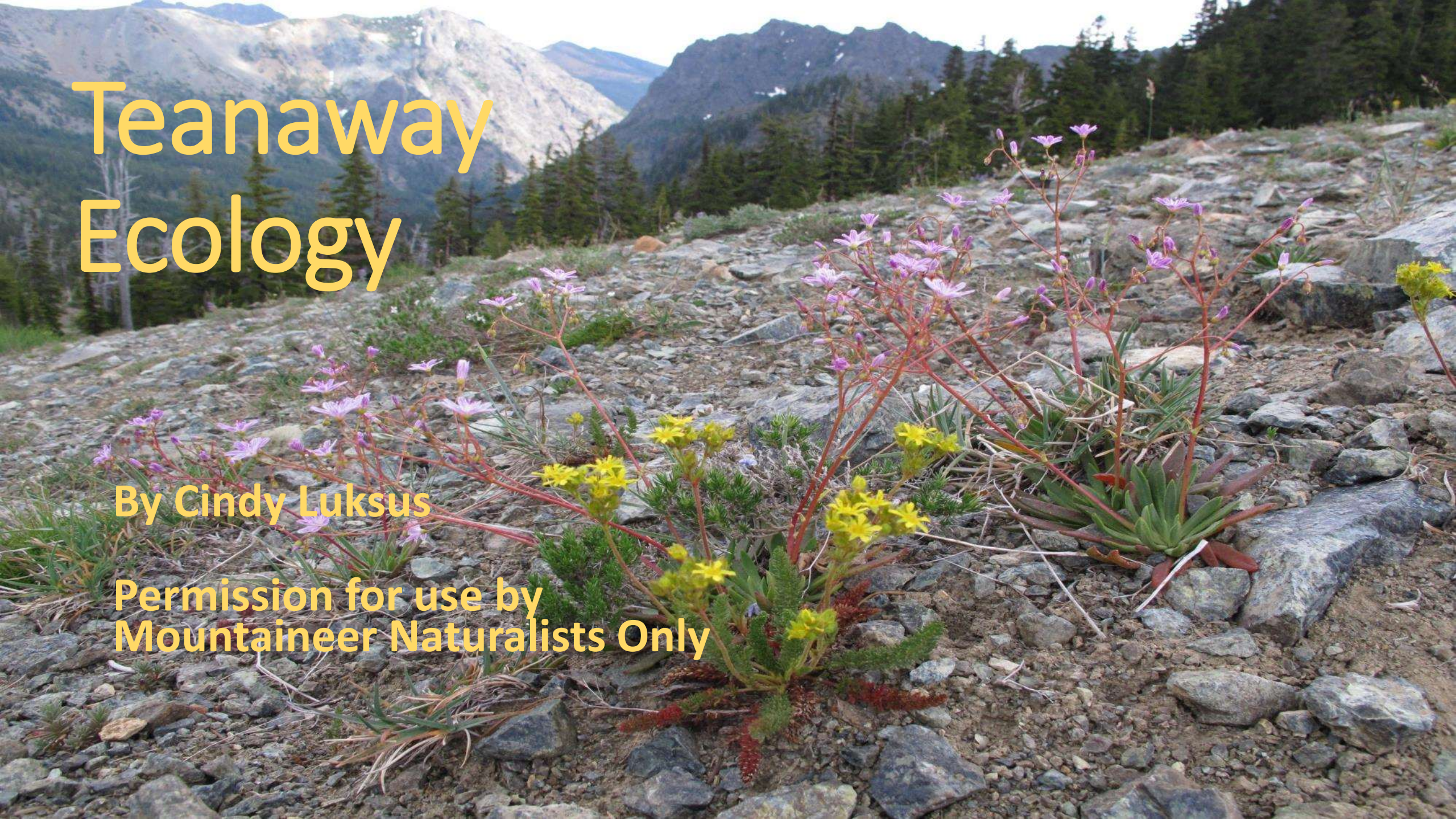

Teanaway Ecology

By Cindy Luksus

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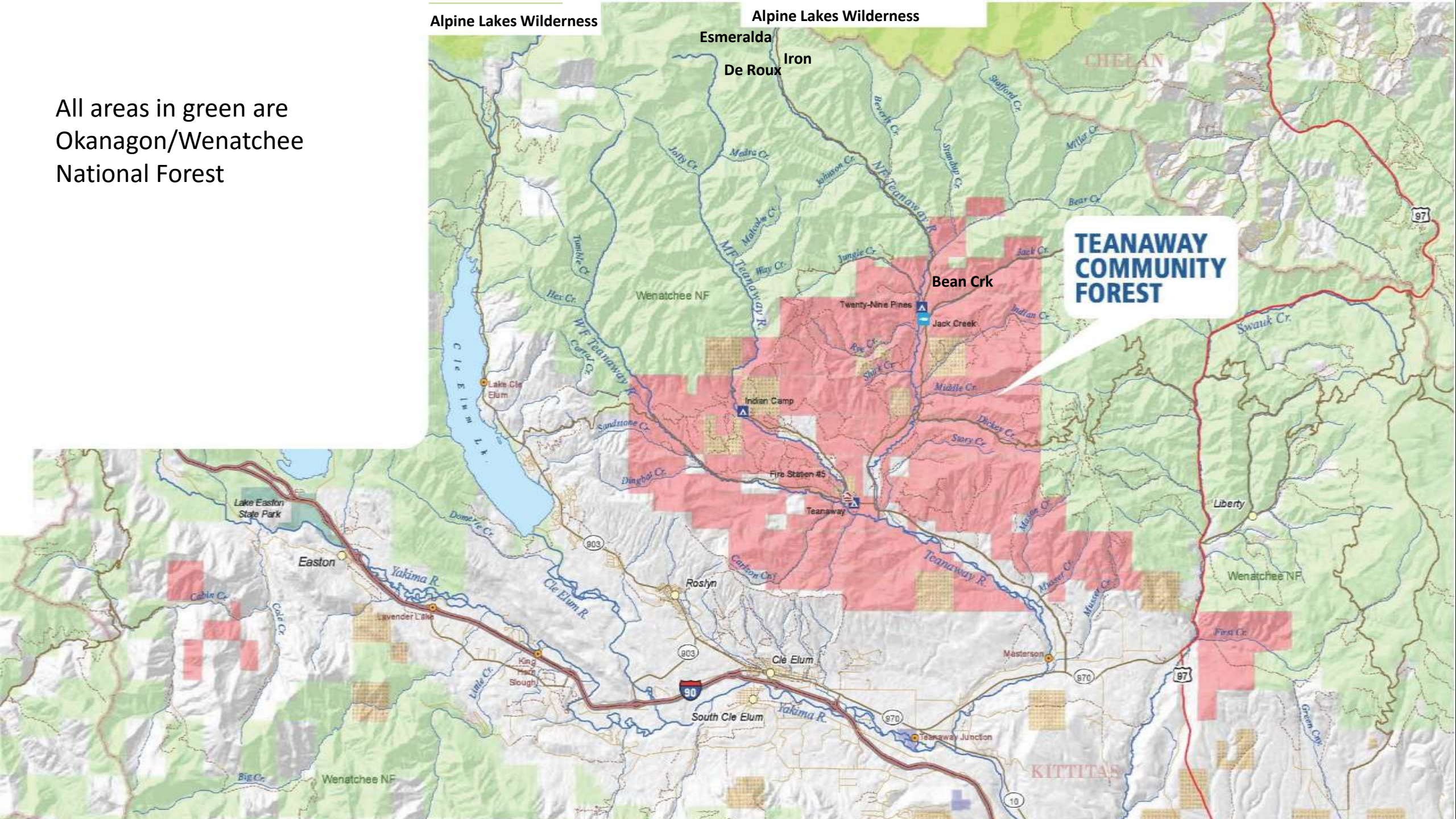
Teanaway Ecology

1. Where the Teanaway is and why it is important
2. Why do a field trip in the Teanaway?
3. Geology of the area and how it affects ecology
4. Forest dynamics: Insects, forest monoculture/crowding, humans
5. Trees, shrubs, flowers, wildlife
6. Summary

