Ecology Definitions

Based on: *A Dictionary of Ecology, Evolution and Systematics* by R.J. Lincoln , G.A. Boxshall and P.F. Clark, Cambridge University Press, 1982; and *The Harper Collins Dictionary of Biology* by W.G. Hale and J.P. Margham, Harper Perennial, 1991.

Abiotic Non-living

Acclimation The change in behavior or physiology of an individual within its own lifetime in response to a changing environment.

Adaptation Change in organisms over many generations through inheritance of modified genes, resulting in improved survival and reproduction.

Amphipod Order of crustaceans including shrimp. Freshwater amphipods look like miniature shrimp.

Antagonism The inhibiting action of one substance or organism on another.

Aquatic Living in or near water.

Arthropod Animals having jointed limbs and a hard exoskeleton. Includes insects, crustaceans, spiders and centipedes.

Autotroph An organism capable of producing its own food without having to eat other organisms.

Biodiversity The number of different species within a given geographical region.

Biomass Quantitative measure of the total mass of organisms comprising all or part of a population or any other specified unit such as an individual, plot of ground, set of plants, etc. Measured as volume, mass, or weight of dead, dry, or live organisms.

Biome Major regional ecological community characterized by distinctive life forms, climate and principal plant (terrestrial) or animal (marine) species.

Biotic Pertaining to life or living organisms.

Biotic potential The highest level of physical development and reproduction attainable by an organism, when all conditions are perfect.

Carnivore Organism that eats the flesh of another animal, including insects.

Chloroplast Structure within the internal cells of leaves containing chlorophyll. Photosynthesis occurs in chloroplasts.

Chlorophyll Pigment in chloroplasts of plants where photosynthesis occurs. Chlorophyll is green, thus giving plants their color.

Community Any group of organisms belonging to a number of different species that occur together in the same habitat or area and interact through trophic and spatial relationships.

Competition The simultaneous demand by two or more organisms or species for a common resource that is actually or potentially in limited supply (exploitation competition), or the negative interaction between two or more organisms or species for a common resource that is not limiting (interference

competition).

Consumer An organism that feeds on another organism or on existing organic matter, consumers include herbivores, omnivores, carnivores, and parasites.

Crepuscular Active during dawn and dusk only.

Crustacean Class in the phylum Arthropoda. Includes lobsters, pill bugs, shrimp.

Cuticle A non-cellular layer on the surface of plant tissues which prevents or retards water loss. Cuticle does not cover stomata.

Decomposer Organism that breaks organic matter down into its simpler compounds and eventually into inorganic matter, which is then used by producers (plants). Decomposers are bacteria and fungi.

Desiccation The drying process; moisture removed from an organism.

Density The number of things within a given area or volume.

Detritivore Small organisms (bacteria, fungi, worms) that feed on small pieces of dead plants and animals. Part of the nutrient cycle.

Diurnal Active during the daylight hours.

Diversity The absolute number of species in a community or sample regardless of the number of individual organisms.

Drought Evasion Refers to plants sensitive to drought that can survive dry periods by the production of desiccation resistant seeds or structures.

Drought Resistance The capacity to withstand periods of dryness, including both desiccation avoidance and tolerance.

Ecology The study of the interrelationships between living organisms and their environment.

Ecosystem A community of organisms and their physical environment interacting as a unit.

Ectotherm An animal whose body temperature is determined by that of the surrounding environment, but is not necessarily exactly the same as the environmental temperature. All animals except mammals and birds are ectotherms.

Emigration The movement of an individual or group out of an area or population.

Endemic Organism that evolved in a given ecosystem. (See **native**)

Endotherm Animal who maintains a core body temperature regardless of the temperature of the surrounding environment. Mammals and birds are endotherms.

Endoskeleton Skeleton present internally.

Energy Fixation The process by which an organism captures energy by consuming food. Usually a maximum of 10% of the total energy available is captured and used by the organism for growth and maintenance; the rest is lost back to the environment as free heat.

