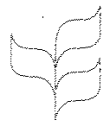


Global Biodiversity Outlook 2



CBD
Convention
on Biological
Diversity



UNEP





Executive Summary

Biological diversity, or biodiversity, is the term given to the variety of life on Earth. It is the combination of life forms and their interactions with one another, and with the physical environment that has made Earth habitable for humans. Ecosystems provide the basic necessities of life, offer protection from natural disasters and disease, and are the foundation for human culture. The Millennium Ecosystem Assessment—a scientific undertaking involving over 1300 experts working in 95 countries—recently confirmed the overwhelming contributions made by natural ecosystems to human life and well-being. Yet even as we begin to better understand what is at stake, genes, species and habitats are rapidly being lost.

Concern over the loss of biodiversity and the recognition of its important role in supporting

human life motivated the creation, in 1992, of the Convention on Biological Diversity, a legally binding global treaty. The Convention encompasses three equally important and complementary objectives: the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilization of genetic resources. Participation in the Convention is nearly universal, a sign that our global society is well aware of the need to work together to ensure the survival of life on Earth.

In 2002, the Conference of the Parties of the Convention adopted a Strategic Plan, with the mission “to achieve, by 2010, a significant reduction of the current rate of biodiversity loss at the global, regional and national level, as a contribution to poverty alleviation and to the benefit of all life on Earth”. This 2010 target was subsequently endorsed by the Heads of State and Government at the World Summit on Sustainable Development in Johannesburg, South Africa. Recently, world leaders meeting at the 2005 World Summit of the United Nations reiterated their commitment to meeting the 2010 target.

In order to assess progress towards the 2010 Biodiversity Target, the Conference of the Parties has established supporting goals and targets and identified indicators for evaluating biodiversity status and trends. The second edition of the *Global Biodiversity Outlook* makes use of these indicators and targets to describe current trends in biodiversity and prospects for achieving the 2010 target.

Why biodiversity loss is a concern

The services provided by healthy, biodiverse ecosystems are the foundation for human well-being. However, out of the 24 ecosystem services recently assessed by the Millennium Ecosystem Assessment, 15 are in decline. These include the provision of fresh water, marine fishery production, the number and quality of places of spiritual and religious value, the ability of the atmosphere to cleanse itself of pollutants, natural hazard regulation, pollination, and the capacity of agricultural ecosystems to provide pest control.

Biodiversity loss disrupts ecosystem functions, making ecosystems more vulnerable to shocks and disturbances, less resilient, and less able to supply humans with needed services. The damage to coastal communities from floods and storms, for example,

can increase dramatically where protective wetland habitats have been lost or degraded.

The consequences of biodiversity loss and ecosystem disruption are often harshest for the rural poor, who depend most immediately upon local ecosystem services for their livelihoods and who are often the least able to access or afford substitutes when these become degraded. In fact, the Millennium Ecosystem Assessment has confirmed that biodiversity loss poses a significant barrier to meeting the needs of the world's poorest, as set out in the United Nations Millennium Development Goals.

Garnering the political will to halt ecosystem degradation will depend on clearly demonstrating to policy makers and society at large the full contribution made by ecosystems to poverty alleviation efforts and to national economic growth more generally.

Apart from nature's immediate usefulness to humankind, many would argue that every life form has an intrinsic right to exist, and deserves protection. We must also recognize the right of future generations to inherit, as we have, a planet thriving with life, and that continues to afford opportunities to reap the economic, cultural and spiritual benefits of nature.

The 2010 target: establishing current trends

In using the Convention's indicators to survey current trends, *Global Biodiversity Outlook 2* demonstrates that biodiversity is being lost at all levels, for example:

- ◆ Deforestation, mainly through conversion of forests to agricultural land, continues at an alarmingly high rate. The loss of primary forest since 2000 has been estimated at 6 million hectares annually. Coastal and marine ecosystems have been heavily impacted by human activities, with degradation leading to a reduced coverage of kelp forests, sea-grasses and corals. In the Caribbean, average hard coral cover declined from about 50% to 10% in the last three decades. Some 35% of mangroves have been lost in the last two decades in countries for which adequate data are available.
- ◆ Trends of some 3,000 wild populations of species show a consistent decline in average species abundance of about 40% between 1970 and 2000; inland water species declined by 50%, while marine and terrestrial species both declined by around 30%. Studies of amphibians globally, African mammals, birds in agricultural lands, British butterflies,



Western Brazil, Acre State, near Xapuri town. Man collecting brazil nuts in the Amazon rainforest
Luiz C. Marigo/Alpha Presse

Caribbean and Indo-Pacific corals, and commonly harvested fish species show declines in the majority of species assessed.

