Getting the best bang for your buck—Managing for wildlife in mixed use forests

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What is wildlife?

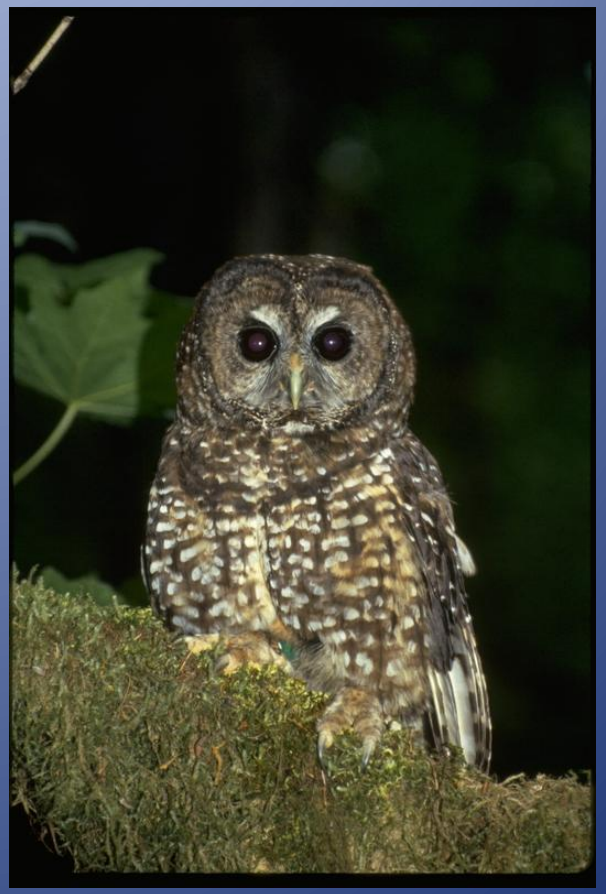
Animals we hunt

What is wildlife?

Animals that cause damage to trees

What is wildlife?

Charismatic or High-Profile Species



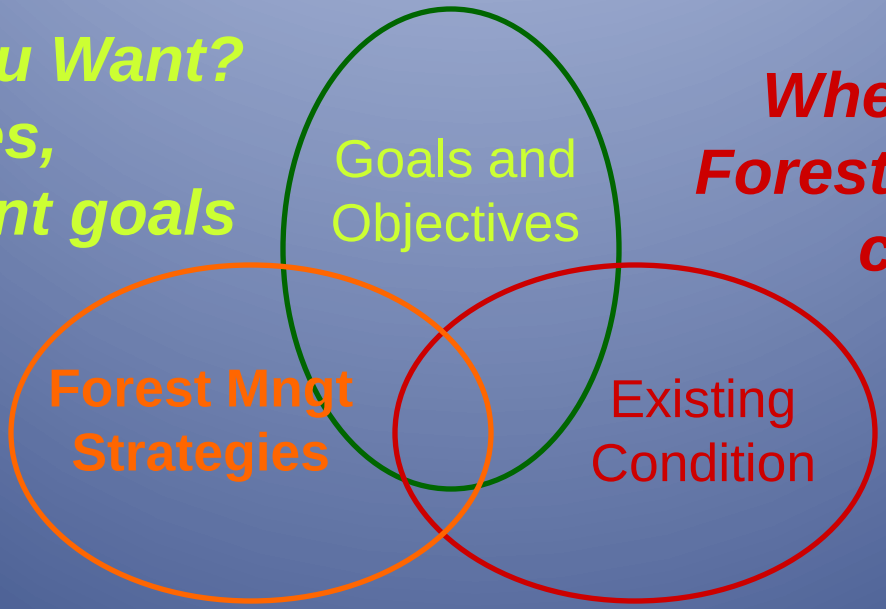
What is wildlife?

90% of wildlife

Managing for Wildlife: Factors that Determine Management Options

What do you Want? Values, management goals

Where are you? Forest type, starting condition



Preferred Management Strategies?

No one-size-fits-all answer for “managing for wildlife”

How to get the best bang for the buck?

Habitat, Habitat, Habitat

- Focus on concepts that can apply across a variety of forest management situations
- Focus on concepts that maximize effects to the large group of wildlife

How to get the best bang for the buck?

