

Native Plant Communities of Southwest Idaho



Ann DeBolt, Idaho Botanical Garden
February 2015

Plant Community Type

Refers to the **associated plant species** that form the natural vegetation of a place

Forest types:

- dominant tree
- shrub
- understory
ie. pinegrass, elk sedge, etc.

Example:

Ponderosa pine – Bitterbrush



Rangeland types recognized by dominant shrub, grass

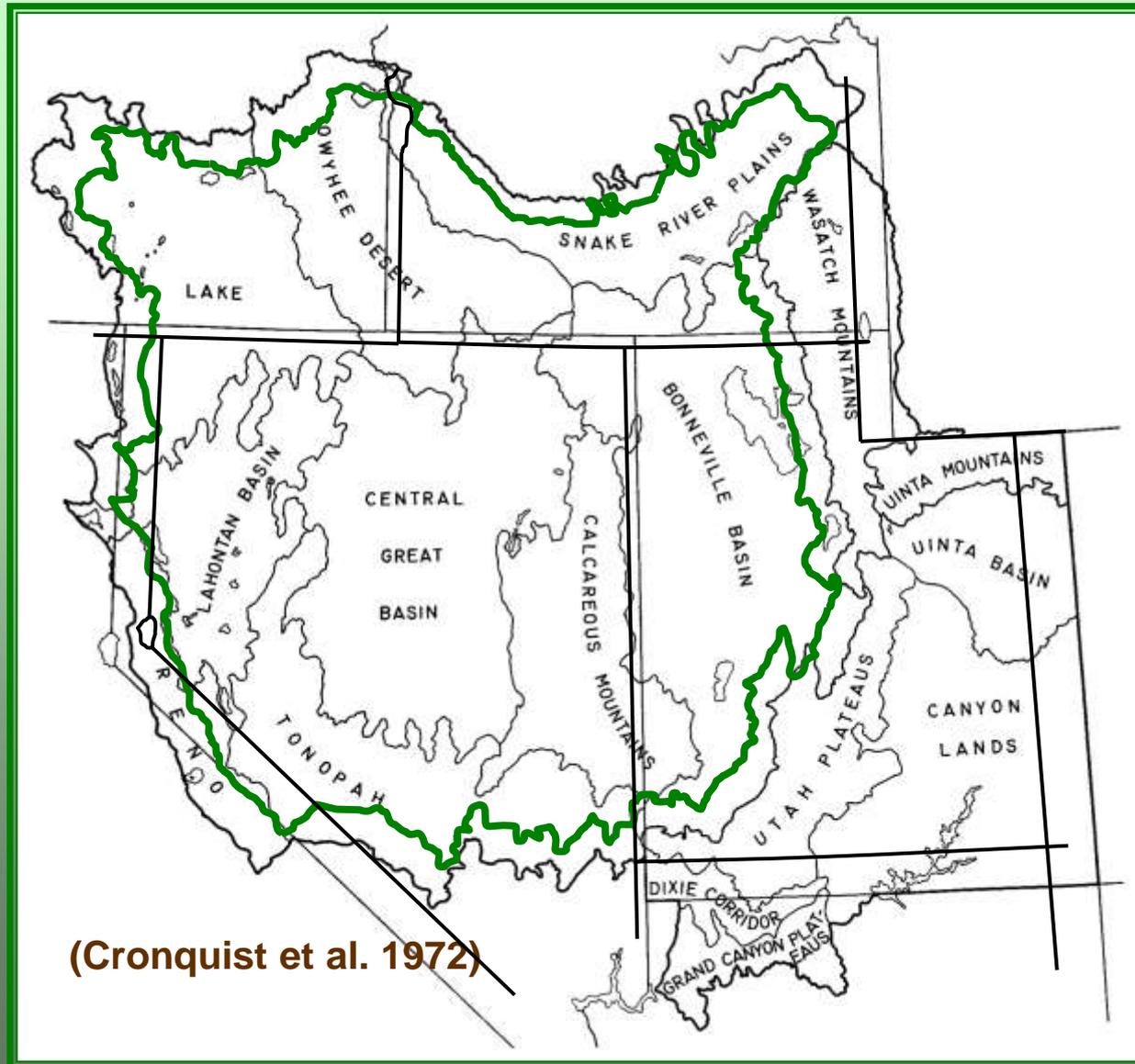
Basin big sagebrush – Bluebunch wheatgrass (l)

Greasewood – Great Basin wildrye (r)





The Great Basin



- **contiguous watershed between Wasatch Mtns in UT and the Sierra Nevada; no natural outlet to the sea**
- **hot dry summers and cold moist winters**
- **most GB precip. falls in the form of snow**



