporate & trust donations & grants	192	285	518	512
Legacies	1,464	856	1,464	856
	3,334	2,539	3,660	2,766
Charitable activities				
Core surveys - JNCC Partnership	837	804	837	804
Core surveys - Other	42	45	42	45
Other surveys & research - Voluntary funded	29	9	29	9
Other surveys & research - Contract funded	2,404	1,487	2,404	1,487
Research communication	76	76	76	76
General volunteer survey support	118	38	118	38
Nunnery Lakes Reserve	21	27	21	27
	3,527	2,486	3,527	2,486
Other trading activities				
Ringing & tagging sales	506	436	-	-
Publications & general sales	37	85	-	-
Corporate sponsorship & royalties	53	53	-	-
Consultancy	247	254	-	-
Data-related sales	125	121	-	-
Other	2	7	1	6
Income from charges to subsidiary	-	-	460	441
	970	956	461	447
Investment income				
Bank interest receivable	1	3	1	3

Analysis by fund type	Group 2022 £'000	Group 2021 £'000	Charity 2022 £'000	Charity 2021 £'000
Donations and legacies				
Unrestricted	2,873	2,224	3,199	2,451
Restricted	461	315	461	315
	3,334	2,539	3,660	2,766
Charitable activities				
Unrestricted	3,501	2,483	3,501	2,483
Restricted	26	3	26	3
	3,527	2,486	3,527	2,486
Other trading activities				
Unrestricted	970	956	461	447
Restricted	-	-	-	-
	970	956	461	447

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

4. ANALYSIS OF EXPENDITURE

	Group 2022 £'000	Group 2021 £'000	Charity 2022 £'000	Charity 2021 £'000
Raising funds				
Donations and legacies				
Membership subscriptions & donations	222	320	222	320
Individual donations	226	282	226	282
Corporate & trust donations & grants	33	53	33	53
Legacies	66	84	66	84
	547	739	547	739
Other trading activities				
Ringing & tagging costs	377	389	-	-
Publications & general costs	33	66	-	-
Corporate sponsorship & royalties	(4)	17	-	-
Consultancy	161	197	-	-
Data-related costs	53	55	-	-
Other	-	-	-	-
Costs recharged to subsidiary	-	-	437	442
	620	724	437	442
	1,167	1,463	984	1,181
Charitable activities				
Core surveys - JNCC Partnership	1,295	1,378	1,295	1,378
Core surveys - Other	297	394	297	394
Other surveys & research - Voluntary funded	757	479	757	479
Other surveys & research - Contract funded	2,302	1,594	2,302	1,594
Research communication	532	589	532	589
General volunteer survey support	103	72	103	72
Nunnery Lakes Reserve	15	38	15	38
	5,301	4,544	5,301	4,544

Analysis by fund type	Group 2022 £'000	Group 2021 £'000	Charity 2022 £'000	Charity 2021 £'000
Raising funds				
Unrestricted	1,159	1,441	976	1,159
Restricted	8	22	8	22
	1,167	1,463	984	1,181
Charitable activities				
Unrestricted	4,718	4,284	4,718	4,284
Restricted	583	260	583	260
	5,301	4,544	5,301	4,544

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

5. NET INCOME / (EXPENDITURE)

	2022 £'000	2021 £'000
Net income for the year is stated after (crediting)/charging:		
Auditors' remuneration:		
Audit of the charity's annual accounts	12	15
Audit of the trading subsidiary's annual accounts	4	6
Audit of the charity's defined benefit pension scheme	2	3
Depreciation (Note 9)	29	28

6. STAFF COSTS

	2022 £'000	2021 £'000
Wages and salaries	3,782	3,655
Social security costs	326	318
Defined contribution pension plan costs (Note 22)	389	387
Expenditure recognised on defined benefit pension scheme (Note 22)	104	120
	4,601	4,480

The number of employees whose emoluments exceeded £60,000 fell within the following bands:	2022	2021
£70,001 - £80,000	1	-
£60,001 - £70,000	1	1

The emoluments of the CEO for the year were £75k (2021 £84k), with the same pension and other benefits as were applicable to all other staff. The total remuneration including social security costs and pension contributions of the Senior Leadership Team was £481k (2021: £475k). Trustees receive no remuneration. Trustees made donations totalling £5k during the year (2021 £5k).There were no other related party transactions requiring disclosure. Since they met remotely throughout the year, expenses were reimbursed to 0 (2021: 0) trustees as follows:

	2022 £'000	2021 £'000
Travel & subsistence	-	-

Average numbers of staff and full time equivalents (FTE)

	2022 No	2022 FTE	2021 No	2021 FTE
Permanent posts	134	121.3	130	117.7
Seasonal fieldworkers	15	3.2	3	1.6
	149	124.5	133	119.3

7. TOTAL EXPENDITURE

	Direct costs £'000	Support costs £'000	2022 Total £'000	2021 Total £'000
Raising funds	1,042	125	1,167	1,463
Charitable activities	4,735	566	5,301	4,544
Other – Amounts recognised as expenditure on defined benefit pension scheme	104	-	104	120
	5,881	691	6,572	6,127

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

8. SUPPORT COSTS

	Premises	IT & Office Services	People & OD	Manage-ment & Finance	Govern-ance	2022 Total	2021 Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Raising funds	2	6	48	59	10	125	164
Charitable activities	10	26	218	268	44	566	510
	12	32	266	327	54	691	674

All support costs are apportioned on a staff cost basis.
Governance costs include auditors' remuneration, the meeting expenses of the Board and its committees, and the staff cost of servicing those meetings.

9. TANGIBLE FIXED ASSETS - GROUP

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2021	1,850	204	405	105	2,564
Additions	-	-	26	-	26
Disposals	-	-	-	-	-
Revaluation of fixed assets	550				550
At 31 March 2022	2,400	204	431	105	3,140
Depreciation at 1 April 2021	-	201	374	91	666
Depreciation charge	-	3	20	6	29
Disposals	-	-	-	-	-
At 31 March 2022	-	204	394	97	695
Net book value at 31 March 2022	2,400	-	37	8	2,445
Net book value at 1 April 2021	1,850	3	31	14	1,898

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

9. TANGIBLE FIXED ASSETS - CHARITY

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2021	1,850	200	405	105	2,560
Additions	-	-	26	-	26
Disposals	-	-	-	-	-
Revaluation of fixed assets	550				550
At 31 March 2022	2,400	200	431	105	3,136
Depreciation at 1 April 2021	-	198	373	91	662
Depreciation charge	-	2	21	6	29
Disposals	-	-	-	-	-
At 31 March 2022	-	200	394	97	691
Net book value at 31 March 2022	2,400	-	37	8	2,445
Net book value at 1 April 2021	1,850	2	32	14	1,898

The Nunnery and Nunnery Lakes Reserve, the freehold property and land owned and occupied by The British Trust for Ornithology, were valued by qualified external valuers, Fenn Wright Chartered Surveyors, on 31 March 2022 on the basis of fair value, at £2,400k.

On an historical cost basis, the freehold property and land would have been included at a cost and net book value of £2,284k (2021: £2,284k).

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

10. INVESTMENTS

The Group

Listed Investment Funds

	Market value 1 April 2021	Disposals	Additions	Gains	Market value 31 March 2022
	£'000	£'000	£'000	£'000	£'000
Birds in Trust Fund					
Dimensional Global Short Dated Bond	74	-	8	(5)	77
Dimensional Global Sustainability Core Equity	121	(9)	-	14	126
Wrap Cash	4	-	-	-	4
	199	(9)	8	9	207
General Funds					
Dimensional Global Short Dated Bond	90	-	10	(5)	95
Dimensional Global Sustainability Core Equity	151	(12)	-	17	156
Wrap Cash	5	-	-	-	5
	246	(12)	10	12	256
	445	(21)	18	21	463

On an historical cost basis, the investments would have been included at £298k (2021: £290k).

The Charity

	2022	2021
	£'000	£'000
Listed Investment Funds as above	463	445
Fixed asset unlisted investments - BTO Services Ltd	-	-
	463	445

The Trust wholly owns its subsidiary undertaking, BTO Services Ltd, which is incorporated in England & Wales, company registration number 02907282. This company operates to promote the work of The British Trust for Ornithology by undertaking commercial activities to support such work. The aggregate value of the share capital and reserves at 31 March 2022 was £100 (2021: £100) and the company reported a £nil result after Gift Aid for the year (2021: £nil). £326k (2021: £228k) was paid to the Charity under Gift Aid. The value of the investment in the subsidiary undertaking is £100 (2021: £100) under the equity method of valuation.

The following is a summarised statement of income for the subsidiary for the financial year:

	2022	2021
	£'000	£'000
Turnover	969	951
Cost of sales	(591)	(643)
Gross profit	378	308
Net administrative expenses	(52)	(80)
Net profit before payment under Gift Aid	326	228

Turnover of the subsidiary includes sales to overseas markets of £182k (2021: £246k).

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

11. STOCKS

	2022	2021
	£'000	£'000
The Group		
Finished goods, goods for resale and materials	293	279
The Charity		
The charity holds no trading stock.		

12. DEBTORS

	2022	2021
	£'000	£'000
The Group		
Trade and contract debtors	775	1,006
Taxes recoverable	7	21
Prepayments	96	90
Accrued income	468	441
	1,346	1,558

	2022	2021
	£'000	£'000
The Charity		
Trade and contract debtors	673	814
Amounts due from Group undertakings	446	488
Taxes recoverable	7	21
Prepayments	77	64
Accrued income	379	387
	1,582	1,774

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

13. CREDITORS – AMOUNTS FALLING DUE WITHIN ONE YEAR

	2022	2021
	£'000	£'000
The Group		
Trade creditors	572	249
Taxes and Social security costs	233	339
Other creditors	63	65
Accruals	103	161
Deferred income	1,408	1,541
	2,379	2,355

	2022	2021
	£'000	£'000
The Charity		
Trade creditors	533	201
Taxes and Social security costs	229	320
Other creditors	60	56
Accruals	93	150
Deferred income	1,279	1,437
	2,194	2,164

14. CREDITORS – AMOUNTS FALLING DUE AFTER ONE YEAR

	2022	2021
	£'000	£'000
The Group		
Deferred income	100	83

	2022	2021
	£'000	£'000
The Charity		
Deferred income	100	83

15. DEFERRED INCOME RECONCILIATION

	2022	2021
	£'000	£'000
The Group		
Opening balance at 1 April	1,624	1,196
Amount released to income	(2,331)	(1,012)
Amount deferred in year	2,215	1,440
Closing balance at 31 March	1,508	1,624

	2022	2021
	£'000	£'000
The Charity		
Opening balance at 1 April	1,520	1,026
Amount released to income	(2,165)	(907)
Amount deferred in year	2,024	1,401
Closing balance at 31 March	1,379	1,520

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

16. RESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include restricted funds comprising the following balances of donations and appeal monies given for specific purposes. The opening and closing fund balances for the group and the charity are identical.

As at 31 March 2022

	Balance at 1 Apr 2021	Income	Expenditure	Transfers	Balance at 31 Mar 2022
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond Maps Appeal	8	2	-	-	10
Northern Ireland Fund	1	-	-	-	1
Dilys Breese Fund	51	-	(7)	-	44
Boddy & Sparrow Fund	2	-	-	-	2
Migration Fund	34	39	(39)	13	47
Nightingale Appeal	30	1	(1)	-	30
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	26	5	(9)	-	22
Garden Research Fund	84	8	(13)	-	79
Out of Africa Fund	58	58	(56)	-	60
Thrush Fund	1	-	-	-	1
Curlew Appeal	-	28	(14)	-	14
Arctic Skua Fund	56	3	(38)	-	21
BTO Wales Fund	26	1	(2)	-	25
Sound Approach Fund	72	21	(11)	-	82
Tasso Leventis Fund	82	-	(3)	(36)	43
Spotted Flycatcher Appeal	49	-	(20)	-	29
Chaffinch	64	10	(18)	-	56
Seabird Appeal	23	117	(45)	-	95
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	3	-	(1)	-	2
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales	22	1	(1)	-	22
EDF What's Under Your Feet	17	-	-	(17)	-
Bats Fund	21	10	(16)	-	15
Short Eared Owl	48	5	(8)	-	45
Wader Project Officer	100	26	(67)	-	59
Dulverton Trust	18	-	(16)	-	2
Insect Decline	20	16	(32)	-	4
Eddowes PhD	-	21	(21)	-	-
Ringers' Bursary Fund	-	2	(1)	-	1
Thorne Ringing Fund	1	-	-	(1)	-
Youth Engagement	80	95	(130)	14	59
Small Specific Donations	53	18	(22)	2	51
	1,094	487	(591)	(25)	965

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

16. RESTRICTED FUNDS (Continued)

The purposes of the funds are as follows:
The Atlas Beyond the Maps Appeal continues to support research into Atlas data.
The Northern Ireland Fund has been set up to support the BTO in Northern Ireland.
The Dilys Breese Fund is for projects relating to nesting birds.
The Boddy & Sparrow Fund is for awards to the best amateur contribution(s) to either or both of the *Bird Study* and *Ringing & Migration* publications.
The Migration Fund is for research into migrating birds. £13k was transferred into this fund from general funds for work on Scottish Songbirds.
The Nightingale Appeal is to fund work on Nightingales and woodland birds.
The Swallow Appeal is to fund work on Swallows and migration.
The Young Scientists' Fund is to support the career development of young scientists.
The Garden Research Fund is to support young scientists work on garden birds.
The Out of Africa Fund is to fund work on African migrants.
The Thrush Fund is to fund work on Thrushes.
The Farmland Birds Appeal is to support work on farmland ecology.
The Curlew Appeal is to fund projects on Curlews.
The Arctic Skua Fund is to support Arctic Skua work.
The BTO Wales Fund is to support the BTO in Wales.
The Sound Approach Fund is to support a number of specific projects.
The Tasso Leventis Fund is to support a number of specific projects. A transfer of £36k was made to general funds with the agreement of the funder to contribute to core work of the BTO.
The Spotted Flycatcher Appeal is to support work on Spotted Flycatcher.
The Chaffinch Appeal is to fund work on Chaffinches.
The Seabird Appeal has been raising funds for work on seabirds.
The Rhodes Training Fund is to support survey training courses.
The Migrant Swallows & Insect Feeding Paper donation is to fund a paper on Swallows.
The Postcode Lottery Grant is for the Nunnery Lakes Reserve.
The Cuckoos & Nightingales Fund is for research on Cuckoos and Nightingales.
The EDF What's Under Your Feet Fund is to support the What's Under Your Feet survey. The balance of £17k on the fund was transferred to general funds with the agreement of the funder as this work has been completed.
The Bats Fund was set up from specific donations to support work on Bats and the development of the BTO acoustic work.
The Short Eared Owl Fund is for work on Short Eared Owls in Scotland.
The Wader Project Officer Appeal Fund is for work on waders.
The Dulverton Trust Fund is to support a number of specific projects.
The Insect Decline Fund is to support work on the decline in insects.
The Eddowes PhD fund was established to support a specific PhD project.
The Ringers' Bursary Fund is to support ringing.
The Thorne Ringing Fund is to support ringing. The balance of £1k was transferred to Small Donations.
The Youth Engagement Fund has been set up to support our work with young people. £14k was transferred from General funds to support this work.
Small Specific Donations are small individual donations for specific purposes. Transfers of £1k from General funds in respect of donated ringers' rebates, and the balance of £1k on the Thorne Ringing Fund, were made to contribute to specific ringing projects.

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

16. RESTRICTED FUNDS (Continued)

As at 31 March 2021

	Balance at 1 Apr 2020	Income	Expenditure	Transfers	Balance at 31 Mar 2021
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond the Maps Appeal	6	2	-	-	8
Northern Ireland Fund	1	-	-	-	1
Dilys Breese Fund	66	-	(15)	-	51
Boddy & Sparrow Fund	2	-	-	-	2
Migration Fund	15	36	(17)	-	34
Nightingale Appeal	30	1	(1)	-	30
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	19	19	(12)	-	26
Garden Research Fund	77	8	(1)	-	84
Out of Africa Fund	35	36	(13)	-	58
Thrush Fund	1	-	-	-	1
Farmland Birds Appeal	19	-	(19)	-	-
Curlew Appeal	25	3	(28)	-	-
Arctic Skua Fund	61	7	(12)	-	56
BTO Wales Fund	29	1	(4)	-	26
Sound Approach Fund	88	-	(6)	(10)	72
Tasso Leventis Fund	46	37	(1)	-	82
Spotted Flycatcher Appeal	37	3	(2)	11	49
Chaffinch	19	54	(14)	5	64
Seabird Appeal	-	42	(20)	1	23
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	5	-	(2)	-	3
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales Appeal	21	1	-	-	22
EDF What's Under Your Feet	17	-	-	-	17
Bats Fund	11	8	-	2	21
Short Eared Owl Fund	34	16	(7)	5	48
Wader Project Officer Fund	105	6	(21)	10	100
Dulverton Trust Fund	17	25	(24)	-	18
Insect Decline Fund	29	10	(19)	-	20
Ringers' Bursary Fund	1	-	(1)	-	-
Thorne Ringing Fund	1	-	-	-	1
Youth Engagement Fund	-		(14)	94	80
Small Specific Donations	53	3	(29)	26	53
	914	318	(282)	144	1,094

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

17. UNRESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include unrestricted funds comprising the following balances. The opening and closing fund balances for the group and the charity are identical.

As at 31 March 2022

	Balance at 1 Apr 2021	Income	Expend-iture	Other Gains/ (Losses)	Fund transfers	Pension reserve transfer	Balance at 31 Mar 2022
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
General funds:							
Birds in Trust fund	2,596	766	(263)	8	(439)	-	2,668
General fund	370	5,889	(5,522)	560	464	(135)	1,626
	2,966	6,655	(5,785)	568	25	(135)	4,294
Designated funds:							
Welch fund	-	700	(92)	-	-	-	608
Unrestricted funds excluding Pension reserve	2,966	7,355	(5,877)	568	25	(135)	4,902
Pension reserve	(4,794)	-	(104)	986	-	135	(3,777)
	(1,828)	7,355	(5,981)	1,554	25	-	1,125

The Birds in Trust fund is to provide long-term funding for BTO projects. Income from legacies is credited to this fund unless the wills provide otherwise. £438k was transferred in respect of the JNCC Partnership and £1k was transferred in respect of specific projects from Birds in Trust funds to the General fund. The Welch fund has been designated for migration related research in accordance with the expression of wish of the legator. £25k was transferred from various restricted funds in accordance with the donors' wishes. £135k was transferred from the General fund to the Pension reserve in respect of the pension deficit repair payment. Other pension reserve movements are disclosed in Note 22.

As at 31 March 2021

	Balance at 1 Apr 2020	Income	Expend-iture	Other Gains/ (Losses)	Fund transfers	Pension reserve transfer	Balance at 31 Mar 2021
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
General funds:							
Birds in Trust fund	2,632	859	(352)	43	(586)	-	2,596
General fund	371	5,010	(5,373)	52	442	(132)	370
Unrestricted funds excluding Pension reserve	3,003	5,869	(5,725)	95	(144)	(132)	2,966
Pension reserve	(4,287)	-	(120)	(519)	-	132	(4,794)
	(1,284)	5,869	(5,845)	(424)	(144)	-	(1,828)

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

18. ANALYSIS OF GROUP FUNDS ACROSS NET ASSETS

As at 31 March 2022

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
General funds:					
Birds in Trust fund	-	207	2,461	-	2,668
General fund	2,445	256	2,702	(3,777)	1,626
	2,445	463	5,163	(3,777)	4,294
Designated funds:					
Welch fund	-	-	608	-	608
Unrestricted funds excluding Pension reserve	2,445	463	5,771	(3,777)	4,902
Pension reserve	-	-	(3,777)	-	(3,777)
	2,445	463	1,994	(3,777)	1,125
Restricted Funds	-	-	965	-	965
Total	2,445	463	2,959	(3,777)	2,090

As at 31 March 2021

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
General funds:					
Birds in Trust fund	-	199	2,397	-	2,596
General funds	1,898	246	3,020	(4,794)	370
Unrestricted funds excluding Pension reserve	1,898	445	5,417	(4,794)	2,966
Pension reserve	-	-	(4,794)	-	(4,794)
	1,898	445	623	(4,794)	(1,828)
Restricted Funds	-	-	1,094	-	1,094
Total	1,898	445	1,717	(4,794)	(734)

19. OPERATING LEASE COMMITMENTS

	2022	2021
	£'000	£'000
At the year end the group had outstanding lease commitments for future minimum lease payments under non-cancellable leases, as follows :		
Due within one year	46	46
Due within two to five years	28	73
	74	119

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

20. RECONCILIATION OF NET INCOME/(EXPENDITURE) TO NET CASHFLOW FROM OPERATING ACTIVITIES

	Group 2022 £'000	Group 2021 £'000	Charity 2022 £'000	Charity 2021 £'000
Net income per Statement of Financial Activities	1,288	155	1,288	155
Adjustments for:				
Items representing cash movements				
(Increase)/decrease in stocks	(14)	54	-	-
(Increase)/decrease in debtors	212	(275)	192	(344)
Increase/(decrease) in creditors	41	539	47	641
Investment income	(1)	(3)	(1)	(3)
Items not representing cash movements				
Depreciation	29	28	29	27
(Gains)/losses on investments	(18)	(95)	(18)	(95)
Expenditure on defined benefit pension plan liability	104	120	104	120
	1,641	523	1,641	501
Cash movements not appearing in the Statement of Financial Activities				
Pension deficit repair contribution	(135)	(132)	(135)	(132)
Net cash inflow/(outflow) from operating activities	1,506	391	1,506	369

21. FINANCIAL INSTRUMENTS

The carrying amounts of the group's and the charity's financial instruments are as follows:

	Group 2022 £'000	Group 2021 £'000	Charity 2022 £'000	Charity 2021 £'000
Financial assets				
Measured at fair value through net income/expenditure:				
Fixed asset listed investments (Note 10)	463	445	463	445
Equity instruments measured at cost less impairments:				
Fixed asset unlisted investments (Note 10)			-	-
Debt investments measured at amortised cost:				
Trade and contract debtors (Note 12)	775	1,006	673	814
Amounts due from Group undertakings (Note 12)	-	-	446	488
Accrued income (Note 12)	468	441	379	387
	1,243	1,447	1,498	1,689
Financial liabilities				
Measured at amortised cost:				
Trade creditors (Note 13)	572	249	533	201
Other creditors (Note 13)	63	65	60	56
Accruals (Note 13)	103	161	93	150
	738	475	686	407

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

22. PENSIONS

The Group and the Charity

Defined contribution pension plan
The Trust operates a Group Self-invested Personal Pension Scheme run by Aegon. Staff contribute to this defined contribution scheme at a minimum rate of 5% of salary, and the BTO contributes at a flat rate of 11%. The Trust made contributions of £389k during the year (2021: £387k).

Defined benefit pension scheme
The Trust's defined benefit pension scheme, a 'final salary' scheme, is closed. The last triennial actuarial valuation of the scheme was carried out as at 1 April 2021. At that date the assets were valued at £11,722k and the liabilities at £18,104k, giving a net deficit of £6,382k and a funding level of 65%. A deficit recovery plan was subsequently agreed between the Board and the pension fund trustees, by which the shortfall would be made good by annual lump sum deficit repair payments spread over the years to 2044.

For the purposes of the group financial statements a separate valuation is carried out at the balance sheet date by a qualified independent actuary in accordance with Financial Reporting Standard 102 (FRS 102). The amounts recognised in the statements of financial activities for the year and the balance sheets were as follows:

Recognised in the statements of financial activities:	2022 £'000	2021 £'000
Expenditure:		
Interest income	255	262
Interest cost on liabilities	(359)	(372)
Net interest on net defined benefit liability	(104)	(110)
Past service cost in respect of Guaranteed Minimum Pension (GMP) equalisation	-	(10)
	(104)	(120)
Other recognised gains/(losses):		
Actual return on scheme assets (excluding interest income)	372	1,436
Actuarial gain/(loss) on liabilities	614	(1,955)
	986	(519)

Recognised in the balance sheets:

	2022 £'000	2021 £'000
Fair value of scheme assets	12,108	11,689
Present value of defined benefit obligations	(15,885)	(16,483)
Defined benefit pension scheme liability at 31 March	(3,777)	(4,794)

Reconciliation of funded status:

	2022 £'000	2021 £'000
(Deficit) at 1 April	(4,794)	(4,287)
Employer pension deficit repair payment	135	132
Net interest on net defined benefit liability	(104)	(110)
Past service cost in respect of GMP equalisation	-	(10)
Remeasurement (loss)	986	(519)
(Deficit) at 31 March	(3,777)	(4,794)

The British Trust for Ornithology
Notes to the Consolidated Financial Statements - Continued
For the Year Ended 31 March 2022

22. PENSIONS (Continued)

Changes in the fair value of the pension scheme assets were as follows:

	2022	2021
	£'000	£'000
Fair value of scheme assets at 1 April	11,689	10,174
Interest income	255	262
Actual return on scheme assets (excluding interest income)	372	1,436
Employer pension deficit repair payment	135	132
Benefits paid to members	(343)	(315)
Fair value of scheme assets at 31 March	12,108	11,689

Changes in the defined benefit obligations were as follows:

	2022	2021
	£'000	£'000
Present value of defined benefit obligations at 1 April	(16,483)	(14,461)
Interest cost on liabilities	(359)	(372)
Benefits paid	343	315
Past service cost	-	(10)
Actuarial gain/(loss)	614	(1,955)
Present value of defined benefit obligations at 31 March	(15,885)	(16,483)

The amount of each major class of pension scheme assets within the total fair value of the scheme assets was as follows:

	2022	2021
	£'000	£'000
Equities	6,298	6,219
Bonds	4,889	4,628
Annuities	201	206
Cash	720	636
	12,108	11,689

The total return on scheme assets was as follows:

	2022	2021
	£'000	£'000
Interest income	255	262
Actual return on scheme assets (excluding interest income)	372	1,436
Total return on scheme assets	627	1,698

The principal actuarial assumptions used were as follows:

	2022	2021
Discount rate	2.95%	2.20%
Inflation assumption (RPI)	3.95%	3.35%
Inflation assumption (CPI)	3.35%	2.70%
Rate of increase for non-GMP pensions in deferment	3.35%	2.70%
Rate of increase for pensions in payment (RPI, min 3% max 5%)	3.95%	3.70%

Expected future lifetime from age 65:	2022	2021
	No of years	No of years
Male – currently aged 65	22.1	21.8
Female – currently aged 65	24.1	23.4
Male – currently aged 45	23.7	23.4
Female – currently aged 45	25.3	24.7

British Trust for Ornithology
The Nunnery, Thetford, Norfolk IP24 2PU
Tel: +44 (0)1842 750050 Web: www.bto.org
Email: info@bto.org Twitter: @_BTO
Registered Charity Number 216652 (England & Wales), SC039193 (Scotland)

COVER IMAGE: GREAT TIT : DAVID TIPLING / BIRDPHOTO.CO.UK

THE BRITISH TRUST FOR ORNITHOLOGY

England & Wales - Charity number 216652

Accounts

TRUSTEES' ANNUAL REPORT & FINANCIAL STATEMENTS 2020/21

BTO
Inspired by birds, informed by science

BLACKBIRD : DAVID TIPLING / BIRDPHOTO.CO.UK

CONTENTS

Opening words	3
At a glance	4
Delivering scientific impact	6
Enabling people to learn & grow	8
Inspiring & empowering people	10
Our volunteers	12
Our staff	14
Our community	16
A partnership approach	18
Informing policy & practice	20
Sharing data & information	22
A year like no other	24
Learning through innovation	26
Focus on England	28
Focus on Wales	30
Focus on Scotland	32
Focus on Northern Ireland	34
Across the world	36
Being fit for the future	38
Fundraising in a pandemic	40
Our supporters	42
Our scientific output: 2020	44
Financial overview	46

Inspired by birds, Informed by science

FROM OUR CHAIR PROFESSOR JENNY GILL

This year has seen the challenge of the COVID-19 pandemic, and the consequent restrictions on travel and social gatherings. For many people, nature has been a vital source of comfort that has contributed greatly to physical and mental health and well-being during this difficult period. BTO staff have worked hard to provide opportunities for both existing members and new communities to connect with nature, learn about wildlife and contribute to our surveys through a series of very successful initiatives; removing the payment barrier to our Garden BirdWatch survey, developing BirdTrack to encourage local recording of wildlife, and maintaining frequent communications with volunteers and supporters. It has been heartening and humbling to hear from many members and supporters about the sustenance that birds and BTO surveys have provided over the last 12 months.

The data collected through BTO schemes play a crucial role in tracking changes in our bird populations, enabling understanding of the causes of those changes and, importantly, informing policy development and delivery for bird conservation. Recent BTO work on the potential consequences of post-Brexit land-use changes, for example, was well received by the Welsh Government, demonstrating the power of BTO data and science to inform decision-making. This year has also seen very exciting developments in our efforts to grow participation in science and birdwatching, with many elements of our youth engagement programme growing at pace, guided by our excellent Youth Advisory Panel. Participating in BTO surveys and supporting BTO work can provide extraordinary opportunities to learn, contribute and gain experience, and we remain determined to encourage and facilitate the greater involvement of all communities in our work.

