



CIEEM

Issue 121 | September 2023

inpractice

Bulletin of the Chartered Institute of Ecology and Environmental Management

Diversity, Accessibility and Capacity

Embracing Disability and
Neurodiversity in the Workplace

New Routes into the Profession:
Could Vocational Career Paths
Help Reach Capacity Crisis Goals?

Equity, Diversity and Inclusion
at The Bat Conservation Trust –
How Can We Do Better?



BE A PART OF THE CHANGE!

At CIEEM we're on a mission to make the ecology and environmental sector more diverse, welcoming and inclusive.

To date, we have:



Developed our Green Jobs for Nature website to showcase the range of opportunities available and inspire the next generation of ecologists and environmental managers



Appointed an Equality, Diversity and Inclusion Engagement Officer to lead on activities to promote diversity and inclusion

But we want to move faster and do more...We need your help.

We're looking for companies and organisations willing to invest a minimum of £5,000 in our diversity and inclusion work.

Visit www.cieem.net/promoting-diversity-and-inclusion or contact diversity@cieem.net to find out more

With thanks to our existing Equality, Diversity and Inclusion partners:



Editorial

Welcome

In this issue of *In Practice* we are highlighting the drive to make the ecology and environmental management sector more diverse and inclusive. This is a topic that is extremely important to me personally. I am immensely proud to be your CEO, but that pride has been tinged with frustration and regret at the lack of progress in advancing some aspects of diversity amongst the membership.

Awareness and concern about our sector's performance in this area is nothing new. We have been talking about it for decades but, until recently, nothing very much had changed. Personally, I think the 2017 Policy Exchange report¹ that highlighted that the environmental professions were the second least diverse occupation of the 202 measured in the UK (agriculture was the least diverse) shocked many into action. In 2020, global attention turned to the Black Lives Matter campaign as a result of the murder of George Floyd. The resultant groundswell of calls for change has galvanised the sector to tackle, once and for all, the barriers to participation for historically under-represented communities including people of colour, from lower socio-economic backgrounds and who are disabled.

CIEEM took the decision to play a full and active role in leading change, and I am grateful to the Governing Board for committing both financial resources and support to our work in this area, including the appointment of a part-time Equality, Diversity and Inclusion (EDI) lead. We have also had some fantastic support from our working group and our EDI Partners. Much of our activity is described in this issue of *In Practice*. Make no mistake, this is a journey we must take, and to be successful we must do so respectfully, collaboratively and with well-informed insights. We must allow previously excluded voices to be heard.

I think that there are four areas of change that are needed. Firstly, we must tackle the social injustices that make regular access to, and interaction with, nature a privilege rather than a right. We need to recognise that nature is not everyone's thing and we should not impose nature-connectedness on everyone. However, many of us will recognise that our interest in working in this field came from our interactions with the natural environment, so opportunities to experience that 'spark' are important.

Secondly, we need to raise awareness about the breadth of ecology and environmental management roles available, together with the key supporting roles we rely on. We need to get that message out into the communities where our target audiences are. We also need to change incorrect perceptions about what those jobs are like – whilst also tackling the realities and challenges of our sector in terms of working conditions, low pay, and unfair treatment. We need to make the sector a good one for everyone to work in.

Thirdly, we need to create more accessible education and training routes into our sector. Not everyone has the opportunity, money or desire to do a degree (although for some it is the right path). But we also need to re-purpose the apprenticeship landscape and co-create, with colleges and universities, other educational and vocational routes. We need to challenge employers' expectations that new entrants into the profession need to jump through multiple hoops before getting a permanent job with a decent salary. And PLEASE, let us end this expectation around the need for volunteering to get practical experience to augment a degree or prior work experience. It is patently unfair and excluding to many. Finally, we need to work together to create inclusive, safe and welcoming



work environments that recognise the needs of everyone and supports them to be the best ecologists and environmental managers they can be. As a manager I have learnt a lot (and am sure I still have much to learn) about what the workplace looks and feels like to someone who is not me. As employers we need to ask the questions, and really listen to the answers, about transforming working places and practices to be supportive to all rather than challenging to some.

CIEEM is actively engaged in championing this change. There is no quick fix but I am so pleased that we have started this journey and so grateful to the many members and supporters who are working with us, because working together to create a more diverse and inclusive profession is not a choice. It is an imperative.

Sally Hayns CEcol FCIEEM
Chief Executive Officer, CIEEM

Notes

1. Policy Exchange (2017) *The Two Sides of Diversity* – see <https://policyexchange.org.uk/>

EARLY CAREERS TRAINING PROGRAMME

October 2023 Enrolment!

The programme is comprised of 12 days of training for early career Ecologists and Environmental Managers to be taken over an 18-24 month period to gain a solid foundation at an early stage in their careers.

There will be a range of optional modules for the delegate and employer to choose from based on their interests and specific areas of work.

Here's what current delegates on the programme have to say:

“

Being able to engage with other ecologists from different companies that are working at the same level of me is so valuable to me

“

I came away from the training feeling inspired to be an ecologist and more grounded in my knowledge of the sector

“

It was really valuable to have conversations with other ecologists about the sort of issues we face as young professionals

The October 2023 cohort will be our fourth intake of the course and is limited to just 16 delegates. It will be held on **31 Oct & 1 Nov** in Birmingham

Visit www.cieem.net/early-careers-training-programme for more information and to book your place



In this issue

06 CIEEM News

07 Did You See?

■ Features

8 Championing Change in Our Profession
Lea Nightingale

12 Embracing Disability and Neurodiversity in the Workplace
Claire Munn

20 Neurodivergence in the Workplace: the strength of a team
Jordane Marsh, Monica Wood and Siân Rennie

28 How to Encourage Neurodiversity in Ecology, and Ensure We are Supporting Neurodivergent Employees
Izzy McQuillan

32 Capacity and Recruitment in the Ecology Sector
Paul Clack

38 Peatland Restoration – an Industry Revolution
Becky Shaw

43 New Routes into the Profession: Could Vocational Career Paths Help Reach Capacity Crisis Goals?
Alina Congreve and Neil Smith

47 Equity, Diversity and Inclusion at The Bat Conservation Trust – How Can We Do Better?
Naomi Webster

50 Bird Monitoring and Adaptive Management on a Coastal Helicopter Site
Tim Ross

■ Viewpoints

17 ADHD and the Silent Struggles
Tracey Younghusband

25 Meet One Ecologist with Autism
Joanne Denyer

34 The changing role of ecologists; can diversifying address capacity issues?
Brandon Murray

■ Institute Updates

55 Nature for All Project – Scottish Environment LINK
Leigh R. Abbott

56 Introducing the basics of nature conservation policy and legislation
Alina Congreve and Anthony Gallagher

58 CIEEM Awards 2023: Time to Celebrate
Sally Hayns

62 National Education Nature Park

63 Ethical Dilemmas

65 Advice Note – CIEEM Members Making Complaints Against Other Members

66 Could You Be a Trainer for CIEEM?
Krystie Hamilton



67 The Raising Standards Project
Mark Nason

69 What's it Like Being on TECDC?
Craig Willcock-Orme

71 Green Jobs for Nature

73 Post-Nominals – How Do You Use Yours?
Stuart Parks

74 Welcoming New CIEEM Fellows

75 Policy Activities Update
Douglas Lewns

76 From the Country Project Officers

■ Sector News

77 British Ecological Society
How Our Community Networks are Creating a More Level Playing Field for Ecologists

■ By Members

78 By Members for Members

80 Books, Journals and Resources

81 Book Reviews

87 Forthcoming Events



In Practice

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EDI awareness

In this edition of *In Practice* we cover a range of diversity and accessibility challenges for the sector, but we're also aware that we haven't been able to cover everything. And although this edition has been dedicated to diversity and accessibility, we would very much welcome more contributions on this topic for future editions of *In Practice*. If you'd like to share your experiences, challenges and/or solutions please do get in touch.

Improving our neurodiversity engagement

As part of our commitment to delivering an inclusive and accessible membership we recently contracted Lexxic, an external consultancy specialising in helping businesses to become more neuro-inclusive, to undertake a review of our current membership application processes, including application forms, guidance documents and feedback. After conducting a desk-based review of current processes, Lexxic worked with a focus group of both member and non-member neurodivergent ecology and environmental management professionals, from a range of sectors, to discuss in more detail the challenges our current processes present to them.

A summary report of anonymised feedback and recommendations has been provided by Lexxic. The content of the report was extremely useful, encouraging and necessarily challenging in some parts and we are very grateful to all of the participants for their willingness to help us improve our practice. Work has already commenced to identify and deliver some immediate changes while we continue to map out the potential for much larger scale change as part of the coming year's operational plan.

At the time of writing, we are expanding the consultation to include reviewing the Professional Review Interview stage of applications for Chartered status and constructing a training session for all volunteers involved in assessing applications and conducting interviews. Alongside this, we are expanding the operational areas under review to include those

associated with CIEEM's Professional Conduct and complaints processes.

We are grateful to Lexxic for their input so far, including the provision of a suite of useful information about neurodiversity in the workplace which has been added to the CIEEM website as a resource.

Regular updates on the progress of this work will be provided in future editions of *In Practice* and online.

Recent webinars

We continue to run a full and varied series of webinars for members and the sector. Readers may be interested in the below recent webinars that are available on the CIEEM Resource Hub.

- ASIG Meeting June 2023: Should we be celebrating failure?
- Biodiversity Metric 4.0: Everything you need to know and more
- ASIG meeting May 2023: Lonely Conservationists: Community, Communication and Mental Health

Past webinars are available in the CIEEM Resource Hub (<https://cieem.net/i-am/resources-hub/>). Also look out for future webinars in events and training listing on the website (<https://events.cieem.net/Events/Event-Listing.aspx>).

CIEEM Conferences

Date	Title	Location
3 October	CIEEM 2023 Scottish Conference: The Role of Trees in a Sustainable Future	Edinburgh
22-23 November	CIEEM 2023 Autumn Conference: Modernising Ecology: Techniques and Approaches	Liverpool

Find out more: <https://cieem.net/events>

In Practice Themes and Deadlines

Edition	Theme	Article submission deadline
December 23	Non-themed (submissions welcome on any topic)	n/a
March 24	Water and Ecology	17 Nov 23
June 24	Afforestation and Tree-Planting	16 Feb 24
September 24	Financing Nature's Recovery	17 May 24
December 24	Non-themed (submissions welcome on any topic)	16 Aug 24

If you would like to contribute to one of these issues, please contact the Editor at nikprowse@cieem.net. Contributions are welcomed from both members and non-members. Further information and guidance for authors can also be found at: <https://cieem.net/in-practice/>

Recent blog posts

Recent blog posts on the CIEEM website (<https://cieem.net/news/>) include:

- Section 106 Agreement Marks Key Moment in Biodiversity Net Gain Provision – by Anthony Weston
- Are Local Planning Authorities ready to monitor mandatory BNG? – by Richard Marsh MCIEEM & Dr Mikael Forup CEnv MCIEEM
- World Environment Day 2023 – Beat Plastic Pollution

If you would like to contribute your own blog, please contact sophielowe@cieem.net.

Staff changes

In July we welcomed **Jigyasa Anand** for an 8-week internship with the policy team. Jigyasa is a student at Oxford University, having just completed her undergraduate degree and will be commencing her master's degree after the summer. She is helping to draft a briefing paper on policy divergence.

And in August, **Sarah Oliver** joined the team in Ampfield as our new Professional Development Administrator. She has a background in teaching.

EKN publishes Nature Finance Review for 2023

The Ecosystems Knowledge Network (EKN) has published its inaugural stock take of private finance for environmental restoration in the UK. Nature finance refers to the trading of ecosystem service credits, often in the form of projects such as seagrass restoration or the planting of woodlands. The review has a number of key findings, such as, Biodiversity units being the most frequently sold environmental benefit within the private sector, and that there is a significant level of uncertainty within the sector around future revenue and Government policy towards nature finance.

<https://cieem.net/ekn-publishes-nature-finance-review-2023/>

NRW implements new environmental regulatory charging scheme | CNC yn gweithredu cynllun codi tâl rheoleiddio amgylcheddol newydd

A new charging scheme for some of Natural Resources Wales' NRW permitting services has been approved by the Minister for Climate Change, Julie James MS and was implemented on the 1st of July. It is hoped that these changes will reduce reliance on taxpayers and create schemes that work better for the environment and business. New and revised charges were made for the following areas; Industry regulation, Site based Waste, Water quality, Water resources, Reservoir compliance, Introduction of Species Licencing Charges and Changes to the definition and offers of pre-application advice.

<https://naturalresources.wales/about-us/news-blog-and-statements/news/nrw-set-to-implement-new-environmental-regulatory-charging-scheme/>

BIO-tool developed to measure habitat on farms

The College of Agriculture, Food and Rural Enterprise (CAFRE) has developed a new tool to assess the intended or unintentional provision for nature on a farm. Every farm in Northern Ireland has some level of semi-natural habitat, however, the quantity and quality of these habitats varies massively between different farms. The tool is intended to provide farmers with a simple tool to be able to calculate the percentage of semi-natural habitat that already exists on their farms, and then, assess how the habitat is managed as a way of measuring the quality of habitat. The tool is available to download from the CAFRE website and will be refined further using any data provided from farms across Northern Ireland.

<https://www.daera-ni.gov.uk/news/caf-re-bio-tool-measure-habitat-your-farm>

Ireland's Climate Conversations 2023 launched

Minister Ryan has launched Climate Conversations 2023, inviting people across the Republic of Ireland to have their say in securing Ireland's sustainable future, this feedback will feed into the shape of Ireland's next Climate Action Plan. The 2022 Climate Conversations programme showed that people are concerned about climate change, and want ambitious leadership to take action. The aim of this year's Conversation is to build on what was learnt last year, making sure that people across the whole of Ireland engage with this process particularly those that will be affected by the transition to carbon neutrality.

<https://www.gov.ie/en/press-release/ee172-minister-ryan-launches-climate-conversations-2023>

First national Marine and Coastal Wildlife Code launched

The Government has launched England's first-ever national Marine and Coastal Wildlife Code, offering advice and guidance to help people visit the coast responsibly. The code has been developed in collaboration with a number of environmental organisations and offers specific guidance on how to act around animals such as seabirds, seals, dolphins, sharks and turtles, as well as information on breeding seasons. Making this information easily accessible is important, as it can help ensure that marine wildlife remains undisturbed.

<https://www.gov.uk/government/news/first-national-marine-and-coastal-wildlife-code-launched>

Peatland restoration in Scotland increases by 25% over the last year

The number of peatland hectares that are now on the road to recovery due to work from NatureScot's Peatland ACTION team has increased by 25% between 2022 to 2023 for a total of 5000ha. Peatlands are incredibly important habitats for tackling climate change, and cover more than 20% of Scotland, providing diverse landscapes, slowing floods and wildfires and storing carbon. Working with landowners and contractors across Scotland, NatureScot Peatland ACTION have completed over 50 restoration projects in 2022-2023, making up more than 65% of all Scottish Government-funded Peatland action.

<https://www.nature.scot/peatland-restoration-scotland-increases-25-over-last-year>



Championing Change in Our Profession



Lea Nightingale
EDI Engagement
Officer, CIEEM

Keywords: action, EDI, plans, research

CIEEM's research, combined with sector-wide research in late 2021, revealed a significant appetite for increasing diversity within the environmental employment sector. But it also showed that issues such as lack of action, the experience of racism for some staff, and continued barriers to entry were halting change. This article describes how, as part of our Championing Change strategic goal, we are moving forward with purpose to address these challenges as part of a committed and collaborative cross-sector partnership.

Introduction

We have long known that the environmental sector as a whole needs to take action to become more ethnically diverse. A 2017 Policy Exchange report (Norrie 2017) highlighted that the environmental professions in the UK were the second least diverse occupation of the 202 occupations measured (agriculture was the least diverse). People from all backgrounds across the country are passionate about nature, yet only 4.81% of environmental professionals identify as Black, Asian or from other minority ethnic groups, compared to 12.64% across all UK professions (Gayle, 2022).

Current context

In 2021 our membership survey (CIEEM 2021b) highlighted some aspects of equality and diversity that urgently need to be tackled. That same year we worked with specialist stakeholder engagement consultancy Dialogue Matters to undertake our *Breaking Down the Barriers* research to look at why people of colour might not consider ecology and environmental management as a career. The subsequent report (Freeman, Pound and Rae 2021) identified a number of barriers including:

- a lack of awareness of the range of environmental job opportunities
- poor perception of the nature of environmental jobs, the range of employers and the rewards available
- concern amongst peers and influencers about the career potential in environmental roles
- concern about the commitment to inclusive working environments amongst environmental employers
- the commitment to higher education required (i.e. degree-level entry) relative to potential earnings.

In 2022 Wildlife and Countryside Link (WCL) and Natural England commissioned Full Colour, a specialist diversity and leadership consultancy, to explore the issue affecting progress towards greater ethnic diversity within

the environmental sector. The research investigated attitudes and perceptions on ethnic diversity and inclusion with more than 2000 environment professionals which had been collected in 2021, and included an extensive consultation process with staff across a breadth of environmental charities in 2022. Findings showed a high appetite for action to improve ethnic diversity, with 84% of organisations willing to take action. However, this contrasted with low action on the ground, with only 4% of organisations having and regularly implementing Diversity and Inclusion plans. In addition, 86% of leaders felt that increasing ethnic diversity should be a top or high priority for the environment sector, but only 22% felt it currently is a priority (Full Colour 2022).

This research revealed many concerning findings, with people of colour continuing to face barriers to recruitment and career progression, and experiences of racism. The findings also demonstrated a big perception gap between senior leaders and staff in how well their organisations are doing on diversity. A key barrier was identified in that many organisations lack training and expertise in how to create inclusive workplaces and recruitment practices (although this is not unique to our sector).

This project has led to the development of a route map which aims to boost

ethnic diversity of the environment sector between 2023 and 2027. More than 45 organisations, including CIEEM, have committed to delivering key actions as part of the route map (see WCL 2022 for the list of organisations).

This innovative route map, and accompanying guidebook, sets out action for collective work in four core areas:

- improving culture
- transparency
- action on racism
- organisational plans and practices.

It provides a clear framework to create consistent change in the sector, and common aims and milestones for environmental charities to work towards together. Measures for individual organisations range from basic actions, such as routinely incorporating ethnic diversity terms and definitions and establishing internal responsibilities on diversity, through to more ambitious moves such as enhancing racism monitoring, reporting and enforcement.

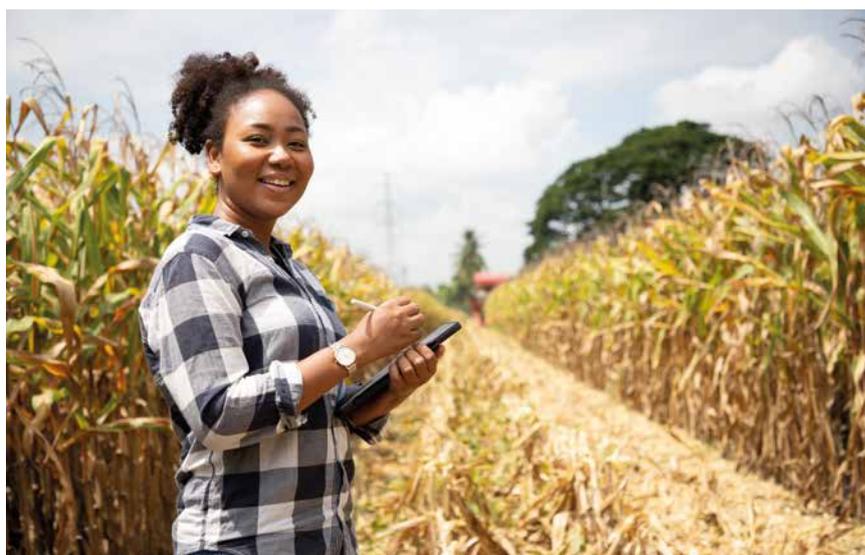
In addition, the route map outlines joint actions that the sector should take to bridge gaps in capacity and experience, particularly for smaller organisations with fewer resources. These include sector-wide delivery of:

- training to de-bias recruitment and development
- in-depth research on racism in the sector



- diversity and anti-racism training
- an empowerment programme to bring more people of colour into leadership roles
- peer learning circles on best and emerging practice.

The route map also recommends regular monitoring and benchmarking of diversity in the sector, and is intended to give direction and advice to help organisations overcome some of the barriers they are facing around taking action. These joint actions, alongside actions by individual organisations, could help to speed up change in the sector by boosting knowledge and resource.



From research to action

CIEEM understands that we have an important leadership role in bringing about positive and lasting change in a number of areas relevant to our work. Some examples of positive change we wish to see are: creating a more diverse profession; improving attitudes to health and wellbeing in the sector; and promoting inter-disciplinary understanding and collaboration. We are working to achieve this through our Championing Change targets which are laid out in the Institute’s Strategic Plan 2021-2024 (CIEEM 2021a).

Supported by funding from our Equality, Diversity and Inclusion (EDI) partners, we have created and are implementing an organisational action plan. This looks at how we can make our own internal processes and systems more inclusive, and how we can support those of our members who are on their own journeys to becoming inclusive

employers, managers and leaders. We have taken a holistic approach by developing our understanding of diversity and inclusion and how it supports our cause, focusing on allyship, cultural awareness and neurodiversity, as well as improving transparency and internal training.

The connections we are building across the sector are helping advance our internal initiatives. For example, we have been reviewing our membership application and assessment processes, as well as our professional development activities, communications and governance.

We have been particularly focusing on pathways to entry into our profession. In Autumn 2022 we launched a new website (www.greenjobsfornature.org) that was developed to promote jobs in the ecology and environmental

management sector to young people and potential career changers (see pages 71-72). We have now launched a specific diversity and inclusion outreach project as part of Green Jobs for Nature, thanks to support from the Esmée Fairbairn Foundation.



This will involve working with organisations and networks representing our currently under-represented audiences, such as young people of colour, those with disabilities, and those from low socio-economic status households. We will be providing new careers resources, organising events, and delivering engaging communications to promote green jobs for nature.





Future action

CIEEM's EDI survey of members in March 2021 (CIEEM 2021b) along with our *Breaking Down Barriers to Inclusion Report* (Freeman, Pound and Rae 2021) provided an important baseline for the Institute. The next members' survey will be consistent with other EDI surveys across the sector. It will provide data from which to measure progress against our ambitions to create a profession that is more representative of society, as well as enabling us to benchmark our data against the wider sector. The data will be anonymised and aggregated, and published alongside other sector-wide data in *The Race Report* (see www.race-report.uk/report for last year's version).

Our EDI working group, in collaboration with the WCL Route Map, want to draw on the lessons learned from larger organisations who are further along their EDI journey and develop EDI 'toolkits' and resources to help support smaller practices.

We are looking to implement plans to record diversity and inclusion data more accurately across the Institute's activities and membership. This will involve making changes to systems where necessary, so that records can be

regularly reviewed and updated by members should their answers need to be changed.

We will run workshops and social media engagement with our partner organisations, focusing on issues around the themes of allyship, cultural awareness, and neurodiversity. We aim to give members a voice on EDI issues through blogs, vlogs, social media and *In Practice* articles.

Conclusion

CIEEM as an organisation is on a journey to building a truly inclusive Institute for our staff and members and we are proud to be an organisation that has signed up to change through the route map. We have been working hard with staff internally and colleagues externally to ensure we create a more ethnically diverse environmental sector by 2027. We understand the importance of addressing current issues and barriers to entry to become a more welcoming sector. The route map and other CIEEM initiatives will not solve all the issues around lack of diversity, or the presence of discrimination in the sector, but we firmly believe that profound systemic change is possible by working together.

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About the Author

Lea Nightingale has been working in the environmental sector since 2016 after undertaking a career change. Lea is passionate about Equality, Diversity, and Inclusion and is particularly interested in the role of Equity within Sustainable Development. Lea is working to further CIEEM's Championing Change agenda; helping create a more equal, diverse, and socially inclusive profession by raising awareness of issues and barriers to inclusion.

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CIEEM's EDI partners



Embracing Disability and Neurodiversity in the Workplace



Claire Munn
MCIIEEM
David Archer Associates

Keywords: chronic illness, diversity, equality, inclusivity, neurodivergence

“ As environmental and ecological practitioners ... it's time now that we look to fully embrace diversity in relation to the human body and mind. ”

The unknown is understandably often a scary thing, particularly for employers when it comes to hiring and continuing to employ people who don't fit the 'neurotypical' mould or who disclose that they have a disability and/or chronic illness. Most of this fear is borne of a lack of knowledge

and understanding rather than coming from a place of intentional discrimination. Nonetheless, this fear of the unknown can result in a workforce lacking in diversity, or at least disclosure of diversity, and can prevent employees from reaching their full potential. This can cause additional stress

for employees and often exacerbate symptoms; critically, it can prevent employers from realising and fully drawing on the immense potential of neurodiverse, chronically ill and disabled people with a huge amount of talent to offer.



Introduction

As environmental and ecological practitioners, we work daily to help maximise biodiversity, acknowledging the vast research available that points to diversity being a key and eminently sensible goal in this regard. Employers too, recognise the value in employing a diverse workforce when it comes to technical skillsets and the benefits this brings to a commercial enterprise. It's time now that we look to fully embrace diversity in relation to the human body and mind; there is a huge amount to be gained by the employer, employee, client and the natural world, by drawing on a very wide pool of often ignored or overlooked talent among the neurodiverse, chronically ill and/or disabled.

This article takes Energy Limiting Conditions (ELCs) in the form of Myalgic Encephalomyelitis (ME)/Chronic Fatigue Syndrome (CFS) and neurodiversity in the form of ADHD, as examples to demonstrate how to fully embrace diversity and achieve inclusivity in the ecology sector.

Box 1: What are Energy Limiting Conditions?

“Energy Limiting Conditions (ELCs) are characterised by energy impairment (fatigue that is not alleviated by rest) and chronic pain, and include conditions such as Long Covid, ME/CFS, Fibromyalgia, Cancer, and many other neurological, musculoskeletal, autoimmune, and respiratory diseases too.”
“Over a third of disabled people in the UK have an Energy Limiting Condition.”
(Astriid 2023)

Neurodiversity in the workplace

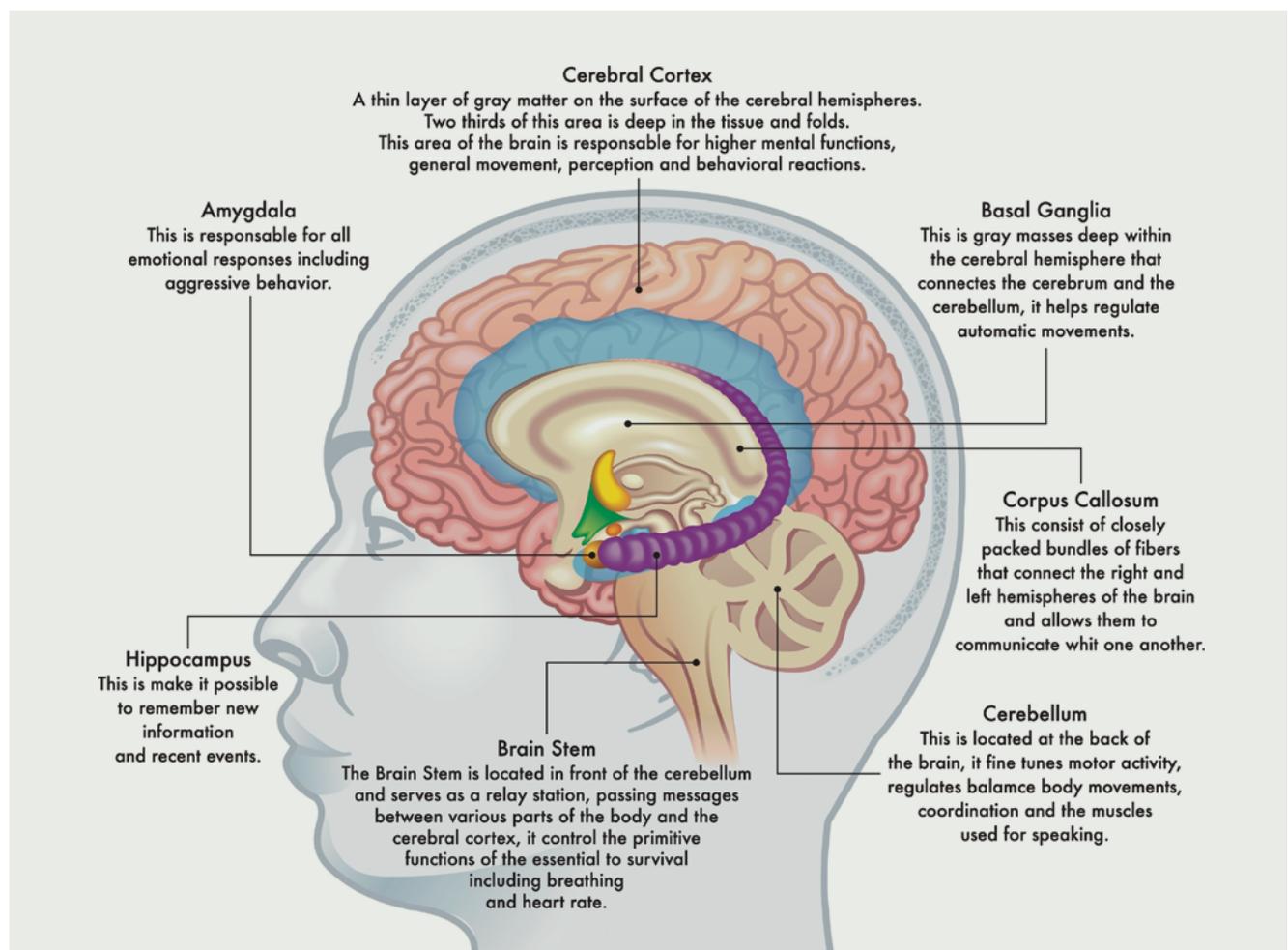
Since being in the hiring seat and having the luxury of handpicking my own ecology team, I have been able to recruit a brilliantly neurodiverse team of ecologists at all stages of career. Currently, 50% of our ecologists are neurodiverse (based on those who are happy for me to disclose this information). Between us, we cover ME/CFS, ADHD, dyslexia, visual stress and dyspraxia, plus some other comorbidities (see my colleague Tracey Younghusband’s article on pages 17-19 for a detailed insight into being an ecologist with ADHD).

Safe to say, we have a few working examples of strategies that work and those that don’t! Our priorities are to enable everyone to maximise their potential irrespective of how ‘typically’ their brains go about completing tasks, and to ensure that we provide the highest standard of work output for our clients.

Box 2: What is neurodiversity?

Neurodiversity, put simply, refers to the different ways that brains process information. Within this we have those who are considered ‘neurotypical’, i.e., those whose brain processes and associated outputs are seen as standard in their particular culture; and we have those considered as ‘neurodivergent’, i.e., those whose brain processes and associated outputs differ to the ‘norm’ in that particular culture.

At least 20% of the UK’s adult population are neurodivergent and have been diagnosed with neurological conditions such as ADHD, autism and dyslexia. (The Brain Charity 2022)



Major Brain Structures implicated in AUTISM.

Communication is the first and most critical thing to successful integration. There are many valid reasons why staff may not wish to disclose their neurodiversity, and our team have certainly had some bad past experiences which have led them to be very cautious about disclosure. It is therefore paramount that line managers and employers make clear, from the outset, that disclosure of neurodiversity will be treated with full support. Emphasis to the employee that your response will be entirely focused on an open dialogue to initiate appropriate changes to working practices and enable that employee to have the same opportunities as their neurotypical colleagues. This must be a two-way street, and there will be trial and error along the way. Often this will be the first time the employee has been open about their neurodiversity, and it may also be the first time the line manager or employer has worked through this with somebody. Both parties should keep an open mind and, together, try various strategies that you both think may work until you get the right balance. Remember, just because something once worked for someone else with the same diagnosis, doesn't mean that the same thing will work for another person; everyone's experience will be unique.

