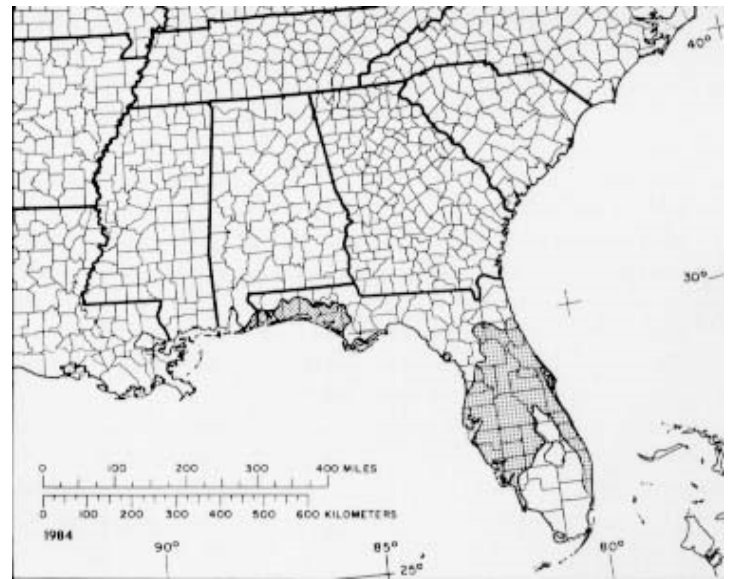






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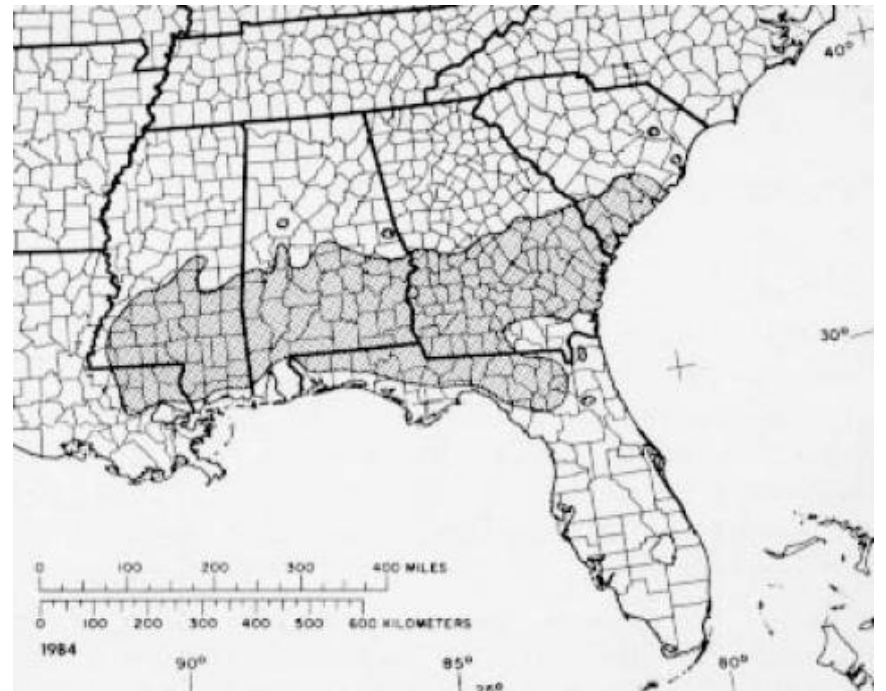






















Coulter and Sugar Pine

Timothy West



Sugar Pine (*Pinus lambertiana*)

- Sugar pine is the largest pine species, amongst other families it is 2nd only to giant sequoia in volume.
- Has great form and was sought after by early logging industries.



Range (*Pinus lambertiana*)

- Native to mountainous California and Oregon, and some scattered sites in northern Mexico.
- Most common in the Sierra Nevada range
- Elevation range between 2,000 and 7,500 feet



Site Requirements (*Pinus lambertiana*)

- Prefers cool, moist climates
- Thrives on slightly xeric soil



Reproduction (*Pinus lambertiana*)

- Produces the longest cones in the world (up to 25 inches)
- Seeds dispersed by birds
- Slightly shade tolerant



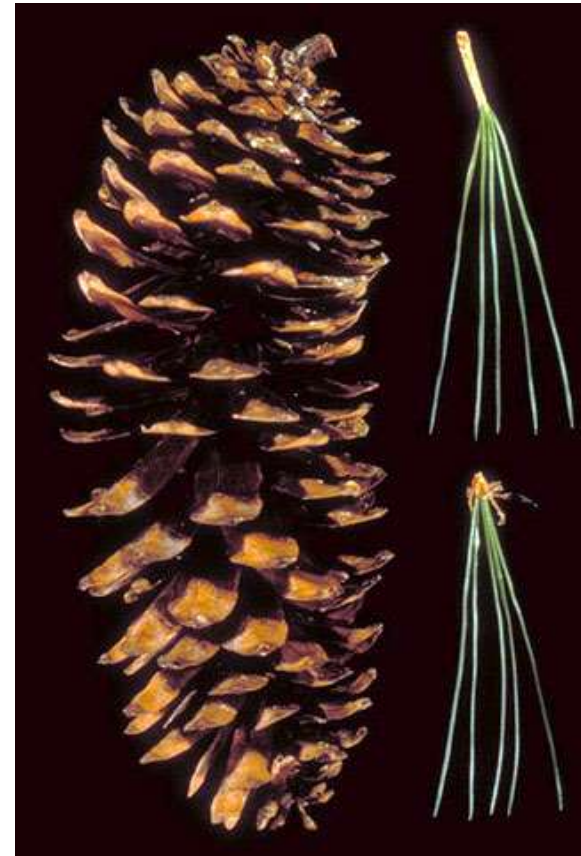
Fire (*Pinus lambertiana*)

- Prefers an open stand structure, and benefits from occasional burns.
- Thick bark up to 4 inches
- Fire suppression has led to denser forests, increasing competition and stress



Identification (*Pinus lambertiana*)

- Deep long furrows in mature gray-brown bark
- Massive cones
- Needles are in bundles of five, at 3-4 inches long



Threats (*Pinus lambertiana*)

- Population has declined by 35% in the past 20 years
- White pine blister rust major threat and cause of population decline
- Possible future problems from climate change as it prefers cooler, moist climates.