- ◆ More species are becoming threatened with extinction. The status of bird species show a continuing deterioration across all biomes over the last two decades and preliminary findings for other major groups, such as amphibians and mammals, indicate that the situation is likely worse than for birds. Between 12% and 52% of species within well-studied higher taxa are threatened with extinction.

In addition, forests and other natural habitats are increasingly fragmented, affecting their ability to maintain biodiversity and deliver ecosystem goods and services. Within the 292 large river systems assessed, for instance, only 12% of river-basin area was unaffected by dam-based impacts.

The intensification of fishing has led to the decline in large high-value fishes, such as tuna, cod, sea bass

and swordfish, which are high up in the food chain. In the North Atlantic, the number of large fish has declined by two-thirds in the last 50 years.

The threats to biodiversity are generally increasing. Humans contribute more reactive nitrogen to ecosystems globally than do all natural processes combined. The rate and risk of alien species introductions have increased significantly in the recent past, and will continue to rise as a result of increased travel, trade and tourism. Overall, unsustainable consumption continues, as indicated by our growing global ecological footprint. The global demand for resources now exceeds the biological capacity of the Earth to renew these resources by some 20%.

On the positive side, the number and area of protected areas is increasing, although most ecoregions fall well short of the target to protect 10% of their surface. Marine ecosystems in particular are poorly represented, with approximately 0.6% of the ocean's surface area and about 1.4% of the coastal shelf areas protected.

TABLE 1 | Status and trends of biodiversity-related parameters according to the 2010 indicators






Based on the assessment in chapter 2 of *Global Biodiversity Outlook 2*. Arrows indicate the direction of trends. (Broad arrows indicate a high level of confidence about the trend; narrow arrows indicate low confidence; red arrows indicate a trend that is negative for biodiversity; green arrows indicate a trend that is positive for biodiversity). The quality of the data and indicators are shown by the stars at the right hand side.

*** good indicator methodology with globally consistent time course data;





** good indicator, but no time course data;

* indicator requires further development and/or limited data.



FOCAL AREA: Status and trends of the components of biological diversity

	Trends in extent of selected biomes, ecosystems, and habitats	***
	Trends in abundance and distribution of selected species	***
	Change in status of threatened species	***
	Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance	*
	Coverage of protected areas	***



FOCAL AREA: Ecosystem integrity and ecosystem goods and services

	Marine Trophic Index	***
	Connectivity – fragmentation of ecosystems	**
 	Water quality of aquatic ecosystems	***


FOCAL AREA: Threats to biodiversity

	Nitrogen deposition	***
	Trends in invasive alien species	*

FOCAL AREA: Sustainable use

	Area of forest, agricultural and aquaculture ecosystems under sustainable management	*
	Ecological footprint and related concepts	***


FOCAL AREA: Status of traditional knowledge, innovations and practices

	Status and trends of linguistic diversity and numbers of speakers of indigenous languages	*
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FOCAL AREA: Status of access and benefit sharing

? Indicator of access and benefit-sharing to be developed

FOCAL AREA: Status of resources transfers

	Official development assistance (ODA) provided in support of the Convention	*
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[†] for forests; data not available globally for all biomes, ecosystems and habitats

On the basis of information available, a common message emerges: biodiversity is in decline at all levels and geographical scales. However, targeted response options—whether it be the creation of protected areas, or resource management and pollution prevention programmes—can reverse this trend for specific habitats or species.

Table 1 gives an overview of the state of indicator development and data. Several indicators have sufficient resolution to determine a change in the rate of biodiversity loss by 2010, including: habitat change in certain types of ecosystems; trends in abundance and distribution of selected species; the status of threatened species; the Marine Trophic Index; and nitrogen deposition. Others may be developed for use by 2010.

