Biodiversity Glossary[1]

Access and benefit sharing
One of the three objectives of the Convention on Biological Diversity, as set out in its Article 1, is the "fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding". The CBD also has several articles (especially Article 15) regarding international aspects of access to genetic resources.

Alien species
A species occurring in an area outside of its historically known natural range as a result of intentional or accidental dispersal by human activities (also known as an exotic or introduced species).

Biodiversity
Biodiversity - short for biological diversity - means the diversity of life in all its forms - the diversity of species, of genetic variations within one species, and of ecosystems. The importance of biological diversity to human society is hard to overstate. An estimated 40 per cent of the global economy is based on biological products and processes. Poor people, especially those living in areas of low agricultural productivity, depend especially heavily on the genetic diversity of the environment.

Biodiversity loss
From the time when humans first occupied Earth and began to hunt animals, gather food and chop wood, they have had an impact on biodiversity. Over the last two centuries, human population growth, overexploitation of natural resources and environmental degradation have resulted in an ever accelerating decline in global biodiversity. Species are diminishing in numbers and becoming extinct, and ecosystems are suffering damage and disappearing.

- An estimated 80% of the original forest that covered the Earth 8,000 years ago has been cleared, damaged or fragmented.
- Some experts assess the rate at which species are becoming extinct at 1,000 to 10,000 times higher than the natural rate would be.
- A sample of 23 common farmland birds and 24 common woodland birds monitored in 18 European countries show a decline in numbers by 71% between 1980 and 2002.

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[1] This glossary is based on the following sources. www.unep-wcmc.org/reception/glossaryM-R.htm
http://pubs.wri.org/pubs_content_text.cfm?ContentID=487
http://www.edu.gov.nf.ca/curriculum/teched/resources/glos-biodiversity.html
http://ec.europa.eu/rapid/pressReleasesAction.do?reference=MEMO/04/27
http://www.foe.co.uk/resource/local/saving_wildlife_sites/glossary/biodiversity_action_plans.htm
http://www.iucn.org/themes/CEM/ourwork/ecapproach/index.html
http://en.wikipedia.org/wiki/Ecosystem_services
http://www.iucnredlist.org/info/introduction
The final version of this glossary was checked by Jeff McNeely, the IUCN Chief Scientist.

Biome
A major portion of the living environment of a particular region (such as a fir forest or grassland), characterised by its distinctive vegetation and maintained largely by local climatic conditions.

Biotechnology
Any technology that is applied to living organisms to make them more valuable to people.

Buffer zone
The region adjacent to the border of a protected area; a transition zone between areas managed for different objectives.

Carrying capacity
The maximum number of people, or individuals of a particular species, that a given part of the environment can maintain indefinitely.

Co-management
The sharing of authority, responsibility, and benefits between government and local communities in the management of natural resources.

Conservation
The management of human use of nature so that it may yield the greatest sustainable benefit to current generations while maintaining its potential to meet the needs and aspirations of future generations.

Conservation of Biodiversity
The management of human interactions with genes, species, and ecosystems so as to provide the maximum benefit to the present generation while maintaining their potential to meet the needs and aspirations of future generations; encompasses elements of saving, studying, and using biodiversity.

Co-management
The management of a specific resource (such as a forest or pasture) by a well-defined group of resource users with the authority to regulate its use by members and outsiders.

Cultural diversity
Variety or multiformity of human social structures, belief systems, and strategies for adapting to situations in different parts of the world. Language is a good indicator of cultural diversity, with over 6,000 languages currently being spoken.

Drivers of biodiversity loss
The main threats to biodiversity are one or more of the following developments:
- Human population growth means growing demands for space and food.
- Urban sprawl and intensive agriculture and forestry encroach on habitats.
- Extension of road, rail and electricity networks that fragments habitats and scares away some species.