Champion (*Pinus lambertiana*)

- The Whelan Pine was the largest sugar pine from 1930-2013, before it finally passed from a variety of diseases.
138 in. DBH, 216 ft. Height
- Possible larger specimen found by David Douglas in 1826: 220 in. DBH, 213 ft. tall



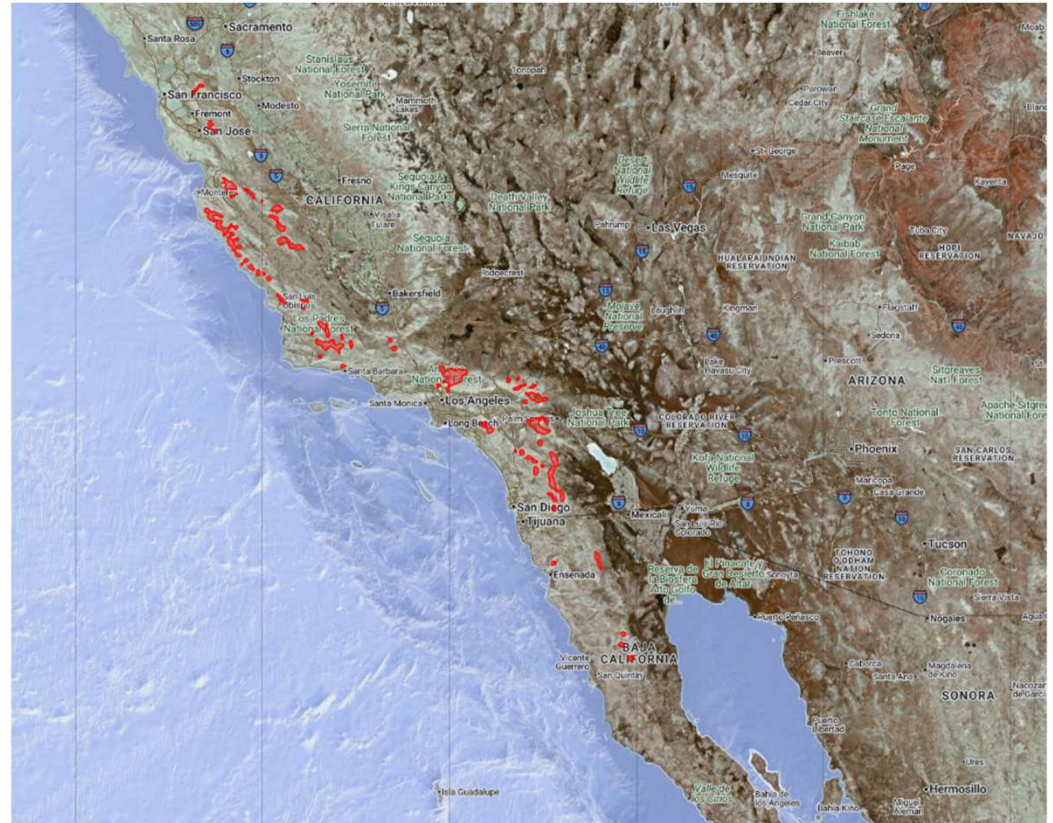
Coulter Pine (*Pinus coulteri*)

- Medium sized capping out at 50-80 feet
- Produces the largest cones of any pine
- Drought adapted



Range (*Pinus coulteri*)

- Native to California and Mexico
- Found at elevations from 500-6,000 feet



Site Requirements (*Pinus coulteri*)

- Thrives on rocky, shallow soil that other species cannot
- Shade intolerant, prefers open stands
- Used to rainfall as low as 10 inches per year



Reproduction (*Pinus coulteri*)

- Produces the largest cones of any pine (10 lbs)
- Takes two years to grow cones



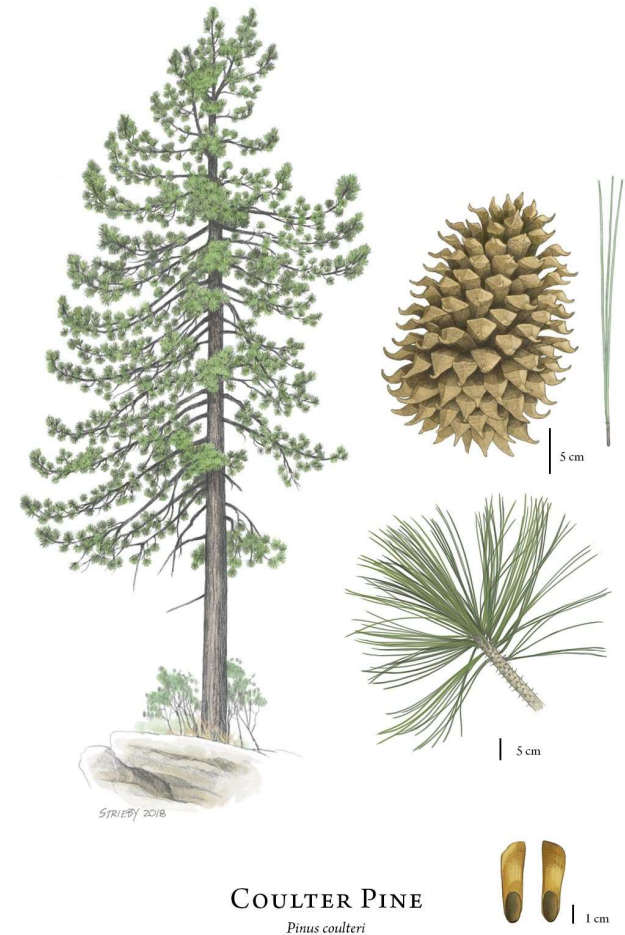
Fire (*Pinus coulteri*)