Photo by I Padraic Ryan


Okanogan-Wenatchee National Forest
FOREST SERVICE
U.S.
DEPARTMENT OF AGRICULTURE
Lake Chelan National Recreation Area
Lake Chelan Sawtooth Wilderness
Glacier Peak Wilderness
CHELAN RANGER DISTRICT
Methow River
Brewster
Pateros
Wisp
Loup Loup
Chelan
Entiat River
Chiwawa River
White River
Little Wenatchee River
Henry M. Jackson Wilderness
ENTIAT RANGER DISTRICT
Columbia River
Stevens Pass
WENATCHEE RIVER RANGER DISTRICT
Entiat
Leavenworth
Alpine Lakes Wilderness
Icicle River
Wenatchee River
Forest Headquarters
Wenatchee
Snoqualmie Pass
CLE ELUM RANGER DISTRICT
Blewett Pass
Cle Elum
Ellensburg
Yakima River
Little Naches River
Norse Peak Wilderness
American River
Bumping River
Chinook Pass
NACHES RANGER DISTRICT
William O. Douglas Wilderness
Naches
Tieton River
White Pass
Rimrock Lake
Goat Rocks Wilderness
Yakima
Location Map
Okanogan
Everett
Spokane
Seattle
Wenatchee
Olympia
WASHINGTON
Yakima
Major Rivers
Major Highways
National Forest Offices
National Forest
Wilderness Areas within Okanogan-Wenatchee NF
N
W
E
S

