



Re-establish Tree Seedlings in Severely Burned Giant Sequoia Groves and Adjacent Fisher Habitat Corridor

Virtual Public Meeting
March 7, 2023, 5:00-6:30PM

A screenshot of a Microsoft Teams live event interface. The main content area displays "OneDrive Demonstration" at the top and "The live event hasn't started" in the center. On the right, a "Live event Q&A" sidebar is visible with tabs for "Featured", "My questions", and "Most recent". Below the tabs is a circular profile picture of a cartoon rabbit and the text "No featured questions yet". At the bottom, a video player shows a progress bar at 1:06 / 2:46. Three red annotations with arrows point to specific UI elements: "View or hide Q&A" points to the Q&A icon in the top right; "Adjust the sound" points to the volume icon in the bottom left; and "Captions" points to the captions icon in the bottom right.

OneDrive Demonstration

Need help? Leave

View or hide Q&A

The live event hasn't started

Adjust the sound

Captions

Live event Q&A

Featured My questions Most recent

No featured questions yet

1:06 / 2:46



Meet the Team



Clay Jordan
Superintendent



Elly Boerke
Branch Chief, Environmental
Planning and Compliance



Sintia Kawasaki-Yee
Branch Chief, Communications and
Management Support



Dr. Christy Bringham
Chief of Resources Management
and Science



Andrew Bishop
Restoration Ecologist



Presentation Overview

- **Project Proposal Introduction** - Clay Jordan
- **Purpose and Need** – Christy Brigham
- **Background** – Christy Brigham
 - Sequoia and Fisher
 - Post-fire Conditions
- **Proposed Action** – Andrew Bishop
- **Planning Process and Next Steps** – Elly Boerke



Board Camp Grove. NPS Photo.



Purpose and Need

In order to prevent an unacceptable loss of sequoias, a fundamental resource for which these parks were established, and restore proposed critical habitat for an endangered species, the purpose of the proposed action is to promote post-fire recovery of giant sequoia groves and proposed fisher critical habitat impacted by high severity fire in areas where these forests are unlikely to recover without intervention.



Board Camp Grove Immediately Post-Fire. NPS Photo.



Sequoia and Kings Canyon National Parks

Establishment of the Parks

- Sequoia National Park - 1890
- General Grant National Park - 1890
- Kings Canyon National Park - 1940

"Whereas the rapid destruction of timber and ornamental trees in various parts of the United States, some of which trees are the wonders of the world on account of their size and the limited number growing, makes it a matter of importance that at least some of said forests should be preserved..."

– Enabling Legislation for Sequoia National Park



General Grant Tree. NPS Photo.



John Krebs and Sequoia Kings Canyon Wilderness Areas

Establishment of the Wilderness Areas

- Sequoia-Kings Canyon Wilderness - 1984
- John Krebs Wilderness – 2009

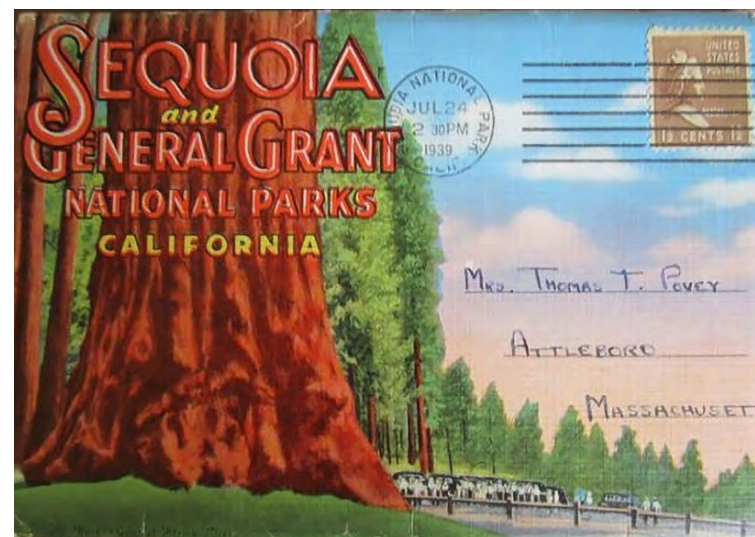
"[The] rolling, forested [Hockett] plateau contains meadows, lakes, granite domes such as the prominent Homer's Nose, and significant groves of giant sequoia trees."

