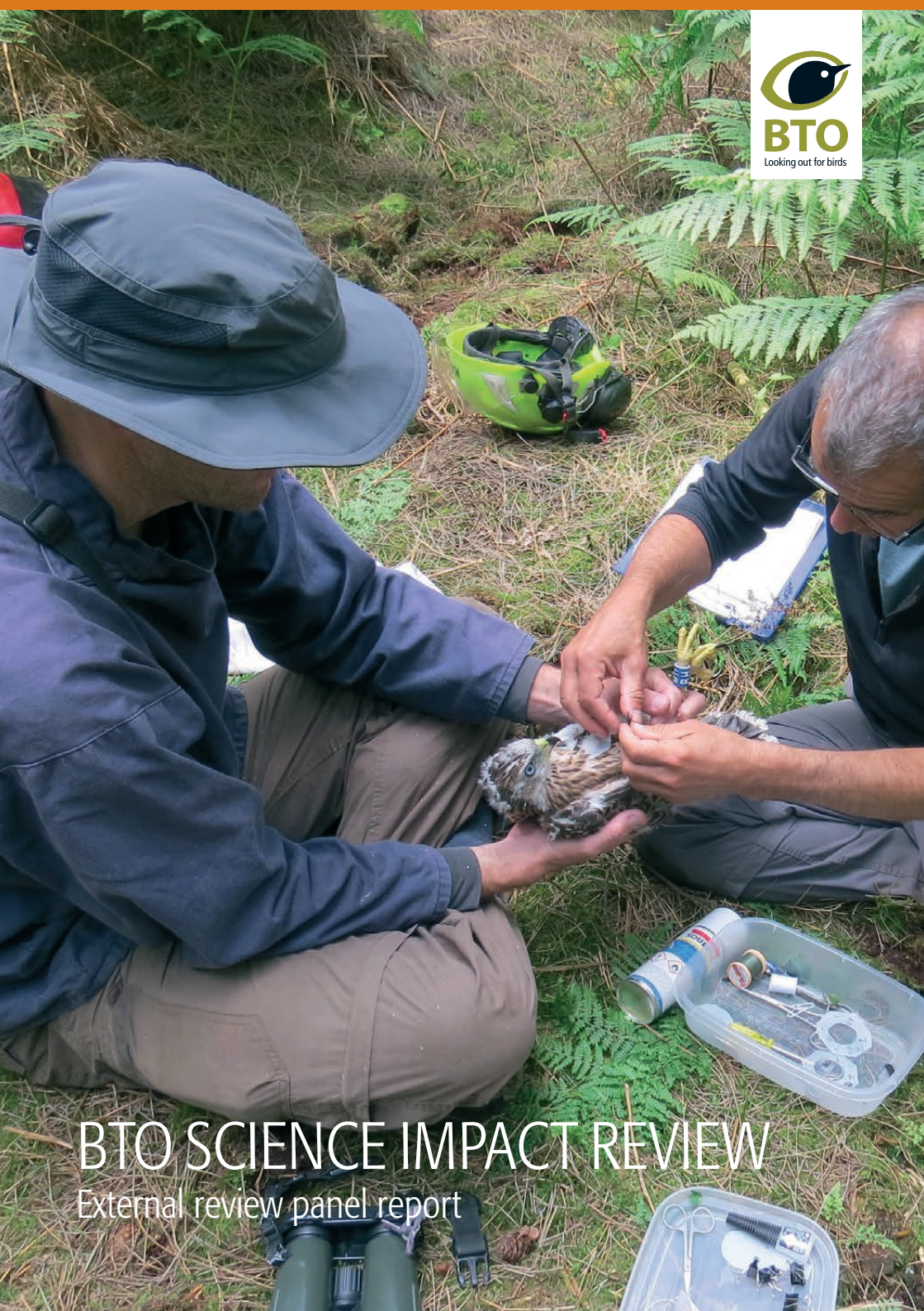


BTO SCIENCE IMPACT REVIEW

External review panel report

As part of a wider programme of work, aimed at securing BTO's resilience for the future, an independent panel was asked to review the impact of BTO's scientific work.

