

# Appendix B

## Glossary of Terms

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- Artificial insemination:** A breeding technique, commonly used in domestic animals, in which semen is introduced into the female reproductive tract by artificial means.
- Biochemical analysis:** The analysis of proteins or DNA using various techniques, including electrophoretic testing and restriction fragment length polymorphism (RFLP) analysis. These techniques are useful methods for assessing plant diversity and have also been used to identify many strains of micro-organisms.
- Biogeography:** A branch of geography that deals with the geographical distribution of animals and plants.
- Biological diversity:** The variety and variability among living organisms and the ecological complexes in which they occur.
- Biologically unique species:** A species that is the only representative of an entire genus or family.
- Biosphere reserves:** Established under UNESCO's Man in the Biosphere (MAB) Program, biosphere reserves are a series of protected areas linked through a global network, intended to demonstrate the relationship between conservation and development.
- Biota:** The living organisms of a region.
- Biotechnology:** Techniques that use living organisms or substances from organisms to make or modify a product. The most recent advances in biotechnology involve the use of recombinant DNA techniques and other sophisticated tools to harness and manipulate genetic materials.
- Breed:** A group of animals or plants related by descent from common ancestors and visibly similar in most characteristics. Taxonomically, a species can have numerous breeds.
- Breeding line:** Genetic lines of particular significance to plant or animal breeders that provide the basis for modern varieties.
- Buffer zones:** Areas on the edge of protected areas that have land use controls and allow only activities compatible with protection of the core area, such as research, environmental education, recreation, and tourism.
- Captive breeding:** The propagation or preservation of animals outside their natural habitat, involving control by humans of the animals chosen to constitute a population and of mating choices within that population.
- Centers of diversity:** The regions where most of the major crop species were originally domesticated and developed. These regions may coincide with centers of origin.
- Chromatography:** A chemical analysis technique **whereby** an extract of compounds is separated by allowing it to migrate over or through an adsorbent (such as clay or paper) so that the compounds are distinguished as separate layers.
- Clonal propagation:** The multiplication of an organism by asexual means such that all progeny are genetically identical. In plants, it is commonly achieved through use of cuttings or *in vitro* culture. For animals, embryo splitting is a method of clonal propagation.
- Community:** A group of ecologically related populations of various species of organisms occurring in a particular place and time.
- Critical habitats:** A technical classification of areas in the United States that refers to habitats essential for the conservation of endangered or threatened species. The term may be used to designate portions of habitat areas, the entire area, or even areas outside the current range of the species.
- Cryogenic storage:** The preservation of seeds, semen, embryos, or micro-organisms at extremely low temperatures, below  $-130^{\circ}\text{C}$ . At these temperatures, water is absent, molecular kinetic energy is low, diffusion is virtually nil, and storage potential is expected to be extremely long.
- Cryopreservation:** See cryogenic storage.
- Cultivar:** International term denoting certain cultivated plants that are clearly distinguishable from others by one or more characteristics and that when reproduced retain their distinguishing characteristics. In the United States, "variety" is considered to be synonymous with cultivar (derived from "cultivated variety").
- Cutting:** A plant piece (stem, leaf, or root) removed from a parent plant that is capable of developing into a new plant.
- Cycad:** Any of an order of gymnosperm of the family cycadaceae. Cycads are tropical plants that resemble palms but reproduce by means of spermatozoids.
- Database:** An organized collection of data that can be used for analysis.
- DNA:** Deoxyribonucleic acid. The nucleic acid in chromosomes that codes for genetic information.

