BRITISH ECOLOGICAL SOCIETY

A GREENER FUTURE

ANNUAL REVIEW 2020–21

THE IMPORTANCE OF A GREEN RECOVERY

My two-year term as President of the British Ecological Society (BES) is coming towards its close. As I look at all the highlights in this Annual Review covering November 2020 to October 2021, it's another reminder how much this period has been dominated by coronavirus. Yet the stories on these pages reveal how much has been achieved, thanks to the hard work of staff and volunteers, and I am pleased and proud of where the Society finds itself today.

It hardly needs saying that the impact of the pandemic on the research, teaching and practice of ecology has been profound, and many of us will be dealing with personal loss as well. As vaccinations bring some measure of normality back – at least to the Western world – we also need to look forward.

There is much we have learnt and should keep from this time, for example the advantages that online delivery of activities can bring and the importance of support for people's wellbeing. But what we must grab hold of with both hands is the new recognition of the critical role science plays in society, shown in the success of vaccines and new treatments, and the importance of nature to our wellbeing, which so many of us have relied on during this time.

As economic activity picks up again, we absolutely must make the most of these factors in seeking a greener future with a new commitment to reducing carbon and restoring nature. All eyes are on the COP26 climate change talks as well as the COP15 biodiversity talks that will conclude next year. Let us hope our leaders commit to a level of action that matches what is required and what wide swathes of the public are demanding.

In this context, the BES launched a major report on nature-based solutions in the UK (see page 4). Over 100 experts played a part in reviewing all the evidence on tree planting, peatland restoration, coastal salt marshes and many other ways to store carbon and boost nature. This important assessment should influence future policy on maximising the benefits of nature-based solutions.

Increasing people's access to nature is also important for a greener, happier future. A large £250,000 grant from the UK government's Green Recovery Challenge Fund has been awarded to the BES and partners (page 3). It will fund a truly inspiring project that will increase students' connection to nature at 50 schools in North-East England.

The core work of the Society continues to go from strength to strength. There are some highlights from research published in our journals on page 6. We have continued to attract new members during the pandemic, with membership having grown 22% in the last three years. And our online Festival of Ecology last December had the most delegates we've ever had at a BES Annual Meeting.

There will continue to be challenges ahead as the world finds ways to live with coronavirus. We will need to continue to adapt at the BES as we seek to promote our science and support the global community of ecologists. I am convinced we are in a tremendous position as we work towards a greener future.

Jane Memmott
President of the British Ecological Society

Cover image: Detail of an artwork by Bryony Benge-Abbott displayed at the Edinburgh Science Festival (see page 4).

A NEW GENERATION OF ECOLOGISTS

£250K GRANT CONNECTS PUPILS WITH NATURE

A BES-led project to create jobs, develop skills and improve school students' connection to nature in North-East England has been awarded a £250,000 grant over three years by the UK Government's Green Recovery Challenge Fund.

The project will see the BES, in partnership with citizen science organisation MammalWeb and engagement charity SMASH-UK, work with primary school pupils, teachers and early-career ecologists to deliver a green transformation to 50 schools in disadvantaged areas of the North East.

The programme will create wildflower areas, hedgehog highways, bird-feeding stations, nest boxes and insect hotels. Pupils will then monitor the wildlife around their schools. Through these activities, the programme will increase 10,000 young peoples' connection to nature.

Six fixed-term jobs and placements with the BES will be created in the North East to coordinate the project. Training will be delivered to an estimated 350 teachers at the partner schools. On top of this, 50 early-career ecologists will be upskilled as 'Environmental Educators in Residence', collaborating with teachers to develop practical workshops and deliver biodiversity enhancements to school grounds.

This innovative co-design process will be led by partners SMASH-UK, where ecologists, teachers and pupils will all be involved in the design as well as the delivery of the project.

"A love of the natural world often starts with an inspiring experience," says Dr Chris Jeffs, Engagement & Outreach Manager at the BES, who will lead the project. "We want to bring these inspirational moments directly to the school and home environment, opening up the wellbeing benefits nature brings to those currently least able to access them."

The 'Connecting schools to nature in North East England' project will run until March 2023 and is funded by the government's Green Recovery Challenge Fund. The fund was developed by the Department for Environment, Food & Rural Affairs and its arm's-length bodies. It is being delivered by The National Lottery Heritage Fund in partnership with Natural England and the Environment Agency.

If you would like to learn more about the project or would like to contribute resources benefiting the ecologists, teachers and pupils involved, please contact Chris Jeffs at chrisj@britishecologicalsociety.org

BOOSTING CAREERS WITH BES BURSARIES

We have expanded our BES Next Generation Bursary Scheme thanks to generous donations and new funding. The scheme supports aspiring ecologists from low-income and low-opportunity backgrounds in developing a career in the environment sector.

