WASHINGTON STATE UNIVERSITY
EXTENSION

Non-Timber Forest Products and Agroforestry

Patrick Shults, WSU Extension

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Non-Timber Forest Products:

AKA “special forest products”

PNW indigenous cultures have a rich history of utilizing and managing NTFP’s

Popular modern markets:
Mushroom foraging
Greenery and floral products
Wild fruit harvests

Five “types” of NTFP’s . . .

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Five Types of Non-Timber Forest Products:

Food

Medicine

Décor/Aromatics

Fiber

Eco/Agri-tourism

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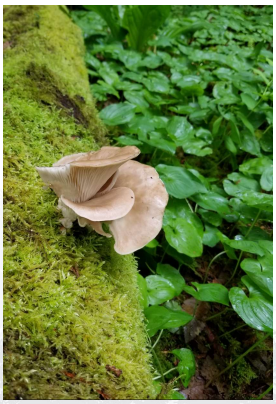
Five Types of Non-Timber Forest Products:



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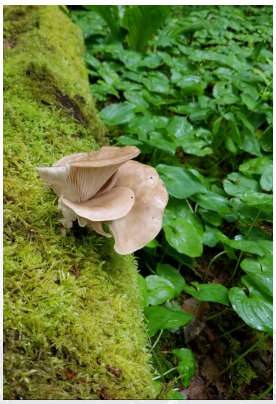

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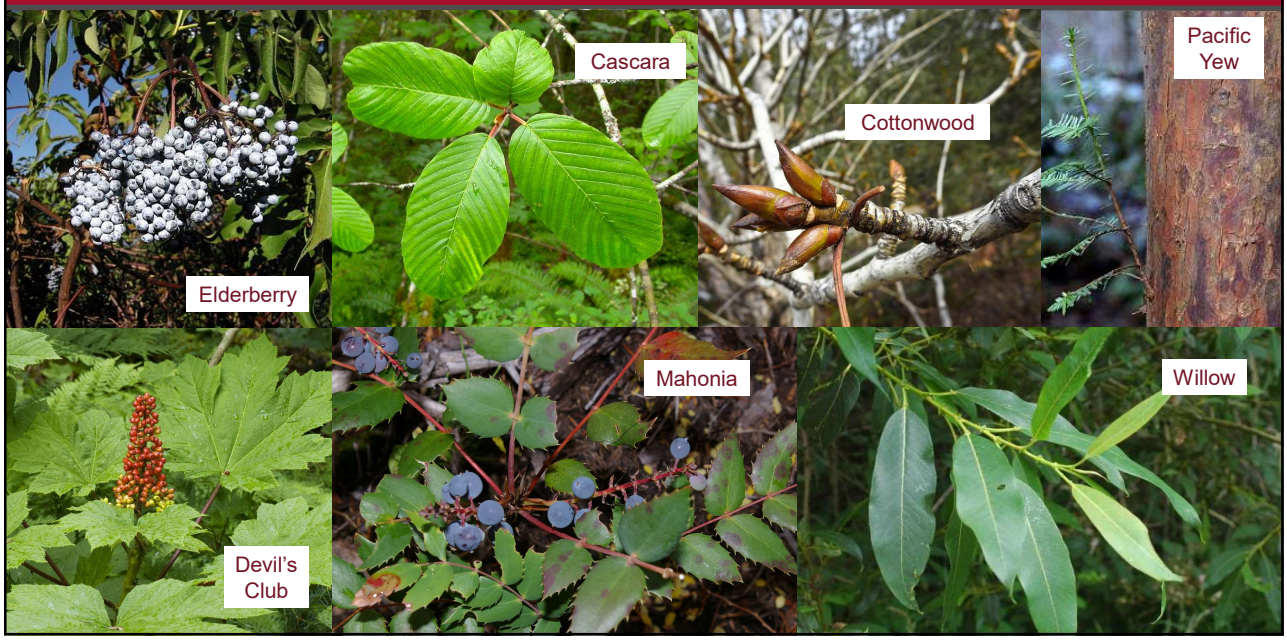

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Hone your plant ID skills! And know your limits . . .

- Get to know companion plants and habitat typing
- Don't rely on common names

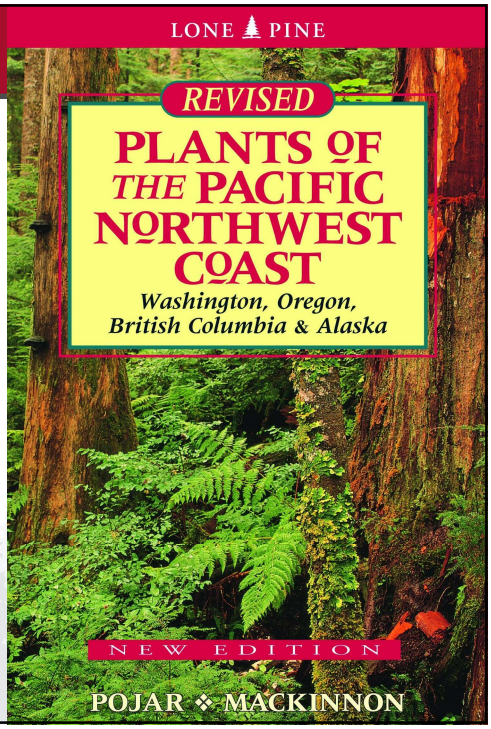
Beware of medicinal claims, check the sources

- There's a lot of unchecked information out there

Just because something isn't deadly doesn't mean you should eat it!