FROM OUR CEO PROFESSOR JULIET VICKERY

The pandemic saw BTO adapt swiftly to staff working from home; the adoption of virtual opportunities made events such as our Annual General Meeting and celebration of 20 years in Scotland more accessible to more of our supporters. The virtual training courses run under lockdown have been a revelation, attended by 2,189 individuals across England, Scotland, Wales and Northern Ireland; they are set to be a permanent part of the future BTO training offer.

BTO also supported others in our sector in responding to COVID-19, facilitating workshops on interpreting legislation, agreeing approaches with partners and funders, and communicating guidance to volunteer networks. Despite a drop in coverage for core schemes, the dedication of our volunteers and expertise of our staff meant that we were able to produce trends for some species and highlight the ongoing declines of migrant and farmland birds. For the latter, the evidence-based agri-environment options, which BTO science has played a key role in informing, remain a lifeline and it was wonderful to see the work of Gavin Siriwardena, who has led BTO's farmland work for over 20 years, recognised through an OBE. This same recognition was also afforded to Andy Clements, who retired as CEO in November. Andy's transformational leadership built on what BTO does best, while supporting new initiatives such as our growing youth work, for which BTO is now acknowledged as a leader in the sector. As we head towards BTO's 90th anniversary in 2023, we will remain loyal to our core values but, as we have this year, we will be ready to adapt to stay relevant in an ever changing world.

FRONT COVER IMAGE: DAVID TIPLING / BIRDPHOTO.CO.UK

AT A GLANCE

Thanks to our members, funders and supporters, **£4.54 million** was spent during the year on carrying out, supporting and communicating our ornithological research.

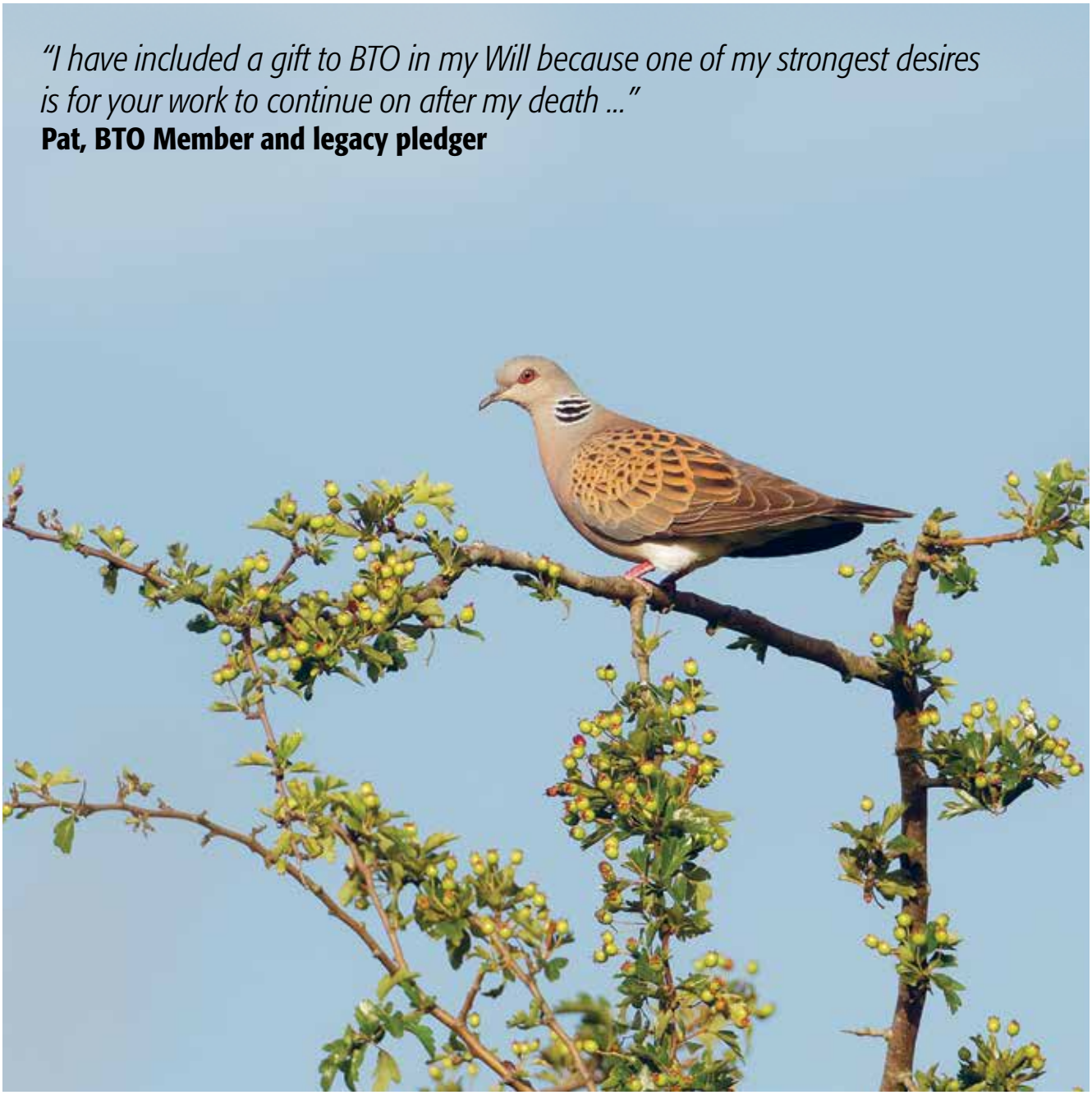
We recruited **15** new Youth Representatives, finalised our Youth Engagement Strategy, an delivered virtual events organised by our Youth Representatives and Yout Advisory Panel members

Volunteers contributed **1,890,676** hours to BTO's work in 2020. While core surveys were impacted by the pandemic, increased participation in Garden BirdWatch and BirdTrack more than made up for this.

In response to the pandemic, we began delivering a wide range of online courses, which have proved immensely popular. In Q4 alone we delivered **38** sessions to **1,035** individuals.

Our Red Sixty Seven proje bringing together art and science to raise the profile of Red-listed birds, raised excess of **£40,000** for wo on these species of conservation concern.

"I have included a gift to BTO in my Will because one of my strongest desires is for your work to continue on after my death ..."
Pat, BTO Member and legacy pledger



TURTLE DOVE : LIZ CUTTING / BTO

55 peer-reviewed papers by BTO staff were published in 2020.

During 2020/21 our Bird Identification videos on YouTube received **927,841** views, while our series of virtual conference talks attracted **1,055** unique attendees, more than the physical venue could hold.

HEADSTARTED CURLEW : MIKE TOMS / BTO

DELIVERING SCIENTIFIC IMPACT

BTO continues to deliver impartial, impactful and relevant science, providing the information needed to plan and assess conservation action, and to inform decision-making processes for the benefits of society, wildlife and the natural world. We can only do this because of the partnership between our staff and our volunteers.

PRESENTING EVIDENCE OF CHANGE

The data collected through the core monitoring schemes operated by BTO continue to deliver evidence of change in bird populations, evidence that underpins effective decision-making and conservation action. In addition to core schemes like the annual BTO/JNCC/RSPB Breeding Bird Survey (BBS) and the Wetland Bird Survey (WeBS), vital data are also collected through periodic surveys, often targeted at species or habitats that are difficult to cover during our core monitoring activities. One such periodic survey is the Non-estuarine Waterbird Survey (NEWS), which takes place approximately once a decade. The results of the latest NEWS survey were published in our journal *Bird Study* in March, revealing significant changes in many of the wader populations associated with our open and rocky shores. These habitats, which form our non-estuarine coast, are poorly monitored by WeBS, so this periodic survey is a key part of the UK's wider waterbird monitoring programme.

Survey counts from NEWS revealed that Oystercatcher is the most abundant species on our non-estuarine coasts, with an estimated 69,905 individuals, followed by Curlew (44,344) and Turnstone (25,988), but the habitat is also extremely important for Ringed Plover, Purple Sandpiper and Redshank. Worryingly, the latest NEWS survey reveals that four species have significantly decreased in number, or shifted their range, since the previous survey. These are Lapwing (-57%), Redshank (-37%), Turnstone (-32%) and Curlew (-31%). Our wintering waders are drawn from different breeding populations and we know that particular areas of coastline are important for birds from different populations. Large-scale changes – such as those driven by responses to climate change – combined with local impacts, such as disturbance from human recreational activities or habitat change follow development, are behind the changes seen, so it is vital that waterbird monitoring continues on all our coasts to understand how our waterbirds are faring.

RINGED PLOVER : EDMUND FELLOWES / BTO

MAKING BETTER DECISIONS

The key to improving the decision-making processes around land-management, policy and conservation issues isn't just down to the quality of the scientific knowledge and evidence that is available. It is increasingly recognised that local knowledge is important too, providing both the necessary socio-economic context and helping to secure credibility and legitimacy. In addition to its reputation for delivering robust science, BTO also has a reputation for its ability to work with a broad suite of stakeholder audiences, particularly around subjects where audiences may be polarised in their perspectives.

A recent piece of work, published in *Environmental Science and Policy*, and involving BTO Scotland staff Chris Wernham and Mark Wilson, looked at how to integrate local knowledge with scientific knowledge. Although principles for good science are well-established, methods for assessing the quality of local knowledge are lacking, and there is the further challenge of accessing knowledge held within local stakeholder groups. The project team worked with stakeholders to explore the local and scientific knowledge around recent population changes, and the drivers behind these, in a range of ground-nesting birds and some of their main predators. The results highlighted that, particularly in those situations where there is disagreement over the evidence base, efforts should be made to involve all relevant parties in the process, with a view to delivering a community-led approach to the co-production of knowledge. The approaches outlined should lead to a better understanding of community motivations and identify opportunities for collective action.

CLIMATE CHANGE ADAPTATION

BTO has been in the forefront of research to document the impacts of climate change on biodiversity, since first demonstrating changes in the timing of breeding by UK bird populations. Over the past year this work has continued, with a suite of papers published and BTO staff contributing to key meetings on climate change adaptation. Key papers included BTO contributions to disentangling the relative roles of climate and land cover change in driving the long-term trends of European migratory birds and reviewing the evidence for temperature-mediated phenological asynchrony.

BTO-led analysis showed upland birds become increasingly selective about microclimate as large-scale climatic suitability decreases. BTO Director of Science, James Pearce-Higgins, gave a keynote presentation to a Climate Change Committee conference on adaptation and also led the Scientific Committee of the BOU's first fully virtual conference on climate change and birds. Being able to bring BTO's significant expertise and evidence base to these events makes a valuable contribution to global efforts to tackle this critical issue, which continues to be a priority into 2021 alongside the 26th UN Climate Change Conference.

TURNSTONE : DAVID TIPLING / BIRDPHOTO.CO.UK

REDSHANK : EDMUND FELLOWES / BTO; BAY OF SANNICK: GRAEME GARNER / BTO; PURPLE SANDPIPER : EDMUND FELLOWES / BTO

ENABLING PEOPLE TO LEARN & GROW

We are working to provide more and better opportunities for people to contribute to our scientific work, at the same time helping them to learn new things and to grow in confidence as they develop their skills as birdwatchers and survey volunteers.

A GARDEN FOCUS

The past year saw the world get smaller for most of us, the introduction of measures to reduce the spread of COVID-19 restricting activities to our homes and gardens. We saw a sharp increase in interest in gardens and their wildlife as people sought solace in the natural world, something that was evident in the communications we received, through the posts with which we engaged on social media, and in levels of participation in our surveys. Submissions to BirdTrack, an online tool that enables birdwatchers to log their sightings, reflected the shift in birdwatching focus, with spring birding more common in urban habitats, and less common in coastal, wetland, and upland sites, than in previous years. As a result, lockdown lists were biased towards those bird species more commonly associated with towns and gardens.

We responded to this increasingly urbanised focus by removing the payment barrier from our weekly Garden BirdWatch project. At a time when people were turning to nature we thought that the project would help people with their well-being, providing a focus on the natural world through participation in a simple and structured survey. The response to opening up Garden BirdWatch in this way was staggering, with more than 10,000 new participants signing up within just a few weeks. The surge in new participants required increased support from our Garden BirdWatch and Supporter Teams, and we are particularly grateful for their efforts in enabling this opportunity for so many people.

For these people, participation in Garden BirdWatch was an online experience, the costs of sending out paper recording forms and a quarterly magazine prohibitive; instead we launched a weekly enews for these people, providing support, reporting on the latest findings, and highlighting things to look out for. Engagement rates for the newsletter underline how well it is being received.

NEW SURVEY OPPORTUNITIES

During 2020, BTO staff trialled an extension to the Constant Effort Sites (CES) ringing scheme, which has been collecting data for almost 40 years. The scheme delivers valuable information on survival, helping our researchers to either implicate or rule out fluctuations in mortality rates as drivers of observed changes in bird numbers. CES provides information on the survival rates of over 20 resident and migrant songbirds, and additionally provides information on abundance and breeding success. However, coverage is limited to a narrow range of habitat types – mostly scrub, reedbed or woodland sites – and there is the potential to extend coverage into urban and suburban habitats. Restrictions during the pandemic provided bird ringers with the opportunity to set up sites within 115 gardens, and for the data collected through the scheme's structured ringing to be collated and analysed. The results are extremely encouraging, and if we achieve similar levels of coverage in 2021 then we should be able to produce survival information for a larger number of species.

PUBLIC PARTICIPATION IN SCIENCE

We were sad to hear of the death of His Royal Highness The Duke of Edinburgh on 9 April 2021. Prince Philip was patron of BTO from 1987 to 2020 when, at the age of 99, he was succeeded in this role by his grandson, His Royal Highness the Duke of Cambridge. The new patronage reflects the close alignment between two of The Duke of Cambridge's long-standing areas of interest – helping young people to build their skills, confidence and aspirations, and supporting local communities to protect their natural environment for future generations – and the growing body of work that BTO is doing in these areas. We believe that, with the support of His Royal Highness, we can deliver the benefits of public participation in science through nature to many more people, including those communities that are traditionally under-represented (see pages 16–17).

RINGING TRAINING : CATHY RYDEN / BTO, BTO NEST RECORDING COURSE : KEITH MINDHAM / BTO, BBS MENTORING : DAVID TIPLING / BTO

BIRDWATCHING : DAVID TIPLING / BIRDPHOTO.CO.UK

CASE STUDY: GROWING CONFIDENCE IN BIRDWATCHERS

As a birdwatcher you are always learning, gaining knowledge and developing your skills. But when you first start you can sometimes feel as if there is too much to learn, and that you will never achieve the level of skill seen in others who participate in this engaging hobby. These fears can act as a barrier to participation, and this is something that BTO has been working to address through our training programme and its accompanying resources. Training incorporates various outreach activities that provide opportunities for our supporters to learn and develop as birdwatchers and survey volunteers. These include online materials (the 'Develop your skills' area of the website and our Bird ID videos), the Field Craft feature and other content for *BTO News* and a programme of in-person courses. We structure our courses to reflect the different skill levels and needs of participants, recognising that if we are to remove barriers then we need to provide appropriate support and training opportunities.

Prior to the pandemic, courses were one- or multi-day events, focussed on small-group tuition in bird identification and BTO survey methods. Unsurprisingly, such events were put on hold in March 2020; we subsequently developed and began to deliver a wide range of online courses, which have proved immensely popular. Going forward, we will adopt a hybrid model, using online sessions in place of indoor tuition, whilst offering half-day or longer face-to-face sessions for small groups to hone their skills in the field with us.

INSPIRING & EMPOWERING PEOPLE

As an organisation we seek to inspire and empower people with an understanding of birds and the importance of scientific, evidence-based knowledge. Over the past year we have been working to present the results of our science in new ways, reaching out to new audiences with inspiring stories.

EXTENDING OUR REACH

BTO has a strong social media presence, recognising the fact that 78% of the UK population (some 50 million people) is active on social media channels such as Twitter, Facebook and Instagram. Most social media use (some 95%) takes place on mobile devices, and so the content that we produce needs to be geared towards these platforms. It also needs to stand out in what is a highly competitive environment, where there are endless options for people to get engaged and move between platforms.

Like any other type of networking, the use of social media is about relationships, and building these takes time and skill. We need to understand how and why people engage with us through social media, what they want from us, and what we can do to encourage them on their journey with BTO. We want to do more than just broadcast, but instead want to use social media alongside our other communications channels to foster engagement, discussion, and participation. Fortunately, we have a wealth of stories that we can use to talk about our work and why it matters, together with stunning images of birds and decades of fascinating data.

We have seen significant growth in our audiences and in the levels of engagement achieved since we first started to use social media. We produced our first Social Media Strategy in 2018, following the creation of a dedicated social media post within our Communications Team. Since then we have seen an increase of 67% in our outputs, a 40% increase in the number of received messages, and an increase of 50% in impressions. By better capitalising on the use of video on platforms such as YouTube, Twitter and Facebook, we have seen a 1,010% increase in video views, with our various bird identification videos a particular success.

MARSH HARRIER : JOHN PROUDLOCK / BTO

Prior to 2018, our social media focussed largely on presenting scientific work, facts, and on sharing our extensive knowledge of birds. From 2018 onwards, we have shifted social media towards a more interactive and personal approach, where we interact with our supporters, as well as provide them with information, engage them in conversation, and ultimately motivate them into action. This has been successful in engaging our audiences in a wider conversation, and in increasing our conversion rate on the BTO website.

At the end of the 2020/21 financial year, our Twitter following stood at 103,618, Facebook 'fans' at 31,507 and our Instagram following was 16,213. Instagram has been a more recent addition for us, and one that is likely to be increasingly important in the future. Another important channel is LinkedIn, which has seen a recent shift in audience behaviour and use, moving in a direction that is likely to make the channel of increasing value to BTO as we seek to engage better with policy-makers, land managers and businesses.

GOING LIVE ONLINE

For obvious reasons, BTO's Annual Conference became a virtual event this year. The switch to online presented some new opportunities, increasing the number of people who could 'attend' the sessions and enabling us to extend the event from a weekend to a week. Thanks to support from staff across the organisation, particularly William Skellorn in IS and Mike Toms and Ieuan Evans in Engagement, we were able to run a series of themed sessions on Zoom and stream to our Facebook and YouTube channels. We were also able to post the sessions so that they could be viewed at a later date by those unable to attend the live events.

The sessions covered a range of different topics, from monitoring wader populations and tracking migrant birds, through to talks about the urban environment and acoustic monitoring. We also held panel discussions, facilitating debate about opportunities for younger people, and posing questions for both incoming and outgoing CEOs. Alongside these sessions, we delivered a virtual Annual General Meeting, and were treated to an engaging Witherby Lecture by Professor Karen Cooper, who talked about the value of citizen science from a North American perspective.

There were 3,122 bookings across the conference sessions and the YouTube videos have so far been viewed 16,841 times, underlining the increased reach that is possible with virtual events. While a physical meeting provides other benefits, such as opportunities for networking and greater engagement, we will look at ways to bring some of the benefits that virtual events offer into our future plans to inspire and empower more people.

STONE-CURLEWS : BRIN EDWARDS / SWLA

CASE STUDY:
ART, SCIENCE AND CULTURE

Working with artists, photographers, poets, and writers has enabled BTO to communicate its research to new audiences, and provided opportunities for staff to develop new and engaging narratives about their work.

It is essential that we continue to engage audiences with our work, and to do this in ways that demonstrate its relevance and impact. The nature of science, which is centred on objective approaches, can make it difficult to engage audiences with its findings; something that is made all the more difficult because of the tendency for scientists to caveat any messages or statements that emerge. A growing number of studies have found that engagement with science can be significantly enhanced where that engagement takes place through the creative arts. Audiences exposed to scientific ideas through such pathways have been shown to demonstrate meaningful change in their understanding of topics and, where the topic has an environmental basis, their subsequent behaviour.

BTO has been continuing to develop its use of approaches that bring together art, science and culture, to deliver more engaging narratives about our work. This approach is one that we first adopted in 2014, with the BTO/SWLA Flight Lines project, which brought artists and scientists together to document the challenges facing migrant birds, and the research being done to understand and tackle their population declines (pictured). More recent work has seen BTO scientists Blaise Martay and James Pearce-Higgins working with poets to develop discussion around climate change and the value of the long-term monitoring data being collected by BTO volunteers. The resulting poems were published in a special themed issue of *Magma Poetry*.

Throughout 2020/21 we continued the use of this approach with the Red Sixty-Seven project, launched in February 2020 and reported in the last Annual Report and Accounts. This brought together 134 writers and artists to tell personal stories of the 67 Red-listed Birds of Conservation Concern. In addition to raising the profile of these birds, sales of the accompanying book during 2020/21 have generated income that has been directed to research and monitoring work on these birds by BTO and RSPB. Red Sixty-Seven also featured in one of two online events that discussed the role that a combined arts, science and culture approach can play in increasing engagement with science and conservation. Further events will be taking place over the next year, including a major series on migrant birds in spring 2022.

OUR VOLUNTEERS

BTO's volunteers work in partnership with our scientists and survey organisers to deliver the evidence base that supports conservation action and decision-making processes, for the benefits of society, wildlife and the natural world. Their generosity, knowledge and enthusiasm enable us to make a significant contribution to society.

VOLUNTEER EFFORT INCREASES

As expected, the pandemic significantly affected volunteer contributions to our work. Notably, the amount of time contributed by volunteers to the Breeding Bird Survey was reduced by 70% compared to last year, the Heronries Census was down by 55%, Constant Effort Site scheme ringing was down by 63%, and the Waterways Breeding Bird Survey was down by 67%. However, these declines were more than matched by a 15% increase in BirdTrack, the 51% increase in Garden Birdwatch (see page 8), and the introduction of a new Constant Effort Site scheme for gardens. Overall, volunteers contributed 8% more time to BTO in 2020 than 2019, something that bodes particularly well for the coming period. The increasing contributions to Garden BirdWatch and the new Constant Effort Site scheme for gardens are significant, providing data from urban and suburban sites that are less well represented in many other schemes.

HELPING HOUSE MARTINS

There are many examples throughout this Annual Report demonstrating the incredible contributions of our volunteers. However, there is one particular study that provides a wonderful example of how our volunteers, members and supporters come together to enable us to tackle pressing questions. This is the House Martin Nest Study, carried out in the summers of 2016 and 2017, but with the peer-reviewed paper published in *Ibis* in October 2020.

Data from our core monitoring programmes show that House Martin numbers in the UK have declined by 39% over a 25 year period, with *Bird Atlas 2007–11* revealing strong declines in relative abundance in the south-east since the previous breeding atlas, carried out 20 years earlier. Why House Martin numbers had declined over much, though not all, of their UK breeding range was unclear, and this provided the impetus for the BTO House Martin Nest Study. The study, which was made possible because of the generous support given to the House Martin Appeal, saw our volunteers monitoring the breeding behaviour of House Martins nesting close to where they lived. It also encouraged many new volunteers to participate.

HOUSE MARTIN : TOM STREETER / BTO

The study revealed that House Martins in the east of the UK begin breeding earlier than birds nesting in the west. Birds using old nests from previous years, or artificial nests, were found to have greater breeding success than those building nests from scratch, and pairs that built nests on PVC – as opposed to brick, concrete or wood – had much lower breeding success, with their nests more likely to collapse. House Martins breeding in an agricultural environment were also less successful than those breeding in a suburban setting. The study also reported the first confirmed triple broods in the UK; whilst pairs of House Martins have been recorded undertaking three nesting attempts in a single summer further south in Europe, this had not previously been observed in the UK.

There was no strong evidence that breeding performance is a key driver of the decline seen in House Martin numbers. In fact breeding performance – defined as the proportion of successful nesting attempts – was higher in eastern regions where the declines have been steepest. This might suggest that other factors, such as adult and juvenile survival, may be driving the decline. More detailed work is needed, however, to determine whether there might be regional differences in the numbers of chicks raised per breeding attempt, and this is where some targeted nest recording work would be of particular value. The study also highlighted some practical steps that individuals can take to support nesting House Martins. One simple recommendation from the study's results is to install artificial nesting cups to save birds around 10 days of nest building time when they return from migration, especially on buildings with plastic soffits.

ARE WE GETTING EARLIER?

We know that the timing of migration and breeding has changed for many bird species in response to climate change, but might our volunteers have changed their surveying habits too? Using data from the Breeding Bird Survey, Research Ecologist Dario Massimino and colleagues assessed the magnitude of potential biases linked to changes in species' phenologies and survey timing. The results revealed that, over a c.20 year period, most species' detection patterns were advanced or delayed by less than two days. In contrast, there was a greater change in the timing of bird surveys made by volunteers, which advanced by up to four days over the same period. Although these shifts are small, they can, in some cases, induce biases in population trend estimates derived using naïve methods that do not account for visit timing. The majority of biases are small and those due to surveyor timing can be analytically controlled.

BTO SURVEYOR : BEN IGGLESDEN / BTO

WHAT MOTIVATES THE MASSES?

Volunteers play a critical role in building BTO's long-term datasets, and in delivering the evidence base that is being used to tackle important conservation and policy challenges. Understanding why people volunteer their time to participate in survey and monitoring work is important, not least because it can help us to grow involvement and deliver the right support to those participating.

Over the past year we have continued our work to understand the motivations for participation in science, working with others to bring together information from across a broad spectrum of 'citizen science' schemes and projects. One piece of work, published this year in *Biological Conservation*, looked at individual motivations for participating in Garden Wildlife Health, a monitoring programme that we operate jointly with the Institute of Zoology, RSPB and Froglife. Working with staff at the Durrell Institute of Conservation and Ecology and the James Hutton Institute, we developed a questionnaire to examine what motivates individuals to contribute towards citizen science projects.

The study revealed that people took part in Garden Wildlife Health because the environment has an intrinsic value to them, and they want to support research efforts in this field. In addition, they want to gain knowledge and improve their understanding. Unlike some projects that involve specific training and a considerable time investment, contributors to Garden Wildlife Health were not motivated by the potential to develop their career or secure opportunities for social interaction. Knowing what motivates our volunteers, and how this differs between projects, will help us to structure projects so they adequately fulfil these motivations, ensuring retention, satisfaction and high levels of involvement from participants.

OUR STAFF

BTO's professional staff are recognised for both their expertise and commitment, working in partnership with volunteers and staff at other organisations to drive forward our charitable activities. Most of our staff also volunteer in BTO surveys and projects, something that underlines the strong bond within our community.

A CHANGE IN LEADERSHIP

Andy Clements stepped down from his role as BTO CEO in December 2020, having joined the organisation as Director in 2007. During his time at BTO he oversaw many significant changes that have left the organisation better connected with key policy audiences, more outward facing and much better known. His stewardship helped to guide the charity through the challenges of the 2008/09 financial crisis and the COVID-19 pandemic, and saw the establishment of our country office in Wales, the expansion of our work in Northern Ireland, the development of our youth work, and the delivery of increased support for staff across the organisation.

Juliet Vickery joined BTO as CEO in November 2020, enabling her to overlap with Andy Clements prior to his departure. With a 35-year career in conservation science, academia and the NGO sector, Juliet joined BTO from a hugely successful role at RSPB. Many BTO supporters will already know of Juliet after the 11 years she previously spent leading BTO's farmland bird research. Juliet feels enormously privileged to have been trusted with this position at a time when there has never been a greater need for BTO's work, both in terms of providing the evidence to inform the right environmental decisions and in providing people with opportunities to become connected with, and help steward, the natural world through participation in science.

A PROFESSIONAL STAFF

BTO is fortunate to have extremely professional, dedicated and hard working staff, something for which the organisation has been particularly grateful over the past year. A core strength of BTO is the partnership that exists between our very large volunteer networks and the staff who coordinate surveys, analyse data, and communicate results to the wider world. Most of these staff are volunteers themselves, participating in BTO surveys and often working alongside other volunteers. This fosters a sense of community that extends right across the organisation, and it also means that BTO, through its staff, better understands the needs of our volunteers and members.

JULIET VICKERY : DAVE GUTTRIDGE

ANDY CLEMENTS AT BTO HOUSE OF LORDS EVENT : BTO

BTO staff make a significant contribution to the broader birdwatching, ornithological, and scientific communities. Many contribute to academic and other conferences, referee scientific papers, attend and organise workshops and other events, or sit on panels, working groups, or the Boards of other charities. Many of these activities take place outside of work roles, reinforcing the sense that for most staff the work they do (in the broadest sense) is vocational in nature.

During the past year, the dedication and professionalism of those staff who occupy the more 'behind-the-scenes' roles has been key to the continued operation of BTO's work throughout the months of lockdown restrictions. Staff working in information systems, finance, human resources, health and safety, supporter services, fundraising, and other vital roles, have ensured that colleagues and supporters alike have been able to continue their work and engage with the Trust.

The incredible uptake of GBW Free (see page 8), coupled with the move to the online delivery of the Marsh Awards, the BTO Annual Conference and a host of other events, has made this a particularly busy year for our Supporter Team and for those staff in Information Systems and Communications tasked with managing the delivery of online events and the maintenance of our core computing systems. That we have been able to achieve so much is a testament to the staff and volunteers that make up this wonderful organisation.

