TRUSTEES' ANNUAL REPORT & FINANCIAL STATEMENTS 2020/21

BTO
Inspired by birds, informed by science

BLACKBIRD : DAVID TIPLING / BIRDPHOTO.CO.UK

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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.

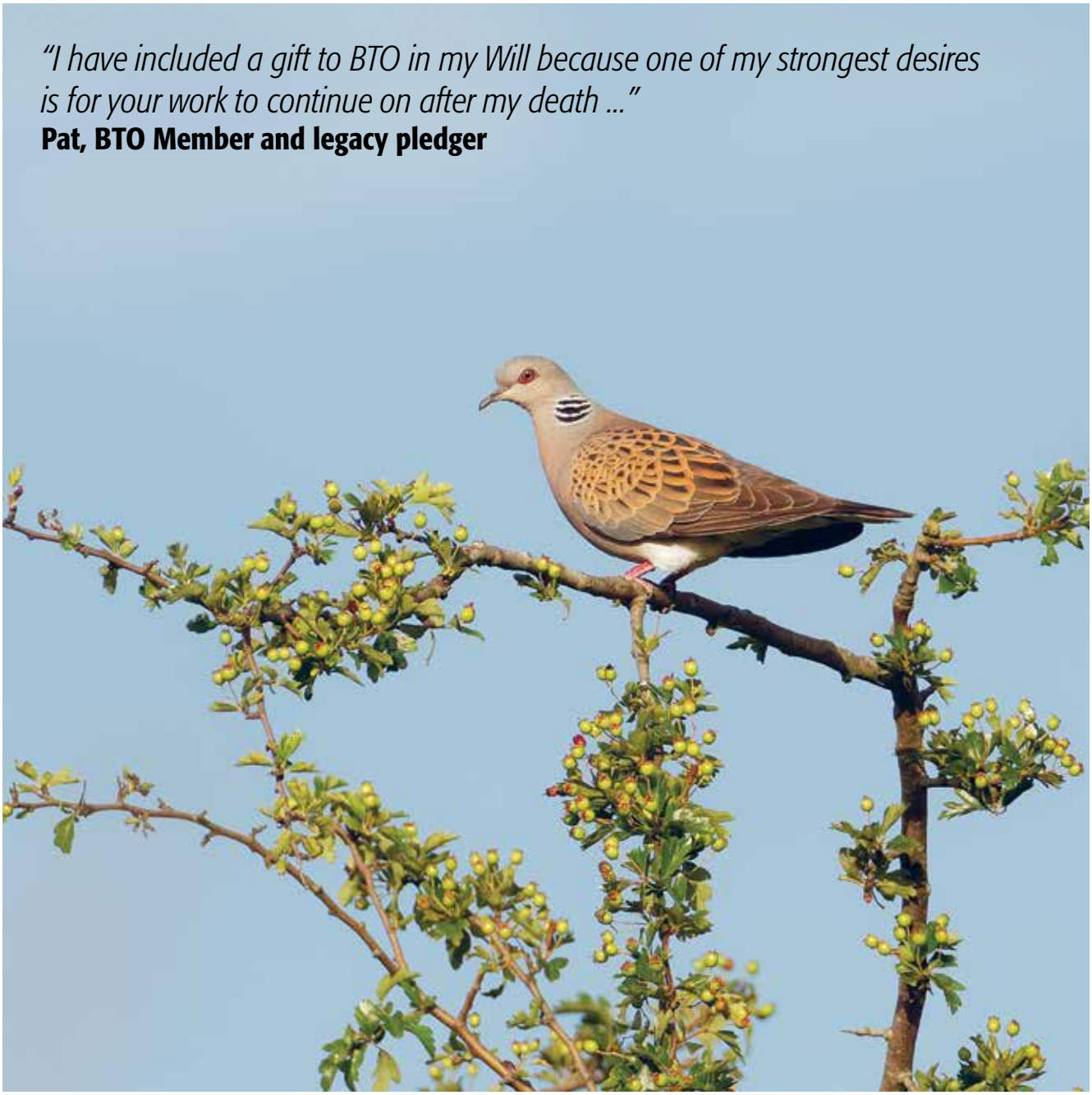
We recruited **15** new Youth Representatives, finalised our Youth Engagement Strategy, an delivered virtual events organised by our Youth Representatives and Yout Advisory Panel members

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.