All areas in green are Okanagon/Wenatchee National Forest

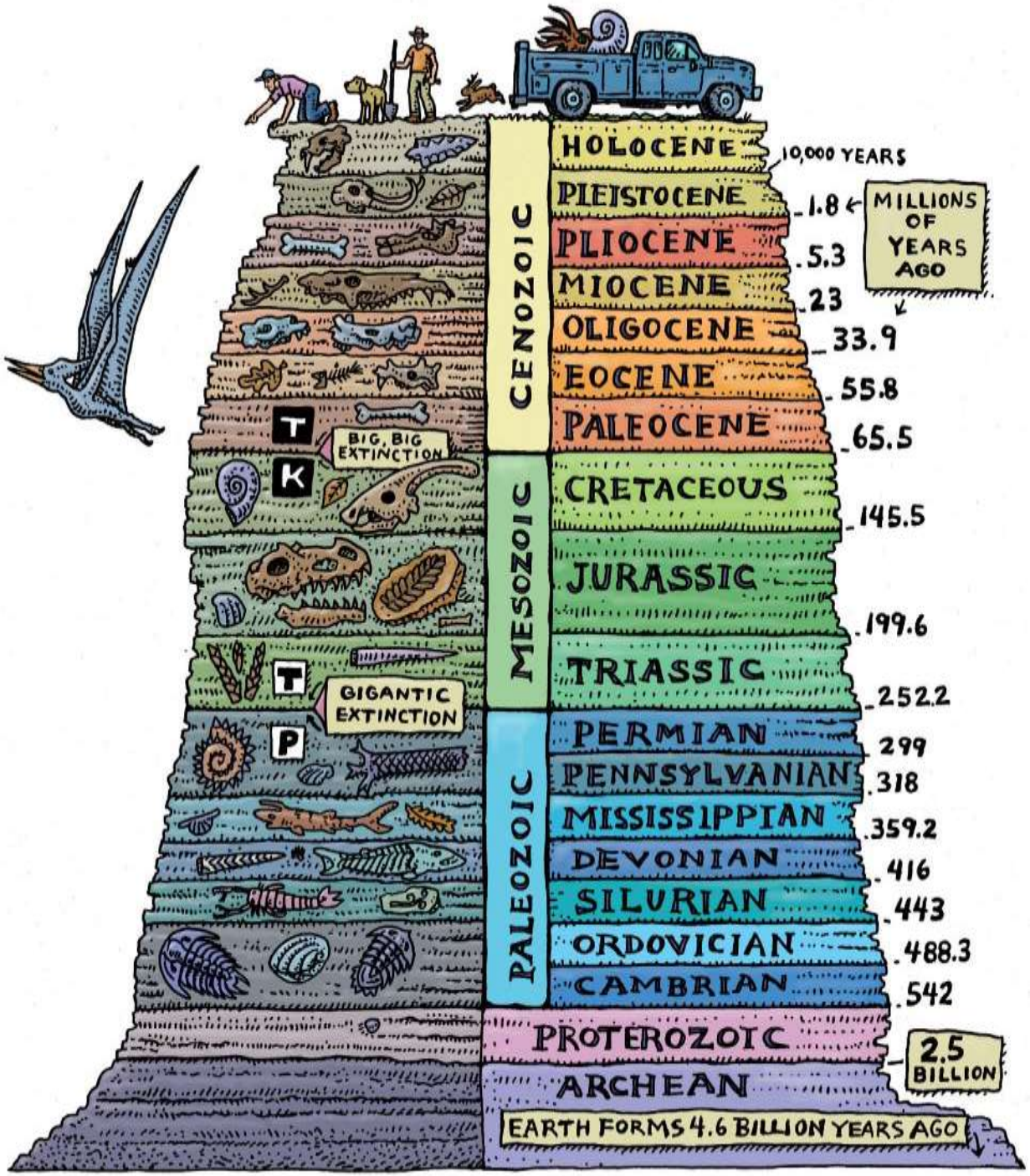



Mt Stuart


Earl Peak and Bean
Creek Drainage

Geology

- The geology of the area is dominated by the Late Jurassic/Early Cretaceus Ingalls Tectonic Complex.
- This includes serpentinite and serpentinized perioditite as well as metasedimentary rocks, ultramafic, volcanic and intrusive igneous rocks
- Mt Stuart granite is 93 million years old and docked in it's present location around 55 million years ago. The serpentinite is 150 million years old and docked about the same time. The mystery is still HOW DID THEY GET THERE???



Geology

So what happened after all the **tectonic plate** activity?

- Periods of plasma flows succeeded by sedimentation formed Roslyn, Teanaway Basalt, and Swauk Formations – Eocene era – 34-58 million years ago Temperatures were warmer and there are many fossils records from this time.
- Plasma Flows from the Grand Ronde Flood Basalt formed flat-topped hills and steep slopes or cliffs– around 15.6 million years ago
- Glaciers blocked the Teanaway River forming a lake. Glacial drift and outwash---around 2.4–11.4 million years ago
- Landslides and river and stream deposits – Modern to 11 million years

