

PROJECT G.L.A.D
Forest Grove School District
Endangered Forests of the Northwest
IDEA PAGES

I. UNIT THEME

- Human interaction with the forest ecosystem
- Social responsibility toward preserving forest environment
- Interdependence plant and animal life in the forest ecosystem
- Understanding of historical and contemporary Native American perspectives on forest use

II. FOCUS/MOTIVATION

- Visit nearby forests/nature walk
- Forest realia
- Media: Books/videos
- Guest speakers from World Forestry Center
- Music and forest sounds
- Big book
- Observation charts
- Inquiry chart

III. CLOSURE

- Field trip: World Forestry Center
- Class big book
- Action plans
- Unit test
- Parent letter
- Letter to teachers
- Class poems and chants

IV. CONCEPTS

- Structures and functions of trees
- Life cycle of trees and forests
- Causes and effects of deforestation
- Characteristics of the temperate forest ecosystem
- Importance of trees to our way of life
- Causes and effects of forest endangerment

V. VOCABULARY

deciduous	coniferous	conservation
deforestation	preservation	chlorophyll
sunlight	photosynthesis	energy
carbon dioxide	canopy	cambium
growth	sap	nurse log
moss	lichens	cone
xylem	phloem	fern
snag	pollen	spores
Douglas fir	pine	growth rings
habitat	endangered	old growth
hemlock	biologist	destruction
botanist	forestry	temperate
rainforest		
protected areas	conservationist	fungi
floods	woodlands	soil
biodegradable	environment	recycle
green house effect	ozone	pollution
ecosystem	pesticides	pollutants
resource	populations	decomposition
niche	predator	prey
food chain	tropical rainforest	grizzly bear
sockeye salmon	Northern spotted owl	red tree vole
managed forest	selective logging	tree
branch	root	leaf
stomata	trunk	bark

VI. ORAL LANGUAGE/READING/WRITING SKILLS

- Expressing personal thoughts in a group
- Reacting to speaker with appropriate questions
- Understanding of the writing process
- Summarizing
- Relating cause and effect
- Sequencing
- Gathering information/forming conclusions
- Locating information
- Identifying the main idea
- Evaluating information
- Supplying evidence and supporting details
- Comparing and contrasting
- Topic sentence and paragraphing
- Oral delivery
- Parts of speech
- Author's style

VII. MATH/SCIENCE/SOCIAL STUDIES SKILLS

- Drawing conclusions
- Prediction/inference/conclusion
- Classification of information
- Data collection
- Understanding cycle, change, population, structure and function, organisms
- Questioning strategies
- Interpreting data
- Using numbers
- Data display
- Problem identification
- Communication of solutions
- Understanding of economic choices, supply and demand
- Location of major physical features of the earth
- Using maps to organize information

- Identification of how people's lives are affected by the environment
- Understanding that resources are limited

VIII. RESOURCES AND MATERIALS

Fiction

- The Giving Tree, Shel Silverstein, HarperCollins
- In a Nutshell, Joseph Anthony, Dawn Publications
- Once there Was a Tree, Natalia Romanova, Dial Books
- Owl Moon, Jane Yolen, Philomel Books
- The Lorax, Dr. Seuss, Random House
- The Last American Rainforest, Shelley Gill, Sasquatch Books
- A North American Rain Forest Scrapbook, Virginia Wright-Frierson, Walker Publishing

Non-fiction

- A Log's Life, Wendy Pfeffer, Simon and Schuster
- A Tree is Growing, Arthur Dorros, Scholastic Press
- Ancient Ones, Barbara Bash, Sierra Club Books for Children
- Journey Through the Northern Rainforest, Karen Pandell, Dutton Children's Books
- Forestry, Jane Drake and Ann Love, Kids Can Press
- Forest Life, Barbara Taylor, Dorling Kindersley Publications
- Be a Friend to Trees, Patricia Lauber, HarperCollins
- Starting with Nature Tree Book, Pamela Hickman, Kids Can Press
- The Big Tree, Bruce Hiscock, Boyds Mills Press
- Exploring Forests, Barbara Behm and Veronica Bonar, Gareth Stevens Publishing
- The Tree, Gallimard Jeunesse and Pascale de Bourgoing, Scholastic
- How the Forest Grew, William Jaspersohn, William and Morrow & Co.
- The Tremendous Tree Book, Barbara Brenner and May Garelick, Boyds Mills Press
- A Forest is Reborn, James R. Newton, Thomas Y. Crowell
- My Favorite Tree, Diane Iverson, Dawn Publications
- Green Giants, Tom Parkin, Firefly Books
- Douglas Fir, Wendy Davis, Children's Press
- While a Tree Was Growing, Jane Bosveld, Workman Publishing
- The Tree in the Ancient Forest, Carol Reed-Jones, Dawn Publications

Resources in Spanish

- El árbol, Gallimard Jeunesse and Pascale de Bourgoing, S.M. Saber
- Los árboles, Theresa Greenaway, Dorling Kindersley
- El árbol, David Burnie, Dorling Kindersley
- La madera, Colin Walker, Modern Curriculum Press

- El Lorax, Dr. Seuss, Random House

Teacher Resources

- Ancient Forests, Margaret Anderson et al., Dog-eared Publications
- Trees Are Terrific!, National Wildlife Federation, McGraw Hill

PROJECT G.L.A.D
Forest Grove School District
Endangered Forests of the Northwest
UNIT PLANNING PAGES

I. FOCUS/MOTIVATION

- Conservationist awards
- Signal words
- Observation charts
- Forest realia
- Big book: The Important Book About Trees
- Inquiry chart
- Picture file cards

II. INPUT

- Read alouds
- Chants, raps, poems
- Narrative input chart: Life of a Douglas Fir Tree
- Graphic organizer: products that come from trees
- Input charts: types of forest, parts of a tree, function of trees, deforestation.
- Comparative input chart: snag and fallen log
- Expert groups: endangered animals of the forest
- Listen and sketch: Once There Was a Tree

III. GUIDED ORAL PRACTICE

- Farmer in the dell: “forest animals”
- Chants, raps, poems
- Process grid
- T-graph for cooperation
- Picture file activity
- Exploration report: down log

IV. READING/WRITING ACTIVITIES

A. Total Group

- Group frame
- Highlighting and sketching on chants
- Process grid
- Cooperative strip paragraph
- Story map/story star
- Read-alouds

B. Small Group

- Reading the walls
- Team tasks
- Team flip chants
- Ear-to-ear reading
- Group writing process
- Sentence patterning chart
- Interactive reading
- Literature circles
- Team picture file activities
- Flexible reading groups
- Action plans

C. Individual Activities

- Learning logs
- Free reading
- Paragraph writing in different modes
- Home-school connections
- Interactive journals
- Cognitive content dictionaries

D. Writers' Workshop

- Mini lesson
- Writing
- Sharing
- Revising
- Editing
- Conferences
- Author's Chair
- Publishing Party

V. EXTENSIONS/ACTIVITIES FOR INTEGRATION

- Chant/ poem writing
- Field trips
- Guest speakers
- Music
- Plays
- Student- made big book
- Art lessons: forest scenery
- Camp out in the forest
- Nature walks

VI. DAILY ACTIVITIES

- Read alouds
- Free voluntary reading/Book sharing
- Writing
- Listening activities
- Personal interactions
- News of the day/interesting facts
- Oral language activities

VII. CLOSURE/EVALUATION

- Unit test
- Action plans
- Field trip to World Forestry Center
- Processing of charts
- Inquiry chart
- Team evaluations
- Read-aloud: The Giving Tree
- Team chants
- Journal writing
- Parent letter
- Letter to teachers

Project GLAD
Northwest Regional Education Service District
Northwest Temperate Forest Habitat
DEMO DAILY LESSON PLAN

Day 1

FOCUS/MOTIVATION

- **Signal word:** habitat, **cognitive content dictionary**
- **Conservationist awards:** buttons
- **3 standards**
- **Observation charts**
- **Inquiry chart:** What do you know and want to learn about the Northwest temperate forest habitat?
- **Big book:** *Forests Alive!*

READING/WRITING

- **Learning log:** sketch/write something you want to learn about Northwest forests
- **ELD review:** main concepts from *Forests Alive!*

GUIDED ORAL PRACTICE

- **Chant:** *Forests Here, Forests There*

INPUT

- **Graphic organizer:** 5 forest types of the world

GUIDED ORAL PRACTICE

- **T-graph for social skills:** cooperation
- **Picture file activity:** most interesting to a scientist
- **Exploration report**

INPUT

- **Pictorial input:** structures and functions of coniferous trees

GUIDED ORAL PRACTICE

- **Chant:** *Forest Sound-off*

READING/WRITING

- **Writers' workshop**
 - Mini-lesson on planning
 - Writing time
 - Author's chair

CLOSURE

- **Home-school connection:** story about a forest

Project GLAD
Northwest Regional Education Service District
Northwest Temperate Forest Habitat
DEMO DAILY LESSON PLAN

Day 2

FOCUS/MOTIVATION

- **Signal word:** deforestation
- **Cognitive content dictionary:** finalize Day 1 definition, predictions for deforestation
- **Home-school connection:** sharing, categorize by fiction/non-fiction
- **Awards:** scientist notebooks

GUIDED ORAL PRACTICE

- Review coniferous trees **Pictorial input** with vocabulary cards

INPUT

- **Pictorial input:** Where have all the forests gone?

GUIDED ORAL PRACTICE

- **Chant:** *I Can Spell Photosynthesis*
- Review, sketch, highlight on other **chants**

INPUT

- **Narrative Input** with **Timeline:** *Doug Fir's Long, Productive Life*

READING/WRITING

- **Learning log:** favorite part of story
- **ELD review:** graphic organizer 5 forest types of the world

GUIDED ORAL PRACTICE

- **Chant:** *Yes Ma'am*
- Review **T-graph**
- **Team tasks:** graphic organizer 5 forest types, structure and function of coniferous trees pictorial, Team CCD, exploration report, flip chant using pattern of *Forests Here, Forests There*

INPUT

- **Expert groups:** Northwest forest animals

READING/WRITING

- **Response journals**

CLOSURE

- **Home school connection:** place that has changed

Project GLAD
Northwest Regional Education Service District
Northwest Temperate Forest Habitat
DEMO DAILY LESSON PLAN

Day 3

FOCUS/MOTIVATION

- **Cognitive content dictionary:** finalize day 2 definition, predictions for student-selected **signal word**
- **Awards:** bookmarks
- **Current event**
- **Home-school connections:** team points

GUIDED ORAL PRACTICE

- **Narrative input:** retelling with conversation bubbles
- **Story map**
- **Chant:** *Ancient Forest Bugaloo*
- **Sentence patterning chart:** forest animals

READING/WRITING

- **Trading game:** from sentence patterning chart

GUIDED ORAL PRACTICE

- **T-chart:** review and oral team evaluation
- Model **Mind map/Process grid** on vole from coniferous trees **Pictorial input**
- **Process grid:** experts share, teams supply info

READING/WRITING

- **Focused reading:** Read the walls with personal **cognitive content dictionary**
- **Cooperative strip paragraph:** The Northwest temperate forest is an interdependent habitat.

