



# Enhancing treaty resources on National Forest

Examples from a USFS Botanist's perspective

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Examples from a USFS Botanist's perspective

1. History of treaty resources
2. Huckleberry enhancement - monitoring results
3. Elk forage units

# History of treaty resources

# Since time immemorial

Indigenous peoples  
stewarded the land and  
resources in western  
Washington

First Foods provided  
sustenance and cultural  
identity

Burned berry fields and  
meadows



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Yakama woman Lena Waters Pinkham (Pch'ili) drying  
huckleberries. August 1937. Photo by Ray M. Filloon, USFS.  
Courtesy of National Archives.

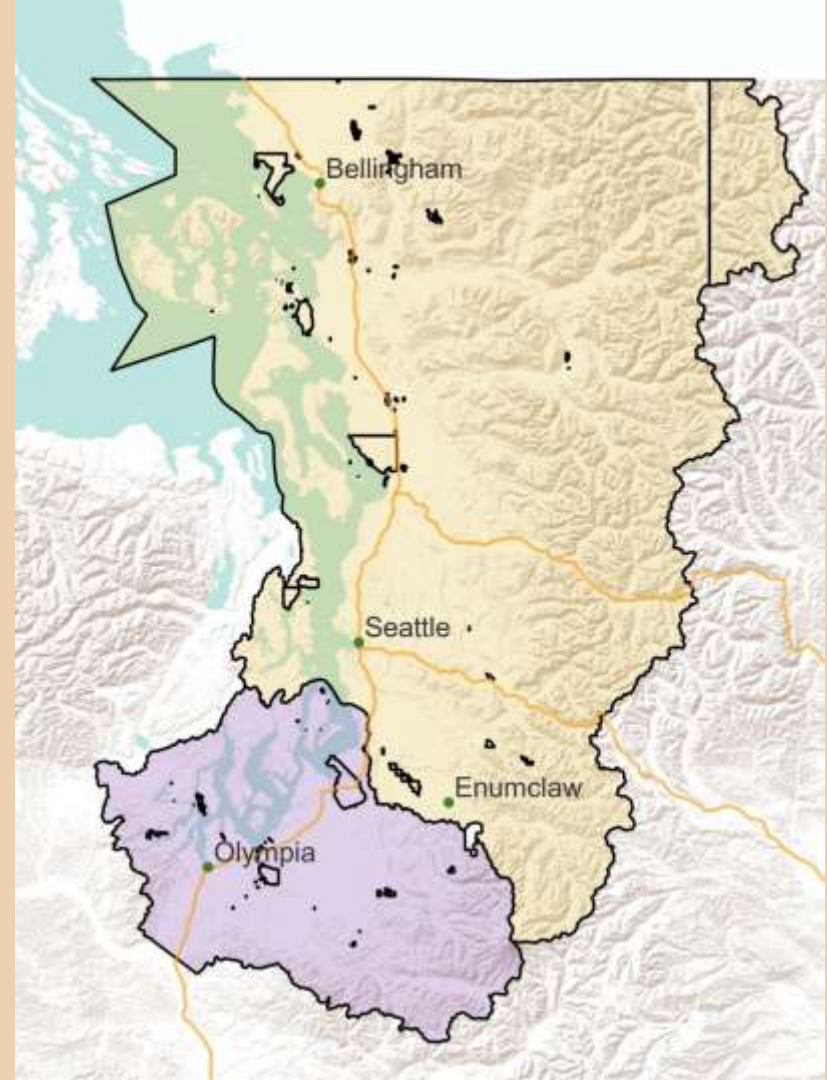


## 19th century change

Treaty of **Medicine Creek** 1854,  
Treaty of **Point Elliott** 1855

Tribes ceded land to U.S. government  
and **retained rights to fish, hunt, and  
gather on traditional territories**

Established a federal trust responsibility  
to protect tribal resources and co-  
manage with tribes