BTO STAFF ON FIELDWORK : STEVE WILLIS / BTO

OUR COMMUNITY

We are supported in our work by an amazing and vibrant community of birdwatchers, volunteers and members, drawn from a diversity of backgrounds. However, we recognise that some parts of our community face significant barriers that prevent them from engaging further, and we are working hard to address this.

REMOVING BARRIERS

We know that some parts of our community face significant barriers preventing them from engaging further in our work. Such barriers take many different forms, from financial ones that impact those on low incomes, through to that of representation. Lack of representation makes it hard for individuals to envisage themselves within an organisation or participating in an activity, because they cannot see people from the same background as themselves with whom they can identify. We are committed to being more inclusive. Diversity and representation are low in our sector, and it is something that we are working to address through our Diversity Working Group and the Diverse Sustainability Initiative of which BTO is a partner. Each group is challenging us to do things differently, to be aware of the unconscious bias inherent in organisations and individuals, and to share learning. We know that we have a long way to go but, just as our Youth Advisory Panel has been a step-change for youth engagement, so we hope that our internal and external collaborative work on equality, diversity, and inclusion will achieve change.

MEMBERSHIP MATTERS

We ended the financial year with 18,379 members, up slightly on the previous year, but reflecting the challenging period that we have all been through. The pandemic meant that we were unable to meet members in person – or to recruit new members – at big events such as the British Birdwatching Fair or one-day conferences, the latter usually delivered in partnership with regional bird clubs. As noted elsewhere in this report, our efforts to support members and others were directed online, through virtual talks, training workshops and panel discussions. The move online provided opportunities to present our charitable work to new audiences and in new ways. As we emerge from the pandemic and return to physical events, we will continue to use some of these virtual opportunities as part of our membership offering going forwards.

OPPORTUNITIES FOR YOUNG PEOPLE

Over the year, BTO's Youth Engagement Programme has grown considerably. Since the recruitment of our Youth Advisory Panel (YAP) at the start of 2020, the group has researched and developed our Youth Engagement Strategy. This strategy was approved at the end of 2020, and plans began in early 2021 to start implementing its actions. The first of these was the creation of our new Youth Representative Scheme. At the start of 2021 we recruited 15 young people (aged 16–25) to our regional network to become representatives for birds, science, and BTO in their local communities. They are tasked with encouraging young people to have a closer relationship with nature, achieving this by organising events, talks, and funded opportunities.

Alongside this, the YAP developed our Equipment Donation Scheme, which we launched in February 2021. To encourage better relations between different generations of birdwatchers, and address the barriers young people face in birdwatching (specifically, the cost of equipment), the scheme redistributes donated binoculars, telescopes and books to young people, schools and university clubs. To date, the scheme has received over 550 items and had over 125 applications from eligible young people and groups. Recipients are encouraged to go out with their donated binoculars or telescope, and tell us what they're seeing. This feedback is then circulated back to the donor, completing the cycle. We hope that this scheme will become a core part of BTO's opportunities for young people.

Looking at the coming year, the Youth Engagement Strategy will focus on working more closely together with schools, developing resources that will help teachers deliver the national curriculum on subjects such as biology, science and maths. We will also create an online hub of resources for young people on our website, and redevelop our youth membership to better cater to the needs of young people. The Youth Representatives will be running more face-to-face events, and we are planning further projects for the future. We look forward to hearing the thoughts of our members, donors and supporters on how they think BTO can become more inclusive of a young audience, and you can email us at youth@bto.org with your thoughts.

SHIFTING BASELINES

BTO's community of volunteers collects the long-term evidence base that underpins our understanding of how and why bird populations change over time. Knowledge of past environments and past populations is central to comprehending change, and for setting effective conservation targets. Despite this, our perspectives of conservation issues or of the results of land management practices, are rooted in the present and shaped by the world that we see around us today. This focus on the present can lead us to lose perspective of the true scale of long-term environmental change, something that is referred to as Shifting Baseline Syndrome.

Despite recognition of Shifting Baseline Syndrome, little empirical evidence has been presented to demonstrate its impacts on public perceptions of conservation network. BTO has been involved in a piece of work to address this, the results informing how we engage and communicate with our community about the work that we do and why it matters. The work, published in the journal *People & Nature*, looked at public perceptions of the long-term change in 10 UK bird species, and revealed that the perceptions of older participants had significantly higher agreement with the long-term biological data than was the case for younger participants – a clear demonstration of Shifting Baseline Syndrome. If the younger and less-experienced members of our community are less aware of historical ecological conditions, then we need to work harder to increase their knowledge and understanding of how things have changed.

This is of particular importance because the study also found that older people were more likely than younger people to perceive a greater need for conservation action for declining species. If we are to address the challenges that Shifting Baseline Syndrome poses, then we need to encourage greater communication between different generations, sharing knowledge and additionally increasing shared experience of local nature. We have already identified a number of potential projects that could be used to do this.

YOUNG BIRDER : KATE GREWAL, WHITE-TAILED EAGLE : LIZ CUTTING / BTO

A PARTNERSHIP APPROACH

Partnership is a core feature of our approach. Recognised for the quality of our scientific work, and our impartial, evidence-based position, we are able to work with a very broad range of partners. This enables us to tackle important questions in sometimes difficult areas of policy or research.

PUTTING A FIGURE ON IT

That our understanding of UK bird populations is far better than that for most other taxa owes much to the accessibility and visibility of birds, and the willingness of volunteers for structuring their birdwatching interest in ways that enable the collection of data. It also owes a lot to the partnership approach that forms the backbone to much of the monitoring work taking place across the UK. The core schemes operated by BTO rely on partnership working and funding, and these continue to deliver robust, high quality outputs and incredible value for money.

More broadly, a partnership approach delivers high profile reports including the *State of the UK's Birds* and the *State of Nature Report*, among others. A cornerstone of monitoring is estimating the numbers of birds, and here the partnership approach comes together in the form of the Avian Population Estimates Panel (APEP), a group of experts who consider the available data and derive population estimates for 249 species during the breeding season, 113 species during winter and for one species (Aquatic Warbler) during passage.

BTO's core monitoring work, supported by periodic surveys of particular species or groups of species, delivers information on population trends, something that is of particular value for assessing the status of species for many conservation purposes. *State of the UK's Birds 2020* for the first time brought together population trends, trends in survival and productivity and population estimates for widespread breeding birds in a single and accessible table. While trends are very valuable in their own right, knowledge of the absolute size of a population better enables us to understand the threats faced by species, to evaluate the risk of extinction, and to make effective decisions about how to protect them.

The latest APEP report, published in *British Birds* and involving BTO's Ian Woodward, Teresa Frost and David Noble, reveals there are some 85 million pairs of breeding birds in the UK, similar to that derived during the previous review in 2013. The Wren is our most common species, with an estimated 11 million pairs and its population having increased since the last review. Twenty-one species have populations in excess of one million pairs, and collectively these make up roughly four-fifths of our breeding bird numbers.

The majority of the estimates produced by APEP are based on the work carried out by thousands of volunteers over many years, contributing as surveyors, local scheme organisers or county bird recorders. These much broader and deeper partnerships, between volunteers and paid professionals, small and large organisations, the NGO sector and government, really underline the very significant contribution that partnership working can deliver for birds and for conservation.

SPOON-BILLED SANDPIPER : HANNE & JENS ERIKSEN / NATUREPL.COM

SAVING 'SPOONIES'

The Spoon-billed Sandpiper is a critically endangered long-distance migrant that breeds on coastal tundra in north-east Russia and winters in south-east Asia, between south China and Bangladesh. Important 'stop-over' sites, used during the autumn migration, have been identified around the Yellow Sea, where the birds also moult their flight feathers and replace much of the breeding plumage. The future of the species is threatened by the development of these sites, and others used during the non-breeding season, but a broad partnership of organisations, including BTO, has been working to address this.

Work published during 2020 provides vital information on the use of stop-over sites by individual birds during migration and reports on recent changes in the numbers on the Upper Gulf of Mottama in Myanmar, the most important known wintering area. The research team caught and tagged 13 adult sandpipers, fitting them with transmitters weighing just 1.6 g. The resulting satellite fixes revealed 28 clusters of sites along the flyway, of which nine appeared to be of particular importance. In addition, wintering areas of eight tagged birds were identified, including the one in Myanmar. Ten of the 28 sites identified have statutory protection.

The survey work in Myanmar revealed that while the numbers of other small wader species at the site had tripled between 2009 and 2016, coincident with efforts to reduce hunting pressure, Spoon-billed Sandpiper numbers had halved to just 112 individuals. It is likely that habitat loss and hunting on the migration route is behind the continued decline, making knowledge of the location and use of stop-over sites all the more important. This knowledge is being used to seek increased protection of these important sites, and is contributing to efforts to save Spoon-billed Sandpipers from extinction.

MONITORING POLLINATORS

The UK Pollinator Monitoring Scheme (PoMS) is a fantastic example of partnership working, bringing together a broad range of skills and expertise in order to address an issue of significant concern, namely the pressing need to document evidence of change in populations of pollinating insects. The scheme is part of the UK Pollinator Monitoring and Research Partnership, which sees BTO working alongside colleagues at the UK Centre for Ecology & Hydrology, Bumblebee Conservation Trust, Butterfly Conservation, Hymettus, the Universities of Reading and Leeds, and the Natural History Museum. The project is jointly funded by Defra, the Welsh and Scottish Governments, DAERA, JNCC, and the project partners themselves.

In addition to working with existing recording schemes that focus on pollinating insects, through PoMS the project partners have been able to develop and launch two new large-scale surveys for pollinators. BTO has promoted PoMS to our volunteers to extend the volunteer base contributing to pollinator monitoring, engaging new audiences with the challenges facing the UK's pollinating insects.

The project is now in its fourth year and is the first scheme in the world to begin generating long-term, structured data on the abundance of bees, hoverflies and other flower-visiting insects at a national scale. The value of such data, and the volunteer-based approach for its collection, is described in a paper published in the *Journal of Applied Ecology*. This evaluated the costs of running pollinator monitoring schemes against the economic benefits to research and society they provide. The study revealed that the annual costs of running long-term pollinator monitoring are <0.02% of the economic value of pollination services that would be lost if we saw a 30% decline in the services provided by pollinating insects. These results demonstrate that long-term monitoring can be a cost-effective tool for both answering key research questions and setting action points for policy-makers.

DAVID TIPLING / BIRDPHOTO.CO.UK

INFORMING POLICY & PRACTICE

It is essential that our work should continue to inform policy and practice across a broad range of areas. BTO data and expertise continue to be used to support decision-making processes, as we seek to respond to the challenges of competing land-use needs and a changing climate.

BIRDS AND ROADS

The number of vehicles on roads globally is predicted to reach a staggering 2.8 billion by 2050, more than double the figure for 2015, and this growth will be accompanied by increases in the road network itself. Much of this growth is set to occur within emerging economies, such as China and India, with the UK and other highly industrialised countries already saturated with road networks. Such is the density of the road network in Great Britain, that almost three-quarters of its land surface is located within 700 m of a road. Understanding the impacts of road networks on UK bird populations, and how these are mediated, could help us to counter some of their effects through improvements to road design and management. Two pieces of BTO work, delivered this year, provide valuable insight into these impacts and how they might be addressed.

PhD student Sophia Cooke, based at the University of Cambridge and working with BTO staff, used Breeding Bird Survey data to assess the abundance of 75 bird species in relation to Britain's road network. The results of this work, published through papers in *Nature Communications* and the *Journal of Applied Ecology*, revealed that three-quarters of the species studied showed significant variation in their abundance with increasing road exposure. Importantly, the work revealed that species with small national populations generally exhibited lower abundance with increasing road exposure, whereas the opposite was true for more common species. The study also found important differences between major roads and minor roads, with the effects of the former more pronounced. The team went on to place the findings into a wider context, comparing the effects seen with those linked to other factors known to affect bird populations, such as agricultural intensification. This underlined that roads may modify bird populations on a national scale and that their potential as drivers of biodiversity change should not be underestimated.

BARN OWL : MIKE TOMS / BTO

As Sophia Cooke's work demonstrates, some groups of birds may be particularly vulnerable to the impacts of our road network. Birds of prey and owls, for example, may be particularly at risk from collision with traffic. However, the scale of this issue for these species is poorly understood, so a recent piece of work by BTO Research Ecologist Hugh Hanmer and BTO Associate Director Rob Robinson is timely. This work, published as a BTO Research report, used the BTO's National Ringing Scheme dataset to explore the distribution and finding circumstances of ringed birds of prey and owls that were later found dead. Road casualties were the commonest recorded finding circumstance for eight of the species studied, including Barn Owl. The pattern of finding circumstances suggests that recently-fledged juveniles and breeding adults are generally more susceptible to road-based mortality. As with the PhD study, the findings of this work can be used to inform land management decisions, including those associated with planning assessments and proposed mitigation measures.

THE CULTURAL BENEFITS OF BIRDS

As noted earlier in this report, there are well-being benefits that we gain through engagement with the natural world, and it is increasingly recognised that biodiversity provides many benefits to humans, including cultural ones. The cultural benefits of ecosystems have been defined as "*the non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences*", but there has been debate about how to measure the value of these services, and also how to incorporate them into decisions relating to social, economic, and development activities more broadly.

A piece of research, published in *Estuarine, Coastal & Shelf Science* and part of the NERC Research Coastal Biodiversity and Ecosystem Services project, investigated this issue by assessing the willingness of people to pay for increases in four measures of bird diversity in the UK's coastal ecosystems. The results revealed variation in the willingness to pay that reflected factors such as income, age, environmental activity and gender, providing valuable evidence for those seeking to engage more people with biodiversity. Importantly, the study also demonstrated that we need to better conceptualise what we mean by biodiversity. Rather than just focus on one aspect of biodiversity, such as abundance or species richness, we need to present it within a broader ecosystem context. A wetland reserve that is host to a broad range of species and which also delivers the wildlife spectacle of a winter Starling roost, might also act to hold flood water, keeping it away from local homes and businesses. Presented in this way, the economic and cultural services work together and are more likely to attract support from the local community. Understanding public preferences for biodiversity, in this example from coastal ecosystems, will help planners, land managers and conservationists be more joined up in their decision-making.

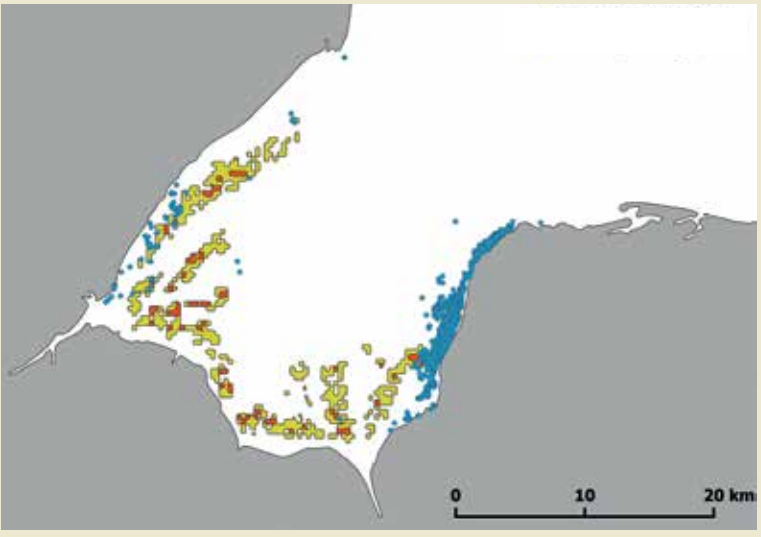
CASE STUDY: FISHERIES MANAGEMENT

The Wash is an important estuarine system, supporting large aggregations of wintering waterbirds and a number of commercial industries, including important shellfish fisheries. Understanding the relationship between the two is key to sustaining both into the future.

OYSTERCATCHER : LIZ CUTTING / BTO

The Wash is an extremely important estuarine system within the UK, supporting large aggregations of wintering waterbirds. Data collected by BTO volunteers participating in the Wetland Bird Survey (WeBS) highlight its importance, with over 350,000 waterbirds known to winter here. These data have contributed to The Wash's listing as a Special Protection Area, Ramsar site, and Site of Special Scientific Interest (SSSI). It is also a hugely important area for shellfish fisheries, holding significant areas of productive Mussel and Cockle beds.

One of the designated features of The Wash is its wintering Oystercatcher population of c.20,000 individuals. Previous BTO research has demonstrated that this Oystercatcher population is sensitive to declines in shellfish abundance, something that was particularly evident during a period of heavy fishing pressure and a crash in Mussel stocks between c.1980 and 2000. Back in 2008, management measures were developed in line with The Wash SSSI conservation objectives. These objectives stipulated that the target total stock of Cockles and Mussels should not fall below a certain value per Oystercatcher, ensuring sufficient food resources for the birds during the critical winter period.



LOCATIONS (BLUE) OF TAGGED OYSTERCATCHERS IN RELATION TO COCKLE BEDS (YELLOW AND RED)

The target stock levels are calculated using a modelling approach, which informs how the fishery is managed. At present, the modelling approach considers both the shellfish stocks and the size of the Oystercatcher population across The Wash as a single unit. However, this approach assumes that all of the birds in the population have free access to all of the shellfish resources across the whole site. Given the size of The Wash, there are likely to be energetic costs for individual birds in moving to new patches of shellfish, and benefits from remaining faithful to particular sites.

The overall distribution of Oystercatchers on The Wash is relatively well known, and ringing data show that fidelity to roost sites is high, but it is unclear how individual Oystercatchers move between roosts and foraging sites throughout the winter. During the winter of 2020/21, BTO staff deployed tracking devices to 10 Oystercatchers as a pilot study to collect data on how the birds used The Wash. The devices used a GPS logger to collect information on a bird's location and a Global System for Mobile Communications (GSM) module to transmit the data through a mobile phone network.

All the tagged individuals made use of multiple roost sites throughout the tracking period. While seven of the birds remained on the eastern shore, moving freely up and down the coast, two made repeat trips between the eastern and western shores, and one moved to the Humber Estuary for a month before returning to The Wash. It was also possible to examine the locations of the birds in relation to the most likely locations of the main Mussel and Cockle beds, although these can shift between years. This work confirms that individual Oystercatchers switch foraging patches, but more structured work is needed to look at birds of different ages (all of the birds tagged were full adults) and from different sites around The Wash.

Pilot studies of this kind are important when trialling new technologies, shaping future work and how it is best delivered. Being able to improve the models used to manage these important fisheries, and to safeguard the waterbirds that also rely on these resources, highlights the important role that BTO plays in informing policy and practice. These data have already altered the management approaches used in the Wash.

SHARING DATA & INFORMATION

Ensuring that the data collected by our volunteers are available to those who need them continues to be an important cornerstone of our work. The past year has seen the delivery of some significant pieces of work that demonstrate our approach to making our data even more accessible, and supported by contextual information.

EUROPE'S BIRDS

December saw the delivery of *European Breeding Bird Atlas 2* (*EBBA2*), the culmination of a decade of work delivered by a network of organisations and individuals from around 50 countries. Atlas projects of this type and scale are hugely challenging, and the success of the project, coordinated by the European Bird Census Council, is a testament to collaboration across borders. Most of the data used in the project were collected between 2013 and 2017, with contributions from close to 120,000 volunteer fieldworkers.

Work in the UK was coordinated by BTO staff, notably Dawn Balmer, David Noble and Justin Walker, and utilised the huge volunteer contribution going into the UK's core monitoring schemes, such as BBS and the Nest Record Scheme. To ensure the most up to date information, the team used data from *Bird Atlas 2007–11* to identify gaps and built an online tool to target fieldworkers towards those areas. *EBBA2* improves on the first *European Breeding Bird Atlas* by extending the area covered, including relative abundance maps, and by being able to report on change in species distributions. The information collected through *EBBA2* will enable researchers to study changing patterns in bird abundance and distribution at a European scale, something that will inform the impacts of future land management changes and our responses to climate change.

MONITORING REPTILES & AMPHIBIANS

Evidence from national monitoring schemes indicates that many UK reptiles and amphibians are in decline, including some formerly widespread species. Habitat loss, fragmentation and degradation, together with climate change and emerging concerns about disease, mean that formal assessments of the status and population trends of our reptiles and amphibians are now urgently needed.

BTO Garden BirdWatch participants have been collecting weekly data on garden reptile and amphibian populations since pilot work was first carried out in 2001. Since then the survey has amassed an incredible 550,761 records of our native species, with analysis revealing that these data can provide robust information on the long-term trends for several species at the national level. During the past year, BTO has contributed its Garden BirdWatch reptile and amphibian data, together with some supervisory support, to a NERC-funded PhD based at the UK Centre for Ecology & Hydrology and the University of Kent, which brings together reptile and amphibian data from across a suite of predominantly citizen science-led schemes. By identifying existing sources of reptile and amphibian observation data in the UK, and working to establish the scope and limitations of each dataset, the PhD hopes to facilitate the creation of an integrated monitoring portfolio for UK herpetofauna.

BUZZARD : DAVID TIPLING / BIRDPHOTO.CO.UK

IDENTIFYING DISEASE THREATS

BTO, working in partnership with the Institute of Zoology, RSPB, and Froglife, has continued to operate an online reporting scheme for monitoring disease in garden wildlife. The Garden Wildlife Health project enables people to report disease incidents witnessed in their gardens, alerting veterinary scientists at the Institute of Zoology to cases where a post mortem examination follow-up might provide valuable information. Alongside these opportunistic reports, systematic data on disease occurrence are contributed by BTO Garden BirdWatchers through their weekly submissions. Used together, the project enables the rapid identification of emerging infectious diseases. It has already played a crucial role in our understanding of the emergence of finch trichomonosis and Paridae pox, but it will also be valuable should other diseases emerge in the UK.

As well as reporting on infectious disease, Garden Wildlife Health has also provided valuable insight into other potential mortality factors. A paper published in the journal *Science of the Total Environment* in August, examined the extent to which the provision of contaminated food at garden bird tables might increase the risk of exposure of wild birds to mycotoxins. Mycotoxins are secondary metabolites produced by fungi that may be present on foodstuffs, including those sold for feeding wild birds. By testing samples of peanuts and sunflower seed for mycotoxins, the researchers were able to establish that 10% of the peanut samples exceeded the legal Maximum Permitted Limit for Aflatoxin B1, one of the mycotoxins of concern. Whilst the significance, if any, of mycotoxin exposure to garden bird health remains uncertain, the study outlined precautions that can be taken regarding food storage and methods of provision to minimise potential risks. This information, along with guidance on infectious disease prevention and control, was translated into best practice guidelines for feeding garden birds that were published in 2021.

URBAN DEVELOPMENT : SIMON GILLINGS / BTO

MAKING YOUR DATA AVAILABLE

Over the past 12 months BTO's Principal Data Scientist, Simon Gillings, has been heavily involved in two projects to make BTO data more accessible to those audiences who want to use them. Thanks to funding from the Esmée Fairbairn Foundation, we have been working to bring together data from across our survey and monitoring schemes, together with that from our publications, to produce a 'one-stop' shop for information on the UK's birds. Once launched, the new system should enable users to access information by species or by location. Separate to this has been a piece of work to automate the production of data reports for consultancies, bringing BTO data into play for planning and other land management decisions. These reports provide unique insights into the bird community present in the vicinity of potential development sites, helping to guide the need for detailed field surveys, and highlighting potential priorities for delivering habitat mitigation, enhancement and biodiversity net gain.

A YEAR LIKE NO OTHER

The 2020/21 financial year was dominated by the pandemic and the resulting challenges that we then faced, as a charity, as an employer, and as a community of like-minded individuals. The impacts were borne most heavily by those individuals and families affected by the virus, and our thoughts are with them all.

LOOKING AFTER STAFF

Following emergence of COVID-19, BTO was quick to move to home-working, putting in place the necessary arrangements and support that enabled the bulk of our staff to continue with their work with minimal disruption. That we were able to respond so quickly owes much to the planning and work of our Information Systems, Health & Safety, and People Teams. Not everyone was able to work from home, with some core functionality continuing to be delivered by a small group of staff working from the offices under COVID-19 secure guidance.

For some staff, including some individuals who live alone, the move to working from home was a particular challenge, and it was essential that the organisation provided additional support through regular line manager contact, together with more informal approaches. Many fieldwork contracts were postponed and some were cancelled, the organisation making use of the Government Furlough Scheme where needed. As we return to our offices, we will bring some of the benefits of working from home with us (see pages 38–39).

WORKING AS A SECTOR

Access to nature through participation in birdwatching activities and survey work is good for our well-being, and the monitoring work undertaken by BTO staff and volunteers makes a valuable contribution to society. However, during the pandemic we had to curtail our activities, halting survey work and limiting birdwatching to our homes and gardens. As an organisation we recognised the importance of doing our bit, by following government advice and supporting efforts to bring an end to the pandemic.

We also recognised that our volunteers were looking to us for guidance, seeking clarification on what the changing legislation meant for their activities. In response, BTO formed a COVID-19 communications group, which worked to interpret the emerging legislation and liaised with partners and funders (including government). Each time new legislation emerged, the group developed an updated statement for use on the BTO website and in emails to survey participants. The group also worked more broadly across the sector, facilitating calls with other NGOs so that we could adopt a common response.

Through our discussions with government and the agencies we were able to secure clarification on the legislation, and determine the extent to which surveys might be considered charitable activities. We were then able to support volunteers carrying out permitted survey work with letters, in case they were approached by officials, something that enabled some surveys to go ahead. We also recognised the diversity of views within our volunteer base and the need to address widely differing views with sensitivity. The health of our volunteers is very important to us, as are our relationships with the landowners who so generously allow us onto their land, and it was important that we were sensitive not only to the feelings of our volunteers, but also to the feelings of the landowners and local communities who enable our work. Such relationships are important for the long-term running of core surveys, so we are very grateful for the sensitive approach adopted by our volunteers.

STILL PRODUCING RESULTS

While our volunteer fieldwork was disrupted, significantly so in most cases, BTO staff worked hard to maximise the scientific value of the data collected. The Breeding Bird Survey (BBS) returns provide a good example of the impact on coverage and the work done to maximise the value of the data collected. Around half the normal numbers of BBS squares were covered and in many cases surveys were only possible for the second visit period. Because of differences in the timing and extent of lockdown restrictions in the different countries, BBS coverage was affected less in England than elsewhere across the UK.

In order to find out if the 2020 survey coverage was adequate for producing the trend graphs and figures that feature in the annual *BirdTrends* report, BTO scientists Simon Gillings and Dario Massimino examined the data collected for evidence of bias, such as whether the timing of visits was affected, or were particular habitats under- or over-sampled? Through this work, and using the 2019 data to test the impacts of biases in timing and coverage, it was possible to identify 57 species for which English trends could be produced. Importantly, this is not the first time that we have faced disruption to survey work. In 2001, foot-and-mouth disease restrictions led to even lower levels of coverage, so it is clear that the long-term value of BBS and our other surveys will continue, thanks to the efforts and contributions of both volunteers and staff.

GOSHAWK RINGING : ROBIN LEE / BTO

STOCKDOVE : LIZ CUTTING / BTO

GREAT SPOTTED WOODPECKER : LIZ CUTTING / BTO; BLUE TIT : LIZ CUTTING / BTO; YELLOWHAMMER : LIZ CUTTING / BTO

Gardens became a particular focus for birdwatchers during the national lockdowns, which is one of the reasons why we opened our weekly Garden BirdWatch project up to everyone. Additionally, we saw more people use BirdTrack to record and share their garden sightings.

LEARNING THROUGH INNOVATION

While the innovative use of technology has been central to BTO work on declining migrants and the use of acoustic information for monitoring a range of different taxa, there are plenty of other areas where the charity has continued to innovate in response to changes in the external environment.

DRONES AND DISTURBANCE

Drone technology has improved markedly in recent years; alongside this there have been reductions in the costs, which has led to significant increases in the availability and use of this technology. Drones are now being used for recreational photography, surveillance, ecological research, and even the delivery of packages. Alongside a need to improve our understanding of the extent to which drones may be used to monitor biodiversity, we also need to determine the degree to which they may become a source of anthropogenic disturbance to wild birds, including wintering waders and wildfowl – species that may be prone to the impacts of disturbance on foraging opportunities and energy budgets.

Led by Research Ecologist David Jarrett, a team at BTO Scotland examined the impacts of drone use on waterbirds wintering around the Firth of Forth in Scotland. By flying a commercially available drone towards waterbird flocks of different sizes and using different habitats, the team was able to determine some general patterns of response. Waterbirds at coastal sites and in arable fields were more likely to react to drone approach than those using inland freshwater sites, and larger flocks were more likely to respond to drone approach – and responded at a greater distance – than smaller flocks. These findings may reflect the different levels of anthropogenic disturbance to which the flocks are already exposed, though other behavioural or physiological factors could also be involved. While the study needs to be followed up with additional work, it already provides valuable insight to those, such as site managers, working to support wintering waterbird populations.