- Dead Wood
- Deciduous Trees & Shrubs
- Other special habitats

Dead Wood

- 25 – 70% of species
- Snags
  - 93 species (most are birds)
- Downed Log
  - 86 species (mammals and amphibians)
- Important across all regions
- Important in all seral stages

Keystone Relationships

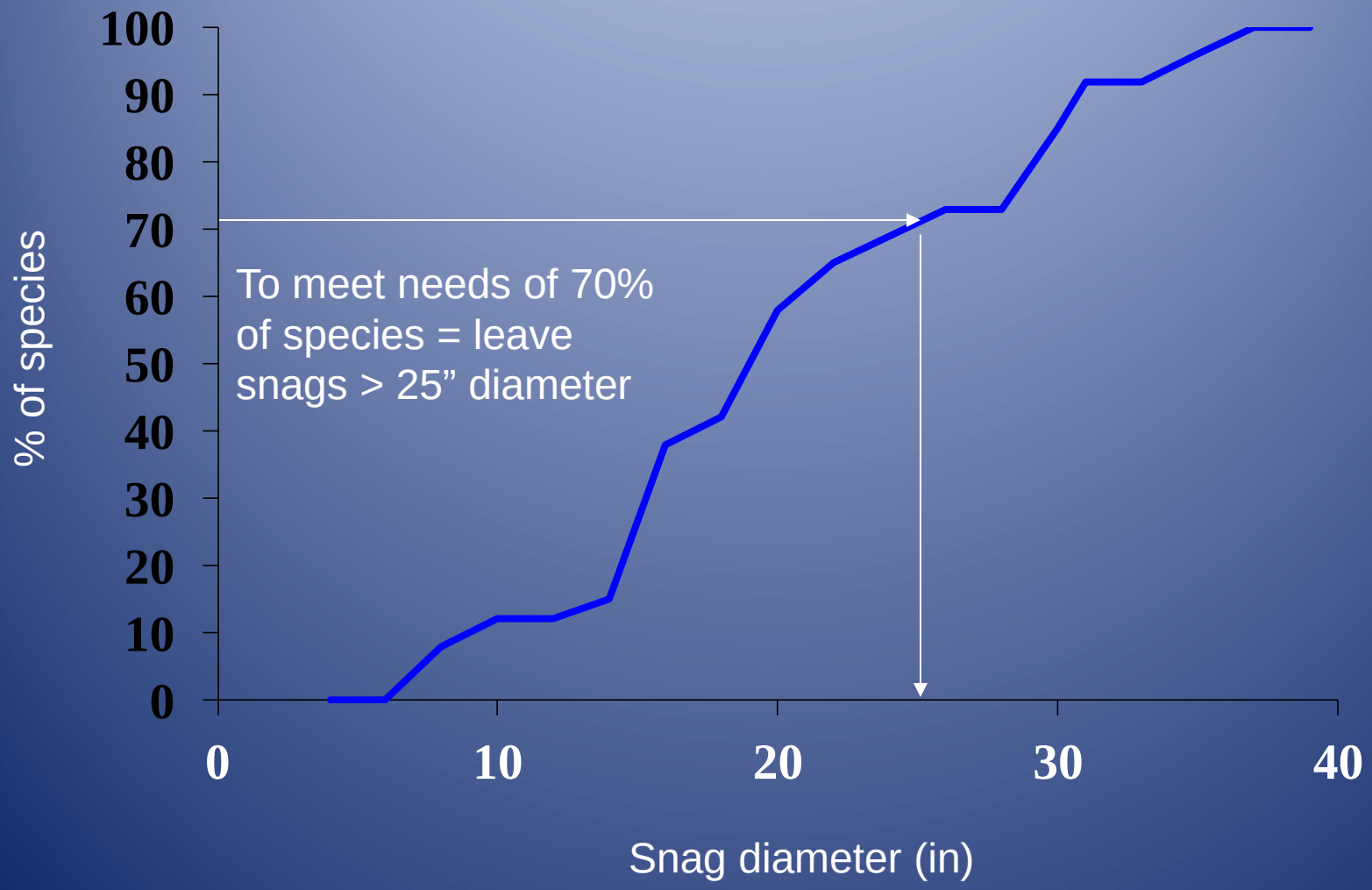
Secondary Cavity Nesting Birds (SCNB)