Tap into expertise

- Find a mentor
- Join mycological societies (or other relevant groups)
- Classes/workshops



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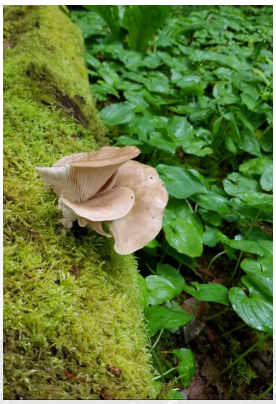

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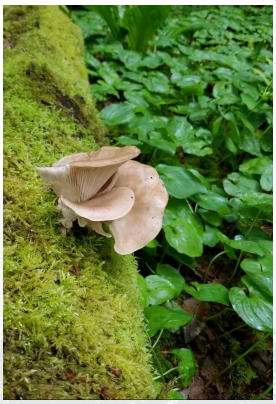

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General Tips for Sustainable Harvesting of NTFP's

- Exercise restraint, particularly for destructive harvesting (ex: roots, stems)
  - Apply the same lessons as forest thinning, removing the weaker and poor performing individuals first (one exception may be décor)
- Where appropriate, consider propagation to ensure long-term supply
- Consider impacts on the plant, population, and ecosystem
- Share the forest, leave some for wildlife!
- Be aware of sensitive sites and how you might impact them by harvesting
  - Ex: harvesting Devil's club in a wetland

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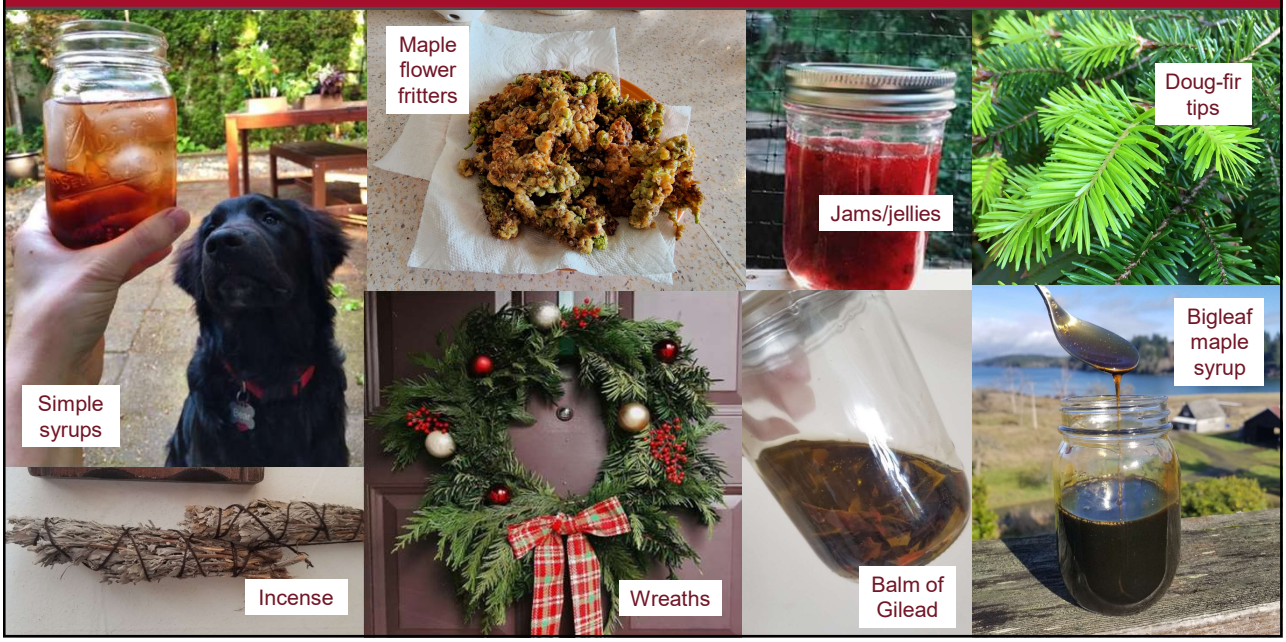

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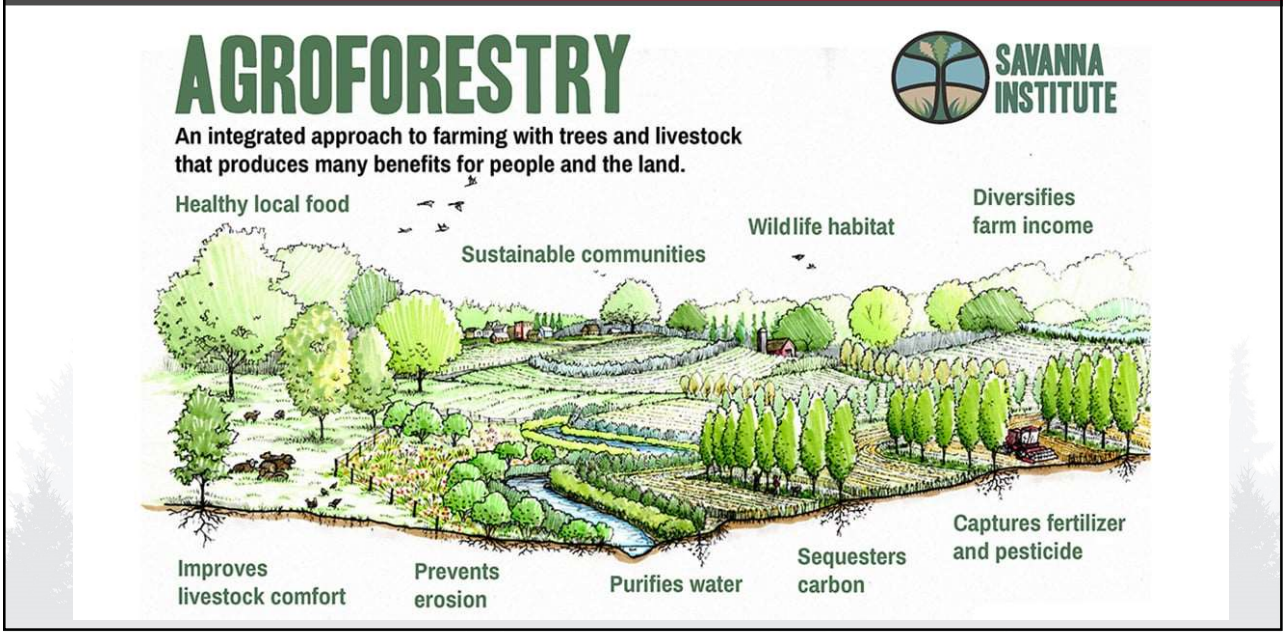