TUFTED DUCK : DAVID TIPLING / BIRDPHOTO.CO.UK

LOOKING TO THE FUTURE

Innovation isn't just about technology; it is important to look ahead, to horizon-scan, so that we can identify new opportunities and highlight potential challenges that might require a new way of doing things. This was very evident this year because of the sudden and substantial shift in how we worked, how we engaged with our volunteers and supporters, and how we delivered our surveys and fieldwork (see pages 24–25).

BTO has continued to innovate, supported and directed by the work that we do to identify how the environment within which we operate as both a charity and a business is likely to change. Work with the Centre for Charity Effectiveness at the Bayes Business School, and more recently with external agency Creative Sponge, has enabled us to change the ways in which we work and better understand our audiences. Recognition of the changing ways in which society engages with organisations through technology, has shaped our development of applications for both web and mobile devices.

Our scientific work provides many examples of innovation and, importantly, these are also shaped by horizon-scanning and engagement with our audiences. Each year, for example, BTO participates in an exercise that horizon-scans for emerging global biological conservation issues. Working from a long list of potential topics, the panel of leading scientists and practitioners identify those novel and emerging issues that may have substantive effects (either positive or negative) on global biological conservation. It is the identification of these that can help to shape future priorities for the sector, and stimulate innovative responses.

HELPING WOODLAND BATS

Changes in woodland management have been linked to declines in birds, but we know little about the impacts of such changes on bat populations. Working with PhD student Danny Alder and his supervisor at Manchester Metropolitan University, together with the Rushmore Estate in southern England, BTO's Senior Research Ecologist Stuart Newson has helped to collect valuable data on woodland bats. Acoustic recorders were used to capture the echolocation and other calls made by bats using the study sites, revealing the species present and their activity. Data on the structural features of the woodlands, many of which result from the woodland management practices used, were then analysed to reveal the relationships between bats and particular features. There were clear differences between the different woodland management types in terms of both occupancy by bats and their activity, the study demonstrating the importance of deadwood, understorey structure, open canopy areas and tree size for woodland bats. This knowledge will inform woodland management practices for bats.

HARVEST MOUSE : DAVID TIPLING / BIRDPHOTO.CO.UK

AN EAR ON SMALL MAMMALS

BTO has continued with its work in bioacoustic monitoring, which was initiated by Senior Research Ecologist Stuart Newson through the Norfolk Bat Survey. A recent focus of this work has been on the potential for sound identification to be used as a non-invasive survey method for small mammals. Stuart Newson, working with external colleagues Neil Middleton and Huma Pearce, has produced a guide to the acoustic identification of Britain's terrestrial small mammals. The guide, published in the journal *British Wildlife*, describes the vocal repertoires of 13 species of mouse, vole, rat and shrew, using recordings of individuals of known species to create a reference library of small mammal calls. This library has then been used to 'train' an automated acoustic classifier, which we have made available for anyone to use through the BTO Acoustic Pipeline, enabling large volumes of recordings to be processed and any small mammal calls present to be identified automatically. This approach builds on the successful work that Stuart Newson has already delivered for the sound identification of bats and bush-crickets, and recognises the potential for its use more widely.

ENGLAND

Many policy decisions now have a strong country- or regional-focus, and BTO's work continues to reflect this. In addition to UK analyses that reflect the need for national interpretation, we continue to deliver projects from our Country Offices, often working with country-level partners and other stakeholders.

BETTER CITIES FOR BIRDS & PEOPLE

Urbanisation is considered to be one of the leading threats to global biodiversity, and is usually associated with the loss of natural habitats, the alteration of ecological processes, and increased levels of anthropogenic disturbance. However, urban green spaces have significant potential to support and to enhance local biodiversity, additionally delivering important ecosystem services, such as climate change resilience and increased levels of human well-being. Examination of the relationships between different aspects of urban landscapes and the abundance of birds can inform our understanding of the impacts of urbanisation and shape planning responses.

A study by BTO's Kate Plummer, Gavin Siriwardena and Simon Gillings sought to characterise these relationships, and then evaluate the potential for this knowledge to be used in predicting the consequences of future urban development on British bird communities. The results, published in the *Journal of Applied Ecology*, indicate that the responses to urban habitat are complex and species-specific, though still offering the potential for a tool to be developed that can deliver predictions based on different development scenarios. Incorporating ecological knowledge about birds into urban design could lead to future urban landscapes that are valued more highly by people, support more wildlife, and promote human well-being.

UNDERSTANDING NIGHTJAR DIET

A number of bird species, including Nightjar, are believed to be declining because of declines in populations of their favoured prey (moths and beetles). However, in most cases we know surprisingly little about the precise diet of these birds, including key information on which prey species are important, and where and when they are taken. Thanks to the development of modern tracking and DNA bar-coding technologies, BTO researchers, working with partners elsewhere in Europe, have been able to improve our understanding.

The team, which brought together researchers from BTO, the Max Planck Institute for Ornithology, Agentschap Natuur en Bos, and the Universities of Cardiff, East Anglia, Nottingham, and Hasselt University in Belgium, collected information on Nightjar habitat use, diet and prey availability at sites in Belgium and England. Using high resolution GPS tracking data to reveal foraging habitat use, alongside information on prey availability and diet, allows us to secure a more complete picture of the foraging habitat and prey selection of these birds.

The results provide the first molecular-based insights into Nightjar diet, underlining the importance of moths, flies and beetles, with the birds selecting larger moth species and avoiding smaller ones. This suggests that in order to maximise food intake during foraging trips, Nightjars select the most energetically favourable prey items, taken from habitats where they are easiest to catch. Importantly, the work confirms earlier assumptions that a considerable proportion of Nightjar diet originates from grassland-dominated habitats away from breeding sites, which were previously assumed to be unsuitable for the species. This knowledge will support Nightjar conservation and help to plan habitat management around sites where they breed.

A NEW TOOL FOR FARMLAND

The process of agricultural intensification, with its associated increases in field size, expansion of crop area, and simplification of crop rotations, has changed our landscape. The process has been linked to the widespread declines seen in many bird species, prompting efforts to return natural and semi-natural features that are known to support these species. However, replacing productive farmland with natural habitats may not be economically feasible or acceptable to farmers. An alternative might be to consider whether increasing the heterogeneity of the crop mosaic itself might provide equivalent benefits.

Researchers from across the Northern Hemisphere set out to test this, collecting data from 1,451 agricultural fields within 432 1-km landscapes across Europe and Canada, with BTO work covering East Anglia. At each sampling site, the team surveyed the plant species found within the field, using two parallel transects; one located on the field border, the other within the field interior. The diversity of these plant communities was then examined in relation to the pattern of crops within the study landscapes. This revealed that heterogeneity of the crop mosaic itself can provide additional benefits to semi-natural elements for the maintenance of plant diversity within agricultural fields. Adopting the manipulation of crop heterogeneity as a management option, perhaps adding it to agri-environment schemes, could contribute to the conservation of farmland plant diversity.

SPARROWHAWK: DAVID TIPLING / BIRDPHOTO.CO.UK

PROTECTING FRESHWATER SYSTEMS

The transportation of species beyond their native ranges has been found to be an important driver of global ecological change, and something that can have a significant impact on biodiversity and ecosystem function. It is essential that we understand the processes involved in the introduction and establishment of non-native species so that we can determine and prioritise appropriate surveillance and management approaches to counter this problem.

Freshwater ecosystems are disproportionately impacted by biological invasions, something that has been linked to anthropogenic uses of these systems. Another factor may be the degree of connectivity that exists between freshwater systems that sit within a wider hydrological network. The introduction of a non-native species at a hotspot of human activity could result in its establishment more broadly across the network. A piece of work involving BTO Principal Ecologist Gavin Siriwardena, Research Ecologist Henrietta Pringle, and partners from UKCEH and the University of Stirling, examined the relationships between human activity and invasion rates by non-native birds, crustaceans, fish, molluscs and plants across England.

Across the taxa examined, the study found that connectivity to human recreational activity in the surrounding landscape strongly drove invasion probability through hydrological networks for most groups. Birds, with easy dispersal over land, and fish, for which non-native richness was best explained by local fishing activity, were exceptions. By comparing alternative connectivity types for different types of human activity, the study's approach enabled the specific pathways and mechanisms of spread to be identified for particular taxa. This approach could provide a better evidence base for the risk mapping that is used to support invasive non-native species surveillance and management, facilitating the identification of emerging threats and the means for their control or prevention.

MODERN FARMING : DAVID TIPLING / BIRDPHOTO.CO.UK

WALES

BTO Cymru gives a Welsh voice and perspective on issues that are important to the birds of Wales. This is achieved by working closely with partners across Wales, including the Welsh Government, Natural Resources Wales, the Welsh Ornithological Society, RSPB, bird clubs, and our members and volunteers.

FISH-EATING BIRDS IN WALES

Goosanders have increased in number across the UK, as have Cormorants, with both species now widely distributed in Wales. The impacts of predation by these two fish-eating birds need to be considered in regard of the conservation and maintenance of freshwater fisheries, particularly declining species like Atlantic Salmon and Sea Trout. BTO Cymru was contracted by Natural Resources Wales to provide information on the numbers and distribution of wintering Cormorants and Goosanders on 10 principal migratory salmonid rivers in Wales. Despite the logistical challenges presented by winter conditions and the pandemic, surveys were carried out as planned throughout the 2020/21 winter, with 92% of the 2,482 km of total surveyable river length covered across the 10 rivers.

Some 564 Cormorants and 522 Goosanders were observed, with average group sizes small for both species, though slightly larger for Cormorant. Bird densities followed statistical predictions, being greater towards the lower end of the catchments. But the spatial distributions of the two species were very different, with just over 50% of wintering Cormorants in estuaries and only 6% found on stillwaters. For Goosander, less than 4% of the wintering birds were on estuarine sites. Population estimates were then calculated for the two species, delivering Welsh wintering estimates of 2,894 Cormorants and 1,460 Goosanders.

Natural Resources Wales will use these population estimates in the demographic modelling of Cormorant and Goosander populations. This modelling will inform the process by which the potential impacts of licensed control on wintering populations of the two species can be assessed. Licensed control is one of a suite of tools available to support salmonid conservation and prevent serious damage to stillwater fisheries as part of a wider fish-eating bird policy for Wales. Making sure that the assessment process is supported by robust evidence is key to ensuring that the conservation needs of both fish and fish-eating birds are properly considered.

CLIMATE CHANGE IMPACTS

The ECHOES (Effects of Climate Change on Bird Habitat around the Irish Sea) project, funded by the INTERREG Ireland–Wales Programme, is a collaborative project looking at how climate change and sea-level rise will affect bird and human habitats around the coastlines of the Irish Sea. The project had been in development since 2018 and was awarded to a consortium involving BTO and led by GeoSmart Decisions. The fieldwork component (the primary BTO activity in this project) was delayed because of COVID-19 and the three planned field seasons condensed into two.

BTO Cymru staff are carrying out tracking work in Wales and Ireland on wintering Curlews and Greenland White-fronted Geese. These two species are of key conservation interest, but also use coastal habitats in different ways. Greenland White-fronted Geese stand out for their consistent population decline, caused by long-term productivity and recruitment problems. The ECHOES study sites in Wales support very few of these birds compared with the Irish population of several thousand, but are critical to maintaining the range of this species. In early January, BTO staff successfully caught and colour-marked eight individuals, fitting three of them with GPS collars. The tags on these birds have provided detailed insights into their ranging behaviour and identified several new sites that are important to them. On the Dyfi, these grazing geese feed on improved grassland and the estuarine saltmarshes which are protected and managed for them by RSPB, but on Anglesey the flock uses low-lying sheep pastures around inland lakes, as well as silage grasslands, rather than these estuarine habitats.

GREENLAND WHITE-FRONTED GOOSE : RACHEL TAYLOR / BTO

Curlews feed higher up the food chain and were thought to be more intertidal-estuarine than the geese. BTO staff caught and tagged six Curlews wintering at the southern end of the valley of the Cefni River on Anglesey, about 10 km downstream from the areas thought to be used by the geese. These birds again proved us wrong, with strong individual differences in behaviour – from birds that stayed almost exclusively outside the seawall (using intertidal habitats including salt-marsh), to birds that travelled 3–10 km inland, feeding and roosting on low-lying wet grasslands. The tagged Curlews began to leave the estuary in March and the geese left at the end of the month. We look forward to their return in early November.

GOOSANDER : DAVID TIPLING / BIRDPHOTO.CO.UK

CURLEW AT THE NEST : DAVID TIPLING / BIRDPHOTO.CO.UK

UNDERSTANDING CURLEW DECLINE

The ECHOES project is not the only piece of work in Wales to look at Curlew populations. The species is a priority for BTO work more widely across the UK, and other Welsh projects are helping us to understand the pressures that the species is facing. During the year, BTO Cymru staff Rachel Taylor and Katharine Bowgen completed a Curlew population modelling and tracking project funded by Natural Resources Wales. In addition, Rachel Taylor continues to participate in the Gylfinir Cymru group of stakeholder organisations, supporting Welsh Government interest in improving breeding Curlew populations in Wales. BTO has been using its expertise to identify and plan Important Curlew Areas, and is supporting the development of a Curlew Recovery Plan for Wales. Planned work includes developing and testing ideas for mitigating the impacts of silage management on breeding Curlew populations.

SUPPORTING OUR NETWORKS

Restrictions associated with the COVID-19 pandemic greatly reduced opportunities to deliver planned engagement work during the year, but BTO Cymru staff were able to deliver virtual talks and events. BTO talks were presented at the virtual International Wader Study Group conference, which saw Katharine Bowgen set out the findings from work using tag data to identify breeding status in Curlew, and Rachel Taylor presented on work to determine the origins of Redshank wintering in the UK, using a long-term volunteer dataset from North Wales. Following a UK-wide virtual meeting of BTO's Regional Network, a virtual workshop for Welsh Regional Representatives was held, developing the discussion around topics at a country level and providing additional feedback and support.

With the return of students to campuses in September, BTO Cymru staff re-launched the Student Ambassador programme. This is seen as an important opportunity for BTO to support students looking to develop a career within our sector; it is something that is being developed within the framework of our wider Youth Engagement Strategy.

SCOTLAND

The staff in our Scottish office understand the specific needs of their country. They provide an important point of contact for our regional volunteer network and our many members, funders and partners. Their deep Scottish knowledge is fed back to BTO's headquarters to ensure that UK-wide schemes are relevant to Scotland.

BREEDING WADERS

The UK's upland, grassland and farmland habitats host important breeding wader populations, but many of these species are in trouble. BTO research is making a significant contribution towards understanding the causes of breeding wader declines, and to identifying effective conservation solutions. Our monitoring and scientific evidence will inform policies targeted at improving wader breeding habitat and the fortunes of these birds. If efforts to conserve waders are to be successful, then they must be underpinned by the action and support of local stakeholders. BTO has appointed a Wader Project Officer, Paul Noyes, based at BTO Scotland. Paul has been working to foster collaboration among different stakeholder groups, and to encourage the development and uptake of methods for monitoring breeding waders that are suited to these different groups. This approach is a vital part of BTO's Wader Focal Area work, and we are already seeing its benefits. The hope is that by enabling volunteers to collect much-needed data, and developing ways to make these data easily accessible, we will be better able to support stakeholders, scientists and decision-makers to find and use the data they need to understand the needs of our breeding wader populations.

OPENING A CAN OF WORMS

Recent research has highlighted previously undetected population declines in terrestrial invertebrates, something that may have far-reaching impacts for wider ecosystem function. For example, reductions in invertebrate populations may be a major driver for the declining population trends seen in many bird species. Despite the current interest in invertebrates, and recent high profile stories documenting insect decline, the monitoring of many invertebrate groups has been neglected. There is, for example, no long-term systematic monitoring of soil invertebrates, a key functional group and an important prey source for some bird species.

In an attempt to address this gap, Research Ecologist Blaise Martay and Director of Science James Pearce-Higgins, established a school-based citizen science project to collect data on soil invertebrate abundance and bird counts across the UK. A paper published in the journal *Ecological Indicators* presented data on the association between earthworms (which comprised 93% of the total soil invertebrate biomass in the surface soil) and 15 bird species on school playing fields over three years.

The study tested whether simple counts of bird species that rely on earthworms could be used to indicate the abundance of earthworms in the soil on which the birds were recorded. Blaise and James found a clear link between earthworm abundance and counts of Robins, Blackbirds and other thrushes, all of which rely on earthworms as an important component of their diet. The total thrush count (including Blackbirds) could be used as a simple indicator of earthworm abundance, raising the possibility that existing, robust, long-term bird monitoring data could be used to infer changes in soil invertebrates, such as earthworms, and aspects of soil health.

One of the most striking aspects of this study was that the data were collected by schoolchildren, reinforcing the message that well-structured citizen science can be open to all. Through active participation the children learned about soil invertebrates and birds, about how science works, and about the contributions that they can make for the benefit of biodiversity and society, the latter point recognising the role that earthworms play in soil health and ecosystem function. This project was only possible because of the generosity of EDF Energy and the many schools that participated in our 'What's under your feet' project.

GOING VIRTUAL

A major focus for BTO Scotland's engagement staff during 2020/21 was leading the innovation of virtual training. A programme developed and delivered by Ben Darvill and Steve Willis (BTO Scotland Development and Engagement Manager, and Officer, respectively) for Scottish volunteers and birdwatchers, was then rolled out UK-wide through further development by BTO Training Manager Nick Moran (see page 10). A major advantage of delivering training online is that it removes some of the barriers to access; participants can join from our cities just as easily as from the Outer Hebrides or Northern Isles. Virtual training has proved a particularly valuable tool in overcoming some of Scotland's geographical challenges! It has also been of great value in Northern Ireland (see page 35).

REDSHANK : DAVID TIPLING / BIRDPHOTO.CO.UK

SURVEYING THE UPLANDS

Britain's Mountain Hares are largely restricted to the Scottish uplands, and in recent years there have been growing concerns about how these populations are faring. Mountain Hares face a number of threats, including from changes in land use and uncertainty over the sustainability of control measures. These issues, along with a lack of reliable data on their population status, are reflected in the species being given 'Near Threatened' status in the Mammal Society's Red List, published in 2020.

MOUNTAIN HARE : SARAH KELMAN / BTO

Over the past year, BTO has been working with partners NatureScot, the Mammal Society, the James Hutton Institute, and the Game & Wildlife Conservation Trust on a project which seeks to collect much-needed information on the distribution and abundance of Mountain Hare populations in Scotland. One of the challenges faced by the project is the remoteness of the habitat used by the species, something that has been addressed by engaging with those communities who access Scotland's upland habitats. The partnership is using the Mammal Mapper app to collect sightings in a structured manner, enabling hill-walkers and others to record any Mountain Hares that they come across. Recognising that additional data on the under-recorded bird species in these habitats would also be of particular value, the app has been extended to enable the recording of a range of open-country birds, like Ptarmigan, Raven and Golden Plover.

SHORT-EARED OWLS

BTO's work on Short-eared Owls, led by Senior Research Ecologist John Calladine, has continued to deliver much-needed information on these nomadic birds. In addition to the information coming in from individuals tagged at Scottish breeding sites, the team has partnered with colleagues at the University of Iceland to expand our understanding across the wide spatial scale over which these birds operate. Closer to home, the tracking work has continued to collect fine-scale data to inform land-management decisions and conservation approaches for this enigmatic species. BTO's work on Short-eared Owls has been made possible because of the generosity of a number of charitable trusts and a small group of individuals, whose kind donations have allowed us to make ground-breaking progress on this challenging project. Scientific papers from the project will emerge over the coming years.

NORTHERN IRELAND

BTO Northern Ireland plays an active role, working with partners and our members and volunteers, to deliver much-needed information on Northern Ireland's birds. Our team works closely with BTO staff in other offices, sharing expertise and feeding into our wider strategic work.

BRINGING BIRDWATCHERS TOGETHER

Another successful virtual event during the year was the Northern Ireland Birdwatchers' Conference. Hosting the conference online was necessitated by COVID-19 restrictions, and it was considered that three online sessions would be better than one long session. Some 164 birdwatchers booked for the conference and saw presentations covering a wide range of topics, from Choughs and Whooper Swans, through to Kestrels and Blackcap nest monitoring. The conference continues to highlight the support and help that BTO receives from its volunteers and from the NIEA/DAERA Environment Fund Grant. It also underlines the growing vibrancy of the ornithological community within Northern Ireland and the increasing number of people wanting to learn surveying skills and get involved in monitoring activities.

DEVELOPING A VOLUNTEER BASE

Since 2008, the Northern Ireland Environment Agency (NIEA) has supported BTO in its work to develop volunteer-based bird monitoring in Northern Ireland, so that we can provide data to underpin the development of conservation policy and support management planning at a national level. A core component of this approach has been the planning and delivery of a programme of formal training for both new and existing volunteers in Northern Ireland. The new BTO Northern Ireland Officer, Stephen Hewitt, took up the role in April 2020 and has had a very successful first year, working to deliver training and engage new surveyors with the BTO's core monitoring schemes.

During spring 2020, BTO Northern Ireland delivered seven online training courses, covering bird identification by song and call, and an introduction to BTO projects, including the Breeding Bird Survey (BBS). These led to increased uptake of survey squares, including by NIEA staff; however, most new surveyors were unable to carry out fieldwork because of COVID-19 restrictions. Stephen has worked to keep these people engaged and supported for the 2021 field season. Attendance at a training course is often only one stage in a longer process. For those who show willing to get involved, there are a number of barriers that they have to overcome, including being able to gain access permissions from landowners. This potential barrier can be a particular problem in Northern Ireland, where there is no right to roam (unlike Scotland), very few public footpaths across farmland (unlike in England and Wales), and many small farms and fields with widely scattered landowners. With the support of BBS Organiser, Sarah Harris, Stephen has been working to address this potential barrier, both by rationalising survey routes and supporting new volunteers during their initial visits to survey squares.

These efforts to increase the numbers of volunteers collecting information on Northern Ireland's birds are already bearing fruit, with participation in the Wetland Bird Survey and BTO Garden BirdWatch reaching record levels during the year. It is thanks to the NIEA's support and the hard work of BTO Northern Ireland staff (supported by colleagues at BTO Scotland) that we have been able to increase the numbers of active volunteers. This work is ongoing, and driven by a work programme and ambitious objectives. Over the coming year, as we emerge from the pandemic and its accompanying restrictions, we should see this continued growth in survey participation feed through into the survey outputs, enabling us and our partners to report on more species across a broader suite of habitats.

NORTHERN IRELAND'S SEABIRDS

Northern Ireland holds important breeding seabird populations, whose status is monitored by a community of volunteers that forms the Northern Ireland Seabird Network. This network is coordinated by BTO Northern Ireland's Senior Research Ecologist Katherine Booth Jones, who supports the volunteers, organises the Northern Ireland Seabird Steering Group, collates the data for submission to JNCC, and produces the annual *Northern Ireland Seabird Report* with the support of staff in the BTO's Communications Team. The Northern Ireland Seabird Network currently stands at 87 members, though not all members survey seabirds every year. In 2020/21, the *Northern Ireland Seabird Report* was enhanced, with the addition online of accessible interactive maps of Seabird Monitoring Programme sites and simplified survey instructions, providing interested volunteers with an opportunity to see which sites may be available near to them, and to discover what the surveys involve.

PUFFIN : DAVID TIPLING / BIRDPHOTO.CO.UK

Launch of the *Northern Ireland Seabird Report* is usually through a physical event, enabling members of the network to come together. Because of the pandemic, the launch of the 2019 report had to be cancelled, but a combined virtual launch alongside the 2020 report took place in March 2021, and featured excellent talks from BTO Scotland seabird scientists and a lively discussion between staff and volunteers after the event. Targets for future growth in the network, and in the number of sites covered, are being supported through training and new promotional opportunities. The network provides a good model of how training and support can be used to develop an active community of volunteers, working in partnership with BTO staff to deliver monitoring outputs that support decision-making process and underpin conservation action.

COUNTING EIDERS

BTO is contributing to an environmental project (MarPAMM) that is working to develop tools for monitoring and managing a number of protected coastal marine environments in Northern Ireland, western Scotland and Ireland. During the past year, BTO has been leading on work to determine the numbers and distribution of Eiders wintering within the Belfast Lough Special Protection Area. Belfast Lough is a large intertidal sea lough, situated at the mouth of the River Lagan on the east coast of Northern Ireland, which supports important populations of a number of waterbird species, including Redshank, Ringed Plover and Turnstone. Wetland Bird Survey counts suggest that the Lough supports the majority of Northern Ireland's wintering Eider, so it is vital to understand how other uses of the Lough might affect these birds.

KESTREL : DAVID TIPLING / BIRDPHOTO.CO.UK

ACROSS THE WORLD

BTO data and expertise continue to play a key role in projects across the globe, and during the past year we have continued to unravel the mysteries of bird migration, assess and monitor the impacts of anthropogenic activities in Eastern Europe and support efforts to reduce the impact of electricity infrastructure on birds in Iran.

SCIENCE SHORTS

The paper on 'chain' migration in Common Swifts was one of the first to feature in our new 'Science Shorts' – a series of videos on the BTO YouTube channel where our scientists talk about their work. It has had nearly 9,000 views.

NEW INSIGHT ON SWIFT MIGRATION

BTO's work tracking the migration of UK Swifts has contributed to an improved understanding of how Common Swifts from across their European breeding range migrate. BTO research has already identified which areas are important for UK Swifts on their journeys to and from Africa. Importantly, we now know that the wintering range of individual Swifts is huge, with birds visiting several countries across Africa once they've completed their autumn migration. The work, published in the journal *Evolution* in September, puts the migration strategies of UK Swifts into a wider context. Using BTO tracking data alongside that from 13 other organisations, it was found that Common Swifts show a different migration strategy to most other species.

Most migratory birds adopt a 'leapfrog' migration pattern, whereby birds from the south of the breeding range winter in the most northerly parts of the wintering range. Southern breeders reach their wintering grounds before birds that bred further north, forcing later arriving birds to 'leapfrog' over them and winter further to the south. This new research demonstrates that Swifts adopt a different strategy, known as 'chain' migration. Swifts that breed further south were found to winter further south, with the more northerly breeding birds wintering in more northern regions of Africa.

In order to understand how this migration strategy evolved, the researchers analysed rainfall patterns across Africa, which are known to drive vegetation growth and deliver a flush of those flying insects eaten by Swifts. The results suggest that the southern birds follow their food across Africa before settling in the south. These southern birds were found to be larger, raise more young, and begin their migration around a month earlier than birds breeding further north. It seems that the unusual migration strategy of Common Swifts is driven by a combination of factors: the southerly location of the best breeding and wintering grounds, plus possible competition between larger and smaller individuals. Collaborative research of this kind contributes to our understanding of the impacts of climate and habitat change at the scale over which our migrant birds operate.

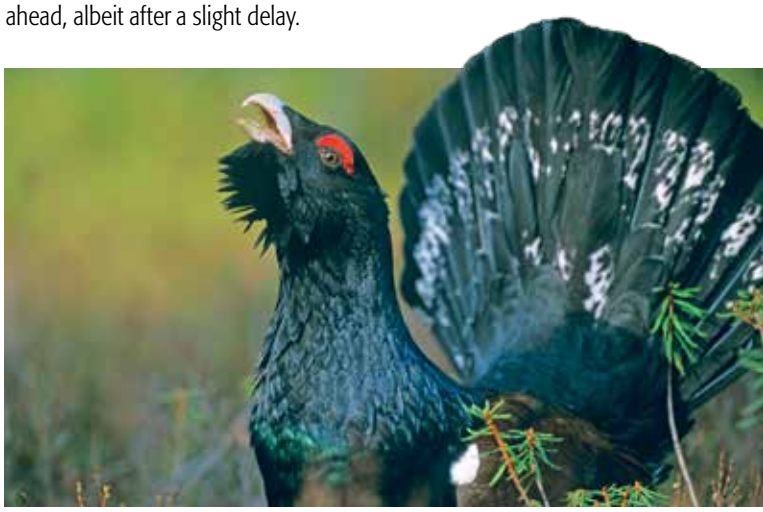
MONITORING NATURE'S RETURN

Staff from BTO's International Team have continued their work in Polesia, a massive lowland region in Eastern Europe that is centred on the Prypiat River and which covers more than 18 million ha. Bordering Poland, Belarus, Ukraine and Russia, this important landscape supports numerous species of nationally and internationally threatened flora and fauna. At Turov Bird Observatory on the Prypiat, for example, up to 400,000 Ruff and 200,000 Wigeon are recorded in spring, using the floodplains to build up vital fat reserves during migration. This is the largest concentration of these species seen anywhere in Central or Eastern Europe.

Anthropogenic pressures, including logging, new development projects, and drainage of peatlands are damaging the ecological integrity of the region, and BTO is working with a number of partners through the Endangered Landscapes Programme to protect and restore the wetland wilderness of Polesia. BTO's role is anchored in the monitoring and research component, with our expertise in the use of acoustic monitoring and tracking technologies, in particular, making a vital contribution.

