

Appendix I

CALIFORNIA STATE CONTENT STANDARDS and ENVIRONMENTAL PRINCIPLES AND CONCEPTS

California State Standards

Field trips and activities can help students achieve California State Content Standards in many content areas. Listed below, in abbreviated form, are some of the Content Standards from grades 4-7 that can be at least partially taught either through field trips to redwood forests or through the activities in *Redwood Ed*. For the complete standards, go to the California Department of Education's web site:

www.cde.ca.gov/be/st/ss

Environmental Principles and Concepts

Following the Content Standards, California's Environmental Principles and Concepts (EP&C) are given. The Environmental Principles and Concepts examine the interactions and interdependence of human societies and natural systems. The nature of these interactions is summarized in the Environmental Principles and Concepts.

These principles and concepts are not intended to be another layer of standards imposed upon teachers. Rather, they are intended to provide guidelines and support for incorporating environmental education into all subject matter areas. Many of California's State Content Standards can be taught from an environmental perspective; the EP&C are intended to assist with that. As *Redwood Ed* is being written, an *Environmental Education Model Curriculum* is being developed. For information on the Model Curriculum or on the principles and concepts, contact:

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Curriculum Content Standards Addressed in *Redwood Ed*

To save space, these Content Standards on the following pages are listed in abbreviated, paraphrased form.

Grade Four

Science Content Standards

Life Sciences Standard Set 2: All organisms need energy and matter to live and grow.

- 2.a: Plants...primary source of matter and energy...food chains
- 2.b: Producers and consumers (herbivores, carnivores, omnivores, decomposers)
- 2.c: Decomposers recycle matter.

Life Sciences Standard Set 3: Living organisms depend on one another and their environment.

- 3.a: Ecosystems are characterized by living and non-living components.
- 3.b: In any environment, some survive well, some less well, and some don't survive.
- 3.c: Animals depend on plants for food and shelter.
- 3.d: Most microorganisms do not cause disease and many are beneficial.

Investigation and Experimentation Standard Set 6: Students ask meaningful questions and conduct careful investigations.

- 6.a: Observations and inferences
- 6.b: Measure and estimate
- 6.c: Formulate predictions...cause and effect relationships
- 6.d: Conduct multiple trials and draw conclusions
- 6.e: Construct and interpret graphs from measurements
- 6.f: Follow written instructions for a scientific investigation

History-Social Science Content Standards

Standard Set 4.1: Physical and human geographic features define places and regions

- 4.1.3: Describe how physical environment affects human activity
- 4.1.4: Explain affects of Pacific Ocean, rivers, valleys...on growth of towns

Standard Set 4.2: Describe...life...of people of California from pre-Columbian societies...

- 4.2.1: Discuss how California Indians depended on, adapted to, and modified the environment
- 4.2.5: Describe the daily lives of the people, native and nonnative...

Standard Set 4.3: Explain the economic, social, and political life...through the Gold Rush...

- 4.3.1: Identify the locations of settlements...including Fort Ross
- 4.3.3: Analyze effects of the Gold Rush on...the physical environment

Standard Set 4.4: Trace transformation of ...California economy...

- 4.4.2: Explain how the Gold Rush transformed the economy...including products produced and consumed
- 4.4.5: Discuss the effects of the Great Depression, Dust Bowl, and World War II

English-Language Arts Content Standards

Reading Standard Set

- 1.3: Use knowledge of root words to determine meanings
- 1.4: Analyze complex words with Latin and Greek Roots

Writing Standard Set

- 2.3: Write information reports

Written and Oral English Language Conventions Standard Set

- 2.2.4: Recite brief poems

Listening and Speaking Standard Set

- 1.0: Listening and speaking strategies
- 2.0: Speaking applications

Mathematics Content Standards

Number Sense Standard Set

- 3.0: Solve problems involving addition, subtraction, multiplication, and division

Measurement and Geometry Standard Set

- 1.0: Understanding perimeter and area

Statistics, Data Analysis, and Probability Standard Set

- 1.0: Organize, represent, and interpret numerical data

Grade Five

Science Content Standards

Life Sciences Standard Set 2: Plants and animals have structures for various life processes.

- 2.a: Specialized structures to support the transportation of materials
- 2.e: Sugar, water, and minerals transported in a vascular plant
- 2.f: Plants use CO₂ and energy from sunlight to build molecules and release oxygen
- 2.g: Cells break down sugar to obtain energy, releasing CO₂ and water (cellular respiration)

Earth Sciences Standard Set 3: Water moves between oceans and land via evaporation and condensation.

- 3.b: Water evaporates to form water vapor, can form liquid or ice.
- 3.c: Water vapor moves and can form fog, dew, rain, hail, sleet, or snow
- 3.d: Fresh water is limited
- 3.e: Students know the source of the water used in their communities

Earth Sciences Standard Set 4: Energy from the sun heats Earth unevenly, resulting in changing weather.

- 4.b: Influence of ocean on weather

Investigation and Experimentation Standard Set 6: Students ask meaningful questions and conduct careful investigations.

- 6.a: Classify objects
- 6.b: Develop a testable question
- 6.c: Plan and conduct simple investigation
- 6.d: Use of variables
- 6.f: Selection and use of appropriate tools
- 6.g: Make and interpret graphic representations of data
- 6.h: Draw conclusions from evidence
- 6.i: Write a report...

History-Social Science Content Standards

Standard Set 5.1: Describe major pre-Columbian settlements, including American Indians of the Pacific Northwest

- 5.1.1: Describe how geography and climate influenced ...various nations

Standard Set 5.8: Trace colonization...and settlement patterns...with emphasis on ...economic incentives, effects of the physical...geography

- 5.8.2: major geographical features of California

English-Language Arts Content Standards

Reading Standard Set

- 1.2: Use word origins to determine the meaning of unknown words
- 1.4: Know...derived roots...from Greek and Latin.

Writing Standard Set

- 2.3: Write research reports

Listening and Speaking Standard Set

- 1.1: Ask questions that seek information
- 1.2: Interpret a speaker's verbal and nonverbal messages, purposes, and perspectives
- 1.3: Make inferences or draw conclusions based on an oral report

Listening and Speaking Standard Set

- 1.0: Listening and speaking strategies
- 2.0: Speaking applications

Mathematics Content Standards

Number Sense Standard Set

- 1.0: Computation, rounding, percents, decimals, fractions
- 2.0: Calculating and solving problems, including fractions and decimals

Measurement and Geometry Standard Set

- 1.0: Computing volumes and areas

Statistics, Data Analysis, and Probability Standard Set

- 1.0: Display, analyze, compare, and interpret data sets, including graphing

Grade Six

Science Content Standards

Earth Science Standard Set 2: Topography is reshaped by weathering and transportation of sediment.

- 2.a: Water running downhill shapes landscape
- 2.b: Rivers and streams erode soil, transport sediment, change contour, and flood in natural and recurring patterns
- 2.d: Landslides and floods change human and wildlife habitats

Ecology (Life Sciences) Standard Set 5: Organisms exchange energy and nutrients among themselves and with the environment.

- 5.a: Energy enters ecosystems as sunlight...food webs
- 5.b: Matter transferred between organisms and physical environment in food webs
- 5.c: Populations can be categorized by the functions they serve in an ecosystem
- 5.d: Different kinds of organisms may play similar ecological roles in similar biomes
- 5.e: Numbers and types of organisms in an ecosystem depend on abiotic factors

Investigation and Experimentation Standard Set 7: Students ask meaningful questions and conduct careful investigations.

- 7.a: Develop a hypothesis
- 7.b: Select and use tools to perform tests
- 7.c: Construct graphs
- 7.d: Communicate in written and oral presentations
- 7.e: Recognize whether evidence is consistent with a proposed explanation
- 7.f: Read topographic and geologic maps
- 7.g: Interpret events by sequence and time
- 7.h: Identify changes in natural phenomena over time

Social Studies Content Standards

Standard Set 6.1: Describe what is known through archaeological studies...

- 6.1.1: Describe the hunter-gatherer societies
- 6.1.2: Identify locations of communities and how humans adapted
- 6.1.3: Discuss...human modifications of the physical environment

English-Language Arts Content Standards

Writing Standard Set

- 1.4: Use electronic text to locate information
- 1.5: Compose documents...using word processing skills
- 2.3: Write research reports

Listening and Speaking Standard Set

- 1.0: Listening and speaking strategies
- 2.0: Speaking applications

Mathematics Content Standards

Number Sense Standard Set

- 1.0: Solving problems using fractions, ratios, proportions, and percentages
- 2.0: Calculate and solve problems

Measurement and Geometry Standard Set

- 1.0: Measurement of plane and solid shapes, including the use of pi

Statistics, Data Analysis, and Probability Standard Set

- 2.0: Use data samples...including bias and validity

Grade Seven

Science Content Standards

Life Science...Evolution Standard Set 3: Biological evolution accounts for diversity.

- 3.1: Both genetic variation and environmental factors cause evolution and diversity
- 3.4: Classification
- 3.5: Extinction from environmental changes

Life Science...Structure and Function in Living Systems Standard Set 5: Anatomy and physiology

- 5.b: Organisms depend on properly functioning organs and organ systems
- 5.f: reproductive structures and processes in flowering plants

Investigation and Experimentation Standard Set 7: Students ask meaningful questions and conduct careful investigations.

- 7.a: Use tools to perform tests, collect data, and display data
- 7.b: Use variety of resources, including World Wide Web, to collect data
- 7.c: Communicate connections among hypotheses, concepts, tests, data, and conclusions
- 7.d: Construct scale models, maps, and diagrams to communicate knowledge
- 7.e: Communicate steps and results of investigation in written and oral presentations

English-Language Arts Content Standards

Reading Standard Set

- 1.2: Use knowledge of Greek, Latin, and Anglo-Saxon roots and affixes

Writing Standard Set

- 1.4: Research and Technology...questioning, developing ideas
- 1.5: Citing sources
- 1.6: Creating documents using word-processing skills
- 1.7: Revising
- 2.3: Write research reports

English Listening and Speaking Standard Set

- 1.0: Listening and speaking strategies
- 2.0: Speaking applications

Mathematics Content Standards

Number Sense Standard Set

- 1.0: Properties of rational numbers, including calculating percentages

Mathematical Reasoning Standard Set

- 2.0: Using estimation

California's Environmental Principles and Concepts

Principle I

The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services. As a basis for understanding this principle:

- Concept a.** Students need to know that the goods produced by natural systems are essential to human life and the functioning of our economics and cultures.
- Concept b.** Students need to know that the ecosystem services provided by natural systems are essential to human life and to the functioning of our economies and cultures.
- Concept c.** Students need to know that the quality, quantity and reliability of the goods and ecosystem services provided by natural systems are directly affected by the health of those systems.

Principle II

The long-term functioning and health of terrestrial, freshwater, coastal and marine ecosystems are influenced by their relationships with human societies. As a basis for understanding this principle:

- Concept a.** Students need to know that direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.
- Concept b.** Students need to know that methods used to extract, harvest, transport and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.
- Concept c.** Students need to know that the expansion and operation of human communities influences the geographic extent, composition, biological diversity, and viability of natural systems.
- Concept d.** Students need to know that the legal, economic and political systems that govern the use and management of natural systems directly influence the geographic extent, composition, biological diversity, and viability of natural systems.

