Science for Environment Policy

Conversations for conservation: the importance of interactive dialogue

Although knowledge of biodiversity is increasing, it often receives less attention than other, more anthropocentric policy challenges. To ensure research is better used, scientists and policymakers need to interact more effectively. Through a literature review, interviews and a workshop with key stakeholders, this study provides recommendations for achieving a better dialogue.

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1.Ceballos, G., Ehrlich, P., Barnosky, A.*et al*., (2015). Accelerated modern human-induced species losses: Entering the sixth mass extinction. *Science Advances*, 1(5), pp.e1400253-e1400253.

2.Science Policy Interfaces for Biodiversity Research Action and Learning (SPIRAL) is supported by the European Commission under the Seventh Framework Programme. SPIRAL Project Handbook: http://www.spiral-project.eu/sites/default/files/The-SPIRAL-handbook-website.pdf

Biodiversity is declining at an alarming rate. Recent estimates reveal an exceptionally rapid loss over recent centuries, indicating that a sixth mass extinction may already be underway[1]. Although we know more than ever about biodiversity — its trends, its drivers and where action is needed — conservation continues to be given low priority compared to other policy challenges. There is a perception, say the researchers, that biodiversity research is under-used in decision-making.

This is partially due to outdated modes of communication between scientists and politicians. In the traditional 'linear model', after well-defined questions and credible enquiry, scientific facts are provided to policy advisors to develop solutions based on this knowledge. The researchers suggest that this simple model does not reflect the complexity involved in transforming the results of scientific enquiry into useful knowledge.

This study, completed as part of European project SPIRAL[2], aimed to find practical ways to encourage effective dialogue between science and policy in order to protect biodiversity. As part of a project with collaborators from Europe and beyond, researchers from the UK combined insights from published studies and interviews with a workshop attended by people from Belgium, Finland, Spain and the UK working at the biodiversity science-policy interface.

The first part of the study involved a literature review to identify the key challenges to effective science-policy dialogue. The review shed light on the flaws of the linear model of science-policy communication. The researchers also identified challenges specific to biodiversity, the barriers created by the 'silo mentality' (an attitude found in some organisations when some departments do not share information with other members of the same company), and the importance of an interactive dialogue that goes beyond simply packaging and presenting scientific information.

The outcomes were used to inform a series of interviews with the producers (e.g. scientists) and users of knowledge (e.g. policymakers). From the results of the interviews, a draft set of recommendations was developed.

In the final stage, these recommendations were tested and refined in a workshop involving 18 individuals with diverse roles in science and policy. This allowed researchers to develop a set of further recommendations to improve science-policy dialogue. They say promoting the dissemination of scientific knowledge is a key starting point, and outline practical recommendations for individuals, teams and organisations to improve knowledge transfer.

For individuals and teams, the researchers recommend planning events where disciplines, backgrounds and sectors can meet, planning projects to account for science-policy communication, and to consider cross-review (e.g. policymakers reviewing academic outputs, or academics reviewing policies). For scientists specifically, they recommend adapting communication approaches according to the audience and prefacing reports with accessible summaries. They also say researchers should write reviews and policy briefs, which can be helpful to non-scientists, and seek opportunities to learn about policy processes. Those working in policy should keep up to date with relevant news, recognise that scientists do not have knowledge of all issues relating to biodiversity, and be transparent and open to discussion.

The researchers also provide recommendations for organisations, which include supporting interdisciplinary research, providing incentives for interactions between science and policy and funding training that builds science-policy relationships. They say scientific organisations

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should publish in journals aimed at policy and encourage scientists who wish to work at the policy interface, while political organisations should promote transparency and understanding of processes, work with funders to ensure researchers are aware of policy priorities, and develop projects that allow interaction between science and policy.

However, the researchers also say that these individual recommendations may be insufficient to promote genuine two-way conversations between science and policy. They say more fundamental changes are required, and stress the need to:

- promote co-production, where knowledge is produced via iterative two-way interactions between scientists and policymakers, from an early stage in any process. This would allow joint problem definitions, enabling the production of knowledge perceived as politically relevant yet also scientifically interesting;
- promote cross-disciplinary research and multi-domain working groups of scientists and policymakers;
- establish structures and incentives to support dialogue in the long term.

They discuss in detail the importance of framing research and policy together. Framing the problem, research process and solution jointly will improve the likelihood of useful outcomes. The authors say it is important that researchers remain engaged with policymakers throughout the process. Ways to increase collaboration include developing briefing notes for researchers, requiring synthesis of evidence at the beginning of projects and developing a science-policy interface strategy.

In addition to these general recommendations, the authors provide guidelines specific to biodiversity. They say the characteristics of environmental issues such as biodiversity are particularly difficult to understand, communicate and resolve due to their uncertainty and complexity, and that failures in biodiversity-science policy communication endure due to misunderstandings and unrealistic expectations of how science and policy should interact.

Some particular challenges include the fact that biodiversity loss is not always visible. This means the relevance of biodiversity must be made clear to policymakers and the public, using the ecosystem-services concept, for example. In addition, biodiversity loss is caused by a complex assortment of issues. Thus, traditional recommendations for communication which stress simplicity do not apply. The authors argue that communication on biodiversity loss must incorporate complexity and suggest using the drivers, pressures, state, impact, responses (DPSIR) approach, alongside defined policy recommendations.

Finally, it is important to recognise that biodiversity loss is a multifaceted problem that cannot be addressed by science or policy alone. Transdisciplinary approaches are needed whereby various disciplines, stakeholders and policymakers co-create knowledge.

Silo thinking is a problem not only for scientists but also for policymakers, and the authors recommend that non-environmental policymakers also make biodiversity a key focus of their work. It is also up to scientists to target departments or sectors beyond the environmental domain, such as those working in economic policies, which contribute to biodiversity loss.

The authors conclude by highlighting steps that should be taken through enhanced science-policy communication to tackle the loss of biodiversity. These are:

1. considering the loss and unsustainable use of biodiversity as a specific issue which requires enhanced science-policy dialogue;
2. conducting research to identify and reach relevant target groups on biodiversity;
3. the acknowledgement, understanding and use of biodiversity knowledge by policymakers, stakeholders and the public;
4. moving away from silo thinking in science and policy, as this is essential in order to start creating alliances between science, policy and eventually, society, to meet the environmental challenges of the 21st century.