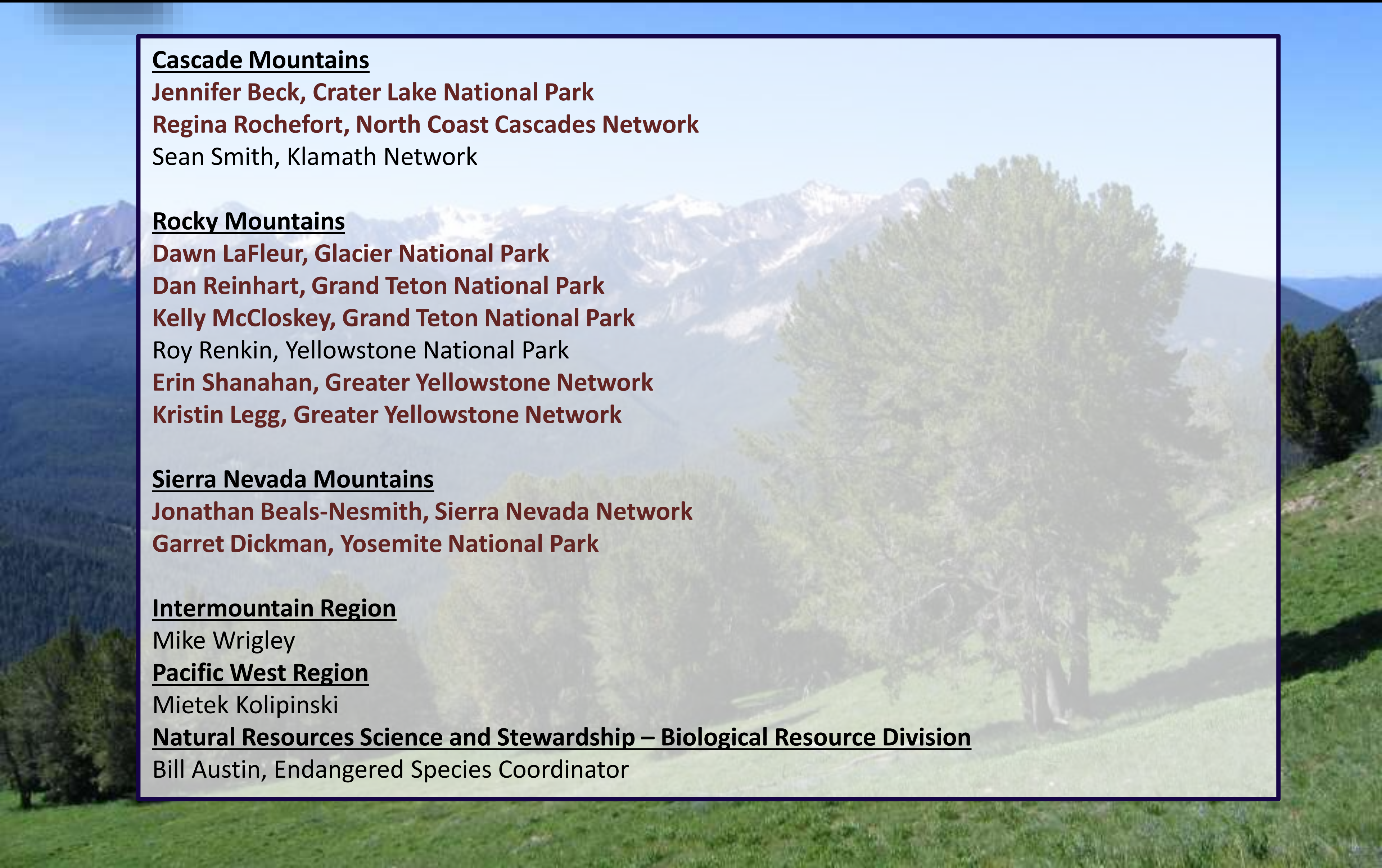


Cascade Mountains

Jennifer Beck, Crater Lake National Park
Regina Rochefort, North Coast Cascades Network
Sean Smith, Klamath Network