– Wilderness Recommendation, 1971



Sequoia Grove. NPS Photo.

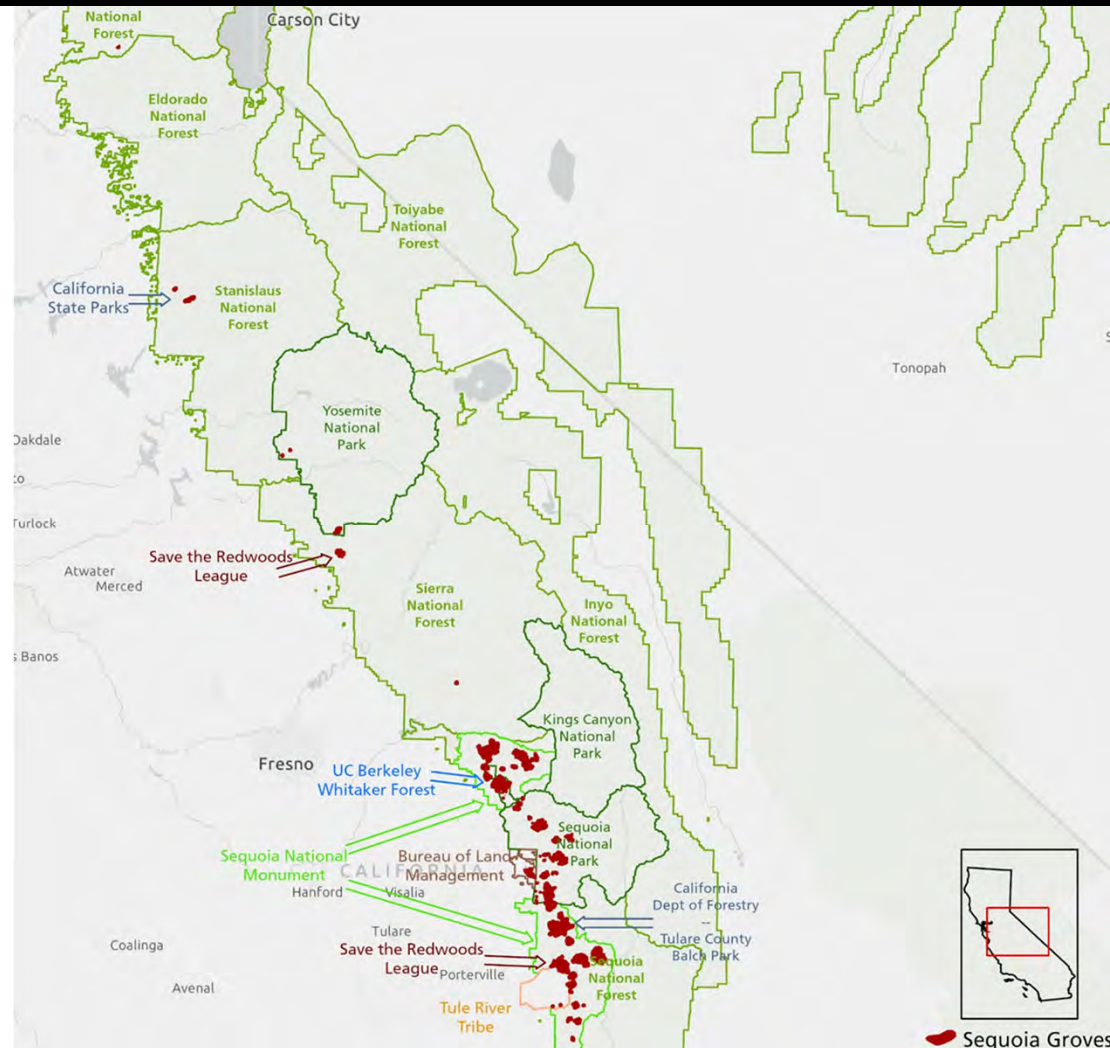
Sequoia and Kings
Canyon National Parks





Background: Sequoia Ecology

- Narrow distribution
- Only in approximately 78 scattered groves
- Every grove is important
- Full habitat area in each grove is important
- Prior to 2015 groves survived many previous fires and droughts
- Climate change
- Fire suppression x climate change-driven hotter droughts



