

BIODIVERSITY NET GAIN

1. Introduction

Maintaining and increasing biodiversity is regarded as a critical factor in managing the stability of the planet. To this end, the 2021 Environment Bill mandates most new development will deliver an overall gain in biodiversity. This is called 'biodiversity net gain' (BNG) or sometimes 'net biodiversity gain' (NPG). This is therefore an important aspect for all local planning authorities to consider in approving or rejecting planning proposals and, in particular, solar farms. The law does not apply to NSIPs (Nationally Significant Infrastructure Projects). Nevertheless, developers may wish to show their NSIP proposals do deliver BNG.

2. Measurement

Biodiversity was originally measured by using Biodiversity Metric 2.0 (JPO 29) Natural England 007.2019; this has now been superseded by Biometric 3 (JPO 39) Natural England 07.2021.

3. Commentary

Ecologists in the UK generally regard the metric as not fit for purpose. Prof. K. Willis (Ref 3) a leading ecologist from Oxford University said in 2021 that the BNG total "will promote further loss and fragmentation of some of the UK's natural environment and even more important the ecosystem services that flow..." She concludes that "net biodiversity gain will end up being net biodiversity loss".

Dr C Betts, who head up Betts Ecology explains in more detail: (Ref 1):

- “1, The metric calculation only accounts for direct impacts on habitats within the footprint of a development or project. It is only a simple assessment tool and only considers direct impacts on biodiversity through impacts on habitats. Indirect impacts, which it is important to consider, are not included in the metric.
2. Biodiversity unit calculations are not absolute values but provide a proxy for the relative biodiversity worth of a site pre- and post-intervention. **The metric is not a substitute for expert ecological advice.** The metric should never be used to override or undermine the mitigation hierarchy (see below) or any existing planning policy or legislation.
3. The metric does not include species explicitly but uses habitat types as a proxy for the so-called "biodiversity value" of the species communities of those different habitats. (Metric outputs do not change existing levels of species protection and do not replace the processes linked to species protection regimes).

4. Using habitats as a proxy for biodiversity is a simplification and **biodiversity metric unit calculations/scores are not scientifically precise or absolute values**, only a proxy for the relative biodiversity worth of a habitat or site.
5. The metric and any numerical outputs are not absolute values but must be interpreted using ecological expertise and common sense. If they are used at all, it should only be as one (potentially misleading, so great care needed) element of the evidence that informs plans and decisions. **The metric is not in or of itself a solution to biodiversity decisions.** The metric does not give instructions, for example on the species to use in habitat enhancement/compensation.
6. Biodiversity metrics have a focus on typical habitats and widespread species; protected and locally important species' needs are not considered; protected sites and irreplaceable habitats **are not adequately measured by the metric.** Notable habitats and features require appraisal separately by a skilled ecological scientists/naturalist."

The comments by Willis & Betts are backed by a referred research paper (Saphus zu Ermogasson et al, June 2021) (Ref Z). The paper notes that losses in habitat areas (as a result of development) will be traded for habitats of higher distinctiveness in the future. The paper states "Mandatory BNG will generally trade biodiversity losses today for uncertain future gains".

The conclusion is "It is widely recognised that promises of future biodiversity gains is risky". The research was backed up by an analysis of 55 BNG assessments. In these there was a promise of a 25% increase in biodiversity but in fact there was a 34% reduction in green spaces.

Saphus zu Ermogasson concludes "that the safest mechanism for reducing the biodiversity impact of infrastructure is to avoid impacts to biodiversity initially. In practice this means redirecting development to previously degraded sites wherever possible".

This conclusion mirrors the advice offered by Natural England (Ref 5) particularly in relation to solar farms. "In the literature concerns have been raised that solar PV developments have the potential to negatively impact a broad range of taxa including birds, bats, mammals, insects and plants. In light of this it is highly recommended that research is undertaken into the ecological impact of solar PV arrays across a broad range of taxa at multiple geographical sites". "The lack of evidence relating to the ecological impact of solar farms is concerning".

4. Overall Conclusions

- 4.1 Biodiversity is of critical importance.
- 4.2 The Metric used to measure BNG is flawed.
- 4.3 Ecologists believe that the BNG metric could lead to a biodiversity net loss.
- 4.4 Much more research and evidence is required before it can be stated that there will not be a significant adverse biodiversity impact from solar farms. It would therefore be premature to give approval for solar farm schemes, as after a few years considerable ecological damage could be achieved that would be difficult to correct.
- 4.5 Current advice is to site solar farms away from any areas of value (Ref 4).

5. References

- 1. Betts C.J. 'Biodiversity not so net gain', Dec 2021
- 2. Saphus zu Ermogasson et al, Society for Conservation Biology, June 2021
- 3. Prof. K. Willis, Oxford University, July 2021
- 4. Natural England TIN 101
- 5. Natural England 2017 NEE R012