

**SPECIES LIST**

The following species are those every naturalist in the area should be able to identify and offer important aspects of their natural history. With mammals you often encounter a skull, and this, too, you should be able to identify. A naturalist should also identify tree bark and conifer cones.

**MONERANS:**

Cyanobacteria

**FUNGI:**

Morel

Basidiomycetes (in general)

Bracket Fungus

Ascomycetes (in general)

Lichen

**PLANTS:**

Kelp (nereocystis)

Diatom

Moss

Complex thalloid Liverwort

Horsetail

Sword Fern

Bracken Fern

Douglas-fir

Ponderosa Pine

Sugar Pine

Lodgepole Pine

Western Juniper

Incense Cedar

White Fir

Shasta Red Fir

Madrone

Bigleaf Maple

White Alder

Black Cottonwood

Oregon White Oak

California Black Oak

Wedgeleaf Ceanothus

Greenleaf Manzanita

Whiteleaf Manzanita

Poison Oak

Snowberry

Big Sage

Yellow Star-thistle

Bluebunch Wheatgrass

Idaho Fescue

Cheatgrass

Hedgehog Dogtail

Medusahead

Yarrow

Teasel

Salal

Himalayan blackberry

Thimbleberry

Currant/ Gooseberry (*Ribes* spp)**ANIMALS: INVERTEBRATES**

Pill Bug

Jumping Spider

Orb Weaver

Deer Tick

Dog Tick

Dragonfly

Damselfly

Praying Mantis

Jerusalem Cricket

Termite

Aphid

Treehopper

Spittlebug

Cicada

Water Strider

Backswimmer

Ant Lion

Lacewing

Mayfly

Stonefly

Caddisfly

Long-horned Woodboring Beetle

Metallic Woodboring Beetle

Bark Beetle

Ladybug

Tiger Swallowtail

Painted Lady

Cabbage Butterfly

Sulfur Butterfly

Morningcloak Butterfly

Blue spp.

Monarch Butterfly

Sphinx Moth

Hawk Moth

Crane Fly

Mosquito

Bald-faced Hornet

Velvet Ant

Yellow-jacket

Honeybee

Carpenter Ant

Bumblebee

Harvester Ant

Carpenter Ant

**ANIMALS: FISH**

Lamprey  
 Chinook (King) Salmon  
 Steelhead  
 Rainbow Trout  
 Brook Trout

Bull Trout  
 Largemouth Bass  
 Bluegill  
 Crappie  
 Carp

Bullhead  
 Short-Nosed Sucker  
 Squawfish

**ANIMALS: REPTILES AND AMPHIBIANS (Herps)**

Rough-shinned Newt  
 Pacific Giant Salamander  
 Western Toad  
 Bullfrog  
 Tree Frog  
 Western Pond Turtle  
 Western Fence Swift

Alligator Lizard spp.  
 Western Skink  
 Rubber Boa  
 Garter Snake spp.  
 Gopher Snake  
 Western Rattlesnake

**ANIMALS: BIRDS**

White Pelican  
 Double-crested Cormorant  
 Great Blue Heron  
 Canada Goose  
 Mallard  
 Wood Duck  
 Common Merganser  
 American Coot  
 Killdeer  
 Common Snipe  
 Ring-billed Gull  
 California Gull  
 Marbled Murrelet  
 Turkey Vulture  
 Golden Eagle  
 Bald Eagle

Red-tailed Hawk  
 Osprey  
 American Kestrel  
 Peregrine Falcon  
 California Quail  
 Mountain Quail  
 Ring-necked Pheasant  
 Ruffed Grouse  
 Mourning Dove  
 Barn Owl  
 Great Horned Owl  
 Spotted Owl  
 Western Screech Owl  
 Anna s Hummingbird  
 Northern Flicker  
 Acorn woodpecker  
 Barn Swallow

Cliff Swallow  
 Western Scrub-Jay  
 Steller's Jay  
 American Crow  
 Common Raven  
 American Robin  
 American Dipper  
 European Starling  
 Dark-eyed Junco  
 Black-capped Chickadee  
 Golden-crowned Sparrow  
 Western Tanager  
 Western Meadowlark  
 Bullock s Oriole  
 Brewer's blackbird  
 Red-winged Blackbird  
 Brown-headed Cowbird  
 House Sparrow

