

VOCABULARY

(words in bold in the text)

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

ALPINE: the ecosystem found on mountains above timberline

ANADROMOUS: refers to an organism that travels from salt waters up rivers to breed

ANNUAL: a plant that completes the cycle of germination from a seed to flowering and producing seeds in one growing season, then dies

AQUIFER: layers of permeable underground rock with large quantities of water moving slowly through them

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

ARID: refers to land which is extremely dry

ASPECT: the compass direction that a slope or range faces

BASALT: dark, fine-grained rock formed from the cooling of molten rock within or extruded by volcanoes

BIODIVERSITY: the relative abundance and numbers of species in a certain area

BOG: a wetland typified by standing, non-fluctuating water levels and no inflow or outflow of water that is dominated by shrubs and peat mosses

BRACKISH: refers to water of relatively lower salinity

BROWSER: an animal that eats primarily shoots, twigs, buds and/or leaves of woody vegetation (shrubs and trees)

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 organisms that kill and eat animals

CARRION: decaying flesh of dead animals

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

CLIMAX: the final stage of ecological succession in which the ecosystem is stable and species have reached a state of dynamic equilibrium

COULEE: a dry stream bed or ravine

CONIFERS: plants that reproduce by way of seed-bearing cones

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

CREPUSCULAR: active at dawn or dusk

CRYPTOGAMIC CRUST: a spongy layer of cryptogams that covers undisturbed arid soils

CRYPTOGAMS: organisms, such as ferns, algae, mosses, lichens and fungi, that reproduce by way of spores and do not produce flowers or seeds

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

DETRITUS: small pieces of dead plant and 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.

DIURNAL: active during the day

DOMINANT SPECIES: an organism with the greatest influence on its community due to size or density

ECOLOGICAL COMMUNITY: a repeatable association of many individual plants and animals commonly living together in a certain habitat.

ECOSYSTEM: an area described by the relationships and interactions between biotic (living) communities and abiotic (non-living) components of the environment found there; a transition zone between two different ecological communities where the two ecosystems overlap

EMERGENT: refers to plants that are rooted in soils underwater but have stems that grow up above the surface of the water

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.

ESTIVATION: a state of lowered body functions (such as metabolism) in which animals may pass the summer. Estivating animals will not awaken until the end of the dry season.

ESTUARY: where fresh and salt water mix due to tidal action at the mouths of rivers

ETHNOBOTANY: the study of relationships between people and plants

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

EXTIRPATION: the removal or loss of a species from a specific area but not its entire range

FLAGGING: branches growing only from one side of the trunk, due to stress from high winds

FLOODPLAINS: plains along the margins of rivers built up by deposits of river sediments during recurring periods of flooding

FOLIAGE: green (photosynthesizing) parts of plants, may include leaves, stems and flower parts

FORB: any non-woody plant excluding grasses

FOREST FLOOR: the ground level of a forest ecosystem

FRESHWATER MARSH: a wetland type typified by seasonally fluctuating water levels dominated by herbaceous vegetation

GLACIAL TILL: mixed and unsorted debris deposited by glaciers

GRAZER: an animal that feeds mainly on herbaceous vegetation

HABITAT: the area that supplies an organism with all its basic needs for survival including food, water, shelter, air and space

HALOPHYTES: plants adapted to live where there are high levels of salt, “salt-loving”

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

HERBIVORES: organisms that eat living plant material

HIBERNATION: a state of lowered body functions (such as metabolism) in which animals may pass the winter. True hibernators do not wake up during the winter.

HOME RANGE: the area occupied, but not defended, by an individual or family group. Home ranges may not have definite boundaries.

HYDRIC SOILS: soils saturated in water long enough to create oxygen deficiencies

HYDROPHYTES: plants adapted to live in water or permanently saturated soils, “water-loving”

HYPHAE: root-like filaments of fungi

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

INTRODUCED: species transported from their native habitats, usually by humans, and established in habitats where they did not naturally or originally occur

INVASIVE: tending to invade or spread extensively

KRUMMHOLZ: stunted and misshapen growth forms of trees found in the subalpine zone of mountains

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

LAYERING: the regeneration of trees that occurs when low branches root where they touch the ground and become new trees. Usually occurs in the subalpine zone of mountains.