Principle III

Natural systems proceed through cycles that humans depend upon, benefit from and can alter. As a basis for understanding this principle:

- Concept a.** Students need to know that natural systems proceed through cycles and processes that are required for their functioning.
- Concept b.** Students need to know that human practices depend upon and benefit from the cycles and processes that operate within natural systems.
- Concept c.** Students need to know that human practices can alter the cycles and processes that operate within natural systems.

Principle IV

The exchange of matter between natural systems and human societies affects the long-term functioning of both. As a basis for understanding this principle:

- Concept a.** Students need to know that the effects of human activities on natural systems are directly related to the quantities of resources consumed and to the quantity and characteristics of the resulting byproducts.
- Concept b.** Students need to know that the byproducts of human activity are not readily prevented from entering natural systems and may be beneficial, neutral, or detrimental to their effect.
- Concept c.** Students need to know that the capacity of natural systems to adjust to human-caused alterations depends on the nature of the system as well as the scope, scale, and duration of the activity and the nature of the byproducts.

Principle V

Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes. As a basis for understanding this principle:

- Concept a.** Students need to know the spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.
- Concept b.** Students need to know the process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

Appendix II GLOSSARY

Abiotic factor: non-living factor or part of an environment such as air, water, rocks, or sunlight

Adaptation: a characteristic such as a body part or behavior that helps a organism survive

Adhesion: sticking together, as water molecules might adhere to or exhibit adhesion to a xylem cell wall

Alluvial flat: a place where sand, gravel, and silt have been deposited by moving water to form a flat area

Aquifer: an underground area such as a buried river bed where there is porous rock that contains water

Back cut: the second cut made when felling a tree; the cut that actually causes the tree to fall (see undercut)

Biodiversity (biological diversity): the variety of species of organisms in an ecosystem

Biological integrity: a biological system's wholeness or completeness, including not only the variety of species (biodiversity), but also the functioning of biological processes

Biomass: the total mass (weight) of living matter in a place

Biotic factor: living factor or part of an environment such as plants, animals, and bacteria

Blowdown: trees or other plants blown over by wind

Bole: tree trunk, especially the portion that is large enough to be used for lumber

Buck: to cut up a log or bole into pieces of a desired length

Bud collar: area around the base of a tree where buds that can sprout new trees or branches form

Burl: a woody swelling on a tree, especially a redwood tree, containing buds that can grow branches or new trees

Cabling: using cables to move logs in the timber harvesting process

Cambium: a thin layer of cells just inside/under the bark of a tree. The cambium produces the xylem and phloem cells that conduct materials up and down and form the wood of a tree.

Canopy: a forest layer or cover formed by the branches and leaves

Capillary action: movement of a liquid such as water upwards through small tubes or plant cells

Carbon dioxide (CO₂): chemical used by plants in photosynthesis and produced by plant and animal cells during the process of cellular respiration

Carnivore: animal that primarily eats meat

Carrying capacity: the maximum number of individuals of a species that can survive and reproduce (live) in a particular place or ecosystem on a long-term basis

Caterpillar: a type of vehicle equipped on each side with a continuous roller belt over cogged wheels; especially useful in muddy or steep terrain

Chimney tree: a tree that has been hollowed by fire and decay but is still standing.

Christmas tree: see fire column

Clear-cut: a method of harvesting trees in which all (or nearly all) of the trees in a given area are cut (see also selective logging)

Climax community: a relatively stable, long-lasting community of plants and animals achieved after the plants and animals in a place have gone through a series of succession stages

Clone: an organism so produced by cloning

Cloning: to produce new individuals from a single individual by cuttings, fission or some other asexual method

Cohesion: sticking together of molecules of the same type, as water molecules tend to be attracted to each other and stick together

Community: all of the organisms in a particular habitat

Conifer: a tree such as a redwood, pine, fir, or spruce that reproduces through the production of cones (as opposed to flowers and fruits)

Controlled burn: intentional burning of an area, usually to remove brush, slash, or unwanted species of plants – syn. prescribed burn

Conservation: the wise use of resources to provide the most good for the most people

Consumer: an organism that obtains the energy and materials that it needs from other organisms (see producer)

Cross-cut saw: a saw made to cut across the grain, as one used to fell a tree

Cycle: a repeating process such as the water cycle, nitrogen cycle, or a life cycle

Damping off (from fungus): death of seeds or seedlings DUE to fungus

Deciduous: a plant that loses its leaves, especially in the winter (see evergreen)

Decompose: to break down chemically; to rot

Decomposer: an organism that obtains nutrients and energy by breaking down dead organisms mechanically or chemically; primarily fungi and bacteria

Decomposition: the act of decomposing

Detritivore: an organism that eats dead organisms; a scavenger

Drag saw: a type of gas powered saw used to cut down trees in the 1930s and 1940s

Duff: decaying organic matter on the forest floor

Ecology: the study of living things and their environment

Ecosystem: organisms and their environment

Endemic: native to a particular place, naturally occurring

Evergreen: a tree that doesn't lose its leaves in the winter (see deciduous)

Environmentalism: caring about the environment and taking action to protect or conserve it; the meaning of "protect or conserve" is different for different people

Epiphyte: a plant that grows on another plant

Exotic species: a species that has been introduced into a non-native environment

Fall(ing): to cut a tree down

Fell(ing): to cut a tree down

Fire column tree: a tree whose branches have been burned off by a fire but that survived and has sprouted new branches

Fog drip: precipitation formed by fog condensing on leaves or other material

Food chain: the transfer of energy and materials (food) from one organism to another in a series of steps; a food chain is a portion of a food web

Food web: the transfer of energy and materials (food) among the organisms in a community; a food web is more complex but more realistic than a food chain

Geotropism: growth in response to the Earth's gravity. Positive geotropism is growth towards the earth; negative is growth away from the earth. Thus, roots exhibit positive geotropism while stems exhibit negative geotropism.

Girdle: to cut through the bark and cambium of a tree, killing it

Global warming: an increase in the average temperature of the Earth's atmosphere. Certain chemicals, called greenhouse gasses, tend to increase global warming by trapping heat energy that would otherwise be radiated out into space. An example of a greenhouse gas is carbon dioxide.

Goosepen: a hollow in the base of a redwood tree, generally caused by fires

Greenhouse effect: see global warming

Greenhouse gas: a gas, such as carbon dioxide, that tends to trap heat energy. See global warming.

Gulch(ing): former logging practice of dragging logs downhill to a landing where they could be loaded onto rail cars or transported by water to a mill

Habitat: an area where an animal or plant lives

Hardwood: a deciduous or broad leaf tree, such as an oak or madrone, or the wood from such a tree. (The wood isn't necessarily any harder than the wood of a softwood such as fir or redwood.)

Heartwood: the no longer living center part of a tree stem. It is generally darker and harder than the outer sapwood. The heartwood provides support for the tree.

Herbaceous: a plant with a soft stem, as opposed to a woody stem

Herbivore: an animal that eats mostly plants

High-lead cabling: see skyline cabling

Humus: decomposed or decomposing material in the top section of the soil

Hypha (pl. hyphae): thread-like part of a fungus or mold

Introduced species: an exotic species; one that has been brought to a habitat that is not its natural habitat

Invasive species: a type of plant or animal that is introduced into a habitat and tends to take over, out-competing native species.

Landing: site where logs are stored until loaded onto trucks, train cars, or otherwise moved to the mill

Law of Conservation of Matter: the scientific "law" stating that matter or mass can neither be created nor destroyed

Lichen: an organism formed by a fungus and a photosynthetic organism such as an alga

Limiting factor: whatever retards or causes a population's growth to stop. It may be too much of something like shade, heat, predators, or disease, or it may be too little of something like food, sunlight, water, or soil nutrients.

Litter: fallen leaves and small branches on the forest floor

Management: making choices as to what happens to an ecosystem, with specific goals in mind

Microhabitat: a small habitat, or a habitat within a habitat. Examples might include a rotting log in a forest, or the ground under the rotting log, or the bark of a tree, or the forest canopy.

Milling: cutting of logs into boards

Misery whip: see whipsaw

Monoculture: growth one plant species in an area, especially for several growth cycles

Mutualism: a relationship between organisms in which both benefit

Mycorrhiza, (pl. mycorrhizae): a mutualistic relationship between the root of a plant such as a redwood tree and the hyphae of a fungus

Natural pruning: the dieing and breaking off of lower branches as branches above shade them

Niche: the ecological role of an organism

Old-growth: a forest or stand of trees with characteristics of forests before the coming of Europeans. See Section I, Chapter 2 for a discussion of old-growth and related terms. Old-growth forests and stands of trees include trees of varying ages.

Omnivore: an organism that feeds on both plants and animals for a substantial part of its diet

Overpopulation: a condition in which an organism's population has exceeded the carrying capacity of its environment

Overstory: see canopy

Phloem: plant tissue that transports nutrients from the leaves or needles to other parts of the plant; found between the bark and the cambium

Photosynthesis: process by which plants and algae use water, carbon dioxide, and light energy to form sugars and oxygen, storing energy in the sugars or starches for eventual use in cellular respiration

Phototropism: plant growth response to light. A positive phototropism is growth towards the light, as exhibited by leaves and branches; a negative phototropism is growth away from the light, as exhibited by roots.

Pioneer species: the first species of plants to start growing on bare rock or bare ground

Population: the number of a particular type of organism in a particular place at a particular time, or the organisms themselves

Prairie: a grassland; in the redwoods, usually a grassy hilltop or large grassy opening

Prescribed burn: intentional human-caused fire set for a specific reason such as to reduce the amount of fuel or to remove undesired types of plants – syn controlled burn

Preservation: managing the land so that it remains, as much as possible, in a more or less natural state

Producer: an organism that builds complex chemicals from simple chemicals, usually through photosynthesis; usually plants or algae

Protista: kingdom of organisms with true cells but that aren't plants, animals, or fungi, includes the algae and some animal-like protists called "protozoans"

Pyramid of numbers: a diagram showing the numbers of different kinds of organisms at different trophic levels. It is pyramid shaped because an ecosystem will support many more plants (first trophic level organisms) than top carnivores.

Reiterated trunk: a tree-like growth from a large limb or a fallen tree

Reiteration: see reiterated trunk

Release: rapid growth in diameter and height, usually exhibited after the canopy opens in a stand of trees resulting in more sunlight, nutrients, and water being available to the remaining trees; opposite of suppression

Respiration (cellular respiration): chemical process in which a cell uses sugar or starch and oxygen to release energy, producing carbon dioxide and water as byproducts

Riparian: stream-side

Root hair: tiny projection from the outer layers of roots, site of most water and nutrient absorption in most plants

Root-pull pit: pit formed in the ground when the roots of a fallen tree pull soil with them

Salmonid: a member of the salmon and trout family of fish

Sapwood: wood that carries water and nutrients for the tree. The sapwood is generally lighter in color than the heartwood, and includes xylem and phloem.