Energy flow The movement of energy through an ecosystem from the sun (photons) to producers

(plants), to primary consumers (herbivores) to secondary consumers (predators). Most energy is lost back into the environment at each transition level.

Ephemeral Lasting briefly, such as mayfly adults who live only a few hours, or plants that live less than a year.

Evaporation The change of water to a gas. Used by animals for cooling. In plants it is called transpiration.

Evapotranspiration Total evaporation of water in an area from plants and the surrounding ground.

Evolution The change over generations in a species due to inherited genetic modifications.

Exoskeleton Skeleton present on the outside of the body.

Exotic An imported, non-native organism, brought into an ecosystem it did not inhabit before.

Fitness The success of an organism in passing its genes on to the next generation through its offspring. High fitness is having many offspring, low fitness refers to few or no offspring.

Food Chain A sequence of organisms on successive trophic levels within a community, through which energy is transferred by feeding; energy enters the food chain during fixation by primary producers (mainly green plants) and passes to the herbivores (primary consumers) and then to the carnivores (secondary and tertiary consumers).

Food Web The network of interconnected food chains of a community; food cycle.

Gall Accelerated tissue growth on a plant caused by insects, mites or fungi. Insect caused galls usually indicate an area of the plant where eggs were laid inside the tissue.

Herbivore Organism that feeds on plants.

Herbivory The consumption of plant material by an animal

Heterotroph An organism that does not produce its own food but obtains nutrients from external organic sources: herbivores, carnivores.

Homeostasis The maintenance of a steady state or equilibrium in a biological system by internal regulating mechanisms.

Host The organism a parasite lives on.

Immigration The movement of an individual or group into a new population or geographical region.

Inorganic Refers to compounds from non-living sources such as rocks and water. Non-biological compounds, specifically, those not containing carbon atoms.

Interspecific Interactions occurring between two or more different species.

Intraspecific Interactions occurring within a species; between individuals or populations of the same species.

Isopod Scientific name for pill bugs, sow bugs, or rollie-pollies. Crustacean.

Iteroparity Several or many reproductive periods in a lifetime.

Larva (pl. larvae) The immature stage of life of an invertebrate.

Life History The significant features of the life cycle through which an organism passes, with particular emphasis on aspects and strategies affecting survival and reproduction.

Limiting factor Any environmental factor, or group of related factors, that exists at a lower than necessary level and thereby prevents an organism from reaching its full biotic potential.

Macroscopic Of a size the human eye can see easily.

Mesophyll Internal cells of plant leaves. The exact arrangement of cells varies with different leaf types. Chloroplasts are contained here.

Microclimate The climate of the immediate surroundings or habitat resulting from the local topography, vegetation and soil.

Microhabitat A small, specialized habitat, such as one part of a tree.

Microscopic Smaller than the human eye can see.

Migration Movement of an organism or group from one habitat to another; periodic or seasonal movement, typically of relatively long distance, from one area, stratum or climate to another; any general movement that affects the range of distribution of a population or individual.

Mine Leaf tissue under the cuticle consumed by an insect. The missing tissue is seen on the surface of the leaf as a tan area.

Morphology The body shape of an organism.

Native Organism that evolved in the given geographical region of study. (See **endemic**)

Niche The ecological role of a species in a community as determined by chemical, spatial, physical and temporal conditions necessary for that species' survival. One species occupies a given niche in a given habitat. A different species may occupy the same niche in a different habitat.

Nocturnal Active during dark hours.

Non-native An organism that has been brought into an ecosystem from another ecosystem. Non-native organisms often have negative effects on the native organisms. (See **exotic**.)

Nutrients Material that an organism takes in and assimilates for growth and maintenance.

Nutrient cycle The cycle of organic and inorganic matter through an ecosystem, from producers (plants) to consumers (herbivores and predators) to detritivores (some insects, worms) to decomposers (bacteria and fungi) back to producers.

