

Glossary

American Zoo & Aquarium Association: (AZA) an association that aids the advancement of North American zoos and aquariums by coordinating conservation, education, scientific study and recreation efforts within zoos and aquariums. By accrediting zoos and aquariums to ensure that institutions meet certain standards and by helping member institutions to disseminate information, AZA promotes the conservation of the world's wildlife and habitats.

Abiotic: non-living; usually in reference to the physical characteristics of ecosystems, such as precipitation, sunlight, minerals, etc.

Adaptation: change in body structure, function or behavior that helps an organism to survive in its environment

Adventitious roots: roots that grow out of parts of the plant from which they usually do not grow, such as branches

Afrotropics: tropical regions of Africa

Angiosperm: flowering plants in which the seeds develop enclosed in a protective chamber called an ovary. (see "gymnosperm")

Arboreal: refers to organisms that climb in or live in trees

Arthropod: the phylum, Arthropoda, of invertebrate animals characterized by a hard exoskeleton and jointed appendages. Arthropods include insects, spiders, millipedes, centipedes and crustaceans.

Biodiversity: the relative abundance and number of living organism in a certain area. Biodiversity can refer to the diversity of genes in a species and the diversity of ecosystems on the planet.

Biomass: the total dry weight of all organic matter (living and dead organisms) in a particular area

Biotic: living organisms

Brachiation: moving through trees by swinging hand over hand underneath branches

Broadleaf: a plant with broad, flat leaves, as opposed to needleleaf

Buttress roots: woody flanges that extend from the base of a tree up to twenty feet(6 m) on the trunk, and far out along the ground. These roots provide structural support and increase a tree's nutrient-gathering capacity.

Canopy: the top layer of vegetation in an ecosystem where leaves and branches of trees or shrubs shade the lower levels and may overlap

Carnivorous: refers to an organism that catches and consumes animals

Carrion: decaying flesh of dead animals

Cauliflorous: flowering and fruiting directly from the tree's trunk, instead of from the ends of branches

Chlorophyll: green pigment in plant tissues, which is essential for carrying out photosynthesis

Coevolve: developing adaptations in response to interactions with another species

Coniferous: reproducing by way of seed-bearing cones

Conservation: the management of natural resources, including wildlife and habitats, to sustain resources for the future. Preservation, protection and wise use can all be a part of conservation practices.

Corridor: a strip of land, usually vegetated, allowing for movement of animals from one place to another

Deciduous: refers to plants that drop all of their leaves at one time once a year

Decomposer: an organism that participates in the process of decomposition

Decomposition: the process of breaking down matter into smaller parts or simpler compounds

Desiccation: the process of drying out

Detritus: matter (plant, animal or mineral) in the process of decaying or breaking down. Animals that feed on detritus eat decaying plant or animal matter.

Disturbance: a change in the local environment that causes the removal of organisms and allows other species to establish themselves. Disturbance locally sets succession back to the beginning stages.

Drip tips: narrow leaf tips that point down, allowing water to run off the leaves

Ecoregion: a large area of land or water that hosts a geographically distinct group of interconnected, natural communities that share a majority of species and ecological conditions

Ecosystem: an area of any size described by the relationships and interactions between biotic (living) communities and abiotic (non-living) components of the environment through which nutrients and energy cycle found there

Emergent: the top layer of a tropical forest ecosystem

Endangered: a species or population that is in danger of extinction if no actions are taken to protect the species

Endemic: specific to a region; found there and nowhere else

Environment: the physical surroundings within which an organism or group of organisms exists

Epiphyte: a plant that grows on other plants but is not parasitic. Epiphytes get water and nutrients from the atmosphere, not from the substrate on which they grow.

Ethnobotanist: a scientist who studies relationships between people and plants

Evergreen: refers to a plant with green leaves present throughout the year. Leaves are shed and replaced individually.

Extinction: the dying out of a species

Foliage: green (photosynthesizing) parts of plants; may include leaves, stems and flower parts.