Scavenger: an animal that primarily eats dead organisms; a detritivore

Schooner: a type of sailing ship with two or more masts

Second growth: trees that grow after an area's first logging

Seed: the embryo of a plant, encased in a protective covering and surrounded by a food supply

Selective logging: logging by removing only a portion of the trees in a stand, as opposed to clear-cut logging

Sere: the series of communities in a successional sequence

Skid trail: path formed by or for moving logs to a landing

Skyline (sky-lead) cabling: the use of cables to move logs by suspending them from spar trees or other devices so that one or both ends of the log are off the ground

Slash: branches, tree tops, broken trees, brush, and other plant "waste" from a logging operation

Slump jumble: an area where a hillside has slid downhill, forming a "jumble" of disturbed soil and plants

Snag: large dead tree; provides habitat for various species such as some birds and bats

Softwood: cone-bearing tree or the wood thereof; not necessarily any softer than "hardwood"

Spar tree: tree to which cables are attached for moving logs to a landing

Spawn: the act of producing or depositing eggs, especially by fish

Species: a group of similar organisms that can breed and produce fertile offspring

Spike top tree: a tree whose top branches have died, resulting in a spike-like top without branches.

Spore: an asexual reproductive body of certain organisms such as fungi, algae, or bacteria

Springboard: a board once used by loggers to stand on while cutting a tree several feet above the ground

Stand: a group of plants, especially trees

Stewardship: caring for the land or environment

Stump sprout: a tree growing from the stump of a tree that has broken or been cut

Subcanopy: a region of branches and leaves forming a layer distinct from and below the canopy

Succession: a series of different organisms dominating a community in a particular place over a long period of time

Suppression: a slowing down in growth, usually caused by shading produced as a stand's canopy grows together shutting out the sunlight; opposite of release

Surface Tension: the tendency of water molecules to stick to each other, especially at the surface of the water

Sustained yield: a method of forest management in which, over a period of time, less wood is harvested than grows in an area

Swamp(ing): moving logs to a landing, especially in the 1800s

Tannin: a type of acidic chemical found in the wood and bark of trees such as redwood, oak, and tanoak. Tannins give wood a red or brown color and provide resistance to rot and insects.

Tap root: in some plant species, the main central root that grows downward and usually has lateral roots growing outward from it

Taxonomy: the science of classifying organisms based on their evolutionary relationships

Third growth: trees that regrow after a group of second growth trees have been harvested

Timber Harvest Plan (THP): a multi-faceted plan submitted to a governing agency such as the California Department of Forestry and Fire Protection prior to harvesting trees. A THP provides information describing how the harvest will be conducted, with the intention of maintaining wood supply while reducing environmental and social problems that might be caused by the cutting of trees.

Transpiration: the loss of water through a plant's leaves

Treefall: one or more trees falling for any of a variety of reasons such as wind, undercutting of a river bank, death of roots, or other reasons

Trophic Level: the step in a food chain or food web at which an organism functions

Tropism: a growth response of a plant to an environmental condition such as light or gravity

Undercut: the first of two cuts made when falling a tree. The undercut determines the direction in which the tree will fall. (see back cut)

Understory: plants that grow below the canopy or subcanopy layers in a forest

Urbanized: having characteristics of an urban or city environment

Vascular system: cellular system that enables an organism to move fluids throughout itself. In mammals, the vascular system includes the heart and blood vessels. In plants, the vascular system consists of the xylem and phloem tissues and the vascular cambium, which produces the xylem and cambium.

Vascular tissue: tissues such as the xylem and cambium which are responsible for moving fluid throughout an organism. See vascular system.

Waterbar: a structure such as a ridge of soil and gravel built into a road or skid trail with the intention of diverting water to the side to reduce erosion

Watershed: the land area drained by streams as they bring water and sediments to rivers or the ocean

Whipsaw: a long cross-cut saw once used to buck or cut logs into shorter lengths or for felling a large tree. See misery whip.

Windthrow (windfall): the knocking over of trees by the wind

Xylem: plant tissue that carries water and minerals upward to the leaves of a plant; found inside of the cambium; primary component of wood

Yard(ing): bringing logs to a landing area called a yard where they are stored until they are loaded onto a truck, train, or in some other way conveyed to the sawmill

Young growth: trees that have regrown after an area has been logged, burned, or otherwise had trees removed

Appendix III ORGANIZATIONS AND AGENCIES

Contacts

The following contacts might also be willing and able to have a guest speaker come to your classroom before or after the trip. Available internet addresses are provided. Addresses may change. Perform an Internet search for the organization if the Internet address below is no longer valid.

Some timber resource companies and sawmills will provide tours of their facilities. Check the yellow pages in the area where you will visit.

Some users of forest products might provide tours or guest speakers. Check the yellow pages for lumber yards, cabinet, furniture, and door manufacturers, and artists.

Fish hatcheries often provide tours.

Redwood State & National Parks and State Park Cooperating Associations www.parks.ca.gov (North to South)		
Richardson Grove Interpretive Association	1600 U.S. Highway 101 #8 Garberville, Ca. 95542	FAX 707-247-3300
Richardson Grove State Park		(707) 247-3318
Sinkyone Wilderness State Park	P.O. Box 245 Whitethorn, CA 95489	707-986-7711
Standish - Hickey State Recreation Area	69350 U.S. Hwy. 101, Box #2 Leggett, CA 95455	(707) 925-6482
Smithe Redwoods State Reserve		(707) 247-3318
North Coast Redwood Interpretive Association northcoastredwood@jeffnet.org	127011 Newton B Drury Parkway Orick, CA 95555	(707) 464-6101 Ext. 5300
Del Norte Coast Redwoods State Park		(707) 464-6101 Ext. 5112 (707) 464-6101 Ext. 5101
Jedediah Smith Redwoods State Park		(707) 464-6101 Ext. 5112 (707) 464-6101 Ext. 5101

Prairie Creek Redwoods State Park		(707) 464-6101 Ext. 5301 (707) 464-6101 Ext. 5101
Humboldt Redwoods Interpretive Association www.humboldtredwoods.org	P.O. Box 276 Weott, CA 95571	(707) 946-2263
Humboldt Redwoods State Park		707) 946-2409
Grizzly Creek Redwoods State Park		(707) 777-3683 (707) 946-2409
Redwood National and State Parks	1111 Second Street Crescent City, California 95531	(707) 465-7391 – For School Programs
Mendocino Area Parks Association	Box 1387 Mendocino, CA 95460	(707) 937- 5397 FAX (707) 937- 3845
Mendocino Headlands State Park		(707) 937-5804
Navarro River Redwoods State Park		(707) 895-3141
Hendy Woods State Park		(707) 895-3141
Van Damme State Park		(707) 937-5804
Stewards of the Coast and Redwoods www.stewardsofthecoastandredwood.org	PO Box 2 □ Duncans Mills, CA 95430 □	(707) 869-9177 FAX (707) 869-8252 EMAIL: stewards@mcn.org
Armstrong Redwoods State Reserve	17000 Armstrong Woods Road Guerneville, CA 95446	(707) 869-9177 FAX (707) 869-8252 EMAIL: stewards@mcn.org
Sonoma Coast State Beach Willow Creek Watershed (Pomo Canyon Campground)	3085 Highway One Bodega Bay	(707) 869-9177 FAX (707) 869-8252 EMAIL: stewards@mcn.org
Marin State Park Association	P.O. Box 2333 Novato, CA 94948	(707)769-5665
Samuel P. Taylor State Park	P.O. Box 251 Lagunitas, CA 94938	(415) 488-9897
Friends of Santa Cruz State Parks www.scparkfriends.org	144 School Street Santa Cruz, CA 95060	(831) 429-1840 FAX (831) 429-6748
Forest of Nisene Marks State Park		(831) 763-7063
Mountain Parks Foundation www.mountainparks.org	525 North Big Trees Park Road Felton, CA 95018	(831) 335-3174 FAX (831) 335-4295
Henry Cowell Redwoods State Park		(831) 335-7077
Waddell Creek Association	3600 Highway 1 Davenport CA 95017	(831) 427-2288

Big Basin Redwoods State Park	21600 Big Basin Way Boulder Creek, CA 95006-9064	(831) 338-8860
Portola and Castle Rock Foundation	9000 Portola State Park Rd. Box F La Honda, CA 94020	(650) 948-9098
Portola Redwoods State Park		(650) 948-9098
Big Sur Natural History Association	P.O. Box 189 Big Sur, CA 93920	(831) 667-2956
Pfeiffer Big Sur State Park	Big Sur Station #1 Big Sur, CA 93920	(831) 667-2315
Julia Pfeiffer Burns State Park	Big Sur Station #1 Big Sur, CA 93920	(831) 667-2315

Forest Products Industry Websites

American Forest & Paper Association	www.afandpa.com
American Forests	www.amfor.org
California Forest Products Commission	www.calforests.org
California Forestry Association	www.foresthealth.org
California Licensed Foresters Association	www.clfa.org
California Redwood Association	www.calredwood.org
Forest Products Society	www.forestprod.org
Forest Foundation	www.calforestfoundation.org
Forestworld	www.forestworld.org
Steve Shook's Directory of Forest Products, Wood Science, and Marketing	www.forestdirectory.com
The Agricultural Network	www.growwithcare.com
Western Wood Products Association	www.wepa.org

Other Non-governmental Redwood Organizations

Mendocino Environmental Center	www.mecgrassroots.org
Save-the-Redwoods league	www.savetheredwoods.org
Sempervirens Fund	www.sempervirens.org

The following have training and/or curriculum and other materials for teachers.

Adopt a Creek	Classroom and field curriculum & activities	www.valleywater.org
Adopt a Stream	Classroom and field curriculum & activities	www.adopt-a-stream.org
Cal Alive	CD-based curriculum	www.calalive.org
California Classroom Aquarium Education Project (C.A.E.P.) (a.k.a. Salmonids in the Classroom, Trout in the Classroom, Salmonid Project)	Curriculum based on raising salmonids in the classroom	www.dfg.ca.gov/oceo/caep
California Foundation for Agriculture in the Classroom	Curriculum on all types of agriculture	www.dfaitc.org
Earthwater (previously - Adopt a Watershed)	Classroom and field curriculum & activities	www.earthwater.org
Food, Land, and People	Resources for learning	www.foodlandpeople.org
Forest Foundation	Free materials	www.calforestfoundation.org
Incense Cedar Institute	Information and kit on how pencils are made	www.pencils.com
International Paper	Posters, teacher's guides, booklet	www.internationalpaper.com
National Parks Service	Curriculum	www.nps.gov/redw
Project Learning Tree	Environmental Ed curriculum	www.plt.org
Project WILD	Wildlife curriculum	www.dfg.ca.gov/projectwild
Project WILD Aquatic	Aquatic life curriculum	www.dfg.ca.gov/projectwild
Project WET	Curriculum on water	www.watereducation.org
Save Our Streams program of the Izaak Walton League	Stream conservation curriculum	www.iwla.org
Society of American Foresters	Forestry Institute for Teachers	www.forestryinstitute.org
Talk About Trees	Classroom talks	phone 530-527-9403
Temperate Forest Foundation	Videos and some materials for sale	www.forestinfo.org
Woodlinks	Forest careers kit	www.woodlinks.com

The Forestry Institute for Teachers (F.I.T.) is a week-long training opportunity offered to teachers at various locations around the state, including Humboldt State University in Arcata. Participants learn about forest ecosystems and resource management. Field trips to various related sites, presentations by experts in the field, and working with fellow teachers make F.I.T. a great learning experience. Participants receive training and resources from Project Learning Tree, Project WILD, and numerous other resources. F.I.T. is not only free, but teachers who submit curriculum materials afterwards also receive a stipend! For information, go to:

www.forestryinstitute.org

or perform an Internet search for Forestry Institute for Teachers.

Each year the redwood resource industry sponsors a "Redwood Logging Conference." Partly trade show and partly educational opportunity, teachers can bring classes and/or obtain materials to use in the classroom. Perform an Internet search for "Redwood Logging Conference."