CLOSURE

- **Response journals**

Project GLAD
Northwest Regional Education Service District
Northwest Temperate Forest Habitat
DEMO DAILY LESSON PLAN

Day 4

FOCUS/MOTIVATION

- **Cognitive content dictionary:** finalize Day 3 definition, predictions for student-selected **signal word**
- **Home-school connections:** team points
- **T-graph:** team goal-setting

READING/WRITING

- **Chants:** review all
- **Ear-to-ear reading:** poetry books

GUIDED ORAL PRACTICE

- **Team tasks:** sentence patterning chart, narrative input, story map, process grid, cooperative strip paragraph

READING/WRITING

- **Leveled reading groups:**
 - Lower group: guided reading and reconstructing of **cooperative strip paragraph**
 - ELD group: **group frame**
 - Higher group: **clunkers and links** – *If You Lived with the Indians of the Northwest Coast*

GUIDED ORAL PRACTICE

- **Team written evaluation:** using **T-graph**

READING/WRITING

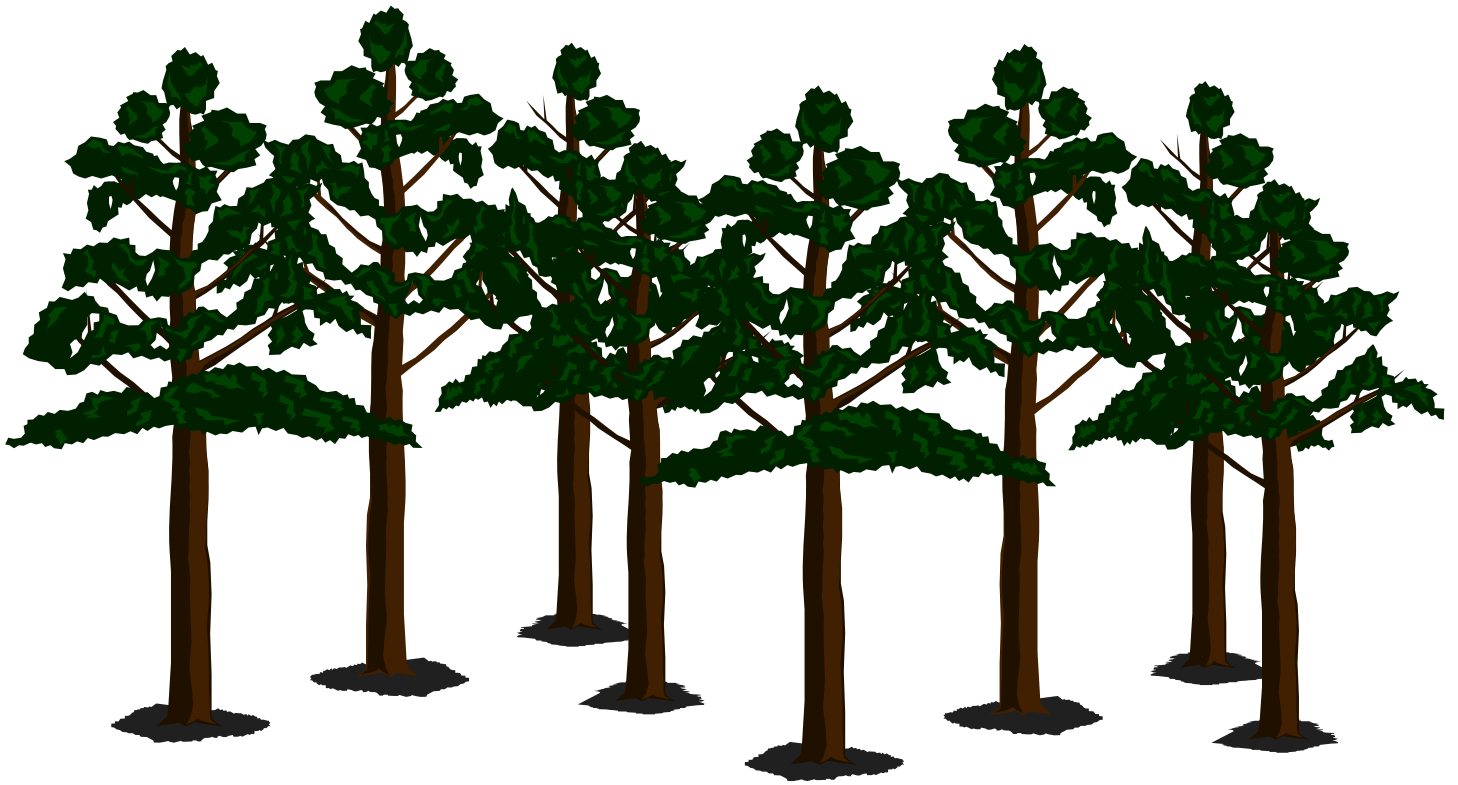
- **Found Poetry:** *Life Stories: Salmon*
- **Listen and sketch:** *Once There Was a Tree*

CLOSURE

- **Inquiry chart:** process
- **Parent letter**
- Read-aloud: *The Giving Tree*
- Bookmarks

Northwest Endangered Forests

Poetry Book



Name _____

ANCIENT FOREST BUGALOO

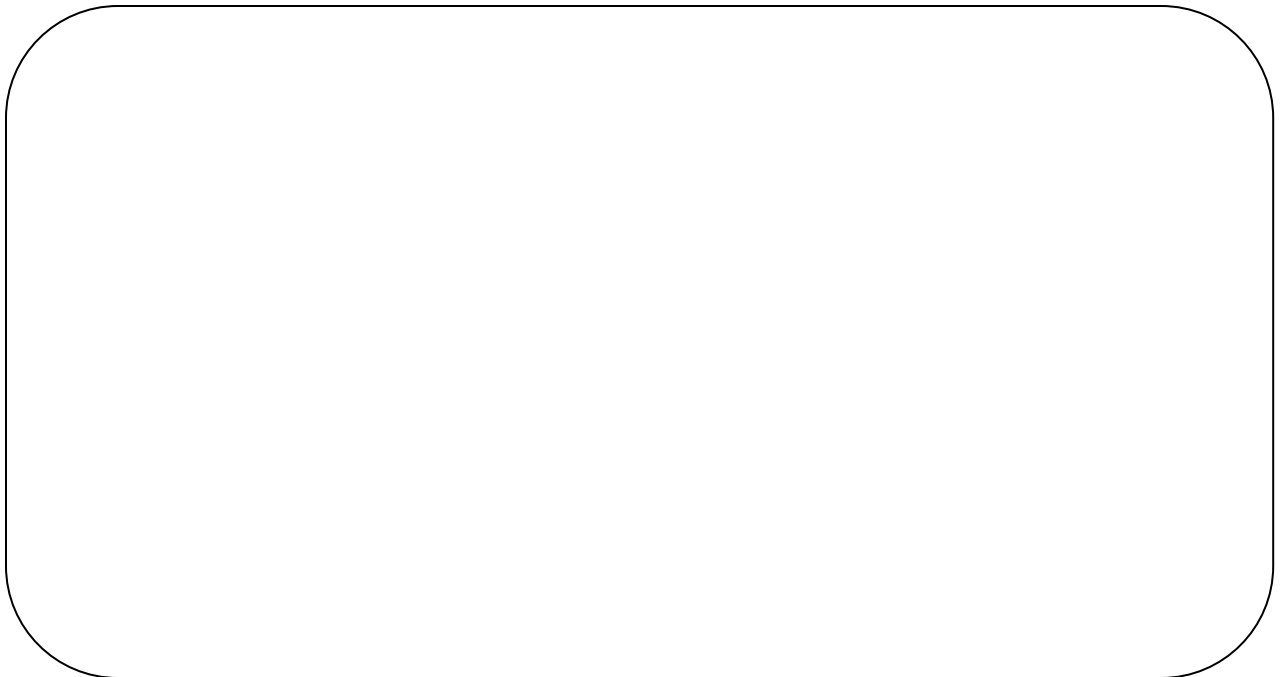
By Laura Curry

I'm a forest ranger and I'm here to say,
"I work to keep our forests healthy everyday.
Sometimes I test the water, sometimes I plant a tree.
I love these woods and hope they're always wild and free!"

Douglas fir, Sitka spruce, Red cedar, too,
Doing the ancient forest bugaloo!

When Europeans landed here, the experts say,
The forests were a hundred times greater than they are today.
But settlers chopped them down to clear the land to farm.
And lumber companies, seeing profits, saw no harm.

Douglas fir, Sitka spruce, Red cedar, too,
Doing the ancient forest bugaloo!

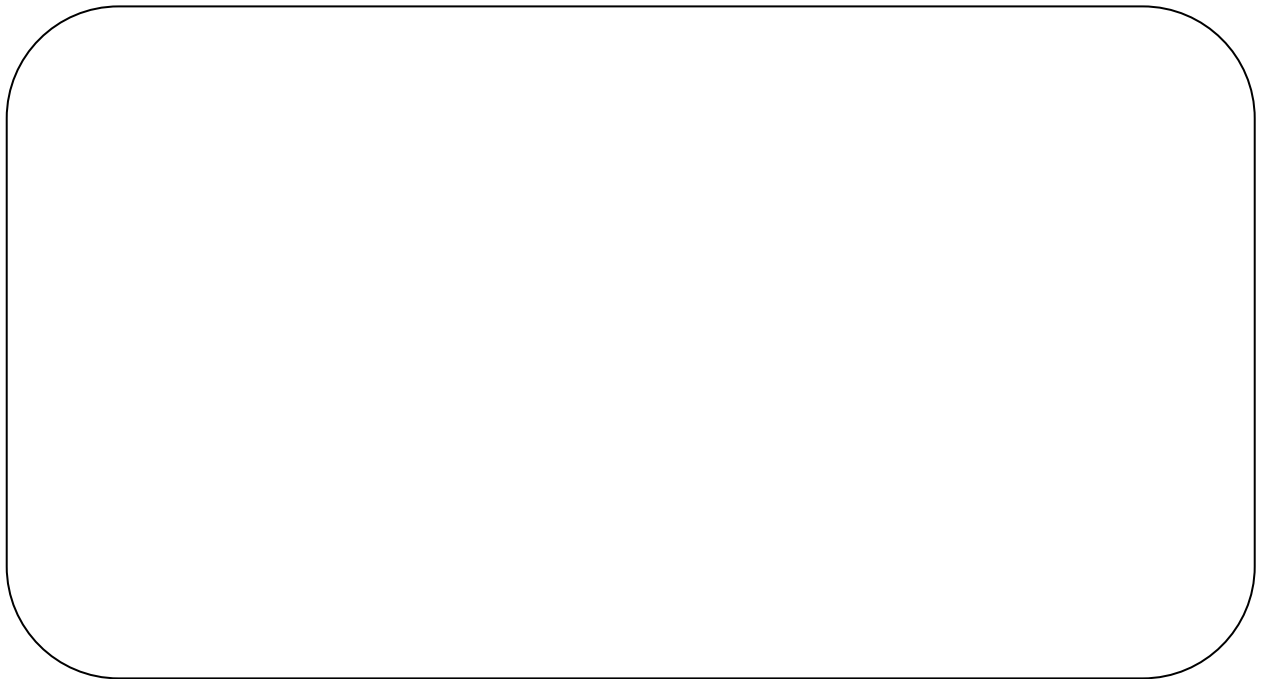


Since a forest produces oxygen, as everybody knows,
And gives the soil nutrients as dead logs decompose,
And is a habitat for many species so diverse,
It's plain to see deforestation only makes life worse.

