



# NATURE NEWS

For nature, people and the planet

Spring 2022



## In this edition:

- Harnessing citizen science
- Ocean Country Partnership Programme
- Clean air for nature
- Celebrating our successes

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**Front cover image:**  
JNCC's Daisy Burnell on survey © Danni Thompson/  
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# Welcome from our Chief Executive

Welcome to the spring issue of *Nature News* – bringing you updates and information on our work across land and sea with partners in the UK, the UK Overseas Territories and around the world.

I recently celebrated my one-year anniversary as Chief Executive of JNCC. This role brings together my passion for nature, dedication to science and commitment to public service. I couldn't be in a better place. It was wonderful to join the organisation as we marked our 30th anniversary year – the achievements of our past make me confident about our ambition for the future.

As we look ahead to COP15 and the new Global Biodiversity Framework (GBF) that sets out global targets for conservation and restoration of biodiversity by 2030, we have been working with governments of the four countries to renew the UK Biodiversity Framework. Over the years, JNCC's trusted expertise, dedication and skills have strengthened nature conservation and we continue to work in collaboration to drive nature recovery.



The months ahead will be a busy time for our Marine Species Team as it's the seabird survey season. Our experts, working with colleagues from our partner organisations, will take to the coast to monitor the UK's seabird populations. It's great to see that we've re-started our Volunteer Seabirds at Sea surveys and training for volunteers in Scotland. We're also running our first training course for volunteers in England this summer.

Supporting the efforts of volunteers in citizen science is an important way of harnessing interest in nature and expanding vital research. A new UK CEH report published by JNCC looks at how additional information needed by researchers can be included in biological recording schemes without disengaging volunteers.

At JNCC our amazing people are our greatest asset, so I'm proud to share news of some public recognition of our experts. Vin Fleming, Co-leader of our International Advice Team, was awarded an OBE for services to the environment in the Queen's Jubilee Birthday Honours. Luis Gustavo de Oliveira, our CITES Licensing Support Officer, was runner-up to the Anglia Ruskin University Vice Chancellor's Alumni Sustainable Champion. And Chair of our Joint Committee, Professor Colin Galbraith, has been made Fellow of the Royal Society of Edinburgh. Many congratulations to all.

**Dr Gemma Harper, OBE, Chief Executive, JNCC**



JNCC works across land and sea with partners in the UK, the UK Overseas Territories and around the world. For over 30 years our trusted expertise, dedication and skills have strengthened nature conservation and we are working in collaboration to drive nature recovery.

**We are for nature, for people and the planet**





## Quinquennial Review of Schedules 5 and 8 of the Wildlife and Countryside Act 1981

On 19 April JNCC sent the formal advice on the [7th Quinquennial Review](#) of Schedule 5 and Schedule 8 of the Wildlife and Countryside Act 1981 to the Parliamentary Under Secretary of State (Minister for Nature Recovery and the Domestic Environment) and to the Minister for Green Skills, Circular Economy and Biodiversity in the Scottish Government and the Minister for Climate Change in the Welsh Government.

The report was submitted by the Joint Nature Conservation Committee on behalf of Natural England, Natural Resources Wales and NatureScot.

## Marine Natural Capital report

JNCC has led a critical analysis of work to identify how the marine environment benefits society and the economy: as a source of food; providing flood protection for coastal communities; and contributing to people's wellbeing.

The Marine Natural Capital Approach will improve how we manage marine ecosystems and help us better communicate their importance. The work was part of Defra's Marine Natural Capital Ecosystem Assessment (mNCEA) programme.

The [report](#) published by JNCC highlights strengths and identifies areas that need further development.



## New Committee members for JNCC



We're delighted to welcome Catherine Denholm and Thomas Meagher as Board Members of the Joint Committee. The appointments are for a three-year term from 4 April 2022 to 3 April 2025.

Catherine Denholm (pictured) is the Chief Operating Officer for the Equality and Human Rights Commission. She also served as Deputy Chair of NatureScot from 2019 to March 2022. She was awarded honorary membership of the Faculty of Public Health in 2020 and is Vice Chair of Impact Arts.

Thomas Meagher (see *Conservation Conversation* on page 24) is a botanist and Professor and Chair of Plant Biology at the University of St Andrews. Tom is a former Trustee of the Royal Botanic Garden, Edinburgh and was previously a member of the Natural Environment Research Council and the Defra Science Advisory Committee.

# in Brief

## *Seabed disturbance following high order UXO detonation*

JNCC is investigating seabed disturbance following high order clearance by detonation of unexploded ordnance (UXO) so that Statutory Nature Conservation Bodies (SNCBs) can provide more informed advice to regulators and developers. We're asking developers for data that could be used in analysis.



While new methods of clearing UXOs are coming onto the market which should reduce potential seabed impacts, high order clearance (when a charge is detonated to remove a UXO) remains a contingency in license applications. The precautionary principle requires that the worst-case scenario be considered, therefore a better understanding of associated impacts to the seabed from high order clearance will help SNCBs and reduce potential delays to the consenting process. If you wish to contribute to this project or would like further information please contact [jillian.whyte@jncc.gov.uk](mailto:jillian.whyte@jncc.gov.uk)

## *Alex Nicol-Harper talks about her placement with JNCC*

"I'm in the final year of my PhD at the University of Southampton, studying seabird population ecology in collaboration with the Wildfowl & Wetlands Trust and Woods Hole Oceanographic Institution. Since the end of February I've been completing a UKRI Policy internship, working in the International Advice Team (IAT) with James Williams, UK Scientific Councillor for the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

CMS requested a summary of 'the latest scientific evidence on the impacts of ecotourism activities on migratory species' (Decision 13.136). While recognising 'the value of migratory species in the promotion of ecotourism', CMS wants 'to ensure tourism activities do not negatively affect species anywhere within their migratory range' (Resolution 12.23).

Ecotourism often refers to 'good practice': sustainable activities contributing to conservation, supporting local livelihoods, and educating participants. Considering wildlife tourism more generally, excluding lethal take and captive situations, we have developed a report presenting case studies and recommendations.

It's been a wonderful experience being welcomed into the team and wider organisation at JNCC; I've gained insight into the world of conservation policy, and IAT was kind enough to invite me along for their team trip to Berwick-upon-Tweed."

Alex, pictured second from right, enjoying some March sunshine from the town walls.



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# Post-2020 Global Bio

JNCC continues to play a key role in the development of the post-2020 Global Biodiversity Framework (GBF). With only eight years remaining in the decade, a sense of renewed urgency marked the resumption of face-to-face negotiations held in Geneva on 14-29 March for the combined meetings of the subsidiary bodies of the Convention on Biological Diversity and of its Open-Ended Working Group (OEWG), negotiating the GBF. There was a lot of unfinished business to progress following a delay of two years due to pandemic restrictions, and only being able to conduct business remotely.

