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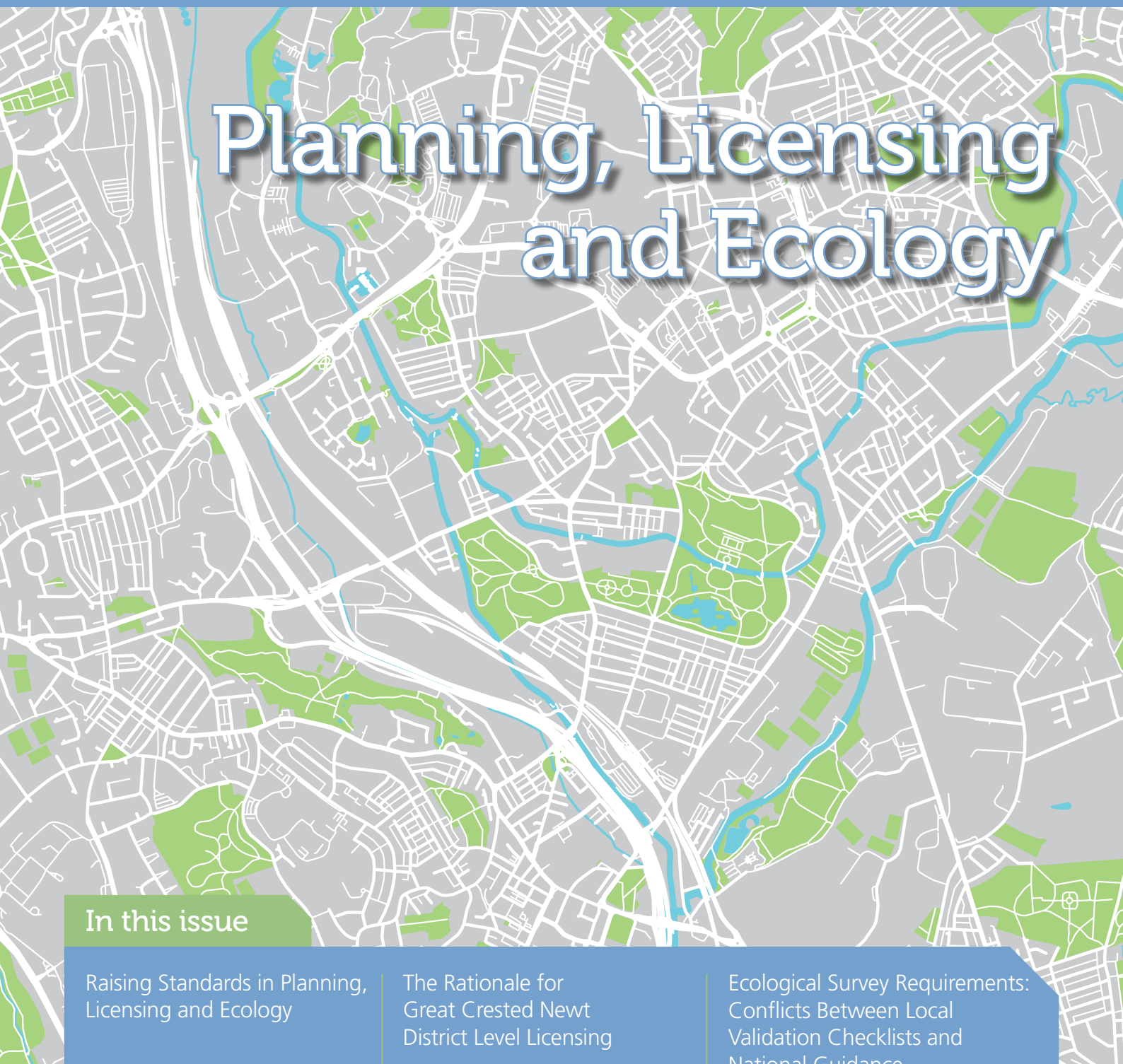

Planning, Licensing and Ecology

In this issue

Welcome

Ecologists and environmental managers lean heavily on the planning system to achieve their objectives of biodiversity conservation and enhancement. Equally, planners rely on ecologists to help deliver their objectives. But it is not always a happy relationship; usually, in my experience, because of a lack of understanding of each other's roles and professional obligations. Failures on both sides to exercise due diligence in contributing to the planning process can cause frustration and distrust, lead to unnecessary tensions and ultimately to bad decisions.

Even where there are no biodiversity issues, planning has frequently been the 'Aunt Sally' for developers, who accuse the planning process of being slow and cumbersome. It is easy to blame the planners. Those on the 'front-line' in development management are under intense political, resource and time pressures, frequently dealing with opposing views vehemently expressing often irreconcilable conflicts caused by development proposals.

I have lost count of the number of times Ministers have decided that planning needed a 'root and branch' reorganisation. On the one hand, planners must speed up the decision-making processes. At the same time, they must improve the evidence base of decisions and make sure that all parties are fully involved in decision-making. These laudable objectives are, of course, mutually exclusive, so the planning process struggles on. Ecologists were next to be blamed for delay.

When European protected species became potential 'show-stoppers', developers complained, conservationists rejoiced, local objectors shouted (some even deviously manipulated) and planners despaired. Because of the lack of in-house ecological expertise it was another 'material consideration' they were supposed to know enough about to weigh in the balance. Legislative requirements were confusing. Roles and procedures were unclear and the scientific evidence base was inadequate, largely because mitigation monitoring was rarely carried out. These problems persisted for longer than they should have done. Tensions between legitimate interests grew as high profile cases of 'newts stop development' were misrepresented. Gradually we are seeing changes, trying out new ideas with a greater sharing of responsibility and trust. So, this edition of *In Practice*, focusing on planning and protected species licensing, is timely. It has contributions from a range of authoritative authors, many of which I have had the pleasure of working with.

Ecologists and environmental managers have made a huge contribution to planning decisions in delivering a better environment for wildlife and people. What each of you do makes a difference. It is all of the small contributions of ecological knowledge and understanding of the natural environment, which you feed into the planning system every day, that combine to influence better environmental decisions.

Planning for site, habitat and species protection remains imperfect. But it has worked far more often than it has failed. We must improve understanding of what and how each profession can contribute. Despite the set-backs, the changes in licensing are going in the right direction. I commend this journal because it will improve that understanding and help to deliver a better planning and licensing system.

David Tyldesley FRTPI FCIEEM

Information

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Editor
Dr Gillian Kerby (gillkerby@cieem.net)

Internal contributions coordinator
Mr Jason Reeves (jasonreeves@cieem.net)

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CIEEM Office
43 Southgate Street, Winchester, Hampshire, SO23 9EH, UK

T: 01962 868626
E: enquiries@cieem.net
W: www.cieem.net

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Front cover: Schematic plan of greenspace in Stoke-on-Trent

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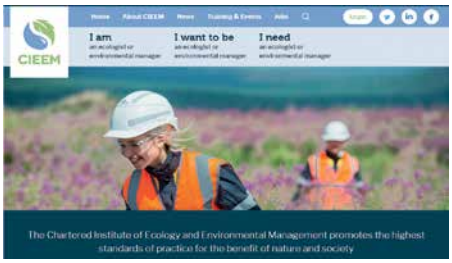
CIEEM Conferences		
Date	**Title**	**Location**
27 March 2019	CIEEM Spring Conference 2019 – Biodiversity Net Gain from Policy to Practice: A transformative tool for tackling biodiversity loss?	Reading
4 July 2019	CIEEM Summer Conference 2019 – Health and Well-being in the Ecology and Environmental Management Profession	Birmingham
November 2019	CIEEM Autumn Conference 2019 – Planning for Success: Maximising biodiversity opportunities through the planning and permitting process	Wales
CIEEM Webinars		
10 May 2019	Using bioacoustics for field survey	Online

For more information on CIEEM conferences and webinars please visit: http://events.cieem.net/Events/Event-Listing.aspx

CIEEM website launched

CIEEM's new website went live last month. We have restructured and redrafted the content to make it easier for members and others to find the content that they are looking for. And crucially our website is now device responsive so you can easily browse on your smartphone, tablet or PC.

We would be pleased to receive feedback on what you think about the new website.



New publications library launched

As part of CIEEM's new-look website we have created a new Resource hub referencing not only CIEEM publications but also other sources of good practice guidance on habitat and species survey, management, mitigation and monitoring. This new library incorporates the former Restoration Library from the Flora Locale website which is now closed. Members can help us manage the library by alerting us to new publications that they feel should be included. Such suggestions will then be reviewed by the Professional Standards Committee.

Updated Guidance on Good Working Practices

CIEEM's *Guidance on Good Working Practices* has recently been updated and republished on the CIEEM website. This document sets out what is expected of members in terms of good working practices. Whilst employment law sets minimum standards; good employers go beyond this absolute minimum and also consider what is ethical and how higher standards can actually enhance performance and reputation. Greater benefits can be achieved for the natural world by well rested, highly motivated, properly protected and fully developed staff. We urge members who are line managers and employers to make themselves aware of this guidance.

Revision to the Code of Professional Conduct

A revised Code of Professional Conduct and Professional Conduct Inquiry Procedures have now been published and are available for members to download from the CIEEM website. Members are advised to have the most-up-to-date Code and Procedures to hand for future reference. managers and employers to make themselves aware of this guidance.

Practitioner-led Research – Your help needed

CIEEM has been working with the What's the Point of Conservation Science? team on developing a practitioner-led research agenda to inform evidence-based conservation. We think it is vital that CIEEM members have their say but we need your help to do it. If this is a topic that interests you please complete the online survey at https://www.mark4ecology.com/wpcs. A summary of the survey findings will be provided in *In Practice* later this year.

Biodiversity Net Gain Guidance published

Following publication of the Biodiversity Net Gain Good Practice Principles in 2016, CIEEM along with IEMA and CIRIA have published guidance on Biodiversity Net Gain.

Free to download at: www.cieem.net/biodiversity-net-gain

In Practice Themes

Edition	Theme	Feature Article Submission deadline
104 - June 2019	Net Gain	n/a
105 - September 2019	Blue and Green Infrastructure	27 May 2019
106 - December 2019	Future of Land Management	26 August 2019
107 - March 2020	International Approaches	25 November 2019

If you would like to contribute to one of the above editions please contact the Editor (GillKerby@cieem.net). Contributions are welcomed from both members and non-members.

UK climate projections for the next century published

The Secretary of State for the Environment, Michael Gove, has launched the '*UK Climate Projections 2018*' which outlines projections for temperature, rainfall and sea level rise over next century, based on a range of future climate scenarios. Under the high emission scenario, summer temperatures could be up to 5.4˚C hotter by 2070, while winters could be up to 4.2˚C warmer. In addition, sea levels in London could rise by up to 1.15 metres by 2100.
https://www.gov.uk/government/news/most-detailed-picture-yet-of-changing-climate-launched

Defra publish wild bird population trends for 2018

The annual '*Wild Bird Populations in the UK*' report has been published, outlining trends from 1970 to 2017. The trends show some species are increasing while others are declining. In 2017, the all-species index in the UK, based on the aggregated population trends of 130 breeding species, was 6% below its 1970 value. The unsmoothed index for farmlands showed levels are at less than half of the 1970 value and woodland, wetland and seabird indices were lower than 1970. Wintering water birds, however, are 106% above the 1970 value, but have been declining since 1996. A report has also been published for England only.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/754432/UK_Wild_birds_1970-2017_FINAL__002_.pdf

Marine Protected Areas network report (2012 to 2018)

Defra have published the '*Marine Protected Areas network report (2012 to 2018)*' which outlines the current state of the Marine Protected Area network established under the Marine and Coastal Access Act. It also sets out the progress made in establishing the network since 2012 and future plans.
https://www.gov.uk/government/publications/marine-protected-areas-network-report-2012-to-2018

First government-funded tree of the Northern Forest planted

Forestry Minister, David Rutley, has planted the first of 200 saplings as part of the new Northern Forest laid out in the 25 Year Environment Plan. Over the next 25 years the Woodland Trust and Community Forest Trust are aiming to plant more than 50 million trees from Liverpool to Hull, with backing from the government. The Northern Forest will span more than120 miles and connect the five Community Forests in the north of England.
https://www.gov.uk/government/news/first-government-funded-tree-of-northern-forest-takes-root

Edition 10 of Planning Policy Wales launched

Welsh Government has published Edition 10 of Planning Policy Wales, following a period of consultation earlier this year. Planning Policy Wales aims to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales. The policy document is also supplemented by technical advice notes, circulars and policy clarification letters.
https://beta.gov.wales/sites/default/files/publications/2018-12/planning-policy-wales-edition-10.pdf

Committee examine Public Good's Scheme and biodiversity

The Climate Change, Environment and Rural Affairs Committee have conducted an inquiry into the Welsh Government's proposed Public Goods Scheme and how it can be applied to restore biodiversity. The inquiry also looked at how existing policy and legislation for biodiversity restoration be applied in the design and implementation of the proposed Public Goods scheme, and what lessons can be learned from the Glastir Monitoring and Evaluation Programme.
http://www.senedd.assembly.wales/mgIssueHistoryHome.aspx?IId=23602

New environmental governance body laid out in Environment Bill

Environment Secretary, Michael Gove, has published draft clauses on environmental principles and governance as part of the upcoming Environment Bill. The clauses list the environmental principles which Ministers must "*have regard to*" when developing or revising policies, and establishes an independent environmental watchdog titled 'the Office for Environmental Protection'. The body will be able to take legal action to enforce environmental law. The draft clauses also require government to have a plan for improving the environment, to monitor and report annually to Parliament on progress and update it at least every 5 years.
https://www.gov.uk/government/news/new-environment-protections-set-out-in-flagship-bill--2

Sustainable Drainage Systems to be made compulsory for new property developments

As of next year, Sustainable Drainage Systems, known as 'SuDS', will be mandatory for new property developments in Wales. SuDs use landscape and vegetation to reduce the risk of flooding and improve water quality. 'SuDS Approving Bodies' will also be set up in local authorities to approve drainage plans.
https://gov.wales/newsroom/environmentandcountryside/2018/181114-sustainable-drainage-compulsory-from-next-year/?lang=en

Ireland to become first country to divest from fossil fuels

Senators in Ireland have voted to pass the Fossil Fuel Divestment Bill, which aims to ban the state investment vehicle, the Ireland Strategic Investment Fund (ISIF), from any future investment in fossil fuels. The Bill would order the ISIF to divest its current assets over a five-year period. The Bill will now need to be signed by President Michael D Higgins.
https://greennews.ie/ireland-set-first-country-full-divest-fossil-fuels/

Scottish funding for global climate action

First Minister, Nicola Sturgeon, has announced £200,000 of funding to be given to the Marrakech Partnership for Global Climate Action – the body supporting the implementation of the Paris Agreement – to encourage collaboration between government, business and wider society to immediately lower emissions and increase resilience against the impact of climate change. This announcement came ahead of the 24th United Nations Climate Change Conference in Poland.
https://www.gov.scot/news/un-climate-change-conference/

Scotland's First Minister commits to restore landscapes and forests

First Minister, Nicola Sturgeon, has signed up to the Bonn Challenge which aims to regenerate 150 million hectares of deforested and degraded landscapes by 2020 and 350 million hectares by 2030. The First Minister said: "*By backing the Bonn Challenge, the Scottish Government has signalled we will play our part in global efforts to increase woodland cover and restore landscapes, benefiting people and the environment. I hope our support will galvanise other governments to join reforestation efforts.*"
https://news.gov.scot/news/scotland-signs-up-to-forestry-pledge

UN Climate Change Conference (COP24)

The 24th session of the Conference of the Parties to the UN Framework Convention on Climate Change was held in Katowice, Poland from 2-14 December. The aim for this conference was to agree a package of decisions to ensure the full implementation of the Paris Climate Agreement. The common rule book for all countries was agreed on 15 December after talks were extended due to disagreements. Sir David Attenborough took the first ever People's Seat at the conference where he delivered an Address with experience and views from people all over the world.
https://unfccc.int/katowice

Michael Gove rejects lynx reintroduction licence

Secretary of State for the Environment, Michael Gove, has rejected proposals to reintroduce lynx into Kielder Forest, Northumberland, in a letter written to the Lynx UK Trust. Mr Gove decided not to grant a licence for the reintroduction following an assessment by Natural England, which concluded that the application "*does not meet the necessary standards set out in the IUCN guidelines and fails to give confidence that the project outputs would meet the stated aims*". As the proposals had such high public interest, Defra have published the letter alongside Natural England's advice to the Secretary of State.
https://www.gov.uk/government/publications/lynx-reintroduction-in-kielder-fores

EU to offer farmers full compensation to protect large carnivores

The European Commission has agreed farmers will be allowed full compensation for any damages caused by attacks from protected animals, including lynxes, wolves and bears. They will also be fully reimbursed for costs associated with preventative measures. The funding aims to reduce human-wildlife conflicts in European countries, which often occurs due to predation of livestock.
https://www.bbc.co.uk/news/science-environment-46153727

Ireland's President addresses environmental destruction in inauguration speech

Speaking during his second-term inauguration speech, Irish President, Michael D Higgins, expressed concern about the decline of the world's biodiversity and the "*pace of destruction*". He also addressed the need for action, stating "*political vision, bravery and generosity are required for the making of the new urgent global conversation, commitment and action we must undertake together*".
https://greennews.ie/president-concern-pace-environmental-destruction/

UN Biodiversity Conference

The UN Biodiversity Conference was held in Sharm El-Sheik, Egypt from 13-29 November, with the theme "*investing in biodiversity for people and planet*". Representatives from more than 190 countries gathered to discuss how to better protect the world's biodiversity. The conference comprises the 14th meeting of the Conference of the Parties to the Convention on Biological Diversity. As most countries are failing to reach 2020 Aichi Biodiversity Targets, there are calls for a new agreement with more binding targets as in the Paris Climate Agreement.
https://www.cbd.int/conferences/2018
https://meta.eeb.org/2018/11/07/calls-for-paris-agreement-for-nature-at-major-environmental-conference/

New certification standards for 'sustainable palm oil'

The Roundtable on Sustainable Palm Oil (RSPO), who certify palm oil as sustainable, has announced the adoption of a new 'no deforestation' criteria that industry will need to meet in order to obtain the RSPO kitemark. The new approach is known as High Carbon Stock. The changes follow research which suggests areas set aside for conservation must have at least 200 hectares of core rainforest to protect species.
https://nerc.ukri.org/press/releases/2018/50-palm-oil/

Japan to leave International Whaling Commission

Japan has announced it will leave the International Whaling Commission (IWC) and resume commercial whaling this year. The government's chief spokesman, Yoshihide Suga, said the hunts will be confined to Japanese territorial waters and exclusive economic zone. The decision has been widely criticised with conservation organisations warning Japan they must protect marine ecosystems. There are also fears that other countries may also leave.
https://www.theguardian.com/environment/2018/dec/26/japan-confirms-it-will-quit-iwc-to-resume-commercial-whaling

Raising Standards in Planning, Licensing and Ecology

Keywords: local authorities, planning, policy, regulation, standards

Lisa Kerslake CEcol FCIEEM

Great strides have been made by CIEEM but raising professional standards in ecology and related sectors can still be a challenge, and effective external regulation is crucial. Impending political changes may exacerbate the problem and we need to focus our efforts.

Inadequate surveyor coverage for bat activity surveys, particularly on sites with a complex of buildings, is a common flaw. Photo credit Mike Sharp.

Planning, licensing and ecology form the backbone of many CIEEM members' work, and this *In Practice* theme prompted me to reflect on my 30-odd year career, which has encompassed all three ecology sectors – public, NGO, and private (largely England focused, but much will be relevant elsewhere). I am acutely aware that planning and licensing processes cannot play their part in maintaining and enhancing biodiversity if ecological input falls short of a good standard. So, where have standards improved and where have they got worse? In this time of huge political change, what is critical to raising and maintaining standards in our industry into the future?

In the last three decades, prevailing political ideology has caused a significant shift in ecological input to the planning process: once mainly the preserve of the public/NGO sector (as it largely still is across the rest of Europe), ecological input is now provided mainly by the private sector, in line with politicians' general belief that market forces can be relied upon to maintain high standards by weeding out incompetent or unscrupulous operators. Unfortunately, however, many clients view ecological input as an unwelcome obligation, so there is a tendency to avoid or minimise associated costs regardless of the quality of the service; therein lies a big difference between ecological consultancy and many other services. Thus, a plumber who repeatedly does a poor job is likely to end up with fewer clients as word gets around; by contrast, the ecological consultant who repeatedly flouts guidance and enables a planning permission or licence to be obtained more quickly and cheaply than one who is more diligent, is very likely to prosper.

On the positive side, we are fortunate to have a dynamic and evolving professional institute which, as it matures and grows in stature and influence, has been pivotal in setting higher standards and finding ways to maintain them. We now have a wealth of technical and professional guidance and are beginning to fill long-standing gaps – such as in bat mitigation. We have much better training provision, and government is finally beginning to seek our advice on ecological policy, although we need to ensure this continues. We are also working closely with other relevant bodies, including Natural England, Association of Local Government Ecologists (ALGE) and Bat Conservation Trust (BCT), on issues around planning and licensing.

However, there is still some way to go, and membership of CIEEM or similar Institutes does not, in itself, guarantee good standards of practice. What it does provide is a benchmark against which members can be assessed and, if necessary, disciplined. There is no such recourse with non-members and, whilst I see poor ecological assessments carried out by CIEEM members, by far the worst I have seen have come from non-members; for example:

- We were approached by a local planning authority (LPA) regarding an application for a development on a site containing several ponds and supporting nesting

Schedule 1 birds. An ecological survey had been carried out, by a retired employee of a nature conservation body, but objectors to the scheme had commissioned a second survey that disagreed with the first. The LPA, lacking an ecologist, was unable to make a decision and needed an independent opinion. The original report, possibly the worst example that I have ever seen, was appallingly written and structured, not in line with any standard guidance/format, did not even mention the Schedule 1 birds let alone assess possible impacts on them, and revealed a totally inadequate survey effort for great crested newts; it concluded that there was no likely impact. In fact, the report/survey effort were simply not adequate to make this assessment. Unfortunately, the client returned to the same ecologist to do the resurvey.

- A landowner asked us to review a report relating to his planning application for the renovation of a farmhouse and several barns, because he felt it was not robust. The consultants were experienced ex-employees of an statutory nature conservation body (SNCB). They had used wholly inadequate survey effort, comprising just two surveyors for bat activity surveys of this complex site (four separate, substantial structures plus outbuildings) and had relied on static detectors to support their findings. One of their conclusions, with potentially significant implications, was the presence of a maternity colony of Natterer's bat *Myotis nattereri* in one of the barns; this was determined based entirely on static detector data and turned out to be wholly incorrect. By contrast, they overlooked several feeding perches including lesser horseshoe bat *Rhinolophus hipposideros*. They took nearly a year to produce their report, which followed no standard guidance. The surveys had to be completely re-done, involving considerable delays and extra costs to the client.

In short, lengthy experience and a knowledge of nature conservation, in themselves, do not necessarily confer an ability to carry out a robust ecological assessment.

The above examples relate to planning, because licence applications are not generally seen outside the SNCB, but Natural England confirm that there are problems here too; quality is hugely variable. In 2017 (the most recent year where data have been compiled), over 20% of new Bat Low Impact Class Licence (BLICL) site registrations and around 7% of full bat mitigation licence applications resulted in Further Information Requests (this does not include minor amendments, which an advisor estimated were required in over 50% of BLICL registrations).

Opportunities to develop robust accreditation schemes, such as proposals for a new Earned Recognition scheme for bats, should be pursued.

Operating outside a reasonable interpretation of guidance happens across the consultancy spectrum: whether the tendency to do as little as can be got away with or, conversely, the tendency to employ disproportionately heavy survey effort, 'repeat offenders' can often be identified. Inadequate surveyor coverage is a frequent failing but, almost as often, clients have had to pay for completely unnecessary surveys and been told they need a licence in very low-risk situations that could be dealt with via reasonable avoidance methods; this does conservation, and consultants, no favours. Other trends include deliberately underestimating what survey is required, thus undercutting those who provide more realistic costs (and blaming the regulatory authority when this is found unacceptable); and stating that sites have negligible potential to support protected species and no further surveys are required, when it is

clear from site photographs alone that this is simply not the case.

There are also issues in other sectors: LPA ecologists are sometimes inconsistent, even within the same authority; SNCB employees often have less knowledge and experience than the consultants whose licence applications they are assessing; and chartered surveyors, planners and architects have been known to carry out their own 'bat surveys' in support of planning applications, tamper with ecologists' reports and in one recent case, submit an entirely fabricated report using the name of my company; all in contravention of their own codes of practice.

The undeniable fact, despite the great strides made by CIEEM, is that unless we become a regulated profession (something Governments have no appetite for), a critical role in pushing up standards is played by the external regulator; whether the LPA or the SNCB. Although poor standards can be addressed through the complaints process, this relies on someone being willing to raise a complaint; as a consequence the spotlight falls only on the most serious cases. Potential initiatives such as Earned Recognition licensing for bats, based upon strict training, assessment and accreditation, would have the potential to significantly increase standards, while at the same time improving conservation outcomes and making the licensing process easier. However, not all bat surveys result in a licence application, and unless the LPA in the first instance rejects surveys that have not been carried out by accredited consultants and to a required standard, the system will continue to fail in some important respects; and, obviously, our work covers much more than bats.

The proportion of LPAs with some level of in-house ecological expertise has dropped from over 60% in 1985 (England, Wales and Scotland) (Tyldesley 1986) to only a third of authorities (England) in 2013 (Oxford 2013). These figures are not directly comparable, but paint a general picture of loss of effective ecological scrutiny. It is true that some LPAs may have access to ecological advice through external sources, e.g. wildlife trusts, but this is often under-resourced and over-stretched meaning that many planning applications with an ecological impact do not get assessed at any level. Recent budget cuts to Natural England have been substantial, resulting both in fewer staff and in the replacement of experienced ecologists with junior personnel; also, staff have recently been seconded to Defra to work on Brexit-related issues: a cut in ecological capacity/competence on three levels.

As I write, there is a new Environment Bill looming; as yet, we have no knowledge as to what it will encompass, but given the political ideology already mentioned, I doubt it will include new funding for Natural England and the ecology function in LPAs. In addition, by the time you read this we may, lamentably, have left the EU, which will bring with it a whole new level of uncertainty. Thus, whilst we need to keep pressing for greater ecological capacity/competence in our regulators, we also have to be realistic and find alternative ways to aid their decision-making by providing them with simple solutions; for example, only accepting ecology surveys from those with specific accreditation. And for that to work, the accreditation process must be comprehensive, robust and have broad stakeholder support. There is a lot of work ahead.

This house, located in an area of excellent bat foraging habitat, with slipped/missing roof tiles and gaps beneath weatherboarding/lead flashing leading to voids behind, was deemed to have "negligible bat potential" by a surveyor. Photo credit Lisa Kerslake.

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Oxford, M. (2013). Ecological Capacity and Competence in Local Planning Authorities: What is needed to deliver statutory obligations for biodiversity? Report published by the Association of Local Government Ecologists. Available at https://www.alge.org.uk/publications-and-reports/. Accessed 3 January 2019.

Acknowledgements

Thanks to Johnny Birks for comments on the text.

About the Author

Lisa is CIEEM's Vice President for England and Managing Director of Swift Ecology. Lisa started work with the then Nature Conservancy Council and subsequently held senior positions at Nottinghamshire County Council, Northumberland Wildlife Trust and the North and East Yorkshire Ecological Data Centre, before reluctantly becoming a consultant!

Contact Lisa at:
lisa.kerslake@swiftecology.co.uk

Ecological Survey Requirements: Conflicts Between Local Validation Checklists and National Guidance

Carlos Abrahams MCIEEM

Keywords: guidance, local authority, planning, survey

Local Planning Authorities issue validation checklists to inform applicants of the information required to support planning applications. However, the requirements for ecological survey within these may vary between authorities and diverge from standard national guidance. As such, they provide a potential area of conflict for consultant ecologists and their clients.