Primary Cavity Nesting Birds (PCNB)

Snag

Size Matters!
Small Snag = smaller PCNB = only small SCNB
Bigger Snag = Bigger CNB = More Secondary CNB

Sizes of snags used by wildlife--Coast Range



Results from USFS DECAID Model—based on research on 26 species

Size and decay of snags
35 to 45-year old forests in the Tillamook State Forest, Oregon

Snag Management Strategies

Keep em’

Grow em’

Make em’

Snag Creation Methods

Method	Relative Cost	Effectiveness
Girdling @ base	Low	Short-term
High girdle	Moderate	Good
Topping with harvester	Low	Good
Topping with climber	High	Good
Fungal Inoculation	High	Low? Possibly long-term
Herbicide Injection	Low-Mod	Short-term?
Beetle Pheromone Attraction	Low—Mod	Good—only viable tool for certain tree species

Snag Creation Works!

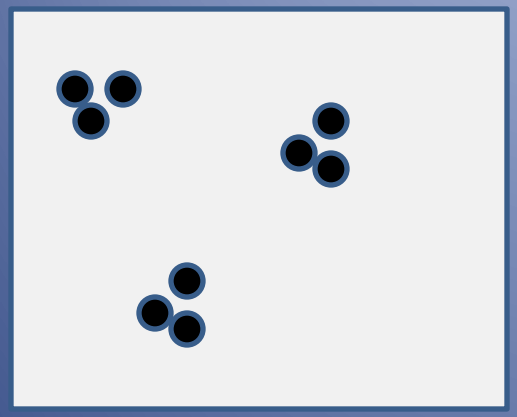
Results from Weyerhaeuser Study

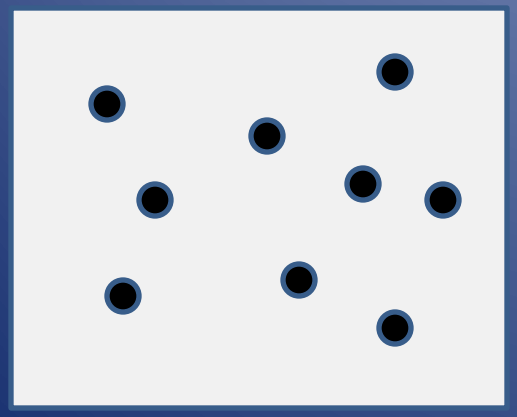
- Snags created with harvester

- By yr 5: 70% of snags used for foraging
- By yr 10: snags used for nesting
  - 13-17 % of snags had active nests, annually
- Nesting success in created snags similar to levels observed in natural snags