**Great Basin
Plant
Communities**



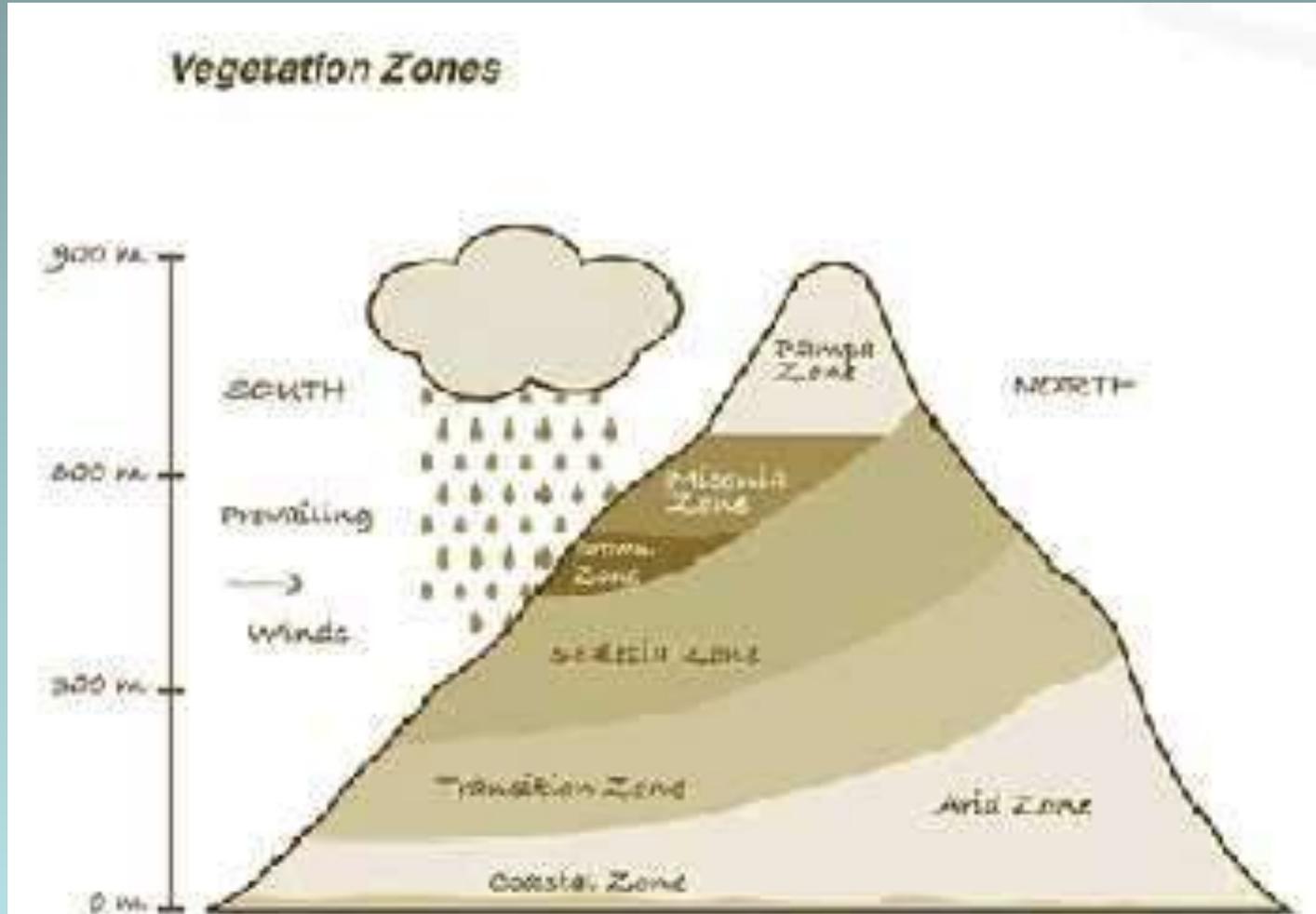
Climate

Parent Material

Elevation

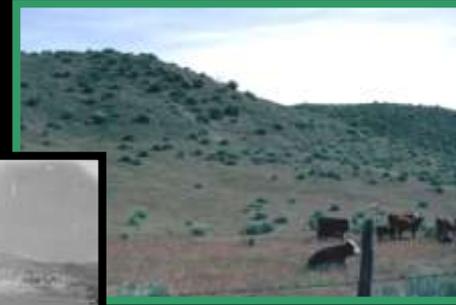
Aspect

Soil

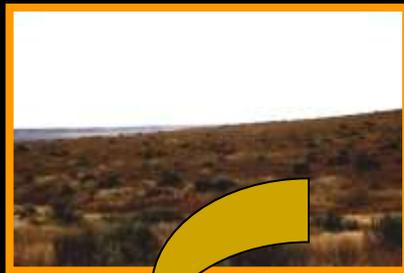


Human Impacts

Historic Livestock Grazing



Cheatgrass-Fire Cycle



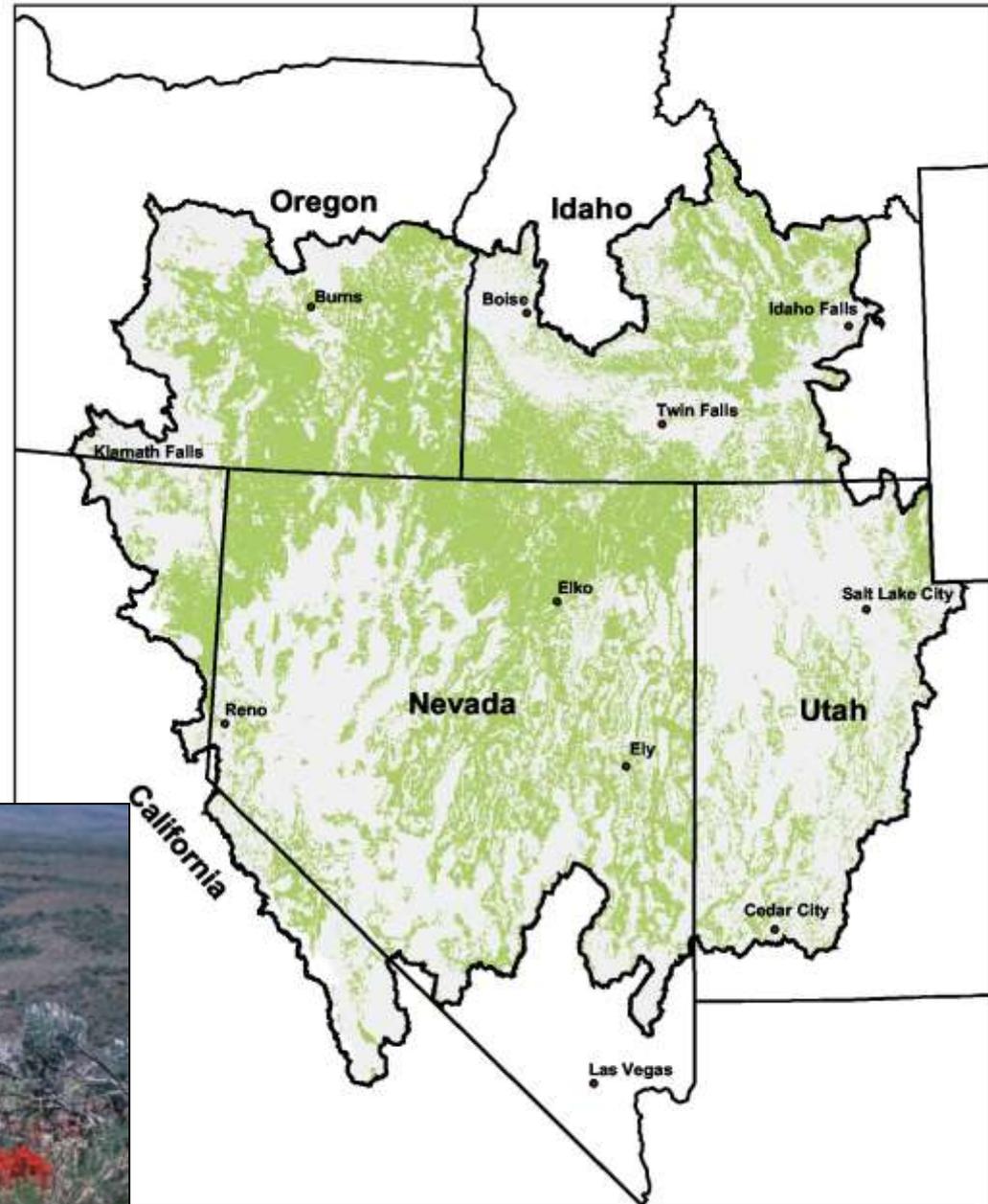
Juniper Encroachment

Sagebrush
(Artemisia)



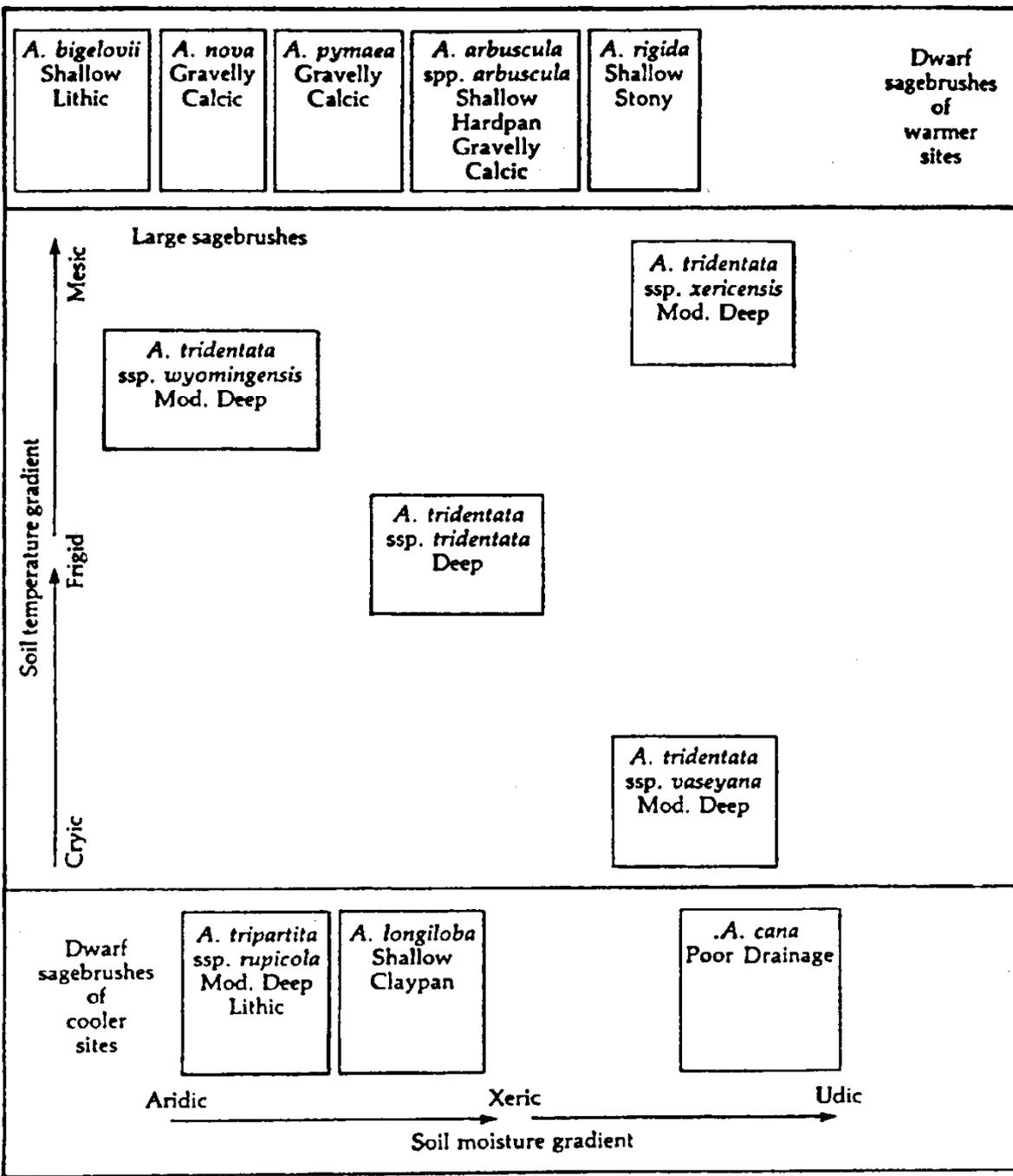
Sagebrush in the Great Basin

57 million acres



Soil type and depth determine sagebrush species





North American Terrestrial Vegetation

Barbour & Billings, 1988

- Calcareous, shallow soil - **black sage** (*A. nova*)
- Cold, poor drainage, ephemerally flooded -
silver sagebrush (*A. cana*)
- Shallow, stony soil - **stiff sagebrush** (*A. rigida*)
- Cold, deep, rocky soil - **threetip sage** (*A. tripartita*)
- Cold, poorly drained, heavy clay soil - **fuzzy sage**
(*A. papposa*)

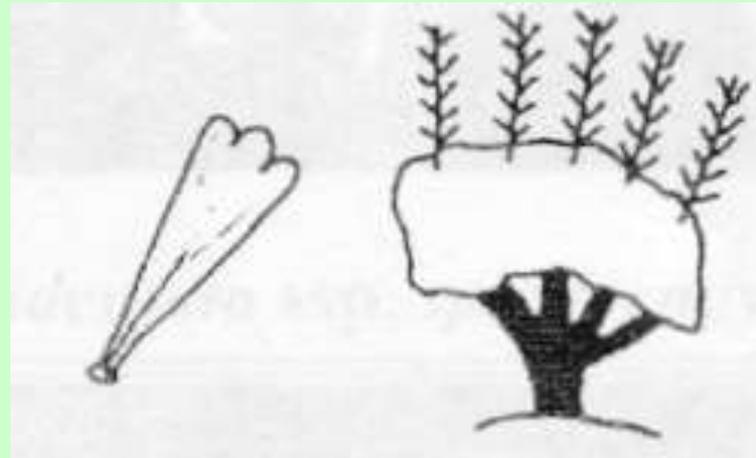
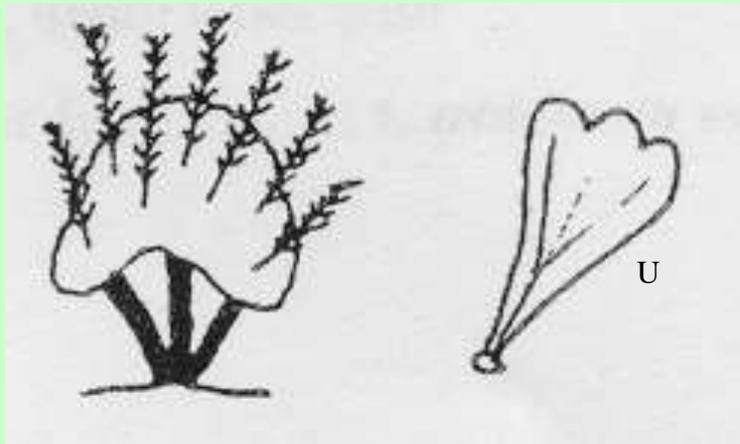
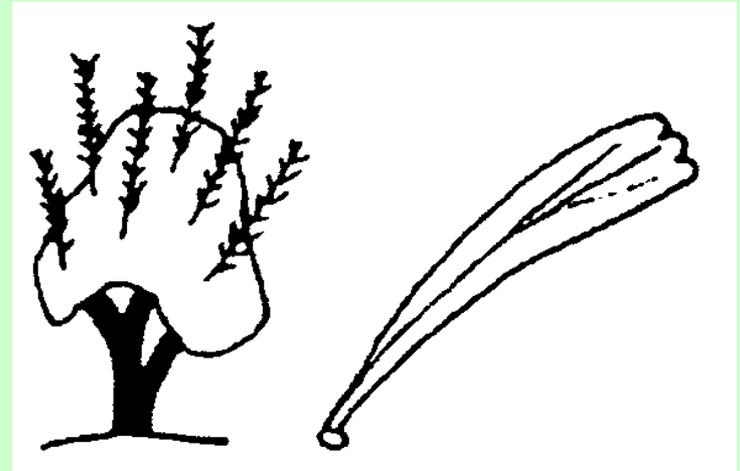
Big sagebrush species, subspecies

- Basin big sage
- Wyoming big sage
- Mountain big sage



How to distinguish the 3 most common big sagebrush subspecies?