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What is Agroforestry?

Agroforestry is the intentional combination of agriculture and forestry to create productive and sustainable land use practices (USDA, 2023)

Agroforestry practices are:

1. **Intentional** - Combinations of trees/crops/animals are intentionally designed and managed to yield multiple benefits
2. **Integrated** – Components are structurally and functionally combined
3. **Intensively Managed** – Systems are actively managed towards yield of multiple benefits
4. **Interactive** – Components interact to produce benefits

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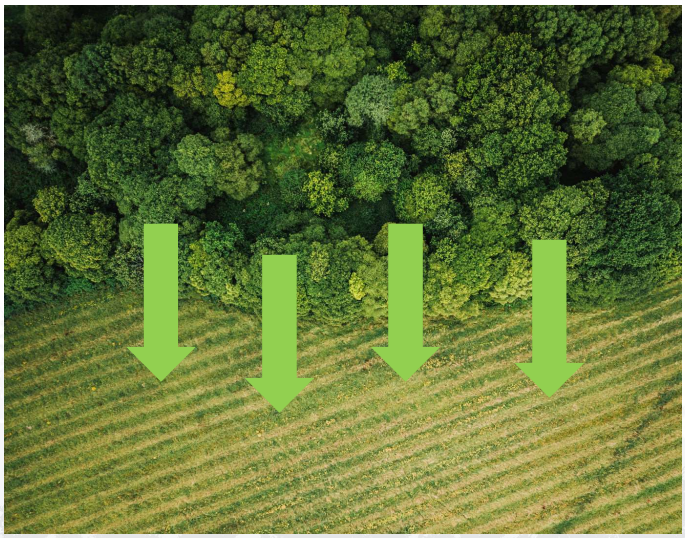
What is Agroforestry?

Looking at it another way . . .

Incorporating the ecosystem services of forests into agriculture in ways that are mutually beneficial to conservation and production

Water quality
Air quality
Carbon sequestration
Wildlife habitat
Soil health
Pollinator habitat
Aesthetics
Timber/fiber production



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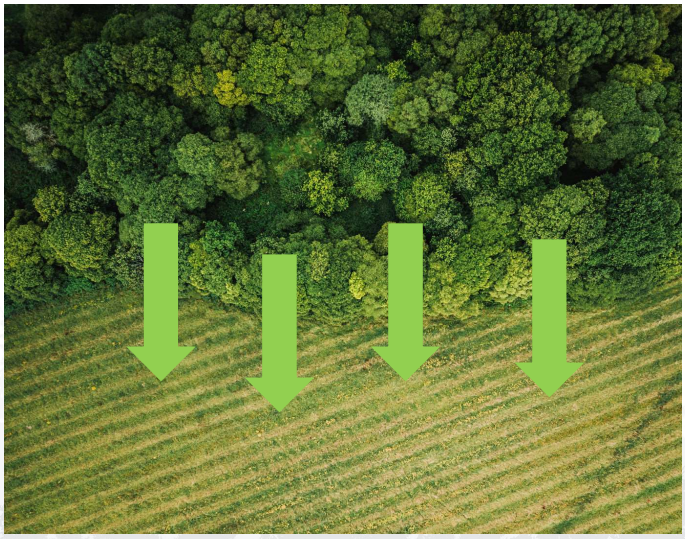
What is Agroforestry?

Agroforestry Principles:

- Utilize and enhance beneficial biological interactions
- Minimize losses or inefficiencies
- Creating a functional “agroecosystem”
- Diversify and maximize outputs (farm resilience)
- Managing for biodiversity and ecosystem services
- Restore degraded land and/or maintain fertility
- Carbon Sequestration



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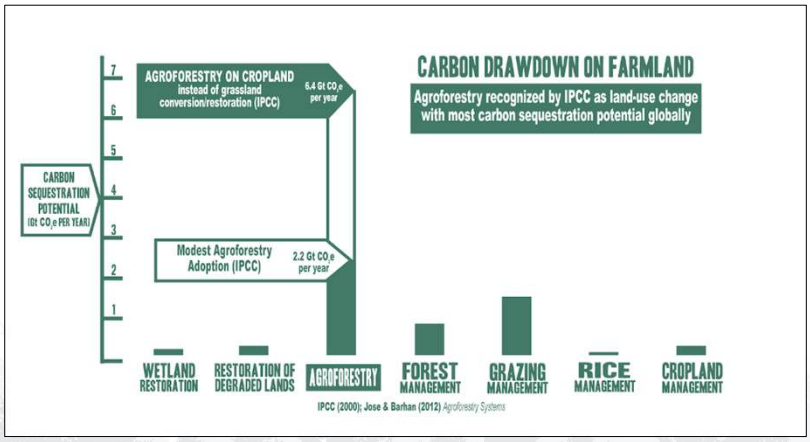

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Agroforestry for Everyone

For Forest Owners
- Hobby or supplemental income
- Step beyond foraging into management of NTFP's
- Ex: forest farming - bigleaf maple syrup, shiitake, mahonia, etc.

