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The benefits people derive from ecosystems must be sustained by conserving the biological diversity of those ecosystems.



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**FASTIPS**

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# **Biodiversity Assessment**

Biodiversity is the variability of life on Earth, from genes to species and their habitats to ecosystems. Living and non-living components interact in ecosystems. In broad terms, ecosystems support us by providing services on which our health, livelihoods, and well-being depend. To achieve sustainable development, the benefits we derive from ecosystems must be sustained by conserving their biological diversity.

Biodiversity is being lost at an accelerated rate: there is ongoing transformation and fragmentation of habitat through land use change and development, deterioration caused by pollution and alien invasive organisms, and exploitation at unsustainable rates. Continual growth of the world's population increases pressure on biodiversity and ecosystems; climate change adds another layer of pressure.

The conservation status of biodiversity at the global or national level reflects its vulnerability: Red Lists and Red Data Books note threatened species; biodiversity "hotspots," areas of "Critical Biodiversity," and "Key Biodiversity Areas" identify threatened and priority areas for protection; World Heritage and Ramsar sites denote areas of global significance; and national parks and other protected areas signal areas of national significance for conservation.

## **BIODIVERSITY AND SOCIOECONOMIC CONSIDERATIONS ARE INSEPARABLE**

People attach a range of values to living things and ecosystems: they can have intrinsic value, use value or cultural value. People are an inseparable part of ecosystems. Different communities have different levels of dependence on natural systems. Although we all rely on these systems for our well-being, poor and vulnerable people often rely directly and most heavily on them for their livelihoods. The relationship between living organisms in an ecosystem and the services provided by that ecosystem is not fully understood. However, we do know that ecosystems' ability to cope with change or shocks depends to a large degree on their diversity. It follows that our resilience depends on that of the ecosystems on which we rely for crucial ecosystem services; i.e., water purification and regulation; provision of food, medicine, fiber, and energy; and places for physical, cultural, and spiritual recreation. Global programs are increasingly highlighting the perils and costs to society of allowing natural resources to be lost. Loss of biodiversity leads ultimately to irreversible and undesirable changes in the functioning of ecosystems that support all life. Actions to avoid this situation have been described as "adaptation insurance."

Biodiversity assessment aims to identify and adaptively manage the impacts and risks of development in such a way that the variability of life on Earth is maintained in a healthy, functioning and connected state, and the benefits we obtain from ecosystem goods and services will extend into the future.

There are limits to biodiversity loss, as extinction is forever. Biodiversity assessment is increasingly striving to achieve a "no net loss," or preferably, "net positive impact" outcome for biodiversity. Biodiversity assessment recognizes, too, that there are limits to the substitution of services provided by natural systems. It aims to ensure that the costs and benefits of impacts on biodiversity are fairly distributed, striving in particular to avoid increasing the vulnerability of people who are heavily dependent on natural systems for their survival and well-being.

## FIVE IMPORTANT THINGS TO KNOW

1. The distribution patterns, threat status, sensitivity and levels of protection—at global and national levels— of ecosystems, habitats, and species affected by development.
2. The objectives, priorities and targets for biodiversity and ecosystem services of official environmental and conservation agencies having jurisdiction in the affected area, and all biodiversity policies or performance standards that must be met by the development proponent.
3. The levels of dependence by local communities on natural resources for livelihoods, health, cultural practices and protection from natural hazards; and trends in the condition or availability of those resources.
4. The limits to what can be lost, harmed, restored and/or offset, taking into account both the irreplaceability and vulnerability of affected biodiversity and the levels of dependence on natural systems by affected human communities.
5. The functional role of the development area in the wider landscape, its buffering role for protected or priority areas, or its role in connecting habitats or ecosystems across climatic or topographical gradients that gives them resilience in the face of climate change.

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## FIVE IMPORTANT THINGS TO DO

1. Identify major constraints, high risk areas, and significant impacts on biodiversity and ecosystem services at the outset, seeking alternatives to avoid them. Only when impacts are unavoidable should measures to minimize, restore, offset biodiversity loss, and compensate for lost ecosystem goods and services be addressed.
2. Use appropriate local specialists with explicit Terms of Reference and integrate social, economic and biodiversity considerations. Assess indirect, induced and cumulative impacts on biodiversity as well as direct impacts; these impacts are often more harmful than direct or “footprint” impacts.
3. Engage with interested and affected parties—including indigenous peoples—to identify and evaluate impacts and to determine how traditional knowledge and local cultural practices can contribute to any biodiversity initiative.
4. Take a precautionary approach when baseline information is poor, or there is uncertainty about impacts or the effectiveness of mitigation. Good monitoring, research and adaptive responses are crucial for managing impacts on biodiversity.
5. Seek to make a lasting net positive contribution to biodiversity conservation in the affected area through interventions beyond “no net loss.”

Do you have a suggestion or a request for a FasTip on a different topic?  
Contact Maria Partidário ([mpartidario@gmail.com](mailto:mpartidario@gmail.com)), FasTips Series Editor.

## FURTHER READING

Business and Biodiversity Offsets Programme (BBOP). 2012. Standard on Biodiversity Offsets. <http://bbop.forest-trends.org/guidelines/Standard.pdf>.

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