Working with an Energy Limiting Condition – ME/CFS

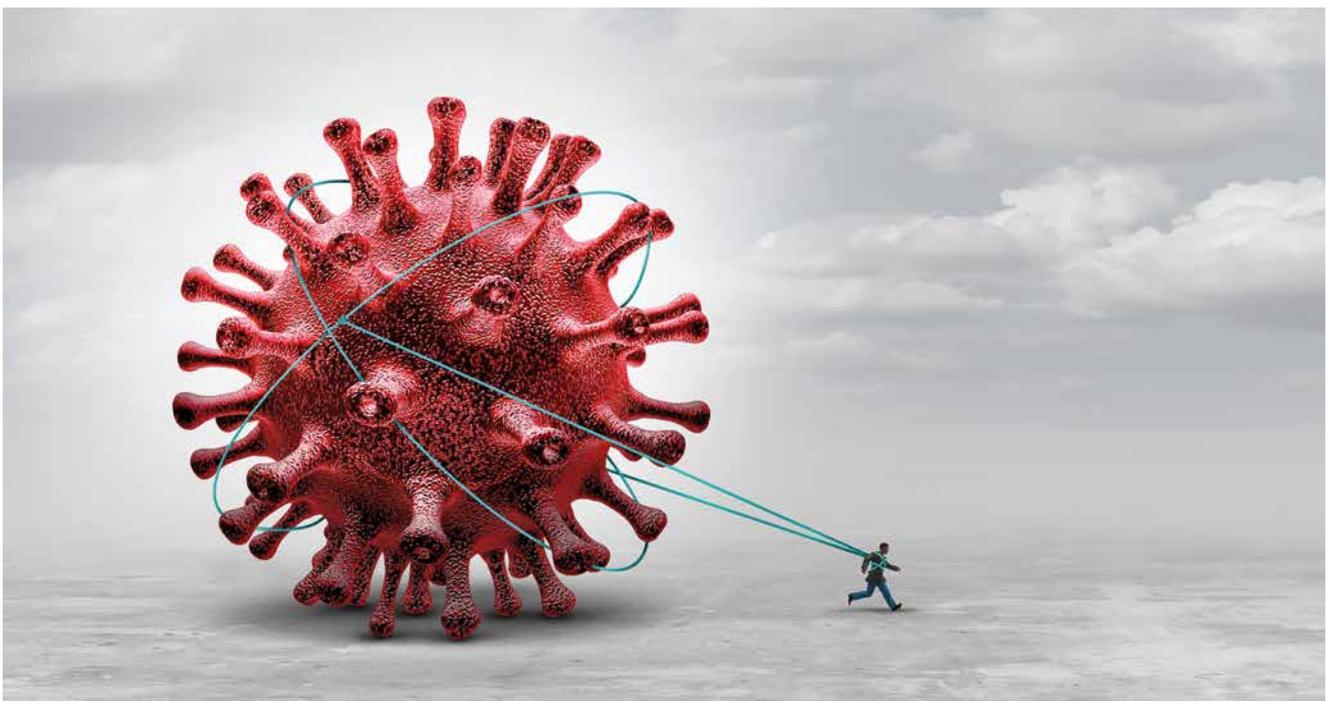
Covid-19 presented us with many challenges, but one long-term consequence is the presence of Long Covid, which in turn can become lifelong ME/CFS. Long Covid and ME/CFS fall under a rather wide umbrella of ELCs (see Box 1), with ME/CFS being classified as a disease of the nervous system (World Health Organisation, 2023), affecting multiple body systems. The ME Association (2023) estimates that more than 1.25 million people in the UK live with a diagnosis of ME/CFS and/or Long Covid, and there are likely to be many more undiagnosed. With the increased prevalence of viral diseases such as Covid, which are often a trigger leading to ME/CFS, the industry needs to take seriously the likely increase in the number of ecologists who will need to be supported through this health crisis.

There must be ecologists out there who are currently facing the challenge of adapting to a life with Long Covid. This can be a daunting and lonely place to be, particularly given the poor track record of general understanding and suitable medical interventions when it comes to ELCs. Navigating your way through your career with an ELC, or knowing how to support employees with ELCs, can be tricky and complex.

Having lived with ME for 14 years, progressing from a Graduate Ecologist to Associate Director in the private consultancy sector with this chronic illness, hopefully I can shed a bit of light on what people with ELCs may be facing and provide potential solutions to both employees and employers.

ME/CFS, like so many chronic illnesses/disabilities, is a fluctuating condition and hugely variable. Its symptoms range from those that, whilst still life-changing, can be managed in a way that allows employment to be an option, to those that leave people permanently bed-bound. For those able to work, the constant anxiety of the unknown and the potential for relapse or exacerbation in symptoms can be stifling in itself. Every day, and indeed sometimes every minute, can be unpredictable in terms of the level of chronic pain or fatigue that will be experienced. Forward planning for many different eventualities is therefore essential for those able to work with this condition.

There is no cure for ME/CFS and the only proven technique to maintain or sometimes improve symptoms is through rest and careful pacing. The best medical advice I've received in relation to ME/CFS is to only ever do 70% of what you feel able to do; this way you don't push beyond your limited supply of energy and cause a



Long-COVID has a lasting impact for some.

worsening of symptoms. Clearly this presents many challenges, particularly in the ecology industry where seasonality and time of day play a big part in when you *have* to work.

ME/CFS causes chronic pain and fatigue, which can, in some cases, also lead to mobility issues. The fatigue is body-wide, impacting even eye and throat muscles, thus sight and speech, as well as the more obvious muscle fatigue that we may typically think of. 'Brain fog' is another common symptom, which is often when the underlying neurological cause of ME/CFS can most easily be seen by others; brain processing is slowed, word recall may become tricky, and even things that are normally automatic, like moving a limb in a particular way, suddenly require great effort.

Why should employers embrace disability and neurodiversity?

Those whose brains and bodies work in different ways to the majority of a particular society or culture, have to adapt; it requires tenacity and determination to reach a point where they are considered equal to their peers. This involves immense problem-solving skills and typically means that by the time they meet a potential employer in the interview room, they have already overcome more challenges than most, and are likely to be hard working, sure of the route they are seeking to take, and be an example of resilience personified. What employer wouldn't want someone in possession of these qualities?

Further, as mentioned in the earlier point about diversity being something that environmental professionals recognise to be positive in so many ways, embracing neurodiversity can greatly strengthen your team. Having people who express traits from across the neurotypical and neurodivergent spectrum means you will have a highly creative workforce. The differences in approach can lead to out-of-the-box thinking and solutions for clients which each person individually may not have thought of.

Having employees with different types of brain processing means that where one struggles, another excels, and these skillsets can lead to great balance and

teamwork. For example, my ME/CFS go-slow brain and my colleague Tracey's go-fast ADHD brain are often at complete opposite ends of the brain processing spectrum. However, we have found that we make an excellent team, with Tracey generating highly creative solutions very rapidly for very detailed aspects of a project, whereas I maintain a well-organised overview of the entire project; between us we end up with a well ordered, timely output for our client with detailed and creative solutions incorporated in key areas.

Making reasonable adjustments to accommodate neurodivergence and disability in the workforce need not be arduous or costly; indeed, any upfront costs will be far outweighed by the benefits to be obtained from tapping into this vast amount of talent. Employees should always be fully encouraged and supported to ask for reasonable adjustments to be made where this will enable them to perform their role more effectively and efficiently, and to minimise the risk of work impacting negatively on their health and wellbeing.

Tips for embracing neurodiversity

Here are some examples of things we've tried, which have worked for at least some neurodiverse staff and/or those with chronic illnesses/disabilities, and which we have found to benefit the wider team:

- Flexible working. This is one of the most helpful things employers can offer people with neurodiversity or chronic illness/disability. Working from home means people can set their own working conditions including lighting, temperature, background noise etc. Taking numerous smaller breaks throughout the day where people can go somewhere private and quiet in their own home, or get some fresh air, can be immensely helpful. It is incredibly beneficial to allow flexible hours and enable people to work to a schedule that maximises productivity in their own way.
- Built-in rest time around out-of-hours surveys. One thing I and so many ecologists have experienced is burn-out from working round the

clock in peak survey season.

Historically this was the norm, but there is no place for it now; there is enough evidence showing the dangers to our health of this type of working. We have a policy whereby all staff have to take a compulsory, fully paid rest time of two hours out of their working day either before or after a dusk survey and three hours immediately after a dawn survey. This is costed into our quotes and is in addition to TOIL which is accrued to take back at a later date.

- Adapting all computer templates to use dyslexia-friendly fonts, colours and spacing. This can include quote and report templates, training materials and spreadsheets, for example.
- Seek out training opportunities which offer an online element with recordings, and ask training providers for handouts of the slides. This can help people to process the information before, during and after the training event.
- Take into account that people with ELCs, in particular, have often had to forgo many or all other aspects of 'typical' life to be able to work. This means that whilst you may see an outwardly 'typical' employee capable of doing everything other colleagues can, this may only be possible because that same person spends their non-working hours resting and recuperating so that all energy available goes on working. Employees may also choose to 'mask' their symptoms. Bear this in mind when arranging staff social events – make sure that activities being planned are accessible to all, particularly if these will extend beyond typical working hours.
- Where driving is an essential part of a job, consider automatic or specially adapted vehicles. I find that my chronic pain is significantly reduced by driving an automatic vehicle. Since my employer provided this for me, I've been able to drive more often and over longer distances whilst still managing field work, with much less pain.
- Good organisation is key. In addition to tools individuals can create and use themselves, employers should provide an overall job management



system or way of working across the team that enables effective and efficient organisation.

- Some people may prefer to communicate with clients by email instead of by phone. It means they have time to retrieve and process all the information needed to respond fully and accurately without worrying that they've forgotten a key piece of information when caught by surprise with a phone call. Where phone calls are necessary, pre-arranging times can be very helpful.
- Reasonable adjustments can include things such as employers supplying additional equipment, e.g. second monitors, noise cancelling headphones/earbuds, coloured screen overlays, reading rulers, sensory/fidget gadgets, ergonomic equipment, computer software such as ClaroRead Pro and Global AutoCorrect, and many more.
- When it comes to reviewing work of neurodivergent employees, always do so constructively and be mindful of the different ways that person may need to work. Remember, if it is frustrating for you as a reviewer to pick up on the same mistakes repeatedly, it is far more frustrating for a colleague with dyslexia to not be able to spot the errors themselves despite multiple proofreads.
- Break tasks down into smaller chunks. This can be helpful for managers to remember when assigning tasks, as well as a useful tip for staff to use. You can do this

in multiple ways to suit; you may find it helpful to start each day or each new piece of work by writing down a list of steps to take to reach your goal. You may prefer instead to assign yourself tasks based on manageable chunks of time; if you know you need regular screen-breaks, for example, set your to-do list to match the time you know you can realistically manage to work for in one go.

- Move around a bit! Sometimes, if feeling a bit stuck or frustrated, getting up and moving or working in a different place can help. Work wherever you are most comfortable. If working at home though, always make sure you can tidy away work at the end of the day so it's not looking at you and tempting you back in or causing you stress.

Conclusion

There is nothing quite like a global pandemic to highlight the fragility of our health; an increasing number of people are living with ELCs and employers must incorporate new ways of working to ensure that these people can not only be retained and recruited into the industry, but thrive within it. The sooner we incorporate working practices that enable the widest possible range of neurodiversity among our workforce, the sooner we will reach a point of long-needed equality. Only then will we, our clients, and ultimately our natural environment whose protection so often rests in our hands, reap the biggest rewards.

Acknowledgments

I would like to thank my colleagues, particularly Tracey Younghusband and Zenobia Hatch, for their assistance not only with generating ideas for this article, but for being so open and candid about their neurodiversity. They have been my inspiration and biggest cheerleaders, resulting in me finally coming out of the chronic illness closet in my professional life after over a decade of hiding and masking.

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About the Author

Claire Munn MSc MCIEEM has been a practising ecologist in England since 2008, going from Graduate to Associate Director in that time whilst simultaneously living with ME and its comorbidities. Claire leads a small team of ecologists at David Archer Associates and does voluntary dormouse and bat work when time (and energy) allows.

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ADHD and the Silent Struggles

Tracey Younghusband, taking botany surveys to a new level



Tracey Younghusband
MCIEEM

David Archer Associates

Keywords: ADHD, neurodiversity

It makes me feel exposed to write this article, as I have spent many years diligently masking my struggles out of fear of judgement. But the desire to help others overrides discomfort and so this article is intended to help anyone struggling with ADHD or any neurodiversity, and to help dispel the stigma associated with this condition.

Introduction

What is ADHD? I formerly had the rather embarrassing misconception that ADHD was something to do with 7-year-old boys bouncing off walls in a classroom and thought nothing more of it. Leap ahead to homeschooling during Covid and I soon had it confirmed that I had my own 7-year-old boy bouncing off the walls. The curiosity to where this condition may have come from was too much to resist; I researched ADHD in adults and had to have a very rare sit down.

ADHD stands for Attention Deficit – Hey a dormouse! (sorry, I couldn't resist) – Hyperactivity Disorder. Never has a disorder been so poorly named, as a deficit in attention is entirely incorrect. The issue is not a lack of attention, it is too much, focused on everything – simultaneously. It's very noisy, confusing, tiring and distracting. Other conversations, computer noises, notifications pinging, outside noises, thuds and bangs are all heard simultaneously in equal volume. ADHDers are also very intuitive and read people well; feeling other people's emotions (and subsequently fretting about them) is another distracting ability that takes time to manage.

The science of ADHD

ADHD is an incredibly misunderstood condition. Its basis is a deficiency in the hormone dopamine which is the reward hormone – that 'buzz' or warm sense of satisfaction experienced after



It's a common misconception that ADHD mainly affects young boys.

completing a piece of work, especially of dull but necessary admin. For a person with ADHD, that reward system is not present. Conversely, allow someone with ADHD to complete a task that is in their area of interest and they will excel and go into a 'hyperfocus'. This is where the brain is receiving dopamine, the mind is at peace and the person will find it very hard to stop doing that deeply enjoyable and rewarding task. Even eating, toilet breaks and bedtime are often completely ignored (unless strategies, responsibilities and a nagging partner are in place). With hyperfocus, memory is in fact superb – because the topic is deeply interesting!

Everyone forgets things sometimes, does that mean they all have ADHD? No, it really doesn't. ADHD is only partly about persistent working memory and short-term memory struggles that occur regularly throughout the day. Anxiety and depression are often associated, due to the (often silent) self-frustrations and struggles.

Dopamine is a complex hormone and affects the brain in profound ways. At a base level it helps with motivation, memory and impulse control, so a lack of dopamine results in people having issues with focus, executive function, memory and making measured decisions. As a spectrum, there is a

wealth of variety in whether one person struggles more with executive function compared to their impulse control. The confusion as to why seemingly simple tasks are so hard, coupled with not acknowledging strengths and a long history negative responses from others, often results in a feeling of being 'broken'. Many people who are struggling are initially misdiagnosed for anxiety and/or depression when the condition is actually undiagnosed ADHD. There is a gender bias in diagnoses as females/girls learn to mask their behaviour very early on due to negative responses from peers. There is therefore a greater proportion of (mainly) women who are currently being diagnosed due to a greater understanding about the condition. I was diagnosed with ADHD aged 43, and my late diagnosis following a child's diagnosis is a classic story with such gender biased conditions.

Diagnosis

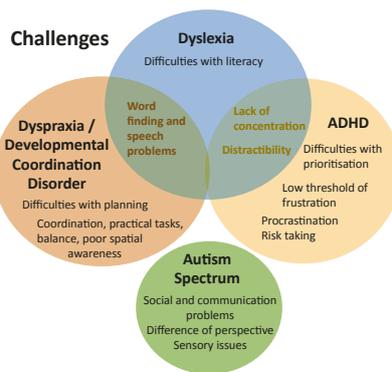
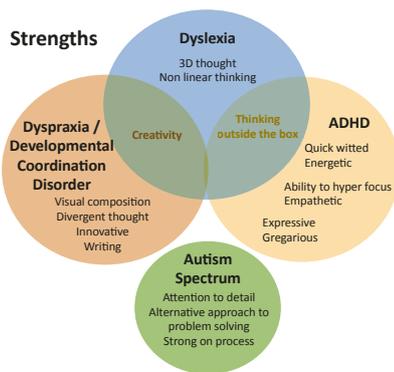
Many people have their own opinions about getting a diagnosis later in life. For me it was life changing. I had formed a great number of strategies to complete my work and I knew I excelled in certain areas; however, I was permanently in a state of frustration and fury with myself as I couldn't understand why I couldn't work to my full potential

when I worked so hard and was burnt out so often. I used negative techniques such as anxiety and fear as motivating factors to complete work. Having a high level of stress in my body made me suffer with my physical and mental health. A diagnosis and greater understanding of how my brain works, tapping into my strengths and adapting strategies for my challenges has not only increased my self-confidence but my productivity, potential and physical health. I used the Right to Choose option via my GP; this allows you to be a private patient with Psychiatry UK, but under the umbrella of the NHS.

Overcoming challenges

On the surface, a person with ADHD may not look like they are struggling. I had a few friends that were bemused when I got diagnosed, as to them I looked like I was managing fine, in fact I was working in my dream industry and succeeding. They could not see the additional hours needed to complete tasks, the paralysis from overwhelm, persistent anxiety and the daily fear of being exposed for the imposter I felt I was.

My challenges are focus, executive function, organisation, time blindness and my memory. I overcome these by using a virtual working website called



Focusmate, planning my week in advance and breaking tasks and to do lists down into a finer detail so I can see the steps required. I use timers and break sessions (with short bursts of exercise), calendar reminders, open communication, and I check in with colleagues for clarification. Fortunately the company I work for are so forward-thinking and accommodating that I generally work on one project at a time which allows me to hyperfocus and immerse myself in it.

ADHDers have very fast, powerful minds likened to being a Formula 1 car – but with bicycle brakes! My personal analogy is that I am a freight train; I take a little while to get going, but once I am there, I find it very hard to stop that task. As a result, I have ‘warm up’ strategies such as planning my working week on a Monday for an hour, which makes me eager to get going when work actually should commence the following day.

The value of an ADHD mind in the ecology industry

There's a strong chance that an individual has been attracted to ecology because it's an area of great passion, it's their hyperfocus. It's something that they live for and makes them happy and deeply fulfilled. For this reason, the ambition, enthusiasm and drive will make us far faster and detailed in the relevant area of interest. This natural curiosity and desire to understand something more profoundly spills over into personal life. There's an inability to settle until that species has been correctly identified and further curiosities on its habitat addressed, and a need to learn immeasurable details on a particular subject and gather extensive information about projects to provide a

well thought out and tailored approach for work. We're very honest folks – we're too forgetful to lie! But we work with authenticity and integrity, as having a high code of morals seems to be another trait.

My main strength and challenge is that I see solutions instantly. Within minutes of viewing a site I have the solutions in mind; within an hour I will have formed a tailored workable plan. Having to write the backstory or lead up in a report subdues my enthusiasm; however, I have learnt to write reports in a manner that is not typical, but works for me.

Box 1. Further tips for consideration:

- co-working with an online work partner, podcast or colleague trebles focus
- exercise greatly increases dopamine and maintains it – it's therefore hugely beneficial for focus and concentration
- research ADHD websites, forums and podcasts, e.g. <https://adhduk.co.uk>
- be as organised as possible, and find someone to help in this area if necessary
- sleep is an essential tool to improve symptoms
- use visual reminders and lists in a notebook
- note how long tasks take so you can be realistic about productivity
- ensure you can access a quiet work space
- consider using an ADHD coach, someone who understands the condition and can guide you with tailoring your personal strategies

Conclusion

My main advice would be to focus on strengths. I never used to acknowledge my strong work ethic, talent for building lasting and strong relationships, honesty with clients and colleagues, diplomacy, ability to rapidly find practical solutions and unending obsession/growing understanding of plants and habitats.

Managers often don't understand how ADHD brains work, which is understandable. Many ADHDers – especially pre-diagnosis – only understand a certain amount about their minds. An open dialogue and supportive, non-judgemental communication both ways is key to working out how to assist. Having spent a large part of my career being misunderstood and corrected, I am now in a work environment where strengths are focused on, communication is clear, staff are warm and approachable, and positive feedback is the norm. This has resulted in me becoming a member of staff who is so surprised, relieved and grateful, that I happily go the extra mile as a result of being inspired and heard.



About the Author

Tracey Younghusband BSc (Hons) MCIEEM is a Senior Ecologist and Botanist with over 22 years' experience in the conservation sector and 13 years completing field work. She specialises in habitat assessment, botany and restoration and has a strong understanding of the complexities of conservation enhancements and practical solutions.

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Neurodivergence in the Workplace: the strength of a team



Jordane Marsh (left), Monica Wood (centre) and Siân Rennie (right) work for Tetra Tech

Jordane Marsh, Monica Wood MCIEEM and Siân Rennie

Tetra Tech

Keywords: ADHD, dyslexia, dyspraxia, neurodivergence

According to Cambridge University Hospitals, around one in seven people in the UK have some kind of neurodiversity. This number may actually be much higher, as many people are not yet diagnosed or intentionally resist a diagnosis as they fear repercussions. Instead of attempting to treat all brains the same and wondering why we are not getting the results we want, recognising that our brains are different means we can work out what makes them work best. Tetra Tech is proud to support three neurodivergent members who share their stories here.

Introduction

Neurodiverse people can present in very different ways in public. Comorbidities (two or more disorders present) are very common; some people may develop conditions while attempting to mask their diverse behaviours, while others exhibit very typical characteristics and thrive with how they see the world. One person with dyslexia may hand in misspelt work, but another may meticulously check all of their work and be very adept at spotting issues, because this has become part of their way of life. Some may have the impulsive and hyperactive type of ADHD (Attention Deficit Hyperactivity Disorder) and be known to be constantly busy and active, while others may be intensely focused on a topic and remain very controlled, or even thoroughly burnt out from trying to rein in their wandering mind. Overall, having diversity within a workforce brings out a larger range of points of view and can only serve to help make a team stronger.

Our backgrounds

The Tetra Tech North East Team has three neurodivergent members. Siân has been diagnosed with ADHD, Jordane has dyslexia, dyspraxia, and ADHD, and Monica is dyslexic.

Jordane

I was only diagnosed with ADHD in March 2023, though I had suspected I was neurodivergent and had pursued the diagnosis for the previous two years. I found I was dyspraxic and mildly dyslexic in secondary school, but my school did not have the resources to offer support. My university, on the other hand, was amazing and really worked with me to find out how I best learn and work. Over the years I have developed coping mechanisms and working methods to make my life easier for dyslexia and dyspraxia, and really utilise the skills I have and how passionate I can get about a topic. I do sometimes feel it is a shame I was not diagnosed earlier. I struggled for over a decade and was diagnosed with

depression and anxiety; now that my ADHD has been diagnosed and treated, I have found that I am the happiest I have been in 10 years. I am told that getting a diagnosis is often an issue for women as they are a group typically under-diagnosed, often living for years being unsuccessfully treated for the symptoms of anxiety and depression instead of getting the treatment and support we need. I am now kinder to myself and know how to better work with the brain I have.

I am relatively new to working out what works best for me with ADHD, and having the diagnosis has signposted a lot of resources I had not known were available. This confirmation was a relief and helped me feel confident in interacting with online forums to find out what methods have helped other people. Mostly, I have found that starting to understand the way my head works through the lens of ADHD has helped me work smarter. I am better able to identify situations that may cause me to freeze up with decision-paralysis, allowing me to tackle the situation differently from the start. I am a very creative person and love learning new things, so the range of projects we get to be involved with in our team really brings out the best in me and helps me thoroughly deep-dive into a topic.

Monica

I was initially diagnosed with dyslexia when I started at university. During my Bachelors and Masters I got the support I needed from the respective universities. Once I entered the workforce I initially felt embarrassed to let my colleagues know I was dyslexic, but once I did, things were much better. My employers, Tetra Tech, have provided software which helps with my day-to-day emails and reporting. Once my colleagues understood I was dyslexic they became more empathetic with their feedback, as they knew that mistakes were not laziness but rather a side-effect of my condition, and I was better able to take on their comments. Since then, I have flourished in the workplace, got promoted twice, and I continue to be a valued member of the team.

Siân

For years I suspected I had ADHD, and after years of struggling and being

diagnosed with other mental health issues I decided it was time to seek a diagnosis. I was diagnosed in 2021; this was done privately due to the challenges of getting diagnosed on the NHS.

When I was in education, I was not aware of ADHD and had the same thought as many others, that it was only a condition of 'hyperactive little boys'. I often think that had ADHD been more understood, perhaps my typical symptoms would have been noticed sooner. My school reports described me as a daydreamer and frequently commented that I needed to apply myself more. I was put on foundation papers and I remember just coasting along and getting fairly decent grades with minimal effort, but they would never put me in for higher papers as they didn't seem to want to put in the time to help me. I was aware that I didn't learn in a typical way, and I felt utterly let down by the system. I had a similar experience in university; I would have to put in way more effort than my peers just to obtain the same grade, and usually asked for a lot more help from my lecturers than other people did. Why was it harder for me?

However, I got a lot more support in university than in high school. I started to suspect I had ADHD while studying my Masters degree, where I received a lot more support and consequently achieved a distinction. The way the degree was structured actually worked better with my ADHD. The deadlines were more intense and we had one every single week. Suddenly my brain



Male common blue butterfly *Polyommatus icarus* has wings that are blue above with a black-brown border and a white fringe. Photo credit: Jordane Marsh.

kicked in and I was pumping out good quality work because of the pressure of the deadlines. I was also able to structure my work more easily as it was only one essay at a time; I didn't have to prioritise and structure too much, which is something people with ADHD struggle with.

Positives of neurodivergence

Neurodivergent people tend to have high social intelligence, humour and empathy, and be great at problem-solving and out-of-the-box thinking (White & Shah, 2011). People with ADHD can hyperfocus on tasks they are passionate



Juvenile grass snake *Natrix helvetica* found during a reptile translocation project and moved to the receptor area. Photo credit: Jordane Marsh.

about for hours on end and really seek out all the details and depth of a topic (Sedgwick, Merwood and Asherson 2019). We work more efficiently when we are in this state, and the outcome is often amazing. We tend to be very creative, be great with animals, and our conversational skills can be unmatched. This is a great skill in the ecology sector and comes in handy for species ID, and for getting on a client's good side! People with ADHD tend to have strong observational skills and attention to detail, which is great for spotting newts in a pond, noticing yet another species of grass in a field, and listening out for bird calls in a busy hedgerow.

People who are neurodivergent love getting involved with A LOT of creative tasks and hobbies (Burch 2022) and it can be pretty fun when this overlaps with work. Jordane accidentally became the foremost fungi expert on one of our long-term sites and was asked to create a report for the client just because she got really interested in taking cool pictures of the pretty mushrooms, identifying them, taking spore prints, and mapping them. She also got into the good habit of identifying all the common plants on her running route, while still running! She has found a great thing about ADHD is she can get really focused on a complex task, but she is also very able to switch between a lot of tasks.

This non-linear way of thinking means we can be quite adept at sorting out the organisation for various surveys. Studies suggest "dyslexic people seem to be good at spotting connections and



Setting up the laptop in a woodland to collect the trail cam footage for ongoing monitoring. Photo credit: Jordane Marsh.

“ ‘Coming out’ as neurodivergent can be quite daunting ... many of us are concerned about how our co-workers might react and whether we may be seen differently if people know. ”

seeing the world holistically, which – while making certain tasks harder – in many ways give dyslexic individuals a competitive edge” (Chapman 2019). Once we know all the various tasks that need to be done in the same site, or even various nearby sites, our brains quite naturally start to look at the optimal arrangement in which to do those. Neurodivergent people often have a great ability to recognize patterns, including in codes and behaviours. Monica is a Project Ecologist and has led many projects; she has a great ability to collate and sort large volumes of data and ensure everything is meticulously accounted for.

For neurodivergent people, knowing better how your brain works means you are much more able to use it to its full potential. Having a diagnosis and the tools to work with it can make you more comfortable with how your brain works in a range of situations and how to best work with them.

In the workplace

When it comes to people who are neurodivergent in the workplace, we have to recognise that it is geared towards the neurotypical and not the neurodiverse. This has led to stigma in some cases, where people with ADHD, dyslexia and dyspraxia are thought of as being ‘lazy’, ‘less intelligent’, or ‘careless’. Because of this stigma, ‘coming out’ as neurodivergent can be quite daunting, and many people worry that it may reduce job prospects. Many of us are concerned about how our co-workers might react and whether we may be seen differently if people know. Being more open with our neurodivergence has meant that we are offered a greater variety of working methods and accommodations, and we find that we are able to ask for methods of working that really propel our work forward.

Every workplace has a duty of care to look after their employees’ health and wellbeing, so if you do need help with something in the workplace, your employer should be able to offer some support or adjustments to suit your working style or any particular hurdles you are finding. It may be something as simple as asking for a notebook with squares instead of lines or sitting in a quieter part of the office, or something more substantial like screen-reading software. For example, Tetra Tech gives free access to the Thrive App for its employees, and this can be a good app



Using a mini portable microscope to examine otter spraint for fish bones. Photo credit: Jordane Marsh.



Speckled wood butterfly *Pararge aegeria*, found on woodland edges, and quite hard to sneak up on for a photo. Photo credit: Jordane Marsh.

to keep track of where your head is at and check in with how you are feeling. Other software can assist with spelling and grammar so that this is less of a worry when working on a report.

Tetra Tech also has 'Lunch and Learns' on neurodiversity and promoting a neuro-inclusive work environment to educate colleagues and managers, and Diversity and Inclusion groups to identify changes that will support neurodiverse staff.

Tips

To help neurodivergent people be their best at work, here are a few things we have found help us day-to-day;

- Let your work know; companies are learning all the time about how to help and support people to be their best.
- If you regularly forget dates and times, keep a detailed calendar to track everything. Apps (e.g. Howbout) compare work and social calendars, which you can keep separate for peace of mind, but also check that nothing overlaps, as ecology has very diverse and changeable working hours!
- If you find it hard to focus for long periods of time in meetings and seminars, keeping your hands busy with mindless tasks can often help you focus; knitting, doodling, taking notes, or sewing!
- Always have something close to hand to keep notes so you don't forget details of calls/meetings, and highlight important tasks to action immediately. Follow up conversations with bullet-pointed lists to make sure you capture everything.
- If you struggle to prioritise work, ask your manager to advise on the

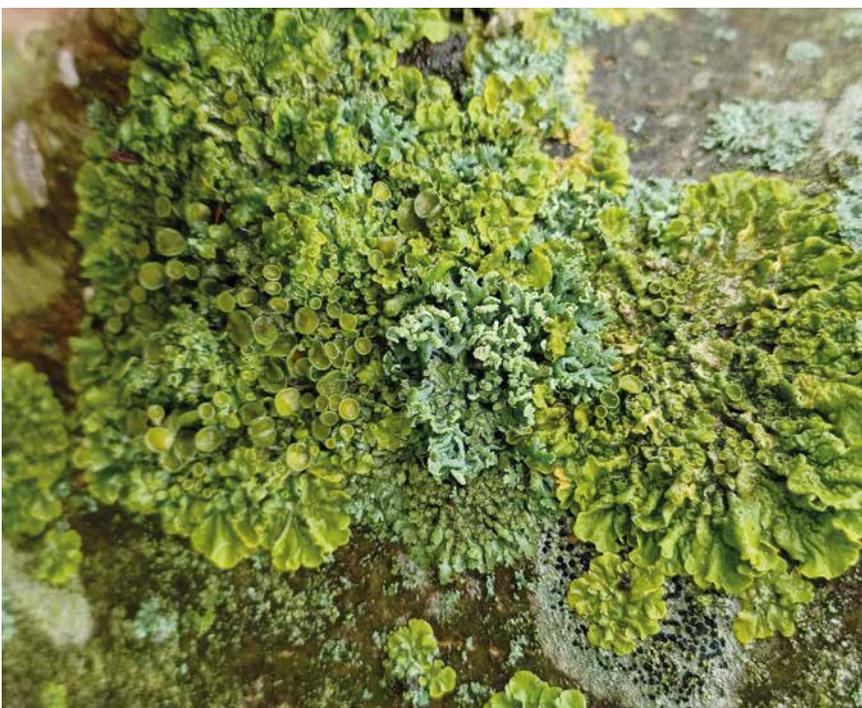
priority of tasks. Write a to-do list and add the priority order next to each item.

