Replacing Knotweed With Desirable Vegetation In Northern Coastal Oregon

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Outline

- **Cooperative knotweed control efforts in N. Coastal Oregon.**

- **Experience with knotweed treatments**
  - **herbicide application methods, issues, efficacy**

- **Strategies for replacing knotweed with desirable vegetation in the long term.**

Credits…

- **David Ambrose - Clatsop SWCD**
- **Clatsop Weed Management Area Committee**
- **North Coast Cooperative Weed Management Area**
- **Oregon Department of Agriculture**
- **The Nature Conservancy – Sandy River project, Jonathan Soll**

Knotweeds on the North Coast

- Japanese
- Giant
- Hybrid
- Himalayan

N. Coast knotweed invasion

- Established in logging camps, homesteads, and yards since early 1900’s
- Invading riparian areas on many major streams.

N. Coast Knotweed – Treatment methods

Foliar (2002-2006):

- **No early season treatment. Target fully developed knotweed in flowering, post flowering stage August-October.**

- **Foliar application of 2-4% Aquamaster or Rodeo with LI-700 and dye. Backpack and truck-mounted sprayers. Spray to wet.**

2002 - OR Dept. of Agriculture, G. Miller

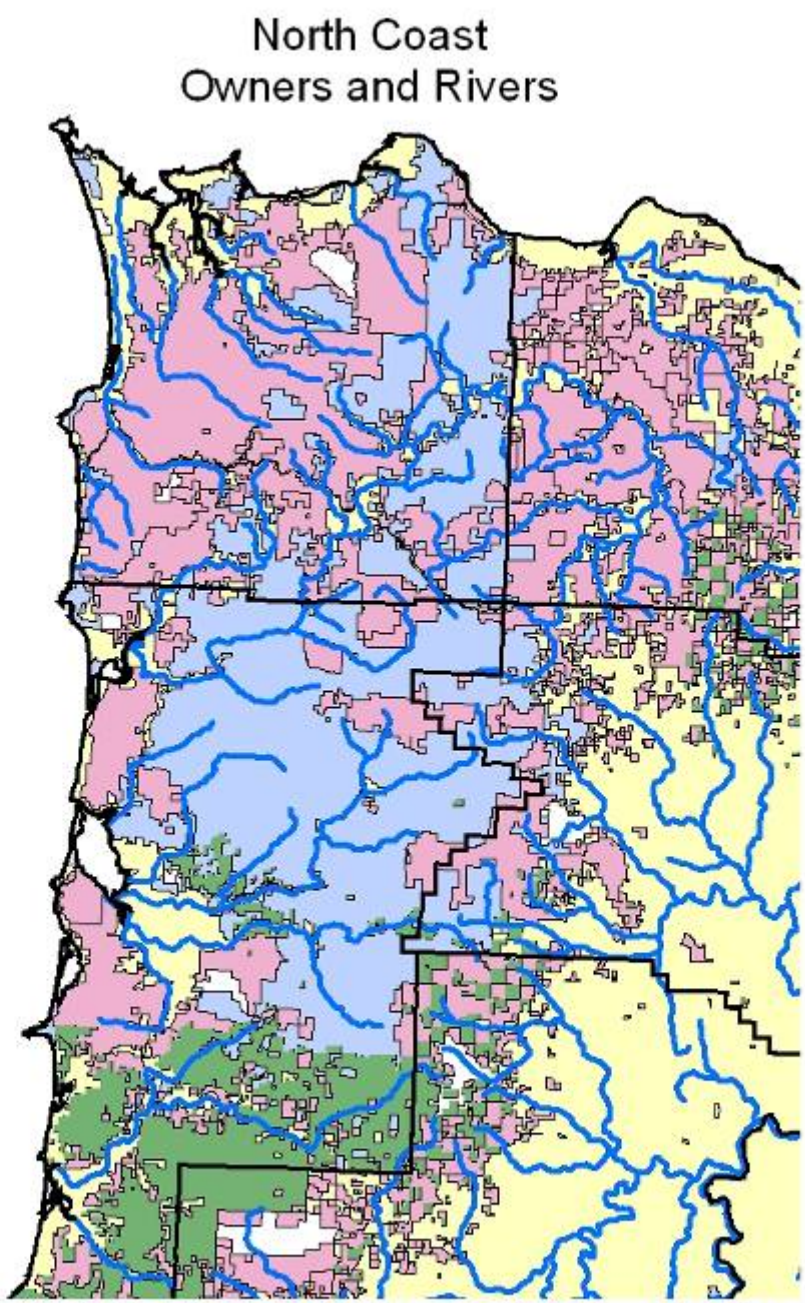
Initial knotweed treatment efforts in Clatsop Co.

