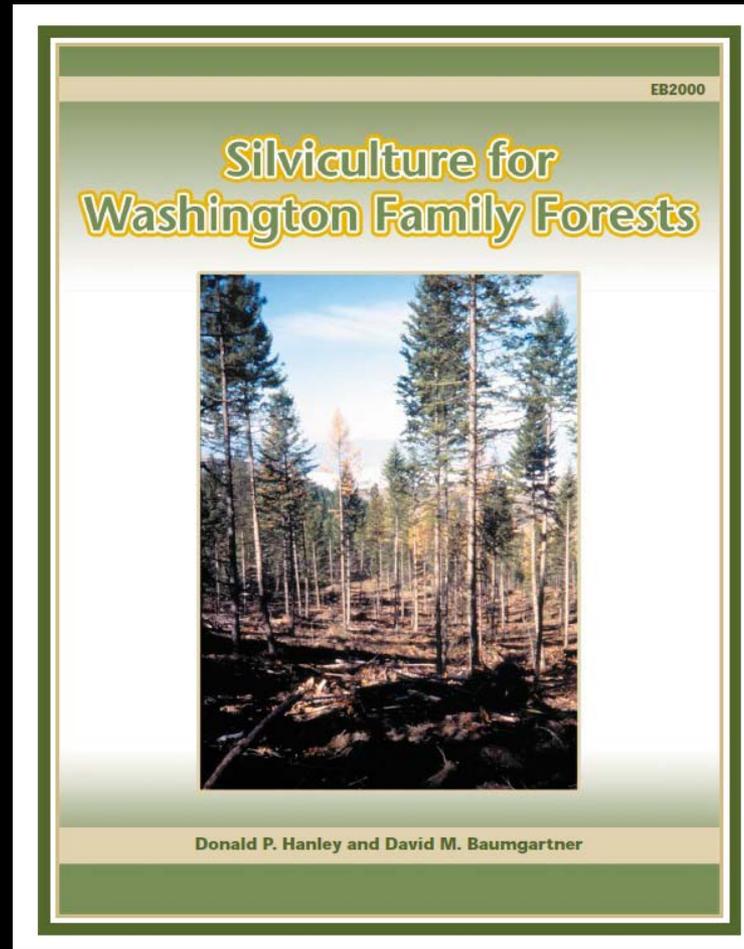




Kirk Hanson
kirk@nnrg.org
(360) 316-9317



Forest Management Options



PNW Westside Forests

- Very Young (~0-30 yrs)
- Young (~30-60 yrs)
- Maturing (~60+ yrs)





Management Objectives

- A healthy forest
- Periodic income
- Wildlife
- Privacy
- Aesthetics
- Recreation
- Stewardship
- Long-term investment