Douglas fir, Sitka spruce, Red cedar, too,
Doing the ancient forest bugaloo!

So in this new millenium, what laws must still be passed?
Just how can we ensure our forest resources will last?
Some giants have survived for two millenia, or three.
Preserve them? Or destroy them? It's up to you and me.

Douglas fir, Sitka spruce, Red cedar, too,
Doing the ancient forest bugaloo!



FOREST SOUND-OFF

By Laura Curry

We all know 'cause we've been told
Our forests are worth their weight in gold.
Spruce and fir can grow their best
In the beautiful woods of the great Northwest.

Temperate - Temperate
Forests - Forests
Northwest temperate forests!

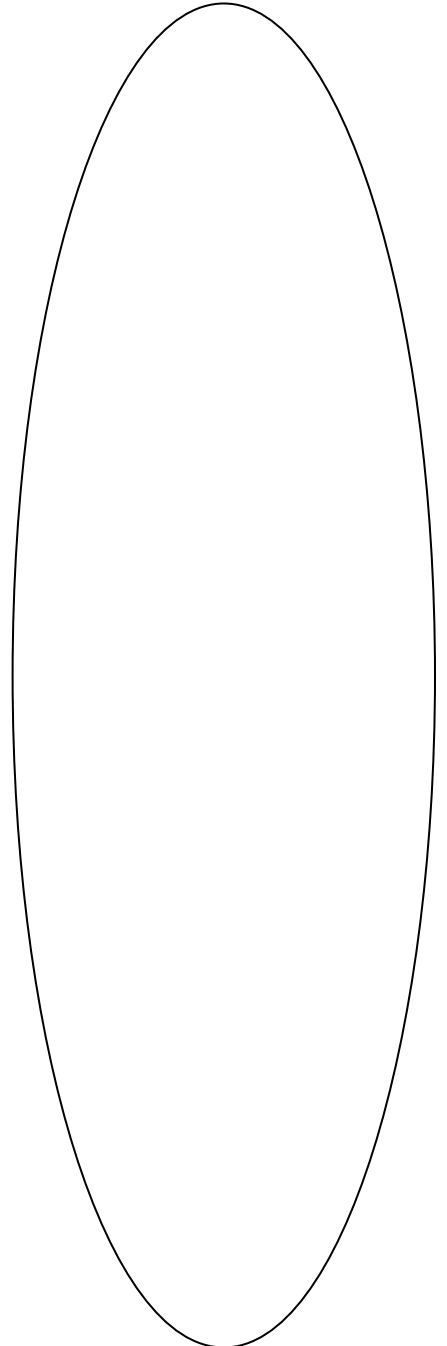
The forest floor is full of needles and leaves
And dead nursery logs that sprout fallen seeds.
Rotting logs are home to bugs,
Raccoons and newts and giant slugs.

Temperate - Temperate
Forests - Forests
Northwest temperate forests!

When a squirrel eats a fungus and drops its spores,
Fungi spread on the forest floor.
They help dead plants to decompose
Into nutrients from which a big tree grows.

Temperate - Temperate
Forests - Forests
Northwest temperate forests!

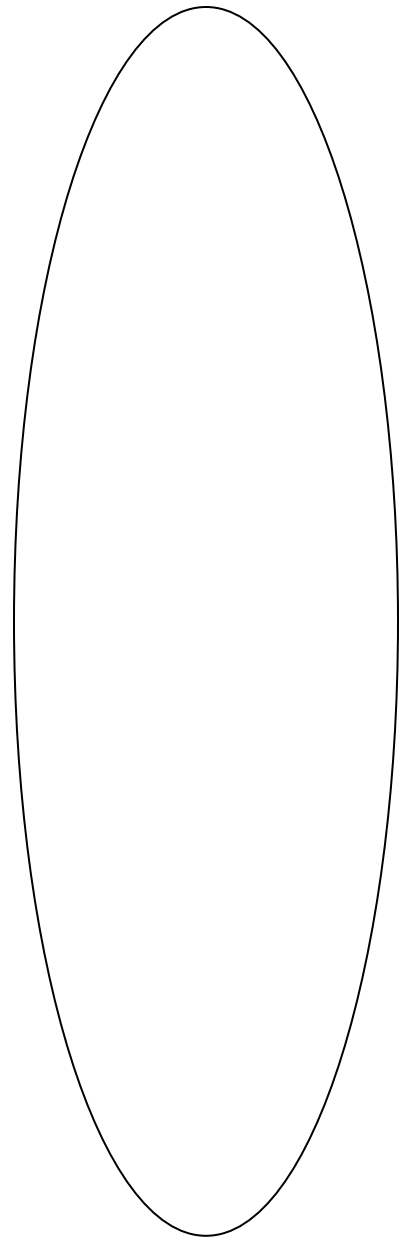
When trees have grown a couple centuries
Their upper limbs join to form a canopy.
Those branches catch moisture from the clouds they meet,
What it adds to the rainfall would measure three feet!



Temperate - Temperate
Forests - Forests
Northwest temperate forests!

Once that big tree dies it is useful still,
A snag where eagles nest and woodpeckers drill.
It could stay upright two hundred years and then,
Crash! Start the whole growth cycle again.

Temperate - Temperate
Forests - Forests
Northwest temperate forests!



Forests Here, Forests There

By Lara Smith and Laura Curry

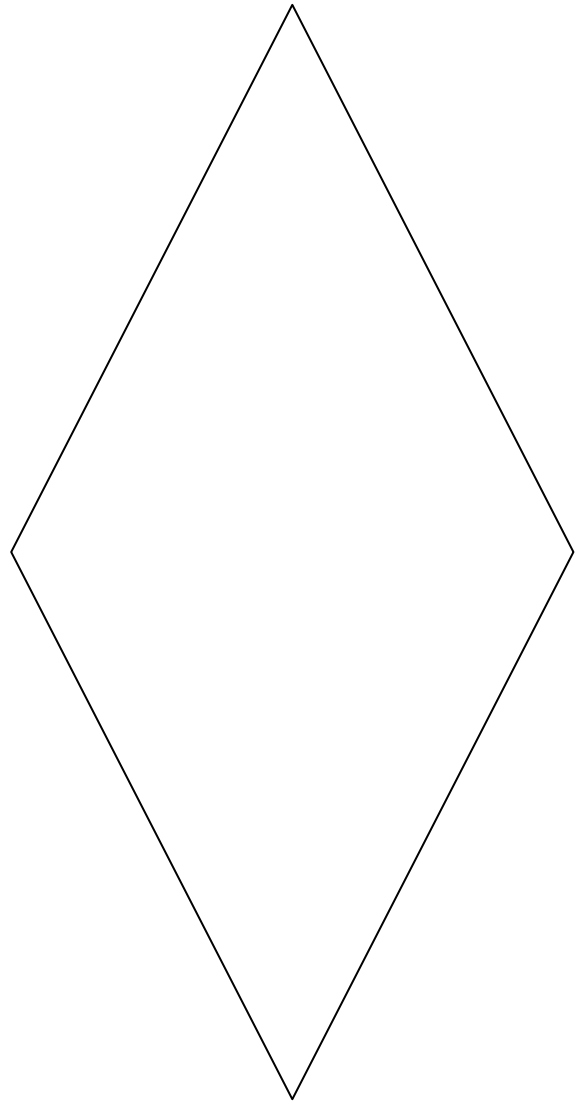
Forests here, forests there,
There once were forests everywhere!

Green forests photosynthesizing,
Old forests decomposing,
Healthy forests reproducing,
And dense forests sheltering.

Forests on the mountainsides,
Forests by the sea,
Forests now on lumber trucks.
Will forests cease to be?

Forests here, forests there,
There once were forests everywhere!

Forests! Forests! Forests!



I Can Spell

I can spell tree,

t-r-e-e.

I can spell leaf,

l-e-a-f.

I can spell grow,

g-r-o-w.

But I can't spell photosynthesis.



I can spell green,

g-r-e-e-n.

I can spell light,

l-i-g-h-t.

I can spell change,

c-h-a-n-g-e.

But I can't spell photosynthesis.

Yes I can! Yes I can!

Photo-synth-esis,

PHOTOSYNTHESIS!

IS THIS AN OLD GROWTH FOREST?

By Laura Mannen and Laura Curry

YES MA'AM!

Is this an old growth forest?

Yes, ma'am!

Is this an old growth forest?

Yes, ma'am!

Well, how do you know?

The trees have lived for centuries.

How else do you know?

It has a dense canopy.

Are there different kinds of trees?

Deciduous and conifer.

Can you name me one of each?

White oak and silver fir.

Well, what about the shrubs?

Oregon grape and salmonberry.

Are there plants of many species?

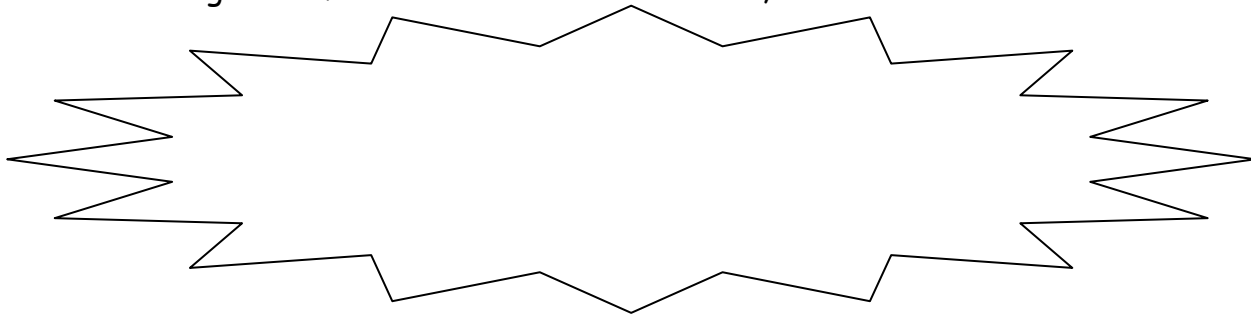
Yes, a great variety!

