natterchat

Froglife's newsletter - amphibians, reptiles & nature news

Issue 31: Autumn/Winter 2025

The Policy and Research Edition

froglife

TRANSFORMING LANDSCAPES

TRANSFORMING LIVES

TRANSFORMING RESEARCH

Contents

Garden Wildlife Health (GWH) is a collaborative project between the Zoological Society of London (ZSL), the British Trust for Ornithology (BTO), Froglife and the Royal Society for the Protection of Birds (RSPB), which aims to identify disease and monitor the health of British wildlife.

Visit: www.gardenwildlifehealth.org to find out more.

GWH Garden Wildlife Health

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Dear Supporters,

Welcome to the Policy and Research Issue of our newsletter, Natterchat. The nature conservation and environmental sector has faced numerous policy challenges in recent months, prompting us to dedicate this Autumn/Winter edition to share with you Froglife's strategic approach to policy engagement and research.

In the pages that follow, you'll discover how we're positioning ourselves at the forefront of conservation policy, the research that drives our advocacy, and the tangible impact we're making on the ground. This issue examines not just where we stand today, but how we're shaping tomorrow's conservation landscape through evidence-based policy work and collaborative partnerships.

For example, we look at Froglife's role within Wildlife and Countryside LINK and Scottish Environment LINK: our membership in both organisations has strengthened our advocacy capacity across England and Scotland. Through LINK's collaborative specialist groups, we can work more effectively while ensuring amphibians, reptiles and their habitats receive the representation they deserve in critical environmental discussions.

At the heart of current policy debates are two critical pieces of legislation that will shape the future of our natural environment. This edition examines the Planning and Infrastructure Bill, which was introduced to the House of Commons on 11 March 2025. The conservation sector has serious concerns that the Bill lacks adequate safeguards to protect habitats and species – we're fighting to prevent further damage to our biodiversity and climate. We also cover the Independent Water Commission review, launched in response to the devastating pollution crisis in our rivers and seas. While Sir Jon Cunliffe's interim report disappointed us, we're channelling this into stronger advocacy for the waterways our wildlife depends on.

Several articles highlight how rigorous scientific research underpins our policy work, demonstrating the need for stronger environmental protections. We also share our Artificial Intelligence strategy and principles, keeping supporters informed as we navigate this rapidly evolving landscape.

Alongside the challenges, this edition celebrates the victories that remind us why our work matters. We showcase inspiring success stories including the District Level Licensing scheme and the National Association of Environmental Education's role in nurturing future conservationists. Our Trustee Gordon shares another moving poem that captures the simple joy of pond-side wildlife watching.

Finally, we thank our supporters, donors and volunteers – your invaluable contributions keep our vital work moving forward. While we face significant policy challenges, our strategic partnerships, evidence-based research and your unwavering support are creating real change for amphibians, reptiles and their habitats.

All the best

K. Wormald

Kathy Wormald, CEO

The topics covered in this issue are ever developing and changing. These articles are up to date for the time of writing in Summer 2025.

Scottish Environment LINK

Scottish Environment LINK (ScotLINK) is the forum for Scotland's voluntary environment community, with over 40 member bodies representing a broad spectrum of environmental interests with the common goal of contributing to a more environmentally sustainable society.

Froglife has been a member of ScotLINK for several years – it is through collaborating and partnering with other members that we collectively facilitate change. We work together to make change happen on the ground for a healthier environment, healthier societies and a healthier planet. Our contribution to ScotLINK is primarily through our representation on the Freshwater Working Group, The Wildlife Working Group and The Scottish Environment Funders Forum. I am also a Trustee on ScotLINK's Board of Trustees.

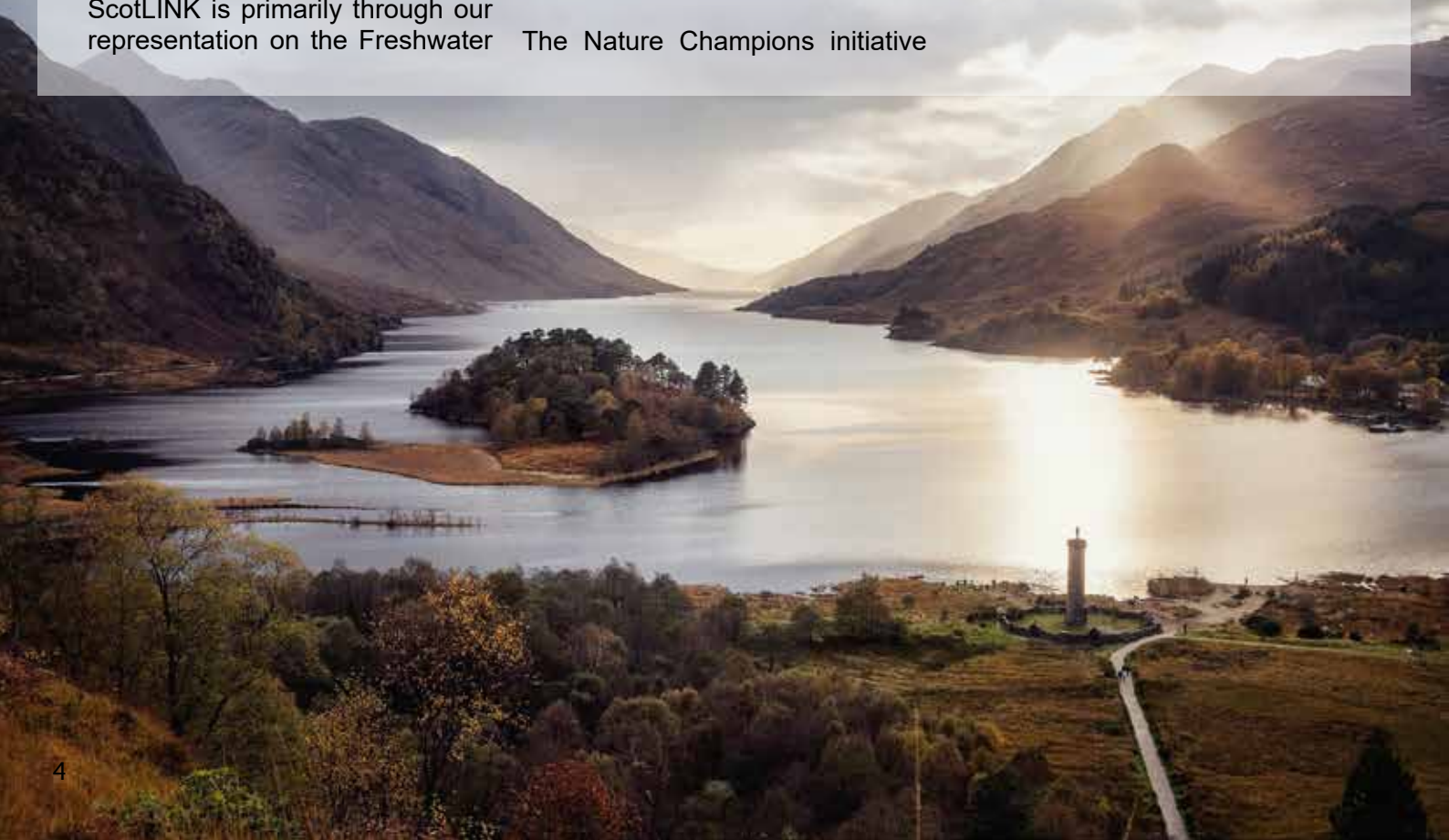
Beyond these working groups, we are given the opportunity to comment and sign up to Government and Statutory Body consultations, and to make suggestions on either updates to existing legislation or proposals for new legislation. The past 18 months have been a very busy time for Scottish politics and we have all been spending a lot of time reviewing and inputting into various papers, consultations, letters and media articles.