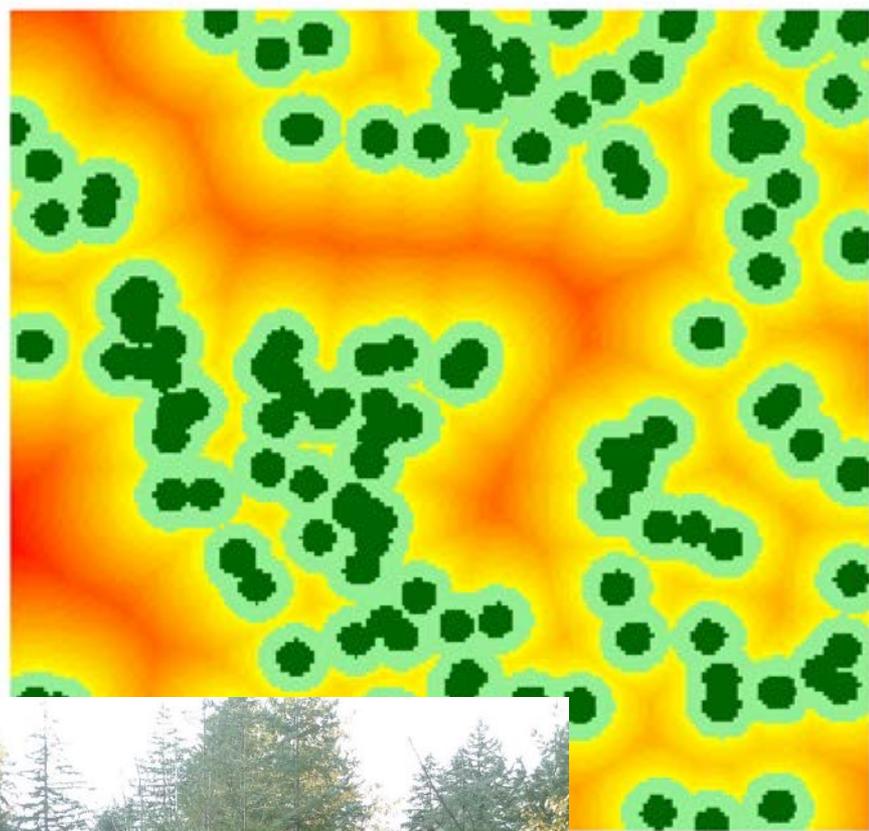
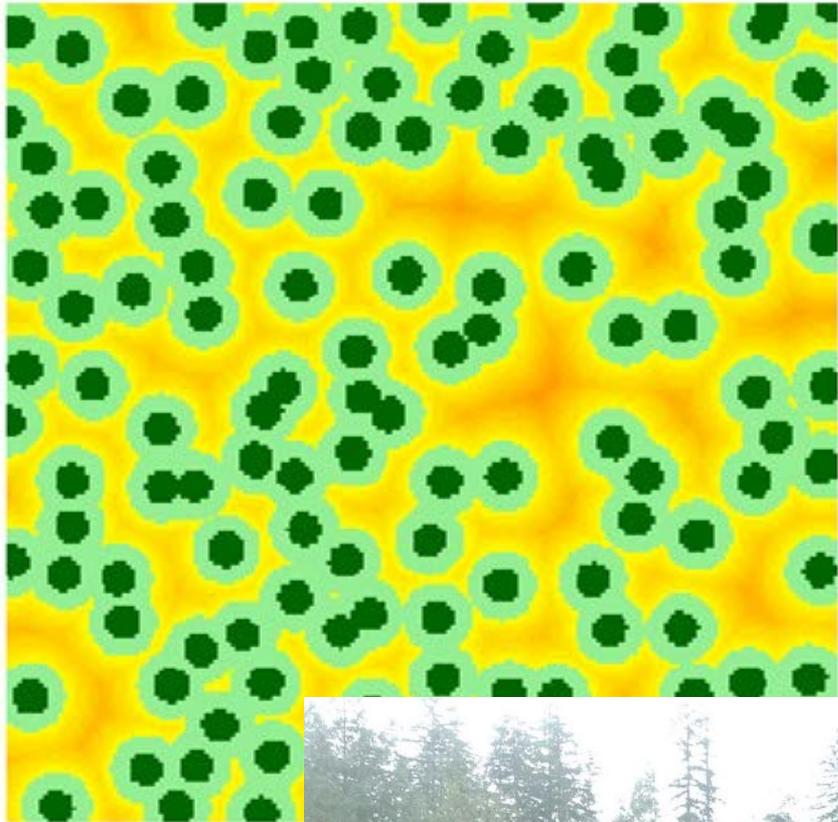


FOREST ASSESSMENT

0-30 YEARS



Access
Habitat
Wildlife use
Stocking
Brush comp.
Browse
Invasive spp.



















Management Actions

0-30 years

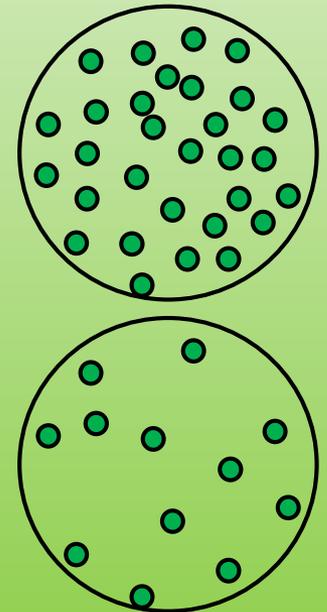
1. Replant large gaps
2. Cut back competing vegetation
3. Cage seedlings
4. Remove invasive species
5. Install bird nesting boxes
6. Inspect and repair forest access roads
7. Pre-commercially thin alder thickets
8. Pre-commercially thin to favor crop trees
9. Monitor!

Pre-Commercial Thinning Strategies

Thinning “from below”

Remove:

1. Smallest diameter
2. Most suppressed
3. Trees with least live crown (<30%)
4. Defective trees (broken tops, wane, forked, etc.)
5. Non-preferred species
6. Spacing
7. “Release” understory trees









FOREST ASSESSMENT

30 - 60 YEARS



Stocking
Crown ratio
Health
Habitat
Merchantability?