As part of the Defra-led UK delegation JNCC led on, or contributed to, crucial agenda items such as [biodiversity and health](#), [invasive alien species](#) and [soils](#), and also provided strong technical input on the draft goals, milestones and targets, and the [proposed monitoring framework](#), of the [GBF](#). Vin Fleming and Ella Wooden (pictured) represented JNCC in Geneva and, through the hybrid meeting format, the delegation was also supported collectively by Defra, JNCC and APHA staff back in the UK.

After an exhausting two and a half weeks, significant progress was made in some areas but it is also clear that much more needs to be done if the GBF is to be ready for adoption at the 15th Conference of the Parties (CoP15) later this year. Parties gathered again in Nairobi from 21-26 June, to continue negotiations on the GBF. Additional meetings are being organised to make further progress on the [proposed indicators](#) ahead of COP15. The UK continues to be committed towards achieving an ambitious and transformative GBF.



However, global targets are meaningless if they are not implemented. JNCC is also supporting the Four Countries Biodiversity Group in the development of a revised UK Biodiversity Framework. This Framework seeks to identify the priorities for shared work across the four countries of the UK where this is necessary to collectively achieve the UK's international obligations whilst respecting devolution. The [Nature Positive 2030](#) report by JNCC and the four statutory nature conservation bodies provides examples of how the UK can succeed in supporting nature recovery and also contribute to achieving 'net zero' climate change objectives.

## Convention on Biological Diversity:



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## UK Biodiversity Framework:



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# Biodiversity Framework

It is critical that a new and ambitious Global Biodiversity Framework is agreed this year – the crisis facing the world's biodiversity, upon which we all depend, has not diminished and the time available to achieve targets by 2030 is rapidly decreasing



# Volunteer Sea



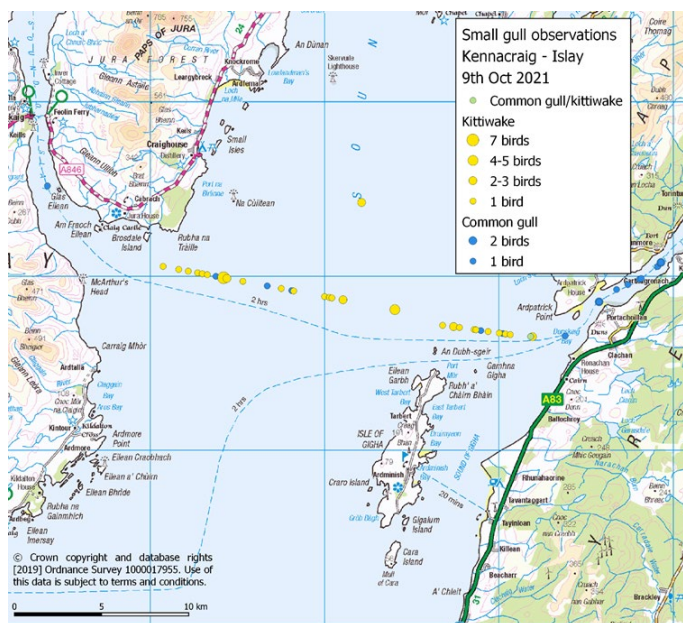
**VSAS**  
Volunteer Seabirds At Sea

As seabirds spend most of their lives at sea, it's only possible to monitor them in the marine environment. Seabirds at sea data are essential to allow the UK to meet national and international conservation commitments, inform assessments for offshore industry, and aid research. At-sea surveys can be expensive and logistically challenging so they're often opportunistic, with little regular monitoring.

European Seabirds at Sea (ESAS) is a partnership between ten European countries contributing standardised at-sea survey data to the ESAS database. With over 3 million seabird and cetacean records, it's one of the largest databases of seabird observations in the world.

JNCC has developed an ESAS-methods training programme for volunteers plus a mentoring scheme for surveyors to develop skills by working with experienced mentors. [Volunteer Seabirds at Sea](#) (VSAS) surveys are carried out on CalMac passenger ferries on the west coast of Scotland, raising awareness of the marine environment among visitors and locals.

VSAS has trained 80 volunteer mentors and surveyors, thanks to funding from Marine Scotland and NatureScot. In 2019, JNCC ran 13 surveys on three routes, comprising 25 crossings, covering approximately 2,080 km, and 78 hours of surveyor time. Some 25 species of seabird were recorded, alongside good numbers of cetaceans and other interesting bird species.



Example output from a VSAS survey. Maps like this are presented in monthly survey reports, alongside other information on which species have been recorded.

By using standardised ESAS methods, high quality data collected by VSAS volunteers are added to the ESAS database. This improves spatial and temporal coverage in the dataset and will allow future comparisons. Boat-based surveys mean that, unlike colony-based surveys, data on immature and non-breeding seabirds can be obtained, as well as behavioural information.

Hundreds of birds are seen on each survey, so good data management is vital. JNCC has developed a tablet-based app for electronic capture of data, and automatic validation scripts to check and clean raw data. Open-access data is made available for applications such as population monitoring, marine management, and academic research.

After a break due to the pandemic, we're excited to re-start surveys and training in Scotland. Funding from Defra's mNCEA (Marine Natural Capital Ecosystem Assessment) programme enables us to partner with MarineLIFE in England, the first English training courses being held in May.



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# abirds at Sea





# Meet the Expert

**In this issue, we focus on Clare Whitfield,  
Nature Conservation Policy & Advice Co-Team**

## **What triggered your interest in conservation and biodiversity?**

From my early years, my life has revolved around being immersed in the great outdoors and being part of a rural community. Family walks and bike rides around the Rutland countryside, visits to the North Norfolk coast and, later on, travel to far-flung places around the globe have all fuelled in me a love of nature.

I'm lucky to have nature at the heart of my life. This connection has been lost for many, to the detriment of individuals and society. In my view, everyone should have easy access to nature-rich places to explore, escape to, find peace and enjoy.

## **What led you to a career in this sector?**

Gaining a greater understanding of the adverse impacts that humans have had on our natural environment led me to choose a career in environmental science and ultimately nature conservation.

I researched the effects of air pollution on plants for my PhD, then worked as an environmental scientist at an aluminium smelter, monitoring air pollution emissions and impacts on the local area. I spent a glorious year carrying out crop research in New Zealand and then travelling, before returning to the UK and taking a role at English Nature, reviewing Environment Agency consents under the Habitats Regulations.

