

Reversing 100 Years of Conifer Encroachment in Sensitive Garry Oak – Grassland Bald Habitat

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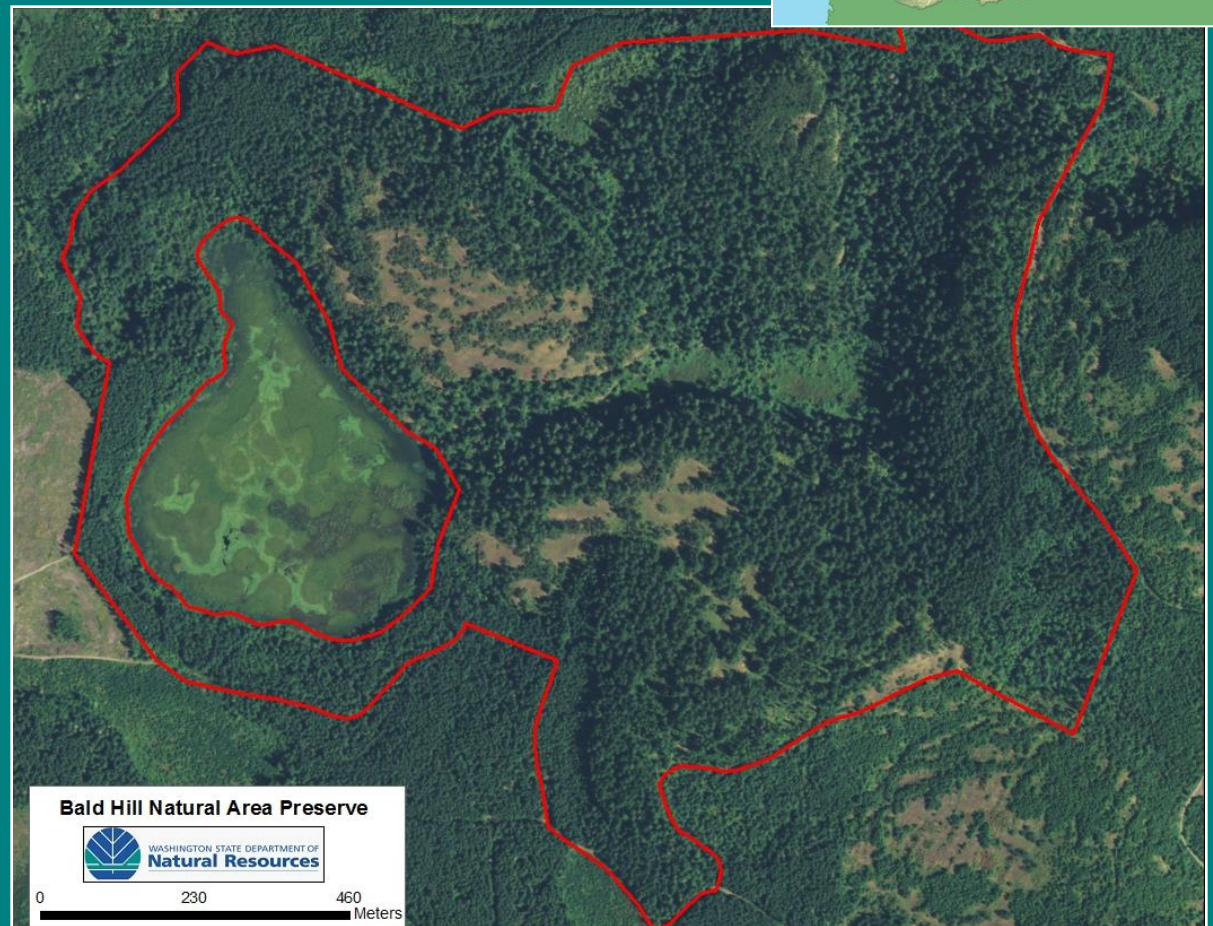


WASHINGTON STATE DEPARTMENT OF
Natural Resources

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Bald Hill Natural Area Preserve