The Ecology Resources Ltd Bursary has now seen a cohort of eight awardees successfully pursue their passions, following generous donations from John and Naomi Condron of ecological consultancy firm Ecology Resources Ltd. These funds have supported training, qualifications and equipment so that these awardees could get over barriers in securing work placements.

Bursary awardee Caitlin Thomas secured her "dream job" through a six-month work placement as a trainee ecologist with Ecology Resources Ltd. Alicia Hayden, an aspiring wildlife filmmaker, joined BBC presenter and producer Nigel Marven in the field, and has secured commissions using the camera equipment the bursary provided.

Caitlin says, "It's changed my life by giving me the opportunities to attend conferences, start learning to drive, and even relocate for my work experience placement."

The BES also secured £12,800 of funding from the Span Trust for a three-year 'Ecology and Urban Regeneration' training and career support programme. Awardees will receive training and financial support to explore their interest in applying ecology within the built environment to benefit nature and communities.

If you would like to support our bursary scheme or summer schools, please contact Paul Bower at paul@britishecologicalsociety.org

RAISE THE PROFILE OF ECOLOGY TO MAKE A DIFFERENCE

GUIDING UK POLICY ON NATURE-BASED SOLUTIONS

The BES launched a landmark report in May examining how nature-based solutions can help mitigate and adapt to climate change and support biodiversity, while providing benefits for the environment and society as a whole.

The report was written by world-class independent scientists and incorporates contributions from over 100 experts. Its review of the evidence offers a guide for policy development on nature-based solutions, such as tree planting, restoration of peatlands and coastal salt marshes, in all four devolved nations of the UK.

Professor Jane Memmott, President of the BES, said, "The report offers a real basis for setting effective policies and incentives that will maximise the benefits of nature-based solutions in the UK for the climate and biodiversity."

It was a hugely valuable project for promoting ecological science into public and policy domains. The launch event was watched live by 500 viewers from policy, NGO and research backgrounds, with the video gaining almost 1,500 views since. The report generated media coverage, with 34 news items across 29 outlets, and has been referred to at key events by individuals and organisations, such as Gideon Henderson, Chief Scientific Advisor at the UK Department for Environment, Food and Rural Affairs, and the Royal Society of Biology.

EVIDENCE-BASED POLICY AROUND THE UK

The devolution of environmental and agricultural policy among the four nations of the UK means that there are many opportunities for the BES and members to engage with policy.

Our Scottish Policy Group celebrated its ten-year anniversary this year, and is now being joined by similar groups in England, Wales and the island of Ireland.

In its anniversary year, the Scottish Policy Group ran events on protected areas and the biodiversity and climate COPs (COP15 and COP26), jointly with the Chartered Institute of Ecology and Environmental Management.

The Irish Ecological Association Policy Committee has agreed its vision and strategy and is considering plans for 2022. The new English and Welsh Policy Groups have just recruited chairs, vice-chairs and core members, and are working to establish their vision for the years ahead.

GREEN SPACES IN THE LIMELIGHT

With a pandemic separating us from our public audiences, we brought ecology to the living room during the Edinburgh Science Festival in June and July.

Over 1,450 households were transported to our virtual gallery offering 'Six predictions of Edinburgh's future green spaces'. The artworks demonstrated how nature-based solutions can tackle the climate crisis in the urban environment, and were co-created by local artists and organisations working together.

They were displayed online in a remarkable 3D virtual gallery that allowed you to wander among and explore the exhibits as you might in a real art gallery. Visitors were also given the opportunity to contribute to the City of Edinburgh Council's existing work, sharing how their green spaces should be in future. The Directors of the Edinburgh Science Festival called it, "A unique, memorable and world-leading opportunity to engage audiences with the importance of nature-based solutions."

We also ran a series of digital events during the festival that were led by BES members, while an estimated 30,000 members of the public on Portobello Promenade in Edinburgh encountered giant images on display from our Capturing Ecology photography competition.

ADVANCE AND PROMOTE ECOLOGICAL SCIENCE AND ITS APPLICATIONS

ONE-STOP SHOP FOR APPLIED ECOLOGY

A new platform which supports evidence-based decision-making on biodiversity and the environment was launched by the BES in April 2021. Applied Ecology Resources (AER) curates an ever-growing collection of information sources, such as open access journal articles, research summaries and grey literature.

Effective conservation and applied ecological management requires that information from both research and practice are available.

While it is relatively straightforward to search for peer-reviewed research, it is much harder to find information that appears in reports and case-studies prepared by agencies, consulting companies and NGOs.

AER was created to solve this problem and make research and information available from all sectors of applied ecology and conservation. All content is free for everyone to browse, read and share. Organisations can upload and share their work with a broad international audience by becoming a member of AER. New content will be added all the time, so readers can sign up to receive weekly alerts.