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

LOESS: material of certain grain-size deposited by wind

MATRIARCHAL: a system of social organization in which groups are led by a dominant female

MONTANE: of, relating to or growing on mountain slopes

MYCELIA: mat formed by interwoven hyphae of fungi

MYCORRHIZA: 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

NICHE: an organism’s role in its environment including its location and function

NOCTURNAL: active at night

NONNATIVE: 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

OMNIVOROUS: refers to an organism that eats living plant material and kills and eats animals

OSMOSIS: the movement of solvents from solutions of high concentration to solutions of low concentration

PEAT: accumulation of partially decomposed detritus primarily from peat mosses and bog plants

PEAT MOSSES: mosses of the genus *Sphagnum* that typically inhabit bogs

PERENNIAL: a plant that germinates from a seed, flowers and produces seeds but lives for two years or more, repeating flower and seed production. Shoots of perennials may die back but will grow back the next season.

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

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

PREY: animals that are eaten by predators

PRIMARY CONSUMERS: animals that eat producers (plants). Herbivores and omnivores are primary consumers.

PRODUCERS: plants that use the sun's energy to produce energy-rich carbohydrates and sugars

PROSTRATE: stretched out along the surface of the ground

RAPTOR: a bird that catches and kills its prey using its feet; bird of prey

RIPARIAN: associated with banks of natural waterways (such as rivers and streams)

RIPARIAN WOODLANDS: stands of deciduous trees and shrubs growing on river floodplains where periodic flooding may occur

SALINITY: the degree of salt concentration

SALT MARSH: a wetland typified by a mixture of fresh and salt water, usually found at mouths of rivers, dominated by herbaceous vegetation

SCAVENGER: an animal that feeds on flesh of dead and decaying animals

SECONDARY CONSUMERS: animals that eat other animals; carnivores and omnivores

SEDIMENTS: materials deposited by settling out of still waters

SILTS: loose sediments containing small rock particles

SNAG: the standing trunk of a dead tree

SPAWN: to lay and fertilize large numbers of eggs

STEPPE: arid land dominated by grasses and shrubs, usually found in regions with extreme temperature ranges and loess soils

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

SUBALPINE: refers to the climate, vegetation and/or region that occur on mountains between the end of continuous forest (forest line) and the beginning of the alpine zone

SUBDUCTION ZONE: in geology, the area where an oceanic crust is sliding underneath the edge of a continental crust

SUBMERGENT: refers to plants that grow entirely underwater

SUBORDINATE SPECIES: organisms commonly occurring in association with the dominant species of a community

SUBSTRATE: the surface or medium in or on which an organism grows or functions

SUBURBAN: refers to the residential areas within commuting distance of cities or large towns

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.

SWAMP: a wetland typified by standing water with fluctuating levels, usually dominated by trees

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

TALUS: fallen rock debris piled up at the base of a steep slope or cliff

TEMPERATE FORESTS: forests that grow in regions of moderate climates. Temperate forests of the Pacific Northwest are dominated by evergreen trees.

TEMPERATE RAIN FORESTS: forests dominated by evergreen conifers which grow in regions of moderate climates with high humidity and rainfall

TERRACE: a feature of the land that is flat on top and drops off abruptly at the edge. Usually formed by stream or marine action.

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

TIMBERLINE: the transition zone on mountains from the end of erect (not krummholz) tree growth in the subalpine to the beginning of the treeless alpine

TORPOR: a temporary state of lowered body functions (not as extreme as estivation or hibernation) in which an animal may spend short periods of time. An animal may awaken from torpor in order to obtain food or pursue other activities.

UNDERSTORY: the layer in plant ecosystems between the canopy and the forest floor

UNGULATES: hooved mammals including deer, horses and antelope among others

URBAN: densely populated residential areas; cities and large towns

URBAN WILDLIFE: non-domestic plants and animals inhabiting ecosystems greatly influenced by human activity

WATER TABLE: the natural upper limit of groundwater in soil or bedrock

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

WETLANDS: areas of land characterized by a high water table, hydric soils and hydrophytic plants

WILDERNESS: areas of national lands set aside to preserve the wild character of the area. These areas are protected from development, including road-building, but recreation is often allowed.