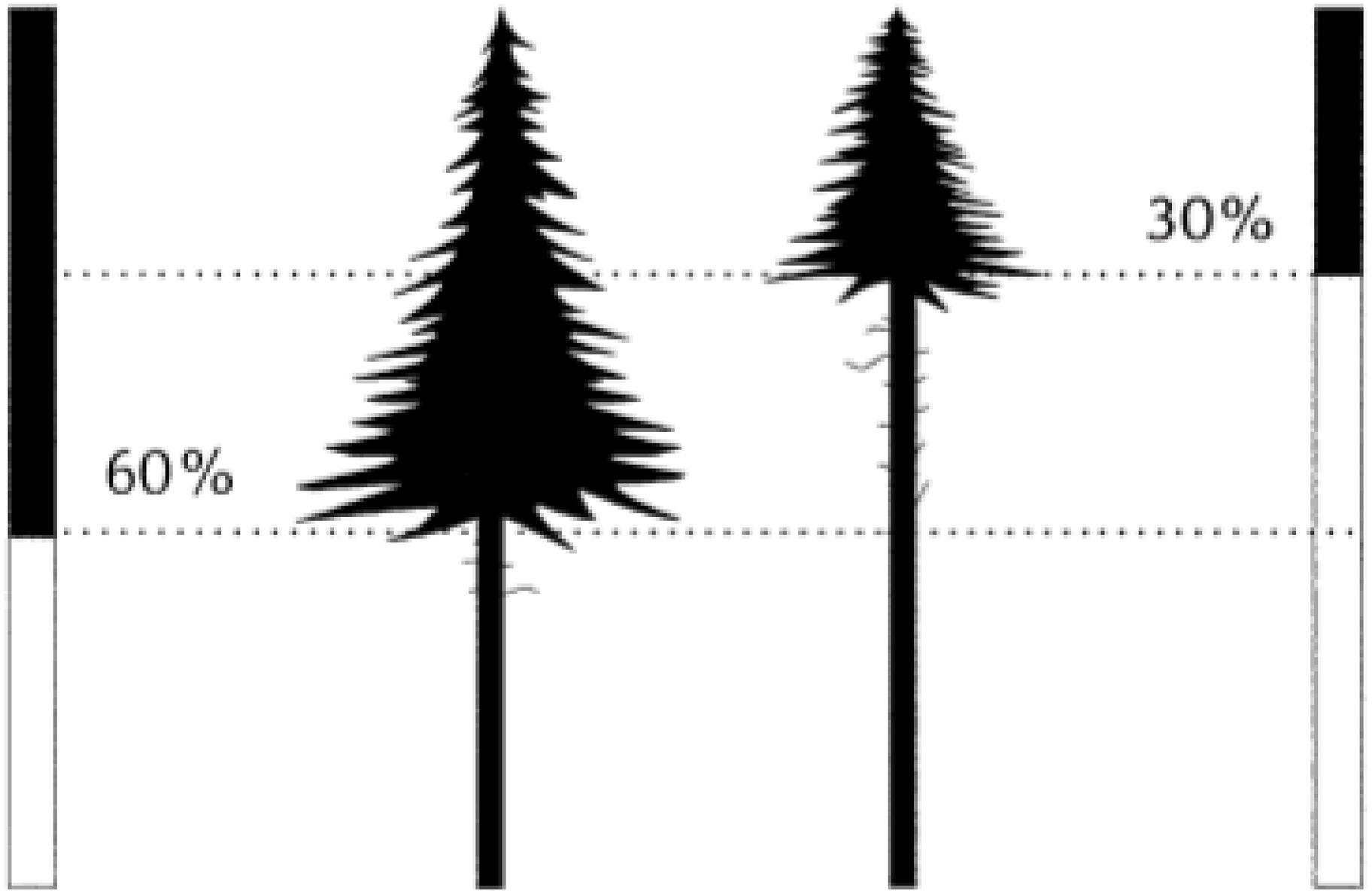


Figure 3-2. Live-crown ratio of a tree.













Continuous Cover Forestry

Managing Multi-Cohort Stands

Thinning

Reduce density of a cohort to maintain or improve growth and crown development

Remove Overstory

Harvest trees for wood & revenue; and open growing space space for lower cohorts

Regeneration

Establish a new cohort

Approaches

- Individual Tree Selection
- Group Selection
- Thin from below
- Free thinning
- Variable density thinning
- Variable retention