Rocky Mountains

Dawn LaFleur, Glacier National Park
Dan Reinhart, Grand Teton National Park
Kelly McCloskey, Grand Teton National Park
Roy Renkin, Yellowstone National Park
Erin Shanahan, Greater Yellowstone Network
Kristin Legg, Greater Yellowstone Network

Sierra Nevada Mountains

Jonathan Beals-Nesmith, Sierra Nevada Network
Garret Dickman, Yosemite National Park

Intermountain Region

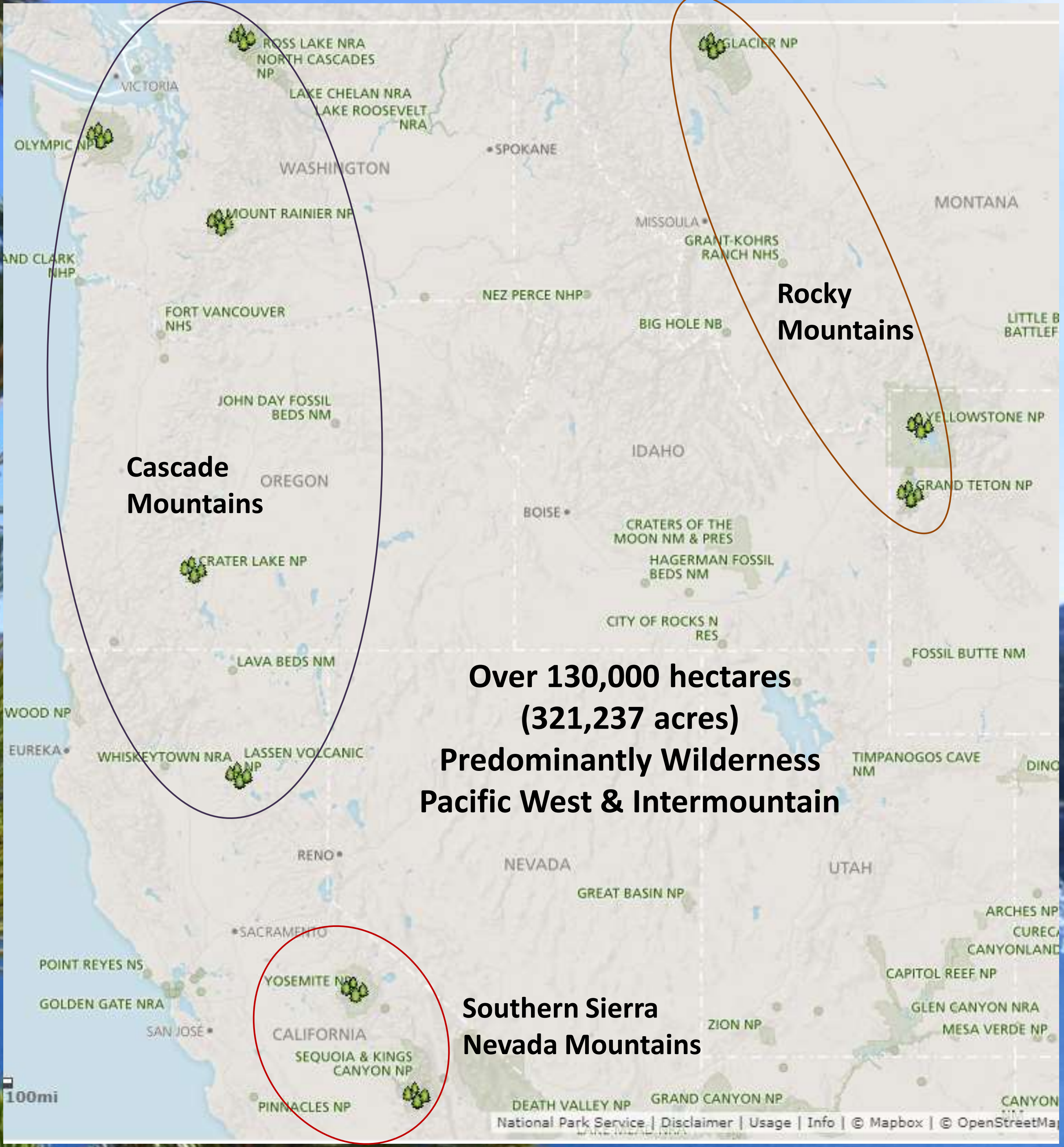
Mike Wrigley

Pacific West Region

Mietek Kolipinski

Natural Resources Science and Stewardship – Biological Resource Division

Bill Austin, Endangered Species Coordinator



Cascade Mountains

Rocky Mountains

Southern Sierra Nevada Mountains

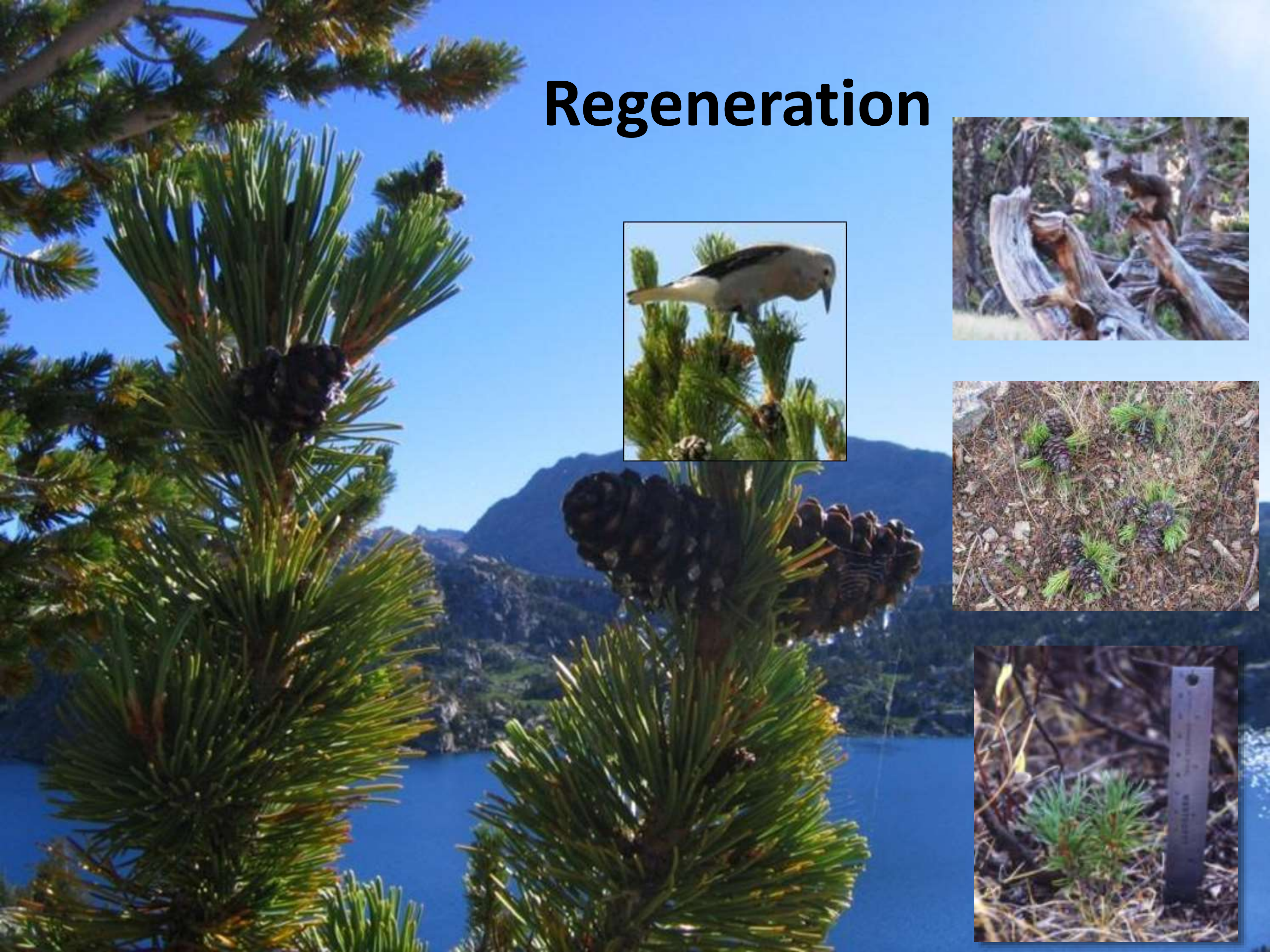
Over 130,000 hectares
(321,237 acres)
Predominantly Wilderness
Pacific West & Intermountain