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For additional information on curricula, videos and software contact your local:

Department of Fish and Wildlife office

Department of Ecology office

Educational Service District

Washington State Office of Environmental Education

Tony Angell, Supervisor

2800 N.E. 200th

Seattle, WA 98155

(425) 365-3893

<http://cisl.ospi.wednet.edu>

Environmental Information Center

WSU Library

14204 NE Salmon Cr. Ave.

Vancouver, WA 98686

(360) 546-9509

Catalogs

Acorn Naturalists: Resources for the trail and classroom

17300 East 17th Street, #J-236

Tustin, CA 92780

1-800-422-8886

<http://www.acorn-group.com>

Carolina Biological Supply Company

2700 York Road

Burlington, NC 27215

1-800-334-5551

Museum Products Co.

84 Route 27

Mystic, CT 06355

1-800-395-5400

Nasco Science: Understanding through hands-on science

4825 Stoddard Road

Modesto, CA 95356-9318

(209) 545-1600

<http://www.nascofa.com>

Nature Watch

9811 Owensmouth Ave. #2

Chatsworth, CA 91311

1-800-228-5814

<http://naturific.com>

Contact Information for Teachers

For educational materials, curricula, teaching kits and/or school programs:

Audubon Society, Washington Office

PO Box 462

Olympia, WA 98507

(360) 786-8020

Burke Museum

Education Division

PO Box 353010

University of Washington

Seattle, WA 98195-3010

(206) 543-5591

<http://www.washington.edu/burkemuseum>

High Desert Museum Education Department

59800 S. Highway 97

Bend, OR 97702-7963

(541) 382-4754 extension 363

<http://www.highdesert.org>

Nature Conservancy of Washington

217 Pine St., Suite 1100

Seattle, WA 98101-1572

(206) 343-4344

People for Puget Sound

1402 3rd Ave. Suite 1200

Seattle, WA 98101

1-800-PEOPLE-2 or (206) 382-7007

Project Green (watershed education and action)

3135 Cottonwood Ave.

Bellingham, WA 98225

(360) 676-8255

<http://www.econet.apc.org/green>

Sierra Club Cascade Chapter

8511 15th Ave. NE Room 201

Seattle, WA 98115

(206) 523-7188

U. S. Environmental Protection Agency

Region 10

1200 6th Ave. EXA-124

Seattle, WA 98101

1-800-424-4EPA or (206) 553-1200

Washington Department of Ecology

PO Box 47600

Olympia, WA 98504-7600

(360) 407-6147

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Washington Department of Fish and Wildlife
Wildlife Education
600 Capitol Way N.
Olympia, WA 98501
(360) 586-3105 (materials and curricula)
(360) 902-2364 (Watchable Wildlife Field Sites)

Washington Department of Natural Resources
PO Box 47001
Olympia WA 98504-7001
(360) 902-1027

Washington State University Cooperative Extension
(offices statewide)

WildLink (Wilderness education)
4649 Sunnyside Ave. Room 242
Seattle, WA 98103
(206) 633-1992

For information on field trip sites and/or adult field seminars:

Arid Lands Field Institute
University Center for Professional Education
2770 University Drive
Mail Stop H2-52
Richland, WA 99352-1643
1-800-201-7202

Cispus Learning Center
2142 Cispus Rd.
Randle, WA 98377
(360) 497-7131

Columbia Gorge Discovery Center
P.O. Box 998
The Dalles, OR 97058
(541) 296-8600

Cougar Mountain Zoological Park
19525 SE 54th
Issaquah, WA 98027
(425) 392-6278

Mountains to Sound Greenway
Education Coordinator
506 2nd Ave. Suite 1502
Seattle, WA 98104
(206) 382-5565

North Cascades Institute
2105 Highway 20
Sedro Woolley, WA 98284-9394
(360) 856-5700 extension 209
<http://ncascades.org/nci/>

Northwest Trek
11610 Trek Drive East
Eatonville, WA 98328
1-800-433-TREK
(360) 832-6117
<http://www.nwtrek.org>

Olympic National Park
Resource Education Programs Coordinator
(360) 452-4501 extension 233
Olympic Park Institute
111 Barnes Pt. Rd.
Port Angeles, WA 98363
1-800-775-3720
<http://www.olympus.net/opi>

Partnership for Arid Lands Stewardship
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(509) 375-3811
kj_wieda@pnl.gov