## **How would you sum up your role in JNCC?**

My role at JNCC is all about helping my great team of staff enhance engagement and build relationships with the national governments and their associated country conservation body. We bring together an incredible range of experts across the conservation bodies to collaborate on conservation evidence and advice. An example is protected areas, where my team manage information on protected areas and provide advice on the National Site Network, and where we are working with colleagues across the UK to consider the future of protected areas and how their benefits can be maximised.





# Leader

Together, my team track and understand the policies and ambitions of the governments of each of the four countries of the UK. We help communicate this to staff in JNCC. We work with the countries to help evolve JNCC's products to meet their changing needs. We seek to identify shared priorities across the four countries and where there is genuine added value in working together towards common goals and to support the development and implementation of country policies to secure nature recovery in the UK. This is the very *raison d'être* of JNCC.

## Can you share with us how collaboration has been at the core of your work?

I've worked at JNCC since 2002. Helping to bring together government, agencies and other partners to collaborate on projects to help nature recovery has been at the core of my work throughout. For much of my time at JNCC, I had a specialist role as senior air pollution adviser, leading a group of air pollution experts from across the CNCBs. I'm really proud of what we collectively achieved through our joint work, as well as wider partnership working with the environment agencies, research bodies and NGOs: raising awareness of air pollution impacts on biodiversity; improving the evidence base, the provision of information and risk assessment tools; and working with partners internationally to enhance our shared understanding of the transboundary impacts of air pollution on nature and effective solutions. It always brings a sense of satisfaction now, when representing JNCC in other fora, hearing people talking about the successors to that work and seeing that air pollution impacts are much more widely understood and recognised, and there's real support for action to address them.



## With the CBD COP15 around the corner, how does your work link to this?

Colleagues from JNCC's international advice team provide support to government on Multi-lateral Environmental Agreements including the Convention on Biological Diversity. One of the outputs from COP15 will be a new Global Biodiversity Framework.

Each of the four countries of the UK will be developing their own strategies and plans to implement the requirements of the GBF and other domestic commitments. My work involves helping the governments of the four countries of the UK identify areas of shared priority through the Four Countries Biodiversity Group. Through this role, I've been supporting the governments to develop a new UK Biodiversity Framework. This recognises that the environment is a devolved policy area but there are often common goals. Whilst each country develops and implements their own policies, helping to understand where there need to be common principles in approaches, UK-level reporting for international commitments, or where there are benefits of shared evidence or from simply learning from each other, brings efficiency and effectiveness in working towards nature recovery.



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# Clean Air for Nature

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JNCC is raising awareness of the impacts on nature of air pollution and supports [Clean Air Day](#), an annual campaign run by Global Action Plan (GAP) to increase understanding of the impacts of air pollution on human health.

The campaign is partnered with Defra and supported by the Scottish Environment Protection Agency, Natural Resources Wales, Plantlife and [other organisations](#), and informally by the Inter-agency Air Pollution Group (IAPG).

Acknowledgement of the impacts on nature has increased since our involvement last year. Seven in 10 people are concerned about the effects of air pollution on nature, according to the annual Clean Air Public Insight Tracker (CAPIT) survey (June 2021) run by GAP. JNCC, in collaboration with Plantlife, contributed poll questions to CAPIT. Some 2,000 adults were asked questions related to air quality, human health, and nature to gauge public awareness, attitudes, and behaviour changes. More results are available on our [webpage](#).

JNCC used social media to spread awareness on how air pollution impacts nature, linking to an [air pollution calculator](#) where individuals could calculate their contribution to air pollution. Other posts detailed ideas of what people can do to reduce contributions to air pollution.

This year, Clean Air Day was on 16 June. JNCC posted about the impacts on nature on social media in the lead-up and on the day. The poll will be re-run later this year to gauge public awareness and attitudes to air quality and nature this year. Any changes in attitudes and behaviours will be seen by comparing with last year's results. The results will be posted on the [JNCC webpage](#).

Air pollution is the presence (or introduction) of a substance in the air which has harmful effects. Nitrogen oxides ( $\text{NO}_x$ ), ammonia ( $\text{NH}_3$ ) and sulphur dioxide ( $\text{SO}_2$ ) are pollutants from sources such as transportation, power stations, farm fertilisers and livestock faeces.

$\text{SO}_2$  and  $\text{NO}_2$  emissions have decreased over the past 40 years, but  $\text{NH}_3$  remains relatively constant, primarily due to emissions from agriculture. Increased nitrogen affects the environment by altering soil pH and increasing nutrient availability. This favours fast-growing plant species, which outcompete many native species that are adapted to low nutrient environments, reducing biodiversity overall.

To reduce the effects of air pollution individuals can conserve energy by switching appliances off when not in use, reduce vehicle emissions by carpooling and walking or cycling to work or school.



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# Celebrating awards in JNCC



## Congratulations to Colin, Gemma, Vin and Luis for their outstanding achievements!

Our **Chair, Professor Colin Galbraith**, has been elected as a Fellow of the Royal Society of Edinburgh.

Colin said: "I am honoured and delighted to have been elected as an RSE Fellow alongside so many talented people. I look forward to becoming involved in the work of the RSE, especially at this time of the twin global emergencies of climate change and of nature loss. Using science to underpin action to tackle these issues is key, as is providing clear advice and communication on the options for the future."

Colin joins the RSE's current Fellowship of around 1,700 Fellows, recognised as being some of the greatest thinkers, researchers and practitioners working in or with Scotland.

**Dr Gemma Harper**, our Chief Executive Officer (CEO) received her Order of the British Empire (OBE) at an investiture at Windsor Castle on 2 February 2022.

Gemma was awarded an OBE for services to the marine environment for leading her team's work at Defra on Sustainable Development Goal 14 (Life Below Water) in collaboration with a wide range of domestic and international partners and stakeholders. Domestically, this included the team delivering the UK Marine Strategy, ensuring a legislative and regulatory framework for marine protection post-EU Exit (including extending enforcement powers through the Fisheries Act), delivering plans to create more than 40 new Marine Conservation Zones across the UK, and leading the ban on microbeads in rinse-off cosmetic and personal care products. Internationally, this also included the team creating the Global Ocean Alliance to treble the ambition for the marine protected areas to 'at least 30%' target at the Convention for Biological Diversity, negotiating the G7 Ocean Navigation Plan to commit the G7 to the UN Ocean Decade, influencing the decision at the 'Blue CoP25' to deliver the first ever Ocean Dialogue for UNFCCC CoP26 - and underpinning global ambition through securing a historic official development aid investment in poverty alleviation through ocean health - the Blue Planet Fund.