- Adult trees are resistant to moderate sized fires
- Cones are not strictly serotinous, but fire helps open them up
- Most regeneration happens after a fire



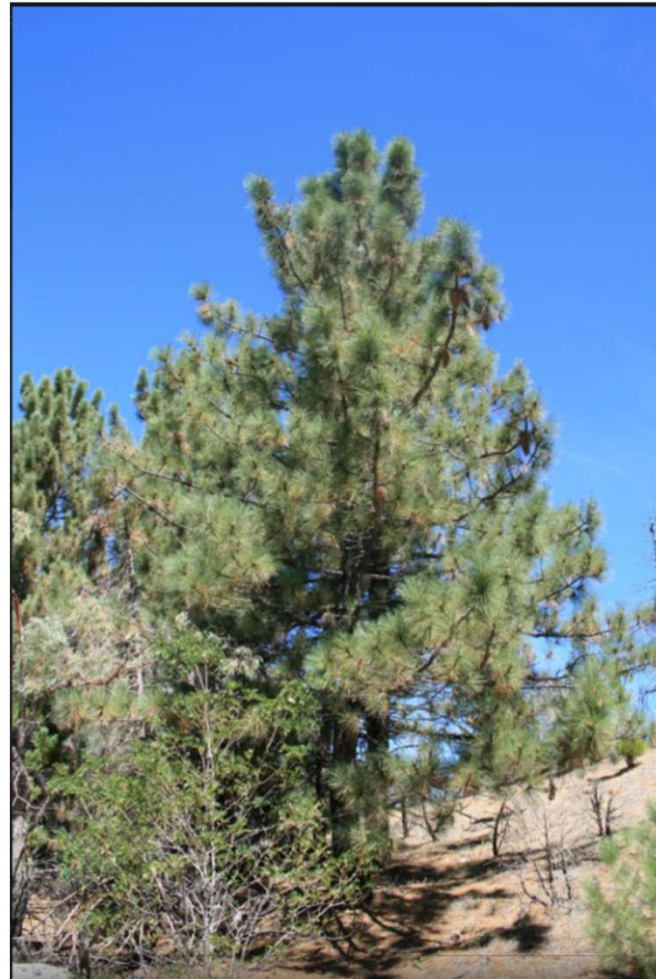
Identification (*Pinus coulteri*)

- Needles are stiff, course, and very long at 6-14 inches. Arranged in bundles of three
- Dark gray to black bark
- Unmistakable cones



Threats (*Pinus coulteri*)


- Fire suppression is an issue, shrub growth will severely limit regeneration
- Not very commercially valuable, so less management and care given
- Habitat becoming more fragmented from urban expansion



Champion (*Pinus coulteri*)

- Largest specimen planted in Otekaeke, New Zealand. Currently 70 inches at DBH, and 118 feet tall.
- Largest specimen in the U.S. only 48 in. DBH, but taller at 141 ft.



A close-up photograph of a Coulter pine cone, showing its characteristic reddish-brown, textured surface and the surrounding green needles. The background is a soft, out-of-focus green.

Quiz

Without looking for cones, how would you identify coulter pine?

WESTERN PINE

**EASTERN
WHITE PINE**

Eastern and Western White
Pine

By Jose Santana JR

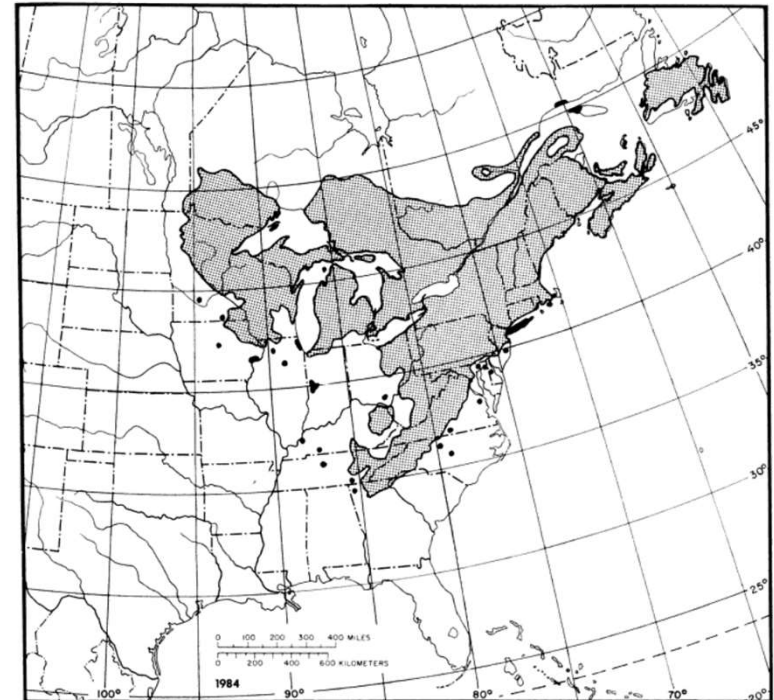
Eastern White Pine (Pinaceae *Pinus strobus*)

- Also known as Northern white pine
- Rapid growing species
- common height-50-80 ft tall and can exceed 100-150 ft in favorable conditions and has an average DBH of 24-48 inches and can get up to ~64 DBH



Eastern White Pine (Pinaceae *Pinus strobus*)

- Range map- Northeast U.S,
Maritime provinces of Canada





Eastern White Pine (Pinaceae *Pinus strobus*)

- Form- Tall and Straight
- Crown- Conic shape and spread out, Uninodal

Eastern White Pine (Pinaceae Pinus strobus)

- Needles 3-5 inches long
- Cones- medium-long skinny, Resin
- Bark- Platy, Ridged (generic pine bark)





