

A

abiotic: the nonliving components of the environment such as rock types, slope, geographic setting and climate that affect ecological functions.

alien species: species that do not naturally occur within an area and that have usually arrived in the area as a result of human intervention (whether deliberate or accidental). Alien species often have adverse effects on native species as a result of competition. See invasive species.

alkalinity: a measure of the capacity of water to neutralize acid. Alkali substances in water include hydroxides or bases.

B

biodiversity: the variety of life on Earth, reflected in the variety of ecosystems and species, their processes and interactions, and the genetic variation within and among species.

biomass: All of the living material in a given area; often refers to vegetation.

biotic: the living components of the environment, such as plants, animals, and fungi, that affect ecological functions.

botanist: a scientist who studies plants.

broadleaf: trees that shed leaves annually or at a particular stage of growth. Elm, maple, or mahogany are examples of broadleaf trees.

C

canopy: the uppermost trees in a forest.

carbon dioxide: a greenhouse gas whose atmospheric concentrations have been increasing from pre-industrial (1750-1800) levels of 280 parts per million (ppm) to present day levels of 356-360 ppm, depending on location. CO₂ decreases in summertime when plant productivity consumes CO₂, and increases in winter when biota are less active and respiration exceeds photosynthesis. A main source of CO₂ increase in the atmosphere has been burning of fossil fuels.

carnivore: an animal that eats meat in the form of other animals.

carrying capacity: the maximum number of organisms that can use a given area of habitat without degrading the habitat and without causing stresses that result in the population being reduced.

climate: the long-term weather pattern of an area, including temperature, precipitation, and wind.

climate change: a regional change in temperature and weather patterns. Current science indicates a link between climate change over the last century and human activity, specifically the burning of fossil fuels.

competition: the struggle between plants or animals for limited resources necessary for survival (food, water, shelter, space) in a given area.

conifer: cone-bearing trees like pine, spruce and tamarack.

conservation: the protection, restoration, or sustainability of natural resources.

consumer: an organism unable to produce its own food energy. Consumers get their food energy by eating producers or other consumers.

contaminant: a substance that spoils the purity of something else or makes it poisonous.

D

detrivores: An organism that feeds on large bits of dead and decaying organic matter. What detrivores leave behind is used by decomposers. Crabs and seabirds are examples of detrivores.

deforestation: the large-scale removal of trees from a habitat dominated by forest.

dissolved oxygen: the volume of oxygen dissolved in water.

dominant: trees with crowns extending higher than other trees in the same stand. They receive full sunlight from above and partly from the sides.

E

ecological restoration: the process whereby an entire ecosystem is brought back to health.

ecosystem: a community of plants, animals, and microorganisms that are linked by energy and nutrient flows, and that interact with each other and with the physical environment. Rain forests,

deserts, coral reefs, grasslands, and a rotting log are all examples of ecosystems.

edge species: plant or animal species which thrive on the edges of habitats such as a forest which provide them with access to cover and food sources. Examples include: sumac, white-tailed deer, and cowbirds.

emergent: The rain forest layer that includes the tops of the tallest trees.

endangered species: species threatened with extinction. The Florida panther and the California condor are endangered species.

endemic: an organism that is native to a particular country, region or ecosystem; not introduced.

environmental health: well-being based on the health of the surrounding environment.

epiphytes: An air plant that receives water and nutrients from the air and rain. It usually uses other plants for support.

evaporation: the process by which a liquid is transformed into a gas.

erode: To wear something away, as heavy rain washing away a farmer's field.

estimate: The best guess arrived at after considering all the information given in a problem.

exhaust: gases ejected from an engine as waste products.

exotic species: introduced species; not native or endemic to the area in question.

