
WSU Extension Forestry

Welcome to the Forestry Lunch Breaks!

We'll get started promptly at 12PM

In the meantime, please remember to set your chatbox "To" setting to "Everyone" so your questions get shared to the group

This webinar will be recorded, links to recordings will be sent out early next week along with chatbox transcripts and any additional resources



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Forestry Lunch Breaks: Benefits of Western WA Hardwoods

Bigleaf Maple (*Acer macrophyllum*)

Patrick Shults, WSU Extension




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The Basics

Scientific name: *Acer macrophyllum*
Family: Sapindaceae
Height: 50-65 ft (tallest - 88')
Diameter: 2-5 ft (largest - 97")
Crown: 50+ ft (largest - 104')
Age: ~200 years
Notable features:

- Produces edible flowers and sap
- Support many epiphytes (mosses, liverworts, ferns)
 - Up to 1 ton!
- Largest maple species in North America (+ largest leaves)



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Identification





Leaves: large (8-12"), lustrous dark green above, pale beneath, 3-5 toothed lobes, petiole yields milky sap when detached, turn golden yellow in fall

Leaf/twig arrangement: Opposite


Bark: Grey-green, smooth when young, turning brown and furrowed with age, often covered in epiphytes

Flowers: male and female flowers in same greenish-yellow drooping clusters, develop into hairy double-samaras

Habitat/range: California to BC, moist soils with adequate drainage (floodplains, streambanks, drainage slopes), below 3000' elevation



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Identification



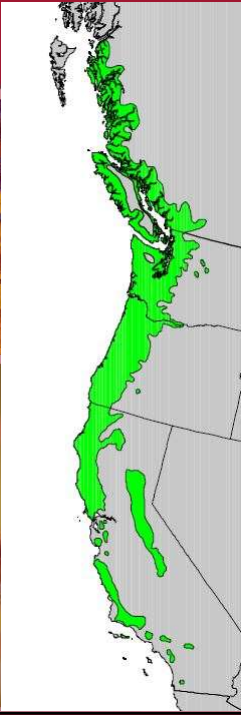

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Silvics - Regeneration

- Produces seed at roughly 10 years old
- Monecious – separate male and female flowers but on the same tree
- Flower in early spring
- Important pollinator species for bees, flies, and beetles
- Flowers are edible (ex: maple flower fritters)



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- Flowers are edible (ex: maple flower fritters)
- Prolific seed producer
- Seeds are double samaras, descend like “helicopters”
- Seeds viable for one year




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Silvics - Regeneration

- Prolific “stump sprouter”, common regeneration post-harvest or fire
- Generally treated via herbicide post-harvest or else ...
- Rapid juvenile growth, outcompetes conifers
- Significant potential for coppice management
 - Can produce dozens of stems
 - To maintain vigorous growth, select 3-5 stems to keep, remove the rest (no herbicide necessary)



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Silvics – Growth and Succession

- Moderately shade tolerant
- Prefers at least small gaps in the canopy for regeneration and recruitment
- Can be a “seedling banker”
- Wide-spreading canopy can take up significant growing space
- Long-life and ability to regenerate in moderate shade makes it an important component of old growth forests




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Damage and Disease Agents

Sooty bark disease

- Caused by fungus *Cryptostroma corticale*
- “Sooty bark” refers to black mats of fungal spores
- Effects multiple maples species, including ornamentals
- Discovered in WA in 1968 but recent outbreaks linked to severe droughts
- Damage is typically restricted to stressed/weakened trees
- Spores can cause respiratory irritation
- <https://foresthealth.org/sbd/>




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Damage and Disease Agents

Bigleaf maple decline

- Observed since 2010
- Symptoms:
 - Smaller leaves
 - Chlorotic (yellowish) leaves and/or scorch
 - Crown thinning
 - Crown/branch dieback
 - Heavy seed crops
- Studies tied decline to drought/heat and stressful environments (forest edges, urban areas, landscapes, roads)
- No single pest or disease responsible



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Damage and Disease Agents

Others

- Powdery mildew
- Speckled tar spot
- Armillaria root rot
- *Invasive (not present):* Asian long-horned beetle


Management

Maintain vigor

Site selection



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Site selection



Banded alder borer (native)

Asian long-horned beetle (invasive)

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Ecological Role and Importance

