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Bridging the divide between research and policy

Articles in our May issue discuss how common scientific approaches and datasets could be more useful to policymakers.

The importance of ecology and evolution research to broader biodiversity policy has been brought to the foreground since the Convention on Biological Diversity's 2022 agreement on the Kunming-Montreal Global Biodiversity Framework (KM-GBF). Now, more than ever, researchers are considering how their work can advance the KM-GBF goals and targets. However, fundamental scientific research is not always set up to deliver tools or data that can be easily accessed by people taking conservation actions or making policy decisions.

A central research tool in conservation science is spatial prioritization, which identifies areas that should be prioritized for protection on the basis of variables such as high species richness or the degree of exposure to anthropogenic stressors. In this issue, a Review by Buenafe and colleagues focuses on how spatial prioritization exercises can be more 'climate-smart'; despite abundant use in the scientific literature, the authors acknowledge that uptake of these tools by practitioners is limited. They suggest that a review of the grey literature would be useful to identify the factors that limit the uptake of these tools.

A key difficulty in implementing decisions based on spatial prioritization is the extent to which species ranges — and the areas identified to protect them — span across multiple political jurisdictions. Protecting areas across political boundaries necessitates cooperation and compromise. These considerations are not apparent when biodiversity researchers plot maps of species, maps of threats or maps of resulting conservation priorities. A Comment by Araújo discusses why spatial prioritization is underused in the decision-making processes that protect areas to meet the KM-GBF's Target 3 (to conserve 30% of land, waters and seas by 2030). Araújo argues that social, economic and political constraints undermine the uptake of scientifically robust spatial prioritizations, and that stakeholder engagement at multiple stages is necessary.

Aside from the fact that spatial prioritization (and other similar methods) is perhaps more used and valued by academic scientists than by practitioners and policymakers, the sheer volume of biodiversity data generated by researchers is also not being used to the optimal extent in policy spheres.

Importantly, several of the KM-GBF's 23 targets rely on up-to-date knowledge of biodiversity patterns, including its distributions and change over time, which requires agile data collection. In this issue, a Perspective by Altermatt and colleagues makes the case that environmental DNA data can fulfil this need, particularly in aquatic environments. However, for environmental DNA data to be useful to decision-makers, the authors argue, further standardization of methods and deposition in accessible reference databases are required. Efforts to make environmental DNA data FAIR (findable, accessible, interoperable, and reusable) are, therefore, of critical importance to increasing the use of environmental DNA data in policy. Altermatt et al. also emphasize the importance of following the CARE principles (collective benefit, authority to control, responsibility and ethics) to ensure benefits and opportunities are delivered for Indigenous peoples when conducting environmental DNA research. This 'benefit sharing' is another important goal of the KM-GBF, which requires that local people benefit from eventual uses of digital sequence information that originate from their lands. To this end, a Comment in this issue by Orozco and Scholz explains, at the 16th Conference of the Parties (COP16) in November 2024, the parties to the Convention on Biological Diversity agreed on a financial mechanism to share profits from biodiversity-derived genetic data with Indigenous peoples and local communities. Crucially, the parties also agreed that digital sequence information is to be deposited in public, openly accessible databases as part of the access and benefit-sharing framework. Importantly, this Comment also notes that database administrators must ask users who upload sequences to verify that their data are not subject to restrictions or prohibitions on sharing. Biodiversity researchers who want to do work that advances progress towards biodiversity goals must not only generate the data, but should also be aware of how to comply with the Nagoya Protocol and the access and benefit-sharing requirements that are one of the pillars of the KM-GBF.

Important international agreements such as the Sustainable Development Goals and the KM-GBF can motivate researchers to contribute to pressing global challenges. Yet aligning research efforts with the needs of people making decisions is critical.

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