Slide 1

Conifer Forests of the Coast

Lecture 27

Slide 2

Learning Outcomes

- Sequoia sempervirens
- Distribution
- Reproduction
- Ecological Dominance

Slide 3

Reproduction

- Sexual Reproduction
- Male pollen cones
- Wind pollination occurs during winte
- Seeds shed followi fall
- Require bare soil to germinate

Slide 4

Reproduction

- Asexual Reproduction
- Burls
- Basal dormant buds capable of resprouting following damage
- Fairy Ring of clones
- Cathedral Tree
- Prairie Creek Redwoods SP
- Secondary Growth following logging often resprouting from stumps

Slide 5

Coast Redwood Forests

- *Sequoia sempervirens*
- Central California Coast (Big Sur) to SW Oregon
- ~ 450 miles
- 5-25 miles from coast
- Not tolerant of salt spray
- Commonly occupies valleys and creeks

Prai s

Slide 6

Coast Redwood Forests

- Rainfall ranges from 100 inches (2500mm) in North to
- Corresponds to Summer Fog Belt
- Fog drip adds 12 inches (300mm) of rainfall
- Equivalent of additional 25-50% of annual rainfall

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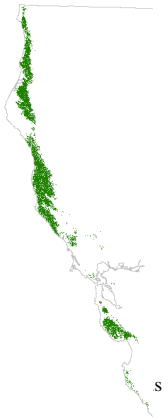
Slide 7

Coast Redwood Forests

- *Sequoia sempervirens*
- 90 million years ago several species of Sequoia distributed across North America, Europe and Asia
- Climate warmer and wetter than today
- Mediterranean Climate developed in CA 8 mya
- Redwoods restricted to wetter coast



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Slide 8

Water Flow

- Water entering redwood roots can take two weeks or longer to reach the top of the tree.
- Todd Dawson (UC Berkeley) discovered that a redwood that is bathed in fog can take moisture in through its needles and send the water downwards into its small branches.

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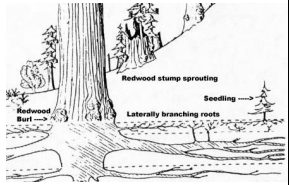
Roots

- Taproot and dense lateral root system
- Roots require oxygen to survive
- Sensitive to trampeling and compaction
- Siltation following floods can bury roots
- New lateral roots sprout from burls



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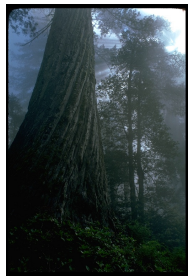
Lobaria

- *Lobaria oregana* – Lettuce Lungwort – cyanobacterium has the ability to fix atmospheric Nitrogen.
- Estimated to add equivalent of 2 Kg per hectare per year to Old Growth Forests

Slide 11

Redwood Dominance

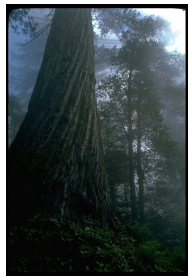
- Tall trees shade forest interior
- Seedlings tolerant of shade
- Capable of rapid growth in sunlight
- Shed leaves build up thick layer of duff above soil surface
- Self mulching
- Retain soil moisture



Slide 12

Redwood Dominance

- Thick fibrous bark
- Resistance to fire damage
- Shed seed following fires
- Seeds germinate in bare mineral soil
- Resprouting from burls



Slide 13

Redwood Forest Flora

- Sword Fern
- *(Polystichum munitum)*
- Redwood Sorrel
- *(Oxalis oregana)*

- Inside out Flower
- *(Vancouveria planipetala)*
- Modesty
- (Whipplea modesta)

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The Tallest Trees

- Hyperion
- 379.1 feet
- Stratosphere Giant
- 370.9
- Centurion
  Eucalyptus regnans
- 331.4 feet

Slide 15

Life in the Canopy

- Canopy of Redwoods forests unexplored until
- Epiphytes grow on branches forming 'soil'
- 55 species soil mites
- Aquatic copepods
- Salamanders
- Marbeled Murrelet
- Nests in canopy of Old Growth Forests

Slide 16

Conservation Movement

- 1880s witnessed logging frenzy Santa Cruz Mtns
- Semprevirens Club
- Established 1900
- Big Basin Redwoods
- Save the Redwoods League 1919
- 1921 Redwood Preservation Bill signed
- Protected Humboldt Redwoods SP