The following organizations may be of interest:

American Forest Foundation	www.forestfoundation.org
American Forests/Global ReLeaf	www.amfor.org
American Pulpwood Association	www.apulpa.org
California Academy of Sciences	www.calacademy.org
California Community Forests Foundation	www.caltrees.org
Coastal Watershed Council	www.coastal-watershed.org
Conservation Foundation	www.conservationfund.org
Council for Environmental Education	www.c-e-e.org
California Regional Environmental Community (CREEC) Network	www.creec.org
Defenders of Wildlife	www.defenders.org
Ecology Action	www.ecoact.org
Environmental Education Network	www.eelink.net
Environmental Protection Information Center (EPIC)	www.wildcalifornia.org
Forest History Society	www.lib.duke.edu/forest
Forests Forever	www.forestsforever.org
Forestry Conservation Portal	www.forests.org
Friends of the Earth	www.foe.org
Izaak Walton League	www.iwla.org
Mattole Restoration Council	www.mattole.org
Mendocino Environmental Center	www.mecgrassroots.org
National Arbor Day Foundation	www.arborday.org

National Audubon Society	www.audubon.org
National Wildlife Federation	www.nwf.org
Native Forest Council	www.forestcouncil.org
Natural Resources Conservation Service	www.nrcs.usda.gov
Natural Resources Defense Council	www.nrdc.org
North American Association for Environmental Education	www.naaee.org
North Coast Environmental Center	www.yournec.org
Pacific Rivers Council	www.pacrivers.org
Planning and Conservation League	www.pcl.org
Plant Conservation Alliance	www.nps.gov/plants
Resources for the Future	www.rff.org
Sierra Club	www.sierraclub.org
Save-the-Redwoods League	www.savetheredwoods.org
Society for Ecological Restoration	www.ser.org
Soil and Water Conservation Society of America	www.swcs.org
Student Conservation Association	www.thesca.org
The Nature Conservancy	www.tnc.org
The Wilderness Society	www.wilderness.org
Trees Foundation	www.treesfoundation.org
Wildlands Restoration Team	www.wildwork.org
Wildlife Conservation Society	www.wcs.org
World Forestry Center	www.worldforestry.org
World Resources Institute	www.wri.org

Government Agencies:

California:

California Department of Conservation	www.consrv.ca.gov
California Department of Education	www.cde.ca.gov
California Department of Fish and Game	www.dfg.ca.gov
California Department of Forestry and Fire Protection	www.fire.ca.gov
California Department of Parks and Recreation	www.parks.ca.gov
California Department of Water Resources	www.water.ca.gov

Federal:

National Park Service	www.nps.gov
U.S. Environmental Protection Agency	Region 9: www.epa.gov/region09
U.S. Fish and Wildlife Service	www.fws.gov
U.S. Department of Agriculture, Forest Service: Pacific Southwest Region (Region 5)	www.fs.fed.us/r5

Appendix IV SOURCES OF MATERIALS

Books

There are, of course, many excellent sources of books.

- Many redwood parks have visitor centers where books and other resources can be purchased. Be sure to check them out when you do your pre-trip visit.
- Towns in the redwood region often have book stores with a good selection of natural history books.
- One can often find great bargains on Internet sources such as Amazon and eBay
- You might want to join with other teachers or even other schools to create a library of science resource materials.
- Public libraries often appreciate requests from teachers so that they can spend their limited budgets on books that will be used.
- The National Science Teachers Association and the National Association of Biology Teachers are a source of science education resources:

www.nsta.org

www.nabt.org

- Acorn Naturalists: A source for natural history books and other materials, including videos and hands-on materials.

www.acornnaturalists.com

Top 10

There are many wonderful books that are useful in learning about the coast redwoods. Listed below are some of those that I think would provide a great foundation for a coast redwood library. I'm sure that I've left out some great resources.

Barbour, Michael et al. *Coast Redwood: A Natural and Cultural History*. Los Olivos, CA: Cachuma Press, 2001. (Very thorough and well written natural and human history of the coast redwoods. One of the main resources used in writing *Redwood Ed.*)

Becking, Rudolf. *Pocket Flora of the Redwood Forest*. Covelo, CA: Island Press, 1982. (Includes descriptions and a key for identification of many redwood region plants.)

Collings, Randy. *Redwood Empire*. Anaheim, CA: Adam Randolph Collings, Inc., 1985. (Very well done book, includes human history, natural history, even some children's stories.)

Henson, Paul and Donald Usner. *The Natural History of Big Sur*. Berkeley, CA: University of California Press, 1993. (Although written for Big Sur, this nicely illustrated book includes information on many organisms found throughout the redwood region.)

Hewes, Jeremy. *Redwoods: The World's Largest Trees*. New York, NY: Smithmark Publishers, 1981. (Natural and human history of both the coast redwood and the giant Sequoia.)

Khosla, Maya. *Web of Water: Life in Redwood Creek*. San Francisco, CA: Golden Gate National Parks Association, 1997. (Beautifully written and illustrated story of the ecology of Redwood Creek.)

Lyons, Kathleen and Mary Beth Cuneo-Lazaneo. *Plants of the Coast Redwood Region*. Los Altos, CA: Looking Press, 1988.) (Photos, descriptions, and other information on many flowers and other plants, organized by flower color.)

Nature Finder Guides by the Nature Study Guild of Berkeley, CA, including:

Pacific Coast Berry Finder by Glenn Keator

Pacific Coast Bird Finder by Roger Lederer

Pacific Coast Fern Finder by Glenn Keator and Ruth Hardy

Pacific Coast Mammals by Ron Russo

Pacific Coast Tree Finder by Tom Watts

Redwood Region Flower Finder by Phoebe Watts

Noss, Reed, ed. *The Redwood Forest: History, Ecology, and Conservation of the Coast Redwoods*. Covelo, CA: Island Press, 2000. (Goes into greater depth about the science of the redwoods than Barbour's *Coast Redwood*.)

Rasp, Richard. *Redwood: The Story Behind the Scenery*. Las Vegas, NV: KC Publications, 1999. (Beautifully illustrated with photographs. Includes both natural and human history. Part of a series of "Story Behind the Scenery" books on national parks.)

For young redwood sprouts

Anderson, Margaret *et al.* *Ancient Forests: Discovering Nature*. Middleton, WI: Dog-Eared Publications, 1995. (Activity book with games and other activities, including stickers. Ages 8-13.)

Bishop, Nic. *Forest Explorer: A life-size Field Guide*. New York, NY: Scholastic Press, 2004. (Life size illustrations of over 130 animals, including field notes. Ages 8-13.)

Bloomgren, Jennifer. *Where Would I Be in an Evergreen Tree?*. Seattle, WA: Sasquatch Books, 2004. (An interesting look at animal and plant life from the perspective of organisms living in a tree in the Pacific Northwest. Ages 3-7.)

Franco, Carol. *A Child's Guide to California Wildflowers*. Idylwild, CA: Mountain Lily Treasures, 2003. (Simple illustrations and information about many common wildflowers of the foothills and mountains. Includes a section in which the child can make notes about wildflowers found.)

Fredericks, Anthony. *Under One Rock – Bugs, Slugs and other Ughs*. Nevada City, CA: Dawn Publications, 2001. (Rhyming exploration of organisms living under a rock, with natural history information included. Ages 4-10.)

Gill, Shelly and Shannon Cartwright. *The Last American Rainforest*. Seattle, WA: Sasquatch Books, 1997. (Focuses on the temperate rain forests from Alaska down the west coast of Canada, including native cultures. Ages 5-10.)

Guiney, Miriam. *Redwood Parks Activity Book*. Weott, CA: Humboldt Redwoods Interpretive Association, 1983. (Games, puzzles, and other activities. Available in some park visitor centers.)

Harper, Alice. *The Banana Slug*. Santa Cruz, CA: Otter B Books, 1988. (Very informative and interesting booklet about a redwood forest animal of great interest to kids.)

Khosla, Maya. *Web of Water: Life in Redwood Creek*. San Francisco, CA: Golden Gate National Parks Association, 1997. (Beautifully written and illustrated story of the ecology of Redwood Creek.)

McKinney, Barbara. *A Drop Around the World*. Nevada City, CA: Dawn Publications, 1998. (Shows water in many different settings around the world with rhyming descriptions. Not exactly presented as the water cycle, but could easily be used to teach the water cycle. Ages 5 to 12.)

Paul, Tessa. *Animal Trackers In Woods & Forests*. New York, NY: Carbtree Publishing Company, 1997. (Includes illustrations of several redwood region animals, including not only tracks but natural history information.)

Prevost, John. *Redwood Trees*. Edina, MN: Abdo & Daughters, 1996. (Very basic information. Part of the "Checkerboard Nature Library.")

Rapp, Valerie. *Life in an Old Growth Forest*. Minneapolis, MN: Lerner Publications Company, 2003. (Includes natural history and human history information about old-growth forests in the Pacific Northwest. Ages 9-17)

Reed-Jones, Carol. *Salmon Stream*. Nevada City, CA: Dawn Publications, 2000. (A rhyming life history of the salmon, described as appropriate for ages 6 to 12.)

Reed-Jones, Carol. *The Tree in the Ancient Forest*. Nevada City, CA: Dawn Publications, 1995. (Nicely written and illustrated verse about redwoods and associated organisms. Ages 4 to 10.)

Schneider, Bill. *The Tree Giants: The Story of the Redwoods, the World's Largest Trees*. Helena, MT: Falcon Press, 1988. (Includes information on both coast redwoods and giant sequoia.)

Vieira, Linda. *The Ever-Living Tree: The Life and Times of a Cost Redwood*. New York, NY: Walker and Company, 1994. (Describes events in the human world and in the life of a redwood over the last 2000 years or so.)

Ward, Jennifer. *Forest Bright, Forest Night*. Nevada City, CA: Dawn Publications, 2005. (Illustrations and rhymes about forest animals by day and by night.)

Woodend, Rosetta. *Sammy Salmon's big adventure: The lifecycle of a salmon*. Cotati, CA: Animal Tracks Press, 2004. (A simple, nicely illustrated book for younger children. The "story" is written as a poem, and additional information is included. Described as appropriate for ages 3 to 8.)

Forestry Education Materials

Programs and Materials:

Calif. Foundation for Agriculture in the Classroom:	www.cfaitc.org
Food, Land and People:	www.foodlandpeople.org
Forest Foundation: (also see "Freebies" below):	www.calforestfoundation.org
Incense Cedar Institute:	www.pencils.com
International Paper:	www.internationalpaper.com
Project Learning Tree:	www.plt.org
Society of American Foresters:	www.safnet.org
Talk About Trees:	www.talkabouttrees.org
Temperate Forest Foundation	www.forestinfo.org
Woodlinks:	www.woodlinks.org

"Tree cookies," (sections of trees or branches showing growth rings and various growth patterns) can be purchased from several of the suppliers listed on page 404. Another source is Tom Catchpole. For price information and an order form, send an email to him at: < treecookies@netptc.net >. For large or custom orders, telephone him at (559) 855-2194.

Forestry equipment such as forester's tapes for measuring diameter and increment borers for determining age and growth rates can be purchased from several companies. Perform an Internet search for "forestry supplies and equipment."