**Vin Fleming**, Co-leader of International Advice, was awarded an Order of the British Empire (OBE) for services to the environment in the Queen's Birthday Honours list 2022.

Over his career Vin has played a pivotal role in developing UK positions for successful negotiations at the Convention of International Trade in Endangered Species (CITES) and the Convention on Biological Diversity. Vin represented the European Region in the Animal Committee of CITES for almost a decade, advocating strong support for evidence-based approaches to measures to achieve sustainable trade across the full spectrum of CITES-listed animals. Vin also led JNCC's work, in preparation for the UK's exit from the EU, to develop a sustainability assessment (or non-detriment finding) for trade in European eel, building solid collaboration with Defra, other agencies and colleagues in Northern Ireland.

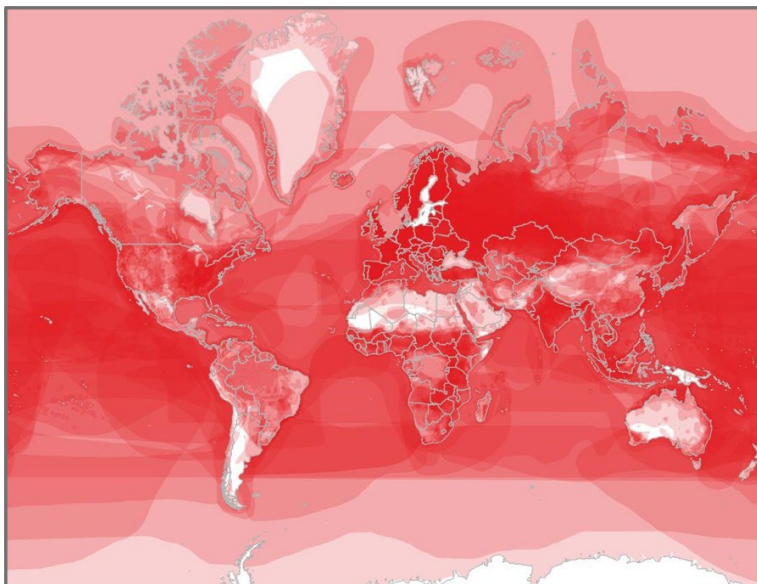
**Luis Gustavo de Oliveira**, CITES Licensing Support Officer, runner-up for the Anglia Ruskin University Vice Chancellor's Alumni Sustainable Champion award "in recognition and appreciation of his significant impact on addressing sustainability issues".

Luis was recognised for his work at TRAFFIC, investigating illegal wildlife trade in Latin America, for recently completed research assessing the protection status of all viper species in the Neotropical region, and for his work at JNCC providing advice as CITES Scientific Authority.

# Reducing Pollution T

Environmental pollution is a serious global challenge affecting the natural environment and human health. Through the Reducing Pollution Through Partnership project JNCC has worked with partners in six pilot countries, Namibia, Angola, Mozambique, South Africa, Indonesia and Vietnam, to better understand how to tackle the issue.

JNCC developed a global analysis of the International Union for Conservation of Nature (IUCN) Red List species threatened by pollution as a tool to engage with partners. This new tool uses species range data and pollution threat categories to produce heatmaps highlighting problematic regions, species and pollution sources. Depth of colour signals where multiple species are affected, and the darker 'hotspot' areas suggest locations to focus pollution mitigation efforts.



JNCC collaborated with partners to create an information package to support the global analysis validation workshops and stakeholder engagement. Partners organised and led workshops in-country where pollution experts united to analyse the specific results for their country and speak about priority actions.

The main sources of pollution identified included the growth of informal urban areas, the lack of wastewater and general waste treatment, increased mining, smelting and oil exploration, and pesticides used in agriculture. Most partners agreed there's not one solution. Further exploration is needed into political and socioeconomic aspects as well as technical when fighting pollution. Multifaceted mitigation approaches that encompass these elements are needed to fight the inter-connected issues of pollution and climate change

Despite travel restrictions due to Covid-19, the project engaged more than 300 in-country experts in 10 hybrid workshops. The pilot countries validated the results of global analysis and produced workshop reports with detailed findings in their respective country. With JNCC support, partners delivered state-of-the-art evidence projects for each country and proposed innovative future capacity building activities. Additionally, partners started field activities to test more effective ways of delivering pollution awareness campaigns and to inform planned actions.

Overall, the project boosted engagement on pollution and its effects on people, ecosystems and their economies. This is an excellent example of our ability to lead international projects across a variety of countries, organisations and cultures. JNCC's skills were highlighted in applying support entirely remotely, with partners delivering a complex project in-country.

Find out more at: <https://jncc.gov.uk/our-work/reducing-pollution-through-partnership>



Alexandra Cunha  
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# Through Partnership



O workshop realizou-se no formato de um debate aberto e dinâmico, onde em colaboração com especialistas, investigadores e estudantes de áreas ligadas a poluição e biodiversidade, fez-se a validação da análise global sobre a poluição desenvolvida pela JNCC com dados sobre Angola, em relação aos desafios, oportunidades, alternativas e soluções para redução da poluição, adequadas a realidade do país.





# The Ocean Country Partnership Programme

## A year of progress



The [Ocean Country Partnership Programme](#) (OCP) is a new UK Government-led programme delivering under the [Blue Planet Fund](#).

Through this programme JNCC, along with [Centre for Environment, Fisheries, and Aquaculture Science](#) (Cefas) and the [Marine Management Organisation](#) (MMO), provides technical assistance to support countries to tackle marine pollution, support sustainable seafood practices and establish designated, well-managed and enforced Marine Protected Areas (MPAs).

In partnership with Cefas and MMO, we are leading on the work involving marine biodiversity and MPAs. We are using our expertise in establishing designated, well-managed and enforced MPAs, to support countries in achieving healthy marine ecosystems with thriving biodiversity and fisheries.

Although the OCP is a new programme of work, we have already established effective partnerships, scoping priority demands of partner countries and taking part in five technical and delegation visits.

### Maldives

Strong relationships have been established with the Maldives Government, local NGOs and stakeholders in this first year.

Protected Area Management Effectiveness (PAME) assessments for three MPAs have been completed and stakeholder verification workshops took place during the mid-May technical trip, when planning for year-two priorities in the Maldives also began.



### Belize

Relationships with the Belize government, partners and MPA co-managers have been developed through delegation and technical trips over the past year. Priorities identified include MPA management effectiveness assessments, data reviews and identification of threats to the marine environment.