As AER grows, its value to managers and policy will increase, providing a one-stop shop for procuring information that is directly relevant to any applied ecology issue. Information in AER can also serve to connect practitioners, who might work on similar problems, to share solutions and strategies, making management design and implementation more efficient and with better chances of success.

DIGITAL EVENTS REACH GLOBAL AUDIENCES

For the first time ever, in December 2020 our renowned Annual Meeting was held online, with unprecedented success. Joined by 1,500 ecologists worldwide, the Festival of Ecology became our largest event ever. The conference delivered everything we love about the Annual Meeting, from fantastic plenaries and insightful thematic sessions to stimulating workshops.

In the spring, our weekly online seminar series *Ecology Live* returned to broadcast 12 free talks on the latest research from speakers around the world. Hundreds of people joined live each week, and the videos are still available to catch up with on YouTube.

It is exciting to be able to return to in-person events once more, as coronavirus restrictions lift in many places. However, we have learned a lot from online events, particularly their international reach and accessibility, and aim to continue to engage with our global audience in this way.

NEW JOURNAL EDITORS

Several outstanding ecologists have joined our journals as senior editors. They bring a wealth of experience to their new roles and exciting ideas for the continued development of the BES's seven journals.

"Having a chance to shape how great science is published and promoted is what I am most looking forward to," says Yvonne Buckley of Trinity College Dublin, who is a new editor on *Journal of Ecology*. "The field of publishing is changing rapidly, but our need for great quality, expertly peer-reviewed science is more important than ever."

Jane Catford of King's College London also became a new editor on *Journal of Ecology* with Yvonne. Tadeu Siqueira of São Paulo State University (UNESP) in Brazil was appointed an editor on *Journal of Applied Ecology*. *Methods in Ecology and Evolution* welcomes Natalie Cooper of the Natural History Museum in London, while the University of Sheffield's Katie Field becomes one of the senior editors at *Functional Ecology*.





Clockwise from top left: Yvonne Buckley, Jane Catford, Tadeu Siqueria, Natalie Cooper and Katie Field

RESEARCH NEWS FROM OUR JOURNALS

BIG GAPS IN OUR PICTURE OF MAMMALS AND CLIMATE

A review, published in *Journal of Animal Ecology*, has found there are significant gaps in our understanding of how mammal populations respond to climate change.

Most studies on terrestrial mammals only looked at one demographic rate at a time, such as reproduction or survival, meaning that they're potentially not showing the full picture of climate change impacts.

In a search of 5,728 terrestrial mammal species, the University of Zurich-led team found only 106 studies that looked at both survival and reproduction at the same time. This covered 87 species and constitutes less than 1% of all terrestrial mammals.

RAPID EVOLUTION IN FOXGLOVES

Common foxgloves brought to the Americas have rapidly evolved in the presence of hummingbirds, according to research published in the *Journal of Ecology*.

The common foxglove is a species native to Europe where it is pollinated by bumblebees. It is also naturalised in many areas of the world including Colombia and Costa Rica where it was introduced in the 19th century. In these new environments, foxgloves are also pollinated by hummingbirds.

Researchers from the UK and Central America found changes in flower length in foxglove populations in the Americas compared with the UK, showing how rapid physical changes can occur in flowers in the presence of a new pollinator.

FISH GROW FAST BUT STOP SHORT IN WARM WATERS

Researchers have found new evidence that global warming is affecting the size of fish species in the waters around Scotland.

The scientists from the University of Aberdeen found that juvenile fish in the North Sea and the West of Scotland have been getting bigger while adult fish have been getting smaller. These changes in body size correlated with rising sea temperatures in both regions. Because cod, whiting and saithe are fish-eating predators towards the top of the food chain, changes in their size are likely to impact marine ecosystems. The study was published in the *Journal of Applied Ecology*.

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FORESTS ON CAFFEINE

Coffee pulp, a waste product from coffee production, could be used to perk up recovering tropical forests, a study published in *Ecological Solutions and Evidence* suggests.

Researchers from ETH-Zurich and the University of Hawai`i spread 30 dump-truck loads of coffee pulp on a 35 × 40m area of degraded land on a former coffee farm in Costa Rica, marking out a similar sized area as a control. After only two years the coffee pulp treated area had 80% canopy cover compared with 20% in the control area. The canopy height was also four times taller than the control area.

The half-metre thick layer of coffee pulp eliminated the invasive pasture grasses which dominated the land. These grasses are often a barrier to forest succession and their removal allowed native, pioneer tree species to recolonise the area quickly.