Cutting Cycle

Stand Volume

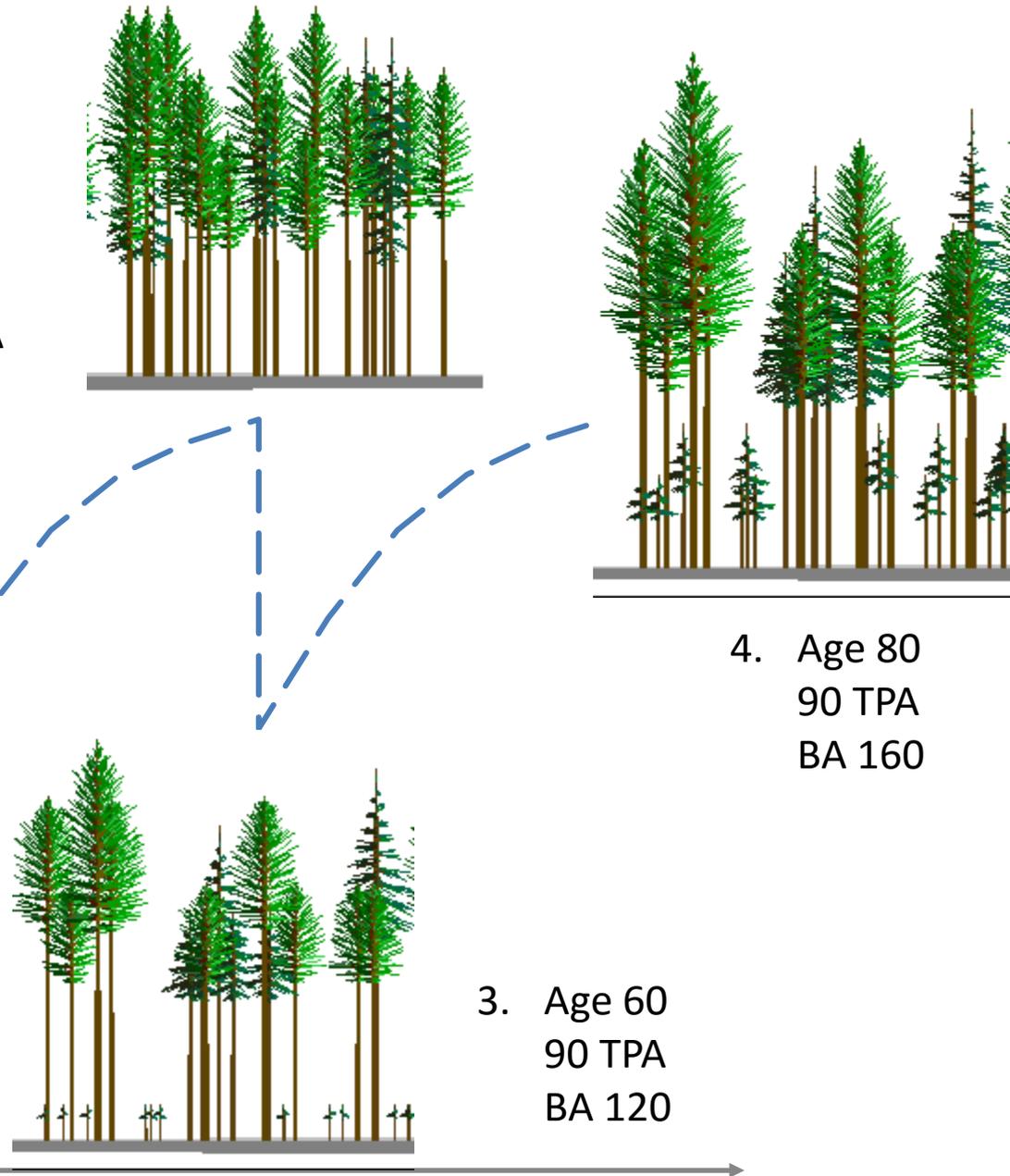
1. Age 40
180 TPA
BA 120

2. Age 60
180 TPA
BA 180

3. Age 60
90 TPA
BA 120

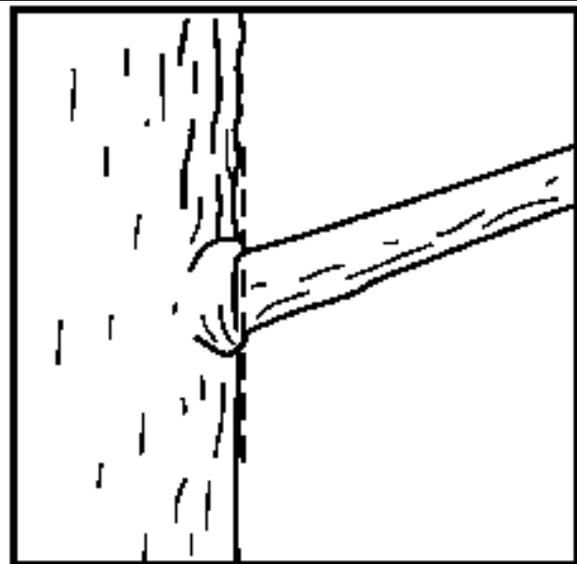
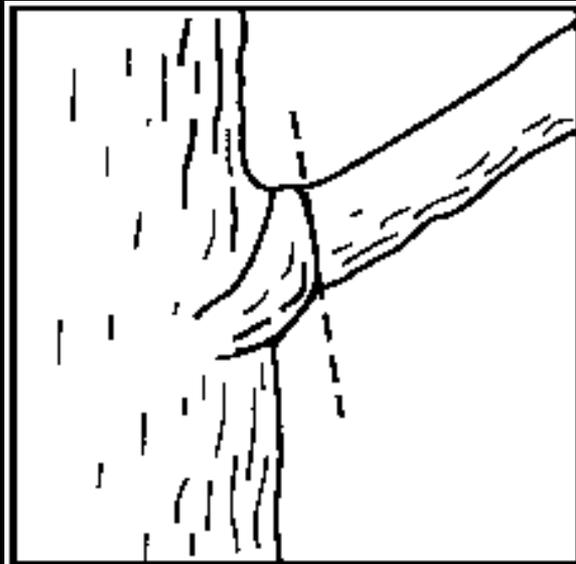
4. Age 80
90 TPA
BA 160

Stand Age









Management Actions

30-60 years

1. 1st & 2nd commercial thinning
2. Replant understocked areas, disease gaps, hardwood patches
3. Underplant following commercial thinning
4. Create habitat structures
 - a. Downed logs
 - b. Habitat piles
5. Remove invasive species
6. Pruning
7. Monitor!

