

Biodiversity

A Sustainable Development Network Briefing Paper

What is biodiversity?

Biological diversity - or biodiversity – relates to all the living organisms on the earth, from microorganisms such as bacteria, to megafauna such as elephants, and of course, human beings. It is a complex web of ecological relationships and genetic variability. Biodiversity is by no means static – it is constantly changing, as organisms evolve, adapt, and go extinct.¹

Claims about biodiversity

- According to Agenda 21: “The current decline in biodiversity is largely the result of human activity and represents a serious threat to human development.”²
- The Worldwatch Institute claims that economic development will lead to the loss of half of the world's plant and animal species.³
- Greenpeace says that “it is expected that half of the Earth's species are likely to disappear within the next seventy-five years.”⁴
- A commonly cited claim is that 40,000 species are becoming extinct every year.⁵
- The United Nations Environment Programme (UNEP) says that “the rate of extinction today is hundreds, if not thousands, of times higher than the natural background rate.”
- It is commonly asserted that reductions in biodiversity are the result of logging, mining and other industrial activities.

Facts about biodiversity

- Between 1.4 and 1.6 million species have been named and described in the past three centuries.⁶ Estimates of the actual number of species on earth range from 5 million and 100 million species.
- There have only been about 1,000 recorded species extinctions since 1600 (that is less than 0.1 percent of all recorded species).
- “If we know so little of the distribution and biology of most species, what then do we know of their ‘threatened’ status?”⁷
- “95 percent of the world's living species consist of beetles, ants, flies, microscopic worms and fungi, as well as bacteria, algae and viruses.”⁸
- The claim of 40,000 species extinctions per year is based on an assumption that 1 million species would become extinct in 25 years. No data was used to support this assumption when it was made and it has subsequently been refuted.
- The real current extinction rate is probably close to 0.7 percent of all species per 50 years.⁹
- This actually concurs with the UNEP estimate: 1000 times the background rate would equate to a loss of 1 percent of species per 50 years.
- Biodiversity is important to humanity – it represents an important resource; from it we obtain most of the goods that enable us to live and prosper, including food, clothing, housing and energy. Its loss should therefore be a concern.
- The main cause of biodiversity loss is “the loss of habitat and land conversion to meet fundamental human needs for food, clothing, and shelter.”¹⁰
- Forestry, mining and other industrial activities may actually help conserve biodiversity by reducing pressure on wildlife.
- It is not clear that all species loss can or should be prevented. Is it worth sacrificing a human life in order to save a species of mosquito?

¹ According to Article 2 of the Convention on Biological Diversity, biodiversity is “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”.

² Agenda 21, Chapter 15, Section 2.

³ The Skeptical Environmentalist, page 257, citing Worldwatch Institute's *State of the World 1999*, page 19.

⁴ Greenpeace website. <http://archive.greenpeace.org/~comms/cbio/bdfact.html>

⁵ The source of this claim is Norman Myers, *The Sinking Ark* (Oxford: Pergamon Press, 1979).

⁶ Stork, Nigel. “Measuring Biodiversity and its Decline”. <http://www.nap.edu/readingroom/books/biodiversity/pdf/ch05.pdf>

⁷ *Ibid.*

⁸ Bjorn Lomborg, *The Skeptical Environmentalist* (Cambridge UP, 2001), p. 253.

⁹ *Ibid.* pp.255-6.

¹⁰ Indur M. Goklany. “Sustaining Development and Biodiversity: Productivity, Efficiency and Conservation.” <http://www.cato.org/pubs/pas/pa-175.html>.

Biodiversity and Sustainable Development

- **Putting people first.** Sustainable development is about meeting the needs and wants of people alive today whilst ensuring that people in the future are able to meet their needs and wants. Too often it is assumed that this requires people to make heavy sacrifices today in order to enable people in the future to thrive. In the case of biodiversity conservation it has led to policies that harm poor people today by preventing them from benefiting fully from the species that share their land. In some extreme cases people have been thrown off their land in the name of preservation. Such actions go against the clear prioritization of sustainable development, which puts human needs and wants first.
- **Conserve habitat.** Because the major threat to biodiversity loss is destruction of habitat, policies for conserving biodiversity should focus on promoting habitat conservation.
- **Property rights for the poor.** The most important factor in encouraging habitat conservation is security of tenure. There are several reasons for this:
 - **First,** people who own their land and the resources on it have strong incentives to invest in improvements to that land and to conserve the resources on it. In southern Africa, where people own the rights to wildlife, populations of elephants, rhinos and other species increased continuously from the 1960s onwards. By comparison, in Eastern Africa, where most wildlife remained the property of the state, populations of these species declined dramatically.
 - **Second,** secure tenure encourages sedentary agriculture and plantation forestry. By increasing yields, these techniques reduce pressure on wild lands, which in turn helps conserve biodiversity.
- **Buy wildlife, don't waste money on politics** The billions of dollars given to conservation organizations every year suggests that people are willing to pay for biodiversity conservation. But much of this money is wasted on political campaigns. If this was instead spent instead buying wildlife and wildlife products, the value of wildlife would increase and incentives to conserve likewise.
- **Free international trade.** Free trade will increase wealth for all people in the world, especially the poorest. By increasing the value of economic output, people will be able to afford more environmental amenities and will place a higher value on conservation. In addition, allowing trade in wildlife products will enhance the value of wildlife to those who share their land with it.
- **Eliminate subsidies.** Subsidies to industries that rely on renewable resources – such as agriculture and fishing – are environmentally destructive and promote overuse and over-harvesting. Removal of such subsidies would promote sustainable use of biological resources and ecosystems.
- **Encourage new technology.** Technologies that allow goods to be produced and used with fewer resources help to conserve biodiversity. It has been estimated that since 1961, over three billion hectares of habitat have been spared from the plow because of technological advances.¹¹ Such technological innovations are likely to continue into the future. For example, the widespread use of high-yielding crop varieties (produced using conventional cross breeding or modern biotechnology) would likely alleviate pressure on wildlands that would otherwise be converted to agricultural land. However, the development of these technologies is dependent on the existence of secure intellectual property rights and a clear but not excessively onerous regulatory framework.

Do Multilateral Agreements Help Conserve Biodiversity?

The Convention on International Trade in Endangered Species (CITES) restricts trade in 'endangered' species and products of those species. As a result it reduces the value of those species to people who share land with them and thereby disincentivises conservation; it is clearly counterproductive.

The Convention on Biological Diversity (CBD) puts in place various mechanisms for funding *in situ* biodiversity conservation. As most biodiversity loss is the result of habitat destruction, the CBD could at best be described as 'mostly harmless'.

The Biosafety Protocol to the CBD enables essentially arbitrary restrictions to be placed on imports of 'living modified organisms'. As such it discourages the use of higher-yielding better adapted plant varieties, which might enhance output and reduce pressure on biodiversity. It is almost certainly counterproductive.

The Sustainable Development Network (SDN) is a global network of organizations, whose mission is to encourage policies which allow individuals to pursue their goals without bureaucratic intervention. The SDN focuses on the institutional framework within which people act, to ensure that policies encourage individuals to make the best use of resources and to protect the environment, while improving both their own wellbeing and the wellbeing of others.

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¹¹ Indur M. Goklany. "Meeting Global Food Needs: The Environmental Trade-Offs Between Increasing Land Conversion and Land Productivity." <http://www.cognizantcommunication.com/filecabinet/Technology/techabs.htm#techabs8>.