FOREST APPENDICES

WORKSHEET ANSWERS

GLOSSARY

MORE CURRICULUM CONNECTIONS

TEACHER RESOURCES

FULL CITATION - ACTIVITY CURRICULUM CONNECTIONS

Worksheet Answers

Trees Worksheet, Page 79

- 1. crown
- 2. Leaves
- 3. trunk
- 4. heartwood
- 5. meristematic tissue.
- 6. Roots
- 7. cross-section
- 8. bark A
- 9. cambium C
- 10.xylem D
- 11.**phloem** B

Broadleafs and Conifers Worksheet, Page 89

Broadleafs:

B, E, F, H, K

Conifers:

A, C, D, G, I, J, L

Alaska's Trees Worksheet, Page 90

- 1 1 White spruce 2 4 Black spruce
- 3 9 Sitka spruce 4 - 16 Tamarack
- 5 25 Lodgepole pine
- 6 36 Western hemlock
- 7 49 Birch
- 8 64 Aspen
- 9 81 Alaska cedar
- 10 100 Alder
- 11 121 Willow
- 12 144 Mountain ash

Trees that are conifers:

- 1 1
- 2 4
- 3 9
- 4 16 5 - 25
- . 20
- 6 36
- 9 81

Leaves Worksheet, Page 83

- 1. Photosynthesis
- 2. **chlorophyll**
- 3. F. cuticle
- 4. K. phloem
- 5. E. <u>epidermis</u>
- 6. G. **vein**
- 7. H. mesophyll
- 8. B. palisade
- 9. C. <u>Chloroplasts</u>
- 10. D. **Xylem**
- 11. J. Stomata
- 12. A. **spongy**

Reading the Rings: Part One, Page 98

Cross Section A: factors 1 or 6 Cross Section B: factor 2 Cross Section C: factor 7 Cross section D: factors 3, 4,

or 5

Reading the Rings Part Two: Cross Dating Page 99

- 1. Which core sample matches the tree? Core sample B.
- 2. The tree was cut in 1930.
- 3. The tree started growing in 1896.
- 4. What year did fire scar the tree? 1915.
- How many years did it take for the tree to grow around the remains of a dead branch? 10 years.
- 6. How long did the drought that began in 1912 last? 2 years.

Coastal Rainforest and Boreal forest pictures: Pages 15, 17:

The following organisms are pictured:

COASTAL RAINFOREST

Page 15

14 animals:

red-breasted sapsucker deer mouse red squirrel wood frog

Sitka black-tailed deer red-breasted nuthatch marten Steller's jay

owl hornet banana slug

beetle caterpillar millipede

9 plants:

devil's club huckleberry trailing raspberry bunchberry ferns horsetails skunk cabbage

horsetails skunk cabbage twisted stalk spruce

3 fungi: shelf fungi mushroom

lichen

F BOREAL FOREST Page 17

12 animals:

gray jay
red squirrel
brown creeper
ermine
beetle
centipede
shrew
butterfly
moose
kinglet
woodpecker

7 plants:

owl

birch spruce fireweed wild rose twinflower clubmoss horsetails

3 fungi: shelf fungi

shelf fungi mushrooms lichen

Who Lives Where? Worksheet Page 176

a. <u>4 5</u> e. <u>2</u> b. <u>2 4 5</u> f. <u>4 5</u> c. <u>4 5</u> g. <u>3 4</u> d. <u>1 2 4 5</u> h. <u>2 4 5</u>

Where's Home? Worksheet Page 177

a. <u>3</u> b. 2 <u>3</u> f. <u>3</u> g. <u>1</u> <u>3</u>

c. <u>2</u> <u>3</u>

h. 3

d. <u>1</u> <u>3</u> (best)

e. 3 (1 in summer only)



Adaptation: the process of adjusting to the environment. For example, a plant with unusually long roots that enable it to absorb water over a wide area has an adaptation that helps it survive during periods of drought.

Algae: a large group of primitive plants having chlorophyll, but lacking true roots, flowers, stems, and leaves.

Anadromous: a fish with a life cycle that requires it to spend specific parts of its life in fresh water and then in the open ocean. Salmon hatch in fresh-water streams, mature in the open ocean, and return to their river of origin to spawn and die.

Angiosperm: (an-gee-o-spurm) a plant that protects its seeds in some sort of covering. A birch tree is an angiosperm.

Animal: a many-celled living thing that takes in food and moves about. Unlike plants, animals do not have to stay in one place, and they cannot make their own food. Jellyfish, worms, clams, insects, birds, mammals, and human beings are all animals.

Annual rings: the concentric rings seen in crosssections of the stems (trunks) of most trees and shrubs. Each pair of rings (light and dark) represents a year's growth in the life of the tree. The rings are the previous years' xylem cells.

Aspect: exposure; position facing a particular direction, as in *this slope has a southern aspect*.

Bark: the dead, outer covering of tree trunks and branches that protects the tree from insects, fungi, and weather. Bark is formed as the phloem cells of the tree die.

Board feet: unit of measurement of timber available on a tree or in a forest.

Boreal forest: (bore-ee-ul) the forest of mixed conifers and hardwoods that grows in cold and dry northern areas around the world, including Interior Alaska.

Branches: any woody extension growing from the main stem or trunk of a tree.