COMMON SWIFT : MARKUS VARESVUO / NATUREPL.COM

At the start of the 2020/21 financial year, BTO researchers were busily preparing for the first full field season of the project. The emergence of COVID-19, and the resulting lockdowns, saw travel plans cancelled and new plans drawn up to keep the research going through the use of in-country teams, directed remotely. Fortunately, the remoteness of the fieldwork sites, the situation in Belarus and Ukraine, and the dedication of the in-country field teams, meant that fieldwork went ahead, albeit after a slight delay.



CAPERCAILLIE : DAVID TIPLING / BIRDPHOTO.CO.UK

Over the summer months, the in-country teams deployed camera traps and acoustic recorders at over 200 points across the project region. One of the areas to have been studied is the Chernobyl Exclusion Zone, an area that demonstrates how quickly nature can recover without human interference. The Exclusion Zone now boasts unparalleled densities of Wolves and has been recolonised by Lynx, Elk, and White-tailed and Greater Spotted Eagles. The capture of an image of a bear (they have not knowingly bred in the Chernobyl Exclusion Zone since becoming locally extinct a long time ago) and a male Capercaillie (which indicates they are recolonising the area) were among the highlights.

While the Polesia project may seem far-removed from our usual UK-focussed BTO research and monitoring work, it reinforces just how BTO can use and share its expertise more widely. By learning more about the ecology of this incredible landscape we can increase our understanding of what natural processes are missing in the human-modified landscapes of Western Europe, thus better informing how to restore the damage done and conserve threatened species closer to home.

REDUCING IMPACTS

BTO Senior Research Ecologist Greg Conway's work with other international colleagues, supporting Iran's Birds and Power Lines Committee, is helping to address the impacts of avian collisions with electrical infrastructure. The work, published in the journal *Bird Conservation International*, reviewed cases of bird collisions with power lines in Iran and identified those infrastructure components likely to increase collision risk and electrical outages. The study highlighted that retrofitting power line components to reduce avian contacts would lower impacts to wildlife and improve the electrical system's reliability, reducing the costs associated with unplanned outages and the damage caused by associated fires.

BEING FIT FOR THE FUTURE

Strengthening the impact of BTO's work for decision-makers and society at large requires continuing effort to integrate our engagement and science programmes. Our common purpose for a world inspired by birds, informed by science enables BTO to deliver important public benefits as we approach the next strategy period.

LOOKING TO THE FUTURE

In 2023, BTO will celebrate its 90th anniversary. As part of those celebrations we will launch a new strategy that, whilst remaining true to the original core value of its central founder Max Nicholson, "*recognising the potential of cooperative birdwatching to inform conservation*", will focus to a much greater extent on the impact of BTO work. We intend to reach this anniversary as a fit and healthy organisation, confident in its ability to deliver for birds. This will mean building on what BTO has always done best – the robust, long-term national monitoring schemes, capitalising on novel scientific approaches like tracking technology and acoustic monitoring, and engaging new supporters, particularly through our youth work.

The next two financial years will see the organisation extend its current 2015–20 strategy and continue to deliver the commitments made, which coalesce around four core aims:

- Enable and deliver high quality, impartial and impactful science.
- Share data information and knowledge through excellent communications, inspiring and empowering people with an understanding of birds and the importance of knowledge.
- Enthuse and encourage existing and new members and enabling more people to learn and grow through participation and environmental discovery.
- Grow our financial independence.

NIGHTJAR : DAVID TIPLING / BIRDPHOTO.CO.UK

In addition to this, we will carry out other work to ensure that we are ready to deliver for birds; this work will focus on:

- **strengthening staff and our supporters** – by adopting approaches to better support, grow and develop our staff, and to nurture existing and engage new supporters.
- **increasing our sustainability** – by putting in place plans to grow and develop our financial security, our inclusivity and our green credentials.
- **increasing our impact** – by identifying how our science, engagement and communications can be more impactful, particularly in relation to the challenges of addressing biodiversity loss, tackling climate change, and supporting improved human health and well-being.

RISKS AND UNCERTAINTIES

There is significant uncertainty in the wider world; the impacts of Brexit, the COVID-19 pandemic, increasing financial pressures on government and funding bodies, all making for a challenging climate for any charity. BTO survived the COVID-19 pandemic restrictions relatively well in 2020/21, avoiding a damaging deficit, and beginning 2021/22 in a healthy state, with fieldwork re-starting and renewed momentum in engagement and fundraising. We have a new CEO, an energised Board, and a dedicated staff, all of which position us well in the face of these uncertainties.

We will continue to work towards generating more unrestricted income, something that will require a focus on membership, individual giving and legacies, and a move to a simplified membership structure, with better integration between membership and fundraising. We will continue to seek and develop new commercial opportunities, such as the work mentioned in this report around the Acoustic Pipeline and the delivery of information to land managers and consultants.

We will enhance recognition of the roles of our operations in the different countries of the UK, and, in particular, strengthen and grow our work in Scotland, and develop funding and business opportunities to increase the long-term sustainability of our operations in Wales and Northern Ireland.

RESPONDING TO CHANGE

It is important that we learn from the last year, and make the most of the new ways of working that were a consequence of the COVID-19 restrictions. As noted elsewhere, these highlighted the potential for virtual training and virtual events to take BTO and its work to new audiences; of remote meetings to deliver a level 'playing field' for

SURVEYING SEABIRDS : DAVID TIPLING / BIRDPHOTO.CO.UK

staff in our country offices; and for our staff (and the organisation's productivity) to benefit from the better work-life balance that can be achieved with a degree of home-working. We will learn from these lessons as we reflect on our future ways of working, responding to change in order to grow as a business.

FUTURE PROJECTS

Our science will continue to address changes in the status of key species groups and inform sustainable management. This will include strengthening our core monitoring schemes and enhancing our contribution to seabird monitoring and the provision of country level information. We will continue to work around key management issues in the terrestrial and marine environments, including the interconnected issues of agriculture, forestry, urban development and renewable energy. Our species research priorities will remain waders and migrants.

We will continue to share data, information and knowledge through excellent communications, working to provide an enhanced route to accessing information about individual species and habitats for a wide range of audiences, from the local to the national scale. We will strive for enhanced data sharing through increased linkages and partnerships with other organisations, and for enhanced research impact to inform decision-making by engaging more effectively with policy audiences. We will continue to develop BTO publications that engage both our specialist and non-technical audiences

We will work towards being a more inclusive organisation, including, strengthening our internal processes, identifying and overcoming barriers to participation in our surveys and schemes, offering more opportunities to learn about and participate in our work, improving the user experience and user support, growing our training and youth engagement programmes, and developing and sustaining our regional network.

FUNDRAISING IN A PANDEMIC

Each year we need to raise thousands of pounds to fund our work so that we can deliver the charitable outcomes that are so important to our supporters. The pandemic challenged us in many ways; one thing that didn't change was the wonderful support we received from members, funders, trusts, corporate partners and many others.

SUPPORT FROM TRUSTS & FOUNDATIONS

We were incredibly lucky to have continuing support from trusts and foundations throughout the year. From March 2020 onwards, many charitable funders closed their doors to new applications, some focussing instead on organisations with which they already had strong links or redirecting their strategic priorities to address social deprivation and provide funding for front-line services. BTO received a number of encouraging messages of support from funders, including the Dulverton Trust and Esmée Fairbairn Foundation, offering flexibility in their terms of grant, as delivery of ongoing projects would be affected by the pandemic.

While we were unable to submit many applications, we received 89% of the level of funding provided in the previous year. An emergency grant of £50k was provided by the Esmée Fairbairn Foundation in May, which was an enormous boost to morale and helped us to keep moving forward. Alongside this we had generous grants and donations of all sizes from thirty charitable bodies, many for the general support of BTO or in response to one of our project appeals. We are so grateful to these organisations for thinking of us in these troubled times, and for believing in the work we do.

The shift to remote working brought some opportunities as well as challenges. While fieldwork had to be postponed, more time could be spent on working with existing data and developing work virtually with colleagues across BTO. Some work has brought colleagues from distant offices together, including planning for tracking migrating passerines from Scotland – a new project which was approved in August for a grant of £33.5k per annum over two years. Fewer new projects have emerged, as field research for existing projects needed to be resumed at a later stage, but the process could be more inclusive and comprehensive. We made sure to keep our trust and foundation supporters updated with how we were progressing and invited small groups to join online presentations given by science staff and project leaders working on research they had helped to fund, including our Short-eared Owl and Curlew tracking research.

WOOD WARBLER : EDMUND FELLOWES / BTO

THE IMPORTANCE OF GIFTS IN WILLS

Unrestricted funding from Gifts in Wills continued to play a vital role in supporting BTO's research programme, generating 55% of fundraised income in 2020/21. The wonderful support we receive from these special gifts enables us to continue funding projects such as our long-term monitoring schemes which are at the heart of our science, giving us the evidence-base we need to have a strong voice in the conservation field.

We are incredibly grateful to have received over £856k from supporters who took the special step of leaving a Gift in their Will to BTO. The names of all those from whom we received a gift are listed in our new online Book of Remembrance, at www.bto.org/in-memory. We would like to give a particular mention to the generous gift we received from the late Marion Simmons, wife of the late Kenneth Simmons (respected self-taught ornithologist and BTO Scientific Advisory Board member in the1950s). We were also incredibly honoured to have been given some of Kenneth's documents by the family to hold in our archives, one of those being his PhD thesis, *The biology of the parent–chick stage in the Great Crested Grebe*.

Despite the challenges of COVID-19 restrictions, we continued to hold events to show the enormous difference Gifts in Wills make to the future of bird monitoring in the UK. Building on the wonderful feedback we received from our first event 'Opening up the Archives' in 2019, we held three further events of this kind. All were virtual, using Zoom, which our supporters embraced whole-heartedly. It gave them a great opportunity to meet BTO staff from the comfort of their own homes, ask questions, hear first-hand about data collection, training and research, and how funding from Gifts in Wills provides a strong foundation for our work. Hosting virtual events has removed the barriers of long-distance travel to our offices – anyone with access to the internet could attend.

The events focussed on three topics, Celebrating 20 Years of BTO Scotland, Core Monitoring Surveys & Training and 25 Years of Garden BirdWatch. Forty-eight people attended and heard talks from the team in Scotland and staff based in The Nunnery, along with two of our inspiring youth representatives, Mark Pitt and Sorrel Lyall. BTO staff thoroughly enjoyed engaging with supporters in this way, during a time when we were all struggling with strict lockdown measures and limited human contact. Thank you to all those who braved the virtual world to show their support and take part.

SUPPORT FOR APPEALS STAYS STRONG

Like many organisations we recognised that supporters could be financially impacted by the pandemic, and were preparing for a drop in donations. However, our amazing supporters continued to respond to our appeals in these times of upheaval, for which we are truly grateful. Our Spring Appeal focussed on work to find out what is behind the alarming decline in Chaffinch populations. Our Autumn Appeal looked forward, seeking funding for our work engaging with young people to find and nurture the surveyors who will ensure our core surveys continue long into the future. BTO is uniquely placed to both inspire young people to engage with nature through birds and to develop their skills through the power of science. Both appeals were a success, collectively raising over £100k. We are so grateful to have supporters who understand that protecting our birds means both working in the present and preparing for the challenges to come.

ARCTIC SKUA WORK : DAVE BATCHELOR / BTO

WITHERBY CUSTODIANS

Witherby Custodians are a small group of committed members who offer advice, experience and financial support to BTO. The group were unable to meet in person this year, so a virtual meeting was held in November when the Custodians met with Juliet Vickery, the newly appointed CEO. The subject of the meeting was the development and support of our newly formed Youth Advisory Panel (YAP). This is a group of young people bringing their ideas and enthusiasm to the BTO with the aim of encouraging more young people to become involved with birds, science and nature conservation. This is an exciting new project for us with the aim of strengthening the BTO by bringing in the vitality, diversity, fresh minds and enthusiasm of young people. At the virtual event, two members of YAP shared their ideas and swapped experiences with the Witherby Custodians who have generously supported the costs for the development of the Panel.

UNDERSTANDING ARCTIC SKUAS

Thanks to a three-year research programme, we now have much more knowledge about these iconic and spectacular ocean travellers. Arctic Skuas have declined by more than 80% in the breeding colonies around the coasts and islands of northern Britain since 1986. By deploying tags we have learned where and how they feed, how depth of water makes a difference to their prey, and where they spend the winter and what migration routes they take. The project costs were fully funded by a small group of committed donors. As we were not able to visit the breeding sites with some of the donors as planned, due to travel restrictions, regular updates were shared with these generous supporters by well attended virtual presentations.

If you would like to know more about any of the projects or how you might support our work, please contact: fundraising@bto.org

A MESSAGE FROM JESS, OUR FUNDRAISING ADMINISTRATOR

Having joined BTO at the end of March 2020, as we transitioned into what would become over a year of remote working for most of the organisation, my first few weeks in the office were more disorienting than I expected. COVID-19 restrictions meant that I would have to work alone, and simple things such as finding my way around or introducing myself to co-workers became far more difficult than I had previously anticipated. Thankfully, everyone was incredibly understanding and encouraging, and there was plenty to keep me occupied as we had just launched our Chaffinch Appeal – and it certainly was a very hands-on experience.

I quickly became the main connection that our Fundraising Team had in the office, and so much of my time was spent processing post and sending letters, or taking phone calls. While it was difficult to adjust and take everything in, it also gave me some fantastic opportunities to become better acquainted with the handful of others who were holding the fort for their own respective teams, which gave me a broader and better understanding of how the BTO functions.

Every day, I felt privileged to receive an abundance of positive messages from our wonderful supporters who continued to donate and contact us with anecdotes about the birds they care so much about. Whether it was taking a phone call or reading a letter from these incredibly kind people, who were often struggling with their own isolation, it never failed to lift my spirits and show me just how important it is to stay connected with the natural world. Thanks to this overwhelming support over the past year, we have raised much needed funds for our appeals for important work on Chaffinches, Youth Engagement and many more vital projects.

I look forward to seeing what the future holds for BTO, and I am forever grateful for the opportunity I have had to communicate with such a positive and passionate supporter network.

OUR SUPPORTERS

We are very grateful for the generous support that we have received, both in time and money, over the past year. In addition to members and other fieldworkers, there are many other individuals and companies who support BTO work through their financial contributions. The Trust is particularly pleased to acknowledge the following corporate and other supporters.

CORPORATE SUPPORTERS 2020/21

Anglian Water, Birding in Portugal, Birdguides, Brinvale Bird Foods, Carl Zeiss Limited, CJ Wildbird Foods, Eddowes Aviation Safety Ltd, From the Notebook, Gardman Ltd, Grant Arms Hotel, Holiday Cottages.co.uk, HR Wallingford Ltd, Natureguides, Naturetrek, Northumbrian Water, Opticron, Outdoor Alternative, S.E. Marshall & Co. Ltd, Swallowtail Print, Swarovski UK Limited, The Nestbox Company, The Original Cottage Company Ltd, Thames Water Utilities Limited, The Travel Chapter Ltd, Westland Horticulture Ltd.

TRUSTS 2020/21

The Peter Abbott Discretionary Trust, The Benham Charitable Settlement, The BFER (Breckland Fen Edge and River) partnership/Suffolk County Council, The Brendonridge Trust, The British Birds Charitable Trust, The Downton Banister Trust, The Dovehouse Trust, The Dulverton Trust, The Edinburgh Trust, The Esmée Fairbairn Foundation, The Gilander Foundation, The Harris Charitable Trust, The Percy Hedley 1990 Charitable Trust, The James T Howat Charitable Trust, The Laggan Trust, The Lady Hind Trust, The Tasso Leventis Foundation, The Lizandy Charitable Trust, The Martin Laing Foundation, The Mill Dam Trust, The Mitchell Trust, The John & Pamela Salter Charitable Trust, The Peter Smith Charitable Trust for Nature, The John Swire 1989 Charitable Trust, The Tobit Trust, The Emily Weircroft Charitable Trust, The Maldwyn Williams Charitable Trust, The Whitaker Charitable Fund.

LEGACIES 2020/21

Ruth Valerie Abrams, Richard Ernest Allen, Robert Anderson, Joyce Andrews, Antony Robin Atherton, Anne Barnett, Patricia Bracey, Pauline Irene Brooking, Marian Burr Smith, Gary Caine, Clifford Carter, Daphne Francis Cave, Paul Chadwick, Terence Michael Corkett, Margaret Lilian Dale, Cynthia Rosamund Dean, Moira Duncan, Philip Eden, Brian Arthur Fagg, James Fletcher, Josephine Gale, Daisy Brenda Gallon, Elizabeth Gill, Clive Nigel Griffiths, Wng Cdr Darrell Bruce Dege Hamley, William Roscoe Howells, Royston William Jenkins, Victoria Joyce, Viola Mary Matthews, John McMeeking, Enid Marion Mercer, Alan Morley, Winston Trevor Newby, Alan Bryan Old, Dinah Margaret Savage, Marion Simmons, Denis Robert Stainforth, Gillian Marjorie Stewart, Wallace Thomas Thrower, Angela Triplett (Books), Susie Diana Ullman, Patricia Dennis Waters, Barbara Dorothy Westlake, John Keith Rainbird Wood.

IN MEMORIAM 2020/21

Peter Aylott, Rose May Birch, Iris Calnon, Elizabeth Gill, Rodney Higgins, Malcolm Hopton, Mary Kershaw, David Thomas Layfield, Anne McKeever, Mary Milton, Mike Nolan, Geoff Orton, Richard John Andrew Pennington, Helga & Ralph Rettke Grover, George Edward Ridgewell, John Shane Carson Robinson, Richard Simons, Ronald Stainbridge, Arthur John Welch, Denyss Wilsden, Jean Woolley.

FUNDERS OF BTO WORK 2020/21

Agri-Food and Biosciences Insititute (AFBI), Anglian Water Group, APEM Ltd, BAE Systems, Bat Conservation Trust, British Dragonfly Society, Bureau Waadenburg bv, Butterfly Conservation, Cairngorm National Park, Cambridge Conservation Initiative, Catalan Ornithological Institute, CEFAS, Centre for Ecology & Hydrology, Chilterns Conservation Board, DAERA, Danny Alder Ecology & Conservation, Department of the Environment, Food and Rural Affairs, Department for Business, Energy and Industrial Strategy, Devon Wildlife Trust, DONG Energy, Eneco – Netherlands, EURING, European Commission, Forest Sciences Centre of Catalonia, Forestry Commission, Forestry Commission England, Forestry Commission Scotland, Galloper Wind Farm Ltd, Game & Wildlife Conservation Trust, Hartley Anderson Ltd, Heather Trust, Hepple Estate, Institute of Avian Research, James Hutton Institute, Joint Nature Conservation Committee (on behalf of the statutory nature conservation agencies: Natural England, Natural Resources Wales, NatureScot and the Department of the Environment Northern Ireland), Moors for the Future, National Grid Hinkley, National Trust, Natural England, Natural Resources Wales, Natural Environment Research Council, NatureScot, Newcastle University, NIRAS Consulting Ltd., North York Moors National Park Authority, Northern Ireland Environment Agency, Northern Ireland Raptor Study Group, ORSTED, Royal Society for the Protection of Birds, Scottish Government, Scottish Raptor Study Group, Scottish Ornithologists' Club, Sound Approach, States of Guernsey, University of Cambridge, University of East Anglia, University of Edinburgh, University of Exeter, University College London, University of Stirling, University of York, Vattenfall, Welsh Government, Wildfowl & Wetlands Trust, WOOD Environment & Infrastructure Solutions UK Ltd, Woodland Trust, Yorkshire Dales National Park Authority, Zoological Society of London.

CLOCKWISE FROM TOP LEFT: 'ATTENBOROUGH' , ONE OF OUR SPONSORED CUCKOOS : MIKE TOMS / BTO, YOUTH ADVISORY PANEL : FAYE VOGELY / BTO, CUCKOO SPONSORS SEEING CUCKOO TAGGING : MIKE TOMS, OPENING OF THE BTO VIEWING PLATFORM : BTO, BTO NORTHERN IRELAND EVENT : SHANE WOLSEY

BTO
Looking out for birds
Birds are a joy to watch

Peer-review is an important process, establishing the validity of research through review by other expert researchers in the field. It also provides valuable feedback, enabling researchers to improve their papers before publication. BTO reports annually across a number of indicators relating to the scientific work that it carries out; three of these relate to scientific publications, reflecting the quality of the publications being produced, their impact, and the degree to which the work has been delivered through collaboration.

During 2020 our staff produced 55 peer-reviewed papers, of which 49 were in ISI-listed journals and 29 were published in high impact publications (with an Impact Factor of 3.5 greater). Thirteen of the publications were BTO-led (first or last author) multi-organisational papers, and a further 34 were also collaborative in nature, underlining the strong partnership approach to our work.

WHINCHAT : LIZ CUTTING / BTO

Ainsworth, G.B., Redpath, S.M., Wilson, M., **Wernham, C.** & Young, J.C. (2020) Integrating scientific and local knowledge to address conservation conflicts: towards a practical framework based on lessons learned from a Scottish case study. *Environmental Science and Policy* **107**: 46–55. DOI: 10.1016/j.envsci.2020.02.017

Åkesson, S., **Atkinson, P.W.**, Bermejo, A., de la Puente, J., Ferri, M., **Hewson, C.M.**, Holmgren, J., Kaiser, E., Kearsley, L., Klaassen, R.H.G., Kolunen, H., Matsson, G., Minelli, F., Norevik, G., Pietiäinen, H., Singh, N.J., Spina, F., Viktora, L. & Hedenström, A. (2020) Evolution of chain migration in an aerial insectivorous bird, the Common Swift *Apus apus*. *Evolution* **74**: 2,377–2,391. DOI: 10.1111/evo.14093

Alder, D.C., Poore, A., Norrey, J., **Newson, S.E.** & Marsden, S.J. (2020) Irregular silviculture positively influences multiple bat species in a UK lowland temperate broadleaf woodland. *Forest Ecology and Management* **483**. DOI: 10.1016/j.foreco.2020.118786

Alignier, A., Solé-Senan, X.O., Robleño, I., Baraibar, B., Fahrig, L., Giralt, D., Gross, N., Martin, J.L., Recasens, J., Sirami, C., **Siriwardena, G.**, Baillod, A.B., Bertrand, C., Carrié, R., Hass, A., Henckel, L., Miguet, P., Badenhausser, I., Baudry, J., Bota, G., Bretagnolle, V., Brotons, L., Burel, F., Calatayud, F., Clough, Y., Georges, R., Gibon, A., Girard, J., Lindsay, K., Minano, J., Mitchell, S., Patry, N., Poulin, B., Tscharntke, T., Vialatte, A., Violle, C., Yaverscovski, N. & Batáry, P. (2020) Configurational crop heterogeneity increases within-field plant diversity. *Journal of Applied Ecology* **57**: 654–663. DOI: 10.1111/1365-2664.13585

Aung, P.-P., Moses, S., **Clark, N.A.**, Anderson, G.Q.A., Hilton, G.M., Buchanan, G.M., Zockler, C. & Green, R.E. (2020) Recent changes in the number of Spoon-billed Sandpipers *Calidris pygmaea* wintering on the Upper Gulf of Mottama in Myanmar. *Oryx* **54**: 23-29. DOI: 10.1017/S0030605318000698

Boeri, M., Stojanovic, T.A., Wright, L.J., **Burton, N.H.K.**, Hockley, N. & Bradbury, R.B. (2020) Public preferences for multiple dimensions of bird biodiversity at the coast: insights for the cultural ecosystem services framework. *Estuarine, Coastal and Shelf Science* **235**. DOI: 10.1016/j.ecss.2019.106571

Breeze, T.D., Bailey, A.P., Balcombe, K.G., Brereton, T., Comont, R., Edwards, M., Garratt, M.P., Harvey, M., Hawes, C., Isaac, N., Jitlal, M., Jones, C.M., Kunin, W.E., Lee, P., Morris, R.K.A., **Musgrove, A.**, O'Connor, R.S., Peyton, J., Potts, S.G., Roberts, S.P.M., Roy, D.B., Roy, H.E., Tang, C.Q., Vanbergen, A.J. & Carvell, C. (2020) Pollinator monitoring more than pays for itself. *Journal of Applied Ecology* **58**: 44–57. DOI: 10.1111/1365-2664.13755

Burgess, M.D., Finch, T., **Border, J.A.**, Castello, J., **Conway, G.**, Ketcher, M., Lawrence, M., Orsman, C.J., Mateos, J., Proud, A., Westerberg, S., Wiffen, T., **Henderson, I.G.** (2020) Weak migratory connectivity, loop migration and multiple non-breeding site use in British breeding Whinchats *Saxicola rubetra*. *Ibis* **162**: 1,292–1,302. DOI: 10.1111/ibi.12825

Casey, D., **Fuller, R.**, Baker, J., Hawkins, J. & Roughton, J. (2020) Opportunities for wildlife through small-scale wilding in lowland farmed landscapes. *British Wildlife* **31**: 179–187.

Chang, Q., Syroechkovskiy, E.E., Anderson, G.Q.A., Aung, P.P., Beresford, A.E., Brides, K., Chowdhury, S.U., **Clark, N.A.**, **Clark, J.A.**, Howey, P., Hughes, B., Insua-Cao, P., Jia, Y., Lappo, E., Leung, K.K.S., Loktionov, E.Y., Martinez, J., Melville, D.S., Phillips, J., Putra, C.A., Tomkovich, P.S., Weston, E., Weston, J., Yakushev, N. & Green, R.E. (2020) Post-breeding migration of adult Spoon-billed Sandpipers. *Wader Study* **127**. DOI: 10.18194/ws.00201

Chapman, D.S., Gunn, I.D.M., **Pringle, H.E.K.**, **Siriwardena, G.M.**, Taylor, P., Thackeray, S.J., Willby, N.J. & Carvalho, L. (2020) Invasion of freshwater ecosystems is promoted by network connectivity to hotspots of human activity. *Global Ecology & Biogeography* **29**: 645-655. DOI: 10.1111/geb.13051

Cooke, S.C., Balmford, A., Donald, P.F., **Newson, S.E.** & Johnston, A. (2020) Roads as a contributor to landscape-scale variation in bird communities. *Nature Communications* **11**. DOI: 10.1038/s41467-020-16899-x

Cooke, S.C., Balmford, A., Johnston, A., **Newson, S.E.** & Donald, P.F. (2020) Variation in abundances of common bird species associated with roads. *Journal of Applied Ecology* **57**: 1,271–1,282. DOI: 10.1111/1365-2664.13614

Darvill, B., **Harris, S.J.**, **Martay, B.**, **Wilson, M.** & **Gillings, S.** (2020) Delivering robust population trends for Scotland's widespread breeding birds. *Scottish Birds* **40**: 297.