FOSTER A STRONG AND DIVERSE ECOLOGICAL COMMUNITY

SPECIAL INTEREST GROUPS

Our 19 volunteer groups have continued to engage and inspire ecologists in different disciplines through online events in the past year. Workshops run by Special Interest Groups (SIGs) have covered topics ranging from communicating climate change to statistical analyses with palaeo-data. Annual meetings were held for macro-, quantitative, and aquatic ecologists the world over.

A particular highlight was the Young Nature 2021 conference, co-organised by our Teaching & Learning SIG, which discussed connecting young people with nature and how to empower them to protect our environment. Importantly, young people were active participants along with the educators, researchers and students who made up the rest of the audience.

RAINBOW RESEARCH

Some of the most-viewed posts on the BES journal blogs this year were written by 13 ecologists from across the LGBTQ+ spectrum who provided articles about their lives and research.

Published during UK Pride Month in June, the Rainbow Research blog series promoted the visibility and inclusion of STEM researchers from the LGBTQ+ community. Themes that arose in the posts included the importance of being a role model to younger ecologists; the idea that studying ecology – a discipline that knows all about diversity – can help you to develop pride in your identity; and issues around safety in the field.

A few of the undergraduate participants at a BES Summer School said that it was great to see that there are lots of out-and-proud ecologists, having not met any role models yet during their studies.

Blog contributors clockwise from top left: Ash Brockwell, Daniel Trotter, Gwen Antell, Demetrio Mora

A VOICE FOR RACE AND ETHNIC DIVERSITY

The REED Ecological Network made great strides in 2021 after its launch last year. Created for all ecologists who identify as Black, Asian, Person of Colour or an underrepresented ethnicity, the network on race and ethnic equality and diversity has set up a programme of monthly webinars for early-career ecologists and generated video content to inspire others and make them feel welcome in ecology.

Members of the Network facilitated discussions across the environment sector on how we might address the current lack of ethnic diversity, and are leading work at the BES on how to be an effective ally.

REED ECOLOGICAL NETWORK

Working for Racial & Ethnic Equality & Diversity

CAREERS CONFERENCE OFFERS NEW MOTIVATION

An online conference in March saw 360 undergraduates, Masters and PhD students attend a two-day showcase of careers in the ecological sciences and natural history. Sessions included CV tips; how to succeed in today's world; equality, diversity and inclusion in academia and global challenges as well as a series of talks from speakers from a wide range of career pathways.

This first ever Student Futures and Research Conference was the result of the BES teaming up with the Linnean Society of London to combine careers conferences and give students an even better and broader view of what is available to them.

Feedback from the conference was overwhelmingly positive, with many delegates speaking of a feeling of motivation and hope in a challenging and changing world.

"The diverse range of speakers offered views I hadn't heard before," said one respondent, "and realistic advice is always the most useful. My take home is a feeling of encouragement."

Following the event's success, the BES and the Linnean Society are delighted to be organising a second Student Futures and Research Conference in March 2022.

YOUR SOCIETY

The British Ecological Society is the largest scientific society for ecologists in Europe with over 6,900 members in 122 countries around the world. We support the global community of ecologists at all stages of their careers through our journals, meetings, grants and education and policy work. The first ecology society to be established anywhere in the world, we have been the champion of ecology for more than a century.

PROVIDING FUNDING FOR ECOLOGY

£490K

Funding available through our grants in 2021

60

Number of grant awards that will be made this year to support research and outreach

100

Number of people accessing training and conferences they otherwise wouldn't be able to

A GROWING SOCIETY

6900

Total number of members in Oct 2021

122

Number of countries in which there are BES members

21%

Membership growth in last three years

BRITISH ECOLOGICAL SOCIETY

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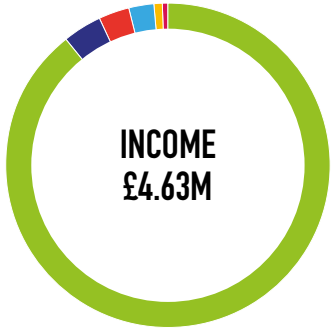
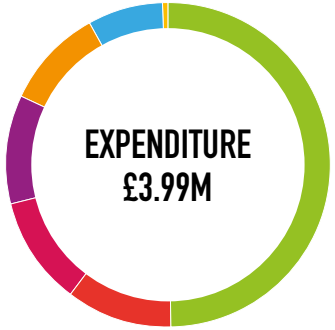
IN 2020 WE INVESTED £4M IN FOSTERING ECOLOGY



Publications	£4.14m
Membership fees	£0.18m
Conferences	£0.14m
Investments	£0.11m
Donations	£0.04m
Other	£0.02m



Publications	£1.99m
Education	£0.43m
Grants	£0.43m
Conferences	£0.43m
Member engagement	£0.39m
Policy	£0.30m
Investment fees	£0.02m