



PLANT TAXONOMY

rules for naming plants

Plant Systematics (hierarchical organization)

Kingdom
Phylum/Division
Class
Order
Family: -aceae
Genus/Genera: -a, -us (usually)
Species (singular & plural):

Rules for naming species...

Scientific names

Binomial nomenclature: name has 2 parts

1. Genus (functions like a noun, italicized or underlined)
2. Specific epithet (functions like an adjective, italicized or underlined)

Ex:

- *Acer rubrum*- red maple
- *Alnus rubra*- red alder
- *Ulmus americana*- American elm
- *Larix occidentalis*- western larch

Rules for capitalizing...

Scientific names

Genus, family names: always capitalized

Specific epithet: never capitalized, even when a proper name.

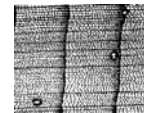
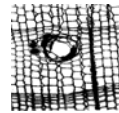
Common names: never capitalized except for proper name

ponderosa pine	Engelmann spruce (<i>Picea engelmannii</i>)
red alder	Douglas-fir (<i>Pseudotsuga menziesii</i>)
mountain hemlock	Sitka spruce
sugar maple	American elm (<i>Ulmus americana</i>)
canyon live oak	

GYMNOSPERMS

KEY FEATURES

TRACHEIDS CONDUCT WATER



NO FLOWERS OR FRUITS!!

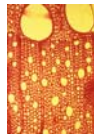
"NAKED" SEEDS



ANGIOSPERMS

KEY FEATURES

VESSELS CONDUCT WATER



FLOWERS!!



FRUITS!!



SPECIES LIST 1 (A)

A? G?

FAMILIES:

GENERA:

G

Pinaceae

Pinus

Abies


Pseudotsuga

A


PINACEAE

KEY FEATURES

cone scale with unfused bract




terminally winged seeds




PINUS

KEY FEATURES

Needle-like leaves in fascicles







Woody cones

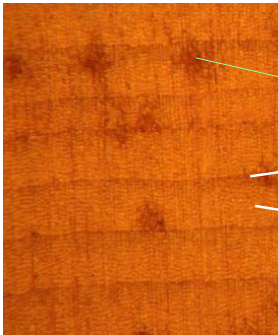


PINUS SUBGENERA

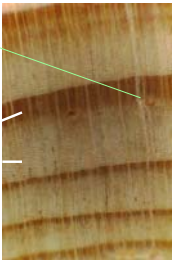
KEY FEATURES

Soft pines	{	Leaves in 5's Unarmed cone Deciduous fascicle sheath Soft wood	 
Hard pines	{	Leaves in 2's or 3's Armed cone Persistent fascicle sheath Hard wood	 

Soft pine



Hard pine



resin canal
late wood
early wood

Pinus species:

Soft pines:

- *P. monticola*: fascicles with 5 leaves, 3-4" long, very slender and flexible

Hard pines:

- *P. coulteri*: fascicles with 3 leaves, 12-14 " long, stiff; cones massive; cone scales with long claw
- *P. contorta*: fascicles with 2 leaves, 2-3 " long; cones 2-3 " long, sometimes serotinous
- *P. ponderosa*: fascicles with 2-3 leaves, 4-6 " long; cones 5-7" long; cones scales with prickle

PINUS...other

- Largest genus of conifers
- Predominantly in Northern Hemisphere
- Very wide ecological range, but tend to grow in the sun
- Important commercially

tree of the week: bristlecone pine

Pinus longaeva

Pinus aristata

cold, arid climate

root-shoot ratio
phenotypic plasticity

orderly senescence?

Tree Growth at Upper Tree Line

Year	Ring Width (mm)
900	0.25
1000	0.35
1100	0.45
1200	0.65
1300	0.45
1400	0.25
1500	0.45
1600	0.55
1700	0.45
1800	0.35
1900	0.65

ABIES

KEY FEATURES

Sessile, linear leaves with circular leaf scars

Cruciform buds

ABIES...other

Notched leaf tip

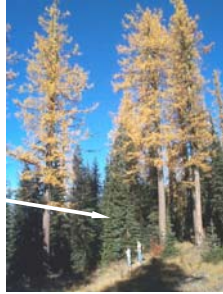
Narrow crowns

Upright cones shatter when mature

ABIES.....continued

Tend to be shade tolerant

Tend to be fire sensitive



Abies species:

Distinguished by leaf length, 3-D orientation,
stomatal bands

Species	leaf length (")	# bands	3-D (ranks)
<i>A. grandis</i> :	1-2	2	2
<i>A. amabilis</i> :	1	2	several
<i>A. lasiocarpa</i> :	1	<u>3</u>	several
<i>A. procera</i> :	1	<u>4</u>	several

PSEUDOTSUGA

KEY FEATURES

Exserted 3-pronged bracts
on cone

Lanceolate buds



PSEUDOTSUGA...other

Thick, furrowed bark

Large-size, long life span

VERY wide ecological tolerance