- plant crown
- leaf shape and color
- leaf margin
- UV reaction



Sagebrush species with the most coumarin are the most palatable



Chemicals vary by:

- species, subspecies, populations
- seasonally
 - most chemicals in spring
 - least in winter

Water soluble extract in UV-light

<u>Bluish-white</u>	<u>Colorless</u>
Early (intense)	Basin big sagebrush
Subalpine (intense)	Wyoming big
Mountain big sagebrush (strong)	Bud
Xeric big (strong)	Fuzzy
Bigelow (moderate)	Chicken sage
Lahontan (moderate)	Black type "b" green leaf
Black type "a" (moderate)	
Pygmy (moderate)	
Silver (light)	
Three-tip big (light)	
Wyoming three-tip (light)	

Sagebrush leaves – 3 types



- Flower stalk leaves – generally entire
- Ephemeral leaves – spring and early summer; they can be any shape
- **Persistent leaves!**
 - the ones to look at



Wyoming big
sagebrush



Mountain
big sagebrush



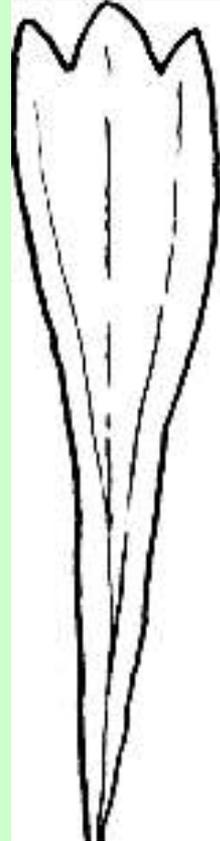
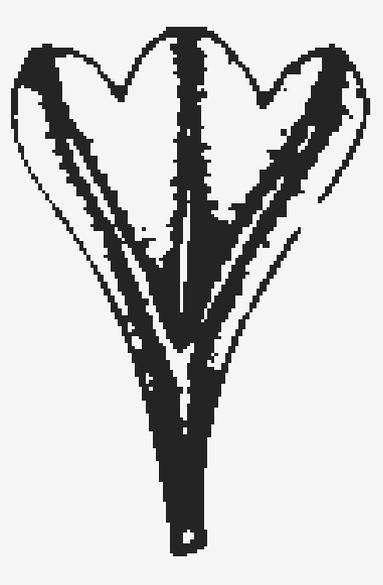
Basin
big sagebrush



Basin big sagebrush
long, narrow

Mountain big sagebrush
cooler sites

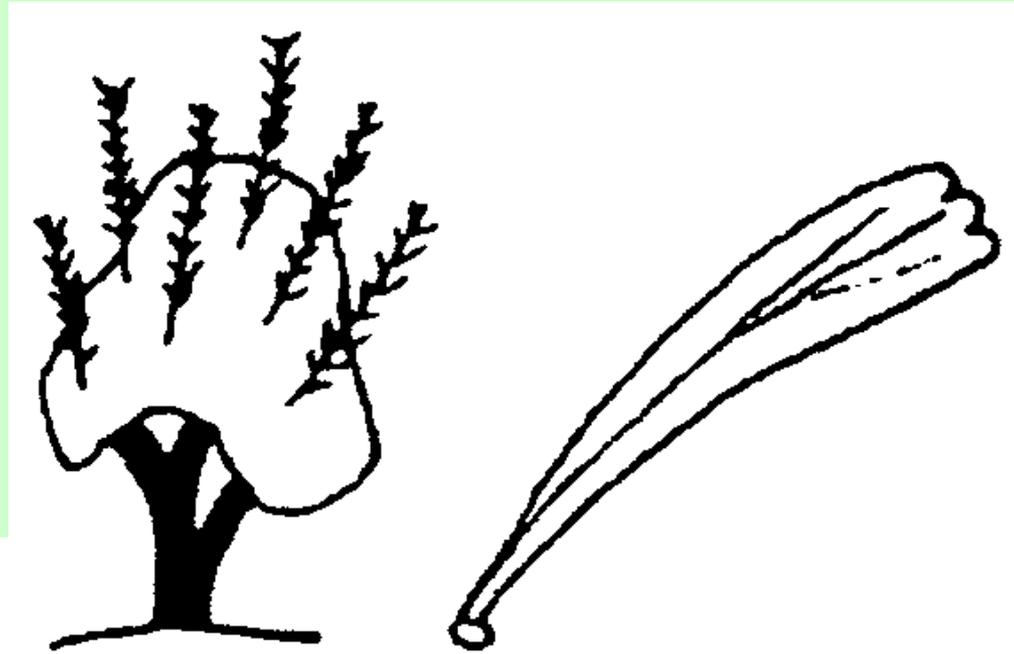
Wyoming big sagebrush
short leaf, flared at tip



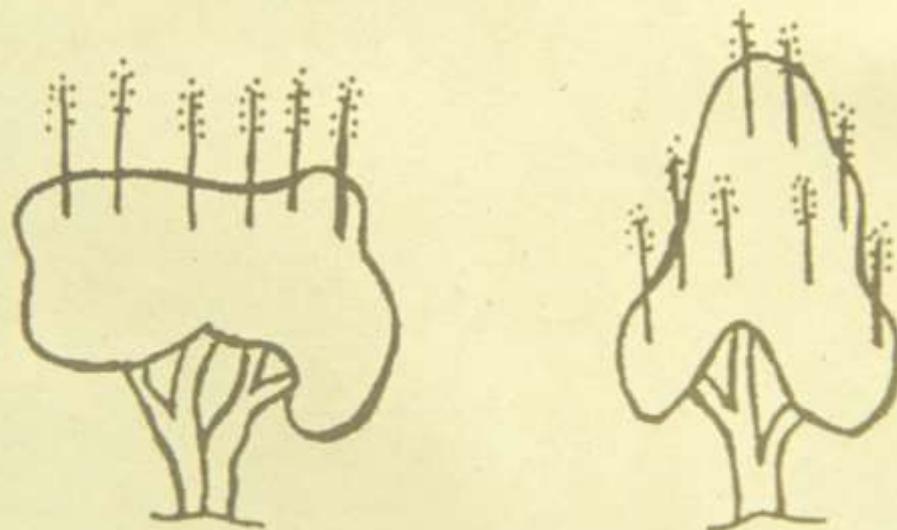
Basin big sagebrush



Wyoming vs. Basin big sagebrush



Mountain big vs. Basin big sagebrush



Mountain big sagebrush

Flower stalks look like candles on a birthday cake!