We will continue to work with Belize on achieving their MPA goals in the coming year.





# Partnership Programme of progress



## Sri Lanka

The first delegation trip to Sri Lanka recently took place, where OCPP was launched in the country.

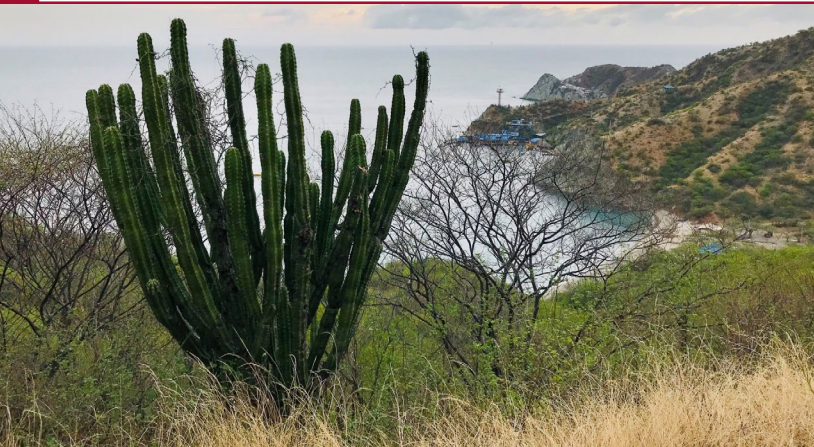
Various Sri Lankan ministries collaborated on the future working partnership with OCPP, which will continue to gain traction in the coming year.



## Scoping Technical assessments in support of the Eastern Tropical Pacific Marine Corridor (CMAR)

We are leading with Cefas and MMO on the UK's support to work in partnership with four countries to protect some of the world's most important and biodiverse marine environments. The team has completed the first series of workshops in Colombia and is in Ecuador with a series of Ministerial and technical meetings. Trips are planned in the near future for Costa Rica and Panama before the results are compiled to support next steps for the CMAR initiative.

We're excited and proud to be part of this important programme of work in the OCPP and we are looking forward to working with and learning from our partner countries.



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# Monitoring

## Bird Ringing

Bird ringing provides valuable information on the populations of birds by telling us about survival rates, numbers of young fledged, and bird movements. This scientific technique has a long history in the UK, with some form of ringing having taken place since 1909! The National Ringing Scheme, a partnership between the British Trust for Ornithology (BTO) and JNCC, currently collects data on around one million birds a year.



Bird ringing involves putting a lightweight individually marked metal or plastic ring on the legs of birds. The rings are fitted to the size of the bird and are equivalent to people wearing a wristwatch. Bird ringers undergo robust training – it usually takes at least a year to obtain a ringing permit, working regularly with a qualified bird ringer. This system ensures adherence to high bird welfare and science standards. Studies have shown that ringing has negligible impact on bird populations and bird behaviours – this is important not only from a bird welfare perspective, but also to ensure it's a scientifically robust tool that can give us an accurate picture of what's happening.

The JNCC-BTO partnership particularly encourages ringing using standardised methods through the Constant Effort Sites (CES) scheme (established 1983) and the Retrapping Adults for Survival (RAS) scheme (established 1999). These surveys provide information on breeding success and survival, and so complement data on egg laying (from the Nest Record Scheme) and population trends (from the Breeding Bird Survey). Collectively these surveys help show not just if populations are changing but, more importantly, why they are changing. For example, changes may be because fewer chicks are being raised or because adult mortality is increasing. Understanding the cause of change is important for identifying what conservation measures will be effective, and why species are responding to environmental pressures in a particular way.

Ringing data contribute to a large number of scientific publications on subjects ranging from climate change to migration and bird diseases. In England, house sparrows, a once common species, have showed substantial declines since the 1970s. This is thought to be for a combination of reasons, such as changes in survival rates due to agricultural intensification reducing food availability and changes in breeding performance. However, a recent research project by Dadam *et al.* (2019) involving ringing house sparrows in London highlighted a new factor of interest – it found that house sparrow survival rates were lower in areas where a bird-specific parasitic disease (Avian malaria) was more prevalent. On a broader scale, ringing data from across Europe contributes to a migration mapping tool which is helping to assess the risks of Avian Influenza being spread by wild birds.

Improving our understanding of bird migration is particularly important for the conservation of many mobile species as it helps us understand and manage risks across the species' entire flyway. For example, ringing data were key in showing where the UK's Roseate Terns migrate to in our winter, leading to conservation action in Ghana that boosted their populations in the 1990s (Avery *et al.* 1995). To this end the British scheme operates in close collaboration with 48 other ringing schemes across Europe through Euring (the European Union of Ringing Schemes). In the last few years the number and scope of projects using tracking devices have taken off (Geen *et al.* 2019) and, in the UK, this activity is possible thanks to the network of highly trained ringers who have the skills to deploy them safely.



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# ng focus

## ng Scheme

If you'd like to get involved or find out more visit [www.bto.org/ringing](http://www.bto.org/ringing). It's not just bird ringers who contribute to the success of this research; people who report sightings or recoveries of birds with rings are equally, if not more, valuable in the endeavour. If you're a bird watcher and spot any birds with colour rings, make a note and report it to [www.ring.ac](http://www.ring.ac)

Migration mapping tool: <https://www.bto.org/our-science/migration/migration>

Avery, M., Coulthard, N., Del Nevo, A., Leroux, A., Medeiros, F., Merne, O., . . . Wallace, E. (1995). A recovery plan for Roseate Terns in the East Atlantic: An international programme. *Bird Conservation International*, 5(4), 441-453. doi:10.1017/S0959270900001167 (<https://www.cambridge.org/core/journals/bird-conservation-international/article/recovery-plan-for-roseate-terns-in-the-east-atlantic-an-international-programme/78297D75D439A0E0FDD282B5E11D3D14>)

Dadam D., Robinson, R.A., Clements, A., Peach W.J., Bennett, M., Rowcliffe J.M. and Cunningham, A.A. (2019) Avian malaria-mediated population decline of a widespread iconic bird species. *Royal Society Open Science*.6182197182197 <https://royalsocietypublishing.org/doi/10.1098/rsos.182197>

Geen G.R., Robinson, R.A., and Baillie, S.R. (2019). Effects of tracking devices on individual birds - a review of the evidence, *Journal of Avian Biology* 50(2), DOI: 10.1111/jav.01823

Goldcrest facts:

Robinson, R.A. (2005) BirdFacts: profiles of birds occurring in Britain & Ireland. BTO, Thetford (<http://www.bto.org/birdfacts>, accessed on 03 May 2022)



### Long lived....

- A Manx Shearwater seabird ringed in May 1957 was re-recorded over 50 years later in 2008!
- A Puffin recorded in 2019 wore a ring showing it to be at least 42 years old.
- In contrast the longest-lived Robin recorded by the National Ringing Scheme was just over 8 years old. This is pretty exceptional - most birds have a short life expectancy of up to just a couple of years.