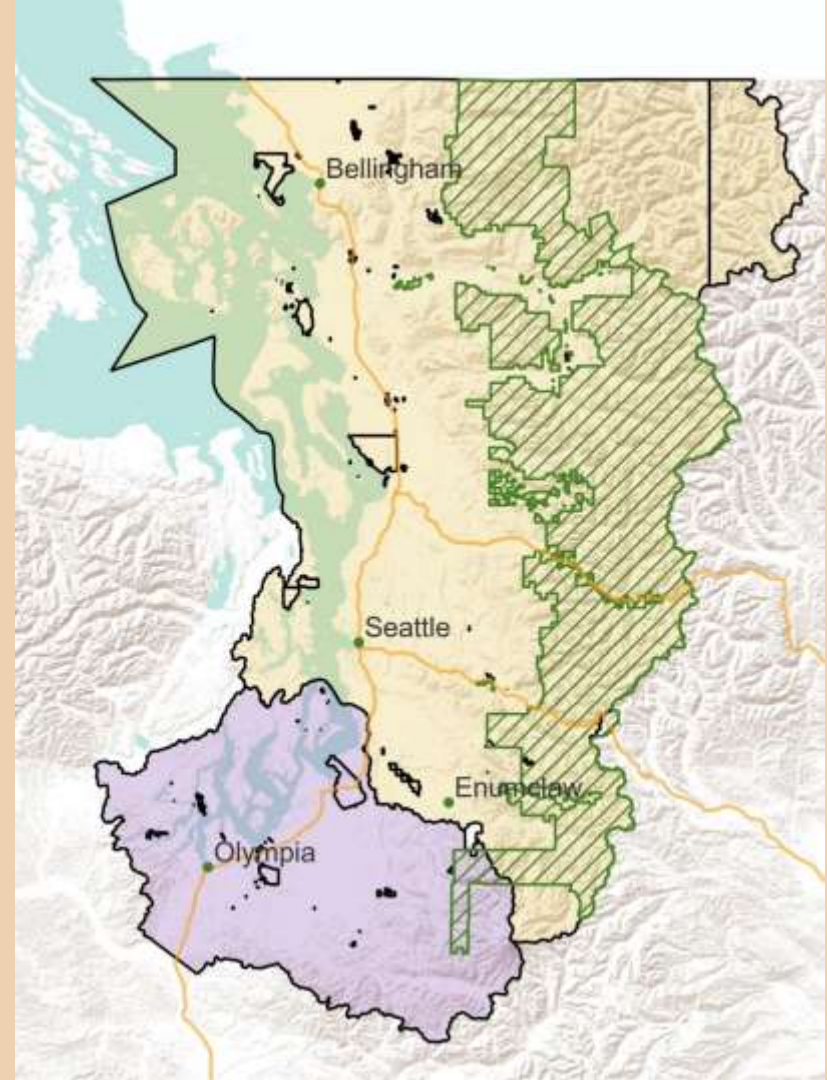


## 19th century change

Native people pressured to migrate  
from traditional villages to reservations

Ceded lands → railroads → timber

1897 Congress designated Washington  
Forest Reserve to conserve timber

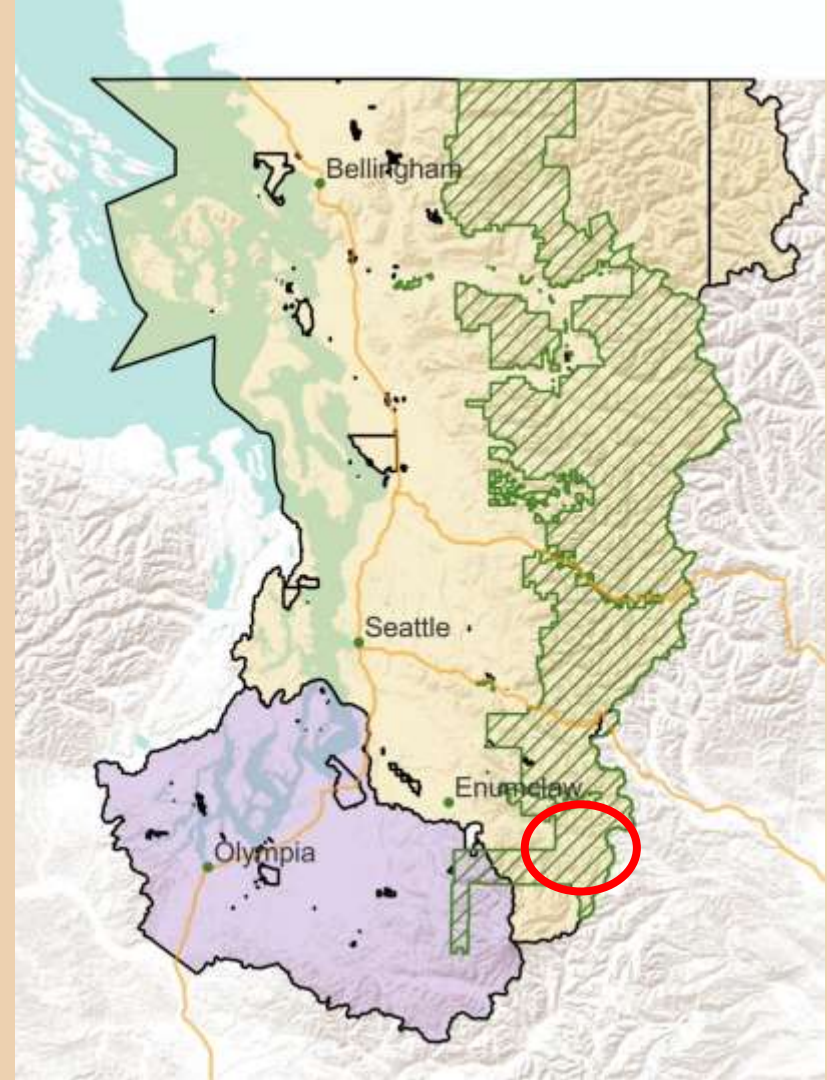


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# Impacts to treaty resources