The collaborative approach that ScotLINK embodies means that as a sector we can push for change to ensure that Scotland's precious, iconic landscapes and species are protected for future generations to appreciate and enjoy.

The Nature Champions initiative is a very important element of ScotLINK's work. The initiative encourages Members of Scottish Parliament (MSPs) to champion threatened and iconic species and habitats – raising awareness and promoting action to protect and restore Scotland's natural environment. We are pleased to report that Froglife has six MSPs signed up to support our species.

Our membership with ScotLINK allows Froglife to add its voice to important political discussions ensuring that reptiles and amphibians, and the freshwater and terrestrial habitats that they rely on, are fairly represented alongside all other environmental issues.

By Kathy Wormald. *Kathy is Froglife's Chief Executive Officer.*



MEET THE MSPs

MSP for **SOUTH SCOTLAND**. Championing the **ADDER**

MSP for **SOUTH SCOTLAND**. Championing the **NATTERJACK TOAD, PONDS & SMALL LOCHS**

MSP for **COATBRIDGE & CHRYSTON**. Championing the **GREAT CRESTED NEWT**

Labour & Co-op MSP for **EDINBURGH SOUTHERN**. Championing the **SLOW WORM**

MSP for **MID SCOTLAND & FIFE**. Championing the **PALMATE NEWT**

MSP for the **RUTHERGLEN CONSTITUENCY**. Championing the **COMMON TOAD**

Toads on Roads

Reflections on a new analysis showing ongoing declines across Britain

As you're already reading Natterchat, I probably don't need to try too hard to convince you that common toads (scientifically known as *Bufo bufo*) are wonderful, fascinating and entirely benign creatures. They move slowly and mysteriously across the moist ground in woodlands or rough grasslands, and with any luck, can be found hiding in and amongst the borders of our gardens. As their name suggests, toads are, or at least used to be a *common* species, a name given to wide ranging and abundant animals such as the common frog, barn swallows, hedgehogs, swifts and other species characterised by… well, being common. They can be found in many types of habitats across a large area of land.

It is precisely because they are common that such species play particularly important roles in ecosystem functioning, as they often are, through sheer numbers and widespread distribution, the species that move and circulate nutrients in nature. They eat and control various species including pests or get eaten and thus support the entire food chain. Take toads for example. They eat animals smaller than themselves, including slugs, earthworms, beetles and ants, and get eaten by most things bigger. Despite their skin toxins, they are still consumed by various species as eggs, tadpoles, young toadlets and even as adult toads. They are a favourite prey item for species as diverse as grass snakes, otters, polecats and buzzards.

However, also because they are widespread, these common species are inherently at risk from wide-ranging threats such as urbanisation, loss of ponds in farmland, or habitat fragmentation from roads and collisions with cars. We know that many toad populations are heavily impacted by all these threats. Unlike rare species living in a few nature reserves, collecting the data to demonstrate the population trends of widespread species is very difficult.

A robust nation-wide effort to count toads would require an army of volunteers going out at night across the country in search of hundreds of ponds. They'd then need to try count partially submerged toads hiding in reedbeds in those ponds. It's a logistical nightmare made worse by the fact that toads, like most other temperate region pond-breeding amphibians, have fluctuating abundances between years. You would need more than five years to be able to understand if the population is actually increasing or decreasing.

In countries with a very high degree of fragmentation from roads such as Britain or Switzerland, road-based data are a good and reasonable approximation, given that most toad populations are likely to be impacted by roads to some degree. Combined with the relatively standardised efforts from the fantastic toad patrollers, the data collected on toads moved across the road each year become a crucial trend monitoring resource over long periods of time.

In our latest study, together with colleagues from Switzerland, we conducted an analysis of nearly 5.5 million toads across the entire study period, with 80 populations per year and an average count of 75,800 toads in Britain. Sadly, our results show that overall, toad abundance declined in both countries across all decades, with a 33% abundance decline in Switzerland since 1973 and an even larger 41% reduction since 1985 in Britain. On a slightly more positive note though, there have been significant regional recoveries in Britain since 2013, indicating that things could be somewhat improving.

While the overall results could be disheartening, it is important to acknowledge that toad patrols almost certainly reduce the impacts of roads on toad populations, slowing their declines and most likely preventing numerous populations from becoming locally extinct. Sadly, the patrols themselves cannot directly reduce the impact of other potential threats to toads, such as deterioration of their aquatic or terrestrial habitat, or climate change, which might reduce their body condition and productivity (i.e. numbers of eggs produced) during years with mild winters.

Additionally, while toad patrols can save many adult migrating toads, it is often logistically impossible to look after young toads that might be crossing the road in late summer, as their movements are hard to predict and their migration can last several weeks. The ongoing decline of toads mirrors the decline of other species in Britain, such as hedgehogs, and suggest substantial improvements are needed in the wider countryside to stop and reverse these declines. For sites with high numbers of toads crossing roads, it might be a good idea to look at protecting both adults and juveniles through the installation of tunnels underneath the roads. Those tunnels and fence systems must be well designed and well maintained, or they risk making the situation worse.

Without the amazing work of toad patrollers, we wouldn't know how toad populations are doing in the first place, or that they are suffering these long-term declines. Their efforts to save toads has a profound, tangible impact. Toads also need large ponds connected to good terrestrial habitat, primarily blocks of deciduous woodland and grasslands, to survive. Creating, protecting and connecting these habitats remains a critical ambition for Froglife.

By Dr. Silviu Petrovan. *Silviu is the Strategy and Conservation Research Manager at People's Trust for Endangered Species.*

Invasive Amphibians

Invasive species are 'not native to an ecosystem and cause, or are likely to cause, economic or environmental harm, or harm to human, animal, or plant health'[1]. It is estimated that invasive non-native species (INNS) cost the UK £1.9 billion annually (£4 billion including forestry). INNS can have significant impacts on biodiversity, implicated in approximately 33% of animal extinctions recorded since 1500[2]. In amphibians, invasive species are responsible for about one-third of extinctions, and roughly 16% of living species are currently threatened by invasives[3,4]. The threats posed by invasive species include predation, competition, hybridisation and the spread of diseases[5].

Not all amphibians introduced to the UK have established long-term populations. For example, local populations of common tree frogs (*Hyla arborea*) disappeared over time[6,7]. Other non-native amphibian species that have been found in the UK include[8]: African clawed frogs (*Xenopus laevis*), Italian crested newts (*Triturus carnifex*), marbled newts (*Triturus marmoratus*), American bullfrogs (*Lithobates catesbianus*), common midwife toads (*Alytes obstetricians*), marsh frogs (*Pelophylax ridibundus*), edible frogs (*P. esculentus*) and alpine newts (*Ichthyosaura alpestris*). The best-known and most 'successful' introduction is probably the marsh frog[9,10].

The African clawed frog was widely used in biological research[11] and populations in the UK are likely lab escapes, although these may now be extinct[12]. In France, they were found to reduce the richness of native amphibian species[13], with predation of native amphibians recorded in multiple populations[14]. In France, all eight native species were found inside the stomach of adult marsh frogs, showing they also predate amphibians[15] and could be a threat to UK natives as their range expands. The American bullfrog is a known predator of other amphibians[16,17,18,19] too and could be a serious risk. Alpine newts are known to predate on the eggs of common frogs[20], which could affect UK frog populations

as their range expands; with high mortality rate of frogspawn at ponds with Alpine newts[21].