### Fantastic flyers...

- The scheme's longest distanced recovery is an Arctic Tern that flew from Anglesey to Australia!
- The fastest Swallow recorded by the National Ringing Scheme made it from Sussex to Liberia in nine days.
- A Goldcrest (our smallest bird weighing just 5-6g) was ringed in Denmark one evening and re-caught in Britain the following morning!

# Harnessing ci

Turning  
science into  
action

## Simple additions to citizen scientist records to increase our understanding of species

### *Do you record and submit sightings of biological taxa?*

Be it mammals, moths, birds, or bats, noting down the start/end time of your survey, the search areas or route length walked and if you collected a full species inventory could help researchers understand much more about how species distributions change over time or respond to climate change.

Trialling revised survey forms or adding simple checkboxes into recording apps are two of the ways biological recording schemes and societies could help citizen scientists report this extra information to unlock many more analytical uses for the data they collect.

A large volume of biological records is collected by citizen scientists how, when and where they choose without following strict survey protocols. These records are hugely useful because the simplicity and flexibility of the data collection method means it's easy for volunteers to participate and record interesting sightings. However, these data can be difficult to statistically analyse because no information about how long or how widely areas were searched is documented.

Some recording schemes ask volunteers to follow survey protocols and record information about how and when observations were made but this often requires greater time commitments from both volunteers and scheme organisers.

So how could biological recording schemes and societies support citizen scientists to record additional information researchers need without discouraging participation? A [new report](#) produced by researchers at the UK Centre for Ecology and Hydrology and published by JNCC as part of the Terrestrial Surveillance Development and Analysis partnership explores this question.

The report summarises which survey attributes biological recording schemes and societies might consider adopting and the feasibility of doing so in relation to existing survey protocols and volunteer interests. How technology could support data capture of additional attributes to benefit both researchers and recorders is also explored. For example, capturing volunteer skill level or time spent searching for species allows researchers to address elements of recorder bias in the data while allowing users to track changes in their skill level over time.

The report concludes that better communication between practitioners designing survey protocols and researchers using the resulting data could improve the applicability of the data for research that can then be reported back to the volunteers, showing how their records have been used to analyse changes in species spatial and temporal trends.



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Image: Volunteer recording © Paul Crompton



# citizen science

## Introducing people to model-based data integration for biodiversity assessments

Driving  
nature  
recovery

With nature facing increasing pressures, the need for biodiversity monitoring has never been greater. However, biodiversity monitoring covers a wide variety of activities and produces a broad range of types of data. Some data collection is based on standardised protocols, but these are generally limited in what they cover (both geographically and taxonomically). Many other datasets come from recorders who monitor in an opportunistic way, but these may contain biases based on factors such as survey effort.

Often these different data types are seen as incompatible and analysed completely separately. But wouldn't it be useful if there were a way to combine these different types of data sources, to produce a result that is based on the best of both worlds and a larger sample size? That's where model-based data integration comes in - a statistical framework to combine the analysis of data from multiple sources to create a firmer evidence base for decision makers to use.

As part of the Terrestrial Surveillance Development and Analysis partnership, JNCC has published a [non-technical introduction to model-based data integration](#), put together by partners from the UK Centre for Ecology & Hydrology and British Trust for Ornithology. The guide presents the concept of model-based data integration, introduces the modelling framework and presents its advantages using a series of case studies.

The guide fits closely with JNCC's Strategy, which includes "assessing environmental status in the UK" as a key theme. Within this theme, JNCC commits to "work with partners to increase the opportunities for volunteer recording" and "facilitate the uptake of new technologies such as Earth Observation and eDNA". This will provide a wide range of different types of data which benefit from a framework that enables their integration to "support national and local status assessments". It also aligns strongly with JNCC's Terrestrial Biodiversity Evidence Strategy, which aims to "sustain and increase the availability of high-quality data on biodiversity" and "explore opportunities to fill evidence gaps through existing surveys".

We hope the model-based integration approach will be useful to a range of organisations, including those wishing to evaluate biodiversity trends at a smaller spatial scale than the UK, those designing new monitoring schemes, and those making decisions of relevance to biodiversity who need an evidence base that is as wide as possible.



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# Strengthening the UK marine natural capital