Pygmy rabbit

Sage thrasher





Greater sage-grouse

COMMON BUNCHGRASSES

Bluebunch wheatgrass - *Pseudoroegneria spicata*

Thurber needlegrass - *Achnatherum thurberianum*

Indian ricegrass - *Achnatherum hymenoides*

Squirreltail grass - *Elymus elymoides*

Sandberg bluegrass - *Poa secunda*

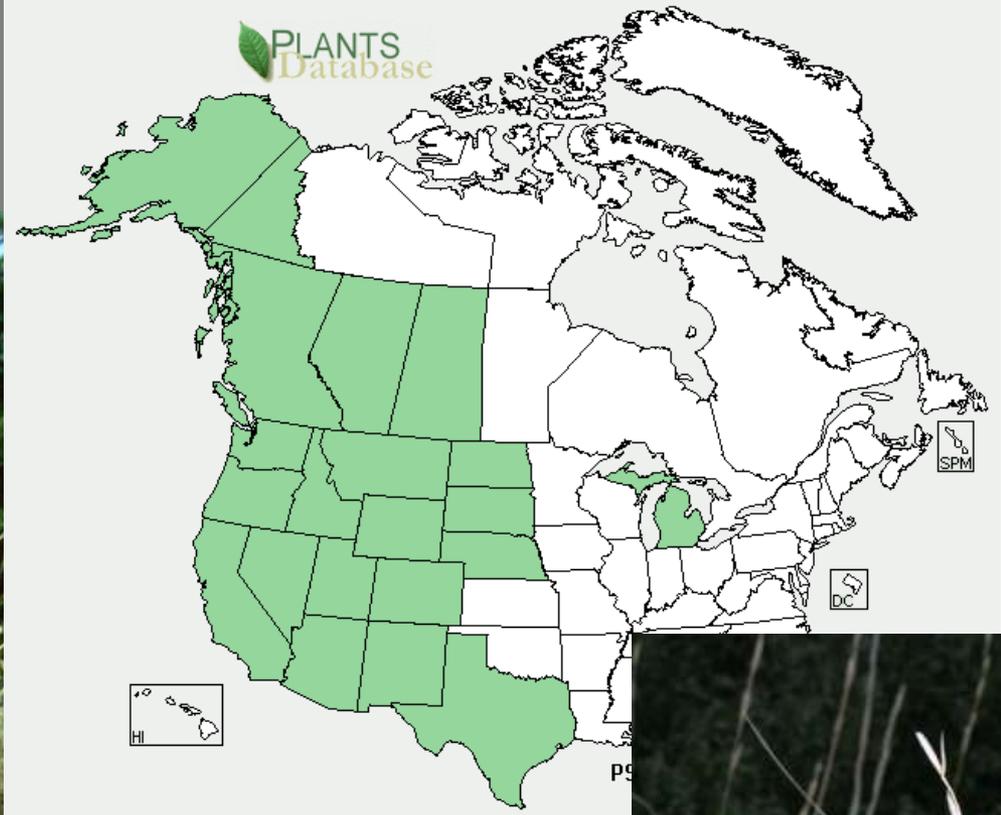
Idaho fescue – *Festuca idahoensis*

Needle-and-thread grass - *Hesperostipa comata*

Pseudoroegneria spicata



Bluebunch wheatgrass community





Mountain big sagebrush – Bluebunch wheatgrass

Indian ricegrass

Achnatherum hymenoides



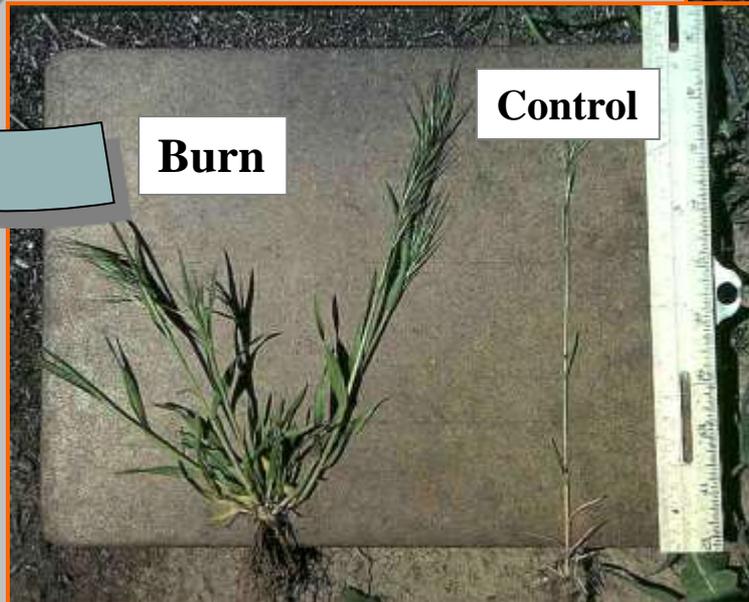
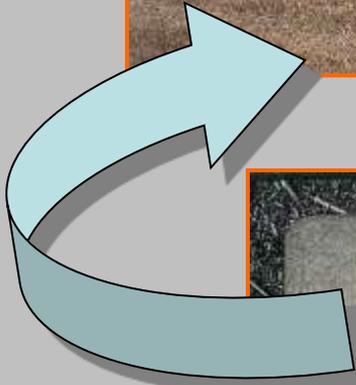
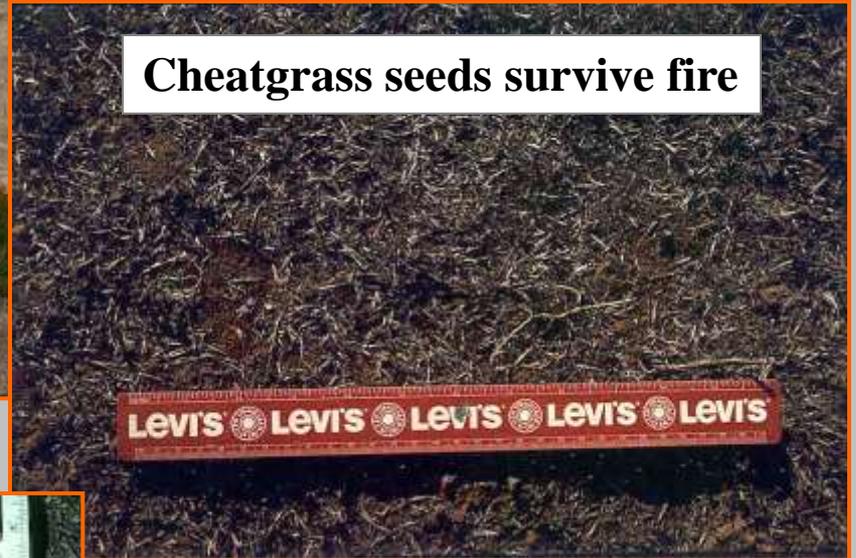
Needle and thread grass (*Hesperostipa comata*)



Cheatgrass/Wildfire Cycle

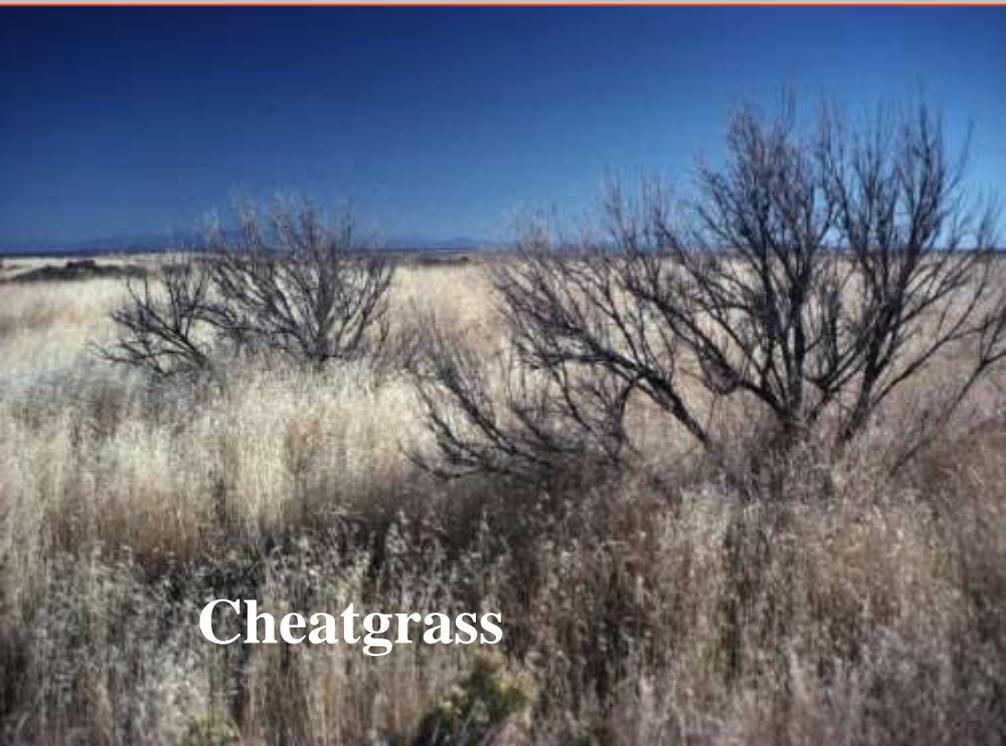


Cheatgrass seeds survive fire



Cheatgrass exploits high N avail. after fires

Flammable Exotic Annual Grasses



Cheatgrass



Medusahead Wildrye

Significant Increase in Fire Frequency



Bluebunch wheatgrass community

Cheatgrass





Cheatgrass and tumblemustard







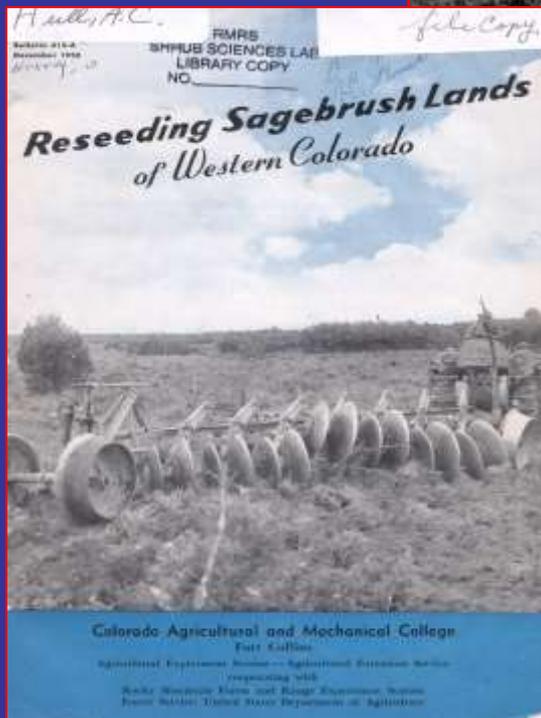
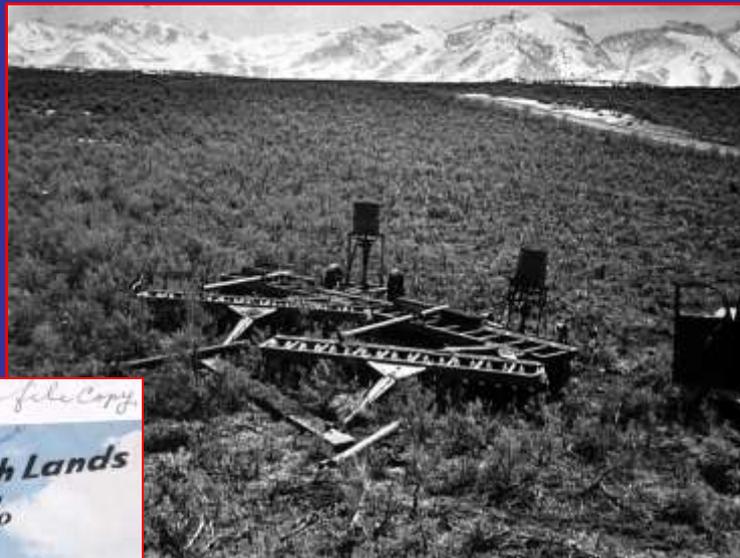
Medusahead wildrye

Taeniatherum caput-medusae

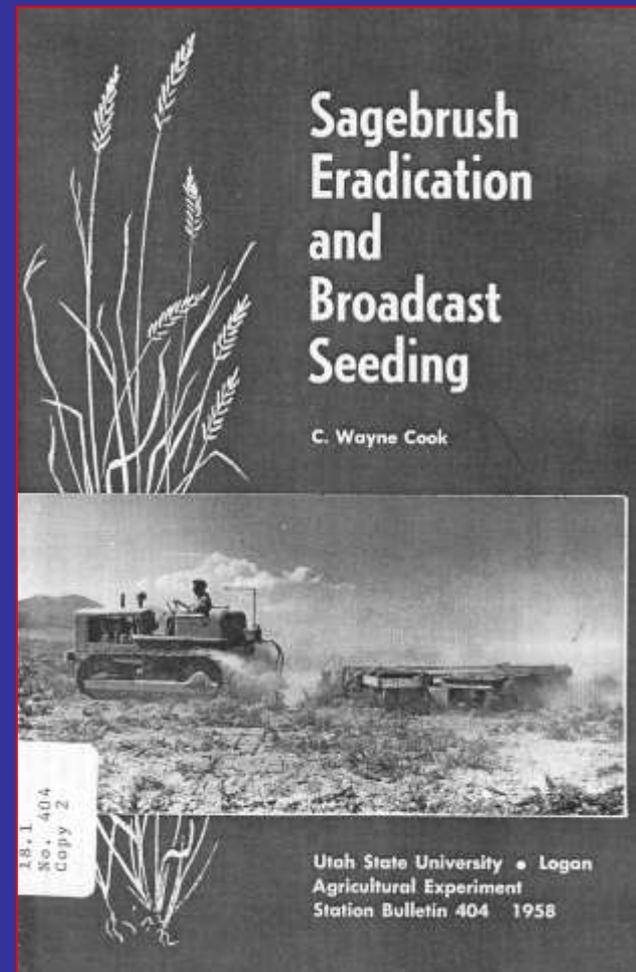
first described in the U.S. in OR in 1903



1950-1960's– “Range Improvement Era” when sagebrush was replaced by the “golden grass of the west”



**Crested wheatgrass
comprised over 90% of
most seed mixtures
(Pellant and Hall 1993)**





Rabbitbrush

- *Ericameria nauseosa* (rubber, gray rabbitbrush)
- *Chrysothamnus viscidiflorus* (green rabbitbrush)





Broom snakeweed (*Gutierrezia sarothrae*)