Broadleaf: a plant with wide-bladed leaves, such as birch or alder. This term is generally used to describe flowering trees (angiosperms).

Cambium: (kam-bee-um) the living and growing cell layer of a tree trunk that lies just under the bark and phloem layers.

Canopy: the upper layer of a forest where treetops meet.

Cant: logs with one or more squared sides. Cant is the minimal amount of processing required for exported timber harvested from national forests.

Carbon dioxide: a gas that animals exhale (breathe out). Plants and algae use it during photosynthesis to make food.

Carnivore: an animal that consumes other animals.

Cellophane: thin, see-through material made from a mixture that includes the cell walls of plants.

Chlorophyll: (klor-o-fill) a group of pigments that produce the green color of plants, essential to photosynthesis. Found in plant leaves.

Chloroplasts: (klor-o-plast) thin-walled cylindrical cells containing chlorophyll. Found in plant leaves and some algae.

Circumference (of tree): a measurement of the distance around the tree trunk. The standard place to measure is $4^1/2$ feet up from the ground.



Climate: the average condition of the weather (temperature, wind velocity, precipitation, sunlight) at a location over many years.

Climax community: the maximum stage of succession; the mixture of living things that eventually appears on a site if it is not disturbed. Forests and tundra have climax communities.

Coastal rainforest: the coniferous forest that grows along the western coast of North America from Kodiak Island to Northern California.

Colonization: (kol-o-ni-zay-shon) when plants or animals become established in a new territory that they had not previously inhabited.

Commensalism: (co-men-sa-lism) a relationship between two kinds of living things where one benefits and the other is not harmed or helped. It is one form of symbiosis.

Community: all the living things that interact in a certain environment.

Competition: when two or more living things use the same food, water, shelter, or space.

Cone: a structure composed of scales in which seeds are produced. Conifer trees have cones that can hang on some trees for several years.

Cone-scales: overlapping, spirally arranged covers that protect seeds grown by conifer trees. Squirrels open the cone scales to eat the seeds.

Conifer: a type of tree that has needle-like leaves and forms its seeds inside cones. Conifer seeds do not have a thick coating (that's why they need cone-scales for protection). The crown of this tree is cone-shaped or triangular. Most conifers

do not shed their leaves in winter. They are in the gymnosperm class.

Conservation: the use of natural resources in a way that assures their continuing availability for future generations.

Consumer: a living thing that gets energy and minerals by eating other living or dead things.

Cord of wood: a stack of cut wood that measures 4 feet tall, 4 feet wide, and 8 feet long (4x4x8').

Core sample: a piece of wood about the thickness of a soda straw removed from the trunk of a living tree to analyze the tree's growth rings. The tree continues to grow.

Cover: protection from the elements for many purposes including hiding, traveling, resting, and nesting. Also referred to as **shelter**. One of the four elements necessary for survival.

Cross-dating: a technique comparing growth rings of trees (using a core sample of a living tree as a "known") to date wood of unknown age or to analyze past environmental conditions.

Cross-section: a slice *across* (not up and down) the body of something.

Crown: the topmost leaves and branches of a tree.

Cuticle: (cute-e-cul) waxy layer on the epidermal cells (outer wall) of a leaf.

Deciduous: (dee-sid-you-us) a tree that loses all of its leaves during some time of year, usually in fall. Birch trees are deciduous. Spruce trees are not.

Deckle: a movable wooden frame used as an edging for the four sides of paper made by hand.

Dendrochronology: the science of dating past environmental events and changes by looking at tree rings.



Detritivore: (duh-trite-uh-vore) a living thing

that eats wastes and other living things that have died. Also called decomposer or scavenger.



Dilemma: a problem involving a difficult choice.

Disturbance: an event that changes an ecosystem or community. Glaciers, volcanoes, earthquakes, floods, fire, and human activities such as timber harvest or land clearing are examples of disturbances.

Drought: a prolonged period of dry weather; a lack of rain.

Earlywood: the cambium layer that grows early in the growing season.

Ecologist: a scientist who studies the interrelationships of living things to each other and to the environment.

Ecology: the study of the interrelationships among living things and between living things and their nonliving surroundings.

Ecosystem: (ee-co-sis-tem) a community of living things and its nonliving surroundings linked together by energy and nutrient exchange.

Energy: a nonliving aspect that can be observed in the form of electricity, heat, light, and motion in living and nonliving things. It has the capacity to move, do work, or change something.

Entomology: the study of insects.

Epidemic: (epp-uh-dem-ick) rapidly spreading among many individuals in a community at the same time; widespread.

Epidermis: (epp-i-dur-mis) outer layers of cells occurring on all parts of the main plant body including the leaf.

Erosion: the wearing away of the land surface by wind or water.

Evaporate: to expel moisture from; to convert into vapor.

Evergreen: a tree that does not lose all its leaves in the autumn, but loses them a few at a time throughout the entire year. A spruce tree is an evergreen.

Food: energy and minerals in a form living things can use. One of the four elements necessary for survival.

Food chain: the transfer of food energy from living things in one nutritional level to those in another. In a simple food chain, for example, a mammal eats a bird that ate an insect that ate a plant.

Food web: many interconnecting food chains.

Forest: any ecosystem that contains many trees.

Forester: a person trained in forestry; one who takes care of trees or a forest; may also be called a forest manager.

Forest management: the balance of using and protecting a forest to ensure that it will continue to provide desired benefits.