- The Pomodoro method can be helpful to keep track of time and progress, as neurodivergent brains tend to task-switch quite a lot due to the non-linear thinking. The method involves setting a lot of alarms to check in where you are at regular intervals, to ensure you are prioritising the right tasks.
- Use 'Focus' features on work and personal phones to keep work and personal time separate by silencing social notifications during work hours, and work notifications on days off. Set apps to tell you if you have been on them more than a certain time.
- If you struggle to focus in the office, signal to others that you are concentrating on a task by wearing noise-cancelling headphones, but make sure these are off when you are available to talk.
- To ensure you have everything you need on site, keep items you use regularly in a box in the car. Keep a kit list on your phone for each type of survey so you do not forget anything, and keep survey equipment/PPE in easily movable boxes so you can just grab the right box and head to site.
- Regular exercise can help with coordination and reducing fatigue in dyspraxia, and helps calm the mind and process racing thoughts for those with ADHD.

The most important thing is to learn how your specific brain works and find out what it needs to keep being the best.

Conclusion

Neurodiverse people should be looked at from a different perspective. Our disadvantages are so apparent because the world we live in is geared towards the neurotypical. In the past we have neglected to put our diagnoses on job applications as there was a strong worry this could prevent us from getting into work. This is the wrong approach, and can end up being harmful. It is important we make neurodivergence less stigmatised and more accepted so everyone can reach their full potential.



Known variously as sunburst lichen, orange lichen, shore lichen and yellow scale, *Xanthoria parietina* can display a wide range of colours from dark orange to vibrant green. Photo credit: Jordane Marsh.

“ The most important thing is to learn how your specific brain works and find out what it needs to keep being the best. ”



Black-headed Cardinal Beetle *Pyrochroa coccinea*. Sometimes during Ecological Clerk of Works ECoW you have time to stop and see the beetles. Photo credit: Jordane Marsh.

When we are given the right support and environment, the neurodiverse can bring a lot to the table, especially to the ecology industry!

Additionally, we encourage people who are neurodivergent to be open about their condition at work, where they can. There are many reasons why this might be beneficial to you and others:

- Knowing about your condition might help your colleagues to empathise with you and understand that certain tasks may be more challenging
- It will hopefully lead your company to put arrangements in place to help you with your challenges
- It enables people with similar conditions to have open discussions and help each other with strategies to manage their condition (and ideally business should help their employees to create those connections).

Overall, this would hopefully create a more open, empathetic, and rewarding work environment for all.

Glossary

Accommodations: Changes made to the work environment to better serve people with special needs or learning differences.

ADHD: Attention Deficit Hyperactivity Disorder is a brain disorder marked by an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development.

Comorbidity: Two or more disorders occurring in an individual at the same time.

Decision paralysis: The lack of ability to decide, out of fear of making the wrong choice or through being overwhelmed by choices.

Dyslexia: A learning difficulty which primarily affects reading and writing skills, connected to information processing. Dyslexic people may have difficulty processing and remembering information they see and hear, which can affect learning and the acquisition of literacy skills. Dyslexia can also impact other areas such as organisational skills. Many dyslexic people show strengths in areas such as reasoning and in visual and creative fields.

Dyspraxia: Also known as developmental coordination disorder (DCD), this is a common disorder that affects movement and coordination.

Executive function: Mental skills that allow us to control and coordinate other mental functions and abilities, such as planning or task completion. This deficit is common in those with ADHD.

Hyperfocus: An intense form of mental concentration or visualisation that focuses the consciousness on a narrow subject.

Masking: Observing and emulating (consciously or otherwise) neurotypical behaviour, often to avoid ridicule or shame.

Neurodivergence: A noun referring to cognitive functioning which is not considered typical or 'normal'.

Neurotypical: An adjective describing people whose cognitive and social behaviours fall within traditional norms.

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About the Author

Jordane Marsh has been an ecologist for 6.5 years. Even when young she loved being outside in nature, climbing trees and falling in ponds, it makes her mum chuckle that she is now paid to go climb in ponds! She has a lot of hobbies and enjoys bouldering, drawing, cooking, sewing, LARPing, and all sorts of crafts, and she is running her third half marathon in September.

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Meet one ecologist with autism



Joanne Denyer
MCIEM
Denyer Ecology

Keywords: autism, diversity, inclusivity, neurodivergent, specialist

“ Job adverts nearly always specify a university degree, which may be too challenging for early career autistic ecologists. ”

I am a late diagnosed autistic ecologist. This is my personal viewpoint on my career and the challenges and advantages of being an autistic ecologist. There is a famous quote in the autistic world by autism advocate Dr Stephen Shore, “If you’ve met one person with autism, you’ve met one person with autism”. I can’t speak for all autistic people,

not even all autistic ecologists. But I hope that this viewpoint will be helpful to other neurodivergent ecologists (diagnosed and undiagnosed) and the people who work with and employ them.

Background

Autism (Autism Spectrum Disorder or ASD) includes what was formerly referred to as ‘Asperger’s Syndrome’ or ‘high and low functioning autism’.

Autism is now recognised as being a spectrum of different characteristics. Each person will have a unique combination of these characteristics. There is no mild or severe autism, rather it is recognised that autistic people will have different support needs. A person may be highly educated and have a successful career, but this does not mean they have ‘mild’ autism, or that they don’t face many struggles in their day-to-day life. Some of these struggles can be alleviated by improved working environment and awareness, and this can benefit all employees.



An ecologist's life

A career in ecology suits me as an autistic individual. I have special interests that I am passionate about that involve the natural world, so ecology is both my hobby and career. It can (sometimes!) be a very flexible working environment. However, it may not be an easy career to get into. Job adverts nearly always specify a university degree, which may be too challenging for early career autistic ecologists (I know a highly experienced birder in this situation). I hope that this is changing and employers will be more open to recognising the skills that people have despite a 'non-traditional' career trajectory. I was fortunate in that I've always enjoyed studying and have a good degree and a PhD. But when I first started applying for consultancy jobs I was turned down for lack of work experience. At the time I found new environments stressful and would have struggled with voluntary work. I had a PhD in grassland ecology (3 years surveying species-rich grassland) and 2 years surveying upland plant communities in Scotland for a research institute. But I had no experience of wildlife legislation or undertaking a Phase 1 habitat survey, and my CV didn't get through to interview stage. I was

lucky in that I finally had an interview (and was employed) by a manager who had a research background, could see the skills I had, and recognised that I was a quick learner (thanks Professor Max Wade – past president of CIEEM). He encouraged me to specialise and I still work in those specialist areas (aquatic plants, bryophytes, wetlands and ecological research). There were plenty of training opportunities, which was perfect as I love to learn (as do many autistics).

Skills

So what are the skills that an autistic ecologist may bring to an employer? We can be very good at having in-depth specialist knowledge. We may not be so good when working as a more general ecologist though – I can get very focussed on details and could be looking at an interesting moss and completely miss the badger sett it is growing on! Now that there are many larger ecological consultancy companies it is great when they develop specialist teams. This can benefit both the employee (who can focus on their specialist area), the employer (as they have in-house specialists available) and biodiversity, as there is more use of specialists in surveys and so better data is gathered.

Autistic people can be very efficient workers. In particular, I read and write very quickly. I am also hyperfocused on tasks, which means that I am unlikely to be scrolling social media once I get started. Attention to detail is good for reviewing, although I am aware that I can be over-critical and need to work on commenting positively on other people's work. I have been a part-time lecturer and had to learn to be able to say nice things about students' work and not to just point out their errors! I have been told that I explain things well when teaching courses. I think this is because I need details myself and I like to justify what I'm saying. So rather than just teaching the 'jizz of the plant' e.g. "Well that moss is a bit more curled at the tip than this moss", I prefer to teach students to use a key so that they can see the critical features for themselves.

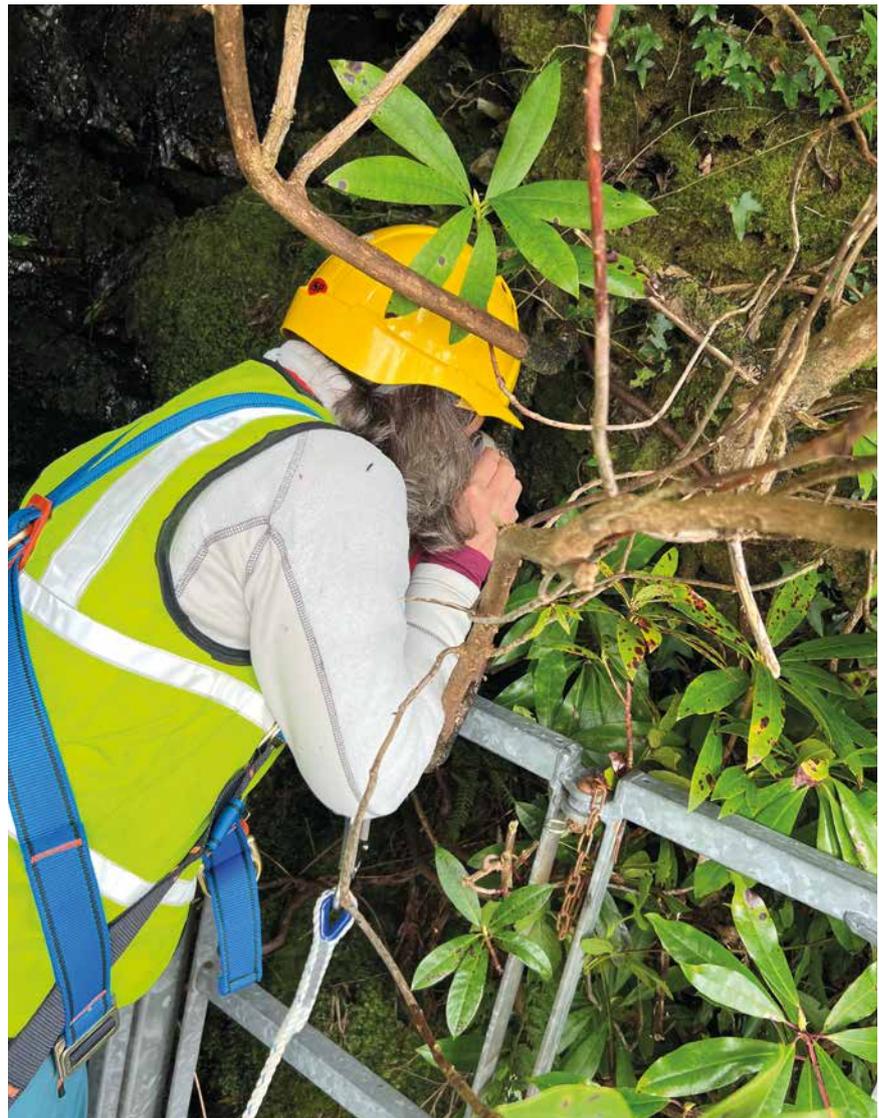
I am very organised and usually well prepared for field work and meetings. This is partly an innate need for organisation, but also due to high anxiety levels; I don't function well with last minute requests, deadlines, or work I'm not prepared for. Autistic people can also be highly creative and able to think outside the box – for example, I like to develop new methodologies for surveys (based on

research). We will also often have a strong sense of loyalty and justice.

Challenges

But what about negatives? Yes, there are challenges both to being an autistic ecologist, and to working with one or employing one. One of the reasons I am now freelance is that my energy levels are very variable. If I have a lot of back-to-back fieldwork and deadlines, it can take me time to get my energy back. As a freelance ecologist I can arrange my diary to accommodate this. And as I'm a fast worker I don't think it affects my overall productivity. However, working for a company is not always as flexible. I think this is shame, as all employees would benefit from more flexibility, with time off and home-working interspersed with the long hours we do in the field and at the computer. I will question what I've been asked to do and want to know why. I struggle to just do something how it's always been done if it doesn't make sense to me. I will prefer to email than call someone I don't know. I find it hard to knock on doors to get landowner permission for site survey (although I do it), and have major anxiety about not knowing where I will park or access a site.

Working in an open plan office is just about possible for me (not for all autistic people), but preferably not all week. 'Hot desking' would be a no-no as I need my 'safe space' to feel comfortable in my work environment. I can get overwhelmed if I'm too busy, and I need to have control over my own work diary (no sudden surprises please). I will probably never be able to write a short report as I want to put in lots of details to justify my conclusions, with lots of maps and a large photo section. But it will be well-structured and (I hope) nothing will be missing. In the field I mix up words and my field notes say 'east' when I mean 'west' and I will interchange plant names (I know the plants but switch the names about). This is fine as long as I am reviewing my own field notes! I have some degree of 'face blindness' and unless I know you well I may not recognise you and will probably not remember your name. At conferences I love name badges so I can check who the person is that is enthusiastically greeting me.



Joanne undertaking a rare bryophyte survey of a waterfall in Killarney National Park, Co. Kerry. It needed a raised platform, mounted on a telescopic handler, to survey the rocks and crevices under dense rhododendron cover. Photo credit: Joanne Denyer

I will treat people as equals and so may not have the correct 'respect' for authority and will chat away to everyone. I only found out recently that this is an autistic trait. I'm lucky in that it hasn't been a problem for me, but it could also be mistaken as being not respectful or over-confident. I recognise that this chattiness and non-stop talking can be very irritating to others. In particular, I need to thank the CIEEM *In Practice* Editorial Board and editor Nik Prowse for their patience when I interrupt to give my point of view in our discussion meetings. It may seem to an outsider that it would be easy for an autistic person to wait their turn when talking, but it is due to different brain wiring and after 20 years of trying I have realised that it will not improve.

Hopefully, by explaining some of my characteristics here, it will help people realise the strengths of their autistic employees and colleagues and to have more understanding of habits which may seem annoying or unreasonable. We will all benefit from more awareness and flexibility in the work place.

About the Author

Joanne Denyer is a consultant botanist and bryologist based in Ireland. She specialises in the survey and assessment of bryophytes and wetland habitats, with a particular focus on fens, bogs, wet woodland and petrifying springs. She also teaches bryophyte courses to professionals, amateurs and undergraduate students.

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How to Encourage Neurodiversity in Ecology, and Ensure We are Supporting Neurodivergent Employees



Izzy McQuillan

Keywords: neurodivergence, neurodiversity

As we come out of the Covid-19 pandemic, and with Diversity and Inclusion being a hot topic in the sector, it is paramount that we do not rush to 'return to normal'. We have been presented with an opportunity to look at what has helped our employees these past few years, including home working, and how we can build on this to further increase team diversity and retention, and reduce burnout and sickness. Everyone will reap the rewards, not least neurodivergent ecologists.

Introduction

I want to start this article with a disclaimer. I am not a registered mental health or psychology professional. What I am discussing is from my own lived experience, as a person who is neurodivergent (ND), working in the ecology sector, and through speaking to other neurodivergent ecologists.

My name is Izzy and I have been working in ecological and environmental consultancy since 2020. I have been diagnosed with Dyslexia (University), and ADHD (NHS). I was diagnosed aged 21 and 24 with these conditions, and had wondered why I was different throughout my childhood.

What does it mean to be neurodivergent?

ADHD and Dyslexia impact all aspects of my life, but without them I would not be me. My conditions form a large part of my strengths; my brain is constantly firing, which makes me good at problem-solving and finding errors. I am creative and enjoy GIS and social media creation because I can hyperfocus whilst drawing. I am a jack-of-all-trades due to my many hobbies and interests, therefore I have a wide range of knowledge that comes in use when least expected. I am a people person, and very empathetic. I hope to be a line manager in the future and look forward to supporting Early Career Professionals as my career progresses.

Neurotypical brain types are the majority, making up around 85% of the population (ADHD aware, n.d.). The talk around neurodiversity needs to be inclusive, it isn't an 'us and them' situation. Every single brain is different, and everyone is unique and special in their own way. The reality of living with a neurodivergent 'hard-wired' brain in a neurotypical world is sometimes like pushing a square block through a circular hole; you have to adapt your life to make it work.

Many neurodivergent people find the world we live in disabling. Consistent productivity, sensory overloads, and societal norms and customs don't encourage or allow neurodivergent behaviours such as tics, hand flapping, repetitive behaviours, outward emotional displays, and over-stimulation

meltdowns. This can lead to masking, where these traits are controlled and the individual conforms, but often at a great expense to their energy. It can also lead to de-personalisation, as the person doesn't feel they are living a life true to themselves but living for other people. Both these issues can cause, or exacerbate, mental health conditions.

Why is neurodiversity important in the ecology sector?

How do we adapt, and fix the problems of climate change and global biodiversity loss?

We need people who think out of the box to step forwards; avid problem solvers with fresh ideas. People who can help negotiate the future we, and the planet, need and deserve.

A neurodiverse group of people includes individuals of different neurotypes, including both neurodivergent and neurotypical. Such a group is more likely to have a wider variety of solutions and ideas compared to a group of the same neurotype (i.e all neurotypical, or all ADHD). This is due to the different thought patterns, pattern recognition tendencies, problem solving and creativity that is thrown at the problem. Working together in a neurodiverse group means that we can all support one another, figuring out solutions and methods more innovatively and efficiently. It means we will be less likely to miss more obscure or 'out-there' solutions because more eventualities and processes have been considered.

Improving diversity and inclusion and removing barriers

I think we should first look at some symptoms that might be linked to a neurodivergent condition, to show you the difficulties, and talents, of neurodivergent individuals. Then we will look at how we can make ecology more accessible by supporting neurodivergent people.

Neurodivergent people can struggle with (non- exhaustive list):

- sensory struggles (e.g. strong overhead lights and food/perfume smells, heat sensitivities caused by air-con/heating)

- social norms (e.g. maintaining eye contact, interrupting other people when they are speaking)
- executive dysfunction (time management, task prioritisation)
- emotional regulation (angry outbursts, outwards emotional displays e.g crying)
- rejection sensitive dysphoria – a feeling of severe emotional pain because of a perceived failure or rejection, often affected by things such as relationship breakups or criticism at work
- poor short-term memory
- poor spelling, grammar, structure, punctuation
- speech – for example, I struggle with remembering words and combining words.

Neurodivergent people can also have strengths in (non-exhaustive list):

- out-of-the-box thinking, pattern recognition and problem solving
- special interests, making them experts in their field
- creativity, which could make science communication easier for your teams and with clients
- dealing with a crisis, for example health and safety issues in the field
- hyperfocusing on tasks for extended periods of time, achieving much higher than average productivity
- communication through enhanced empathy and/or attention to detail, making them excellent line managers
- excellent long-term memory – brilliant for client calls and organisational and operational roles.

Both of these lists are just some examples where neurodivergent people may struggle or excel. Everyone is an individual and their own spikey profile (meaning where their strengths and weaknesses lie) will likely be very varied, even within shared neurotypes.

So – how can we be aware of some of the specific struggles these individuals face? How do we support them, allow them to be their true selves, and keep talent within the ecology sector?

Many neurodivergent people, especially those diagnosed as adults, present with mental health problems. Growing up with undiagnosed neurodivergent conditions

can cause unhealthy coping mechanisms. Medical professionals classify the struggles experienced as mental health conditions such as stress or addiction instead of digging deeper to find a root cause, which might be a different hard wiring of the brain. This is particularly a problem with women, where ADHD is often diagnosed as conditions like Generalised Anxiety Disorder. This is extremely worrying, as one in four women with ADHD have attempted suicide (Fuller-Thomson *et al.* 2020).

The first step to supporting neurodivergent staff, if you are a manager, is to ask yourself if you have created a psychologically safe working environment where people feel safe enough to disclose their neurodiversities or mental health conditions without fear of retribution. You need to normalise vulnerability at work. Essentially this means that your team needs to know they are listened to, that managers care about them, and value and implement their feedback. Mistakes and responsibilities are owned and worked on by bosses and employees. Leaders should implement active listening and responding, and avoid blame. Encourage team cohesion by including teams in group decisions, providing multiple avenues for feedback, and promoting self awareness through group reflection. This will benefit the whole team and will likely make the environment more efficient and supportive, and improve staff retention.



Izzy and her WSP colleague Joanne Davison volunteered along the Sefton Coast with ARC, getting stuck in on several pond maintenance tasks and removing vegetation for Natterjack toads.

Things to consider

Interviews: Eye contact. Punctuality. Memory recollection. All of these are things that neurodivergent people may struggle with. Accommodations and considerations need to be implemented at the interview stage, as you may be overlooking hard-working neurodivergent candidates because they don't fit in the typical norms we expect from interviewees. If a known diagnosis is present, ask the individual if there are any accommodations they might require. If you think a bad interview

might be due to their neurodiversity, and the environment, consider if an alternative interview would be useful (e.g. phone/video/in person) before moving forwards.

Burnout: Burnout isn't uncommon for neurodivergent people, due to the increased energy expenditure involved with 'fitting in'. It can often present itself as depression. This cycle of coping, and not coping, is common. People push themselves to neurotypical standards (with work) and overextend themselves; they can't maintain a life outside of the thing they are focused on (i.e work), leading to feelings of hopelessness, sensory overload, and just complete burnout. Working in ecology can be especially exhausting due to the night work, deadlines, high workloads, and client pressures; this means neurodivergent colleagues need to be especially supported.

Diagnosis: A neurodivergent diagnosis can help someone get to the root of their troubles and help them to live a better life. Employers can support them by offering counselling, and spreading information on neurodiversity conditions through publications, training, and social media posts.

Mental health support: It is more common than not that neurodivergent people have co-morbid conditions such



as anxiety. If an employee comes to you with mental health difficulties, it is worth being aware of the overlap, and also being aware of the implications of the Equality Act 2010. This legislation legally protects both neurodivergent employees and those suffering with long term mental health conditions that are deemed disabilities, from discrimination at work. Mental health and neurodiversity are intrinsically linked as topics. Ensure colleagues are adequately supported using line manager meetings, an Employee Assistance Programme and/or HR, and ensure struggles are taken seriously if highlighted. Management should be trained on how best to support neurodivergent employees and any potential mental health conditions.

Night work: Neurodivergent people are prone to burnout, as mentioned above. If night work is something they struggle with, implement accommodations such as reducing or altering the workload. With bat work, for example, doing just dawns, or just dusks, makes it easier to find a sleep routine, which could help.

Survey work: Depending on what the person struggles with, they might struggle with calls to clients, being on public transport, last-minute plan changes, or organising cars/hotels; each person is unique. They could also really excel in the field but struggle with desk work. Speak to your colleagues and see how you can best support them.

Office work: If neurodivergent people have sensory sensitivities, they might struggle being under office lights, uncomfortable temperatures, and with the food smells. Office clothes, and how they fit, might make them feel uncomfortable. At lunch they might struggle with small talk. Working from home might allow them to expend less energy on masking.

Some people might have difficulty with specific office tasks, such as report writing or client liaison. This shouldn't mean they miss out on the opportunities of their peers if they want support to develop these skills.

Some neurodivergent people thrive in the field and struggle in the office, and vice versa. For some people, it's a mix, with some surveys and tasks being harder than others. It is entirely subjective.

“ It is more common than not that neurodivergent people have co-morbid conditions such as anxiety. ”

Flexible working: Someone might struggle working full time and an extra day off allows them to recuperate their energy. Others might work better in the evenings, and struggle with sleep, so working 11am to 7pm suits them better. Homeworking might allow energy conservation. The flexibility to work when it suits them best keeps neurodivergent people in employment and increases staff retention.

Roles: Last year, I listened to a talk about IR cameras which mentioned that the increase in camera footage will increase desk-based ecology work, and therefore increase the accessibility of the profession for disabled individuals. This is an important thing to keep in mind with removing the barriers to entering ecology. If you are physically disabled and/or struggle with time management/sleep/fatigue, having a more desk-based role will genuinely make ecology more accessible to you, rather than a full field-based role.

Differences: Ensure you check your biases. For example, just because you know one person with autism, doesn't mean everyone with autism is the same. It is worth noting that accommodations aren't meant to 'one up' the neurodivergent employee against the neurotypical employee, they're meant to even the playing field. External factors (stress/family/upbringing) further complicate situations, and a condition one person might find manageable can be completely disabling for another person.

Get involved

If you're interested in learning more, I would suggest following these people on LinkedIn: Alex Partridge, Ellie Middleton, Leanne Maskell, Ella Willis, Joe Harkness and Allie Mason. They are all neurodivergent, and speak about the struggles, and strengths, of their neurodiverse condition(s).

If you yourself are a neurodivergent ecologist, join in the hashtag I have started and share your experiences: #NDEcologist on LinkedIn.

I want to end this article by reiterating Vicky Bowskill's blog post (Bowskill 2021): *“Flexibility is key ... To be a truly inclusive employer it is essential that the needs of the few are not allowed to fade into the background”*.

Thank you

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About the Author

Izzy McQuillan BSc (Hons) is a Qualifying member of CIEEM with a degree in Environmental Science. She has been working in environmental consultancy for the past 3 years. The main focus of her work is now completing Biodiversity Net Gain assessments, using QGIS and UKHab.

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Capacity and Recruitment in the Ecology Sector

eDNA is just one of the areas where the role of ecologists is expanding.



Paul Clack
CEnv MCIEEM
Arup

Keywords: advocacy, apprenticeships, capacity building, diversity, recruitment, skills

As I write this in May 2023 another spring has come and largely passed, and the summer field season is in full swing. This year, like seemingly every year, ecologists are in high demand and projects of all scales are calling for our skills. Despite the current economic position and negative stories on mainstream news outlets, I firmly believe there has never been a better time to enter our profession.

Introduction

The diversity of work ecologists now undertake is greater than ever, ranging from biodiversity net gain in its various forms; nutrient neutrality; using eDNA in ever more innovative ways; using technology such as thermal cameras and bioacoustics recorders to gather data; and a myriad of other techniques. Of course, core survey

skills remain central to the job of ecologists and many of our members will be in the field using their skills, training others, and continuing their professional journeys through what promises to be a good summer. The Green Jobs for Nature website (<https://greenjobsfornature.org/>) is a fantastic new resource that highlights the diversity of roles now available.

Diversification

Routes into our profession have begun to diversify in recent years. CIEEM are supporting Defra's Nature Skills Working Group, to push forward on the actions to increase capacity in the roles required to deliver the Government's ambitions in the 25 Year Plan and associated policies. We have an ever-increasing cohort of Higher Education (HE) providers offering relevant apprenticeships, notably the Level 6 (L6) Environmental Practitioner and Level 7 (L7) Ecologist courses. More people are

choosing to career change and move into the sector and there are more CIEEM-accredited degree programs than ever. The job of an ecologist is now becoming an established and respected career choice.

We at Arup have recently taken our first apprentices in Bristol as the University of West England (UWE) now offer a relevant L6 degree level apprenticeship which allows the apprentices to work with their employers for four days a week on average, with day release for university attendance. We have been waiting for some time for a local HE provider to offer the apprenticeship, as until recently none were doing so in the south west. It's great to see more universities offering the apprenticeship now, though the numbers remain small (see Box 1) and locations limited.

Box 1.

Institutions currently providing environmental practitioner apprenticeships (Level 6):

University of Brighton
 University of Keele
 Kingston University
 Angela Ruskin University Higher Education Corporation
 Coventry University
 University of the West of England, Brighton
 University of Bolton
 CU Apprenticeships (Better Futures) Limited
<https://findapprenticeshiptraining.apprenticeships.education.gov.uk/courses/465/providers>

Whilst deliberately broad in course content over a 5-year period, our apprentices are aligning with different teams, including ecology that fits with their interest and our needs. They will be actively rotated amongst teams over the next 5 five years to give them the range of experiences that support the various modules studied.

The challenge of recruitment

So why do we still have a capacity issue? And why is recruitment so challenging? Naturally, the answers to both questions are complex and interlinked.

One of our sector's great strengths is our ability to work across market sectors and swiftly pivot from one to another. This brings challenges in demand forecasting and associated capacity planning, but it does mean we are seldom short of things to do. Whilst we all have our views of how to address capacity and associated recruitment challenges, the following themes are currently in my mind:

- i. As a sector we must support the emerging routes into the profession, including apprenticeships in their various guises, career changers and the development of relevant micro-credentials within education. Let's not assume that the traditional graduate route with lots of self-funded or barely paid work experience is the best route in.
- ii. We need to be more collaborative across the private, public and third sectors. Major projects and programs of work are more likely to be achievable with effective partnership working. These are underpinned by trust, and I'd encourage all members to get involved with CIEEM activities as a great way of developing relationships with peers and potential collaborators.
- iii. We need to positively challenge negative perceptions of our sector. Be this remuneration, career progression, working hours or diversity, many of us now have excellent examples to share to counter traditional misconceptions. Ecology and environmental management is now a maturing sector which is a recognised career choice, listed by the National Careers Service (<https://nationalcareers.service.gov.uk/job-profiles/ecologist>), which compares favourably to other professions.

Our reaction to the Covid-19 global pandemic as a sector has resulted in numerous positives, notably around flexible and hybrid working, communication and staff support. We have begun to address the diversity issue within our profession, and I encourage you all to be aware of, and support where you can, CIEEM's Equality, Diversity and Inclusion initiatives (<https://cieem.net/i-am/a-diverse-inclusive-and-healthy-profession/>). The pandemic

also caused many people to reflect on their current lives and decide to make career changes in to something more meaningful like ecology and environmental management, and we welcome these individuals into our professions.

- iv. Finally, and perhaps most importantly, we all need to be advocates for our profession. Whilst we are all busy people, if we are truly committed to increasing capacity and recruiting great people to work with, what better way than showcasing some of the fantastic work our members do and sharing that with our target audiences. Are we making the most of outreach into schools, talking to our local HE providers or sharing our work with colleagues in other teams or departments? In my organisation we have several ecology 'converters' from engineering backgrounds who have brought great transferable skills to teams. As an example, we have an ecologist who spent 10 years in water engineering. She brought with her a range of skills, including technical (river flow monitoring, WFD parameters, water budgeting), practical (boat-based surveys, construction site supervision) and transferable (project management, excellent communication and team working). She is a real asset to our team. How many more are out there?

Whilst the future remains uncertain, 'green talent', as it has been termed, is likely to remain in high demand and the reality of what an ecologist does is broader than ever. It's up to us to shape those definitions and positively engage with each other, our clients and governments to build capacity for the long-term.

About the Author

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The Changing Role of Ecologists; Can Diversifying Address Capacity Issues?



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Keywords: capacity, career, diversity, graduates, interns, professional, recruitment, resourcing, training

“ Currently, ecology as a profession has diversity in age representation, gender identity, sexual orientation and some aspects of disability, but is still overwhelmingly white (86%). ”

The demand for professional ecologists has never been higher. Informal discussions I have had with contemporaries, both within my company, Arcadis, and in other businesses, have indicated that capability and capacity of ecologists is a challenge across the sector in the UK and Ireland. The opinions expressed in this article are my own.