Photo by I Padraic Ryan

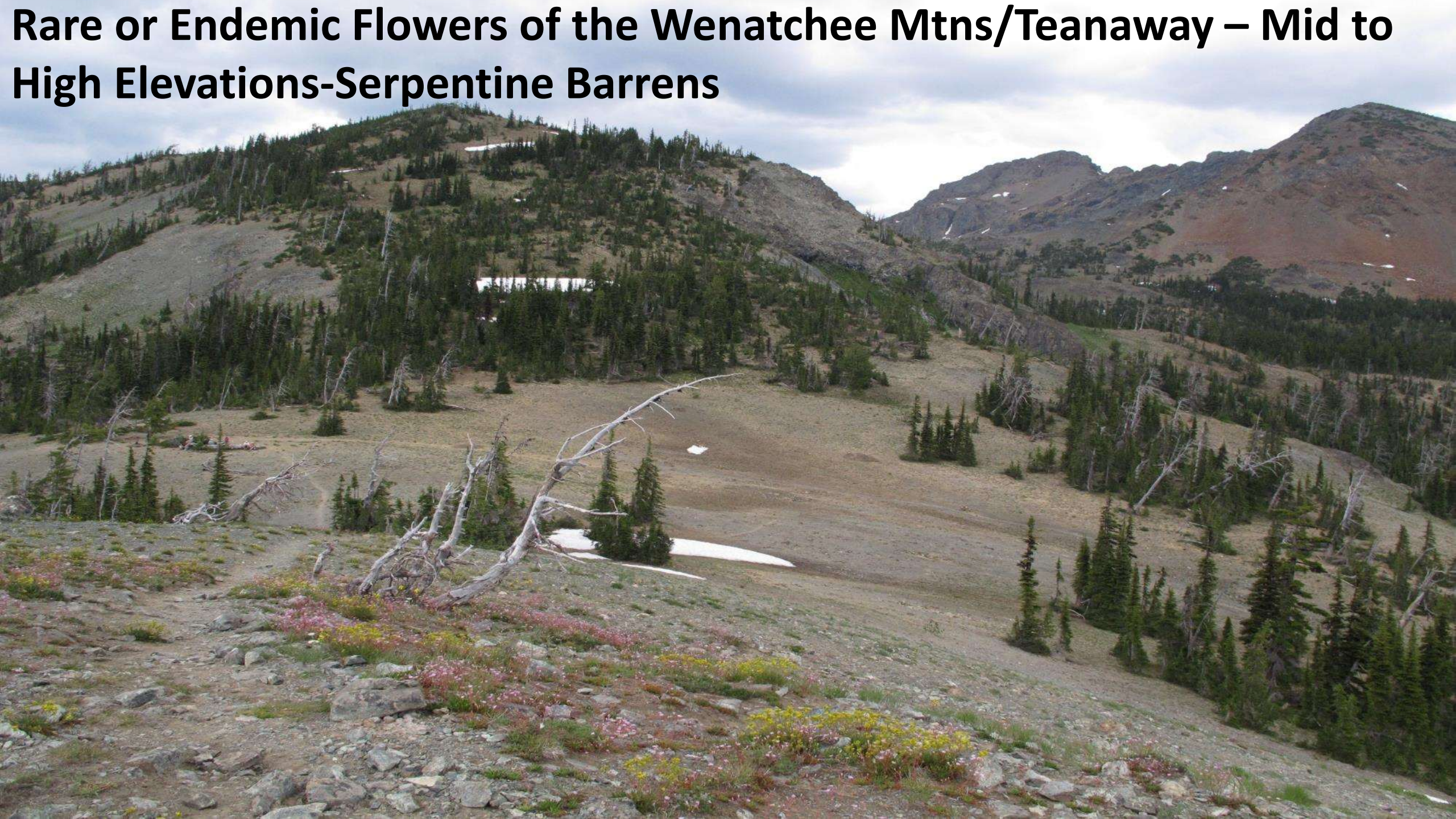
Geology

So what are we left with today?

- Steep terrain, river valleys, mountain meadows
- Granite-Mt Stuart
- Metamorphic rock-high ridges rolling terrain
- Areas of serpentine soil – contains < 45% silica and is composed of the mineral serpentine---bare exposed slopes.

1. Low calcium to magnesium ratio
2. Lack of essential nutrients-nitrogen, potassium and phosphorus
3. High concentration of nickel and chromium

Rare or Endemic Flowers of the Wenatchee Mtns/Teanaway – Mid to High Elevations-Serpentine Barrens



Ivesia tweedyi-
Tweedy’s ivesia

Lomatium cuspidatum-Wenatchee Mountain Lomation

Portulacaceae- Primose Family

Claytonia megarhiza- Wenatchee Mountain Springbeauty

Trees Common in the Teannaway

Pinus ponderosa- Ponderosa Pine (3 needles)

Pinus albicaulis- Western White Pine (5 needles)

Abies grande-Grand Fir

Pseudotsuga menziesii-
Douglas Fir

Tsuga mertensiana-Mountain Hemlock

Picea engelmannii-Engelman's Spruce

Photos by Ben Legler

Other trees:

Lodgepole pine
Alpine Fir
Whitebark Pine
Pacific Yew
Silver Fir
Western Larch

What is happening in our Forests Today

From USDA 2004 “Forest Health Assessment for the Okanogan and Wenatchee National Forests”

- The severity and magnitude of wildland fires have been exacerbated in recent years by several conditions:

1. Accumulations of dead wood
2. Development of dense forests on dry and mesic sites
3. Ongoing insect and disease epidemics
4. Cumulative effects of several years of drought

Beetle/Defoliator/Dwarf Mistletoe Infestations

- Natural disturbance include fire, insects, diseases, wind throw, wild herbivores, and weather.
- Pre-settlement disturbances have been altered by management activities, climatic changes, livestock, grazing, timber harvesting, and human habitation.
- Diseases tend to spread diffusely over the entire forest and are not usually a factor.
- Fir engravers and defoliators, such as the Western spruce budworm do not often kill trees. However, in recent years they have sufficiently weakened trees so that they easily succumb to Bark beetles, the Mountain Pine Beetle, Spruce Beetle, and Douglas Fir Beetle. All of these attack and kill the larger trees first.