Is this an old growth forest?

Yes, ma'am!

Is this an old growth forest?

Yes, ma'am!



Are all the forest plants living?
standing.

Snags are dead trees that are

They're not worthless dead?

That's where animals rest their heads.

You mean birds, and bugs, and bats?

And foxes, bears, and bobcats.

Are there any other kinds?

Salamander and porcupine.

How long can a snag stand?

Two hundred years or more.

And when it falls and rots?

It nourishes the forest floor.

Giving plants a place to grow?

Lichens, fungi, moss, and ferns.

Can it help a seed to sprout?

That's how giant trees return.

Is this an old growth forest?

No, ma'am!

Is this an old growth forest?

No, ma'am!

Well, how do you know?

There's only one kind of tree.

Are there any animals?

Many creatures had to flee.

So, what do you call this?

Why do we need it?

Is the old growth forest still logged?

How can we prevent it?

A managed forest industry.

For paper, wood, and Christmas trees.

Yes, but it doesn't have to be.

Conservation is the key.

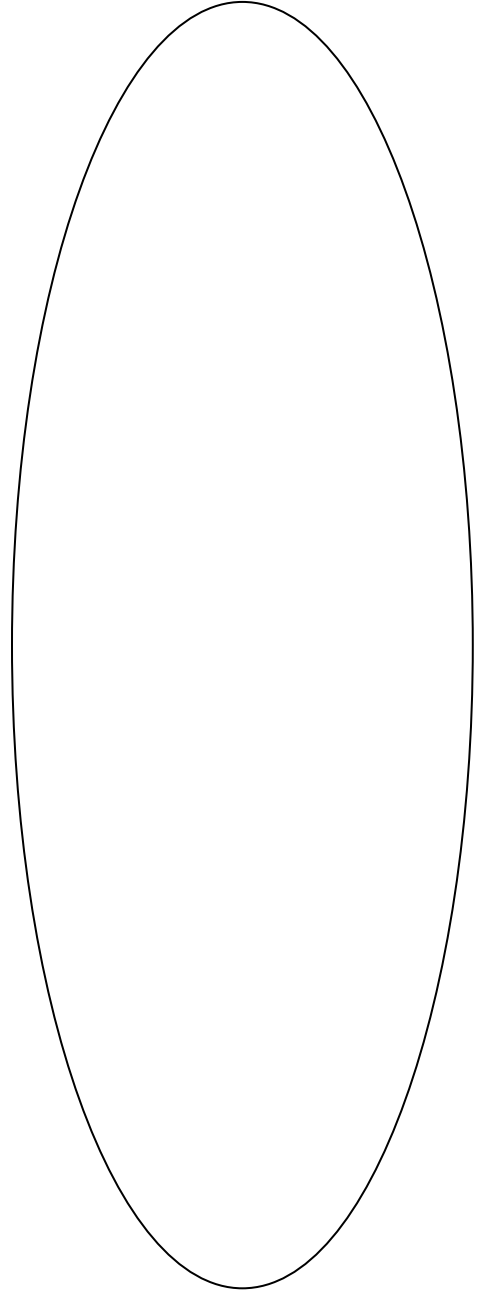
Evergreen, Everblue

Adapted from "Evergreen, Everblue" by Raffi

Evergreen, everblue,
As it was in the beginning
We've got to see it through.
Evergreen, everblue,
At this point in time,
It's up to me, it's up to you.

The Northwest woods are calling,
"Help this planet earth."
With voices from the forest,
"Help this planet earth,"
Hear the tree that's falling,
"Help this planet earth,"
Ancient giants pleading,
"Help this planet earth to stay..."

Evergreen, everblue,
As it was in the beginning
We've got to see it through.
Evergreen, everblue,
At this point in time,
It's up to me, it's up to you.



Forest streams are rumbling,
"Help this planet earth."
With voices from the salmon,
"Help this planet earth."
The canopy is dying,
"Help this planet earth."
Spotted owls are crying,
"Help this planet earth to stay..."

Evergreen, everblue,
As it was in the beginning
We've got to see it through.
Evergreen, everblue,
At this point in time,
It's up to me, it's up to you.

THE IMPORTANT BOOK ABOUT TREES

by Laura Curry and Lara Smith

The important thing about trees is that they are essential to all life.

Trees make their own food through a process called photosynthesis. As they do this, they release oxygen into the air, which humans and all animals need to breathe. As long as there are enough trees, the air's supply of oxygen will never be used up.

But the important thing about trees is that nothing on Earth could live without them.

The important thing about trees is that they are essential to all life.

Trees provide a home to many creatures. Eagles nest in the canopy, beetles bore through the bark, and rabbits burrow beneath the roots. Newts live in dead trees that are still standing, called snags, and raccoons find homes in rotted fallen logs. Dead trees actually provide more animal homes than living trees do.

But the important thing about trees is that nothing on Earth could live without them.

The important thing about trees is that they are essential to all life.

Trees are an important food source for people and animals all over the world. We enjoy fruits, nuts, and the chocolate made from the seeds of cacao trees. Still more parts of trees are eaten by animals. Koalas and caterpillars eat leaves, porcupines eat inner bark and twigs, birds eat seeds, and insects gather pollen and nectar from tree flowers.

But the important thing about trees is that nothing on Earth could live without them.

The important thing about trees is that they are essential to all life.

More than five thousand products we use are made from trees. Tires, protective gloves, soap and maple syrup come from tree sap. Wood chips are processed into pulp to make paper and cardboard of all kinds. Lumber from trees is used to make houses, furniture, toys and musical instruments.

But the important thing about trees is that nothing on Earth could live without them.

The important thing about trees is that they are essential to all life.

Trees are among the oldest and largest living things on Earth. Many Douglas firs live more than five hundred years, and some sequoias have been growing for more than three thousand years! The "General Sherman" sequoia, world's largest living tree, is over 270 feet in height, as tall as a 25-story building, and has a circumference of nearly 100 feet!

But the important thing about trees is that nothing on Earth could live without them.

The important thing about trees is that they are essential to all life.

Whether they are ancient giants or young saplings, deciduous or coniferous, sharp-needled or flower-scented, trees make the world a more beautiful and enjoyable place. They offer shade in the heat, a place to play with friends or to hide alone, the soft sound of the wind in their branches, the brilliance of autumn colors.

But the important thing about trees is that nothing on Earth could live without them.

Narrative Input: Doug's Life

By Laura Mannen Martínez

1500 years ago... on a mountainside in the coast range of the Pacific Northwest in the area now known as the state of Oregon.

Ash spews through the air, blocking the sun for days. The volcano throws streams of molten rock down the mountainside. The riverbed is choked with rocks and ash. As it rushes down the slope it tears out trees and shrubs turning the whole mountainside into mud. The entire mountain seems to be moving.

Hairy Woodpecker: As the ash settles and the earth stops moving, I fly out to survey the damage. What I see is astonishing. Our beautiful forest home no longer exists. All that remains is a black and brown landscape of mud and rock. The river continues to roar down the mountain but it has turned to the color of mud and it is filled with trees and brush. I must fly on in search of a new home.

The bird flies on but little does he know that he has just helped to bring life back to the mountainside. In the bird's droppings is a grass seed. The grasses will soon grow again, stabilizing the soil and preparing it for shrubs and trees.

Deer Mouse: Whew! That was close. An owl almost ate me for lunch. But, I found an excellent new home. Nobody will bother me here! There's a river nearby and lots of grasses to hide in.

The mouse decides to stay and make a new home in the grasses on the mountainside. In her fur, she carries seed cones from Douglas fir trees. As the mouse scurries among the grasses, making her new home, seed cones are brushed off and land on the fertile ground.

Doug: Hi! My name is Doug. I'll be your guide for the rest of the story because this is the story of my life. From that tiny seed cone, a young Douglas Fir sapling began to grow. (Hey, that's me!) Other young trees and shrubs made their home on the mountainside and eventually the grasses give way to a young forest.

So, what else was happening in the world during this time?

300 Mayas in Mexico/Central America invent mathematical concept of "0"

600 Hindus in India come up with same concept of "0"

1000 years ago on the same mountainside in the coast range.

Doug: Hi! I'm back, but see how much I've grown?! I'm no longer a sapling. Now, I'm a full-grown tree rising almost 200 feet from the forest floor. Do you know how tall 200 feet is? It's as tall as a 20 story building in the city. Or, if you stood 33 people one on top of the other, you still wouldn't reach my uppermost branches. My trunk measures six feet in diameter. That's wider than most people are tall. And, I'm now 200 years old.

Our tree is now part of a new forest. The tall trees, like Doug, are forming a widening forest canopy. The canopy protects the forest floor from extreme weather and traps moisture adding as many as 36 inches of rainfall per year. This protected environment makes an ideal habitat for many species of animals.

Wapiti: My name is wapiti, or at least that's what the people around here call me. You may know me as an elk. I live with my herd here among the trees of the forest. We love our home. It provides tender ferns for us to munch on and we are protected from the heavy snows and strong winds by the branches of the trees. It is quiet here, and safe.

Doug: A young girl brushes past my trunk. She is collecting salmonberries and filberts among the shrubs and trees of the forest under story. The under story is what they call the part of the forest that doesn't reach up into the sky like I do. It is made up of shrubs and deciduous trees that like the shade that our high reaching branches provide. The young girl wanders on, continuing her search. She is a member of the Siletz Indian tribe. The tribe lives at the mouth of the river, where it pours into the Pacific Ocean.

Northern Spotted Owl: Thank goodness for all of these tall, ancient trees! Their broken tops provide the perfect place for me to build my nest. And, this forest is large enough that I have space to roam. This is very important for me because I am a Northwest spotted owl and we need at least 3,800 acres of forest to make our home. Do you know how large that is? It would mean having nothing but forest for all of the area that is Forest Grove and Cornelius. That's a lot of trees!

So, what else was happening in the world during this time?

1300 The Aztec Empire flourishing in Mexico

500 years ago... on the same mountainside in the coast range.

Doug is now part of what we call an old growth forest. What does that mean? It means that there are many big trees, like Doug, that have lived for 200 years or more. Doug has become a habitat or home for over 100 species of moss and lichen. The plants live on his trunk and are a very important part of the forest ecosystem. They change nitrogen from the air into useable nutrients for Doug and the other forest plants. That's pretty cool, huh? Doug gives them a place to live and they help him get the nutrients he needs to keep on growing. The old growth forest also has many dead trees, called snags that are still standing. Snags provide homes for many types of animals and plants. There are also big trees that have fallen to the forest floor. These trees provide a nutrient-rich place for other young trees to start their lives.