Tools of the Convention for addressing biodiversity loss

The Conference of the Parties has responded to the challenge of biodiversity loss by developing a comprehensive body of policy relating to the Convention's three objectives. Policy instruments include: thematic programmes of work of the Convention, covering seven major biomes; cross-cutting programmes of work on technology transfer, taxonomy and protected areas; and principles and guidelines on the ecosystem approach, sustainable use, invasive species, environmental impact assessment and other issues. In addition, the Cartagena Protocol on Biosafety, adopted as a legal instrument in its own right in 2000, aims to ensure that biotechnology does not adversely affect biodiversity or human health.

At the national level, provisions of the Convention and the policy decisions of the Conference of the Parties are translated into actions through national biodiversity strategies and action plans (NBSAPs). As Parties hold primary responsibility for implementation, NBSAPs are central to achieving the objectives of the Convention.

Ten years after entry into force of the Convention, and recognizing the need for more effective and coherent implementation, the Conference of the Parties adopted, in 2002, a Strategic Plan. Progress towards the four goals of the Strategic Plan is mixed:

Reasonable progress is being made towards Goal 1—to promote international cooperation in support of the Convention. The Convention is playing a major role in setting the agenda among biodiversity-related conventions and organizations. However,

there remain opportunities to increase policy coherence with other international instruments, particularly under the trade regime;

Goal 2 is to ensure that Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention. Despite major efforts, progress towards this goal remains limited;

Progress towards Goal 3, which concerns the national-level planning and implementation necessary for achieving the objectives of the Convention, is critical. Although Parties are involved in the processes of the Convention, implementation is far from sufficient;

Goal 4 is to achieve a better understanding of the importance of biodiversity and of the Convention, leading to broader engagement across society in implementation. Progress towards this goal is mixed. Current communication, education and public-awareness programmes are not sufficient. Despite some progress, additional efforts are required to engage key actors and stakeholders to integrate biodiversity concerns into sectors outside the environment.

Prospects and challenges for achieving the 2010 Biodiversity Target

On the basis of both an analysis of current trends and by exploring scenarios of plausible futures, the Millennium Ecosystem Assessment projects that biodiversity loss, and in particular the loss of species diversity and transformation of habitats, is likely to continue for the foreseeable future, and certainly beyond 2010. This is largely due to inertia in ecological and human systems and to the fact that most of the direct drivers of biodiversity loss—habitat change, climate change, the introduction of invasive alien species, overexploitation and nutrient loading—are projected to either remain constant or to increase in the near future.

These findings leave no room for complacency, but neither do they suggest that progress towards the 2010 Biodiversity Target is impossible. Three conclusions of the Millennium Ecosystem Assessment are particularly pertinent in this regard:

- ♦ First, while “unprecedented additional efforts” will be needed to achieve the 2010 Biodiversity Target at national, regional and global levels, with appropriate responses it is possible to achieve, by 2010, a reduction in the rate of biodiversity loss for certain

components of biodiversity or for certain indicators, and in certain regions;

- ◆ Second, the majority of the targets that the Convention has established as part of its framework for assessing progress towards the 2010 target are achievable, provided that the necessary actions are taken;
- ◆ Third, for the most part, the tools needed to achieve the 2010 target, including programmes of work, principles and guidelines, have already been developed.

These conclusions should be seized upon, and should motivate Parties and civil society to act: by applying the tools already available under the Convention, real progress can be made. Biodiversity-related tools must be widely applied, however, in all relevant sectors, if the best possible outcomes for conservation and sustainable use are to be achieved.

The imperative to integrate biodiversity concerns into relevant sectoral or cross-sectoral plans, programmes and policies is enshrined in the Convention, highlighted in the Strategic Plan, and reinforced by the findings of the Millennium Ecosystem Assessment. Engaging the main actors in key economic sectors will not only serve to directly address the drivers of biodiversity loss, but will also ensure wider awareness of biodiversity issues. With wider awareness will come the increased political will and additional resources necessary to bring about positive change.