Ecological survey requirements

Most ecologists would consider that the ecological survey requirements for development are fairly well established in guidance. Taxon- and habitat-specific methods are set out in publications like Collins (2016) and JNCC (2010); CIEEM provides guidance on Preliminary Ecological Assessment (CIEEM 2017); and www.gov.uk publishes Standing Advice from Natural England. These all indicate what type of survey should be undertaken in what circumstances, and describe (sometimes in considerable depth) how the surveys should be implemented. This can be particularly important if the surveys undertaken then go on to indicate the presence of protected species, and the methods used will be judged as part of a licensing application.

However, underlying this national guidance is a further layer of policy, where Local Planning Authorities (LPAs) set out the ecological survey requirements for the planning applications they receive. These expectations vary considerably between LPAs in terms of how they are set out and what they include. One common

Figure 1. Requirements for amphibian survey in relation to development vary widely between Local Planning Authorities.

approach has been adopted from a pilot draft guidance document produced by the Association of Local Government Ecologists (ALGE), together with consultees, in 2007 (ALGE 2007; available at https://www.alge.org.uk/publications-and-reports/). This has been implemented in its original form, or with local amendments, by a range of LPAs since that date. The draft guidance was intended to ensure that there was clarity for applicants about the information that needed to be submitted with a planning application. It also provided a consistent means by which LPAs could identify whether they had all the necessary information to enable a sound planning decision.

Under the National Planning Policy Framework, LPAs should take a proportionate approach to the information requested in support of planning applications. They should also actively maintain a local list of requirements to inform applicants. The ALGE 2007 guidance provided a template for Biodiversity and Geological Conservation Local Requirements, from which an LPA could produce its own customised version. The ALGE guidance and checklist pre-dated Natural England's Standing Advice from 2009-2013 (Natural England 2013). Prior to the Standing Advice being published, LPAs had to consult with Natural England on individual planning applications in relation to protected species.

Variation between local authorities

There is clearly a need for LPAs to inform applicants about the information that must be submitted in support of a planning application and, hence, the existence of local validation criteria for ecology makes some sense. Situations vary around the country, depending on landscape conditions, species distributions and other issues. However, the existence of widely varying requirements between LPAs can also create problems for consultants in terms of the approach they should take in different geographical areas, what advice they should give for proposed schemes on LPA boundaries, and how local approaches play out against national guidance.

To take one example, it is instructive to look at differing approaches for great crested newt survey between local authorities – notwithstanding the recent moves towards district licensing in some areas. The survey guidance set out in the Great Crested Newt Mitigation Guidelines (English Nature 2001) and www.gov.uk Standing Advice states that surveys should be undertaken for development purposes if there is a pond within 500 metres of the development, even if it only holds water for some of the year (Figure 1). This approach is repeated without change by some LPAs in their validation checklists. The ALGE 2007 guidance, however, made a distinction in survey requirements between 'Major' or 'Minor' developments as set out in the Town and Country Planning Act. Major development in this context is mineral or waste development, ten or more houses, 1000 m^2 floorspace or 1 ha or more site area. The ALGE recommendation was that major development within 500 m of a pond should indicate the need for great crested newt survey, but for minor developments this distance could be reduced to 100 m. This was a significant alteration to the national survey guidance, which has since been included in local checklists by a number of LPAs, but has not been addressed or discussed in Standing Advice or elsewhere. Potentially adding to confusion, some LPAs have applied different distance thresholds of 500 m and 250 m, or use these when great crested newt records are present locally, but reduce them to 250 m and 100 m when there are no records in the desk study for the scheme. One LPA in southern England only requires surveys for great crested newts when development occurs within 50 m of a pond!

With this much variation between LPAs, there is clearly no level playing field for developments in different areas. There are also differences between the surveys required to gain planning permission from some LPAs and that needed to apply for a European Protected Species licence, should one be required. This situation, with areas of potential conflict between local validation requirements and national guidance and best practice, has arisen through the passage of time over the last ten years. Despite the requirement under the National Planning Policy Framework for LPAs to review and publish their local information requirements every two years, limited ecological expertise within most LPAs has meant that this has not been done in many cases – and validation checklists have not been updated to reflect ongoing changes in policy, legislation, survey practice and national standing advice.

Outside of the validation checklist, some Authorities also produce supplementary guidance covering ecology survey requirements. For example, additional bat survey requirements have been set out for local authorities in Yorkshire. These largely refer to and replicate the national guidance produced by the Bat Conservation Trust (Collins 2016), but also go further in some areas, e.g. not normally accepting the use of heterodyne detectors for development-related surveys (although this recommendation is briefly mentioned in Collins (2016), it is buried in the appendices).

The current situation then, is that for some areas of the country and for some species more than others, there are significant differences between national and local survey requirements. Given the differences illustrated here between the two different geographical levels, what advice should a consultant give – that provided by the LPA, or that by central government and conservation organisations? And which approach would protect the client from prosecution, if they inadvertently committed an offence due to following a less robust survey protocol – such as carrying out development close to a great crested newt pond which had not been surveyed as a consequence of following less demanding LPA checklist requirements?

National guidance

My own personal approach is to apply the standard national guidance in determining the scope of ecological information requirements and survey methods for all schemes, irrespective of the local validation requirements and advice. The reasons for this are as follows:

1. The national guidance tends to be more up-to-date than local criteria, and has been developed alongside changes in policy, guidance and best practice.
2. The national guidance is often more robust than local requirements. This provides greater protection for clients, and hence also for consultant ecologists in terms of technical challenges to assessments and legal/financial

Figure 2. Surveys may need to support both planning requirements and the needs of protected species licensing. Here, bat roosts are being inspected and excluded following a number of detailed surveys and grant of a mitigation licence.

liabilities. The downside is that the client might face costs in excess of those needed to simply satisfy local validation requirements – and therefore may not agree with this approach.

3. If protected species licensing is required, national standard methods will support this (Figure 2). If a reduced level of survey is undertaken for planning, then additional surveys would be required to support a licence application – potentially delaying implementation of the planning consent.
4. The fourth reason is highly pragmatic. There are 418 LPAs in the UK. If undertaking work around the country on a regular basis, then finding the current validation requirements for every area and following up the numerous supplementary documents, prior to even scoping and pricing a site survey, is an overly onerous task. It is much simpler and more efficient to just apply one set of guidance throughout the country.
5. Finally, in terms of consistency between similar projects and the level of associated ecological risk, it often makes more sense to apply national guidance allied with professional judgement. Should a 'minor' development comprising nine houses really indicate different survey requirements for great crested newts, compared to a 'major' development of ten houses?

Conclusions

Local validation checklists are a requirement under the NPPF and are here to stay. In my view they would perhaps be better if they made more reference to established guidance published elsewhere, such as that by CIEEM and Natural England's Standing Advice (www.gov.uk). I think there is a role here for CIEEM and ALGE members to work together again to review the approach that has grown out of the 2007 pilot draft (ALGE 2007), and make any changes considered necessary. In the meantime, I believe that communication with clients and the LPA is important, as always, in defining the scope of works to be undertaken, and explaining what work we are going to do and why. This will help to promote greater understanding of the differing roles and requirements of national and local guidance, and help steer a course between the two.

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About the Author

Carlos Abrahams is Technical Director at Baker Consultants in Derbyshire and a Senior Lecturer on the CIEEM-accredited BSc at Nottingham Trent University.

Contact Carlos at:
c.abrahams@bakerconsultants.co.uk

Transparency, Open Evaluation and the Use of Professional Judgement in Planning Applications

Keywords: limitations, local authorities, professional judgement, transparency

Tim Reed FCIEEM

Assessing potential impacts in a planning application relies on the quality of ecological data provided. These data also form the basis for net gain and no-net-loss enshrined in local and Government policies. A detailed review of 33 planning applications looked at survey methods and data quality. Contrary to CIEEM and BSI guidance, the review found that many ESs and EcIAs poorly describe methods used, limitations sections were brief or omitted, and professional judgment was typically used in place of good quality methods and data, without validation or support. This article presents the data from the review, discusses its implications and suggests some ways forward.

Introduction

At a time when Government is promoting no net loss, as well as seeking to embed net gain in development proposals (Gove 2018, HMSO 2018), it is critically important that the ecological material accompanying planning applications is as clear, unequivocal and as reliable as possible, especially given that most planning proposals are assessed by Local Authority (LA) staff.

This need for transparency and reliability is reinforced as ecologists continue to be lost from LAs. The Association of Local Government Ecologists (ALGE) stated in its evidence to a Select Committee of the House of Lords (HoL 2018) that at least 60% of LAs now lack ecologists, and have very limited access to ecological advice. The job of evaluating the ecological components of planning applications is often passed to planners; however, ALGE noted that only 10% of planners have any sort of ecological qualification.

In England, planners without ecological expertise are having to rely on Natural England (NE) and DEFRA's (2016) Standing Advice planning guidance (HoL 2018, Reed 2018) to assess ecological material in planning applications. The Standing Advice is not suitable for this, and few NE staff are available to provide support to LAs (HoL 2018). Clearly, there is a risk that planners will make poor decisions, a point that CIEEM and others made forcefully in HoL submissions (see WCL 2018, RSPB 2018, CIEEM 2018, Arup 2018: all in HoL 2018). For example, Wildlife Link stated:

"*the majority of local authority planners lack ecological qualifications and had very little ecological training. Without the provision of adequate ecological expertise and data, planning decisions are likely to be seriously flawed*" (HoL 2018).

As LA staff may not be able to provide the level of professional scrutiny expected of LAs in BS 42020 (BSI 2013), it is imperative that the quality and reliability of the material presented to LAs is robust. This includes the way in which Professional Judgement is applied.

The more experienced and well-trained an ecologist becomes, the more likely and appropriate it may be for him/her to use Professional Judgment (PJ). Notwithstanding this, any ecologist using PJ *must* be capable of substantiating this with clear reasoning and evidence, otherwise they are doing no more than expressing a personal opinion. (BSI 2013, CIEEM 2016).

In this article, I review the quality of material accompanying a range of planning applications to assess the use of PJ, in particular, and also whether the methods, materials and conclusions reached were clear enough to help LA planners assess them effectively.

PJ and planning submissions

As part of an assessment of biodiversity data for LA planners (Reed *in prep*), I examined the quality and suitability of ecological methods and material from clients in 33 separate planning applications throughout England and Wales between 2015 and 2018, the majority of which concentrated primarily on birds and bats as potential planning issues. My initial assessment focused on:

- Whether the methods used were clearly stated and in line with the industry standards, e.g. included the requisite number of visits at appropriate times of year in the right weather conditions, etc.

- Whether any deviations from expected methods and published standards were fully acknowledged and explained
- Whether authors recognised any limitation in the methods used and resulting data collected. If so how did they justify still using them as a basis for their decision-making?
- Whether the data analysis was in line with the data presented
- Where Professional Judgement was used to override any or all of the above issues, was it supported by detailed evidence that would allow a third party - especially planners – to understand how it had been applied?

Each of the 33 applications was examined in detail to answer these questions and conclude how closely they met the expectations and requirements of CIEEM and BS 42020 for data transparency and evidence-supported statements.

Results

Of 33 planning applications, 26 (79%) chapters/sections were authored by members of CIEEM. Birds (32 applications) and bats (all 33 applications) were the most common species groups surveyed.

Two cases (6%) provided detailed explanations of the methods used. Five (15%) mainly small sites failed to provide any details, the remaining 26 (79%) cases failed to provide clear methods or to describe how they had been used in practice (Figure 1).

Fifteen cases (45%) failed to recognise any limitations in their entries and assessments; all omitted the term 'limitation' from texts. Although the remainder (18 cases, 55%) used the term, none provided any validation in support of claims of no effect or impact on the data collected for that site (Figure 2). In almost two thirds of the cases (21 cases, 64%) Professional Judgement was cited; none were substantiated by statistical or other evidence-based tests to confirm the claims made.

Discussion

Firstly, it was important to establish if this study was itself representative and the data robust enough for us to draw the conclusion we do without committing errors similar to the ones we are trying to highlight. Although not a formally stratified sample across size, type or geography (cases were those submitted to a consultancy by clients), according to King (1979) and Dytham (2011) the sample size in this study (n=33) is a reasonable size for making generalisations. It included a range of applications from road, cycleway, housing, motorway service areas and wind energy applications, including single small turbines through to large multiple turbine projects. Although a varied sample of cases, nonetheless, consistent patterns were apparent within the sample that warrant examination.

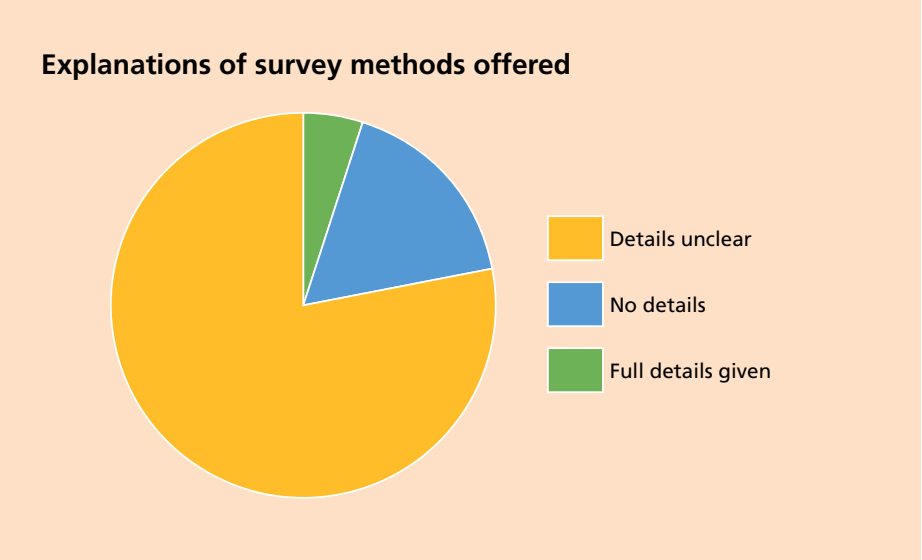

Figure 1. The extent to which details of survey methodologies were given in 33 planning applications reviewed by the author.

Using Professional Judgement as a substitute for survey effort

Clear and unequivocal statements of the methods used were only provided in 6% of cases. Even in these instances, however, the *actual* survey methodologies that were followed deviated significantly from stated standards, for example survey timings and weather conditions were inappropriate. Here and in the other cases, these issues went largely unrecognised. Instead PJ was used to paper over the cracks of any survey deficiencies with evidence-based substantiation of this missing throughout.

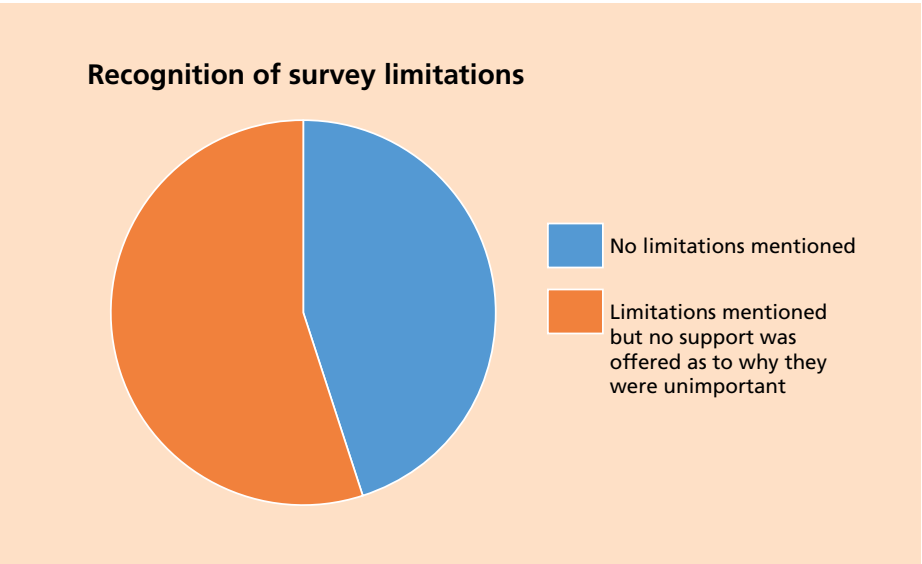

Figure 2. The extent to which limitations were evaluated in data sets included in 33 planning applications reviewed by the author.

The discretionary use of PJ is missing from all standard survey methodologies except bats (Collins 2016). If claiming PJ for bats, it is important to show unequivocally why changes in methods had no effects on the data or their interpretation. Many of the bat and bird data sets used partial seasonal surveys or 'snap-shots' instead of full seasonal samples. Using subsets of breeding or activity seasons means that bird and bat data often have limited inferential value (Gilbert *et al*. 1998, Collins 2016). Lintott *et al*. (2016) showed that collecting defined period 'snap-shot' data for bats was of little reliability compared with season-long data. Presenting bat activity data as means, rather than making raw data available, produces misleading results (Lintott and Mathews 2017). Like bats, bird data are affected by timing, distance, detectability, weather and other factors, and there are thresholds for inferential use (Gilbert *et al.* 1998).

The majority of the 33 cases reviewed had obvious limitations, mostly failing to match cited standards. Yet these problems were regularly ruled as inconsequential (without supporting proof), rather than being highlighted as limitations. Five cases using PJ omitted any mention of limitations, yet these cases included issues with weather, timing and visibility, amongst others. When limitations were reported, PJ was invoked to conclude – without presenting the evidence or statistical tests – that the limitations had no effect on the reliability of survey data. Had they documented fully compliant methods and presented suitable data sets there would have been no need to invoke PJ. The sample included cases where reputable third parties (e.g. RSPB) produced detailed critiques of the data and methods, therefore the stated absence of limitations was unlikely. In fact, one case led to professional reprimand for inappropriate use of data.

Professional Judgement as a substitute for poor data

What is driving the provision of poor-quality data, and why isn't it being acknowledged by providers? Why should it be accepted by increasingly beleaguered planners?

Standard methods expect at least a full survey year or appropriate season, with methods complying with guidance. Any planning application should have at least this. However, it is not uncommon for clients to raise contracts at relatively short notice, often part-way through suitable survey periods. The result is data that are often far from ideal. A second, full year might well be more suitable, but developers are often keen to progress. In this review, provision of inconsistent, short-season data was commonplace. Few studies experience good conditions, and they will therefore be subject to limitations. These should be detailed in full, yet they are often short or missing.

Typically, data come from a short survey period (< 1 year) and there is pressure to make the best of what is available, leading to a reliance on PJ in lieu of suitable data sets. Formal PJ testing or evidence-based support in an ES is rare, making it crucial that suitable data are provided, and limitations recognised and tested.

If client demands are allowed to drive data quality or interpretation (BSI 2013, Thompson *et al.* 2016), there will be wider implications for baseline quality and policy delivery (Jay *et al.* 2007, Baker *et al*. 2014, Ray and Green 2016, Thompson *et al*. 2016). Hence, it is critical that PJ and personal opinion are not confused with one other.

Why is there no outcry from planners? According to the evidence from RSPB, ALGE, CIEEM and others to the HoL (HoL 2018), residual LA planning staff are working under immense pressure and compressed timescales. According to CIEEM (2018a) this means:

"*planners are ill-qualified to make biodiversity decisions and are not competent to do so; they do not claim to be so either, but the requirement falls to them due to lack of resources*".

Hence, there is little skill, and few suitable guidance documents with which to evaluate large and very complex planning applications within the very limited timescales available. Often the supporting data are poorly accessible or delayed. As a result, planning staff are encouraged to rely on the statements in the documents that claim standards were used, data are robust, and that no impact will result. Without a detailed understanding of survey methods, planners cannot conclude that data and methods are poor, and limitations sections are missing or inadequate. This is compounded by the fact that the use of PJ in an ES or EcIA normally comes with the imprimatur of an MCIEEM's professional judgement (usually in lieu of enough data or transparent explanation or substantiation) and is signed off by others, which confers a stamp of authority.

Whilst it might be hoped that planners would be more stringent in the future, in reality it is unlikely especially with further planned 'efficiencies' in LAs and NE. The responsibility therefore lies with the surveyors and developers to improve practice and timeliness.

Making professional judgement fit for the future

BSI (2013) emphasises the need for evidence-based Professional Judgement. CIEEM's most recent EcIA guidance differentiates between evidence-based and value-based judgements (CIEEM 2018b):

"*so that decision makers and other stakeholders are aware of the level of subjective evaluation that has been used*".

As most authors (79%) of the environmental sections of the planning applications reviewed in this study were also CIEEM members, they should have been in no doubt of the need to present the data and reasoning behind the use of PJ. Conversely, as already discussed, and in the absence of ecology knowledge or access to it, most LA planners will not have the time or expertise to spot this distinction.

Given the degree of staff turnover in LAs, it is imperative that LA ecologists acquire a basic level of procedural understanding of data requirements. In a recent example, a County Ecologist advised the Council that, as CIEEM and BSI standards were not statutory and were viewed by her as an optimum, it was not important that they had not been applied (though the developer said they had). Unfortunately, the chances of LAs turning into highly informed, data quality auditors are remote in the short term at least (HoL 2018).

What can data suppliers do? The first option might well be to specify to clients the consequences of late decisions to commission work. For example, late commissioning might well compromise the appropriate survey period and this should be acknowledged in both contract discussions and subsequent reports.

Advising clients from the outset that PJ has to be transparent and defensible (BSI 2013) if they call for its use might be a controversial start, but would meet with CIEEM's and BSI's expectations.

Most consultants show taxonomic survey periods on their website, but provide little (if any) guidance on suitable seasons or timeframes. Reference to some of the limitations of snap-shot data sampling for birds and bats, voles and other taxa, might help to instil a little more realism into commissioning by prospective clients.

It has been suggested that perhaps consultants should think early about their 'conservation obligations' when working on a potential development. With documents such as BSI 42020, CIEEM guidance, and Government policies for net gain in place, there is no shortage of texts setting out the need for robust, reliable and transparent data sets from the earliest stages of a project. No net loss and net gain really need credible baselines, with suitable methods selected and applied from the outset if subsequent comparability is to be taken seriously. Recurrent use of non-evidence-based PJ at stages throughout the process risks multiple, unquantified layers of error. That is not a reassuring basis for audit.

Perhaps one of the most contentious considerations would be to accept that a lot of current PJ is value-based rather than evidence-based (CIEEM 2018b). The recurrent use of PJ without explanation in ES and then in Public Inquiry renders a potentially false veneer of probity to often uncertain data. It may well be a radical suggestion that PJ is not cited as an incontrovertible fact, but comes with an open assessment of reliability. Few statistical analyses offer anything like 100% explanation, yet PJ is often cited as if it might. If PJ claims are tested and validated in an ES (none in this sample of 33 were), or possible errors openly noted, then ironically the respectability of professional judgement might be better accepted – with open caveats. Its use as dogmatic fact makes little sense.

Conclusion

Planning applications and data baselines need robust methods and data sets. Using Professional Judgement as if it is an absolute statement, usually unsupported, is not suitable. Full season sampling, stating methods actually used, and identifying limitations and demonstrating true reliability of data sets is a credible way of moving forward, and in line with scientific method and BSI and CIEEM precepts. It offers a firm basis for testing individual planning applications as well as contributing to future local and national biodiversity and conservation policies. Value-based Professional Judgement may well not. Those supplying data owe it to beleaguered LA staff to offer evidence-based reports and to clearly state the limitations as well as justifying the use of Professional Judgement where sufficient data are lacking.

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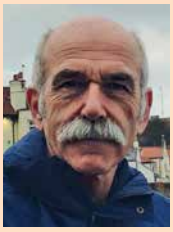
About the Author



Tim Reed is an independent consultant, with interests in monitoring and data quality. He is preparing a book for Planners on how to evaluate data in planning submissions. With degrees from Cambridge and Oxford Universities, he worked on planning, surveying and standards for the statutory sector before working with corporates on preventing site impacts and undertaking monitoring.

Contact Tim at: timreed@timreedecologicalconsultants.co.uk

Natural England's Advice on Using European Protected Species Licensing Policies 1 and 2 to Benefit Great Crested Newts and Developers

Delphine Pouget CEcol CEnv MCIEEM
Natural England

Matthew Heydon MCIEEM
Natural England

Keywords: Favourable Conservation Status, mitigation hierarchy, offsite compensation

This article seeks to address the lack of official guidance on the most frequently used of the 2016 licensing policies for European Protected Species. It is intended that a future article will cover Licensing Policies 3 and 4.

Great crested newt. © Natural England. Photo credit Peter Wakely.

Introduction

Defra introduced four new Licensing Policies in 2016 to facilitate innovative approaches to developments impacting great crested newts *Triturus cristatus* and other European Protected Species (EPS) in England (Natural England 2016) but, to date, use of these policies has been limited. The regulatory flexibility they offer is balanced by measures that will improve the status of impacted species, rather than simply defending the *status quo*. Although these policies are the underpinning principles of district level licensing (Cameron *et al.,* this issue), this article focuses on their use for site-based assessments, including their potential use in areas where district level licensing is not yet available and in 'red zones' of such schemes, where a site-based assessment will continue to be required.

The Mitigation Hierarchy

The policies do not diminish the importance of the avoid-mitigate-compensate hierarchy. However, under the policies application of this hierarchy does not require avoidance and mitigation solutions to be exhausted. Natural England can license compensation solutions, despite the existence of avoidance and mitigation alternatives, if it is satisfied that these alternatives are unnecessary to maintain conservation status of the population **and** that a compensation-based solution is expected to deliver significantly better outcomes for the EPS population.

The policies offer greater flexibility in the design of solutions, allowing compensation only, or varying combinations of avoidance, mitigation and compensation. There is – in effect – a sliding scale of potential ecological risks that increases as you progress from solutions that avoid impacts to those that mitigate and, finally, compensate for impacts. Scope to employ the latter end of this risk scale needs to be matched by increasing levels of compensation and safeguard measures.

Whatever the approach, there remains the expectation that projects follow best practice and seek, wherever reasonable and practicable, to minimise adverse impacts on protected species through timing of operations and habitat manipulation.

Licensing Policy 1

"Defra considers that compensation for EPS impacts can be delivered without the need to relocate or exclude populations, where: exclusion or relocation measures are not necessary to maintain the conservation status of the local population; the avoid-mitigate-compensate hierarchy is followed; and compensation provides greater benefits to the local population than would exclusion and/or relocation."

This policy allows the EPS population on a development site to be killed and habitat destroyed without the need to exclude or relocate individual animals. It therefore allows us to consider proposals less dependent on safeguarding individual animals. Natural England needs to be satisfied that resulting losses will not adversely affect the conservation status of the species locally and that the increased risk to the population is adequately compensated for by an increase in the quality and / or quantity of suitable habitat.

When taking this approach, it is important to consider (i) population continuity – the robustness of the local population to resist local extinction; and (ii) population connectivity – the likelihood that great crested newts will be able to colonise compensation habitats through natural dispersal. Ideally, retained and compensatory habitat should be close and well connected to an existing population to avoid the need for population translocation.

Applying this policy requires a shift in thinking from solutions that reduce impacts on the great crested newts present on a site to solutions based on habitat measures that create the potential for increases in the size, range or resilience of the wider population. Applying this approach will usually require sufficient information about the population in the wider area to, firstly, understand the importance of the population on the site and, secondly, identify where best to locate compensatory habitats to benefit the wider population. This approach provides the

Box 1. Case Study 1: Small-scale railway development project

Development proposal: 2 ha railway marshalling yard to be repurposed in 2017 to provide storage for 300,000 concrete sleepers to replace a facility located on the route of a major rail development project.

Key constraints: Timing of works critical.

GCN status: Varied mosaic of habitats including bare ground and ephemeral vegetation, semi-improved grassland, tall ruderal vegetation, scrub and young birch woodland. Waterbodies located adjacent to the site support a large population of GCN.

Impact: No breeding ponds to be lost and terrestrial habitat losses exclude core terrestrial habitat. Habitat losses comprise good terrestrial foraging habitat within 250 m of breeding ponds and hibernation features (tipped waste and piles of ballasts/sleepers).