FOREST ASSESSMENT

60+ YEARS



Stocking
Crown ratio
Height-to-diameter
Spp. composition
Understory
Habitat
Merchantability
Disease

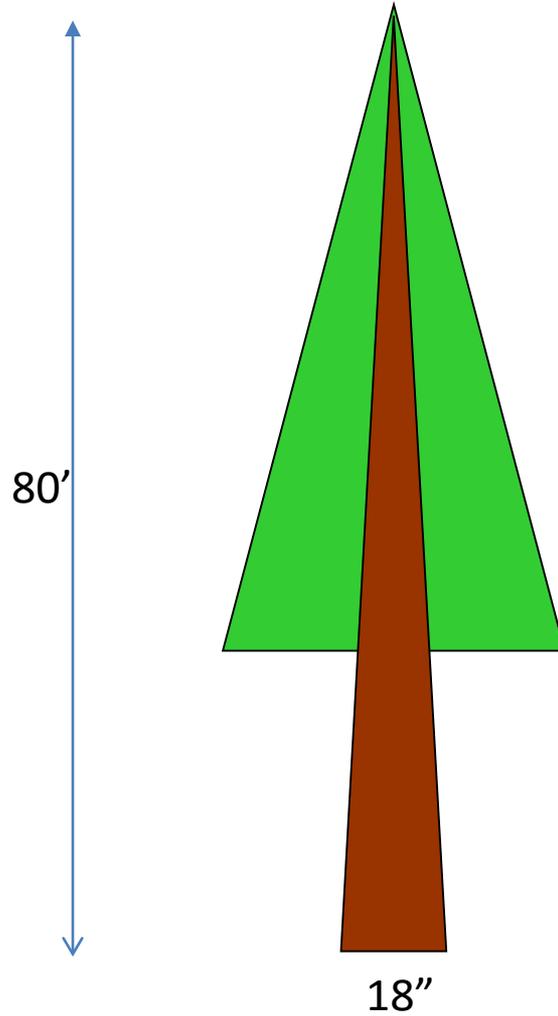




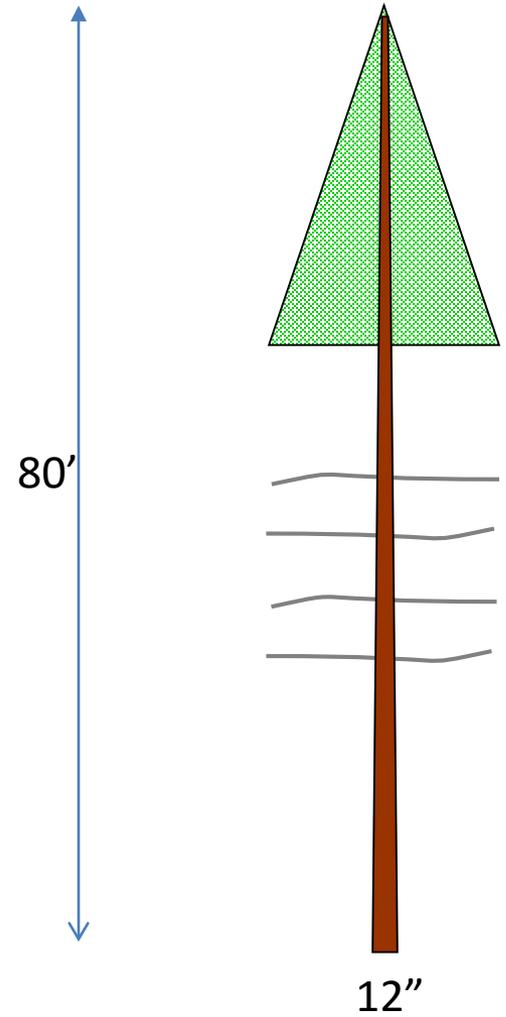


Measuring Height to Diameter Ratio

Height (Feet)
Diameter: DBH (Feet)