Forestry and Wood Products Related Web Sites:

American Forest and Paper Association	www.afandpa.com
American Forests	www.amfor.org
California Forest Products Commission	www.calforests.org
California Forestry Association	www.foresthealth.org
California Licensed Foresters Association	www.clfa.org
California Redwood Association	www.calredwood.org
California Department of Forestry and Fire Protection	www.fire.ca.gov
Forest Products Society	www.forestprod.org
Forestworld:	www.forestworld.com
Incense Cedar Institute	www.pencils.com
The Agricultural Network	www.growwithcare.com
U.S. D.A. Forest Service	www.fs.fed.us
Western Wood Products Association	www.wwpa.org

General Science Education Materials

The list below is not complete, but it includes most major science supply companies. For more, perform an Internet search for "science supply houses."

Arbor Scientific	www.arborsci.com
Carolina Supply	www.carolina.com
Delta Education	www.delta-education.com
Edmund Scientific	www.scientificsonline.com
Fisher Scientific	www.fischersci.com
Flinn Scientific	www.flinnsci.com
NASCO	www.nasco.com
Sargent-Welch	www.sargentwelch.com
Science Kit and Boreal Laboratories	www.sciencekit.com
Wards Natural Science	www.wardsci.com

Freebies

Bearss, Edwin. *History Basic Data Redwood National Park.* Washington, D.C.: National Park Service, Division of History, Office of Archaeology and Historic Preservation, 1969 (reprinted 1982). (This is an excellent resource for anyone who is interested not only in park history but the history of the Humboldt and Del Norte County region. It is out of print, but is available online. The entire document is about 500 pages long. About half is writing and half old documents, maps, and photos.) Use a search engine to find the title or go to:

www.cr.nps.gov/history/online_books/redw

The **Big Creek Lumber Company** has produced a very nice booklet titled *What's Happening n Our Redwood Forest? – The Santa Cruz Mountain Redwood Story.* Contact them at:

janetw@big-creek.com or phone: 831-457-5023

The **California Redwood Association** has a CD on uses of redwood:

www.info@calredwood.org or phone: 888-CALREDWOOD

The **Forest Foundation** has variety of materials available, including video tapes, curriculum packets, and posters with titles such as *Forest Management Practices, Forests are Important to All of Us, The Most Common Trees in California Forests, and The Forest Cycle.* They also have a booklet titled *A Guide to California's Wildlife on Private Forestlands.*

www.calforestfoundation.org or phone: 1-866-241-TREE

Better than free! The **Forestry Institute for Teachers (F.I.T.)** will pay teachers a stipend for participating in the week-long institute and completing a curriculum development project. These institutes are offered during the summer at several sites around the state, including Humboldt State University. For information, go to:

www.forestryinstitute.org or phone: 800-738-TREE

The **Muir Woods National Monument** has a CD of education programs, grades K-5. The lessons and activities can also be downloaded. The CD includes photos of many plants and animals found in the redwood forest.

www.nps.gov/muwo or phone: 415-388-0107

Project Learning Tree publishes a *Pre K-8 Environmental Education Guide* that includes nearly 100 activities as well as very useful appendices. To obtain the guide, one must participate in a very enjoyable teacher training workshop. The California P.L.T. Coordinator can be reached at:

Kay.Antunez@fire.ca.gov or phone: 916-653-7958

The **Redwood National and State Parks** has an information packet that includes maps and a variety of fact sheets on the various communities found within the parks. The packet is published in conjunction with the Save-the-Redwoods League and the Redwood Park Association. The NPS web site also has quite a lot of information at:

<http://www.redwood.national-park.com/info>

Contact information:

headquarters: 1111 Second Street, Crescent City, 95531

phone: 707-464-6101

email: REDW_Information@nps.gov

homepage: www.nps.gov/redw/

The **Save-the-Redwoods League** has some information on their web site as well as an education grant program (The League helped fund the creation of *Redwood Ed.*). They also have several inexpensive publications:

<http://www.savetheredwoods.org> or phone: 415-362-2352

The **Sempervirens Fund** primarily seeks to purchase redwood forest land for preservation, but their web site does have some information, and they provide opportunities for involvement.

<http://www.sempervirens.org> or phone: 650-968-4509

The **United States Environmental Protection Agency** has produced *Climate Change, Wildlife, and Wildlands: A Toolkit for Teachers and Interpreters*. This free kit includes a CD, video tape, a wheel for determining CO₂ production and ways to reduce it, and cards depicting ways that wildlife are affected by global warming, and other classroom resources. A revised version should be available in 2008.

www.epa.gov/globalwarming or phone: 202-564-3482 or 304-535-6057

The **United States Forest Service** has a series of posters including such topics as: fire's role in nature, leaves, birds, fungi, animal babies, birds nests and eggs, insects, state trees, reptiles, butterflies, edible forest plants, animal tracks, fish, and others. They are distributed in conjunction with the **National Association of State Foresters**. **Contact** your nearest **U.S.D.A. – Forest Service** or **California Department of Forestry and Fire Protection office**.

Appendix V RESOURCES CITED OR USED IN *REDWOOD ED*

INTRODUCTION

Louv, Richard. *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*. Chapel Hill, NC: Algonquin Books of Chapel Hill, 2005. (Eloquent discussion of the importance of experiencing nature. Very important reading for teachers and parents.)

Section I: NATURAL HISTORY OF THE REDWOODS

Adams, Kramer. *The Redwoods*. New York, NY: Popular Library, 1969 (?). (This small volume contains lots of information presented in an easy to read style. I would say that the main point that the author tries to make is that harvesting of redwoods in a responsible manner is good conservation, i.e., the best use of the resource. This book is out of print, but can be found at Internet sites.)

Aesop's Fables: Illustrated Junior Library. New York, NY: Grosset and Dunlap, Inc., 1947. (This collection of Aesop's fables tells the stories in simple language accompanied by simple illustrations. Other, more recent, volumes may include other fables, more interesting illustrations, and the stories may have different titles.)

Barbour, Michael et al. *Coast Redwood: A Natural and Cultural History*. Los Olivos, CA: Cachuma Press, 2001. (Excellent, well written, well illustrated comprehensive resource. This is the main resource used for both the natural history and human history sections of *Redwood Ed*. A must-have for people who want to understand the coast redwoods! Not as heavy on the science as Noss' *The Redwood Forest*.)

Becking, Rudolf. *Pocket Flora of the Redwood Forest*. Covelo, CA: Island Press, 1982. (Excellent resource for those who would like to learn to identify plants of the redwood region. Includes a section on plant identification and the use of key, a key to the families of plants, and keys and descriptions for many genera and species.)

Behler, John and F. Wayne King. *The Audubon Society Field Guide to North American Reptiles and Amphibians*. New York, NY: Alfred A Knopf, 1979. (Part of the excellent Audubon Field Guide series, which include not only descriptions and maps, but information on tracks and scat and quite a bit of other information.)

Behnke, Robert. *Trout and Salmon of North America*. New York, N.Y.: The Free Press, 2002. (This beautifully illustrated book describes and gives lots of information about the various species and subspecies of salmonids found in North America.)

Berger, John. *Understanding Forests*. San Francisco, CA: The Sierra Club, 1998. (An overview of forests and forestry, written from a Sierra Club perspective.)

Borror, Donald J. *Dictionary of Word Roots and Combining Forms*. Mountain View, CA.: Mayfield Publishing Company, 1988. (Excellent resource for learning about word roots. I recommend it for all teachers and naturalists.)

Borror, Donald J and Richard E. White. *A Field Guide to Insects: America North of Mexico*. New York, NY: Houghton Mifflin, 1970. (Part of the excellent Peterson Field Guide series.)

Burt, William and Richard Grossenheider. *A Field Guide to the Mammals: North America North of Mexico*. New York, NY: Houghton Mifflin, 1980. (Part of the excellent Peterson Field Guide series.)

California Redwood Association. *The State of the Redwoods Today*. Novato, CA: California Redwood Association, 1990. (A booklet published jointly by the American Forest Council, California Redwood Association, Redwood Region Conservation Council, and the Timber Association of California. Not recently updated.)

Chaney, Ralph. *Redwoods of the Past*. San Francisco, CA: Save-the-Redwoods Legue, 1990. (Nicely written small pamphlet, primarily about the dawn redwood.)

Dawson, Todd. "The Use of Fog Precipitation by Plants in Coastal Redwood Forests," in *Proceedings of the Conference on Coast Redwood Forest Ecology and Management*. Arcata, CA: Humboldt State University, 1996. (This document includes almost 60 articles/presentations on coast redwood ecology and management.)

Deem, Adam. *A Guide to California's Wildlife on Private Forestlands*. Auburn, CA: The California Forest Foundation, 2006. (This publication, as well as other resources, is available for free to teachers. It includes photographs and other information about many different animals, broken down by types of forests...a very useful resource!)

Diller, Lowell. "Wildlife of the Redwood Region," in *Proceedings of the Conference on Coast Redwood Forest Ecology and Management*. Arcata, CA: Humboldt State University, 1996. (This document includes almost 60 articles/presentations on coast redwood ecology and management.)

Dodd, Richard et al. *SOD Symposium-Poster Abstract*. 2 January 2003. Regents of the University of California. 6 September 2006

<http://darn.ucop.edu/ihrmp/sodsymp/poster/poster32.html>

Eder, Tamara. *Mammals of California*. Auburn, WA: Lone Pine Publishing, 2005. (Excellent resource, includes 1-page descriptions of each species, a section on introduced species, fine illustrations.)

Eifert, Larry. *The Distinctive Qualities of Redwoods*. Port Townsend, WA: Estuary Press, 2002. (Nice booklet with basic information on the coast redwoods.)

Ferrar, H. *et al.* *The Concise Oxford French Dictionary*. New York, N.Y.: Oxford University Press, 1980.

Field Guide to the Birds of North America. Washington, D.C.: National Geographic Society, 1999. (Nicely illustrated, includes a section on bird anatomy.)

Fritz, Emanuel. *Story Told by a Fallen Redwood*. San Francisco, CA: Save-the-Redwoods League, 1995. (Very interesting booklet describing the information that can be gleaned from studying tree rings and other characteristics of a fallen redwood in Richardson Grove State Park in Humboldt County. Nicely illustrated. Good companion to some of the activities in *Redwood Ed.*)

Goodson, Gar. *Fishes of the Pacific Coast*. Stanford, CA: Stanford University Press, 1988. (A nice handbook of fish of the Pacific Coast.)

Guralnik, David B. (ed). *Webster's New World Dictionary of the American Language, Second College Edition*. New York, N.Y.: Simon and Schuster, 1984.

Harper, Alice Bryant. *The Banana Slug: A Close Look at a Giant Forest Slug of Western North America*. Santa Cruz, CA: Otter B Books, 1988. (A interestingly written and well illustrated - with photographs and drawings - booklet dedicated to this unusual animal.)

Hauser, Susan Carol. *Outwitting Ticks: The Prevention and Treatment of Lyme Disease and Ailments Caused by Ticks, Scorpions, Spiders, and Mites*. New York, NY: The Lyons Press, 2001. (Very informative book about ticks (and tick-borne diseases) and other relatives such as the black widow spider, brown recluse spiders, scorpions, and others.)

Havel, Eric. *Redwoods Resource Folder*. Oakland, CA: Chabot Space and Science Center, 2006. (A collection of information and activities produced for use in East Bay parks.)

Helfer, Jacques. *The Redwood Titans*. Ukiah, CA: Panpipes Press, 1966. (This small book gives descriptions of various species of "redwood" which grow around the world.)