Conventional approach (hypothetical)

- Installation of amphibian fencing and pitfall trapping for 60-90 days
- Relocation of trapped amphibians in suitable adjacent habitats
- The nature of the compact ballast structure meant that the exclusion fencing would have to be set back from the site boundaries (increasing the amount of fencing required)
- Habitat enhancement: hibernacula and log pile creation, scrub and woodland management
- The timing of the project was such that trapping could not be completed before the onset of hibernation, thereby delaying the project completion of works until the following spring.

Actual approach using Licensing Policy 1

- No amphibian fencing installed
- No pitfall trapping undertaken
- 25 days of a combination of hand-searching, night searching, refugia searches and destructive searches (a total of 300 GCN were captured and relocated in suitable adjacent habitats)
- Creation of 5 new waterbodies within 250 m of the development
- Habitat enhancement: hibernacula and log pile creation, scrub and woodland management
- 10 years of population size class monitoring to start in 2019.

Outcomes:

Use of the policy allowed the project to proceed without delays before the newt hibernation period. In return, five new ponds were provided, which would not have been required under a conventional approach. This provides a greater long-term benefit to the population.

While the presumed core area of the population was unaffected, there was little detailed knowledge of the population in the wider area and the project timeline meant habitat improvements could not take place in advance of works. The limited capture effort – alongside the additional habitat creation – addressed this risk at population level. The fact that 300 GCNs were caught shows that this area held a significant number of GCNs, and possibly an important part of the population. Potentially, the project could have proceeded without the capture element, but alternative measures would have been expected to address the increased risk, for example additional compensation or monitoring and resources to carry out remedial works. All decisions on the precise package of mitigation and compensation measures are made on a case-by-case basis.

flexibility to implement solutions that take greater account of wider population status where conventional site-based measures can fail to deliver the long-term security of great crested newt populations (Lewis *et al.* 2007).

The Favourable Conservation Status test

Assessment of the Favourable Conservation Status (FCS) licensing test focuses on ensuring that (i) the population will not be adversely affected and (ii) the extent of counter measures (e.g. habitat provision) is proportionate to the risk of the intervention. In practical terms, proposals applying this policy will need to offer more compensation than would be expected in a conventional avoidance and mitigation-based licensing approach. This is necessary to offset the increased risk to the population from not trapping and relocating animals, or retaining habitat on site. Measures can include:

- Increasing range or distribution of suitable habitat thereby allowing great crested newts (GCN) to colonise areas previously unoccupied, so there is a net increase in the extent of occupied habitat
- Improving the quality of occupied habitat: a combination of aquatic and terrestrial habitat enhancement is recommended
- Improving connectivity between habitats to increase resilience of populations
- Introducing measures to enhance long-term maintenance and security of habitats to improve the future prospects of populations.

The case study described in Box 1 is an example of a real licensing case where Licensing Policy 1 has been used. The approach followed is compared to an approach based on a conventional avoidance and mitigation solution. Other examples are given in a previous *In Practice* article by Oakley *et al.* (2017).

Licensing Policy 2

"If the licensing tests are met and the avoid-mitigate-compensate hierarchy is followed, off-site compensation measures may be preferred to on-site compensation measures, where there are good reasons for maximising development on the site of EPS impacts, and where an off-site solution provides greater benefit to the local population than an on-site solution."

Prior to introduction of this policy, off-site solutions were not usually considered acceptable if there was a feasible on-site option. As a result, populations were sometimes retained in small areas of residual habitat on or adjacent to a developed site when an off-site solution might have offered a larger area of habitat and better connectivity with other populations.

Policy 2 was introduced to allow the use of off-site compensatory habitat where there is a good justification for maximising use of the development site, so long as it can be demonstrated that provision of off-site habitat offers a better overall outcome for the local population. Being able to show there is a better overall outcome is necessary to satisfy application of the mitigation hierarchy under this policy.

The case study described in Box 2 illustrates how this policy has been used.

One question often asked is how far away from an impact site is it acceptable to provide habitat compensation? The simple answer is that the compensation site should normally benefit the same 'local' population of great crested newts (Heydon 2016). Of course, there are practical difficulties defining the extent of any GCN population and few site-based projects will be able to do this reliably. Therefore, in instances where the population has not been defined, Natural England will normally require compensation to be within the same 10 x 10 km grid square or failing that within the same National Character Area, unless an analysis against each of the components of conservation status (i.e. range, population, habitat and future prospects) shows that a more distant compensation site would provide a net benefit to the conservation status of that

Box 2. Case Study 2: Off-site compensation on land owned by Natural England

Development proposal: 6 ha commercial warehouse development

Key constraints: Licence applications submitted in 2015 and 2016 failed due to insufficient available land on the site to design a solution that could meet the Favourable Conservation Status test.

GCN status: Medium-sized GCN population present on site

Impact: 5.7 ha of optimal GCN habitat to be lost

Agreed solution using Policy 2:

Impacted Site

- Retention of 1.3 ha of optimal habitat with minimal enhancement
- 4 non-standard hibernacula and log piles
- 5-year Habitat Management and Maintenance Plan and 4 years of population size class post-development monitoring to start in 2020.

Off-site compensation

- Site identified 2.4 km from impacted site
- Site is a recent 34.6 ha addition to a National Nature Reserve, 6 ha of which to be used as compensation
- GCN presence identified within 400 m of the site via eDNA surveys with good connectivity present
- Creation in 2018 of 4 ponds, 2 non-standard hibernacula (60 by 2 m), log piles, grassland and scrub
- 10-year Habitat Management and Maintenance plan and 4 years of post-development monitoring every other year (eDNA survey only) to start in 2020
- Natural England (funded by the developer for 10 years) to take over the management and monitoring of the site following habitat creation.

Outcomes:

Use of Policy 2 resolved an intractable problem and allowed the development to proceed. The scale of compensation and the long-term management and security of the compensation habitat offered a clear overall benefit to the local GCN population.

population at a greater scale. A definition of Favourable Conservation Status for this species has been produced by Natural England (Natural England 2017; see also Cameron *et al*., this issue).

The greater the area for which there is a knowledge of a population, the greater the flexibility. In effect, the geographical scale or distance of habitat compensation is constrained by the geographical scale for which there is a knowledge of GCNs, taking account of barriers or known gaps between populations. The scale used in district level licensing exploits the flexibility provided by a knowledge of a GCN population at a landscape scale.

To demonstrate a benefit, an application needs to provide sufficient information (covering, as a minimum, the impacted population, the proposed location of compensation and the area surrounding both) to allow the implications and merits of the proposal for the impacted population and the status of the species in the wider area to be properly evaluated.

The better the information on GCN distribution, the greater the flexibility in the location of habitat compensation. Figure 1 illustrates two scenarios:

a. compensation for development impacts is used to create a stepping stone to another meta-population thereby creating a larger and more robust network.
b. compensation is used to enhance habitat in the impacted network and create new habitat to link two isolated, and vulnerable, populations thereby creating a new network. This ensures the population is maintained at the impacted site and compensates for any residual impact by improving the resilience in a nearby population.

Key lessons

Licensing Policies 1 and 2 offer significant benefits to developers in reducing cost and delays, but it is **essential** that the outcome for the GCN population is demonstrably better than would be expected from avoidance and mitigation alternatives. A useful exercise to do when designing proposals is to write down what a conventional approach would deliver (as in Case Study 1, Box 1) and make it bigger and better. The more favourable the expected outcome for GCNs, the greater the scope to reduce exclusion measures.

Identifying the factors affecting long-term resilience and expansion of the GCN population will help in the project design. If good breeding habitat is a limiting factor then creating aquatic habitat may be the best way to provide additional benefits, even if the loss is to terrestrial habitat. Where there is a clear ecological rationale, it is acceptable to deviate from the 'like for like' or 'two for one' principles for compensating losses of aquatic habitats set out in the Great Crested Newt Mitigation Guidelines (English Nature 2001).

In neither of the case studies were the licensing policies fully utilised (Box 1, 2). This is typical of the cases being encountered by Natural England. There are a number of possible reasons for this, including a lack of survey information on the population in the wider area; constraints on the scope to provide additional compensation; desire to retain biodiversity on-site or to minimise the killing of GCNs; and the absence of case studies

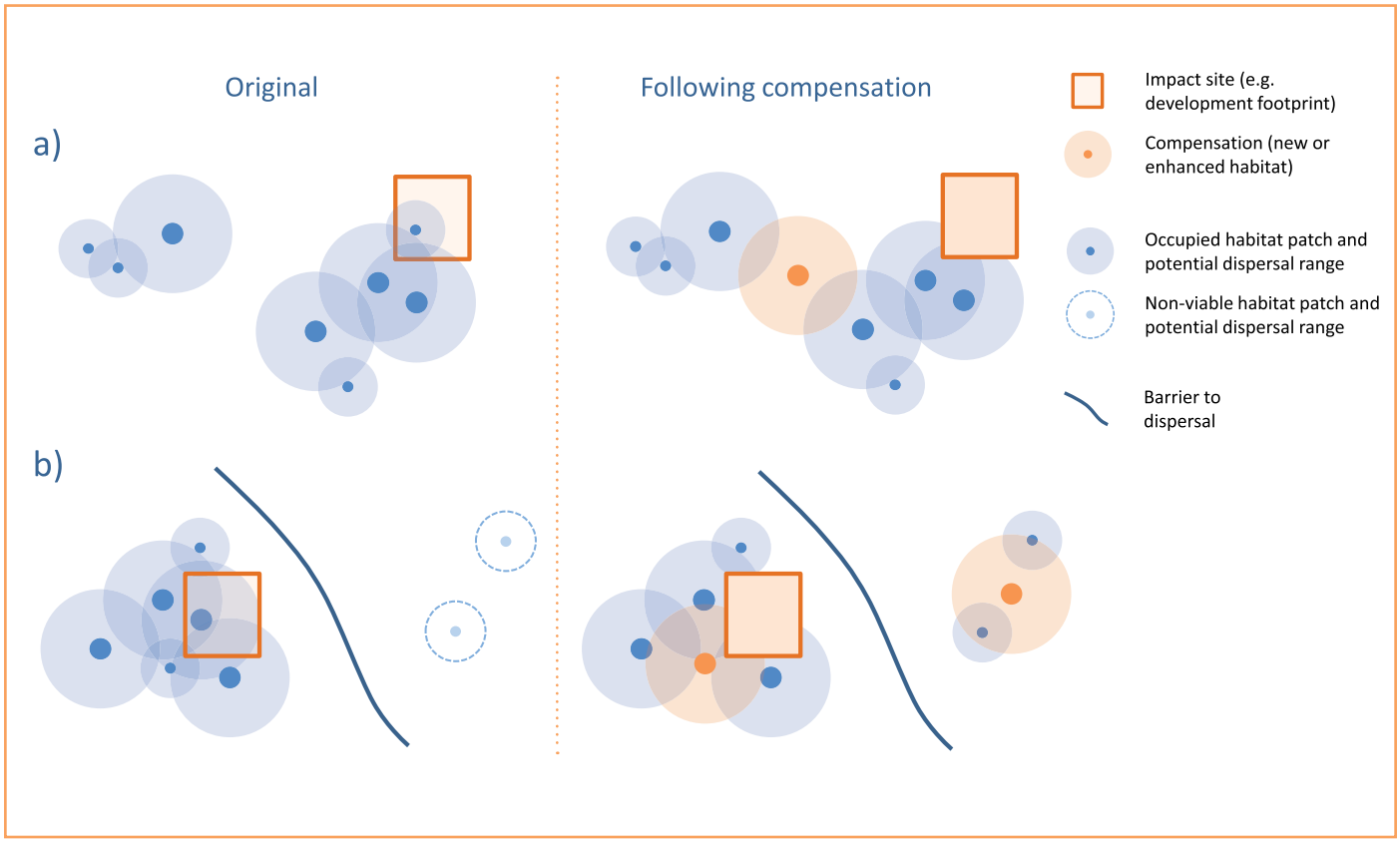


Figure 1. Examples showing how strategic scale can be used to deliver better outcomes for the protected species (from Natural England internal guidance, Heydon 2016).

Compensation pond. Photo credit Delphine Pouget.

or guidance on practical application of the policies (see also Murray *et al*., this issue.

Natural England recognises that it is not always appropriate to use these policies. There may be instances where the loss of a number of GCN on a site could have an irreversible adverse effect on a population or even lead to local extinction. Alternatively, there may be instances where a developer concludes it is easier and more cost-effective to follow an avoidance and mitigation approach than to use these policies.

Looking to the future

Licensing Policies 1 and 2 offer added flexibility for finding solutions to conflicts with EPS, but their use requires a shift in approach to the design of compensation strategies, with increased focus on solutions that provide a demonstrable benefit for populations.

Monitoring is an essential component of any off-site habitat compensation strategy (Pickett *et al*. 2013) because of the elevated risk to populations, and enhanced monitoring is expected for projects using the policies. Such monitoring will help to evaluate the success of policies and, we hope, provide increased understanding and confidence for their use in future projects.

The increased flexibility will also facilitate improved integration of strategies to compensate for impacts on protected species, and on biodiversity more generally, using habitat-based metrics such as the Defra biodiversity metric (DEFRA 2012).

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About the Authors

Delphine Pouget is a Senior Specialist at Natural England. Delphine has been an ecologist for over 15 years and has specialised in European Protected Species Licensing. In the last three years, she was particularly involved in complex casework for great crested newt including training and advising on the implementation of the licensing policies.

Contact Delphine at:
delphine.pouget@naturalengland.org.uk

Matt Heydon is a Principal Specialist whose specialism is conflicts between people and wildlife. Licensing Policies 1-3 evolved from ideas in a think-piece by Matt to improve flexibility in species licensing.

Contact Matt at:
matt.heydon@naturalengland.org.uk

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The Rationale for Great Crested Newt District Level Licensing

Rob Cameron, Katherine Burgess and **Ben Payne,**
Natural England

Keywords: conservation gain, district level licensing (DLL), Favourable Conservation Status, great crested newts (GCN), habitat compensation, monitoring

This article provides an update on progress towards establishing a District Level Licensing system for great crested newt in England. It outlines options for implementation, explains how it will focus on improving the conservation status of great crested newt and describes how it will help to target expertise. It sets out how standards will be safeguarded, how the benefits of habitat compensation will be optimised and what monitoring will be put in place. It is Natural England's response to the CIEEM position statement (Chartered Institute of Ecology and Environmental Management 2018).

Great crested newt.

Introduction – the District Level Licensing approach

The cost of traditional great crested newt (GCN) licensing, both in terms of assessing and mitigating the impact of development is high and is unlikely to contribute to improving the overall conservation status of this species (Lewis *et al.* 2017). If the effectiveness of developer spend on GCN could be improved, it could have the potential to contribute significantly to reversing the historic decline of this species (as documented in Nicholson and Oldham 1986 and JNCC 2007). Natural England, in establishing district level licensing (DLL), seeks to secure this conservation gain for GCN. It does this by focussing on habitat provision and developing evidence and strategy at strategic scale in line with the New Licensing Policies, in contrast to the more limited application of these policies in the site-level approaches described elsewhere in this issue (Pouget and Heydon, this issue).

Implementation options

The title 'District Level Licensing' (DLL) reflects that this approach is intended for use at the scale of one or more whole districts. 'District Level Licensing Strategies' are documents which will set out, for a defined geographical area, how DLL will secure conservation gains for GCN. Each strategy is likely to cover several districts, though the formal licences, granted in line with the strategy, may cover different scales, depending on who is the licence holder. Natural England will formulate the DLL strategies for each cluster of districts, unless another party expresses commitment to do this, using methods agreed with Natural England, as with the NatureSpace Partnership in the South Midlands (Tew *et al.* 2018, Tew and Nicolet, this issue).

Natural England can implement DLL by granting a single organisational licence to a third party, such as a private company, Local Planning Authority (LPA) or County Council. This third party takes on responsibility for administering the licence: granting authorisations to developers or other applicants on individual sites; ensuring the delivery and long-term maintenance of compensatory habitat; providing for long-term monitoring; and meeting all other conditions put in place as

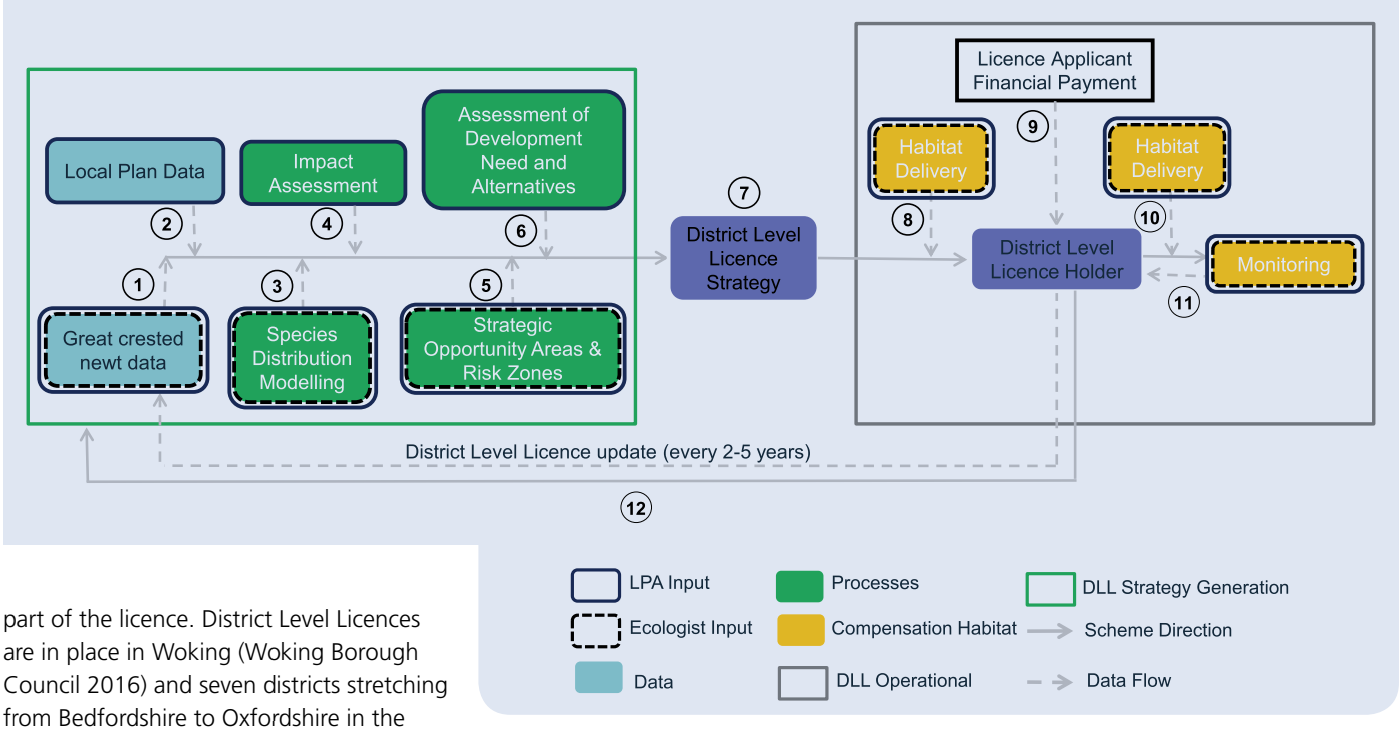

Figure 1. The process followed in the district licensing approach: (1) data on GCN distribution is acquired and a species distribution model is produced; (2) local plan data and the outputs of the species distribution model (3) are used to conduct an impact assessment (4), which identifies the scale of development impact on GCN for the licence area; (5) risk zone maps are produced to enable planning authorities and others to consider how they can steer damaging activity away from the most important locations for GCN, and strategic opportunity areas are identified so that habitat compensation can be targeted to areas where it provides the maximum benefit to GCN; (6) an assessment of the purpose is made and alternatives to proposed development are considered; (7) all these components are then brought together into a District Licence Strategy which sets out how a net gain for GCN will be secured from development in the district; (8 & 10) compensatory ponds are created, restored or secured before GCN are impacted by any new development; (9) developers at site level contribute funding in proportion to their likely impact, so that habitat compensation and monitoring can be provided to meet their licensing requirements; (11) monitoring is carried out to assess the effectiveness of each District Level Licence and to inform any adjustment necessary. (12) The DLL strategy will be updated every 2-5 years to ensure new data on GCN distribution, pond locations and amendments to local plans are incorporated.

part of the licence. District Level Licences are in place in Woking (Woking Borough Council 2016) and seven districts stretching from Bedfordshire to Oxfordshire in the South Midlands scheme (Tew *et al*. 2018).

Where a third party is not available or where there is insufficient information for strategic assessment of purpose and alternatives (Figure 1, step 6), Natural England will consider implementing a DLL strategy itself. This option allows Natural England to assess licence applications at site level, as has been normal in licensing up to now, and give licence applicants the option of relying on off-site habitat compensation, which is provided or commissioned by Natural England.

A focus on Favourable Conservation Status (FCS)

Natural England has defined Favourable Conservation Status at national level in terms of quantitative parameters known as Favourable Reference Values (FRVs) (Box 1). Measured against these parameters, the status of GCN is considered unfavourable. There is, however, substantial uncertainty in the underlying data and the confidence limits are very wide.

In each district level licensing strategy, Favourable Conservation Status will be defined at the scale of a district or cluster of several districts, using the data and modelling specific to the area. In time, this will greatly improve our understanding of the status of this species and the action necessary to restore it to favourable levels.

Favourable Conservation Status parameter	Current estimates	Provisional national Favourable Reference Value
Range and distribution	750 occupied 10 km squares across England	Minimum of 890 – 900 occupied 10 km squares
Population	13,779 ponds (95% confidence intervals 11,277 – 17,103)	Minimum of 20% above current number (i.e. c. 16,500 ponds)
Habitat	26,128 km^2, of which 15,385 km^2 are thought to be actually occupied	Minimum of 20% above current area (c. 31,000 km^2)

Box 1. Extracts from Natural England's provisional Favourable Reference Values for great crested newt in England, 2018.

The strategy-level Favourable Conservation Status definition will be used to:

- assess the impact of development
- inform the mapping of the risk zones
- assess the need to retain GCN habitat on development sites
- ensure strategic opportunity areas (SOAs) target habitat compensation where they will provide maximum conservation benefit for GCN.

A robust and transparent data strategy

Informing conservation policy through species distribution modelling is well established (Bormpoudakis *et al.* 2014). These models are reliant on the availability of data that suits their intended application (Guillera-Arroita *et al*. 2015). For this reason, Natural England will only use records for DLL if they were collected in the last five years and are at a spatial resolution of no more than 25 x 25 m. Data will include usable records submitted to Natural England under survey licences, as well as data from external sources including, but not limited to, Local Record Centres, Amphibian and Reptile Groups, and Wildlife Trusts. In addition, Natural England has commissioned a three-year survey programme that covers large parts of the country (Figure 2) and comprises a stratified random sample of 7600 ponds. Once compensation ponds have been created, data from eDNA and habitat suitability monitoring of these ponds will be incorporated into DLL strategy updates (Figure 1).

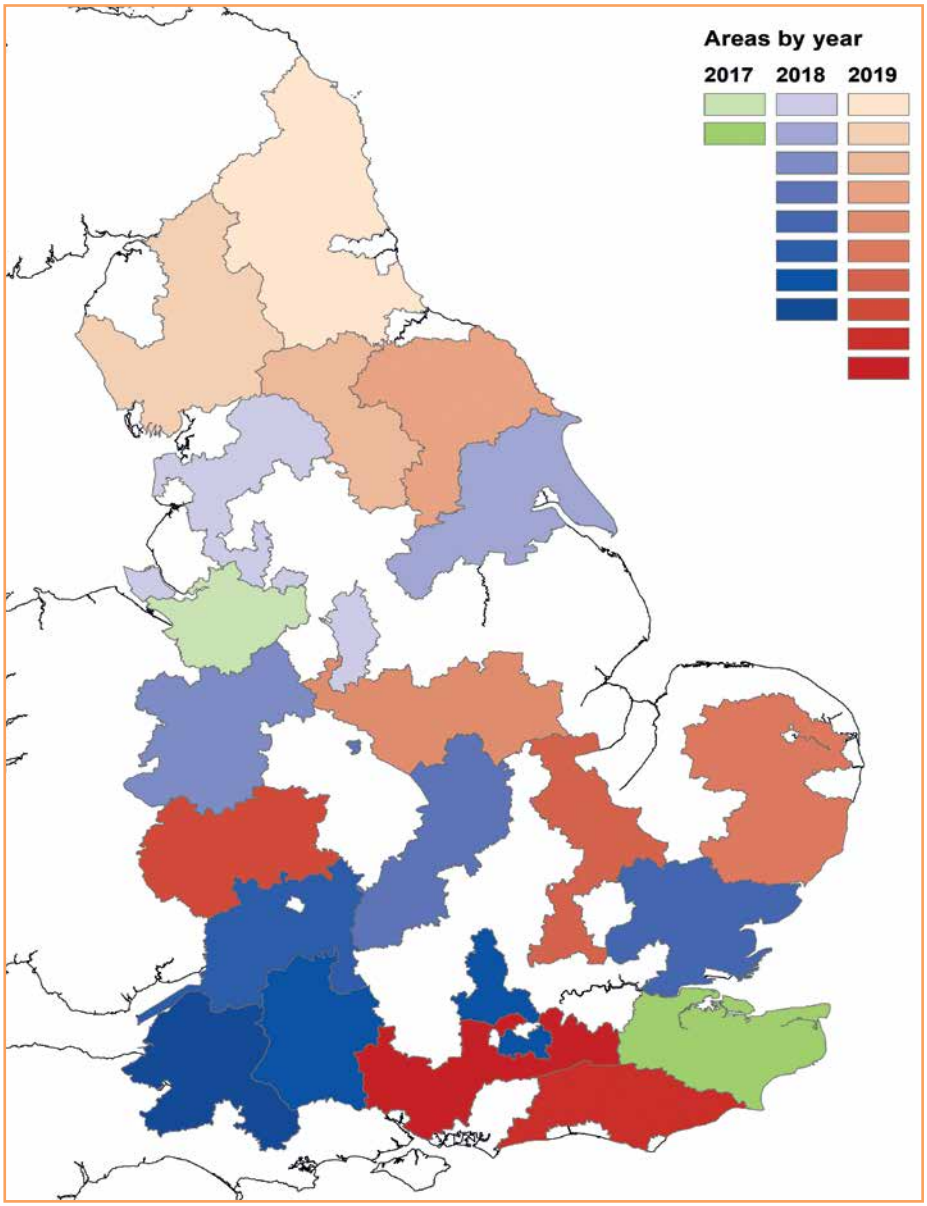

Figure 2. Natural England's current eDNA and habitat suitability survey programme. This can be taken as an indication of where Natural England intends to set up or enable great crested newt District Level Licensing.

Model accuracy is measured by testing how well it performs when predicting presence and absence of GCN. In Kent (where DLL aims to open for business in early 2019), the model predicted presence of GCN correctly in 95.4% of cases and absence correctly in 79.5% of cases. This level of error in model predictions is taken into account in the impact assessment and in the scale of compensation habitat required, so that a net gain in suitable ponds can be assured.

The first eDNA and habitat suitability data commissioned by Natural England, together with the data from survey licences are already being made openly available on Natural England's open data portal (http://naturalengland-defra.opendata.arcgis.com/datasets/gcn-class-survey-licence-returns-england). The modelling methodology and outputs, impact assessment, and DLL strategies will also be made openly available, as each district level licence opens for business. The evidence that Natural England gathers and the DLL strategies which it formulates will be open to others to use, adapt and implement through DLLs in other areas. Thus, the system will be fully transparent and it is likely that a variety of DLL approaches will develop.

Targeting expertise

Many local planning authorities (LPAs) do not have an in-house ecologist. Without an ecologist, it is possible that development applications pass through the planning system without the impact on GCN being correctly assessed. Since the planning system has a role in drawing attention to issues that require further assessment or regulation, it is possible that this also contributes to the risk of offences escaping the licensing system. DLL manages the risk of important impacts being missed by ensuring that expertise is deployed where it is most required. It does this in the following ways:

- The risk zone maps will make clear where it is most important for GCN to be considered in planning decisions

- DLLs reduce complexity; impacts can be addressed without affecting either development footprint or timetable
- By compiling evidence, consulting local experts and formulating strategy at the outset of the scheme, each DLL reduces the need for detail to be considered at a site-by-site level
- Whether implemented by Natural England, a local authority or another party, once up and running each, each DLL will provide an income stream which provides for all running costs to be covered, including periodic, expert review of the strategy.

