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## Why Biodiversity Matters? — Messages of the Millennium Ecosystem Assessment

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### Abstract

“Biodiversity” is an evolving concept rather than a stationary entity that can be precisely defined. Different interpretations of the concept can lead to confusion in understanding scientific findings and their policy implications. The “public image” of biodiversity is that of something “nice” to be enjoyed in nature reserves, or biodiversity is attributed an “intrinsic value” for which humanity has moral obligations. But the term has been coined to distinguish it from “biota” for highlighting that all species are jointly involved in the earth’s processes that support human life. These processes hold together the global ecosystem in which people live. Thus, ecosystems’ functions serve people (“ecosystem services”) and the *diversity* of organisms on earth is involved in the provision, maintenance and sustainability of a *diversity* of services; and it is the *difference* between species that is critical for providing the full range of services.

Thus, species diversity is valuable because the presence of a variety of species helps to increase the resilience of ecosystems in the face of a changing environment. And, at the same time an individual component of that diversity is valuable as a biological resource. The consequences of changes in biodiversity for people can stem both from a change in the diversity per se and a change in a particular component of biodiversity. Each of these aspects of biodiversity deserves its own attention from decision-makers and requires its own management goals and policies. There is also a diversity at multiple scales of biological organization (genes, populations, species, and ecosystems) which can be considered at different geographic scales (local, regional, global). For example, the introduction of weedy species to Africa will increase the species diversity of Africa while decreasing ecosystem diversity globally since the ecosystems in Africa become more similar in species composition to ecosystems elsewhere). This is why any single indicator, such as species diversity, is a poor indicator for aspects of biodiversity of concern for policy-makers.

The Millennium Ecosystem Assessment has recently assessed the state of the global ecosystems with respect to their ability to support people. It found that while biodiversity is critical for material welfare it also contributes to security, resiliency, social relations, health and freedom of choices. Yet, not all ecosystems and their biodiversity have to be “conserved”; many people have benefited over the last century from exploitation of ecosystems and their biodiversity, though at a growing costs due to degradation of many ecosystem services and exacerbation of poverty for other people. Changes in biodiversity were more rapid in the past 50 years than at any time in human history, mostly due to habitat change: biodiversity was lost through species extinction and also through reduced potential of components of diversity to provide a particular service.

Scenarios developed by the Millennium Assessment project that current rates of change in biodiversity will continue or accelerate with costs often higher than benefits. Trade-offs between achieving the 2015 targets of the Millennium Development Goals and the 2010 target of reducing the rate of biodiversity loss are likely, but there are potential synergies between internationally agreed targets relating to biodiversity, environmental sustainability, and development. Given the response times for political, socioeconomic, and ecological systems, longer-term goals and targets (such as for 2050) are needed to guide policy and actions.

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