



IN DEPTH

The black rhino is among more than 1 million species at risk of extinction.

ENVIRONMENT

Can a dire ecological warning lead to action?

Having documented the decline of nature, expert group calls for transformative change

By Erik Stokstad

After issuing a landmark report warning of a deepening planetary threat from the loss of biodiversity, a global scientific advisory group faces a new and daunting challenge: helping policymakers act to stop the decline.

At least 1 million plant and animal species of the estimated 8 million known are now at risk of extinction, according to this week's report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). Already, environmental degradation imperils the natural systems that provide us with food, water, and livelihoods, concludes the 1800-page assessment, issued after years of work by some 450 experts who reviewed more than 15,000 studies. "What's at stake here is a livable world," says Robert Watson of the University of East Anglia in Norwich, U.K., former chair of IPBES, which is based in Bonn, Germany, and is guided by representatives from more than 130 nations.

Blunting the threat will require transformational economic and social change, the report concludes. And now, 7-year-old

IPBES faces the question of how to best help catalyze that transformation. Some experts want the group to put a greater emphasis on working closely with policymakers. "There is a need to go beyond simply saying things are bad, to providing much more specific support and building capacity in countries to ... create policy solutions," says Stuart Butchart, chief scientist of BirdLife International in Cambridge, U.K. But others caution that IPBES must remain a politically neutral provider of science-based information and not strain its limited resources.

IPBES was founded in 2012 to replicate for biodiversity the success of the Intergovernmental Panel on Climate Change (IPCC), which has become an authoritative source on that issue for policymakers. The first IPBES assessment was on pollinators; then it moved to reports on land degradation, and modeling and regional assessments of the status of biodiversity.

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The new report draws on that work. It concludes that human activities, especially agriculture and exploitation such as hunting, have "severely altered" 75% of Earth's land area, helped kill about half of the world's coral reefs, and decimated many wild-

life populations. It forecasts that, at expected rates of human population growth and consumption, the trends will worsen without major changes, including the adoption of new farming practices. More fundamentally, the report says business and political leaders need to begin "steering away from the current limited paradigm of economic growth."

The core message is "quite radical," says Georgina Mace, an ecologist at University College London who reviewed the assessment. "You have to prioritize nature and nature's benefits to people in everything you do."

IPBES is now thinking about how it can help realize that priority shift. The kinds of scientific assessments it conducts can be essential to documenting and highlighting important problems, researchers say. But meaningful change often requires extensive practical follow-up work with those who make and implement government policies. "Where assessments fall down is the science-policy interface," says Peter Bridgewater, co-chair of external review and a biodiversity policy expert and adjunct at the University of Canberra. "Clearly, we need to provide much more specific support and guidance on the types of solutions that will enable [policymakers] to tackle these challenges," Butchart says.

To address that issue, a recent external

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evaluation of IPBES, managed by the International Science Council in Paris, urges the group to make its assessments “part of a wider, more complex and longer-term process to influence policy.” One idea is to involve more policymakers and hands-on conservation managers from IPBES member nations earlier in the planning of new projects, in part to assure that products focus on issues relevant to decision-makers, especially at the national level. Politicians from coastal nations, for example, might want to know how to conserve ecosystem benefits, such as productive fisheries and mangroves that provide storm protection, while allowing for development and economic activities. Other nations might be more interested in how to manage forests so they can produce and purify water while continuing to provide fuel and timber.

Observers say IPBES can also help national decision-makers by identifying and recommending products that might be especially relevant, such as computer models for analyzing different approaches to balancing competing needs and minimizing social conflicts. IPBES is planning to create a new task force dedicated to identifying such tools. And it already has an online catalog for sharing such resources, notes Bridgewater, although he says the tools need to be easier to use.

IPBES needs to be careful, however, not to prescribe specific policies, says Mexico’s delegate, Hesiquio Benitez of the National Commission for the Knowledge and Use of Biodiversity in Mexico City. Too much detail, he says, can make it difficult for the group’s diverse member nations to agree on and approve the reports.

That balancing act is likely to be on display in coming years, as IPBES finishes three ongoing assessments, including a report on the various ways that people value nature, due in 2022, and another on the sustainable use of wild species such as fish and medicinal plants. IPBES also hopes to team up with IPCC to examine issues of interest to both groups, such as the costs and benefits of crop-based biofuels.

Funding issues, however, could loom large. Just 2 years ago, IPBES faced a severe funding crisis that forced it to delay several projects (*Science*, 31 March 2017, p. 1358). This stoked tensions with delegates from some developing countries, who felt their interests were getting short shrift. Now, the group’s budget, which is about \$8 million annually, is in much better shape. But Bridgewater “was a bit dismayed when I looked at the work program” for the coming years, he says. “There’s still far too much in there than can possibly be supported by the budget.”