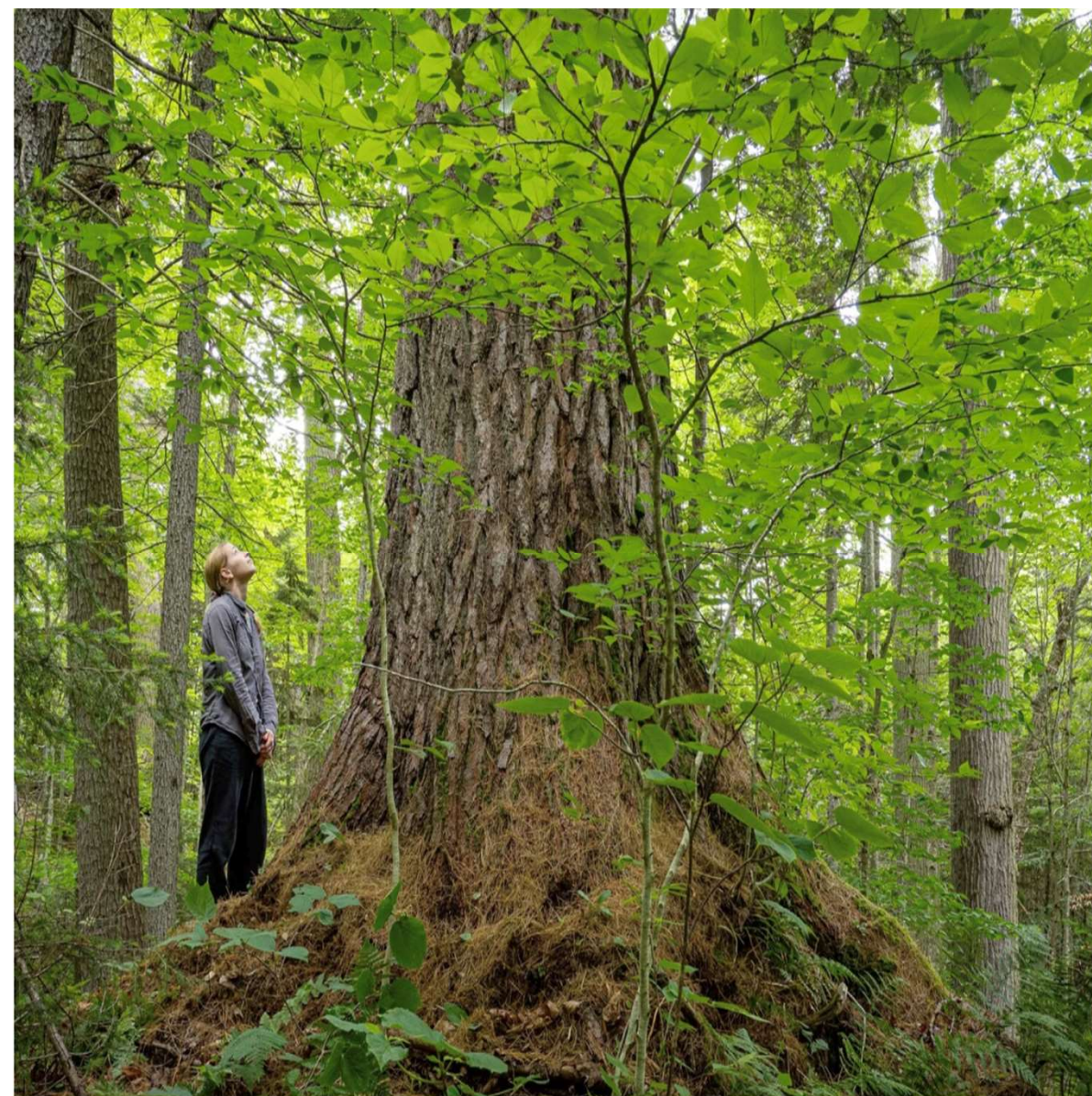
Eastern White Pine (Pinaceae Pinus strobus)

- Lumber- rapid growth
- Used as Christmas trees and Reforestation projects
- Historically used for ship masts and medicine – cough. Pine soda - Enjoyment.
- construction materials for early settlers
- Timbersports- Soft, Knot free. Single buck, Standing block chop, Underhand chop, Hot saw, Stock saw.



Eastern White Pine (Pinaceae Pinus strobus)

- Champion tree by volume named “Bigfoot” is 151 feet tall, circumference of 192 inches, 300+ yrs old



Western White Pine (Pinaceae *Pinus monticola*)

- Also called mountain white pine, Idaho white pine, and silver pine
- Rapid growth 2 feet young per season, 1-2 feet annually out of youth
- Size: 100-150 ft ~ 200-239 ft tall. Common DBH is 36-48 inches, larger trees are 60-96 inches



Western White Pine (Pinaceae *Pinus monticola*)