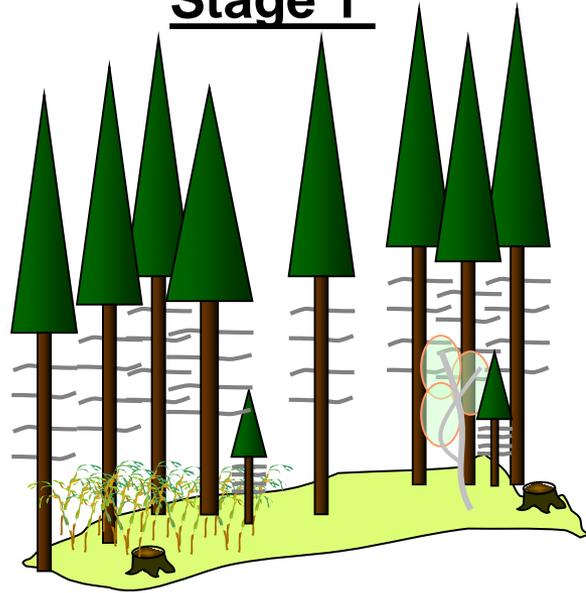
$$\frac{80 \text{ (feet)}}{18'' \text{ dbh}} = \frac{80'}{1.5'} = 53$$



$$\frac{80'}{12''} = \frac{80'}{1'} = 80$$

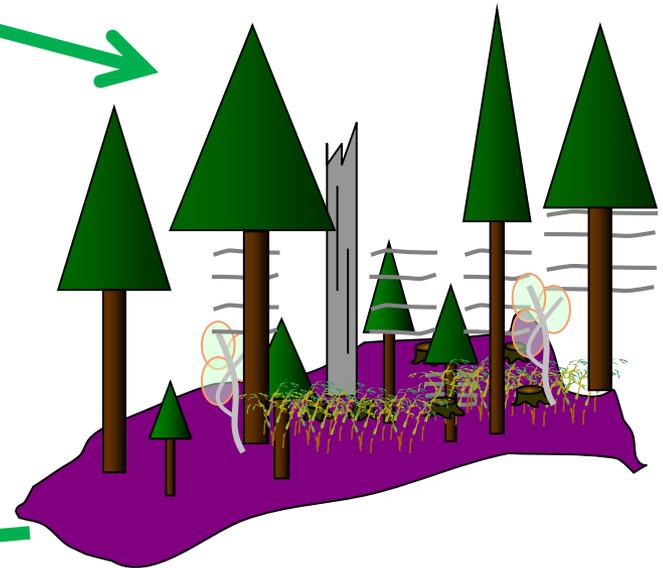
Stage 1

- No Mngt or past
Commercial Thin
1. Thin Overstory
 2. Establish understory

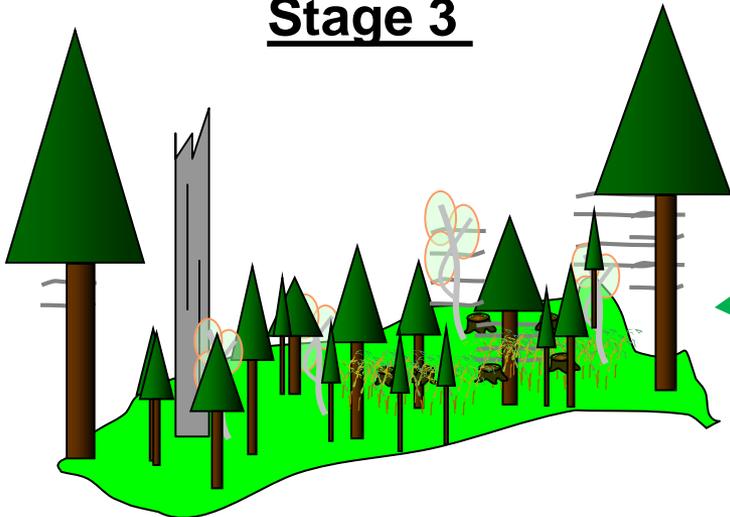


- ITS w small gaps or VDT
1. Maintain release potential of understory
 2. Harvest portion of overstory

