Ecological & Pollution Glossary

A

1. **Abiotic**, adj: Nonliving or not containing any living organisms.

B

2. **Bioaccumulation**, n: An increase in the concentration of a chemical in specific organs or tissues at a level higher than would normally be expected.
3. **Biodegradable**, adj: Able to be broken down into simpler substances (elements and compounds) by naturally occuring decomposers. Essentially, anything that can be ingested by an organism without causing that organism harm. 2. Nontoxic and able to be decomposed in relatively short period even on a *human time scale* .
4. **Biodiversity**, n: The variety of biotic factors found within a specified geographic region. 2. The combined differences of living things, generally classified in four broad categories:
5. **Ecosystem Diversity**: Variety of biomes and habitats occuring in the biosphere.

C

6. **Carrying capacity**, n: The amount of animal or plant life (or industry) that can be supported indefinitely on available resources; the number of individuals that the resources of a habitat can support. Also called biological carrying capacity.
7. **Conservation biology**, n: Multidisciplinary science created to deal with the crisis of maintaining the genes, species, communities, and ecosystems that make up earth's biological diversity. Its goals are to investigate human impacts on biodiversity and to develop practical approaches to preserving biodiversity and ecological integrity.
8. **Carbon footprint,** amount of carbon dioxide (CO2) emissions associated with all the activities of a person or other entity (e.g., building, corporation, country, etc.). It includes direct emissions, such as those that result from fossil-fuel combustion in manufacturing, heating, and transportation, as well as emissions required to produce the electricity associated with goods and services consumed. In addition, the carbon footprint concept also often includes the emissions of other greenhouse gases, such as methane, nitrous oxide, or chlorofluorocarbons (CFCs).

D

9. **Deforestation**, n: Removal of trees from a forested area without adequate replanting.
10. **Demographic transition**, n: Hypothesis that countries, as they become industrialized, have declines in death rates followed by declines in birth rates.
11. **Desertification**, n: Conversion of rangeland, rain-fed cropland to desert-like land, with a drop in agricultural productivity of 10% or more. It is usually caused by a combination of overgrazing, soil erosion, prolonged drought, and climate change.
12. **Ecological efficiency**, n: The percentage of energy in biomass produced by one trophic level that is incorporated into biomass by the next highest trophic level.
13. **Ecological fitness**, n: The number of a parent's young that live to reproduce; divided by two if sexual reproduction is involved.
14. **Ecologically sustainable development**, n: Development in which the total human population size and resource use in the world (or in a region) are limited to a level that does not exceed the carrying capacity or the existing natural capital and is therefore sustainable.
15. **Ecologist**, n: A scientist who studies *ecology* .
16. **Ecology**, n: The study of the relationships between organisms and their environments, including: the interactions of living organisms with one another and with their non-living surroundings, the flow of matter and energy in an environment, and the structure and functions of nature. Also called *bionomics* . 2. The relationship between organisms and their environment. 3. The branch of sociology that is concerned with studying the relationships between human groups and their physical and social environments. Also called *human ecology* . 4. The study of the detrimental effects of modern civilization on the environment, with a view toward prevention or reversal through conservation. A component of the field of *human ecology* .
17. **Ecosystem**, n: An ecological community of various plants, animals, and other organisms, interacting with each other and with the nonliving resources in their environment, all functioning as a unit.
18. **Ecosystem services** , n: Services, vital to the support of human life, provided by intact natual ecosystems. These include the purification of air and water, detoxification and decomposition of wastes, regulation of climate, regeneration of soil fertility, and production and maintenance of biodiversity, from which key ingredients of our agricultural, pharmaceutical, and industrial enterprises are derived. **Historically, the nature and value of Earth’s life support systems have largely been ignored until their disruption or loss highlighted their importance**. **Endangered species**, n: Wild species with so few individual survivors that the species could soon become extinct in all or most of its natural range.
19. **Endangered Species Act**, n: The United States federal legislation that mandates protection of species and their habitats that are determined by scientifica consensus to be in danger of extinction.