Delmore, K.E., Van Doren, B.M., **Conway, G.J.**, Curk, T., Garrido-Garduño, T., Germain, R.R., Hasselmann, T., Hiemer, D., van der Jeugd, H.P., Justen, H., Ramos, J.S.L., Maggini, I., Meyer, B.S., Phillips, R.J., Remisiewicz, M., Roberts, G.C.M., Sheldon, B.C., Vogl, W. & Liedvogel, M. (2020) Individual variability and versatility in an eco-evolutionary model of avian migration. *Proceedings of the Royal Society B* **287**. DOI: 10.1098/rspb.2020.1339

Espín, S., Andevski, J., Duke, G., Eulaers, I., Gómez-Ramírez, P., Hallgrimsson, G.T., Helander, B., Herzke, D., Jaspers, V.L.B., Krone, O., Lourenço, R., María-Mojica, P., Martínez-López, E., Mateo, R., Movalli, P., Sánchez-Virosta, P., Shore, R.F., Sonne, C., van den Brink, N.W., van Hattum, B., Vrezec, A., **Wernham, C.** & García-Fernández, A.J. (2020) A schematic sampling protocol for contaminant monitoring in raptors. *Ambio* **50**: 95–100. DOI: 10.1007/s13280-020-01341-9

Evens, R., **Conway, G.**, Franklin, K., **Henderson, I.**, Stockdale, J., Beenaerts, N., Smeets, K., Neyens, T., Ulenaers, S. & Artois, T. (2020) DNA diet profiles with high-resolution animal tracking data reveal levels of prey selection relative to habitat choice in a crepuscular insectivorous bird. *Ecology and Evolution* **10**: 13044–13056. DOI: 10.1002/ece3.6893

Fay, R., Schaub, M., Banik, M.V., **Border, J.A.**, **Henderson, I.G.**,Fahl, G., Feulner, J., Horch, P., Korner, F., Muller, M., Michel, V., Rebstock, H., Shitikov, D., Tome, D., Vogeli, M. & Grüebler, M.U. (2020) Whinchat survival estimates across Europe: can excessive adult mortality explain population declines? *Animal Conservation* **24**: 15–25. DOI: 10.1111/acv.12594

Fay, R., Schaub, M., **Border, J.A.**, **Henderson, I.**, Fahl, G., Feulner, J., Horch, P., Müller, M., Rebstock, H., Shitikov, D., Tome, D., Vögeli, M. & Grüebler, M.U. (2020) Evidence for senescence in survival but not reproduction in a short-lived passerine. *Ecology and Evolution* **10**: 5,383–5,390. DOI: 10.1002/ece3.6281

Finch, T., Day, B.H., **Massimino, D.**, Redhead, J.W., Field, R.H., Balmford, A., Green, R.E., Peach, W.J. (2020) Evaluating spatially explicit sharing-sparing scenarios for multiple environmental outcomes. *Journal of Applied Ecology* 58: 655–666. DOI: 10.1111/1365-2664.13785

Finch, T., Green, R.E., **Massimino, D.**, Peach, W.J. & Balmford, A. (2020) Optimising nature conservation outcomes for a given region-wide level of food production. *Journal of Applied Ecology* **57**: 985–994. DOI: 10.1111/1365-2664.13594

Fuller, R.J. & Green, T. (2020) Breeding bird communities within a parkland-woodland continuum: the distinctiveness of wood-pasture. *Arboricultural Journal* **42**: 190–207. DOI: 10.1080/03071375.2020.1767965

Gili, F., **Newson, S.E.**, **Gillings, S.**, Chamberlain, D.E. & **Border, J.A.** (2020) Bats in urbanising landscapes: habitat selection and recommendations for a sustainable future. *Biological Conservation* **241**. DOI: 10.1016/j.biocon.2019.108343

Howard, C., Stephens, P.A., **Pearce-Higgins, J.W.**, Gregory, R.D., Butchart, S.H.M. & Willis, S.G. (2020) Disentangling the relative roles of climate and land cover change in driving the long-term population trends of European migratory birds. *Diversity & Distributions* **26**: 1,442–1,455. DOI: 10.1111/ddi.13144

Hulme-Beaman, A., Rudzinski, A., **Cooper, J.E.J.**, Lachlan, R.F., Dobney, K. & Thomas, M.G. (2020) geoorigins: a new method and r package for trait mapping and geographic provenancing of specimens without categorical constraints. *Methods in Ecology & Evolution* **11**: 1,247–1,257. DOI: 10.1111/2041-210X.13444

Isaac, N.J.B., Jarzyna, M.A., Keil, P., Dambly, L.I., **Boersch-Supan, P.H.**, Browning, E., Freeman, S.N., Golding, N., Guillera-Arroita, G., Henrys, P.A., Jarvis, S., Lahoz-Monfort, J., Pagel, J., Pescott, O.L., Schmucki, R., Simmonds, E.G. & O'Hara, R.B. (2020) Data integration for large-scale models of species distributions. *Trends in Ecology & Evolution* **35**: 56–67. DOI: 10.1016/j.tree.2019.08.006

Jamhuri, J., Edinoor, M.A., Kamarudin, N., Lechner, A.M., **Ashton-Butt, A.** & Azhar, B. (2020) Higher mortality rates for large- and medium-sized mammals on plantation roads compared to highways in Peninsular Malaysia. *Ecology & Evolution* **10**: 12,049–12,058. DOI: 10.1002/ece3.6827

Jarrett, D., Calladine, J., Cotton, A., Wilson, M.W. & **Humphreys, E.** (2020) Behavioural responses of non-breeding waterbirds to drone approach are associated with flock size and habitat. *Bird Study* **67**: 190–196. DOI: 10.1080/00063657.2020.1808587

Johnston, A., **Moran, N., Musgrove, A.**, Fink, D. & **Baillie, S.R.** (2020) Estimating species distributions from spatially biased citizen science data. *Ecological Modelling* **422**. DOI: 10.1016/j.ecolmodel.2019.108927

Jones, L.P., Turvey, S.T., **Massimino, D.** & Papworth, S.K. (2020) Investigating the implications of shifting baseline syndrome on conservation *People & Nature* **2**: 1,131–1,144 . DOI: 10.1002/pan3.10140

Kettel, E.F., Woodward, I.D., Balmer, D.E. & **Noble, D.G.** (2020) Using citizen science to assess drivers of common House Martin *Delichon urbicum* breeding performance. *Ibis* **163**: 366–379. DOI: 10.1111/ibi.12888

Kolnegari, M., **Conway, G.**, Basiri, A.A., Panter, C.T., Hazrati, M., Rafiee, M.S., Ferrer, M. & Dwyer, J.F. (2020) Electrical components involved in avian-caused outages in Iran. *Bird Conservation International*. DOI: 10.1017/S0959270920000507

Kolnegari, M., Moghimi, E., Allandad, M., Hazrati, M., Basiri, A.A., Jafari, R., Yektanik, M., Jalalpour, M., Jalali, A.S., Mojaradiafra, M, Kohan, H.A., Izadi, H.R., Williams, N.P., Ferrer, M. & **Conway, G.J.** (2020) First efforts to address bird collisions with power lines in Iran. *Sandgrouse* **42**: 276–281.

Lawson, B., **Robinson, R.A.**, Parmar, M., Killick, R., Cunningham, A.A. & MacDonald, S.J. (2020) Aflatoxin and ochratoxin A residues in supplementary foods used for wild birds. *Science of the Total Environment* **731**: . DOI: 10.1016/j.scitotenv.2020.138851

Luke S.H., Advento, A.D., Aryawan, A.A.K., Adhy D.N., **Ashton-Butt, A.**, Barclay, H., Dewi, J.P., Drewer, J., Dumbrell, A.J., Edi, Eycott, A.E., Harianja, M.F., Hinsch, J.K., Hood, A.S.C., Kurniawan, C., Kurz, D.J., Mann, D.J., Matthews, N.K.J., Naim, M., Pashkevich, M.D., Prescott, G.W., Ps S., Pujianto, Purnomo, D., Purwoko, R.R., Putra, S., Rambe,T.D.S., Soepraptо, Spear, D.M., Suhardi, Tan, D.J.X., Tao, H.-H., Tarigan, R.S., Wahyuningsih, R., Waters, H.S., Widodo, R.H., Whendy, Woodham, C.R., Caliman, J.-P., Slade, E.M., Snaddon, J.L., Foster, W.A. & Turner, E.C. (2020) Managing oil palm plantations more sustainably: Large-scale experiments within the Biodiversity and Ecosystem Function in Tropical Agriculture (BEFTA) Programme *Frontiers in Forests and Global Change* **2**: 75. DOI: 10.3389/ffgc.2019.00075

Malm, L. E., **Pearce-Higgins, J. W.**, Littlewood, N. A., Karley, A. J., Karaszewska, E., **Jaques, R.**, Pakeman, R. J., Redpath, S. M., & Evans, D. M. (2020) Livestock grazing impacts components of the breeding productivity of a common upland insectivorous passerine: Results from a long-term experiment. *Journal of Applied Ecology* **57**: 1,514–1,523. DOI: 10.1111/1365-2664.13647

Marchowski, D., Ławicki, Ł., Fox, A.D., Nielsen, R.D., Petersen, I.K., Hornman, M., Nilsson, L., Haas, F., Wahl, J., Kieckbusch, J., Nehls, H.W., **Calbrade, N.**, Hearn, R., Meissner, W., Fitzgerald, N., Luigujoe, L., Zenatello, M., Gaudard, C. & Koschinski, S. (2020) Effectiveness of the European Natura 2000 network to sustain a specialist wintering waterbird population in the face of climate change. *Scientific Reports* **10**: 20286. DOI: 10.1038/s41598-020-77153-4

Martay, B. & **Pearce-Higgins, J.W.** (2020) Opening a can of worms: can the availability of soil invertebrates be indicated by birds? *Ecological Indicators* **113**: 106147. DOI: 10.1016/j.ecolind.2020.106222

Martin-Velez, V., Mohringa, B., van Leeuwen, C.H.A., Shamoun-Baranes, J., **Thaxter, C.B.**, Baert, J.M., Camphuysen, K.C.J. & Green, A.J. (2020) Functional connectivity network between terrestrial and aquatic habitats by a generalist waterbird, and implications for biovectoring. *Science of the Total Environment* **705**: 135886. DOI: 10.1016/j.scitotenv.2019.135886

Massimino, D., Beale, C.M., Suggitt, A.J., Crick, H.Q.P., Macgregor, N.A., Carroll, M.J., Maclean, I.M.D. & **Pearce-Higgins, J.W.** (2020) Can microclimate offer refuge to an upland bird species under climate change? *Landscape Ecology* **9**: 1,907–1,922. DOI: 10.1007/s10980-020-01069-7

Massimino, D., Harris, S.J. & **Gillings, S.** (2020) Phenological mismatch between breeding birds and their surveyors and implications for estimating population trends. *Journal of Ornithology* **162**: 143–154. DOI: 10.1007/s10336-020-01821-5

Maund, P.R., Irvine, K.N., Lawson, B., Steadman, J., **Risely, K.**, Cunningham, A.A. & Davies, Z.G. (2020) What motivates the masses: understanding why people contribute to conservation citizen science projects. *Biological Conservation* **108**: 108587. DOI: 10.1016/j.biocon.2020.108587

Morecroft, M.D., Duffiled, S., Harley, M., **Pearce-Higgins, J.W.**, Stevens, N., Watts, O. & Whitaker, J. (2020) Response to: Agricultural lands key to mitigation and adaptation. *Science* **367**: 518–519. DOI: 10.1126/science.aba7577

Newson, S.E., Middleton, N., & Pearce, H. (2020) The acoustic identification of small terrestrial mammals in Britain. *British Wildlife* **32**: 186–194.

O'Brien, D.A., Taylor, M.L., Masonjones, H.D., **Boersch-Supan, P.H.** & O'Shea, O.R. (2020) Drivers of octopus abundance and density in an anchialine lake: a 30 year comparison. *Journal of Experimental Marine Biology and Ecology* **528**: 151377. DOI: 10.1016/j.jembe.2020.151377

Pavón-Jordán, D., Abdou, W., Azafzaf, H., Balaž, M., Bino, T., Borg, J.J., Božič, L., Butchart, S.H.M., Clausen, P., Sniauksta, L., Dakki, M., Devos, K., Domsa, C., Encarnaçao, V., Etayeb, K., Faragó, S., Fox, A.D., **Frost, T.**, Gaudard, C., Georgiev, V., Goratze, I., Hornman, M., Keller, V., Kostiushyn, V., Langendoen, T., Ławicki, Ł., Ieronymidou, C., Lewis, L.J., Lorentsen, S.-H., Luigujoe, L., Meissner, W., Mikuska, T., Molina, B., Musil, P., Musilova, Z., Nagy, S., Natykanets, V., Nilsson, L., Paquet, J.-Y., Portolou, D., Ridzon, J., Santangeli, A., Sayoud, S., Šćiban, M., Stipniece, A., Teufelbauer, N., Topić, G., Uzunova, D., Vizi, A., Wahl, J., Yavuz, K.E., Zenatello, M. & Lehikoinen, A. (2020) Positive impacts of important bird and biodiversity areas on wintering waterbirds under changing temperatures throughout Europe and North Africa. *Biological Conservation* **246**: 108549. DOI: 10.1016/j.biocon.2020.108549

Pearce-Higgins, J.W. & Chandler, D. (2020) Do surveys of adult dragonflies and damselflies yield repeatable data? Variation in monthly counts of abundance and species richness. *Journal of Insect Conservation* **24**: 877–889. DOI: 10.1007/s10841-020-00260-0

Plummer, K.E., Gillings, S.G. & **Siriwardena, G.M.** (2020) Evaluating the potential for bird-habitat models to support biodiversity-friendly urban planning. *Journal of Applied Ecology* **57**: 1,902–1,914. DOI: 10.1111/1365-2664.13703

Pratte, I., **Noble, D.G.**, Mallory, M.L., Braune, B.M. & Provencher, J.F. (2020) The influence of migration patterns on exposure to contaminants in Nearctic shorebirds: a historical study. *Environmental Monitoring and Assessment* **192**: 256. DOI: 10.1007/s10661-020-8218-1

Robinson, R.A., Meier, C.M., Witvliet, W., Kery, M. & Schaub, M. (2020) Survival varies seasonally in a migratory bird: linkages between breeding and non-breeding periods. *Journal of Animal Ecology* **89**: 2,111–2,121. DOI: 10.1111/1365-2656.13250

Robinson, R.A., Saunders, J.D. & Rees, E.C. (2020) Survival of Eurasian Curlew *Numenius arquata* differs by season but not breeding origin. *Wader Study* **127**: 25–30. DOI: 10.18194/ws.00176

Samplonius, J.M., Atkinson, A., Hassall, C., Keogan, K., Thackeray, S.J., Assmann, J.J., Burgess, M.D., Johansson, J., Macphie, K.H., **Pearce-Higgins, J.W.** & Simmonds, E.G (2020) Strengthening the evidence base for temperature-mediated phenological asynchrony and its impacts. *Ecology and Evolution* 5: 155–164. DOI: 10.1038/s41559-020-01357-0

Sutherland, W.J., Alvarez–Castañeda, S.T., Amano, T., Ambrosini, R., **Atkinson, P.**, Baxter, J.M., Bond, A.L., Boon, P.J., Buchanan, K.L., Barlow, J., Bogliani, G., Bragg, O.M., Burgman, M., Cadotte, M.W., Calver, M., Cooke, S.J., Corlett, R.T., Devictor, V., Ewen, J.G., Fisher, M., Freeman, G., Game, E., Godley, B.J., Gortázar, C., Hartley, I.R., Hawksworth, D.L., Hobson, K.A., Lu, M.L., Martín–López, B., Ma, K., Machado, A., Maes, D., Mangiacotti, M., McCafferty, D.J., Melfi, V., Molur, S., Moore, A.J., Murphy, S.D., Norris, D., van Oudenhoven, A.P., Powers, J., Rees, E.C., Schwartz, M.W., Storch, I. & Wordley, C. (2020) Ensuring tests of conservation interventions build on existing literature. *Conservation Biology* **34**: 781–783. DOI: 10.1111/cobi.13555

Sutherland, W.J., Dias, M.P., Dicks, L.V., Doran, H., Entwistle, A.C., Fleishman, E., Gibbons, D.W., Hails, R., Hughes, A.C., Hughes, J., Kelman, R., Le Roux, X., LeAnstey, B., Lickorish, F.A., Maggs, L., **Pearce-Higgins, J.W.**, Peck, L.S., Pettorelli, N., Pretty, J., Spalding, M.D., Tonneijk, F.H., Wentwirth, J., Thornton, A. (2020) A horizon scan of emerging global biological issues for 2020. *Trends in Ecology & Evolution* **35**: 81-90. DOI: 10.1016/j.tree.2019.10.010

Weiser, E.L., Lanctot, R.B., Brown, S.C., Gates, H.R., Bêty, J., Boldenow, M.L., Brook, R.W., Brown, G.S., English, W.B., Flemming, S.A., **Franks, S.E.**, Gilchrist, H.G., Giroux, M.-A., Johnson, A., Kendall, S., Kennedy, L.V., Koloski, L., Kwon, E., Lamarre, J.F., Lank, D.B., Latty, C.J., Lecomte, N., Liebezeit, J.R., McGuire, R.L., McKinnon, L., Nol, E., Payer, D., Perz, J., Rausch, J., Robards, M., Saalfeld, S.T., Senner, N.R., Smith, P.A., Soloviev, M., Solovyeva, D., Ward, D.H., Woodard, P.F. & Sandercock, B.K. (2020) Annual adult survival drives trends in Arctic-breeding shorebirds but knowledge gaps in other vital rates remain. *Condor* **122**. DOI: 10.1093/condor/duaa026

Woodward, I., Aebischer, N., Burnell, D., Eaton, M., **Frost, T.**, Hall, C., Stroud, S. & **Noble, D.** (2020) APEP 4 – Population estimates of birds in Great Britain and the United Kingdom. *British Birds* **113**: 69–104.

FINANCIAL OVERVIEW

Legacies featured strongly again this year, £856k being received, in spite of delays at the Probate Registry. Other fundraising was only marginally affected by the pandemic response, which is pleasing, although some of the effects may prove longer term. We remain confident that our improved ability to engage with supporters by means of the new database and website will also be fruitful financially. Voluntary income formed 41% of total group income for the year, and we aim to raise this to over 50% in the longer term. Contract income was affected by our inability to put fieldworkers into the field in 2020, but most fieldwork-related contracts were postponed rather than cancelled and have subsequently restarted, so we expect growth in 2021. The move to home working and cancellation of events led to cost savings greater than income losses, and the selective temporary furloughing of staff, and a full Christmas closure, enabled us to claim significant financial support from the Coronavirus Job Retention Scheme.

The principal sources of funds continued to be contract research, membership subscriptions, individual donations and legacies. A total of £4,544k was spent during the year on carrying out, supporting and communicating ornithological research. Overall, income reduced by 5% and expenditure reduced by 4%, giving a surplus, before investment gains, of £60k. The recovery of the stock market since March 2020 led to investment gains of £95k.

By contrast, investment gains in the final salary pension scheme were insufficient to compensate for lower discount rate assumptions and higher inflation expectations, so there was a further increase in the valuation of the pension liability. This means that we have the somewhat misleading negative balance sheet total again this year. Members are reminded that the actual liability of the BTO to the scheme is the schedule of deficit repair contributions agreed with the pension fund trustees to bring the scheme into balance by 2033, and this will be reviewed with the triennial actuarial valuation in 2021.

The Board has an unrestricted free reserves target range of 3 to 4 months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Unrestricted funds excluding tangible fixed assets and the defined benefit pension liability at 31 March 2021 totalled £1,068k (2020: £1,102k), equivalent to 2.6 months' running costs (2020: 2.8 months'). Reserves are planned to be within the target range by the end of financial year 2022/23.

These are summarised accounts. To gain a full understanding of the financial affairs of the Trust please refer to the Annual Report and Accounts published on the BTO website or request a printed copy from the Director of Finance & Services, BTO, The Nunnery, Thetford, Norfolk IP24 2PU.

The Annual Report and Accounts were approved by the Board on 6 August 2021 and will be submitted to the Registrar of Companies, the Charity Commission and the Office of the Scottish Charity Regulator. The accounts include the auditor's report which is unqualified and does not contain a statement either under section 498(2) of the Companies Act 2006 (accounting records or returns inadequate or accounts not agreeing with the records and returns) or section 498(3) (failure to obtain information and explanations). Further information is given in the accounting policies of the full accounts.

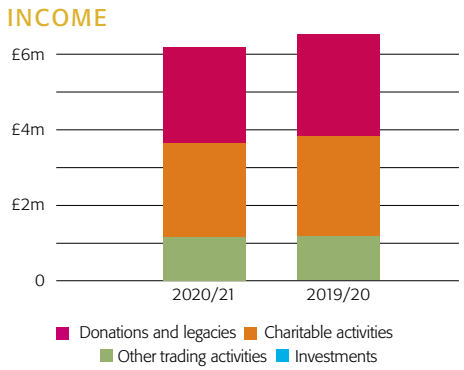
SUMMARISED ACCOUNTS: 2020/21

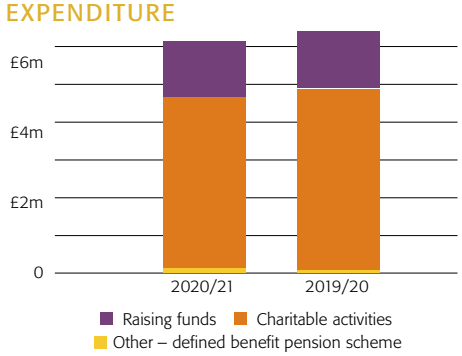
	£'000	£'000
INCOME	**2020/21**	**2019/20**
Donations and legacies	2,539	2,701
Charitable activities	2,486	2,634
Other trading activities	1,159	1,173
Investments	3	6
Total income & endowments	**6,187**	**6,514**
EXPENDITURE	**2020/21**	**2019/20**
Raising funds	1,463	1,489
Charitable activities	4,544	4,785
Other – defined benefit pension scheme	120	90
Total expenditure	**6,127**	**6,364**
Net income / (expenditure)	60	150
Net gains on investments	95	-22
Other recognised gains/(losses)	-519	-643
Net movement in funds	**-364**	**-515**
Total funds brought forward	-370	145
Total funds carried forward	**-734**	**-370**
REPRESENTED BY	**2020/21**	**2019/20**
Fixed assets	2,343	2,251
Net current assets	1,800	1,741
Creditors over 1 year	-83	-75
Pension fund liability	-4,794	-4,287
	-734	**-370**

INDEPENDENT AUDITOR'S STATEMENT TO THE MEMBERS OF THE BRITISH TRUST FOR ORNITHOLOGY

We have examined the summarised financial statements for the year ended 31 March 2021 set out here. In our opinion the summarised financial statements are consistent with the full annual financial statements on which we have reported an unqualified opinion.

Ensors Accountants LLP, 46 St Nicholas Street, Ipswich IP1 1TT
9 August 2021





GOLDCREST, JOHN W PROUDLOCK / BTO

Patron	HRH The Duke of Cambridge	
President	F R Gardner OBE TD VR FRGS	
Board of Trustees		
Chair	Prof J A Gill	*2016-22*
Honorary Treasurer	I Packer FCA	*2016-22*
Chair of Finance & Risk Committee	J Spencer	*2015-22*
Chair of Governance & Nominations Committee	F M Hurst	*2013-22*
Chair of Regional Network Committee	Dr D M Parker	*2014-21*
Chair of Ringing Committee	Dr I P Bainbridge	*2016-21*
Ordinary Board Members	Dr F Barclay	*2014-21*
	S R R Guy	*2020-23*
	Dr S Hunter	*2017-21*
	S J Marquis	*2020-23*
	Dr D J Reynolds	*2016-21*
	N A Sherwin	*2017-22*
Vice Presidents	Prof S Bearhop	*2019-26*
	K F Betton	*2014-21*
	D C Jardine	*2020-27*
	Prof I P F Owens	*2016-23*

Finance & Risk Committee
Chair J Spencer; Dr S Hunter; I Packer; Dr D J Reynolds.

Governance & Nominations Committee
Chair F M Hurst; Dr D M Parker; N Sherwin.

Regional Network Committee
Chair Dr D M Parker; C Gunn; A Jarratt-Knock; Dr D McGarvie; W Morris; S Taylor, E Tigwell.

Ringing Committee
Chair Dr I P Bainbridge; S Bayley; J Black, A C Blackburn; L Clewley; Dr S Hunter; P Roper; Dr L Wright. *Representatives*: I Lloyd; A Dodds.

Senior Leadership Team
Chief Executive Officer Dr A Clements (to 31 October 2020) Prof J Vickery (from 1 November 2020); *Director of Science* Prof J W Pearce-Higgins; *Director of Engagement* Dr D I P Evans; *Director of Finance & Services, Company Secretary* A T Scott ACIS.

Past Presidents and Chairs

Presidents		*Chairs*	
1958-60	R C Homes	1933-39	The Right Hon. Lord Scone MP, 7th Earl of Mansfield and Mansfield
1961-64	C A Norris	1940-41	The Right Hon. Malcolm MacDonald MP
1965-68	R C Homes	1942-47	Dr A Landsborough Thomson CB OBE DSc
1969-72	I J Ferguson-Lees	1948	Dr E M Nicholson CB CVO
1973-76	R A O Hickling	1949	A W Boyd MC
1977-80	J M McMeeking MBE	1950	Sir Norman Kinnear
1981-84	S M Taylor	1951-56	Major-General H P W Houston
1985-89	J A Hancock OBE	1957	R C Homes
1990-93	R P Howard	1958-87	*See Presidents*
1994-96	Sir William Wilkinson	1988-91	G H Green
1997-2001	Sir Frederick Holliday	1992-96	I C Castle
2002-05	Lord Blakenham	1996-2000	Dr H P Sitters
2006-13	Baroness Young of Old Scone	2001-04	A J Martin
2014-18	C G Packham	2005-08	Dr S Hunter
2019-	F R Gardner OBE TD VR FRGS	2009-13	Prof I Newton FRS OBE
		2014-16	Prof A D Fox
		2016-	Prof J A Gill

BRITISH TRUST FOR ORNITHOLOGY - STAFF LIST as at 31 March 2021

CEO: Prof Juliet Vickery (PA: Nicki Read)

SCIENCE

Director: Prof James Pearce-Higgins
PA / Senior Secretary: Nicki Read
Senior Secretary: Jane Chase

Associate Director – Research: Dr Rob Robinson (Secretary: Jane Chase)
Senior Research Fellow: Dr Stephen Baillie (Secretary: Jane Chase)

Terrestrial Ecology

Head & Principal Ecologist	Dr Gavin Siriwardena
Senior Research Ecologist	Dr Ian Henderson
Senior Research Ecologist	Dr Greg Conway
Senior Research Ecologist	Dr Kate Plummer*
Research Ecologist	Dr Joe Cooper
Research Ecologist	Dr Hugh Hanmer
Research Ecologist	Dr Charlotte Ward
Research Ecologist (fixed term)	Dr Kate Denton
Research Ecologist (fixed term)	Dr Laurence Jarvis
Senior Research Officer	David Norfolk
Survey Assistant	John Worthington-Hill
Secretary	Maria Knight/Nicki Read

*based at Exeter University

International Research

Head & Principal Ecologist	Prof Phil Atkinson
Senior Research Ecologist	Dr Chris Hewson
Senior Research Ecologist	Dr Adham Ashton-Butt
Secretary	Maria Knight/Nicki Read

Monitoring Research

Principal Ecologist	Dr David Noble
Research Ecologist	Dr Ailidh Barnes

MONITORING

Demography

Head	Dr Dave Leech

Ringing Licensing and Sales

Manager	Jez Blackburn
Licensing Assistant	Nicola Bugg
Ringing Sales Officer	Anne Trewhitt

Ringing Data Management

Ringing & Nest Records Process Mngr	Bridget Griffin
Ringing Officer	Sabine Schäfer
Ringing Officer	Kevin Leighton

Demographic Monitoring Projects

Demographic Surveys Officer	Lee Barber
Ringing & Nest Record Database Off.	Carl Barimore
Ringing & Nest Record Comms Off.	Ruth Walker
Scheme Administrator	Hazel McCambridge

Surveys

Head & National Coordinator	Dawn Balmer
BirdTrack Organiser	Scott Mayson
BirdTrack Support Officer	Stephen McAvoy
BBS National Organiser	Sarah Harris

Wetland Bird Survey

WeBS National Organiser	Dr Teresa Frost
Data Request Coordinator	Neil Calbrade
WeBS Counter Network Organiser	Gillian Birtles
Community Projects Officer (fixed term)	Zoe Smith

RESEARCH

Population Ecology & Modelling (PEM)

Senior Research Ecologist	Dr Jenni Border
Research Ecologist	Dr Blaise Martay*
Ecological Statistician	Dr Philipp Boersch-Supan
Secretary	Jane Chase

*based at BTO Scotland

Wetland & Marine Research

Head & Principal Ecologist	Dr Niall Burton
Senior Research Ecologist	Dr Graham Austin
Senior Research Ecologist	Dr Aonghais Cook
Senior Research Ecologist	Dr Sam Franks
Senior Research Ecologist	Dr Chris Thaxter
Research Ecologist	Dr Jacob Davies*
Research Ecologist	Ros Green
Research Ecologist	Dr Nina O'Hanlon
Research Officer	Ian Woodward
Secretary	Maria Knight/Nicki Read

*based at BTO Scotland

Data Science and Bioacoustics

Principal Data Scientist	Dr Simon Gillings
Senior Research Ecologist	Dr Stuart Newson
Research Ecologist	Dr Dario Massimino

PORZANA

Business Director	David Agombar
Business Manager	Shane Muggridge
Assistant Manager	Harvey Cornell
Production Assistant	Trupti Cornell
Production Assistant	Philippa Elson
Production Assistant	Elaine Ennis
Production Assistant	Lucy Willsher

ENGAGEMENT

Director: Dr Ieuan Evans

Business Development Manager	James Piesse

Supporter Services

Head of Engagement	Debbie Lee
Senior Supporter Administrator	Sam Graham
Supporter Development Officer	Caroline Foot
Supporter Administrator	Samantha Culverhouse
Supporter Assistant	Jamey Redway
GBW Organiser	*Vacancy*
GBW Supporter Development Officer	David White
GBW Supporter Development Officer	Robert Jaques

Training

Training Manager	Nick Moran
Training Officer	Emily Cuff

Fundraising

Head	*Vacancy*
Major Giving Officer	David Agombar
Fundraiser (Corporate & Trust)	Bonita Johnston
Legacy Officer	Sam Rider
Digital Marketing Manager	Jonathan Boardman
Fundraising Administrator	Jessica Hooks

Communications

Head of Communications	Mike Toms
Media Manager	Paul Stancliffe
Science Communications Manager	Dr Viola Ross-Smith
Web Editor	Dr Michelle Reeve
Social Media Manager	Faye Vogely
Information Services Librarian	Carole Showell

INFORMATION SYSTEMS

Associate Director IS: Dr Andy Musgrove
Senior Secretary: Jane Chase

Senior Database Officer	Dr Andrew Joys
Database Developer	Steve Pritchard
Database Developer	Justin Walker
Database Developer	Charlotte Clark
Database Officer	Bob Blogg
Website Manager	William Skellorn
Website Developer	Tom Sage
Website Developer	Daniel Higgins
Senior Software Developer	Mark Hammond
Senior Software Developer	Matthew Baxter
Junior Software Developer	Oliver Barrett
Junior Software Developer	Hamza Butt
Senior Systems Manager	Ed Hanrahan
Computer Support Officer	Dominic Render
Business Analyst	Dave Turvey

FINANCE & SERVICES

Director: Andrew Scott

Accounts & Facilities

Financial Accountant / Facilities Manager	Mary Gray
Management Accountant	Irene Bowles
Finance Assistant	Terri-Louise Montgomery
General Sales Officer / Admin. & Finance Assistant	Sonya Calder
Admin. Assistant	Diane Bragg
Facilities / H&S Officer	Sam Massimino
Facilities / H&S Officer	Pat Sparkes
Receptionist	Ronnie Hatt

People and Organisational Development (OD)

Head of People and Organisational Development	Sian Knott
People and Projects Officer	Holly Stevenitt

Research Support

Resource Manager	Virginia Cates
Research Support Administrator	Sandra Sparkes
Research Support Officer	Penny Mitchell
Research Support Officer	Heidi Mellan

Nunnery Lakes Site Manager	Ian Henderson

BTO SCOTLAND

Associate Director Country Offices: Dr Chris Wernham
Senior Secretary: Rebecca Cranston

Senior Research Ecologist	John Calladine
Data and Admin. Officer	Anne Carrington-Cotton
Development and Engagement Manager	Dr Ben Darvill
Development and Engagement Officer	Steve Willis
Senior Research Ecologist	Dr Liz Humphreys
Research Ecologist	Dr Blaise Martay*
Research Ecologist	Dr Mark Wilson
Research Ecologist	Dr Gary Clewley
Research Ecologist	Dr Daniel Johnston
Research Ecologist	Peadar O'Connell
Research Ecologist	Anthony Wetherhill
Research Ecologist	Jacob Davies**
Scottish Raptor Monitoring Coordinator	Dr Amy Challis
Wader Project Officer (fixed term)	Paul Noyes

*PEM Team ** Wetland & Marine Team

BTO CYMRU

Senior Ecologist	Dr Rachel Taylor
Research Ecologist	Dr Katharine Bowgen
Development Coordinator	Kelvin Jones

BTO NORTHERN IRELAND

Northern Ireland Officer	Stephen Hewitt
Scientific Officer	Dr Katherine Booth Jones

For the purposes of Section 162 of the Charities Act 2011 and the Directors' Report for the purposes of Section 415 of the Companies Act 2006.