Invasive species can also outcompete native species for resources, leading to a reduction in fitness. Competition may be for space or food; African clawed frogs consume zoobenthos, zooplankton and terrestrial invertebrates[22,23], which overlaps with the diet of native amphibians[24], potentially leading to competition. Declines of native common frogs were thought to be linked to marsh frog presence, perhaps also due to competition. The two species have a similar diet; however, food competition is unlikely because common frogs leave ponds to forage on land before marsh frogs emerge from hibernation[25]. The American bullfrog has been found to compete with other species in California[26] and Brazil[27] and so if established, could negatively impact UK native amphibians through competition. Alpine newts may compete with native species such as the smooth newt[28,29] and palmate newt[30]. Other larger species, Italian crested newts and marbled newts, may have dietary overlap with UK species[31,32], but competition is not well-researched.

Hybridisation between native and invasive amphibians can lead to the elimination of native species[33], this can be referred to as 'genetic pollution'. Italian crested newts are closely related to great crested newts and there is strong evidence of hybridisation and displacement of great crested newts by the former[34,35,36.37]. Marbled newts, now reported in Devon[38], are known to hybridise with great crested newts[39,40] and this could be a problem in these vicinities.

Another significant impact of invasive species is the spread of diseases, particularly chytridiomycosis, caused by two chytrid fungi: *Batrachochytrium dendrobatidis* (Bd) and *Batrachochytrium salamandrivorans* (Bsal). Chytridiomycosis is a major driver of amphibian extinctions worldwide[41,42]i. The spread of chytrid in the UK has sometimes been associated with the presence of non-native amphibians[43,44,45]. The introduction of other diseases, such as ranaviruses, also pose a significant risk and can lead to local extinctions[46,47,48,49]. African clawed frogs are an asymptomatic carrier of ranaviruses[50] and there is concern that they could transmit Bd to native amphibians, but thus far no transmission has been confirmed[51]. Pool frogs, edible frogs[52,53] and American bullfrogs[54] have also been identified as carriers of ranavirus and Bd, and alpine newts have been identified as carriers of ranaviruses[55.56]. American bullfrogs removed from Kent were found to carry Bd, which was transmitted from bullfrogs to newts when housed together, resulting in high mortality among the newts[57].

American bullfrogs were first discovered breeding in the UK in Sussex[58] and the population was treated as a serious risk and eradicated[59]. It remains a high concern for UK biodiversity[60], especially as climate models predict an increasing land area suitable for their establishment that includes the UK[61]. Fortunately, this is an example of how invasive species outbreaks can be controlled at a local level.

Several non-native amphibians have integrated into UK ecosystems, raising concerns about their long-term impact. Continued monitoring and research are essential to understand and mitigate the threats posed by invasive amphibians, ensuring the conservation of UK native amphibians.

By Josie McPherson, University of Edinburgh and Andrew Smart, Froglife.

For references, scan the QR code.

Artificial Intelligence

Froglife's AI journey

Froglife, like many other organisations, has been exploring the pluses and minuses of using AI in our work. We were fortunate to secure a grant to be able to recruit a provider with AI expertise to help us understand AI better. This will help us to explore whether it may or may not help with delivering our mission to conserve the UK's native reptile and amphibian populations and the habitats that they rely on.

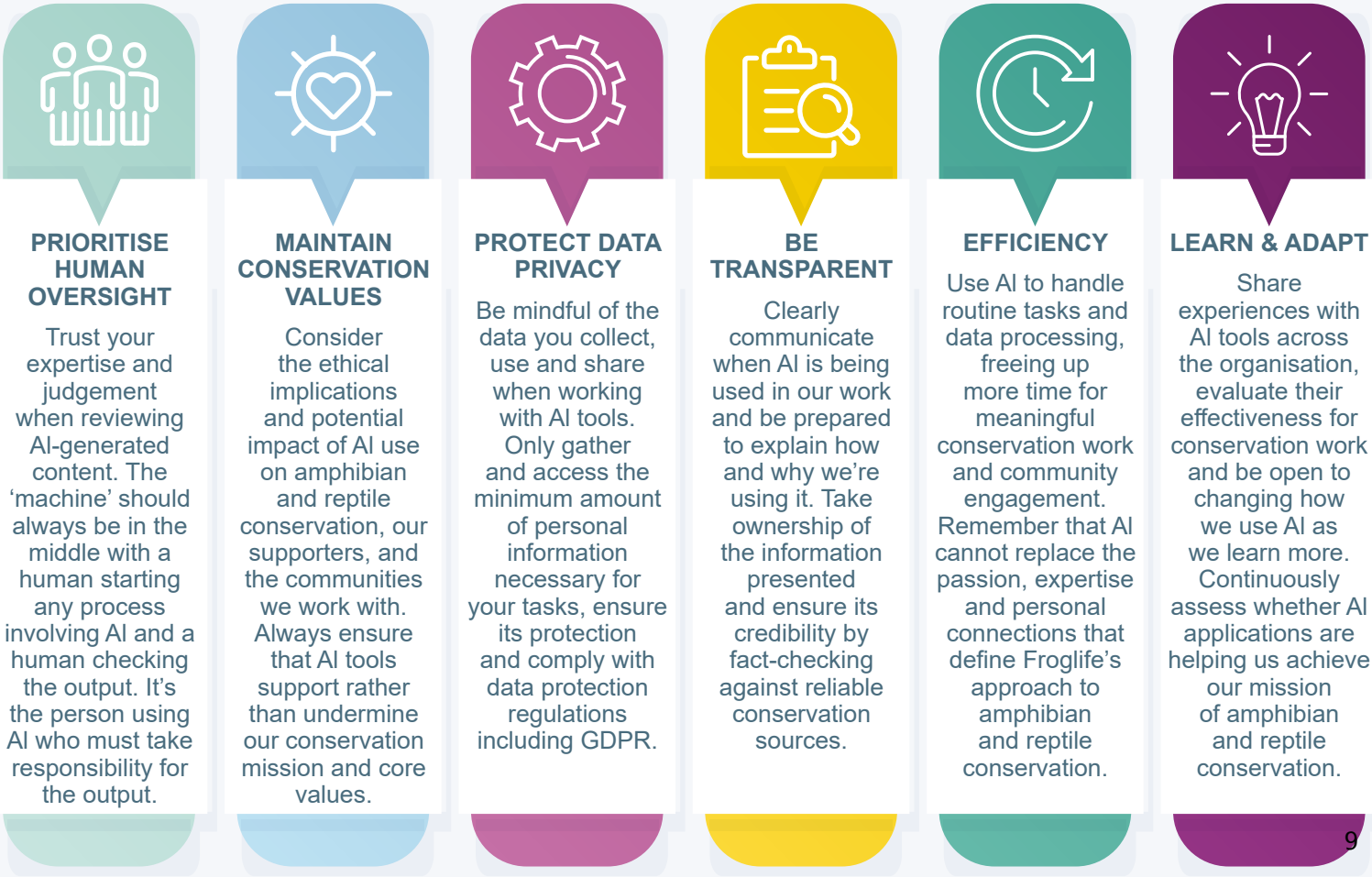
First off, the provider designed a staff survey to gather staff views on AI, whether they were already using AI and if so, to what extent and which tools. This was used to inform a workshop held with selected staff members to explore AI further. From this workshop we adopted six AI Principles which will be applied across Froglife and our work (see below).