Forest manager: a person whose job is to take care of a forest; may also be called a forester.

Fuel: any combustible (burnable) material which will support a forest or tundra fire. Dead and fallen wood and dried leaves and plants in a forest.

Fungi: (fun-jee) one of the five kingdoms of living things. Most fungi do not move around, but live their lives in one place. Most eat dead things



and waste materials, but some get food through symbioses with plants or microscopic organisms. Fungi are often white, but may be colorful. (Singular: fungus.)

Gall: A swelling on the tissues of trees and other plants caused by the attacks of certain parasitic insects.

Germinate: when a plant begins sprouting or growing.

Ground cover: small plants that grow on the forest floor except for young trees.

Gymnosperm: (jim-noh-spurm) plants with seeds that aren't enclosed in flowers or fruit. Conifers are the most common type of gymnosperm. A spruce tree is a gymnosperm.

Habitat: the place where an animal lives that provides the food, water, shelter, and space (in a suitable arrangement) that an organism needs to survive.

Hardwood: a type of tree that has flowers and broad, flat leaves and forms seeds with a thick outer coat. A birch tree is a hardwood.

Heartwood: the dead inner part of a tree trunk that gives the tree trunk strength. Each year's xylem cells die and become heartwood, producing the annual rings seen in a cross-section. Sawmills cut heartwood into lumber.

Height (of tree): the measurement from the ground to the top twig of a tree.

Herbicides: chemical substances used to kill plants.

Herbivore: (erb-uh-vor) any living thing that eats producers such as plants and algae.

Horticulture: the science of growing plants.

Hydrology: the science that studies the properties, distribution, and circulation of water on and below the earth's surface and in the atmosphere.

Hyphae: (hi-fee) the tiny hair-like parts that form the main body of fungi. Hyphae are the part of fungi that grow and feed.

Increment borer: the narrow tool used to drill a core sample when analyzing the age of a live tree.

Interdependence: needir. each other.

Invertebrate: an animal that lacks a backbone or spinal column.

Larvae: the immature, wingless, and often worm-like form that hatches from the eggs of many insects. (Singular: Larva.)

Leaves: the flat, thin structures, usually green, that grow on a stem or twig of a plant. Leaves are usually where photosynthesis and transpiration occur.

Living thing: something that is able to grow and make new things like itself; an organism. Living things are classified into five great groups called "kingdoms" – monerans, protists, fungi, plants, and animals.

Lobbyist: someone who tries to influence a public official to make an action in favor of a particular cause or issue.

Logging slash: branches, bark, tops, and broken trees left on the ground after logging.

Management goal: a desired result, product, or purpose that can be achieved through certain actions and choices. Natural resource management relies heavily on scientific knowledge and integrates societal values and economical demands in dec

Mutualism: (mute-chew-al-ism) a kind of symbioses;



an interaction between two kinds of organisms from which both species benefit.

Mycelium: the mass of thread-like hyphae that forms the major portion of a fungus and is often hidden in the wood of a tree or in decaying leaf litter.

Mycorrhizae: (my-cor-rise-zee) fungi that live in or on the roots of plants and assist the plants in obtaining minerals from the soil.

Nitrogen: an element that is used in the formation of all living things.

Nonliving thing: something that does not, and cannot, move, grow, and make new things like itself. Air, water, soil, rocks, and energy are examples of nonliving things.

Nonrenewable resources: nonliving resources such as petroleum and minerals that are not able to regenerate themselves. Once used, they cannot be replaced.

Omnivore: (ahm-nee-vor) a living thing that eats both producers (plants) and other consumers (animals).

Organic soil: the ideal, fertile medium for plant growth. Composed of decomposed organic (*living*) materials recycled by detritivores. (*See also soil formation*.)

Oxygen: a colorless, tasteless, odorless element that most living things breathe ar need in order to live. Plants and algae produce this gas during photosynthesis.

Palisade layer: in a leaf, the layer of cylindrical cells that is located just below the upper epidermis. The palisade layer contains the chloroplasts.

Parasitism: (pair-i-sit-ism) a kind of symbiosis; an interaction between two kinds of living things from which one species benefits and the other is harmed.

Parenchyma: in the growing portion of a tree, the layer of thin-walled cells that helps in photosynthesis and storage of food and water.

Pathology: the study of disease.

Percussion: a musical instrument or other item that is struck to make sound.

Permafrost: soil that is 32°F (0°C) or less all year round. Usually lies within a meter of the surface. It may or may not contain ice.

Pesticide: any chemical substance used to kill living things including plants and animals.

Phloem: (flow-em) the layer of cells just under the bark of a tree; a portion of the tube in the vein of a leaf. The phloem carries food from the leaves to other parts of the tree.

Photosynthesis: (foto-sin-this-iss) the combining of sunlight, water, and carbon dioxide to create sugars. Oxygen is a by-product. Photosynthesis takes place in the leaves of plants and in algae.

Pioneer: any kind of living thing that moves into an area of bare rocks and mineral soil, survives, and reproduces; first stage in succession. Pioneer plants help to make soil for other plants that follow.

Pitch: the resin of a tree.

Plant: one of the five kingdoms of living things; includes all the living things that have leaves, roots, and stems. Nearly all plants are green and live their lives without moving from place to place. Nearly all plants are producers. Trees are plants.