1. The review panel concluded that the BTO has had a remarkable impact on policy and practice given its size and resources.
2. The panel found BTO's main strengths to be its volunteer base, rigorous integration of research and monitoring, and outreach to a wide range of audiences.
3. In the policy sphere, the panel recommended engaging with the evidence requirements for current and emerging flagship policies in England (such as the 25 Year Environment Plan) and the devolved administrations (such as the Wellbeing of Future Generations Act of the Welsh Government) as a matter of priority.
4. Ongoing technological developments could empower BTO members and volunteers to achieve more, but will require a clear data and technology strategy.
5. Partnerships are key to enhancing impact, but will require a clear understanding of what different partners have to offer. BTO has a clear offer and could develop new partnerships.
6. The BTO should focus on new opportunities that arise in the context of the rapidly changing physical, biological and socio-economic worlds, as well as highlighting possible threats.

INTRODUCTION

BTO has been in existence for 85 years, combining professional and citizen science to provide evidence of change in wildlife populations, particularly birds, to inform the public, opinion-formers and environmental decision-makers.

BTO is a charity with a membership of c.19,000 in 2018, and a wider network of around 50,000 surveyors and supporters. The annual turnover is about £6 million of which £2.5 million comes from memberships and related fund-raising activities, £1.5 million from the public sector and £2 million from grants and trusts, corporates and commercial work. Although operating across the UK, with headquarters in Thetford, England, the needs of devolved administrations are supported by offices in Stirling, Bangor (Wales) and Belfast. BTO also applies its scientific expertise to other, non-avian, taxa and on the European and global stages, by engaging with relevant partners and collaborators.

This is the report of an independent panel, chaired by Professor Rosie Hails (National Trust) and involving Professor Chris Thomas (University of York), Dr Mike Morecroft (Natural England) and Professor Andrew Watkinson (University of East Anglia), based upon a review of written evidence and discussions with staff carried out in November 2018.

This review forms part of a wider programme of work instigated by the BTO, to secure its resilience for the future. This has involved the following:

A Heritage Lottery Transition Fund grant enabled a thorough organisational review in 2017/18.

A review of BTO's heritage was undertaken in summer 2018, which recalled Max Nicholson's original vision for the BTO: '*to realise the potential for the public to inform conservation policy*.'

A BTO Horizons summit took place in September 2018 in Cambridge, where 25 influential guests discussed changes in the political landscape, technology and society.

BTO presented an *An Agenda for Change* at the House of Lords in November 2018.

BTO STRENGTHS AND ACHIEVEMENTS

The Panel considered the following points to be BTO's key strengths:

DATA AND RESEARCH

Archive of long-term data. BTOs long-term monitoring programme produces robust population trends for almost 120 breeding and 50 wintering species, which are reported on annually at bto.org/birdtrends (breeding species), WeBS Report Online (wintering populations) and through the State of UK's Birds and State of Nature publications. These data provide evidence and interpretation of both temporal and spatial changes.

Monitoring schemes with the capacity to detect change at a national scale. The strong statistical design of many of the BTOs monitoring schemes and representative coverage gives the best data sets for detecting change of any monitoring scheme in the UK and arguably the world.

Staying power, history and heritage. Long-term data sets (including the longest-running single species bird survey in the world) show how dynamic populations can be. A key strength is BTO's collection of and integration of data on all aspects of birds' life cycles, enabling robust statistical inference.

Rigorous science. A total of 392 scientific papers were published by the BTO from 2012–2018, mainly in general ecological or ornithological journals, and including papers in the highest ranking academic publications.

Integration of monitoring schemes and research. A total of 168 publications with a BTO author originated from BTO monitoring schemes, of which 71 made use of BTO/JNCC/RSPB Breeding Bird Survey data.