For Homesteaders/Hobby Farms
- Diversified productivity for personal use
- Increased productivity (maximizing land use)
- Ex: silvopasture, forest farming, windbreaks/hedgerows

For Farmers/Producers
- Diversified production at scale
- Mitigating negative environmental impacts (water quality, soil health, forest loss, habitat loss)
- Ex: alley cropping, silvopasture, working riparian buffers

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Species Interactions in Agroforestry

The productivity of an agroforestry system is ultimately the net result of positive and negative interactions among the components.

Example: enhanced nutrient cycling . . .

Type of interaction	Effect of the interaction[1]	
	Species 1	Species 2
Amensalism	–	0
Commensalism	+	0
Competition	–	–
Mutualism (or synergism)	+	+
Neutralism	0	0
Predation and Parasitism	+	–

[1] 0 = no effect; + = positive; – = negative.
Source: Modified from Perry, 1994.

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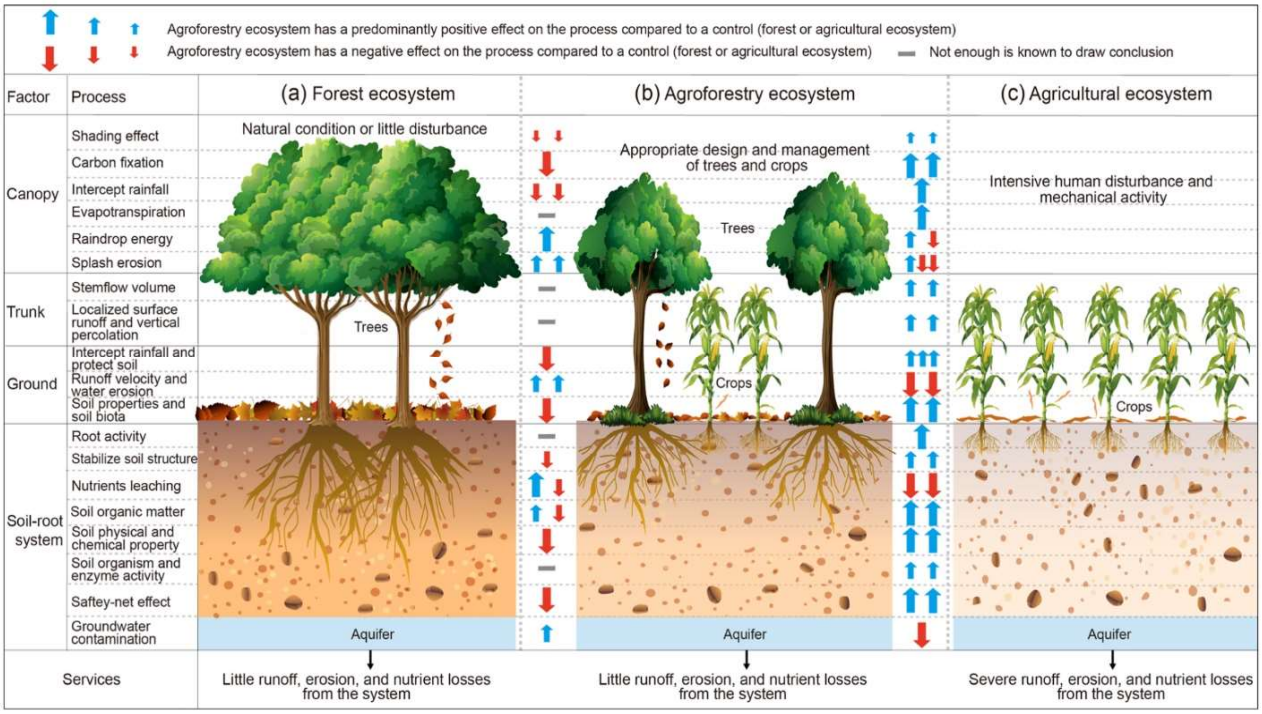

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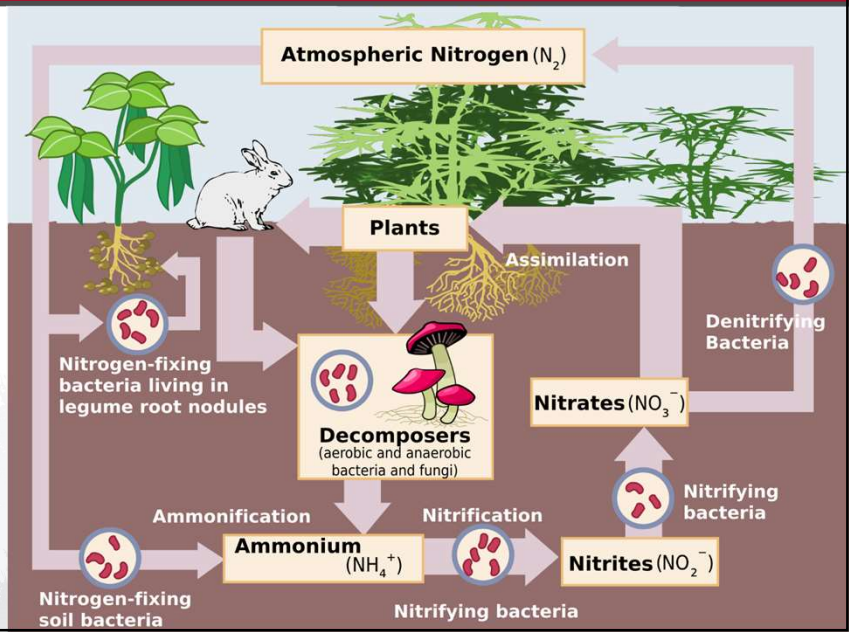
Nitrogen Fixation/Transfer