N. Coast Knotweed – Treatment methods

Stem injection (2004-2006):

- **Inject 5 ml undiluted (58%) glyphosate per stem (>0.4) in May-July.**
- **Inject only along edge of water and in ~6 ft. strips through large patches to provide access for later foliar application.**

Stem Injection method

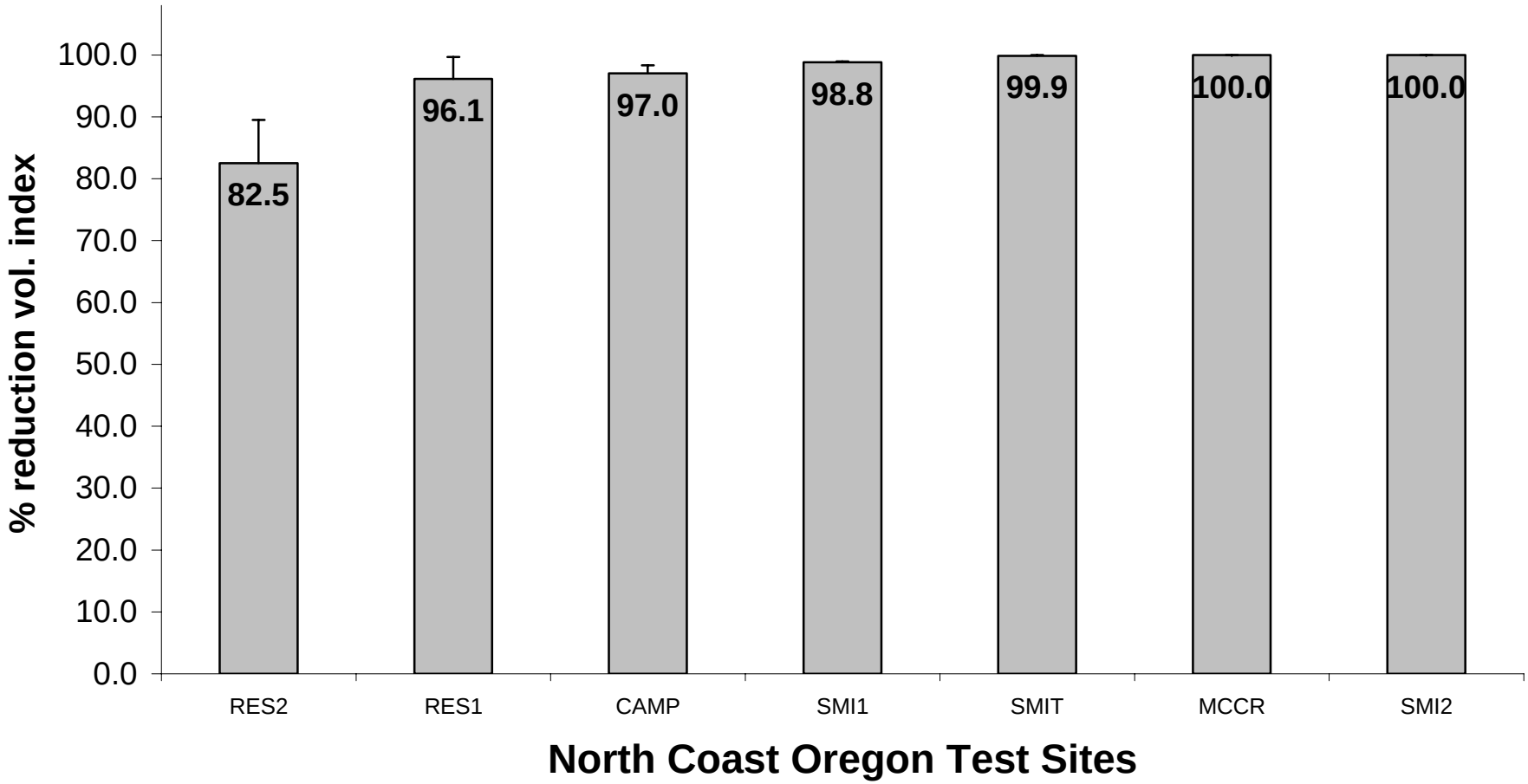


Coordinated effort across multiple agencies and owners

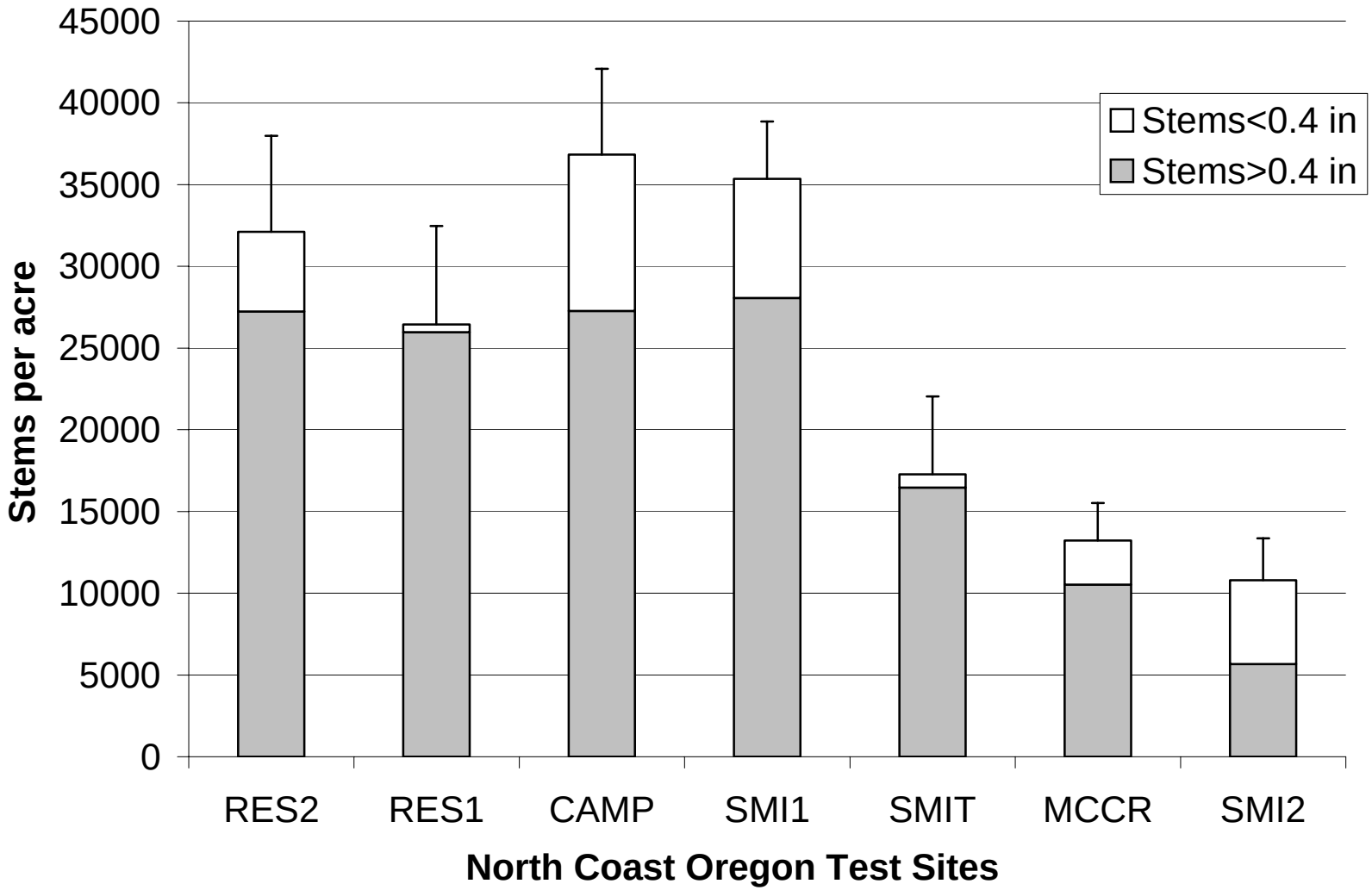
~120 acres of knotweed treated 2004-2006

~$80,000 cost

% Reduction in knotweed stem volume index (D^2*Ht) after 3 years of treatment with glyphosate (2-4% foliar)



Knotweed Stem Density (stems per acre)



Knotweed - herbicide application issues & questions

- **Foliar application: mixtures and rates have varied widely – 0.4 to 2.0 gal/acre.**
- **Stem injection: high cost and potential over-application**
  - **$2,000 - $7,500 per acre, 13 - 33 gal./acre of knotweed canopy**
- **Long-term efficacy of herbicide methods?**


0
500
1,000 Feet

Summary - herbicide application issues & questions

- **Foliar application:** Calibrate application rates -seek optimal rates. Test imazapyr and imazapyr+ glyphosate mixes.
- **Stem injection:** Clarify rules for determining rate per acre, study fate of injected herbicide in soil and water.
- **Area of knotweed:** Estimate actual area of knotweed cover to be treated.