The provider then hosted an AI training workshop for all staff, highlighting the importance of not using free AI tools and giving staff the opportunity to explore some paid-for tools. We developed an AI Road Map, and we hosted a webinar to share our findings with other organisations. Around 62 people attended the webinar representing about 24 organisations. Webinar attendees welcomed our six principles, with many saying that they would develop similar principles for their organisations.

As part of our exploration of AI, we worked with the provider on producing an Environmental Impact Assessment of AI. This assessment covers energy consumption; water usage; future resource demands; comparisons to other everyday activities such as streaming films, charging mobile phones and using social media; and the potential environmental benefits over the longer-term.

At Froglife, we have decided to trial one AI tool amongst a group of staff members. The trial will last six months with staff reporting back to the Senior Management Team. After this trial period, we will make further decisions about our approach to AI.

By Kathy Wormald. *Kathy is Froglife's Chief Executive Officer.*



Water Review

In 2024, reports hit the headlines of the scale of pollution into our rivers and seas and the devastating impacts this is having on our environment[1]. There was a huge public outcry and Froglife joined 15,000 campaigners on the March for Clean Water which called for the government to Stop the Poisoning of Britain's Waters[2].

In response to this, Steve Reed, MP and the Secretary of State for Environment, Food and Rural Affairs, launched The Independent Water Commission review in October 2024[3]. Sir Jon Cunliffe, former deputy governor of the Bank of England, was appointed as Chair of the Commission with a deadline set to report back in Summer 2025 "with recommendations to the Government on how to tackle inherited systemic issues in the water sector to restore our rivers, lakes and seas to good health, meet the challenges of the future and drive economic growth. These recommendations will form the basis of further legislation to attract long-term investment and clean up our waters for good – injecting billions of pounds into the economy, speeding up delivery on infrastructure to support house building and addressing water scarcity, given the country needs to source an additional 5 billion litres of water a day by 2050"[3].

The review is the largest review of the industry since privatisation and was seen by environmental campaigners as being a once in a generation opportunity to shape the future of the water sector.

Call for evidence

A call for evidence was run from 27 February to 23 April 2025 and received more than 50,000 responses from the public, campaigners, industry, the regulators and many others. Froglife joined forces with members of Wildlife and Countryside LINK's Blueprint for Water sub-group to submit a joint response[4] alongside a series of supporting papers providing additional evidence.

We outlined a vision for the future water system which recognises the importance of a healthy, thriving water environment for both people and nature, and that without this, no other positive targets will be achieved. To achieve this, the government must set a strong, clear strategic direction implemented through an Integrated Water Management approach with a focus on outcomes.

We noted that whilst reform is needed, there are good components of the water system that are currently being undermined by poor implementation and governance, so we should build on what works and guard against watering down ambition. Implementation is also key for the success of new reforms, if barriers to good implementation are not addressed, the benefits of the new reforms will be limited.

Finally, we highlighted that action is needed across all sectors and not just the water industry. The Water Commission is focused solely on the water industry (i.e. water companies) but they alone are not responsible for all the pollution of our waterways and other actions must be taken to ensure the restoration of our water environment including addressing agricultural pollution and that from other industries.

Interim report

The interim report was published on 3 June 2025 and set out 5 areas where Sir Jon Cunliffe believes the wide-ranging and fundamental change is needed to reset the water sector in England and Wales:

1. Strategic Direction and Planning
2. Legislative Framework
3. Regulatory Reform
4. Company Structures, Ownership, Governance and Management
5. Infrastructure and Asset Health

"I have heard a strong and powerful consensus that the current system is not working for anyone, and that change is needed. I believe that ambitious reforms across these complex and connected set of issues are sorely needed." - *Sir Jon Cunliffe, Interim, Report, foreword*

While we were pleased to see the report recognise and identify these fundamental issues within the system, Froglife and other environmental NGOs were disappointed that the report did not go as far as identifying the actions that need to be taken straight away to ensure nature's recovery. We called on the government to start work immediately on essential reforms that will achieve this.

Full report

Spanning over 450 pages, the report delivers 88 recommendations aimed at streamlining regulation, strengthening infrastructure resilience and restoring public trust. Key proposals include replacing the existing fragmented regulatory system – Ofwat, the Drinking Water Inspectorate, the Environment Agency, and Natural England – with a single, powerful regulator; establishing regional water system planners aligned with river basins; ending operator self-monitoring in favour of "open monitoring"; introducing a statutory Water Ombudsman; mandating water meters; enforcing a "polluter pays" principle for products like wet wipes; and setting out a 25-year national water strategy supported by consistent ministerial priorities and stronger investor oversight.

What will happen as a result?

Following the publication of the report, the Wildlife and Countryside LINK's Blueprint for Water group hosted a series of workshops to discuss and agree our collective position on three priority aspects of the Independent Water Commission's final report to Government:

- Creation of a new, single water regulator
- Reform of the Water Framework Directive Regulations
- New Regional Water Authorities and regional governance

This will help to inform our engagement with Government and civil servants of action we need to see now, plus provide a solid foundation for our work on the second Water Bill. We'll be calling on Government to be ambitious and bold, in order to drive meaningful change for our waters. This must include:

- A strong, independent environmental regulator, properly funded, for whom nature's protection and recovery is the priority
- Maintaining and strengthening critical regulation such as the Water Framework Directive – not watering down or moving the goalposts
- Effective regional governance, bringing key sectors together to drive improvements, supported by comprehensive monitoring across all pollutants and pressures in the catchment

By Jenny Tse-Leon. *Jenny is Froglife's Head of Conservation and Impact. Edits have been made by Eleanor Ward, Principal Policy Officer at Wildlife and Countryside LINK, and AI.*

References:

1. Thames Water data reveals raw sewage discharges in rivers rose 50% in 2024" - Guardian article, 18 March 2024.
2. "Protesters call on government to tackle water pollution" - BBC article, 3 November 2024.
3. "Governments launch largest review of sector since privatisation" - Government press release, 22 October 2024.
4. "Blueprint for Water response - Independent Water Commission Call for Evidence" - Consultation response, 23 April 2025.

The Planning and Infrastructure Bill

The 2025 Planning and Infrastructure Bill was introduced to the House of Commons on 11 March 2025. The Bill is part of the Labour Government's 'Plan for Change' and will move activity towards a target of building 1.5 million homes in England by the end of this Parliament, as well as fast-tracking major economic infrastructure projects, including clean energy projects as part of the Clean Power 2030 target. It aims to:

- Speed up the consent process for infrastructure
- Deliver a more predictable system for energy infrastructure
- Deliver transport infrastructure
- Create a more strategic approach to nature recovery
- Improve decision making in the planning system
- 'Unlock' land for large scale investment
- Strengthen development corporation powers for infrastructure delivery
- Introduce a strategic planning system for England

There are lots of issues to debate here, but the aim of this article is to consider the 'more strategic approach to nature recovery' which will have an impact on our species and their habitats, and for nature conservation more generally.

The Bill is a reaction to concerns about the current planning system, where development is often reported to be delayed until environmental mitigation is put in place. Assessment of the environmental impact of a development requires technical knowledge and assessment for all developments, which is expensive and can take time. The discussion supporting the Bill argues that the current system is costly and may fail to secure the best outcome for the environment because 'a holistic view is not taken'.