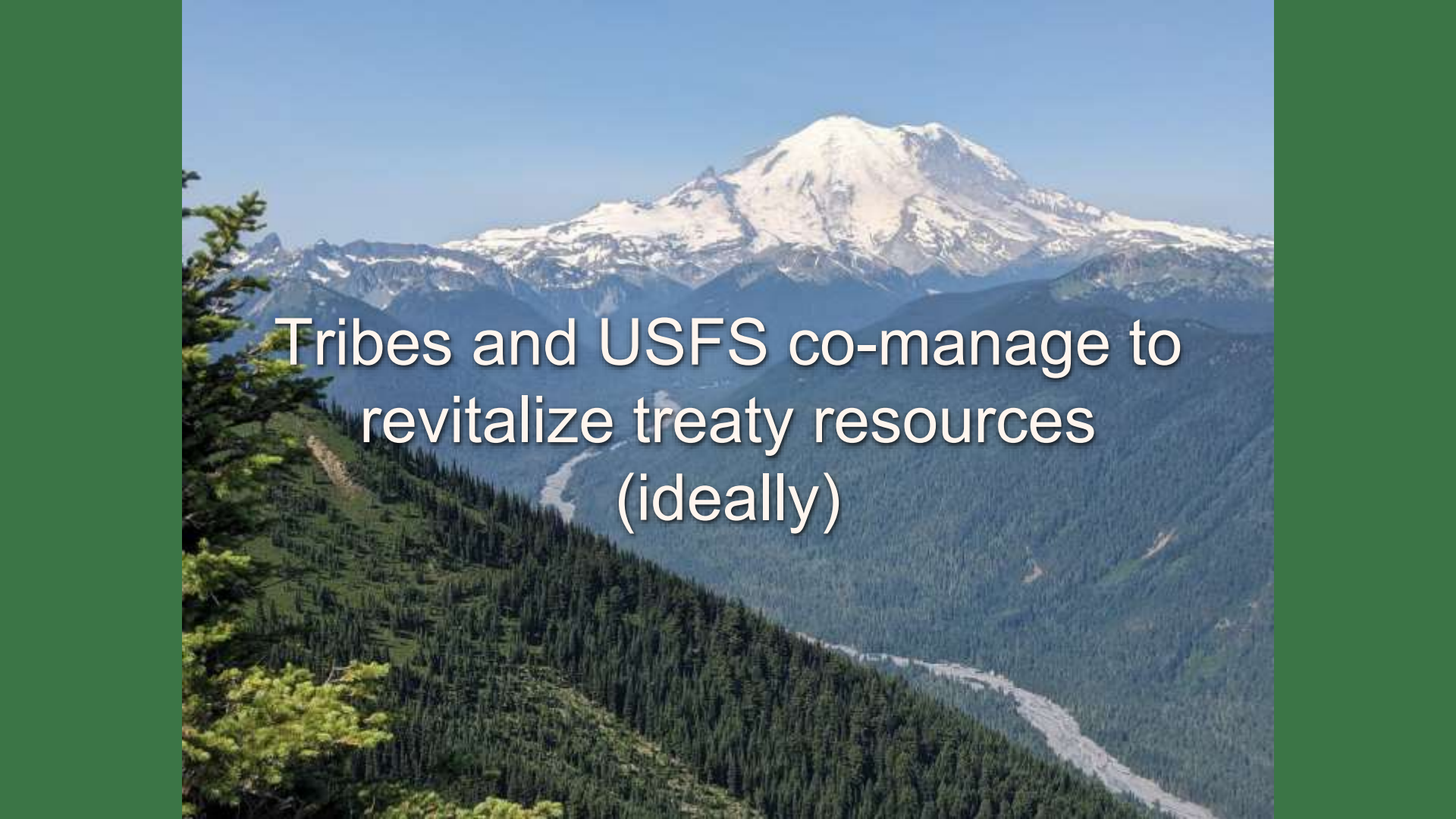
Land lost its Native stewards

20th & 21st century timber harvest practices, fire exclusion, conservation →

Large tracts of dense forest

Decline of understory resources like berries and forage





Tribes and USFS co-manage to  
revitalize treaty resources  
(ideally)



Warren KingGeorge  
Jared Hedges

Thank you



Kurt Aluzas (retired)



Laurel Baum  
Jen Syrowitz



NFWF



Thank you



# Huckleberry enhancement - monitoring results



# *Vaccinium membranaceum* ecology



3,000-6,000 ft in Cascades

Early seral with 30% canopy cover for protective snowpack retention

Reproduces primarily from rhizomes (3-12" deep)

Fields historically maintained by Indigenous burning and wildfire

# What it looks like at Government Meadows



## What it looks like at Government Meadows



Clearcut and planted 45  
years ago

80% canopy cover

Last burn 1868?