F

fertilizer: a material that is added to soil to increase its fertility and enhance plant growth; includes manure (a natural fertilizer) and synthetic materials made from nitrogen, phosphorus, and potassium compounds.

forage: Food for animals, especially when taken by browsing or grazing.

forbs: non-woody plants (ferns, flowers, etc.).

forest: land based ecosystem characterized by a dominance of tree cover and containing a variety of other living and non-living organisms (e.g., soil, air, water, other plants, and animals).

forest floor: The lowest level of the forest that is made up of tree seedlings, dead leaves and needles, grasses, ferns, flowers, fungi, and decaying plants and logs.

food chain: a lineup of organisms from producers (plants) to consumers (other plants, animals, and fungi), with each organism feeding on or getting nutrients from the previous organism.

food web: the interconnected feeding relationships in an eco-system. These relationships can be complex; some organisms may feed on more than one trophic level, or changes may occur depending on a species' life history stages or the availability of food.

fossil fuels: fuels formed millions of years ago from decayed organisms. Oil, coal, and natural gas are all fossil fuels.

fungi: threadlike, nonvascular plants lacking chlorophyll that obtain nourishment from other organic materials. Types of fungus include molds, mildews, yeasts, mushrooms, and puffballs.

G

grid: A pattern of regularly spaced horizontal and vertical lines forming square zones on a map used as a reference for establishing points.

groundwater: water beneath the surface that can be collected with wells, tunnels, or drainage galleries, or that flows naturally to Earth's surface via seeps or springs.

H

habitat: the area where an animal, plant, or microorganism lives and finds the nutrients, water, sunlight, shelter, living space, and other essentials it needs to survive. Habitat loss, which includes the destruction, degradation, and fragmentation of habitats, is the primary cause of biodiversity loss.

habitat fragmentation: the process of dividing forest into smaller patches of forest and non-forest land.

herbivore: an animal that eats plants.

hypothesis: a statement consisting of an action that can be tested and a predicted result. Making a hypothesis is part of scientific inquiry.

I

indicator species: those species that can offer early warning signs of ecological stresses.

insectivore: An animal that feeds mainly on insects.

introduced species: organisms that have been brought into an area in which they do not naturally occur. Introduced species can compete with and cause problems for native species. Introduced species are also called exotic, non-native, and alien species.

invasive species: species not endemic to a habitat, that competes with native species for food and space, and typically causes economic and/or environmental harm. See alien species.

invertebrate: An animal that does not have a backbone. This would include insects, worms and clams.

J

K

L

larvae: The early, independent, immature form of any animal that changes physically when it becomes an adult. Examples would be caterpillars are the larvae form of butterflies and tadpoles are the larvae form of frogs.

limiting factor: an environmental factor that limits the growth, abundance, or distribution of a population of organisms in an ecosystem (e.g., water, nutrients, sunlight, prey, etc.).

logging: the removal of trees from the forest for lumber.

M

N

mammal: A warm-blooded animal with hair that breathes air, has internal fertilization and nurses its live-borne young.

migration: To move from one region to another with the change in weather or during breeding season.

multiple use: a type of forest management that promotes at least two types of forest use (e.g., recreation and wildlife habitat).

mutualism: a symbiotic interaction between two species in which both derive some benefit.

native species: species that occur naturally in an area or a habitat. Also called indigenous species.

natural selection: The differential survival and reproduction of organisms with genetic characteristics that enable them to better utilize environmental resources.

neotropical migrants: A bird that nests in temperate regions and migrates to the Neotropical faunal region, which includes the West Indies, Mexico, Central America, and that part of South America within the tropics.

nitrogen: a chemical element in the periodic table with the symbol N, atomic number 7 and listed as 14th of the 107 total elements.

non-native species: introduced species not native or endemic to the area in question.

nonpoint source pollution: pollution from numerous widespread locations or sources that have no well-defined points of origin and may originate from land use activities and/or from the atmosphere. Examples include leaching of excess fertilizer from fields and acid rain.



old growth forest: a forest significantly past the age of maturity of its dominant species. Usually characterized by well-developed structure, many snags, dead wood on the ground; a late successional forest type for the area; sometimes refers to undisturbed or never harvested areas.

omnivore: an organism whose diet consists of a wide variety of foodstuffs, including plants and animals.