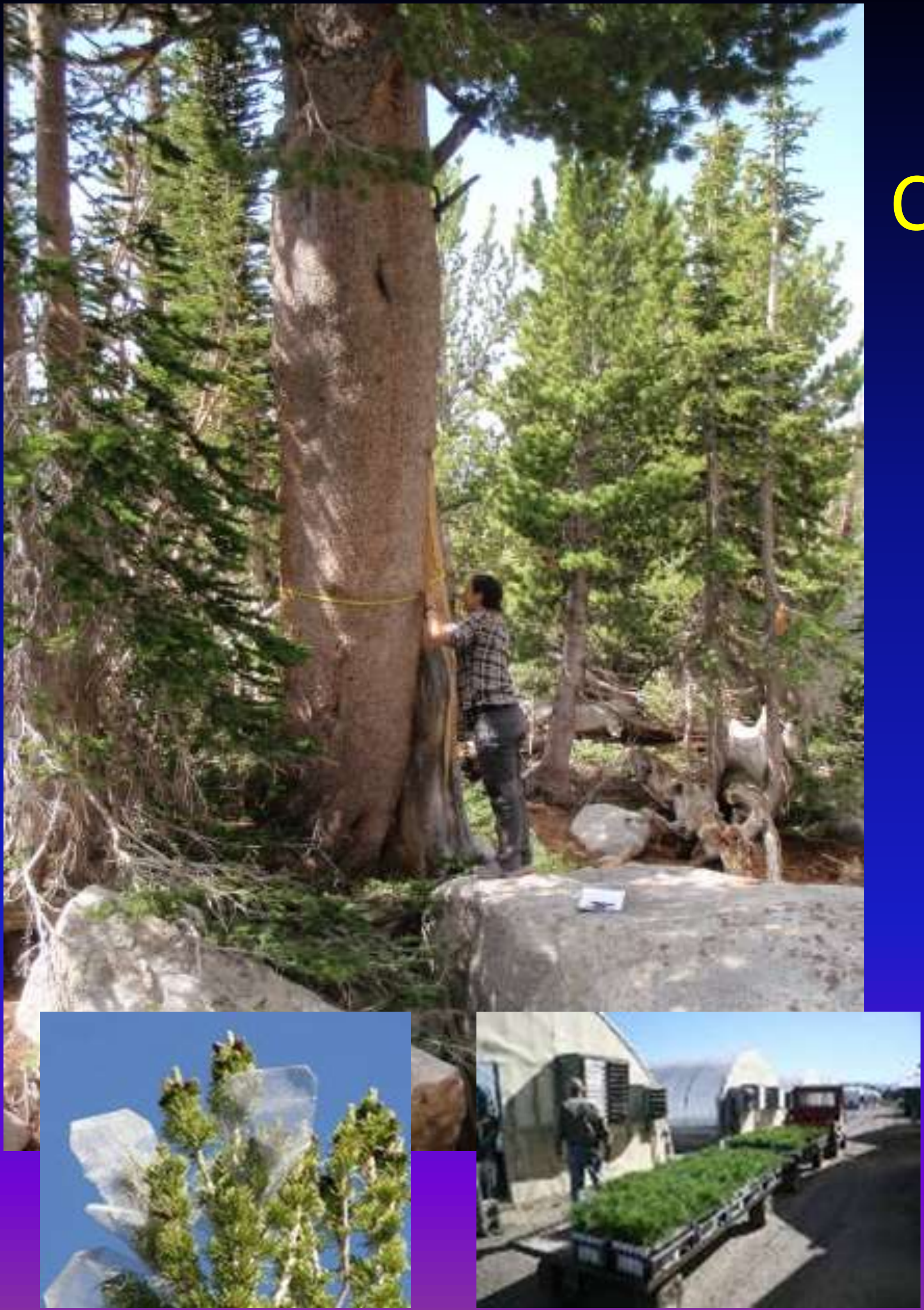
Region	Park(s)	Hectares (estimate)	Blister Rust Infection	Mortality	Agents of Mortality*
Cascade Mountains	Crater Lake	2100	51%	16%	Other MPB BR
	Lassen Volcanic	260	54%	10%	Other Other bark beetles BR MPB
	Mount Rainer	1200	38%	44%	BR
	North Cascades	4000	44%	21%	BR
	Olympic	40	NA	NA	
Rocky M. Greater Yellowstone	Grand Teton John D. Rockefeller Yellowstone	3000 450 50000	13-25% for GYA** (Grand Teton 38%)	26% (>70% in overstory)	MPB BR Fire
Rocky M. Crown of Continent	Glacier	26000	78%	Significant	BR
Southern Sierra Nevada Mountains	Sequoia Kings	25000	0.5%	Low	NA
	Yosemite	20000	0%	Low	NA