Introduction

The natural world is critically important to our continued health, well-being and prosperity. Governments, private organisations and the public are realising this, and subsequently there is an increased focus on the ecology sector which has resulted in more demand for ecological expertise. New ecologically-focused legislation, government investment in large national infrastructure projects, and businesses seeking to deliver their environmental goals using nature-based solutions are contributing to the need for ecologists.



Figure 1. Arcadis environmental graduates Away Day 2023.

This is a fantastic opportunity for us, but also a challenge. The demand for skilled and experienced ecologists seemingly outstrips the market's current supply, an issue CIEEM has flagged previously (Wade 2021, CIEEM 2022). Project delays, or poor-quality work rushed through due to resourcing pressures, risk reputational damage to both the sector and our clients. More worryingly, there is significant potential for the sector to miss opportunities to deliver better ecological outcomes, and high

workloads can damage the health and wellbeing of working ecologists.

Cause of the challenges

So, what is at the root of this challenge? From observing the sector over a number of years, I feel the following are contributing to the capacity issues we are currently experiencing:

- A growth in demand, due in no small part to the diligent work of the ecological community and CIEEM in promoting the value of biodiversity

to functioning ecosystems. This has resulted in keystone legislation such as mandatory Biodiversity Net Gain in England.

- The job itself has changed; increasingly there is a requirement for digital skills, cost benefit analysis, climate resilience and strategic advisory work that traditionally has not been core to the sector. While this presents much needed access to impactful decision making, it is a skill that needs to be learned on top of the very complex multi-taxa survey, mitigation and management skills that we already employ. While groups such as CIEEM are building capacity within the industry, this does take time and a shifting mindset.
- Industry leavers: there are always resource fluctuations in any sector, but we have seen talented ecologists leave the profession at an unsustainable rate, for various reasons. For many the initial expectations of the role of an ecological consultant, compared with the reality, lead to alternative career choices that are more remunerative for less challenging experiences. At the same time, our profession has matured to a point where valuable experts are retiring, resulting in considerable skill loss. Our dynamic career environment can be a challenge to maintain alongside a family life. All of this is compounded by the lack of public sector funding that is critical to deliver so much of our work, be it in Statutory Nature Conservation Organisations (SNCO) or Local Authorities. Funding levels at local and national government level and levels of investment in SNCOs have decreased – a factor the House of Commons Environmental Audit Committee noted in their 2021–22 First Report of Session (EAC 2021). Lack of resources, knowledge or ability to support consultant ecologists within local and national governments results in dissatisfaction and poor outcomes for both clients and the environment; it can be difficult to retain talent. All these aspects contribute to a dissatisfaction and a push to other sectors. Frequent job movement of staff enticed by higher salaries or attractive work



Figure 2. An internal botany training session.

conditions is understandable, but compounds workload and resourcing issues and results in inefficiencies due to loss of project knowledge.

- Limited intake at early stages of career – recruitment slowed during the recession of the late 2000s and early 2010s, resulting in an uneven skill and age range. In addition, many school and university leavers may not be aware of ecology as a profession or do not see it as an attractive career path.
- Finally – and most challenging to address – there is a lack of diversity within the sector, limiting our access to key talent in certain demographics, as evidenced by CIEEM’s diversity survey (CIEEM 2021), which I will not repeat here but is worth a read. Currently, ecology as a profession has diversity in age representation, gender identity, sexual orientation and some aspects of disability, but is still overwhelmingly white (86%). We need to be able to attract and offer routes into the profession to people from all ethnicities, which can be part of the resourcing solution but also bring valuable different skills and outlooks to our sector.

Solutions?

So what is the solution? As a sector, how can we address these challenges

and use the current situation to maximise massive potential benefits for the environment?

An ecologist’s role

Firstly, we need to be clear about the role of a consultant ecologist, and how it is changing and evolving. We need to be sure that we are transparent on career progression opportunities and what an ecological role does and does not entail, from early in the recruitment process. The elements of ecology that would draw some people to the profession – working outside, surveying and assessing habitats and fauna, creating and managing habitats – are not the only elements required and/or available for an impactful career. Successful ecology requires a much wider range of skills; for example, being digitally skilled and computer literate, having a growth mindset to understand and apply scientific method and financial feasibility, or the skill to negotiate in complex financial and societal scenarios. Some potential ecologists may be discouraged from investigating ecology as a career by their perception of an ecologist’s role, believing it to be wrong for them, whereas the perfect role could already be available. Increased visibility and transparency of the existing and potential roles we play could open up a whole new demographic for the industry.



Figure 3. Staff on a bird surveying training session.

Remuneration

If we can continue to strive to promote the profession, the skills and expertise we possess, and the benefits this can bring to society, we can also address the other push–pull factor – pay. When we are valued as a profession, we can demand better rates of pay and deliver higher salaries. This in turn maximises our earning potential as professionals, allowing us to attract and retain talent from a wider demographic background. CIEEM has been promoting what we do and what opportunities there are in the ecological sector for both individuals and the environment, and this has made massive inroads in the ability to recruit and retain talent. When ecology is seen as a profession alongside the engineers and architects that deliver projects, we will be able to attract the strongest candidates into the sector. We need to be proud of the often challenging technical work we do and the importance it has in our society; we should not shy away from asking for decent pay from our clients, that we can translate into better salaries in the sector.

Public involvement

The people of this country value wildlife and the wider environment; a Local Government Association (LGA) survey found that 94% of residents want to

see more biodiversity (Eichler 2021). We need to demonstrate this public support to those in power in order to encourage more investment from the government. An adequately funded public sector with ecological expertise to support ecological consultants can only benefit the sector and result in better outcomes. Despite better visibility, there are still gaps when it comes to maximising and publicising the great work ecologists do, from primary school age children upwards. For example, campaigning for ecology as a curricular activity to be included in the school syllabus; progress has been made with a GCSE in natural history being available from 2025, but this may be too little too late and doesn't address short term resource issues. Those that start a Natural History GCSE in 2025 will not become graduates until 2032 at the earliest! In the meantime, we need to attract the best graduates to our sector. One way of approaching this would be to be more vocal and visible at STEM and graduate recruitment days.

The range of roles available needs to offer opportunities to different talents, lifestyles and life stages. We need to ensure there are opportunities to evolve careers throughout individuals' working lives in ways that are sustainable for parents, part-time staff and those working towards retirement.

Partnership working

It will take time to realise the benefits of most of the above solutions. In the

meantime, one part of the answer is to work in partnerships. At Arcadis we have found that we can work successfully with partners who can bring what they do best to our clients, whether that be the flexibility of SMEs, expertise of specialists or depth of workforce of other large organisations.

We need to make new pathways to access the industry if we are to keep pace with the growth of the requirement for expertise.

We have also increased their intake of interns and graduates, and are providing opportunities for apprenticeships to provide multiple pathways into the ecology sector. We have brought around 10 graduates a year and, this year, six paid summer interns into the ecology business, focusing on recruiting the most talented and enthusiastic graduates regardless of previous dedicated ecology experience. It's been a success, utilising the skills and potential that they have rather than focusing on the experience they don't. As a sector we also need to acknowledge that traditional routes into the industry do limit accessibility for certain demographics – which brings me to the most difficult challenge to address.

Encouraging diversity

Encouraging diversity – the big question is how. At Arcadis we have been involved in CIEEM and British Ecological Society (BES) initiatives, including CIEEM's Equality, Diversity and Inclusion Working Group and the BES summer



Figure 4. A selection of Arcadis staff, including graduates, on our annual training day, kindly led by Gloucestershire Wildlife Trust.



Figure 5. Staff and graduates on a great crested newt surveying training session.

schools (Brooks and Halford 2021) but we obviously need a more comprehensive push to consistently get more individuals from under-represented demographics excited enough to enter the sector. A combination of attractive salaries, a respected profession which is visible from childhood and throughout the school curriculum, access to nature at an early age and the provision of different routes into the industry is likely to be key.

However, I think we also need to reconsider some of the prerequisites we have when recruiting; not everyone is in a position to devote time to unpaid or very low paid work to build experience before entering a sector. Attractive salaries require higher rates to be charged to clients. As the sector becomes more professional, rates have gone up, but within an unregulated sector like ecology, and with pay challenges being compounded by the recent difficulties around cost of living, it is difficult to put salaries up massively based on the rates clients are willing to pay. It's a slow process but a rising tide should lift all the boats and hopefully, as our value is observed, we will all be able to increase charges to raise the value of the entire sector.

Conclusion

We have a real opportunity to overcome the challenges of capacity and deliver a

better environment than we inherited. Within my career, I have seen huge improvement in the professionalism, salaries, career prospects, flexibility, diversity and collaboration within the sector. These improvements have been due to a range of changes. Additional legislation, policy and biodiversity targets have driven rising standards supported by projects such as CIEEM's Raising Standards Project (CIEEM n.d.) which ensures that ecologists are delivering robust work. The huge improvements in health and safety and wellbeing rightly mean that fewer ecologists are working long, unsociable hours on their own without respite or compensation. There is also a new awareness that a healthy ecosystem is vital for our survival, particularly in mitigating and adapting to climate change. The standard expected by our clients is also often higher, and the work is in many ways more technologically and legislatively complex, but the opportunities are greater. Moreover, efforts by individuals, companies and CIEEM to raise standards in both work quality and changed expectations around compensation packages and work life balance has made a long-term career in ecology much more attractive. Much of the progress has been achieved through diligent work to publicise and promote the sector and its importance and a

drive to recruit the best and brightest into the profession. If we continue on this trajectory and can better tap into the underrepresented sectors of our society, we have the opportunity to address the current capacity challenges and reap the rewards for ourselves and the environment.

I am positive that with the right individuals in the sector, we are at a stage where working as a professional ecologist presents the best opportunity ever to improve quality of life and benefit the environment.

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About the Author

Brandon Murray is a Technical Director and leads the day-to-day operation of the Ecology and Arboriculture business for Arcadis in the UK. He has been at Arcadis since 2016, prior to that he worked at a number of consultancies of varying sizes, including AECOM and ADAS. Brandon is passionate about ecology as a profession and sits on the CIEEM Strategic Policy Panel. His ecological experience is varied and he has delivered the ecological aspects of road, rail, commercial, residential, energy and schools projects. He is excited about the opportunities presented by biodiversity net gain and the emerging focus on nature-based solutions.

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Peatland Restoration – an Industry Revolution

Figure 1. Reprofilling peat hags. Peatland restoration at Beinn Dhuand Mid Hill at Luss Estates, Loch Lomond National Park. Photo credit: Lorne Gill/NatureScot.



Becky Shaw
NatureScot

Keywords: green jobs, peatland action, peatland restoration, skills development, workforce capacity

Scottish Government's ambitious targets for peatland restoration have highlighted gaps in the skills required to deliver projects from start to finish. NatureScot is taking steps to build capacity in the industry sector.

Introduction

More than 20% of Scotland's land is covered by peatland (Bruneau and Johnson 2014). It's a unique habitat

capable of storing vast amounts of carbon, and is a source and store of clean water. It is also important for biodiversity, supporting a wide range of plants, birds and other species, some of which are uniquely adapted to the wet and acidic conditions.

Unfortunately, much of it has been damaged by past drainage and management; instead of storing carbon, it is now in such poor condition that it is emitting carbon and is responsible for over 15% of Scotland's total emissions. In 2020, official net greenhouse gas emissions from all sources in Scotland in

2020 were 40.0 MtCO₂e. Net emissions from peatlands were 6.6 MtCO₂e (Scottish Government 2022).

The good news is that we can repair and restore peatlands. This is done primarily through actions which raise the water table and re-establish vegetation, namely Sphagnum mosses, the main 'bog-building' plants. As well as sequestering carbon, healthy peatlands deliver a range of other benefits. Restoration improves the surface habitat which leads to greater plant diversity and, in turn, higher numbers of invertebrates, a food source for grouse and other upland birds. Restored areas absorb and hold rainwater for longer than damaged areas, allowing it to seep slowly into river systems. This important regulation of water flow reduces the likelihood of flooding downstream. It also helps alleviate issues associated with drought conditions, such as wildfires. Restoring a peatland reduces soil erosion, helping to

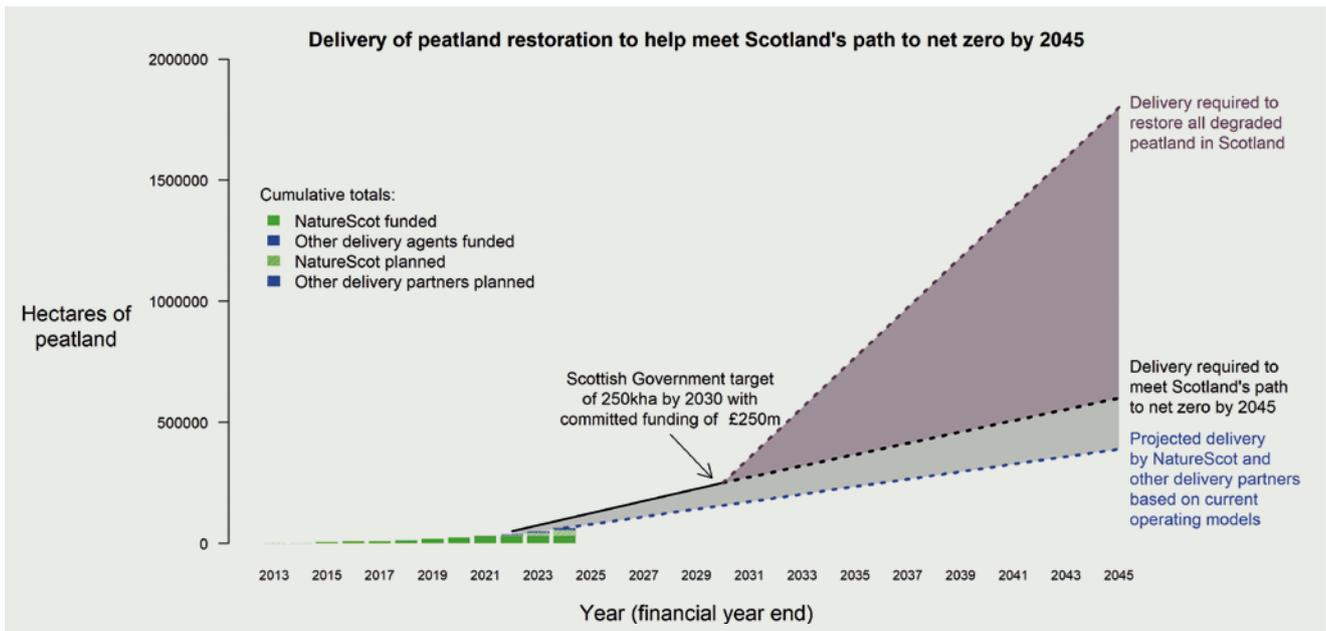


Figure 2. Graph showing the area of peatlands put under restoration against Scottish Government targets (Source: Peatland ACTION)

improve water quality at source – important for fisheries and drinking water catchments. Healthy peatlands support our economy whether used in farming, tourism or crofting.

Peatland ACTION

The Scottish Government-funded Peatland ACTION programme delivers on-the-ground peatland restoration, funding multi-million pound large-scale projects over multiple years, as well as smaller community-based restoration projects.

The programme is led by NatureScot in partnership with Forestry and Land Scotland, the two National Parks (Cairngorms, and Loch Lomond and the Trossachs), and Scottish Water. Since the project began in 2012 more than 35,000 ha of peatland have been restored, and new techniques have been developed and refined.

A developing industry

Peatland restoration is an expanding industry. The Scottish Government has earmarked funds of £250 m for peatland restoration over the next 10 years, with a 2045 target of 600,000 ha of restored peatland. Some estimates suggest that around 1,500 jobs are needed in peatland restoration over the next 10 years in order to meet Government targets. These include a wealth of opportunities for, amongst others, machine operators, hydrologists,

satellite data analysts, surveyors, ornithologists, ecologists and project managers. There are also Project supervisor roles, Clerks of Works, site supervisors and foreman roles. Contractors’ supervisors need to understand underpinning principles, which often include elements of hydrology, ecology and geomorphology. The construction industry has so far played a vital role in peatland restoration. Highly skilled machine operators carry out techniques which include: damming; ditch blocking; reprofiling hags and gullies; bunding;

revegetating areas of bare peat; and removing scrub. For ‘forest to bog’ projects, trees are felled, stumps flipped over and furrows and ridges flattened.

The challenges

The increasing pace of restoration required to meet the climate emergency means that there are significant skills shortages across the sector. Workforce capacity issues were already becoming evident before 2020, with a shortage of skilled restoration scheme designers and experienced machine operators affecting the capacity to deliver restoration. This



Figure 3. Forest to bog – a harvester clear felling a commercial conifer plantation to restore the peatland. Photo credit: Lorne Gill/NatureScot.

means that expressions of interest from landowners can be slow to convert into action on the ground. Some Peatland ACTION Project Officers currently have 3 years of work in the pipeline.

There is a pressing need to expand design capacity to bring this work forward. The priorities now are on the development of skills in scheme design and in increasing the number of skilled contractors capable of delivering the restoration work. The intention over the next 3 years is to significantly escalate delivery with rapid development through training, capacity building and guidance.

Design

The role of a scheme designer will typically involve site surveying using satellite and on-the-ground information, backed up by peat-depth surveys and photography. Information is drawn together into a bespoke peatland restoration plan. As well as surveying out on site, a project requires detailed Geographic Information System (GIS) mapping, consideration of appropriate restoration techniques, landowner liaison, contractor tendering processes, health and safety paperwork, writing funding applications, and data management.

While much of the project design work so far has been carried out by Peatland ACTION staff from across the public sector delivery partners, the private sector now has an increasingly important role to play. This is reflected by the recently launched Project Development Support Scheme (<https://www.nature.scot/doc/peatland-action-project-development-support-scheme>) which incentivises the development of schemes by private sector designers.

Delivery

Scotland's excavator operators and contractors are fundamental to peatland restoration. They need to be able to work in remote areas, often in challenging weather, and be skilled in working in the sensitive peatland habitat. Some have been involved in the work for over 10 years and these experienced machine operators have helped to develop the range of techniques.

However, many machine operators and project managers who would like to work in the sector lack technical expertise and experience in peatland

restoration, giving rise to a shortage of competent operators. The principal plant operator training establishments do not have sufficient knowledge or expertise to be able to offer training in restoration techniques.

Until recently there have been no courses, degrees or programmes of work experience specifically designed for those wishing to learn how to design, manage and deliver peatland restoration projects. The vast majority of those designing and delivering projects have instead essentially 'learnt on the job', bringing transferable skills gained in previous roles. With the rapid expansion of the sector, this approach is no longer sufficient.

Finding solutions

NatureScot is developing skills pathways and is supporting training and development for peatland restoration.

Peatland ACTION training

A Peatland ACTION training programme, delivered via NatureScot's partners at the Crichton Carbon Centre in Dumfries and Galloway, has been in operation since 2017. Two-day training events have focused on introducing contractors, project design consultants, land owners and land managers to the theory and principles of peatland restoration. The intention is to raise levels of expertise and understanding of the practicalities in order to provide the specialist and technical skills needed.



Figure 4. A Peatland ACTION training programme has been in operation since 2017. Photo credit: Lorne Gill/NatureScot.



Figure 5. Trainees looking at a peat core on a site visit to the blanket bogs above Cromar, Loch Lomond. Photo credit: Lorne Gill/NatureScot.



Figure 6. A digger reprofiling and turving a peat hag. Peatland restoration needs skilled machine operators. Photo credit: Lorne Gill/NatureScot.

The training programme has also reacted to needs and opportunities, for example by running in-house training and knowledge exchange sessions for Peatland ACTION Project Officers, and delivering training to organisations such as Historic Environment Scotland and Local Authorities as they have become more involved in aspects of peatland restoration. In 2022–23, this programme delivered training to 489 people across Scotland, with multiple sessions delivered in Islay, Orkney, Badenoch and Galloway as well as online.

These events are consistently fully booked and there is a lengthy waiting list, demonstrating the enthusiasm which exists for understanding more about this growing area of work.

In partnership with Scotland's Rural College, Peatland ACTION has also developed training specifically targeted at those who wish to design restoration schemes. A short course for potential designers (2 x 1 week blocks of taught time, blended with online learning and consolidation) ran twice over winter 2022–23. Thirty candidates, from land agents, to graduate ecologists, to forestry consultants, completed the

course and are now starting out in restoration design. Peatland ACTION will provide ongoing CPD and mentoring to ensure this group have the skills they need to operate in the restoration design sector. The course will run again twice in autumn/winter 2023 and, depending on demand, may continue on this basis in following years.

Further and Higher Education courses

Work is also underway in partnership with the University of the Highlands & Islands (UHI). An 'Introduction to Peatland Restoration' course is being developed, which aims to give candidates an elementary understanding of peatland ecology and hydrology, health and safety in a peatland environment, surveying and data-gathering, and practical experience of restoration techniques. The course will provide a stepping-stone into practical delivery of restoration work by gaining machinery tickets or allowing candidates to explore an interest in surveying, scheme design or project management.

Peatland restoration content is also being developed for HNC and HND courses in

conservation and environmental management at UHI – the first time this has formally appeared on the curriculum in Scottish further education.

In order to enable plant operator trainers to offer skills development in peatland restoration, 'training-the-trainer' provision will be offered to the principal plant operator training organisations this year. This should allow peatland skills to become part of the suite of training available for machine operators and support expansion of the sector.

In the meantime, a short-term option this season is the New Entrant Scheme whereby an experienced operator mentors qualified operators on a live restoration site.

This work is all guided by a Peatland Skills Plan, which involves education and training bodies, Skills Development Scotland and the Enterprise agencies, among other partners. The intention is to ensure that skilled people across the country, and perhaps particularly in the areas with the most significant areas of peatland to restore, are able to engage with this emerging sector.



Figure 7. To help develop the workforce for the future, careers information should highlight the employment opportunities that peatland restoration offers. Photo credit: Swift Films/NatureScot.

Attracting talent in the future

With peatland restoration being an important sector to 2030 and beyond, it is necessary to develop the future workforce to deliver and maintain the required hectares of restored peatland. The development of a skills pathway into peatland restoration careers is a focus in the medium to longer term. In the shorter term, the development of introductory level courses and materials will provide a starting point for early career skills development. The relative newness of peatland restoration means that careers services have little information about its existence and the job opportunities it offers, and this needs to be addressed.

The Peatland ACTION website features information and videos for those wanting to find out more. A technical compendium has also been launched, which draws together the shared experience of people who have been doing the work for a long time and describes the techniques that may be most applicable to a particular situation.

Driving demand

Peatland restoration has benefits for biodiversity, livestock grazing, fisheries, and flood and wildfire mitigation, and there is a need to communicate an

understanding of these benefits to land managers and the advisory network. Opportunities for engaging with land managers are also used to highlight that peatland restoration can provide a funding mechanism for peatland projects to access carbon markets through the Peatland Code; much of the data gathered for a Peatland ACTION project can be used to inform a Peatland Code application and processes can run in tandem.

Conclusion

Best practice peatland restoration is multidisciplinary and highly variable, requiring wide ranging and complex skills and expertise.

The immediate requirements for a dramatic uplift, in both peatland restoration scheme designers and contractors to deliver work on the ground, mean that the initial focus must be on increasing capacity in these areas, recognising that business diversification into peatland restoration is likely to be the fastest way to increase capacity within the sector.

In the short term, there is an urgent need to upskill and develop the sector both via the existing workforce and through the development of skills pathways for future entrants to

peatland restoration. In that way, peatland restoration should provide local, skilled jobs, as well as positive outcomes for nature and climate.

To find out more about Peatland ACTION visit <https://www.nature.scot/peatlandaction>

For more information about training, email peatlandactiontraining@nature.scot

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New Routes into the Profession: Could Vocational Career Paths Help Reach Capacity Crisis Goals?



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Keywords: apprenticeships, capacity crisis, green skills, skills gap, vocational education

CIEEM and LANTRA have been working together to explore one potential way to address the skills shortages in the sector. A significant contribution could come from opening up the ecology profession to people who have taken vocational qualifications. In this article, we share key findings from sector workshops where we discussed the opportunities and current barriers. We also surveyed 140 new entrants into the ecology profession, asking them about their experiences in education and how they acquired skills.

Introduction – the capacity crisis

Many of us are impacted by the capacity crisis in our day-to-day work. Local authorities urgently need more ecological expertise to deliver commitments that

national Governments have made for biodiversity. There are fresh drivers for local authorities and other public and private landowners to manage their own land with more focus on biodiversity. The new infrastructure we need to transition to a low carbon economy and make us more resilient to climate change – from offshore wind farms and smart grids, to natural flood risk management – requires ecological expertise. Ambitious targets to mitigate climate change with tree planting and peatland restoration need a range of ecological skills, but will not succeed

without people who have practical, hands-on experience. We have yet to begin the huge task of retrofitting our existing neighbourhoods so they are adapted to our changing climate.

Engaging ecologists across the sector

In April and May we ran seven workshops with ecologists from right across the profession. Participants came from a range of backgrounds, but were mainly people involved in, or with overall responsibility for, recruiting ecologists. Different sized organisations face their own skills challenges, and we were careful to include smaller, medium sized and larger employers. The workshops were organised by sector, where participants had many concerns in common, and divided into: ecological consultancies; NGOs; local authorities and national parks; environmental regulators; and colleges and training providers.

Consultancies and NGOs make up a large part of the ecology sector workforce, so we ran the same workshop twice to get good representation from both groups. Colleges and other training providers have their own challenges, and need to recruit staff with up-to-date skills including GIS, survey techniques, and conservation law and policy, to be able to train others. Both environmental policy and training and skills policy are devolved, with considerable variation across the British Isles. There are significant opportunities for learning across the four countries.

Building a dream team

What does Fantasy Football have to do with ecology? In both ecology and

football you need to have a team with the right mix of skills. Funds are not infinite, so teams have a combination of experienced members alongside new talent.

Talking about recruitment and skills can be a sensitive issue for many organisations. To diffuse this sensitivity, we turned the first half of the workshop into a 'Fantasy Football' style game. Participants worked in small groups to build a team of ecologists and could choose from a combination of experienced, mid-career, and newly qualified ecologists, and technical and support staff. We provided brief biographies based on real people, with details amended so they could not be identified. Each person profile had a point score that roughly corresponded to salary, and the total score for the team could not exceed 21 points.

Vocational entrants into the profession

We first considered those joining the ecology profession from vocational pathways: Alex, Alice and Isaac.

Alex: completed an Advanced Technical Extended Diploma in Land & Wildlife five years ago. The course involved a 50-day work placement, which he undertook with the National Trust. He now manages a team of five staff and 25 volunteers at the same property. On the course, he developed strong skills in plant ID and surveying and how to apply those to woodland and grassland management. He also found an unexpected interest in landscape history and archaeology.

Alice: Completed her HND in Wildlife and Conservation Management three years ago, with a distinction. She had many of opportunities to develop her ecological survey skills. She works at a

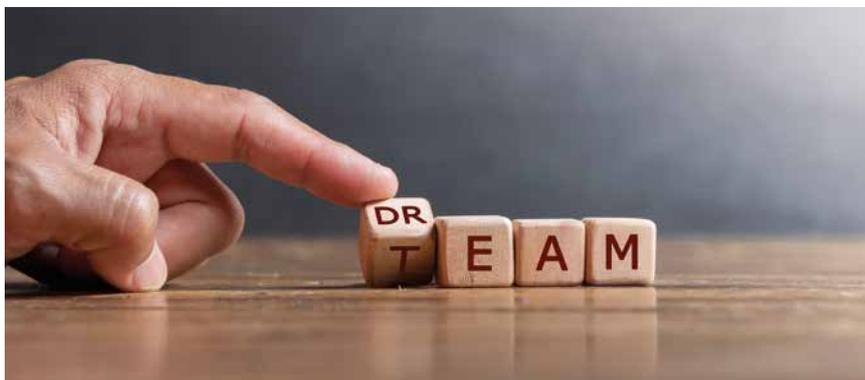
large country park, applying her knowledge from the course directly to her work. She enjoyed working in a team with other students, including a group project about protecting vulnerable grassland, and was interviewed for the Countryfile TV programme.

Isaac: has recently completed his Environmental Practitioner Apprenticeship, working in a charity for three years to advise on woodland creation schemes alongside studying at a local university one day a week. He addressed challenges caused by Storm Arwen while his manager was on leave. He had to find and manage contractors to make the site safe, and hosted a visit by climate experts and politicians to see how woodland creation is being impacted by extreme weather.

Participants in all of the workshops responded positively to these vocational profiles, valuing their practical ecological experience and teamworking. Ecologists in private sector consultancies liked the profiles, but were initially unsure how they could employ them. After a discussion, they could see how their skills could be applied to other situations. Interpersonal skills developed with colleagues, volunteers and landowners could be transferable to working professionally with clients. More of consultants' work in the future will be advising clients on ecological land management, through Biodiversity Net Gain in England, DECCA in Wales and post-Brexit Agri-environmental programmes across the UK. It could also lead to new opportunities for consultants, as noted by this participant who used to work in a consultancy and now works in a Further Education college:

"When I worked in consultancy, we would go in and just focus on the survey and report, and then they hire someone separate to do the practical stuff, like building a badger sett or whatever. But our students often have these practical skills.. and they'd be very good at it."

Workshop participants did not always recognise the qualification titles and what skills they should expect as a result, but this did not stop them including vocational profiles in their final team selection. None of the workshops made negative comments



about the overall abilities of people who follow a vocational career pathway. This was raised as an issue in several policy and research reports we reviewed during our desk study: vocational applicants can be viewed as less able than their graduate counterparts. At the end of the workshop, a number of participants said they would go away and review the standard wording in their job advertisements, removing requirements for a degree where it is not necessary for the role, and inserting more positive phrases to encourage vocational alternatives.

Graduate applicants

We introduced five profiles from graduates to stimulate discussion about the range of skills new entrants have and how they acquire them. The graduates profiled had gained practical skills in ecology in a range of different ways: assisting with an ecological survey of the university campus; summer volunteering with the local Wildlife Trust; a work placement module with the Environment Agency; paid assistant to a PhD student doing botanical surveying; engaging with the Wildlife Trust on their dissertation; and volunteering on a turtle conservation project.

Most of the workshop participants were sceptical about the person who had costly international volunteering experience with turtles, supported by parents who work in the sector. Discussions about other ways graduates can gain practical ecology skills were more challenging.

For example, Jasmine worked closely with the Wildlife Trust on her dissertation, getting a distinction for her study on chalk streams, which was later used by the Trust in its habitat management. She didn't volunteer, and needed to undertake paid work in term-time and vacations as a retail sales assistant. In the local government and consultancy workshops, participants responded positively to her profile, thinking she must have excellent time management skills and her work in retail would have developed her interpersonal skills. In the NGO workshops, however, there was a widely held view that volunteering was essential both to develop practical skills, and as a sign of commitment to

working in the sector. They commented that volunteering is "an important entry point into the sector", "provides positive work experiences" and "raises the profile of careers in the sector". They were aware of the risk of exclusivity, but for them this was focused on international conservation volunteering rather than weekend or summer vacation working with a local Wildlife Trust. This creates problems for people like Jasmine, the first in her family to go to university.

Reality versus desirability

The Dream Team game led into a discussion about the skills of people who have a degree in ecology and related subjects, and those from vocational pathways. Figures 1 and 2 show the skills that employers perceive graduates to have, based on their experience of employing new graduates. Graduates enter with a strong foundation in ecology, robust research skills and an analytical approach to data. They come with good writing skills, which sometimes needed fine tuning in a professional context. The main ecological skills they lack are species identification and practical field skills, as well as up-to-date knowledge of environmental law and policy.