**ANIMALS: MAMMALS**

Opossum  
 Shrew spp.  
 Hoary Bat  
 Myotis spp.  
 Black Bear  
 Raccoon  
 Long-tailed Weasel  
 Striped Skunk  
 River Otter  
 Mountain Lion  
 Bobcat

Coyote  
 California Ground Squirrel  
 Golden Mantled Ground Squirrel  
 Western Gray Squirrel  
 Townsend's Chipmunk  
 Pocket Gopher spp.  
 Ord's Kangaroo Rat  
 Beaver  
 Red Tree Vole  
 Red-backed Vole  
 Deer Mouse

Vole (Microtus spp.)  
 Muskrat  
 Porcupine  
 Pika  
 Black-tailed Jackrabbit  
 Cottontail  
 Black-tailed Deer  
 Mule Deer  
 Elk  
 Pronghorn

## THINGS TO KNOW

The following is a list of topics every naturalist in the area should be able to discuss at some length with the public (your consumers). In the case of field techniques and interpretation you should be able to explain the various techniques, demonstrate them and evaluate the works of others. You are responsible for any of the following topics in any portion of your master s examinations.

### ECOLOGY

Energy Flow: 10% rule

Carbon Cycle

Nitrogen Cycle:

Nitrogen fixation, Organisms involved, Host species

Important to ecosystem

Phosphorus Cycle

Population Growth:

Logistic Growth, Exponential Growth, Carrying Capacity

Mycorrhizal Fungi:

Nature of relationship with host

Importance to ecosystem

Fungi: Ecological roles

Lichens: What they are

Lichens: Ecological roles

Biological Succession

Theory of Island Biogeography:

Importance in preserve design

Intermediate Disturbance Hypothesis

Mimicry: Batesian

Aggressive

Aposematic Coloration

### GEOLOGY

Rock Types

Plate Tectonics:

Three boundary types

Associated vulcanism

Watercourses:

Stream profiles

Substrate patterns

Erosion:

Infiltration/Runoff Ratios

Factors affecting I/R ratios

### FORESTRY

Sustained Yield

Evenflow

Multiple Use

Harvest Plans (evaluate each):

Clearcuts

Selective Cuts

Yarding Methods (evaluate each):

Tractor

Skidder

High lead

Skyline

Reforestation Practices:

Seed collection/choise of plantings

genetically improved trees

Brush Control:

Methods, Issues

## **RANGE**

### **AUM**

Indicators of range quality

Aliens

Management:

    Sound management practices

    Restoration

    Use of fire

## **WATER/FISHERIES**

Best indicators of water quality

Effects of dams on water quality and anadromous fish

Effects of forest practices upon water quality

Effects of grazing upon water quality

Requirements and natural history of:

    Chinook Salmon

    Coho

    Steelhead

## **CONSERVATION BIOLOGY**

Numbers of Species

Effective Population Size

Importance of heterozygosity

Risk factors for extinction

Source and Sink Populations

Restoration

Diversity patterns

Minimum Viable Populations

Patterns of extinction of geologic time

Preserve design

Metapopulation

General management principles

## **CONSERVATION**

Patterns of resource use, especially in the U.S.

Greenhouse Effect

Acid Rain

Ozone Depletion

Human population growth

## **LEGISLATION**

Endangered Species Act and amendments (1973 to present)

Multiple Use-Sustained Yield Act 1960

Wilderness Act 1964

National Forest Management Act (1978)

Taylor Grazing Act (1934)

## **FIELD STUDIES**

Plant Sampling Techniques:

    Nested Quadrat

    Point-quarter

    Daubenmire Canopy Coverage

    Line Intercept

Soil Studies:

    Profile

    Texture

    Percolation Test

    Organisms

Water Studies:

    Water Quality

    Aquatic Organisms (Plant and Animal)

Animal Studies:

    Density (mark-recapture)

    Behavior

Field Journal

Plant Collection

## **INTERPRETATION**

Lesson Design:

    Anticipatory set

    Evaluation

    Closure

Guided Walk

Trail Brochure

Signage

Spontaneous Interpretation