Population: the number of people, animals, or plants living in a place.

Precipitation: water that falls to earth in the form of rain, snow, sleet, hail, or mist.

Predator: an animal that kills and eats other animals.

Predict: to declare beforehand based on experience, observation, or scientific reason.

Preservation: protection which emphasizes nonconsumptive values and uses, including no direct use by humans. Contrasted with conservation which emphasizes both consumptive and nonconsumptive values and uses (see conservation).

Prey: animals that are killed and eaten by other animals.

Primary succession: (suck-se-shun) the orderly change in plant and animal communities that starts on new land that is bare of soil.

Producer: any living thing that can convert nonliving materials (air, water, soil, rock, and light) into food for itself and other living things. Plants and algae are examples of producers.

Protist: (pro-teest) one of the five kingdoms of living things; includes microscopic living things called protozoans as well as microscopic and large algae and seaweed.

Rayon: fiber or fabric made from cellulose (from the cells of trees).

Recycle: to reuse the remains of things. Detritivores recycle nutrients for other living things to reuse.

Renewable resource: a living resource which has the capacity to renew itself when conditions for survival are favorable. Trees are renewable resources.

Resin: sticky substance produced by plants, usually

clear, yellow, or brown. Resin coats some seed cones of conifer trees. Resin is highly flammable and adds fuel to wild fires.

Roots: the part of a plant below ground that holds the plant in position, absorbs water, and stores food.

Sap: the fluid in a plant that flows in the xylem and phloem.

Sapwood: the layer of cells in a tree trunk that carries water and minerals from the roots to the leaves; also called the xylem.

Secondary succession: (suck-se-shun) the orderly change in plant and animal communities that follows a disturbance of an existing environment with organic soil.

Seed: the small object produced by flowering plants or conifers that will grow into a new plant.

Seedling: any young tree under a meter in height.

Seral stage: (seer-el) successional stage; an identifiable stage in the process of replacing one community of plants and animals with another.

Shelter: protection from the elements for many purposes including hiding, traveling, resting, and nesting. Also referred to as cover. One of the four elements all animals need to survive.

Shrub: a low, usually several-stemmed woody plant.

Silviculture: a branch of forestry dealing with the development and care of forests to produce timber crops.

Snag: a standing dead or dying tree.



deciduous trees such as aspen have relatively soft heartwood.

Soil formation: the making and mixing of small particles of inorganic minerals and organic (formerly living) particles to form the layer of material on the surface of the earth that is the natural medium for plant growth. (See also mineral soil, organic soil, and young soil.)

Spongy layer: leaf layer that contains loosely packed, differently shaped cells. Exchange of gases – carbon dioxide and oxygen – occurs in this layer.

Stand: a group of trees usually of the same species and age.

Stoma: (sto-muh) a small pore in a plant's leaves and stems that opens to absorb carbon dioxide and release oxygen (plural: **stomata**).

Succession: (suck-se-shun) the gradual replacement of one community by another.

Successional stage: (suck-se-shun) an identifiable stage in the process of replacing one community of plants and animals with another (see **sere**).

Suppression: work done to control and extinguish fires.

Sustained yield: the amount of wood that a forest can produce continually given a pre-determined level of forestry management. The goal of sustained yield management is to extract products while maintaining healthy forest ecosystems.

Symbiosis: (sim-by-o-sis) living together; an interdependence between two kinds of living things that live in close association. It can be harmless, beneficial, or harmful.

Taiga: subarctic forests, dominated by conifers (*spruce* and fir) that begins where the tundra ends. Found in Eurasia and North America. From Russian for "land of little sticks."

Temperate rainforest: the coniferous forest that grows along the western coast of North America from Kodiak Island to Northern California. Also called **coastal rainforest**.

Terminal bud: growing at the end of a branch or stem. Usually the start for next year's new growth.

Timeline: a line on which dates and events are shown in chronological order.

Topography: the positions and elevations of natural (and human-made) features on the landscape.

Transect: a straight line or profile of a cross-section of vegetation that is useful for studying the number and types of plants in an area.

Transpiration: the process by which water evaporates from plants. Ninety percent of transpiration happens through stomata on leaves.

Transplant: a plant (or animal) that is moved to a new location.

Tree: a large woody plant at least 4 meters tall with a single stem (*trunk*) and a crown of leaves.

Tree line: the upper limit of tree growth in mountains or high latitudes because the environment becomes unsuitable. Also called timberline.

Trunk: the large woody stem of a tree.

Understory: the layer of plants (especially trees and shrubs) growing between the forest canopy and the ground cover.



Values: the importance or worth of a thing to a human. Different humans often have different values. Values are not factual, but influence management decisions.

Veins: the tubes of xylem and phloem forming the framework of a leaf blade.

Water cycle: water vapor (a gas) in the atmosphere falling to earth as precipitation (a liquid or solid: snow, rain, hail), making its way into rivers, lakes, and oceans where it evaporates (vapor) into the atmosphere to start the process again.

Watershed: drainage area; all the land contributing to the water supply of a river or lake.

Woodwind: a musical instrument (flute, oboe, bassoon, clarinet); breath is used to create the sound. Formerly made of wood.

Xylem: (zzz-eye-lem) the sapwood; a cell layer of the tree trunk or branch that carries water and minerals from the roots up to the leaves. The portion of the tube in the vein of a leaf that carries water and minerals.