- Typically grows in mixed stands but can be dominant canopy species
- Associated species: Doug-fir, grand fir, red alder, Sitka spruce, western redcedar, western hemlock, Pacific dogwood, serviceberry, salal, red huckleberry, salmonberry, sword fern, vine maple
- Can be present at any seral stage, but typically a mid or late successional species
- Important riparian species
 - Reduces soil and stream bank erosion
 - Enhances riparian habitats
 - Shade, woody debris, and nutrient inputs



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Ecological Role and Importance

- Importance to wildlife:
 - Favored browse species by deer and elk
 - Beaver feed on bark and use stems for dams and lodges
 - Birds and rodents feed on maple seeds
 - Nesting/cavity habitat
 - Preferred cavity tree for pileated woodpeckers (Hartwig et al. 2004)
 - Important pollinator species (early spring bloom)



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Ecological Role and Importance

- Better Be-leaf it:
 - Bigleaf maple “microsites”
 - Soils below maples have higher cation-exchange capacity and concentrations of C, Ca, K, Mg, and N/nitrates (Hamdan & Schmidt 2012, Turk et al. 2007, Boyle et al. 1990)
 - Supporting stream habitat
 - Large amounts of detritus inputs into streams (including downed branches) tied to increased macroinvertebrate habitat (Kennedy et al. 2005)
 - Dense leaf litter layer provides habitat for insects and microfauna



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Ecological Role and Importance

- Heaven for Epiphytes:
 - Likely connected to the moisture retention of bigleaf maple bark
 - Common species: licorice fern, club moss, mountain fern moss, and several lichens (*Cladonia*, *Nephroma*, *Crocynia*)
 - Species hosted will vary depending on location on tree and microenvironment, can be indicators of air quality
 - Dense epiphyte communities on branches can serve as rooting medium for other plants and a food source for arthropods
 - Sometimes harvested for botanical products



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Indigenous Uses:

- Bark used for rope
- Wood for utensils, instruments, and canoe paddles (called the “paddle tree”)
- Leaves were used to wrap food and other items
- Bark infusions to treat sore throats
- Shoots for basket-weaving
- Fuelwood
- Little or no evidence of sap collection ...
- *maples were often burned or pruned to force sprouting



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Uses/Products

Characteristics

- Moderate weight and hardness
- Fine grained
- Easily machined (planing, shaping, boring, turning)
- Not suitable for outdoor uses

Wood products

- Veneer
- Furniture
- Paneling, flooring
- Plywood
- Musical instruments
- Molding
- Pulpwood/fuelwood
- Generally low-value wood except for ...




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Uses/Products

Figured Maple

- Maple trees with unique grain pattern
- Very high value
- Used for furniture and musical instruments
- Little known about what causes the pattern



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Agroforestry Opportunities

- Bigleaf Maple Syrup
 - Produces sweet sap with 1-1.5% sugar
 - Can be processed into syrup and other sugar products
 - Sap season from Dec-March
 - UW/OSU/WSU research and outreach efforts underway
 - Join the Sapsucker program!
 - forestry.wsu.edu/sapsuckers
- Other Forest Farming Opportunities
 - Light shade creates opportunities to grow “forest crops”
 - Ex: hazelnuts, osoberry, currants, service berry, Oregon grape, cascara, salal, sword fern, devil's club



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Management - Planting

- Not commonly planted
- Site selection – can grow on a wide variety of soils, grows best on deep well-drained soils with abundant moisture (river terraces, flood plains, seepage areas)
- Site preparation – None needed for vegetation reproduction, control needed if planting or in shaded areas
- Seedlings can be difficult to come by but relatively easy to propagate from seed
 - Collect and plant in fall, partial shade
- Recommended density – 10-12' spacing (436-303 trees/acre)
- Underplanting in existing canopies
 - Can establish in light shade
 - Small gaps can create rapid growth
- Browse protection!



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Management – Thinning and Harvesting

- Pre-commercial thinning and/or stump sprout management necessary to maintain growth
 - Likely around age 5-15
- If well-managed and on high quality sites, regeneration harvest with sawlog production could occur as early as 40-50 years
 - Very uncommon to manage for maple
- Volume per acre around 4500-5000 ft³ at 45-50 years
- Can be managed via clear cut, single-tree, small group, or potentially shelterwood systems




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Questions?

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