*MPB = Mountain Pine Beetle; BR = Blister Rust; other includes unknown, fire

**GYA infection rate

Regeneration



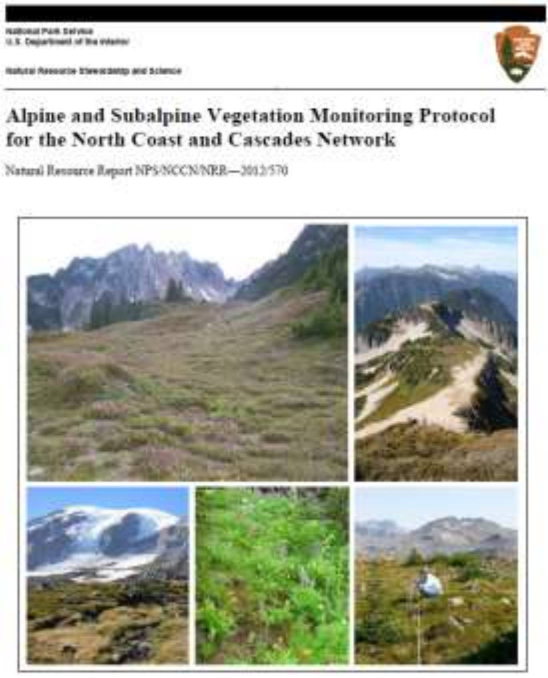


Conservation Management

- Monitoring
- Research
- Protection
- Restoration

NPS, 2006 Management Policies
Wilderness Act
Park Management Objectives

Monitoring & Research

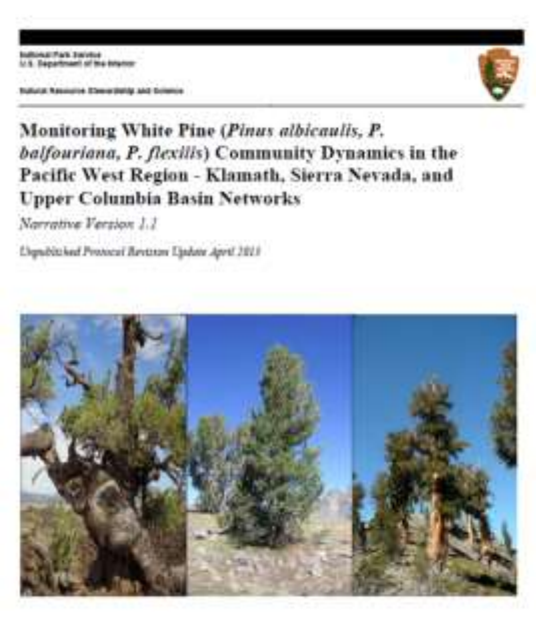


National Park Service
U.S. Department of the Interior

Natural Resource Stewardship and Science

Alpine and Subalpine Vegetation Monitoring Protocol for the North Coast and Cascades Network