20. **Environment**, n: All external conditions and factors, living and nonliving (chemicals and energy), that affect an organism or other specified system during its lifetime; the earth's life-support systems for us and for all other forms of life - in effect another term for describing solar capital and earth capital.
21. **Environmental degradation**, n: A reduction of an ecosystem's or habitat's ability to support its natural biota. 2. Depletion or destruction of a potentially renewable resource such as soil, grassland, forest, or wildlife by using it at a faster rate than it is naturally replenished. If such use is continued, the resource can become nonrenewable (on a human timescale) or nonexistant. 3. Pollution, toxification, or other alteration of an environment that makes it less productive, hospitable, usable, or enjoyable.
22. **Exponential growth**, n: Growth in which some quantity, such as population size or economic output, increases by a fixed percentage of the whole in a given time; when the increase in quantity over a long enough time is plotted, this type of growth typically yields a curve shaped like the letter J.
23. **Extant**, adj: A species that is still alive and reproducing. All species that currently live on earth are extant.
24. **Extinct**, adj: A species that is no longer living on earth. All representatives of the species are dead. All the species that once occupied the earth but are no longer living are extinct. We know of their existence through studying the *fossil record* . Compare to *extant* .

F

25. **Food chain**, n: Figure of speech describing the dependence of *heterotrophs* on other organisms for food, progressing in a series beginning with *primary producers* (plants) and ending with the largest carnivores. The food chain is used as a figurative image for educational purposes only... real trophic systems resemble webs rather than chains. See *food web* .
26. **Foodprint** is the result of everything it takes to get your food from the farm to your plate. Many of those processes are invisible to consumers. Industrial food production — including animal products like beef, pork, chicken and eggs and also crops — takes a tremendous toll on our soil, air and water, as well as on the workers and the surrounding communities.

G

27. **Global warming**, n: The term given to the possibility that Earth's atmosphere is gradually warming because of the greenhouse effect of carbon dioxide and other gases. Global warming is thought by many to be the most serious global environmental issue facing our society.

28. **Greenhouse effect**, n: A natural effect that traps heat in the atmosphere (troposphere) near the earth's surface. Some of the heat flowing back toward space from the earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the lower atmosphere (troposphere) and then radiated back toward the earth's surface. If the atmospheric concentrations of these greenhouse gases rise and are not removed by other natural processes, the average temperature of the lower atmosphere will gradually increase.
29. **Green Revolution**, n: Refers to the development and introduction of new varieties of wheat and rice (mainly) that increased yields per acre dramatically in some countries.

H

30. **Habitat**, n: Place or type of place where an organism, population, or community lives.
31. **Hazardous waste**, n: Any solid, liquid, or containerized gas that can catch fire easily, is corrosive to skin tissue or metals, is unstable and can explode or release toxic fumes, or has harmful concentrations of one or more toxic materials that can leach out.

I

32. **Indicator species**, n: Species that serve as early warnings that a community or an ecosystem is being degraded. Fish and amphibians make particularly excellent indicator species. Large predators (those generally at the apex of the food pyramid) are also good indicators in many habitats.
33. **Integrated pest management (IPM),** n: Combined use of biological, chemical, and cultivation methods in proper sequence and timing to keep the size of a pest population below the size that causes economically unacceptable loss of a crop or livestock animal.
34. **Interspecific competition**, n: Members of two or more species trying to use the same limited resources in an ecosystem.
35. **Intraspecific competition**, n: Two or individual organisms of a single species trying to use the same limited resources in an ecosystem

J

36. Jet Stream is a fast-flowing, narrow current of air found in the upper atmosphere, typically at altitudes of 9–16 kilometers above sea level. These air currents play a critical role in controlling and distributing weather patterns across the globe.
Environmental Importance:

- **Pollution Transport:** Jet streams can carry air pollutants, including greenhouse gases, dust, and particulate matter, across continents. For example, pollution from Asia can travel to North America via the Pacific jet stream.
- **Climate Change Impact:** Global warming is altering the strength and stability of jet streams. This change contributes to extreme weather events such as heatwaves, prolonged droughts, and severe storms.
- **Ecosystem Effects:** Altered jet stream patterns can shift rainfall zones, affecting agriculture, water resources, and biodiversity in many regions.

L

37. **Landfill:** A *landfill* is a designated site where waste is disposed of by burying it in the ground. It is one of the most common methods of solid waste management worldwide.

K

38. **Keystone species**, n: Species that play roles affecting many other organisms in an ecosystem.

