CIEEM in practice

Issue 127 | March 2025

Bulletin of the Chartered Institute of Ecology and Environmental Management

Northumbrian Water: A Cultural Change in Grassland Management

Insight on eDNA From Grassland Fungi

Biodiversity Net Gain and Grassland Birds

Robots in Terrestrial Ecological Surveys

Grasslands

Managing Invasive Non-Native Plant Species: Making the Most of Biodiversity Net Gain

Ecologists surveying a site for INNPs.

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It is well known that invasive non-native species are one of the top drivers of biodiversity loss. So how does Biodiversity Net Gain (BNG) in England help to deal with invasive non-native plants (INNPs) listed in Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended)? This article explores how invasive plant management is integrated into the BNG assessment process in England, how the process can be improved to make more of the opportunity to deal with INNPs, and how to integrate the roles of ecologist and invasive plant management contractor to ensure sustainable outcomes. This is based in part on feedback from the INNP and BNG workshop at the CIEEM Autumn 2024 conference.

Keywords: Biodiversity Net Gain, invasive non-native plant species

Invasive non-native plant present in the baseline survey: how does it work?

When undertaking a UKHab survey and baseline condition assessment, it is essential to identify any INNPs present. Surveyors should be competent to identify any of the 40+ INNPs listed on the WCA.

When determining the baseline condition score for area habitats and hedgerows on a site, surveyors must assess the habitat's condition using the Statutory Biodiversity Metric (SBM) (Defra 2023) Condition Assessment including condition sheets (Defra 2024) for most habitats included in the SBM (the Metric).

For most of these habitats, one of the condition criteria by which a habitat is assessed is the cover of species indicative of suboptimal conditions and/or presence of INNPs. Let us use a hypothetical example of an acid grassland which is high distinctiveness in the Metric (Table 1).

Once you have assessed your habitat against the relevant criteria, the final condition score is determined on the number of criteria passed or failed (Table 2).

Now we know our baseline habitat type and condition for our example (acid grassland in poor condition) and what our post-intervention habitat type and condition will be (acid grassland in moderate condition following INNP removal), this can be entered into the metric. Along with other factors in the Metric not discussed in this article (e.g. strategic significance), the Metric then generates a biodiversity value for both baseline habitat and post-intervention habitat (measured in biodiversity units). If the biodiversity unit score for the post-intervention habitat is higher than the biodiversity unit score for the baseline habitat, you achieve a net gain in biodiversity units. The exact number of biodiversity units generated will depend on various factors including size, location and condition.

Our acid grassland only passes two criteria (C and D) and fails the other three including criterion E for INNPs, coming out as poor condition, which would then be entered into the Metric. If we were to undertake management to remove the INNP, criterion E would then become a pass. The grassland would then pass three criteria (C, D and E), bumping its condition score up to moderate condition in the post-development tab in the SBM, generating a greater number of biodiversity units compared to the baseline score. We have delivered biodiversity units by removing an INNP.

If INNPs are recorded within the baseline for a project, their removal prior to consent and construction can contribute towards BNG. For example, if you have done the baseline surveys on a site and recorded INNPs, but it will then take 2 years before construction can start, you can work with an invasive plant contractor to immediately remove it; you can apply the temporal advance multiplier in the Metric to factor in that the enhancement has been done 2 years prior to construction commencing. This is an incentive to remove the INNPs as soon as recorded. Ultimately, it does depend on the existing condition of your habitat and whether just removing INNPs alone will bump your baseline habitat into the next condition assessment score. In some cases, just removing INNPs alone will not generate a change in habitat condition score, so additional management factors in INNP control may be required to pass another condition criterion.

Watercourses are more complicated. To determine the condition score of a watercourse you need to complete a River Condition Assessment comprising a MoRPh (Modular River Physical) survey(s) (field survey) and a River Type Assessment (desk survey). There are a lot more criteria assessed for watercourses, so just removing an INNP is unlikely to significantly improve a watercourse's condition unless the banks, channel and riparian zone are completely choked by INNPs and the management ensures that they do not re-establish.