PROVIDING LEADERSHIP

Providing independent, impartial evidence and acting as honest brokers. BTO evidence has been essential in some key areas of contention. BTO research has particularly informed the assessment of the potential impacts of marine renewables upon seabirds and indicators of farmland bird population trends. The Understanding Predation project combined ecological and social science to foster collaboration around controversial areas of upland land management.

New methods of analyses and drawing data from a variety of sources. BTO has developed UK biodiversity indices for assessing, monitoring and reporting on

general trends in biodiversity across a range of geographic scales, thus informing policy development and public understanding of biodiversity change.

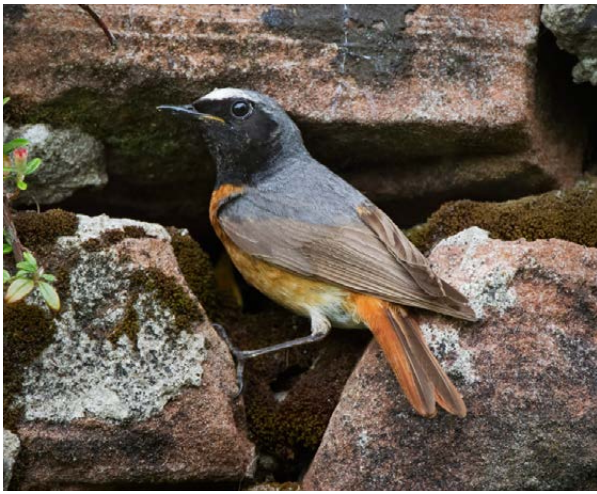
Success in high impact areas. BTO research on farmland birds has been instrumental to the design of agri-environment schemes, which are addressing declines in those species. Innovative deployment of tracking devices has revolutionised our understanding of bird migration, and coupled with analyses of long-term data, is starting to diagnose causes of population decline in migratory birds. BTO science has filled important evidence gaps in documenting the impacts of climate change on UK biodiversity. Overall, the BTO has very impressive achievements in terms of impact on the environment and policy, especially given its size and resources.

Good relationships with the conservation sector NGOs, UK government, agencies, academia and an important role on the broader European stage. BTO has a long-running partnership with JNCC to deliver ongoing biodiversity surveillance that informs environmental policies. The Wider Countryside Butterfly Survey represents a model of how well BTO collaborates with other NGOs.

INSPIRING MEMBERS AND THE PUBLIC

Developing and sustaining citizen science that delivers national important data sets. BTO volunteers are central to the BTO's science and monitoring. There is no trade-off between engagement and science – the volunteers are doing work which is essential to the research of the BTO and the data could not be collected without them.

Great stories. BTO has been able to use its scientific work to develop engaging stories about the lives of birds and the issues that they face. The BTO/SWLA Flight Lines project, for example, provided a compelling narrative on migrant decline, presenting the results of BTO science to new audiences across a range of communications channels.