Doug: Hi! I'm now a very old tree. I have been a part of this forest for 700 years now. I have seen several generations of people come and go in the forest. The Siletz people utilize the forest plants and animals very wisely. They obtain many of their necessities from us; food, shelter, clothing, and canoes. They never take more than what they need and they always treat us with respect. But, I have heard that a new type of people have come to our continent...

Red-backed Tree Vole: You may not have noticed us down here among Doug's roots, but I thought you should know about us because we are a very important part of the forest ecosystem. We burrow and tunnel among the roots of big trees like Doug. Our favorite food is something called truffles that grow on the tree roots. Then, we spread the truffle spores around through our droppings, allowing more and more truffles to grow. The truffles are very important to the trees because they help them to absorb nutrients from the soil. So, when you're admiring the great giants, don't forget us little folks!

So, what else was happening in the world at this time?

1450 The printing press is invented

1492 Christopher Columbus arrives in America, attempting to sail to India

1620 The first European settlers arrive on East coast of North America

200 years ago in the same forest in the Coast Range.

Scrub Jay: Thank goodness those people haven't found this forest yet. I used to live down south, among the giant sequoias of northern California, but I had to come north because the people are cutting down the giant trees at an alarming rate. They cut them down and then load them on big trains and send them far away. I'm lucky I'm a bird because I can fly away, but many of the other animals couldn't escape and they are dying because their homes are being destroyed. I'm glad the only people around here are the Siletz people because they never take more than they need.

So, what else was happening in the world at this time?

1840 The pioneers begin coming to Oregon on the Oregon Trail

100 years ago in the same forest in the Coast Range.

Doug: Hi! It's me, Doug, but I'm not towering above you anymore. Now, I'm lying on the forest floor. About 50 years ago, a big storm hit the forest and I was blown over in the wind. You may ask how I can still be talking to you now that I'm not living... Well, I'm still a very important part of this forest. I continue to support life even as I decay and become a part of the soil of the forest floor.

Sitka: My name is Sitka. I am a young spruce sapling. This old nurse log is a great place for me to start my life. Maybe, someday I'll tower above you like Doug once did. But, that depends on you. If I am to grow to a height of 200 feet, I need lots of years, at least 100 or more. I fear that I may be cut down before I reach my full life giving potential. People continue to cut the trees of this coastal forest at an alarming rate.

So, what else was happening in the world at this time?

1879 Thomas Edison discovers electricity

1903 The Wright brothers make their first flight

Present day in the same forest in the coast range.

Sitka is still growing in the coastal forest near Newport, Oregon but her future is always unsure. Thousands of acres of old growth forest are logged each year. The demand for wood products is greater than ever, but we can decide to protect the old growth forest while obtaining our wood resources from the managed forests that already exist. What is a managed forest? It is an area that has been logged and then, intentionally replanted with trees that can be harvested again. A managed forest is like a farm; trees are planted and grown to provide for the needs of humans.

So, what else is happening in the world at this time?

Doug's Life – narrative pieces



woodpecker



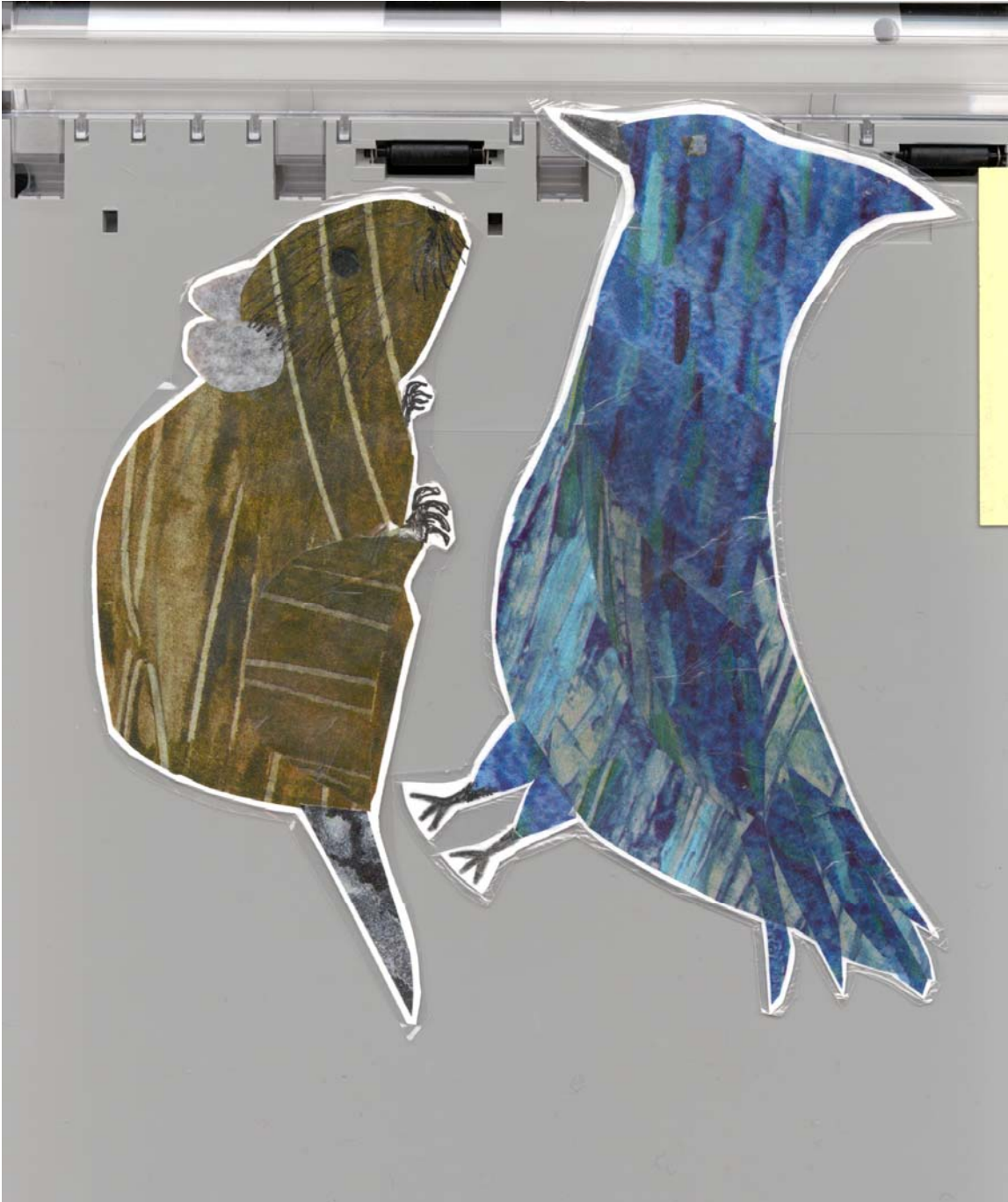
vole



wapiti



Northwest Spotted Owl



deer mouse

blue jay



Doug – fully grown



Doug – old tree



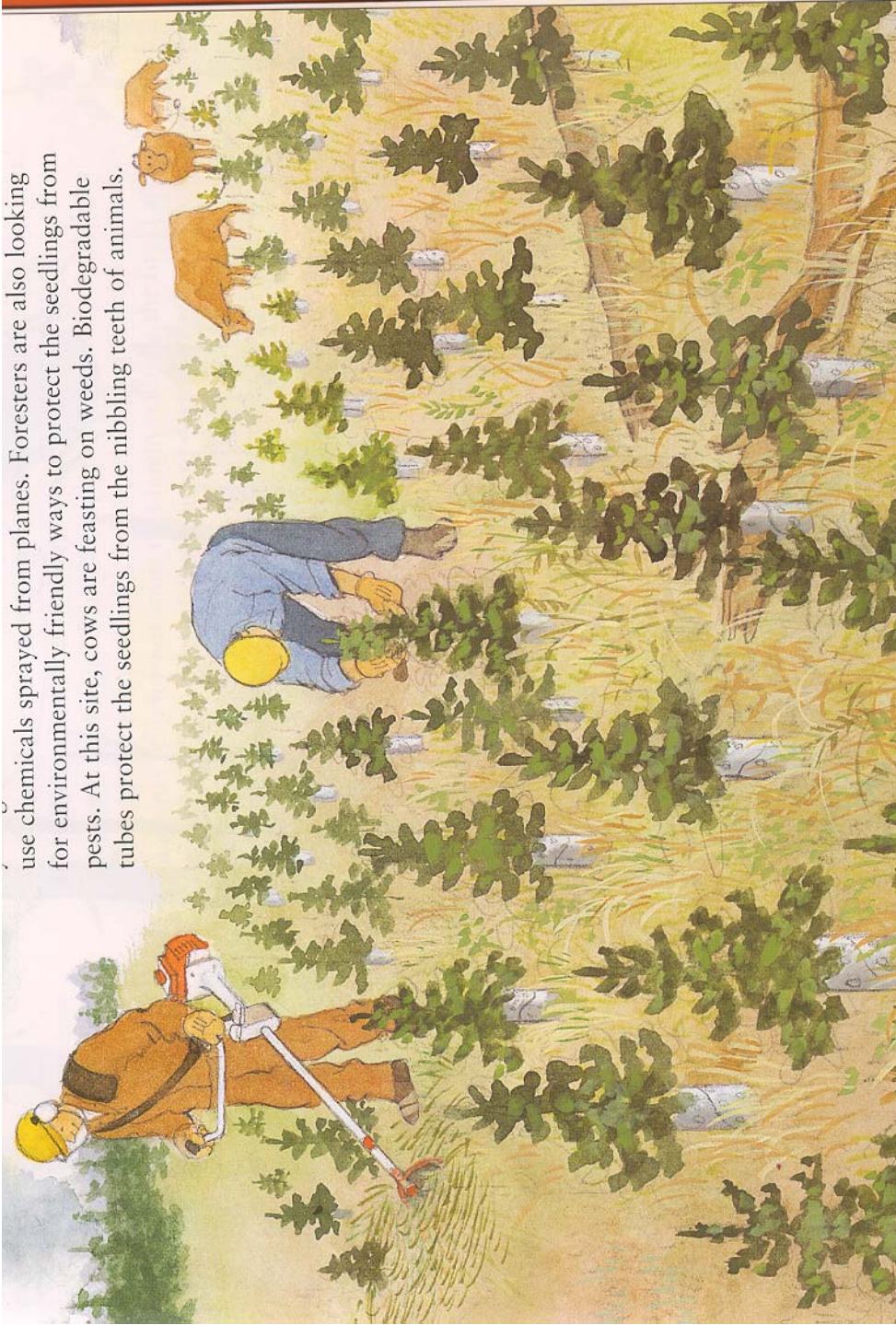
Doug – nurse log

Doug – sapling



Sitka

use chemicals sprayed from planes. Foresters are also looking for environmentally friendly ways to protect the seedlings from pests. At this site, cows are feasting on weeds. Biodegradable tubes protect the seedlings from the nibbling teeth of animals.