Bitterbrush

Purshia tridentata



Slichter 2005

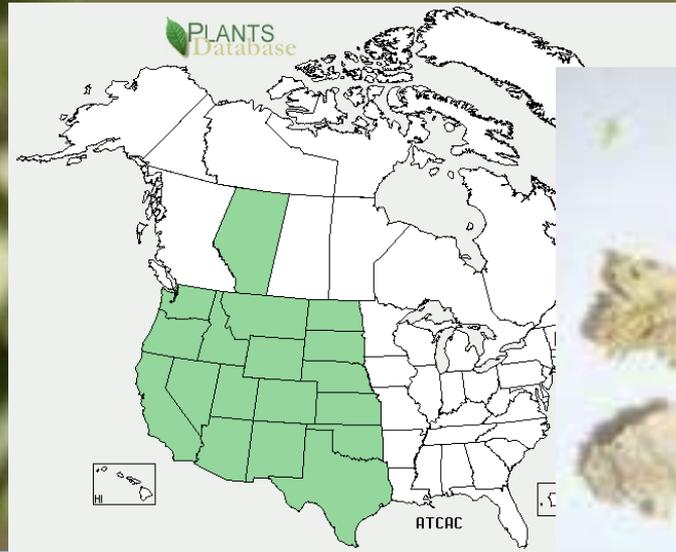




Salt desert shrub communities

- dominated by chenopods
- saline or alkaline
- aridity





Four-wing saltbush
Atriplex canescens



Winterfat (some call it “White sage”)

Krascheninnikovia lanata = *Ceratoides lanata* = *Eurotia lanata*



Sarcobatus vermiculatus
"greasewood"
by Thomas J. Elpel



© J.S. Peterson

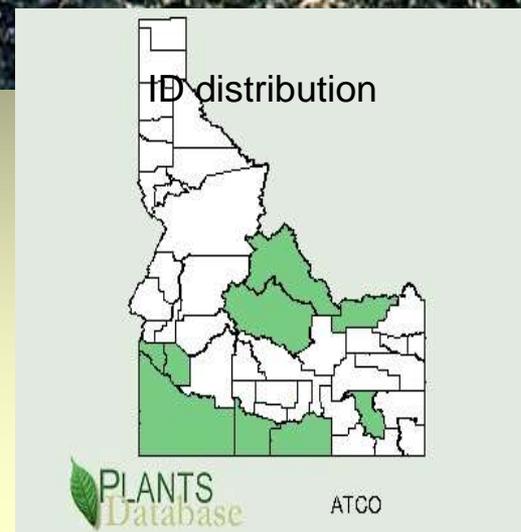
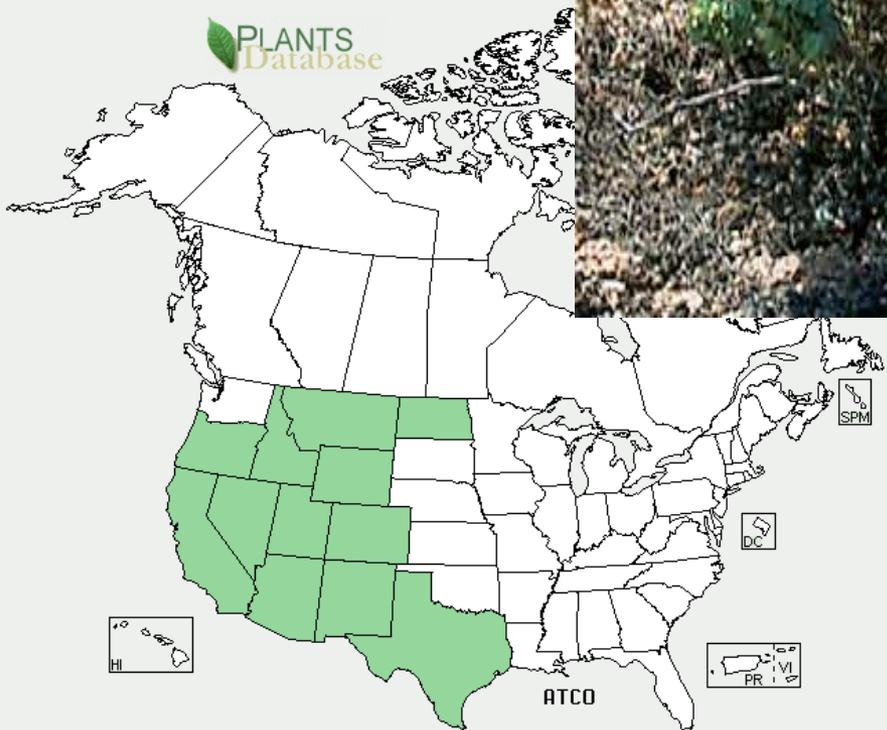