- Overexploitation of natural resources means we consume too much of a species or of goods that ecosystems provide. It also includes excessive hunting, collecting and trade in species and parts of species.
- Pollution affects the health of animals and plants as much as human health. Environmental disasters such as oil spills have devastating consequences for birds and the marine fauna and flora.
- Climate change is predicted, by the end of this century, to raise global temperature by between 1.4° and 5.8° Celsius and the sea level by between 9 and 88 cm. Many species will not be able to adapt or to move to other regions. Over the last century, the average temperature on Earth has increased by about 0.6° Celsius and the sea level has risen by 10 to 20 cm. The 90s were the warmest decade in the last 1,000 years.
- Invasive alien species are species that enter an ecosystem where they don't occur naturally and then thrive and overwhelm endemic species. Often, they are taken there by humans.
- Human population has grown from approximately 1.65 billion in 1900 to an estimated 6.3 billion today. In 50 years, the UN predicts a world population of 9 billion. More people means less resources for most other species.
- Due to overfishing, 80% of the fish stocks in the EU face collapse or are of unknown status.
- In 2001, 40% of all EU fish catches were taken from stocks considered to be below safe biological limits. For certain types of fish, notably cod, haddock, whiting, hake and other round fish as well as salmon and sea trout, the percentage was as high as 60%.
- According to a study published in "Nature" in January 2004, climate change could wipe out a third of the Earth's species by 2050.
- Imported as a pet from North America, the grey squirrel has caused the extinction of the local red squirrel in the UK and Italy. It is better at competing for food.
- The tasty Nile perch was introduced to Lake Victoria in Africa in 1954 and caused the extinction of more than 200 endemic fish species.

Ecology
A branch of science concerned with the interrelationship of organisms and their environment; the study of ecosystems.

Ecosystem
Ecosystems are self-regulating communities of plants and animals interacting with each other and with their non-living environment - forests, wetlands, mountains, lakes, rivers, deserts and agricultural landscapes. Ecosystems are vulnerable to interference as pressure on one component can upset the whole balance. They are also very vulnerable to pollution. Many ecosystems have already been lost, and many others are at risk. The world's forests house about half of global biodiversity. But they are disappearing at a rate of 0.8% per year. Tropical forests are vanishing at an annual rate of 4%.

Ecosystem approach
The Ecosystem Approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable

way. The Ecosystem Approach places human needs at the centre of biodiversity management. It aims to manage the ecosystem, based on the multiple functions that ecosystems perform and the multiple uses that are made of these functions. The ecosystem approach does not aim for short-term economic gains, but aims to optimize the use of an ecosystem without damaging it.

Ecosystem diversity
The variety of ecosystems that occurs within a larger landscape, ranging from biome (the largest ecological unit) to microhabitat.

Ecosystem services
Ecosystem services are processes by which the environment produces benefits useful to people, akin to economic services. They include:
- Provision of clean water and air
- Pollination of crops
- Mitigation of environmental hazards
- Pest and disease control
- Carbon sequestration

Accounting for the way in which ecosystems provide economic goods is an increasingly popular area of development. The concept of ecosystem services is similar to that of natural capital.
The Millennium Ecosystem Assessment released in 2005 showed that 60% of ecosystem services are being degraded or used unsustainably.

Eco Tourism
Travel undertaken to witness sites or regions of unique natural or ecologic quality, or the provision of services to facilitate such travel that have the least impact on biological diversity and the natural environment.

Endangered species
A technical definition used for classification referring to a species that is in danger of extinction throughout all or a significant portion of its range. IUCN The World Conservation Union defines species as endangered if the factors causing their vulnerability or decline continue to operate.

Evolution
Any gradual change. Organic evolution is any genetic change in organisms from generation to generation.

Ex situ conservation
A conservation method that entails the removal of germplasm resources (seed, pollen, sperm, individual organisms, from their original habitat or natural environment. Keeping components of biodiversity alive outside of their original habitat or natural environment.