In contrast, vocational entrants have strong practical skills and species identification. Employers think that their time in the workplace gives them more highly developed interpersonal skills, confidence working in a team, and people management. There was less confidence in their report writing skills, foundations in ecology and knowledge of ecological systems. Figures 3 and 4 show the skills that employers think that people from vocational careers currently have and need to develop.

Figure 5 illustrates this from the viewpoint of those entering the profession as early career ecologists. It is based on a survey with 140 responses carried out in April and May 2023 and identifies the core skills that students currently gain during their environment and ecology studies. Those relating directly to ecology include surveys, GIS, data analysis, conservation methods, environmental legislation, and species identification. Conservation methods included practical field skills, environmental monitoring, ecosystem restoration, habitat management, biodiversity action planning, and forestry. The diagram also shows a strong interest in developing 'transferable' or 'soft skills' and research skills. The most prominent of these is report writing. The most detailed and



Figure 1. Skills that graduate entrants into the ecology profession have, as perceived by employers.



Figure 2. Skills employers think graduate entrants into the ecology profession need.



Figure 3. Skills that vocational entrants into the ecology profession have, as perceived by employers.



Figure 4. Skills employers think vocational entrants into the ecology profession need.



Figure 5. Early career ecologists were asked what were the most useful things they learned on their college or university course.

enthusiastic comments related to skills that were developed on a work placement or live project.

Concluding thoughts

The workshops and survey provided many valuable insights into the skills gaps in the ecology profession. The idea of opening up more vocational pathways gained a very positive response, and we are now looking at ways to take that interest forward. We continued our research by interviewing experts in vocational qualifications, and sought experiences from related professions such as forestry. These helped us focus in on specific

recommendations to enhance existing vocational courses and introduce new vocational qualifications. We are bringing all this material together into a set of specific recommendations which will be shared in a report, blog and webinar.

Graduates and those from vocational career paths often have complementary skills. There are opportunities for degree courses to adapt, so they bring in practices commonly found in vocational courses. Students on degree courses could spend less time writing academic essays and more time engaging with real-world examples. This is especially timely given the current anxiety about

the role of AI programmes such as ChatGPT in assessments. These language programmes could flag up some background reading, but would be unable to write a woodland management plan for a particular site, or suggest relevant ecological planning conditions for a specific development.

To address the skills gap, vocational qualifications will need to adapt and change too. The technical skills needed in the profession now include GIS and the use of modern technology in ecological surveys. Investment is needed in vocational programmes – for equipment, and the time and funds for those teaching to maintain their own skills through professional development. It takes time and money to design, develop and deliver high quality vocational courses, but with that investment vocational routes can make an important contribution to the skills gaps in the sector. This approach can also contribute to a more diverse workforce, where entrants learn the essential skills they need to start their career in ecology during their courses.

Acknowledgements

We would like to thank all the workshop participants for their time and for sharing experiences about skills in the sector, especially at such a busy time of year. We would also like to thank Rachael White and her colleagues from Environmentjob.co.uk for her thoughtful advice and assistance with this research.

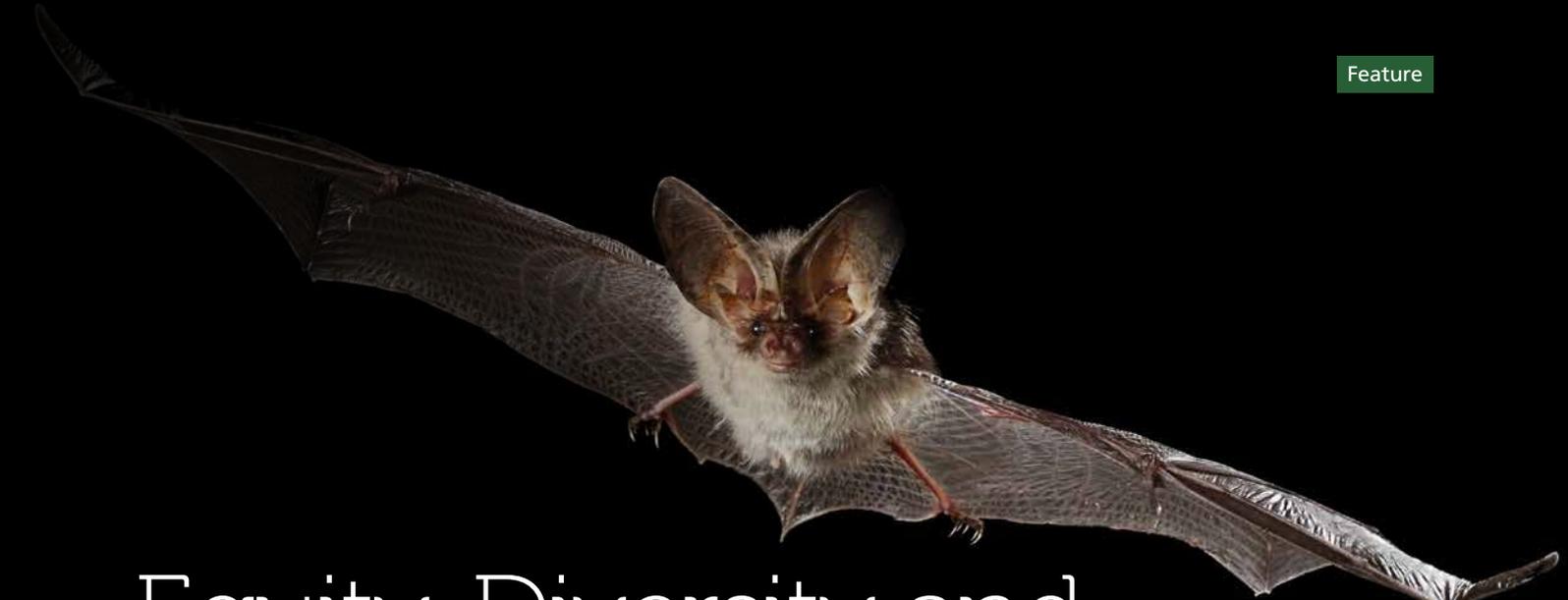
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Equity, Diversity and Inclusion at The Bat Conservation Trust – How Can We Do Better?

The Brown long-eared bat. Photo credit: Hugh Clark.



Naomi Webster
Bat Conservation Trust

Keywords: Bat Conservation Trust, diversity, equity, inclusion

“ During the first two years of the projects, 25% of NightWatchers came from minority ethnic groups and there has been lots of positive feedback. ”

Along with CIEEM and many other environmental organisations, the Bat Conservation Trust is on a journey to improve Equality, Diversity and Inclusion within the sector. To help increase ethnic diversity, they are following the Wildlife and Countryside Link Route map. They are also applying other lenses to their work and activities to help them improve in other areas of under-representation as well as ethnic diversity.

Introduction

As a charity concerned with bats, we at the Bat Conservation Trust (BCT) sometimes get asked why we are trying to reach a broader audience with our activities (citizen science, public engagement, training courses, and more people) instead of just focusing on bats. In fact, our vision for the future is of a world rich in wildlife where

bats and people thrive together. Not just people who already like bats or only those people who have a roost on their property, but all people.

As part of our efforts to work towards this goal, my role as Education and Engagement Officer includes a focus on Equity, Diversity and Inclusion (EDI).

Being welcomed

At a strategy day earlier this year, I asked BCT staff to reflect on how they felt on an occasion when they felt included. They said they had felt ‘welcomed’, ‘valued’ and it was

‘liberating’, ‘being seen and heard’. When asked what was different about that occasion, they used phrases like ‘proactive’, ‘anticipating needs’ and ‘someone went out of their way’.

In reflecting on their words, I was reminded of two of my favourite animals (not bats this time) – our rescue dogs Alfie (yellow Labrador) and Benjy (chocolate Labrador). They were adopted aged 5 and 3 through Kent Labrador Rescue. Alfie, then and now, expects that everyone will love him and that he is welcome everywhere – and generally it’s true. Benjy arrived with a slightly more chequered past; he was unsure and very much the underdog. He kept his distance and didn’t expect to be welcomed and accepted. We’ve worked hard over the years to build our relationship with him so that he now realises he is welcome, but it took time and effort.

I’m very privileged in that I unconsciously wear Alfie-tinted spectacles to most places I go. It doesn’t occur to me that I won’t be welcomed and accepted or that my needs might not be automatically catered for. Sadly, this isn’t true for everyone and can contribute to the barriers holding some people back from engaging with environmental activities and opportunities.

Diversity and inclusion in the bat world has been a concern for BCT for a number of years. Our first project in this area was Count Bat which ran from 2008-2012, and you may have seen some of the resources that were developed at the time. The project focused on trying to reach under-represented audiences, including deaf people, those with visual impairments, children and young people, and people from black and minority ethnic groups. Over the 4 years of the project, over 20,000 people were involved in project events, 1500 bat sightings were added to the Big Bat Map and over 1200 hours of volunteer time were generously donated.

“ Really informative and fascinating to see the live bats. Great project! ”

Count Bat Event attendee, 2009.



Figure 1. The Bats for All Resources pack.



Figure 2. The Bats for All Resources pack example page.

The Bats for All resources pack (Box 1) produced at the end of the project includes case studies and tips for working with different under-represented communities as well as details of how to run different types of bat-related events and activities. It is still available on the BCT website for anyone who would like to download a copy (although we perhaps need to do better at promoting it).

Recently, we have focused internally to improve inclusion within the organisation. We are fortunate to have strong support for EDI at every level, including our Senior Management Team and the Board of Trustees. We have members from both on our EDI working group, as well as representatives from different departments and at different levels across the organisation. We are rolling out anti-oppression training across BCT, which has been thought-provoking and well-received, despite making people uncomfortable at times. We are making changes to our recruitment practices, including broadening where we advertise roles, and removing unnecessary barriers by reviewing role descriptions, person specifications and interview questions. With collaborative funding through the National Lottery Heritage Fund, we had two Kickstarter roles last year and one New to Nature role this year, and are learning from the experiences.

Monitoring our diversity

In 2022, along with 90 other organisations, we submitted data to the

RACE Report (Box 1) to start monitoring diversity in the sector. The first report was published in December 2022 and showed just 7% of those working in the environmental charity sector identify as People of Colour (PoC) and racially/ ethnically minoritised groups, compared with a 14% national average (NOMIS, Box 1) across all people in employment.

We are also monitoring the diversity of those who volunteer with us. In May 2021 the National Bat Monitoring Programme asked their volunteers to complete an equal opportunities survey to understand the community better. At that time, 2.2% of those who responded identified as PoC or ethnic minorities and 3.3% preferred not to say. Since

Box 1. Useful resources

Bats for All resources pack

<https://www.bats.org.uk/resources/education-outreach-resources/bats-for-all-resource-pack>

Nightwatch <https://www.bats.org.uk/our-work/science-research/passive-acoustic-surveys/nightwatch>

Nomis (Office of National Statistics annual population survey) <https://www.nomisweb.co.uk/datasets/apsnew>

The Race Report <https://www.race-report.uk/>

Wildlife and Countryside Link Route map <https://www.wcl.org.uk/diversity-route-map.asp>

then we have tried to reach out to more diverse communities; in the signups since then there are 3.7% identifying as PoC or from ethnic minorities and 2.7% prefer not to say. A beginning, but we still have a long way to go.

Making changes

We hope that projects like NightWatch will help with this. Nightwatch (Box 1) is a free, tech-enabled night-time wildlife survey open to all regardless of background, experience, knowledge, or physical ability. The equipment is provided, so there is no cost barrier. It can be done from home, so is accessible to those with restricted mobility or anyone who would not feel comfortable surveying in local greenspace late at night. The target audience is people who live in UK towns and cities, who are less likely to take part in wildlife projects than their rural counterparts, so it can even be done from a balcony if someone is in an urban flat without a garden or local greenspace. During the first two years of the projects, 25% of NightWatchers came from minority ethnic groups and there has been lots of positive feedback.



Figure 3. A bat walk as part of Project Nightwatch. Photo credit: Hannah van Hesteren.



“ I loved it, over the moon to see the results and find out I had six species visit. ”

Nightwatch survey participant, 2022.

We are trying to make our conferences and events more inclusive, from simple changes like adding pronouns to our name badges to factoring in more support for neurodiverse delegates – for example, we have introduced quiet spaces at National Bat Conferences and designate some lunch tables as Batty Chatty tables and others as Quiet tables for those who need some space to replenish before the afternoon. We also have widening participation bursaries funded by our exhibitor and sponsorship packages. We hope to encourage other organisations to adopt some or all of these practices by raising awareness through articles and blogs.

“ Didn't know we had so many species and they lived so near me! ”

Bat walk participant, 2022.

The normalisation of online and hybrid events has enabled our conferences and training courses to be more inclusive for those who struggle to attend in person, and technologies like closed captions help support delegates with hearing impairments. In recent years, we have also used some of our events to shine

(and maintain) a spotlight on taboo or under-explored topics e.g. menstruation, motherhood and menopause, safety during fieldwork at night, and barriers to entering the bat world.

At a personal level, I find my use of language is a continual learning process. I have become more conscious of my word choice, taking time to consider the appropriate pronouns or category descriptions so people feel included and valued. I still need to remember to take off my Alfie-tinted spectacles periodically. I don't get it right all the time and, just like BCT, I am learning as I go. I am grateful to my colleagues, BCT members and event attendees who are entering into a dialogue with us on these topics. Sharing their feedback on the changes helps us identify more improvements we can make. If you would like to know more about any of these topics or have feedback or suggestions for us, please get in touch.

About the Author

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Bird Monitoring and Adaptive Management on a Coastal Helicopter Site

Scarth Bight viewed from the Northwest. Photo credit: Colin Davies.



Tim Ross
CEnv MCIEEM
 TEP – The Environment Partnership

Keywords: bird disturbance, coastal, Habitats Regulations Assessment, HRA, waterbirds

“ It may occasionally be necessary to take undesirable or even unwanted steps via adaptive management to continue to achieve the goals of the mitigation strategy. ”

This case study provides compelling evidence that adaptive management can be deliverable and entirely appropriate on projects that impact sensitive bird populations. It entailed ongoing systematic monitoring of coastal bird populations in a Special Protection Area situated close to a heliport. Monitoring results were measured against a range of success criteria to determine whether adaptive management was needed. It revealed some evidence of localised bird disturbance, though much less than might be expected at a coastal heliport. Annual meetings with Natural England and the capacity for change made possible through adaptive management ensured that all bird disturbance effects were fully mitigated in a reasonable timeframe.



Wader flock at Scarth Bight. Photo credit: Colin Davies.

Introduction

Every year numerous Habitats Regulations Assessments (HRAs) identify likely significant effects on internationally important bird sites, resulting in mitigation measures being recommended. However, there is often a lack of monitoring to determine the success of the mitigation. Where there is effective monitoring, there is usually a lack of a clear mechanism for taking corrective action to modify the mitigation to achieve its original purpose.

This case study concerns a helicopter facility on the coast near Barrow-in-Furness, near to the Morecambe Bay and Duddon Estuary Special Protection Area (SPA; Figure 1). This article demonstrates how robust operational-phase monitoring combined with an adaptive management strategy can be employed to achieve environmental success for an otherwise high-risk development.

Adaptive management may be defined as an iterative process of robust decision-making in an environmental management system, its function being to reduce uncertainty over time by learning from monitoring.

The risks that helicopters pose for birds

Low-flying helicopters can cause disturbance to waterbirds, especially when sensitive areas are directly overflown (Hirons and Thomas 1993, Kempf and Hüppop 1998). This disturbance has the potential to affect birds in the following ways:

- displacement (preventing birds from accessing preferred habitat)
- increased energy expenditure
- reduced foraging rates
- reduced breeding success
- increased predation.

Aircraft have been found to cause less disturbance when flying high in a straight line than when flying low or with unpredictable curves (Boer *et al.* 1970, cited in Davidson and Rothwell 1993). Opinions vary about the altitude helicopters can directly overfly waterbirds without causing bird disturbance, ranging from 150 to 450 m (Froneman 2007, Kempf and Hüppop 1998). Mitigation measures often involve avoiding sensitive areas due to uncertainties as to whether habituation will occur.



Figure 1. Site location plan.

The Sandscale Park Heliport

The Sandscale Park Heliport was proposed by Ørsted, the developer, to serve the operations and maintenance requirements of the Walney Extension (WOW03 and WOW04) offshore wind turbines. The heliport comprised a single helipad, hangar space for one helicopter, and an office and pilot welfare building. Helicopter operations for this temporary 5-year development were undertaken using a single EC135 helicopter with up to six return flights per day in the non-breeding period (October to April) and up to 10 return flights per day in the breeding period (May to September).

The heliport is within the Walney Aerodrome Traffic Zone, and therefore it was necessary for the flightpath to be agreed with Walney Air Traffic Control. The flightpath for an outbound flight from the heliport entailed the helicopter flying south over pasture fields for approximately 1.4 km, turning south west over part of the SPA known as

Walney Meetings, before overflying Walney Airfield south runway and heading out to sea (Figure 2). The cruising altitude over the Meetings was normally around 300 m, occasionally reduced to 215 m in low cloud.

On its return, under typical wind conditions, the helicopter would fly in an arc north east of the heliport taking the aircraft further away from the protected sites, varying from 500 m to 2 km to the north east.

The baseline survey

Coastal bird surveys were undertaken from April 2017 to September 2018 to inform the HRA. The survey gathered waterbird abundance and distribution data for all states of tide. Details of all human-related bird disturbance events were also recorded.

The main roost site in the study area was located at the north end of Walney Island, 1 km west of the heliport (Figure 2). At that time the roost was

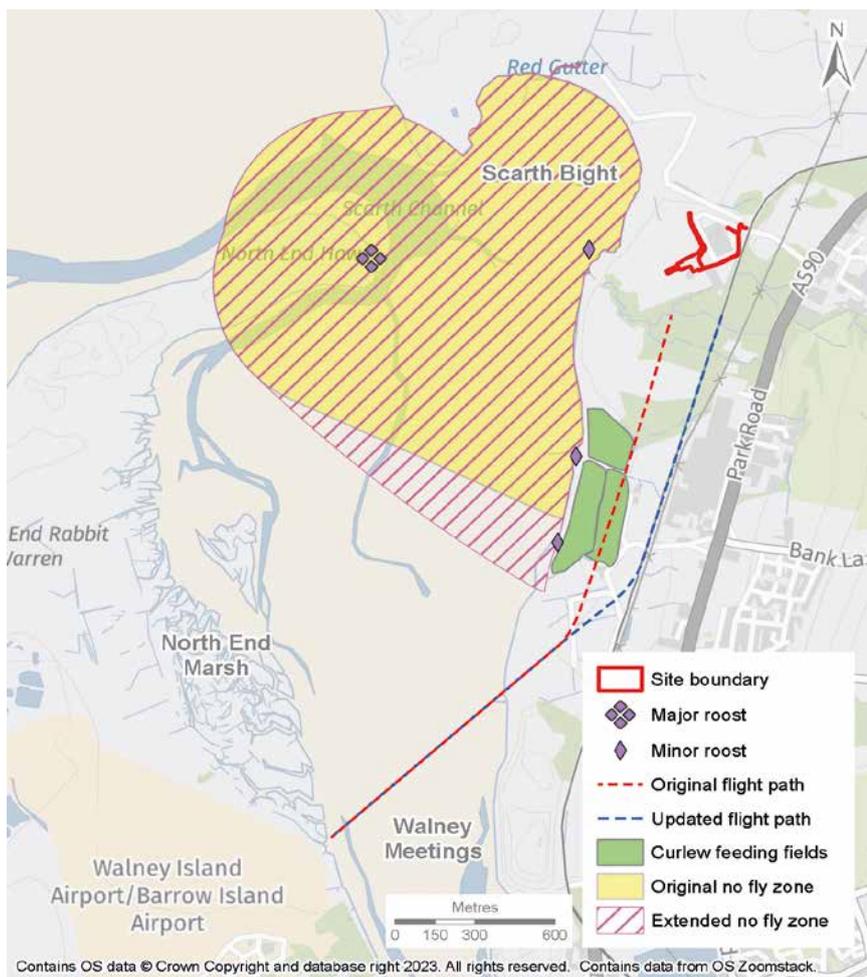


Figure 2. Roost locations, flight paths and the no-fly zone.

primarily made up of 1500–2000 oystercatcher (*Haematopus ostralegus*; Figure 3). The nearest roost to the heliport, 350 m west, supported 200–300 oystercatcher, with smaller numbers of redshank (*Tringa totanus*; occasionally >100 individuals). Redshank and wigeon (*Anas penelope*) tended to be dispersed along the periphery of the salt marsh, west of the site at high tide, with the redshank particularly at the start of the ebb tide. Another roost on the mainland coast 880 m to the south of the site typically



Figure 3. Oystercatchers (*Haematopus ostralegus*) and a lone whimbrel (*Numenius phaeopus*). Photo credit: Colin Davies.

comprised oystercatcher with some wigeon and occasionally curlew (*Numenius arquata*).

A shadow HRA was prepared which, taking into account mitigation, concluded that there would be no adverse effect on the integrity of the SPA. Noise modelling was undertaken by Bureau Veritas to support the assessment.

Helicopter disturbance study

Having reviewed the shadow HRA, Natural England advised that there was some uncertainty regarding how helicopter flights could affect SPA waterbirds. This uncertainty partly stemmed from the lack of published scientific study and the knowledge that helicopters can cause more disturbance than other aircraft types. It was agreed to operate a mock heliport at Sandscale to allow ornithologists to gather data on the effects of helicopter flights on the birds to address the uncertainties.

A 7-day study in March 2018 monitored the effects of regular helicopter activity

on shorebirds in the SPA, and included empirical noise monitoring. Helicopter flights were undertaken from the proposed heliport to replicate the range of helicopter flight paths that could be necessary during operation. All bird activity was recorded before, during and after each helicopter flight, from three vantage point locations covering the entire flightpath between the heliport and Walney Airfield.

At the start, some minor displacement of feeding wigeon and oystercatcher was observed in the Scarth Bight intertidal area. However, as the study progressed no displacement occurred at roost sites and the displacement effect on feeding birds diminished. It was apparent that oystercatcher using the roost sites had a high tolerance to helicopter disturbance, not even showing increased vigilance. Under most wind conditions the helicopter could avoid roost sites on the mainland coast by 250 metres, considerably reducing the potential for bird disturbance.

There was some evidence that there was greater potential for bird disturbance to occur during south-easterly winds at high tide. Under such conditions during their final approach, helicopter pilots flew closer to the nearest roost site. Much was learned from the disturbance study, which was used to optimise the Bird Mitigation and Monitoring Plan (BMMP). Planning permission was granted in May 2018 and the site became operational in October 2018. This atypical approach demonstrates that solutions can be found which allow developments to progress when the developer, ecologists and consultees work closely together.

Bird Mitigation and Monitoring Plan

The approved development was to operate the heliport in accordance with a BMMP implemented via a planning condition. This had several monitoring targets and operational mitigation measures including:

- 2 years of monitoring with abundance and distribution and observed displacement targets for SPA birds
- a daily cap of six return flights each day (or 10 return flights in the summer period)

- flying at an altitude exceeding 300 m over the SPA subject to low cloud conditions
- a no-fly zone over Scarth Bight, the main intertidal feeding area between Sandscale and Walney Island
- a designated flightpath between Sandscale and Walney Airfield
- a temporary cessation of flight operations during periods of prolonged severe weather
- a monthly cap on the number of flights permitted to occur at high tide with a south-easterly wind, conditions that caused the helicopter to fly closer to the nearest wader roost.

Natural England advised on the importance of a clear mechanism to monitor disturbance effects on birds, with the option of adaptive management to introduce changes or limits on helicopter activity during sensitive periods associated with tidal state and the weather. Each summer, an annual review meeting was held with Natural England and the Planning Case Officer to agree if adaptive management was needed. The bird monitoring was initially for 2 years on the understanding that by the end of that period BMMP mitigation would have been optimised.

The adaptive management mechanism allowed for a range of measures to be amended or introduced concerning no-fly zones, flight-restricted zones and other restrictions. The BMMP also described exactly how aircraft operations would occur at the heliport, identifying flight take-off and landing approach routes and flight heights over sensitive areas. The do-nothing option was available for circumstances where it was concluded that there was no predicted adverse effect on SPA site integrity.

Bird monitoring tests

Each monitoring year commenced in June and finished in May, with two monitoring visits undertaken each month at regular intervals. Four tests, or methods for analysing bird monitoring data, were used to identify evidence that SPA birds were affected by the helicopter or other human disturbance (Figure 4). A red flag was given each time a test was failed, resulting in an investigation stage to determine whether the helicopter was likely to be a contributing factor, indicating that adaptive management was needed.

- **Test 1, seasonal peak means**, analysed the spatial abundance of SPA birds in different parts of the study area. A red flag was awarded when a species seasonal peak count did not equal or exceed 50% of the baseline equivalent for autumn, winter and spring periods. This target was considered appropriate due to the high degree of annual variation in the baseline and the capacity for Test 1 to work alongside the other tests to ensure that any potential helicopter disturbance effects were detected.
- **Test 2, observed displacement**, entailed recording the total number of individuals displaced at least 100 m for each species on each monitoring day and comparing this total with the peak count for that species on that day. A red flag was given where the number of birds displaced on a given monitoring date exceeded that day's peak count, it being important to recognise that any bird could be displaced more than once.
- **Test 3, waterbird assemblage abundance**, focused on variation in the overall size of the waterbird assemblage. The Morecambe Bay and Duddon Estuary SPA, like many other SPAs in the UK, qualifies under Article 4.2 of the Directive (2009/147/EC) as it is used regularly by over 20,000 waterbirds in any season. A red flag was given where less than 50% of the baseline was met in any season.
- **Test 4, regularity within compartment A**, monitored the regularity that certain SPA birds occurred in the closest part of the study area to the heliport, in numbers

that exceeded 1% of the SPA population (oystercatcher, redshank, shelduck (*Tadorna tadorna*) and wigeon). Compartment A represented all salt marsh and intertidal habitat within 500 m of the heliport. The baseline was determined by calculating, for each species, the proportion of survey dates that compartment A supported at least 1% of the SPA population. A red flag was given where less than 50% of the baseline regularity was met.

Operational period: year 1

In year 1, Test 1 was based on the comparison of monthly rather than seasonal peak counts, which resulted in red flags being obtained for eight target bird species. This greatly increased the chance of obtaining red flags due to natural variation. Adaptive management was used to modify Test 1 to compare seasonal peak counts; this approach was more reliable at identifying changes in waterbird abundance between years.

Scarcely any actual bird helicopter-related displacement was observed (no red flags for Test 2) so adaptive management focused on improving the approach to analysis of bird monitoring data.

During the review of seasonal peak counts it was apparent that year 1 peak counts exceeded the baseline peak counts obtained in 2017–2018, hinting that the baseline was not 100% representative of the study area. The baseline peak counts were updated in June 2020 to make the baseline seasonal peak counts more robust. Revised seasonal peak counts were calculated by taking an average of the original baseline and the year 1 monitoring data, except

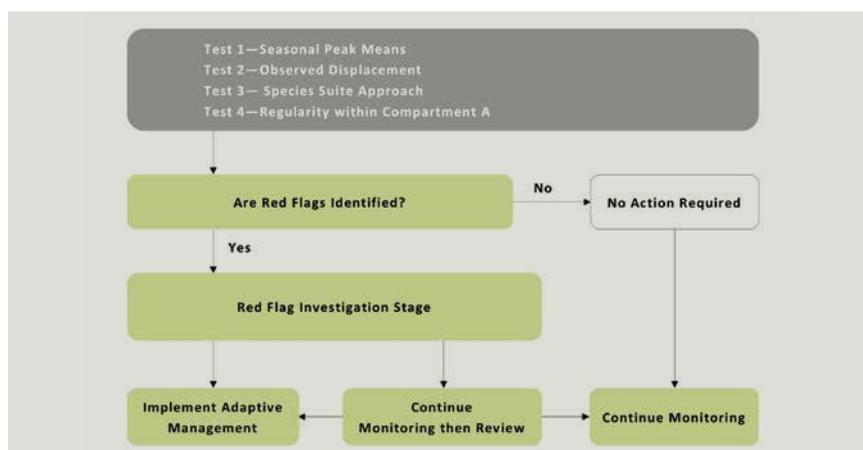


Figure 4. Approach to determine whether adaptive management was necessary.

where taking this approach reduced the original baseline.

Natural England proposed Test 3 at this time to ensure that any future change in waterbird assemblage abundance was considered. Other adaptive management included making Test 2 more robust so that a single red flag triggered the investigation stage. Finally, a new no-fly zone was implemented over South Walney and Foulney Island to ensure important bird locations in the wider area were protected.

Operational period: year 2

In the year 2 review meeting Natural England identified a concern that curlew feeding in fields under the helicopter flight path were being disturbed, and subsequent data analysis confirmed this. In a meeting with the helicopter operator, it was agreed that the helicopter flight path would be modified to follow the railway line to the east, avoiding the curlew feeding fields (Figure 2). At the end of year 3 it was confirmed that this measure had achieved a substantial reduction in curlew displacement.

Other data analysis identified an apparent decrease in the regularity that redshank were using the part of the SPA nearest to the heliport in important numbers for the SPA (1% of the SPA population). Test 4 was introduced to monitor this concern and determine if adaptive management was necessary. Test 4 was applied to species that had previously occurred at numbers exceeding 1% of the SPA population within compartment A (oystercatcher, shelduck, redshank and wigeon). It was subsequently confirmed in year 3 that the apparent decrease in redshank was an anomaly associated with the timing of redshank counts, which was rectified by ensuring that a count occurred at the time that the mudflats were first exposed in the ebb period.

A decision was made at the end of year 2 to increase the sensitivity of Test 2, firstly by halving the threshold necessary to obtain a red flag. Test 2 was further modified by giving a double weighting for displaced bird flocks that were likely to have left the study area as a result of helicopter displacement. This weighting was necessary since once birds had left the study area they could no longer be affected by helicopter disturbance. As a

result of these changes, only one species, redshank, obtained a single red flag in year 3. The near absence of red flags for Test 2 in this study was an important result, since it provided evidence that displacement caused by the helicopter was not problematic despite making Test 2 much more rigorous.

It was agreed with Natural England that an exceptionally high autumn baseline count of 4655 oystercatcher could be treated as an outlier and replaced with 2170, the second highest count.

Natural England was also provided with separate evidence collected during the surveys that coastal walkers and kayakers were having a major impact on the main oystercatcher roost at the north end of Walney Island, putting the long-term future of the roost at risk. This supported them in attempting to influence the management of walkers on Walney Island, an unforeseen benefit of the bird monitoring.

Following the completion of year 3 it was determined that the BMMP was operating optimally. No further adaptive management was proposed.

Achieving successful adaptive management

Adaptive management can improve and refine a development over time, functioning to continually minimise any risks to protected sites. There are several ingredients that are needed for adaptive management to be a success on any project. A robust baseline survey, well-designed monitoring and clear monitoring thresholds are essential, as is a comprehensive annual review process with the Statutory Nature Conservation Organisation and local planning authority. It is important to recognise that the monitoring methods, results and approach to adaptive management are transferrable to other projects with the potential to affect coastal birds.

The developer needs to be in complete agreement and the mitigation strategy must be backed up by carefully worded planning conditions or obligations. When a developer has the motivation and a strong track record for achieving environmental best practice, as were Ørsted in this case study, adaptive management can be straightforward, but any developer can be guided to recognise the value of adaptive management. The benefits of adaptive

management far outweigh the risks. But the detail of the adaptive management process should reflect the perceived risks to the designated site.

The ecological consultant must be dedicated to seeing the process through, regardless of what problems are encountered along the way. It may occasionally be necessary to take undesirable or even unwanted steps via adaptive management to continue to achieve the goals of the mitigation strategy, so it is important that all risks are clearly understood by the developer. However, when there is commitment from all parties, problems can be overcome.