Initial control must be followed by effort to replace knotweed with desirable vegetation

A. Continuous management systems: farm, tree farm, home landscapes, roadside maintenance, etc.

B. Corrective management in preserves, natural areas, riparian areas.

- Need to identify and cultivate desirable species/assemblages with potential to suppress or exclude knotweed.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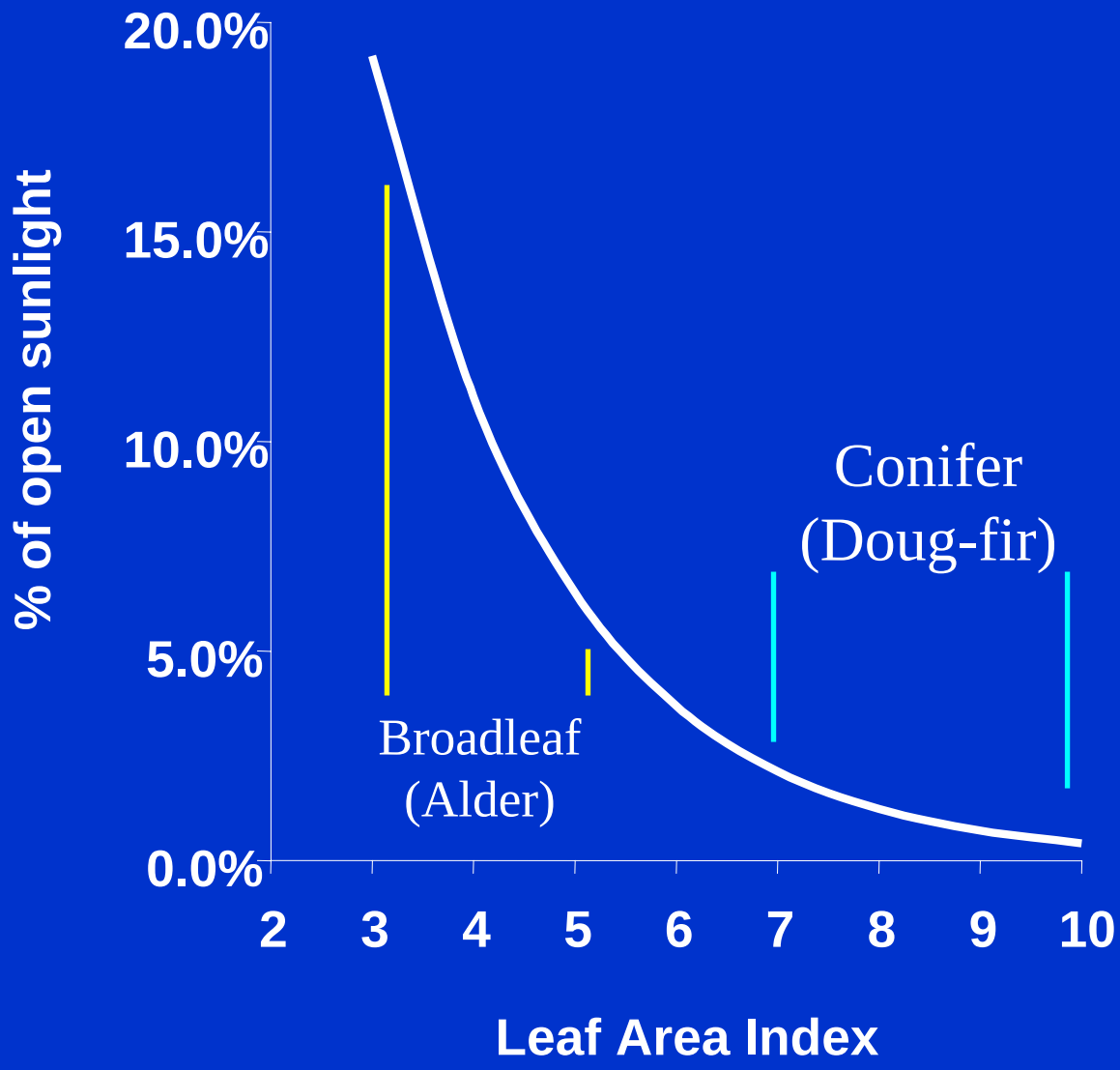
Light extinction beneath a forest canopy



Replacing knotweed with conifer forest is a promising approach.


Forester’s solution to knotweed - Dominant Douglas-fir/hemlock or spruce/hemlock.

Strategy for open riparian edge – active channels?

N. Coast Knotweed Summary

- Cooperative effort at the watershed level is essential.
- Various herbicide treatments can be quite effective in achieving short-term knotweed control (> 95%).
- Further work needed on herbicide application rates and methods – greatest effect for the least cost and least risk.
- Hope for biological control?

N. Coast Knotweed Replacement
Recommendations

- Identify species/assemblages with potential to suppress knotweed under various management systems
- Pursue more studies of knotweed response to shade and other factors.
- Keep working on treatments aimed at 100% eradication?