Greasewood

Sarcobatus vermiculatus

Shadscale

Atriplex confertifolia



Chisel-toothed Kangaroo Rat





Great Basin Collared Lizard

Mountain Shrub Communities

Chokecherry

Prunus virginiana





Snowberry



Mountain snowberry



Symphoricarpos albus



Symphoricarpos oreophilus

Bittercherry

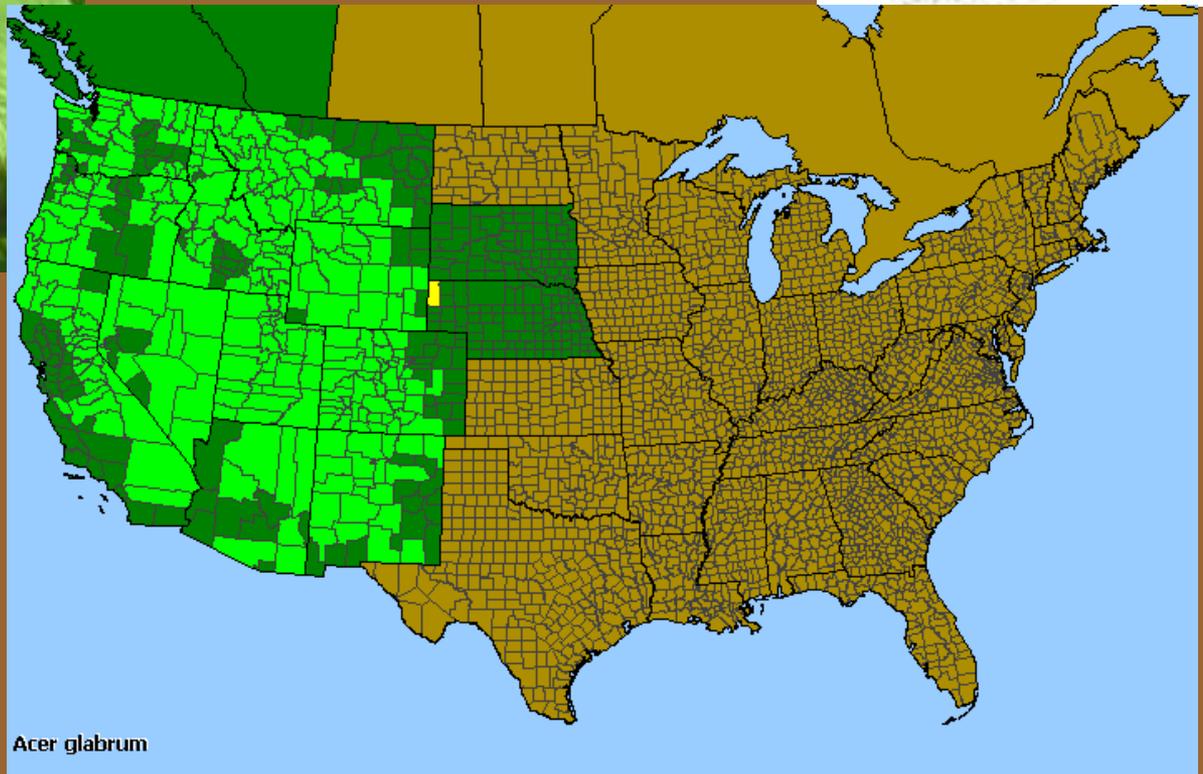
Prunus emarginata





© TwiningVine

Rocky Mountain Maple



Acer glabrum

Acer glabrum



Lazuli bunting

Rufous sided towhee

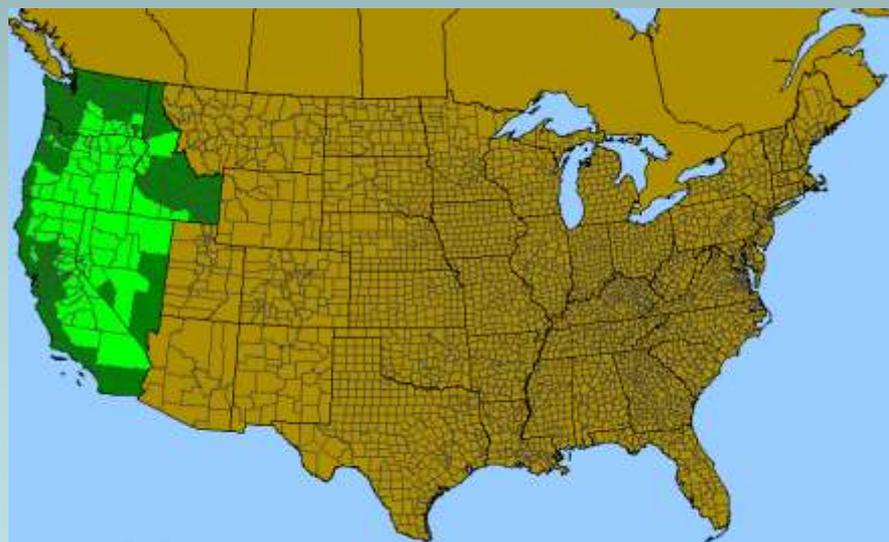


Western juniper

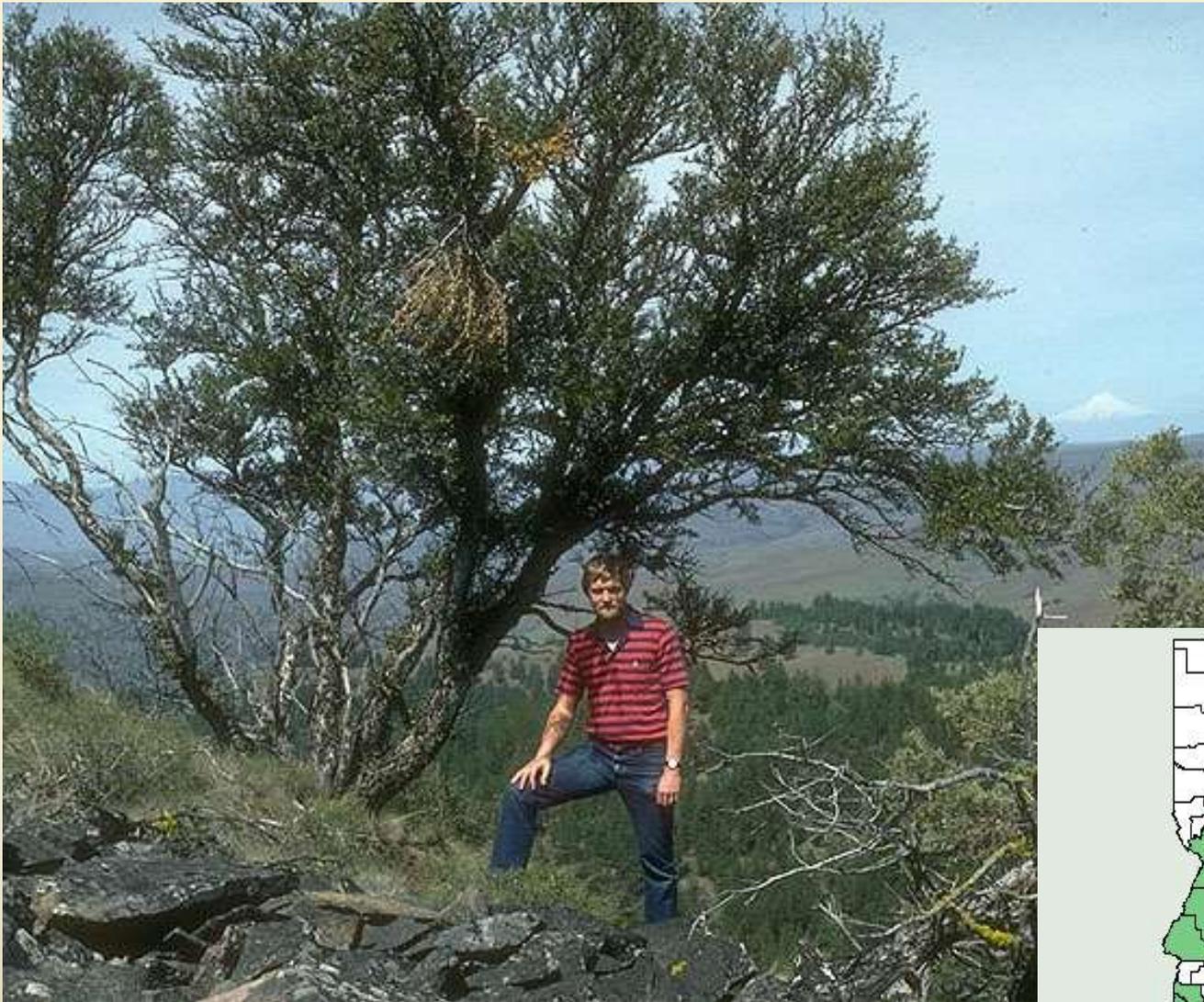
Juniperus scopulorum

- dry, rocky sites
- altitudes of 2,600 - 9,700 ft
- shrub or small tree, 12-50 ft tall





Juniperus occidentalis



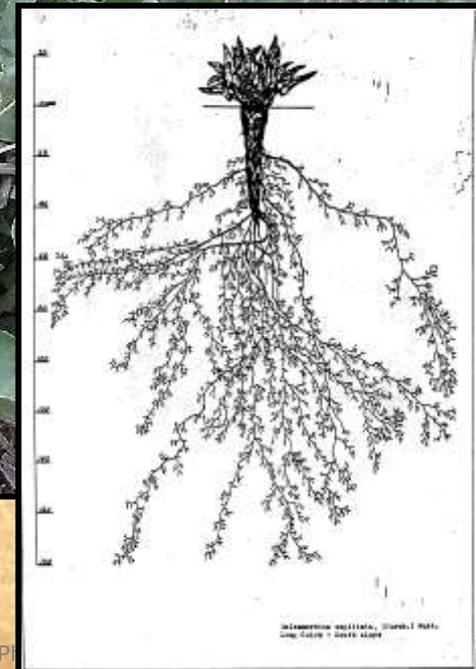
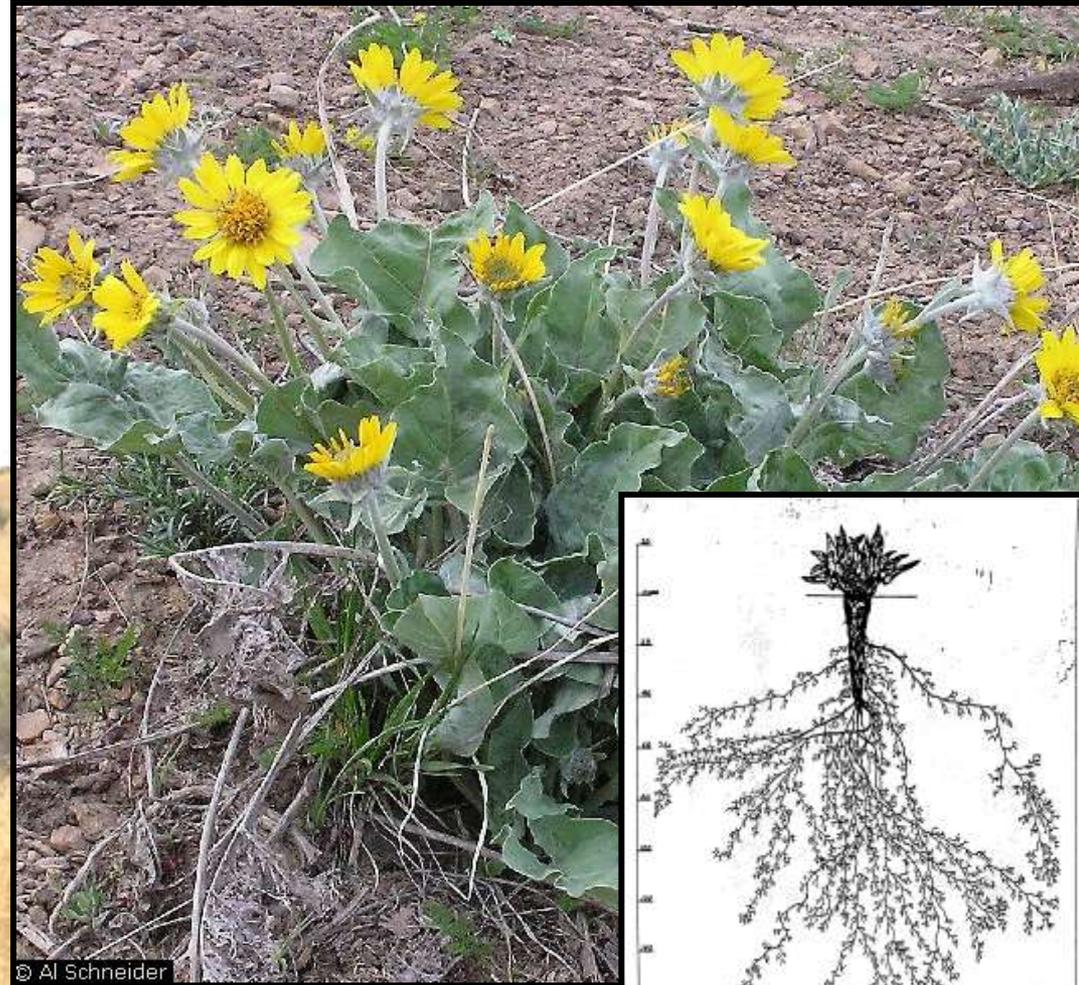
Curl-leaf mountain mahogany
Cercocarpus ledifolius





Arrowleaf balsamroot

- Long lived
- Very deep rooted
- Palatable
- Decreases with grazing
- Supports many insects





Lomatium spp.

Also commonly called desert parsley

- *L. dissectum* *Fernleaf biscuitroot*
- *L. grayi* *Gray's biscuitroot*
- *L. triternatum* *Nineleaf biscuitroot*
- *L. cous* *Cous biscuitroot*
- *L. nevadense* *Nevada biscuitroot*
- *L. ambiguum* *Swale biscuitroot*
- *L. leptocarpum* *Slender-fruit biscuitroot*
- *L. macrocarpum* *Bigseed biscuitroot*
- *L. gormanii* *Gorman's biscuitroot*
- *L. nudicaule* *Barestem biscuitroot*



Lomatium grayi

Gray's biscuitroot



Ponderosa Pine

Pinus ponderosa



**one of the most widely distributed pines
in North America**



5-10" long



3-5" cones

Bark thick



Lewis woodpecker



Lodgepole pine (*Pinus contorta*)





2 needles per bundle

1-2 inch cones



Bark thin, typically gray-brown

Tall, slender trees with narrow
loose crown

80 feet tall



Douglas Fir (*Pseudotsuga menziesii*)