Turning  
science into  
action

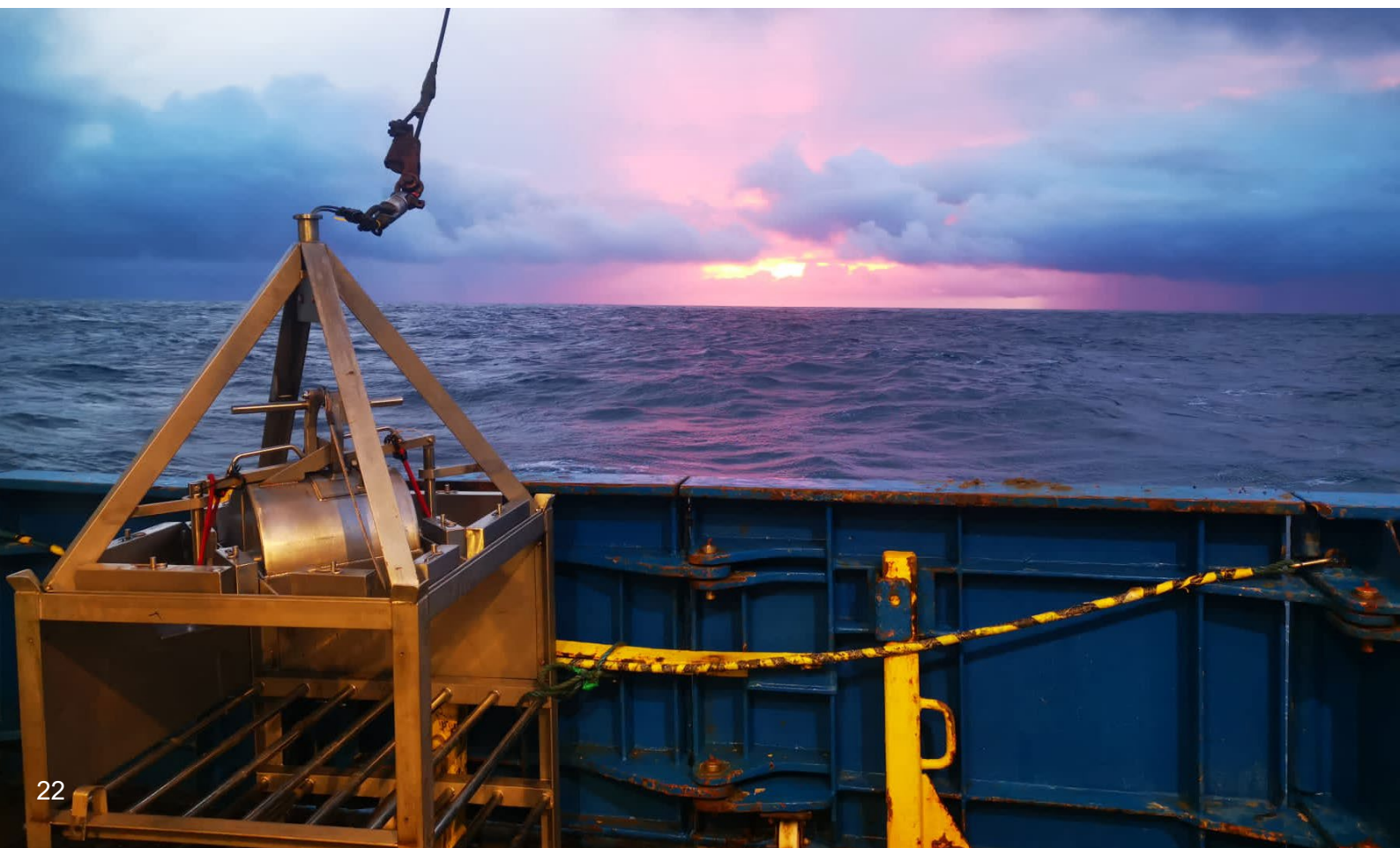
The first major update in over 15 years of the common language that describes life on the seafloor has been published. The [Marine Habitat Classification for Britain and Ireland](#) (MHCBI) is used for Protected Area designation, assessments of environmental status, marine spatial planning and casework throughout the UK.

Collaborative effort by JNCC and the marine community has updated the sedimentary section of the classification, which describes areas of the seabed that are not rocky, adding a set of five new habitats and expanding the definitions of others.

Two epifaunal habitats (with animals living on the seabed) were determined from underwater video data. One, discovered in the Small Isles off north-west Scotland, is a habitat dominated by fan mussels and brittlestars which also supports a diverse array of anemones, crustaceans and sea urchins. The other is dense Ophiura brittlestar beds which are widespread throughout the UK – a habitat known for some time but now recognised in the classification.

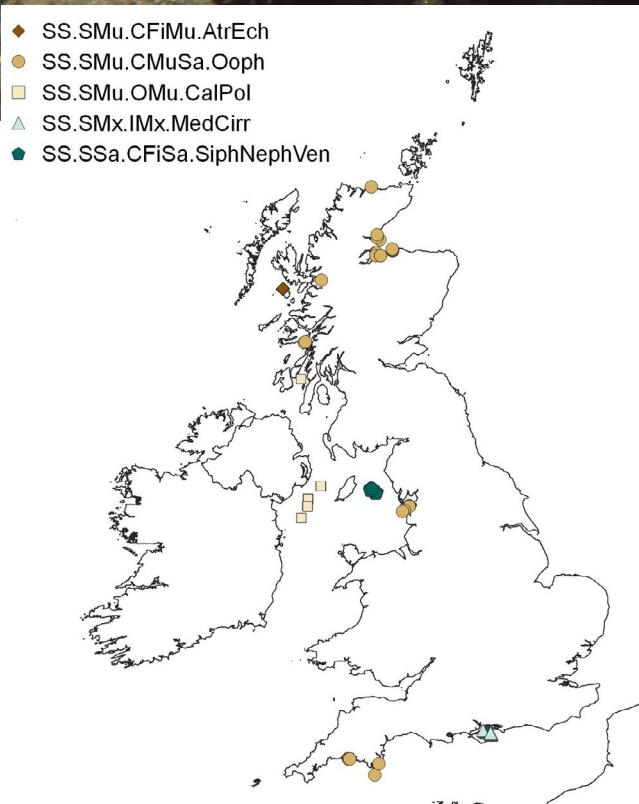
Three new infaunal habitats (with animals living in the seabed) were determined from Day grab data. One is a muddy habitat supporting the crustacean *Calocaris macandreae* and a variety of polychaete worms. The second is a mixed sediment community found in the English Channel and the third was discovered on sandbanks to the East of the Isle of Man.

Access to new survey data has improved definitions of 26 existing habitats, for example expanding definitions where a community has been found on different sediment types. We have also updated 22 species names throughout the classification. Now work is analysing the sediment habitats on the shore, and rock habitats.





# the foundations of nature conservation



Map showing distribution of the five new MHCBI habitats within UK waters

Developed by JNCC in 1995, the MHCBI became the basis for the Europe-wide EUNIS classification. At the time, data on biological communities living away from the coast was sparse. A rapid rise in boat surveys for Marine Protected Area identification has provided an excellent data resource, improving knowledge and understanding of seabed communities.

JNCC chairs the MHCBI, comprising representatives from the Agri-Food and Biosciences Institute, Cefas, the Department of Agriculture, Environment and Rural Affairs in Northern Ireland, the Environment Agency, Natural England, Natural Resources Wales and NatureScot.

Thanks to this work our monitoring data, maps and reports from marine surveys will accurately describe the habitats they find in a common language, a process essential to support status assessments and decision-making.



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# The Chief Scientist on Net Zero and

The **Chief Scientists' Group** (CSG) is a Director-level group of the Statutory Nature Conservation Bodies (SNCBs) – Natural England, Natural Resources Wales (NRW), NatureScot, the Northern Ireland Environment Agency (NIEA) and JNCC. The group shares best practice, and develops and resources solutions for common terrestrial and marine nature conservation issues, in the UK and beyond. It exchanges information to avoid duplicating effort and identifies opportunities for collaborative working.

The CSG advises the Joint Committee and is responsible for approving processes and outputs like the Guidelines for SSSI Designation, Common Standards Monitoring, and the Quinquennial Reviews (QQR) of Schedules 5 and 8 of the Wildlife & Countryside Act 1981, some of which are formally signed off by the Joint Committee.

A workshop in February aimed to understand individual country's approaches to Net Zero, how they relate to nature recovery, and the possibility of collective actions to benefit biodiversity and air quality such as providing input to the Convention on Biological Diversity (CBD) 15th Conference of Parties to the UN Framework Convention (CoP15).