- 314 Acres
- Highest quality and most diverse grassland bald – Garry oak landscapes in Washington
- 2 globally imperiled communities
- 4 rare plant species
- 4 SGCN butterflies









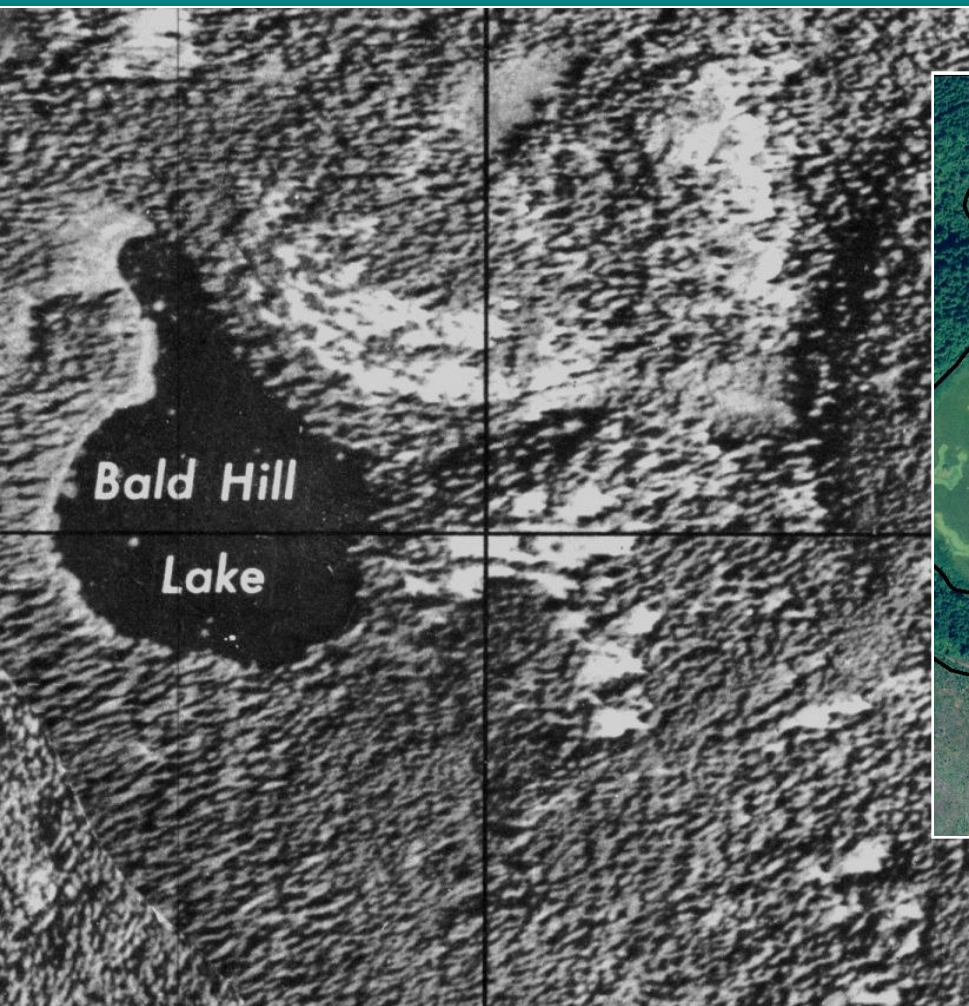
Threats

Threats Across Targets	Taylor's checkerspot	Grassland balds	Garry oak woodland	Overall Threat Rank
Fire suppression	Very High	High	High	High
Tree and shrub encroachment	Very High	Medium	High	High
Invasive/alien species	Very High	High	Medium	High
Disturbance within occupied habitat	Very High			High
Lack of source population	Very High			High
Population isolation	Very High			High
Recreational vehicles	Medium	Medium	Low	Medium