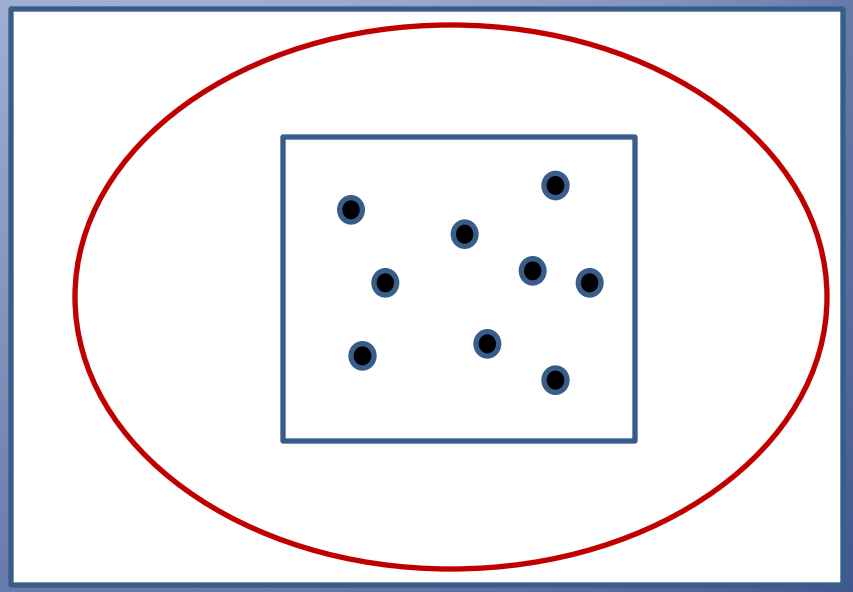
Snag Creation

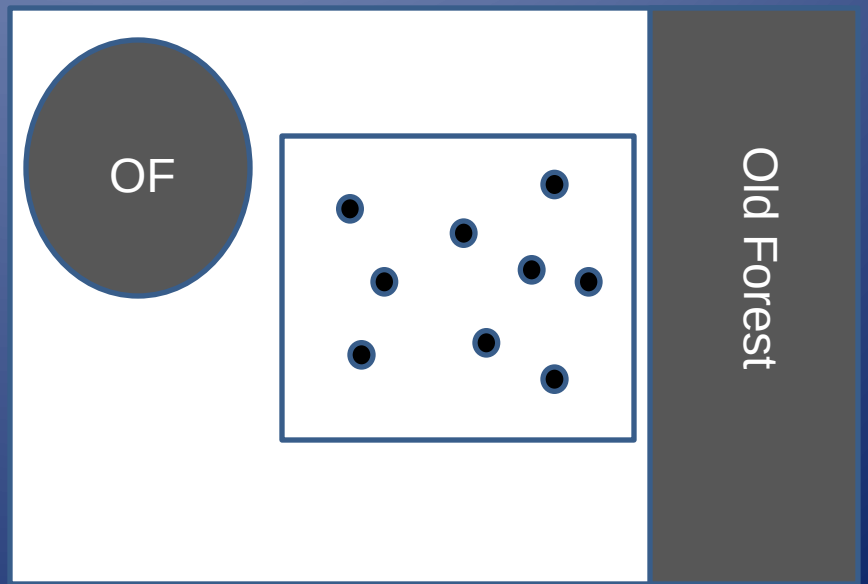
Pattern





Landscape





Downed Wood Strategies

- Retain what you have--avoid mechanical damage
- Leave low-value logs in the unit
- Create new logs
  - Felling entire trees
  - Leaving defective butt-logs in the woods