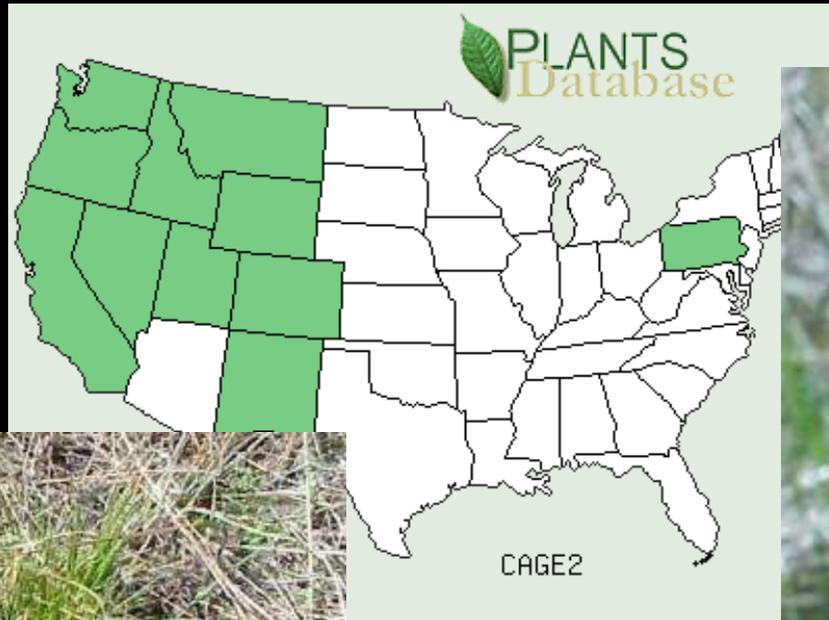




Grow to 150 feet tall

Grows in clumps
connected by rhizomes

Open forests and slopes

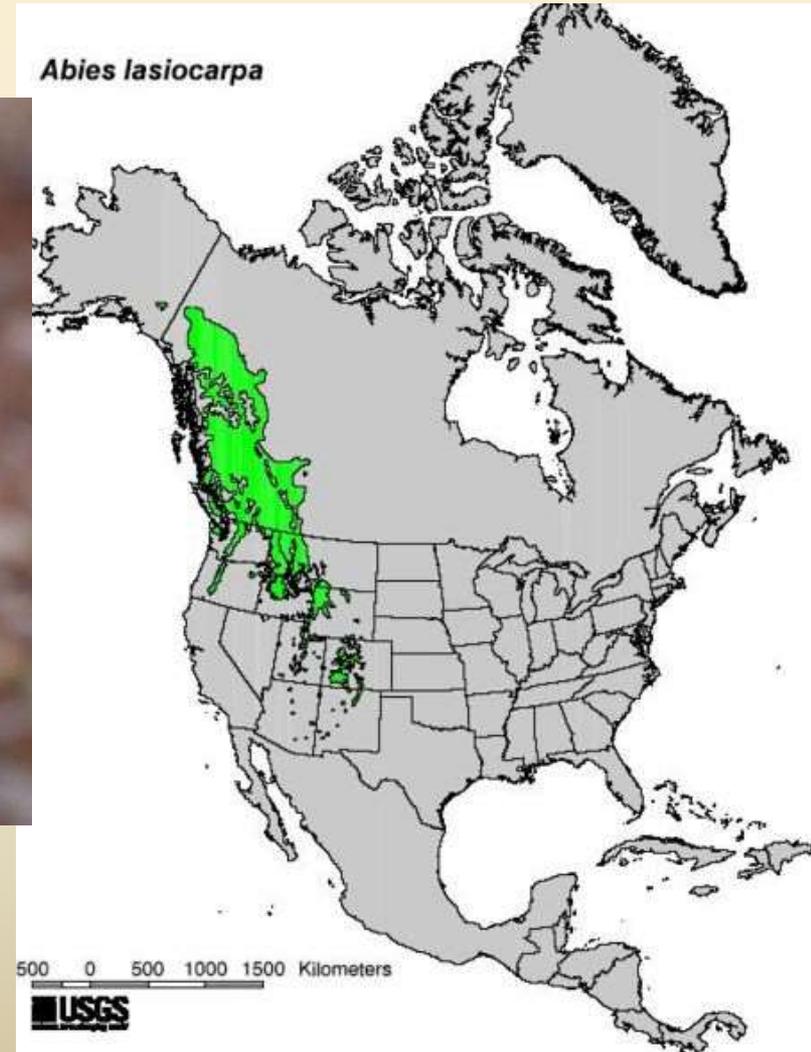


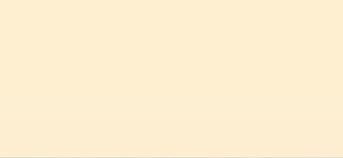
Elk sedge (*Carex geyeri*)

Subalpine fir (*Abies lasiocarpa*)



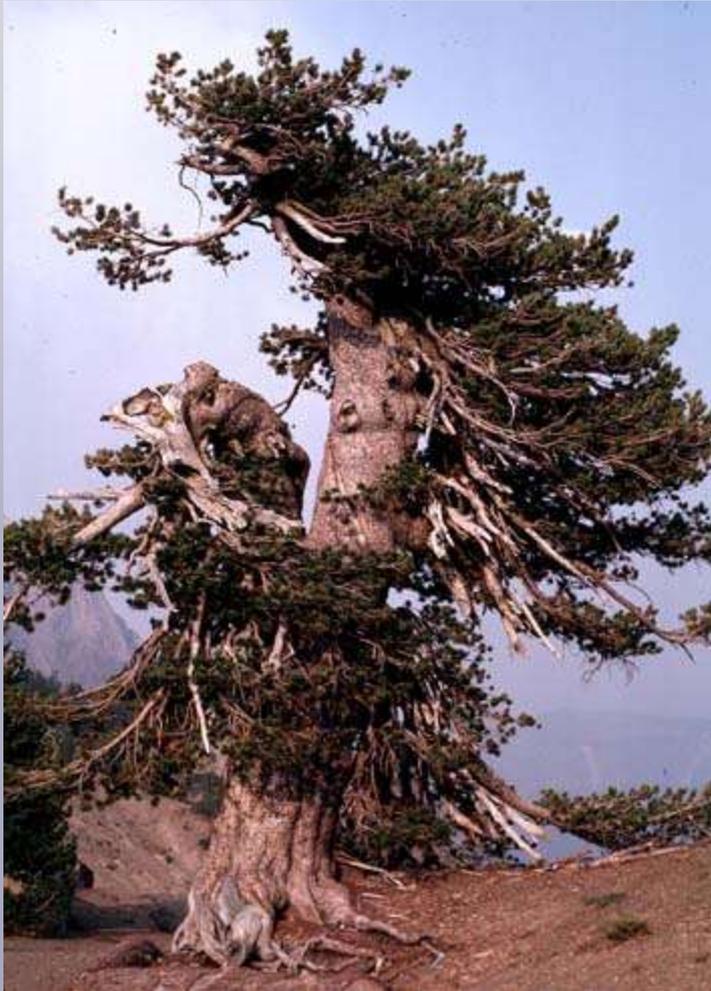
60-100 feet tall





Whitebark Pine (*Pinus albicaulis*)

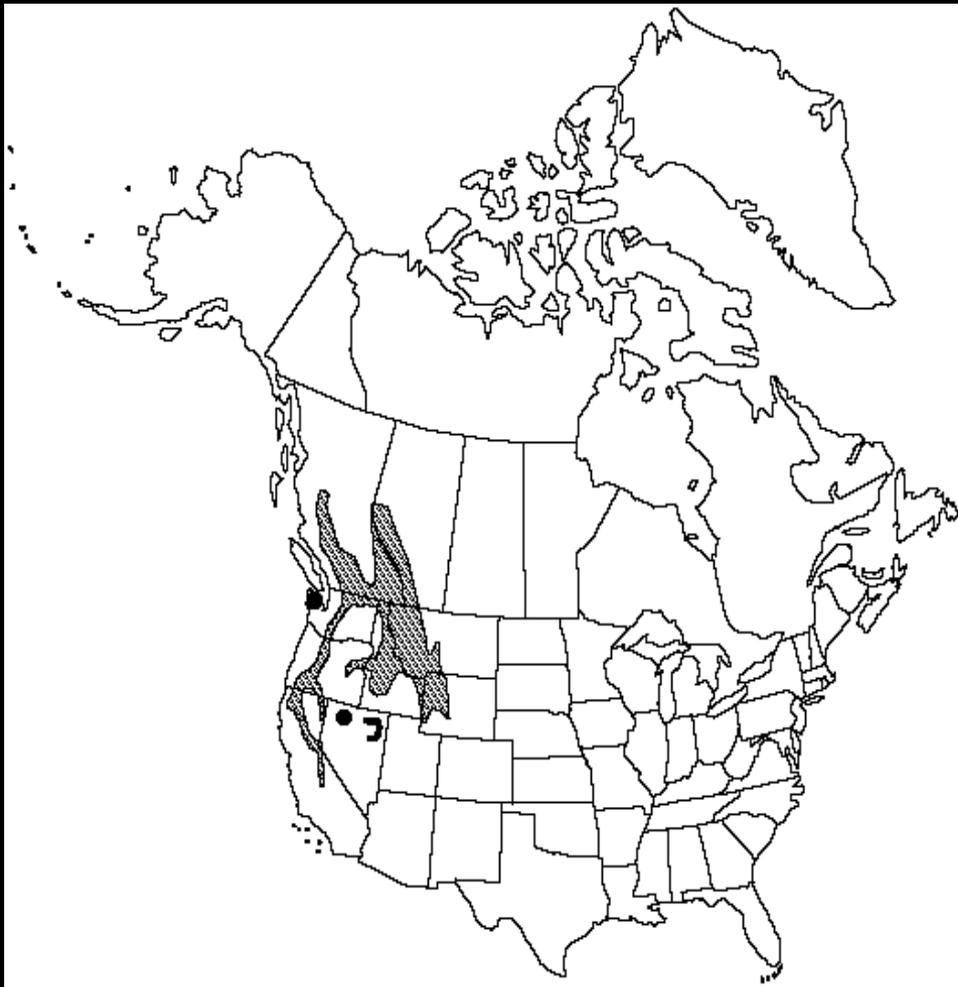
Keystone species of upper subalpine zone





Highly sought after whitebark pine nuts
1 lb = 2,700 calories





Whitebark pine distribution



CLARK'S NUTCRACKER

- store 150 seeds in pouch below the tongue - cache each seed by drilling holes
- cache up to 100,000 seeds per season
- need 25,000 seeds/year to feed themselves and offspring
- fly 7 miles to gather & cache seed

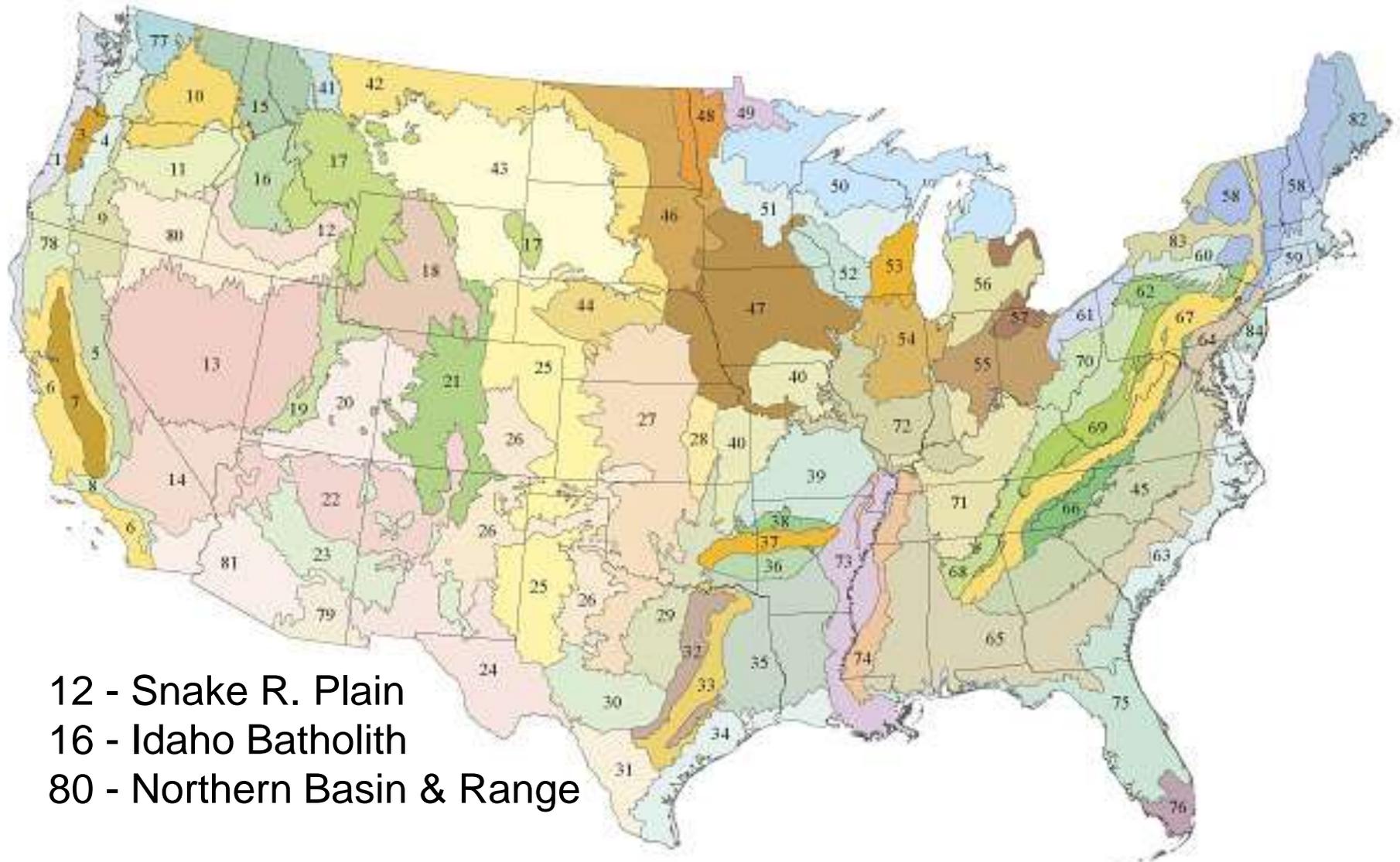


Threatened by mountain pine beetle infestation and imported white pine blister rust