Hensen, Paul and Donald Usner. *The Natural History of Big Sur*. Berkeley, CA: University of California Press, 1993. (A well illustrated guide to not only the redwoods, but also the coast, chaparral, and oak woodlands of the Big Sur region.)

Geniella, Mike. "Humboldt Redwood May Trump Forest of Giants." *The Santa Rosa (CA) Press Democrat*. 8 September, 2006: B1.

Ingles, Lloyd. *Mammals of the Pacific States*. Stanford, CA.: Stanford University Press, 1965. (Includes a key for identifying mammals and pictures and information about most species.)

Integrated Taxonomic Information System (< www.itis.usda.gov >) This is a web site where one can check common and scientific names to find out the currently accepted names of organisms.)

Invasive Weeds of Marin & Sonoma Counties. Santa Rosa, CA: Sonoma County Agricultural Commissioner, 2003 (and others). (This brochure is well illustrated with photographs of common invasive species found throughout the redwood region. More information can be obtained at: < www.marinsonomaweedmanagement.org >

Jepson, Willis. *Trees, Shrubs and Flowers of the Redwood Region*. San Francisco, CA: Save-the-Redwoods League, 1984. (Nice, inexpensive booklet of common redwood region plants.)

Johnson, Hugh. *The International Book of Trees*. New York, NY: Bonanza Books, 1980. (First published in England, contains some interesting English perspectives and language. Some natural and human history about the major groups of trees.)

Katzner, Kenneth. *English-Russian/Russian-English Dictionary*. New York, N.Y.: John Wiley and Sons, 1994. (Pronunciation from Froelich, Christopher. *The Complete Idiot's Guide to Learning Russian*. New York, N.Y. Alpha Books, 2004.)

Khosla, Maya. *Web of Water: Life in Redwood Creek*. San Francisco, CA: Golden Gate National Parks Association, 1997. (This beautifully illustrated book describes life in Muir Woods' Redwood Creek. Many different plants and animals found in creeks throughout the redwood region are illustrated, and the scientific information is mixed with beautifully written prose.)

Kozloff, Eugene. *Plants and Animals of the Pacific Northwest*. Seattle, WA: University of Washington Press, 1976. (While not strictly redwood region, this book provides information on many redwood region organisms.)

Kricher, John. *A Field Guide to California and Pacific Northwest Forests*. New York, N.Y.: Houghton Mifflin, 1998. (Part of the excellent Peterson Field guide series. Includes many illustrations and includes both plants and animals.)

Lanner, Ronald. *Conifers of California*. Los Olivos, CA: Cachuma Press, 1999. (Beautifully illustrated book with descriptions and information on all of the major conifers in California.)

Liang, Marco. *Getting Around in Chinese*. Bardonia, N.Y.: Marco Liang and Company, 1974.

Little, Elbert. *The Audubon Society Field Guide to North American Trees*. New York, N.Y.: Alfred A. Knopf, 1980. (Many photos of leaves and fruits...excellent guide.)

Lowell, Phillip. *A Review of Redwood Harvesting: Another Look – 1990*. Sacramento, CA: California Department of Forestry and Fire Protection, 1990. (Uses before and after pictures to make the case for clear-cutting. An update of a publication by Osburn and Lowell from 1972.)

Lyons, Kathleen and Mary Beth Cuneo-Lazaneo. *Plants of the Coast Redwood Region*. Soquel, CA: Shoreline Press, 2003. (Excellent photographic guide to many of the more common plants. Includes uses of the plants by Native Americans.)

Macchi, Vladimiro, ed. *English-Italian, Italian-English Dictionary*. New York, N.Y.: Harper Collins, 1990

MacDonald, Jim and Jeff Obirek. *Grades K-5 Education Programs: Into the Redwood Forest*. Mill Valley, CA: Muir Woods National Monument, National Parks Service, 2003. (This CD, which can be obtained for free, includes lessons, information, and photographs that can be used for teaching about redwoods anywhere.)

Merriam, C. Hart. *Indian Names for Plants and Animals Among Californian and Other Western North American Tribes*. Socorro, N.M.: Ballena Press, 1979. (This book provides the names of many plants and animals in several different Native American languages.)

Miller, Dan. *Life History and Ecological Guide to the Coast Redwood, Sequoia sempervirens*. Aptos, CA: self-published, 2005. (Written primarily for use in the Forest of Nisene Marks State Park, this resource provides a wealth of information that is applicable throughout the redwood region.)

Miller, Sherri and C. John Ralph. "Relationship of Marbled Murrelets with Habitat Characteristics in Redwood Forests in Northwestern California," in *Proceedings of the Conference on Coast Redwood Forest Ecology and Management*. Arcata, CA: Humboldt State University, 1996. (This document includes almost 60 articles/presentations on coast redwood ecology and management.)

Moore, Ken. *A Plague of Plants: Controlling Invasive Plants in Santa Cruz County*. Santa Cruz, CA: Wildlands Restoration Team, 2002. (A booklet describing over 2 dozen invasive species, how to remove them, how to dispose of them, and follow-up procedures. Available online at: < www.wildwork.org >)

Munz, Philip and David Keck. *A California Flora*. Berkeley, CA: University of California Press, 1965. (This is a commonly used "key" for California plants.)

Noss, Reed, Ed. *The Redwood Forest: History, Ecology, and Conservation of the Coast Redwoods*. San Francisco, CA: Save-the-Redwoods League, 2000. (Excellent resource: Provides lots of background information. Some very readable, some may be too detailed/scientific for the average reader. Excellent companion to *Coast Redwood* by Barbour.)

Osburn, Verne and Phillip Lowell. *Review of Redwood Harvesting*. Sacramento, CA: California Division of Forestry (now California Department of Forestry and Fire Protection), 1972. (Uses before and after pictures to make the case for clear cutting in the redwood forests. Updated in 1990...see Lowell)

The Oxford-Duden Pictorial German and English Dictionary. New York, N.Y.: Oxford University Press, 1979.

The Oxford-Duden Pictorial Italian and English Dictionary. New York, N.Y.: Oxford University Press, 1995.

The Oxford-Duden Pictorial Spanish and English Dictionary. New York, N.Y.: Oxford University Press, 1995.

Padilla, Michael *et al.* *Prentice Hall Science Explorer: Focus on Life Science*. Upper Saddle River, N.J.: Prentice Hall, Inc. 2001. (A commonly used junior high school text.)

Peterson, Roger Tory. *A Field Guide to Western Birds*. Boston, MA: Houghton Mifflin, 1990. (Part of the excellent Peterson Field Guide series.)

Petrides, George and Oliva Petrides. *Western Trees*. New York, N.Y.: Houghton Mifflin, 1992. (Part of the excellent Peterson Field Guide series. Also includes origin of scientific names (word roots) for many species.)

Petti, Vincent and Kersten Petti. *Hippocrene Standard Dictionary: English-Swedish/Swedish-English*. New York, N.Y.: Hippocrene books, 1993.

Pough, Richard. *Audubon Western Bird Guide: Land, Water, and Game Birds*. Garden City, NY: Doubleday and Company, 1957.

Redwood: Official National and State Parks Handbook. Washington, D.C.: Division of Publications, National Park Service, 1997?. (Well written and well illustrated booklet that includes human history, natural history, and information on visiting the parks.)

Robbins, Chandler *et al.* *A Guide to Field Identification: Birds of North America*. New York, NY: Golden Press, 1966. (A standard field guide to birds.)

Save-the-Redwoods League. Staff provided input, especially on Section I, the Natural History of the Redwoods. 114 Sansome Street, Room 1200, San Francisco, Ca 94104.

Schneider, Bill. *The Tree Giants: The Story of the Redwoods, the World's Largest Trees*. Billings, MT: Falcon Press Publishing Co., 1988. (Informative, small book covering many aspects of redwood natural history as well as human history. Ages 8-12.)

Simpson Timber Company. *FAQs: Selling tips for the Simpson Redwood Collection*. Arcata, CA: Simpson timber Company, 2003. (This booklet discusses advantages of redwood as a building material, especially for decks.)

Smith, Robert. *Ecology and Field Biology*. New York, NY: Harper and Row, 1966. (A very good general ecology text.)

Stebbins, Robert. *A Field Guide to Western Reptiles and Amphibians*. New York, NY: Houghton Mifflin, 2003. (Part of the excellent Peterson Field Guide series.)

The Tall Trees: Portraits of California's Redwood Parks, Preserves, and Visitor Attractions. Fortuna, Ca: FVN Corporation, 2001. (Beautiful photographs and fine drawings of sites to see in the coast redwood region. Includes both natural and human "attractions.")

Thomas, John Hunter. *Flora of the Santa Cruz Mountains: A Manual of the Vascular Plants*. Stanford, CA: Stanford University Press, 1961. (Classic key to the identification of vascular plants of the Santa Cruz Mountains.)

Uvdardy, Miklos (revised by John Farrand). *The Audubon Society Field Guide to North American Birds*. New York, NY: Alfred A Knopf, 1994. (Part of the excellent Audubon Field Guide series, which include not only descriptions and maps, but information on tracks and scat and quite a bit of other information.)

Veirs, Stephen. "Ecology of the Coast Redwood," in *Proceedings of the Conference on Coast Redwood Forest Ecology and Management*. Arcata, CA: Humboldt State University, 1996. (This document includes almost 60 articles/presentations on coast redwood ecology and management.)

Watts, Tom. *Pacific Coast Tree Finder: A Pocket Manual for Identifying Pacific Coast Trees*. Rochester, N.Y.: Nature Study Guild, 1973. (Very handy and easy to use "key" to most of the common trees. Part of a series that includes both plants and animals.)

Whitaker, John. *The Audubon Society Field Guide to North American Mammals*. New York, NY: Alfred A Knopf, 1996. (Part of the excellent Audubon Field Guide series, which include not only descriptions and maps, but information on tracks and scat and quite a bit of other information.)

Yocom, Charles and Ray Dasmann. *The Pacific Coastal Wildlife Region: Its Common Wild Animals and Plants*. Happy Camp, CA.: Naturegraph Publishing Company, 1965. (Naturegraph publishes several good guides on nature and Native Americans, among other topics.)

Section II: HUMAN HISTORY OF THE REDWOODS

PRINT RESOURCES:

Adams, Kramer. *The Redwoods*. New York, NY: Popular Library, 1969 (?). (This small volume contains lots of information presented in an easy to read style. I would say that the main point that the author tries to make is that harvesting of redwoods in a responsible manner is good conservation, i.e., the best use of the resource. This book is out of print, but can be found at Internet sites.)

American Forest Foundation. *Project Learning Tree: Environmental Education Pre k-8 Activity Guide*. Washington, D.C.: American Forest Foundation, 2006. (This guide provides 96 activities with extensive cross-referencing and wonderful appendices. I recommend that any teacher who is interested in teaching about trees (or nature in general) participate in not only the Project Learning Tree training but also the Project WILD and WILD Aquatic trainings. See the resources section.)

Anderson, M. Kat. *Tending the Wild*. Berkeley: University of California Press, 2005. (Subtitled "Native American Knowledge and the Management of California's Natural Resources." Includes discussion of caring for the land, basketry, cultivating shrubs and trees for tools, foods, contemporary California Indian harvesting and management practices, and restoring landscapes.)