The *Global Biodiversity Outlook 2* outlines priority issues for engaging with the key sectors of food and agriculture, trade, poverty reduction, and development. The Outlook also notes the importance of integrating biodiversity concerns into the energy sector, given that climate change is an increasingly significant driver of biodiversity loss and that the conservation and sustainable use of biodiversity can contribute both to mitigation and adaptation measures.

The food and agriculture sector contributes to pressures on biodiversity primarily through land-use change—which is expected to remain the largest driver of biodiversity loss beyond 2010 and at least to 2050—but also through nutrient loading and over-exploitation of wild resources. These pressures point to a five-fold approach to minimizing biodiversity loss, encompassing actions to: improve agricultural efficiency; more effectively plan agricultural expansion to avoid encroaching on habitats of high biodiversity value; moderate demand for food (particu-

larly for meat among affluent sectors of society); halt over-fishing and destructive fishing practices; and protect critical ecosystems and habitats. To implement this approach, a mix of planning, regulations and incentive measures will be required, building on existing tools developed under the Convention. In addition, creating markets for ecosystem services, where appropriate, will encourage producers and consumers to accurately value biodiversity, and plan for its sustainable use.

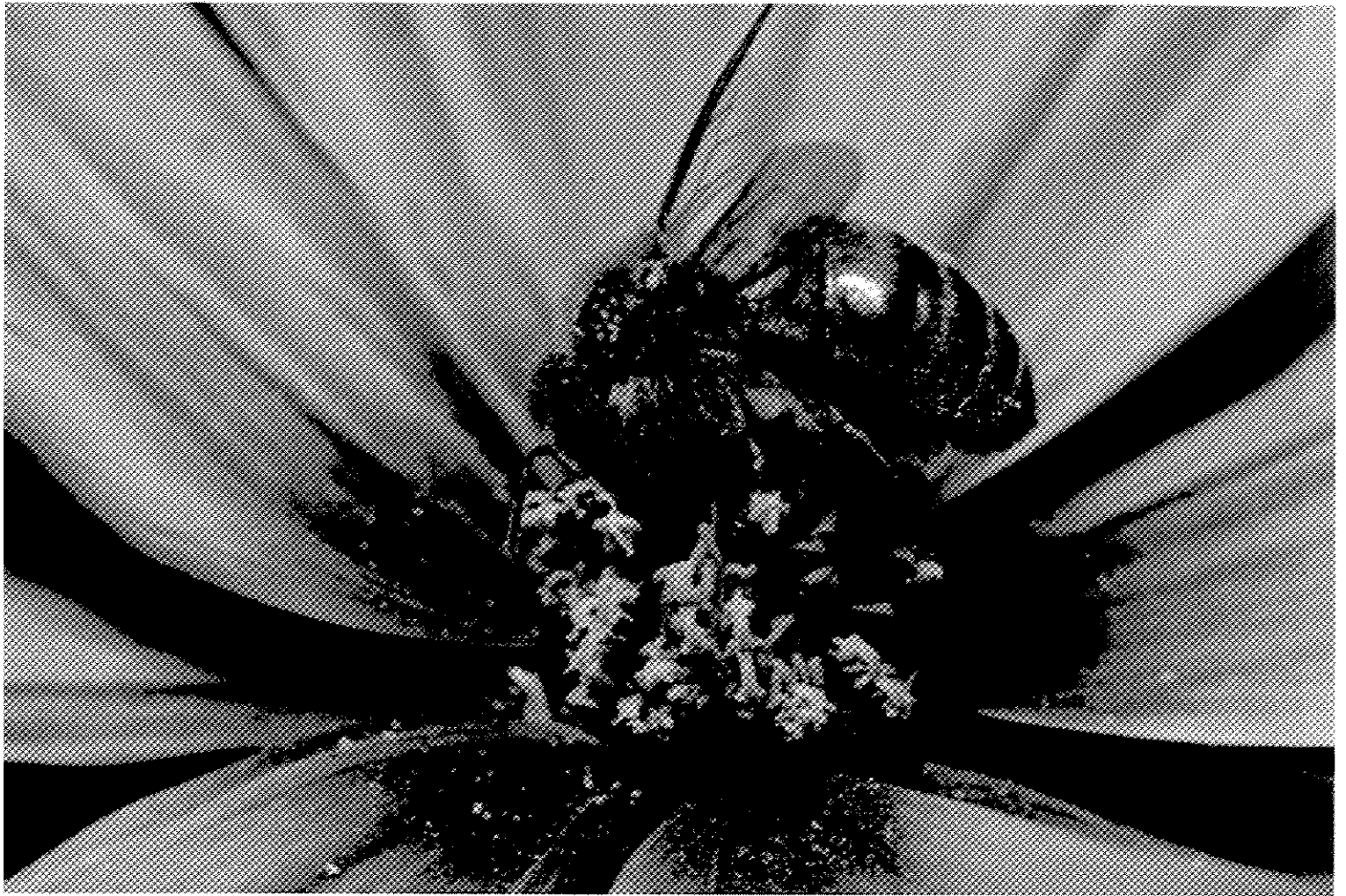
Since economic development, including food and agricultural production, is strongly affected by policies on trade, the *Global Biodiversity Outlook 2* discusses the need to integrate biodiversity concerns into trade discussions. Whereas commitments under the Doha Development Agenda of the World Trade Organization (such as the removal of subsidies for fisheries and agriculture) have the potential to benefit biodiversity, trade liberalization is projected to lead, in the short term, to acceleration in the rate of biodiversity loss in some regions and countries, unless accompanied by proactive measures to conserve biodiversity.