Balancing flexibility and certainty

DLL will be delivered by a range of different parties and partnership arrangements. For example, in Woking, DLL is delivered by the LPA whereas in the South Midlands, DLL is delivered by a partnership of the LPAs, a commercial company and NGOs. In Kent, DLL is administered by Natural England with habitat creation, monitoring and management delivered by Council-led countryside management partnerships.

Despite there being a variety of approaches, consistency and quality will be ensured by assessment of each district level licence against statutory tests on: the purpose of the licence, whether there are no alternatives to the licence, and whether no adverse effects are likely on the conservation status of the species.

In addition, Natural England is soon to publish a set of principles which all DLLs must satisfy. These principles will help to ensure that applications for DLLs which come to Natural England can be assessed efficiently and provide all the information necessary to meet the legal tests and provide a net gain for great crested newts.

Maximising the benefits of habitat compensation

In the ten species distribution models created by Natural England to date, pond density has consistently ranked as the most important variable, which compliments well known aspects of GCN ecology during the breeding season. Thus, provision of ponds will be the central component of habitat compensation under DLL schemes. The strategic creation and restoration of ponds will make previously difficult to access terrestrial habitat more available to GCN, as well as providing a bigger, better, more abundant and more joined up overall suite of habitats required by GCN (ambitions referred to in the CIEEM position statement, Chartered Institute of Ecology and Environmental Management 2018).

The set of principles and the DLLs themselves specify:

- The provision of no fewer than four high-quality, compensatory ponds for every pond occupied by GCN, which could be lost under a DLL-approved development project
- The provision of no fewer than one high-quality, compensatory pond for every unoccupied pond lost under a DLL
- Maintenance of compensatory GCN habitat for a minimum of 25 years.

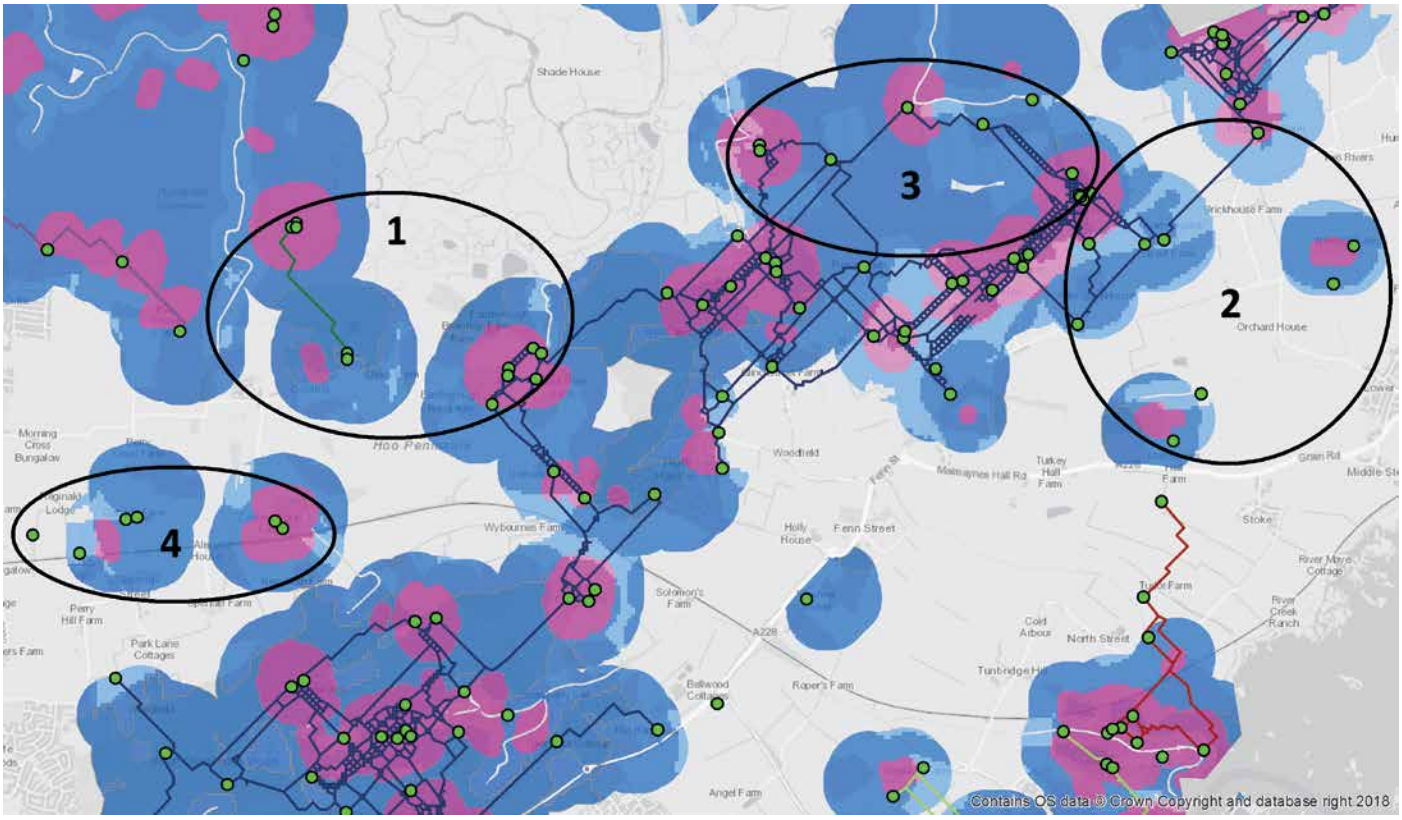

Figure 3. Example of how meta-populations could be improved in North Kent. Green points show the location of ponds. The core and fringe Strategic Opportunity Areas are designated pink and blue respectively. The interconnecting lines show modelled connections (using least-cost pathways) for each meta-population. Compensation ponds could be placed in the example locations 1 to 4, to connect meta-populations (1) and isolated ponds (2), strengthen existing meta-populations (3) or establish new meta-populations (4).

DLL strategies will map newt meta-populations (defined as 4+ linked ponds with GCN occupancy). The Favourable Reference Values defined for each DLL will be used to set the criteria for mapping Strategic Opportunity Areas (SOAs). This will ensure that habitat compensation appropriately balances the need to strengthen, expand and link up these meta-populations (Figure 3).

The quality of pond habitat provided by DLLs will be dictated by a tight specification. This will optimise not only the characteristics of the pond itself but also those of the surrounding terrestrial habitat.

The timing of habitat provision will be controlled by conditions on the DLL and each DLL will establish a schedule of habitat delivery that runs ahead of development impacts. However, in some cases, exceptions will be permitted and it will be possible for authorisations to be granted before strategic habitat is in place and functional. Such exceptions will only be made where the risk assessment, contained in the DLL strategy, has demonstrated that a time lag in the provision of functional habitat would not harm local GCN conservation status. In all exemption cases, a time lag multiplier will be applied to ensure the scale of habitat compensation is greater when it is carried out retrospectively. Therefore, each DLL will control the scale, quality, location and timing of habitat compensation. It will also respond to the estimated impact of development, the current status of GCN in the area and the distribution of meta-populations. Together, these factors will ensure that each DLL has a coherent strategy to deliver a net gain in suitable ponds.

Keeping on the right track

Natural England will shortly publish a monitoring strategy for DLLs. This will set out the requirement for all DLLs, in short:

- Four combined eDNA and habitat suitability surveys to judge the success of each compensatory pond and three further habitat suitability surveys to guide maintenance over 25 years
- Population surveys in a random sample of compensatory ponds and other control ponds for comparison of populations in compensatory ponds against background levels
- A proportion of developer contributions to be allocated to secure the GCN national surveillance programme, which is currently part of the Freshwater Habitats Trust's PondNet initiative.

Monitoring results will be taken into account during DLL review periods (every 2-5 years) and will be used at a national level to judge the overall performance of the DLL system by a new GCN Expert Panel. This panel will include national experts from academia, commercial, non-governmental and statutory nature conservation organisations. It will provide a sounding board and steer for Natural England in regulating DLL with a view to maximising its contribution to the conservation effort for GCN.

About the Authors

Rob Cameron is Protected Species Reform Manager at Natural England. He has been responsible for protected species strategy since 2014, before then working as a principal advisor on high risk casework and as Manager of Area Teams in the South East of England.

Contact Rob at:
rob.cameron@naturalengland.org.uk

Dr Katherine Burgess is part of the District Level Licensing team at Natural England. She has a decade of experience in using molecular techniques to determine ecological attributes for a wide range of aquatic and terrestrial species.

Contact Katherine at:
katherine.burgess@naturalengland.org.uk

Dr Benjamin Payne, Modeller, Evidence Services, Natural England. Ben is responsible for sampling strategy design for GCN surveys, species distribution modelling, connectivity and meta-population analysis, and spatial statistics. Previously he conducted research on marine and terrestrial species investigating the impact of climate change on shifting distributions.
Contact Ben at: benjamin.payne@naturalengland.org.uk

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District Licensing for Great Crested Newts – A Successful First Year for the South Midlands Scheme

Tom Tew MCIEEM and Pascale Nicolet

Keywords: District Licensing, great crested newts, planning, species net gain

The South Midlands 'District Licensing' scheme for great crested newts, the first large-scale organisational licence issued by Natural England, has been in successful operation for one year. The scheme is perhaps unique in aiming to deliver landscape-scale habitat conservation gain (with four ponds created for every one lost) that is funded *in perpetuity*. The scheme received 85 enquiries from developers, issued 29 reports and 16 developments have entered the scheme in the first year. Over £200K has been allocated directly into a conservation fund run by the NGOs, and 40 new ponds and associated terrestrial habitat have been created.

Introduction

Under the new 'District Licensing' system, Natural England may issue an Organisational Licence to a Local Planning Authority which then enables that Authority to authorise operations that may harm great crested newts through the planning system (Cameron *et al.*, this issue). This 'one stop shop' allows developers to receive authorisation under a newt Licence at the same time as they receive planning permission, and removes the necessity of separately applying to Natural England for a great crested newt licence. The system is designed to help developers by significantly reducing delays, risks and costs, and also helps planning authorities to deliver their legal obligations efficiently. The system also allows authorities to demonstrably deliver net gains in newt conservation through their planning decisions, which it does by creating, managing and monitoring habitats for great crested newts according to a long-term and landscape-scale strategy. We described the scheme fully in *In Practice* last year (Tew *et al.* 2018).

The South Midlands scheme was licensed in February 2018 and operates across seven contiguous Local Planning Authorities from Bedford Borough to South Oxfordshire; the scheme is voluntary and offers an extra option for developers alongside the existing methods of applying to Natural England (NE) for newt licences. Two new organisations were created – NatureSpace Partnership (NSP) liaises with developers and planning authorities to administer the scheme, whilst the non-profit South Midlands Newt Conservation Partnership (SMNCP) liaises with landowners to deliver newt habitats.

The District Licensing process

There are three fundamental principles behind the South Midlands scheme:

- It is based on a landscape-scale, evidence-based conservation strategy that defines both risk and conservation targets – it is spatially literate (see Figure 1)
- It embeds the mitigation hierarchy, including avoidance and mitigation, into decision making – it is conservation driven
- It specifically calculates costs according to the impact of each development – it is proportionate.

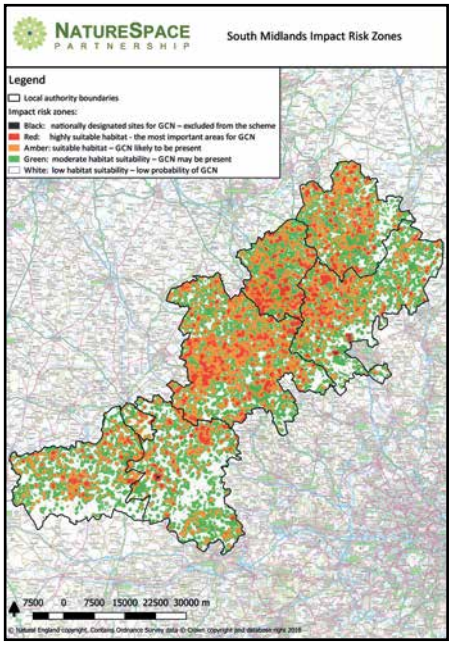

Figure 1. Map of South Midlands identifying Impact Risk Zones for great crested newts.

The impact of each development, and therefore any compensatory costs, are calculated by applying the (scheme-specific, NE-approved) great crested newt metric, so there are potentially two stages for a developer to secure authorisation to work under the District Licence:

1. Complete an application form, and then pay the authorisation fee **or** commission a full report.
   a. For most low-impact developments (especially in the white and green impact risk zones, Figure 1) there is no need for further analyses and developers can enter the scheme for a standard charge of £500 or £1000. The developer will receive an authorisation to work under the District Licence when they receive their planning permission; or

b. For potentially high-impact schemes it is necessary to commission a specific assessment that calculates the impact and, therefore, the second stage charge to compensate for that impact. The metric assessment establishes whether there is a need for site avoidance or any on-site mitigation and calculates whether a payment is necessary to compensate for the specific net impacts of that development. For development that avoids or mitigates impact then the second stage charge could be zero and the assessment considers the impacts of the proposed development not only at the site but also the wider implications for the local newt populations, considering for example, impacts to range and connectivity. The NatureSpace report is held by the developer, ahead of applying for planning permission, who is thus certain of all their future costs relating to great crested newts.

2. Enter the scheme and pay a compensatory charge as per b) above. Should the developer choose to enter the scheme, they submit the NatureSpace report to the Planning Authority alongside their planning application. The Planning Authorities (who hold the District Licence and are active participants in the scheme) will always accept the NatureSpace report recommendations. If planning permission is granted, consent is conditioned to tie the District Licence into the planning permission.

Where does the money go?

Developer payments are received by NatureSpace and allocated strictly according to the terms of the District Licence (specified by Natural England). In the first year of operation the scheme has taken approximately £0.5M in developer payments. These funds are allocated as follows:

- 20% to a great crested newt habitat creation and management fund held by the SMNCP – this fund pays for the creation and management of habitat.
- 20% to a great crested newt habitat endowment fund held by the SMNCP – this fund is set aside to accrue to pay for the long-term (ultimately *in perpetuity*) management of all the habitat that is being created and will remain in place when (if) the scheme ever ceases – we believe this is the first ever conservation strategy to do so.
- 20% to pay for the staff and operational costs of the SMNCP itself – governance, administration, reporting, communication costs, etc. SMNCP staffing is currently at 2.6 FTE.
- 20% to pay for the staff and operational costs of NSP – this includes liaising with developers and planning authorities, creating and delivering the reports to developers, administering the scheme and funding the placement of 'LPA newt officers' who work for the planning authorities alongside the LPA planners and ecologists. There are currently seven full-time staff.
- 20% to pay for all other costs, especially scheme monitoring costs, but also legal and governance costs. Monitoring of both outputs and outcomes is shared by NSP and SMNCP and all data go into the freely available public domain, via Local Record Centres.

Illustrative case studies

The following case studies illustrate the operation of the District Licensing scheme in the South Midlands.

The first case demonstrates the advantages of good on-site mitigation in the design of development schemes. In this case, the development was designed by the environmental consultants to keep the impacts low, with on-site creation of good quality habitats and restoration of existing habitats (ponds and hedgerows). Despite being in the high-risk red zone (Figure 2) and near to several ponds, there was no overall impact on newts and hence the second-stage payment was zero. Some on-site mitigation works were required, and secured through planning conditions – including fencing and trapping, hand and destructive searches, and timings to avoid the hibernation period – but these were less than would normally be applied through a conventional licence.

Figure 2. Case study 1.

The second case illustrates a moderate impact, major development in the medium-risk amber zone that covered a 6 ha mixed commercial and residential use site (Figure 3). There were no ponds on site, although there was one within 10 m of the boundary and another two within 500 m. The development affected some high-quality terrestrial habitat. As the site was outside the sensitive red zone, there were no surveys, delays, or on-site mitigation or management works required, and no planning conditions applied. The second stage charge was below £10,000.

Figure 3. Case study 2.

The third case concerns a high impact, major development in the red zone, that covered 6.8 ha, with a mixed commercial and residential use site (Figure 4).

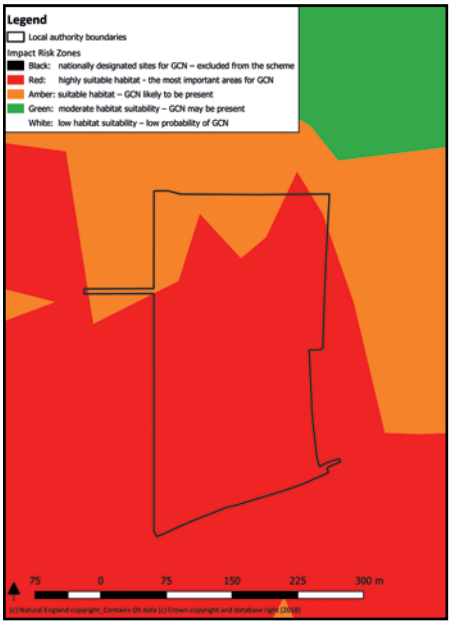

Figure 4. Case study 3.

There were no ponds on site, but there was a wet ditch just outside the boundary and seven ponds were located within 500 m; the development caused the loss of both good terrestrial habitat and some hedgerows. As this was within the red zone, some on-site mitigation works were required (sensitive ground clearance using best practice methodology, etc.) through a planning condition and the second-stage charge was calculated to be less than £20,000.

Scheme take-up in the first year

It was expected that such a voluntary scheme would be slow to take off, as professionals in the industry (planners, developers, planning consultants and environmental consultants) took time to understand and recognise the advantages (see Murray *et al*., this issue). In the first 12 months of the scheme (February 2018 – February 2019) we received 85 applications and 29 of those chose to enter the scheme, thus far the Planning Authorities have issued 10 authorisations under the District Licence.

Uptake was initially slow but has been rising steadily (Figure 5). As noted above, developers paid £0.5M into the scheme over the first year.

During the first year:

- Over £400K has gone into great crested newt conservation – either directly for pond creation, set aside for long-term habitat management, or for staff (in SMNCP, NatureSpace and the LPAs) to administer the scheme
- There were no legal challenges to either the scheme or individual planning consents
- The NSP performance targets (for delivering the certificates or reports to developers within the specified timeframes) were met 100% of the time.
- The impacts arising from developments authorised under the South Midlands District Licence totalled 0 ponds directly lost, 1 pond indirectly lost and 50 ha of suitable terrestrial habitat lost. The following sections explain how these impacts have been compensated for through the District Licensing scheme.

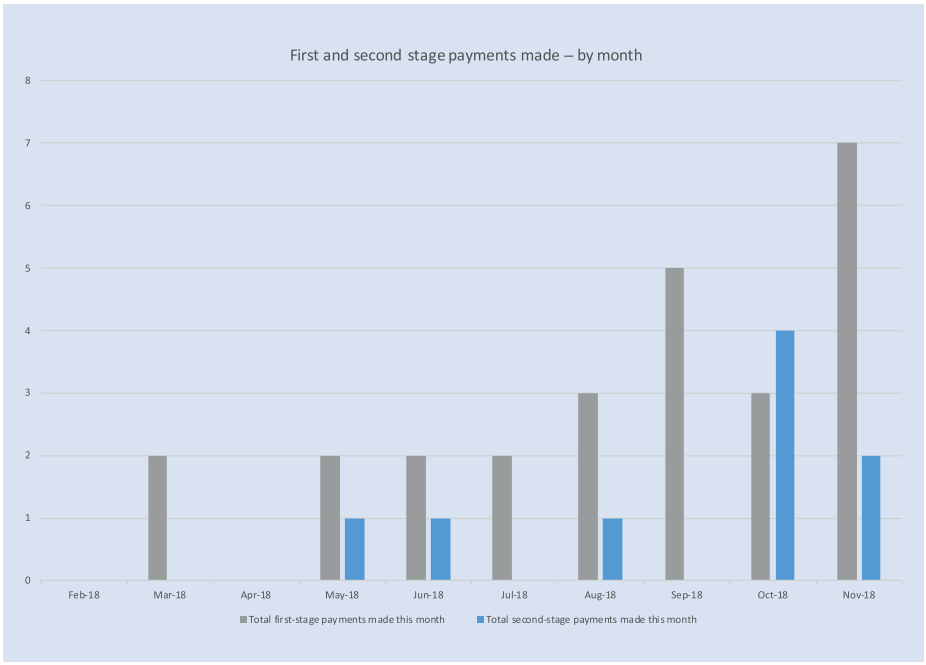

Figure 5. Number of stage payments made under the scheme showing increased uptake over time.

Conservation outcomes

Compensation activities are guided by the District Licensing scheme's spatial Implementation Strategy, which sets out the objectives of the scheme for great crested newt conservation, including conservation priority zones (Figure 6), best practice principles for newt habitat creation and management, and a monitoring framework to assess the outcome of the scheme for great crested newt conservation at the site and landscape scale.

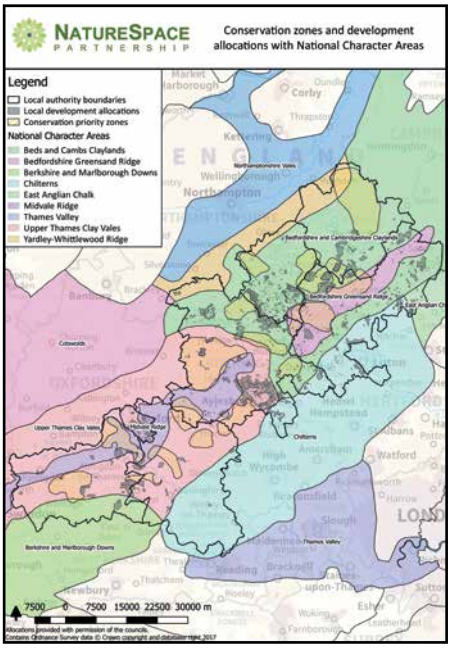

Figure 6. Conservation priority zones, development allocation and National Character Areas in the South Midlands.

In the first year of the scheme, SMNCP has created 40 ponds at 12 sites in the South Midlands to provide new habitat for great crested newts in advance of developer impacts. *The District Licence requires a 4:1 ratio of high quality new ponds created to occupied ponds lost in each National Character Area* (Figure 6). Only one pond was lost or damaged by development in the South Midlands in this first year, and so habitat creation under the scheme is running significantly ahead of habitat loss.

The first tranche of new ponds was targeted on land owned or managed by organisations with an environmental remit or sympathetic landowners, to give extra assurance on their long-term management. Agreements with landowners guarantee an annual payment for the management of the ponds on a 5-year rolling contract to allow for flexibility, with a commitment to provide this funding for at least 25 years. Payment rates to land managers are individually negotiated and the scheme has proved to be popular with landowners and land managers.

All first-year compensation sites are within semi-natural terrestrial habitats, already suitable for great crested newts, and near existing newt populations, as required by the licence. Hibernacula were created near new ponds where there were opportunities and fencing was used to protect ponds from disturbance at sites with public access (see Figure 7). In year two, more sites will be targeted where we might need to create or restore terrestrial habitat and landscape connectivity between great crested newt populations, a key objective of the District Licencing scheme in the South Midlands.

The habitat creation strategy also focuses on expanding newt range around existing high quality sites by working with neighbouring landowners and farmers. At Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust's Finemere Wood, for example, SMNCP has created four ponds in low diversity grassland at the edges of the woodland SSSI, and we are now looking to work on private agricultural land surrounding the site to expand the new population in the wider countryside (Figure 8).

Figure 7. One of three new ponds under construction at the Millennium Woodland in Milton Keynes. The pond is in an area of public access and has now been fenced. Annual monitoring will enable SMNCP to address issues and adjust management requirements for great crested newts for both the terrestrial and aquatic habitat. Photo credit SMNCP.

SMNCP has created ponds on sites where past habitat creation has already been shown to be successful. At the Forestry Commission's Shabbington Wood SSSI, for example, monitoring of eight new ponds created as part of the Million Ponds Project in 2011 reported they had all been colonised by great crested newts. This spring, SMNCP dug another nine ponds in other parts of the woods with low pond density, in areas already disturbed by recent forestry activities. These new ponds will provide stepping stones, opening up new areas of the wood to newts. At this important site, SMNCP is now identifying suitable areas to continue newt population expansion both within and around the SSSI. Similarly, on a privately owned farm near Oxford, an isolated great crested newt population expanded from one breeding pond when six new ponds were created by the Million Ponds Project in 2010 in the adjacent grassland. SMNCP has now

Figure 8. One of four new ponds at the edge of Finemere Wood SSSI, on extensively managed, low diversity grassland. The surrounding woodland and hedge provide good dispersal routes from existing ponds with a great crested newt population. The pond maximum depth is 1.2 m and it will be fed from surface run-off from the grassland. Photo credit SMNCP.

Figure 9. A new pond in semi-improved grassland being dug next to a pond created in 2011 as part of the Million Ponds Project and colonised from an isolated great crested newt population in the woods. Photo credit SMNCP.

created another three ponds to further enhance the newt population at that site (Figure 9), and our monitoring programme will allow us to assess the success of this work in future years.

Potential compensation site screening is key to the delivery of high quality habitat for newts. The Implementation Strategy set out criteria for the SMNCP delivery team to work to, and Freshwater Habitats Trust and Amphibian and Reptile Conservation staff provide technical advice as needed. We are guided by a landscape strategy which has identified priority conservation areas near newt hotspots, but where few records currently exist, and where there is a high proportion of suitable newt habitat and a low risk of development (Figure 6). Opportunities outside of priority conservation zones are also considered and so not all compensation sites will be within these zones.

At the site level, SMNCP are following best practice principles for creating great crested newt habitat and our objective is for all new ponds to reach an Habitat Suitability Index of 0.7. We are also integrating advice from the Million Ponds Project's Pond Creation Toolkit (see https://freshwaterhabitats.org.uk/projects/million-ponds/pond-creation-toolkit/) so that habitat creation and management benefits other freshwater and pond-associated plants and animals. We aim to create pond complexes or networks, for ponds to be permanent or semi-permanent and to have a clean water source, and we apply design principles that, depending on the site characteristics, includes extensive shallow margins and wide drawdown zones. Tried and tested protocols are in place to ensure that the risk of negatively affecting existing wildlife and habitats at proposed compensation sites through creation or management activities is very low.

Site-specific plans are developed in collaboration with landowners at the outset, including a five-year management plan. These plans will be reviewed annually following a monitoring visit by SMNCP project officers to assess the great crested newt colonisation at new ponds using eDNA and population counts, as well as any potential risks, e.g. fish introduction or colonisation, natural vegetation establishment or other factors that might affect new populations, including terrestrial suitability and management. If the annual monitoring visit has a positive outcome, then this will trigger the payment of the management fee to landowners, otherwise we will work with landowners to address these issues as quickly as possible. Evidence from triannual, landscape-scale monitoring covering 150 1-km squares throughout the whole of the District will provide evidence of the contribution of the District Licensing scheme to delivering great crested newt Favourable Conservation Status in the South Midlands.

Summary

The South Midlands District Licensing scheme:

- is the only landscape-scale District Licensing scheme in the country where authorisation under an organisational licence is made directly by Local Planning Authorities
- is delivering a better administrative process that saves developers and planning authorities money and, especially, time and uncertainty
- considers developmental impacts according to scale and location, and embeds the mitigation hierarchy to incentivise avoidance and mitigation
- is delivering significant conservation outcomes for great crested newts through a funded, long-term, landscape-scale conservation strategy delivered by a non-profit conservation organisation.

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About the Authors

Dr Tom Tew is a Director and CEO of NatureSpace Partnership and the Environment Bank, and is a Trustee of the Heritage Lottery Fund. He was previously Natural England's Chief Scientist.