98% of populations are on federal land
Oldest known tree is 1,275 years old (central Idaho)

Level III Ecoregions of the Conterminous United States



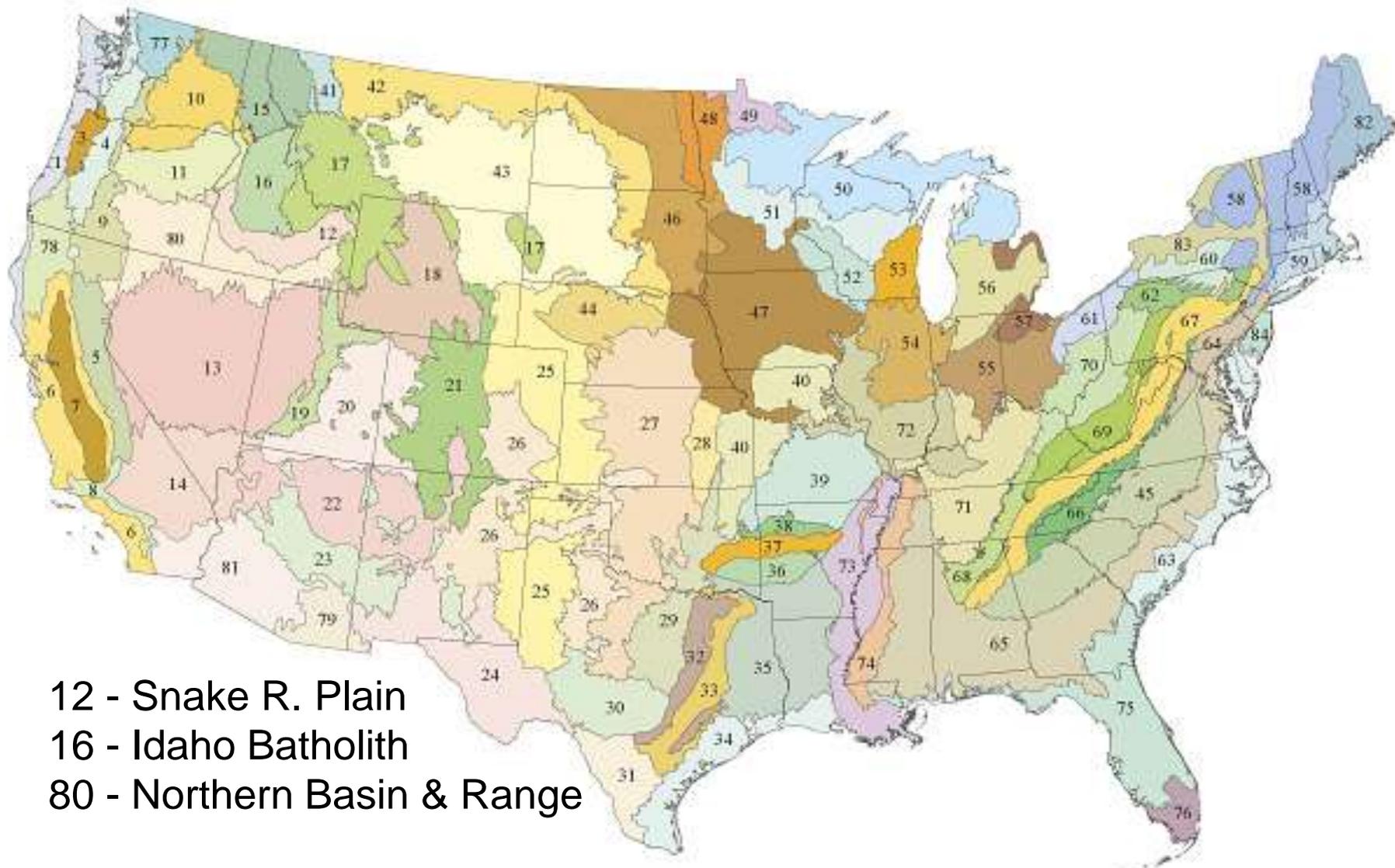
- 12 - Snake R. Plain
- 16 - Idaho Batholith
- 80 - Northern Basin & Range

12. SNAKE RIVER PLAIN

This portion of the xeric intermontane basin and range area of the western United States is **considerably lower and more gently sloping** than the surrounding ecoregions.

Except for the scattered barren lava fields, the remainder of the plains and low hills in the ecoregion have a **sagebrush steppe potential natural vegetation**.

Level III Ecoregions of the Conterminous United States

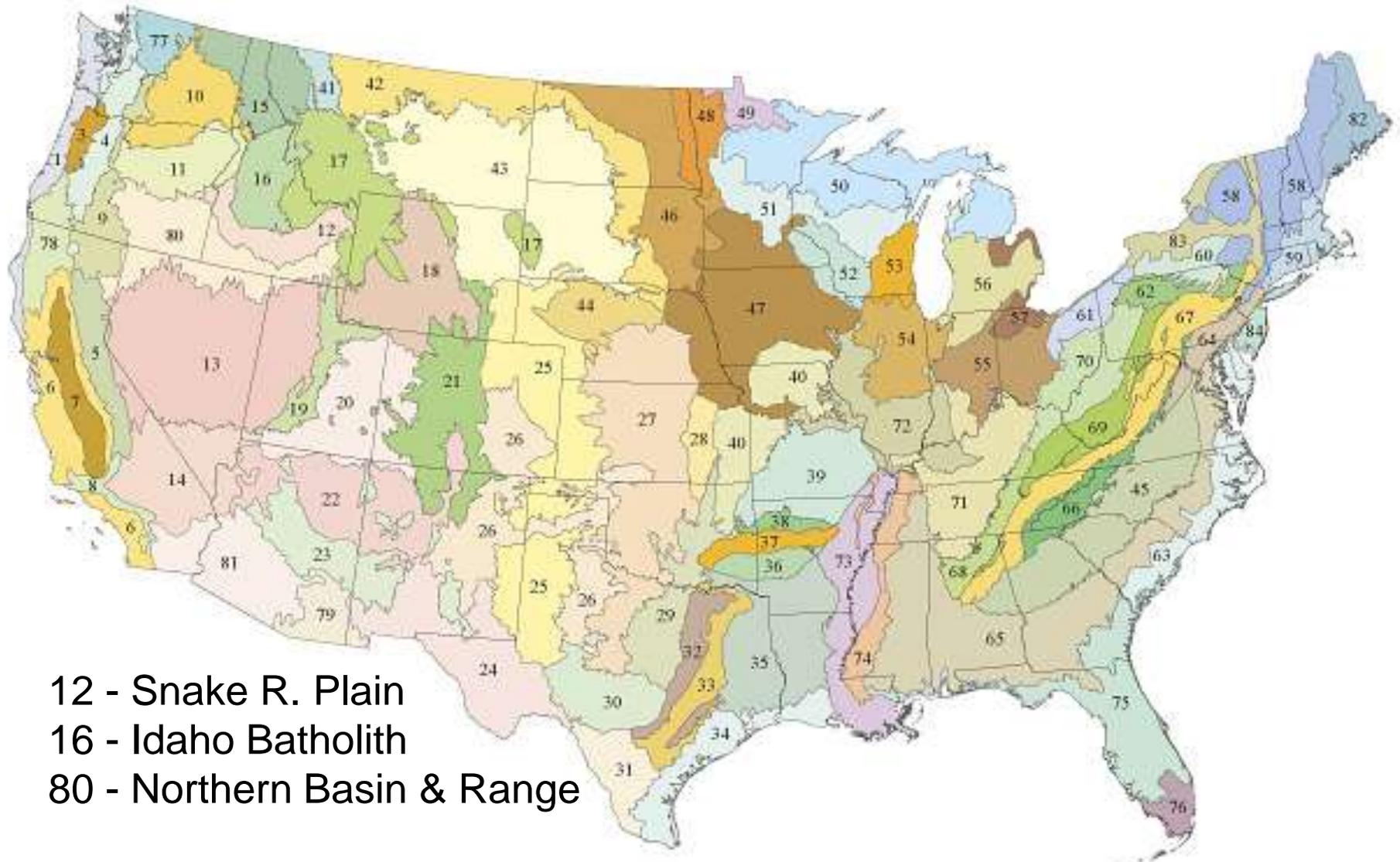


12 - Snake R. Plain
16 - Idaho Batholith
80 - Northern Basin & Range

80. NORTHERN BASIN AND RANGE

This **ecoregion contains arid tablelands, intermontane basins, dissected lava plains, and scattered mountains.** Non-mountain areas have **sagebrush steppe vegetation;** **cool season grasses** and Mollisols are more common than in the hotter-drier basins of the Central Basin and Range where Aridisols are dominated by sagebrush, shadscale, and greasewood. Ranges are generally covered in **mountain sagebrush, mountain brush, and Idaho fescue at lower and mid-elevations;** **Douglas-fir, and aspen are common at higher elevations.**

Level III Ecoregions of the Conterminous United States



- 12 - Snake R. Plain
- 16 - Idaho Batholith
- 80 - Northern Basin & Range

16. IDAHO BATHOLITH

This ecoregion is a dissected, partially glaciated, mountainous plateau. Many perennial streams originate here and water quality can be high if basins are undisturbed. Deeply weathered, acidic, intrusive igneous rock is common and is far more extensive than in the Northern Rockies or the Middle Rockies.

Grand fir, Douglas-fir and, at higher elevations, Engelmann spruce, and subalpine fir occur; ponderosa pine, shrubs, and grasses grow in very deep canyons.