Sequoia Groves



Background: Sequoia Ecology

- Frequent fire system: little fuel accumulation, mixed severity, fires every 14-28 years
- Adapted to fire
 - Ideal seedling habitat are small (less than 1 acre) canopy openings after fire with bare mineral soil
 - Vast majority of regeneration happens in year one and two after fire
 - Cones open from heat
 - Thick bark, high branches
- Lots of seedlings post fire (approx. 30,000 seedlings/acre)
- Overall mortality of natural seedlings is typically very high
- Many chances to reproduce



Giant sequoia seedlings. NPS Photo.



Background: Fisher

- Southern Sierra distinct population segment (DPS) of Fisher listed as Endangered in 2020
- Causes of endangerment include wildfire-driven habitat loss and climate change
- Relatively large home ranges: 9800 acres (males), 6200 acres (females)
- Need: large trees for dens, small mammals to eat, and connected habitat areas



Fisher in Yosemite National Park. NPS Photo.



Summary: Social and Ecological Importance of Giant Sequoias

- Intrinsic value
- Inspires people in the past and today
- Parks enabling legislation
- Wilderness character
- Connects humans to deep time
- Economic driver
- Keystone species for forest structure
- Threatened and endangered species habitat



Giant Sequoias. NPS Photo.





Background: Post-Fire Conditions

- Videos
 - Board Camp and Garfield Grove
 - Redwood Mountain Grove
 - Photos
- Maps
 - Fire Severity and Sequoia Groves



High severity fire effects below Dillonwood Grove. NPS photo.



Board Camp Grove. NPS Photo.



Board Camp Grove. NPS Photo.



Board Camp Grove. NPS Photo.



Board Camp Grove. NPS Photo.



Redwood Mountain Grove (NPS Photos)



Redwood Mountain Grove. NPS Photo.



Redwood Mountain Grove. NPS Photo.