Hardwoods

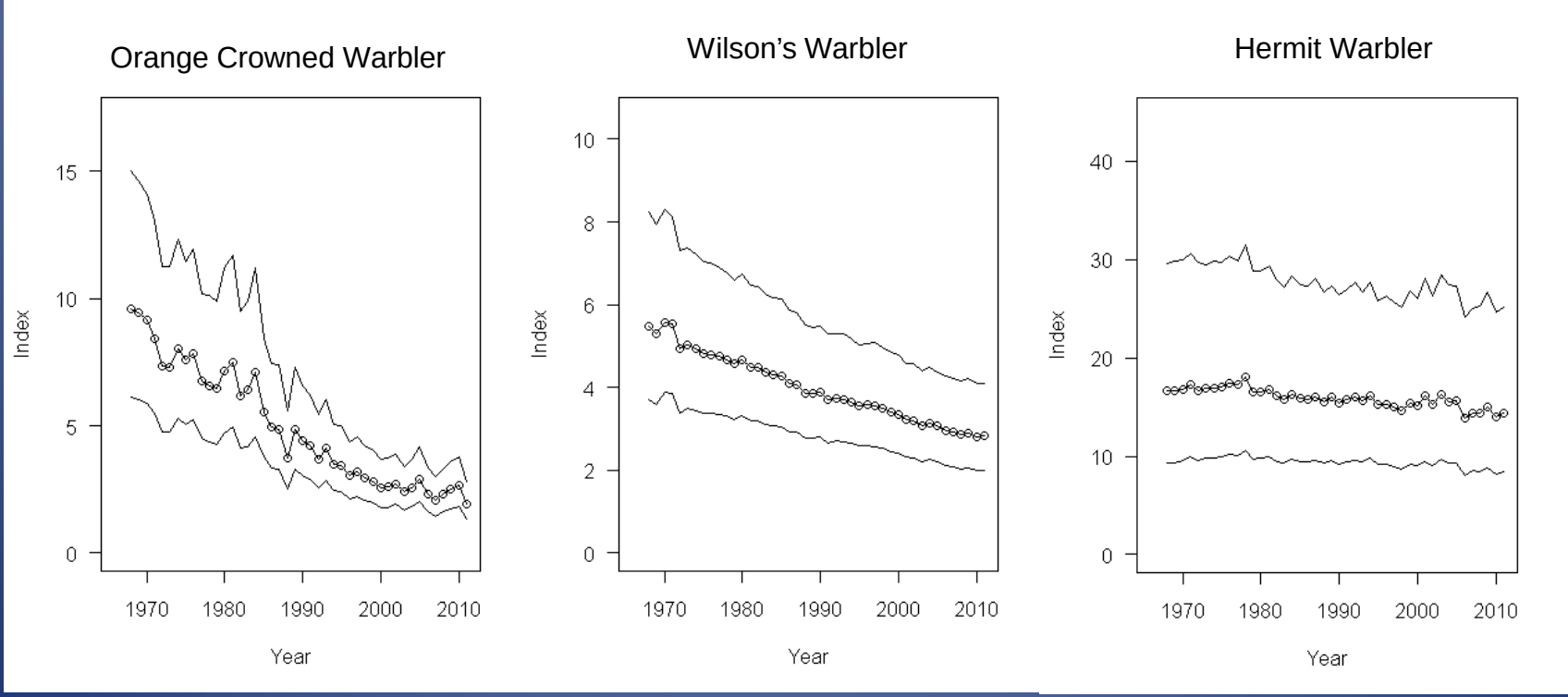
- Similar importance to snags

- 70+ species associated with hardwood trees or shrubs
- Hardwood component important across
  - Forest types (westside, SW, eastside)
  - Seral stages (early seral, mature, older forests)

Hardwoods

- Hardwoods as habitat:
  - Cover
  - Food
    - Direct (e.g., forage for ungulates)
    - Indirect (e.g., support insect prey for songbirds)

