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journal homepage: [www.elsevier.com/locate/biocon](http://www.elsevier.com/locate/biocon)

# Data transparency regarding the implementation of European ‘no net loss’ biodiversity policies

Bull Joseph W.<sup>a,b,\*</sup>, Brauner Kerstin<sup>c</sup>, Darbi Marianne<sup>d</sup>, Van Teeffelen Astrid J.A.<sup>e</sup>,  
 Quétier Fabien<sup>f</sup>, Brooks Sharon E.<sup>c</sup>, Dunnett Sebastian<sup>c</sup>, Strange Niels<sup>a</sup>

<sup>a</sup> Department of Food and Resource Economics & Center for Macroecology, Evolution and Climate, University of Copenhagen, Rolighedsvej 23, 1958 Copenhagen, Denmark

<sup>b</sup> Durrell Institute of Conservation and Ecology, School of Anthropology and Conservation, University of Kent, UK

<sup>c</sup> United Nations Environment Programme World Conservation Monitoring Centre, 219 Huntingdon Road, Cambridge CB3 0DL, UK

<sup>d</sup> Helmholtz Centre for Environmental Research UFZ, Permoserstr. 15, 04318 Leipzig, Germany

<sup>e</sup> Environmental Geography Group, Department of Earth Sciences, Vrije Universiteit Amsterdam, De Boelelaan 1087, 1081HV Amsterdam, The Netherlands

<sup>f</sup> Biotope, 22 Boulevard Maréchal Foch, BP 58, F-34140 Mèze, France

## ARTICLE INFO

## Keywords:

Biodiversity offset  
 Compensation  
 Europe  
 Mitigation hierarchy  
 No net loss  
 Policy evaluation  
 Data transparency

## ABSTRACT

‘No net loss’ (NNL) conservation policies seek to address development impacts on biodiversity. There have been no peer-reviewed multinational assessments concerning the actual implementation of NNL policies to date. Such assessments would facilitate more informed debates on the validity of NNL for conservation, but assessing implementation requires data. Here, we explore data transparency concerning NNL implementation, with four European countries providing a case study.

Biodiversity offsets (offsets) are the most tangible outcome of NNL policy. Using an expert network to locate all offset datasets available within the public domain, we collated information on offset projects implemented in France, Germany, the Netherlands and Sweden. Implementation data for offsets were found to be non-transparent, but the degree of transparency varies widely by country. We discuss barriers preventing data transparency — including a perceived lack of necessity, lack of common protocols for collecting data, and a lack of resources to do so. For the data we collected we find that most offsets in Europe: are not within protected areas; involve active restoration; and, compensate for infrastructure development. The area occupied by European offsets is at least of the order  $\sim 10^2$  km<sup>2</sup>.

Transparent national NNL databases are essential for meeting good practice NNL principles, but are not currently available in Europe. We discuss what such databases might require to support evaluation of NNL policy effectiveness by researchers, the conservation community and policymakers.

## 1. Introduction

The conservation policy principle of ‘no net loss’ (NNL) of biodiversity, originating in US and European environmental legislation in the 1970s, has attracted considerable attention from researchers and decision-makers. NNL policies are those through which any negative biodiversity impacts associated with economic development are quantified, mitigated and fully compensated for (Gardner et al., 2013). Those seeking to achieve the NNL objective commonly do so through implementing actions categorised into a mitigation hierarchy (e.g. predicted development impacts are sequentially *Avoided*, *Minimised*, *Remediated*, and finally *Offset*; Gardner et al., 2013; Bull et al., 2016). Theoretical barriers to achieving NNL are well documented (Bull et al.,

2013). While the concept of NNL appeals to many policymakers, academics and NGOs, it is deemed unethical and open to misapplication by some (Gordon et al., 2015). Nonetheless, NNL-type policies are widespread (being applicable to certain projects in almost every country on the planet) and increasingly adopted by the private sector (Maron et al., 2016a).

Post-implementation evaluation of NNL policies is uncommon, including for the most controversial component of the mitigation hierarchy, biodiversity offsetting (Bull et al., 2013; ten Kate et al., 2014). Biodiversity offsets (‘offsets’) involve compensating for unavoidable residual impacts through conservation or restoration activities elsewhere. Some published analyses of offset implementation exist, assessing data on the implementation of offset projects at sub-national to

\* Corresponding author at: Department of Food and Resource Economics & Center for Macroecology, Evolution and Climate, University of Copenhagen, Rolighedsvej 23, 1958 Copenhagen, Denmark.

E-mail address: [j.w.bull@kent.ac.uk](mailto:j.w.bull@kent.ac.uk) (J.W. Bull).

<https://doi.org/10.1016/j.biocon.2017.12.002>

Received 10 July 2017; Received in revised form 13 November 2017; Accepted 1 December 2017