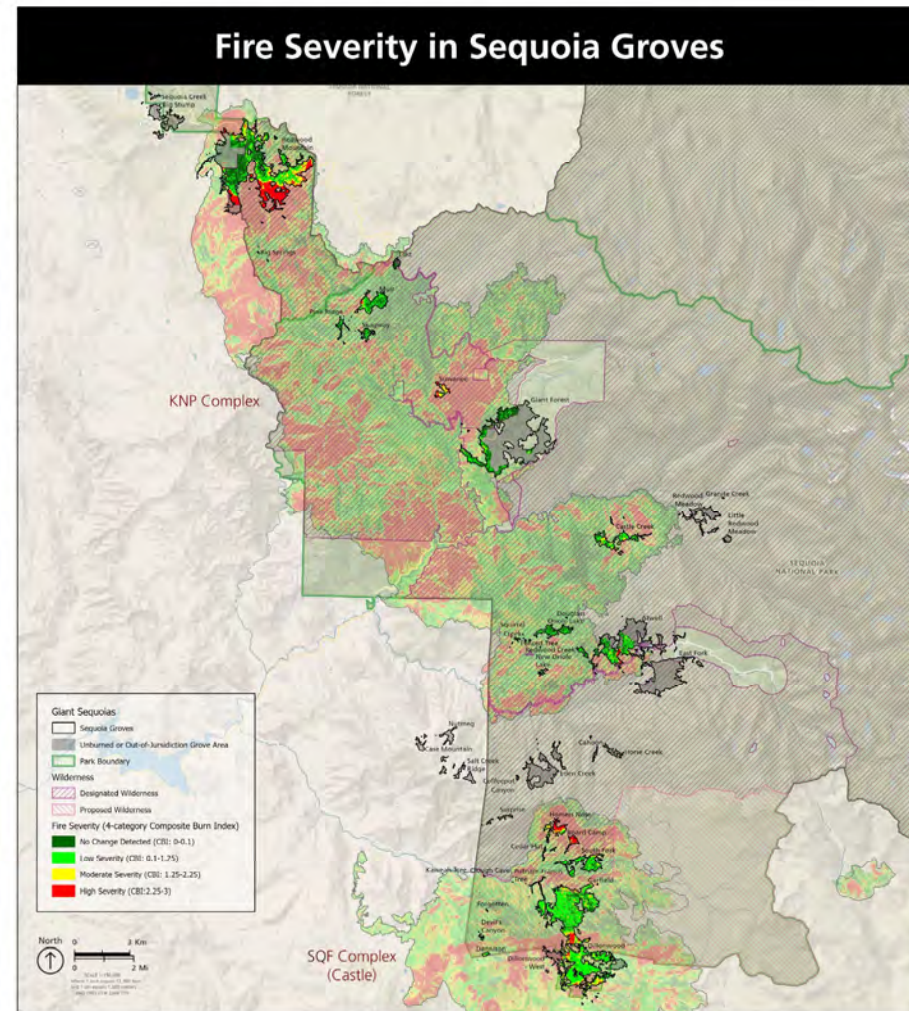


Redwood Mountain Grove. NPS Photo.



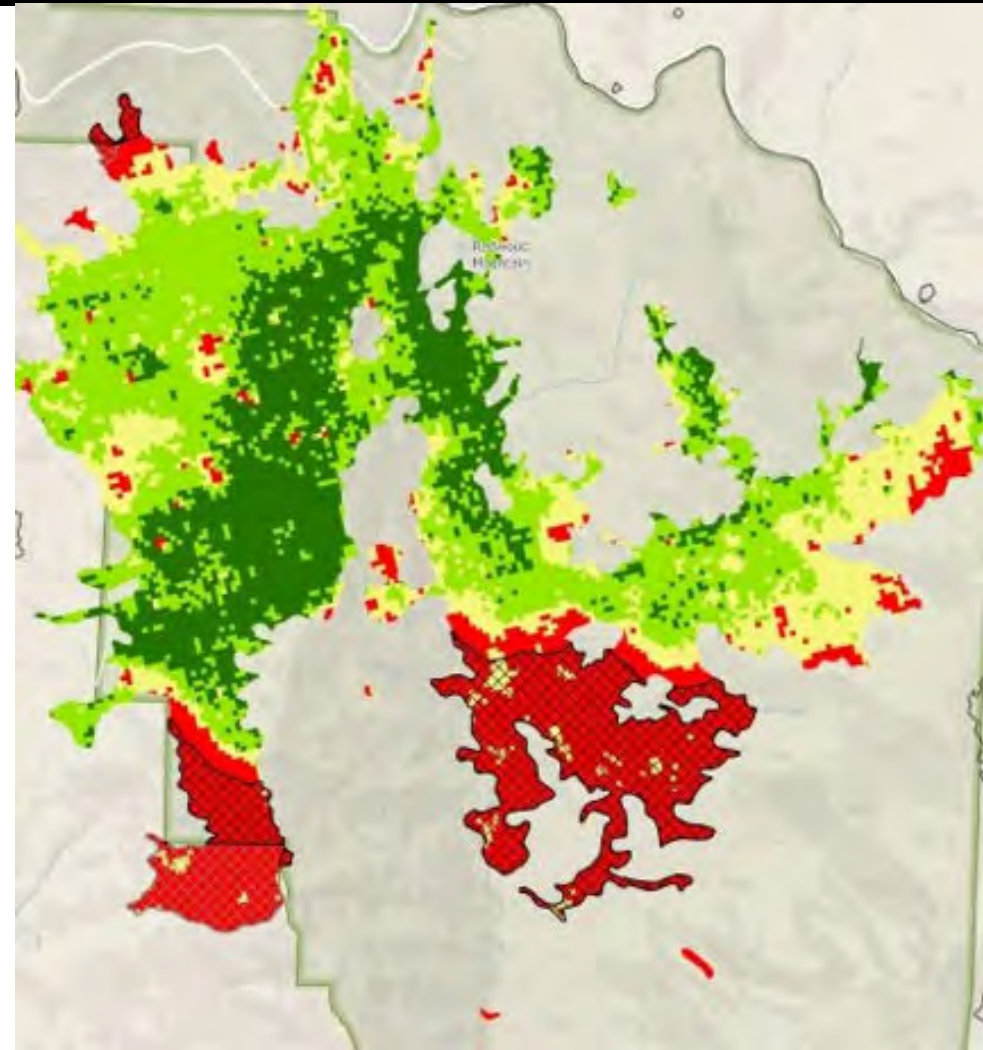
Fire Impacts Overview and Conclusion of Need for Action