2002: Muckleshoot elders express concern

2008: Units selected in collaboration  
Pre-treatment monitoring

**Management & Monitoring Plan for the Enhancement of  
Big Huckleberry (*Vaccinium membranaceum*)  
in Government Meadows  
Mt. Baker-Snoqualmie National Forest**



Initiators:

Laura Potash Martin

Joyce LeCompte-  
Mastenbrook

Warren KingGeorge

Tracy Fuentes

2002: Muckleshoot elders express concern

2008: Units selected in collaboration  
Pre-treatment monitoring

2015: Hand thinning → 35% cover

2023: Slash piles burned



2002: Muckleshoot elders express concern

2008: Units selected in collaboration  
Pre-treatment monitoring

2015: Hand thinning → 35% cover


2023: Slash piles burned

2024: Post-treatment monitoring

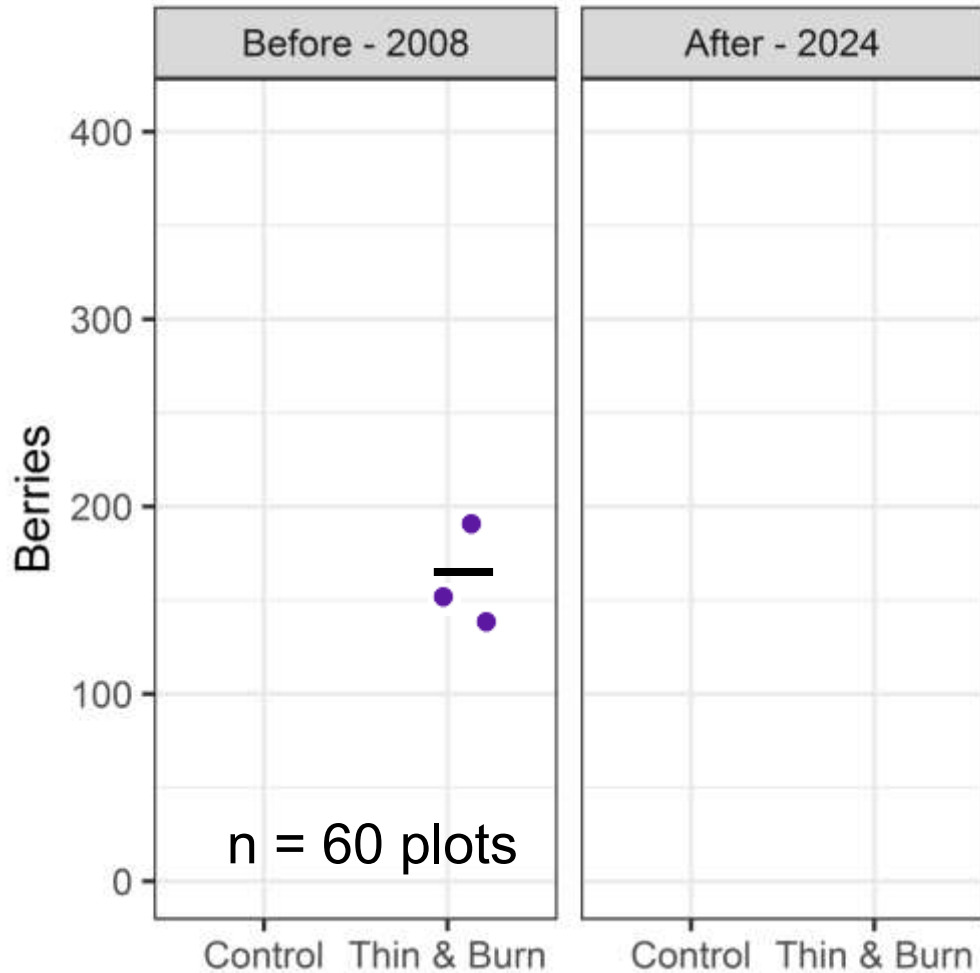




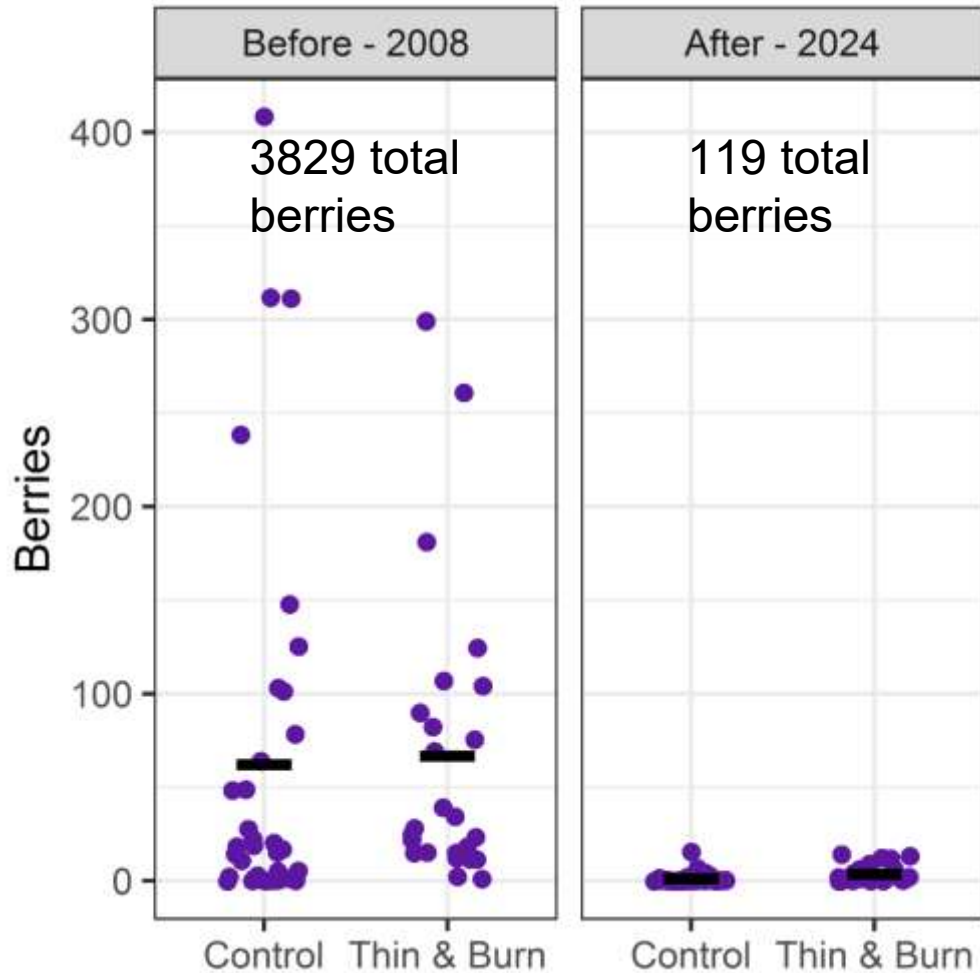


A photograph of two researchers in a forest. They are wearing orange safety vests and hard hats. One researcher on the left is holding a small object, possibly a huckleberry, and looking at it. The other researcher on the right is holding a clipboard and looking towards the first researcher. The forest floor is covered with fallen logs and branches, and there are several orange survey markers (stakes) visible. The background shows a dense forest of evergreen trees.

Did treatments  
increase  
huckleberry  
abundance?