Point Defiance Zoo & Aquarium
5400 N. Pearl
Tacoma, WA 98407
(253) 591-5337

The Seattle Aquarium
1438 Alaskan Way, Pier 59
Seattle, WA 98101
(206) 386-4329

Wilderness Awareness School
26331 NE Valley St. #5-137
Duvall, WA 98109
(425) 788-1301

Wolf Haven International
3111 Offut Lake Road
Tenino, WA 98589
1-800-448-9653
<http://www.teleport.com/~wnorton/wolf.shtml>

Yakima Area Arboretum
1401 Arboretum Dr.
Yakima, WA 98901
(509) 248-7337

(Contact Information for Teachers continued)

For additional resources and outdoor opportunities, contact your local:

City Parks and Recreation
County Parks
State Parks
Interpretive/Nature Centers
National Wildlife Refuges
(managed by the U.S. Fish and Wildlife Service)
National Forest Service
National Park Service
Bureau of Land Management
National Resource Conservation Service

For information on wetlands restoration projects and volunteer opportunities:

Adopt-A-Beach
4649 Sunnyside Ave. N. Room 305
Seattle, WA 98103-6900
1-888-57-BEACH

Adopt-A-Stream Foundation
PO Box 5558
Everett, WA 98206
(425) 316-8592

Nature Mapping
University of Washington, Fish and Wildlife
Research Unit, Attn: Karen Dvornich, School of
Fisheries
Box 357980
Seattle, WA 98195
(206) 543-6475

Washington Department of Fish and Wildlife
Attention: Wildlife Education Program
600 Capitol Way North
Olympia, WA 98501-1091
(360) 902-2254

Watch Over Washington; a joint project of the
Washington State Department of Ecology and the
Governor's council on Environmental Education to
help you monitor local habitats:
<http://www.wa.gov/ecology/wq/wow>

your local Department of Natural Resources Office
of Parks and Recreation

For gardening with native plants:

Seattle Tilth
4649 Sunnyside Ave. N. Room 1
Seattle, WA 98103
(206) 633-0451

Washington Native Plant Society
PO Box 28690
Seattle, WA 98118-8690
(206) 323-3336 or (888) 288-8022
wnps@blarg.net

For listing of "Endangered, Threatened and Sensitive Vascular Plants of Washington":

Washington Natural Heritage Program
Division of Forest Resources
Department of Natural Resources
1111 Washington St. SE
PO Box 47016
Olympia, WA 98504-7016
(360) 902-1340

For listing of State Endangered, Threatened, Sensitive and Candidate Species:

Washington Department of Fish and Wildlife
Wildlife Diversity Division
(360) 902-2515

To borrow slide shows of ethnobotany:

Ethnobotany of Western Washington (Adult and
Children's version)
Ethnobotany of Eastern Washington (Adult and
Children's version)
North Cascades Institute
(360) 856-7500, extension 211
Washington Native Plant Society (206) 323-3336

To buy topographic maps:

Contact your local Department of Natural Resources
sales office, Forest Service, or retail outdoor stores.

Web Sites

Environmental Education Association of Washington
<http://www.halcyon.com/eeaw/>
P.O. Box 4122
Bellingham, WA 98227

Environmental Education at Washington State University
<http://www.educ.wsu.edu/enviroed/>
• Palouse and Umatilla watershed information
• restoration projects
• educational resources
• ecology and culture

Hanford Reach—Wild and Scenic Web Page
<http://www.owt.com/mcas/hr/>

National Audubon Society
<http://www.audubon.org>
National Wildlife Federation

(Web Sites continued)

<http://www.nwf.org/nwk/home.html>

- backyard wildlife habitat
- wetlands
- educational resources for teachers
- endangered species

Nature Conservancy

<http://www.tnc.org>

- Nature Conservancy of Washington
- volunteer opportunities
- classroom speakers

Seattle Public Library

Environmental Education Home Page

<http://seeh.spl.org>

Snake River Birds of Prey, National Conservation Area

<http://www.blm.gov/bopnca>

U. S. Geological Survey

<http://www.watcm.wr.usgs.gov>

Washington Department of Fish and Wildlife

<http://www.wa.gov/wdfw/wildlife.html>

- species of concern
- wildlife viewing and education
- eastern Washington wildlife
- Nature Mapping

Woodland Park Zoo

<http://www.zoo.org>

LITERATURE FOR STUDENTS

(annotations included where available)

