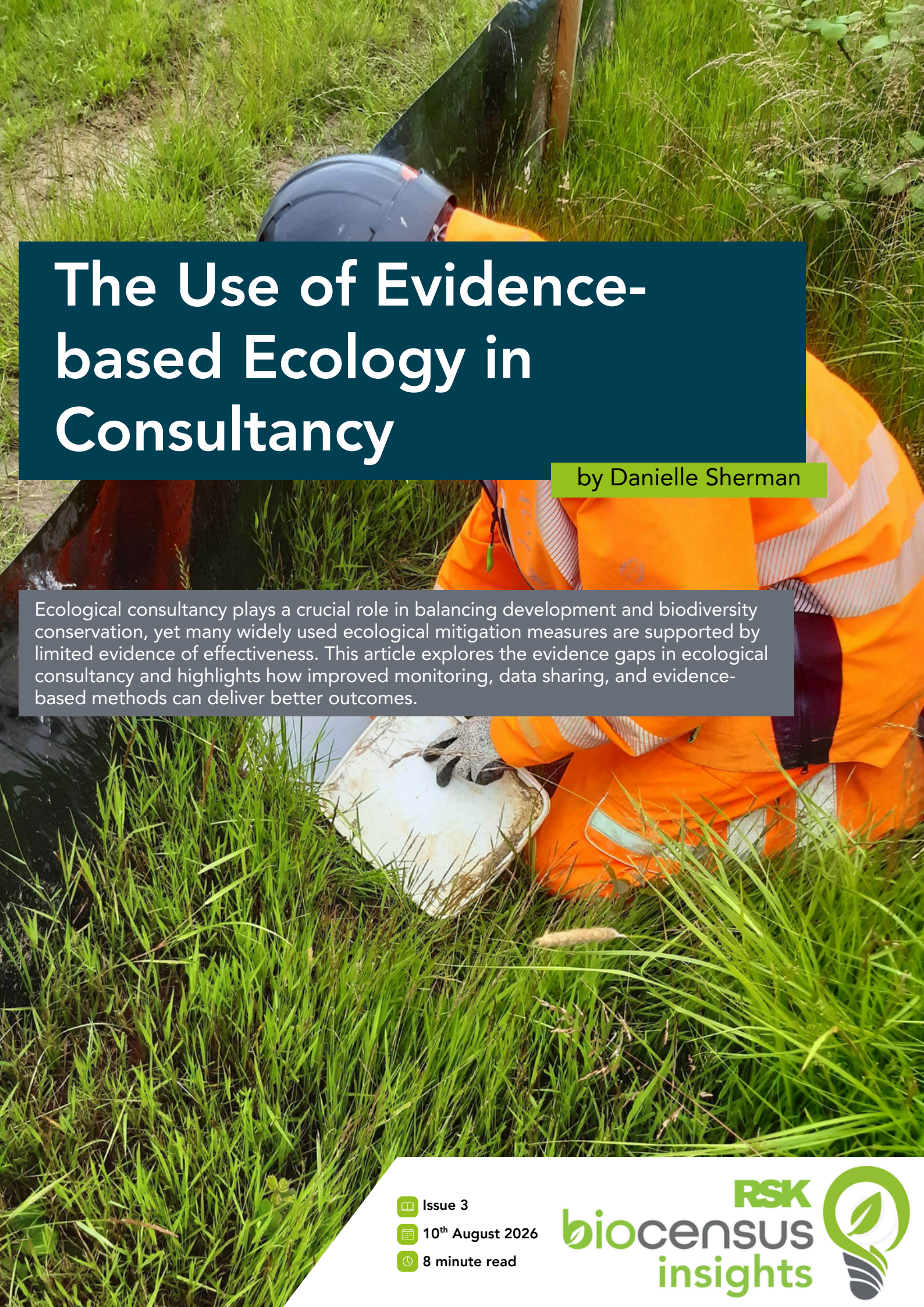




The Use of Evidence-based Ecology in Consultancy

by Danielle Sherman

Ecological consultancy plays a crucial role in balancing development and biodiversity conservation, yet many widely used ecological mitigation measures are supported by limited evidence of effectiveness. This article explores the evidence gaps in ecological consultancy and highlights how improved monitoring, data sharing, and evidence-based methods can deliver better outcomes.

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WHY EVIDENCE MATTERS IN ECOLOGICAL CONSULTANCY

Ecological consultancy sits at the intersection of development and biodiversity protection. While decisions are expected to be evidence-based, many commonly used mitigation measures are supported by surprisingly little empirical evidence. The result is that familiar practices often persist because they satisfy planning requirements rather than because they consistently deliver positive ecological outcomes. Yet the effectiveness of many commonly prescribed mitigation measures remains uncertain, raising important questions about how ecological decisions are made and evaluated.

ARE OUR MITIGATION MEASURES ACTUALLY WORKING?

A feature of ecological consultancy is the widespread use of mitigation measures that lack strong evidence of effectiveness. Nowhere is this perhaps clearer than in bat mitigation. Bat gantries and underpasses, for example, have been installed across the UK for more than a decade, often at significant cost. Yet it has been demonstrated^[1] that gantries do not guide bats safely across roads and are largely ineffective. Despite this, they continue to appear in mitigation plans because they are familiar, easy to specify, and accepted by regulators.