Managed Forest



Douglas Fir Pine Cones



WITCH'S HAIR

Alectoria sarmentosa

L 12". Conspicuous draping clumps of pale yellowish to greenish strands with tiny raised white markings. Fruiting bodies brown, disk-like, uncommon. **HABITAT** Trunks and branches of conifers, esp. in old-growth forests. **RANGE** Mainly west of Cascade crest.

HORSEHAIR LICHEN

Bryoria fremontii

L 15". Dense clumps of hanging branched, somewhat twisted brown strands, sometimes with yellow powdery spots. Fruiting bodies inconspicuous, rare. **HABITAT** Conifers, esp. pines and Douglas Firs. **RANGE** Mainly east of Cascade crest.



lichens



rotting wood



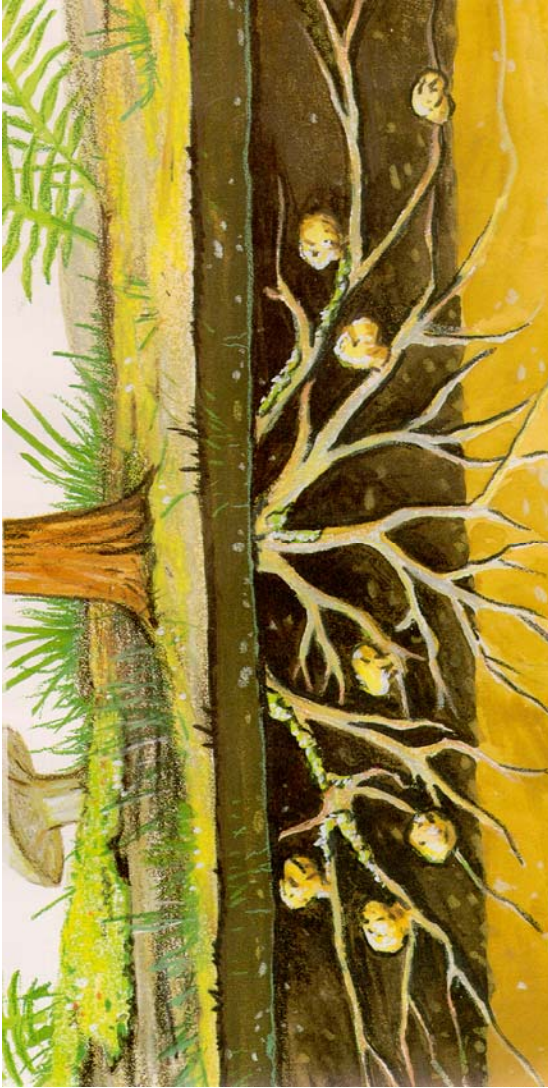
moss



owl in snag



Siletz girl



truffles

Comparative Input chart:

We usually think of living trees when we think of forests. But an important characteristic of Old growth is lots of down logs and snags which hold lots of animal life.

After several hundred years trees will fall to the ground or break off because of weather and decay.

Snag (standing dead tree) is home to many animals

10/2: What types of animals do you think live here?

Tree frog: live under leaves

Bobcat: den

Bats: Bat cave

Owl: perch

Squirrel: nest

When the root system becomes very weak the snag will tip over and become a down log.

10/2 "What types of animals do you think that a down log would be a home to?"

A down log is a home to more animals than a live tree.

Many plants:

Fern, Fungi, Mushrooms

Nurse log: when a tree grows from the log

Animals:

Yellow banana slug, Oregon salamander, Pine Marten, Field mouse, Snake

Beetles and termites help break down the log and help it to decompose

The log needs 500 more years for it to decompose.

10/2 "Did you hear about an animal you have seen or liked?"

Photosynthesis Pictorial Input Chart

1. Draw tree

Label parts:

trunk- holds up

bark- protection

roots- soak up water

needle- green part for photosynthesis (evergreen)

branch - holds up needles or leaves

cambium (Optional) -growth rings

10/2 Name the parts of the tree

2. BASIC NEEDS: Draw: Sun, soil, air, water

10/2 Name the basic needs of the tree

3. PHOTOSYNTHESIS CYCLE (means "putting together with light"-- photo: light, synthesis: put together)

- To make food leaves or needles use water that goes up the roots through the XYLEM into the branches
- The tree uses a gas in the air (carbon dioxide) and energy from the sun.
- The green leaves or needles put the water and CO together with help from the sun's energy.
- They make a food (sugar), which goes down through the PHLOEM to feed the tree

Oxygen is released into the air through pores in the leaves or needles called STOMATA

10/2 review how a tree makes food.

Word cards: Photosynthesis Pictorial Input

chlorophyll

roots

photosynthesis

sun

nutrients

needles

bark

cambium

oxygen

energy

water

trunk

soil

leaves

synthesis

truffles

symbiotic

branches

stomata

fungi

carbon dioxide

glucose

phloem

xylem

cambium

lichens

Products from trees input chart:

Reference Big Book we read

One reason why trees are important is that people need things from them.

10/2 something you remember from book

LIVE TREES

this is symbol of live tree

pictures of products from live trees

10/2 Can you think of other things from live trees?

CUT LUMBER

10/2 Predict things you think we use from cut wood
Pictures of products from lumber

WOOD CHIPS

Scrap lumber is cut into chips

Cooked with chemicals, becomes mushy and soggy (pulp)

Pulp goes along the belt and the water is drained off

Flattened dried pulp becomes paper

Pictures of different paper products

10/2 something you use you saw in chart

Types of Forest Input chart:

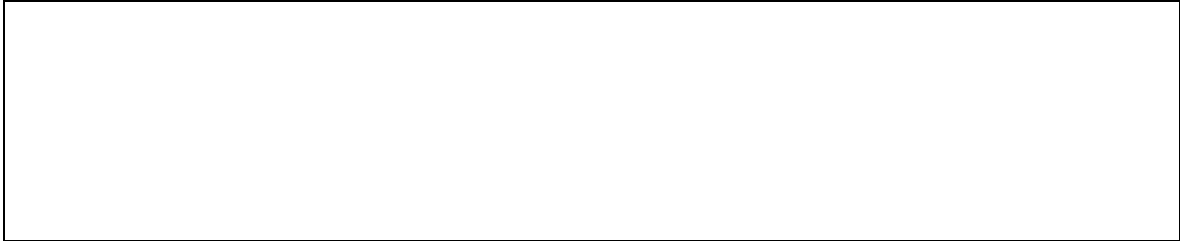
There are 5 types of forest in the world and some are almost extinct.

1. **SCLEROPHYLLOUS:** In Mediterranean. Almost gone. Is said that wood for Noah's ark came from Sclerophyllous forest.
2. **DECIDUOUS HARDWOOD:** Northern Europe, NE U.S. Maple and oak are examples. First laws passed to protect these forests.
3. **TROPICAL:** Hot and moist. 90% of nutrients in canopy. Being cut and burned for grazing (beef for fast-food industry) and farming. Home to 1/3 of all world's birds and many animals, so senseless to cut because not good farmland.
4. **BOREAL:** In Arctic, 30 days of sun a year, short growing season. Not yet being cut but now possibility.
5. **TEMPERATE CONIFEROUS FORESTS:** Douglas fir, Sitka spruce, red cedar are examples. Focus of our unit.

Grizzly Bear

Class: The brown bear, or grizzly, is a mammal.

Habitat: The preferred home of the grizzly is open mountain forests and large river valleys. The grizzly once roamed the forests of the entire western half of North America. Today the brown bear has been eliminated from most of its range. You can find it in Washington, Montana, Idaho, Alaska and western Canada. The grizzly does not live in Oregon anymore.

A large, empty rectangular box with a thin black border, likely intended for a drawing or additional information.

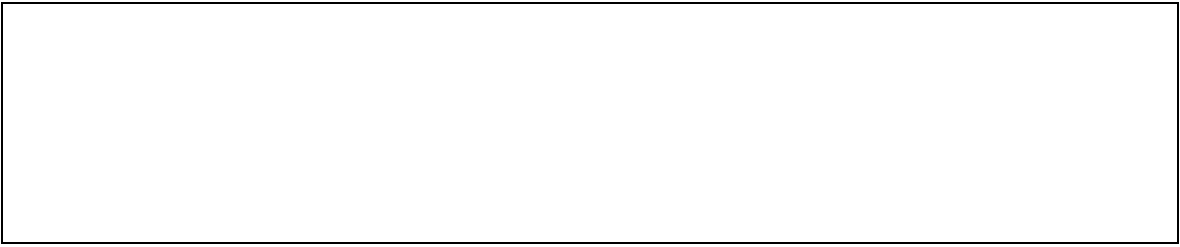
Food: The grizzly eats more than 200 types of plants. The brown bear also eats fish, insects, smaller mammals and honey. The grizzly needs to eat 80 - 90 pounds of food per day.

A large, empty rectangular box with a thin black border, likely intended for a drawing or additional information.

Why threatened or endangered: Because of hunting and habitat loss, the grizzly is very near extinction in the United States, except in the state of Alaska.

A large, empty rectangular box with a thin black border, likely intended for a drawing or additional information.

Importance to forests: The brown bear controls populations of smaller mammals.

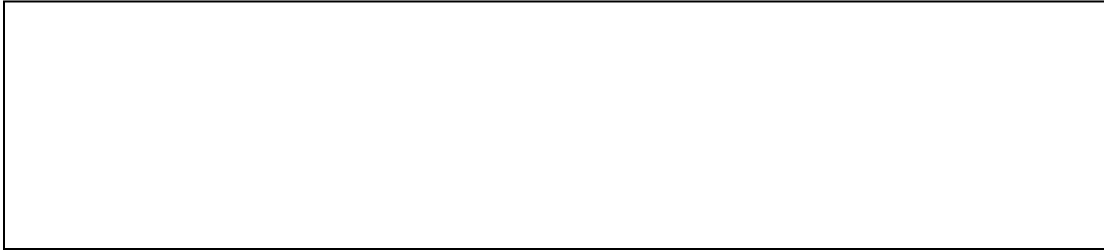


Interesting facts: When the weather is cold the brown bear takes a long rest called hibernation. It stops eating and enters a cave or hollow log to sleep through the winter.