Contact Tom at:
tom.tew@naturespaceUK.com

Dr Pascale Nicolet is CEO of the South Midlands Newt Conservation Partnership on secondment from the Freshwater Habitats Trust where she has worked for 20 years, most recently as Technical Director.

Contact Pascale at:
pnicolet@newtpartnership.org.uk

Great Crested Newt Licensing in England: A Practitioner's View

Brandon Murray MCIEEM,
Neil Madden CEcol MCIEEM and
Martina Girvan CEcol MCIEEM
Arcadis

Keywords: conservation, consultancy, District Level Licensing, great crested newts, legislation

European Protected Species licensing is undergoing significant change and ecological practitioners must stay abreast of developments. This article outlines an environmental consultant's experience of the different licensing approaches, their application, the potential pros and cons of the options and the opportunities that they present for the profession and our clients.

Great crested newt.

Introduction

Recent changes to European Protected Species (EPS) licensing are part of a drive to reduce complexity, costs and delays, and to improve conservation outcomes for protected species, particularly great crested newts. This has created the opportunity for ecologists to propose novel and technically advanced solutions to benefit both biodiversity and clients. However, there is also a level of uncertainty for ecological consultancy practitioners and clients alike, regarding how and when to implement which options (but see other articles in this issue). Here, we give a practitioner's perspective on the licensing changes in relation to great crested newts, drawn from practical experience, working groups and seminars[1,2,3].

Within the current licensing framework, there are a number of different licensing approaches applicable to great crested newts and other EPS. These provide a: *"sliding scale in which the relative reliance on habitat provision, on the one hand, and trapping and translocation on the other are weighted to maximise benefit and cost effectiveness"* (Natural England 2016). Therefore, although the licensing options can be categorised in a number of ways, there is some overlap. For the purposes of this article, the following broad licensing approaches are identified:

1. Individual Licenses:
   a. 'Conventional' licence (not implementing new policies), largely applicable to a single project/site
   b. 'New Policy' licence applicable to a single project/site
   c. 'New Policy' Project Licence, one project, multiple locations
   d. 'New Policy' Conservation Strategy, multiple projects
2. Organisational Licences:
   a. 'District Level Licence' covers activities by several organisations (district-wide, held by Natural England-approved LPAs and/or public/private partnerships)
   b. 'Business or organisation' licence covers routine activities (e.g. site management and maintenance for large organisations such as Network Rail)
3. Class Licence
   a. 'Low Impact Class Licence', can only be utilised by registered individuals for low impact activities.

Table 1 outlines the potential application of each of the approaches and some of the key pros and cons identified by the authors. This article is not intended to be a detailed assessment of each of the approaches; further information can be obtained from Natural England guidance (see Pouget and Heydon; Cameron *et al.* in this issue) and other resources such as the CIEEM position statement on district licensing (CIEEM 2016).

Despite the range of options available to ecological consultancy practitioners, our experience indicates that the new licensing policies aren't being taken up by many consultants or their clients. Instead, a proportion of practitioners continue to

Table 1.

Licence type	Potential Application	Example 'Pros'
1a Individual: 'Conventional' licence	Can be applied to most projects	• Has proven to be versatile • Extensively used and there is a broad range of knowledge and experience on implementation • Good guidance is available on requirements for licensing, although some of this guidance is now dated • The approach is familiar to clients giving a measure of confidence in the approach
1b Individual: 'New Policy' licence	Can be applied to most single site projects where it is practical to implement one of the 'new policies' (for example *"where: exclusion or relocation measures are not necessary to maintain the conservation status of the local population; the avoid-mitigate-compensate hierarchy is followed; and compensation provides additional greater benefits to the local population than would exclusion and/or relocation"* (Natural England 2016)	• Greater flexibility, for example with regards to seasonality and survey detail • Potential for more practicable and proportionate mitigation • Potential for an overall reduction in scheme delays and cost, providing greater certainty and confidence for clients • Requirement to demonstrate greater benefit to Favourable Conservation Status of local population (i.e. more habitat creation)
1c Individual: 'New Policy' Project Licence	As above but usually utilised on projects across large geographical areas and/or projects which will occur over extended time periods, for example road schemes	• Provides a mitigation plan across large and long-term projects • If implemented wisely, can provide pragmatic mitigation
1d Individual: 'New Policy' Conservation Strategy	Applicable to sites where it is known that multiple projects will occur over long periods of time, for example airports. Has the potential to be applied to multiple species	• Same advantages as 2b but applicable to sites with many long-term projects and developments, allowing a long-term practical approach to conservation • Can remove delays for licences • Has the potential to prevent 'double handling'
2a Organisational: 'District Level Licence'	Applicable to projects where a district licence scheme is operating (For guidance and further detail see Cameron *et al*. and Tew and Nicolet in this issue)	• Reduces (and can remove) survey costs for developers • Costs largely known in advance for budgeting • Reduces uncertainties in delivering successful mitigation and monitoring, potentially reducing costs and future commitments for developers • Mitigation can be more strategic, and can be used to strengthen, extend or link existing features to provide a better outcome for the species across a larger geographical area • Removes the need to create habitats on-site meaning developers are less likely to perceive EPS as a regulatory risk • Controlled and regulated by Natural England • Potentially generates funds that can be utilised for significant conservation gain • Models can incorporate an investment fund whereby long-term cash security is provided for habitat management in perpetuity • Combination of planning and licensing through the LPA is clearer and more streamlined for developers • Models with collaborative private/public partnerships should ensure that the most valuable conservation actions are undertaken

Example 'Cons'
• Potential for perceived high financial costs (scheme-dependent) • Potential to be resource intensive in both materials and person-hours (scheme-dependent) • Can be subject to determination delays by Natural England • Seasonally constrained • Has questionable outcomes for protected species; limited monitoring means it is difficult to assess the success of outcomes • Lack of Natural England resources through Pre-Submission Screening (PSS) and Discretionary Advice Service (DAS), etc.
• May not be applicable in all instances • Has potential to have high cost and complexity for developers • There is potential for uncertainty regarding acceptance of initial submissions, particularly where there is no previous experience • Few case study examples or guidance are available in the use of these policies (but see Pouget and Heydon, this issue) • Lack of Natural England resource to advise on the preferred implementation of these policies through PSS, DAS, etc.
• Depending upon application, this can be high cost and resource intensive (as for licence type 1a) • Long-term monitoring is required to determine the outcomes from these projects due to the geographical scale over which they are implemented
• Depending upon application, this can be high cost and resource intensive (as for licence type 1a) • Requires long-term monitoring to determine outcomes over large geographical scales
• Not fully implemented across the country and not yet available in many areas • Not yet well understood by a proportion of clients and developers • Dependent on up-front survey data, which can place a financial burden on scheme proposers • For large schemes where multiple species mitigation is required, other approaches may be more cost-effective (i.e. combined or co-funded offsetting, or if the value of land required for mitigation is taken into account) • There is potential for a localised loss in overall biodiversity on-site, as mitigation provided for EPS species in these circumstances often provides mitigation for unprotected species (CIEEM 2016) • Can have significant costs to set up and manage; as such is likely to be practicable only in areas where there is significant development pressure and significant numbers of EPS. This may leave some areas of the country without a district licence solution • Potential for varying quality of implementation between areas • Not currently applicable to permitted development projects *Continued overleaf*

use and recommend 'traditional' methods of licensing and implementation, even in instances where this may not be the optimal option, for biodiversity or for clients.

The likely reasons for this include:

- A general resistance to change
- Lack of experience and thus confidence in implementing the alternative options
- Lack of confidence from clients and developers, who are more familiar with tried and tested approaches
- A reluctance by consultants to present clients with a range of choices with complex scenarios, which can be time consuming and lead to greater uncertainty
- The financial uncertainties surrounding the alternative options, due to uncertain outcomes, partly due to a lack of experience with full implementation
- Limited information available on publically available resources (i.e. .GOV website), particularly in a format that can be used by consultants to brief clients
- The low availability of Natural England's Pre-Submission Screening (PSS) and Discretionary Advice Service (DAS) due to lack of resources
- Few detailed examples of the application of the new policies
- Difficulty in engaging with several different stakeholders including landowners, which is likely to be required to implement some of the novel approaches.

On the positive side, these challenges provide an opportunity for ecological consultancy practitioners by giving consultants and our clients the opportunity to try new approaches and maximise the benefits of project spending for biodiversity. One objective of the new policies is to allocate more funds to mitigation to ensure greater benefit to populations of the relevant species, whilst reducing survey costs. In addition, ecologists are no longer constrained by the potentially onerous prescriptions of a licence method statement and can use novel approaches to maximise biodiversity benefits (see examples in Pouget and Heydon, Cameron *et al.,* Tew and Nicolet in this issue, and Oakley *et al.* 2017).

Licence type	Potential Application	Example 'Pros'
2b Organisational: 'Business or organisation' Licence	Can be obtained by organisations whose regular and routine work affects one or more protected species Cannot usually be utilised where activities have a medium or high impact on an EPS or for one-off development projects	• Likely to be most suitable for organisations having multiple small impacts upon a species (i.e. whilst maintaining infrastructure or managing forestry, etc.), or across large land holdings • Many of the pros of licence type 1b listed above • Can increase savings and efficiencies through implementation across many land holdings/project managers
3a 'Low Impact Class Licence'	Applicable on small schemes with a limited footprint and short duration; can only be obtained / utilised by 'registered consultants'	• Can be low cost and pragmatic, quick to obtain • Utilises knowledgeable individuals to implement pragmatic mitigation solutions

Table 1. Summary of great crested newt development licence types with examples of broad positives and negatives for clients, ecologists and biodiversity.

Note: Full details of the new EPS licensing policies are provided on the government website https://www.gov.uk/government/consultations/wildlife-licensing-comment-on-new-policies-for-european-protected-species-licences. See also Pouget and Heydon, Cameron *et al.* and Tew and Nicolet in this issue, and examples in Oakley *et al.* (2017).

So, what will it take to maximise the value of this step change in protected species licensing? It would be beneficial if there was greater:

- Leadership from within the profession to provide guidance on the application of the new policy approaches
- Collaboration with Natural England and the operators of district-wide licences to secure legislative compliance for clients alongside demonstratable biodiversity net gain
- Sharing of case studies to maximise the value of lessons learnt
- Perception of ecological consultancy practitioners by clients as strategic and flexible thinkers who facilitate sustainable development rather than compliance-driven gatekeepers.

How do we progress beyond where we are now?

There is a move towards biodiversity conservation at a habitat/landscape scale rather than a focus on individual protected species. This is part of the shift towards environmental and biodiversity net gain rather than no net-loss. It is a requirement of the 2018 National Planning Policy Framework and the government's 'A Green Future: Our 25 Year Plan to Improve the Environment', and is in line with the findings of Lawton *et al.* (2010). District level licensing, project and site-wide licences, and multispecies approaches are stepping stones towards truly holistic mitigation within other aspects of estate and landscape management.

Conclusions

Protected species licensing is changing. In an ever more complicated policy framework, with a myriad of implementation options, there are new opportunities for ecological consultants to maximise biodiversity gains and improve client outcomes, both in terms of financial performance, programme impacts and public perception. It also gives the profession an opportunity to reframe our role from a compliance-driven industry to be a truly advisory discipline that creates value for our clients. To achieve this, ecological consultants must embrace these opportunities, provide feedback to regulators and share case studies to demonstrate the best approaches and contribute to practical guidance.

Notes

1. NatureSpace Partnership seminar: *District Licensing for Great Crested Newts in the South Midlands.* 13 September 2018.
2. Biodiversity Interest Group, CIRIA. See https://www.ciria.org/Research/Projects_underway2/Biodiversity_interest_group.aspx?WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91.
3. CIRIA webinar: *Understanding European Protected Species licencing policy*. 19 April 2018. See https://www.ciria.org/CIRIA/Navigation/Events/Event_Display.aspx?EventKey=E18704.

Example 'Cons'
• In certain instances, organisations may need additional licences, for example for large 'capital works' not covered in the organisational licence • Limited experience within the consultancy sector as to how to set up organisational licences • Potential issues with compliance, monitoring and demonstration of the success of conservation outcomes
• Is only applicable in a small set of instances • Little official guidance • Can only be obtained and implemented by a small subset of practitioners in the industry due to restrictive qualification criteria and limited 'places' on training courses • Criteria for qualification may not truly represent the competency of an individual to complete the requirements of the licence, so excluding many apparently competent people

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About the Authors

Brandon is a principal ecologist with Arcadis who has delivered ecological projects across a variety of industries, particularly large-scale residential and commercial developments on greenfield sites. Brandon has worked with clients, LPAs, NGOs and Natural England to evolve the approach to implementing protected species licensing and deliver biodiversity net gain.

Contact Brandon at:
Brandon.Murray@arcadis.com

Neil Madden is an Associate Technical Director of Ecology within Arcadis and specialises in herpetology. He is particularly interested in EPS policy implementation, and the opportunities presented by this and the recent shift in focus from labour-intensive, individual-led mitigation to net gain, scheme-wide, population thinking. He has worked on numerous large-scale and innovative great crested newt mitigation strategies throughout the UK and recently obtained an EPS licence that removed the need for conventional translocation methods in favour of greater habitat creation (i.e. licence type 1b/1c).

Contact Neil at:
Neil.Madden@arcadis.com

Martina Girvan is a Technical Director with Arcadis whose work spans Ecology, Arboriculture and Natural Capital. Martina is currently supporting the development of the natural capital approach amongst Arcadis clients, projects and different technical disciplines within the company. She believes that through working with nature, biodiversity and business can co-exist to deliver environmental net gain for now and for the future.

Contact Martina at:
Martina.Girvan@arcadis.com

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Figure 1. A badger wearing a GPS collar as it is released. Photo credit Peter Maher.

How Effective are Forestry Guidelines at Protecting Badgers and Their Setts During Clearfelling? Lessons From Ireland

Enda M. Mullen
National Parks and Wildlife Service, Ireland

Teresa MacWhite, Peter K. Maher
Department of Agriculture, Food and the Marine, Ireland

Aoibheann Gaughran, David J. Kelly, Nicola M. Marples, Margaret Good
Trinity College Dublin

Keywords: breeding badgers, disturbance, exclusion zones, GPS collar, timing of operations

Forestry guidelines aim to protect badgers *Meles meles* by cordoning off setts during operations and restricting the use of heavy machinery nearby. An incident in Co. Wicklow, Ireland, calls into question the effectiveness of the current guidelines. We recommend restrictions on the timing of felling near badger setts and increasing the area of the cordon around them. The Forest Service is currently revising its guidelines in response to this study and other relevant information.

Introduction

This paper describes a clearfelling incident at a badger sett in a commercial woodland. It occurred while the badgers were being studied as part of a wider study on a major road realignment. It represents our reflections, as scientists, on the impacts of felling near a sett during the breeding season and on the forestry guidelines which are meant to protect badgers

during these operations. It is based on our knowledge of local badger behaviour. While it is basically the story of one badger we feel that it raises important points. We believe that it would be unethical to try to replicate what happened in order to use more rigorous scientific methods but the authors hope that this paper might encourage discussion among ecologists and we would like to hear from those with similar (or very different) experiences.

The context

We conducted a project between 2008 and 2017, in Co. Wicklow, Ireland, looking at the impacts of a major road re-alignment scheme on the local badger population. For the last seven of those years we used satellite tracking collars on a total of 80 badgers, from 12 social groups, to map their movements. Trapping took place under licence in spring and autumn each year. Badgers that weighed more than eight kilograms were fitted with a Global Positioning System (GPS) collar to record their daily movements (Figure 1) (MacWhite *et al*. 2013). The breeding status of any females caught was recorded in April. (Additional information on the project is provided in Further Reading, below).

One of the study setts was in a spruce plantation which was due for felling. Coillte, the state forestry company, obtained a felling licence from the Forest Service (FS) to carry out this work. Before felling commenced, Coillte consulted with the National Parks and Wildlife Service (NPWS) regarding the best methods to use in the vicinity of the sett. Following the UK Forestry Commission guidance (Forestry Commission 1995), NPWS advised that heavy machinery should be excluded from a clearly marked, 20-m zone around the sett; felling within the exclusion zone should be done by hand; and brashings should be placed to protect the sett but not impede access by the animals. Timber outside the exclusion zone could be felled in the normal way. No advice about avoiding January and February was offered because the felling was scheduled for October 2011. However, there were delays and felling took place from 1- 23 February 2012. Therefore, the felling work took place during the most sensitive period for breeding badgers without any additional protective measures being put in place.

The sett contained a male collared badger (killed in a road traffic accident two weeks before felling), a juvenile (un-collared female) and a collared, female badger (Gina). Gina's movements prior to felling suggested that she was pregnant. Felling began in the first week of February – the time when she was most likely to give birth (Roper 2010). Her movements changed pattern (Figure 2) and when she was re-caught in April, she was not lactating suggesting that either she had not bred at all that year or she had lost cubs between February and April.

No GPS fixes were recorded from Gina for 11 nights from 5-16 February, when the felling was most intense. This length of inactivity might indicate death so a member of the team visited the site on 21 February and discovered that the timber had been felled. There was an unprecedented amount of fresh soil at each entrance to the sett, not seen previously over four years of observation (see Figure 5). This suggested possible subsidence in parts of the sett, which could have been catastrophic for cubs unable to move far. If Gina had cubs which died, was their death connected to the forestry work during the critical breeding period?

Female breeding patterns

Badger home range sizes vary seasonally, with females holding the smallest ranges in winter. Females are known to forage close to their setts in the lead-up to giving birth (February) and for the following eight weeks or so until the cubs emerge (Palphramand *et al.* 2007). We mapped Gina's movements during this period to see if she stayed within 300 m of her sett, which might suggest she had bred (Figure 2). This distance was chosen because it included the breeding sett but excluded the setts of neighbouring social groups.

Female ranging behaviour was also monitored and mapped for seven adult female badgers of breeding age from other social groups in undisturbed woodland. Of these, three badgers the same age as Gina were allocated to the age-control group (including Lily, Figure 3). They were likely to be in the same breeding condition.

A second group of four badgers that had been tracked in other years comprised a seasonal-control group. By comparing data from these two groups of badgers with that of Gina, we could investigate whether

Figure 2. Gina's GPS records for 02:00 hrs in January (green) and February (purple) 2012. Most January records were within the buffer zone (large circle) around the sett (star) while all bar one record for February were outside the zone.

her movements in 2012 were atypical. We compared GPS locations at 02:00 hrs for each badger, calculated the proportion of records that fell within 300 m of their home setts and plotted the results in ArcView (Figure 4).

In January 2012 Gina was within 300 m of her home sett at 02:00 hrs for more than 90% of the time. She remained underground from 5-16 February. Fewer than 30% of her records for the rest of the month were within 300 m of the sett, meaning she moved further from home on a nightly basis after the felling. In contrast, during February 2012 the three badgers in the age-control group were within 300 m of their setts at 02:00 hrs between 66% and 75% of the time (Figure 4). These badgers had cubs that year.

The badgers in the seasonal-control group mostly behaved no differently during February compared to other months in the study period. The percentage of February records within 300 m of their setts at 02:00 hrs was also between 66% and 75%. One badger showed a dramatic drop in records close to her sett in February 2013 and was not lactating when captured in April. She had cubs in February 2014 and 75% of her 02:00 hrs records were within 300 m of her sett, in keeping with

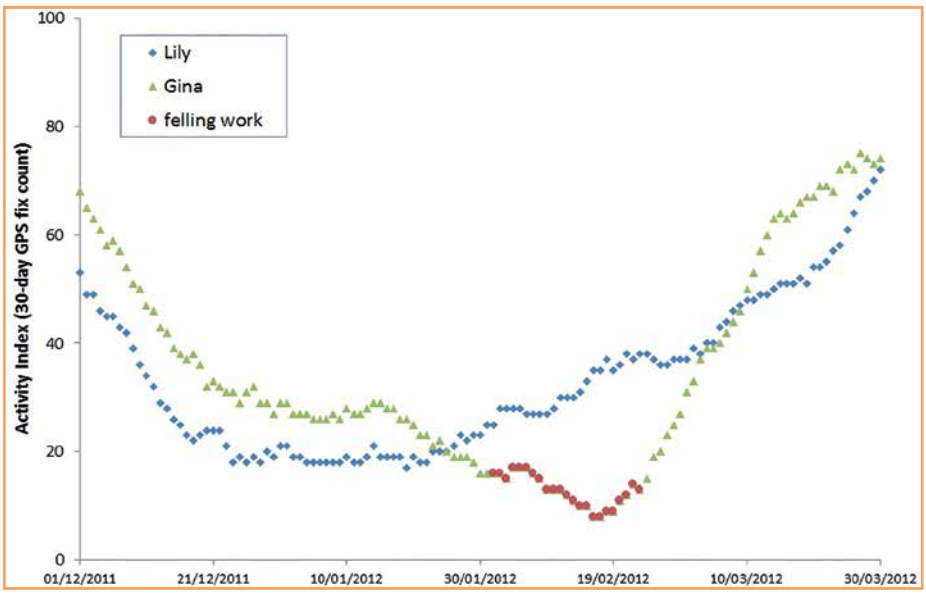

Figure 3. The plot shows how Gina's behaviour mirrored that of Lily until the beginning of February 2012 when the felling took place. Lily had cubs that year but Gina was not lactating when trapped. Activity (the Y axis) is a count of all GPS fixes for the badger for 30 days prior to the plotted date. Thus, it shows low activity rather than no activity for the period when Gina remained underground.

the trend demonstrated by other lactating badgers (Figure 4).

We suggest that the high percentage of GPS fixes within 300 m of the main sett in January and February is a strong indication that a female badger is breeding. Gina showed this breeding behaviour in January 2012 but not after the felling.

Forestry, badgers and the law in Ireland

In the Republic of Ireland, forestry is covered by the Forestry Act 2014 and the Forestry Regulations 2017 (S. I. no. 191 of 2017) and is licenced by the Forestry Service, a unit of the Department of Agriculture, Food and the Marine. Applications are subject to screening for Environmental Impact Assessment and/or Appropriate Assessment as required. This legislation covers forest road construction, felling and replanting.

The badger and its sett are protected by the Wildlife Act 1976 to 2018. It is an offence to hunt or injure a badger and also an offence to wilfully interfere with or destroy its breeding or resting place (sett). There are exemptions for a number of activities including forestry meaning that a specific licence to disturb badgers is not required for forestry activities.

Forestry Guidelines for badger protection

The Forestry Service has produced a series of guides for operators including Forest Harvesting and the Environment Guidelines (Forestry Service 2000a) and Forest Biodiversity Guidelines (Forestry Service 2000b). Both these guidelines state that all forest operations must have due regard to the breeding and nesting seasons of important species, and that badger setts should be identified in the site development plan. The Guidelines are thin on detail as to how badgers and their setts should be protected. For this reason many forest managers turn to the UK Forestry Commission's guide to Forest Operations and Badger Setts (Forestry Commission 1995).

For clearfelling, the Forestry Commission (1995) recommends an exclusion zone of 20 m in each direction around the sett. The sett itself should be marked with coloured rope and the trees around the sett should be left as high stumps to further delineate the area (Figure 5). Heavy machinery should not be permitted within the zone to prevent subsidence of the sett or tunnels. Any discarded branches should be removed immediately from the area so as not to block entrances, runs or latrines. Fuel and other chemicals may not be stored in the exclusion zone.

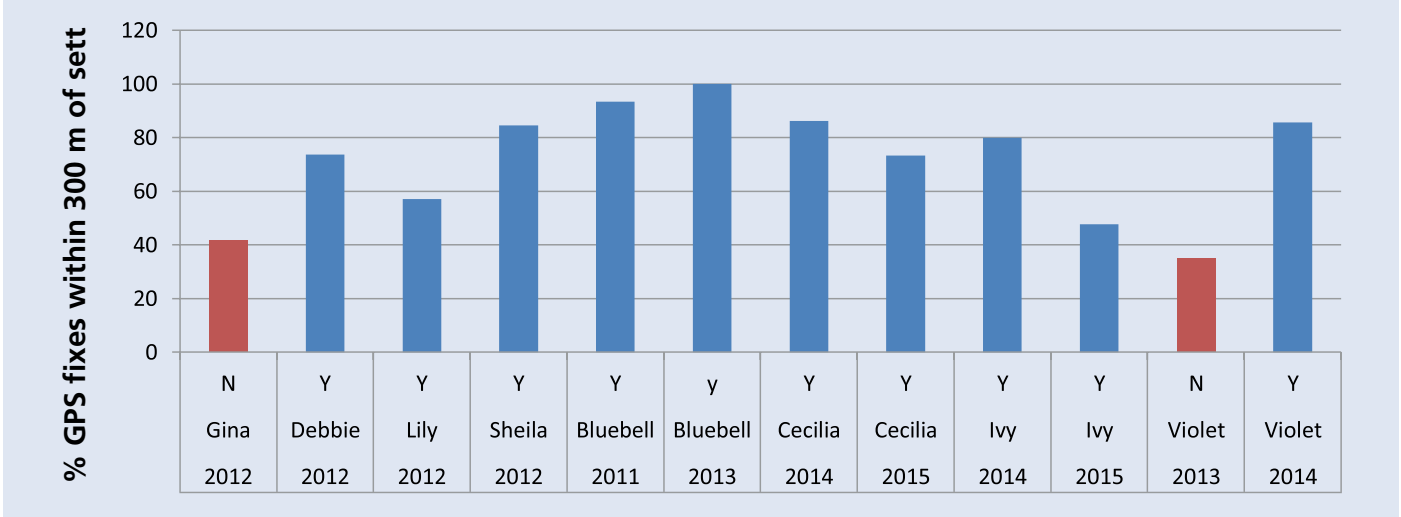

Figure 4. Percentage of records at 02:00 hrs in February 2012 which were within 300 m of the badger's breeding sett. N (red) means not lactating when caught that spring; Y (blue) means lactating that year. Individual badgers are indicated by name along the X axis.

The Forestry Commission's guide (Forestry Commission 1995) also addresses the timing of operations, advising against felling between December and June, which is the badger breeding season. When this is not possible, it suggests avoiding January and February and increasing the size of the exclusion zone.

Re-visiting the Guidelines

The aim of both the Irish Forest Service and the UK Forestry Commission guidelines is to protect badgers and their setts from untoward disturbance or destruction during normal forestry operations. In light of our experience of this incident in Wicklow, we question the adequacy of the Irish guidelines. We also know that the UK guidelines for outside the breeding season are not suitable during January and February and that the 20 m zone for the rest of the year is probably not sufficient.

Is a 20-m exclusion zone enough?

The Forestry Commission's guide (Forestry Commission 1995) states that the exclusion zone may need to be increased in certain circumstances. We had judged 20 m to be an adequate exclusion zone for the protection of the sett during felling in October (Figure 5). The sett in question seemed to be quite compact and all the entrances were clustered at the centre of the 20 m restriction zone. However, a sett at a different site was found to be 40 m long and about 3 m deep. There were three different 'storeys' of tunnels and chambers. Had this sett been in a forestry coupe, half of it would have been outside the 20-m protected zone and thus subject to disturbance from heavy machinery passing overhead.

In Wicklow the amount of fresh digging evident at all the sett entrances while forestry operations were taking place around them suggests that there was either subsidence within the sett or that the badgers had tunnelled deeper to escape from the effects of machinery overhead. Sett tunnels extending past the 20 m zone would have been traversed by forestry vehicles. Accordingly, we would now recommend 50 m as a minimum size, but extend this to 150 m if felling occurs in the breeding season.

The timing of operations

The Forestry Service guidelines (Forestry Service 2000a,b) advise foresters to avoid felling in the badger breeding season. The guidelines from the UK Forestry Commission (Forestry Commission 1995) says felling near setts should be *avoided* between December and June and should not take place during January-February. The size of the exclusion zone should be increased if felling is unavoidable during the rest of the breeding season. Whilst clearly providing good protection for badgers, this guidance is unrealistic in practice. Many woodlands contain badger setts so it would restrict felling and forest road construction to six months of the year, some of which is also the bird nesting season. Therefore, we recommend that felling should not take place during January to March in forestry coupes containing main setts; from April to June there should be a 150 m exclusion zone.