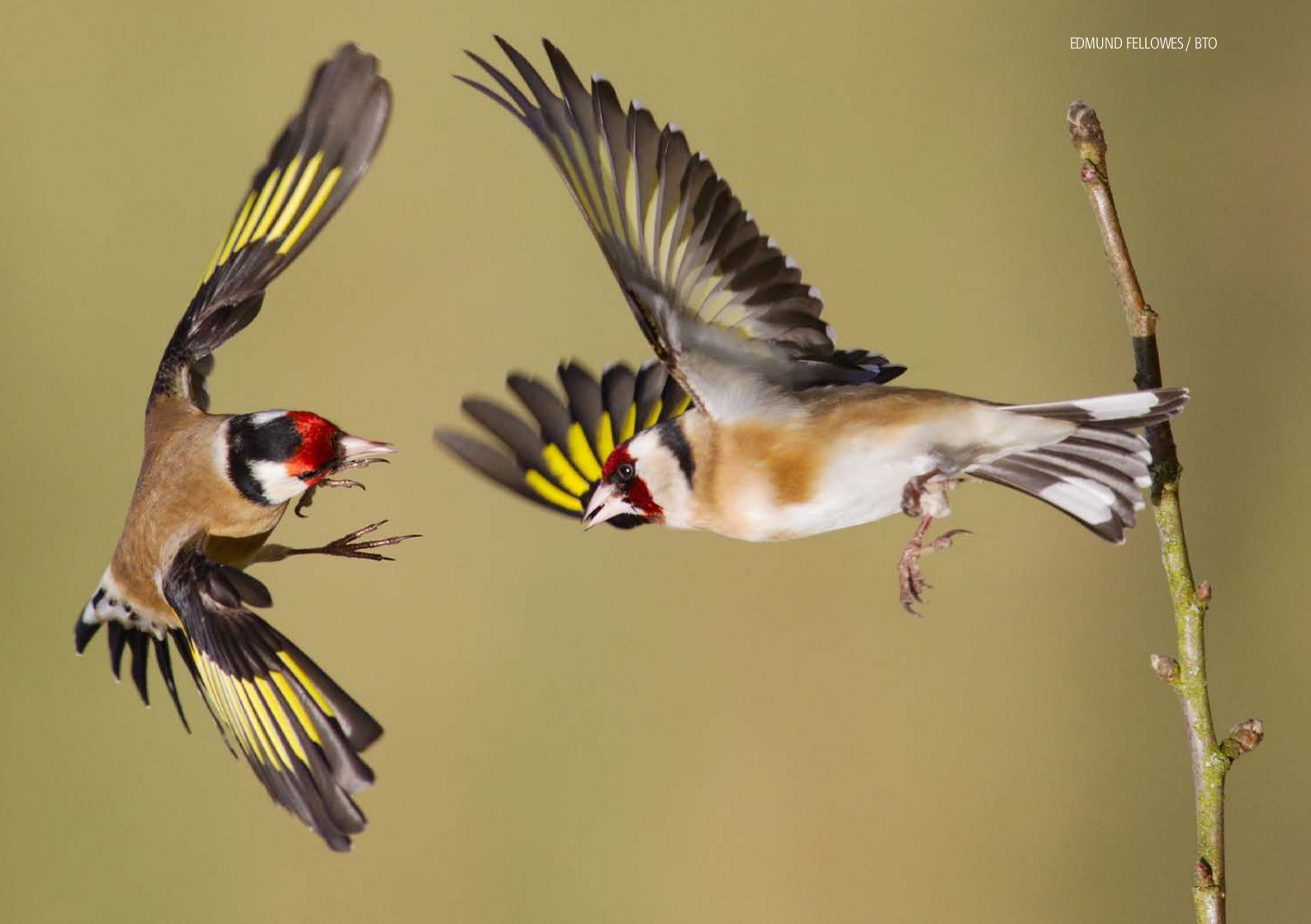
EDMUND FELLOWES / BTO

Members of staff and a membership that is dedicated to making a difference and

disseminating knowledge. BTO staff and volunteers feature regularly on the BBC 'Watches' programmes, demonstrating the knowledge, dedication and enthusiasm that the organisation, its staff and volunteers possess. This adds to the reach and recognition of BTO and its science.

The development and encouragement of citizen science to address specific questions using scientifically rigorous data. BTO has encouraged the submission of better structured and more valuable data, including complete list recording on BirdTrack, improved detectability recording in the Breeding Bird Survey and the promotion of Constant Effort Sites (CES) for ringing and demographic targeting. This operating model brings structure and value to what would otherwise be unstructured observations. Training also provides opportunities for individuals to develop their own skills, increasing interest and levels of volunteer satisfaction.