Conifer encroachment







1942



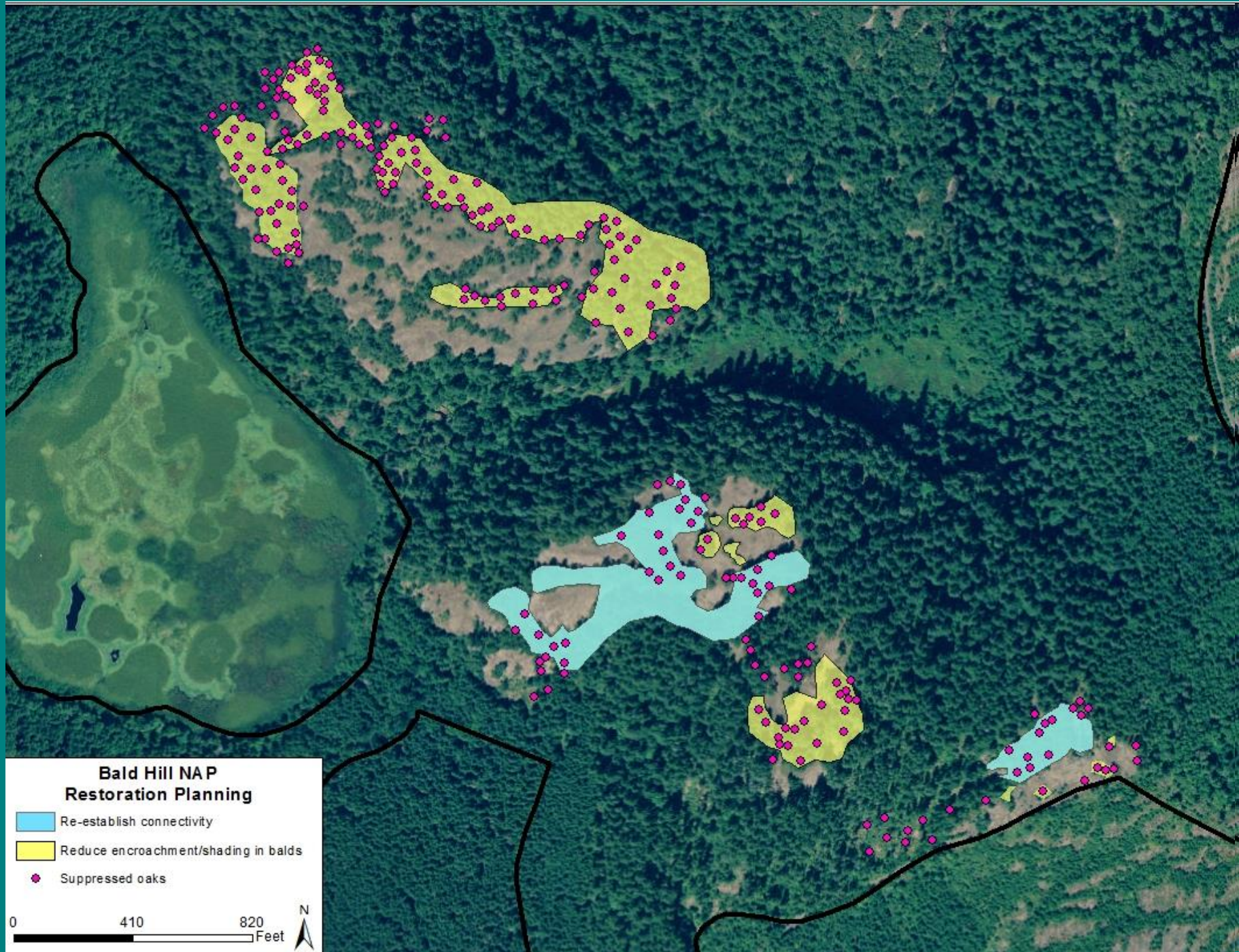
2008



Objectives

- Re-establish connectivity between balds
- Reduce tree encroachment & shading within & around balds
- Reduce shading & suppression of Garry oak