Forest floor: the ground level of a forest ecosystem

Frugivores: organisms obtaining nutrition primarily by feeding on fruit

Fuelwood: wood used as fuel, including charcoal

Gymnosperm: plants in which the seeds do not develop enclosed in a protective ovary

Habitat: the area that supplies an organism or group of organisms with all their basic needs for survival including food, water, shelter, air and space

Habitat loss: the destruction of places where organisms live; often caused by human activity, especially development

Herbaceous: refers to plants that have soft, not woody, tissues

Herbivores: organisms that eat living plant material

Heterotrophic: organisms that cannot produce their own food, such as plants that obtain nutrients from other plants or organic matter instead of photosynthesizing

Indigenous: refers to a species that is native to a region; refers to people who have traditionally occupied a region

Inflorescence: a flower cluster. Flowers are arranged in a definite pattern within the cluster.

Insectivores: organisms obtaining nutrition primarily by feeding on insects

Introduced species: a species that was transported, often by human activity, from its native region to new locations

Invasive: an introduced species that rapidly populates and expands its range in an area and causes or is likely to cause economic or environmental harm or harm to human health

Invertebrate: an organism without a backbone or internal skeleton

Larva (plural - larvae): an organism in the life stage following hatching in species that undergo metamorphosis (such as insects and amphibians)

Liana: woody vines

Lichen: a symbiotic organism consisting of a fungus, algae and in some cases cyanobacteria (blue-green algae)

Lignin: an organic polymer that increases the rigidity of plant cell walls

Montane: of, relating to, or growing on mountain slopes

Mycorrhizal fungi: symbiotic association formed between mycelia of fungi and roots of plants

Native: species that originated or occur naturally in a certain area; species that have not been moved from one area to another by humans

Needleleaf: a plant with thin, narrow leaves, as opposed to broadleaf

Neotropics: tropical regions of Central and South America

New World: North, Central and South America

Niche: an organism's role in its environment including its location and function

Nocturnal: active at night

Non-native: species that presently occur in an area where they did not naturally or originally occur, due to transport by humans or extension of their range (see introduced species)

Old World: Europe, Africa, Asia and Australia

Organisms: living things belonging to one of the five kingdoms—Animalia, Plantae, Fungi, Monera or Protista

Parasite: an organism that lives on or in another organism, gaining its nutrition at the expense of the host organism

Pesticides: substances, often chemicals, used to kill insects and other organisms considered to be pests

Photosynthesis: the process of creating energy (glucose), from carbon dioxide and water utilizing energy from sunlight. Oxygen is given off as a by-product.

Pioneer species: an organism adapted to colonize disturbed areas, such as logged areas in forests

Pollution: the contamination of soil, water, or the atmosphere with harmful substances. Such things as chemicals, hazardous wastes, heat, light and noise can cause pollution.

Population: a group of organisms of the same species inhabiting a particular area; the count of individuals in such a group

Precipitation: water that falls or is naturally deposited on the earth; may be in the form of rain, snow, fog drip, hail, etc.

Predators: animals that obtain food by killing and eating other animals

Prehensile: able to grasp, such as New World monkeys' tails

Prey: animals that are eaten by predators

Saprophyte: a heterotrophic organism that obtains its nutrients from dead organic matter

Species: a taxonomic group of individual organisms potentially capable of breeding and producing fertile offspring

Stomata (singular - stoma): pores usually found on the undersides of leaves where gases are exchanged with the atmosphere

Subsistence: providing all or almost all the necessary requirements for life without any significant surplus, such as subsistence farming

Succession: the change in the composition of an ecosystem, which occurs over time due to species responding to their environment. This involves the fading importance of old species and the increasing dominance of climax species.

Symbiotic relationship: a long-term association between two or more organisms of different species that is usually beneficial to both

Territory: the area occupied by an individual or family group that is defended from others of the same species. Territories have defined boundaries.

Understory: the layer in forest ecosystems between the canopy and the forest floor

Vascular plant: a plant that has an internal system for transport-ing nutrients and water

Weeds: plants that grow vigorously and possess the ability to choke out plants that are more highly valued

Wildlife: living organisms that survive independently of humans; undomesticated plants and animals

References and Resources

References

References: Books and Articles

American Museum of Natural History. "Tracking Down a Power Plant." *BioBulletin*. July 1998.

American Museum of Natural History. March 15, 2003.