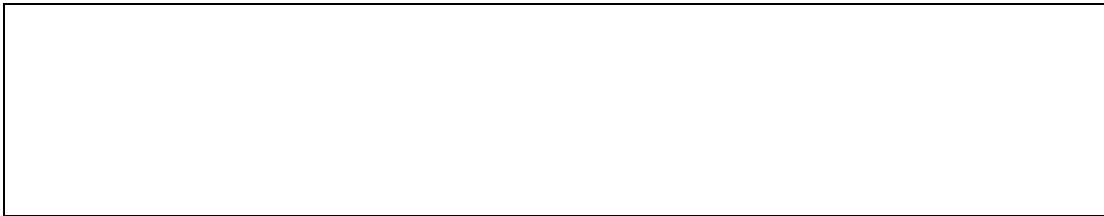
Red-backed Vole

Class: The red-backed vole is a mammal.

Habitat: This rodent lives in Douglas fir forests. It spends most of its time on the forest floor looking for food among the fallen logs and tree roots.



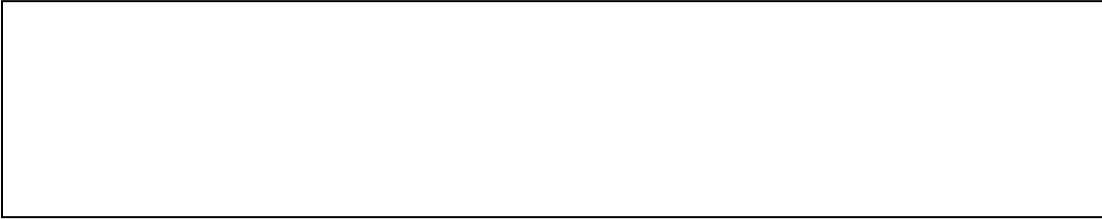
Food: The vole eats a diet of fungi called truffles. It also eats lots of fallen conifer needles from the forest floor.



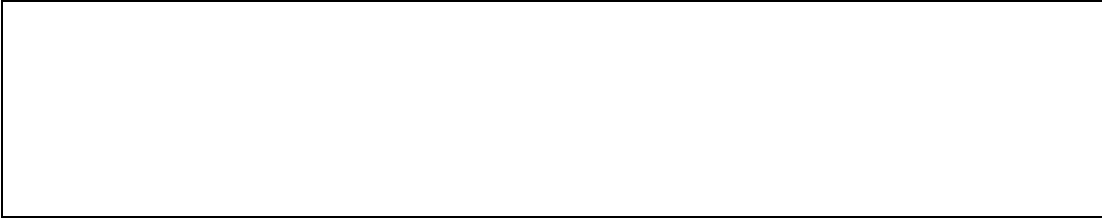
Why threatened or endangered: At this time, vole populations are not threatened or endangered. But without the old growth Douglas fir canopy they would not survive. The red-backed vole is considered an "indicator" species, which means that scientists watch carefully for changes in their populations to determine the health of the whole ecosystem. When vole populations decrease, it means the system is unbalanced and in danger.



Importance to forests: After eating truffles, red-backed voles spread spores in their droppings, reproducing more truffles. Since truffles grow on tree roots, and help them absorb nutrients from the soil, they are essential to forest growth.



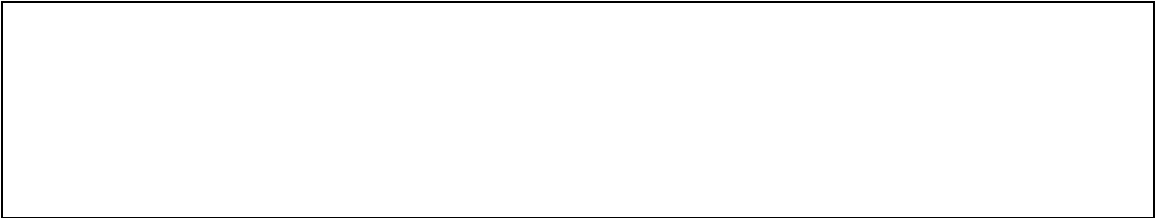
Interesting facts: Red-backed voles weigh less than $\frac{1}{4}$ of an ounce when born. This is lighter than a paper clip.



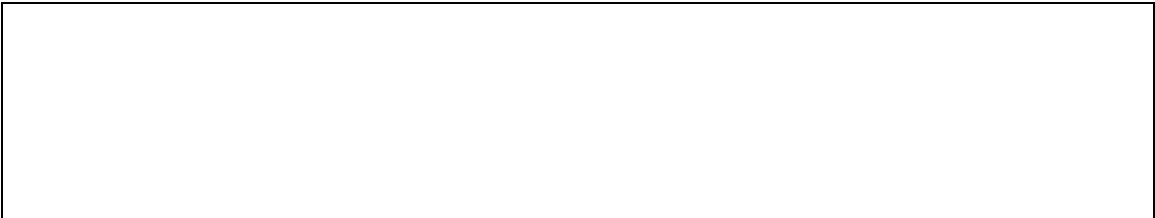
Sockeye Salmon

Class: Sockeye salmon are bony fish.

Habitat: The sockeye lives in freshwater rivers and streams for the first part of its life. It then migrates to the ocean, where it lives most of its life. It returns to freshwater at the end of its life to lay eggs.



Food: The sockeye salmon feeds mainly upon zooplankton. It also eats insects.



Why threatened or endangered: Most populations of sockeye salmon are endangered because of erosion caused by mining and logging in forests. The dirty runoff can pollute the gravel bedding the salmon needs for laying eggs, and can kill the insects it eats.



Importance to forests: Salmon are an important part of the food chain, providing food to bears and large birds of prey. They also bring nutrients from the ocean to the streams and rivers.

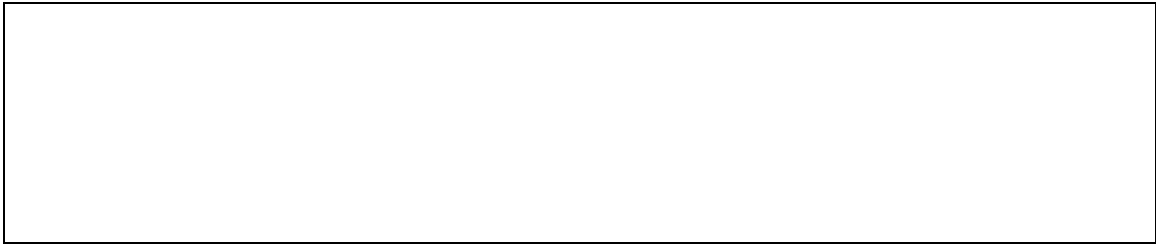


Interesting facts: Salmon travel thousands of miles and use their sense of smell to help guide them home when returning from the ocean.

Northern Spotted Owl

Class: The northern spotted owl is a bird.

Habitat: The spotted owl needs 3,800 acres of old growth forest to survive. Only very old trees provide the owl with appropriate nesting and roosting structures. The owl makes its nest in the cavities of broken tops of large trees.



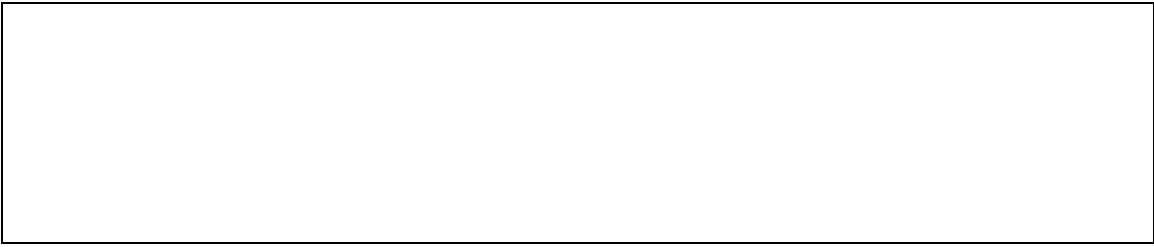
Food: The northern spotted owl eats small rodents like flying squirrels, tree voles, and wood rats.



Why threatened or endangered: Since 1990 the owl has been endangered because there are so few large areas of old growth remaining.



Importance to forests: The owl preys on small animals and helps to control the rodent populations.



Interesting facts: Unlike other owls, the northern spotted owl will sit within 20 feet of people and not be frightened away.

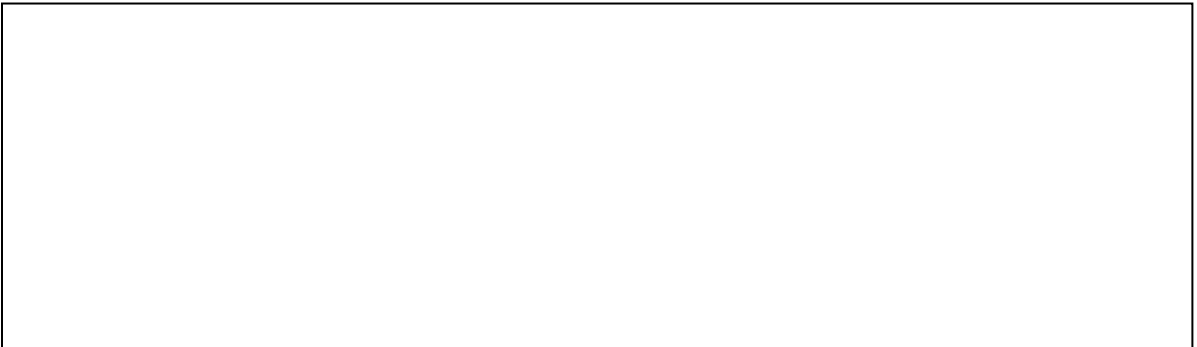
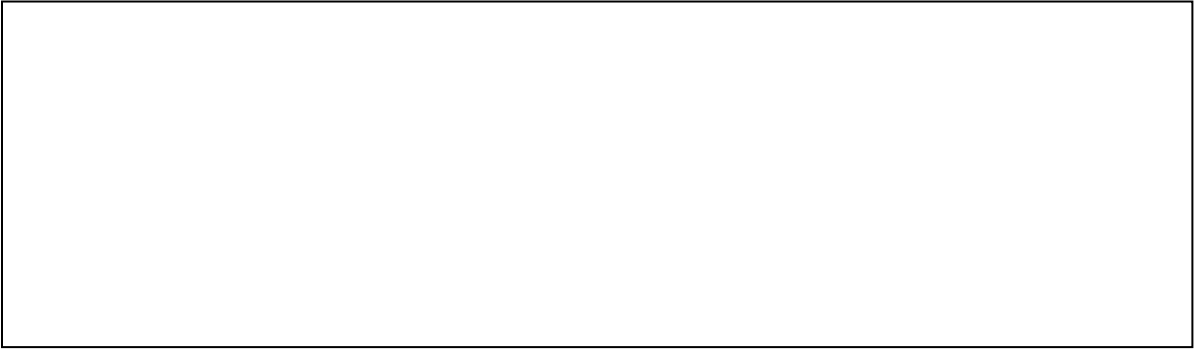




Home-School Connection

Name _____

This week we are studying Northwest forests. Please help your child find three things in your home that come from trees. Sketch and write about each item in the boxes below.