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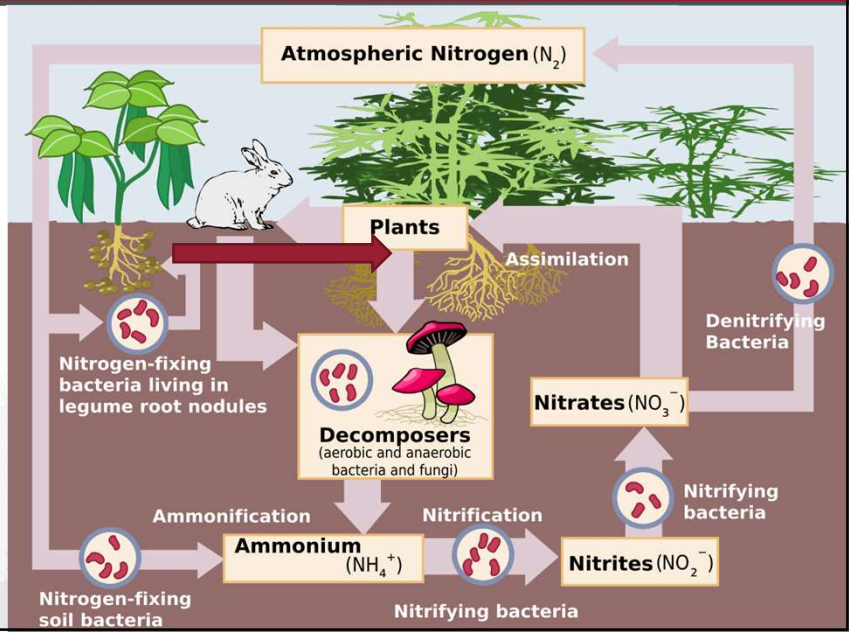

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An example of not playing nice:

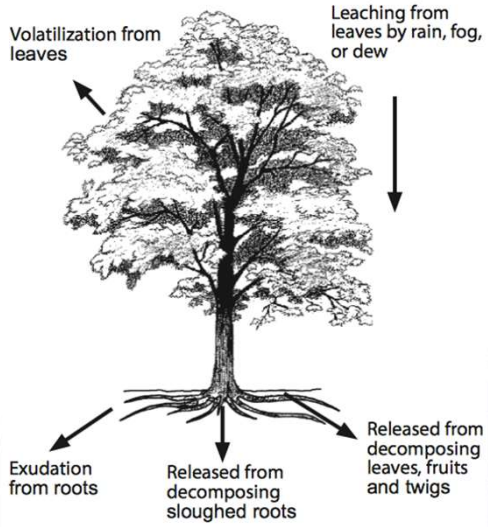
allelopathy

. . . the chemical inhibition of one plant (or other organism) by another, due to the release into the environment of substances acting as germination or growth inhibitors

Examples:

Walnut (Juglans), elderberry, rhododendron, sumac, rice, pea, sorghum

But . . . Walnut is still a popular agroforestry species – how?



Juglone production from walnut tree

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Species Interactions in Agroforestry

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Other examples:

Nitrogen transfer
Hydraulic lift
Pest protection
Competition
Niche partitioning

Type of interaction	Effect of the interaction[1]	
	Species 1	Species 2
Amensalism	–	0
Commensalism	+	0
Competition	–	–
Mutualism (or synergism)	+	+
Neutralism	0	0
Predation and Parasitism	+	–

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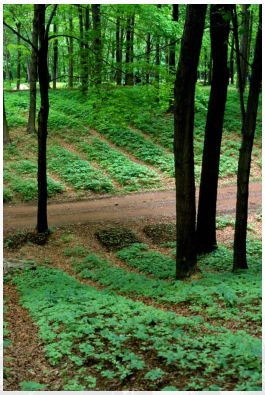
Five Temperate Agroforestry Practices:



Windbreaks/Hedgerows

Riparian Buffers

Alley Cropping

Silvopasture

Forest Farming

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Windbreaks and Hedgerows

Plantings of single or multiple rows of trees or shrubs that redirect or modify the wind and are established for one or more environmental purposes.

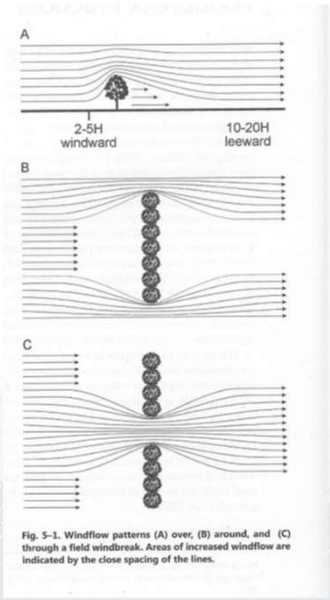

Fig. 5–1. Windflow patterns (A) over, (B) around, and (C) through a field windbreak. Areas of increased windflow are indicated by the close spacing of the lines.