M

39. **Mass extinction**, n: A catastrophic, widespread -- often global -- event in which major groups of species are wiped out over a relatively short period when compared to normal (*background*) extinction rates. There have been five major mass extinctions, of natural causes (in at least one case due to an asteroid impacting the earth), in the earth's history. We are now entering a sixth great mass extinction, this time of unnatural causes... human activities.
40. **Median lethal dose (LD50),** n: Amount of a toxic material per unit body weight of test animals that kills half the test population in a certain time.

N

41. **Natural resources**, n: Nutrients and minerals in the soil and deeper layers of the earth's crust; water; wild and domestic plants and animals; air; and other resources produced by the earth's natural processes.
42. **Nonbiodegradable**, adj: Not able to be consumed and/or broken down by biological organisms. Nonbiodegradable substances include plastics, aluminum, and many chemicals used in industry and agriculture. Particularly dangerous are nonbiodegradable chemicals that are also toxic and tend to accumulate in organisms.

43. **Nutrient**, n: Any food or element an organism must take in to live, grow, or reproduce. Plant: An essential element in a particular ion or molecule that can be absorbed and used by he plant. For example, carbon, hydrogen, nitrogen, and phosphorus are essential elements; carbon dioxide, water, nitrate (NO_3), and phosphate (PO_4) are respective nutrients. Animal: Materials such as protein, vitamins, and minerals that are required for growth, maintenance, and repair of the body and also materials such as carbohydrates that are required for energy.

O

44. **Optimum sustainable population**, n: the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem.
45. **Organic**, adj: All living things, and products that are uniquely produced by living things, such as wood, leather, and sugar. 2. All chemical compounds or molecules, natural or synthetic, that contain carbon atoms as an integral part of their structure.
46. **Overconsumption**, n: Situation in which some people consume much more than they need at the expense of those who can not meet their basic needs- and at the expense of earth's present and future life-support systems for humans and other forms of life.
47. **Overgrazing**, n: Destruction of vegetation when too many grazing animals feed too long and exceed the carrying capacity of a rangeland area.

P

48. **Pioneer species**, n: First hardy, often *xerophytic* , species (often microbes, mosses, and lichens) that begin colonizing a site as the first stage of ecological succession.
49. **Pollutant**, n: A particular chemical or form of energy that can adversely affect the health, survival, or activities of humans or other living organisms.
50. **Population**, n: A group within a single species, the individuals of which can and do freely interbreed. Breeding between populations of the same species is less common because of differences in location, culture, nationality, and so on.
51. **Population change**, n: An increase or decrease in the size of a population. It is equal to (births + immigration) - (deaths + emigration).
52. **Population distribution**, n: Variation of population density over a particular geographical area. For example, a country has a high population density in its urban areas and a much lower population density in rural areas.

S

53. **Specialist species**, n: Species with a narrow ecological niche. They may be able to live in only one type of habitat, tolerate only a narrow range of climatic or other environmental conditions, or they may use only one or a few types of food.
54. **Sustainable living**, n: Taking no more potentially renewable resources from the natural world than can be replenished naturally and not overloading the capacity of the environment to cleanse and renew itself by natural processes.
55. **Taxonomy**, n: The classification of living organisms according to the heirarchy of relationships.
56. **Threatened species**, n: Wild species that is still abundant in its natural range but is likely to become endangered because of a decline in numbers.
57. **Total fertility rate (TFR),** n: Estimate of the average number of children that will be born alive to a woman during her lifetime if she passes through all her childbearing years (ages 15-44) conforming to age-specific fertility rates of a given year. In simpler terms, it is an estimate of the average number of children a woman will have during her childbearing years.
58. **Urban heat island**, n: Buildup of heat in the atmosphere above an urban area. This is produced by the large concentration of cars, buildings, factories, and other heat-producing activities.

Z

59. **Zero population growth (ZPG),** n: State in which the birth rate (plus immigration) equals the death rate (plus emigration) so that the population of a geographical area is no longer increasing.
60. **Zoonosis**, n: A disease of animals, such as rabies or psittacosis, that can be transmitted to humans. **Zoonotic**, adj.

Air Components
Air pollution
Gases pollution
Ozone layer

Particulates Pollution
Heavy metals
Noise pollution
Radioactive contamination
Food contamination
Decibel
Soil pollution
Water pollution
Thermal pollution
Global Warming