Very good membership retention rate. Membership retention has been supported by opportunities for members to participate in BTO's scientific work, reinforcing the link between active participation and the outcomes delivered to conservation practitioners, policy makers and land managers.


EDMUND FELLOWES / BTO

RECOMMENDATIONS

The Panel has taken the information from *A world informed by science: the impact of BTO in 2012–18* alongside what they gathered from meetings with BTO staff to produce some recommendations for the future. These are divided into five areas as follows:

COMMUNICATING TO A WIDER RANGE OF AUDIENCES

The changing world. There is potential to craft better-told stories of impact suitable for a broader range of audiences. The panel commends the role of the BTO in communicating science and policy, but the BTO will need to adjust how it frames stories, in the context of the changing environmental, policy and social worlds.

Environmental change. Existing stories are often bird rather than issue specific. BTO research could potentially reach a broader range of public and policy audiences by focusing more communications on the drivers of change (e.g., climate change), personal choices (e.g., what products should I buy) and policy options, in addition to those focusing primarily on birds. There is the potential to articulate core stories more conceptually, for example around the impacts of agriculture on biodiversity, the consequences of climate change etc.

Policy change. The influence that the BTO has with organisations such as Defra could be articulated more clearly, so as to highlight BTO's importance to a wider constituency. In the current (and quite probably future) rapidly changing policy world, BTO will need to be fleet of foot in readjusting the narrative, or changing the emphasis of advice, to remain relevant.

The message. BTO should review the balance of negative versus positive stories in its outputs and wider communications, ensuring that new opportunities are identified. Positive stories may instigate behaviour and attitude change as readily as negative ones, and potentially more so. We recognise, however, that this is a sector-wide issue, and that the BTO can be a moderating influence in this respect.

COMMUNICATIONS & COMMUNICATION SKILLS

BTO has a constituency who have been members of BTO for decades, who know BTO very well and know its impact, and broadly they see BTO's importance. The broader constituency that BTO is also trying to engage with knows less about BTO and its impact. The challenge for BTO is to reach the wider audiences, the general public or interested amateurs who don't know BTO's stories and impact. In this way BTO could be very effective at communicating the importance of science more generally.

Increasing the breadth and flexibility of communications may require the input of additional expertise or training in how to frame stories for a wider public and policy audience.

BTO IMPACTS ON PEOPLE

The panel recommends that the BTO records in narrative form the existing impacts that their activities have had on individuals and society. The story of people's involvement with BTO, such as how people became involved with the organisation at different stages of their life, what drew them in and kept them motivated, has not been documented to the level that it perhaps should, and is likely to generate a number of inspiring stories.

Getting volunteers to engage more with their own data themselves would be motivating for them, and BTO could support them with appropriate tools so that they are able to engage much more with their local environment and communities.

STRENGTHENING POLICY IMPACT

The next few years will see major changes in approaches to conservation and particularly land management and agriculture. It is important that the BTO is aware of this and looks for new opportunities. A key policy driver at the moment is the 25-year Environment Plan; a major science priority for Defra is to develop indicators to support the delivery of the plan. BTO data sets are likely to support this and early engagement with Defra and its statutory agencies is strongly recommended.

Similarly BTO should explore opportunities to support and inform the Net Gain strategy as it develops.

Other major Defra initiatives at the present time are the Nature Recovery Network and a new Environmental Land Management system. Monitoring and evaluation of these will present opportunities for BTO as they develop over the next year.

It is important that BTO remains impartial and an honest broker but at the same time provides a clear message about the implications of the science for policy and management. Staff should be aware of the various roles that scientists play in the policy arena and the critical boundaries between those roles.

Environmental policy is determined at various levels: international – European – UK – devolved administrations and local. The balance between these different levels of governance has been evolving over recent decades with more emphasis on devolved administrations compared to the UK. Brexit introduces more uncertainty and complexity, although even if it is outside of the EU the UK is likely to be strongly influenced by EU policy. There is also a balance between the role of government

departments who set policy and their agencies that implement policy and legislation and provide expert advice to government. To have maximum impact the BTO will need to be aware of this shifting policy landscape and the different evidence needs for different contexts. It would be worth reviewing whether there are any gaps in the BTO's engagement at national and devolved levels; identifying key contacts may be a good approach.