- Form- straight with a layering canopy
- Crown- Cone shape, Uninodal



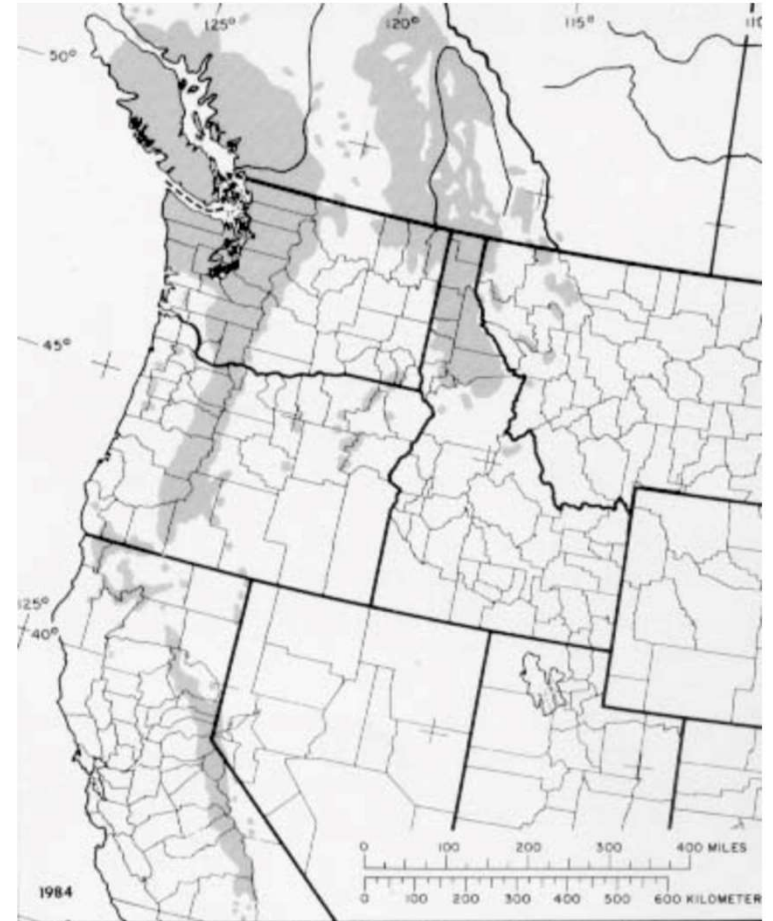


**Western White
Pine (Pinaceae
Pinus monticola)**

- 2 to 4 inches blue green needles
- Cones 5 to 12 inches long, Resin
- Bark is greyish brown, Platy, Less ridged

Western White Pine (Pinaceae *Pinus monticola*)

- Range map- Northwest coast





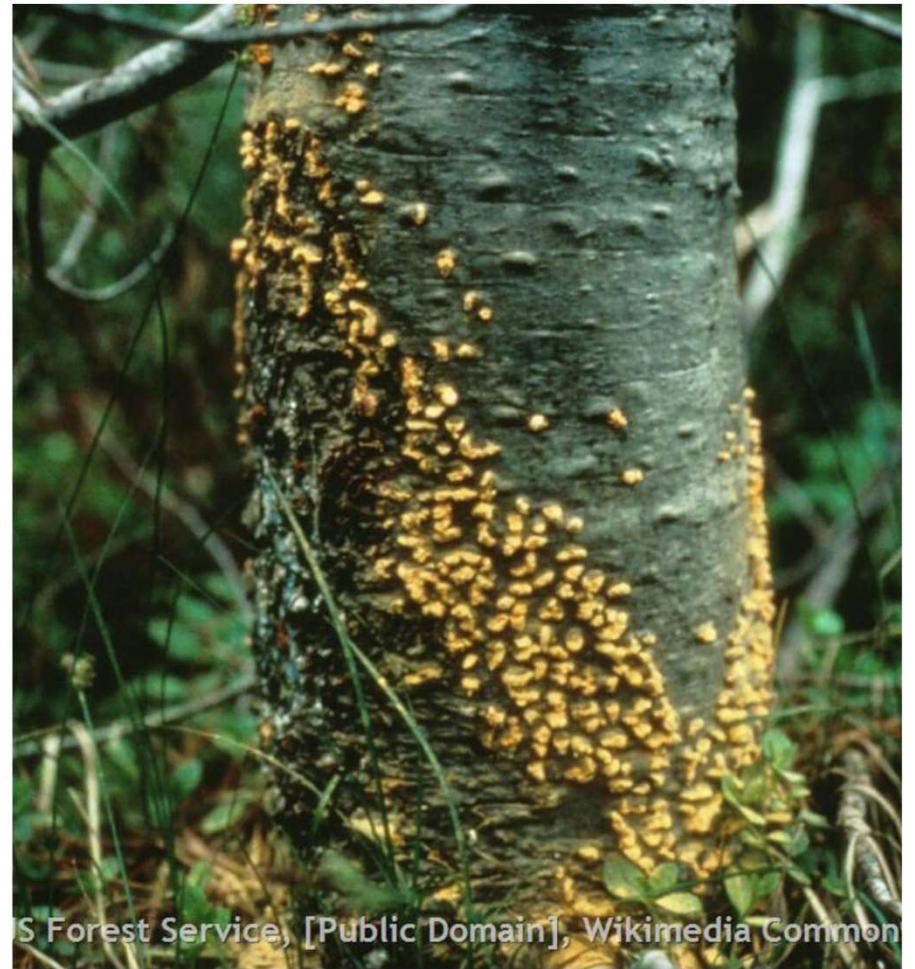
Western White Pine (Pinaceae Pinus monticola)

- Timber and construction (Not much anymore) Blister rust, medicine, food, and waterproofing
- History- dominated the inland northwest, called king pine at the time for being so dominant, Fire adapted
- Botanist David Douglas first described the tree in 1825 on the slopes of Mt. St. Helens
- Timbersports- same as eastern white pine





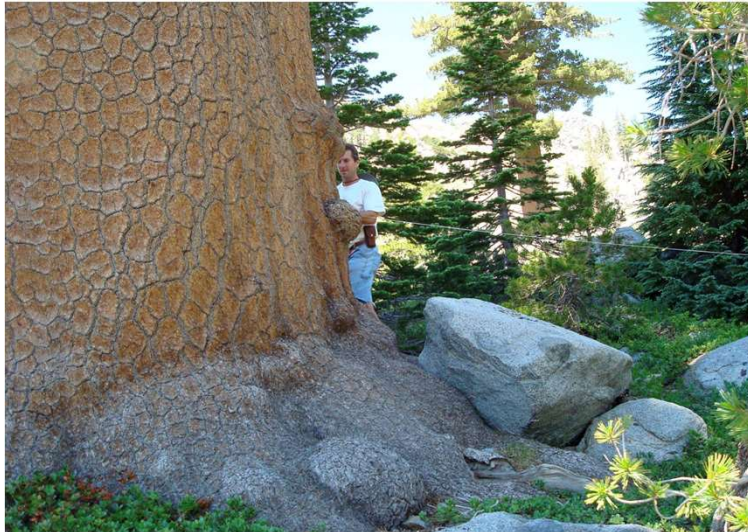
© CC BY 3.0 US - Marek Argent



US Forest Service, [Public Domain], Wikimedia Common

Western White Pine (Pinaceae *Pinus monticola*)

- Champion tree-named “King of white pines” 138 feet tall That’s ~23 Jose’s!!
- Has a circumference of 326 inches 400-500 yrs old



Which ones which?