Young soil: thin, "pioneer" soil composed of more raw mineral particles (sand, silt, rock bits) than decomposed organic (living) material. Insufficient for large plant or tree growth. (See also soil formation.)



MORE FOREST CURRICULUM CONNECTIONS

Folktales, Fiction, Poetry, Biographies, and Picture Books Supplementing *Alaska's Forests and Wildlife*

| Aldridge, Josephine. <i>A Possible Tree.</i> New York: Macmillan, 1993. (Picture Book) | Florian, Douglas. <i>Nature Walk</i> . New York: Greenwillow, 1989. (Picture Book, K-1) |
|--|---|
| Anholt, Laurence. <i>The Forgotten Forest</i> . San Francisco: Sierra Club Books, 1992. (Picture Book) | Gackenbach, Dick. <i>Mighty Tree.</i> San Diego: Harcourt Brace Jovanovich, 1992. (Picture Book) |
| Babbitt, Natalie. <i>Tuck Everlasting</i> . New York: Farrar, Straus, Giroux, 1975. (Fiction) | George, Jean Craighead. <i>My Side of the Mountain</i> . New York: Dutton, 1959. (Fiction) |
| Baker, Jeannie. <i>Window</i> . New York: Greenwillow, 1991. (Picture Book) | George, Jean Craighead. <i>On the Far Side of the Mountain</i> . New York: Dutton, 1970. (Fiction) |
| Brenner, Barbara. <i>The Tremendous Tree Book</i> Boyds Mills, 1998. (Picture Book) | George, Jean Craighead. <i>There's an Owl in the Shower</i> . New York: HarperCollins, 1995. (Fiction) |
| Bruchac, Joseph. <i>Native Plant Stories</i> . Golden, Co: Fulcrum Pub., 1995. (Folklore) | George, Kristine O'Connell. <i>Old Elm Speaks: Tree Poems</i> . New York: Clarion, 1998. |
| Bunting, Eve. <i>Someday a Tree</i> . New York: Clarion, 1993. (Picture Book) | Gill, Shelley. <i>The Last American Rainforest: Tongass</i> . Homer: Paws IV Publishers, 1997. |
| Cherry, Lynne. <i>The Great Kapok Tree</i> . New York: Harcourt Brace, 1993. | Giono, Jean. <i>The Man Who Planted Tress</i> . Chelsea, VT: Chelsea Green Publishing Co., 1985. https:// www.youtube.com/watch?v=KTvYh8ar3tc |
| Crew, Linda. <i>Fire on the Wind</i> . New York: Delacorte, 1995. (Fiction Young Adult) | Gove, Doris. My Mother Talks to Trees. Peachtree, 1999. |
| Donahua Michael The Grandna Tree Niwet CO: | (Picture Book) |

- Donahue, Michael. *The Grandpa Tree*. Niwot, CO: Roberts Rinehart, 1991. (Picture Book)
- Dowd, John. *Ring of Tall Trees*. Anchorage: Alaska Northwest Publications, 1992. (Fiction)
- Frost, Robert. *Birches*. New York: Henry Holt, 1995. (Poetry)
- Frost, Robert. *Stopping by Woods on a Snowy Evening*. New York: Dutton, 1985. (Poetry)

- Hickman, Pamela. *In the Woods*. Halifax, N.S: Formac, 1998. (Activity Book)
- Hines, Gary. *The Day of the High Climber*. New York: Greenwillow, 1994. (Picture Book).
- Honeycutt, Natalie. *Twilight in Grace Falls*. New York: Orchard, 1997. (Fiction-Young Adult)
- Johnston, Tony. *Yonder.* New York: Dial, 1988. (Picture Book)



MORE FOREST CURRICULUM CONNECTIONS CONTINUED

| Kellogg, Steven. <i>Johnny Appleseed: A Tall Tale</i> . New York: |
|---|
| Morrow, 1988. (Folktale) |

Lee, Deborah. *The People Who Hugged the Trees*. Niwot, CO: Roberts Rinehart, 1990. (Fiction)

Luenn, Nancy. *Song for the Ancient Forest*. New York: Atheneum, 1993. (Picture Book)

Lyon, George Ella. *A B Cedar: An Alphabet of Trees*. New York: Orchard, 1988.

Lyon, George Ella. *Counting on the Woods* New York: Dorling Kindersley, 1998. (Picture Book)

Peet, Bill. *Farewell to Shady Glade*. Boston: Houghton Mifflin, 1966. (Picture Book)

Polacco, Patricia. *The Bee Tree*. New York: Philomel, 1993. (Picture Book)

Rand, Gloria. *Fighting for the Forest*. New York: Holt, 1999. (Picture Book)

Ryder, Joanne. *Hello Tree*. Lodestar Books, 1991. (Picture Book)

Sanders, Scott. *Meeting Trees*. Washington, DC: National Geographic Society, 1996. (Picture Book)

Seuss, Dr. *The Lorax*. New York: Random House, 1971. (Picture Book)

Silverstein, Shel. *The Giving Tree*. New York: HarperCollins, 1986. (Picture Book)

Taylor, Mildred. *Song of the Trees*. New York: Dial, 1975. (Fiction)

Tresselt, Alvin. *The Gift of a Tree*. New York: Lothrop, Lee & Shephard, 1992. (Picture Book)

Van Allsburg, Chris. *Just a Dream.* Boston: Houghton Mifflin 1990. (Picture Book)

Van Laan, Nancy. *Magic Bean Tree*. Boston: Houghton Mifflin, 1998. (Folklore)

Van Laan, Nancy. *A Tree for Me*. New York: Knopf. 2000. (Picture Book)

Yolen, Jane. *Owl Moon*. New York: Philomel, 1987. (Picture Book)

Website:

Alaska Zoo https://www.alaskazoo.org researched and written by students at Willow Crest Elementary School, Anchorage.