Conclusion

This paper is based on one incident which occurred in an area where badgers were being closely studied. Measures to protect badgers during clearfelling are largely designed to prevent physical injury to adult badgers. Although clearfelling may cause some damage to setts, this appears to be repairable by the resident badgers. However, the current Irish measures are not adequate to protect breeding females. If poorly timed, it is likely that forestry operations may lead to the death of young cubs, despite protecting adult badgers. The incident reported here provides circumstantial evidence that clearfelling conducted in January or February in woodland inhabited by badgers may have serious negative impacts. We advocate that forestry operations in the vicinity of active badger setts should be prohibited at these times and, further, that the exclusion zone around setts should be a minimum of 50 m, but up to 150 m in the breeding season. After discussions with the authors about our work, the Forest Service in Ireland are currently revising their guidelines.

Figure 5. Fresh digging at the sett entrance on 21 February 2012. The protective measures employed to exclude heavy machinery are visible in the background – tall stumps, marking tape and carefully placed cut branches.

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About the Authors

Enda Mullen is a Divisional Ecologist with the National Parks and Wildlife Service. Her MSc. is in Protected Area Management. She worked with Teresa MacWhite of DAFM to initiate the 'N 11 Badger Project'. She has a special interest in bats, badgers and upland habitats.

Contact Enda at: enda.mullen@chg.gov.ie

Teresa MacWhite is a veterinary surgeon employed by the Department of Agriculture, Food and the Marine. Jointly with Enda Mullen, she was the instigator of the project to establish the impact of major roadworks on a local badger population in east Wicklow.

Contact Teresa at: teresa.macwhite@agriculture.gov.ie

Peter Maher qualified from the Veterinary College at University College Dublin in 1978 and worked in mixed practice until 1996 when he joined the Department of Agriculture, Food and the Marine (DAFM) as a Veterinary Inspector. He completed a Masters Degree in Information Technology from University College Galway in 2006 and now works in Veterinary Public Health in DAFM.

Contact Peter at: peter.maher@agriculture.gov.ie

Dr Margaret Good retired from the Department of Agriculture, Food and the Marine in 2016 after 36 years, the last 17 as the Veterinary head of Ireland's Bovine Tuberculosis (bTB) Eradication Programme, which included involvement in areas of research seeking to understand and mitigate factors that impacted bTB eradication.

Contact Margaret at: mgood2510@gmail.com

Dr Aoibheann Gaughran is a postdoctoral researcher at Trinity College Dublin. Her research seeks to better understand the behavioural ecology of the badger. She hopes to provide insight into badger movements that can be used to inform badger vaccine delivery and farm biosecurity.

Contact Aoibheann at: gaughra@tcd.ie

David Kelly is an ecologist based in Trinity College Dublin. He has worked alongside the N11 study group, considering how badger movements may affect the spread of TB within both badger and cattle communities. His work on badger feeding behaviour will aid the design of national programmes for oral vaccination.

Contact David at: djkelly@tcd.ie

Prof. Nicola Marples lectures on animal behaviour and evolution in Trinity College Dublin Zoology department. Her research topics include investigating the responses of birds and fish encountering new foods; exploring the process of species formation by birds on small Indonesian islands; and understanding the ranging behaviour and parasite community of badgers.

Contact Nicola at: nmarples@tcd.ie

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Implications of Brexit for Devolved Environmental Law in Scotland: Second Update

Chris Cathrine MCIEEM
Director, Caledonian Conservation Ltd

Potential implications of Brexit for devolved environmental law in Scotland have been considered in two previous articles published in September 2017[1] and December 2017[2] respectively. At the time these articles were published there was considerable uncertainty as to the areas of law which would remain devolved to 'Holyrood' (Scottish Government and Scottish Parliament), and which may be reserved to 'Westminster' (UK Government and UK Parliament) after the UK leaves the European Union (EU). While many aspects of Brexit remain uncertain a year later, the implications for devolved environmental law in Scotland have become clearer.

The European Union (Withdrawal) Act[3] was passed by Westminster in June 2018, and impacts on devolved legislation and the Scotland Act 1998 (as amended)[4]. Holyrood has not given consent to this Act and produced the UK Withdrawal from the European Union (Legal Continuity) (Scotland) Bill[5], which resolves legislative issues created by Brexit in the absence of the European Union (Withdrawal) Act. This Bill was passed by a majority vote of MSPs in the Scottish Parliament in March 2018. However, UK Government challenged the UK Withdrawal from the European Union (Legal Continuity) (Scotland) Bill at the Supreme Court, arguing that it fell outside Holyrood's devolved competencies. The Supreme Court ruled that as a whole the Bill was not outside Holyrood's competency at the time it was passed, but that due to changes made by Westminster to devolved competencies since March, some key areas were no longer within the competency of the devolved government[6]. At time of writing, this issue has yet to be resolved and some uncertainty remains.

Under the devolution settlement, any changes to devolved powers should be agreed with Holyrood through a Legislative Consent Motion (LCM) (underpinned by the Sewel Convention). At the centre of the disagreement between Westminster and Holyrood are areas of EU law that intersect with devolved competence, of which there are 107[7] relevant to Scotland (of a total of 155 policy areas inclusive of Northern Ireland and Wales[8]). Clause 11 of the European Union (Withdrawal) Bill[9] would give Westminster power to legislate for devolved areas without agreement with Holyrood, and this was passed into law as Section 12 of the European Union (Withdrawal) Act[3].

However, prior to the European (Withdrawal) Act being passed into law, UK Government published a document[8] listing these devolved powers in three categories where they believed:

1. No further action is required (49 areas)
2. Non-legislative common policy frameworks may be necessary after Brexit (82 areas)
3. Westminster would need to legislate for after Brexit (24 areas)

A small number of environmental policy areas fall into the first category (e.g. Environmental Impact Assessment (EIA) and forestry), and it seems reasonable to expect that these will remain fully devolved after Brexit. The majority of environmental policy areas fall into the second category (e.g. Strategic Environmental Assessment (SEA) and the natural environment and biodiversity). Scottish Government has stated publicly that it is committed to maintaining or exceeding EU environmental laws and standards[10,11], whereas UK Government appears to be exploring more substantial changes in these policy areas post-Brexit. Furthermore, a report to Scottish Government highlighted that in SEA, Scotland has deliberately legislated beyond the requirements of the EU Directive, and that a common policy framework with the rest of the UK could affect this after Brexit[12]. Therefore, while non-legislative frameworks may be agreed between Scotland and other UK countries, it seems likely that environmental law will deviate further after Brexit regardless, which may present challenges for professional ecologists and wildlife conservation. It should also be noted that Section 12 of the European Union (Withdrawal) Act[3] does not specify devolved policy areas, and so Westminster has the power to legislate for devolved environmental law after Brexit. However, it seems unlikely that Westminster would do so, at this time.

Neither the European Union (Withdrawal) Act[3] nor the UK Withdrawal from the European Union (Legal Continuity) (Scotland) Bill[5] transpose the foundation principles of EU environmental law in to domestic legislation after Brexit. Lord Krebs tabled an amendment (3) to the European Union (Withdrawal) Bill to include the

environmental principles, and although this was objected to, Oliver Letwin's amendment in lieu was accepted, agreeing that these principles should be included in a new Environment Bill[13]. However, this would be unlikely to apply to Scotland if environmental law remains fully devolved. Scottish Government has committed to consulting on the best way to include these principles in Scotland's environmental policy[11], and Scottish Environment LINK has called for a new Scottish Environment Act[14]. After Brexit, environmental governance will also, presumably, vary between Scotland and the rest of the UK, although there remains little clarity on this and Scottish Government have committed to undertake a consultation[11,12].

Note that while Scottish Government's commitment to maintain environmental laws equivalent to and compatible with EU Directives is positive, Scottish Natural Heritage (SNH) has ended their programme of Site Condition Monitoring (SCM) of protected sites and a replacement monitoring programme has not yet been announced[15]. A report to Scottish Government highlighted that a loss of monitoring was a risk of Brexit, and recommended that a commitment should be made to continue the same monitoring programmes after Brexit[12]. It is possible that the replacement monitoring programme will meet the requirements of EU Directives: this is particularly important for the current Natura 2000 sites which are the EU contribution to the Emerald Network under Bern Convention obligations (ratified by the UK in 1982).

Although the powers awarded to Westminster via the European Union (Withdrawal) Act over policy areas devolved to Scotland leave a degree of uncertainty, it appears likely that environmental law will remain fully devolved and legislated for by Holyrood. Scottish Government has publicly committed to maintain environmental standards equal to or exceeding EU Directives post-Brexit, and will be consulting on how best to take this forward as an Environment Strategy[11]. In this context further deviation in environmental policy and law between Scotland and other UK countries seems inevitable. A report to Scottish Government indicated that Brexit would result in a loss of coordination of environmental protection across borders[12]. Without a firm framework, this appears to be a risk between UK countries, and not just an international issue.

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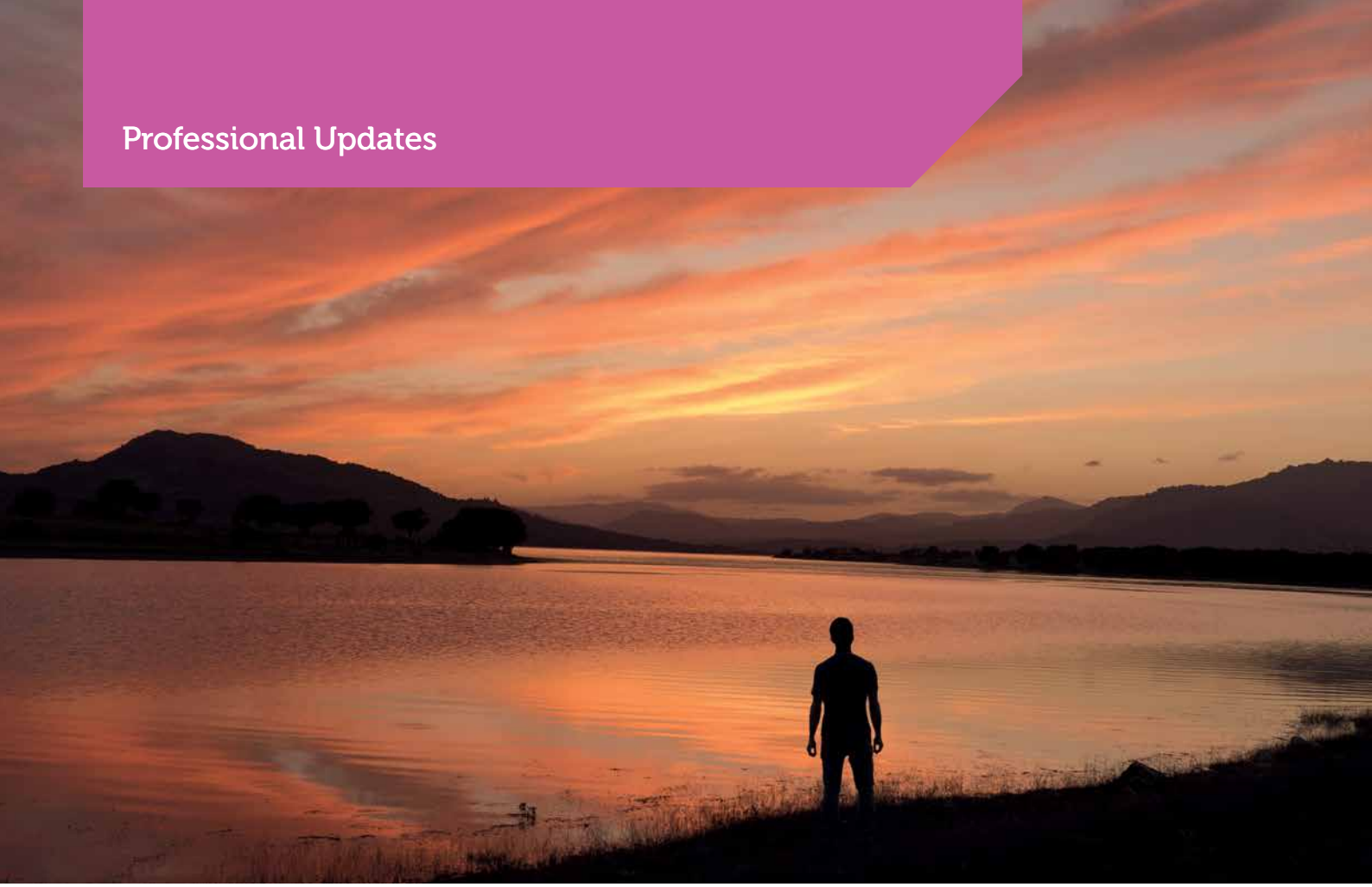
About the Author

Chris Cathrine BSc(Hons) MCIEEM FLS FRES is the founder and Director of Caledonian Conservation Ltd. He has 14 years' experience as a professional ecologist, including over 10 years as an ecological consultant. He has worked for NGOs, Local Authorities and as a consultant throughout the UK.

Contact Chris at: chris.cathrine@caledonianconservation.co.uk



Mental Health and Well-Being in the Ecology and Environmental Management Profession

Liza Oxford-Booth

It is easy to spot the member of staff who has broken their leg or hear the one who is sniffing, coughing and blowing their nose loudly with a cold virus. It is also easy to talk to those members of staff about their ailments, but what about the silent conditions that no-one wants to speak about. The ones that, despite much being raised by the media about them, still remain an uncomfortable topic.

We are talking about mental health and well-being. The World Health Organisation (WHO) defines good mental health as: *"A state of wellbeing in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community."*

Mental Health can also be referred to as emotional well-being and is as important as physical health.

The problem with mental health is that it is not always easy to spot, and due to the stigma attached to mental health, individuals may choose to hide their issues This stigma makes it difficult for people to talk openly about the problems they are having, and the feelings attached to them.

Mental Health First Aid in England (MHFA) recently published the following facts and figures on mental health:

- One in four people will experience a mental health issue in any given year.
- Between one in five and one in six working age adults are depressed, anxious or experiencing stress-related problems at any one time.
- The Chief Medical Officer estimates that around 70 million working days are lost every year because of mental ill health, costing Britain between £70bn and £100bn.
- In 2014/15 anxiety, depression and stress accounted for 35% of all work-related ill health, and 43% of all working days lost to ill health, according to the Health and Safety Executive.

- The Centre for Mental Health estimates that 'presenteeism' accounts for 1.5 times more losses in productivity than absences.
- One in five people take a day off due to stress, yet up to 90% feel unable to be honest about this being the reason for their absence.
- Research from Time to Change found that 49% of respondents would feel uncomfortable talking to their employer about their mental health.
- In a BUPA poll in 2014, 94% of business leaders admitted to prejudice against people with mental health issues in their organisation.
- In a survey of UK adults, 56% said they wouldn't hire someone with depression, even if they were the best candidate for the job, according to a report by Unum and the Mental Health Foundation.

Stress or anxiety at work doesn't always lead to staff having days off. However, if an employee doesn't feel there is a support structure in place to help them manage their concerns, the situation may develop into a more serious and longer-term problem resulting in long-term absence from work.

Mental health problems can affect anyone at any time in their life. Everyone deals with situations differently which means that each person's mental health should be looked at as an individual case. There is no 'one size fits all' approach to mental health.

CIEEM is holding a one-day conference on 4 July 2019 in Birmingham to promote and support health and well-being in the ecology and environmental management sector. Practical advice will be available around topics such as:

- How to promote mental health and well-being in your workplace
- How to identify the signs of possible mental health problems in staff
- How to encourage conversations about mental health
- How to support staff with mental health issues

There will be case studies from speakers who have first-hand experience of dealing with mental health issues in the ecological sector and discussions from organisations who have successfully implemented well-being programmes across their staff teams.

CIEEM has also established a discussion on LinkedIn (https://www.linkedin.com/groups/4306428/) and would welcome comments on this topic from members on this topic.

Alternatively, if you wish to submit something confidentially to the Institute about your own experience please write to the Chief Executive, Sally Hayns, at sallyhayns@cieem.net.

About the Author

Liza is a training and personal development professional and also a coach and counsellor. She has been supporting clients with mental health problems for over 20 years. Since 2011 she has worked for CIEEM on both long- and short-term contracts including the organisation of conferences, training delivery and development of the institute's CPD programme.

Contact Liza at:
lizaoxfordbooth@gmail.com

Applying for Fellowship

Claire Wansbury CEcol CEnv FCIEEM
Associate Director of Ecology, Atkins

In September's *In Practice* there was an article entitled 'Demystifying Chartership'. This was useful, but there is another process within CIEEM that can seem far more mysterious – how exactly do people become Fellows and what do Fellows do? Over the last few months a group of current Fellows has been exploring the best way to answer these questions, including considering changes to the application process and improving communication about what the Fellows do for CIEEM. In this article I share our main findings.

What stops people applying?

There are understandable reasons putting people off applying, including how busy people are and an unfortunate, and incorrect, perception that the application documents must be weighty. Inquiries also revealed an incorrect assumption that someone must be Chartered before they become a Fellow. There is also a perception that Fellows are, perhaps, individuals coming to the end of their illustrious careers, or that they must be able to point to a single specific outstanding contribution to the profession.

On CIEEM's website, the guidance on Fellows explained that potential candidates have to have *"made a significant contribution to the profession"* and are *"the eminent and highly respected people in the profession"*.

We know from membership upgrade applications that very many ecologists are modest folk, more used to thinking of our work as a team effort than an individual accomplishment. Michelle Obama spoke recently about 'imposter syndrome'. As a Fellow myself, her words reminded me of when I received the letter confirming that I was a Fellow and I took a while to shake a nagging worry that another letter would follow saying that the first had been sent in error – even now the description of Fellows above makes me feel I should be someone who offers to autograph copies of my articles and pose for selfies with colleagues.

Why apply?

The best explanation we can give is by individuals sharing how they have benefitted personally. In the boxes, two of our Fellows provide some examples of how Fellowship has benefited them and allowed them greater opportunities to contribute to CIEEM. We will be sharing more examples in future editions of *In Practice*, and the CIEEM website has been updated to explain more about what we actually do.

It is important that CIEEM has a strong Fellowship reflecting the full diversity of members in all respects. Fellowship brings personal reward and accolade to those elected to the Chartered Institute's highest category of membership. Equally, CIEEM benefits from having Fellows in many ways.

Fellows are role models and ambassadors for CIEEM. Fellows inspire others and often take up the opportunity to give back to their profession as mentors. They are highly respected, professional and have reached a demonstrable level of professional excellence and achievement within ecology and environmental management disciplines. CIEEM sees our Fellows as the 'go to' people in our profession, and this can bring Fellows opportunities to work on a range of rewarding activities. They help to shape and set the strategic direction of our institute and more widely through their professional careers and varied roles (which can be through paid employment and/or voluntary roles).

When to apply?

There is no age limit, or minimum amount of experience, although a degree of seniority or specialist experience is expected. We are revising the wording to make it clearer and more inclusive, without compromising the standards required.

Fellowship is our highest grade of membership and it is designed for those who have a significant level of experience in a senior or expert specialist level role. Each Fellow should have made a *"significant contribution"* to the profession of ecology and environmental management, and this may be leading on one high profile and important area of work or a cumulative contribution through many different activities. Candidates should also be well respected and have high integrity, which will be confirmed by the supporters and supported by the evidence in the testimonial and application documents. Candidates should have attained a position of seniority and/or substantial expertise and experience within the profession.

How to apply?

The guidance on application has been updated and, most importantly, there are now two routes to application approved by the Governing Board. Self-nomination remains as an application route but Full members and Fellows can now nominate others for Fellowship through a peer-nomination process. However, the nominees must still be aware of and agree to being put forward.

So, if you have been thinking about applying to become a Fellow, or think that there is someone who you would like to nominate for Fellowship, why not visit the CIEEM website and see the updated guidance and information?

Pam Nolan CEcol CEnv FCIEEM

Who are you?

I'm a national senior environmental manager within the Environment Agency, a statutory organisation in England. I've worked within the public sector, in a range of ecology and environmental roles throughout my working life. I'm also a trained coach and mentor. I joined the institute in 1994 and since then I've held a number of voluntary roles on CIEEM committees and working groups. I've recently been appointed to CIEEM's Governing Board.

Why did you apply for Fellowship?

I was encouraged to apply for Fellowship by peers, particularly in recognition of my contributions to training and professional development for the ecology and environmental management profession. I remember at the time I had recently completely my time as Chair of CIEEM's Training, Education and Career Development Committee (TECDC), where I had been personally keen to encourage more women to come forward and apply for Fellowship, so I now needed to practice what I preached!

Why do you think Fellows matter to the Institute?

As Fellows we have the opportunity to be advocates and ambassadors for our Institute, to influence and bring about positive changes for the profession and for the environment. Through our diverse roles, experiences and networks we also have the ability to inspire others at a range of strategic as well as operational levels.

What you like about being a Fellow?

I like helping to ensure that ecologists and environmental managers are seen as professionals and are on an equal footing with other professionals. I also like the possibility of inspiring others and of being able to give something back to my profession.

Andrew Baker FCIEEM

Who are you?

I am Director of Baker Consultants Ltd, a consultant ecologist with over 30 years' experience and a particular interest in wildlife law, air quality and bioacoustics.

Why did you apply for Fellowship?

To be frank it was suggested that I should apply and on the third time of asking I felt it churlish not to! But I am very glad I did. I am passionate about innovation backed up by robust science and raising standards in our industry. I wanted to contribute to the leadership and profile of the role of our profession promoting best practice and innovation.

Why do you think Fellows matter to the Institute?

Leadership is important in a relatively young profession where the is no formal career progression. The support and guidance that the Institute can offer with regards to best practice and professional development is spearheaded by the work of its Fellows.

What you like about being a Fellow?

Being a Fellow of the Institute comes with a level of responsibility but also the satisfaction that one can make a difference. Now that I am a senior member of the profession I have started to think about legacy and my Fellowship provides the opportunity to assist in moving the profession forwards.

Acknowledgements

CIEEM is grateful to Claire Wansbury, David Tyldesley, Pam Nolan, Roger Crofts, Debbie Bartlett, Paul Sinnadurai, Jenny Neff, Andrew Baker and John Rose for undertaking the review. Claire is grateful to Dr Jules Price and Sally Hayns for commenting on the draft of this article.

About the Author

Claire Wansbury is an Associate Director of Ecology at SNC-Lavalin's Atkins business.

Contact Claire at:
claire.wansbury@atkinsglobal.com

Membership: Evidencing your Competence Effectively

Stuart Parks
Membership Manager, CIEEM

Currently, around 60% of CIEEM's members are either Full or Fellow members (many holding Chartered status) and, as the Institute's membership grows, they are increasingly likely to be asked to act as a sponsor or mentor by a potential applicant. However, unless you have achieved that level of membership or chartership in the last five years, it is possible that you may not yet have fully engaged with CIEEM's Competency Framework.

While the membership team assists applicants with the most regular queries, the real experts in evidencing competence well (and increasing the chances of producing a successful application) are our volunteer membership application assessors. During the 2018 calendar year these volunteer assessors diligently worked their way through 420 applications for professional membership grades from prospective members – the vast majority of which were, happily, successful. So, if you are considering applying for or upgrading membership, or are kindly supporting a colleague to do so, who better to advise you than the very members that assess the applications?

We asked our volunteer assessors for their 'top tips' for completing an application and evidencing competence well, and here is what they told us.

Before you begin

i. Before even starting an application, read the guidance document and watch the short videos available on the CIEEM website. While you are there, make sure you have the latest version of the application form.

ii. Have a copy of the guidance documents available while you are filling in the form, and don't rush to get the form filled in. Take your time, and make sure that competencies are addressed clearly with all the relevant information presented in a logical manner.

iii. Think carefully about your choice of sponsor. Ideally you are looking for someone who can mentor you through the process although we appreciate that this is not always possible.

Get the basics right

i. Make sure that you are applying your experience to the correct competency.

ii. Ensure that you are clear in what the competency requires at the level for which you are applying, paying close attention to key words, and that you provide good examples to demonstrate that you practise at that level of competence.

iii. Make full use of the word count: although it seems like more work upfront, it is less work in the long run (as I have never seen a short answer tick all of the boxes).

iv. Be careful in spelling and grammar in all answers but be especially careful in crafting a response when the competency refers to report writing and/or communication.

v. Spellcheck is your friend. A poorly presented application, with poor spelling and grammar is not a good advert for you, especially when trying to join a professional institute.

vi. Demonstrate your communication skills by making the evidence clear and easy reading for assessors from different backgrounds. Avoid presenting your competency evidence as a single paragraph or using undefined acronyms and technical terms, especially if these are confined mainly to your organisation.

vii. Avoid over-egging the pudding in an attempt to impress. Be sure that you have the evidence to support your claims.

viii. Ensure that the evidence that you provide is explicitly linked to an element of the competency. Assessors like applications where the information is there without having to dig too much for it.

We need to know more than what you do

i. To write a good answer, make sure that you follow the 'STARE' (Situation-Task-Action-Result-Evaluation) self-assessment method. The assessors will assess your answers on this basis, so make it easy for them to score you well.

ii. Do not forget the crucial E part of 'STARE'. The information is sometimes referred to by sponsors, but it can be disregarded if not part of your evidence. Do not leave it to your sponsors to expand upon what you should say yourself.

iii. Try to provide at least two examples to demonstrate your competence in each competency. Use a range of examples, rather than using the same project or thesis for every response, in order to show a wide range of skills and experiences.

iv. Provide sound evidence covering a good proportion what is stated in the competency framework guidance for that competency, demonstrating work at the level that would be expected for the grade being applied for.

v. Within the word limit, provide a couple of specific examples of your

competence along with other less detailed evidence of how routinely you have demonstrated this level of competence. Perhaps think of this as: specific examples demonstrating 'depth' of competence; and routineness demonstrating 'weight' of competence. A detailed example of something done well may not be sufficient if it is not obvious that you have done it more than once.

vi. If you studied something relevant to your chosen competency and were assessed by an exam or piece of coursework give the mark you achieved as evidence of your competence.

vii. If you were given another contract or project as a result of your good work in the example chosen to illustrate your competency then say this yourself as it is evidence of your competence.

Before you press 'send'

i. Once you have written your submissions, re-read them. If possible, get someone else to read over them, and make suggestions for improvements.

ii. Make sure your sponsor(s) are aware that their part of the process is important, and that their contribution requires more than just a word or two.

iii. Do not be disheartened if you are asked for additional evidence following submission of your application. Take it as an opportunity to demonstrate your commitment and professionalism.

Some finer detail

i. If you are struggling with the 'Professional Conduct' competency (especially if less experienced), then good examples are dealing with difficult landowners or using personal data from clients or landowners in line with a company's data handling procedures. We also often see reference to acting in the best interests of the client, but this should be about impartiality and integrity. And do refer to the Code of Professional Conduct.

ii. Don't forget the basics. For example, if you have chosen 'Information Technology', then using office suite software (e.g MS Word) is an excellent way to evidence this.

iii. Do not provide evidence against the 'Scientific Method' competencies that is not about 'real science' but is in fact routine analysis of data. For example, the analysis of bat call sonograms in order to identify species is evidence of competence in 'Species Identification'. The fact that this process uses software does not make it any different to using key characteristics to identify a plant species. This should not therefore be used under 'Scientific Method'. Do use evidence against these competencies derived from the world of academia or other scientific research and development environments.

iv. For 'Surveying' competencies, an awareness of biosecurity protocols is typically required and yet this is often not mentioned in applications. In addition, some applicants discuss survey techniques in detail but do not always fully demonstrate evaluating this information or an understanding of what the survey is to be used for and the importance of having clear objectives when planning the survey.

And finally...

Whether you are the applicant or acting as a sponsor or mentor, if anything is unclear please do get in touch with the membership team. Good luck!

Contact the CIEEM Membership Team at:
membership@cieem.net

Biocensus Network Day

In December 2018, we were invited by the friendly team at Biocensus to support their Network Day in Birmingham – an annual opportunity for the team to thank and celebrate their network of ecological and environmental consultants. Alongside the awards and interesting talks on the agenda, Saz from CIEEM's Membership team was available with information and to hold a drop-in 'surgery' at lunchtime.