Which ones which?



Which ones which?



Which one is Fire adapted?



**Make Sure to Do
Your Course
Evaluation!!!**



Pitch Pine & Table Mountain Pine

By: Emma Luczkowski
04/27/2026

Pitch Pine- Pinaceae *Pinus rigida*

Form- very site dependent!!

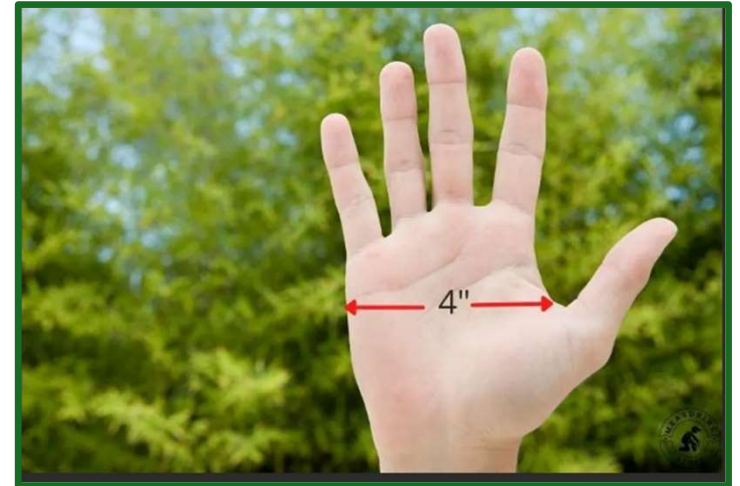
- Poor sites- short and poorly formed
- Better sites straight, medium sized tree reaching 80 feet tall



Pitch Pine- Pinaceae *Pinus rigida*

Morphology:

- Evergreen
- 3 needles per fascicle
- needles twisted and roughly 3-5" long
 - This is roughly the width of your hand



Pitch Pine- Pinaceae *Pinus rigida*

Morphology:

- light brown cones
- Compressed oval shaped
- 2 to 2.5" long
- in clusters of 3 to 5



Pitch Pine- Pinaceae *Pinus rigida*

Morphology:

- Thick rough bark
- Deep furrows
- Dark grey in color

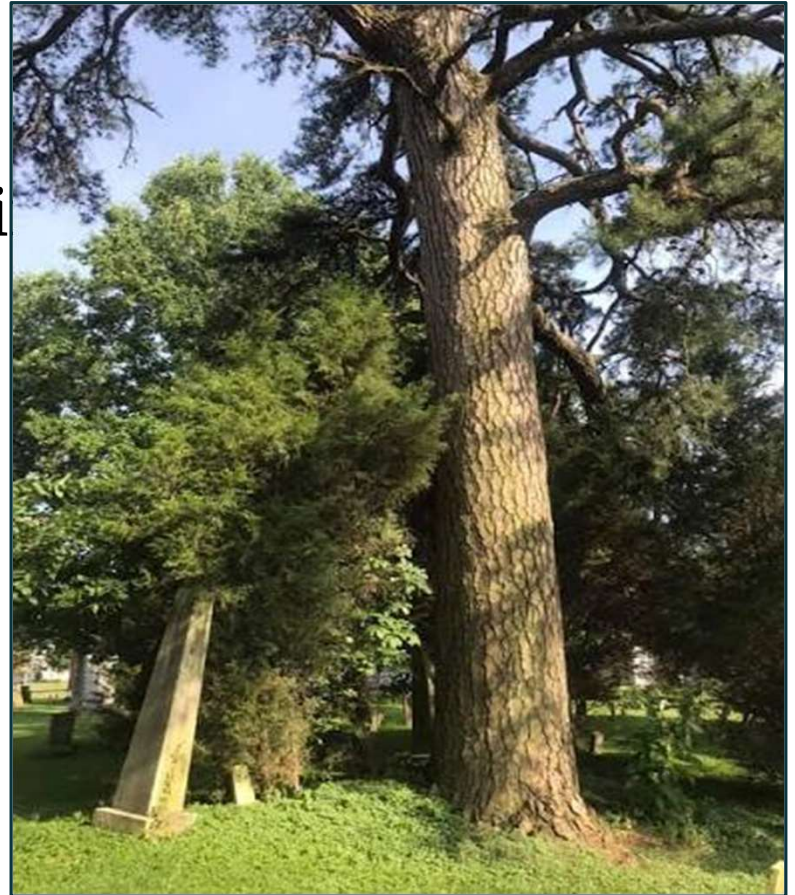


Champion Tree– Pitch Pine– Pinaceae *Pinus rigida*

Location: Merrimack, New Hampshire

Height: 108ft tall

DBH:43 inches



Range-Pitch Pine- Pinaceae *Pinus rigida*

- Native to Eastern United States
- Ranges from central Maine to Georgia and extending west to Kentucky



Ecology-Pitch Pine- Pinaceae *Pinus rigida*

- Thrives in harsh conditions
- Pioneer species
- grows in dry, sandy, or rocky soils



Silvics – Pitch Pine – Pinaceae *Pinus rigida*

- Shade intolerant
- Strongly fire-adapted
- Regenerates by seeds +
sprouting



Wildlife Uses – Pitch Pine– Pinaceae *Pinus rigida*

- Food source: deer, cotton tails, and meadow mice browse
- Nesting: Birds like pine warblers and blue jays