Generalized linear  
mixed-effects  
models



Fewer berries  
post-treatment in  
2024\*

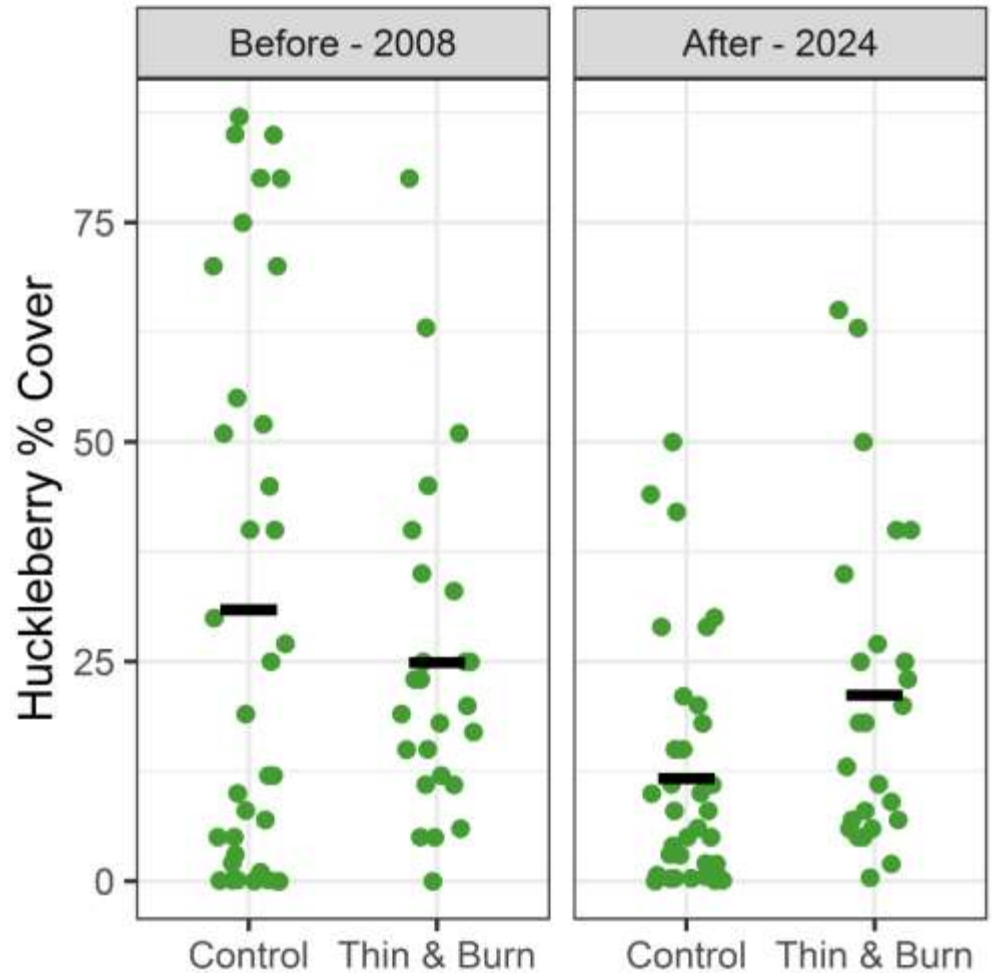
Before - 2008

After - 2024



Fewer berries  
post-treatment in  
2024\*