- 11 NPS groves burned in the Castle
- 16 NPS groves burned in the KNP
- A large proportion of fisher habitat burned and connectivity appears to be impacted
- Beneficial AND unprecedented negative impacts to key resources and values
- Unprecedented conditions observed in some burned groves and fisher habitat corridor
- Large-scale loss of adult sequoia trees (loss of regeneration potential)
- Potential for insufficient natural regeneration in some groves
- Proposed action including decision tree



Are there Large Patches of High Severity Fire?

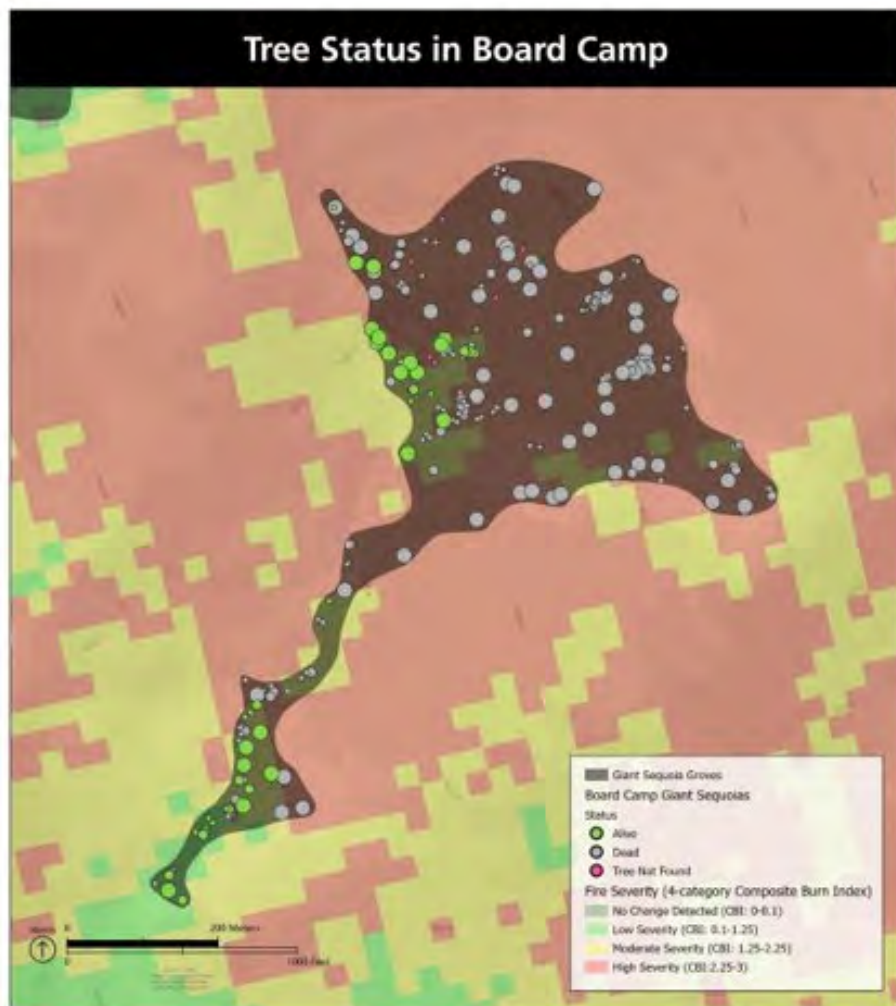
- Redwood Mountain
- High variation in fire severity