- The molecule is double stranded, with an external "backbone" formed by a chain of alternating phosphate and sugar (deoxyribose) units and an internal ladder-like structure formed by nucleotide base-pairs held together by hydrogen bonds.
- Domestication:** The adaptation of an animal or plant to life in intimate association with and to the advantage of man.
- Ecology:** A branch of science concerned with the interrelationship of organisms and their environment.
- Ecosystem:** An ecological community together with its physical environment, considered as a unit.
- Ecosystem diversity:** The variety of ecosystems that occurs within a larger landscape, ranging from biome (the largest ecological unit) to microhabitat.
- Electrophoresis:** Application of an electric field to a mixture of charged particles in a solution for the purpose of separating (e. g., mixture of proteins) as they migrate through a porous supporting medium of filter paper, cellulose acetate, or gel.
- Embryo transfer:** An animal breeding technique in which viable and healthy embryos are artificially transferred to recipient animals for normal gestation and delivery.
- Endangered species:** A technical definition used for classification in the United States referring to a species that is in danger of extinction throughout all or a significant portion of its range. The International Union for the Conservation of Nature and Natural Resources (IUCN) definition, used outside the United States, defines species as endangered if the factors causing their vulnerability or decline continue to operate.
- Endemism:** The occurrence of a species in a particular locality or region.
- Equilibrium theory:** A theory of island biogeography maintaining that greater numbers of species are found on larger islands because the populations on smaller islands are more vulnerable to extinction. This theory can also be applied to terrestrial analogs such as forest patches in agricultural or suburban areas or nature reserves where it has become known as "insular ecology."
- Exotic species:** An organism that exists in the free state in an area but is not native to that area. Also refers to animals from outside the country in which they are held in captive or free-ranging populations.
- Ex-situ:** Pertaining to study or maintenance of an organism or groups of organisms away from the place where they naturally occur. Commonly associated with collections of plants and animals in storage facilities, botanic gardens, or zoos.
- Extinct species:** As defined by the IUCN, extinct taxa are species or other taxa that are no longer known to exist in the wild after repeated search of their type of locality and other locations where they were known or likely to have occurred.
- Extinction:** Disappearance of a taxonomic group of organisms from existence in all regions.
- Fauna:** Organisms of the animal kingdom.
- Feral:** A domesticated species that has adapted to existence in the wild state but remains distinct from other wild species. Examples are the wild horses and burros of the West and the wild goats and pigs of Hawaii.
- Flora:** Organisms of the plant kingdom.
- Gamete:** The sperm or unfertilized egg of animals that transmit the parental genetic information to offspring. In plants, functionally equivalent structures are found in pollen and ovules.
- Gene:** A chemical unit of hereditary information that can be passed from one generation to another.
- Gene-pool:** The collection of genes in an interbreeding population.
- Genetic diversity:** The variety of genes within a particular species, variety, or breed.
- Genetic drift:** A cumulative process involving the chance loss of some genes and the disproportionate replication of others over successive generations in a small population, so that the frequencies of genes in the population is altered. The process can lead to a population that differs genetically and in appearance from the original population.
- Genotype:** The genetic constitution of an organism, as distinguished from its physical appearance.
- Genus:** A category of biological classification ranking between the family and the species, comprising structurally or phylogenetically related species or an isolated species exhibiting unusual differentiation.
- Germplasm:** Imprecise term generally used to refer to the genetic information of an organism or group of organisms.
- Grow-out (growing-out):** The process of growing a plant for the purpose of producing fresh viable seed to evaluate its varietal characteristics.
- Habitat:** The place or type of site where an organism naturally occurs.
- Hybrid:** An offspring of a cross between two genetically unlike individuals.
- Inbreeding:** Mating of close relatives resulting in increased genetic uniformity in the offspring.