<http://sciencebulletins.amnh.org/biobulletin/biobulletin/story637.html>

Basset, Yves, Vibeke Horlyck and S. Joseph Wright, eds. *Studying Forest Canopies from Above: The International Canopy Crane Network*. Balboa, Panama: Smithsonian Tropical Research Institute and UNEP, 2003. ISBN 9962-614-05-8

Brady, Nyle C. and Ray R. Weil. *The Nature and Properties of Soils*. 11th Edition.

New Jersey: Prentice Hall, 1996. ISBN 0-02-313371-6

Collins, Mark. *The Last Rain Forests*. New York: Oxford University Press, 1990. ISBN 0-19-520836-6

DellaSala, Dominick A., Stewart B. Reid, Terrence J. Frest, David M. Olson, and James R. Strittholt.

"A Global Perspective on the Biodiversity of the Klamath-Siskiyou Ecoregion."

Natural Areas Journal. Volume 19, Issue 4 (October 1999). Natural Areas Association.

ISSN 0885-8608. July 28, 2003. <http://216.156.79.173/na/abstr19.htm>

Food and Agriculture Organization. *Global Forest Resources Assessment*. 2000.

Food and Agriculture Organization of the United Nations. ISSN 2258-6152. July 28, 2003.

<http://www.fao.org/forestry/fo/fra/main/index.jsp>

Food and Agriculture Organization. *State of the World's Forests 2001*. 2001.

Food and Agriculture Organization of the United Nations. ISBN 92-5-104590-9. July 28, 2003

<http://www.fao.org/docrep/003/y0900e/y0900e00.htm>

Forest Stewardship Council. "About the FSC." 2001. Forest Stewardship Council United States.

July 28, 2003. http://www.fscus.org/about_fsc/index.html

Grambo, Rebecca. *Eagles*. Stillwater: Voyageur Press, 2002. ISBN 0896583635

James, Pipkin. "The Northwest Forest Plan Revisited." September 1998.

United States Department of the Interior. July 28, 2003.

http://www.doi.gov/nrl/PPA/NWForest/Full_rpt.htm

Janzen, Daniel H. *Costa Rican Natural History*. Chicago: University of Chicago Press, 1983.

ISBN 0-226-39334-8

Latch, Peter. "Biodiversity." *State of the Environment Queensland 1999*. 1999.

State of Queensland Environmental Protection Agency. ISBN 0-7242-8234-3. July 28, 2003.

<http://www.env.qld.gov.au/cgi-bin/w3->

[mysql/environment/science/environment/mysqlwelcome.html?page=frhome.html](http://www.env.qld.gov.au/cgi-bin/w3-mysql/environment/science/environment/mysqlwelcome.html?page=frhome.html)

Matthews, Emily, Richard Payne, Mark Rohweder and Siobhan Murray.

Pilot Analysis of Global Ecosystems: Forest Ecosystems. March 2000. World Resources Institute.