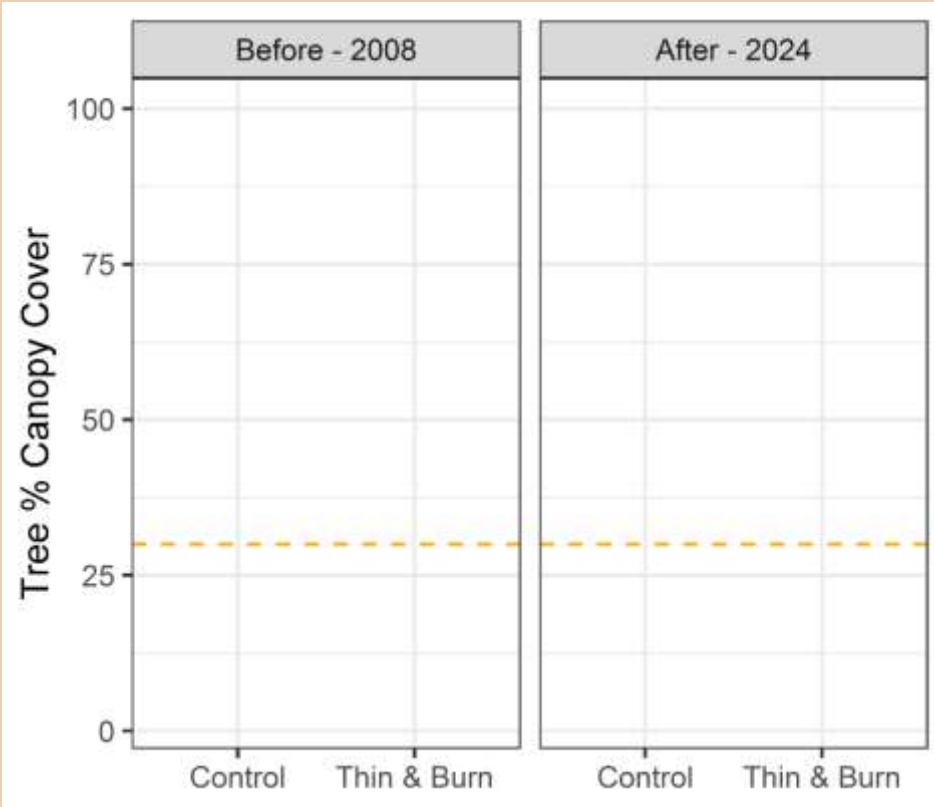
Fewer produced or  
eaten/picked?



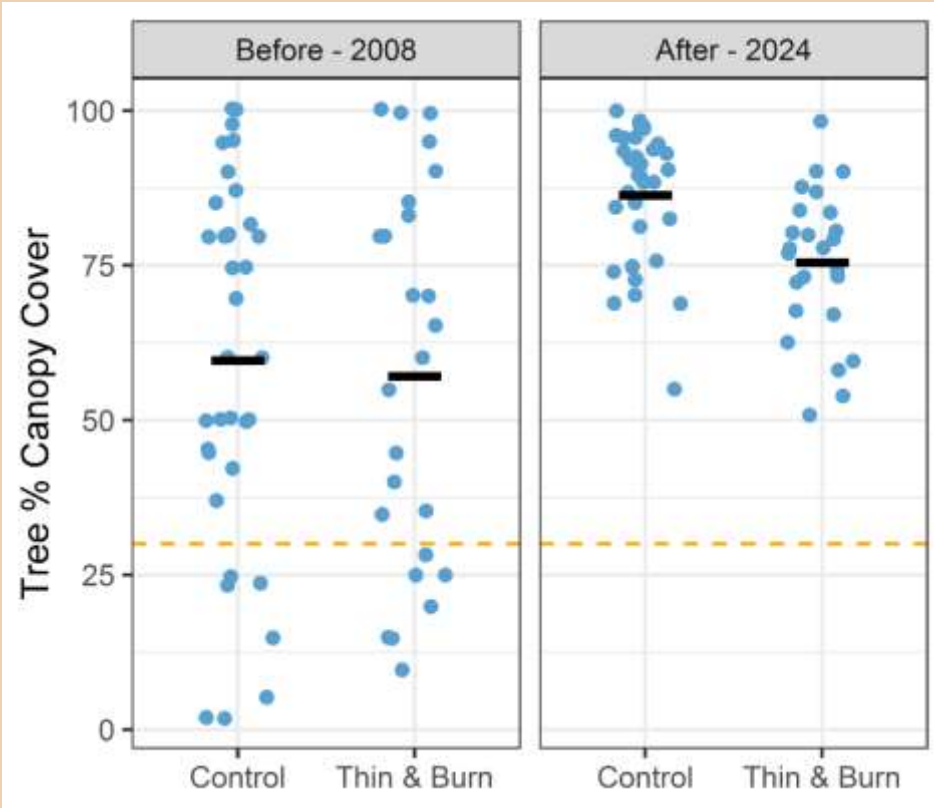
Huckleberry percent cover declined over time

Treatments may have helped lessen the decline (marginal sign.)