Natural Resource Report NPS/NCCN/NRR—2012/570



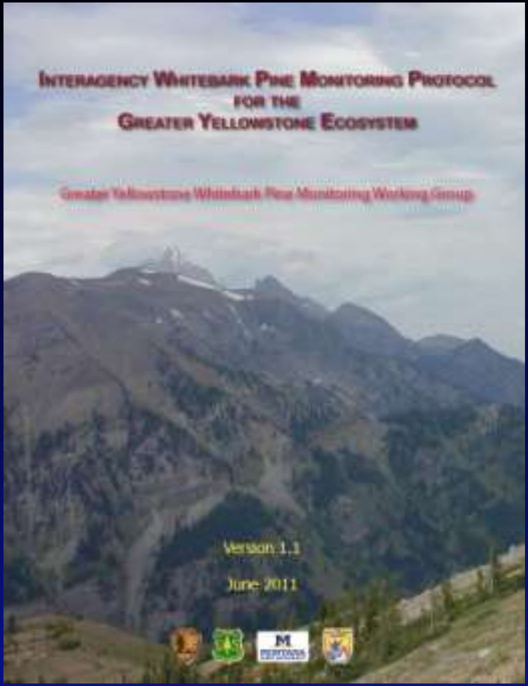
National Park Service
U.S. Department of the Interior

Natural Resource Stewardship and Science

Monitoring White Pine (*Pinus albicaulis, P. balfouriana, P. flexilis*) Community Dynamics in the Pacific West Region - Klamath, Sierra Nevada, and Upper Columbia Basin Networks

Narrative Version 1.1

Unpublished Protocol Revision Update April 2013



INTERAGENCY WHITEBARK PINE MONITORING PROTOCOL
FOR THE
GREATER YELLOWSTONE ECOSYSTEM

Greater Yellowstone Whitebark Pine Monitoring Working Group

Version 1.1

June 2011

Crater Lake, Glacier, Grand Teton

Crown of the Continent Five Needle Pine Working Group

Greater Yellowstone Whitebark Pine Subcommittee

Crater Lake Whitebark Pine Conservation Plan

Southern Sierra Nevada Mountain Working Group

Cascade Mountains

Klamath Network
https://science.nature.nps.gov/im/units/klmn/monitor/whitebark.cfm

North Coast Cascades Network
https://science.nature.nps.gov/im/units/nccn/monitor/subalpine.cfm

Rocky Mountains

Greater Yellowstone Network
https://science.nature.nps.gov/im/units/gryn/monitor/whitebark_pine.cfm

Greater Yellowstone Whitebark Pine Strategy

Crown of the Continent Research Learning Center
https://www.nps.gov/articles/whitebark-pine-brief.htm

Sierra Nevada Mountains

Sierra Nevada Network
https://science.nature.nps.gov/im/units/sien/monitor/forests.cfm

GLACIER WHITEBARK CONSERVATION MANAGEMENT ACTIONS

Seed Collection

<u>Purpose</u>: to collect seed from potentially blister-rust resistant whitebark pine trees for propagation and use in future restoration projects.

Seedling survival

<u>Purpose</u>: Seed collected from whitebark pine trees that show signs of genetic resistance from blister rust is germinated and grown in a nursery setting. Seedlings are planted at specific sites around Glacier National Park in an effort to restore the ecosystem with disease-resistant trees.

Cone tree monitoring

<u>Purpose</u>: to identify and build baseline data for potential rust resistant whitebark pine trees ("plus trees") for field monitoring over time, as well as identify potential cone collection trees for the future.

Seed planting

<u>Purpose</u>: Due to the mortality and expense associated with growing and planting seedlings, seeds from potentially resistant whitebark pine trees were directly planted in the ground at specific sites around Glacier National Park in an effort to restore the ecosystem with disease-resistant tre

U.S. Department of the Interior

Crater Lake National Park

Whitebark Pine Conservation Plan

WHITEBARK PLUS TREE MONITORING

A. INTRODUCTION