Company number:	00357284 (England and Wales)
Charity number:	216652 (England and Wales) SC039193 (Scotland)
Registered Office:	The Nunnery, Thetford, Norfolk IP24 2PU
Principal Advisers:	
Auditors	Ensors Accountants LLP, Cardinal House, 46 St Nicholas Street, Ipswich, Suffolk IP1 1TT
Principal Bankers	National Westminster Bank plc, 7 Cornhill, Bury St Edmunds, Suffolk IP33 1BQ The Royal Bank of Scotland plc, 2 Blenheim Place, Edinburgh EH7 5JH
Solicitors	Browne Jacobson LLP, Castle Meadow Road, Nottingham NG2 1BJ
Pensions Advisers	Russell Ulyatt Financial Services Ltd, 1 The Triangle, ng2 Business Park, Nottingham NG2 1AE
Investment Advisers	Russell Ulyatt Financial Services Ltd, 1 The Triangle, ng2 Business Park, Nottingham NG2 1AE
Insurance Brokers	Uttings Insurance Brokers, 16 The Fairland, Hingham, Norwich, Norfolk NR9 4HN

The members of the Board are the directors of the charitable company under company law and the trustees for the purpose of charity law. Those serving during the year were as follows:

Dr I P Bainbridge
Dr F Barclay
Professor J A Gill
Ms S R R Guy
Dr S Hunter
Ms F M Hurst
Mr S J Marquis
Mr I Packer
Dr D M Parker
Dr D J Reynolds
Mr N A Sherwin
Mrs J Spencer

Structure, Governance and Management

Governing Document

The British Trust for Ornithology (known generally as the BTO) is a company limited by guarantee governed by its Memorandum and Articles of Association. It is registered as a charity with the Charity Commission and the Office of the Scottish Charity Regulator. Membership is open to any person whose application is approved by the Board upon payment of the requisite subscription. Members undertake to contribute up to £1 each in the event of an insolvent winding up, which represents the limit of their guarantee.

Trustees

Trustees are nominated by the Board, on the recommendation of the Governance and Nominations Committee, or by members and elected by the members at the Annual General Meeting each year, to serve from the following 1 January. The normal term of office is four years, with a limit of two consecutive terms. New trustees receive a comprehensive information pack and undergo induction to brief them on the BTO and their role as company directors and trustees.

Organisation and Key Management Remuneration

The Board of Trustees is the governing body of the BTO. It meets at least four times a year. The Board is supported by the Finance & Risk Committee, Governance & Nominations Committee, Regional Network Committee and Ringing Committee. The day-to-day management of the BTO is delegated to the Senior Leadership Team, led by the Chief Executive Officer (CEO). During the year Dr Andy Clements retired as CEO, and Prof Juliet Vickery was appointed.

The salary of the CEO is determined by the Board on the basis of comparability to relevant benchmarks. The remuneration of all other staff is set according to a bespoke job evaluation scheme, benchmarked to the Croner Charity Rewards database. All salaries are subject to annual cost of living review. There is no bonus scheme.

Related Parties

The BTO's wholly owned subsidiary, BTO Services Ltd, was established to undertake commercial activities to support the work of the BTO, and gifts its profits to the Trust. On 30 August 2017 BTO Services Ltd acquired the ring manufacturer Porzana Ltd. The net assets and activities of Porzana Ltd were subsequently hived up to BTO Services Ltd and it then became dormant. On 15 November 2019 BTO Services Ltd incorporated BTO Consulting Ltd which company is dormant. 'Porzana' and 'BTO Consulting' are trading names of BTO Services Ltd.

The BTO co-operates with many other charities, with government agencies and other bodies in pursuit of its objectives, as illustrated in Parts A and B of this document .

Volunteers

The Trust depends on the contributions of many thousands of volunteers who participate in BTO surveys and other activities. We are greatly indebted to them, and especially to the Regional Representatives and other regional volunteers who organise so much BTO activity at a local level. BTO volunteers contributed the equivalent of approximately 255,500 days of work in calendar year 2020 (2019: 235,900 days).

Risk Management

A risk register is maintained which identifies the significant risks faced by the BTO and the measures in place to manage and mitigate those risks. These are monitored by the Senior Leadership Team and regularly reviewed and amended as appropriate by the Finance & Risk Committee and the Board.

Fundraising Standards

BTO is registered with the Fundraising Regulator and follows the Fundraising Regulator's Code of Fundraising Practice. All fundraising from individual giving is undertaken by BTO staff, and during the year we used the services of a specialist consultancy to help us research and approach charitable trusts and foundations. We have not received any complaints regarding our fundraising practices. We take all reasonable steps to treat supporters fairly and transparently, especially if we believe they may be in a vulnerable position.

Investments

The Memorandum of Association permits the Trust to invest monies not immediately required for its purposes as the trustees see fit. The trustees' investment policy is to maximise long term total return by investing in a combination of 40% high quality short dated bonds and 60% globally diversified equities. The equities part of the portfolio is invested in a sustainable fund (see Note 10). Investment performance against benchmark was as follows:

	Portfolio	**Benchmark**
Year ended 31 March 2021	+26.31%	+21.00%
Since inception (28 August 2014)	+61.74%	+57.25%

Objectives and Activities

Charitable Objects

The objects of the Trust, as set out in its Memorandum of Association are, for the benefit of the nation:

(i) To promote, organise, carry on and encourage study and research and particularly field work for the advancement of knowledge in all branches of the Science of Ornithology.

(ii) Permanently to preserve and protect lands and objects which by their natural features are suitable for the preservation and study of bird life and of fauna and flora generally.

Public Benefit

The trustees have complied with the duty in Section 17 of the Charities Act 2011 to have due regard to public benefit guidance published by the Charity Commission. The following paragraphs set out in detail the aims, activities and performance of the Trust, and the way in which they provide public benefit.

Objectives and Activities

The BTO's purpose and public benefit is to deliver objective information and advice, through undertaking impartial research and analysis about birds, other wildlife and habitats, to advance the understanding of nature. We inform policies and evidence-based decisions that impact on the environment such that future generations can benefit from a healthy and wildlife-rich environment. The BTO does this by:

- Sustaining long-term extensive programmes and smaller scale intensive research to study the population trends, movements, breeding, survival, ecology and behaviour of wild birds;
- Encouraging, enthusing, training and supporting volunteers to take part in scientific studies;
- Bringing together professional scientists and volunteer birdwatchers in surveys of wildlife (particularly, but not exclusively, birds); and
- Analysing the data gathered through these studies, making information available to Government and other bodies, and publishing the results in the primary scientific literature and via the internet, the birdwatching and conservation press and the media more generally.

Strategic Report

The Strategic Report (Achievements and Performance, Plans for Future Periods) is presented earlier in this document.

Principal Risks and Uncertainties

The trustees consider that the principal risks and uncertainties which could affect BTO's ability to deliver its objectives in the short term are the Covid-19 pandemic (see below), public expenditure reductions leading to reduced contract, grant and partnership funding, and in the medium to long term, the final salary pension scheme deficit. These are able to be mitigated through the continued growth strategy.

Financial Review

Legacies featured strongly again this year, £856k being received, in spite of delays at the Probate Registry. Other fundraising was only marginally affected by the pandemic response, which is pleasing, although some of the effects may prove longer term. We remain confident that our improved ability to engage with supporters by means of the new database and web site will also be fruitful financially. Voluntary income formed 41% of total group income for the year, and we aim to raise this to over 50% in the longer term. Contract income was affected by our inability to put fieldworkers into the field in 2020, but most fieldwork related contracts were postponed rather than cancelled and have subsequently restarted, so we expect growth in 2021. The move to home working and cancellation of events led to cost savings greater than income losses, and the selective temporary furloughing of staff, and a full Christmas closure, enabled us to claim significant financial support from the Coronavirus Job Retention Scheme.

The principal sources of funds continued to be contract research, membership subscriptions, individual donations and legacies. A total of £4,544k was spent during the year on carrying out, supporting and communicating ornithological research. Overall, income reduced by 5% and expenditure reduced by 4%, giving a surplus, before investment gains, of £60k. The recovery of the stock market since March 2020 led to investment gains of £95k.

By contrast, investment gains in the final salary pension scheme were insufficient to compensate for lower discount rate assumptions and higher inflation expectations, so there was a further increase in the valuation of the pension liability. This means that we have the somewhat misleading negative balance sheet total again this year. Members are reminded that the actual liability of the BTO to the scheme is the schedule of deficit repair contributions agreed with the pension fund trustees to bring the scheme into balance by 2033, and this will be reviewed with the triennial actuarial valuation in 2021.

The Covid-19 pandemic

BTO survived the Covid-19 pandemic restrictions remarkably well in 2020/21, avoiding a damaging deficit, and beginning 2021/22 in a healthy state, with fieldwork re-starting and renewed momentum in engagement and fundraising.

The Board and its Finance and Risk Committee met remotely during the year, more often than pre-pandemic , and advantage was taken of the Corporate Insolvency and Governance Act 2020 to hold a virtual Annual General Meeting and to amend the Articles to permit remote meetings in the future.

The Board is conscious that working conditions have been challenging for staff in different ways this year, and that there has been no general pay increase for three years running. It remains fully committed however to supporting staff in whatever ways are possible within financial constraints.

Reserves

The Board has an unrestricted free reserves target range of 3 to 4 months' running costs. These reserves are held against any unexpected falls in income or other unforeseen circumstances. Unrestricted funds excluding tangible fixed assets and the defined benefit pension liability at 31 March 2021 totalled £1,068k (2020: £1,102k), equivalent to 2.6 months' running costs (2020: 2.8 months'). Reserves are planned to be within the target range by the end of financial year 2022/23.

Statement of Board Members' Responsibilities

The Board members are responsible, as Directors of the Company, for preparing the Annual Report (including the Strategic Report) and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Board members to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company and the group at the year end and of the incoming resources and application of resources, including the income and expenditure, of the charitable company and the group for the year.
In preparing these financial statements, Board members are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in SORP (FRS 102);
- make judgements and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charitable company and the group will continue in operation.

Board members are responsible for keeping adequate accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and the group and enable them to ensure that the financial statements comply with the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and the Charities Accounts (Scotland) Regulations 2006 (as amended). They are also responsible for safeguarding the assets of the charitable company and the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Board members are responsible for the maintenance and integrity of the corporate and financial information included on the Trust's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

In so far as Board members are aware:

- there is no relevant audit information of which the Trust's auditors are unaware; and
- Board members have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditors are aware of that information.

Auditors

A resolution to re-appoint Ensors Accountants LLP as auditors will be proposed at the Annual General Meeting under section 485 of the Companies Act 2006.

The Trustees' Report (incorporating the Strategic Report) was approved by the Board as Directors and Trustees and authorised for issue on 6 August 2021.

Prof J A Gill
Chairman

I Packer FCA
Honorary Treasurer

Opinion

We have audited the financial statements of The British Trust for Ornithology (the 'parent charitable company') and its subsidiaries (the 'group') for the year ended 31 March 2021 which comprise the Consolidated Statement of Financial Activities, the Charity Statement of Financial Activities, the Consolidated Group and Charity Balance Sheets, the Consolidated Statement of Cash Flows, and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice) including FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the group's and the parent charitable company's affairs as at 31 March 2021 and of the group's and the parent charitable company's incoming resources and application of resources, including its income and expenditure for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006, the Charities and Trustee Investment (Scotland) Act 2005 and regulations 6 and 8 of the Charities Accounts (Scotland) Regulations 2006 (as amended).

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We are independent of the group and parent charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the financial statements, we have concluded that the trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the group or parent charitable company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

Other information

The other information comprises the information included in the annual report other than the financial statements and our auditors' report thereon. The trustees are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact

We have nothing to report in this regard.

Opinion on other matter prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Strategic Report and the Board Report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the Strategic Report and the Board Report have been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception
In the light of our knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the Strategic Report and the Board Report.

We have nothing to report in respect of the following matters where the Companies Act 2006 and the Charities Accounts (Scotland) Regulations 2006 (as amended) require us to report to you if, in our opinion:

- adequate accounting records have not been kept by the parent charitable company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent charitable company's financial statements are not in agreement with the accounting records or returns; or
- certain disclosure of trustees' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

Responsibilities of Board Members
As explained more fully in the Statement of Board Members' Responsibilities set out on page 54 the trustees (who are also the directors of the British Trust for Ornithology for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the trustees are responsible for assessing the group's and parent charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the group or the parent charitable company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements
Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Our audit was designed, after obtaining sufficient and appropriate knowledge and understanding of the group and parent charitable company, its charitable nature, its income streams and the industry operated within. We undertook an assessment of the control environment the systems and procedures put in place by the senior management team, combined with our detailed audit testing and supportive analytical work, to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement due to fraud. Our work has included considering areas of higher risk of fraud, including transactions with related parties, revenue recognition and areas where there is a risk of management override of systems and controls.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of our report

This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and to the charitable company's trustees, as a body, in accordance with section 44(1) (c) of the Charities and Trustee Investment (Scotland) Act 2005 and regulation 10 of the Charities Accounts (Scotland) Regulations 2006 (as amended). Our audit work has been undertaken so that we might state to the charitable company's members and its trustees those matters we are required to state to them in an auditors' report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charitable company, the charitable company's members as a body and its trustees as a body, for our audit work, for this report, or for the opinions we have formed.

9 August 2021

Helen Rumsey, Senior Statutory Auditor
For and on behalf of
Ensors Accountants LLP
Cardinal House
46 St Nicholas Street
Ipswich IP1 1TT

The British Trust for Ornithology
Consolidated Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2021

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2021 £'000	Total 2020 £'000
Income and endowments from:					
Donations and legacies	3	2,224	315	**2,539**	**2,701**
Charitable activities	3	2,483	3	**2,486**	**2,634**
Other trading activities	3	956	-	**956**	**1170**
Investments	3	3	-	**3**	**6**
Coronavirus Job Retention Scheme grants		203	-	**203**	**3**
Total income and endowments		**5,869**	**318**	**6,187**	**6,514**
Expenditure on:					
Raising funds	4	1,441	22	**1,463**	**1,489**
Charitable activities	4	4,284	260	**4,544**	**4,785**
Other – Amounts recognised as expenditure on defined benefit pension scheme	22	120	-	**120**	**90**
Total expenditure	7	**5,845**	**282**	**6,127**	**6,364**
Net income/(expenditure) before net gain/(loss) on investments		**24**	**36**	**60**	**150**
Net gain/(loss) on investments	10	95	-	**95**	**(22)**
Net income/ (expenditure)	20	**119**	**36**	**155**	**128**
Transfers between funds	17,18	(144)	144	**-**	-
Other recognised gains/(losses):					
Actuarial (loss) on defined benefit pension scheme	22	(519)	-	**(519)**	**(643)**
Net movement in funds		**(544)**	**180**	**(364)**	**(515)**
Reconciliation of funds					
Total funds brought forward		(1,284)	914	**(370)**	**145**
Total funds carried forward	17,18	**(1,828)**	**1,094**	**(734)**	**(370)**

The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages 63 to 82 form part of these financial statements.

The British Trust for Ornithology
Charity Statement of Financial Activities (Including Income and Expenditure Account)
for the Year Ended 31 March 2021

	Note	Unrestricted Funds £'000	Restricted Funds £'000	Total 2021 £'000	Total 2020 £'000
Income and endowments from:					
Donations and legacies	3	2,451	315	**2,766**	**2,977**
Charitable activities	3	2,483	3	**2,486**	**2,634**
Other trading activities	3	447	-	**447**	**531**
Investments	3	3	-	**3**	**6**
Coronavirus Job Retention Scheme grants		203		**203**	**3**
Total income and endowments		**5,587**	**318**	**5,905**	**6,151**
Expenditure on:					
Raising funds	4	1,159	22	**1,181**	**1,126**
Charitable activities	4	4,284	260	**4,544**	**4,785**
Other – Amounts recognised as expenditure on defined benefit pension scheme	22	120	-	**120**	**90**
Total expenditure		**5,563**	**282**	**5,845**	**6,001**
Net income/(expenditure) before net gain/(loss) on investments		**24**	**36**	**60**	**150**
Net gain/(loss) on investments	10	95	-	**95**	**(22)**
Net income/ (expenditure)	20	**119**	**36**	**155**	**128**
Transfers between funds	17,18	(144)	144	**-**	-
Other recognised gains/(losses):					
Actuarial (loss) on defined benefit pension scheme	22	(519)	-	**(519)**	**(643)**
Net movement in funds		**(544)**	**180**	**(364)**	**(515)**
Reconciliation of funds					
Total funds brought forward		(1,284)	914	**(370)**	**145**
Total funds carried forward	17,18	**(1,828)**	**1,094**	**(734)**	**(370)**

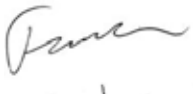
The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

The notes on pages 63 to 82 form part of these financial statements.

The British Trust for Ornithology
Consolidated Group and Charity Balance Sheets
as at 31 March 2021

	Note	Group 2021 £'000	Group 2020 £'000	Charity 2021 £'000	Charity 2020 £'000
Fixed assets					
Tangible assets	9	1,898	1,901	1,898	1,900
Investments	10	445	350	445	350
		2,343	2,251	2,343	2,250
Current assets					
Stocks	11	279	333	-	-
Debtors	12	1,558	1,283	1,774	1,430
Cash at bank and in hand		2,318	1,949	2,190	1,843
		4,155	3,565	3,964	3,273
Creditors:					
Amounts falling due within one year	13	(2,355)	(1,824)	(2,164)	(1,531)
Net current assets		1,800	1,741	1,800	1,742
Total assets less current liabilities		4,143	3,992	4,143	3,992
Creditors:					
Amounts falling due after one year	14	(83)	(75)	(83)	(75)
Net assets excluding defined benefit pension liability		4,060	3,917	4,060	3,917
Defined benefit pension liability	22	(4,794)	(4,287)	(4,794)	(4,287)
Net assets including defined benefit pension liability	19	(734)	(370)	(734)	(370)
Represented by:					
Restricted funds	17	1,094	914	1,094	914
Unrestricted funds	18	2,966	3,003	2,966	3,003
Pension reserve	18	(4,794)	(4,287)	(4,794)	(4,287)
Total funds	19	(734)	(370)	(734)	(370)

Approved by the Board and authorised for issue on 6 August 2021 and signed on its behalf by:

Chair  Prof J A Gill

Honorary Treasurer I Packer FCA

Company registration number 00357284

The notes on pages 63 to 82 form part of these financial statements.

The British Trust for Ornithology
Consolidated Statement of Cash Flows
For the Year Ended 31 March 2021

	Note	Group 2021 £'000	Group 2020 £'000	Charity 2021 £'000	Charity 2020 £'000
Net cash inflow / (outflow) from operating activities	20	391	550	369	520
Cash flow from investing activities					
Payments to acquire tangible fixed assets	9	(25)	(9)	(25)	(9)
Investment income received		3	6	3	6
Net cash flow from investing activities		(22)	(3)	(22)	(3)
Net increase in cash for the year		369	547	347	517
Cash at bank and in hand at 1 April		1,949	1,402	1,843	1,326
Cash at bank and in hand at 31 March		2,318	1,949	2,190	1,843

Analysis of Cash at Bank and in Hand This comprises:	**2021** £'000	**2020** £'000	**2021** £'000	**2020** £'000
Bank current accounts and cash in hand	370	288	242	182
Bank demand deposits	1,948	1,661	1,948	1,661
Cash at bank and in hand at 31 March	2,318	1,949	2,190	1,843

Bank demand deposits carry variable rates of interest.

The notes on pages 63 to 82 form part of these financial statements.

The British Trust for Ornithology
Notes to the Consolidated Accounts
For the Year Ended 31 March 2021

1. ACCOUNTING POLICIES

a) Accounting Convention

The charity constitutes a public benefit entity as defined by FRS 102. The financial statements have been prepared in accordance with *Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102)* (SORP (FRS102)) effective 1 January 2019, the Charities Act 2011, the Companies Act 2006 and UK Generally Accepted Practice as it applies from 1 January 2015.

The financial statements are prepared in pounds sterling (rounded to the nearest thousand) which is the functional currency of the charitable company and the group.

b) Going Concern

The trustees have prepared the financial statements on a going concern basis under the historical cost convention, modified to include certain items at fair value. In their opinion neither the pension scheme deficit nor the Covid-19 pandemic gives rise to material uncertainties that cast doubt upon the appropriateness of this policy.

c) Group Financial Statements

These financial statements consolidate the results of the charity and its wholly owned trading subsidiary BTO Services Limited on a line by line basis.

d) Income

Income from donations, gifts and legacies is recognised immediately when received in cash and as receivable where there is entitlement, the amount can be measured reliably, and it is probable that the income will be received.

Income from charitable activities includes income receivable under contracts which is recognised as earned as the related work is performed. Income from grant funding supporting charitable activities is recognised where there is entitlement, certainty of receipt, and the amount can be measured with sufficient reliability.

Income is deferred when it is received in advance of the services it relates to. Life membership income is released to the Statement of Financial Activities in equal instalments over ten years.

Income from commercial activities of the trading subsidiary is recognised as earned as the related goods and services are provided.

Investment income, sponsorship and royalty income and membership subscription income are recognised on a receivable basis.

Income from the Coronavirus Job Retention Scheme is recognised on a receivable basis.

e) Expenditure

Expenditure is recognised when a liability is incurred. Costs are allocated directly to activity cost categories. The cost of holiday pay not taken at the year end is accrued.

Costs of raising funds are those incurred in attracting voluntary income, including membership subscriptions, in carrying out trading activities, and in receiving royalties and sponsorship income.

Costs of charitable activities include those incurred on scientific research contracts, and on allocated and restricted fund research work. They also include volunteer surveyor support and science communication costs.

Governance costs include those incurred in the governance of the charity and the safeguarding of its assets, and are primarily associated with constitutional and statutory requirements.

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

Support costs include central functions and have been allocated to activity cost categories on a staff cost basis.

f) Expenditure (continued)

VAT is reclaimed on allowable expenses under the Business/Non-Business and the partial exemption rules. Where not reclaimable it is included within expenses.

g) Tangible Fixed Assets

Individual assets costing £1k or more are initially capitalised at cost. Tangible fixed assets (except freehold property and land) are depreciated on a straight line basis over their estimated useful lives as follows:

Asset Category	Annual Rate
Furniture and Equipment	25%
Computer Equipment	25%
Motor Vehicles	25%

The freehold property and land are stated at fair value under the revaluation model using sufficiently regular revaluations to ensure that the carrying amount does not differ materially from the fair value at the reporting date. Revaluations are performed every five years, or as the trustees consider necessary, by qualified external valuers. The increase or decrease on revaluation is credited or charged to the fund holding the asset.

At each reporting end date, the trustees review the carrying amounts of the tangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any).

h) Investments

Investments are recognised initially at fair value which is normally the transaction price excluding transaction costs. Subsequently, they are measured at fair value with changes recognised in 'Net gain/(loss) on investments' in the Statement of Financial Activities if the shares are publicly traded or their fair value can otherwise be measured reliably. Other investments are measured at cost less impairment.

i) Stock

Stock is valued at the lower of cost and net realisable value. Net realisable value is based on estimated selling price less further costs to completion and sale. Cost is calculated on a first in first out basis.

j) Debtors and creditors falling due within one year

Debtors and creditors with no stated interest rate and falling due within one year are recorded at transaction price. Any losses arising from impairment are recognised in expenditure.

k) Financial instruments

The group only has financial assets and liabilities that qualify as basic financial instruments, such as debtors and creditors with no stated interest rate and payable within one year, which are recorded at transaction price. Any losses arising from impairment are recognised as other operating expenditure in the Statement of Financial Activities.

l) Foreign Currency Translation

Monetary assets and liabilities denominated in foreign currencies are translated into pounds sterling at the rates of exchange ruling at the balance sheet dates. Transactions in foreign currencies are recorded at the rate ruling at the transaction date. All exchange differences are taken to the Statement of Financial Activities.

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

m) Funds Structure

The Trust has a number of restricted funds to account for situations where funds have been raised for a specific purpose. All other funds are unrestricted funds. Where the trustees intend to use part of the unrestricted funds to provide longer-term funding for BTO projects and core activities, designated funds are set up to reflect this. A Pension reserve fund has been created so that movements and balances relating to the defined benefit pension scheme valuations can be separately identified. The funds in each of these categories are disclosed in Notes 17 and 18.

n) Retirement Benefits

The defined benefit pension scheme provides benefits for staff based on final pensionable salary. The scheme was closed to future accrual with effect from 1 April 2013. The assets of the scheme are held separately from those of the Trust, being invested with independent fund managers and are measured at fair value with changes recognised in the Statement of Financial Activities as set out in Note 22. Defined benefit pension liabilities are measured using the projected unit cost method and discounted at the current rate of return on a high quality corporate bond of equivalent term and currency to the liability. Under FRS 102, any net liability arising based on these valuations is the best estimate of the present value of the actual amounts to be paid out of the scheme, less the fair value of the scheme assets. The net of the interests on the scheme assets and liabilities is charged to the Statement of Financial Activities. Past service costs are recognised as expenditure when a liability is incurred and are charged to the Statement of Financial Activities. Actuarial gains and losses are recognised in the Statement of Financial Activities.

The Trust as employer also makes payments in respect of employees' own defined contribution schemes, through a group self-invested personal pension arrangement. For these schemes, the amount charged to the Statement of Financial Activities in respect of pension costs is the contributions payable in the year. Differences between contributions payable in the year and contributions actually paid are included as either accruals or prepayments in the balance sheet.

o) Judgements and key sources of estimation uncertainty

In the application of the group and parent charitable company's accounting policies, the trustees are required to make judgements, estimates and assumptions about the carrying amount of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the year in which the estimate is revised where the revision affects only that year, or in the year of the revision and future years where the revision affects both the current and future years.

Key sources of estimation uncertainty
The estimates and assumptions which have a significant risk of causing a material adjustment to the carrying amount of assets and liabilities are as follows:

Percentage completion on contracts
The degree of completion on the contracts is an estimate by the relevant project manager. This estimate relies on their professional opinion on the level of work completed in the whole contract, which impacts the level of income recognised, accrued and deferred. These estimates are reviewed by the Senior Leadership Team on a regular basis.

Defined benefit pension scheme
The group has a defined benefit pension which is closed to future accrual. The valuation of the defined benefit pension obligation necessarily involves a calculation which depends on the expected future outflow of economic benefits that the group expects to make to satisfy this obligation. The calculation depends on a number of factors such as the methodology, discount rate and mortality assumptions used. The group use a qualified actuary to assist in preparing the necessary calculation in accordance with the requirements of FRS102.