The collaborative approach employed during this project has been a great success and has led to an invaluable data set that has provided, and will hopefully continue to provide, many insights into the disturbance effects of helicopters on coastal birds and forward-thinking adaptive management.

Acknowledgements

I thank the Project Managers at Ørsted, Natural England Officers, TEP ornithologists and Babcock MCS Onshore for their commitment to this project.

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About the Author

Tim Ross CEnv, MCIEEM is Principal Ornithologist at TEP – The Environment Partnership – and has overall responsibility for the delivery of bird-related projects. He is a specialist in coastal ornithology with a long-term interest in designing and implementing adaptive management to achieve ecological success on projects.

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Nature for All Project – Scottish Environment LINK



Equality, Diversity & Inclusion Fortnight
May 15th, 16th, 17th
&
Week commencing 22nd of May
For Scottish Environment LINK member organisations only

Made possible with:
Heritage Fund

Leigh R. Abbott

Equality, Diversity and Inclusion Officer,
Scottish Environment LINK

The Nature for All project (<https://www.scotlink.org/link-campaigns/nature-for-all/>) is Scottish Environment LINK's equality, diversity, and inclusion (EDI) project that is supported by the National Lottery Heritage Fund as a response to LINK's member survey conducted in 2021.

As part of the project, LINK hosts online talks and workshops to equip LINK member organisations with the information and skills they need for their journey with EDI.

Most recently, we held an EDI Fortnight which consisted of 10 talks and workshops. We would like to thank all

who attended the sessions and for taking the time to learn more about different topics surrounding EDI. 186 registrations were made across 69 individuals from 21 member organisations (i.e. 48% of our member organisations registered).

All materials and recordings have been published on a page on the ScotLINK website (<https://www.scotlink.org/publication/equality-diversity-and-inclusion-fortnight-2023-by-the-nature-for-all-project/>). Please note that you can only access by member login.

The EDI Officer is also in the process of correcting the captioning and transcription, therefore please excuse any errors in the subtitles on the YouTube videos.

Thanks again, and if anyone has any questions or comments about the event or would like to keep posted about future training and events related to EDI, please contact the EDI Officer at leigh@scotlink.org.

About the Author

Leigh R. Abbott (Pronouns: she/her)
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Introducing the basics of nature conservation policy and legislation



Alina Congreve
Resources for Change

Up to date knowledge of conservation law and policy is one of the top three skills employers across all sectors look for, a new CIEEM report shows. But how, as a busy professional, can you make sense of the rapid policy changes and understand the implications for your work?

The Environment Act is the most significant change to conservation law and policy in England for over 20 years. The Act fills in the regulatory gaps that resulted from our departure from the European Union (EU). It took such a long time to progress through parliament, over 1000 days, it became what policy wonks call 'Christmas tree legislation'. Lots of environmental policies were hung on it like 'Christmas decorations'— from protecting street trees and ancient woodlands to soil health; creating a piece of legislation with many unrelated components. In the effort to get it through Parliament, many policies were included whilst still underdeveloped. The raft of consultations we have seen in the past 18 months including designated sites, protected areas, and Biodiversity Net Gain, are to flesh out the general framework in the Act.



Anthony Gallagher
Evolved Research and Consulting Ltd

Most of us will have studied conservation law and policy at college or university, but the recent structural changes from the Environment Act leaves that knowledge very dated. Pressures on higher education from so many directions leave lecturers struggling to update teaching on law and policy. Employers have noted recent graduates often lack current knowledge, and rarely have opportunities to apply it to real world case studies. There are lots of lunchtime webinars from CIEEM, Planning Advisory Service and the RTPI, for example, to update on specific, new policy measures. These plug an important gap, but what is missing is the big picture. How do all of these seemingly unrelated policies and announcements connect, and what are the opportunities to discuss with other ecologists how it impacts on our day to day work?

I'm pleased to be working with the training team at CIEEM, who commissioned Anthony Gallagher and I to deliver the *Introduction to Nature Conservation Legislation in the UK* course. These are available for individual members, delivered online in two blocks or in-person for a day. Devolution has resulted in England, Wales, Scotland and Northern Ireland following very different policy directions; and this divergence has increased since our departure from the EU. This causes frustration for local government and regulators, when an England-specific approach such as

Biodiversity Net Gain is proposed, rather than following devolved policy. Therefore the courses are country specific, with England, Wales and Scotland versions offered. Up to date knowledge is essential for those starting out in the profession, and the *Introduction to Nature Conservation Legislation in the UK* course is also a core module of the CIEEM Early Careers Programme.

It's not just those early in their career who need to keep up to date with the latest policy. CIEEM also makes the course available as a bespoke, in-house offer. We have delivered it for mid-career participants all working for the Wildlife Trust Consultancies. We are keen to work with more teams and customise it to specific requirements. Keeping a course on conservation law and policy up to date is an ongoing challenge. We are pleased to partner with CIEEM, who understand the importance of developing high quality learning materials that need constant review.

Conservation law and policy is not about remembering different laws and regulations, but how they are applied in our work as ecologists. On the course we use a case study for a large new development to explore these implications. It raises multiple issues for designated sites and protected species across terrestrial and marine environments. It can be challenging to create a workshop feel online, but with tools like Jamboard (an online whiteboard) participants get a similar experience to working together in person (see Figure 1).

One of the benefits of delivering the course is being paid to keep right up to date with conservation law and policy. So, what are the main developments ecologists should be looking out for in the coming months?

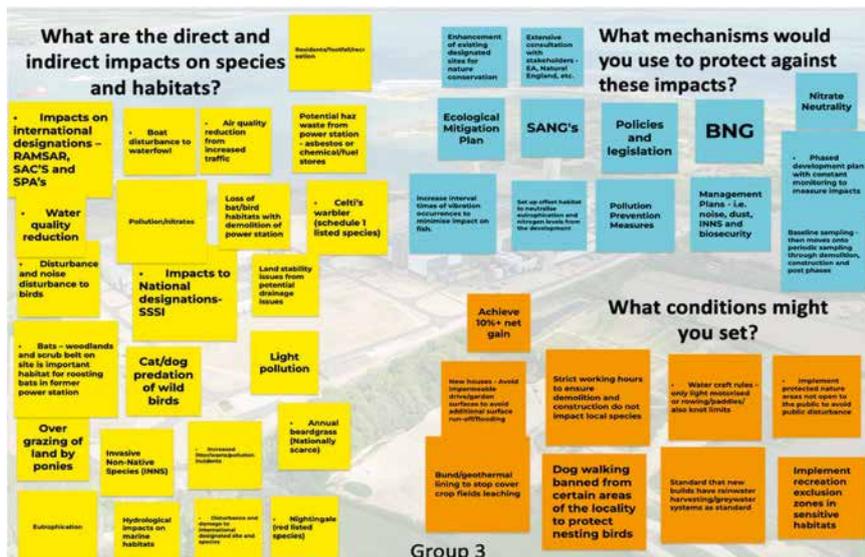


Figure 1. Jamboard example

Local Nature Recovery Strategies

All of these separate policy measures could lead to fragmented and disjointed outcomes on the ground. Local Nature Recovery Strategies are supposed to avoid that and join up Biodiversity Net Gain, the new farm payments (ELMS), Woodland Creation Grants, Carbon Credits, Nature for Climate Peatland Restoration Grants, and Flood Resilience Funding. Exactly how they will do this is still under development, and we need to look for how they relate to local plans produced by councils and Environment Agency catchment plans.

30 x 30

Despite leaving the European Union, the UK is still a signatory to over 30 international environmental agreements, including the Convention on Biological Diversity. Last December in Montreal, international work on biodiversity got a much-needed boost after 10 years of missed targets and inaction. A key headline commitment is conservation of at least 30% of land and oceans by 2030 – shortened to 30 x 30. We are already seeing the implications of 30 x 30, with moves to expand existing and even create new national parks in the UK, and strengthen the powers of National Park and Area of Outstanding Natural Beauty (AONB) boards. The 30 x 30 commitment brings into focus the problematic state of biodiversity in our National Parks and AONBs.

Species Conservation Strategies

While there have been individual success stories, species conservation planning has lost momentum for the past 15 years. The Environment Act brings in new provisions for Natural England to prepare species conservation strategies. Internal workshops and discussions took place within Natural England last winter. We are waiting to hear more about what form these new strategies will take. One option is that they will draw on the approach taken to Great Crested Newts in District Level Licencing.

Conservation Covenants

We urgently need better legal and policy tools to promote positive environmental action by landowners. Most of our laws are about stopping serious damage, but compelling land owners through the law to take positive action is more difficult. Conservation Covenants have a responsible body which regulates and enforces the promises made by the landowner under the agreement. This could be the local authority or a conservation NGO. Could they be a better alternative to a Section 106 Agreement in securing both onsite and offsite Biodiversity Net Gain?

Environmental Outcomes Reports

These new EORs could replace Environmental Impact Assessments. They are supposed to improve the early consideration of reasonable alternatives,

enhance monitoring against outcomes, and better address carbon emissions and climate change. CIEEM and others point to the significant risk of disruption by replacing a well-known approach and the lack of ecology capacity in local authorities to engage with reports.

Interested to find out more:

- If you would like to find out more about the CIEEM early careers programme <https://cieem.net/i-am/upcoming-training-and-events/early-careers-training-programme/>
- If you would like to book on a law and policy course for yourself <https://events.cieem.net/Events/Event-Listing.aspx>
- If you are interested in discussing arranging a bespoke course for your team <https://cieem.net/i-am/upcoming-training-and-events/request-a-bespoke-training-course/>

About the Author

Dr Alina Congreve MSc PhD is a sustainability and planning professional with 18 years experience working in higher education, public policy and innovation. She is project manager of a large Wellcome Trust grant about health and wellbeing in the built environment. Other recent projects include green infrastructure roadmapping for Swansea University and sustainable tourism post-COVID with University of Hertfordshire.

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Professor Anthony Gallagher is both an academic and a practitioner. He has worked on the nexus between science and policy, having a strong background in environmental ideation, research and planning. This includes project, policy and programme development and evaluation, as well as strategic and behavioural change. Key areas of work include marine and coastal planning and plastics and the circular economy. Anthony has led a range of complex international projects, having carried out work on behalf of organisations including the World Bank, the Common Wadden Sea Secretariat and Defra, Cefas, Natural England, NatureScot and JNCC amongst others and has extensive experience of international development, stakeholder engagement and partnership development. He is the Chair of the Clyde Marine Planning Partnership (CMPP), which is delegated to deliver a statutory Regional Marine Plan for the Firth of Clyde and is the founder of Evolved Research and Consulting Ltd and a Visiting Professor at the University of Southampton.

CIEEM Awards 2023: Time to Celebrate



Sally Hayns
CEcol FCIEEM
Chief Executive Officer,
CIEEM



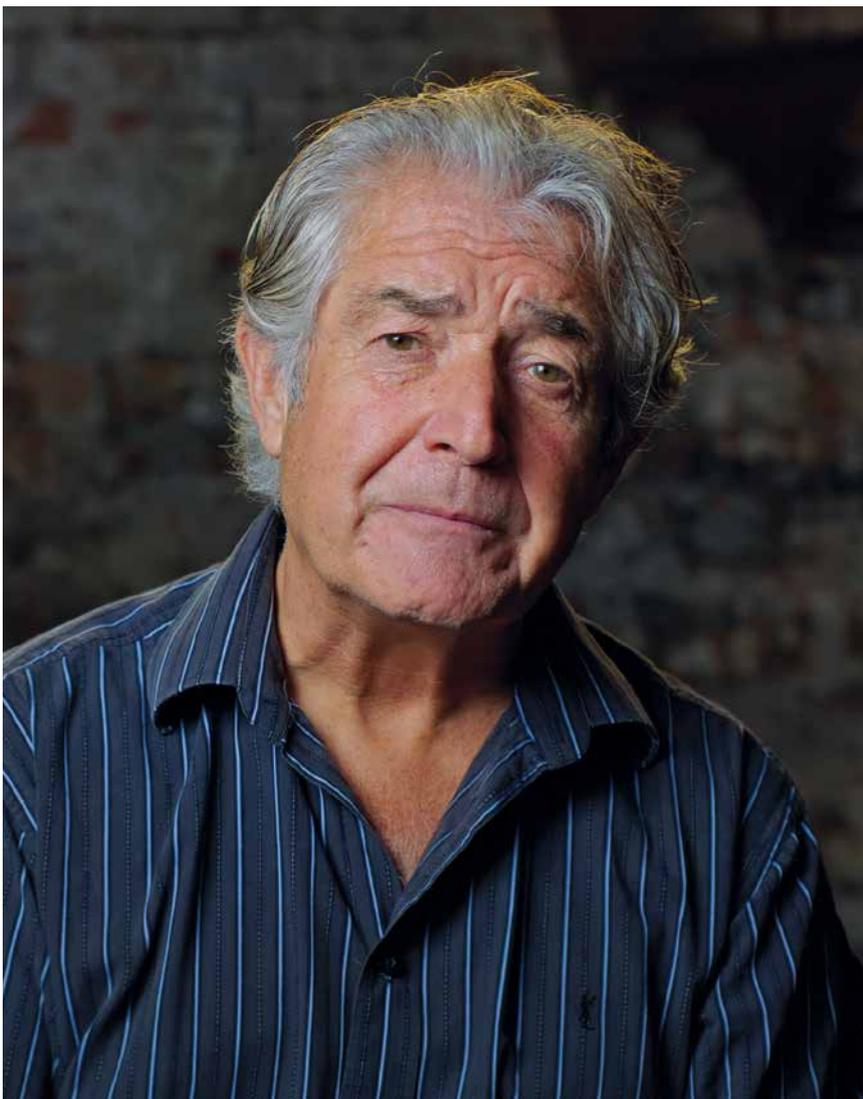
Summer is a very busy time for many in our profession but it is important to take some time out to reflect and celebrate our achievements and how we are delivering for biodiversity. We were therefore delighted to be able to gather together in person at the Birmingham Botanical Gardens on 28 June to celebrate the winners of the 2023 CIEEM Awards. The conversation bubbled as much as the fizz as we enjoyed meeting up with old friends and colleagues in the beautiful setting provided.

Following the drinks reception, sponsored by Ecus, guests were welcomed by our President, Richard Handley, who introduced our host for the day, CIEEM Vice President (Wales) Penny Lewns. Penny soon got things underway with the first presentation, that of CIEEM's most prestigious individual award, the CIEEM Medal.

The President read out the citation for Dr Tony Juniper CBE, describing him as one of the UK's most distinguished environmentalists. Throughout his career Tony has worked for change toward a more sustainable and nature-friendly society at local, national and international levels. He has had a major role in influencing the policies, programmes and agendas of governments and a wide range of organisations in the public and private sectors. Most importantly, whilst he emphasises the seriousness of the biodiversity and climate crises, he manages to do so in a way that suggests hope and a positive outcome if we have the courage and determination to take the necessary action.

Tony was unable to join us as he was attending a special Natural England Board meeting to confirm the designation of the West Penwith Moors and Downs in Cornwall as England's newest SSSI. Instead, he accepted the Medal by video message, outlining his pleasure at receiving the award and his acknowledgement of the contribution of CIEEM members' work towards helping nature's recovery.

So, to the results...



Tony Juniper, 2023 CIEEM Medal winner, interviewed for Save Our Wild Isles: *The Business of Nature*. © Jacob Parish / Silverback Films / WWF-UK / RSPB / National Trust

Find out more about the CIEEM Awards at www.cieem.net/cieem-awards.

Award	Shortlisted Project/Individual	Results
In Practice Sponsored by: 	Know Thy Sphagnum: Species-Specific Lessons for Understanding Bogs by George Smith CEcol MCIEEM (Bryophytes and lichens, 117, September 2022) Waxcap Grasslands: The Forgotten Treasure by Penny Anderson CEcol FCIEEM (red) and Neil Barden (Bryophytes and lichens, 117, September 2022) Floodplain meadows: an entirely sustainable nature-based solution that is centuries old by Ann Skinner CEcol CEnv FCIEEM (rtd), Emma Rothero, Olivia Nelson, David Gowing and Irina Tatarenko (Nature-based solutions, 116, June 2022)	Winner Highly Commended Commended
Higher Education Programme of the Year Sponsored by: 	Edge Hill University; M.Sc. Conservation Management Oatridge Campus, Scotland's Rural College; HND Wildlife & Conservation Management Kingston Maurward College; Level 3 Advanced Diploma in Wildlife, Ecology and Conservation	Winner Commended Commended
Postgraduate Student Project Sponsored by: 	Murray Borthwick, Edinburgh Napier University – Land-use correlates of the spatiotemporal distribution of four wading bird species in southeast Scotland from 1988-2013 Cristina-Iulia Constantinescu, Bournemouth University – Stable isotope analysis describes trophic levels of seabirds in the South Georgia ecosystem	Winner Highly Commended
NGO Impact Sponsored by: 	BatChat podcast – Bat Conservation Trust / Steve Roe CEcol MCIEEM Green Recovery Challenge Fund – Canal and River Trust Nottinghamshire Wildlife Improvements – Nottinghamshire Wildlife Trust & Severn Trent Water	Winner Highly Commended Commended
Climate and Nature Action 2030 Sponsored by: 	Moor Water – Severn Trent Water & Moors For The Future Partnership Manchester City Council	Winner Highly Commended
Promising Professional Sponsored by: 	Lucy Pocock Thomas Webb Courtney Tonks Jessica Llewellyn-Evans Chris Moss	Winner Highly Commended Highly Commended Highly Commended Highly Commended
Member of the Year Sponsored by: 	Dr Julia Baker CEnv MCIEEM Dr Tim Hounsome CEcol FCIEEM Simon Bates MCIEEM	Winner Highly Commended Highly Commended

Best Practice – Small Scale Nature Conservation	Shanakyle Bog Restoration and Habitat Enhancement Project EIP – Barry O’Loughlin and Catherine Ní Ciardha (Shanakyle Bog Restoration Group)	Winner
Sponsored by:		
 TETRA TECH	Garrell Burn River Restoration – North Lanarkshire Council / SEPA / WSP	Highly Commended
Best Practice – Large Scale Nature Conservation	Eddleston Water Restoration – Tweed Forum and Partners	Winner
Sponsored by:		
 TETRA TECH	Scottish Invasive Species Initiative – NatureScot (on behalf of Scottish Invasive Species Initiative Partnership)	Highly Commended
Best Practice – Large-Scale Project Mitigation, Compensation and Enhancement	Idle Valley Nature Reserve – Wetlands for Wildlife – Severn Trent Water and Nottinghamshire Wildlife Trust	Highly Commended
Sponsored by:		
	Whitewool Stream Wetland Project – Meon Springs / Tetra Tech	Winner
Best Practice – Innovation	Clifton Wastewater Treatment Works Integrated Constructed Wetland – Yorkshire Water, Penny Anderson Associates Ltd, Stantec and Barhaleenpure JV	Highly Commended
Sponsored by:		
	Mayfield Park – The Mayfield Partnership	Commended
Best Practice – Stakeholder Engagement	Mayfield Park – The Mayfield Partnership	Winner
Sponsored by:		
	Digibat – Mott MacDonald	Highly Commended
Best Practice – Knowledge Sharing	Jersey Tree Strategy – Dialogue Matters, the Government of Jersey, and Jersey communities and stakeholders	Winner
Sponsored by:		
	Chester Wetland Centre – Design Development – Binnies UK Ltd; The Land Trust; The Environment Agency; Cheshire West and Chester Council; Friends of the Countess of Chester Country Park; The Conservation Volunteers Merseyside; Bangor University; The Canal and Rivers Trust	Highly Commended
Best Practice – Knowledge Sharing	Watercress and Winterbournes Landscape Partnership – Hampshire and Isle of Wight Wildlife Trust and Wessex Rivers Trust co-ordinate this chalk stream on behalf of the 16 partners	Commended
Sponsored by:		
	Academy9 – Transport Scotland	Winner
Small Consultancy of the Year	Transforming Conservation – A Practical Guide to Evidence and Decision Making – Professor Bill Sutherland CBE, Miriam Rothschild Professor of Conservation Biology, University of Cambridge	Highly Commended
Sponsored by:		
	BatChat Podcast – Bat Conservation Trust / Steve Roe	Commended
Small Consultancy of the Year	Focus Environmental Consultants	Winner
Sponsored by:		
	Lepus Consulting Ltd	Commended

Medium Consultancy of the Year

Sponsored by:



Large Consultancy of the Year

Sponsored by:



Wildwood Ecology Limited	Winner
Stantec	Highly Commended
Woodrow part of the APEM Group	Commended
Clarkson and Woods	Commended
Tetra Tech	Winner
Atkins Ltd	Highly Commended
Jacobs UK Ltd	Highly Commended
Arcadis Consulting (UK) Ltd	Highly Commended
Mott Macdonald Limited	Highly Commended
AECOM	Highly Commended

Following the Medal, the President was delighted to present Dr Martina Girvan with her Fellowship certificate before Penny reminded those present of the inaugural Volunteer Achievement Awards which are awarded to volunteers who have made an outstanding contribution to CIEEM in support of the organisation, its members and the profession. Five volunteers have been recognised this year:

Penny Anderson for her significant contributions as Chair of the Registration Authority, committee member of the Ecological Restoration and Habitat Creation Special Interest Group and the Action2030 Working Group.

John Rose for his significant contribution to both the strategic and operational work of the Membership Admissions Committee.

Graham Russell for his involvement in CIEEM's policy work in Scotland.

Claire Lacey for her leadership of the Scotland Section committee over many years and her involvement in our policy work.

Katie Medcalf for her leadership of the Overseas Territories Special Interest Group.

A delicious lunch followed and again, wine and conversation flowed freely before we settled down to the serious business of revealing the winners of the rest of the awards. A huge congratulations to all the shortlisted entries and winners, but also to the

audience who kept up a high level of applause from the first to the last presentation.

A special mention must be made of the winners of the Tony Bradshaw Award. Many members will be very familiar with the work of Professor Tony Bradshaw but may not be aware that he was instrumental in the founding of the-then Institute of Ecology and Environmental Management and our first President (1991-94). The award named in his honour is not presented every year, but is only awarded if, in the opinion of the judges, there is a truly exceptional project deserving of the accolade.

Each winner of the seven Best Practice Awards categories is eligible to be considered for the Tony Bradshaw Award. This year we were delighted that the judges felt the winner of the Best Practice – Large-Scale Nature Conservation Project category, Eddleston Water Restoration from the Tweed Forum and partners, was a worthy recipient.

The Eddleston catchment suffered land use intensification over centuries, leading to loss of natural habitats and species. The project started in 2010 and uses nature-based solutions to enhance biodiversity across the whole catchment, alongside reducing flood risk to local communities; focussing on enhancing ecosystem functioning and service delivery, whilst also maintaining sustainable livelihoods for local farms. Stakeholder engagement is key

throughout with the choice of type and location of intervention measures negotiated with farmers so as to enable them to sustain their farming operations whilst enhancing biodiversity and delivery of other ecosystem services. This project delivers for climate change adaptation, water quality and other regulatory ecosystem services whilst also delivering strongly on cultural services including recreation, education, access, tourism and landscapes.

Congratulations again to all those who were shortlisted – it was awe-inspiring to see what you have achieved and we would like to thank all of the entrants who took the time to submit a nomination. It is worth highlighting a couple of categories where the judges had an exceptionally tough job. All 5 shortlisted entries in the Promising Professional category could, in the opinion of the judges, have deservedly won in what was a very competitive category. Similarly, for the Large Consultancy of the Year Award the judges felt that they had no choice but to shortlist 6 consultancies for this award because the scoring was so close, with only 10 points between the 5 highly commended entries.

We would like to extend our particular thanks to our sponsors, both returning and new, for their generous support, and to our judges for their time and expertise, without whom this special event would not have been possible.



National Education Nature Park

The importance of creating opportunities for children to connect with nature is well known – how many of us can trace our passion for ecology and the environment to experiences we had as a child? Unfortunately access to nature is not equitable and many young people, especially those living in areas of lower socio-economic status, do not have regular contact with the natural world, let alone the opportunities to touch, smell and wonder at what so many of us take for granted.

The National Education Nature Park aims to challenge this inequality. It is a partnership initiative between the Department of Education (DfE) in England, the Natural History Museum, the Royal Horticultural Society and a number of other supporting partners that aims to ensure that every young person in England has opportunities to develop a meaningful connection to nature.

The concept is simple. Schools have outdoor spaces that collectively accommodate millions of school-age children for at least some part of over 250 days a year. By creating more areas of schools' grounds where nature can thrive the ambition is to effectively aggregate these areas into a National Nature Park that makes its own contribution into tackling biodiversity loss as well as providing opportunities for all school-age children to engage with the natural world.

Schools will be encouraged and supported to involve their pupils in creating and managing these areas, promoting an awareness of environmental issues and a sense of stewardship. Whether creating ponds, planting pollinator-friendly plants or building log piles, there will be opportunities to learn how to observe, collect data, monitor changes and understand climate resilience.

Esri UK will provide digital mapping capability so that, over time, a digital picture will emerge of the extent of the National Nature Park, the different habitats that have been created and are being managed and the biodiversity improvement over time.

The initiative, which is part of the DfE's Sustainability Strategy, is currently in its pilot phase but is due to launch more widely later in the year. DfE has announced that there will be grant funding for schools in the most deprived areas as well as resources to help teachers make the most of the educational opportunities that arise.

But this is a great opportunity for CIEEM members in England to get involved as volunteers. Many schools will welcome advice on habitat creation and, most importantly, management as well as help with data collection and monitoring. Not only will this practical help and support enable schools to make the most of this opportunity, it is a great way to showcase the work of ecologists and environmental managers and encourage young people to consider a future career in our sector. We could be helping to make the National Nature Park a success.

You can find out more and register your interest in taking part at <https://www.nhm.ac.uk/about-us/national-impact/national-education-nature-park-and-climate-action-awards-scheme.html>

Ethical Dilemmas

This is our series of problems and conundrums that can face members during their professional practice. The purpose of the feature is to encourage you to reflect on and explore scenarios that you may face during the course of your work and to consider the appropriate ways to respond to ensure compliance with the *Code of Professional Conduct*.

In the June 2023 issue of *In Practice* we described a situation where a planning application was submitted to add a modern extension to a large mid-Victorian building and to demolish a small 1990s add-on. The site was adjacent to a small parkland with mature trees, from where there was a set of season-long records of large numbers of soprano pipistrelle bats at a time of evening suggesting a very local maternal roost, possibly in that Victorian building. These records were held by the Local Records Centre (LRC) at the time of the application.

The developer submitted a planning application to the Local Planning Authority (LPA) to expand the original building, with its potential maternal bat roost. The initial application lacked any ecological appraisal or data, in spite of the LPA requirement for a Preliminary Ecological Assessment (PEA) to accompany applications. A quick 'PEA' was then provided for the developer by a local consultancy, led by a CIEEM member.

Within the LPA there was strong political support for the development from the Council leader, and pressure on LPA staff to proceed quickly with the application, and for the planner to approve it based on professional judgement alone, without supporting data.

The 1990s add-on had a cursory check for bats, but the interior of the Victorian building was not examined by

the consultants. The desk element of the PEA did not consult the LRC, and went instead to the National Biodiversity Network (NBN) to obtain data for commercial purposes, counter to NBN guidance. At that time, the bat data in the LRC were not showing on the NBN. The local bat group was consulted for records, but under the political pressure for progress, the consultancy published its PEA report before it received a response from the bat group, arguing that any results from the bat group would not have affected their report. In the absence of bat group responses, and without LRC data, or an internal inspection of the old building, the consultancy stated to the LPA planner that there would be no likely impacts on protected species.

Under a call-off facility, the County Wildlife Trust adviser – also a CIEEM member – provided advice to the LPA too. But they failed to check for up-to-date records for bats at the LRC, did not ask for internal checks and omitted supporting evidence for their opinions. As time passed, the Leader of the LPA ratcheted up the pressure on their own staff to see the application pass through planning.

The development went ahead in spite of external protests about procedure at the LPA. Concurrently, a maternity roost (peak count >360 emerging individuals) was confirmed in the Victorian building.

What should the LPA planner have done under these circumstances where heavy, and consistent, pressure was applied to approve the application? What should the consultancy have done?

Our thoughts

Any planning decision involving protected species, such as bats, requires up to date survey data to be presented as part of the planning application submission. This survey data needs to be collected by suitably experienced ecologists applying best practice survey methodologies to provide evidence of presence or likely absence.

Progressing without suitable survey evidence to demonstrate bat status on site didn't meet case law, legislation or planning policy. To avoid any omissions in a planning submission, it is good practice for the applicant or their consultants to request a pre-application consultation with respect to the scope of ecological surveys and desk study records necessary to accompany a planning submission. This means that the local planning authority ecologist (and case officer) has an opportunity to consider the development impacts likely to arise, which in this case would have triggered the risk of a loss of a building bat roost(s) due to the demolition works.

The bat survey information submitted with the PEA was incomplete in terms of desk study and field survey data. The records should have been sought at the outset, and both LRC and bat group data provided, along with full surveys of both buildings. As there was risk of an illegal action, no planning permission should have been allowed until it was clear that there was no risk of disturbance to a bat roost.

The Local Trust should have provided evidence in support of its advice; without it, it would be unsupported opinion, and out of line with CIEEM principles and BS 42020. This outcome should be investigated internally within the LPA and appropriate changes made.

The LPA should use this experience to:

- complete an internal investigation of all LPA officers involved,
- apply the EclA checklist to all applications – see <https://www.alge.org.uk/publications-and-reports/>,
- revise its terms of service agreement with the Trust and LERC,
- review the LPA's own codes of conduct and processes for settling disagreements,
- revise LPA guidance for applicants and Council members with respect to protected species and pre-application meetings,

- f. consider its own internal complaints procedure for how to deal with bullying and other forms of harassment, and
- g. deliver training sessions to raise awareness of the above including case law in respect of protected species and how to raise an internal complaint.

The Consultancy making the application on behalf of the client should:

- a. complete a performance review and lessons learned with the consultants involved,
- b. understand the nature and scale of the development from the outset,
- c. undertake pre-application discussions to define the ecological scope with the LPA,
- d. secure desk study records in a timely manner,
- e. review its progressive assurance processes, and
- f. review its training and mentoring procedures, specifically in relation to protected species.

So, now for this issue's dilemma.

The next dilemma

You are an LPA ecologist with 10+ years' experience of reviewing ecological reports and commenting on development proposals as part of the planning process. You are a Full CIEEM member, you hold several protected species licences (bats, dormouse and great crested newts) and your CPD is up to date. You consider yourself to have an extensive knowledge of ecological reports and what is needed to make a good report, especially to inform planning decisions.

You appreciate that there is a vast range of different types of ecological consultant in your area ranging from the large engineering companies through to sole traders. Indeed, you have worked with many of the authors of the reports that land on your desk over the years, mainly as volunteers on National Bat Monitoring Programme surveys and so on, and generally, the standard of report writing is good.

However, there is one particular ecological consultancy that is really causing problems. All of the reports from this company are of poor quality and this means that a lot of time is wasted on asking for clarification and additional information to be submitted so that you are able to make your recommendations to the planning officer. It is now becoming a significant problem that needs to be tackled.

Some of the ecologists employed at this consultancy are knowledgeable, experienced and, whenever you have met them on site for a meeting about a development proposal, they have generally been able to answer your questions and respond to your concerns adequately. However, the reports are not what you would expect and really need to be improved.

A planning application has just been submitted for a proposed development of 125 houses that could have a significant impact on biodiversity. However, the ecological report submitted with the application has been prepared by this consultancy and there are lots of gaps in their survey methodologies, impact assessments and mitigation recommendations, which will take a substantial amount of time to put right.