Andrews, Ralph W. *Glory Days of Logging*. New York, NY: Bonanza Books/Crown Publishers, 1956. (Andrews is a logging enthusiast, and he infuses his book(s) with many letters, newspaper accounts, etc. Many illustrations and interesting reading.)

Andrews, Ralph W. *Redwood Classic*. New York, NY: Bonanza Books/Crown Publishers, 1958. (Chock full of primary resources such as newspaper accounts, magazine articles, and old photographs. While many of the illustrations are not very clear, it makes very interesting reading about both coast redwoods and the giant sequoia of the Sierra)

Anthrop, Donald. *Redwood National and State Parks*. Happy Camp, CA: Naturegraph Publishers, Inc., 1977. (Includes chapters on the natural history of coast redwoods, human history, and a guide to the Redwood National Park and 3 associated State parks.)

Arvola, T.F. *Regulation of Logging in California: 1945-1975*. Sacramento, CA. California Division of Forestry, 1976. (An interesting chronology of people and events that affected timber legislation from 1945-1975.)

Barbour, Michael et al. *Coast Redwood: A Natural and Cultural History*. Los Olivos, CA: Cachuma Press, 2001. (Excellent, well written, well illustrated comprehensive resource. Must-have for people who want to understand the coast redwoods! Not as heavy on the science as Noss' *The Redwood Forest*.)

Bearss, Edwin. *History Basic Data Redwood National Park*. Washington, D.C.: National Park Service, Division of History, Office of Archaeology and Historic Preservation, 1969 (reprinted 1982). (This is an excellent resource for one who is interested not only in park history but the history of the Humboldt and Del Norte County region. It is out of print, but is available online. The entire document is about 500 pages long. About half is writing and half old documents, maps, and photos.) Use a search engine to find the title or go to:

www.cr.nps.gov/history/online_books/redw

Berger, John. *Understanding Forests*. San Francisco, CA: The Sierra Club, 1998. (An overview of forests and forestry, written from a Sierra Club perspective.)

Brown, Vinson. *The Pomo Indians of California and Their Neighbors*. Happy Camp, CA: Naturegraph Publishers, 1969. (Small book covering lots of material, including language, sub-groups of Pomo, material culture, social and religious culture, neighbors, and place names. Many illustrations.)

California State Board of Equalization. *Annual Timber Harvest Statistics*. Sacramento, CA: State Board of Equalization, Timber Tax Section, 2006. (updated annually)

California Redwood Association. *Technical Data Sheet: Redwood: Redwood Forests Certified for Sustainable Harvests (Tec-19)*. Novato, CA: California Redwood Association, 2002. (one of a series of "Technical Data Sheets" available from the CRA)

Carranco, Lynwood and John Labbe. *Logging the Redwoods*. Caldwell, ID: The Caxton Printers, 1975. (An excellent collection of information, including many pictures.)

Caspar Creek Experimental Watershed. Pacific Southwest Research Station. Information available on the Internet at:

http://www.fs.fed.us/psw/ef/caspar_creek

The Changing California: Forest and Range 2003 Assessment: Assessment Summary. Sacramento, CA: California Department of Forestry and Fire Protection, 2003. (Lots of data and maps of uses of forests and rangelands, including trends and concerns.)

Collings, Randy. *Redwood Empire*. Anaheim, CA: Adam Randolph Collings, Inc., 1985. (Very well done book, includes human history, natural history, even some children's stories.)

Conway, Steve. *Logging Practices: Principles of Timber Harvesting Systems, Revised Edition*. San Francisco, CA: Miller Freeman Publications, Inc., 1982. (A somewhat detailed description of logging practices in 1982.)

Dekker-Robertson, Donna. "Global Thinking Needed" *California Forests*, Vol. 8, No. 1, Spring, 2004. Sacramento, CA: California Forestry Association. (Interesting articles in a forest industry publication.)

Dicus, Christopher and Kenneth Delfino. *A Comparison of California Forest Practice Rules and Two Forest Certification Systems*. San Luis Obispo, CA: California Polytechnic State University, 2003. (Compares the California forest practice rules and third-party certification by the Forest Stewardship Council and the Sustainable Forest Initiative. Funded by the California Forest Products Commission.)

Dr. Seuss (Theodor Seuss Geisel). *The Lorax*. New York, NY: Random House, 1971. (An Internet search will provide a variety of Lorax-related information, including Earth Day activities, and a game called "The Lorax's Save the Trees Game.")

www.seussville.com/games/Lorax

There is also a video of the book. As noted in *Redwood Ed*, be aware of the community's sensitivities, and that the book is about waste and greed, not about bashing all timber harvesting. In fact, the book ends on positive note of hope, promoting individual involvement in protecting the environment.)

Dolezal, Robert. *Exploring Redwood National Park*. Beaverton, OR: The Touchstone Press, 1974. (A guide to the park, including history, geology, weather, info on redwoods, plants, animals, trails, and more.)

Eargle, Dolan. *The Earth Is Our Mother: A Guide to the Indians of California, Their Locales and Historic Sites*. San Francisco, CA: Trees Company Press, 1986. (Part One provides historical background information. Part Two describes various groups, including discussion of present-day reservations and rancherias. Part Three is about problems of California Indians in today's society.)

Emanuel, George. *California Indians: An Illustrated Guide*. Lemoore, CA: Kings River Press, 1993. (Information about and pictures of 17 major California Indian groups.)

Giono, Jean. *The Man Who Planted Trees*. Chelsea, VT: Chelsea Green Publishing Company, 1985. (An interesting and inspiring fiction book about a man who made it his life's work to plant trees to restore forests in Europe.)

Grosvenor, Melville. "World's Tallest Tree Discovered." National Geographic Magazine July, 1964: 1-9

Hanson, Dennis. *Growth Stock: Trees for California*. Sacramento, CA: Office of Appropriate Technology, State of California, 1982. (An interesting booklet that discusses the value of trees.)

Hackett, Steven. "The North Coast Region of California Economic And Demographic Trends and Outlook." Panel Presentation for the California Employment Development Department, Sacramento, CA: May, 2006. (Professor Hackett provided me with a copy of his Power Point slide presentation. He is a professor at Humboldt State University.)

Hartzog, George. *The Redwoods: A National Opportunity for Conservation and Alternatives for Action*. San Francisco, CA: National Park Service, Western Regional Office, 1964. (Hartzog was the Director of the NPS when this interesting booklet was published. This is a report on the 1963-64 National Geographic-funded study that eventually led to the creation of the Redwood National Park. The chapter titles include: The Study, The Redwoods, The Situation, The Opportunities, and Economic Values.)

Havel, Eric. *Redwoods Resource Folder*. Oakland, CA: Chabot Space and Science Center, 2006. (This is a packet of resources put together for teachers who want to educate their students about the redwoods, with special emphasis on the East Bay area. Mostly copies of publications from other groups. A very useful resource, the creation of which was supported by the Save-the-Redwoods League.)

Hearst, Phoebe Museum of Anthropology. Berkeley, CA: University of California, Berkeley, 2006: < hearstmuseum.berkeley.edu/collections/kroeber > (This website provides information from the Phoebe A. Hearst Museum of Anthropology at U.C Berkeley.)

Heizer, R.F. and M.A. Whipple. *The California Indians*. Berkeley, CA.: University of California Press, 1971. (A good compilation of information on archaeology and ethnology. Useful for teacher background information.)

Helms, John. "How Forests Can Combat Climate Change." *California Forests*, Winter, 2006 (Volume 10, Number 1). Sacramento, CA: California Forestry Association. (This issue focuses on the relationship between forests and global climate change/global warming. *California Forests* is published by the California Forestry Association. Each issue focuses on a particular aspect of the forest products industry. Phone number: 916-444-6592. email: < cfa@foresthealth.org >)

Hewes, Jeremy. *Redwoods: The World's Largest Trees*. San Francisco, CA: Rand McNally and Company, 1981. (An excellent resource. Clearly written, richly illustrated with both black and white and color photographs. Includes science and history of both coast redwood and the giant sequoia redwoods in the Sierra.)

Holland, I.I. *et al.* *Forests and Forestry*. Danville, IL: Interstate Publishers, Inc., 1990. (A text for "...teachers and students of agriculture and forestry as well as forest landowners," it takes the viewpoint of forests as crops.)

Hyde, Philip and Francois Leydet. *The Last Redwoods*. San Francisco, CA: the Sierra Club, 1963. (This large format book was published as a call to arms for the creation of a Redwood National Park. Many beautiful pictures along with pictures of the effects of logging in the redwoods.)

Johnson, Michael and Bill Yenne. *Native Tribes of California and the Southwest*. Milwaukee, WI: World Almanac Library, 2004. (Part of a series of six volumes, each of which deals with a different geographical area. Junior high level. Basic information, including drawings and photographs. Historical information plus current topics.)

Johnstone, Peter (ed.). *Giants in the Earth: The California Redwoods*. Berkeley, CA: Heyday Books, 2001. (An excellent collection of primary source essays, poems, articles, and photographs. Not to be confused with *Giants in the Earth: A Saga of the Prairie*, by Ole Rolvaag.)

Kalani, Lyn et al. *Fort Ross*. Jenner, CA.: Fort Ross Interpretive Association, 1998. (A nicely illustrated booklet telling and showing the history of Fort Ross.)

Keyworth, C.L. *The First Americans: California Indians*. Facts on File, Inc.: New York, N.Y., 1991. (Part of an eight-volume series on Native Americans. Many illustrations. Includes some information on present day issues. Suitable for junior high school level.)

Lewis, Jack. "Evaluating the Impacts of Logging Activities on Erosion and Suspended Sediment Transport in the Caspar Creek Watershed." *Proceedings of the Conference on Coastal Watersheds: The Caspar Creek Story*. Albany, CA: U. S. Forest Service, Pacific Southwest Research Station, 1998.

Leydet, Francois. *The Last Redwoods*. San Francisco, CA: Sierra Club: Ballantine Books, 1969. (An eloquent plea for preservation of the coast redwoods. Beautifully illustrated. This is a smaller version of a coffee table book of the same title, published in 1963.)

Lightfoot, Kent. *Indians, Missionaries, and Merchants*. Berkeley, CA: University of California Press, 2005. (Historical information, including many comparisons between the ways the Russians and the Spanish interacted with the Native Americans in California.)

Lindquist, J.L. and M.N. Palley. *Empirical Yield Tables for Young-Growth Redwood: California Agricultural Experiment Station Bulletin # 796*. Berkeley, CA: 1963.

Lowell, Phillip. *A Review of Redwood Harvesting: Another Look – 1990*. Sacramento, CA: California Department of Forestry and Fire Protection, 1990. (Uses before and after pictures to make the case for clear-cutting. An update of a publication by Osburn and Lowell from 1972.)

McGrath, Kathy. Internet correspondence. (As of May, 2006, Kathy McGrath was the Division Chief, Resource Management, for the California Department of Forestry and Fire Protection in Fortuna, CA. I asked her about the typical numbers of active THPs and violations. < Kathy.McGrath@fire.ca.gov >)

McWilliams, Bruce (researcher). *The Forest Products Industries in California: Their Impact on the State Economy*. Oakland, CA: Regents of the University of California, 1994. (Lots of data, most presented in graphs and tables. Publication # CNR002)

Moratto, Michael. *An Archaeological Overview of Redwood National Park: Publication in Anthropology #8*. Tucson, AZ: Western Archaeological Center of the National Park Service, 1973.