Songbird Decline--Oregon

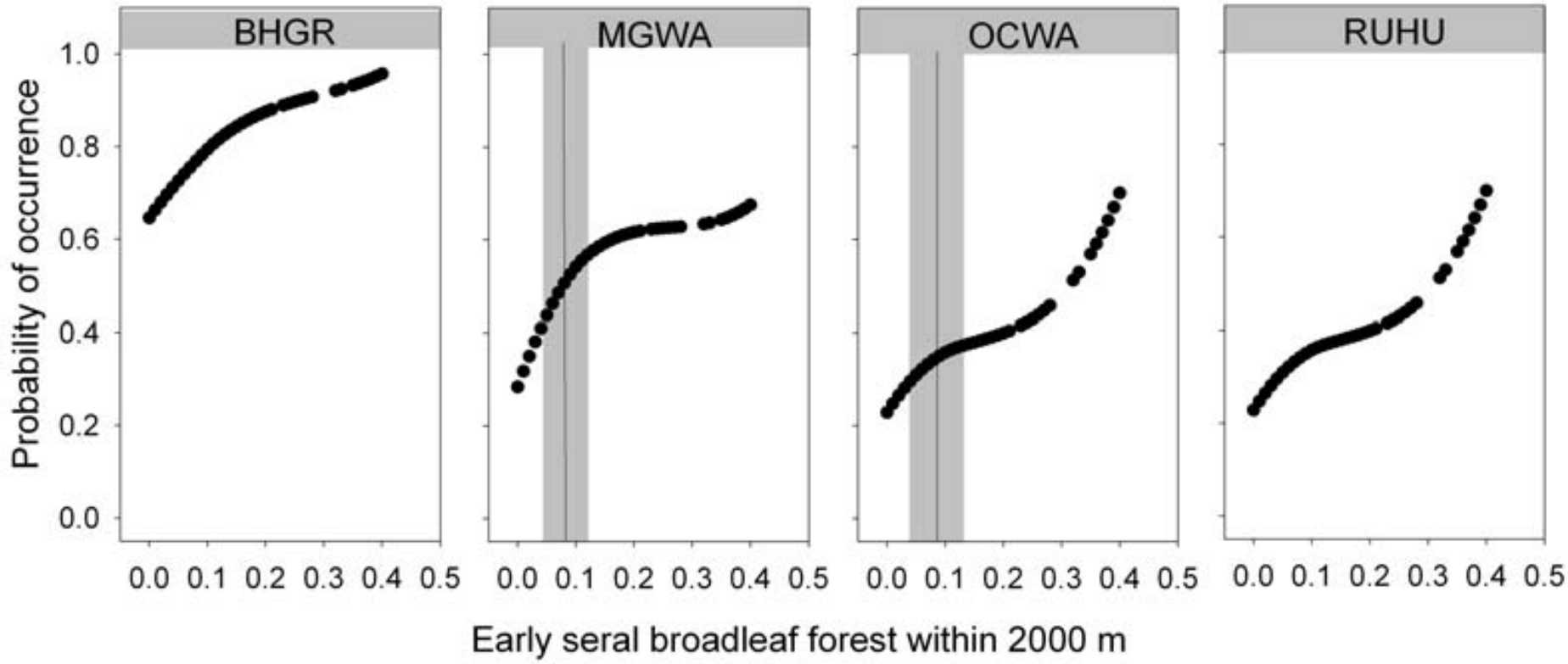


early seral shrubs

shrubs + forest canopy

conifer forest canopies

Thresholds—hardwoods & songbirds



From Betts et al. 2010. Thresholds in forest bird occurrence as a function of the amount of early seral broadleaf forest at a landscape scale. Forest Ecology and Management.

Hardwoods

- Not all hardwoods the same:
  - Evergreen versus deciduous
  - Mast (fruit and nut) producing or not
  - Palatable or not

All Hardwoods are not the same

A few examples from existing research

Heavily Used or Selected
Oceanspray
Oregon Hazel
Elderberry
Cascara

Neutral
Oregon Grape
Salal

- **Deciduous shrubs** have disproportionate use over evergreen shrubs
- Shrub species of high importance not ubiquitous—locally common

Deciduous Shrubs—Key Points!

- Deciduous shrubs have a high value to wildlife
- Does not take a large amount of hardwood to increase wildlife habitat (esp for birds)
- A little attention to deciduous trees/shrubs when harvesting can go a long way