Stage 2



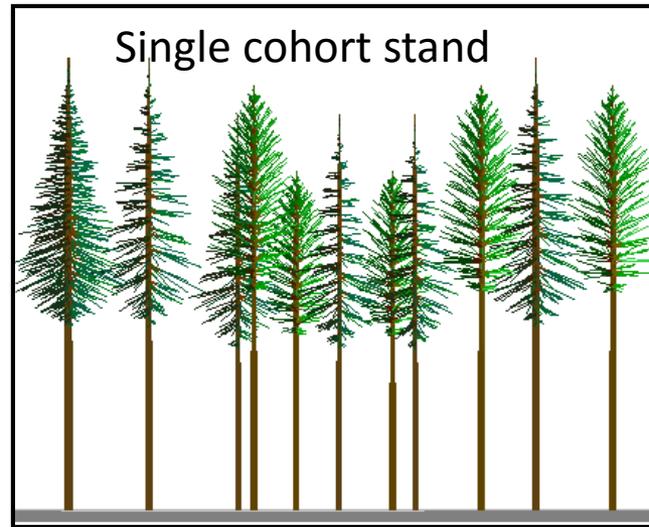
Stage 3



Group Selection

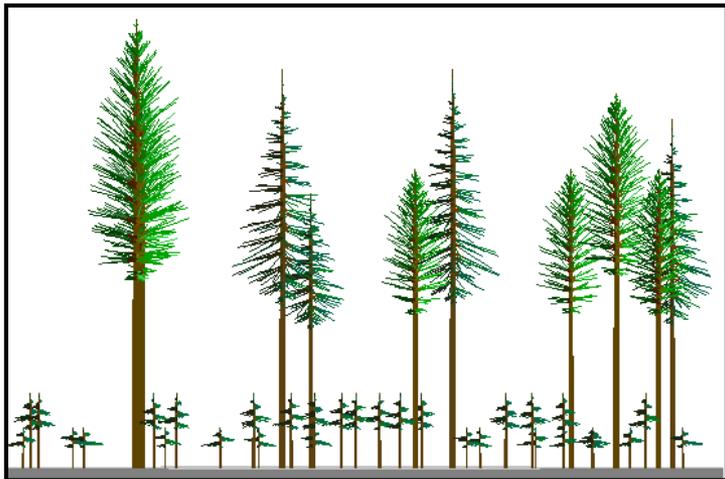
1. Harvest most of overstory
2. Release understory