July 28, 2003. http://www.wri.org/wr2000/forests_page.html

- Moffett, Mark W. "Leafcutters: Gardeners of the Ant World." *National Geographic* Vol. 188, No. 1: 98-111. July 1995
- Myers, Norman. *Rainforests: The Illustrated Library of the Earth*. Emmaus, Pennsylvania: Rodale Press, 1993. ISBN 0-87596-597-0
- Pacific Island Ecosystems at Risk. "Ceiba pentandra." *Pacific Island Ecosystems at Risk*. February 27, 2003. US Forest Service. July 28, 2003. www.hear.org/pier/cepen.htm
- Rainforest Action Network. "Biodiversity." *Rainforestweb.org: World Rainforest Information Portal*. 2001. Rainforest Action Network. July 27, 2003. [http://www.rainforestweb.org/Rainforest Information/Biodiversity/?state=more](http://www.rainforestweb.org/Rainforest%20Information/Biodiversity/?state=more)
- Roper, John and Ralph W. Roberts. *Forestry Issues – Deforestation: Tropical Forests in Decline*. February 2001. Canadian International Development Agency Forestry Advisors Network. July 28, 2003. <http://www.rcfa-cfan.org/english/issues.12-4.html>
- Simon, Bridget. "Herb Robert." *Information About Washington's Noxious Weeds*. April 2003. Washington State Noxious Weed Control Board. July 28, 2003. http://www.nwcb.wa.gov/weed_info/herbrobert2.html
- Tropilab Inc. "Ceiba pentandra L. – Kapok tree" *Tropilab Inc*. 2003. Tropilab, Inc. July 28, 2003. <http://www.tropilab.com/ceiba-pen.html>
- Trombulak, Stephen C. and Christopher A. Frissell. "Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities." *Conservation Biology* 14: 18-30. 2000
- Walter, Sven. "Certification and benefit-sharing mechanisms in the field of non-wood forest products – an overview." *Medicinal Plant Conservation*. 2002. Newsletter of the IUCN Species Survival Commission, Medicinal Plant Specialist Group. Bonn, Germany. July 28, 2003. <http://www.fao.org/DOCREP/ARTICLE/001/AB542E01.HTM>
- WGBH Educational Foundation. "Evolution: Change: Deep Time." *WGBH Educational Foundation and Clear Blue Sky Productions, Inc*. 2001. PBS. July 28, 2003. http://www.pbs.org/wgbh/evolution/change/deeptime/low_bandwidth.html
- Wildlife Conservation Society. "WCS: Save the Jaguar – All About Jaguars: Ecology." *Save the Jaguar*. 2003. Wildlife Conservation Society. July 28, 2003. <http://savethejaguar.com/jag-index/jag-allabout/jag-aboutecology>
- World Energy Council. "Wood (Including Charcoal)." *Energy Information Centre*. 2003. World Energy Council. July 28, 2003. <http://www.worldenergy.org/wec-geis/publications/reports/ser/wood/wood.asp>
- World Resources Institute. "Tropical Forest Species Richness." *Biodiversity and Protected Areas*. October 2001. World Resources Institute. July 28, 2003. <http://www.wri.org/wri/biodiv/b01-koa.html>
- World Wildlife Fund. "Appalachian-Blue Ridge Forests." *WildWorld Full Report*. 2001. World Wildlife Fund. July 28, 2003. http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0403_full.html

Resources

Resources: Books for Teachers

- Forsyth, Adrian. *Tropical Nature: Life and Death in the Rain Forests of Central and South America*. Carmichael, CA: Touchstone Books, 1987. ISBN 0-684-18710-8
- Kirk, Ruth and Jerry Franklin. *The Olympic Rain Forest: An Ecological Web*. Seattle: University of Washington Press, 1992.
- Link, Russell. *Landscaping for Wildlife in the Pacific Northwest*. Seattle: University of Washington Press with Washington Department of Fish and Wildlife, 1999.
- Luoma, Jon R. *The Hidden Forest: The Biography of an Ecosystem*. New York: Henry Holt and Company, 1999. ISBN 0-8050-1491-8
- Macdonald, Dr. David. *The Encyclopedia of Mammals*. New York: Equinox (Oxford) Ltd, 1984. ISBN 0-87196-871-1
- Mathews, Daniel. *Cascade-Olympic Natural History: A Trailside Reference*. Portland, OR: Raven Editions, 1988. ISBN 0-9620782-1-2
- Mitchell Beazley International Ltd., ed. *The International Book of the Forest*. New York: Simon and Schuster, 1981. ISBN 0-671-41004-0
- Newman, Arnold. *Tropical Rainforest*. New York: Facts on File, 1990. ISBN 0-8160-1944-4
- Norse, Elliott A. *Ancient Forests of the Pacific Northwest*. Washington, D. C.: Island Press, 1990. ISBN 1-559-63016-7
- Perrins, Dr. Christopher M. and Dr. Alex L.A. Middleton. *The Encyclopedia of Birds*. New York: Andromeda Oxford Limited, 1985. ISBN 0-8160-1150-8
- Pojar, Jim and Andy MacKinnon, eds. *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia, and Alaska*. Redmond, WA: Lone Pine Publishing, 1994.
- Royte, Elizabeth. *The Tapir's Morning Bath: Solving the Mysteries of the Tropical Rain Forest*. Boston, MA: Mariner Books, 2002. ISBN 0-618-25758-6