Constraints

- Minimize impact to grassland balds
- Minimize damage to oaks
- No road access
- Surrounded by private timberland
- Funding



Implementation

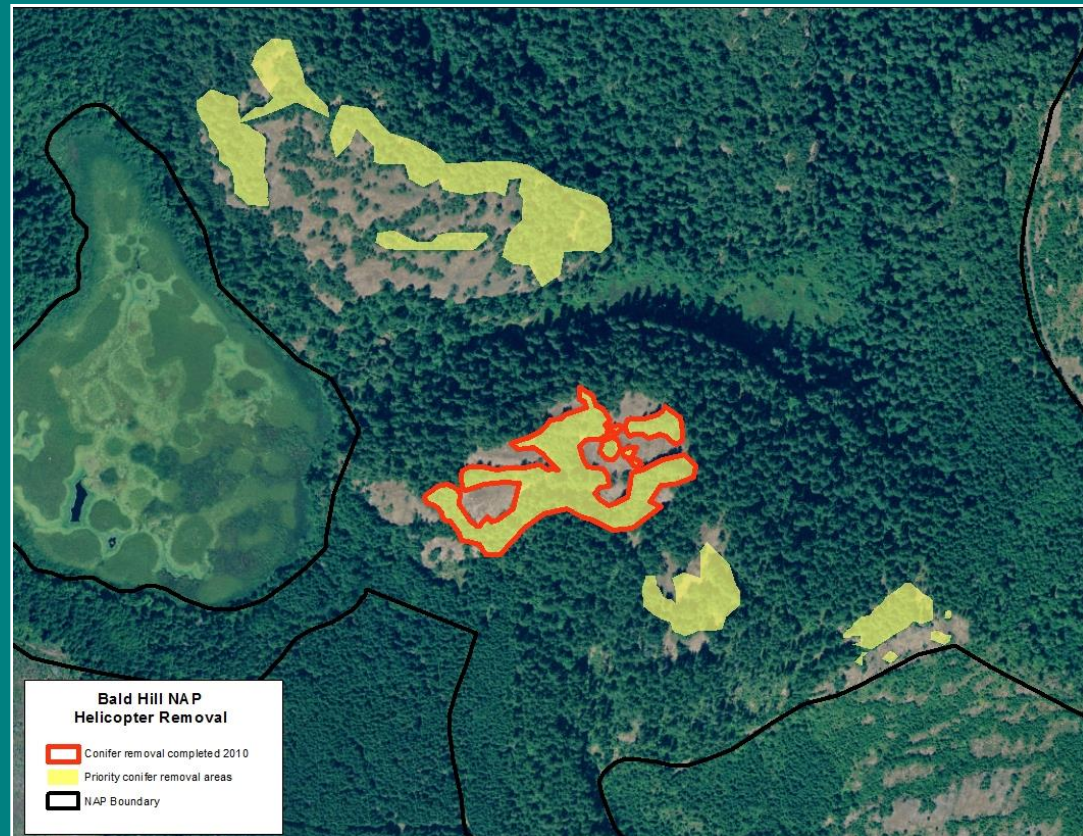
Small tree removal by hand
annually (5 acres)