Photo by I Padraic Ryan

A lodgepole pine tree infested by the mountain pine beetle, with visible pitch tubes

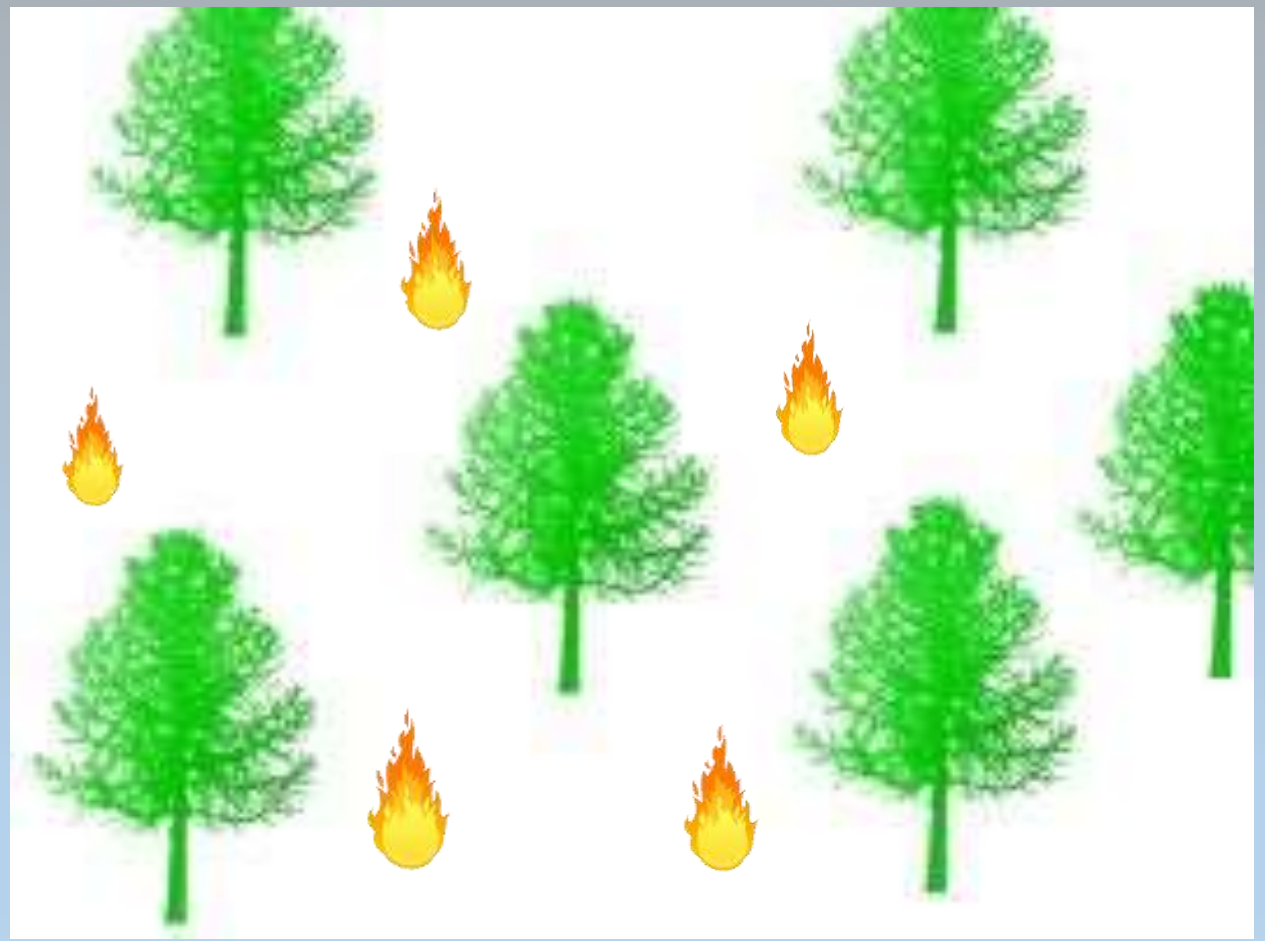
Beetle/Defoliator/Dwarf Mistletoe Infestations

Dwarf Mistletoe

- Parasitic plants that affect host trees by reallocating water and nutrients, causing deformation, growth loss and premature death.
- Affects western larch, ponderosa pine, lodgepole pine, and to a lesser extent hemlocks and grand fir. Douglas-fir is most affected.