It's the final straw and you feel that the time has come to do something about this, especially because of your limited capacity due to a high workload.

You notice that the author of the report is a full CIEEM member, and you are considering whether to make a complaint about the standard of the report. However, you are reluctant to do this because you feel that it would affect the good working relationship you have with the consultancy as a whole and picking on one ecologist may not be entirely fair when the problem appears to be more generic.

1. *What are your options?*
2. *Would a complaint to CIEEM actually be a good way forward, and if not, why not?*
3. *How would you handle this sensitively?*
4. *Is there a way of working with the consultancy to improve the quality of their work (which would benefit others)?*
5. *Is it important to secure a good working relationship between the LPA ecologist and the ecological consultancy; and what are the key benefits of doing this?*

Advice Note –

CIEEM Members Making Complaints Against Other Members

CIEEM members are expected to play their part in upholding the standards of the profession and challenging poor standards of work. Sometimes that involves making a professional conduct complaint about another CIEEM member. In taking such action, members should be mindful of the impact and implications of making a complaint and consider whether using the professional conduct complaints process is the most effective way to address the concerns. It is certainly not the appropriate method to resolve commercial disputes between members.

We would always encourage a member who is concerned about the conduct or practice of another member to raise the matter informally in the first instance. This is not a requirement but is a courteous and constructive way to resolve differences of opinion. Do not make an approach with the assumption that the member concerned has

deliberately produced a poor piece of work or has acted in breach of the *Code of Professional Conduct*. An open mind and the premise that there may have been a genuine mistake or that you have access to information that may not have been available to them is more likely to achieve a good outcome for all parties.

If you do feel that you need to make a complaint to CIEEM, do so in a calm and considered manner using non-emotive language and avoiding accusations based on your interpretation or assumptions about their motivations or competence. Professional reputations can be at stake here and an overly aggressive or challenging complaint can trigger an extremely defensive response.

Be sure of your facts. Professional conduct inquiries can be stressful for all parties but are likely to be especially so for the member who is the subject of the complaint. Be conscious that being the subject of a professional conduct complaint can cause both stress and distress for the member concerned. This can be aggravated by overly aggressive or unevidenced allegations.

Both the member concerned and the Professional Standards Committee will expect you to have good evidence to support your complaint and not be relying on hearsay or unjustified

opinion. Unfounded allegations with no reasonable basis could result in a counter-complaint.

Respect the confidentiality of the complaints process. All members are considered to be competent and of good character unless and until shown otherwise. Making details of a complaint inquiry public, or even the fact that a complaint has been made, could put you in breach of the Code or, in some cases, at risk of legal action over defamation of character if it is considered that you are trying to bring the member and their work into disrepute.

Of course, sometimes the right thing to do is to make a complaint to CIEEM and in those circumstances we should certainly expect you to do so. However, for the benefit of all concerned, please make sure you do so in a professional manner. You can find out more information to help you prepare your complaint by reading the FAQs.

If you are considering making a complaint, you can find more information at <https://cieem.net/making-a-complaint/> and the Professional Conduct Inquiry Procedures at <https://cieem.net/resource/professional-conduct-inquiry-procedures/>.

Volunteers needed for Professional Conduct Panel pool

We are looking for up to four senior members of the Institute to join the Professional Conduct Panel (PCP) pool.

Members of the PCP pool conduct hearings as part of the professional conduct inquiry process, usually online although they can be held face to face or via other formats. Typically pool

members assist with up to two hearings a year, although this can vary depending on the number of cases, availability and areas of inquiry. Hearings are normally heard by three members of the PCP pool, following desktop review of the evidence and an initial online meeting to determine the scope of the hearing itself. Both initial and refresher training is provided to help you fulfil this important role.

PCP pool members must be Full members, Chartered members or Fellows of the Institute.

If you are interested in this voluntary role please contact the Professional Standards Administrator to request an application form by email DanielleMatthews@cieem.net.

Could You Be a Trainer with CIEEM?



Krystie Hamilton
Professional Development
Coordinator (Training),
CIEEM

CIEEM offers our members and non-members a wide range of courses, which include a mixture of in person and online courses. A sample of these includes: plant identification; Biodiversity Net Gain; species identification, survey and mitigation; developing skills in Ecological Impact Assessment; and QGIS. This year we aim to offer 170 courses, with our busiest period being September–May. Across the summer months we focus mainly on offering in person field courses to support our ecologists and environmental managers during the survey season.

To help us deliver the programme, we are looking for new trainers to join our expanding community. The benefits of becoming a trainer with us include:

- Promotion of your training course to over 7,000 members providing a great exposure to build new connections across the sector
- Showcase you as a trainer and your skills on our Trainer Profiles
- Support with your own career and CPD development

- Share your enthusiasm for your specific subject
- Attend our 'Train the Trainer' course for a discounted price
- Opportunities to work collaboratively with other trainers
- Opportunities to attend and contribute to Trainer Forum meetings (bi-annual) and be part of a community of trainers to share best practices and experiences

What's involved

If you are looking to deliver a course that is in the current CIEEM training programme then we would share the course description and learning objectives with you to review and produce the training slides. We would look at which dates you could deliver the training and then set up a contract with you. If in-person, then we would support with venues where needed and if online, then we would set up the Zoom links. Once the contract has been received, we would start promoting the course, process bookings and keep you informed of the number booked. Ahead of the course, we would share with you the delegate list and then post-course we would touch base with you to see how the course went and also to share the course feedback so that you can review the course and make any changes if needed. The training team at CIEEM deals with all delegate enquiries and assists in the administration of the course, leaving you time to focus on preparing the materials and delivering the course.

We are also keen to expand our programme with new courses. So if you have a course that you think would be a great fit with the CIEEM training programme, then please do contact us. We would ask you to fill in a short form about the course, learning outcomes, audience and delivery mode and this

would then be reviewed internally. If accepted, then we would set up a contract with you and follow the same process as the existing courses as outlined above.

Building capacity

As we look to develop the training programme, we are keen to increase the pool of trainers to expand the capacity for specific courses. In particular, we are looking for trainers who could deliver a course on one (or more) of the following:

- UK Habitat Classification – beginner and intermediate levels
- QGIS – beginner and intermediate levels
- Biodiversity Metric v4.0 and Designing for Biodiversity Net Gain
- Habitats Regulations Assessment (HRA) of Projects and Plans (England & Wales)
- Ecological Clerk of Works
- Badgers
- Otters

Do you have a course to deliver?

If interested in becoming a trainer or have a course that you would like to deliver with us, then please do get in touch via email at training@cieem.net for further details.

“ One of the hidden benefits of running training for CIEEM is that, because you are learning yourself whilst researching your training, delivering training contributes towards your CPD hours! ”

– current trainer with CIEEM

The Raising Standards Project

European Adder (*Vipera berus*).



Mark Nason
MCIEEM

Head of Professional Practice, CIEEM

Taxa-specific competency standards to support professional development and consistent best practice

Understanding what good practice looks like and how to become more competent in different areas of survey, management and mitigation is fundamental to professional development and career progression. The CIEEM Competency Framework provides an overarching set of descriptors across key skill areas, and through the Raising Standards project, volunteer members have produced detailed complementary guidance on activities relating to particular species. These taxa-specific standards are derived from the Competency Framework and draw on the *Ecological*

Competences: Skills and Process guidance published by Atkins in 2019. They tell practitioners what they need to know and what they should be able to do in order to demonstrate increasing levels of competence from Basic to Accomplished.

Each standard is developed by a working group of volunteer members with subject expertise, with drafts shared openly online for consultation. Seven standards have so far been published covering:

- Reptile Survey, Mitigation and Management
- Great Crested Newt Survey, Mitigation and Management
- Water Vole Survey, Mitigation and Management
- Preliminary Habitat Survey
- Badger Survey, Mitigation and Management
- Aquatic Freshwater Macroinvertebrates
- Dormouse Survey, Mitigation and Management

The decision to produce guidance is based on an assessment of need, impact and priorities, with work

underway to publish standards including for terrestrial invertebrates, otters, and fish. Suggestions for new standards must consider what will be most useful to practitioners and it may be that a best practice document, advice note, or *In Practice* article are more appropriate for communicating some updates.

The purpose of the Raising Standards project is to share expertise freely to promote high standards of professional practice. To have a positive impact, both on nature and on career development, the competency standards need to be used. Applying equally to sole traders, early career ecologists, and experienced professionals, the opportunity is there to benefit from the experience of members defining competence within their specialist area. The standards provide a platform for reflective self-assessment and for professional discussion either with a peer, mentor, or more formally as part of a development review with a line manager. They are there to help promote consistent good practice across the subject area and by using them you are able to identify your

current level of competence in the activity described, understand the evidence that you would need to demonstrate competence to others, and plan how to develop your knowledge and skills to move up a level of competence.

The next step is to support use of the competency standards by providing resources for self-assessment and presentation of evidence of competence. Accordingly, a trial spreadsheet (Figure 1) is now available online to accompany the Preliminary Habitat Survey standard and data tables. This is an optional tool presenting competency descriptors by level, with space to self-assess current competence against each area, and prioritise CPD activities to support development from Basic to Accomplished. An Evidence Form is provided as an optional tool for individuals wishing to record their

experience in more detail. Since taxa-specific standards are mapped to the skill areas of CIEEM's Competency Framework this evidence might then be uploaded through the My CPD portal to support membership upgrade, or shared with a line manager to aid career progression and flag CPD needs.

Ecologists at Atkins use the standards to enable staff to identify what level of competence they have reached for various types of survey, mitigation and reporting with four key purposes:

0. To allow for quality assurance of surveys and know that anyone leading a particular survey must have been signed off as at least Capable in accordance with the criteria.
1. To allow people to map their competencies for career development and progression purposes. This formalised framework ensures a structured and individually tailored approach based

on consistent criteria, and empowers positive career development planning, particularly for junior ecologists.

2. To help identify any gaps in service provision and support succession planning.
3. Assessing competencies is an essential part of the chartership process; these competencies allow ecologists to assess their skills and record their technical experience against defined criteria.

For more information and to download the standards and supporting tools visit <https://cieem.net/i-am/current-projects/raising-standards/>. Feedback on the usefulness of these resources and how they might be further improved is always welcome and can be sent to raisingstandards@cieem.net.

Competence area	Basic	Capable	Accomplished
Policy and Legislation and Nature Conservation (P1)	Aware of key working area legislation and the differing levels of protections to sites designated for their habitats and to individual plant species. ✓	Understand the working country and relevant local policy for habitats and plant species. ✓	Aware of new policy priorities and positive management, action plans etc. ✓
	Aware of key working area legislation and the differing levels of protections to sites designated for their habitats and to individual plant species. ✓	Good understanding of key working area legislation and awareness that there are differences between working countries. ✓	In-depth knowledge of working area legislation and is informed on changes to legislation
	Aware of habitat and plant species conservation status, threats and reasons for their decline and/or scarcity. ✓	Able to advise when legislative offences may be triggered and may be able to suggest existing mitigation that could reduce or avoid offence. ✓	Knowledge of the different legislative criteria between working countries. ✓
		Aware of the criteria for designations of sites and the parameters for prioritisation of habitats and species. ✓	Able to advise when legislative offences may be triggered and to suggest existing or emerging mitigation that could reduce or avoid offence. ✓
		Aware of changes to conservation status and new threats. ✓	
Habitat survey design, planning and fieldwork: Guidance (S1.1)	Aware of relevant survey guidance for preliminary habitat survey standards and knowledge of their preferred local standard as described in S3.1. ✓	Understand and follow relevant survey guidance for preliminary habitat survey standards in their local area as described in S3.1, aware of secondary, more detailed, survey standards (e.g. NVC), and may know of other regional or national survey standards. ✓	Able to design bespoke methods for implementing preliminary and secondary, more detailed habitat survey standards (e.g. NVC) where required and may train others on survey methods for their local area. ✓
	May be aware of secondary, more detailed, survey standards (e.g. NVC). ✓	Able to design, plan and lead surveys for straightforward, small and medium-sized sites and large sites, and able to assist with more complex surveys. ✓	Awareness of survey standards and guidance from other regions and nations. ✓
	Aware of survey skills required, maps, data collection methods, manuals, identification guides, H&S, biosecurity, equipment, access consent, seasonality etc. ✓	Able to assist with drafting survey recording templates. ✓	Able to design, plan and lead complex surveys at all spatial scales. ✓
	May be able to undertake surveys on simple, small sites and assist on less complex small and medium sized sites. ✓		Able to write guidance on the application of habitat surveys at a company or project level. ✓
Habitat survey design, planning and fieldwork: Desk-study (S1.2)	Able to obtain and collate data from relevant sources including online interactive maps, aerials, online databases, private data sources, atlas, red lists, other online sources. ✓	Able to obtain, collate, analyse and interpret data from relevant sources. ✓	Able to interpret and review the quality of existing information from relevant sources and can validate use for reporting. ✓
	Able to assist in preparation of maps and summary data for surveys. ✓	Able to prepare maps and analyse data for field survey, aware of the potential presence of scarce species and/or habitats. ✓	Able to integrate underlying soil, geological and other technical and spatial data. ✓
	Aware of recommended zones of influence and data limitations. ✓	Knowledge of recommended zones of influence and data limitations. ✓	Able to use a range of relevant databases and critically evaluate zones of influence and data limitations. ✓

Figure 1. Optional spreadsheet tool for assessing progress through taxa-specific competencies.

What's it Like Being on TECDC?



Craig Willcock-Orme
Professional
Development
Manager, CIEEM

If you are looking to expand your network, develop new skills or are interested in helping to shaping the future of the profession, then becoming a member of TECDC could be for you.

CIEEM's Training, Education and Careers Development Committee (TECDC) has oversight of the Institute's training programme, conferences, webinars, careers promotion, degree course accreditations, apprenticeships, mentoring programme, and new initiatives including the Green Jobs for Nature campaign, as well as involvement in undertaking the annual continuing professional development (CPD) audit.

The role of a TECDC committee member is varied but also very rewarding. Typically, members recommend themes for the annual conferences and approve topics put forward by Geographic Sections; identify hot topics for training courses and webinars; and act as auditors by undertaking the annual audit of members' CPD records. Many of our committee members have found the role rewarding and beneficial to them, with several staying on the committee for a second term.

To give you an insight into what it is like being a committee member, we asked some of our TECDC Committee members to share their experiences with you.



**Paul Clack BSc PhD
CEnv MCIEEM FLS
– Chair of TECDC**

What is your day job and how long have you been in the role?

*Associate Director of Ecology at Arup.
Been in the role for 10 years.*

How long have you been on TECDC?

Since September 2016.

What attracted you to volunteer for TECDC?

Interest in CPD, training skills and making a difference for our membership, plus shaping entry routes like apprenticeships and accredited degrees.

What have you been involved in during your time on TECDC?

Many and various areas including the above and spin off activities like shaping the early careers training programme and raising standards projects; highlights have been seeing the growth of the L6 apprenticeships and taking our first staff via that route, the launch of the early careers programme, interaction with great people including public sector and academic colleagues and a much closer relationship with CIEEM; crucial in my decision and election to Governing Board.

What do you like about being on the committee?

The people (Committee and Secretariat team) and the ability to shape CIEEM activities for our membership and wider society.

What is the time / workload commitment?

4 meetings a year, short pre-meets as chair and small activities in between meetings, maybe 2 hours a month in total.

What do you get out of being a committee member?

Change from the day job, and excellent forum to discuss emerging issues and share experience outside private consultancy/client dialogues.

How has being a member of TECDC helped you in your role?

Yes definitely, broadened my network, helped me as a chair of meetings, gained insight into key training, education and CPD activities and allowed me to positively influence my employer (apprenticeship participation, early careers staff, equality, diversity and inclusion, and higher education engagement).

What new skills, experiences have you gained from the role?

As above, and – chairing meetings, participation in spin-off projects including the Defra working group on green skills.

What would be your advice to someone who is thinking about joining TECDC?

Do it! We are a friendly bunch and participation will give you some great access to emerging themes within the industry along with opportunity to work with volunteers from varied backgrounds. You can make a difference!



**Dr Liz Lakin
MCIEEM**

What is your day job and how long have you been in the role?

Senior Lecturer in Education and Environmental Science – University of Dundee for 13 years and Director of the Living Lab – a research hub at the University of Dundee Botanic Garden into Education for Sustainability for 2 years.

How long have you been on TECDC?

Since May 2019

What attracted you to volunteer for TECDC?

Impressed with what CIEEM is doing, became a student member when I did my Masters at Edinburgh and felt I had something to offer from an education side.

What have you been involved in during your time on TECDC?

Revisiting the CIEEM Competency Framework, assessment of Member CPD audits, early involvement with the Academic SIG and presented at a couple of online seminars, more recently presented at annual and regional conferences.

What do you like about being on the committee?

Opportunity to meet people from across the professional and academic sector and the opportunity to contribute to policy and decision making.

What is the time / workload commitment?

Depends – the TECDC meetings are 4 times per year but it's up to you whether you get involved beyond that.

What do you get out of being a committee member?

Meeting new and likeminded people, sense of being able to contribute at a variety of levels, opportunity to travel to London every so often – originally from there so like to go back from time to time.

How has being a member of TECDC helped you in your role?

Given me a far greater insight into the application of the work I do at the university, highlighting some of the issues and areas for development/ greater emphasis

What new skills, experiences have you gained from the role?

Greater insight into the professional aspect of ecology and environmental management – this has been invaluable. Honing my presentation skills for new and varied audiences. Overcoming imposter syndrome.

What would be your advice to someone who is thinking about joining TECDC?

Go for it! Everyone is very welcoming and easy going, it's great.



Sarah Jane Chimbwandira
CEnv MCIEEM

What is your day job and how long have you been in the role?

Chief Executive Officer of Surrey Wildlife Trust for the past 4 years and 26 year with the Trust in total.

How long have you been on TECDC?

Since December 2021.

What attracted you to volunteer for TECDC?

We are going to be experiencing significant resourcing issues over the next 10 years due to a lack of suitably qualified and trained ecologists able to adapt and respond to an ever changing professional environment. I also am keen to support and mentor early career professionals.

What have you been involved in during your time on TECDC?

Ideas for conferences, sharing experience in eNGO, judging awards and CPD.

What do you like about being on the committee?

The topics are interesting and I feel I can contribute something back from what is and has been a very rewarding career as an environment professional.

What is the time/workload commitment?

Perhaps a day every other month.

What do you get out of being a committee member?

The feeling that I am contributing to the future of the profession.

How has being a member of TECDC helped you in your role?

It has broadened my experience of a range of private sector NGOs.

What new skills, experiences have you gained from the role?

Additional networking and knowledge of different ways of working.

What would be your advice to someone who is thinking about joining TECDC?

Go for it – it's a rewarding way to share your skills and experience.

Could you be our next Committee member?

If you are feeling inspired by the experiences of current members and would like to join TECDC, then then we would be happy to hear from you.

We are currently looking for four new volunteers to join TECDC. You would need to be a CIEEM member (any professional grade). We welcome all applications, but in particular we are keen to hear from members:

- based in the Republic of Ireland, Wales or Scotland, and/or
- who work in public sector, NGO, smaller consultancy or academia.

Thinking of another committee?

In addition to TECDC, the Professional Standards Committee (PSC) is looking for new volunteers who are Full members or Fellows of the Institute.

If you would like to find out more about these roles, please have a look at the 'Volunteering with CIEEM' section in the MyCIEEM area on our website or email training@cieem.net.

Green Jobs for Nature



In the December 2022 edition of *In Practice*, we first introduced you to the new bespoke Green Jobs for Nature website (www.greenjobsfornature.org) that we launched with partners to promote careers in ecology and environmental management to a new and more diverse audience. The website showcases the breadth of green jobs for nature that are available, the different employment sectors offering such career opportunities and how to get those jobs.

Over the past nine months, the campaign has been gaining lots of momentum which we are keen to share with you and because we would like to invite you to get involved.

Reaching our target audience

Green Jobs for Nature is primarily a communications and outreach campaign to promote nature-focused careers to 13-23 year olds across the UK and Ireland, with a specific focus on young people from backgrounds currently under-represented in our sector: young people of colour, young people who are differently abled or disabled and young people from lower socio-economic households.



We will be working with a specialist communications agency, Electric Peach, on this campaign, together with our fantastic CIEEM EDI partners: Arup, Atkins, Green Environmental Consultants, Mott MacDonald, RSK Biocensus and WSP. (NB: We are keen to have more EDI partners to join us and get involved in all our EDI work – please see page 2). We are also being generously supported by the Esmée Fairbairn Foundation for this work.

As part of the campaign we are using TikTok and Instagram and are currently developing content for these channels including short film clips or photographs from members of what a 'day in the life' looks like.

The website continues to be developed with new content being added and refreshed:

- Over 90 job profiles are now available to view on the website, covering a range of roles and sectors providing great insight into opportunities in the sector.
- Those working in the industry can now upload their job profile directly

to the website: <https://greenjobsfornature.org/job-profile-form/>

- A new 'where to find job vacancies' page has been created to provide an overview of the types of vacancies available and where to find them: <https://greenjobsfornature.org/get-that-green-job/job-vacancies/>
- New blogs are being developed to help signpost users to key resources.

Outreach activities

We cannot reach our target audiences alone so vital to our approach is reaching out to key stakeholder organisations to invite them to become involved in the campaign. We are being supported by some great organisations that have joined our Steering Group as well as other organisations across the public, private and voluntary sectors who are signing up as Content Partners (providing us with website and social media content and links) or Engagement Partners who are keen to work with us on specific campaign activities for their own audiences (who are also our target audiences).



We are also developing new relationships with national careers services and careers leaders across the UK nations and Ireland to make the best use of these important strategic channels into schools. We will be participating in Green Careers Week (www.greencareersweek.com) from 6-11 November to help promote the range of opportunities available. New careers resources will be developed over the coming months to support this work.

Alongside this we need to proactively lead and support the development or a wider range of accessible routes into nature-related careers including new or revised apprenticeships, new post-16 qualifications and more vocational courses as well as continuing to work with higher education institutes on relevant degrees.

STEM Ambassadors

The STEM Ambassador programme helps schools bring the STEM subjects (Science, Technology, Engineering and Mathematics) to life through volunteers who share their knowledge and experience.

As part of our Green Jobs for Nature project we are working with STEM Learning to raise the profile of careers in ecology and environmental management amongst secondary school pupils to help attract more young people into the sector. Over the coming 18 months we are aiming to recruit many more members as volunteer STEM Ambassadors and will be developing ecology and environmental STEM

resources to make available to Ambassadors and support this work. You can find out more about becoming a STEM Ambassador at <https://cieem.net/stem-inspiring-the-next-generation/>.

How you can get involved

To enable us to attract more young people into green jobs for nature and realise the opportunities available, we need your help as great ambassadors for the ecological and environmental profession. We will be holding a webinar this autumn to provide a further update on the campaign and ideas on how you can get involved, but in the meantime here is what you can do today:

- Submit your job profile and help us continue to expand the library of job profiles so that we can showcase as many roles as possible <https://greenjobsfornature.org/job-profile-form/>
- Produce a short film that we can include on the website and social media channels to bring to life what it is like working in the industry – this could be a 30 second clip on your phone <https://greenjobsfornature.org/upload-photos-and-videos/>
- Have a look at the website and let us know if you feel there is anything missing or needs updating <https://greenjobsfornature.org/>
- Contribute content to key areas of the website including <https://greenjobsfornature.org/get-that-green-job/>
- Help us raise the profile of the website to ensure we are reaching

our key audience – through your internal communications with staff and their families, your external stakeholders, use of your website and social media channels and newsletters

- Follow Green Jobs for Nature on Instagram (<https://www.instagram.com/greenjobsfornature/>) and TikTok (<https://www.tiktok.com/@greenjobsfornature>) and share posts amongst your networks
- Link your website and social media channels to the Green Jobs for Nature website and social media channels
- Contact us if you are interested in becoming a Green Jobs for Nature and/or EDI Partner (email diversity@cieem.net)

If you have already submitted a job profile then you can also still get involved. We're looking for photographs and video clips to use on our social media channels to demonstrate to young people and career changers what a green job for nature looks like. This could be a photograph of you out in the field on a recent survey, or a short video of you talking to the camera about a typical day in your life... the options are endless. You can submit your photographs or video clips at: <https://greenjobsfornature.org/upload-photos-and-videos/>

Contact

If you would like to get involved through all or any of the above please do get in touch with Sally, Craig and Natarnya at info@greenjobsfornature.org

Post-Nominals – How Do You Use Yours?



Stuart Parks
Head of Membership and Marketing, CIEEM

Whenever we ask members about the benefits of membership they most value, the ability to display a post-nominal after their name is invariably the top of the list for those eligible to use them.

This is not perhaps that surprising: post-nominals are not easily gained, nor arbitrarily given. They are an indication that you have reached a specific level of professional competence and, importantly, they are awarded not just by CIEEM as a professional body but because other professionals – your peers – have assessed your claims of competence and agreed with you. Take a minute to think about that. Other

professionals, who know how much effort it takes to reach the level you have, volunteered their own time to undertake a review of the examples of your work that you provided in your application and then recommended to your professional body that you should be rewarded for it. Little wonder that you take pride in achieving them and continue to work hard to maintain that standard.

Once gained, you can choose when and how to use your post-nominals (within the guidelines CIEEM provides) – typically on your CV and professional documentation, in job applications, professional reports, bids and tender responses, on your social media profiles, website, stationery and business cards. They are versatile too: you can supplement them with additional ones when you gain Chartered status, and as your career progresses you can replace them with new ones that signify greater levels of experience and professional competence. This is why we regularly remind you of the importance of upgrading membership to make sure that the post-nominals you use most accurately reflect the standard you are working at.

Because people notice post-nominals, and ask CIEEM about what they mean, it is vital that you use them clearly and correctly. That is why CIEEM’s Membership regulations clearly state that:

“any reference to CIEEM membership made by an individual member, including in their professional literature and reports, should clearly state what grade of membership they hold to avoid misleading the public as to the level of experience and competence of the member concerned.”

It is also important that you do not construct your own post-nominal – for example we often see ‘QCIEEM’ being used and this post-nominal does not exist as applications for Qualifying membership do not involve an assessment of competence by your peers. In addition, if you are an employer of staff with post-nominals it is therefore important that you keep your company literature, website and reports you produce up to date. When your team members gain or update their post-nominal, celebrate with them first, but do then remember to do your housekeeping!

Here is a quick reminder:

Membership level	Associated post-nominal	What this means
Student	None awarded	You are not expected to have gained sufficient professional competence to merit the award of a post-nominal at this level.
Qualifying	None awarded	You are working towards ‘Capable’ level competence. However as your competence has not yet been assessed there is no post-nominal awarded at this level.
Associate	ACIEEM	The first grade that comes with a post-nominal. You have been assessed as working at the ‘Capable’ level of competence in a sufficient number of areas.
Full	MCIEEM	You are significantly more experienced and have been assessed as working at the ‘Accomplished’ level of competence in a sufficient number of areas.
Chartered Ecologist or Chartered Environmentalist	CEcol or CEnv	You have been assessed as working at least at the ‘Accomplished’ level of competence in a greater number of areas and you are routinely working on more complex projects or with a greater degree of specialism.
Fellow	FCIEEM	You are working at the highest professional level and have been assessed by your peers as having made, and continuing to make, a significant contribution to addressing the ecological and environmental management challenges facing people and ecosystems around the world.

Welcoming New CIEEM Fellows

At its meeting of 27 June 2023, CIEEM's Governing Board approved the nominations for Fellowship of two new Fellows. We are pleased to tell you more about them below.



Dr Carlos Abrahams FCIEEM

Dr Carlos Abrahams is currently Director of Ecoacoustics – Technical Director at Baker Consultants and, in the opinion of the Fellowship Review Panel, continues to make a significant contribution to the profession in many ways, including:

- Making a highly respected and significant contribution to the practical application of bioacoustics by developing techniques of bioacoustics and disseminating his learning to the profession and more widely to the research community and beyond.
- Through his teaching on the BSc Hons Biological Sciences (Environmental Biology) programme at Nottingham Trent University, promoting ecological professionalism both to undergraduate and postgraduate students and his School more widely, enabling the Environmental Bioscience to meet and exceed the School's targets for providing undergraduates with 'work-like experience'.
- Leading the publication of good practice guidelines for long-term eco-acoustics monitoring in the UK and developed a chapter on bioacoustic survey methods for the Bird Survey Guidelines, contributing to the development of quality standards and demonstrating his substantial experience.

In summary, the Governing Board agreed with the review panel that:

"Through his work as a highly respected Senior Lecturer at Nottingham Trent University, Dr Abrahams has influenced the education of environmental scientists, promoting professionalism and providing opportunities for first-hand experience. He has also influenced a wider audience through the conferences, webinars and training events to which he has contributed. All of this is evidence of a substantial contribution to, and substantial experience in, environmental science."



Mark Lang CEcol CEnv FCIEEM

Mark Lang is currently an Associate Director at RSK Biocensus and, in the opinion of the Fellowship Review Panel, continues to make a significant contribution to the profession in many ways, including:

- Raising professional standards by mentoring and training staff members in survey skills including botanical surveys, Phase 1 and UKHab. In addition to his work within the companies he was employed by, Mark has also demonstrated significant wider voluntary involvement with the BTO, local wildlife groups and the development of ornithological survey standards.
- Playing an active role in the development of new standards and methods for ornithological surveying, which has been sadly lacking within the profession, and the work he has been involved in is very important in addressing this.
- Under the 'Establishing or raising professional standards through developments in training, quality standards or methods' criterion, Mark has provided significant long-term support as a volunteer with CIEEM, much of which has been directed at the wider dissemination of information about CIEEM to assist in raising professional standards more broadly. Mark continues to mentor a significant number of people through the membership and chartership processes.

In summary, the Governing Board agreed with the review panel that:

"Mr Lang's work in raising standards within the profession and the promotion of ecological professionalism has not simply been 'inward facing' involvement with CIEEM, but clearly he has worked hard to engage outwardly with companies, employers and other organisations. Mr Lang's experience is substantial, and his sponsors have clearly testified to his professional integrity and the respect he commands."

Policy Activities Update



Douglas Lewns
Policy Officer, CIEEM

Overall Update

Since the last edition of *In Practice* the UK Government has announced new laws banning the import and export of all products related to the international shark fin trade, has agreed to an ambitious plastic pollution treaty with the High Ambition Coalition and has launched its third National Adaption Programme (NAP3) setting out the Government's strategic five-year plan to boost resilience against climate change. The Retained EU Law Bill has received Royal assent and passed into law as the Retained EU Law (Revocation and reform) Act 2023. The Act lost its initial sunset date of December 2023, which would have resulted in all EU-derived laws ceasing to apply from the end of the year, and has pushed ministers to agree that environmental principles must be followed with consultations being standard practice for any major policy changes for the environment. However, ministers will retain the power to repeal, revoke and replace EU-derived laws without full parliamentary scrutiny until the end of 2026.

UK and England

In the UK and England our policy team and working group have provided a direct response to the HM Treasury consultation on taxation of environmental land management and ecosystem service markets as well as inputting into the joint response from Wildlife and Countryside LINK and the Environmental Policy Forum on the Environmental Outcomes Reports. At the time of writing the group is in the process of responding to the Office for Environmental Protections call for

evidence on nature recovery and the Defra Affairs consultation on Protecting Hedgerows.

CIEEM has also published a joint position paper with the Institute of Chartered Foresters on woodland management which outlines the benefits of bringing more woodlands under management for people, nature and the economy.

We have written to the Defra Secretary of State, Dr Therese Coffey, to outline our concerns with the funding and resources available to Natural England, and we are also supporting Wildlife and Countryside Link's Nature 2030 campaign ahead of the next UK general election.

