Site impacts of fire hazard reduction treatments

Dennis Ferguson

and

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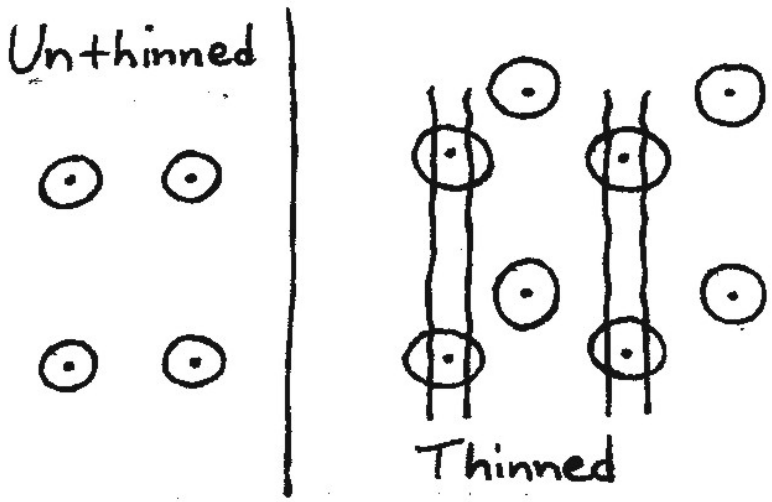
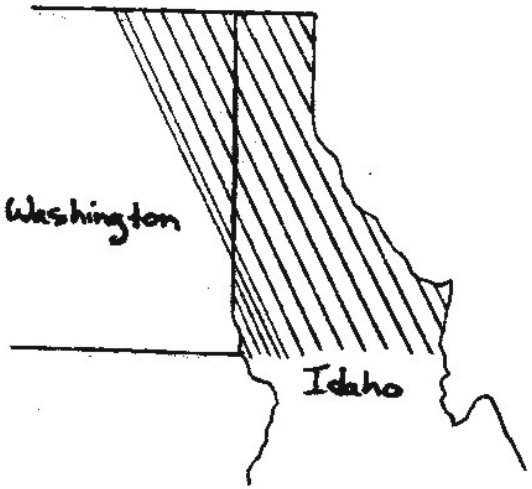
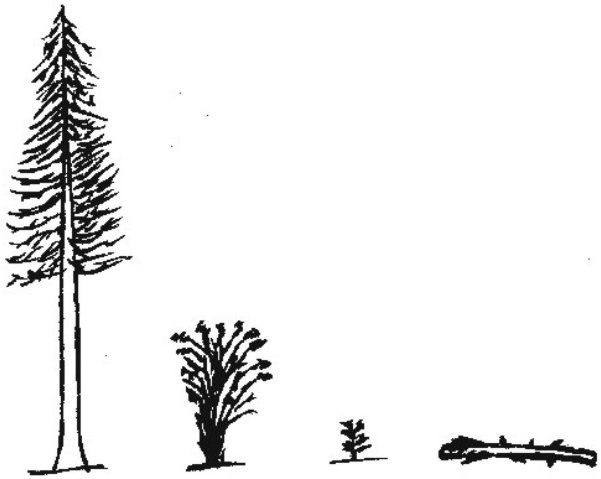
Unthinned; 15% visible sky

Thinned; 72% visible sky

Study design







Study design

Habitat types	PP, DF, and dry GF		Wet GF, WRC, and WH	
Nutrients left on site	Yes	No	Yes	No

24 stands

This study will quantify at 1, 3, 5, 10, and 15 years:

- Crowning index (the wind speed that will sustain a crown fire)
  - Overstory density, size, species, crowns
  - Understory vegetation and regeneration
  - Surface fuels
  - Site characteristics
- Decomposition of surface fuels
- Nutrients in soils and foliage
  - Ion resin capsules (IFTNC)
  - Foliage samples (IFTNC)

Retaining nutrients: Four things to avoid

K

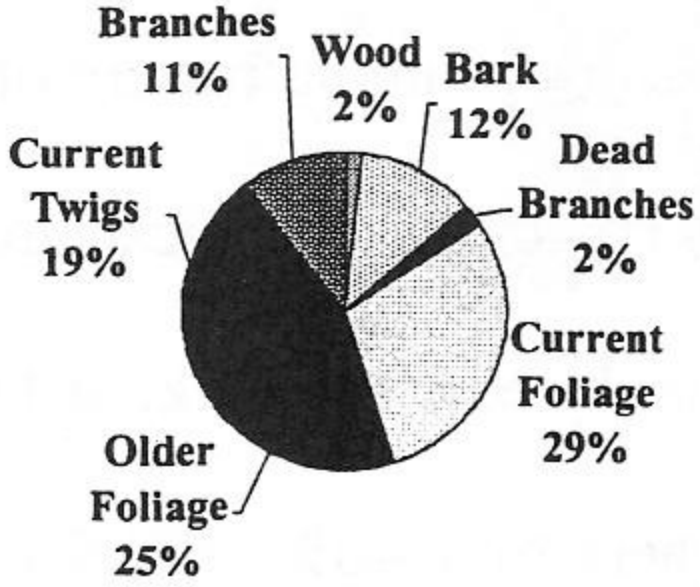
N

Mg

P

Ca

Figure 11c: Potassium in Douglas-fir. Estimated allocation of potassium to various tree components in 34-year-old Douglas-fir. From Pang et al. (1987).



#1 Avoid crown fires

#2 Avoid whole tree harvesting

#3 Avoid piling too early

#3 (cont.) Avoid concentrating slash during harvest

#4 Avoid scattering fuels and burning too hot

Recommendations, so far

Thin "all the way"

Consider shrub development


No, No, No

Be prepared to take risks

A worse case scenario?

Myrtle Creek

Bonners Ferry Ranger District

Thinned winter 2001-2002

Sampled summer 2002

Wildfire 2003


Myrtle Creek
unthinned area


Forest floor,
unthinned area

Myrtle Creek, thinned area


Forest floor,
thinned area
~two weeks
after wildfire

Needles reduce erosion

- 50% cover of Douglas-fir needles reduced surface erosion by 80%
- 50% cover of ponderosa pine needles reduced surface erosion by 60%

Questions?

Some nutrient research questions

- How long to leave fine fuels?
- How generic are nutrient management recommendations?
- How much of the fine fuels should be left?
- How nutrient deficient are our forests, and can they be tested for nutrient deficiencies before treatments are applied?