The event provided not only the chance to meet the Biocensus team and their suppliers but also a valuable opportunity to hear directly from members and potential members. Saz appreciated members coming over to find out about projects we are currently working on and welcomed the opportunity to answer questions ranging from renewing their subscriptions to how they might upgrade their membership or gain Chartered status. An event like this helps us see that the positive membership changes we have put in place to support our members are actually making a difference. It is also so nice to put names to faces and speak to people on the ground!

It was also great to speak to potential new members and answer questions about applying, share our assessors' advice and present our newly designed Competency Framework. It was a good opportunity to explain changes to our early career grades to those new to the sector too. Many thanks to Biocensus for having us along.

If your organisation is holding a similar event that we might somehow support, then please do get in touch.

Registered Practices

CIEEM is launching a new scheme of Registered Practices so we wanted to take this opportunity to tell you what it's all about.

Registered Practices are champions of high professional standards and the delivery of the best outcomes for biodiversity whilst supporting a thriving economy. They are ambassadors for our profession, helping to raise its profile and to communicate its valuable contribution to society. Registered Practices actively seek to share their knowledge and expertise and support others, both individuals and organisations, to do their bit for our natural world. Does this sound like your organisation or business?

Max Wade, CIEEM President, said recently: *"Our Governing Board has given a lot of thought to the development of this new scheme. Registered Practices are telling their clients, prospective clients, partners and the wider public that they can have confidence in their commitment, collective competence and high standards. It is a benchmark of quality and we hope that our members will support its rollout so that it becomes recognised alongside other professional body registration schemes."*

Commitment

Registered Practices will have the right to use the new Registered Practices logo and appear on CIEEM's Registered Practices Directory. But, as with any quality scheme, there are commitments. Registered Practices will have to abide by a Code of Practice (not unlike the Code of Professional Conduct that covers members) and must agree to cooperate with an inquiry process should a complaint be received. As part of the Code, Registered Practices are expected to follow good working practices in relation to staff, sub-contractors and volunteers (see *PGS 13: Good Working Practices*) and when offering work experience opportunities (see *PGS 9: Guidelines on Providing Quality Work Experience*).[1]

Eligibility

The scheme has been designed to cover companies and organisations of all sizes that work in the field of ecology and/or environmental management. There is a minimum CIEEM membership requirement for permanent employees who are eligible for individual membership, including at least one Full member or Fellow and, for larger companies, one Chartered member.

Registered Practices do have to pay an annual registration fee which is adjusted according to the size of the organisation. Prices start at £100 per annum for sole traders and small companies, and up to £5,000 for the very large multi-disciplinary companies.

The Benefits

Registered Practices will be listed on our new Registered Practices Directory, promoting their services and expertise to potential clients. The details of the entry can be customised by the named contact and can include a logo and link to a website.

Registered Practices will also receive a copy of the Registered Practices logo which can be used on their business stationery, website and marketing materials. They also receive a Registered Practices Certificate for display.

There are discounts on advertising in *In Practice* magazine or on our website and there will also be opportunities to take part in webinars and round-table discussions regarding the future direction and priorities for CIEEM.

You can find out more details, including how to apply, on our website (http://www.cieem.net/finding-an-eem/).

[1] Both PGS (Professional Guidance Series) documents are available in the members area of the website.

5,600
Members

93%
Member retention rate

65%
Application rate increase

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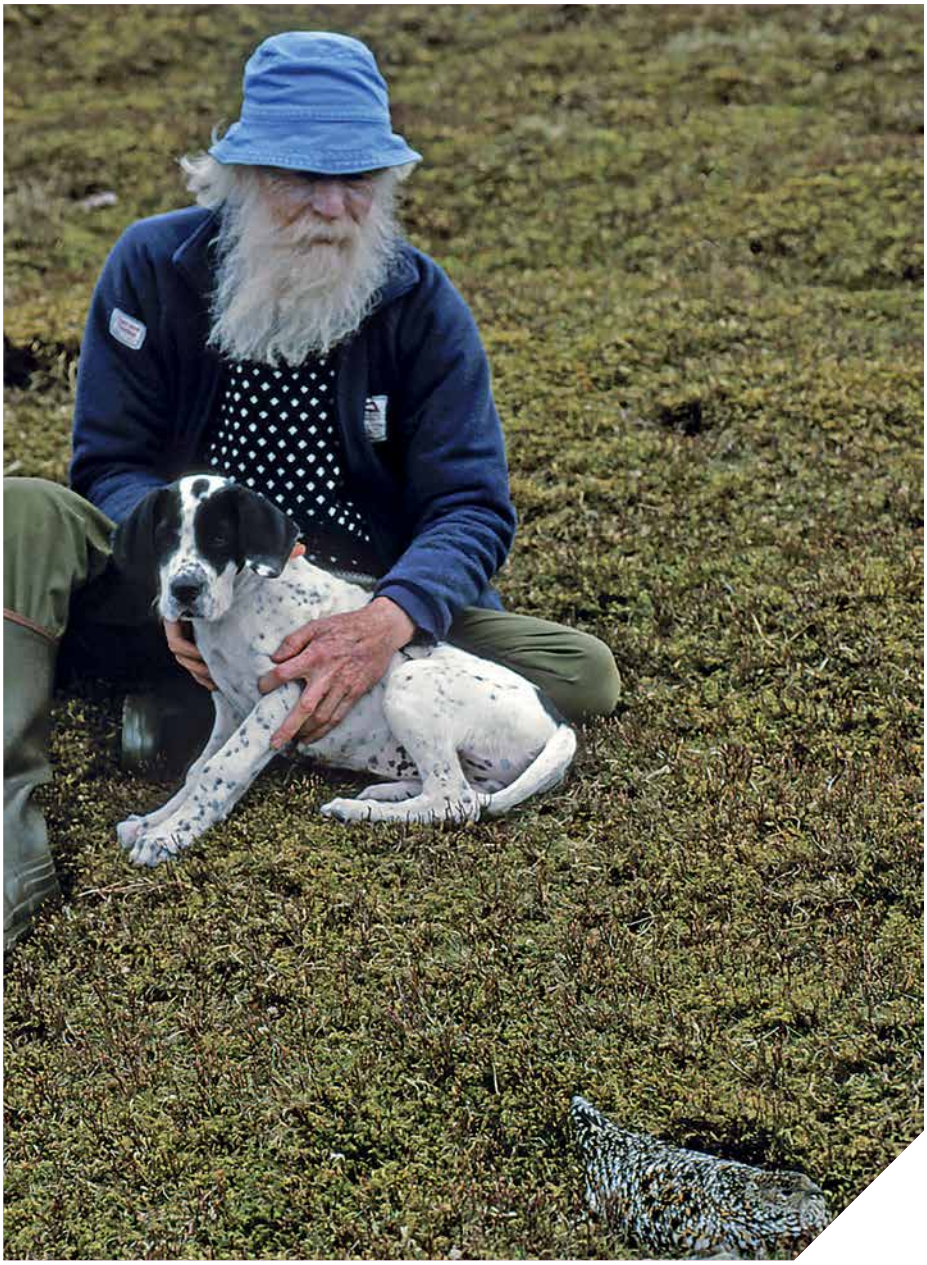
Email mimistanwood@cieem.net for more information

Obituary: Dr Adam Watson FRSE

Ecological polymath and cultural icon of the Cairngorms

Des Thompson FCIEEM

On the high, snowy and windswept tops of the Cairngorms a wiry, bearded naturalist honed what became legendary skills as a field scientist and conservationist. Adam Watson, who died aged 88 on 24 January 2019, developed a global, scientific reputation as much for his research findings as for the way he conducted and communicated them. Just days before he passed away, Adam was told he was to receive a special honour from CIEEM in recognition of his exceptional and sustained contributions to ecology and environmental monitoring and management.



Adam Watson with a puppy pointer dog viewing a nesting ptarmigan (Photo credit: Stuart Rae)

Studying mountain birds, mammals, soils, vegetation and snow patches, Adam developed datasets on long-term changes in wildlife. Working in some of the toughest environments imaginable, his research on elusive ptarmigan, arguably the world's hardiest bird, involved bivouacs in harsh conditions during which he recorded numbers, breeding success and habitat use by individuals. Obsessively observing these birds, he painstakingly worked across a series of study areas giving us data vital in revealing the impacts of climate and land use changes on nature. Each day, often consecutively over weeks, and spanning seven decades, Adam ascended Scotland's highest mountains and, sometimes with pointer dogs, surveyed the summit plateaux and boulder fields for every nesting bird in order to develop an accurate population estimate. By the mid-1960s he wrote classic papers on ptarmigan behaviour and ecology. Later, he developed studies of other mountain birds, mammals, plants and soils. *The Cairngorms: Their Natural history and Scenery (1974)*, co-written with Desmond Nethersole-Thompson, is a classic textbook. He published his last paper (with Jeremy Wilson) in *Journal of Applied Ecology* in autumn 2018, detailing a seven decades study of mountain hare population changes in northeast Scotland.

Taking a first class honours degree in zoology at Aberdeen University in 1952, Adam had the good chance to meet Col. Pat Baird on Derry Cairngorm whilst studying ptarmigan. An explorer, and at the

time a senior official of the Arctic Institute of North America, Baird took Adam with him as zoologist on his second major expedition to Baffin Island in 1953 (making the first glaciological studies in Arctic Canada). For Adam, this kindled a deep interest in Arctic wildlife and native people, and subsequent visits included a Carnegie Arctic Scholarship from McGill University, where Baird had become Director of the University's extensive Gault Estate.

A year later he joined the Government's Nature Conservancy Unit of Grouse and Moorland Ecology to study population changes in red grouse. Thereafter, he worked in northeast Scotland for the NERC Institute of Terrestrial Ecology (now Centre for Ecology and Hydrology, CEH).

The Victorian era gave rise to intensive grouse moors, with great swathes managed for the shooting of phenomenal numbers of red grouse. There was one problem – epidemics of death on many moors, with populations crashing, and resulting in financial losses. In 1905 a Committee of Inquiry was set up, and the Lord Lovat Report *The Grouse in Health and Disease* was published in 1911 (much of it written by the Antarctic explorer, Edward Wilson). Disease caused by a nematode threadworm was the main culprit. Research ensued to try and understand how this parasite and other factors drove grouse cycles. A new study in the northeast Scotland heartland of grouse moors began in 1956, with Adam leading the research team. What emerged was a complex range of factors driving the cycles, including the amount of young heather, underlying geology, and management practices. Adam's Collins New Naturalist book *Grouse* (2008), co-written with colleague Robert Moss, provides the detailed findings.

Aged seven, Adam developed a fascination for snow, and encouraged by the naturalist Seton Gordon, he took notes on the occurrence of mountain 'snow patches'. By the age of 14 he was keeping a diary of snow events, which developed in the 1940s to systematic monitoring of long-lasting snow patches in the Cairngorms, which remarkably continues to this day in collaboration with Iain Cameron. To date they have produced 23 annual reports on the survival of Scottish snow patches, for the Royal Meteorological Society, providing a unique record of weather-related influences on snow lie – an excellent signal of climate change.

His activism in nature conservation was sparked by several threats. The prospect of a major skiing development planned for the Lurcher's Gully in the Northern Corries of the Cairngorms in the early 1980s galvanised his painstaking study of human-related disturbance of mountain soils, vegetation and birds, and in this he pioneered methods to contrast extreme weather-related and human impacts. His research featured prominently in a landmark Public Inquiry in 1981 which essentially defined the design and location of further such developments. The unstinting persecution of birds of prey on grouse moors, some of which he studied for decades, infuriated him. He developed the longest running study of golden eagles in Europe, providing an unrivalled historical record of the fate of territories, with some suffering from interference each year since the 1940s. By no means confined to the uplands, Adam devised a remarkable study of long-term changes in populations of corn buntings in northeast Scotland (written up with RSPB staff) and other farmland birds, and he became intensely interested in soil erosion and damage in native woods.

An outstanding mountaineer, climber and cross country skier (the first person to ski-tour the six tops of the Cairngorms in a day, in 1962), Adam climbed with Tom Patey and other iconic cragsmen. From 1954, he checked most of the cliff routes in the Scottish Mountaineering Club's climbers' guide *The Cairngorms*; revising it in 1968, completely re-writing it in 1975, and repeatedly updating further editions.

A natural communicator, his northeast Scots burr, beautifully enunciated regularly on TV and radio, concealed a scholarly and unique mastery of Deeside Gaelic, which was to the fore in his magisterial textbook *The Place Names of Upper Deeside* (1984). Adam often spoke fondly of *"Being there"*, and in fact this betrayed a fascination in landmarks and features which each had a local name. Through talking endlessly with local people, and self-taught in Gaelic, Adam developed an unrivalled and encyclopaedic knowledge of the cultural roots of the Cairngorms' landscape. This area of scholarship alone was highly significant and innovative.

Born on 14 April 1930 in Old Bank House, Turriff, Aberdeenshire, Adam's father was a solicitor and fine naturalist (who gave up his legal practice to support his son's fieldwork). Adam met his wife to be, Jenny Raitt, in 1954 when she worked as secretary to renowned agricultural statistician David Finney FRS at Aberdeen University. Adam was studying in the nearby department of natural history and following a 'hillwalking courtship' they married on 19 March 1955 in Aberdeen, with Jenny becoming a popular and long-serving District Councillor.

He retired in 1990, but continued to work as an Emeritus CEH Fellow. He was prolific, publishing more than 30 books and over 500 other scientific publications. Elected a Fellow of the Royal Society of Edinburgh, Royal Society of Biology, and Royal Meteorological Society, lauded widely (including receiving the John Muir Trust's Lifetime Achievement Award, 2005), Adam held four doctorates, and his portrait hangs in the Scottish National Portrait Gallery.

Scholarly, authoritative, energetic and compellingly obsessive in his methodological approach, Adam inspired a cult following among mountaineers and environmentalists. As a scientific critic he was merciless, and red-inked manuscripts were standard issue to students and colleagues. He was unsparing in his criticism of traditional land managers and scientific competitors, and fired off forensically argued epistles at will. A scourge of what he termed 'establishment' thinking and practices, Adam was vehemently condemnatory of anyone who did not conform to his understanding of nature. His greatest legacy is decades of scholarly observations on nature and natural phenomena in mountain environments, with much of this gained through deep friendships with field companions.

Adam is survived by daughter Jenny, son Adam, and two granddaughters. His brother Stewart, and wife Jenny, predeceased him.

Policy Activities Updates

Amber Connett
Policy and Communications Intern, CIEEM

It has been a busy winter for the policy team at CIEEM, with a range of liaison meetings, consultation responses and workshops.

We have continued our Parliamentary engagement with a second visit to Downing Street to meet with Theresa May's environment advisor, Lord Randall of Uxbridge. During the meeting, we discussed how to better engage Parliamentarians with nature and the environment.

We have recently met with representatives from a range of organisations to discuss CIEEM's policy work and opportunities for collaboration. These include: Defra, Environmental Audit Committee, British Ecological Society, Conservative Environment Network, Wildlife and Countryside Link, SERA: Labour's Environment Campaign and Greener UK.

We have also continued our six-monthly liaison meetings with Natural England, discussing a wide range of topics, including: wildlife licensing reform, licence charges, biodiversity net gain, district-level licensing and the National Planning Policy Framework.

Sally Hayns (our CEO), Diana Clark (CIEEM Wales Project Officer) and Michael Willis (former Wales Vice President) met with Natural Resources Wales (NRW) CEO Clare Pillman to promote CIEEM membership to NRW staff and engage with strategic thinking and development within the organisation. We will continue to engage with NRW into the future.

Towards the end of 2018, we responded to a number of consultations, including:

- National Energy & Climate Plan (NECP) 2021-2030 (DCCAE)
- Scotland's Forestry Strategy 2019-29 (Scottish Government)
- Consultation on proposals to ban the distribution and/or sale of plastic straws, plastic – stemmed cotton buds and plastic drink stirrers in England (Defra; sign up to CIWM's response)
- Landscapes Review: Call for Evidence (Defra)
- Marine Planning Framework Baseline Report (Department of Housing, Planning and Local Government; ROI)
- Japanese Knotweed and the built environment (Science and Technology Committee)

This year has got off to a busy start, with CIEEM producing responses to the following consultations at the time of writing:

- Biodiversity – Public Goods Scheme Inquiry (Climate Change, Environment and Rural Affairs Committee; Wales)
- 25-year environment plan: measuring progress (Defra)
- Implementation of Section 7(1) of the Heritage Act 2018 (National Parks & Wildlife Service; ROI)
- Biodiversity Net Gain (Defra)
- Environment Bill inquiry (Environmental Audit Committee and Environment, Food and Rural Affairs Committee)
- Heritage Ireland 2030 – a new national heritage plan (Department of Culture, Heritage and the Gaeltacht; ROI)
- Good Food Nation Proposals for Legislation (Scottish Government)
- Inshore Fisheries Pilot: Inner Sound of Skye (Scottish Government)
- Housing Sector Plan (Scottish Environment Protection Agency)

Following the announcement of the biodiversity net gain consultation, we hosted two joint workshops and a webinar with IEMA. The aim of these workshops was to hear more from environmental professionals working in the fields of impact assessment, local government, planning and development on biodiversity net gain. These events fed directly into our consultation response. We would like to thank Northumbria University for providing a venue for the Newcastle workshop.

Participants at the Net Gain workshop in Newcastle.

Our Country Policy Groups have had another round of meetings in which they continued their horizon-scanning activities and country-specific projects. The groups have also contributed to a number of the consultations listed above.

We have continued working with the Environmental Policy Forum, recently meeting to discuss the year's activities and future joint work. We discussed a range of issues including the Agriculture Bill, Environment Bill, shale gas, and the Resources and Waste Strategy.

As 2018 drew to a close, we began planning our policy activities for the next year. Both our Fellows Forum and Strategic Policy Panel discussed developing a new CIEEM policy engagement strategy and objectives for 2019. This will direct our policy activities to effectively influence policy for the benefit of the environment. Key focuses for this year will be the Environment Bill, biodiversity net gain, Brexit legislation and increasing engagement in the devolved countries.

Contact Amber at:
AmberConnett@cieem.net

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

ARCADIS Design & Consultancy for natural and built assets
biocensus Experts in Ecology
BSG ecology
EPR
pba peterbrett

Investing in CIEEM Policy Activities

Jason Reeves
Policy and Communications Manager, CIEEM

The UK vote to leave the European Union in June 2016 was a major event in recent UK history. Although on balance we believed (and still do) that EU membership has been beneficial for the natural environment, we recognised that leaving the EU also represented an opportunity to improve legislation for the benefit of the natural environment. Notwithstanding the current parliamentary impasse on Brexit, CIEEM has used this opportunity to positively influence policy and legislation by increasing our engagement with policy- and decision-makers at the highest levels.

In order to support this enhanced engagement activity, we have, since June 2017, had a number of corporate investors in our Brexit and policy activities.

These investors have been hugely beneficial to the Institute. Their support has allowed us to seek advice and guidance from a parliamentary affairs consultant; hire Amber Connett as a Policy and Communications Intern for nine months; engage with over 30 MPs and Peers on a range of issues; and host three roundtable events in Parliament on land management, environmental governance and biodiversity net gain.

The parliamentary affairs consultant has provided invaluable insight into the policy engagement process and managed the logistics of many of our meetings and events with parliamentarians. They have also provided strategic advice, drafted briefing notes on various issues as they arise in Parliament, and provided a monthly monitoring service.

Amber, too, has been a fantastic addition to the CIEEM team. She has taken on drafting the popular monthly Policy eBriefing, enabled the Country Policy Groups to move forward with her logistical support, and taken on some of the work around consultation responses. She has also been working on setting up a new All-Party Parliamentary Group (APPG) for Nature, which will give us direct access into Westminster. We have had a hugely positive response from parliamentarians with five already offering to be Officers of the group. At the time of writing we are in discussions to confirm a Chair for the group.

CIEEM has had an incredibly successful two years in terms of policy engagement. Our profile has risen hugely in this time. We have been invited to give oral evidence to Select Committees four times in the past two and a half years. Additionally, we have met with Sir John Randall, Theresa May's Environment Advisor, twice in the past 12 months to discuss our environmental concerns.

Brexit is a long way from being resolved (in whatever way the UK leaves the EU, or potentially doesn't…), and there is still a lot to play for – in particular the forthcoming Environment Bill, for which we have already started a programme of engagement. Assuming that Brexit does happen, and whether or not there is a transition period in which a new relationship with the EU is negotiated, there is an ongoing opportunity and imperative for CIEEM to help ensure that environmental standards and protections are not just secured but also enhanced.

Without the support of our current investors – Arcadis, Biocensus, BSG Ecology, Ecological Planning and Research, and Peter Brett Associates – we would not have been able to achieve what we have, and we are hugely thankful for their ongoing input and contributions. In return, investors have contributed directly into CIEEM's policy direction, activities, positions and briefings. In addition, they have had the opportunity to join us for a number of events in Parliament.

Policy and Communications Intern, Amber Connett, at 10 Downing Street.

But this is not the end. Within the UK we need to continue our engagement in Westminster, but at the same time extend our reach to the devolved administrations, to have the best possible outcome for the benefit of the natural environment, CIEEM members, and the sector. In order to do this, we would like to work with further policy investors who are interested in this area of our work.

If you are interested in finding out more about opportunities to invest in CIEEM's policy activities, please do get in touch at jasonreeves@cieem.net.

International Focus

Corin Simmonds CEcol CEnv MCIEEM
Associate Director International Projects Group, RSK

International Finance Corporation (IFC) Performance Standard's updates to Guidance Note 6 Biodiversity Conservation and the Sustainable Management of Ecosystem Services and Living Resources

The newly revised guidance note for Performance Standard 6 was released by the IFC in November 2018 and there have been some exciting developments since the publication of the January 2012 guidance note. One of the key changes relates to IFC's definition of Critical Habitat, which is an increasingly important concept used by IFC, the finance sector, projects and ecologists worldwide to identify areas of high biodiversity value. The determination of Critical Habitat by IFC is defined by five of the following criteria, where Critical habitats are areas that include at least one or more of these values:

- Criterion 1: Critically Endangered and/or Endangered species
- Criterion 2: Endemic or restricted-range species
- Criterion 3: Migratory or congregatory species
- Criterion 4: Highly threatened and/or unique ecosystems
- Criterion 5: Key evolutionary processes

Whilst IFC's Guidance Note 6 does not provide a direct methodology for undertaking critical habitat assessments, the 2018 guidance includes an outline of the scope of the assessment for project development with a greater emphasis on the importance of stakeholder consultation and expert opinion.

The numerical thresholds defined for the first three critical habitat criterion have been revised by the 2018 guidance note to take into account the concept of 'reproductive units' and areas that support globally-important concentrations of an IUCN Red-listed Vulnerable species. Furthermore, the two tiers of critical habitat defined in IFC PS6 Guidance Note (IUCN, 2012) have been removed. In contrast to the IFC PS6 2012 guidance, new numerical thresholds are defined for Criterion 4 highly threatened and/or unique ecosystems in the absence of a formal IUCN Red List of Ecosystem assessment. Greater clarity has been provided by the new guidance note which will facilitate a client's understanding of the implications for project development in areas of critical habitat.

The new guidance note also acknowledges the importance of great apes due to their anthropological significance and stipulates that the IUCN Great Apes Specialist Group must be consulted to assist with great apes within a project's zone of influence (IFC, 2015). Projects located in areas where Critical Habitat is triggered by great apes may only be acceptable for financing in exceptional circumstances. The new guidance note also emphasises the importance of alerting the IFC to the proposed development of projects within or near UNESCO Natural and Mixed World Heritage Sites and sites that fit the designation criteria of the Alliance for Zero Extinction early on in project development and the permitting process.

If you would like to contribute to this page please contact Corin at:
csimmonds@rsk.co.uk.

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Nottingham Trent University

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British Ecological Society

Finding ways forward on bringing back the wild

Rewilding has the potential to drastically improve biodiversity, but it is a controversial and divisive topic. The British Ecological Society has published a new book that brings together various perspectives in an effort to build common ground and is aimed at ecologists, conservation practitioners and land managers.

The debate on rewilding arises from many different opinions on what conservation science and practice should be about and achieve. Into this mix comes *Rewilding*, a new book from the British Ecological Society (BES) published by Cambridge University Press.

"As tense as the current debate may appear, whoever is concerned with wildlife management cannot afford to ignore discussions on rewilding and miss potential opportunities to improve current biodiversity levels," says Nathalie Pettorelli of the Institute of Zoology in London and one of the new book's editors.

Moving forward on rewilding will require consensus building and understanding of different points of view, she believes. That's what's driven Nathalie and her colleagues, Sarah Durant of the Institute of Zoology and Johan du Toit of Utah State University in the US, to put together the new volume.

The book brings together chapters from leading researchers to provide insight from around the world and from different disciplines. It considers the benefits and dangers of rewilding approaches, as well as the economic, social and political realities of using rewilding as a conservation approach.

Nathalie hopes the book will help readers appreciate how rewilding can be more than a purely ecological concept: *"It should relate to discussions around coexistence, societal values and tolerance for wildlife, and inviting nature right back to our doorstep."*

Rewilding is the latest in the British Ecology Society's 'Ecological Reviews' book series (£37.99 for paperback). BES members can get a 25% discount on the cover price via the member area of the Society's website.

New insights on farming for biodiversity

Changes in farming practice over the last 60 years have had serious effects on species that live in farmland and the surrounding landscape. As a result, there is a great interest in how we can manage rural landscapes in a way that sustains biodiversity while still growing the food we need and ensuring farmers can make a livelihood.

The BES's *Journal of Applied Ecology* has just published a Spotlight on this topic, with eight papers addressing a number of burning issues on how we might manage farmland better – from new perspectives on the old 'land-sharing' versus 'land-sparing' arguments to the more recent focus on the need for farmer participation in landscape-level conservation. A summary of the top lines can be found in a post by Tomas Pärt of the Swedish University of Agricultural Sciences on *The Applied Ecologist's Blog*.

Member Network News

With regional Section Committees across England and national Sections in Wales, Ireland and Scotland, as well as Special Interest Groups (SIGs) focussing on specific topics, we have something for everyone.

Each network is run by a committee of volunteers, providing opportunities to share knowledge, meet like-minded people and learn more about the science and practice of our profession.

There are currently about 170 Member Network volunteers doing amazing work all over the UK, Ireland and beyond. If you'd like to find out about what they get up to and how you can get involved, please visit www.cieem.net/member-networks.

SOUTH EAST ENGLAND

Dealing with invasive non-native plants: the need for guidance on risk assessment 18 October 2018, London

The outcome of the workshop, hosted by AECOM at Aldgate Tower, heralds much needed guidance for those dealing with invasive non-native weeds to ensure these weeds are only controlled when they pose unacceptable risk. These plants include Japanese knotweed, Himalayan balsam and giant hogweed. This is good news for the environment, reducing unneeded damage, and for developers by helping to remove unnecessary constraints to projects.

The workshop was jointly organised by the CIEEM South East Section Committee, the Invasive Weed Control Group of the PCA and the London Boroughs Biodiversity Forum. The outcome of the workshop was reported at the PCA's international Invasive Weed Conference: Identification, Assessment and Response in November 2018, with the intention of publishing guidelines in 2019.

SCOTLAND

Beavers, Bats and Botany 25 October 2018, Edinburgh

The Scottish Section hosted an evening of talks presented by three experts in the field of ecology. Dr Roisin Campbell-Palmer provided a fantastic update on the status of beavers in Scotland, their impacts to the environment and the proposed changes to legislation. The tremendous efforts to conserve the alpine blue sow thistle, a plant under serious threat in the Scottish uplands, were highlighted by Dr Aline Finger of the Royal Botanical Gardens Edinburgh. Finally, Neil Middleton of Batability gave his expert opinion on how to undertake good bat surveys, how best to record data and the use of bat detectors.

The evening was well attended by CIEEM Members and we are grateful to all speakers who gave up their time to bring their knowledge and experience to the CIEEM membership.