TEACHER RESOURCES

Most useful resources for teaching general and specific activities in Alaska's Forests and Wildlife

Useful for All

Books and Publications:

- Alaska Ecology Cards Alaska Wildlife Curriculum. Alaska Department of Fish & Game, 2000.
- *Alaska's Forest Resources*. Anchorage: Alaska Geographic Society, 1985. (V.12, No.2)
- Alaska Northwest Books. *The Alaska Almanac: Facts About Alaska*. Anchorage: Author, published annually.
- Alaska Department of Fish and Game. http://www.adfg.alaska.gov or from Wildlife Education, ADF&G, 333 Raspberry Rd., Anchorage, AK 99518.
- Allaby, Michael. Biomes of the World. Danbury, CT: Grolier, 1999. (9 volumes)
- Davis, Neil. *Science Nuggets*. Fairbanks: Geophysical Institute, University of Alaska. Reprinted 1999.
- Bruchac, Joseph. *Native Plant Stories*. Golden, Co: Fulcrum Pub., 1995. (Folklore)
- Clearing Magazine. A bi-monthly environmental education resource and activity guide for K-12 teachers. Address: P.O. Box 5176, Oregon City, OR 97045 or http://clearingmagazine.org/about
- Coombes, Allen. *Trees*. New York: Dorling Kindersley, 1992.
- Cornell, Joseph. *Sharing Nature with Children*. Nevada City, CA: Dawn Publishing, 1998.

- Ewing, Susan.. The Great Alaska Nature Factbook: A Guide to the State's Remarkable Animals, Plants, and Natural Features. Anchorage: Alaska Northwest Books, 1996.
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- The Alaska Forestry Association < www.dnr.alaska.gov> Represents the forest products industry.
- Alaska Department of Natural Resources <www. dnr.alaska.gov/forestry> Manages Alaska State Forests.
- Alaska Native Knowledge Network <www.ankn.uaf. edu> Alaska Standards for Culturally Responsive Schools and Guidelines for Preparing Culturally Responsive Teachers for Alaska's Schools are available on-line. Ordering information for Curriculum Resources for the Alaskan Environment and Inuuqatigiit (curriculum from the Inuit perspective) are also available. Science Projects are available from <www.ankn.uaf.edu/Alaska_Alive>
- Alaska Center for Conservation Science <accs.uaa. alaska.edu> Current status of Alaska's biodiversity, annotated species at risk project, and excellent links to Alaska biodiversity and biology resources.
- Alaska Science Forum < www.gi.alaska.edu/ ScienceForum> Treasure of new and archive articles written for general audiences answering science questions and highlighting Alaska's natural science phenomena and research.
- Alaska Statewide Databases, accessed through your local library website or <sled.alaska.edu > Magazine and newspaper articles from more than 2,000 magazines and journals, 100 newspapers, plus other information.
- Anchorage *Daily News* <www.adnsearch.com> Staffwritten newspaper articles, current and past.

- Article citations can be located at no charge. For full text, a fee must be paid.
- Fairbanks *Daily News-Miner* <www.newsminer.com> Staff-written newspaper articles, current and past, available on file, no fee.
- National Wildlife Federation < www.nwf.org > Has information on environmental education programs.
- Project Learning Tree <www.plt.org> Environmental education curriculum K-12 of the American Forest Foundation <www.affoundation.org> Locally supported by the Alaska Department of Natural Resources.
- Project WILD https://www.fishwildlife.org/ projectwild> Environmental education curriculum K-12. Association of Fish and Wildlife Agencies. Supported locally by the Alaska Department of Fish and Game.
- Tree Guide < www.treeguide.com > Natural history of trees in database format, including identification, ecology, life history, distribution, and use of trees of North America. Features latest news, state trees, and champion trees.
- The Tree of Life < www.tolweb.org/tree/phylogeny. htmll> Biodiversity featured in photos and text of members of the Five Kingdoms of Living Things starting with kingdoms and branching through all classifications to individual species. Includes a "treehouse" kids' page on beetles.
- USDA Forest Service < www.fs.fed.us> Resource, career, and special issue information and photos including Nature Watch and Woodsy Owl. Alaska Region < www.fs.fed.us/r10> and Tongass National Forests < www.fs.fed.us/r10/tongass> which includes tree identification, plant and wildlife facts for Southeast. Chugach National Forest < www.fs.fed. us/r10/chugach> for Southcentral Alaska.



US Geological Survey <www.usgs.gov> Resource, career, and special issue information and photos. The Alaska Biological Science Center website <www.absc.usgs.gov> includes research on Alaska's wildlife and ecosystems.

Section 1. Elements that Create Forests

Books:

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Gardner, Robert. *Science Project Ideas About Trees*. Springfield, NJ: Enslow, 1997.