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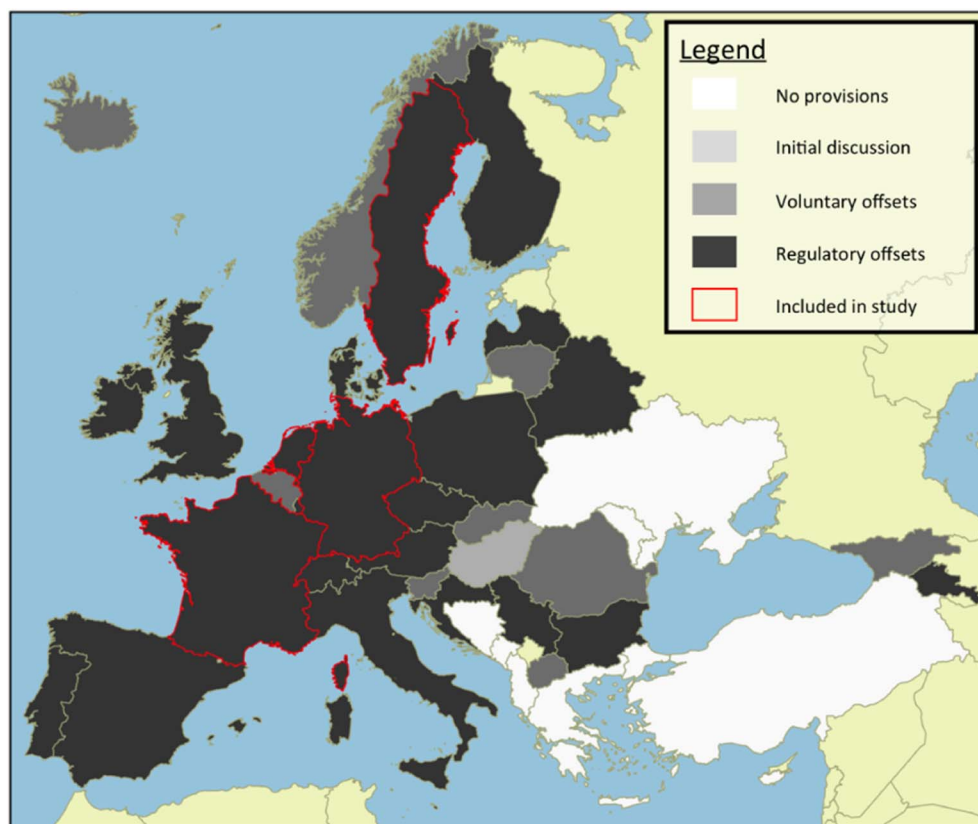


Fig. 1. Map of Europe, showing current biodiversity offset policy status for all countries contained within the GIBOP dataset (available at: <https://testportals.iucn.org/offsetpolicy>), and according to the classification scheme from the same dataset. The boundaries of the four countries included within this study are highlighted in red. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

national scales. They find that a minority of offsets are implemented as per technical requirements, yet conclude that the approach is improving and has some potential for conservation (Matthews and Endress, 2008; Brown et al., 2014; Olszynski, 2015; May et al., 2016).

Transparency (e.g. ensuring that “clear, up to date, and easily accessible information is provided to stakeholders and the public on the offset design and implementation, including outcomes”; BBOP, 2012) is considered good practice for offsetting. Further, the availability of comprehensive and reliable datasets on offset implementation would be essential for understanding the scope of offset activity, and is a prerequisite for eventually assessing the effectiveness and suitability of offsetting for conservation in different regional and national contexts. Yet to date there has been no explicit assessment of data transparency in the implementation of offset projects, or indeed in NNL policy outcomes more generally; let alone a comparative analysis that would enable lessons to be shared across jurisdictions. The lack of readily available data on the implementation of NNL policy hampers any effort to make clear, empirical statements in relation to key controversies surrounding NNL, and ultimately, evaluation of the contribution made by NNL policy to biodiversity conservation. The need to ascertain the validity of NNL has become increasingly pressing with the introduction of far-reaching policies supporting their use (Maron et al., 2016a). It is thus critical to better understand the degree to which data on offsetting efforts, and NNL-related measures more generally, are available. We note that the desire to obtain transparent and reliable data is a topical concern for conservation science more broadly. The availability and accessibility of data with relevance to topics in conservation has improved notably in recent decades — for instance, with resources such as the Global Biodiversity Information Facility (Gaiji et al., 2013), remotely sensed imagery (Turner et al., 2003), the World Database on Protected Areas (UNEP-WCMC, 2017), and the PREDICTS database (Hudson et al., 2014). This is consistent both with the movement towards evidence-based conservation (Sutherland et al., 2004), and with profound changes in the way scientific data are created and

disseminated (Kitchin, 2014).

Our main objective was to assess the availability and transparency of data on offset projects implemented under a NNL objective, for multiple countries. We collated all accessible data on offsets implemented by key countries within Europe that are actively implementing NNL policies. We assess the state of data on offset implementation, to understand whether such information is *unavailable*, *available*, or *transparent* (by which we mean both *available* and *readily accessible*). As a secondary objective, we sought to analyse data on known offset projects, to provide a first quantitative measure of European offsetting effort. It should be noted that, whilst such data go beyond policy analysis and capture implementation, they do not allow an assessment of the ecological effectiveness of offsets in achieving NNL — the latter would require widespread empirical assessment.

Europe is an active region for multinational NNL policy, and simulations suggest that such policies could result in good outcomes for nature against business-as-usual scenarios (Schulp et al., 2016). Yet, there has been no assessment to date concerning the physical implementation of NNL (Tucker et al., 2014; Schulp et al., 2016). For context: the current EU Biodiversity Strategy aims “to halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and to restore them in so far as feasible”. This includes to “ensure no net loss of biodiversity and ecosystem services” (Target 2, Action 7), including through offsetting schemes (Tucker et al., 2014). Since then, potential NNL approaches have been discussed extensively by the EU Commission and by member states. Whilst legislative NNL requirements, which make provisions for offsetting, already exist in certain protected areas (Natura 2000 sites) as a result of the EU Habitats Directive, the Strategy and associated discussions imply that NNL of biodiversity could be sought more widely (Wende et al., in press). Consequently, whilst biodiversity impact mitigation is already required in EU member states through the Directive on Environmental Impact Assessment, and offsetting is similarly enabled for Natura 2000 sites protected under the Birds and Habitats Directives, there is a movement

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