Roost mitigation is also an area where evidence for effectiveness is scant. Further evaluation of bat roost compensation measures used in development projects found inconsistent implementation and highly variable outcomes^[2]. Many replacement roosts failed to replicate the thermal or structural conditions of natural roosts, and post development monitoring was often insufficient to determine whether bats

actually used them. It has also further been shown that derogation licensing does not reliably prevent population level impacts, highlighting a disconnect between regulatory processes and ecological reality^[3].



Figure 1. Bat box used for bat roost compensation.

Amphibian and reptile mitigation shows the same pattern. Great-crested newt (*Triturus cristatus*) mitigation ponds often fail to support populations after development, while reptile translocations frequently result in poor survival and limited long-term success^{[4][5]}. Some researchers argue these measures are often used to satisfy planning requirements rather than because they are proven to work^[6]. This reflects what Sutherland and Wordley (2017) describe as "evidence complacency": the assumption that widely used mitigation must be effective simply because it is familiar^[7]. In practice, consultants and regulators can become locked into approaches that are expected, even when the evidence suggests better alternatives are needed.



Figure 2. Reptile translocation using herptile fencing and pitfall traps.

HOW DID WE GET HERE?

One of the biggest barriers to evidence-based ecological consultancy is the lack of post-development monitoring. Without monitoring, it is impossible to know whether mitigation works. Even when monitoring is carried out, the results are rarely shared beyond the project, meaning valuable lessons are lost and future decisions continue to rely on established practice rather than evidence^[8].

This lack of sharing results creates a self-reinforcing cycle. Consultants work within tight budgets, deadlines and regulatory requirements, which favour familiar mitigation measures over testing new approaches. Licensing and planning systems often reward procedural compliance rather than ecological outcomes, making it difficult to challenge long-standing practices even when evidence suggests they are ineffective.

The problem is compounded by the knowledge-action gap. Monitoring data are rarely brought together to evaluate mitigation at a meaningful scale, while many practitioners have limited time or access to the latest research^[9]. Until monitoring results are shared, synthesised, and used to improve practice, ecological consultancy will continue to rely heavily on expert judgement and received wisdom instead of robust evidence.

HOW DID WE GET HERE?

Monitoring has become a familiar requirement for many developments, but monitoring alone does not generate better conservation outcomes. Unless the results are analysed, shared and used to influence future decisions, it risks becoming little more than a compliance exercise. Across the sector large numbers of post-development surveys are commissioned

each year yet most remain behind closed doors. Collectively these reports represent one of the largest untapped ecological datasets in the UK, but they are rarely brought together to answer the wider questions such as: Which mitigation measures consistently work? Which fail? And crucially, under what circumstances? Without standardised methods, accessible datasets and mechanisms for synthesising results across projects, each development effectively starts from the same baseline of uncertainty. The profession repeatedly collects evidence without building a stronger evidence base.

Ecological consultancy has the opportunity to move in the direction of adaptive management where interventions are treated as hypotheses to be tested and refined rather than fixed solutions. Monitoring should not mark the end of a project; it should become the beginning of improved practice, allowing mitigation to evolve in response to evidence.

“The profession repeatedly collects evidence *without* building a stronger evidence base.”

MOVING TOWARDS EVIDENCE-BASED CONSULTANCY

Despite these challenges, there are clear pathways for improving evidence use in ecological consultancy. Systematic evidence reviews, such as those produced by the Conservation Evidence project, offer accessible summaries of what works and what does not. Embedding this type of evidence synthesis into



guidance, and developing guidance using transparent, evidence-based principles with clear links between recommendations and supporting evidence^[10], would help ensure that mitigation measures are grounded in empirical data. By systematically reviewing conservation interventions and assessing their effectiveness, they provide practitioners with a robust evidence base to inform decision-making. Embedding these reviews into guidance and licensing processes would help ensure that mitigation measures are grounded in empirical data. Greater collaboration between academics, consultants, and regulators would help bridge the knowledge-action gap and ensure that research addresses real-world needs.

Mandatory, standardised post-development monitoring would generate the evidence needed to evaluate and refine mitigation. Although monitoring is already required for some developments, such as many wind farm projects, greater emphasis should be placed on ensuring monitoring is implemented consistently, conducted to appropriate standards, and made publicly available so that lessons can be shared across the sector.

Ultimately, improving evidence use is not just an academic exercise. It leads to better ecological outcomes, more defensible planning decisions, and more efficient use of resources. An evidence-based sector would be better equipped to protect biodiversity in the face of development pressures.

Ecological consultancy plays a vital role in balancing development and conservation, yet it is constrained by significant evidence shortfalls. Many mitigation measures persist despite lacking proof of effectiveness, monitoring is insufficient to evaluate outcomes, and guidance documents often rest on untested assumptions. Addressing these issues requires a cultural shift from assumption-driven practice to one grounded in testing, monitoring, and learning. By embracing evidence-based approaches, the sector can deliver more reliable, effective, and ecologically meaningful outcomes. Greater reliance on evidence would not only improve biodiversity outcomes but would also strengthen trust in ecological advice, increase confidence in planning decisions, and enhance the credibility of the consultancy profession.

“Monitoring should not mark the **end** of a project; it should become the *beginning* of improved practice, allowing mitigation to **evolve** in response to evidence.”



ABOUT THE AUTHOR

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