Harlow, Rosie. *175 Amazing Nature Experiments*. New York: Random House, 1992.

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Media:

Historical photos are available from the Alaska State Library, your local historical society, the Alaska Museum of History and Art, the University of Alaska, or the State of Alaska Division of Forestry.

Section 2. Forest Ecosystems – Community Connections

Books:

Alaska Women in Timber. Alaska's Great Green Forest

(Teaching Activities K-4) Address: 111 Stedman St., Ketchikan, AK 99901 *or* (907)247-2948 *or* order online <www.akforest.org>

Armstrong, Robert. *Guide to the Birds of Alaska*. Anchorage: Alaska Northwest Books, 1990.

Cottam, Clarence. *Insects: A Guide to Familiar American Insects*. Golden Books, 1987.

Milne, Lorus. *National Audubon Society Field Guide* to North American Insects and Spiders. New York: Knopf, 1980.

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Stall, Chris. *Animal Tracks of Alaska*. Seattle: Mountaineers, 1993.

Media:

Once There Was a Tree. (Video) Lincoln, NE: Distributed by GPN, 1994.

Websites:

Alaska Women in Timber. <www.akforest.org/awit>

Audubon On Line Field Guides website < www.enature.

Section 3. Outdoor Forest Learning Trail

Books:

Armstrong, Robert. *Guide to the Birds of Alaska*. Anchorage: Alaska Northwest Books, 1990.

Bockman, Christian Frank. Trees of North America: A Field Guide to the Major Native and Introduced Species North of Mexico. New York: Golden Books, 1968.



Cassie, Brian. *National Audubon Society First Field Guide: Trees.* New York: Scholastic, 1999.

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Sheldon, Ian. *Animal Tracks of Alaska*. Lone Pine Publishing, 1999.

Stall, Chris. *Animal Tracks of Alaska*. Seattle: Mountaineers, 1993.

Media:

Peterson, Roger Tory. *Western Bird Songs*. (CD) New York: Houghton Mifflin, 1999.

Peyton, Leonard. *Bird Songs of Alaska*. (2 CD set) Order locally *or* from Alaska Bird Observatory, P.O. Box 80505, Fairbanks, AK 99708-0505 *or* email birds@alaskabirds.org. Hear samples from the CD on

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cornell.edu/LNS/ComercialProducts/northamerican/alaska.htm>

Website:

Audubon On Line Field Guides website < www.enature. com>

Section 4. Succession – Changing Forest Habitats

Books:

US Fish and Wildlife Service. *The Role of Fire in Alaska* – *K-12 Curriculum*. Anchorage, AK: Author, 2001.

Media:

Alaska Video Postcards. *Voices From the Ice* (Video) Anchorage, AK: Author, 1991. Address: P.O. Box 112808, Anchorage, AK. 99511

National Park Service. *Glacier Bay, the Grand Design*. (Video) Washington, DC: Author, 1993. (Distributed by Alaska Video Pub.)

Old Growth Forests. (Video) Washington, DC: National Geographic Society, 1994.

Websites:

Glacier Bay National Park & Preserve <www.nps. gov/glba> with photos and resource information.

National Park Service. Fire in the National Parks, Understanding Fire's Role in Natural Areas. < www.nps.gov/ pub_aff/issues/fire.html >

Section 5. Human Uses and Impacts in Forest Ecosystems

Books:

American Forest and Paper Association. *National Wood Recycling Directory – Wood Recycling Resources, How to Recycle Waste Paper, Youth Action Kit, posters and*



- *pamphlets* are available by phone 800-244-3090 or <www.afandpa.org>
- American Forest Foundation. *Exploring Envionmental Issues: Municipal Solid Waste.* Washington, DC: Project Learning Tree, American Forest Foundation, 1997. <www.affoundation.org>
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Media:

- Hardwood Forest Foundation. *The Continuing Forest: Managing our National Forests.* (Video) Memphis, TN: Hardwood Forest Foundation. Address: P.O. Box 34518, Memphis, TN *or* < www.natlhardwood.org>
- The Man Who Planted Trees. (Tape or CD) Chelsea, VT: Chelsea Green Publishing.
- The Man Who Planted Trees. (Video) DirectCinema

- Limited, 1987. Available from < www.videoproject. org > *or* 800-475-2638.
- Old Growth Forests. (Video) Washington, DC: National Geographic Society, 1994.
- Our Vanishing Forest. (Video) Oley, PA: Bullfrog Films. Address for catalog: P.O. Box 148, Oley, Pa 19526 or check the on-line catalog <www.bullfrogfilms. com> for a complete description of all their films.
- Society of American Foresters. *Forestry: An Intricate Balance.* (Video) Bethesda, MD: SAF, 1992. Address: SAF Sales Orders, 5400 Grosvenor Lane, Bethesda, MD 20814-2198 or <www.safnet.org>
- Replanting the Tree of Life (Video) Oley, PA: Bullfrog Films. Address for catalog: P.O. Box 148, Oley, PA 19526 or check the on-line catalog <www.bullfrogfilms.com> for a complete description of all their films.
- *Timber!* (Video) Deerfield, IL: Coronet/MTI Film and Video. Address: 108 Wilmont Rd., Deerfield, IL 60015

Websites:

- Alaska Cooperative Extension. 2221 E. Northern Lights Blvd., Suite 118, Anchorage, AK 99508 <www.uaf. edu/coop-ext>
- Anchorage Recycling Center, 6161 Rosewood, Anchorage, AK 99518 *or* call 907/562-2267. For information on school recycling programs <www.anchoragerecycling.org>
- Citizens for Recycling Solutions < www.recyclingsolutions.org> Alaska organization, download publications, links to other recycling projects.