IRELAND

Legal Workshop Q&A session 23 October 2018, Dublin

McCann FitzGerald Solicitors hosted a lunchtime legal workshop and Q&A session at their Dublin offices for CIEEM members on 23 October 2018. The workshop was chaired by Jenny Neff CEcol CEnv FCIEEM and opened with a presentation by solicitor Brendan Slattery on key recent Irish and European (CJEU) judgements.

The Q&A panel comprised McCann FitzGerald solicitors Michelle Doyle, Brendan Slattery and Sinéad Martyn. It was a very interactive session, with opinions, questions and experiences shared from the floor. This was the third successful event of this kind for experienced ecological practitioners hosted by McCann FitzGerald and there are plans to make this an annual event.

This was followed up with a professional update article by Brendan Slattery and Jenny Neff in December's *In Practice* in relation to recent case law.

SCOTLAND

Autumn Young Professionals Social with CIEEM, LUC, LIS and RTPI
11 October 2018, Glasgow

CIEEM Scotland joined forces with Landscape Institute Scotland (LIS) and Royal Town Planning Institute (RTPI) West of Scotland Chapter to give our young professionals and graduates some networking opportunities with each other. The aim of the night was to give people in the early part of their career a chance to network with confidence and find out more about other disciplines they will be working with during the course of their working lives.

The event was held in All Bar One Glasgow, and staff did a great job! There was a high turn out from the RTPI team, a selection of landscape designers and students and just a handful of ecologists. This has highlighted a much needed area for our amazing Scotland Committee to focus on: getting young ecologists to recognise the importance of cross-discipline networking.

ACADEMIA SPECIAL INTEREST GROUP

The newly formed Academic SIG Committee held a side meeting at CIEEM's Autumn Conference in Glasgow in November 2018 asking participants for their thoughts to help inform our action plan. These were:

- How can we better prepare students for the work place?
- How does/should research inform practice? And practice inform research?
- How could the ASIG be raising awareness of academic research relevant to practice?
- How could CIEEM develop and improve the benefits of membership to academics?
- Is our 'good practice' good enough? Are there areas where there are issues?

We are now seeking a wider response so please do get in touch with your views via membernetworks@cieem.net.

YORKSHIRE AND HUMBER

Events Round up for 2018

After a relatively quiet year in 2017, committee members found time in 2018 to organise a number of talks and field visits, or to engage with conservation bodies in the region to run joint events. Highlights have included:

- A talk in March by pine marten expert and author, Johnny Birks of Swift Ecology, organised jointly with the Yorkshire Wildlife Trust and Yorkshire Mammal Group.
- May saw the first of a series of field visit events with a visit to Wensleydale to hear from Ian Court of the Yorkshire Dales National Park on some of the species work they are doing.
- In June we visited Malham Tarn with National Trust Ecologist Fran Graham and her colleague Roisin Black to hear about water vole translocation to the site.
- The same month saw a visit to the East Riding and Skerne Wetlands YWT reserve, a former trout farm situated on the river Hull, the UK's most northerly chalk stream.
- It was back to the Dales in October where we heard from Dan Turner and colleagues at the Yorkshire Dales Rivers Trust about how they are working with farmers in Upper Wharfedale to hold and slow water in the upper catchment to reduce flood events.
- The year rounded off with an illustrated talk in November by Jonny Hart-Woods of the Canal and River Trust who manage the Tees Barrage.
- In October, the Section Committee again had the opportunity to represent CIEEM at the Leeds University STEM Careers Fair.

The Committee is now planning the 2019 programme, so if there is something you would like to see as the subject of a talk or visit, or have something to offer, please contact the committee at yorkshireandhumber@cieem.net.

Looking for signs of water vole around Malham Tarn in the Yorkshire Dales. Photo by Gordon Haycock

An example of work to slow water flow in stream channels in Upper Wharfedale including leaky dams, tree planting and increased vegetation structure.

Don't forget you can sign up to hear from any of our Member Networks in the Members' area under 'Update personal preferences'.

New Members

The decision on admission is usually taken by the Membership Admissions Committee or Registration Authority under delegated authority from the Governing Board but may be taken by the Governing Board itself.

CIEEM is pleased to welcome the following individuals as new, upgraded and Chartered members:

ADMISSIONS

Chartered Environmentalist (CEnv)
Philippa Hamshaw, Caroline Maghanga, Dr Miles Newman, Elizabeth Spedding, Sarah White

Chartered Ecologist (CEcol)
Katie Critchley, Nancy Davies, Kathryn Edwards, Marion Macnair, Peter Owens, James Whiteford, Dr Philippa Wood

Full Members (MCIEEM)
Steve Edmonds, Natalie Hirst, Dr Sarah Hobbs, Ian Hunter, Dr Andrew Lucas, Chiara Magliozzi, Amanda Ophof, Dr Georgina Palmer, Dr Stephen Perriss, Nicole Price, Fernando Scherner, Dr Antonio Uzal Fernandez, Andrew Weston

Upgrades to Full Membership (MCIEEM)
Caroline Airson, Kirstin Aldous, Natalie Andersen, Rosmund Benbow, Paul Cassidy, Elizabeth Else, Bryony Gillett, Casey-Ruth Griffin, Patryk Gruba, Kate Hobbs, Thomas Knight, Patrick Leatham, Joanne Makin, Susan O'Neill, Victoria Potts, Anthony Robb, Luke Roberts, Steven Roe, Lauren Stothert, Frances Tobin, Dr Anatoli Togridou, Robert Wreglesworth

Associate Members (ACIEEM)
Keely Bigland, Caroline Boffey, Craig Carney, David Cowley, Daniel Fellman, Caroline Howes, Robert Mansbridge, John McTague, Saoirse O'Donoghue, Heather Parris, Amber Perrett, Robert Potter, Patrick Quinn, Patsy Ryan, Anna Showan, Rosamund Sparks, Marie Thibault, Bradley Williams

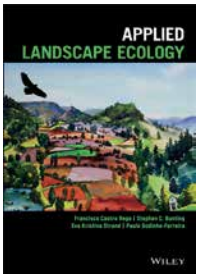
Upgrades to Associate Membership (ACIEEM)
Hannah Bates, Ben Devine, Grace Dooley, Christopher Greenland, Katherine Halsall, Flora Haynes, Ruth Holland, Charlotte Keightley, Thomas McClellan-West, Kyle Mellish, Huw Morgan, Clare Morgans, Zoe Phillips, Rosamund Pope, Alice Power, Kirsty Rogers, Christopher Schofield, Catherine Shaw, Jessica Smith, Maria Thompson, Michelle Tyrrell, Susan Worsfold

Graduate Members (Grad CIEEM)
Heather Anning, Eloise Arif, Thomas Bell, Melissa Brinsford, Veronica Cantero Sanchez, Katharine Coope, Phoebe Cox, Rebecca De Vere, Christopher Gilbert, Alexander Hawkins, Zoe Haysted, Freya Johnson, Hemali Lalji, Abigail Marshall, Sarah Miller, Mungo Nash, Donncha Ó Catháin, Naresh Patel, Adam Penney, Neha Phansalkar, Christina Pullan, Matthew Rohner, Dr Richard Smedley, Adam Smith, Anna Spence, Katie Sykes, Josephine Travell, Brooke Waites, Robert Werran, Hannah Whitford, Sally Wilding, George Wilkinson

Upgrades to Graduate Membership (Grad CIEEM)
Tobias Betts, Rowell Bingham, Lydia-Rose Cox, Craig Dickson, Grace Gardner, Martin Garea-Balado, Shona Redman, Victoria Wallace-Williams, Jack Wheeler

Qualifying Members
Olivia Benson, Laura Carse, Carla Ferreira de Sousa, Jake James-Knell, Laura Kahane, Kathryn Lillistone, Jack Morphet, Mark Pritchard, Tim Sexton, Jason Short, Diego Urrutia Guevara

Student Members
Alexis Alders, Gary Allwood, Ellie Bain, Sam Baker, Boglarka Baksay, Damien Barry, Anna Beasley, Zuzanna Bednarska, Stephanie Bevan, Christopher Boyce, Samantha Bradley, Sophie Brown, Graeme Burgon, Emily Burtonshaw, Tilly Calcutt, Adam Chambers, Esther Christie, Christopher Clark, Chloe Clarke, Isabel Commerford, Stephen Coombes, Eleanor Coones, George Cooper,Erin Courtier, Eleanor Crome, Hazel Cuenca, Liam Curran, Henry Cuthbert, Ayashi Das Majumder, Emma Davey, Laura Davey, Amy Dennett, Thomas Doades, Zoe Durran, Rebecca English, Sophie Evans, Harry Evans, James Evry, Samantha Faggetter, Malgorzata Featherstone, Paige Fellows, Tracey Ferguson, Bethany Field, Grace Finlay, Alexander Fitzroy, Matthew Forde, Emanuele Giacomuzzo, Bethany Gibbs, Maureen Gibson, Kiera Hamilton, Elizabeth Hanlon, Fern Harrison, Julie Hayes, Ruth Highley, Dominic Hill, Daniel Howgego, Fiano Huan, Gareth Hunt, Sophie Jenkins, Nicolas Jones, Amy Jones, Roisin Jones, Rowan Jones-Brown, Fiona Joyce, Heather Kazara, Daniel Kellaway, Oliver Kent, David Kesner, Dominic Kingston, Happy Lau, Eleanor Lister, Sophie Lunn, Laura Lyons, Robert McCalman, Matthew McCann, Aaron McFarland, Olivia McGregor, Hilary McGuire, Janine McMahon, Virgilio Mendoza, Kerry Metcalfe, Isabella Miles, Kyle Miller, Callum Miller, Anthony Monir, Ian Moore, Andrew Nelson, Aoife Neville, Chloe Newbery, Anna Newlove, Lucy Norton, Cliodhna O'Flaherty, Gabriela O'Toole Torres, Edel Parr, Kayleigh Peace, Alexander Permain, Georgia Phillips, Matt Pilkington, Rebekah Pipes, Alessandro Pirzio-Biroli, Adriana Pizzi, Fiona Plenderleith, Lucy Pocock, Donnachadh Powell, Findlay Rae, Kajal Rajendrakumar, Sofia Riccomagno, Helen Rimmer, Stephanie Rowe, Lucy Ryley, Erika Saxon, Emily Schofield, Martin Searle, Nicola Shaw, Kate Shears, Olivia Shoemark, Mark Smith, Vincent Smith, Kate Stenton, Malachi Stone, David Stone, Needhi Thangasamy, Lowri Thomas, Justine Thompson, Judy Tung, Megan Tyler, Robert Varley Maloney, Emma Wade, Peter Walker, April Warburton, Ian Weller, Emma Westergaard, Elizabeth Williams, Brigid Wills, Christina Winkler, Chloe Winterbottom, Charlotte Wood, James Yildiz, Deng Zhuosi



Applied Landscape Ecology

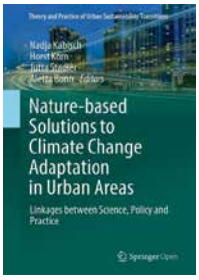
Author: Francisco Castro Rego, Stephen Bunting, Eva Kristina Strand, Paulo Godinho-Ferreira

ISBN: 9781119368229

Price: from £53.99

Available from: www.wiley.com

Applied Landscape Ecology considers the effects of ecological processes upon particular species and places its findings within the context of larger-scale concerns. Concepts in landscape ecology, elements, interactions and movements are all considered. The book also covers new technologies and methods in landscape ecology and management, suitable for students, researchers, and practitioners alike.



Nature-Based Solutions to Climate Change Adaptation in Urban Areas

Editors: Nadja Kabisch, Horst Korn, Jutta Stadler, Aletta Bonn

ISBN: 9783319560915

Price: Open Access (online), £43.99 (print)

Available from: www.link.springer.com (print copy available from www.springer.com)

The importance of nature-based solutions to climate change adaptation in urban areas is highlighted in this book using findings from science, policy and practice. The book was inspired by the European conference on *"Nature-based solutions for climate change in urban areas and their rural surroundings – linkages between science, policy and practice"* hosted by the German Federal Agency for Nature Conservation. Contributions provide recommendations for creating synergies between ongoing policy processes, scientific programmes and practical implementation of climate change and nature conservation measures in global urban areas.

Rebirding: Rewilding Britain and its Birds

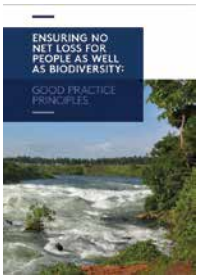
Author: WWF

ISBN: 9781784271879

Price: £19.99

Available from: www.pelagicpublishing.com

Rebirding first provides a detailed overview of why Britain's birds are declining, including: habitat removal, intensive practices and removal of keystone species. The book then offers a view of how to halt this decline, through rewilding of landscapes and restoring natural ecosystems. The plan involves large-scale rebuilding of food chains and connectivity. The author also highlights economic opportunities provided by this approach to conservation of bird species.



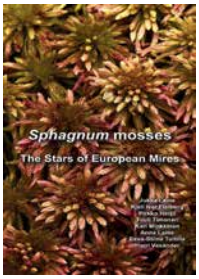
Ensuring No Net Loss for people as well as biodiversity: good practice principles

Authors: Joseph W. Bull, Julia Baker, Victoria Griffiths, Julia P. G. Jones, E.J. Milner-Gulland

Paper DOI: 10.31235/osf.io/4ygh7

Available from: https://osf.io/preprints/socarxiv/4ygh7/

Development projects worldwide are increasingly required to quantify and fully mitigate their impacts on biodiversity, with an objective of achieving 'no net loss' or a 'net gain' of biodiversity overall. This can have social impacts which are often not adequately considered. This publication outlines good practice principles for addressing the social impacts that arise from all losses and gains in biodiversity from a development project and its 'no net loss' or a 'net gain' activities. The principles in this publication are founded on international best practice that calls for development projects to achieve biodiversity 'no net loss' or a 'net gain' while ensuring that affected people are 'no worse off and preferably better off'.



Sphagnum Mosses: The Stars of European Mires

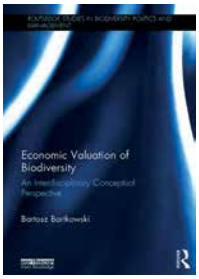
Authors: Jukka Laine, Kjell Ivar Flatberg, Pirkko Harju, Tuuli Timonen, Kari Minkkinen, Anna Laine, Eeva-Stiina Tuittila, Harri Vasander

ISBN: 9789515131430

Price: £89.99

Available from: www.nhbs.com

This book describes the 60 species of European Sphagnum mosses for both identification in field conditions and for microscopic work in the laboratory, using photographs and illustrations. Distribution of each species in Europe is given as well as the latest changes in taxonomy. The book aims to help field ecologists, palaeo-ecologists and geologists in the sometimes-difficult task of Sphagnum identification.



Economic Valuation of Biodiversity

Author: Bartosz Bartkowski

ISBN: 9780367152383

Price: £36.99

Available from: www.routledge.com

This book provides a conceptual framework which identifies the many ways in which biodiversity influences human well-being. The author provides a review of the feasibility and appropriateness of monetary valuation and suggests suitable methods for economic valuation of biodiversity. The framework shows that biodiversity's economic value mainly results from uncertainty about the future, regarding both supply of and demand for ecosystem services, and interconnections between ecosystems.

Worldwide decline of the entomofauna: A review of its drivers

Francisco Sánchez-Bayo and Kris A.G.Wyckhuys

Biological Conservation 2019; 232: 8-27
https://doi.org/10.1016/j.biocon.2019.01.020

Biodiversity of insects is threatened worldwide. In this paper the authors present a comprehensive review of 73 historical reports of insect declines from across the globe, and systematically assess the underlying drivers. Their work reveals dramatic rates of decline that may lead to the extinction of 40% of the world's insect species over the next few decades. In terrestrial ecosystems, Lepidoptera, Hymenoptera and dung beetles (Coleoptera) appear to be the taxa most affected, whereas four major aquatic taxa (Odonata, Plecoptera, Trichoptera and Ephemeroptera) have already lost a considerable proportion of species. Affected insect groups not only include specialists that occupy particular ecological niches, but also many common and generalist species. Concurrently, the abundance of a small number of species is increasing; these are all adaptable, generalist species that are occupying the vacant niches left by the ones declining. The main drivers of species declines appear to be in order of importance: 1) habitat loss and conversion to intensive agriculture and urbanisation; 2) pollution, mainly that by synthetic pesticides and fertilisers; 3) biological factors, including pathogens and introduced species; and 4) climate change. A rethinking of current agricultural practices, in particular a serious reduction in pesticide usage and its substitution with more sustainable, ecologically-based practices, is urgently needed to slow or reverse current trends, allow the recovery of declining insect populations and safeguard the vital ecosystem services they provide. In addition, effective remediation technologies should be applied to clean polluted waters in both agricultural and urban environments.

Defining and delivering resilient ecological networks: Nature conservation in England

Nick J. B. Isaac *et al*.

Journal of Applied Ecology 2018; 55: 2537-2543
https://doi.org/10.1111/1365-2664.13196


Marsh Fritillary

Although the importance of habitat networks for individual species is clear, their significance for long-term ecological resilience and multi-species conservation strategies is less established. This study describes the conceptual basis for defining and assessing a network of wildlife areas that supports species' resilience to multiple pressures. Actions are explored that could enhance network resilience at a range of scales, based on ecological principles, with reference to the influential *Making Space for Nature* report by Lawton et al. (2010). The study illustrates the policy context, describes the elements of a long-term adaptive management plan and provides example actions, metrics and targets for early implementation using England as a case study.

Open access at: https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.13196

Advancing restoration ecology: A new approach to predict time to recovery

Knut Rydgren, Rune Halvorsen, Joachim P. Töpper, Inger Auestad, Liv Norunn Hamre, Eelke Jongejans, Jan Sulavik

Journal of Applied Ecology 2019; 56: 225-234
https://doi.org/10.1111/1365-2664.13254

Currently, restoration efforts still lack adequate methods for predicting the expected time to compositional recovery. This study describes a new approach for predicting recovery times using distances between restored plots and reference plots along the successional gradient. Results demonstrate that the new approach opens for reliable prediction of recovery rates using species compositional data. It also allows for assessment of whether recovery is proceeding in the desired direction and to compare restoration speed between alternative management options.

Open access at: https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.13254

Optimal planning to mitigate the impacts of roads on multiple species

Tal Polak, Emily Nicholson, Clara Grilo, Joseph R. Bennett, Hugh P. Possingham

Journal of Applied Ecology 2019; 56: 201-213
https://doi.org/10.1111/1365-2664.13258

Roads can negatively affect wildlife through habitat loss, fragmentation and direct mortality. Mitigation measures are often used, however these can vary in success level and expense. This study combines decision theory with a metapopulation model to determine the most cost-effective actions mitigating the effects of roads on multiple species. Planning for the needs of all species at the same time was shown to maximise the number of persisting species and provide the most robust and cost-effective planning strategy, while single-species strategies were found to be inefficient.

Correspondence: talp@npa.org.il

Guiding principles for assessing the impact of underwater noise

Rebecca C. Faulkner, Adrian Farcas, Nathan D. Merchant

Journal of Applied Ecology 2018; 55: 2531-2536
https://doi.org/10.1111/1365-2664.13161

Underwater noise pollution poses a global threat to marine life and is a growing concern for policymakers and environmental managers. Projected growth in the blue economy is expected to bring an expansion in noise-generating activities, notably the construction of offshore wind turbines and other marine infrastructure. This article sets out guiding principles for assessing the impact of underwater noise, providing developers, regulators and policymakers with a robust, science-based framework to address this emerging threat. Authors identify shortcomings in current practice and propose steps to improve the compatibility of individual EIAs with cumulative effects assessments.

Open access at: https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.13161

Comparing the sampling performance of sound recorders versus point counts in bird surveys: A meta-analysis

Kevin Darras, Péter Batáry, Brett Furnas, Antonio Celis-Murillo, Steven L. Van Wilgenburg, Yeni A. Mulyani, Teja Tscharntke

Journal of Applied Ecology 2018; 55: 2575-2586
https://doi.org/10.1111/1365-2664.13229

While there are clear advantages of passive acoustic monitoring methods over classical point counts conducted by humans, it has been difficult to quantitatively assess how they compare in their sampling performance. This meta-analysis demonstrates that when used properly, high-end sound recording systems can sample terrestrial wildlife just as well as human observers conducting point counts. The authors suggest a first standard methodology for sampling birds with autonomous sound recorders to obtain results comparable to point counts and enable practical sampling. Recommendations are also given for carrying out effective surveys and making the most out of autonomous sound recorders.

Correspondence: kdarras@gwdg.de

Can ecosystem functioning be maintained despite climate-driven shifts in species composition? Insights from novel marine forests

Albert Pessarrodona, Andrew Foggo, Dan A. Smale

Journal of Ecology 2019; 107: 91-104
https://doi.org/10.1111/1365-2745.13053

Climate change is driving a redistribution of species and the reconfiguration of ecological communities at a global scale. Although these climate-driven changes in species abundance and diversity are well documented, their ecosystem-level implications are poorly understood, and resolving whether reconfigured communities can maintain fundamental ecosystem functions represents a pressing challenge in an increasingly warmer world. This study investigated how climate-driven substitutions of foundation species influence processes associated with the cycling of organic matter by comparing two habitat-forming kelp species with contrasting thermal affinities. Results show that, like species invasions, climate-driven range expansions can modify a wide range of important ecosystem processes. However, alterations in overall ecosystem functioning may be relatively limited where foundation species share similar ecological and functional traits.

Correspondence: albert.pessarrodona@research.uwa.edu.au

Do bridge construction activities influence birds using the River Mersey, in northwest England?

Colin Bonnington, Damian Smith

Bird Study 2018; 65: 346-356
https://doi.org/10.1080/00063657.2018.1513988

This study aims to address a gap in knowledge of how construction works affect wintering water-birds and breeding bird assemblages. Common bird census and wintering bird surveys were carried out before and during construction of the Mersey Gateway bridge to determine whether construction caused displacement of bird groups, affected breeding density or changed assemblages. This study provides a preliminary assessment of the influence of bridge construction on birds and highlights a need for continued monitoring of the impact of construction on wildlife.

Applying ecological knowledge to the innovative design of sustainable agroecosystems

Elsa T. Berthet, Vincent Bretagnolle, Sandra Lavorel, Rodolphe Sabatier, Muriel Tichit, Blanche Segrestin

Journal of Applied Ecology 2019; 56: 44-51
https://doi.org/10.1111/1365-2664.13173

The design of sustainable agroecosystems is crucial to meet contemporary environmental challenges such as biodiversity loss and global change. This study highlights the differences between innovative design and problem solving, to assess the potential of using ecological knowledge in agroecosystem design. The study shows Participatory design approaches of agroecosystems based on ecological knowledge might be key for planning and change: they allow a diversity of stakeholders to contribute to building solutions, thereby strengthening their sense of ownership and responsibility.

Open access at: https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.13173

How imperfect can land sparing be before land sharing is more favourable for wild species?

Ben Balmford, Rhys E. Green, Malvika Onial, Ben Phalan, Andrew Balmford

Journal of Applied Ecology 2019; 56: 73-84
https://doi.org/10.1111/1365-2664.13282

Two solutions have been proposed to limit negative impacts of human agricultural demand on biodiversity; land-sharing and land-sparing. Multiple studies suggest land-sparing is the most beneficial to biodiversity, however, the quality of spared land is often not taken into account. This study analyses how the quality and area of spared land actually used for conservation affects whether this is still the most beneficial method. Results confirm that real-world difficulties in implementing land sparing will have significant impacts on biodiversity and highlight the need for best practice when sparing land.

Open access at: https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.132#82

Toward the next Common Agricultural Policy reform: determinants of avian communities in hay meadows reveal current policy's inadequacy for biodiversity conservation in grassland ecosystems

Giacomo Assandri, Giuseppe Bogliani, Paolo Pedrini, Mattia Brambilla

Journal of Applied Ecology 2019; Online
https://doi.org/10.1111/1365-2664.13332

This study assesses the effectiveness of the 'greening' measure in the European Union's Common Agricultural Policy (CAP), which aims to benefit grassland conservation. A community ecology approach is used to highlight how the multi-scale and interacting effects of such changes impact birds, with the aim of providing knowledge to support improvements to the CAP. The study confirms the concerns about effectiveness of the CAP's greening grassland measure in conserving biodiversity in alpine hay meadows. The authors suggest rethinking CAP environmental prescriptions to account for the importance of meadow management in determining bird diversity patterns in these ecosystems.

Correspondence: giacomo.assandri@gmail.com

Forthcoming Events

For information on these events please see *www.cieem.net*.

Conferences		
Date	Title	Location
27 March 2019	CIEEM Spring Conference 2019 – Biodiversity Net Gain from Policy to Practice: A transformative tool for tackling biodiversity loss?	Reading
4 July 2019	CIEEM Summer Conference 2019 – Health and Well-being in the Ecology and Environmental Management Profession	Birmingham
November 2019	CIEEM Autumn Conference 2019 – Planning for Success: Maximising biodiversity opportunities through the planning and permitting process	Wales

Webinars		
10 May 2019	Using bioacoustics for field survey	Online

Training Courses		
March 2019		
5	Advanced Ecological Impact Assessment	Nottingham
5	Biodiversity Net Gain Through Development	Bristol
5-6	Phase 1 Habitat Survey	Birnam, Scotland
6-7	Train the Trainer for Ecologists	London
12	Report Writing for Ecological Impact Assessment	Swindon
12	Effective Workplace Mentoring	Bristol
14	Phase 1 for Development	Cambridge
19-20	Train the Trainer for Ecologists (Scotland)	Glasgow, Scotland
22	An Evidence-Based Approach to Camera Trapping	Reading
25	Biodiversity Net Gain Through Development	London
27-28	Developing Skills in Ecological Impact Assessment (Scotland)	Aberdeen, Scotland
28	Otter Ecology and Surveys	Cirencester
April 2019		
1	Badger Ecology and Survey	Cumbria
2	Badger Mitigation	Cumbria
3	eDNA and Traditional Techniques for Effective GCN Surveys	Essex
4	Introduction to Bat Ecology and Bat Surveys	Wareham
5	Bats: Impact Assessment of Development, Mitigation and Enhancements	Wareham
5	Peregrine Falcon: Ecology, Survey and Mitigation	Birmingham
9	Biodiversity Net Gain Through Development	Birmingham
9-10	An Introduction to the NVC	Birnam, Scotland
10-11	Train the Trainer for Ecologists (Ireland)	Belfast, Ireland
15	Badger Ecology and Survey	Dorchester
16	Badger Mitigation	Dorchester
16	Using Bioacoustics for Field Survey	Derbyshire
16	Badger Survey, Impacts and Mitigation	West Lothian
17-18	Water Vole Live Trapping, Handling, Practical Care and Re-establishment	Lifton
23	Effective Communication for Women	Reading
23-24	Ground Water Dependent Terrestrial Ecosystems	Birnam, Scotland
24	Ancient Woodland Indicators	Bristol
25	Habitats Regulations Assessment of Projects (England & Wales)	Bristol
25	Biodiversity Net Gain Through Development	Manchester
25-26	QGIS for Ecologists and Conservation Practitioners	Kingston
25-26	Surveying for Bats	Nottinghamshire

Spring is a particularly busy time of year for our ecology team the protected species active survey season begins as many animals come out of hibernation and plants awaken from winter dormancy.

Our surveyors are out conducting Preliminary Ecological Appraisals to identify valued habitats and assess ecological interests across sites. Dedicated protected species translocations and baseline surveys are also underway for many species including great crested newts, breeding birds, water voles, butterflies and bats.

It's also a good time to carry out reptile surveys – they like the sun after April showers, and dormouse surveys should be set up by the end of spring to allow completion within the calendar year.

As we enter the new season, we continue to look for enthusiastic and capable people to join our team of experienced ecologists around the UK – for both Permanent and Seasonal roles.

At WYG we believe in a good work-life balance and recognise that our employees may need flexible working throughout different stages of their career. We appreciate that everyone is different and give our employees time to develop their skills and specialise in their own area of ecology.

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Search and apply for our current vacancies at www.wygcareers.com or email your cv to ecology@wyg.com

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