The Bill proposes the establishment of a Nature Restoration Fund (NRF) which will require developers to meet obligations relating to sites and species. The NRF will be a levy, funded by developers, to support designated delivery bodies (such as Natural England) to create environmental delivery plans (EDPs). EDPs will identify particular geographical areas or protected species and the likely negative effects of a development along with the conservation measures required to protect these environmental features, along with the cost.

Crucially, the EDP will identify the measures that will "*contribute to an overall improvement in the conservation status of the identified environmental feature*." These may, when appropriate, "*set out conservation measures that do not directly address the environmental impact of development on that feature at that site but instead seek to improve the conservation status of the same feature elsewhere*".

Natural England may acquire land compulsorily "*only if Natural England requires the land for purposes connected with the taking of a conservation measure*". Developers will then pay the Nature Restoration Levy into a centralised fund which will allow for conservation work on a wider scale rather than looking at site-by-site mitigation through assessment. All this is designed to be more efficient and speed up the development process.

However, prior to release of the Bill, press releases for the Prime Minister's Office[1] and comments by senior Government Ministers[2], specifically mentioned newts and bats raising concerns. In response, several articles and open letters have been published that argue great crested newts no longer cause delays for development in England. Charities including the RSPB[3] and National Trust[4] express concerns about the Bill in its current format, along with 33 conservation charities (including Froglife) under the Wildlife and Countryside LINK.

The Office for Environmental Protection (OEP), charged with 'protecting and improving the environment' wrote to the Government in May 2025, identifying areas where the Bill should be strengthened.

They argued "*there are fewer protections for nature written into the bill than under existing law… In our considered view, the Bill would have the effect of reducing the level of environmental protection provided for by existing environmental law. As drafted, the provisions are a regression.*"

The main concerns seem to be that the proposed environmental development plans (EDPs) will not be strong enough to deliver conservation benefits. The environmental effects of a development are tested using an 'overall improvement test' that compares the negative effects of a development with the conservation measures taken forward under an EDP. The OEP argues that this process "*allows considerably more subjectivity and uncertainty in decision-making than under existing environmental law.*[5]"

The Wildlife Trusts, in a briefing to Parliament, propose that "*the [overall improvement] test should be amended to clarify that the EDP should only be passed if the Secretary of State is convinced on the basis of all available scientific evidence that the conservation benefits from the EDP will be in excess of harms from development.*[6]"

Labour's 2024 Manifesto identified the need to introduce 'golden rules' to "*ensure development benefits communities and nature*" and included the following significant statements:

- The climate and nature crisis is the greatest long-term global challenge that we face.
- We will improve access to nature, promote biodiversity, and protect our landscapes and wildlife.

Now in Government, the Labour Party's 48-page 2025 Plan for Change has only one mention of 'nature': "*We will use the Planning and Infrastructure Bill to create a win-win for development and nature.*" The word 'biodiversity' doesn't appear at all.

No one doubts the need for new housing or that the potential exists for a 'win-win' outcome. The concern is that the current Bill lacks the rigorous checks and safeguards to ensure processes can be delivered without reducing the protection of our habitats and species, further exacerbating the catastrophic loss of biodiversity in the UK in recent years.

By Andrew Smart. *Andrew is Froglife's Head of Science and Research.*

Scan for References

The Impact of Wastewater on Amphibians

The UK produced a daily average of 11 billion litres of wastewater in 2002, commonly known as sewage[1]. As the population grows, so does wastewater production, with projections indicating that an additional 5 billion litres per day will be needed by 2050[2].

While sewage treatment plants aim to remove contaminants, not all pollutants are effectively eliminated. Untreated sewage is often discharged into rivers and seas via storm overflows, occasionally as a permitted measure, to prevent sewer systems from being overwhelmed. These overflows are being used excessively; in 2023, the Environment Agency recorded 3.6 million hours of sewage spills, a 54% increase from 2022[3]. In 2024, there was a 2.9% decrease in the number of sewage spills compared to 2023, however spill durations increased by 0.2% – the Environment Agency say this duration remains 'unacceptably high'[4].

There are plans to mitigate this issue by limiting sewage discharges near ecologically sensitive sites[5] and Thames Water has made a £1.8 billion investment to improve water quality in London's rivers[6].

Amphibians are particularly vulnerable to the harmful effects of contaminants due to their permeable skin and biphasic life cycle, which exposes them to pollutants both in water and on land[7]. Additionally, because they consume insects and plants from contaminated environments, they are also exposed to bioaccumulation of toxins from lower down the food chain[8,9]. Despite these risks, amphibians have historically been overlooked in ecotoxicological research, with only 1.4% of studies in the 25 years before 1998 focusing on them[10].

Municipal wastewater effluents introduce a range of harmful substances to water systems, with rivers often flowing into ponds or wetlands. These substances include pharmaceuticals, personal care products and heavy metals, endocrine-disrupting chemicals that can alter water chemistry, all of which pose significant threats to amphibian populations. Overall, wastewater pollution disrupts amphibian survival through multiple pathways: reducing reproductive success, increasing embryonic lethality, and impairing larvae and post-metamorphic survival.

The effects on amphibians include altered development rates and reduced body size[11,12,13]. In one study, exposure to pollutants, including wastewater contaminants, led to an average 7.5% decrease in body mass in amphibians[14] and wastewater contaminants can also have profound effects on amphibian metabolism and immune function[15,16,17]. Amphibians inhabiting wastewater-affected environments frequently exhibit deformities, including malformed limbs, missing eyes, scoliosis, and edema[18,19,20]. Exposure to pollutants, including wastewater pollutants, translated to a 535% increase in the frequency these abnormalities are found.[14]

Wastewater contains a range of pharmaceuticals, which can impact amphibians. There is particular concern about endocrine-disrupting chemicals (EDCs) such as synthetic estrogens, which interfere with hormonal balance and disrupt normal amphibian reproductive development[21]. These compounds have been linked to intersex conditions, altered gonadal morphology and skewed sex ratios in various species[22,12]. However, not all studies have found this effect[23].

Wastewater exposure may also have important behavioural impacts for amphibians. Tadpoles exposed to wastewater were found to be slower to start moving, moved less overall and had shorter 'activity burst' distances[24]. Triclosan, an antibacterial agent found in toothpaste and soaps, and caffeine, both also found in wastewater, reduced Leopard Frog (*Rana pipiens*) tadpole activity. Triclosan also decreased the 'startle response', while caffeine increased it, potentially making tadpoles either more lethargic or hyperreactive to stimuli[25]. Fluoxetine, an antidepressant found in wastewater was found to eliminate predator avoidance behaviour[26,27]. These behavioural changes can have lethal impacts[28,29] but as with EDCs, not all studies have found impacts of wastewater on amphibian behaviour[11].

Amphibians breeding in wastewater-affected habitats could have lower reproductive success[30] with embryonic development also impacted by wastewater exposure[31]. High nitrogen levels have been linked to increased mortality in toad and tree frog tadpoles[32,33] and other contaminants found in wastewater are known to increase mortality risks[28,34,35,36]. A meta-analytic study found that exposure to pollutants found in wastewater, led to a 14.3% decrease in survival[14].

Despite the growing concern over wastewater pollution, there is very limited research on its specific impacts on UK amphibians. However, the existing global evidence suggests strong reasons for concern. Rising sewage levels in water bodies are likely to have varied and detrimental effects on amphibians, impacting their development, physiology, behaviour and survival.