Extinction
The evolutionary termination of a species caused by the failure to reproduce and the death of all remaining members of the species; the natural failure to adapt to environmental change.

Fauna
All of the animals found in a given area.

Flora
All of the plants found in a given area.

Gene
The functional unit of heredity; the part of the DNA molecule that encodes a single enzyme or structural protein unit.

Gene bank
A facility established for the *ex situ* conservation of individuals (seeds), tissues, or reproductive cells of plants or animals.

Genetic diversity
The variety of genes within a particular populaton, species, variety, or breed.

Grassroots (organizations or movements)
People or society at a local level, rather than at the center of major political activity.

Habitat
A place or type of site where an organism or population naturally occurs.

Habitat degradation
The diminishment of habitat quality, which results in a reduced ability to support flora and fauna species. Human activities leading to habitat degradation include polluting activities and the introduction of invasive species. Adverse effects can become immediately noticeable, but can also have a cumulative nature. Biodiversity will eventually be lost if habitats become degraded to an extent that species can no longer survive.

Habitat fragmentation
Fragmentation of habitats occur when a continuous has become divided into separate, often isolated small patches interspersed with other habitats. Small fragments of habitats cab only support small populations of fauna and these are more vulnerable to extinction. The patches may not even be habitable by species occupying the original undivided habitat. The fragmentation also frequently obstructs species from immigrating between populations.
Habitat fragmentation stems from geological processes that slowly alter the lay out of the physical environment or human activities such as land clearing, housing, urban development and construction of roads or other infrastructure. Adverse effects sometimes are not immediately noticeable and sufficient habitats may ostensibly be maintained. However inbreeding, lack of territories and food shortage are some of the problems small populations can encounter. Fragmentation of habitats is therefore expected to lead to losses of species diversity in the longer tem.

Habitat loss
The outcome of a process of land use change in which a 'natural; habitat-type is removed and replaced by another habitat-type, such as converting natural areas to production sites. In such process, flora and fauna species that previously used the site are displaced or destroyed. Generally this results in a reduction of biodiversity.

Hotspot
An area on earth with an unusual concentration of species, many of which are endemic to the area, and which is under serious threat by people.

Indicator species
A species whose status provides information on the overall condition of the ecosystem and of other species in that ecosystem.

Indigenous people
People whose ancestors inhabited a place or country when persons from another culture or ethnic background arrived on the scene and dominated them through conquest, settlement, or other means and who today live more in conformity with their own social, economic, and cultural customs and traditions than with those of the country of which they now form a part. (also: 'native peoples' or 'tribal peoples')

In situ conservation
A conservation method that attempts to preserve the genetic integrity of gene resources by conserving them within the evolutionary dynamic ecosystems of the original habitat or natural environment.

Instruments to protect biodiversity
The Convention on Biological Diversity (CBD) is the principal international instrument in developing sustainable conservation and use of biological resources as stipulated in chapter 15 of Agenda 21. The Conference of the Parties (COP) to the CBD has launched comprehensive programmes of work addressing 5 critical ecosystem-based thematic areas and 13 cross-cutting issues. The adoption of the Ecosystem Approach and the decision to develop a Strategic Plan for the Convention, will greatly contribute to the establishment of a firm policy foundation.

Other biodiversity-related conventions and processes including: the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); the Convention on the Conservation of Migratory Species of Wild Animals (CMS); the Convention on Wetlands of International Importance, Especially as Waterfowl Habitats (RAMSAR); the World Heritage Convention (WHC); the Meetings of Regional Seas Conventions and the Global Diversity Forum have all made significant contributions to the sustainable management and use of the world's biodiversity.

At the national level, there has been a steady growth in conservation efforts. The number of national organizations involved in conservation has increased, while the number of voluntary conservation organizations and the size of their membership have increased in an exponential manner. The growth in the number of protected areas and the total extent of all protected areas has increased considerably over the last 20 years,

but their management and design or these areas is often limited.