In **Wales**, the public sector aims to reach net zero by 2030. With the creation of a new 'super' Ministry and Minister for Climate Change, policies and proposals cover all sectors, emphasising just transition, place-based approach, a skills plan, digital and innovation strategies, and policies on energy generation and transport. The Net Zero Plan recognises that many levers are outside devolved powers and dependent on UK delivery. NRW is addressing challenges in offshore renewable energy and exploring opportunities around blue carbon storage and sequestration.



Nature-based solutions (NbS) are key to delivering net zero, especially for NRW as it manages forestry resources. Programmes for Woodland Creation, National Peatland Action, Saltmarsh and Seagrass Restoration are relevant, as is the Sustainable Farming Scheme and the Nature Recovery Plan for Wales. The priority actions in [Nature Positive \(NP\) 2030](#) encapsulate much of the cross-over between the nature and climate emergencies, with NbS constituting an important link between net zero and nature recovery.

**Scotland's** net zero plans have strong synergies with those in Wales. Scotland aims to align biodiversity and climate change strategies closely through the Climate Change Plan and the developing post-2020 Scottish Biodiversity Strategy.



# s' Group Workshop

# Nature Recovery

The nature–climate crisis is a triple challenge, requiring emission reductions, adapting to a changing climate, and enhancing the state of nature. What's good for biodiversity is good for carbon sequestration but the reverse may not be true, due to factors such as timeframes (short-term gains versus long-term costs), and potential pressures (e.g. pests, disease). The design of NbS interventions will be based on IUCN global standard evaluation frameworks. The alignment of resources to shared outcomes across organisations and sectors will be critical for reaching targets.

In **England**, The Climate Change Act sets a process for reducing greenhouse gas emissions and to achieving net zero by 2050. The UK Government's net zero strategy 'Build back greener' 2021 includes 'protecting our natural environment' using green finance and innovation. Key policies cover natural resources, waste and fluorinated gases, greenhouse gas removal, monitoring, reporting and verification, and Environmental Land Management.

Natural England's nature-positive approach to net zero focuses on NbS, using evidence of carbon stocks and fluxes by habitat (e.g. peatlands, woodland, semi-natural habitats). Its five-year aim is for NbS to contribute fully to tackling climate challenges and wider environmental hazards and threats. Innovative measures include targeting incentives for NbS where they can deliver most benefit.

In **Northern Ireland**, the new Climate Change Bill's targets are based on the UK Climate Change Committee's recommendations but take account of the importance of livestock agriculture. The Northern Ireland Assembly recently voted for net zero by 2050.

Links between nature and climate expressed in NP2030 and COP26 indicate the need to go 'low carbon high nature'. A place-based approach means the right management intervention in the right place, based on evidence. Issues around air pollution (particularly ammonia) and its impacts on biodiversity and the carbon cycle are linked to Northern Ireland's reliance on livestock production. NIEA advocates for NbS, particularly where there are clear links between air pollution and the potential efficiency of these solutions (e.g. impacts on peatlands, subject to a programme of ammonia monitoring).

**JNCC** leads on the Inter-agency Air Pollution Group and emphasised that an integrated approach to tackling climate change (carbon), biodiversity loss and air pollution (nitrogen) is necessary to reach net zero.

**Integration and synergy** were key messages of the workshop, demonstrating CSG's value in bringing together agendas and comparing outcomes. Understanding and developing the 'people' element (behavioural change, socio-economics) are critical to implementing change, alongside considering the value of incentives versus regulation.

We need cost-effective ways of showing what works, as for NbS, by building or strengthening the evidence base. The value of NbS to link nature and tackle climate change is a key principle adopted by SNCBs. Working together informs SNCBs' thinking and links them to Nature Recovery plans. Dialogue will continue, benefitting from the interactions of various Interagency Working Groups. The likelihood of a Convention on Biological Diversity (CBD) target or indicator on nitrogen reductions being agreed at the upcoming CBD CoP15 looks promising.



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# Conservation Conversation

This issue we focus on **Professor Thomas Meagher**, botanist and Professor of Plant Biology at the University of St Andrews and a member of the Joint Committee. Thomas leads an international and interdisciplinary initiative developing novel remote sensing technology to aid assessment and conservation of plant biodiversity. He has been an active contributor to Scottish Government environmental and conservation science strategy as a former Board Member of the Royal Botanic Garden Edinburgh.



## Q Species that inspired you as a child?

I was fascinated with insectivorous plants. Growing up in central Florida I explored habitats of sundews and pitcher plants. At University I became fascinated in plants that had separate sexes, in particular wax myrtle.

## Q What concerns you most about the natural world?

The widespread perception that the natural world is separate from our everyday lives. It limits people's ability to appreciate the immediacy of nature and drives them to reject habitats they regard as spoiled, even when this is based on superficial impacts.

## Q What would you like to achieve in your time at JNCC?

My main objective is to help the JNCC realise its objectives in the most effective manner possible. I'm particularly interested in interdisciplinarity. With its local, national and international work JNCC is well positioned to provide leadership as we face huge conservation challenges.

## Q Where is your favourite place?

It's usually where I am. Right now, I enjoy being in Scotland!

## Q Desert Island Disc?

Hopefully I'd have access to YouTube! Recently I've been listening to Deolinda, a group which resonates with traditional Portuguese folk music.

## Q Place you'd most like to visit?

Having invested time learning Portuguese I would love to spend more time exploring Brazil and Portugal, and in addition the Peruvian Andes and Peruvian Amazonia.

## Q If you could dine with any four guests who would they be?

David Brin, science fiction author whose work emphasises environment and evolution; Barbara McClintock, Nobel Prize winner for her discovery of mobile genetic elements; Charles Darwin, fresh off his voyage on HMS Beagle; Marjory Stoneman Douglas, author of *The Everglades: River of Grass*.

## Q Who is your human hero in the natural world?

Anthony D Bradshaw was the PhD supervisor of my PhD supervisor at Duke University. His contributions ranged from investigation of contemporary evolution of heavy metal resistance to the then-emerging field of restoration ecology. His seamless move between evolutionary biology and application to environmental challenges was a strong inspiration for me.

## Q What do you do away from the office?

I enjoy a broad taste in music. I play the French Horn, performing recently with the Tayside Symphony Orchestra and the St Andrews and Fife Community Orchestra.

## Q If you could choose another job or career, what would it be?

One of the benefits of being a University Professor is that you can reinvent yourself. With my wide-ranging research over plant biology and biodiversity I feel I've chosen new roles multiple times.