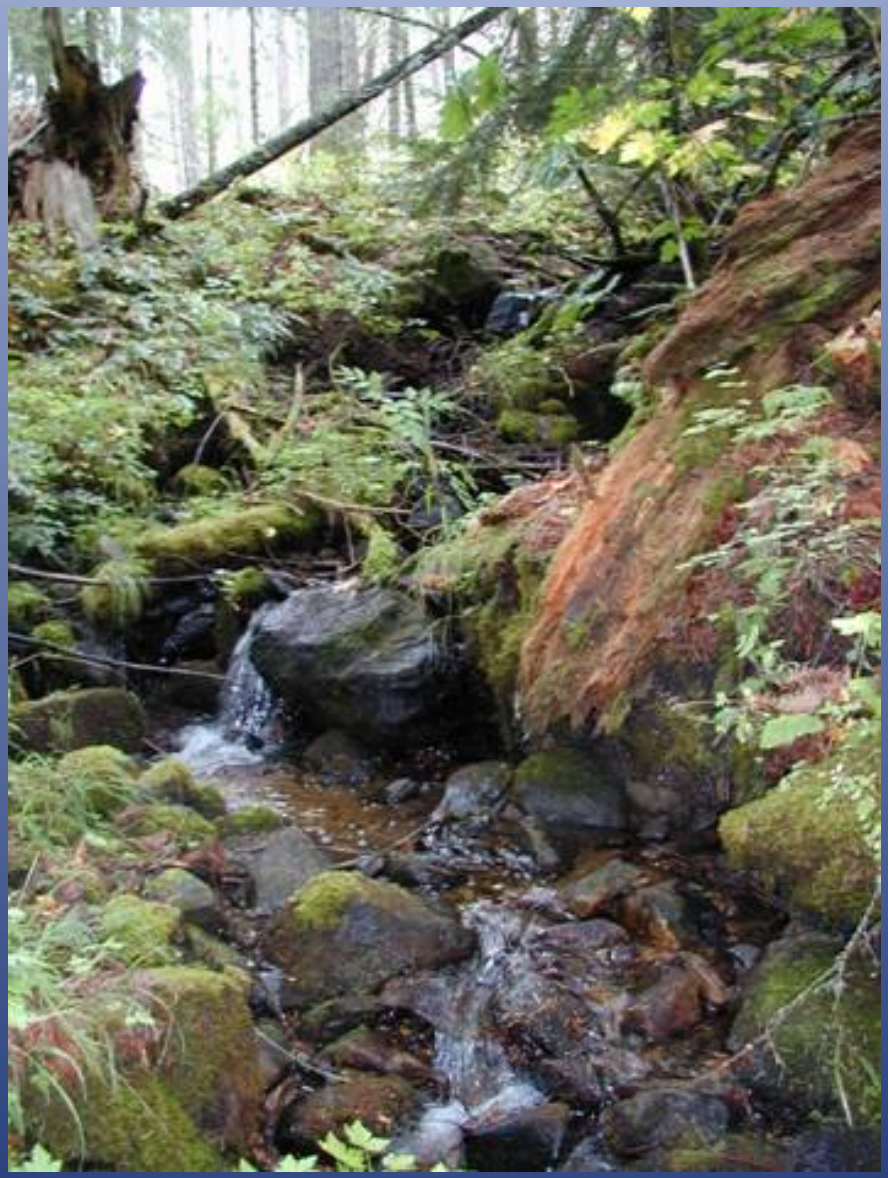
Deciduous Shrub Management Ideas

- Easier to maintain than regenerate shrubs
- Treat as you would other high-value resources
  - Avoid mechanical damage to patches of high-value shrubs when harvesting
  - Flag/map as no spray zones????
- Thinning & gap creation to release key species of trees/shrubs?