Economic development is essential to meeting the Millennium Development Goals, yet long-term sustainability will be undermined if biodiversity issues are not taken into account. Furthermore, many of the actions that could be taken to eradicate extreme poverty are likely to accelerate biodiversity loss in the short-run. The existence of trade-offs, but also of potential synergies, implies that environmental considerations, including those related to biodiversity, should be integrated into the implementation of all of the relevant Millennium Development Goals.

As noted by the Millennium Ecosystem Assessment, there is substantial scope for better protection of biodiversity through actions justified on their economic merits. Realizing this potential requires making greater efforts towards understanding the total value of biodiversity and ecosystem services for human well-being, and taking into account this value in decision-making processes across all sectors.

Actions needed to achieve the 2010 target

Primary responsibility for meeting the 2010 target of significantly reducing the rate of biodiversity loss lies with Parties to the Convention. To give focus and impetus to this effort, all Parties should develop and implement comprehensive national biodiversity strategies and action plans (NBSAPs) that include



Honeybee (*Apis mellifera*)
on Cosmos flower
C. Allan Morgan/Alpha Presse

clear national targets for 2010. Implementation must occur across sectors, with biodiversity issues integrated into national policies, programmes and strategies on trade, agriculture, forestry and fisheries, and into development planning. To be effective in these efforts, Parties must mobilize sufficient human, financial, technical and technological resources. Finally, Parties should make all efforts to complete their fourth national reports to the Convention, as a means to report on progress towards their commitments under the 2010 target and determine what further actions are needed.

The Conference of the Parties should continue to support Parties in implementation, by reviewing progress in implementation and identifying concrete means for achieving the Convention's objectives. Even as the Conference of the Parties shifts its focus to implementation, however, some key policy issues remain to be resolved, including completion of an international regime on access and benefit sharing.

As citizens and actors in our own right, individuals have an essential part to play in promoting biodiver-

sity conservation and sustainable use. We can demand action from all levels of government. Moreover, in our everyday choices, we all have direct impacts on biodiversity and the state of our planet's ecosystems. Options for sustainable consumption and waste reduction are increasing and should be supported.

The *Global Biodiversity Outlook 2* finds that meeting the 2010 target is a considerable challenge, but by no means an impossible one. Unprecedented additional efforts are needed, and these must be squarely focused on addressing the main drivers of biodiversity loss. The Convention already provides a set of policies, guidance and programmes that, with minimal adjustments, can guide action at the global, regional and national level to this end. For the best possible outcomes to be achieved, however, these tools must be put to immediate and widespread use in those sectors that give rise to the drivers of biodiversity loss. Many opportunities exist for mainstreaming biodiversity, as outlined above, but seizing these will depend on taking effective action at the national level.