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

Property valuation
The Nunnery is valued at open market value by the directors with reference to recent property transactions and their knowledge of the site. The directors obtain third party valuations of property at regular intervals to ensure that the fair value of these properties is kept up to date.

p) Leases
Rentals payable under operating leases, including any lease incentives received, are charged to profit or loss on a straight line basis over the term of the relevant lease except where another more systematic basis is more representative of the time pattern in which economic benefits from the leases asset are consumed.

q) Employee benefits
The costs of short-term employee benefits are recognised as a liability and an expense unless those costs are required to be recognised as part of the cost of stock or fixed assets. The cost of any unused holiday entitlement is recognised in the period in which the employee's services are received. Termination benefits are recognised immediately as an expense when the charity is demonstrably committed to terminate the employment of an employee or to provide termination benefits.

2. MEMBERS' LIABILITY

Under the Memorandum of Association of the Trust, members are required to undertake to contribute to the assets of the Trust in the event of its being wound up while they are members, and within one year after they cease to be members, for payment of the debts and liabilities of the Trust contracted whilst they were still members, and of the costs, charges and expenses of winding up, such amount as may be required but not exceeding £1 each. This represents the limit of their guarantee to the company.

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

3. ANALYSIS OF INCOME

	Group 2021 £'000	Group 2020 £'000	Charity 2021 £'000	Charity 2020 £'000
Donations and legacies				
Membership subscriptions & donations	960	959	960	959
Individual donations	438	445	438	445
Corporate & trust donations & grants	285	326	512	602
Legacies	856	971	856	971
	2,539	2,701	2,766	2,977
Charitable activities				
Core surveys - JNCC Partnership	804	748	804	748
Core surveys - Other	45	35	45	35
Other surveys & research - Voluntary funded	9	-	9	-
Other surveys & research - Contract funded	1,487	1,685	1,487	1,685
Research communication	76	65	76	65
General volunteer survey support	38	75	38	75
Nunnery Lakes Reserve	27	26	27	26
	2,486	2,634	2,486	2,634
Other trading activities				
Ringing & tagging sales	436	642	-	-
Publications & general sales	85	72	-	-
Corporate sponsorship & royalties	53	61	-	-
Consultancy	254	291	-	-
Data-related sales	121	98	-	-
Other	7	6	6	5
Income from charges to subsidiary	-	-	441	526
	956	1,170	447	531
Investment income				
Bank interest receivable	3	6	3	6

Analysis by fund type	Group 2021 £'000	Group 2020 £'000	Charity 2021 £'000	Charity 2020 £'000
Donations and legacies				
Unrestricted	2,224	2,214	2,451	2,490
Restricted	315	487	315	487
	2,539	2,701	2,766	2,977
Charitable activities				
Unrestricted	2,483	2,634	2,483	2,634
Restricted	3	-	3	-
	2,486	2,634	2,486	2,634
Other trading activities				
Unrestricted	1,159	1,173	650	534
Restricted	-	-	-	-
	1,159	1,173	650	534

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

4. ANALYSIS OF EXPENDITURE

	Group 2021 £'000	Group 2020 £'000	Charity 2021 £'000	Charity 2020 £'000
Raising funds				
Donations and legacies				
Membership subscriptions & donations	320	271	320	271
Individual donations	282	265	282	265
Corporate & trust donations & grants	53	59	53	59
Legacies	84	28	84	28
	739	623	739	623
Other trading activities				
Ringing & tagging costs	389	482	-	-
Publications & general costs	66	58	-	-
Corporate sponsorship & royalties	17	18	-	-
Consultancy	197	270	-	-
Data-related costs	55	35	-	-
Other	-	3	-	3
Costs recharged to subsidiary	-	-	442	500
	724	866	442	503
	1,463	1,489	1,181	1,126
Charitable activities				
Core surveys - JNCC Partnership	1,378	1,284	1,378	1,284
Core surveys - Other	394	381	394	381
Other surveys & research - Voluntary funded	479	476	479	476
Other surveys & research - Contract funded	1,594	1,898	1,594	1,898
Research communication	589	556	589	556
General volunteer survey support	72	159	72	159
Nunnery Lakes Reserve	38	31	38	31
	4,544	4,785	4,544	4,785

Analysis by fund type	Group 2021 £'000	Group 2020 £'000	Charity 2021 £'000	Charity 2020 £'000
Raising funds				
Unrestricted	1,441	1,461	1,159	1,098
Restricted	22	28	22	28
	1,463	1,489	1,181	1,126
Charitable activities				
Unrestricted	4,284	4,527	4,284	4,527
Restricted	260	258	260	258
	4,544	4,785	4,544	4,785

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

5. NET INCOME / (EXPENDITURE)

	2021	2020
	£'000	£'000
Net income for the year is stated after (crediting)/charging:		
Auditors' remuneration:		
Audit of the charity's annual accounts	15	14
Audit of the trading subsidiary's annual accounts	6	5
Audit of the charity's final salary pension scheme	3	2
Depreciation (Note 9)	28	31

6. STAFF COSTS

	2021	2020
	£'000	£'000
Wages and salaries	3,655	3,449
Social security costs	318	299
Defined contribution pension plan costs (Note 22)	387	371
Expenditure recognised on defined benefit pension scheme (Note 22)	120	90
	4,480	4,209

The number of employees whose emoluments exceeded £60,000 fell within the following bands:	2021	2020
£70,001 - £80,000	-	1
£60,001 - £70,000	1	1

There being a change of CEO (with an overlap) during the year, neither person's emoluments fell within the above bands. The combined emoluments of the overlapping CEOs for the year were £84k (2020 £78k), with the same pension and other benefits as were applicable to all other staff. The total remuneration including social security costs and pension contributions of the Senior Leadership Team was £318k (2020: £312k). Trustees receive no remuneration, and there were no related party transactions requiring disclosure. Since they met remotely throughout the year, expenses were reimbursed to 0 (2020: 14) trustees as follows:

	2021	2020
	£'000	£'000
Travel & subsistence	-	5

Average numbers of staff and full time equivalents (FTE)

	2021		2020	
	No	FTE	No	FTE
Permanent posts	130	117.7	120	110.2
Seasonal fieldworkers	3	1.6	3	1.6
	133	119.3	123	111.8

7. TOTAL EXPENDITURE

	Direct costs	Support costs	2021 Total	2020 Total
	£'000	£'000	£'000	£'000
Raising funds	1,299	164	1,463	1,489
Charitable activities	4,034	510	4,544	4,785
Other – Amounts recognised as expenditure on defined benefit pension scheme	120	-	120	90
	5,453	674	6,127	6,364

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

8. SUPPORT COSTS

	Premises	IT & Office Services	People & OD	Manage-ment & Finance	Govern-ance	2021 Total	2020 Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Raising funds	2	8	63	77	14	164	153
Charitable activities	8	23	196	240	43	510	494
	10	31	259	317	57	674	647

All support costs are apportioned on a staff cost basis.
Governance costs include auditors' remuneration, the meeting expenses of the Board and its committees, and the staff cost of servicing those meetings.

9. TANGIBLE FIXED ASSETS - GROUP

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2020	1,850	204	390	106	2,550
Additions	-	-	15	10	25
Disposals	-	-	-	(11)	(11)
At 31 March 2021	1,850	204	405	105	2,564
Depreciation at 1 April 2020	-	197	356	96	649
Depreciation charge	-	4	18	6	28
Disposals	-	-	-	(11)	(11)
At 31 March 2021	-	201	374	91	666
Net book value at 31 March 2021	1,850	3	31	14	1,898
Net book value at 1 April 2020	1,850	7	34	10	1,901

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

9. TANGIBLE FIXED ASSETS - CHARITY

	Freehold Property and Land	Furniture and Equipment	Computer Equipment	Motor Vehicles	Total
	£'000	£'000	£'000	£'000	£'000
Cost or valuation at 1 April 2020	1,850	200	390	106	2,546
Additions	-	-	15	10	25
Disposals	-	-	-	(11)	(11)
At 31 March 2021	1,850	200	405	105	2,560
Depreciation at 1 April 2020	-	193	356	97	646
Depreciation charge	-	5	17	5	27
Disposals	-	-	-	(11)	(11)
At 31 March 2021	-	198	373	91	662
Net book value at 31 March 2021	1,850	2	32	14	1,898
Net book value at 1 April 2020	1,850	7	34	9	1,900

The Nunnery and Nunnery Lakes Reserve, the freehold property and land owned and occupied by The British Trust for Ornithology, were valued by qualified external valuers, Fenn Wright Chartered Surveyors, on 31 March 2018 on the basis of existing use value, at £1,850k.

The trustees considered the condition and value of the freehold property at their meeting on 13 July 2021 and agreed that there had been no material change in either since the last external valuation in March 2018.

On an historical cost basis, the freehold property and land would have been included at a cost and net book value of £2,284k (2020: £2,284k).

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

10. INVESTMENTS

The Group

Listed Investment Funds

	Cost 28 August 2014 £'000	Market Value 1 April 2020 £'000	Disposals proceeds £'000	Additions at cost £'000	Gains /(losses) £'000	Market value 31 March 2021 £'000
Birds in Trust Fund						
Dimensional Global Short Dated Bond	61	61	-	1	12	74
Dimensional Global Sustainability Core Equity	64	92	(1)	-	30	121
Wrap Cash	5	3	-	-	1	4
	130	156	(1)	1	43	199
General Funds						
Dimensional Global Short Dated Bond	74	75	-	1	14	90
Dimensional Global Sustainability Core Equity	79	115	(1)	-	37	151
Wrap Cash	6	4	-	-	1	5
	159	194	(1)	1	52	246
	289	350	(2)	2	95	445

The Charity

	2021 £'000	2020 £'000
Listed Investment Funds as above	445	350
Fixed asset unlisted investments - BTO Services Ltd	-	-
	445	350

The Trust wholly owns its subsidiary undertaking, BTO Services Ltd, which is incorporated in England & Wales, company registration number 02907282. This company operates to promote the work of The British Trust for Ornithology by undertaking commercial activities to support such work. The aggregate value of the share capital and reserves at 31 March 2021 was £100 (2020: £100) and the company reported a £nil result after Gift Aid for the year (2020: £nil). £228k (2020: £276k) was paid to the Charity under Gift Aid. The value of the investment in the subsidiary undertaking is £100 (2020: £100) under the equity method of valuation.

The following is a summarised statement of income for the subsidiary for the financial year:

	2021 £'000	2020 £'000
Turnover	951	1,165
Cost of sales	(643)	(825)
Gross profit	308	340
Net administrative expenses	(80)	(64)
Net profit before payment under Gift Aid	228	276

Turnover of the subsidiary includes sales to overseas markets of £182k (2020: £246k).

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

11. STOCKS	2021	2020
	£'000	£'000
The Group		
Finished goods, goods for resale and materials	279	333

The Charity

The charity holds no trading stock.

12. DEBTORS	2021	2020
	£'000	£'000
The Group		
Trade and contract debtors	1,006	793
Taxes recoverable	21	196
Prepayments	90	65
Accrued income	441	229
	1,558	1,283

	2021	2020
	£'000	£'000
The Charity		
Trade and contract debtors	814	467
Amounts due from Group undertakings	488	532
Taxes recoverable	21	196
Prepayments	64	51
Accrued income	387	184
	1,774	1,430

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

13. CREDITORS – AMOUNTS FALLING DUE WITHIN ONE YEAR

	2021	2020
	£'000	£'000
The Group		
Trade creditors	249	280
Taxes and Social security costs	339	266
Other creditors	65	59
Accruals	161	98
Deferred income	1,541	1,121
	2,355	1,824

	2021	2020
	£'000	£'000
The Charity		
Trade creditors	201	208
Taxes and Social security costs	320	223
Other creditors	56	55
Accruals	150	94
Deferred income	1,437	951
	2,164	1,531

14. CREDITORS – AMOUNTS FALLING DUE AFTER ONE YEAR

	2021	2020
	£'000	£'000
The Group		
Deferred income	83	75

	2021	2020
	£'000	£'000
The Charity		
Deferred income	83	75

15. DEFERRED INCOME RECONCILIATION

	2021	2020
	£'000	£'000
The Group		
Opening balance at 1 April	1,196	1,137
Amount released to income	(1,012)	(1,342)
Amount deferred in year	1,440	1,401
Closing balance at 31 March	1,624	1,196

	2021	2020
	£'000	£'000
The Charity		
Opening balance at 1 April	1,026	1,061
Amount released to income	(907)	(1,280)
Amount deferred in year	1,401	1,245
Closing balance at 31 March	1,520	1,026

16. OPERATING LEASE COMMITMENTS

	2021	2020
	£'000	£'000
At the year end the group had outstanding lease commitments for future minimum lease payments under non-cancellable leases, as follows :	71	7

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

17. RESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include restricted funds comprising the following balances of donations and appeal monies given for specific purposes. The opening and closing fund balances for the group and the charity are identical.

As at 31 March 2021

	Balance at 1 Apr 2020	Income	Expenditure	Transfers	Balance at 31 Mar 2021
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond the Maps Appeal	6	2	-	-	8
Northern Ireland Fund	1	-	-	-	1
Dilys Breese Fund	66	-	(15)	-	51
Boddy & Sparrow Fund	2	-	-	-	2
Migration Fund	15	36	(17)	-	34
Nightingale Appeal	30	1	(1)	-	30
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	19	19	(12)	-	26
Garden Research Fund	77	8	(1)	-	84
Out of Africa Fund	35	36	(13)	-	58
Thrush Fund	1	-	-	-	1
Farmland Birds Appeal	19	-	(19)	-	-
Curlew Appeal	25	3	(28)	-	-
Arctic Skua Fund	61	7	(12)	-	56
BTO Wales Fund	29	1	(4)	-	26
Sound Approach Fund	88	-	(6)	(10)	72
Tasso Leventis Fund	46	37	(1)	-	82
Spotted Flycatcher Appeal	37	3	(2)	11	49
Chaffinch	19	54	(14)	5	64
Seabird Appeal	-	42	(20)	1	23
Rhodes Training Fund	33	-	-	-	33
Migrant Swallows & Insect Feeding Paper	5	-	(2)	-	3
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales Appeal	21	1	-	-	22
EDF What's Under Your Feet Fund	17	-	-	-	17
Bats Fund	11	8	-	2	21
Short Eared Owl Fund	34	16	(7)	5	48
Wader Project Officer Fund	105	6	(21)	10	100
Dulverton Trust Fund	17	25	(24)	-	18
Insect Decline Fund	29	10	(19)	-	20
Ringers' Bursary Fund	1	-	(1)	-	-
Thorne Ringing Fund	1	-	-	-	1
Youth Engagement Fund	-		(14)	94	80
Small Specific Donations	53	3	(29)	26	53
	914	318	(282)	144	1,094

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

17. RESTRICTED FUNDS (Continued)

The purposes of the funds are as follows:
The Atlas Beyond the Maps Appeal continues to support research into Atlas data.
The Northern Ireland Fund has been set up to support the BTO in Northern Ireland.
The Dilys Breese Fund is for projects relating to nesting birds.
The Boddy & Sparrow Fund is for awards to the best amateur contribution(s) to either or both of the *Bird Study* and *Ringing & Migration* publications.
The Migration Fund is for research into migrating birds.
The Nightingale Appeal is to fund work on Nightingales and woodland birds.
The Swallow Appeal is to fund work on Swallows and migration.
The Young Scientists' Fund is to support the career development of young scientists.
The Garden Research Fund is to support young scientists work on garden birds.
The Out of Africa Fund is to fund work on African migrants.
The Thrush Fund is to fund work on Thrushes.
The Farmland Birds Appeal is to support work on farmland ecology.
The Curlew Appeal is to fund projects on Curlews.
The Arctic Skua Fund is to support Arctic Skua work.
The BTO Wales Fund is to support the BTO in Wales.
The Sound Approach Fund is to support a number of specific projects. A transfer of £10k was made to the Spotted Flycatcher Appeal to continue to support a Spotted Flycatchers project.
The Tasso Leventis Fund is to support a number of specific projects.
The Spotted Flycatcher Appeal is to support work on Spotted Flycatcher. A transfer of £10k was made from the Sound Approach Fund and £1k from General funds to continue to support a Spotted Flycatchers project.
The Chaffinch Appeal is to fund work on Chaffinches. £5k of raffle proceeds was received from General funds to support this work.
The Seabird Appeal has been raising funds for work on seabirds. £1k was transferred from the small donations fund at the request of the funder.
The Rhodes Training Fund is to support survey training courses. This important work was suspended due to Covid-19.
The Migrant Swallows & Insect Feeding Paper donation is to fund a paper on Swallows.
The Postcode Lottery Grant is for the Nunnery Lakes Reserve.
The Cuckoos & Nightingales Fund is for research on Cuckoos and Nightingales.
The EDF What's Under Your Feet Fund is to support the What's Under Your Feet survey.
The Bats Fund was set up from specific donations to support work on Bats. A £2K donation was transferred from General funds at the request of the donor.
The Short Eared Owl Fund is for work on Short Eared Owls in Scotland. A transfer of £5k was made from General funds from the proceeds of the summer raffle to support this work.
The Wader Project Officer Appeal Fund is for work on waders and £10k was transferred from Birds in Trust funds.
The Dulverton Trust Fund is to support a number of specific projects.
The Insect Decline Fund is to support work on the decline in insects.
The Ringers' Bursary Fund is to support ringing.
The Thorne Ringing Fund is to support ringing.
The Youth Engagement Fund has been set up to support our work with young people. £85k from Birds in Trust funds and £9k from small donations fund has been transferred to support this work.
Small Specific Donations are small individual donations for specific purposes. Allocations and transfers totalling £10k have been made throughout the year to support projects for specific purposes. An allocation of £36k from Birds in Trust has been made to support work on Swifts as requested by the donor.

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

17. RESTRICTED FUNDS (Continued)

As at 31 March 2020

	Balance at 1 Apr 2019	Income	Expenditure	Transfers	Balance at 31 Mar 2020
	£'000	£'000	£'000	£'000	£'000
Atlas Beyond the Maps Appeal	4	2	-	-	6
Northern Ireland Fund	1	-	-	-	1
Dilys Breese Fund	75	-	(9)	-	66
Boddy & Sparrow Fund	2	-	-	-	2
Migration Fund	-	18	(3)	-	15
Nightingale Appeal	11	11	(6)	14	30
Owl Fund	-	1	(1)	-	-
Swallow Appeal	8	-	-	-	8
Young Scientists' Fund	24	15	(20)	-	19
Garden Research Fund	72	9	(4)	-	77
Out of Africa Fund	10	57	-46	14	35
Thrush Fund	1	-	-	-	1
Farmland Birds Appeal	31	-	-12	-	19
Curlew Appeal	54	11	-34	-6	25
Arctic Skua Fund	38	36	-13	-	61
BTO Wales Fund	37	1	-9	-	29
Sound Approach Fund	93	-	-16	11	88
Tasso Leventis Fund	59	-	-13	-	46
Spotted Flycatcher Appeal	23	39	(14)	(11)	37
Chaffinch	-	31	(12)	-	19
Rhodes Training Fund	35	-	(2)	-	33
Migrant Swallows & Insect Feeding Paper	13	-	(8)	-	5
Postcode Lottery Grant	3	-	-	-	3
Cuckoos & Nightingales Appeal	49	-	-	(28)	21
EDF What's Under Your Feet Fund	18	9	(10)	-	17
Bats Fund	-	-	-	11	11
Short Eared Owl Fund	-	31	(19)	22	34
Wader Project Officer Fund	-	116	(17)	6	105
Dulverton Trust Fund	-	30	(13)	-	17
Insect Decline Fund	-	30	(1)	-	29
Ringers' Bursary Fund	2	-	(1)	-	1
Thorne Ringing Fund	1	-	-	-	1
Small Specific Donations	34	40	(3)	(18)	53
	698	487	(286)	15	914

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

18. UNRESTRICTED FUNDS

The Group and the Charity

The funds of the group and the charity include unrestricted funds comprising the following balances. The opening and closing fund balances for the group and the charity are identical.

As at 31 March 2021

	Balance at 1 Apr 2020	Income	Expenditure	Other Gains/ (Losses)	Fund transfers	Pension reserve transfer	Balance at 31 Mar 2021
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Birds in Trust fund	2,632	859	(352)	43	(586)	-	2,596
General funds	371	5,010	(5,373)	52	442	(132)	370
	3,003	5,869	(5,725)	95	(144)	(132)	2,966
Pension reserve	(4,287)	-	(120)	(519)	-	132	(4,794)
	(1,284)	5,869	(5,845)	(424)	(144)	-	(1,828)

The Birds in Trust fund is to provide long-term funding for BTO projects. Income from legacies is credited to this fund unless the wills provide otherwise. £540k was transferred to General funds in respect of the JNCC Partnership. £10k and £36k were transferred from Birds in Trust funds to restricted funds in respect of the Wader Project Officer Fund and Small Specific Donations. £85k and a total of £13k were transferred to restricted funds in respect of the Youth Engagement Fund and various other funds. £132k was transferred from General funds to the Pension reserve in respect of the pension deficit repair payment. Other pension reserve movements are disclosed in Note 22.

As at 31 March 2020

	Balance at 1 Apr 2019	Income	Expenditure	Other Gains/ (Losses)	Fund transfers	Pension reserve transfer	Balance at 31 Mar 2020
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Birds in Trust fund	2,592	976	(366)	(10)	(560)	-	2,632
General funds	537	5,051	(5,622)	(12)	545	(128)	371
	3,129	6,027	(5,988)	(22)	(15)	(128)	3,003
Pension reserve	(3,682)	-	(90)	(643)	-	128	(4,287)
	(553)	6,027	(6,078)	(665)	(15)	-	(1,284)

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

19. ANALYSIS OF GROUP FUNDS ACROSS NET ASSETS

As at 31 March 2021

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
Birds in Trust fund	-	199	2,397	-	2,596
General funds	1,898	246	3,020	(4,794)	370
	1,898	445	5,417	(4,794)	2,966
Pension reserve	-	-	(4,794)	-	(4,794)
	1,898	445	623	(4,794)	(1,828)
Restricted Funds	-	-	1,094	-	1,094
Total	1,898	445	1,717	(4,794)	(734)

As at 31 March 2020

	Fixed Assets	Investments	Current Assets less Total Liabilities	Defined Benefit Pension Liability	Total Net Assets
	£'000	£'000	£'000	£'000	£'000
Unrestricted Funds					
Birds in Trust fund	-	156	2,476	-	2,632
General funds	1,901	194	2,563	(4,287)	371
	1,901	350	5,039	(4,287)	3,003
Pension reserve	-	-	(4,287)	-	(4,287)
	1,901	350	752	(4,287)	(1,284)
Restricted Funds	-	-	914	-	914
Total Funds	1,901	350	1,666	(4,287)	(370)

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

20. RECONCILIATION OF NET INCOME/(EXPENDITURE) TO NET CASHFLOW FROM OPERATING ACTIVITIES

	Group 2021 £'000	Group 2020 £'000	Charity 2021 £'000	Charity 2020 £'000
Net income per Statement of Financial Activities	155	128	155	128
Adjustments for:				
Items representing cash movements				
(Increase)/decrease in stocks	54	(32)	-	-
(Increase)/decrease in debtors	(275)	332	(344)	490
Increase/(decrease) in creditors	539	113	641	(106)
Investment income	(3)	(6)	(3)	(6)
Items not representing cash movements				
Depreciation	28	31	27	30
(Gains)/losses on investments	(95)	22	(95)	22
Expenditure on defined benefit pension plan liability	120	90	120	90
	523	678	501	648
Cash movements not appearing in the Statement of Financial Activities				
Pension deficit repair contribution	(132)	(128)	(132)	(128)
Net cash inflow/(outflow) from operating activities	391	550	369	520

21. FINANCIAL INSTRUMENTS

The carrying amounts of the group's and the charity's financial instruments are as follows:

	Group 2021 £'000	Group 2020 £'000	Charity 2021 £'000	Charity 2020 £'000
Financial assets				
Measured at fair value through net income/expenditure:				
Fixed asset listed investments (Note 10)	445	350	445	350
Equity instruments measured at cost less impairments:				
Fixed asset unlisted investments (Note 10)			-	-
Debt investments measured at amortised cost:				
Trade and contract debtors (Note 12)	1,006	793	814	467
Amounts due from Group undertakings (Note 12)	-	-	488	532
Accrued income (Note 12)	441	229	387	184
	1,447	1,022	1,689	1,183
Financial liabilities				
Measured at amortised cost:				
Trade creditors (Note 13)	249	280	201	208
Other creditors (Note 13)	65	59	56	55
Accruals (Note 13)	161	98	150	94
	475	437	407	357

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

22. PENSIONS

The Group and the Charity

Defined contribution pension plan

The Trust operates a Group Self-invested Personal Pension Scheme run by Aegon. Staff contribute to the Aegon scheme at a minimum rate of 5% of salary, and the BTO contributes at a flat rate of 11%. The Trust made contributions of £387k during the year (2020: £371k).

Defined benefit pension scheme

The Trust's defined benefit pension scheme, a 'final salary' scheme, is closed. The last triennial actuarial valuation of the scheme was carried out as at 1 April 2018. At that date the assets were valued at £10,611k and the liabilities at £15,014k, giving a net deficit of £4,403k and a funding level of 71%. A deficit recovery plan was subsequently agreed between the Board and the pension fund trustees, by which the shortfall would be made good by annual lump sum deficit repair payments spread over the years to 2033.

For the purposes of the group financial statements a separate valuation is carried out at the balance sheet date by a qualified independent actuary in accordance with Financial Reporting Standard 102 (FRS 102). The amounts recognised in the statements of financial activities for the year and the balance sheets were as follows:

Recognised in the statements of financial activities:	**2021**	**2020**
	£'000	£'000
Expenditure:		
Interest income	262	274
Interest cost on liabilities	(372)	(364)
Net interest on net defined benefit liability	(110)	(90)
Past service cost in respect of Guaranteed Minimum Pension (GMP) equalisation	(10)	-
	(120)	(90)
Other recognised gains/(losses):		
Actual return on scheme assets (excluding interest income)	1,436	(986)
Actuarial (loss)/gain on liabilities	(1,955)	343
	(519)	(643)

Recognised in the balance sheets:

	2021	**2020**
	£'000	£'000
Fair value of scheme assets	11,689	10,174
Present value of defined benefit obligations	(16,483)	(14,461)
Defined benefit pension scheme liability at 31 March	(4,794)	(4,287)

Reconciliation of funded status:

	2021	**2020**
	£'000	£'000
(Deficit) at 1 April	(4,287)	(3,682)
Employer pension deficit repair payment	132	128
Net interest on net defined benefit liability	(110)	(90)
Past service cost in respect of GMP equalisation	(10)	-
Remeasurement (loss)	(519)	(643)
(Deficit) at 31 March	(4,794)	(4,287)

The British Trust for Ornithology
Notes to the Consolidated Accounts - Continued
For the Year Ended 31 March 2021

22. PENSIONS (Continued)

Changes in the fair value of the pension scheme assets were as follows:

	2021	2020
	£'000	£'000
Fair value of scheme assets at 1 April	10,174	11,007
Interest income	262	274
Actual return on scheme assets (excluding interest income)	1,436	(986)
Employer pension deficit repair payment	132	128
Benefits paid to members	(315)	(249)
Fair value of scheme assets at 31 March	11,689	10,174

Changes in the defined benefit obligations were as follows:

	2021	2020
	£'000	£'000
Present value of defined benefit obligations at 1 April	(14,461)	(14,689)
Interest cost on liabilities	(372)	(364)
Benefits paid	315	249
Past service cost	(10)	-
Actuarial gain/(loss)	(1,955)	343
Present value of defined benefit obligations at 31 March	(16,483)	(14,461)

The amount of each major class of pension scheme assets within the total fair value of the scheme assets was as follows:

	2021	2020
	£'000	£'000
Bonds	4,628	5,342
Equities	6,219	4,258
Annuities	206	210
Cash	636	364
	11,689	10,174

The total return on scheme assets was as follows:

	2021	2020
	£'000	£'000
Interest income	262	274
Actual return on scheme assets (excluding interest income)	1,436	(986)
Total return on scheme assets	1,698	(712)

The principal actuarial assumptions used were as follows:

	2021	2020
Discount rate	2.20%	2.60%
Inflation assumption (RPI)	3.35%	2.70%
Inflation assumption (CPI)	2.70%	1.70%
Rate of increase for pensions in payment	3.70%	3.50%
Rate of increase for non-GMP pensions in deferment	2.70%	1.70%

Average life expectancy, after retirement at age 65:	2021	2020
	No of years	No of years
Male - as at the valuation date	21.8	21.7
Male - retiring in 20 years' time	23.4	23.4
Female - as at the valuation date	23.4	23.3
Female - retiring in 20 years' time	24.7	24.5

British Trust for Ornithology
The Nunnery, Thetford, Norfolk IP24 2PU
Tel: +44 (0)1842 750050 Web: www.bto.org
Email: info@bto.org Twitter: @_BTO
Registered Charity Number 216652 (England & Wales), SC039193 (Scotland)

COVER IMAGE: TAWNY OWL : DAVID TIPLING / BIRDPHOTO.CO.UK