Conservation Organizations:

Alaska Boreal Forest Council <www.ptialaska. net/~abfc>



Alaska Center for the Environment <www.akcenter. org>

Alaska Trappers Association<www.alaskatrappers.org.
Alaska Rainforest Campaign<www.akrain.org>
Alaska Outdoor Council and the Alaska Fish and
Wildlife Conservation Fund https://www.alaskaoutdoorcouncil.org

National Audubon Society <www.audubon.org> National Wildlife Federation <www.nwf.org> The Nature Conservancy<www.tnc.org> Tongass Conservation Society
<tongassconservation.org
Occupational Handbook
<http://stats.bls.gov/ocohome.htm>





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Media:

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- Banana Slug String Band. *Dirt Made My Lunch*. (Audio Tape or CD) Address: P.O. Box 2262, Redway, CA 95560 *or* <www.bananaslugstringband.com>
- Billy B. Billy B Sings About Trees. (Audio Tape) Available from Acorn Naturalists <www.acornnaturalist. com> or call Do Dreams Music 800-4-BillyB.
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- The Man Who Planted Trees. (Audio Tape or CD) Chelsea, VT: Chelsea Green Publishing.
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birds@ alaskabirds.org> To hear samples
birds.cornell. edu/LNS/ComercialProducts/northamerican/alaska.htm>

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Websites:

- Alaska Department of Fish and Game <www.adfg.alaska.gov> Current hunting seasons and regulations by species and game units; photos of wildlife; wildlife information; environmental education. Also, available for download, *Alaska Wildlife Notebook Series*.
- Alaska Department of Natural Resources <www.dnr. alaksa.gov/forestry> Information on Alaska's State Forests and forest practices, insects and disease, timber sales, fire management, and conservation education.
- Alaska Science Forum < www.gi.alaska.edu/ AlaskaScienceForum> New and archived articles written for the general public on many topics of natural resource science featuring Alaska.
- Alaska Statewide Databases accessed through your local library *or* < sled.alaska.edu > Text of magazine and newspaper articles.
- Alaska Women in Timber <www.akforest.org/ awit> Supporting Alaska's forest resources and emphasizing that people are part of the forest environment.
- Anchorage *Daily News* <www.adnsearch.com> Staffwritten newspaper articles, current and past. Article citations can be located at no charge. For full text, a fee must be paid.



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Audubon On Line Field Guides <www.enature.com>

Fairbanks *Daily News-Miner* <www.newsminer.com> Staff-written newspaper articles, current and past, available on file, no fee.

Glacier Bay National Park & Preserve <www.nps.gov/ glba> For succession images and information triggered by glacial retreat.

Tongass National Forest < www.fed.fs.us/r10/tongass > Forest habitat and wildlife photos and information.

Tree Guide <www.treeguide.com> Natural history of trees in database format, including identification, ecology, life history, distribution and use of trees. trees of North America. Features latest news, state

trees, and champion trees.

US Forest Service fire links page <www.fs.us/fire/links. shtml> Topics include fire news, employment, prescribed fire, essays on wildland fire, photos, fire science and research, wildland fire training, and what it's like to be a wildland firefighter.

See also the websites annotated on the "Forest Organizations and Careers" fact sheet in INSIGHTS, Section 5.





The Alaska Wildlife Curriculum Cross-Reference

Grade Index: lists activities by grade(s).

Topic Index: lists activities by topic. One activity may cover several topic areas.

The 4 books Alaska Wildlife Curriculum series are coded as follows:

Alaska's Ecology E
Alaska's Forests and Wildlife F
Alaska's Tundra and Wildlife T
Alaska's Wildlife Conservation W



| Grade Index | | | | | | | | | | | | | | | |
|------------------------------------|------|------|---|---|---|---|---|---|---|---|---|---|----|----|----|
| | Book | Page | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Animal Adaptations for Succession | F | 174 | | | | • | • | • | • | • | • | | | | |
| Bird Signs | F | 129 | | | | | | • | • | • | • | • | • | • | • |
| Breath of Life | F | 67 | • | • | • | • | • | • | • | • | • | | • | • | • |
| Build a Tasty Tree Trunk | F | 77 | | | | | | • | • | • | • | • | • | • | • |
| Champion Tree | F | 180 | | | | | | • | • | • | • | • | • | • | • |
| Change in Our Lives | F | 163 | | | | | • | • | • | | | | | | |
| Detritivores | F | 110 | | | | | | • | • | • | • | • | • | • | • |
| Flipbook Succession | F | 172 | | | | | • | • | • | • | • | | | | |
| Forest and Air | F | 71 | | | | | | • | • | • | • | • | • | • | • |
| Forest and Soil | F | 160 | | | | | | | | • | • | • | • | • | • |
| Forest and Sunlight | F | 157 | | | | | | • | • | • | • | • | • | • | |
| Forest Art | F | 143 | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Forest Bird Song Tag | F | 137 | | | | • | • | • | • | • | • | • | • | • | • |
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