POLICY FORUM

The Convention on Biological Diversity's 2010 Target

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ECOLOGY

The Convention on Biological Diversity's 2010 Target

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Most of the time, most of us behave as if our ongoing destruction of biological diversity and natural ecosystems has a net beneficial effect on our personal well-being. This is because it often has—locally, in the short term, and for people with the most power. However, when a longer-term view is taken, conserving biodiversity and the services it provides emerges as essential to human self-interest (*1*, *2*). Representatives of 190 countries at the 2002 Johannesburg World Summit on Sustainable Development committed themselves to "…achieving by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional, and national level…" (*3*). By adopting the 2010 target, governments are explicitly recognizing the value of biodiversity, setting goals for its conservation, and holding themselves accountable (*4*, *5*).

These undertakings present conservation scientists with a great challenge. The 2010 target can only catalyze effective conservation if systems are in place to tell governments, businesses, and individuals about the consequences of their actions. Yet we have so far identified only a fraction of the earth's biological diversity and have just a rudimentary understanding of how biological, geophysical, and geochemical processes interact to contribute to human well-being. How can we present our knowledge in ways that are useful to decision-makers and in time to contribute to achieving the 2010 target?

The Need for Indicators

Part of the answer lies in establishment of indicators of biodiversity and ecosystem functions and services that are rigorous, repeatable, widely accepted, and easily understood. Conservation scientists have a lot to learn in this regard from economists, who have long had a set of common and clear indicators for tracking and influencing market development. Recently, biologists adopted a similar approach by producing composite indicators from population time series data on widely studied groups such as birds and other vertebrates (*3*, *6*–*10*). One of these, the U.K. Wild Bird Index, has already been adopted by the U.K. government as an indicator of quality of life and a measure of how well environmental policies are working (*6*, *11*); because of well-understood links with farming practices (*12*), this index could soon be extended to the European Union (EU) to inform the reshaping of its Common Agricultural Policy (*6*).

The first step toward developing global indicators has already been taken. In early 2004, parties to the Convention on Biological Diversity (CBD) established a framework for assessing progress on the 2010 target [United Nations Environment Programme (UNEP) (*13*); see table, p. 213]. For these indicators to gain wider scientific respect and be used more broadly, they will require continuing independent scientific assessment and input. In July 2004, the Royal Society (U.K.) invited more than 60 scientists from governments, academia, and global and national conservation organizations (representing 15 countries) to a workshop designed to review the indicators and to explore how such input could be provided.

Workshop participants concluded that the 18 indicators already identified are likely to provide useful information but also will leave important gaps in our understanding of biodiversity loss. Additional indicators were proposed that could provide some of the missing information by 2010. A comprehensive set of indicators may need to be larger still [e.g., see 102 indicators for taking the pulse of U.S. ecosystems (*14*)]. However, workshop participants recognized that developing indicators would not be enough.

Broadening the Science

Fundamentally, we need to develop models that describe how the human, biological, physical, and chemical components of the earth system interact. Sketching the scope of such models (see SOM) brings home the fact that while we have little detailed and quantitative information on many components of the system, we know even less about how the linkages between them work. Developing models would guide data collection, help quantify how ecosystems benefit humans, clarify mechanisms by which activities and policies affect biodiversity and the services it provides, and allow improved projections about what might happen in the future. Part of the work of the Millennium Ecosystem Assessment (*15*) is to build models of this kind, but this effort needs to be continued and extended.

Most of the indicators so far under discussion deal with biodiversity per se and principally involve biologists. Studies linking socio-economic factors and geophysical and geochemical processes with biodiversity are relatively undeveloped. Given the contributions that biodiversity conservation will make toward alleviating poverty (*16*, *17*), it is crucial that indicators and models address all components.

Reducing the rate of loss of a plant or animal species is only a step in the right direction and may not prevent extinction. Likewise, preventing further decline and even allowing modest recovery, for example, of a depleted fish stock, might not be sufficient to allow sustainable exploitation (*18*). Policy-makers may need to consider more ambitious targets, such as halting loss and restoring ecosystems. This was already accepted by the EU Council at its meeting in Göteborg, Sweden, in 2001 and by the European Environment Ministers at Kiev, Ukraine, in 2003 (*19*).

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