MAKING MORE OF DATA AND TECHNOLOGY

Think about how to track who is using BTO data and reconsider a DOI strategy, possibly subcontracting another organisation.

Enable members and volunteers to work with their own data through user-friendly interfaces. BTO is arguably in the best position of any of the NGOs in making the transition to citizens doing science rather than being providers of the information with which the science is done. BTO is starting to do this with Garden BirdWatch. In this way volunteers could be enabled to have impact in their local area, for example by empowering them to contribute to planning debates locally.

Develop new technologies (e.g. apps) to bring in new volunteers, potentially increasing the diversity of volunteers.

WORKING IN PARTNERSHIP

BTO needs to articulate clear messages to trusts and foundations, in the context of broadening its appeal and potential funding base. In so doing it would be helpful to align BTO's impacts with those of trusts/foundations. Part of that key message to trusts, foundations and other organisations in the sector should be the clear core offer around the engagement of citizens through rigorous schemes which tell us what is happening in the environment.

Consideration needs to be given to how best to communicate and build relationships with a wider range of charity and other funders.

For organisations that are concerned about the environment to maximise their impact it is necessary to extend beyond their usual constituency.

The education agenda is essential and schools engagement could be enhanced. This could be developed in the context of enthusing and recruiting younger members. BTO's education theme and aspirations should be communicated and developed more through the website.

There is the potential to explore how different levels and types of engagement with nature through BTO contribute to health and well-being, although this would

require collaboration with an organisation experienced in the mental well-being field.

Urban issues could not only provide important research foci, but could also provide considerable potential for increasing diversity in the membership. The BTO may need a partnership for this venture.

The BTO needs to connect with relevant businesses about major infrastructure projects such as HS2, the Ox-Cam expressway and the Northern Forest. BTO could help to enable planning advice and have impact through consultancy.

The BTO could improve involvement with the Major Land Owners' group.

The BTO should be working more within the areas of natural capital and ecosystem services in collaboration with others.

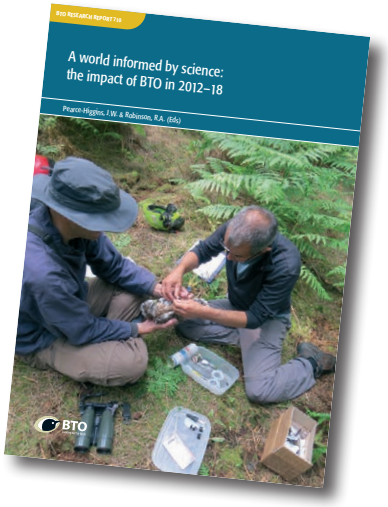
STAFF

Make resources and time available for new pump priming work and for realising impacts of completed research more fully. There are a number of routes to achieve this including, for example, seedcorn funding, 'my time', collaboration with universities and sabbaticals to complete existing projects and develop new avenues of research.

Ensure succession planning for key research areas and capabilities.

The written evidence presented to the independent science review panel is available as a BTO Research Report, which can be downloaded from the BTO website.

James Pearce-Higgins & Rob Robinson. (2019). A world informed by science: the impact of BTO in 2012–18. *BTO Research Report* **710**, BTO, Thetford, UK. www.bto.org



BTO is an independent charity. We seek to understand more about birds with the help of our members and volunteers.

Our aims are to:

- enable more people to participate;
- deliver impartial and relevant science;
- inspire and empower.

Find out more about joining our community.
www.bto.org/join

BTO
Looking out for birds

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

PHOTO CREDIT: Cover photograph by Liz Cutting / BTO