Trabajando juntos

Nombre _____

Esta semana estamos estudiando los bosques del noroeste del continente. Favor de ayudar a su hijo/hija encontrar en su casa tres cosas que vienen de los árboles. El estudiante debe dibujar y escribir sobre cada cosa en las cajas de abajo.

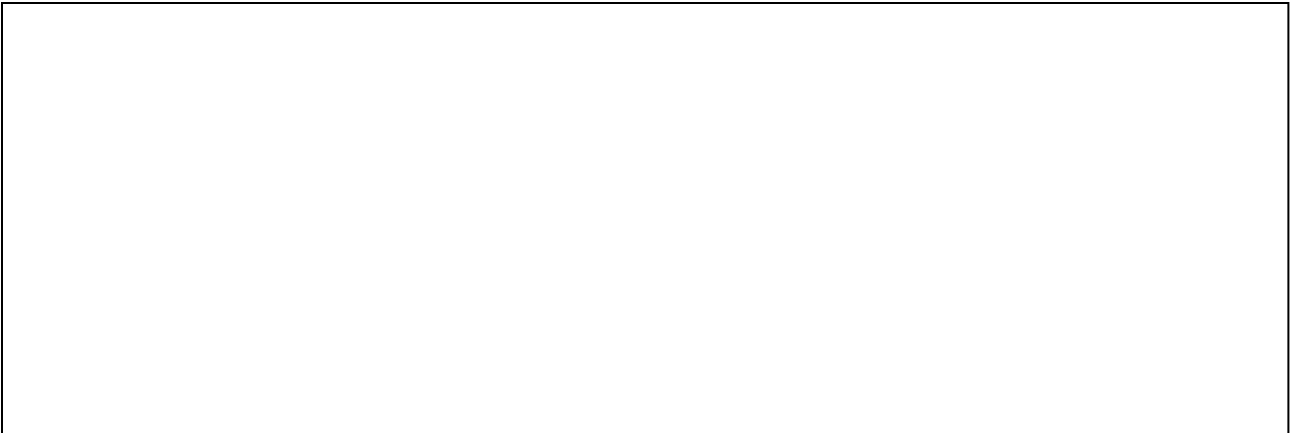
Home-School Connection

Name _____

We are learning about changes in the forests. Please tell your child about a place that has changed during your lifetime. Describe what it used to look like and what it looks like now, then help your child do the "before" and "after" pictures. Tomorrow these drawings will be shared with the class.

NAME OF PLACE

BEFORE



AFTER



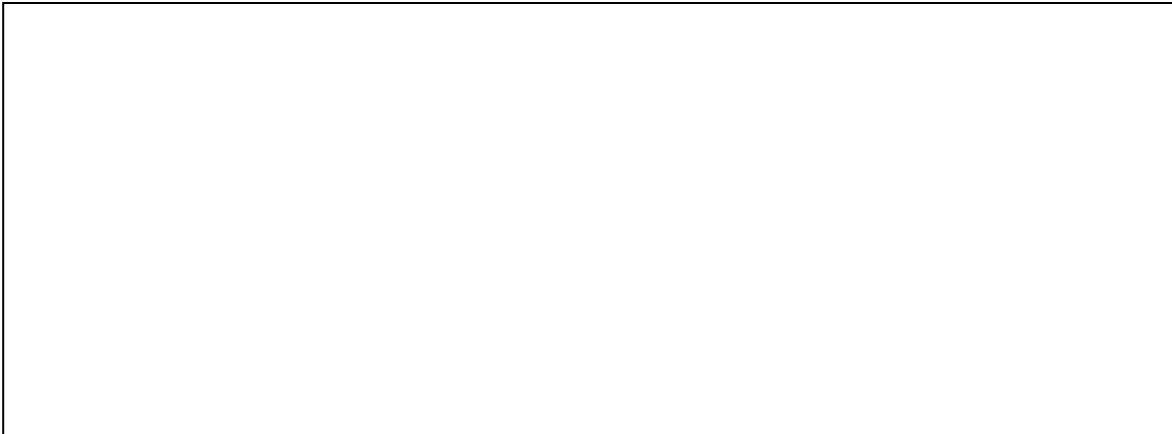
Trabajando juntos

Nombre _____

Estamos aprendiendo sobre cómo han cambiado los bosques. Por favor, cuénteles a su hijo/hija acerca de un lugar que haya cambiado durante la vida de usted. Describa cómo parecía antes y cómo parece actualmente, y ayúdele a su hijo/hija hacer los dibujos de "antes" y "después". Estos dibujos se van a compartir con la clase mañana.

NOMBRE DEL LUGAR _____

ANTES



DESPUÉS



Home-School Connection

Name _____

Please take a walk around the neighborhood with your child to look for trees, stumps, and fallen logs. Help your child to sketch the living or dead trees, with any animals, birds or insects living in or on them. Write the names of any of the trees or creatures if you know them.

Trabajando juntos

Nombre _____

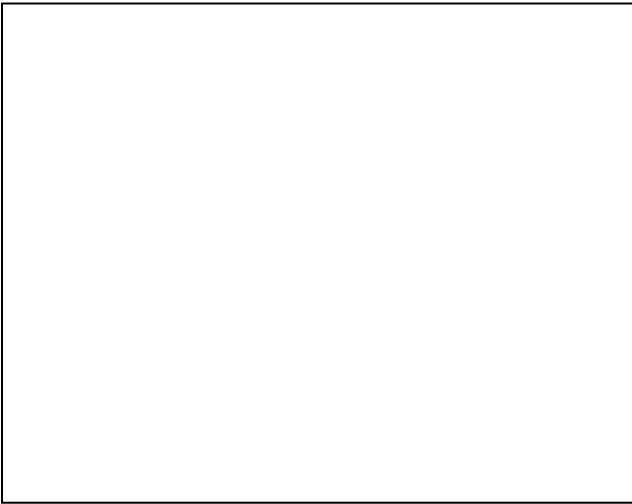
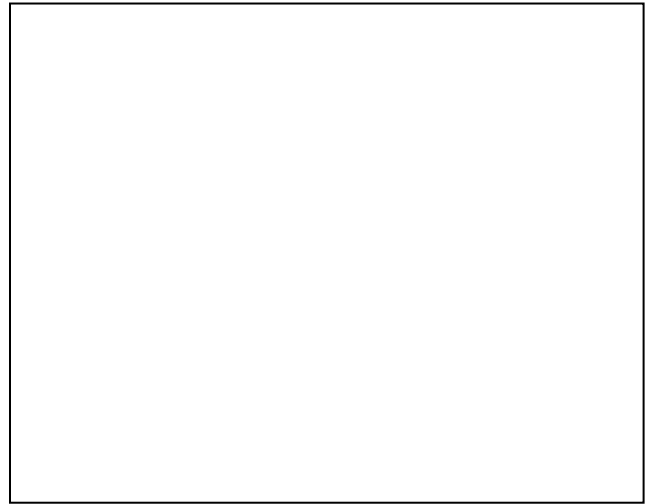
Favor de dar un paseo por su vecindario con su hijo/hija, buscando árboles y troncos caídos o cortados. Ayude a su hijo/hija a dibujar los árboles vivos o muertos, con los animales, pájaros o insectos que vivan en ellos. Escriba los nombres de los árboles y los animalitos si los saben.

Home-School Connection

Name _____

Please tell your child a story about something that happened in a forest. This could be a true story about yourself or someone you know, or it could be an imaginary story you have heard or read. The student should draw pictures of four important things that happened in the story.

Title of story _____

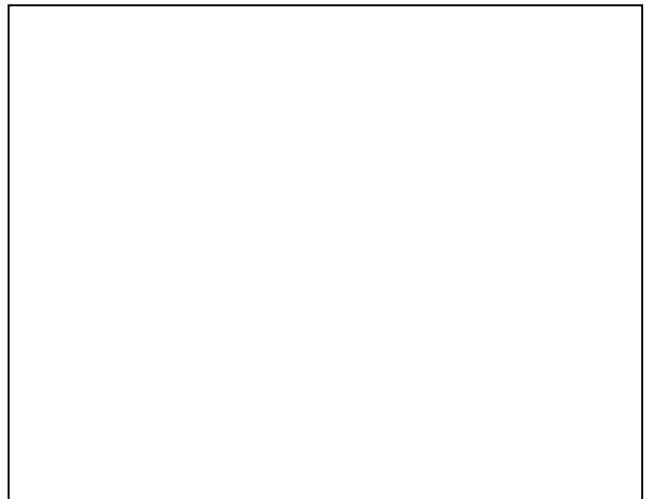
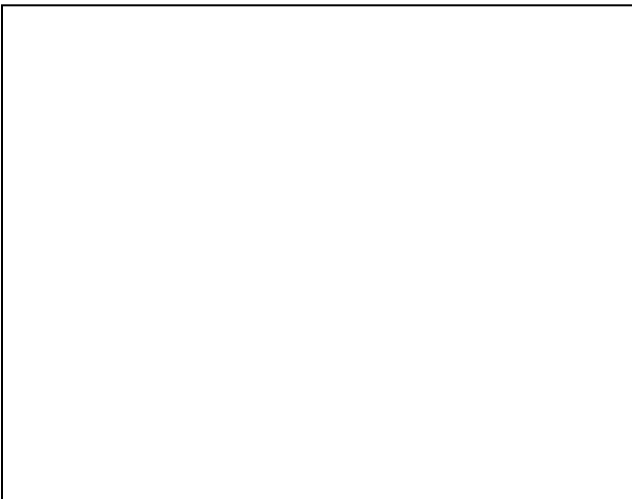
A large, empty square box with a black border, intended for drawing one of the four important things that happened in the story.A large, empty square box with a black border, intended for drawing one of the four important things that happened in the story.A large, empty square box with a black border, intended for drawing one of the four important things that happened in the story.A large, empty square box with a black border, intended for drawing one of the four important things that happened in the story.

Trabajando juntos

Nombre _____

Favor de contarle a su hijo/hija una historia de algo que pasó en un bosque. Podría ser un cuento verdadero sobre usted o sobre alguien que usted conoce, o puede ser un cuento de fantasía que usted haya escuchado o que haya leído. El estudiante debe dibujar cuatro cosas importantes que pasaron en el cuento.

Título del cuento _____



Conserve the forests!

¡Conserva el bosque!



Conserve the forests!

¡Conserva el bosque!



Conserve the forests!

¡Conserva el bosque!



Conserve the forests!

¡Conserva el bosque!