The problem is that despite these increased national and international efforts, widespread biodiversity loss continues to occur.

Intellectual property rights
Rights enabling an inventor to exclude imitators from the market for a certain period of time.

Invasive species
Invasive species are those that are introduced – intentionally or unintentionally – to an ecosystem in which they do not naturally appear and which threaten habitats, ecosystems, or native species. These species become invasive due to their high reproduction rates and by competing with and displacing native species, that naturally appear in that ecosystem. Unintentional introduction can be the result of accidents (e.g. when species escape from a zoo), transport (e.g. in the ballast water of a ship); intentional introduction can be the result of e.g. importing animals or plants or the genetically modification of organisms.

Inventory
On-site collection of data on natural resources and their properties.

Land use
Land use refers to how a specific piece of land is allocated: its purpose, need or use (e.g. agriculture, industry, residential or nature).

Land use requirements
The requirements are related to growth and yield of crops and trees, animal husbandry, land management and conservation.

Major threats to biodiversity
See drivers of biodiversity loss.

Marine protected area
An area of sea (or coast) especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

Millennium Ecosystem Assessment (MA)
An international work program designed to meet the needs of decision makers and the public for scientific information concerning the consequences of ecosystem change for human well-being and options for responding to those changes. The MA was launched by U.N. Secretary-General Kofi Annan in June 2001 and it will help to meet assessment needs of the Convention on Biological Diversity, Convention to Combat Desertification, the Ramsar Convention on Wetlands, and the Convention on Migratory Species, as well as needs of other users in the private sector and civil society. If the MA proves to be useful to its stakeholders, it is anticipated that an assessment process modeled on the MA will be repeated every 5–10 years and that ecosystem assessments will be regularly

conducted at national or sub-national scales."

Mitigating measures
Measures that allow an activity with a negative impact on biodiversity, but reduce the impact on site by considering changes to the scale, design, location, process, sequencing, management and/or monitoring of the proposed activity. It requires a joint effort of planners, engineers, ecologists, other experts and often local stakeholders to arrive at the best practical environmental option. An example is the unacceptable impact on biodiversity of the construction of a certain road, that is mitigated by the construction of a wildlife viaduct.

National Biodiversity Strategy and Action Plan
The Convention on Biological Diversity calls on each of its Parties to prepare a National Biodiversity Strategy and Action Plan (Article 6a) that establishes specific activities and targets for achieving the objectives of the Convention. These plans mostly are implemented by a partnership of conservation organisations and are administered by a 'lead partner' which may be the wildlife agency or a NGO. Species or habitats which are the subject of NBSAPs are the governments stated priorities for action and therefore raise greater concern where they are threatened. NBSAPs do not carry legal status and listed species and habitat types are not necessarily protected (although some are covered by other legislation). The process of listing and identifying the priorities has legal backing even though the plans themselves do not.

Native species
Flora and fauna species that occur naturally in a given area or region. Also referred to as indigenous species.

Natural environment
The natural environment comprises all living and non-living things that occur naturally on Earth. In its purest sense, it is thus an environment that is not the result of human activity or intervention. The natural environment may be contrasted to "the built environment", and is also in contrast to the concept of cultural landscape.

Natural resources
Natural resources are often classified into renewable and non-renewable resources. Renewable resources are generally living resources (fish, coffee, and forests, for example), which can restock (renew) themselves if they are not overharvested. Renewable resources can restock themselves and be used indefinitely if they are used sustainably. Once renewable resources are consumed at a rate that exceeds their natural rate of replacement, the standing stock will diminish and eventually run out. The rate of sustainable use of a renewable resource is determined by the replacement rate and amount of standing stock of that particular resource. Non-living renewable natural resources include soil, as well as water, wind, tides and solar radiation — *compare with* renewable energy.