P

parasitism: Relationship between two species of plants or animals in which one benefits at the expense of the other, without killing it.

pH: a measure of a substance's acidity or alkalinity. The term pH translates literally to pondus hydrogenii, which means "potential hydrogen." The terminology refers to acidity being due to a predominance of hydrogen ions in a water containing solution.

photosynthesis: the process a plant uses to combine sunlight, water, and carbon dioxide to produce oxygen and sugar (energy).

phytoplankton: tiny, free-floating, photosynthetic organisms in aquatic systems including diatoms and dinoflagellates.

pioneer: A pioneer is a plant that is the first (or among the first) to live in a new area.

population: all the individuals of a particular species that live in the same place.

public lands: Acreage held by the government for conservation purposes. Public lands are generally undeveloped, with limited activities such as grazing,

wildlife management, recreation, timbering, mineral development, water development and hunting.

predator: an animal that hunts and kills other animals for its food.

prey: an organism that is hunted and eaten by a predator.

producer: green plants and lichens which produce their own food from sunlight, water and CO₂ in a process called photosynthesis. Plants are called producers.

Q

R

S

quadrat: An ecological sampling unit that consists of a square frame of known area. The quadrat is used for quantifying the number or percent cover of a given species within a given area.

recycle: To use discarded material for another purpose.

reforestation: The planting of new trees on land that had once been forested.

renewable resource: a resource that has the ability to regenerate at regular intervals.

replication: The duplication of an experiment or program.

respiration: The process in which an organism uses oxygen for its life processes and gives off carbon dioxide.

runoff: water that drains or flows off the surface of the land.

sample: a small part of something intended as representative of the whole

sere: the series of communities that follow one another in a natural succession, as in the change from a bare field to a mature forest.

silviculture: manipulation of forest vegetation to accomplish a specified set of objectives. It controls forest establishment, composition, and growth.

species: a group of organisms that has a unique set of characteristics, like body shape and behavior, that distinguishes them from other organisms. Individuals within the same species can typically reproduce with each other to produce fertile offspring. Species is the basic unit of biological classification.

succession: the gradual change of an area from one community to another over time. Can be due to natural or human caused disturbance.

successional stage: one community at any given time in the succession of species.

sustainability: the ability of natural resources to provide ecological, economic, and social benefits for present and future generations

symbiosis: An interaction between two different species where either both, one or neither of the organisms benefit from the relationship. Many symbiotic relationships are obligatory

T

threatened species: a way to describe organisms that are likely, in the near future, to become endangered.

topography: the relative elevations of different features in a landscape.

toxicity: the capacity of a material or organism to cause harm to another living organism.

trade-off: an exchange of one thing in return for another; especially relinquishment of one benefit or advantage for another regarded as more desirable.

transect: A straight line placed on the ground along which ecological measurements are taken. If an ecologist wanted to sample the diversity of intertidal organisms in the intertidal, he/she would place a number of transects perpendicular to the shore and take samples at predetermined interval lengths.

transpiration: the evaporation of water from plants.

turbidity: a measure of the amount of light scattered and absorbed by water because of the suspended matter in the water.

U

V

W

understory: an underlying layer of vegetation.

urban forest: the trees and associated living organisms in an urban area

urban sprawl: Haphazard growth or outward extension of a city resulting from uncontrolled or poorly managed development.

value: to assign worth to something.

water cycle: continuous circulation of water from the atmosphere to the earth, including the ocean, and back to the atmosphere through condensation, precipitation, evaporation, and transpiration.

watershed: a geographic area that drains into a single river system and its tributaries.

wetland: an area that, at least periodically, has waterlogged soils or is covered with a relatively shallow layer of water. Bogs, freshwater and saltwater marshes, and freshwater and saltwater swamps are examples of wetlands.

X

Y

Z

zooplankton: small, often microscopic animals that drift in currents, feed on detritus, phyto-plankton, and other zooplankton, and are preyed upon by fish, shellfish, whales, and other zooplankton.