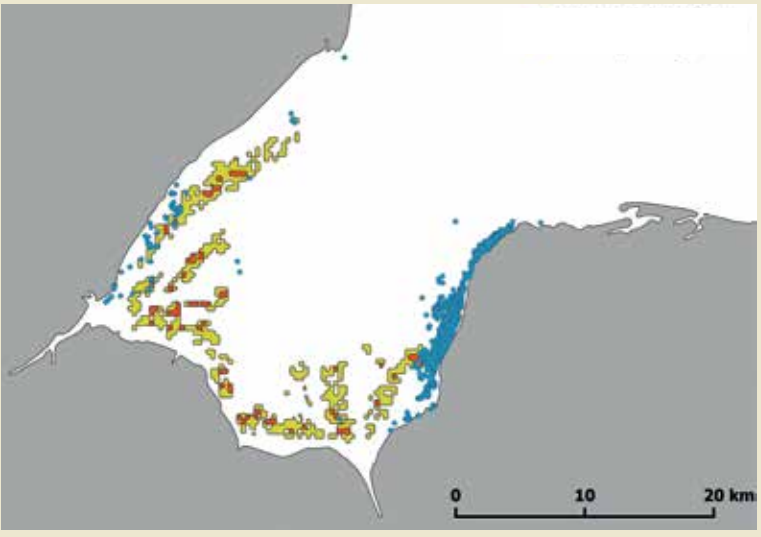
CASE STUDY:
FISHERIES MANAGEMENT

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.

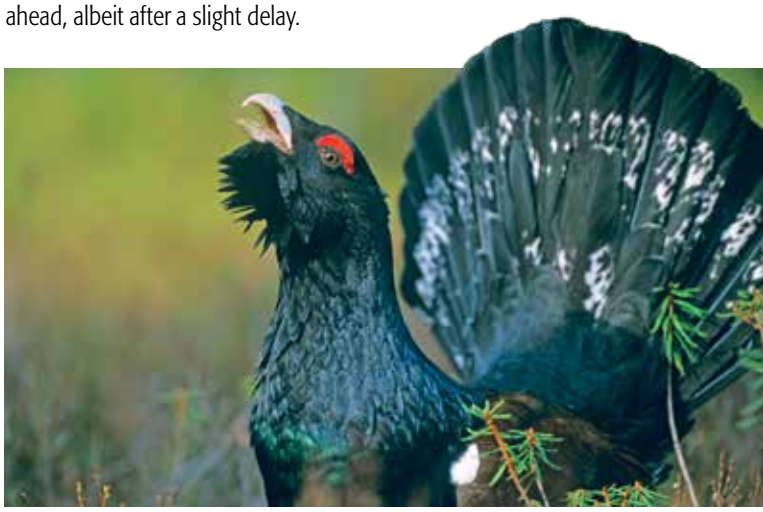
MONITORING NATURE'S RETURN

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

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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.

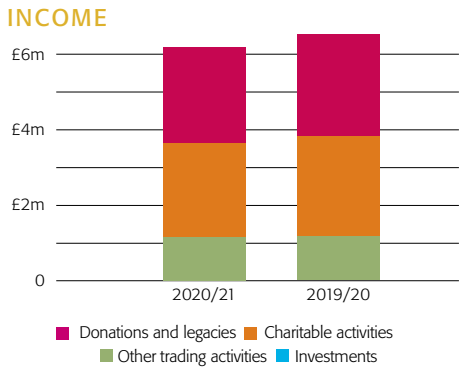
SUMMARISED ACCOUNTS: 2020/21

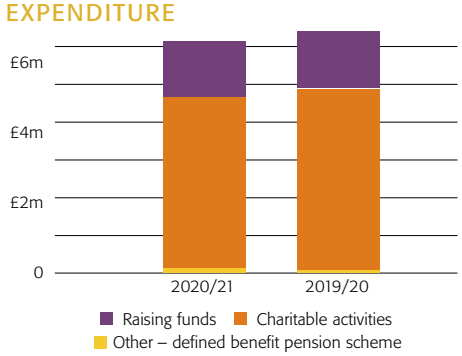
	£'000	£'000
INCOME	**2020/21**	**2019/20**
Donations and legacies	2,539	2,701
Charitable activities	2,486	2,634
Other trading activities	1,159	1,173
Investments	3	6
Total income & endowments	**6,187**	**6,514**
EXPENDITURE	**2020/21**	**2019/20**
Raising funds	1,463	1,489
Charitable activities	4,544	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)**

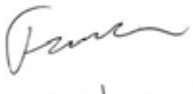
The Statement of Financial Activities includes all gains and losses recognised during the year.
All income and expenditure derives from continuing activities.

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
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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)

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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
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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

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