Historical Uses–Pitch Pine– Pinaceae Pinus rigida

- Native Americans built canoes out of them
- Medicinal uses
 - Anti-inflammatory
 - Respiratory health



Table Mountain Pine - Pinaceae *Pinus pungens*

Form

- A small to medium sized tree
- up to 65 feet tall
- irregular crown
- large, heavy branches



Table Mountain Pine- Pinaceae *Pinus pungens*

Morphology:

- Evergreen needles
- 1 1/2 to 3 1/2 inches long needles
- in clusters of 2



Table Mountain Pine- Pinaceae *Pinus pungens*

Morphology:

- 3 inch long cones
 - This is roughly the size of you index finger
- Very stout
- Big spikes
 - Reason for the name “pungens”



Table Mountain Pine- Pinaceae *Pinus pungens*

Morphology:

- Scaly bark
- dark red/brown or grey
- Irregular plating



Champion Tree- Table Mountain Pine- Pinaceae Pinus pungens

- **The official “champion” trees are actually co-champions.**

Tree 1:

- Diameter (dbh): 73.6 cm
- Height: 39.0 m
- Crown spread: 17.4 m
- Measured: 2021
- Location: Union County, Georgia

Tree 2:

- Diameter (dbh): 88.1 cm
- Height: 36.0 m
- Crown spread: 14.3 m
- Measured: 2019
- Location: Stokes County, North Carolina

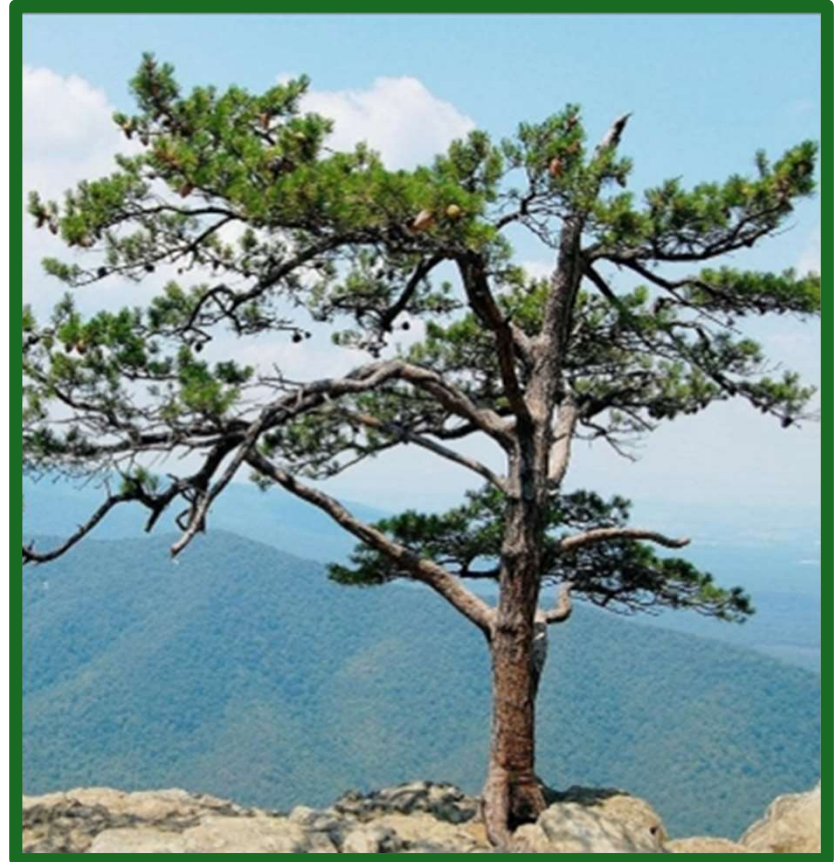
Range-Table Mountain Pine- Pinaceae Pinus pungens

- Native to eastern United States
- Follows the Appalachian mountain range
- Ranges from central Pennsylvania to



Ecology-Table Mountain Pine- Pinaceae Pinus pungens

- Thrives in harsh conditions
 - Likes mountain ridges
- Serotinous
- Pioneer species



Silvics – Table Mountain Pine – Pinaceae Pinus pungens

- Usually occurs in scattered patches or small stands
- Prefers Shallow & rocky
- Shade intolerant
- Disturbance/fire dependent



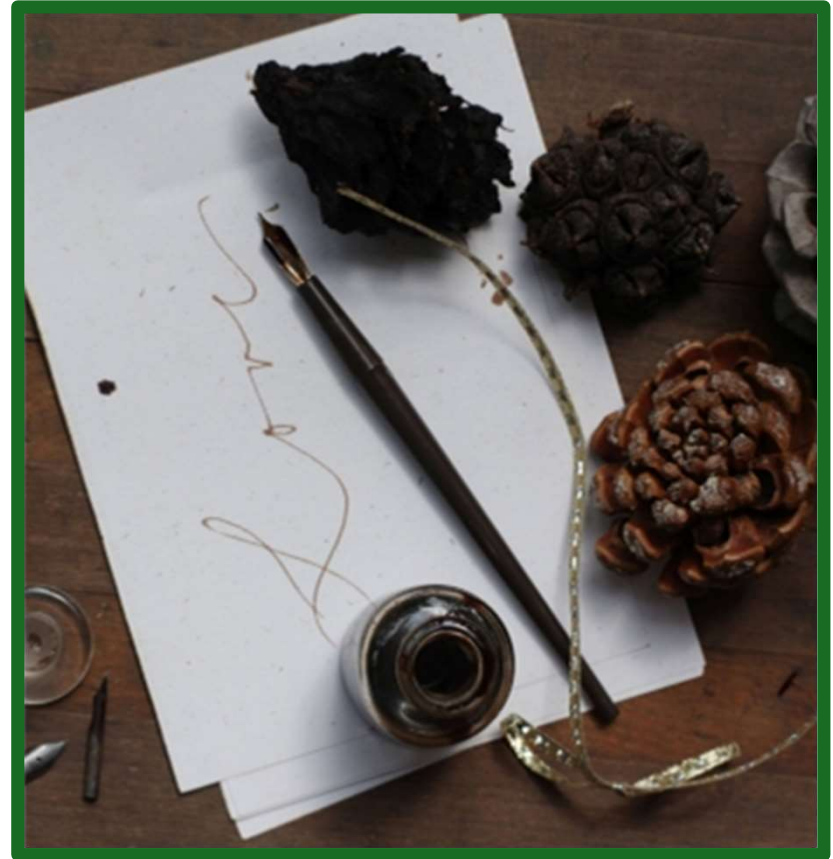
Wildlife Uses-Table Mountain Pine- Pinaceae Pinus pungens