# Tree canopy cover



# Tree canopy cover



Increased over time.

Mean 75% in treated plots.

→ Thinning was not as effective as desired.

## What's next?


Partners planning  
more thinning

Crown scorch may  
open canopy - monitor  
in 5 years

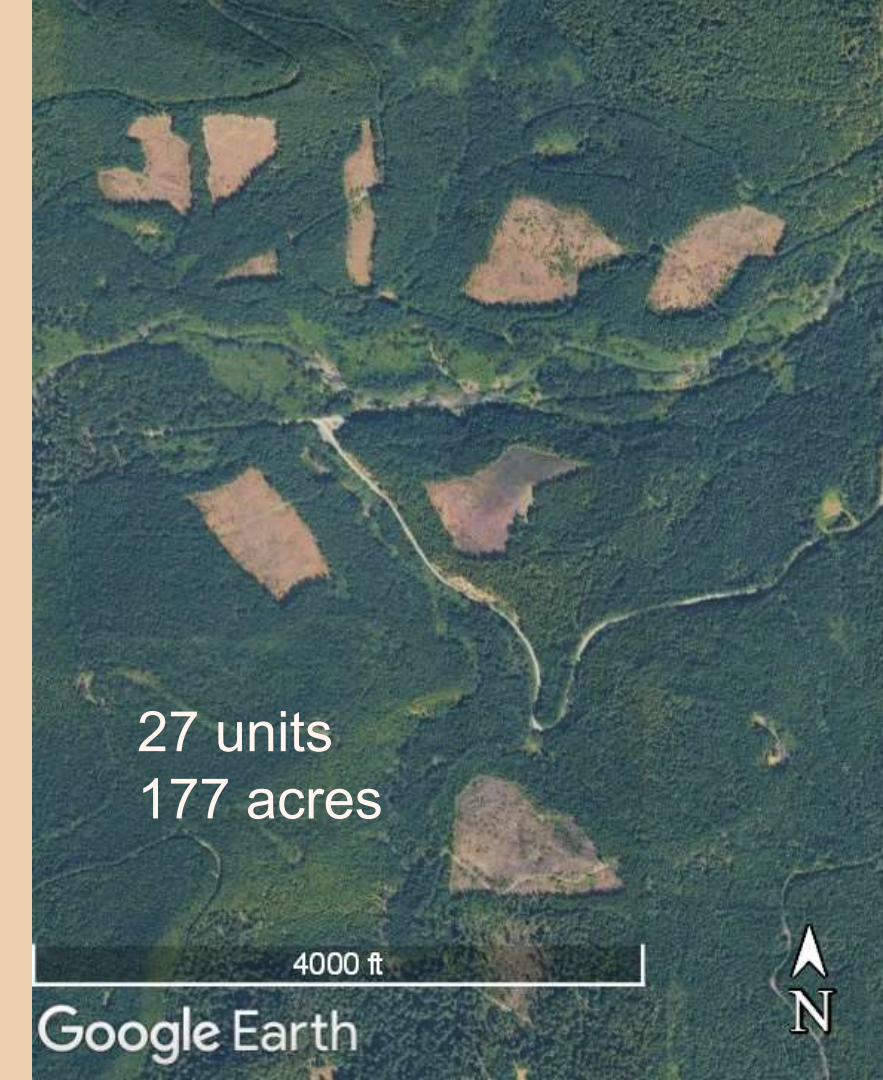
Goal remains!



# Elk Forage Units

An aerial photograph showing a large, irregularly shaped clearing in a dense coniferous forest. The clearing is filled with a mix of green grasses and brown, dry-looking vegetation, suggesting a managed or naturally open area. The surrounding forest is composed of tall, dark green evergreen trees. The text is overlaid in white at the bottom of the image.

Permanent human-made opening to  
support ungulate forage

A satellite view of a forested landscape with several cleared areas. The cleared areas are irregularly shaped and scattered across the forest. A winding road or path is visible in the lower center. The forest is a deep green color, while the cleared areas are a lighter, brownish-green.

27 units  
177 acres

4000 ft

Google Earth









# Why were the units created?

Muckleshoot Tribe sued USFS over the Huckleberry Land Exchange, a controversial land exchange made with Weyerhaeuser in 1998

LOCAL

## Huge land swap OK'd

But bitter feelings linger among those who opposed Huckleberry exchange

By **ROBERT MCCLURE**, SEATTLE POST-INTELLIGENCER REPORTER

Nov 20, 2001

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One concern was inadequate forage for elk and deer among the dense plantation forests

Part of the agreement was the creation of these permanent openings



Photo by Danielle Brigida, USFWS.  
Creative Commons license.

Botanist's role is to promote local native forage of species that are preferred by elk.

Strategy:

Burn and seed







Local native pearly everlasting and fireweed





*Festuca roemerii* = native, but not so local

Do the benefits  
outweigh the  
risks?