BOOKS Grades K-2

Fiction

- Cameron, Anne. *Raven Returns the Water*. Madeira Park, B.C.: Harbour Publishing Company, 1987. Tells the story of raven who searches for all the water in the world after it has disappeared. Raven finds the water in a greedy frog's belly and teaches the frog a lesson about sharing.
- Helman, Andrea. *O is for Orca: A Pacific Northwest Alphabet Book*. Seattle: Sasquatch Books, 1995. Letters of the alphabet represent various plants and animals native to the Pacific northwest.
- London, Jonathon. *Fire Race: A Karuk Coyote Tale*. San Francisco: Chronicle Books, 1993. With the help of other animals, Wise Old Coyote manages to acquire fire from the wicked Yellow Jacket sisters.
- Luenn, Nancy. *Miser On the Mountain: A Nisqually*

Legend of Mt. Rainier. Seattle: Sasquatch Books, 1997. Retells the traditional Pacific northwest Native American story of the man who climbs Mount Rainier to collect a valuable shell and discovers what is important in life.

- Luenn, Nancy. *Song for the Ancient Forest*. New York: Atheneum Books for Young Readers, 1993. Raven warns against the destruction of the ancient forests, but no one listens except for a small child.
- Luenn, Nancy. *Squish! A Wetlands Walk*. New York: Atheneum Books for Young Readers, 1994.
- Okimoto, Jean Davies. *No Dear, Not Here: The Marbled Murrelets' Quest for a Nest in the Pacific Northwest*. Seattle: Sasquatch Books, 1995. Marbled murrelets Ralph and Alice search the Pacific northwest for the best place to build their nest.
- Radin, Ruth Yaffe. *High In the Mountains*. New York: Macmillan, 1989. A young child describes a day spent near grandpa's house.
- Romanova, Natalie. *Once There Was A Tree*. New York: Dial Books, 1985. An old stump attracts many living creatures, even man, and when it is gone, a new tree attracts the same creatures, who need it, for a variety of reasons.
- Toye, William. *The Mountain Goats of Tendlaham*. Toronto: Oxford University Press, 1969. Relates how an Indian tribe is punished for its wasteful slaughter and cruel treatment of the mountain goats of Tendlaham.
- Yolen, Jane. *Owl Moon*. New York: Philomel Books, 1987. On a winter's night under a full moon, a father and daughter trek into the woods to see the great horned owl.

Non-Fiction

- Arnold, Caroline. *A Walk in the Woods*. First Facts Series. Englewood Cliffs, NJ: Silver Press, 1990. Describes some of the plants and animals that live in the forest and how the forest changes with each new season.
- Bailey, Donna. *Mountains*. Facts About Series. Austin, TX: Steck-Vaughn Library, 1990. Explains how mountains and volcanoes are formed, which animals live in the mountains, and life and travel in the mountains.
- Bash, Barbara. *Urban Roosts: Where Birds Nest in the City*. Boston: Little, Brown and Co., 1990.
- Birman, Linda. *STEWART: The Skyscraper Falcon*. Blaine, WA: Hancock House Publishing, 1996. Text and photographs tell the story of the peregrine falcon living in downtown Seattle.
- Cone, Molly. *Squishy, Misty, Damp & Muddy: The In-Between World of Wetlands*. San Francisco: Sierra Club Books for Children, 1996. Describes the damp environment of the wetlands, the useful purposes they serve, and the plants and animals that live there.
- Cooper, Ann. *In the Desert*. Wild Wonders Series. Denver:

- Denver Museum of Natural History Press, 1997. Stories and descriptions of the secret, interweaving lives of desert animals, from leaping lizards to nectar-sipping bats, in their desert habitat.
- Gibbons, Gail. *Marshes & Swamps*. New York: Holiday House, 1998. Defines marshes and swamps, discusses how conditions in them may change, and examines the life found in and around them.
 - Guiberson, Brenda Z. *Salmon Story*. Redfeather Book Series. New York: H. Holt, 1993. Describes the salmon's life journey to the sea and back and the threat posed by pollution, commercial fishing, and other factors.
 - Guiberson, Brenda Z. *Teddy Roosevelt's Elk*. New York: H. Holt, 1997. Follows a year in the life of a mother elk, her calf and a bull in the Olympic Mountains of Washington state where these animals are named in honor of President Roosevelt.
 - Helmen, Andrea. *1, 2, 3, A Moose: A Pacific Northwest Counting Book*. Seattle: Sasquatch Books, 1996. Text and photographs introduce a huge animal of the north woods.
 - Hirschi, Ron. *City Geese*. New York: Dodd, Mead, 1987. Follows a flock of Canada geese through a year in an urban environment, from nesting and molting to feeding flights and the formation of new pairs in winter.
 - Hirschi, Ron. *Faces in the Forest*. Wildlife Watchers First Guide. New York: Cobblehill Books/Dutton, 1997. Introduces the various animals that live in the forests of the United States, including beavers, chipmunks, spotted owls, bears, deer, bobcats, eagles and others.
 - Hirschi, Ron. *Faces in the Mountains*. Wildlife Watchers First Guide. New York: Cobblehill Books/Dutton, 1997. Text and photographs describe what animals share their mountain homes with one another, mountain facts, and tips on how to locate animals in the mountains.
 - Hirschi, Ron. *The Mountain Bluebird*. New York: Dutton, 1989. Text and photographs look at the life of this resident of the high valleys of the Rocky Mountains.
 - Hirschi, Ron. *Seya's Song*. Seattle: Sasquatch Books, 1992. Using some traditional Clallam words, a young Indian describes the natural surroundings and activities of the Clallam, or S'Klallam, people through the seasons of the year.
 - Hodge, Deborah. *Wild Dogs: Wolves, Coyotes and Foxes*. Wildlife Series. Toronto: Kids Can Press, Ltd., 1997.
 - Jaspersohn, William. *How the Forest Grew*. New York: Mulberry Books, 1992. Describes the gradual transformation of a cleared farm field into a dense forest.
 - Lepthien, Emilie U. *Bald Eagles*. New True Books Series. Chicago: Children's Press, Inc., 1989. Describes the physical characteristics, behavior and endangered status and symbolism associated with the bald eagle.
 - Nelson, Sharlene and Ted. *Olympic National Park*. A True Book Series. New York: Grolier Publishing Company, Inc., 1997. Describes the landscape, wildlife and activities of Washington state's Olympic National Park.
 - Walker, Sally M. *Glaciers: Ice On the Move*. Minneapolis: Carolrhoda Books, 1990. Describes the formation and movement of different types of glaciers, their effects on the land, and how scientists study glaciers.

Grades 3-8

Fiction

- Bruchac, Joseph. *Native American Animal Stories*. Golden, CO: Fulcrum Publishing, 1992.
- George, Jean Craighead. *One Day in the Alpine Tundra*. Trophy Chapter Books Series. New York: HarperCollins, 1984. The story of Johnny's experiences of wildlife and natural processes high on a mountain top.
- Hobbs, Will. *Ghost Canoe*. New York: Morrow Junior Books, 1997. Fourteen-year-old Nathan, fishing with the Makah in the Pacific northwest, finds himself holding a vital clue when a mysterious stranger comes to town looking for Spanish treasure.
- Lopez, Barry. *Lessons from the Wolverine*. Athens: University of Georgia Press, 1997. A young man journeys through the arctic wilderness to find a family of wolverines and learn more about their mysterious power.
- Morey, Walt. *Gentle Ben*. New York: Dutton, 1965. Traces the friendship between a boy and a bear in the rugged Alaskan Territory.
- Mowat, Farley. *Owls in the Family*. Boston: Little, Brown and Co., 1961.
- Rodanas, Kristina. *The Eagle's Song: A Tale from the Pacific Northwest*. Boston: Little, Brown and Co., 1995. While trying to find his brothers, Ermine encounters an Eagle-man and his ancient mother who help him teach the people living on the coast of the Pacific northwest how to overcome their isolation and experience the joy of life.
- Zima, Gordon. *Sun Birds and Evergreens*. Nashville, TN: James C. Winston Publishing Co., 1996. Near the turn of the century an Indian boy named Nuk-Chuk grows up in a place between the forests of the Pacific northwest and the white man's world.

Non-Fiction

- Ahlstrom, Mark E. *The Canada Goose*. Wildlife, Habits and Habitats Series. Mankato, MN: Crestwood House, 1984. Describes the habits and behavior of the migratory Canada goose, which spends its summers in the breeding marshes of Canada and the northern United State, and winters in warmer southern regions.