Resources can also be classified on the basis of their. origin as biotic and abiotic. Biotic resources are derived from animals and plants (i.e-the livingworld). Abiotic resouces are derived from the non-living world e.g. land, water, and air. Mineral and power resources

are also abiotic resources some are derived from nature.

Both extraction of the basic resource and refining it into a purer, directly usable form, (e.g., metals, refined oils) are generally considered natural-resource activities, even though the latter may not necessarily occur near the former.
Natural resources are natural capital converted to commodity inputs to infrastructural capital processes. They include soil, timber, oil, minerals, and other goods taken more or less as they are from the Earth.

A nation's natural resources often determine its wealth and status in the world economic system, by determining its political influence. Developed nations are those which are less dependent on natural resources for wealth, due to their greater reliance on infrastructural capital for production. However, some see a resource curse whereby easily obtainable natural resources could actually hurt the prospects of a national economy by fostering political corruption.

Non-Governmental Organization (NGO)
A nonprofit group or association organised outside of institutionalised political structures to realise particular social objectives (such as environmental protection) or serve particular constituencies (such as indigenous peoples). NGO activities range from research, information distribution, training, local organisation, and community service to legal advocacy, lobbying for legislative change, and civil disobedience. NGOs range in size from small groups within a particular community to huge membership groups with a national or international scope.

Overexploitation
Overexploitation occurs when harvesting of specimens of flora and fauna species from the wild is out of balance with reproduction patterns and, as a consequence species may become extinct.

Participatory rural appraisal
PRA is a relatively new and different approach for conducting action-oriented research in developing countries. PRAs are used to help involve villagers and local officials leaders in all stages of development work, from the identification of needs and decision making to the assessment of completed projects. The term can be used to describe any new methodology which makes use of a multidisciplinary team. Rapid Rural Appraisal is a quicker approach that may or may not be participatory.

Patent
A government grant of temporary monopoly rights on innovative processes or products.

Protected Areas
An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means. A protected area can be under either public or private ownership.

Red List
The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on taxa that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable). The IUCN Red List also includes information on taxa that are categorized as Extinct or Extinct in the Wild; on taxa that cannot be evaluated because of insufficient information (i.e. are Data Deficient); and on taxa that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme (i.e. are Near Threatened).

Rehabilitation
The recovery of specific ecosystem services in a degraded ecosystem or habitat.

Restoration
The return of an ecosystem or habitat to its original community structure, natural complement of species, and natural functions.

Seedbank
A facility designed for the ex situ conservation of individual plant varieties through seed preservation and storage.

Species
A group of organisms capable of interbreeding freely with each other but not with members of other species.

Species diversity
The number and variety of species found in a given area in a region.

Succession
The more or less predictable changes in the composition of communities following a natural or human disturbance.

Sustainable development
Development that meets the needs and aspirations of the current generation without compromising the ability to meet those of future generations.

Sustainable use
The use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

Taxonomy
The classification of animals and plants based upon natural relationships.

Threatened species
A technical classification referring to a species that is likely to become endangered

within the foreseeable future, throughout all or a significant portion of its range. 12,259 species are known by IUCN, the World Conservation Union, to be threatened with extinction. IUCN keeps the world's inventory of the conservation status of animals and plants, compiling data from thousands of scientists and conservationists worldwide. However, the 12,259 threatened species are only the tip of the iceberg. Nobody knows how many species there are on Earth, let alone how they are doing. The total number of recorded living species is around 1.75 million. But more than two thirds are insects and other invertebrates, which are extremely difficult to monitor. An estimate of the real number of species on Earth is 14 million.

For its 2003 "Red List of Threatened Species", IUCN was able to evaluate the conservation status of 2% of 1.53 million species for which it has descriptions. The only two well-monitored groups are birds and mammals, so IUCN was able to evaluate 100% of birds and 99% of mammals for threatened status.

Wild species
Organisms captive or living in the wild that have not been subject to breeding to alter them from their native state

Wild life
Living, non-domesticated animals. Some experts consider plants also as part of wildlife.