Understory Establishment – Initiation of Two-cohort Stand



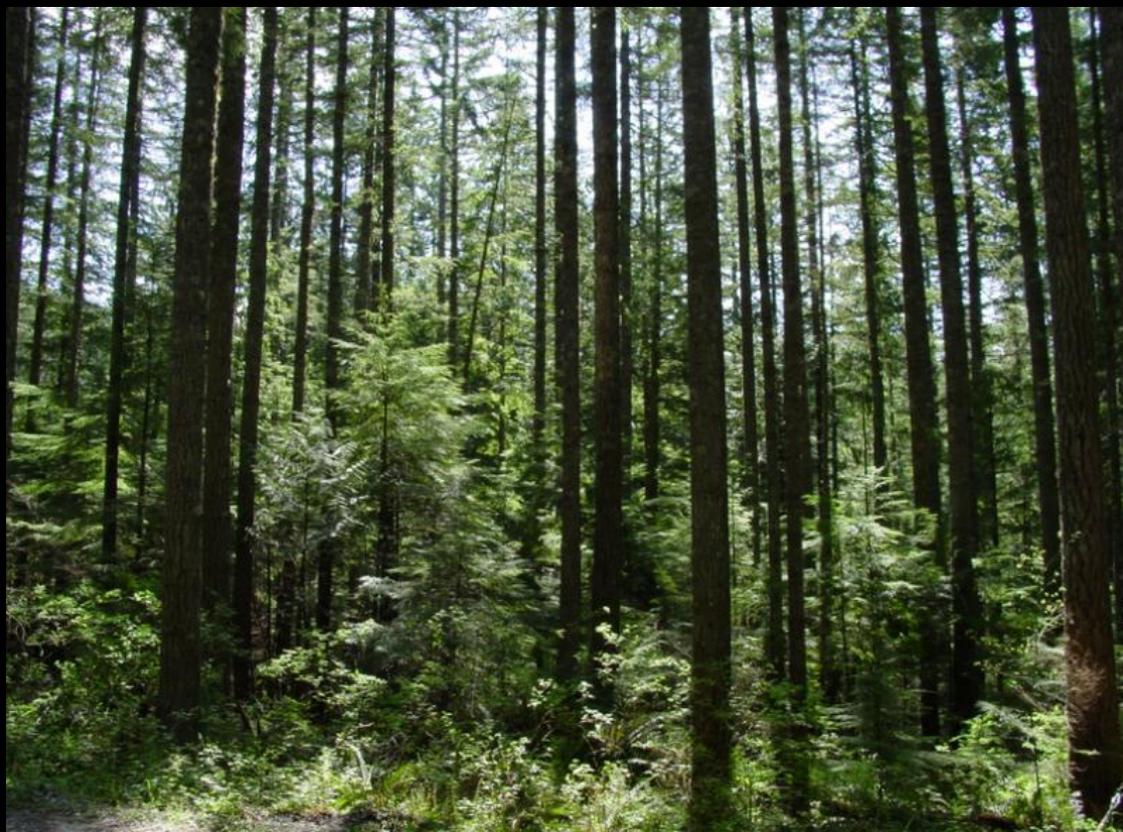
dispersed

grouped

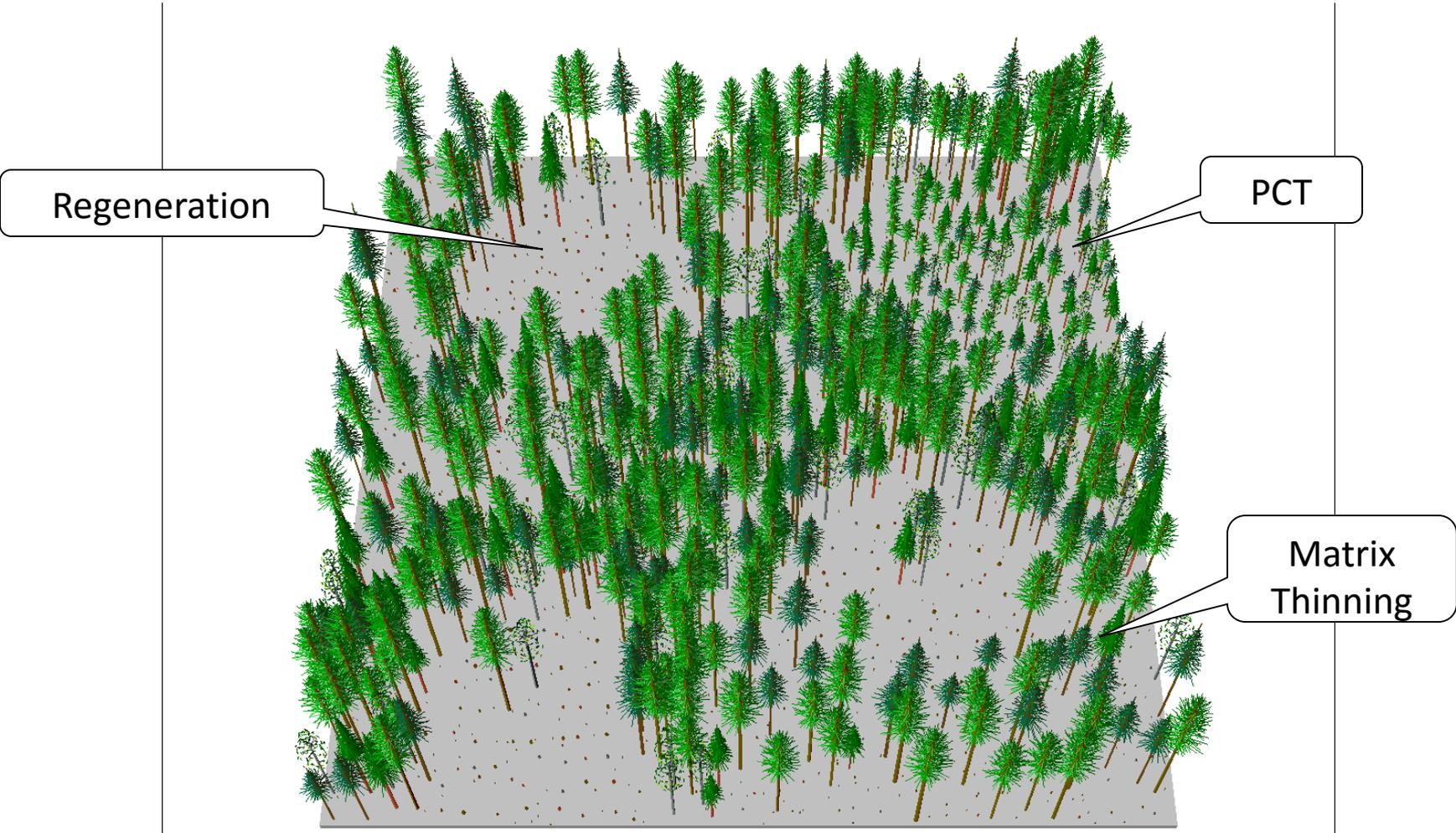


Transformation
to two-cohort
stand





Group Selection Structure Types







Environmental Quality Incentives Program (EQIP)

Timber Stand Improvement

- Pre-commercial thinning
- Inter/Under-planting
- Pruning
- Increasing species diversity
- Root rot mitigation
- Remove invasives
- Stand release
- Forest slash treatment
- Reforestation



Environmental Quality Incentives Program (EQIP)

Wildlife Habitat Enhancement

- Planting fruit & nut trees/shrubs
- Bird boxes
- Snags and downed logs
- Habitat piles
- Increasing tree/shrub diversity
- Elk forage
- Streamside planting



EQIP Scenario #1

0-15 years

1. Forest management plan: \$1,300
2. Pre-commercial thinning: \$180/acre
3. Replant gaps
 1. Site prep: \$225/acre
 2. Planting conifers: \$0.90
 3. Tree cages: \$1.48
 4. Post-plant weed control: \$0.45
4. Seedling release: \$135.50/acre
5. Replant margins with wildlife trees/shrubs
 1. Site prep: \$225/acre
 2. Planting bareroot trees/shrubs: \$2.07
6. Invasive species control & replant
 1. Hand slash invasives: \$225/acre
 2. Site prep for planting: \$135/acre



EQIP Scenario #2

15 – 30 years

1. Forest management plan: \$1,300
2. Habitat piles & downed logs: \$90
3. Snags: \$90
4. Bird boxes: \$45
5. Species diversification:
 1. Site prep: \$225/acre
 2. Planting conifers: \$0.90
 3. Planting hardwoods: \$2.07
 4. Tree cages: \$1.48
 5. Post-plant weed control: \$0.45
6. Pruning: \$112.50





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