- Food source: American red squirrel
- Shelter: Pine Needle Miner Moth and Nantucket Pine Tip Moth
- Stabilizes soil in rocky sites



Historical Uses – Table Mountain Pine – Pinaceae *Pinus pungens*

- Fuel
- Charcoal making
- Canoe making
- Ink
- Pulpwood (full of knots)



Test What You've Learned

Which pine's specific epithet is rigida?

Hold up a 1 for Pitch Pine and a 2 for Table mountain Pine

Which pine's form is very site dependent?

Hold up a 1 for Pitch Pine and a 2 for Table mountain Pine

Which Pine's cones have big spikes?

Hold up a 1 for Pitch Pine and a 2 for Table mountain
Pine

Sources

Table Mountain Pine | Silvics of North America

Virginia Tech Dendrology Fact Sheet

Virginia Tech Dendrology Fact Sheet

Pinus rigida (pitch pine) description - The Gymnosperm Database

Pitch Pine | Silvics of North America

Limber and Lodgepole Pine

By

Gavin Thomason

Limber Pine

- *Pinaceae Pinus flexilis*
- Mostly used for mine timbers and railroad ties
- Usually grows between 30 and 50 feet tall and usually has a DBH of 1-3 feet wide
- It is monoecious and evergreen
- Needles can reach up to 4 inches long and come in fascicle of 5
- The twigs are very flexible this is where it gets its name

Limber Pine Range

- Limber Pine is found throughout the western U.S and up into Canada. It mostly grows in Xeric, high elevation, and high wind rocky sites. While it prefers a Udic soil regime, its resistance to drought allows it to dominate in drier, rockier sites. Its flexibility also helps it survive sites with high wind.



Limber Pine fun facts

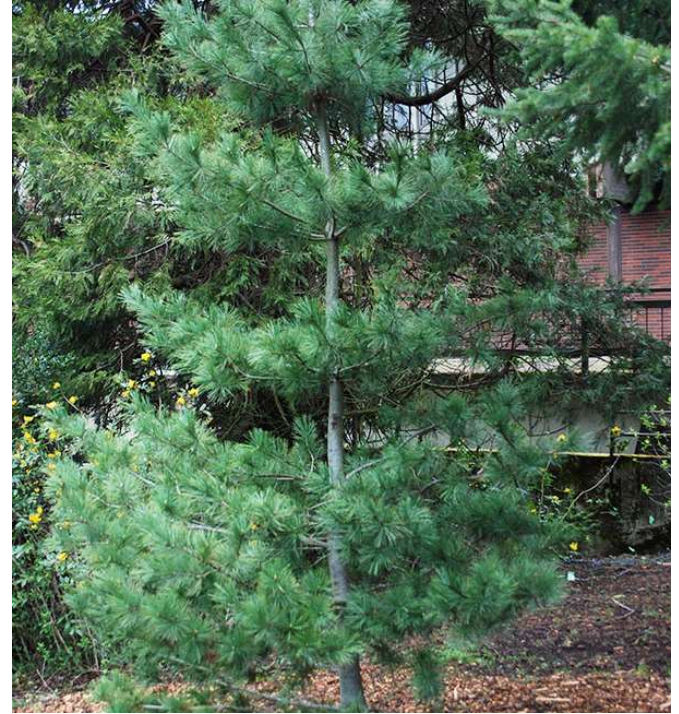
- They can live over one thousand years, the oldest of which is around 2 thousand years old (about as old as Dr. Kulhavy)
- Another common name is rocky mountain white pine
- It can be difficult to tell the difference between it and white pine
- Limber pine has a relationship with bacteria where the bacteria allows for the tree to get important nutrients
- White pine blister rust is a disease that can kill these trees
- Is sometimes used as an ornamental plant

Champion

- Aged at just under 2 thousand years old
- What else was happening 2 thousand years ago?
 - Jesus Christ walked the Earth
 - The Roman Empire was at the height of its power
 - The Coliseum was not built yet
 - Europeans would not come to North America for another thousand years (Vikings 1000 CE)
 - The great wall of China is only 200 years old







Pictures of Limber Pine

Lodgepole Pine

- *Pinaceae Pinus contorta*
- Used for construction, paper, and other pulp products
- Can grow up to 80 ft tall, and the average dbh is 15-18 inches
- Monoecious and evergreen
- 1 in to 3 in needles
- Very similar to jack pine and ponderosa pine
- Also known as shore pine



Lodgepole pine range

- Lodgepole pine grows on wet flats and poorly drained soils. Its range goes as far North as Southern Alaska

Lodgepole pine fun facts

- Lodgepole pine cones require heat for them to open up and disperse their seeds
- The term “lodgepole” comes from the belief that native Americans would use them to construct lodges and other structures
- They grow very slowly, but they have a long life span. The average is 150 to 200 years
- They can grow in nutrient-poor poor rocky, and volcanic soils
- The greatest threat to this tree is the mountain pine beetle

Yellowstone Lodge



Champion lodgepole pine

- Located in Yosemite national park
- 110 ft tall and 6 ft dbh
- 440 years old





Pictures of lodgepole pines (*Pinus contorta*)



Pictures of Shore Pine (*Pinus contorta* ssp.)