Nixon, Stuart. *Redwood Empire: An Illustrated History of the California Redwood Country*. New York: Galahad Books/E.P. Dutton and Co, 1966. (An interesting book that deals not only with redwood history, but also with wine, tourism, and other historical aspects of the redwood region north of the Golden Gate. Well illustrated and written.)

Noss, Reed, Ed. *The Redwood Forest: History, Ecology, and Conservation of the Coast Redwoods*. San Francisco, CA: Save-the-Redwoods League, 2000. (Excellent resource: Provides lots of background information. Some very readable, some may be too detailed/scientific for the average reader. Excellent companion to *Coast Redwood* by Barbour.)

Osburn, Verne and Phillip Lowell. *Review of Redwood Harvesting*. Sacramento, CA: California Division of Forestry (now California Department of Forestry and Fire Protection), 1972. (Uses before and after pictures to make the case for clear cutting in the redwood forests. Updated in 1990...see Lowell)

Oswald, Daniel. *The Timber Resources of Humboldt County*. Portland, OR: Pacific Northwest Forest and Range Experiment Station, 1968. (A booklet with lots of information and statistics about Humboldt County timber industry in the late 1960's.)

Ozaki, Vicki and Mary Ann Madej. "Long-term Channel Response to Large Floods and Sedimentation," in *Proceedings of the Conference on Coast Redwood Forest Ecology and Management*. Arcata, CA: Humboldt State University, 1996. (This document includes almost 60 articles or presentations on coast redwood ecology and management.)

Passoff, Peter. *Managing Your Redwood Forest: An Owner's Manual for the Nineties*. Davis, CA: University of California, Cooperative Extension, Division of Agriculture and Natural Resources, 1993. (Written for the forest landowner who is considering logging or how to otherwise manage his or her property. Includes discussion of uses other than logging, but emphasis is on potential logging.)

Rasp, Richard A. *Redwood: The Story Behind the Scenery*. Las Vegas, NV: KC Publications, 1989. (Excellent photographic resource that includes some historical information and quite a bit of natural science. Part of a series of photo-illustrated books on National Park Areas. Good resource.)

Redwood: Official National and State Parks Handbook. Washington, D.C.: Division of Publications, National Park Service, 1997?. (Well done and well illustrated booklet that includes human history, natural history, and information on visiting the parks.)

Redwood Ecology Teacher's Guide. Duncans Mills, CA: California State Parks/Russian River Sector and the Stewards of the Coast and Redwoods, 2006. (Although this Teacher's Guide was written for the Armstrong Redwoods State Reserve and Austin Creek State Recreation Area, it provides quite a bit of information that is useful for in any redwood area, much of which is included in this guide.)

The Redwood Forester, Volume II, Number One. Samoa, CA: Humboldt Redwood Reforestation Association, circa 1933?. (A booklet describing reforestation efforts in the 1920s-1930s, including a variety of information on redwoods and logging. I found the booklet in the library of the Save-the-Redwoods League. It references a May, 1899 *National Geographic Magazine* article on the redwoods.)

Rodes, Barbara and Rice Odell. *A Dictionary of Environmental Quotations.* Baltimore, MD: Johns Hopkins University Press, 1992. (An excellent collection of quotations categorized into 143 categories ranging from Acid Rain to Zoos, indexed by author and subject.)

Schubert, John C. *Guerneville Early Days: A History of the Lower Russian River.* Guerneville, CA: John C. Schubert, pub., 2005. (Lots of interesting photos and other illustrations accompanying first-hand accounts of life in the Russian River area.)

Schwartz, David M. *How Much is a Million?* New York, NY: Lothrop, Lee & Shepard Books, 1985. (Illustrated by Steven Kellogg, this book gives younger readers concrete examples of what very large numbers represent.)

Simberloff, Daniel. "Conservation". *The World Book Encyclopedia.* Vol. 4. Chicago, IL: World Book, Inc., 2002. (Other articles by other authors. It is interesting to compare newer books and encyclopedias to older ones.)

<http://www.snopes.com/quotes/quotes.asp#reagan> (This URL provides contextual information about the famous Ronald Reagan (supposed) quote about "You've seen one redwood, you've seen them all.")

Stewart, William. "California's Redwoods at a Crossroads" *California Forests*, Summer, 2004 (Volume 8, Number 2). Sacramento, CA: California Forestry Association. (This issue focuses on the fragmentation of forest land. *California Forests* is published by the California Forestry Association. Each issue focuses on a particular aspect of the forest products industry. Phone number: 916-444-6592. email: < cfa@foresthealth.org >)

Streamflow for California: USGS 11477000 Eel R A Scotia CA. U.S. Geological Survey. 18 July, 2006.

<http://nwis.waterdata.usgs.gov/ca/nwis/peak>

Sturtevant, William (ed.). *Handbook of Native American Indians: Volume 8: California.* Washington, D.C.: The Smithsonian Institution, 1978. (Encyclopedic collection of information on Native Americans.)

Thompson, Richard and Dicus, Christopher. *The Impact of California's Changing Environmental Regulations on Timber harvest Planning Costs.* San Luis Obispo, CA: California Polytechnic State University, 2005. (A study done by the California Institute for the Study of Specialty Crops and funded by the Forest Foundation.)

Ward, Franklin. *California's Forest Products Industry: 1992.* Portland, OR: U.S. Department of Agriculture Pacific Northwest Research Station, 1992. (USDA Resource Bulletin # PNW-RB-206. Lots of tables with lots of data. So far as I could determine, it hasn't been updated.)

We Care for the Forests. Auburn, CA: California Forest Products Commission, 2003. (The Commission produces a variety of resources for teachers, including a series of lesson plans and free loan videos. See resources section for contact information.)

Weaver, Harriett. *Adventures in the Redwoods.* San Francisco, CA: Chronicle Books, 1975. (A useful book for people exploring/touring the redwood region. Basically an earlier version of *Redwood Country*, also by Weaver.)

Weaver, Harriett. *Redwood Country: A Guide through California's Magnificent Redwood Forests.* San Francisco, CA: Chronicle Books, 1983. (Much improved revision of *Adventures in the Redwoods*, also by Harriet Weaver. Many nice photos and information on both coast redwoods and giant Sequoias.)

Western Wood Products Association. *2002 Statistical Yearbook of the Western Lumber Industry.* Portland, OR: Western Wood Products Association, 2002. (Annual compilation of data. Unfortunately the Western Wood Products Association doesn't make its data available online, and won't lend past volumes, so it's hard (or expensive) to obtain older data. (They started publishing the yearbooks in 1947.) Each issue includes a summary of the findings and then lots of data presented in tables.)

Western Wood Products Association. *2004 Statistical Yearbook of the Western Lumber Industry.* Portland, OR: Western Wood Products Association, 2004. (Annual compilation of data. Unfortunately the Western Wood Products Association doesn't make its data available online, and won't lend past volumes, so it's hard (or expensive) to obtain older data. (They started publishing the yearbooks in 1947.) Each issue includes a summary of the findings and then lots of data presented in tables.)

Whitaker, J. Russell. "Conservation". *The World Book Encyclopedia*. Vol. 3. Chicago, IL: Field Enterprises Educational, 1962. (It is interesting to compare older and newer books and encyclopedias.)

Williams, Richard. *The Old West: The Loggers*. New York, NY: Time-Life Books, 1976. (Part of a series of books about "the old west." Lots of historical information written at a level that is understandable to elementary and junior high school students. Many interesting photos.)

Wilson, James. *The Earth Shall Weep: A History of Native America*. New York, NY: Atlantic Monthly Press, 1998. (A history of the relations between Native Americans and others, from pre-Columbus to modern times.)

Wood, L.K. *The Discovery of Humboldt Bay – A Narration*. This publication was found in the Sonoma County Library. It had no date or publisher indicated, but the portions of Wood's accounts of the Josiah Gregg trip through the redwoods are found in other publications.

Woodhead, Henry (ed.). *The Indians of California*. Alexandria, VA: Time-Life Books, 1994. (Part of a series of books on Native Americans. Richly illustrated, includes information on recent struggles. Suitable for junior high school students.)

Yocom, Charles and Raymond Dasmann. *The Pacific Coastal Wildlife Region*. San Martin, CA: Naturegraph Company, 1957. (A good basic guide to the plants and animals living along the coasts of Washington, Oregon, and northern California to Monterey. Includes drawings and descriptions of most common plants and animals, and species lists. Part of a series of similar booklets by the Naturegraph Publishing Company.)

Zahl, Paul. "Finding the Mt. Everest of All Living Things." National Geographic Magazine July, 1964: 10-51.

Ziemer, Robert *et al.* "Hydrologic Consequences of Logging Second-Growth Redwood Watersheds," in *Proceedings of the Conference on Coast Redwood Forest Ecology and Management*. Arcata, CA: Humboldt State University, 1996. (This document includes almost 60 articles and presentations on coast redwood ecology and management.)

NON-PRINT RESOURCES

Redwood: The Natural Choice. Novato, CA: California Redwood Association, date not given. (Promotional C.D. that includes information on redwoods, decking, and other uses of the lumber.)

WORKS CITED: SECTION III: FIELD TRIPS

American Forest Foundation. *Project Learning Tree: Environmental Education Pre K-8 Activity Guide*, 2006. (Provides nearly 100 activities for field and classroom with extensive appendices and cross-referencing. Great resource!)

Cornell, Joseph. *Sharing Nature With Children*. Nevada City, CA: Dawn Publications, 1979. (Classic guide for nature activities...especially nature observation and appreciation.)

Cornell, Joseph. *Sharing the Joy of Nature*. Nevada City, CA: Dawn Publications, 1989. (Sequel to *Sharing Nature With Children*. More activities and more philosophy.)

Roa, Michael. *A Guide to the Side of the Sea*. Sacramento, CA: California State Parks Department, 2004. (Written to provide a resource for teachers who want to bring students to visit the rocky coast of northern California, including the redwood region. Available for free online, on a CD, and in paper format.)

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ILLUSTRATIONS

Drawings:

Most of the illustrations in *Redwood Ed* were drawn for the *Redwood Ed* project by Faith Rumm. (rummstudio@earthlink.net) Her drawings include the following figures: 7-10, 17-68, 91, 108-122, 124, 127

Daniel J. Miller graciously allowed us to use illustrations from his *Life History and Ecological Guide to the Coast Redwood, Sequoia sempervirens*, and he also made some drawings specifically for *Redwood Ed*. Dan's drawings include the following figures: 2-4, 11-14, 16

Alexander O'Neill Roa drew the *Redwood Ed* Teaching Idea and Caution icons.

Figure 123 is from *Trees & Leaves: CD-ROM & Book*, Dover Publications, Inc.

Figures 125 and 126 were drawn by Michael Roa

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Humboldt State University, Arcata, California: Author/Illustrator Biography page; Figures 74, 76, 78, 84, 96, 102

Mendocino Redwood Company, Ukiah, California: Figures 97, 98

Pacific Lumber Company (PALCO), Scotia, California: Figures 80-82, 86, 88, 90, 92, 95, 99, 105, 106

The Petrified Forest, Calistoga, California: Figure 1

Roa, Michael, Sebastopol, California: Figures 15, 70-73, 101, 103, 104, 107

Save-the-Redwoods League, San Francisco, California: Cover photo by Evan Johnson; Figure 94

The Sempervirens Fund, Los Altos, California: Figure 92