Strategy:  
Shrub exclosures





87 locally-harvested  
stakes:

- Red elderberry
- Sitka willow
- Red-osier  
dogwood

Bonus! Restore  
hardwood diversity  
lost in plantations

## Work-in-progress

Other issues: bracken  
fern, weeds, target  
shooting

Ebb and flow of work  
among partners + project  
challenges =

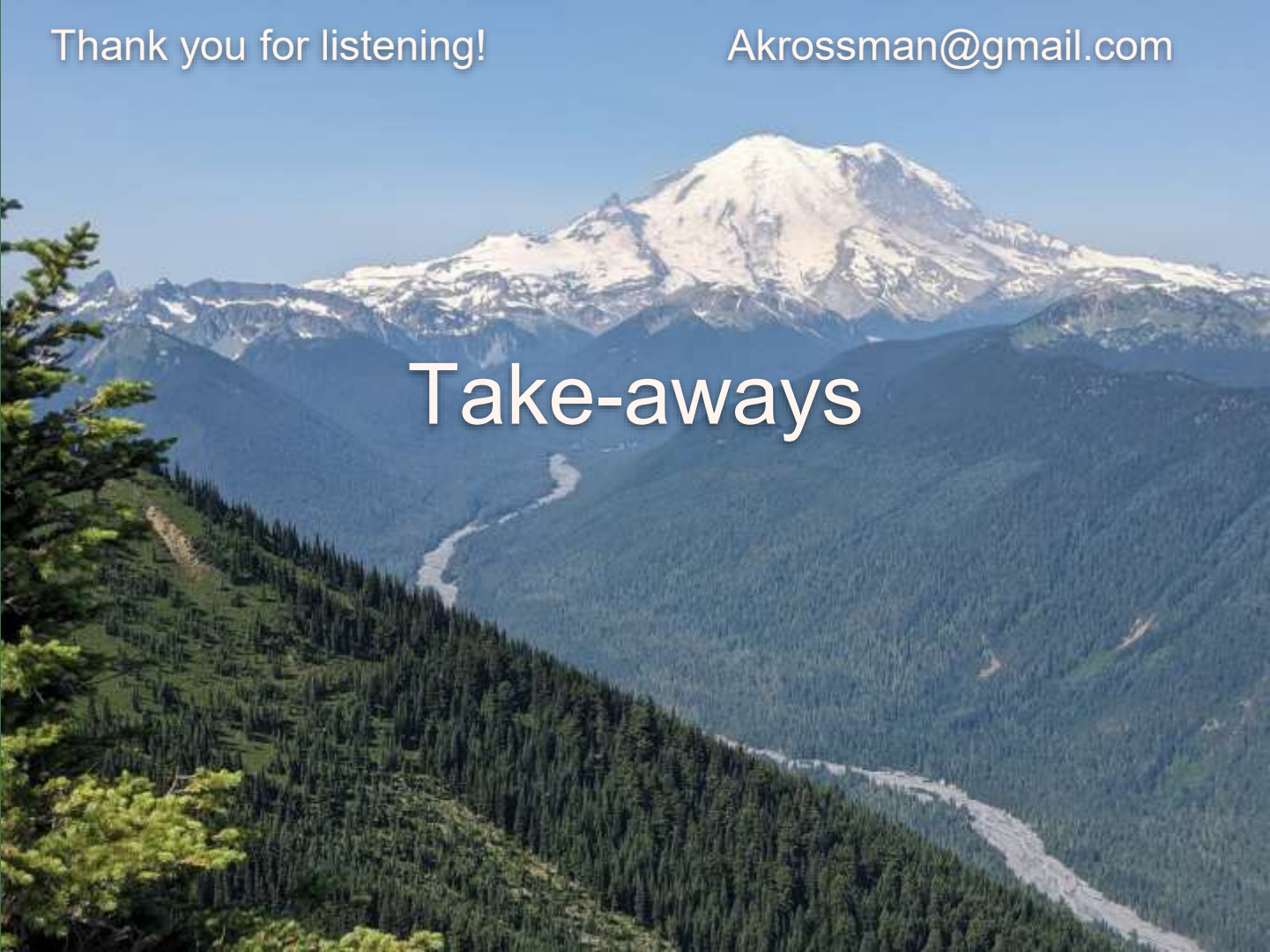
A real exercise in  
co-management



Thank you for listening!

Akrossman@gmail.com

# Take-aways

A scenic landscape photograph featuring a large, snow-capped mountain peak in the background. The foreground and middle ground are dominated by a dense, green forest of evergreen trees. A winding river or stream flows through the valley, reflecting the sky. The overall scene is bright and clear, suggesting a sunny day. The text 'Take-aways' is overlaid in the center of the image.

Thank you for listening!

Akrossman@gmail.com

# Take-aways

Treaties established trust responsibility of USFS to maintain and co-manage treaty resources.

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Botany is central to many projects, and challenges remain with huckleberry availability and elk forage.

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# Take-aways

Treaties established trust responsibility of USFS to maintain and co-manage treaty resources.

Botany is central to many projects, and challenges remain with huckleberry availability and elk forage.

Folks across disciplines and organizations keep chipping away.