While many contaminants pose significant threats, some findings suggest that properly treated wastewater, such as tertiary-treated effluent, can provide suitable conditions for amphibians, sometimes even supporting better growth of tadpoles and frogs than rain-fed ponds[19]. This underscores the importance of proper wastewater treatment processes to minimise harmful pollutants while maintaining water quality that can support amphibians. Given the increasing wastewater production in the UK, further research and stronger pollution mitigation strategies are essential to conserve amphibians.

By Josie McPherson, University of Edinburgh and Jenny Tse-Leon, Froglife.

Scan for References

Conservation Evidence

Supporting a network of organisations committed to evidence-based practice

Conservation has achieved some remarkable successes, but it has also suffered from inefficient resource use and practices that aren't always as effective as needed to deliver urgent change at scale. The underlying cause is the pursuit of conservation action without regard for evidence of what works.

Recognising the urgent need for transformative change, the Conservation Evidence group was formed to collate and summarise scientific evidence on the effectiveness of conservation actions and to ensure it is accessible to those making decisions about how to maintain or restore species or habitats. So far, the team has scanned over 1.2 million publications and synthesised evidence for almost 4,000 actions. This is all freely available to search or download as synopses, including for Amphibian and Reptile Conservation.

The group is now developing ways to apply Artificial Intelligence to significantly enhance the speed and delivery of evidence synthesis, whilst maintaining scientific rigour, and to improve the way that users can find relevant collated information.

Whilst ensuring that evidence is easily accessible is vital, Conservation Evidence also promotes and supports organisations to make the cultural shift towards evidence-based practice. One way in which it does this is through the Evidence Champion programme. Involved organisations need to demonstrate and commit to principles of evidence-based conservation, using Conservation Evidence and other relevant sources of scientific evidence as part of their decision-making process, and where possible, generate evidence as part of their practice. In return, Conservation Evidence provides support, training and opportunities for organisations to share successes and failures and to become part of a network of forward-thinking evidence-based organisations. Froglife was one of our first Evidence Champions eight years ago and are an important part of this network.

Many Evidence Champions have helped co-develop tools, processes and resources to help overcome barriers and needs, and to ensure the routine use and generation of evidence in practice. Froglife is one of these, having formed part of the expert panel that assessed *What Works* for Amphibian Conservation. This helped highlight the need for funding and delivering the routine testing of management interventions to improve conservation effectiveness. Froglife has also linked species accounts on their website to relevant evidence on the Conservation Evidence website and shared new evidence from tests on actions with the conservation community. They also recently co-authored a paper titled *A vision for the future conservation evidence landscape*.

Froglife and the other Evidence Champions are working with Conservation Evidence to help drive more effective conservation practice through improved evidence use for the benefit of nature and society.

By Dr. Rebecca Smith. *Rebecca is the Conservation Evidence Manager at Conservation Evidence.*

The Garden Wildlife Health Project

Garden Wildlife Health (GWH) is a collaborative project between the British Trust for Ornithology (BTO), the Zoological Society of London (ZSL), the Royal Society for the Protection of Birds (RSPB) and Froglife, which aims to monitor the health of, and identify disease threats to, British wildlife. For this, they count on the help of the public to submit reports of sick or dead wildlife and to send in samples for analysis.

Earlier this year, I unfortunately found two dead frogs in The Rookery Gardens at Streatham Common during one of my project sessions. I had observed an unusually high mortality rate at this site and the specimens appeared to have a reddish discolouration to their thighs, which can be a sign of septicaemia brought on by a viral or bacterial infection (known commonly as red-leg syndrome).

I submitted a report on the GWH website and was asked to send in the carcasses for a postmortem. Due to their elusive nature and quick decomposition, amphibian (and reptile) submissions are much rarer, so are particularly valuable to the vets at ZSL. It was fascinating to get the report back and I was amazed at how quickly the whole thing was done. Below are the postmortem results we received (left).

Ref: Common frog (*Rana temporaria*) XT0152-25

This was an adult female common frog in normal body condition with a small amount of internal body fat. Examination of some body systems was limited by a moderate state of carcass decomposition.

The most significant findings were consistent with predation injuries: there was a deep penetration wound on the right lower back with associated bleeding, and small pinpoint injuries were observed on the left upper underside as well as the left wrist; we observed a full mid-length fracture of the right femur (upper thigh bone) with bleeding in the surrounding muscle tissue.

No other abnormalities were detected apart from those consistent with the state of carcass preservation.

Ref: Common frog (*Rana temporaria*) XT0153-25

This was an adult female common frog in normal body condition with no visible internal fat deposits. Unfortunately, examination of most body systems was limited by an advanced state of carcass decomposition.

The most significant finding was a full mid-length fracture of the right femur with associated bleeding in the surrounding tissue.

No other abnormalities were observed; however, the advanced state of decomposition may have masked subtle changes.

Summary

Tissue samples from both common frogs were taken for routine molecular tests to screen for the presence of chytrid fungi and ranavirus infection, which are important infectious diseases of amphibians.

So far, we were unable to detect any underlying disease conditions that might have predisposed these animals to such a traumatic incident; however, at this time of the year, amphibians dedicate all their energy to breeding activity, often becoming victim to trauma or predation, amongst other breeding associated complications.

Receiving this response brought me great relief. If signs of infectious disease had been found, then it could mean that the entire population of amphibians in the Rookery Gardens were at risk. Viral, fungal and bacterial infections pose an increasingly significant threat to our native wildlife, so it is important that we do what we can to prevent transmission and report signs of ill health when we encounter them.

If you are ever unlucky enough to come across dead amphibians and reptiles, please do submit a report to the Garden Wildlife Health Project. They may ask that you retrieve and post the carcasses but don't worry, they will provide you with full instructions and advice as to how to do so. At least this way your grim experience can be used as an opportunity to gain some knowledge that can help inform future conservation work.

By Dylan Jackson-French. *Dylan is Froglife's Leaping Forward for Dementia Project Manager in London.*

GWH Garden Wildlife Health

Wildlife and Countryside LINK

How we've teamed up to protect UK wildlife

Froglife was invited to join Wildlife and Countryside LINK (WCL) in 2023 following our campaign work to put a stop to changes to species listing on the Wildlife and Countryside Act 1981. These changes would have resulted in hundreds of species losing their protection, including 8 of our 13 native amphibians and reptiles.

More voices, stronger action

Wildlife and Countryside LINK is the largest environment and wildlife coalition in England, bringing together 87 organisations to use their strong joint voice for the protection of nature. As a coalition we campaign to conserve, enhance and access our landscapes, animals, plants, habitats, rivers and seas. Together we have the support of over 8 million people in the UK and directly protect over 750,000 hectares of land and 800 miles of coastline.

Joining WCL has boosted our capacity to advocate for nature in England (we were already members of the Scottish Environment LINK). By participating in WCL's collaborative specialist groups – which tackle everything from water pollution to planning regulations – we're able to operate more efficiently and effectively and contribute to important discussions ensuring reptiles and amphibians and the habitats they rely on are represented. We pool knowledge and resources with other leading conservation organisations, allowing us to jointly advocate for stronger protections, contribute robust evidence to government consultations and run impactful campaigns that truly make a difference for nature.

Making waves for clean water

One of the biggest issues Froglife has been tackling since joining WCL is the urgent need for clean water. In November 2024, we stood shoulder-to-shoulder with around 15,000 other passionate campaigners at the March for Clean Water. Our message was clear: the government needs to Stop the Poisoning of Britain's Waters.