- Arnosky, Jim. *Secrets of a Wildlife Watcher: A Beginner's Field Guide*. New York: Beech Tree Books, 1991.
- Bash, Barbara. *Ancient Ones: The World of the Old-Growth Douglas-Fir*. Tree Tales Series. San Francisco: Sierra Club Books for Children, 1994. Describes the life cycles of Douglas-firs in the Pacific northwest as they relate to ecological issues such as species diversity and air and water filtration.
- Bragg, Lynne. *A River Lost*. Blaine, WA: Hancock House Publishing, 1995. Describes the life of Native Americans living along the Columbia River and changes that occurred in their lifestyle with the construction of dams.
- Bramwell, Martyn. *Glaciers and Ice Caps*. Earth Science Library Series. London: F. Watts, 1986. Describes the formation, structure and movement of glaciers, ice caps and ice sheets and their effects on the earth's surface.
- Cone, Molly. *Come Back Salmon: How a Group of Dedicated Kids Adopted Pigeon Creek and Brought It Back to Life*. San Francisco: Sierra Club Books for Children, 1992. Describes the efforts of the Jackson Elementary School in Everett, Washington, to clean up a nearby stream, stock it with salmon, and preserve it as an unpolluted place where the salmon could return to spawn.
- Davis, Wendy. *Douglas-Fir*. Habitats Series. New York: Children's Press, 1997. Describes the growth of a Douglas-fir sapling in an old growth forest in the northwestern United States and the other plants and animals that are a part of its habitat.
- Douglas, William O. *Muir of the Mountains*. San Francisco: Sierra Club Books for Children, 1994. A biography of John Muir revealing the events and ideas that shaped America's pioneer conservationist and founder of the Sierra Club.
- Dudley, Karen. *Wolves*. The Untamed World Series. Austin, TX: Raintree Steck-Vaughn, 1997. Examines the lives of wolves as pack animals, describes their physical characteristics, habits, and discusses the folklore surrounding them.
- Dunphy, Madeleine. *Here Is the Wetland*. New York: Hyperion Books for Children, 1996. Uses a cumulative approach to describe the wetland ecology of a freshwater marsh, the most common type of wetland in North America.
- Fisher, Chris C. *Birds of Seattle and Puget Sound*. Redmond, WA: Lone Pine Publishing, 1996.
- George, Jean Craighead. *The Moon of the Mountain Lions*. The Thirteen Moons Series. New York: HarperCollins, 1991. Describes the experiences of a young mountain lion during the month of August in his natural habitat on the side of Mount Olympus in Washington state.
- Goodman, Susan E. *The Great Antler Auction*. New York: Atheneum Books for Young Readers, 1996. A Boy Scout program in Jackson, Wyoming, collects elk antlers and sells them at an auction to help pay for an elk feeding program at the National Elk Refuge.
- Julivert, Angels. *The Fascinating World of — Wolves*. Hauppauge, NY: Barron's Educational, 1996. Describes the habits and habitats of wolves.
- Hamerstrom, Frances. *Walk When the Moon Is Full*. The Crossing Press Series of Children's Stories. Trumansburg, NY: Crossing Press, 1975. The author describes thirteen moonlight walks with her children and the nature observations they made.
- Hirschi, Ron. *People of Salmon and Cedar*. New York: Cobblehill Books/Dutton, 1996. Illustrations, photographs and text describe the culture of Northwest Coast Indians, especially the relationships between the people and their majestic landscape.
- Herda, D. J. *Environmental America: The Northwestern States*. The American Scene Series. Brookfield, CT: Millbrook Press, 1991. The impact of humankind and society on the environment, with special emphasis on Washington, Oregon, Idaho, Alaska, Montana and Wyoming.
- Hogan, Paula. *The Salmon*. Milwaukee: Raintree Children's Books, 1979. Presents and explanation of the life cycle of the salmon.
- Kittinger, Jo S. *Dead Log Alive!* First Book Series. New York: Franklin Watts, 1996. Describes the variety of animal and plant life found in, on, or around dead logs, and explains the role that dying trees play in nature's cycles.
- Lauber, Patricia. *Volcano: The Eruption and Healing of Mount St. Helens*. New York: Bradbury Press, 1986.
- McConkey, Lois. *Sea and Cedar: How the Northwest Coast Indians Lived*. Seattle: Madrona Press, 1973. A brief introduction in text and illustrations to the homes, implements, clothing, beliefs and rituals of the Indian tribes of the Northwest coast.
- Nail, Jim. *Whose Tracks Are These? A Clue Book of Familiar Forest Animals*. Boulder, CO: Roberts Rinehart Publishing, 1994. Illustrations and descriptions of forest animals and their tracks.
- Newton, James R. *Forest Log*. New York: Crowell, 1980. A description of plant and animal life surrounding a fallen tree in a Pacific coast forest typifies the role every tree plays when it falls.
- Parker, Steve. *Pond and River*. Eyewitness Books Series. New York: Alfred A. Knopf, 1988. A photo essay about the range of plants and animals found in fresh water throughout the year, examining the living conditions and