Omnivore Organism that feeds on a mixed diet of plant and animal material.

Organic Refers to compounds from previously living organisms; biological compounds, specifically, those containing carbon molecules.

Parasite Any organism that is intimately associated with, and metabolically dependent upon, another living organism (the host) for completion of its life cycle, and which is detrimental to the host to some greater or lesser degree.

Parasitoid Insects whose eggs are laid on a host insect. The larvae grow on or within the body of the host, eventually killing it.

Photosynthesis The chemical process used by plants to convert carbon dioxide and water into organic materials using light energy. Oxygen is released as a byproduct.

Phytoplankton Photosynthetic organisms drifting on the surface layer of a sea or lake.

Pollen The small, male structure of flowering plants containing the sperm used to fertilize the female ovules of the same plant species.

Pollination The fertilization of a flowering plant's ovules (eggs) by compatible pollen.

Pollinator Animal that visits flowers and in the process unintentionally spreads pollen to other flowers, often fertilizing the eggs of other flowers.

Population All individuals of one species inhabiting a given geographic area, and usually isolated to some degree from other groups of the same species.

Predation The capture, killing, and consumption of one animal (the prey) by another animal (the predator).

Preferences A choice an organism makes in regard to mates, food selection, territory, or other ecological needs.

Producer (**Photosynthesizer**/**Autotroph**) An organism that synthesizes complex organic substances from energy and simple inorganic compounds.

Primary producers on land are plants, in water they are phytoplankton.

Pupa An inactive phase for many insects between the larval and adult stages. Feeding and movement are absent while extensive developmental changes occur.

Reducers Any organism responsible for degrading or mineralizing organic matter from more complex to less complex compounds; decomposer.

Resource Any biotic or abiotic component of the environment that can be utilized by an organism.

Resource allocation How an organism uses the resources that it has available for growth, development and reproduction.

Resource Acquisition The gathering of things needed for survival and reproduction, e.g., food, water, light, shelter, mates.

Scavenger An organism that consumes animal matter left uneaten by a predator. Scavengers eat carrion, refuse.

Seed Bank Seeds that accumulate in the soil over a period of years. Seeds of different ages may germinate in the same year when conditions are favorable. Many desert wildflowers germinate from seed banks.

Seed Dispersal Mechanisms by which plant seeds are moved from the parent plant. Examples of dispersal mechanisms: wind, water, eaten and then excreted, carried on the bodies of animals.

Semelparity Single, distinct period of reproductive output in an organism's lifetime, after which it usually dies.

Sessile Organism, plant or animal, that attaches itself to one place and does not move; e.g., plants and barnacles.

Species A set of organisms that through physical characteristics and/or behaviors can only interbreed and produce reproductively viable offspring with each other.

Species Richness A measure of the absolute number of species in a given habitat or community.

Stoma Openings in leaf surfaces which allow the entrance of carbon dioxide and the release of oxygen. Stomata are sometimes found on stems, too.

Substrate Material used by an organism to grow; solid object to which a plant or sessile animal is attached.

Succession The geological, ecological or seasonal sequence of species within a habitat or community.

Succulence Specialized fleshy tissue in a plant root or stem for the conservation of water. E.g., agave.

Symbiosis When two organisms coexist in a completely dependent and mutually beneficial manner.

Synergism Cooperative action of two or more entities such that the total is greater than the sum of the individual actions.

Temporal Referring to occurrences in time.

Terrestrial Occurring on land.

Transpiration Water that is lost from a plant to the atmosphere through the stomata. Believed to be part of the mechanism causing water to travel from the roots up the plant.

Trophic Level Trophic means nourishment, and trophic level refers to the position of an organism in a food chain. E.g., primary producer, primary or secondary consumer.

Zooplankton Very small animals that float near the surface of a body of water.