Helicopter removal – two phases

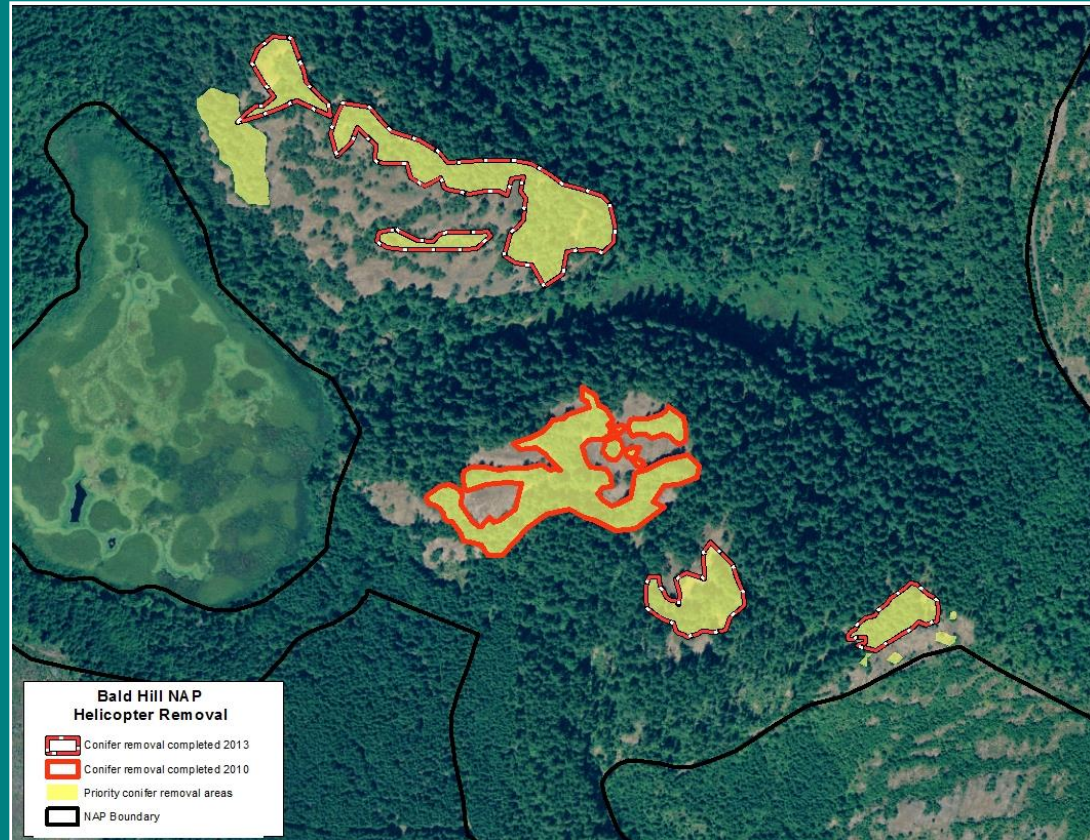
Phase 1 – 2010

- Planned:
 - 5 units/11 acres
 - 450 trees
- Completed
 - 3 units/6 acres
 - 220 trees



Phase 2 – 2013

- Planned:
 - 4 units/10 acres
 - 450 trees
- Completed
 - 3 units/9 acres
 - 370 trees

















Key Contract Specifications

- Whole-tree yarding
 - Certain trees may be bucked/limbed but all material must be removed
- Helicopter capable of lifting trees straight off the ground
- No dragging of trees permitted
- Directional falling must be used to prevent damage to leave trees and balds
- No trees shall be felled into balds or in a way which is likely to damage leave tree(s) *without prior consent from DNR*.
 - \$1,000 “fine” for leave tree damage (oaks)
 - \$1,000 “fine” for falling into balds
- Remove all tree tops and 100% of slash >2” diameter via helicopter
- Trees that cannot be felled & removed without damage (as determined by DNR) shall be girdled.

Lessons Learned

Changes from Phase 1-2

- Marked nearly all trees as “take” rather than marking “girdle” trees
- Provided count of marked trees per unit, rather than estimating
- Emphasized slash removal and need to dispose of all slash at landing
- Simpler bid sheet

Lessons Learned

- Very little impact to oaks or balds
 - Good fallers very important
 - Fines for damages
 - Staff on site
- Do not pre-select trees for different treatments, e.g. girdling. Mark all trees the same.
- Emphasize slash removal
- Nearby helicopter landing is very important. May require good relations with adjacent landowners.
- Plan for as much as can reasonably afford. Get bids by unit.
- Hand crews helpful, but contract crews faster and less expensive overall.
- Keep bidding as simple as possible. Eliminate variables/uncertainties as much as possible.
- Be prepared for response by invasives (e.g. *Holcus lanatus*)



1012 ft





Acknowledgements

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