Dense forests have increased the ability of insects and mistletoe to spread and make them next to impossible to contain, much less eradicate.

Our Forests: Pre-settlement and Now



Meadows, Hillsides, Sub-alpine Meadows

Orobanchaceae- Broomrape Family (Formerly Figwort Family)

Pedicularis groenlandica- Elephant Head Lousewort

Pedicularis bracteosa – Bracted Lousewort

Orobanchaceae-Broomrape Family

Castilleja elmeri-Wenatchee Indian paintbrush, Elmer's paintbrush

Lentibulariaceae - Bladderwort Family

Pinguicula vulgaris – Common Butterwort

Boraginaceae-Borage Family

Hydrophyllum capitatum-Ball-head Waterleaf

Phacelia hastata- Silver-leaf phacelia

Phacilia procera – Tall phacilia

Apiaceae-Parsley Family

Lomatium nudicale-
Bare-stemmed lomatium

Lomatium brandegei-
Brandegee's lomatium

Asteracea- Aster Family

Cacaliopsis nardosmia- Silvercrown Luina

Ranunculaceae- Buttercup Family

Delphinium nuttallianum- Upland or Common Larkspur

Anenome drummondii – Drummond’s anenome

Portulacaceae – Purslane Family

Lewisia Columbiana-
Columbia Lewisia

Polygonaceae Family - Buckwheats

Eriogonum pyrolifolium-
Alpine buckwheat

Eriogonum compositum-
Northern buckwheat

Eriogonum umbellatum-
Sulphur buckwheat

Erigonum elatum-
Tall buckwheat

Aconogonon davisiae-Davis's knotweed

Ericaceae-Heath Family

Pyrola picta-White-veined wintergreen

Orthilia secunda – One-sided wintergreen (with some Rattlesnake Plantain mixed in)

Orchidaceae-Orchid Family

Calypso bulbosa-Calypso Orchid or Fairy Slipper

Platanthera dilatata-
White Bog Orchid

Platanthera stricta-
Slender Bog Orchid

Tofieldia Family

Triantha occidentalis - Sticky Asphodel

Photo by Ben Legler

Primulaceae- Primrose Family

Douglasia nivalis – Snow Douglasia

Dodecatheon jeffreyi-
Jeffery’s Shooting Star

Saxifragaceae-Saxifrage Family

Lithophragma sp-
Woodland Prairie Star

Polemoniaceae – Phlox Family

Ipomopsis aggregate – Skyrocket or Scarlet Gilia

Violaceae – Violet Family

Viola purpurea – Goosefoot violet

Shrubs Common in The Teanaway

Ericaceae-Heath Family

Arctostaphylos nevadensis-Kinnikinnick

Rhododendron columbianum-Trapper's Tea

Rhamnaceae-Buckthorn Family

Photo by Ben Legler

Ceanothus velutinus-Snowbrush or Tobacco Bush

Photo by Rob Gilbert

Ceanothus sanguineus-Red-stemmed ceanothus

Acer glabrum-Douglas Maple

Rosacae – Rose Family

Amelanchier alnifolia – Serviceberry

Prunus emarginata – Bitter Cherry

Spiraea betulifolia-Birch Leafed Spirea

Sorbus sp – Cascade and Sitka Mountain-ash

Ferns Common to The Teanaway

Polystichum lemmonii – Shasta Fern

Cryptogramma crispa – Rock-brake or Parsley Fern

Aspidotus densa-
Indian Dream Fern

Birds Common in The Teanaway

Western Tananger

Dark-eyed junco

Evening Grosbeak

Pine Siskin

Chipping Sparrow

Photos from the Audobon website

Butterflies Common In the Teanaway

Anglewing or Comma

Morningcloak
and Blues

Common Lichens of the Teanaway

Letharia Vulpina-Wolf Lichen

Letharia Columbiana-Wolf Lichen

Witch's Hair – Alectoria sp. - Fruticose

Horsehair Lichen-Bryoria sp - Fruticose

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- http://www.dnr.wa.gov/Teanaway
- Burke Museum Herbarium Image Collection
- Audubon Image Collection


The End- I stop talking now…
Questions???