Resources: Educational Guides

- Anderson, Margaret, Nancy Field and Karen Stephenson. *Ancient Forests: Discovering Nature*. Middleton, WI: Dog-Eared Publications, 1996. ISBN 0-947042-14-6
- The International Canopy Network. *Exploring the Temperate Rain Forest Canopy: A Supplemental Curriculum for Grades 4-12*.
<http://192.211.16.13/n/nadkarnn/TRFwebsite/curriculum.html>
- National Wildlife Federation. *Rainforests: Tropical Treasures*. Broomall, PA: Chelsea House Publishers, 1998. ISBN 0-791-04836-5
- Ortleb, Edward. *Life in the Rainforest. Primary Science Resource Guide*. St. Louis: Milliken Publishing Co., 1997. 32 pp. 0-7877-0347-8

Resources: Web sites for Teachers

ABC TV (Australia) – Four Corners: The Timber Mafia – Illegal Logging in Indonesia

http://www.abc.net.au/4corners/content/2002/timber_mafia/default.htm

Amazon Conservation Team

<http://www.ethnobotany.org/actnew/rainforest.html>

Forest Conservation Archives and Portal: Rain forest, forest and biodiversity conservation news and information

<http://www.forests.org/>

Forest Stewardship Council

<http://www.fsc.org/>

Global Canopy Programme

www.globalcanopy.org

Seattle Audubon Shade Coffee Campaign

<http://www.seattleaudubon.org/shadecoffee/>

The Secret Forest Experience Curriculum – five interactive activities for middle school students:

Conserving Biodiversity, Terrestrial Forest Arthropods, Fire Ecology and Western Forests, Forest Soil Microorganisms, and Critical Thinking About Forests

<http://www.fsee.org/index.html?page=http%3A//www.fsee.org/pub-secretforest/secretforest.htm>

Temperate Forest Foundation

<http://www.forestinfo.org/index.htm>

Tico Ethnobotanical Dictionary

<http://www.ars-grin.gov/duke/dictionary/tico/>

World Biomes Map

http://www.worldbiomes.com/biomes_map.htm

Wildlife Conservation Society: Save the Jaguar

<http://www.savethejaguar.com/jag-index>

World Rainforest Information Portal

www.rainforestweb.org

World Resources Institute

<http://www.wri.org>

World Wildlife Fund Global 200 – Habitat Types

<http://www.panda.org/resources/programmes/global200/pages/terra.htm>

World Wildlife Fund – Mediterranean Programme: Mediterranean Natural Diversity

http://www.panda.org/about_wwf/where_we_work/europe/where/mediterranean/med_region.cfm