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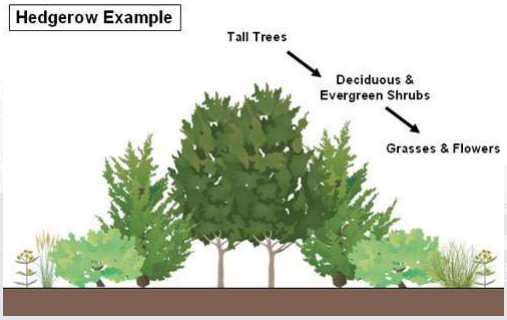

- Wind protection
+ pollinator habitat
*potential funding at your local CD for implementation

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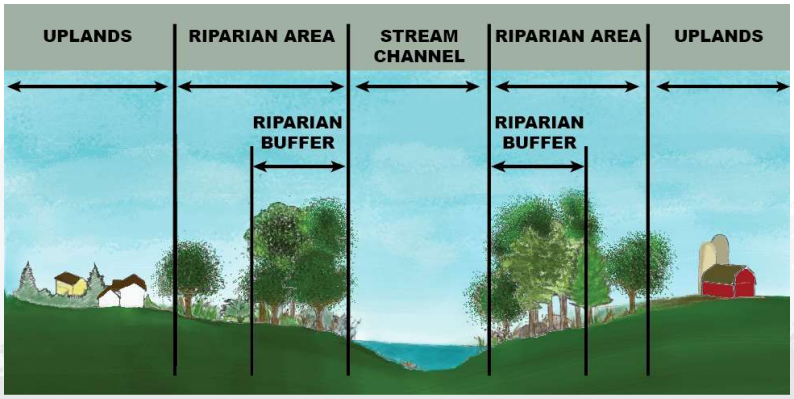
Riparian Buffers

Riparian forest buffers are natural or planted woodlands adjacent to water bodies. They are designed with trees, shrubs, and grasses to protect water resources from nonpoint source pollution.

*"working" riparian buffer = designed with productive crops
** riparian buffers are mandatory on forestlands in WA



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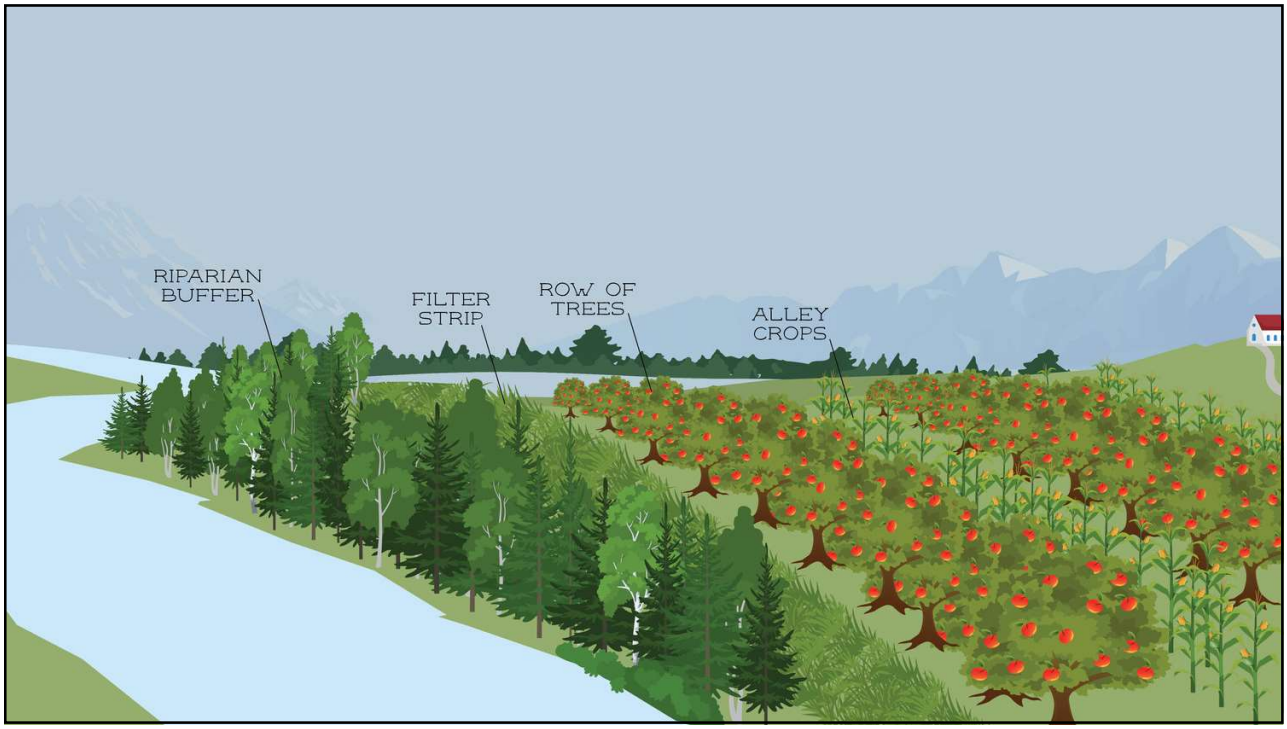

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Alley Cropping

The planting of rows of trees and/or shrubs (single or multiple) at wide spacing, creating alleyways within which agricultural crops or horticultural crops are produced

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Silvopasture

Combines timber, livestock and forage production on the same acreage. Trees provide longer-term returns, while livestock generate an annual income.