Scotland

Our Scotland Policy Group has been busy submitting responses to the Scottish Government's consultation on ending the sale of peat in Scotland and the planning guidance for Local living and 20-Minute Neighbourhoods. Alongside this, the group has responded to the Loch Lomond and The Trossachs Draft National Park Partnership Plan.

The Group has continued engaging with the Scottish Government's workshops on the Scottish Biodiversity Strategy, and are preparing for the consultation on how this strategy will be delivered. Finally, the team have been contributing to an advisory group supporting the Scottish Government with expert advice on biodiversity for draft guidance on NPF4 Policy 3.

Wales

Since the last update our Wales Policy Group has provided comments on the Natural Resources Wales draft Flood Risk Management Plan, emphasising the need for strong commitments to delivering nature-based solutions.

As well as this, the group has input into Wales Environment LINK's response to NRW's consultation on gamebird licences.

The Group has also submitted a letter to NRW outlining comments and recommendations for the Welsh Area Statements, emphasising the need for consistent baselines and a hierarchy of priorities.

Ireland

The Ireland Policy Group has responded to the National Parks and Wildlife Service's public consultation on Invasive Alien Species Soil and Stone Pathway Action Plan for 2023–2027, and following their input have been welcomed into the working group focused on developing this further.

Earlier this year the group was kept very busy with the Irish Conference – Aiming for a Nature Positive Ireland. The conference explored the challenges and opportunities facing the sector and how we can work together to achieve this goal.

Further priorities

The policy groups are busy preparing for the additional consultations coming this year and continue to keep an eye out for any changes that could impact nature and the environment across the UK and Ireland.

We currently have some vacancies in our Scottish, Welsh, English and Irish Policy Working Groups and are looking for anyone interested in taking an active role in influencing national policy and legislation in the areas that matter to you! Members with any level of expertise or experience are welcome to get involved and you can find out more on the CIEEM policy webpage or contact us directly at policy@cieem.net.

CIEEM is grateful to the following organisations for investing in our policy engagement activities:



From the Country Project Officers



Mandy Marsh
– Wales Project
Officer

S'mae pawb/Hello
everyone

I was hoping that by the time you read this I could report on a successful marine conference in Swansea. Unfortunately, we have had to reschedule – keep an eye out for new dates and a new call for papers.

That's the bad news over with, let's move on. Curlews and other upland birds are in serious trouble in Wales. It's estimated there are only 400 breeding pairs of curlew left, but we are seriously lacking in recorded sightings. The good news is I am working with Natural Resources Wales on a plan to encourage all our consultancy members to submit their records to Cofnod.

In June I attended a British Ecological Society forum on non-native species, a fascinating day which discussed not just INNS but also the disconnect between academic work and practical ecology, and how to apply academic findings to policy.

Our Welsh Section Committee is signing up yet more events to keep you entertained and informed over the winter but – and I cannot shout this loud enough – we need more volunteers! It's not a difficult role, lack of time seems to be the main issue for all our hard-working committee members. If you can spare a few hours spread throughout the year and want to know more, my email is below.

Hwyl, Mandy

Contact Mandy at:
MandyMarsh@cieem.net



Annie Robinson –
Scotland Project
Officer

Hello everyone,
It's been great to hold
lots of in-person

member network events this summer, many of which have been part of our #TwentyTwentyTree theme. We had a great visit to the Rottal Burn with Kelly Ann Dempsey and saw the results of the re-meandering of the Rottal Burn in 2012 and the tree planting and regeneration that has occurred. It was really nice to meet members across Scotland involved in river restoration projects. We also headed north to Inverness for a talk on the exciting 'Species on the Edge' project with Fiona Strachan. In August we had a visit to the Angus Glens, with Gareth Ventress, to discuss the plans for large-scale habitat creation and restoration on a former grouse moor. Thanks to everyone involved.

And next month we have the Scottish Conference – The Role of Trees in a Sustainable Future – on Tuesday 3 October at the COSLA Conference Centre in Edinburgh. We look forward to seeing many of you there. There is also a post-conference visit to the award winning Eddleston Water project with Chris Spray.

During the summer the Scottish Policy Group responded to the Scottish Government's Local Living and 20-Minute Neighbourhoods – Planning Guidance consultation and the Loch Lomond and the Trossachs Draft National Park Partnership Plan consultation. It's a busy autumn ahead with many large-scale consultations to review and respond to.

Thanks, Annie

Contact Annie at:
AnnieRobinson@cieem.net



Elizabeth O'Reilly
– Ireland Project
Officer

Dia Dhaoibh/Hello
everyone,

Since our last update we were delighted to have two field trips take place in Ireland. We had the Ecological Restoration and Habitat Creation (ERHC) SIG run a field trip to Clara and Pollagh Bog in June and we organised a field trip to Lagan Meadows in Belfast as part of CIEEM's commitment to the All-Ireland Pollinator Action Plan. Both of these events had a full turn out with great leaders for engaging and informative discussions. We would like to thank George Smith, Bord na Mona, Buglife and Orla Maguire for sharing their time and expertise.

As we head out of the summer and into the autumn, our online Lunchtime Chat series is starting up again. Join us on 27 September to hear from Kilian Murphy on smart approaches to Phase 1 habitat mapping using convolutional neural networks and on 29 November to hear from William Murphy on BioBlocks and integration of restorative eco-engineered structures in coastal development projects. Both these events, and more, can be booked online, just filter for 'Ireland' on the events listings page of the CIEEM website.

The Irish Policy Group is continuing efforts to support the sector. We recently made submissions to the Consultation on EIA (Agriculture) Regulations and the Consultation on Ireland's Invasive Alien Species Soil and Stone Pathway 2023-2027.

For more information on these and other Irish activities keep an eye out for the Irish newsletter sent out every two months, with the next one being due to be sent out this month.

Sending best wishes from Ireland, Liz.

Contact Elizabeth at:
Elizabeth@cieem.net

British Ecological Society

How Our Community Networks are Creating a More Level Playing Field for Ecologists

Created and organised by our members, the BES has a family of thriving networks, which help tackle equity issues and grow a fairer collaborative community. Here, chairs from three of those networks discuss what their groups are up to. We have Josh Jones from the SEED Network, Jordan Blanchard-Lafayette from the REED Network, and Sarah Dalrymple from the EDGE Network.

Josh	Jordan	Sarah
Who is your network for?		
At the SEED Network we support ecologists from under-represented socioeconomic backgrounds. Our members could be the first in their family to go to university, for example.	The REED Network is a supportive platform for ecologists from under-represented & marginalised ethnicities. We invite anyone from communities affected by systemic racism to join the network and work towards a more diverse future for ecology.	The EDGE Network has grown out of the initiatives set by the previous Women in Ecology group but we've now broadened our remit to include anyone that identifies as a woman or non-binary.
What do you see as the most pressing challenges your network members are facing?		
Lack of awareness. Socioeconomic issues are often absent from the EDI agenda, and we rarely measure their impact. This makes it difficult for us to argue for the institutional changes needed.	Systemic exclusion. Currently, the environmental sciences are the second least diverse field (ethnicity wise) in the UK, behind only agriculture. This creates a feeling of isolation and being out of place. Further, it results in a lack of awareness of cultural sensibilities and micro-aggressions towards scientists from under-represented ethnicities.	Ecology is pretty balanced in terms of gender, but we don't see parity in progression to the senior roles of professor or the equivalent in non-academic settings. This needs to be addressed because when we lose talented people, the discipline as a whole suffers.
What positive changes in the sector have you already seen?		
Having networks like these is a huge positive change. Not only are we supported by the BES, but we are also able to support each other and share ideas. There is much that needs improving, but it's easier to improve things when we have platforms to organise around.	Since REED's inception in 2020, multiple networks and initiatives have sprouted focused on EDI in the environmental sciences. This is so encouraging to see, not only are other people having similar thoughts and aims as us, but money is being committed to address these issues.	In ecology we have plenty of women role models and, in the BES itself, women are just as visible within the staff, the Board of Trustees and the editorial teams. We're very lucky because we don't have to push against our own peers like some disciplines have to.
What change would you like to see next?		
I'd like to see more senior ecologists engage with EDI. EDI initiatives are full of young, passionate individuals. But our professional networks are smaller, and our positions more vulnerable which makes it hard to challenge the status quo.	Recognition for scientists' original expertise, not just EDI work. I think the field could do a lot more by offering scientists the platform to prosper in their own field, and not just in talking about the hurdles they have overcome to get to where they are. I also agree with Josh's point above!	What they said :)

Find out more about our communities – including our longest running network, ALDER, for LGBT+ equity – on our website: britishecologicalsociety.org/membership-community

By Members For Members

It's autumn Volunteer Elections season!

Geographic Section Member Networks offer fantastic opportunities to socialise, network and learn in an informal capacity. They aim to showcase the very best of wildlife, conservation and habitats within their area. If you are passionate about the ecology and species local to you, then Member Networks are a brilliant way to share that enthusiasm and knowledge with others, and engage audiences from students to experienced ecologists and environmental managers on the species, places and projects that are of greatest interest.

Each autumn, CIEEM holds elections to vote volunteers into their roles on Geographic Section Member Network committees. The work of these volunteers is hugely important to CIEEM, and without them Member Networks simply wouldn't be able to offer the fantastic events and opportunities which they currently do. If you are interested in getting more involved with CIEEM Geographic Section Member Networks as a volunteer, please visit the Elections page in the 'My CIEEM' area of the website. There you will find details of the volunteer vacancies and information on how to apply.

This year, we are particularly keen to hear from you if you are based in Wales, North East England or the East Midlands region! All three of these Geographic Section Member Networks would be extremely grateful for the extra support so please do not hesitate to get in touch



if you would like to offer your enthusiasm to any of these groups. Remember that Member Networks are there to support you as CIEEM members, but can only do this if CIEEM members offer their time and skills to make activities happen within these groups. All volunteering as part of these committees contributes to your CPD and is a fantastic way to meet like-minded CIEEM members looking to make a difference for the sector within their regions and countries. Take a look below at just a small selection of the activities that have been taking place, organised and led by CIEEM Member Networks over the past couple of months.

If you're interested in getting involved, let us know as soon as you can. We look forward to hearing from you and thank you in advance for any nominations received for volunteer roles with our wonderful Geographic Section committees. Also, once again CIEEM expresses its enormous gratitude to all that CIEEM Member Network volunteers to for the Institute and the sector. Keep up your sterling work.

Drew Lyness

Volunteer Engagement Officer, CIEEM

Wales Geographic Section

Site Visit to Rhos Goch SSSI

The Wales Member Network enjoyed a summer day trip to Rhos Goch SSSI. The site consists of a sequence of mire communities developed within a flat valley floor which crosses the interfluvium between the Rivers Wye and Arrow. The site lies at an altitude of 257m and is one of the most southerly raised bogs in the UK. Around 95% of the site is wetland, comprising a mosaic of different habitats. The central core of Rhos Goch common consists of fairly open raised bog with a series of pools and hummocks and most of the core bog area is surrounded by a band of wet woodland.

The event presented a fantastic opportunity to speak with Geraint Lewis, the landowner, on the practicalities of proactively managing a SSSI, and the challenges in doing so whilst managing a productive cattle and sheep farm in Radnorshire. The site is now extremely productive for wildflowers including orchid species such as heath spotted-orchid (*Dactylorhiza maculata*). The site also boasts greater spearwort (*Ranunculus lingua*) which is highly unusual in this part of Wales.



Lower Otter Site visit. Photo credit: Drew Lyness.

South West Geographic Section

Site Visit to the Lower Otter Restoration Project

The South West Member Network enjoyed an excellent afternoon visiting the Lower Otter Restoration Project (LORP), a managed realignment that aims to deliver adaptation to climate change, creating a more sustainable and more biodiverse landscape.

LORP is restoring some 55 hectares of inter-tidal habitat by breaching those embankments and reconnecting the river and estuary to their floodplain. As well

as the restoration of rare and declining habitats, a road has been raised, two bridges built, a former landfill better protected and a cricket club relocated to a flood-free site. LORP is led by the Environment Agency, working in partnership with the landowner, Clinton Devon Estates, and project funding includes an €8 million contribution from the Interreg France Channel England programme through the PACCo Project, which enables sharing of learning from the Otter and the French partner project in the Saône valley in Normandy. PACCo aims to show that it is better to adapt to

climate change early and in a managed way. LORP will be completed in Summer 2023 and the current programme has the breach allowing tidal flooding to be made in May. An extensive period of monitoring will take place, to include habitat development, species distribution and abundance, and geomorphology.

It was a highly educational visit, greatly enjoyed by those who visited. Some wildlife highlights included lots of freshly emerged broad-bodied chasers along the river and little ringed plover making the most of the excavations on site.

East Midlands Geographic Section

Beaver Reintroductions in Derbyshire

The East Midlands Member Network heard from the fantastic and knowledgeable Kate Lemon, Landscape Recovery Manager for the Derbyshire Wildlife Trust, who explained how after 800 years, beavers are back in Derbyshire! Kate explained how this wasn't just about the reintroduction of a species, but about the reintroduction of an entire ecosystem that had previously been lost.

Kate detailed the previous plight of the Eurasian beaver and the impact they once had on our landscapes. She hoped that the newly reintroduced beaver families will play a really big part in making Willington wilder, benefiting a

great number of species in the area. She explained that the beavers reintroduced to the Derbyshire site enjoy over 40 hectares of wetland habitat, within a special beaver-proof fence (as they have been known to be expert escape artists!). Egginton Brook flows through the beaver zone, and the native plants and trees offer the beavers all the food variety they need. Beavers are known as nature's engineers, altering habitats to create diverse wetlands for other species to thrive.

It was clear to see the hard work that's gone into their reintroduction to Derbyshire and the incredible effect they are having. Kate Lemon showed the Member Network some exclusive footage from trail cameras carefully deployed since the beavers arrived at Willington, showing the changes they have made over just a relatively short

period of time. She also explained more about the bespoke website and recording Apps developed to record and interpret their work. Thanks to Kate for a hugely insightful talk greatly appreciated by the Member Network.



BOOKS, JOURNALS AND RESOURCES

Paper Review

Measuring biodiversity from DNA in the air

Clare, E.L., Economou, C.K., Bennett, F.J., Dyer, C.E., Adams, K., McRobie, B., Drinkwater, R. and Littlefair, J.E., 2022.

Current Biology, 32(3), pp.693-700. DOI: <https://doi.org/10.1016/j.cub.2021.11.064>

Research biologists and commercial ecologists are actively seeking a firm evidence base to be able to deploy innovative rapid biomonitoring methods including Environmental DNA (eDNA) and invertebrate-derived DNA (iDNA). These analyses can detect protected species and aquatic community composition and supplement the more traditional ecological surveying methods.

Given an apparent paucity of applications in terrestrial ecosystems (despite the growth of eDNA metabarcoding and genotyping methods), the authors of this paper set out a total of 72 air samples across 20 locations at Hamerton Zoo Park in Huntingdon, UK. Nine out of ten of the samples yielded non-human vertebrate DNA that were then filtered, amplified and sequenced using multiple DNA markers for eDNA. A total of 25 different bird and mammal species were identified, two-thirds of which were from the animal collection but several, including the European hedgehog, were native species. Unsurprisingly airborne eDNA concentrated adjacent to inhabited areas and the authors concluded by firmly advocating the potential of air sampling as a source of DNA under natural conditions. They claimed that the methods could be refined to monitor species of conservation concern and detect invasive species.

Building on this pioneering work, follow up work by Littlefair *et al.* (2023) detected eDNA from >180 vertebrate, arthropod, plant and fungal taxa captured in air quality monitoring stations in the UK. Evidently there are clear advantages to using an existing sampling network already in operation, enabling air quality and ecology monitoring efficiencies. Sector-wide, the ramifications of this research could prove to be far reaching – but the urgency of conducting more comparative studies may help assuage concerns pertaining to eDNA/iDNA efficiency for vertebrate diversity assessment.

Reference

Littlefair, J. E. *et al.* (2023) Air-quality networks collect environmental DNA with the potential to measure biodiversity at continental scales. *Current Biology* 33:11, 426-428.)

Paper Review

Trends in UK Funding for Ecology

Harvey Sky, N. C. (2023)

British Ecological Society, London, UK. Available at: <https://www.britishecologicalsociety.org/policy/future-of-ecological-research-in-the-uk/read-the-report/>

Funding for ecology has not increased at the same rate as funding for other fields and this report appeals to UKRI, Defra and other public organisations to respond by addressing this. However, it also suggests that private sources could be contributing to a far greater extent. If the relationship between ecology research and consultancy – which helps businesses to mitigate risks and meet regulatory requirements – could be improved, then data generated by consultants could be incorporated into research and contribute to improving ecological practice. Introducing a requirement for research to be funded alongside consultancy work would also be of long-term benefit.

Paper Review

Towards a standardized protocol to assess natural capital and ecosystem services in solar parks

Carvalho, F., Treasure, L., Robinson, S. J. B., Blaydes, H., Exley, G., Hayes, R., Howell, B., Keith, A., Montag, H., Parker, G., Sharp, S. P., Witten, C., & Armstrong, A. (2023).

Ecological Solutions and Evidence, 4, e12210. <https://doi.org/10.1002/2688-8319.12210>

The race to deploy renewables to meet our sustainable energy ambitions raises a pressing need to gather more evidence on their impacts on biodiversity and other natural assets. In this article the authors describe a framework for assessing ecosystem services and natural capital on solar parks. They start with a useful high-level review of the negative impacts that solar developments can have during construction and operation, but then go on to describe the substantial opportunities to deliver environmental benefits through appropriate land management. The assessment framework they have developed identifies monitoring approaches to measure ecosystem services and natural capital, and includes a ready-reckoner showing how the two relate to one another. It allows the contributions to ecosystem services and natural capital to be compared between different parts of a site, over time and potentially with the original land use. As the authors state, the whole approach, including the choice of monitoring methods, was driven by the need to develop a framework that is evidence-based, cost-effective and simple to use. The result is a potentially valuable tool for consultants and land managers engaged by this expanding industry, and a useful means of collecting field data to help develop a much-needed evidence base.

BOOK REVIEWS

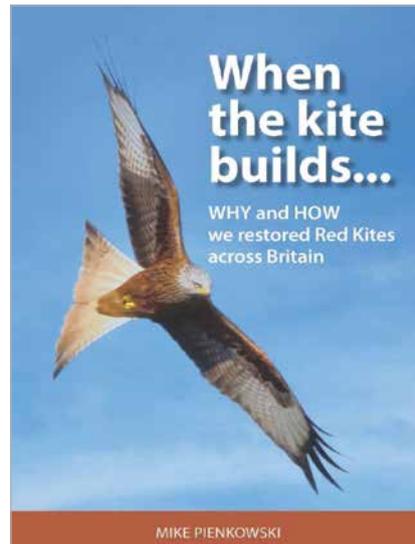
Paper Review

Call for integrating future patterns of biodiversity into European conservation policy

Adam, M. M., Lenzer, B., van Kleunen, M. & Essl, F. (2022)

Conservation Letters <https://doi.org/10.1111/conl.12911>

This paper raises pertinent issues regarding the way that existing conservation policies operate, highlighting that these were not designed to be responsive to the massive biophysical changes that are currently being experienced, and raises concerns about the future. While range shifting has benefits for species survival, with wilding and restoration projects often citing the importance of connectivity between habitats to facilitate this, these are also corridors for potentially invasives. These authors discuss in depth the roots of European conservation legislation in the Directives which focus on maintaining existing ecosystems and native species. In this context the protected area approach is questioned as prescribed boundaries are unlikely to reflect future distribution patterns and may not continue to provide the habitat conditions and species assemblages on which designation was based. A call is made for policy to address the issue of neonatives and adopt a forward-looking functional ecology approach.



When the kite builds WHY and HOW we restored Red Kites across Britain

Mike Pienkowski (2023)

Overseas Territories Conservation Forum, Peterborough. ISBN 978-1-911097-05-1

This book begins by reminding us how ubiquitous these birds were in early times with their role as scavengers evidenced by the quote "*when the kite builds look to lesser linen*", from A Winter's Tale Act 4, Scene 3, William Shakespeare. This explains the book's title and it includes many photos of kite nests decorated with odd items including pillaged underwear. The introduction provides historical background, with the interesting fact that red kites were the first birds to be protected, due to their role in environmental cleansing, with killing one a capital offence. This situation was reversed in the mid-1600s, beginning a long period of persecution that has continued almost to the present day. The rationale for the Red Kite introduction initiative was not simply to restore a species lost to most of the UK but rather due to concerns regarding the viability of the global population, with increasing distribution considered as a conservation priority to increase species resilience. Despite the small remnant population in mid Wales this was plagued by very low

breeding productivity combined with persistent egg collecting making spread highly unlikely.

The key characteristic of this book is the level of detail. Extracts from meeting notes are provided enabling the reader to see just how seriously all aspects of this introduction were considered, from examination of the requirements for success based on the experience of earlier projects, notably of white-tailed eagles, to the handling of public relations. The description of the process of acquiring young birds, rearing, releasing, and then monitoring them is testament to the dedication of the team and has resulted in the numbers having gone from just a few dozen to over 10,000 birds in just 30 years. This is attributed by the author to successful partnership working although the fact that these imposing birds mature fast, typically breeding successfully in their second year, must have helped.

Evidence of the impact for global species conservation is the dispatch of young birds to Spain, one of the original source countries, in 2022.

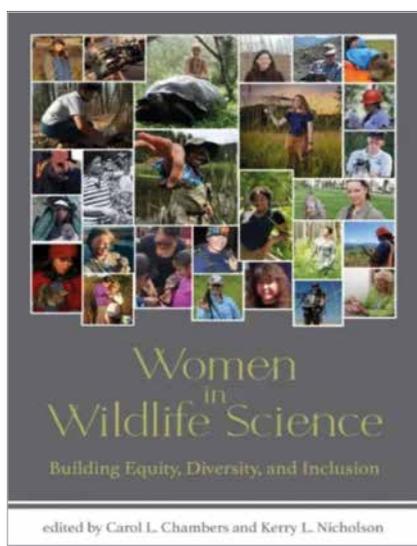
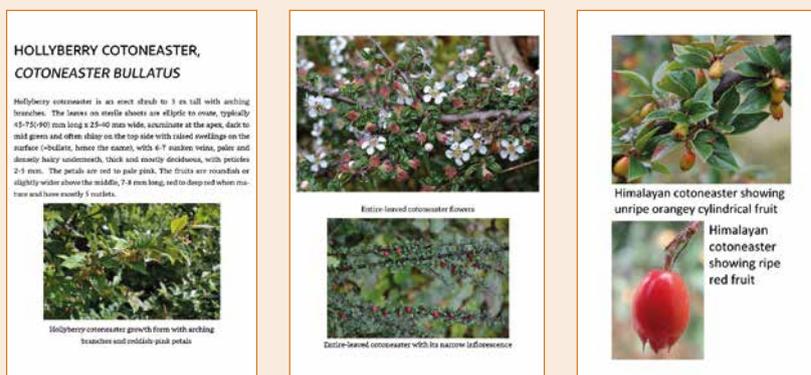
The politics make fascinating reading. The original lead organisation for the experimental phase of the project was the Nature Conservancy Council, the NCC. This was dissolved and replaced by the JNCC, with representatives from Wales, Scotland and England followed, overseeing operations across all the reintroduction sites in all three countries, with responsibility devolved to CCW, SNH and English Nature respectively. The latter part of the book focuses on evaluation, repeating the assertion that it is far more important to prevent loss of species and habitats than to take heroic steps to reinstate them. The author cautions against well-meaning but inappropriate reintroductions, with discussion of the impact of changes in agricultural practice on likely success. Additional benefits from the successful kite project have been greater acknowledgement of the effects of poisoning, both direct (intentional) and unintentional, introduction of specific

BOOK REVIEWS

funding allocation for species recovery programmes, and greater public awareness of these magnificent birds of prey. Despite this the author considers that saving the Flow Country from afforestation a more significant contribution to nature conservation, with peatlands and coastal wetlands in the long term more important than kites. Altogether a fascinating read with many excellent photographs. Hopefully those involved in current reintroduction projects will be able to learn from this book and provide similarly detailed accounts and evaluations in future. However, as an ecologist I am led to wonder what the effect of 10,000 of these large, hungry, long-lived birds has on other species, both on prey and indirectly by competing for resources. This is something that needs to be carefully considered in all reintroduction projects.

Identification guide to British Schedule 9 cotoneasters

Many British ecologists have difficulty separating the five Schedule 9 cotoneaster species (i.e. listed under the Wildlife and Countryside Act 1981 - *Cotoneaster bullatus*, *C. simonsii*, *C. horizontalis*, *C. integrifolius* and *C. microphyllus*) from the numerous other naturalised cotoneasters. Tim Rich MCIEEM has produced a short digital pictorial guide with brief diagnoses and notes separating them from closely related species. It is designed as a quick reference guide for use in the field, and is only applicable to Britain. It is available from the Kindle store for £2.35 (search for Cotoneaster) and can be read in colour on mobiles and tablets etc. using the Kindle app (black and white on the Kindle E-reader).



Women in Science: Building Equity, Diversity, and Inclusion

Edited by Carol L. Chambers and Kerry L. Nicholson (2022)
 Johns Hopkins University Press, Baltimore
 Chamber and Nicholson's book is so

much more than 'women in science'. They have pulled together experiences from every spectrum of society, to represent an array of perspectives that examine the impact of culture, race, gender, sexuality, and generational differences. The book is divided into two parts. The first part looks at present challenges and how we arrived here. Chapter 1, *the importance of diversity*, examines the definition of diversity (being asked to the party), inclusivity (being asked to dance), and equity (levelling the dance floor), noting that equal treatment does not provide the same opportunities to each person. For example, not everyone can afford to do unpaid volunteer work, equity requires actively correcting for disparity. There is an excellent discourse on why diverse teams are better – mixed gender teams will develop more creative questions and better approaches to problem solving, while mixed cultures will bring in complementary and contrasting ideas. This is exemplified by the case

study of Flo Gardipee, a native American master's student who developed non-invasive genetic techniques using faeces to show respect to the animals. I had no idea this is what triggered the development of eDNA. At the end of each chapter there is a set of questions and interactive learning activities to stimulate thinking, discussion, and action. For chapter 1, the reader is asked to reflect on what diversity, inclusivity and equity means to you, and to develop SMART goals to identify steps to increase diversity in the wildlife field. These are great activities that could be rolled out to workplace training events. I am familiar with many of the stories presented in Chapter 2, *trailblazers – women who forged a path in wildlife history*, and marvel at those who went against convention. For the most part, female naturalist hobbyists were invisible to the science community as their detailed studies, collections and drawings were not acknowledged. Few women achieved professional acclaim

by scientific study, and many women who rose to prominence did so by working with a male mentor such as a father, husband, or brother – the role of allies is a recurring theme in the book. An end of chapter question asks how you feel learning about these women – for me it was awe, rage, and sadness in equal measure – and to personally reflect on your own traits; scientists aren't very good at doing personal reflections, so it was great to see this approach. Chapter 3, *who are we now – shaping future generations of the wildlife profession*, reviews changes in gender and ethnic diversity of US wildlife programs in the 21 Century, and notes improvements in gender diversity of the student population are not reflected at the faculty level. Chapter 4, *personal and institutional barriers to success – challenges and solutions for women*, examines the underlying causes of gender salary gaps and underrepresentation of women in science leadership roles, with feelings of low self-efficacy, complications arising from childcare and pervasive sexual harassment identified as the key barriers to career development. Part I concludes with chapter 5, *creating an equitable environment – learning from a river*, which likens diversity challenges in the profession to a river in crisis being restored to a healthy ecosystem. I struggled with this analogy. The chapter opens with a history of exclusion, noting that today's science practices reflect standards set in the 17th Century, which because women and minorities were excluded is heavily weighted to white male society. The self-assessment activity on barriers and pathways to careers in the wildlife profession, which requires you to consider whether factors hindered or helped you get a career – such as “*lack of role models that looked like you*”, is a thought-provoking way to end Part I. The eight chapters that make up Part II look at the future, examining challenges that remain and how inequalities can be reduced. Chapter 7, *women of colour in wildlife – stories of support and setbacks*, examines the intersectional

challenges associated with gender and race. Such overlap of two categories creates a distinct experience from that of members of either category alone as is exemplified by eight personal case testimonies. The authors note that women of colour are least likely to have the resources to take advantage of unpaid opportunities that are needed to gain career entry. Chapter 8, *breaking the binary*, uses LGBTQ+ as an umbrella term for those who identify as gender and sexual minorities as terminology changes over time (box 8.1 definitions), resulting in generational labels. There are different degrees of outness, with many LGBTQ+ communities hiding their identities to avoid harassment and discrimination, so we do not know how many LGBTQ+ people there are in the wildlife profession. The end-of-chapter activity focusses on the use of identity and pronouns, with the use of role playing to practice asking for pronouns, using correct pronouns, dealing with situations of misgendering and addressing groups without gendered terms. Chapter 9, *intergenerational insight – #MeetTheMillennials*, notes that the rate of social change has increased, shortening generational spans, resulting in work environments supporting as many as five generations (traditionalists, baby boomers, generation X, millennials, generation Z) that reflect a shared experience among a group of people. Table 9.1 investigates the defining social movements, family matters, environmental events and milestones for diversity that define each generation – fascinating! Intergenerational conflict in the workplace affects 75% of workers and may be more acute than in the past due to long life expectancies translating to working longer, greater influx of women with shift in stereotypical gender roles (career versus childcare), and a shift from physical labour to knowledge-based work as transition from farm to city. The authors are all millennials (1981-1995), hence the focus on this generation which unlike previous generations were seen and heard and included in family decisions.

Perfectionism is more widespread among millennials than any previous generation and has been linked to anxiety, depression and OCD. Chapter 11, *the responsibilities of men in supporting women*, flips the content on its head by viewing it through the lens of our male counterparts and how they can be allies. Many of the chapters examine how to be an ally for yourself and others.

This book was written for wildlife professionals, professors and students. There is a lot of technical jargon to get your head around and sadly there is no glossary, so I tagged the relevant pages and frequently referred to them. Accompanying graphics are in black and white, and some of the small text on diagrams was hard to read. While US-centric, the central arguments of this book are applicable anywhere and it should be read by everyone!

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Scottish Conference | 3 October, Edinburgh

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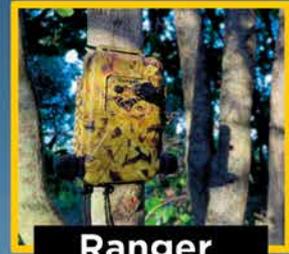
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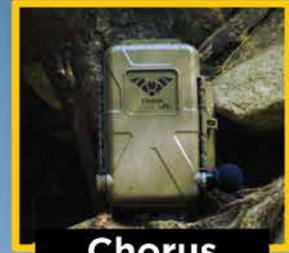
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- Conferences
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For information on these events and more please see <http://cieem.net/training-events>

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20 September Best practices for accessing and using biodiversity data in the UK Online	28-29 September Introduction to Advanced Bat Surveys Birmingham	3 October CIEEM 2023 Scottish Conference: The Role of Trees in a Sustainable Future Edinburgh	9 October An Introduction to Appropriate Assessment in Ireland Ireland
16 October QGIS for Biodiversity Net Gain Online	18 October Conifer Identification for Ecologists Shropshire	19-20 October Environmental Management on Construction Sites Scotland	31 October & 01 November Autumn 2023 intake of the Early Careers Training Programme
9-10 November Introduction to UK Habitat Classification Online	22-23 November CIEEM 2023 Autumn Conference: Modernising Ecology: Techniques and Approaches Liverpool	29 November Winter Tree ID: extending the season in ecological surveys Shropshire	29-30 November Preliminary Ecological Appraisal Online

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