This powerful demonstration didn't go unnoticed. Steve Reed, the Secretary of State for Environment, Food and Rural Affairs, not only acknowledged the march, but also sent a letter to all the participating organisations and individuals announcing a brand-new Water Commission to investigate these critical issues. Froglife along with WCL members are continuing advocacy work to hold the government to account, building on the momentum from the march. You can find out more about this important Water Review on page 10.

A shared vision

By joining forces with Wildlife and Countryside LINK, Froglife has amplified its voice and is making a real difference in protecting our incredible UK wildlife and the natural world we all depend on. It shows that when people and organisations come together, we can achieve amazing things for nature.

By Jenny Tse-Leon. *Jenny is Froglife's Head of Conservation and Impact.*

AI was used to help write this article.

Heathland

A literature review on managing these vital habitats

Heathlands are open landscapes dominated by heather, gorse and heathland grasses, with scattered trees. Essentially, they are habitats in a successional sequence that develop on sandy, acidic, nutrient-poor soils[1,2]. Without management by grazing, cutting, or burning, heathlands transition into woodland[3]. In the UK, they are the most important habitat for reptiles, supporting all six native species[4]. Over 95% of sand lizards occur on lowland heathland[5,6] and smooth snakes are largely restricted to heathlands[7,8]. They are also important for amphibian species, such as natterjack toads[9].

Heathland habitats are often undervalued and are now classified as 'vulnerable' at a European scale. They have declined in area by 30-50% during the last half century[10]. Regionally, the decline can be even larger[11,12], with a study led by Froglife estimating that 68% of heathland area had been lost from two English counties[13]. Heathland destruction is driven by inadequate management, land-use changes, pollution, climate change, natural succession and invasive species[14].

The commons, heaths and greens of London provide a case study: succession led to tree and scrub growth on 43.75% of sites, land-use change occurred on 68.75%, leisure development took place on 47%, and car parks were made on 58.8%[15]. Heaths are recognised for their scarcity and wildlife value. Both lowland and upland heathlands are designated UK Biodiversity Action Plan Priority Habitats and lowland heath is also listed as a key habitat in the EU Habitats and Species Directive.

One way to prevent natural succession of heathlands into woodlands is controlled burning. In the New Forest, annual burning of heather and gorse promotes high-quality heath by increasing dwarf shrub, reducing bracken and creating open reptile habitat[16]. However, studies on the effects of burning on reptile populations provide mixed results: some find increased richness and abundance[17,18,19], while others find decreases[20,21,22], or no difference[23,24,25,26,27,28,29,30]. Specifically in heathlands, burning can cause direct mortality of reptiles within the burnt area and expose survivors to predators.

Grazing by herbivores prevents succession, creating a mosaic of different vegetation ages, heights and types that are beneficial for reptile populations[31,32]. However, while grazing maintains heathland at the habitat scale, it has been argued that it is not always beneficial for reptile populations[33,34]. Studies in the Netherlands have reported lower abundances of common lizards in grazed heathlands[35,36]. In the UK, higher numbers of smooth snakes[37] and increased sightings of grass snakes, common lizards and slow worms were found in ungrazed heathland, although adult sand lizard sightings did

not differ between grazed and ungrazed areas[38]. Additionally, there were more newborn reptiles in ungrazed areas, suggesting a negative impact of grazing on reptile reproduction and/or recruitment[39].

One potential explanation for this is increased disturbance in grazed sites (cattle disturbance has been found to impact a toad species in Argentina for example[40]). The reduction or removal of key plant species, such as common heather, crowberry and purple moor grass, particularly important for reptiles and their prey, may also play a role[41,42]. This suggests that grazing reduces preferred plant species and may negatively impact reptiles. The density of grazing may be significant too. Free-roaming, low-stocking density grazing creates an intermediate successional stage with high habitat heterogeneity, ideal for reptiles and heathland ecosystems[43].

Adding artificial refuges could be of benefit to reptiles[44]; artificial hibernaculum have been used by common lizards (*Zootoca vivipara*) and adders (*Vipera berus*). However, more research is needed to determine their overall conservation impact.

Amphibians also occur in heathlands, with the majority of research linked to natterjack toads (*Bufo calamita*). Some research suggests grazing may maintain a transitional state beneficial for natterjack toads[45]. However, a study in southern England found no preference for grazed plots[46].

Other management options for natterjack toads include adding limestone to ponds, vegetation clearance and pond improvement. A UK translocation review found 70% were successful in the short to medium term, with adults returning to breed and some self-sustaining populations established[47]. Limestone can boost breeding activity temporarily, but high tadpole mortality and low metamorphic success led to abandonment of the practice[48].

Additional interventions, such as silt removal, pond creation and vegetation clearance have been tested; vegetation clearance increased toad occupancy in two studies[49,50]. A long-term study at two sites in England found that vegetation clearance, pond creation, restoration, and captive-rearing, led to population increases over 20 years[51]. Similarly, pond restoration, including deepening, *Crassula helmsii* control, vegetation clearance, liming, and captive-rearing, resulted in a three-fold increase in populations at some sites[52].

Research suggests that managing heathland ponds by water quality improvement and vegetation management could help support natterjack toad populations. For reptiles, some researchers argue that grazing by domestic livestock, particularly cattle and ponies, is unsuitable for reptile conservation and could lead to their local eradication[53]. Others suggest that while heavy or rotational grazing is harmful, low-intensity grazing may help maintain both reptile populations and their habitats by preventing overgrowth and preserving habitat diversity[54]. Comparison of burning and grazing is unclear but a study in France found similar abundance of reptile species on grazed sites compared with sites burned 5-12 years previously[54].

Heathlands are a vital and disappearing habitat for amphibians and reptiles in the UK. Despite this, uncertainty remains about how best to manage heathlands for reptile and amphibian conservation.

By Josie McPherson, University of Edinburgh and Andrew Smart, Froglife.

AI was used to condense the original literature review for this article.

Scan for References




Introducing Emily Seccombe

Froglife's new PhD student

Until the age of 16, I was unaware that there were newts in the UK, despite being interested in nature throughout my childhood. It wasn't until I attended an amphibian and reptile survey course and saw a tank on the side with some common newts netted from the site's pond that I found out. I couldn't believe my eyes. These magical creatures are in ponds and under stone piles across the UK, if only we take the chance to look.

I have been fascinated by amphibian ecology and conservation ever since. I went on to study common toads and agri-environment schemes for my undergraduate dissertation. For my Masters project, I investigated the great crested newt Habitat Suitability Index. I was thrilled that my research was accepted for publication last year: Seccombe, E. and Salguero-Gómez, R. (2024). *An improved Habitat Suitability Index for the great crested newt Triturus cristatus*. The Herpetological Journal, 34(2), pp.55-67.

I am delighted to have joined the Froglife team through my PhD, which is based at the University of Reading. I will be studying the temporal and spatial impacts of conservation actions on British reptiles and amphibians. A key component will be analysing ponds created by Froglife: revisiting sites, monitoring populations, and using the habitat data to understand which ponds have succeeded in the long-term and why. I am also looking into other conservation actions, such as translocations and reptile basking banks.

In the years between studying, I have worked for several nature conservation organisations where I've been involved in the creation and restoration of over 50 ponds to provide newt breeding habitat. I was a keen toad patroller and involved in local monitoring projects too. These experiences have given me an understanding of the on-the-ground conservation challenges these species face. I hope my research will help to provide useful guidance to inform future conservation actions for amphibians and reptiles.