Special Habitats

- Headwater Streams, Seeps & Springs
- Meadows

Headwater Streams/Seeps/Springs



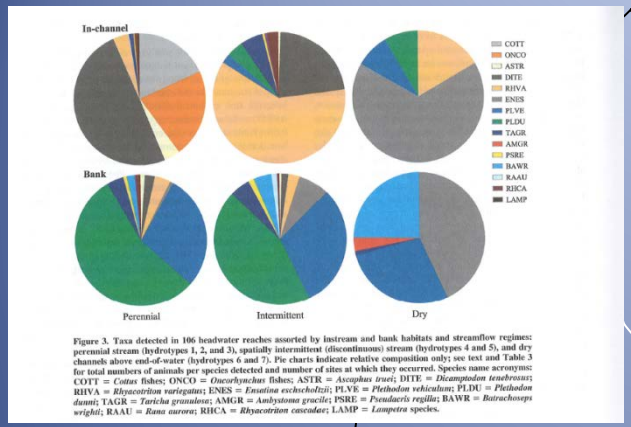


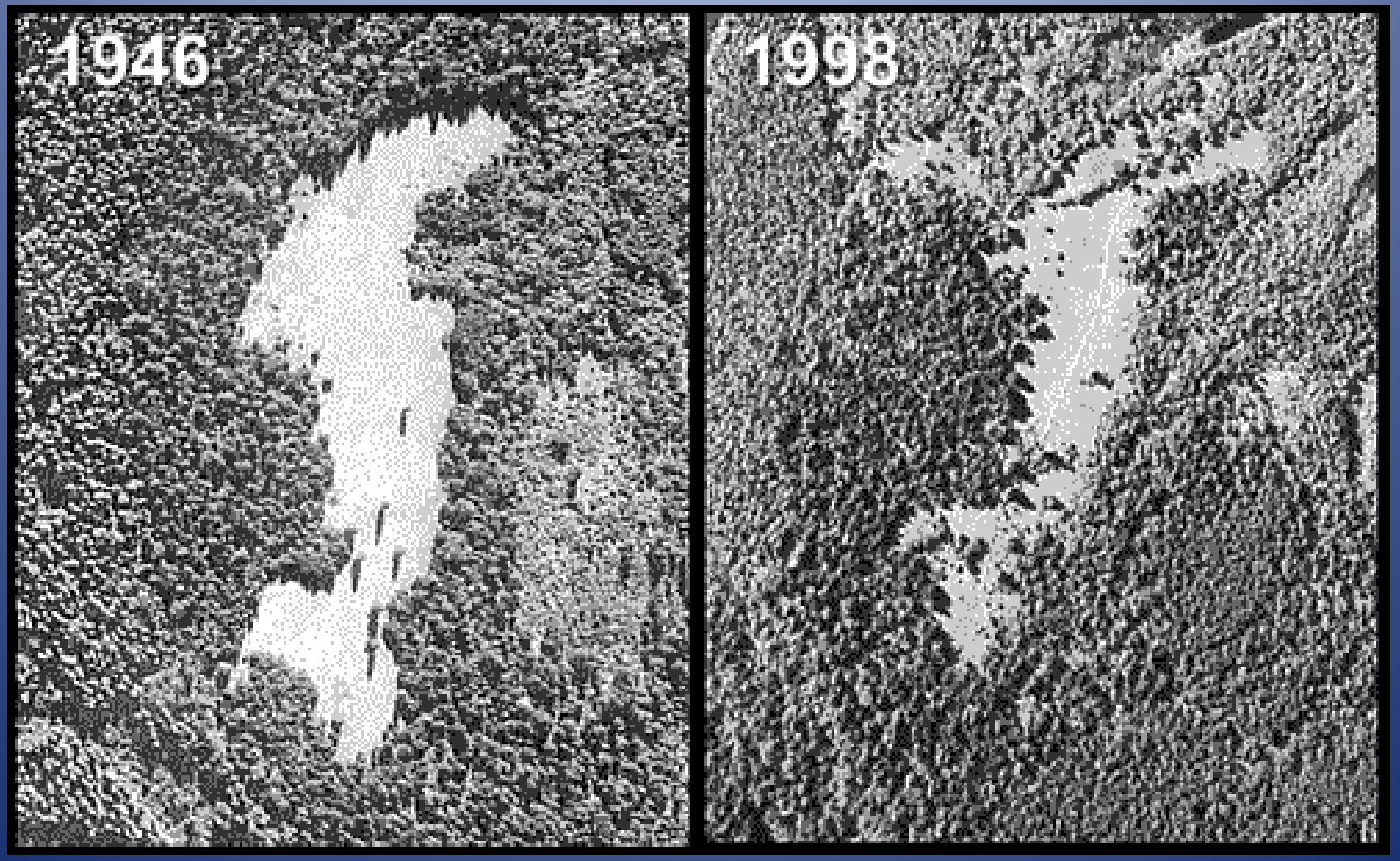
Figure 3. Taxa detected in 106 headwater reaches assorted by instream and bank habitats and streamflow regimes: perennial stream (hydrotypes 1, 2, and 3), spatially intermittent (discontinuous) stream (hydrotypes 4 and 5), and dry channels above end-of-water (hydrotypes 6 and 7). Pie charts indicate relative composition only; see text and Table 3 for total numbers of animals per species detected and number of sites at which they occurred. Species name acronyms: COTT = *Cottus* fishes; ONCO = *Oncorhynchus* fishes; ASTR = *Ascaphus truei*; DITE = *Dicamptodon tenebrosus*; RHVA = *Rhyacotriton variegatus*; ENES = *Ensatina eschscholtzii*; PLVE = *Plethodon vehiculum*; PLDU = *Plethodon dunni*; TAGR = *Taricha granulosa*; AMGR = *Ambystoma gracile*; PSRE = *Pseudacris regilla*; BAWR = *Batrachoseps wrighti*; RAAU = *Rana aurora*; RHCA = *Rhyacotriton cascadae*; LAMP = *Lampetra* species.

From Olson and Weaver 2007. Vertebrate assemblages associated with headwater hydrology in western Oregon managed forests. Forest Science 53: 343-355.

Management—leave trees in SN, intermittent, & seeps

Meadows

Meadows—in need treatment to remove encroaching conifers



Conclusions

- “Wildlife” is a broad topic
- All management will impact wildlife
  - Species
  - Direction of impact
  - Scope/scale of impact
- There is room for consideration of wildlife in all types of forest management

Conclusions

- Dead Wood and Deciduous Shrubs are two wildlife habitat components that
  - Have a disproportionately high value to wildlife
  - Are important in multiple contexts
    - Forest Type
    - Management Regime
  - A little extra attention can go a long way to increase wildlife value!

Conclusions

- There are many other habitat types that are important—only touched on a couple
  - Headwater Streams, Seeps, Springs
  - Meadows

  - Many other unique habitat types!

Thanks

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