BIC Invasive Species Work Sector

Visit to Swansea & Oxwich Bay
Speaker Bios

Day 1 - Wednesday, 10 June 2026

Presentation 1 – Root reset: Japanese knotweed control trial, WaREN Project

Charlie Richards: North Wales Project Officer

Charlie has been an INNS project officer at NWWT for the last 4 years working to survey and manage invasive species across Wales particularly in the Dee catchment, Clwyd catchment and Eryri national park. Charlie has also involved trying novel solutions to management and biosecurity whilst engaging and advising the wider public, encouraging local action.

Elen Evans: South Wales Project Officer

As North Wales Wildlife Trust's South Wales INNS Project Officer, Elen provides support to organisations and communities to identify, manage, and prevent the spread of invasive non-native species. Elen leads public engagement activities and works with partners across the region to deliver coordinated, landscape-scale INNS management.

Presentation 2 - Steam treatment for Australian swamp stonecrop

Sean Faulkner Sales Director & Integrated Weed Management Specialist, Kersten UK

Sean has spent over a decade helping local authorities and land managers transition away from chemical weed control towards preventative, nature-based solutions. Sean has helped develop training like the Lantra-certified IWM syllabus, contributed to the Parks for London IWM Reference Guide, and previously supported the Welsh Government in its pesticide reduction initiative. Sean's current focus includes the non-chemical treatment of invasive aquatic species, including *Crassula helmsii*, where Kersten's hot water technology has demonstrated strong field results.

Presentation 3 - Integrating Native Biocontrol: A Nature-Based Approach to Managing Invasive Topmouth Gudgeon

Bethany Greenfield, Specialist Advisor for Invasive Non-Native Species (INNS), Natural Resources Wales

Beth's career is defined by a transition from high-level molecular research to applied environmental management. Beth holds a PhD for Swansea University, where her research focussed on the molecular biology and genomics of fungal pathogens for use as biological control agents for vectors of disease.

Prior to her role at NRW, Beth worked at NIAB-EMR within the Genetics, Genomics and Breeding department. During her time at NIAB-EMR, she specialised in the development and implementation of advance molecular techniques, including RNA-seq, Genomic sequencing and CRISPR techniques, for critical plant pathogens such as *Fusarium oxysporum* f.sp *cepae* and improvements for Quorn mycoprotein (*Fusarium venenatum*).

This background in molecular ecology and genomics now informs her strategic approach to biosecurity in Wales, where she leads innovative, evidence-based programs for the monitoring, management and control of high-priority INNS.

Presentation overview

- ***The challenge: Beyond chemical control -*** *Topmouth Gudgeon (TMG) is a highly prolific invasive fish posing a significant threat to UK and Irish aquatic ecosystems. Traditionally, eradication has relied on chemical piscicides; however, their use is increasingly restricted by environmental regulations, high costs, and site-specific sensitivities. Where chemical treatments have failed or are not feasible, a new approach is required.*
- ***The strategy: European Perch as Biocontrol -*** *Natural Resources Wales (NRW) is invesitaging a shift towards Integrated Pest Management (IPM). We are evaluating the use of a native predator, the European Perch (Perca fluviatilis), as a biological control agent. We aim to supress TMG populations by targeting juvenile life stages and to move from a "single-tool" chemical reliance toward a long-term, nature-based solution.*
- ***The evidence: Molecular validation -*** *To move beyond anecdotal evidence and confirm the effectiveness of perch as a biocontrol agent, we are employing shotgun metagenomic sequencing. By analysing the DNA extracted from perch gut samples, we can identify exactly what the predators are consuming. The molecular approach allows us to empirically validate TMG consumption and quantify the impact of perch on these invasive populations*

Day 2 - Thursday, 11 June 2026

Presentation 4 - Multispectral mapping by drone.

Dr Tom Fairchild, Chief Executive Officer, Spectral Ecology Limited

Dr. Tom Fairchild is the CEO of Spectral Ecology Limited, bringing 15 years of expertise in ecological research and environmental science. With a PhD in Biodiversity and Ecosystem Services, Tom has held pivotal roles in high-impact international projects and is widely published in leading journals. Tom founded Spectral Ecology to bridge the gap between academic innovation and industry adoption, delivering field-validated, cutting-edge research directly to the commercial and public sectors.

For the past five years, Tom has pioneered the use of drone-based remote sensing and spectral techniques to quantify biodiversity and identify individual species in complex communities. He led the development of the company's world-leading hybrid species classifier—utilising multispectral and computational hyperspectral UAV data—which is now being deployed to map Invasive Non-Native Species (INNS) for major environmental stakeholders. By integrating novel workflows into practical environmental management, Tom provides innovative solutions to the most pressing ecological challenges throughout the British Isles and further afield.

Joshua Mutter, Chief Technical Officer of Spectral Ecology Limited

Joshua Mutter is the Chief Technology Officer of Spectral Ecology Limited, bringing over a decade of research expertise in ecology and geospatial science. Specialising in the practical application of LiDAR and Machine Learning, Josh leads the company's technical operations, with a primary focus on methodological evaluation and the field validation of novel spectral workflows.

Throughout his career, Josh has contributed to large-scale multidisciplinary research programs, including NERC's BEF-Scale and Intertraits projects. At Spectral Ecology, he manages the day-to-day delivery and scaling of the company's outputs, ensuring that complex models—such as the hybrid species classifier—translate into robust, reliable data for mapping Invasive Non-Native Species (INNS). Josh is dedicated to the operational delivery of high-resolution ecological insights to help solve difficult environmental challenges.