The National Association of Environmental Education

"We are trying to train conservationists in the making, so that our studies and activities in the rural environment lead to a future society in decent harmony with that environment, and in which there are many more men and women who care." (J. Longland)... and so ends the first article in the National Association for Environmental Education (NAEE) Journal in 1970.

Some of us are now those 'conservationists in the making' who may have been influenced by the work of NAEE (then called the National Rural and Environmental Studies Association). There is no doubt that the environmental challenges we face now are even more pressing than when that first article was written.

NAEE supports schools and teachers to help young people understand the relationship between people and the natural environment, and the responsibilities we have for our world. They publish blogs, reports and position papers that are freely-available on their website: naee.org.uk. A good example is the report: "The state of environmental, sustainability and climate education in UK schools and effective practice in the classroom" (NAEE, 2024). One of the key recommendations is: "Utilising community and outdoor learning opportunities, such as field trips, nature connection activities, and partnerships with local organisations, to ground environmental education in the natural world, improving educational outcomes and students' mental and physical well-being."

This is very much at the heart of Froglife's work. For example, our Green Pathways project works with disadvantaged young people to support them to act for green spaces in their communities. Our new Coalface to Wildspace project in Yorkshire is currently consulting with teachers and young people on how best to meet their needs through innovative practical, digital and creative environmental activities. In this way, we can ensure that young people have access to excellent transformative learning experiences that will inspire them and give them the skills to become the environmental leaders our world so urgently needs.

We aim to make sure that when the next generation looks back, they will see so "many more men and women who care."

By Sheila Gundry. *Sheila is Froglife's Head of Operations. She is also a Trustee for the National Association of Environmental Education.*

District Level Licensing for Great Crested Newts

The District Level Licensing (DLL) scheme takes a big-picture view. Backed by tons of research (think habitat modelling, population studies and landscape mapping), this system figures out where newts are likely to thrive and makes sure the right habitats are created and protected before developers move in. That means less paperwork, more ponds and happier newts. Scientists have helped shape every part of the scheme, from how habitats are chosen to how they're monitored long-term. It's conservation with a plan and the monitoring undertaken is suggesting it's working. Further effective monitoring of the scheme will be required to understand the overall impact on great crested newts at a national scale.

Many a "one more game" nights spent on Championship Manager in my teens trawling the player statistics, coupled with round after round of Top Trumps, has probably contributed to my fondness for all thing statistics. In honour of losing the league to a rogue result too often, here is DLL in numbers!

31% pond occupancy rate in 2023

Monitoring data indicates that in 2023, GCNs have colonised 31% of the ponds developed through DLL, with expectations for this number to rise as habitats mature and more monitoring is undertaken.

Celebrating 3,000 ponds created or restored between 2019 and 2023

In 2023, the scheme celebrated the creation or restoration of over 3,000 ponds, providing vital breeding habitats for GCNs and contributing to the reversal of their population decline. Froglife Ecological Services was appointed as a habitat delivery body – we have added to this number by creating and restoring 91 ponds so far!

133 Local Planning Authorities participating

As of 2023, 133 Local Planning Authorities across England have joined the Natural England DLL scheme, enabling a more unified and efficient approach to managing GCN habitats in the face of development pressures.

70% occupancy in Hertfordshire ponds

In Hertfordshire, 70% of DLL ponds surveyed in 2023 were found to be occupied by GCNs, demonstrating the scheme's success in specific regions.

25-year monitoring commitment

All habitats created under DLL are subject to a 25-year monitoring and maintenance plan, ensuring long-term viability and effectiveness of conservation efforts.

£33 Million committed to conservation

Developer contributions through DLL have generated over £33 million in committed income, funding the creation and restoration of vital GCN habitats, including ponds and terrestrial environments, to offset impacts from development.

4:1 compensation ratio

For each GCN-occupied pond lost to development, DLL mandates the creation or restoration of at least four new ponds, ensuring a net gain in habitat availability.

Over 230 licences issued in 2023

In 2023, Natural England issued over 230 new or renewed DLL licences for GCNs. This reflects the scheme's growing adoption and effectiveness in facilitating development while ensuring species protection.

Hats off to Natural England for letting research take the lead. The great crested newt isn't just getting a license to thrive – it's getting a whole new lease on life. So, next year while you're out enjoying the thrill of a springtime pond survey, you can smile knowing that behind the scenes, a data-powered strategy is helping these wonderful warty wonders get the spaces they need to flourish.

By James McAdie. *James is the Head of Operations at Froglife Ecological Services.*

The Other Side of Surveying

"Understanding" is an ecosystem in itself. When we examine a pond, say, and record numbers and water depth and surface cover and species range and all those other parameters, we can miss other elements of our understanding of that pond. It is good to also recognise the qualitative impacts of that pond and of the ecosystem dynamics that run through it. We may not measure excitement in our surveys or assess delight in a bioblitz but both excitement and delight need to be remembered in our exploration of that pond. We need to acknowledge, if only for ourselves, what this work means for us as individuals.

We may not measure it, but excitement, delight, satisfaction — wonder — motivate ourselves and the wider public as much, and often more deeply, than recorded data. We don't just do this because it is useful or important. We do it because we enjoy it. Don't get me wrong: quantitative research is vital: learning and understanding the processes of that pond guide management, inform action, feed discussion, but that ecosystem of understanding also needs the intangible mist of wonder to fully appreciate what that pond offers us as people.

Try just sitting and watching. Quietly list what you see. And what you feel. Without judgement, name those things. Celebrate the diversity of plants, animals, water, wind and weathers. Praise songs work like meditations. As you recite the lines each image contributes to the scene, builds it in your head, draws you back into the stillness and the moment. Reconnect.

By Gordon MacLellan. *Gordon is a Froglife Trustee, educator, artist and zoologist. Gordon combines scientific and expressive fields to offer challenging and exciting workshops which you can learn more about on his website: www.creepingtoad.com*

"Try just sitting and watching that ecosystem of understanding also needs the intangible mist of wonder to fully appreciate what that pond offers us as people."

MEASURING A POND

By Gordon MacLellan

Count and keep counting,
Water fleas by volume,
Eggs folded neatly into leaves,
The legs of a larva,
The gills of a nymph,
A shrimp's swimmerets.

Assess depth,
Calculate flow.
Sieve the gravel.
Feel the grain
Of the sand,
Of the silt.

A stickleback hangs,
Silver armour in still water.
Toes splay,
A tail flares,
A newt hangs weightless spotlit in sunshine.

Meet a tadpole swarm.
Count
And keep counting.
Calculate shoal dynamics.
Abandon numbers and
Revel in the chaos.
Embrace wonder.
Dive into a pool of delights, and
Calculate the distance between
Despair and hope in breaths and heartbeats.

frogalogue

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SUPPORT FROGLIFE'S CONSERVATION WORK BY SPONSORING ONE OF OUR SPECIES FROM £10

Give Froglife Friendship as an extra special gift to someone you know who cares about frogs (and all amphibians and reptiles!). As well as knowing your contribution is going toward the conservation of the UK's amphibians and reptiles, your friend or family member will also receive a special pack. Friendships start from £18

froglife friends

These prints are limited to 68 to represent % decline of common toad species in the UK over the past 30+ years. By purchasing one of these prints you will help Froglife continue to protect common toads and their habitats. Price £29.95

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And last, but certainly not least, a big thank you to all of our volunteers especially all those toad patrollers who are doing such a terrific job again this year.