World Wildlife Fund – Forests for Life Programme

http://www.panda.org/about_wwf/what_we_do/forests/index.cfm

Resources: Books for Elementary Students—Non-Fiction

- Banks, Martin. *Conserving Rain Forests*. Austin, TX: Steck-Vaughn Library, 1990. ISBN 0-8114-2387-5
- Burns, Diane L. *Trees, Leaves and Bark*. Minnetonka, MN: Northword Press, 1995. 48 pp. ISBN 1-55971-628-2
- Carolin, Dr. Roger, ed. *Incredible Plants*. New York: Time-Life Books, 2000. 64 pp. ISBN 0-7835-4799-4
- Cheshire, Gerard. *The Tropical Rainforest: Explore the natural world of the rainforest swamplands and the interior*. New York: Crabtree Publishing Company, 2001. 39 pp. ISBN 0-7787-0320-7.
- Cork, Barbara. *Mysteries and Marvels of Plant Life*. London: Usborne Publishing Ltd., 1983. 32 pp. ISBN 0860207552
- Ennos, Roland. *Trees*. Washington, D.C.: Smithsonian Institution Press, 2001. ISBN 1-56098-979-3
- Goodman, Billy. *The Rain Forest*. New York: Little, Brown and Co., 1991. 96 pp. ASIN 0316320196
- Heller, Ruth. *The Reason for Flowers*. New York: Penguin Putnam Books for Young Readers, 1983. 48 pp. ISBN 0-698-11559-7
- Howell, Laura, Kirsteen Rogers and Corinne Henderson. *The Usborne Internet-Linked Library of Science World of Plants*. London: Usborne Publishing Ltd., 2001. 64 pp. ISBN 0-7945-0086-2
- Johnson, Sylvia A. *How Leaves Change*. Minneapolis: Lerner Publications Company, 1986. ISBN 0-8225-9513-3
- Kite, Lorien. *A Rain Forest Tree*. Small Worlds Series. New York: Crabtree Publishing Company, 1999. 32 pp. ISBN: 0613195299
- Lewington, Anna. *Antonio's Rain Forest*. Minneapolis: Carolrhoda Books, Inc., 1992. ISBN 0-87614-992-1
- Miller, Deborah. S. *Are Trees Alive?* New York: Walker and Company, 2002. 46 pp. ISBN 0-8027-8801-7
- Ontario Science Center. *Plants: Starting With Science*. Toronto: Kids Can Press, 1998. 32 pp. ISBN 1-55074-193-4
- Pearce, Q. L. and W. J. Pearce. *In the Forest*. Nature's Footprints series. Englewood Cliffs, NJ: Silver Press, 1990. 24 pp. ISBN 0-671-68826-X
- Pirotta, Saviour. *People In the Rainforest*. Austin, TX: Raintree Steck-Vaughn Publishers, 1999. 32 pp. ISBN 0-613-16541-1
- Pratt, Kristin Joy. *A Walk in the Rainforest*. Nevada City, CA: Dawn Publications, 1992. ISBN 1-878265-53-9
- Riley, Peter. *Plant Life*. Straightforward Science series. New York: Franklin Watts, 1998. 32 pp. ISBN 0-5311-5373-8
- Taylor, Barbara. *Woodland Life*. New York: Barron's Educational Series, Inc., 2000. 32 pp. ISBN 0-7641-1074-8
- Wright-Frierson, Virginia. *A North American Rain Forest Scrapbook*. New York: Walker and Company, 1999. 36 pp. ISBN: 0-802-78679-0

Resources: Books for Elementary Students—Fiction

Cherry, Lynne. *The Great Kapok Tree*. New York: Harcourt Brace Jovanovich, Publishers, 1990. ISBN 0-15-200520-X

Cherry, Lynne and Mark J. Plotkin. *The Shaman's Apprentice: A Tale of the Amazon Rain Forest*. New York: Harcourt, Brace & Company, 1998. 33 pp. ISBN 0-15-201281-8

Resources: Books for Secondary Students—Non-Fiction

Collard, Sneed. B. III. *Acting for Nature: What Young People Around the World Have Done to Protect the Environment*. Berkeley, CA: Heydey Books, 2000. 104 pp. ISBN 1-860771-24-4

Halpern, Robert R. *Green Planet Rescue: Saving the Earth's Endangered Plants*. New York: Franklin Watts, 1993. 64 pp. ISBN 0-531-15261-8

Jackson, Tom. *Tropical Forests. Biomes Atlases*. Austin, TX: Raintree Steck-Vaughn, 2003. ISBN 0-739-85250-7

Osborn, Graham. *Rainforest: Ancient Realm of the Pacific Northwest*. South Burlington, VT: Chelsea Green Publishing, 1999. ISBN 1-890-13224-1

Powledge, Fred. *Pharmacy In the Forest: How Medicines Are Found In the Natural World*. New York: Atheneum Books for Young Readers, 1998. 48 pp. ISBN: 0-689-80863-1

Resources: Books for Secondary Students—Fiction

Craighead George, Jean. *One Day in the Tropical Rain Forest*. New York: HarperCollins, 1990. 52 pp. ISBN 0-06-442016-7

Craighead George, Jean. *One Day in the Woods*. New York: HarperCollins, 1988. 52 pp. ISBN 0-06-442017-5

Craighead-George, Jean. *There's an Owl in the Shower*. New York: HarperTrophy, 1997. 144 pp. ISBN 0064406822

Resources: Web sites for Students

International Trees and Forests Project on the Internet
(Elanora Heights Primary School, Sydney, Australia)
<http://www.zip.com.au/~elanora/trees.html>

National Geographic – “Explore the Fantastic Forest”
<http://www.nationalgeographic.com/forest/html/forest.html>

Old Growth Forests of Western Australia
<http://schools.wafa.org.au/>

Rainforest Action Network (see “Kid’s Corner”)
<http://www.ran.org/>

Rainforest Alliance (see “Kids and Teachers”)
<http://www.rainforest-alliance.org/>