Table 1. Condition sheet: grassland habitat (medium, high and very high distinctiveness)

	Condition assessment criteria	Criterion passed (Yes or No)	Notes (e.g. justification)
A	The parcel represents a good example of its habitat type with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type …	Fail	
B	Sward height is varied …	Fail	
C	Cover of bare ground is between 1% and 5% …	Pass	
D	Cover of bracken is less than 20% and cover of scrub is less than 5%	Pass	
E	Combined cover of species indicative of suboptimal condition and physical damage … *If any invasive non-native plant species (as listed on Schedule 9 of WCA) are present this criterion is automatically failed.*	Fail	Failed due to INNP present

Table 2. Condition assessment result: grassland habitat

Condition assessment result	Condition assessment score	Score achieved (✓)
Acid grassland types (result out of 5 criteria)		
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	✓

How could it work better?

The list of INNPs assessed in the UKHab survey and baseline condition assessment needs to be expanded to include the Invasive Alien Species (Enforcement and Permitting) Order 2019 (IAS Order) which would include INNPs of Special Concern.

An aspect of the BNG process which is harder to include within the existing process is the lack of an incentive in terms of biodiversity units to deal with pathways as well as INNPs. This is contrary to the Great Britain Invasive Non-Native Species Strategy: 2023 to 2030 (GB INNS Strategy) and failing to deal with pathways can make a nonsense of biodiversity units gained by supposedly dealing with the INNP (e.g. there may be giant hogweed on both our site and upstream of the site but the Habitat Management and Monitoring Plan (HMMP) is not required to take the latter into account). Although not catered for specifically, it is possible to include the control of an INNP in a watercourse in both the site and an upstream stretch and achieve biodiversity units, but this is unusual. The only example we have come across was an early non-statutory application of BNG, where an increase in post-development watercourse biodiversity units was predicted through eradication of Himalayan balsam from upstream to downstream throughout a small watercourse catchment. To achieve this, Environment Agency support was necessary.

Additional feedback from the CIEEM INNP and BNG workshop included:

- If a site has an INNP, it should be similar to a priority habitat; i.e. the exemption rule should not apply and the small-scale SBM cannot be used.
- Under UKHab, there are various Secondary Codes which can be used when there is a Primary Code with a small area of INNPs. It would be beneficial to include a UKHab Primary Code for large extents of INNPs where there is no obvious underlying habitat or clear guidance on how large extents of INNPs should be recorded.
- The condition sheets of many habitats only have one question about INNPs; the presence of INNPs should be given greater negative importance, similar to the greater positive importance given to priority habitats.
- The River Condition Assessment needs revising to give appropriate weight to dealing with INNPs.
- The BNG process needs to factor in the differential impacts of INNPs on biodiversity, e.g. tall invading species capable of forming populations with the cover markedly greater than that of native dominant species exert the most severe effects on species diversity (Hejda *et al*. 2009).

No invasive non-native plants recorded in baseline

The HMMP does not include the need for a biosecurity management plan (BMP) as standard. Given the nature of habitat creation with associated disturbance and niche creation, and then management over a 30-year period, the likelihood of invasion by INNPs is moderate to high for most habitats. Examples of pathways range from propagules on fleece, in mud in hooves or in faeces of grazing livestock to those in tyre treads and on footwear. A BMP is essential. Being practical, this should also cover the invasion of both native and non-native species.

The BMP would need to include a rapid response capability in line with the GB INNS Strategy. The drafting and implementation of the BMP should be undertaken jointly by ecologist and invasive plant contractor, the latter being a member of a recognised trade association.

Suggested next steps

- Increase in availability of identification courses to ensure surveyors can recognise INNPs.
- BNG training to include INNPs and how to gain biodiversity units.
- SBM Condition Assessments expanded to include INNPs scheduled in IAS Order as well as WCA.
- Identification of pathway of INNP spread into a site as part of baseline and incentive to shut it down.
- CIEEM's Competency Standard for Invasive Non-native Plants to include the BNG process.
- A BMP embedded as a standard part of all HMMPs whether an INNP is present in baseline or not.
- Develop metrics that adequately account for the impact of INNP on biodiversity and set goals for the weighting of INNPs.
- Not all INNPs will impact biodiversity equally and the metrics need to take this into account.
- Ecologists and invasive plant contractors to work closely from the outset.

Acknowledgements

We thank Luke Casey (Ove Arup & Partners) and Dr Mark Fennell (AECOM) for their comments on the article.

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