- In-situ:** Maintenance or study of organisms within an organism's native environment.
- In-situ gene banks:** Protected areas designated specifically to protect genetic variability of particular species.
- Interspecies:** Between different species.
- Intrinsic value:** The value of creatures and plants independent of human recognition and estimation of their worth.
- Inventory:** onsite collection of data on natural resources and their properties.
- In vitro:** (Literally "in glass"). The growing of cells, tissues, or organs in plastic vessels under sterile conditions on an artificially prepared medium.
- Isoenzyme (Isozyme):** The protein product of an individual gene and one of a group of such products with differing chemical structures but similar enzymatic function.
- Landrace:** Primitive or antique varieties usually associated with traditional agriculture. Often highly adapted to local conditions.
- Living collections:** A management system involving the use of off site methods such as zoological parks, botanic gardens, arboretums, and captive breeding programs to protect and maintain biological diversity in plants, animals, and micro-organisms.
- Micro-organisms:** In practice, a diverse classification of all those organisms not classed as plants or animals, usually minute microscopic or sub-microscopic and found in nearly all environments. Examples are bacteria, cyanobacteria (blue-green algae), mycoplasma, protozoa, fungi (including yeasts), and viruses.
- Minor breed:** A livestock breed not generally found in commercial production.
- Modeling:** The use of mathematical and computer-based simulations as a planning technique in the development of protected areas.
- Morphology:** A branch of biology that deals with form and structure of organisms.
- Multiple use:** An onsite management strategy that encourages an optimum mix of several uses on a parcel of land or water or by creating a mosaic of land or water parcels, each with a designated use within a larger geographic area.
- Native:** A plant or animal indigenous to a particular locality.
- Offsite:** Propagation and preservation of plant, animal, and micro-organism species outside their natural habitat.
- Onsite:** Preservation of species in their natural environment.
- Open-pollinated:** Plants that are pollinated by physical or biological agents (e.g., wind, insects) and without human intervention or control.
- Orthodox seeds:** Seeds that are able to withstand the reductions in moisture and temperature necessary for long-term storage and remain viable.
- Pathogen:** A specific causative agent of disease.
- Phenotype:** The observable appearance of an organism, as determined by environmental and genetic influences (in contrast to genotype).
- Phytochemical:** Chemicals found naturally in plants.
- Population:** A group consisting of individuals of one species that are found in a distinct portion of the species range and that interbreed with some regularity and therefore have a common set of genetic characteristics.
- Predator:** An animal that obtains its food primarily by killing and consuming other animals.
- Protected areas:** Areas usually established by official acts designating that the uses of these particular sites will be restricted to those compatible with natural ecological conditions, in order to conserve ecosystem diversity and to protect and study species or areas of special cultural or biological significance.
- Provinciality effect:** Increased diversity of species because of geographical isolation.
- Recalcitrant seeds:** Seeds that cannot survive the reductions in moisture content or lowering of temperature necessary for long-term storage.
- Recombinant DNA technology:** Techniques involving modifications of an organism by incorporation of DNA fragments from other organisms using molecular biology techniques.
- Restoration:** The re-creation of entire communities of organisms closely modeled on communities that occur naturally. It is closely linked to reclamation.
- Riparian:** Related to, living, or located on the bank of a natural watercourse, usually a river, sometimes a lake or tidewater.
- Serological testing:** Immunologic testing of blood serum for the presence of infectious foreign disease agents.
- Somaclonal variations:** Structural, physiological, or biochemical changes in a tissue, organ, or plant that arise during the process of in vitro culture.
- Species:** A taxonomic category ranking immediately below genus and including closely related, morphologically similar individuals that actually or potentially interbreed.

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

**Species richness:** Areas with many species, especially the equatorial regions.

**Spectroscopy:** Any of several methods of chemical analysis that identify or classify compounds based on examination of their spectral properties.

**Stochastic:** Models, processes, or procedures that are based on elements of chance or probability.

**Subspecies:** A distinct form or race of a species.

**Taxon:** A taxonomic group or entity (pl. taxa).

**Taxonomy:** A hierarchical system of classification of organisms that reflects the totality of similarities and differences.

**Threatened species:** A U.S. technical classification referring to a species that is likely to become endangered within the foreseeable future, through-

out all or a significant portion of its range. These species are defined as vulnerable taxa outside the United States by the IUCN.

**Tissue culture:** A technique in which portions of a plant or animal are grown on an artificial culture medium in an organized (e.g., as plantlets) or unorganized (e. g., as callus) state. (See also in *vitro* culture.)

**Variety:** See cultivar.

**Wild relative:** Plant species that are taxonomically related to crop species and serve as potential sources for genes in breeding of new varieties of those crops.

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

**Wildlife:** Living, nondomesticated animals.