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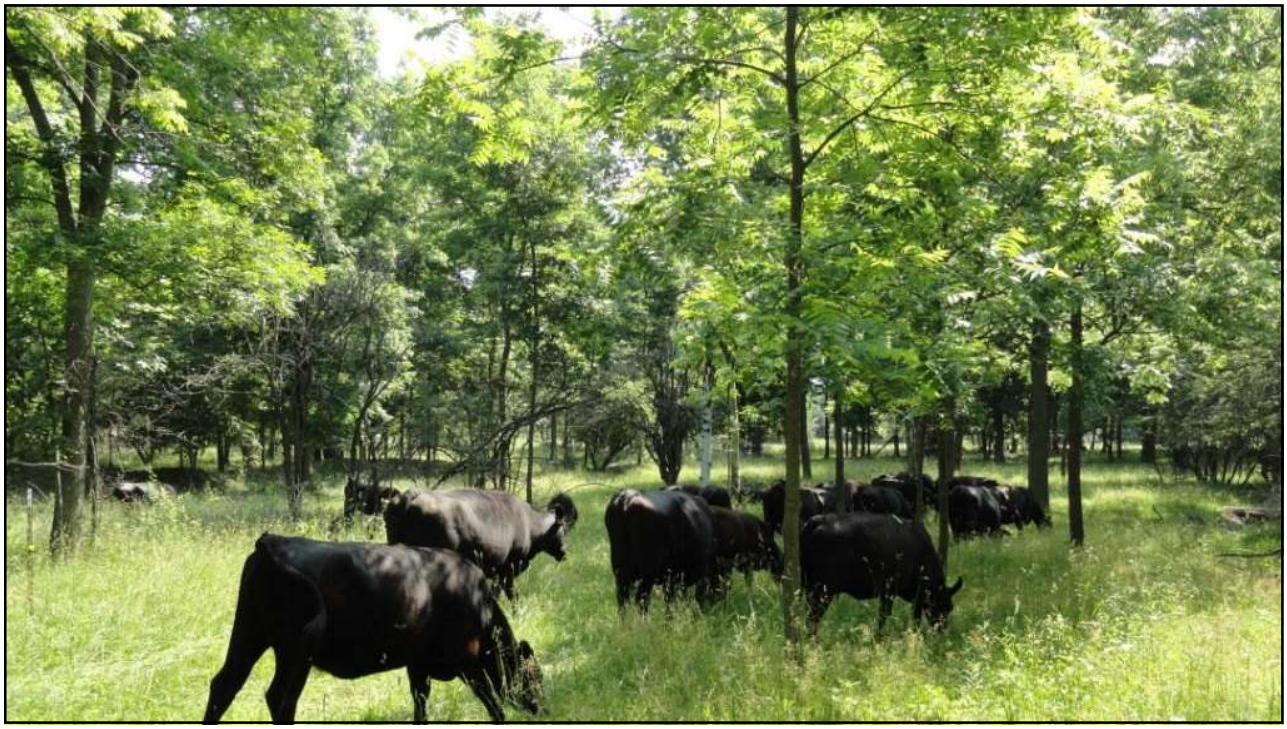

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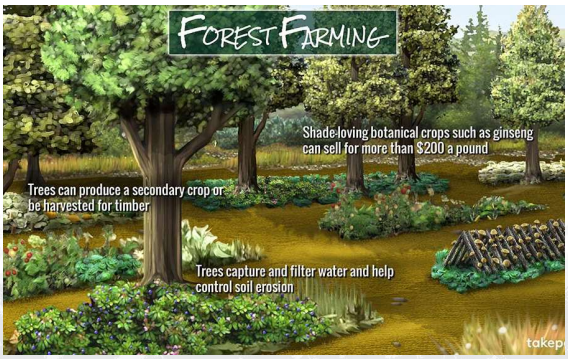
Forest Farming

The intentional manipulation, integration, and intensive management of woodlands that capitalize on specific plant interactions to produce non-timber products. Common crops include: ginseng, maple syrup, shitake mushrooms, decorative ferns.



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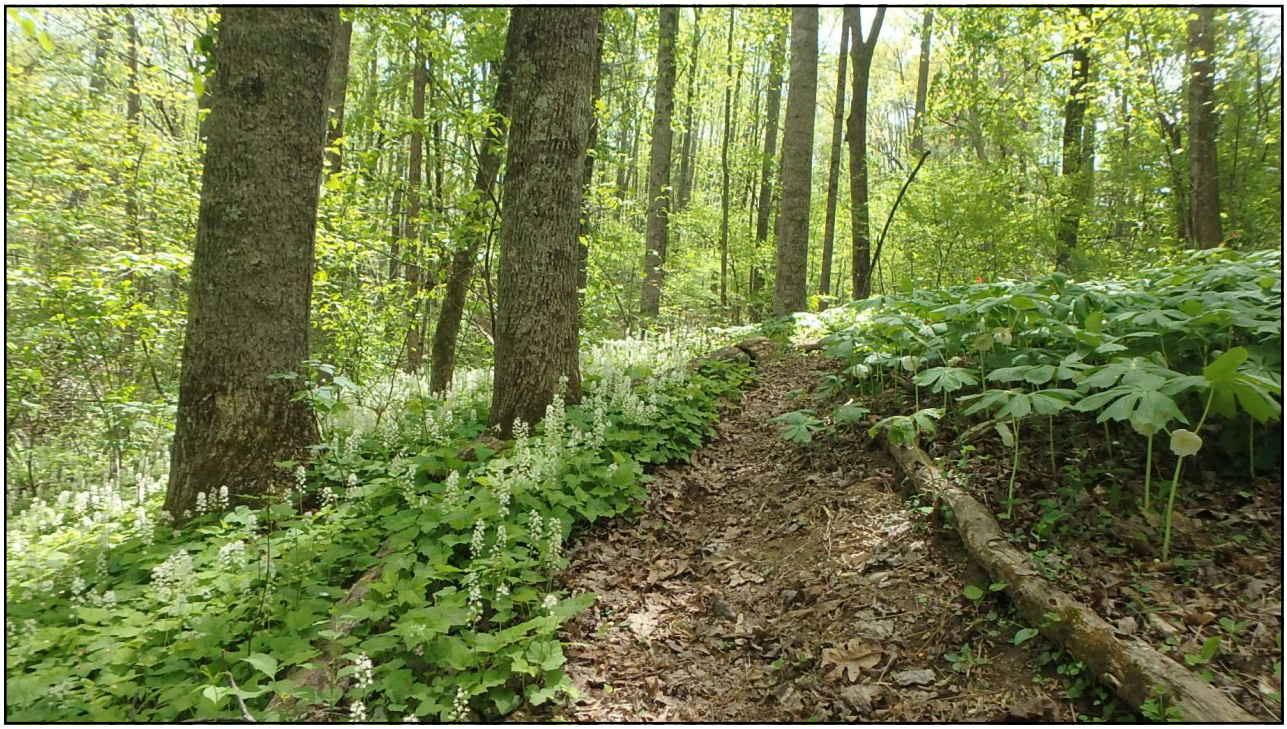