(Literature for Students continued)

survival mechanisms of creatures dwelling at the edge of the water, on its surface, or under the mud.

- Parkin, Tom. *Green Giants: Rainforests of the Pacific Northwest*. Earthcare Books Series. Toronto: Douglas & McIntyre, 1992.
- Samuels, Mary Lou. *The Coyote*. Dillon Remarkable Animal Series. New York: Dillon Press, 1993. Describes the physical characteristics, habitat, life cycle and history of the coyote.
- Silver, Donald. *One Small Square: Backyard*. One Small Square Series. New York: McGraw-Hill, 1993. Explains how to observe and explore plants, animals and their interactions in your own backyard.
- Silverstein, Alvin, Virginia and Robert. *Eagles, Hawks and Owls*. A Golden Junior Guide. New York: Golden Books, 1994. Briefly describes different kinds of eagles, hawks, kites, owls, vultures and other raptors.
- Silverstein, Alvin. *The Spotted Owl*. Brookfield, CT: Millbrook Press, 1994.
- Sterling, Ian. *Bears*. Sierra Club Wildlife Library. San Francisco: Sierra Club Books for Children, 1992. Text and photographs introduce the origins, evolution, habitats, behaviors and life cycles of the eight present-day species of bears.
- Swanson, Diane. *Coyotes in the Crosswalk: True Tales of Animal Life in the Wilds...of the City!* Stillwater, MN: Voyageur Press, 1995. Examines city ecosystems, the animals which inhabit them, and how people and animals coexist in urban areas.
- Taylor, Dave. *Endangered Forest Animals*. The Endangered Animal Series. Toronto: Crabtree Publishing Co., 1992.
- Taylor, Dave. *Endangered Mountain Animals*. The Endangered Animal Series. Toronto: Crabtree Publishing Co., 1992.
- Woodward, John. *Forests*. Under the Microscope Series. Milwaukee: Gareth Stevens Publishing, 1997. Present the capsules that cast hundreds of tiny fern spores into the wind, an ivy leaf's delicate network of veins, and many more microscopic marvels.

Magazine Articles

Ranger Rick. National Wildlife Federation.

"Whitetail Winter," 31 December 1997): 4-9.

"Adventures of Ranger Rick: Help For Burrowing Owls," 31 (November 1997): 26-29.

"Muskrats," 31 (July 1997): 14-17.

"Schoolyard Habitats," 31 (April 1997): 28-29.

"Spotted Owls," 29 (October 1995): 9-13.

"Helpful Forest Fires," 29 (October 1995): 30-35.

"Grizzly Cub," 28 (May 1994): 46-49.

"Giant Water Bugs," 28 (April 1994): 11-14.

"Creatures in the Cattails," 28 (April 1994): 35-43.

Washington Wildlands: The Magazine of the Nature Conservancy of Washington. The Nature Conservancy.

"Hanford Discoveries," 1 (Spring 1995): 6-7.

"Hanford's Surprising Legacy," 2 (Spring/Summer 1996): 8-11.

"The Art of Restoration," 2 (Spring/Summer 1996): 6-7.

CONTACT INFORMATION FOR STUDENTS

Contact your local 4-H, Scouting or YMCA organization

National Outdoor Leadership School
Northwest Branch
PO Box 527
Conway, WA 98238-9998
(360) 445-6657

Student Conservation Association, Inc.
605 13th Ave.
Seattle, WA 98122
(206) 324-4649
<http://www.sca-inc.org>

Washington Department of Fish and Wildlife
student volunteer opportunities (contact local office)