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Why?

- Supplemental cash or . . . major business?
- Most small forest owners do not own enough acreage to subsist on timber sales
- SFP's and agroforestry practices can be an important source of supplemental income
- Diversified operations provide greater income and are resilient to economic and environmental challenges
- Making it easier to keep SFL's and farms on the landscape

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Okay, but I'm not in it for the money . . .

- Most aren't, and that's okay!
- NTFP's and agroforestry practices can be a lot of fun without the financial incentive
- They are often mutually beneficial between your interests and good forest management
  - Ex: thinning alder for shiitake substrate
- They present opportunities to spend more time in the woods, learn something new, and get your family or community involved
- Landowners/families that are excited and engaged with their forests are less likely to sell or convert them

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Selling and Marketing

- Creativity is key, find your niche
- Value-added products are much more valuable and can help you corner a market
  - But require licensing!
- People want fewer degrees of separation between themselves and where their food, fiber, etc. come from (and are willing to pay a premium for it)
- Terms like “natural”, “forest grown”, and “sustainable” draw a lot of attention

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Some Successful Examples

Oak Basin Farm
Brownsville, OR

Products:

Timber, beef, essential oil products, specialty wood products, brooms

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Some Successful Examples

Wild Thyme Farm
Oakville, WA

Products:

Timber, ecotourism, fruits, nuts, herbs, custom wood products, forage

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Some Successful Examples

Pomeroy Farm
Yacolt, WA

Products:

Timber, ecotourism, pumpkins, teas, wine

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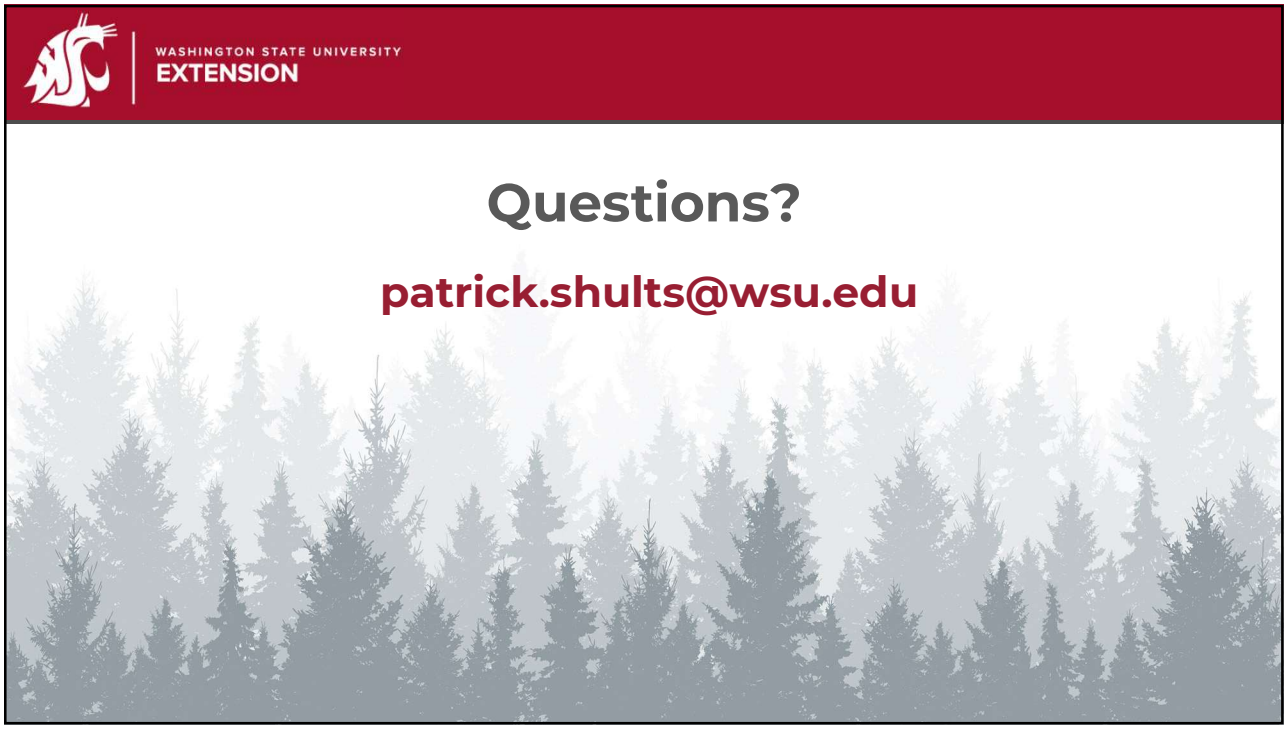
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