Tree Status in Board Camp

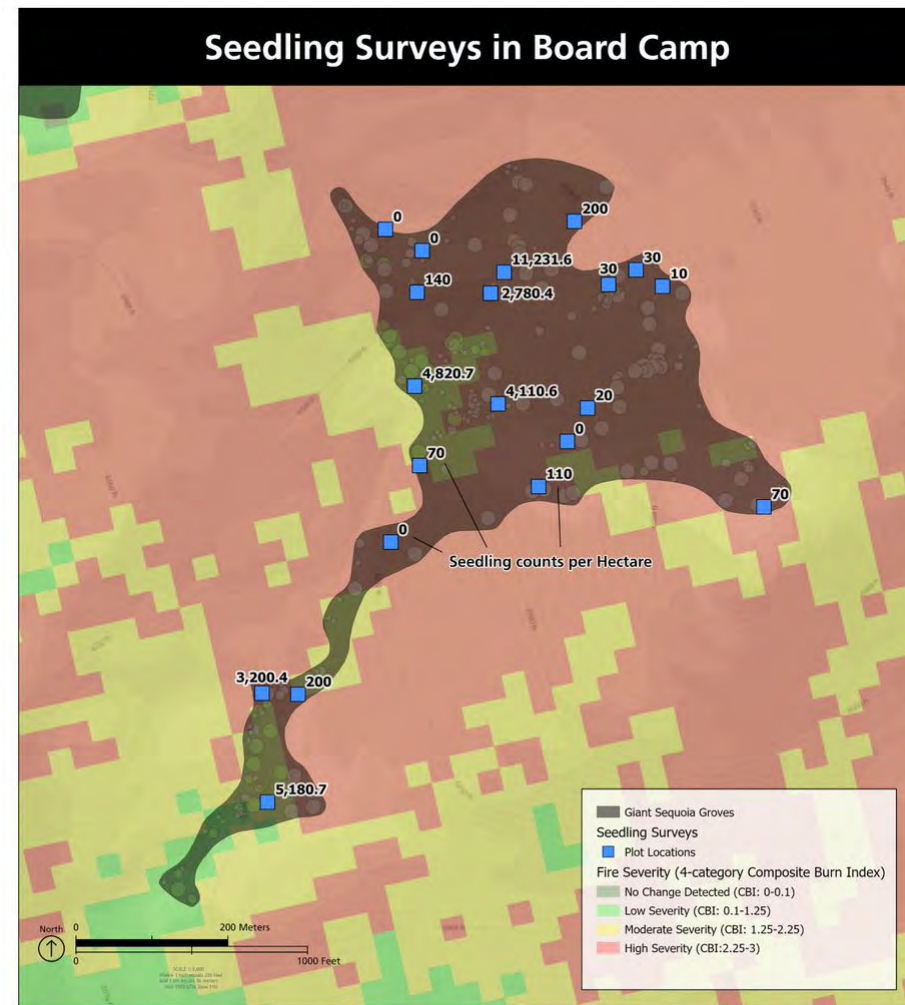
Are there living reproductive trees?

- Board Camp Grove
- Reproductive tree survival
 - Green: living
 - Grey: dead
- Full inventory vs stratified sampling



Are there enough seedlings?

- Board Camp Grove
- Stratified sampling of seedlings
- Majority of plots with not enough seedlings.





Will grove areas support forest in future climate?

- Climate Suitability
- Temperature and precipitation
- Indicate all grove areas are likely to support forest under future climate scenarios.



Giant Forest. Kirke Wrench.



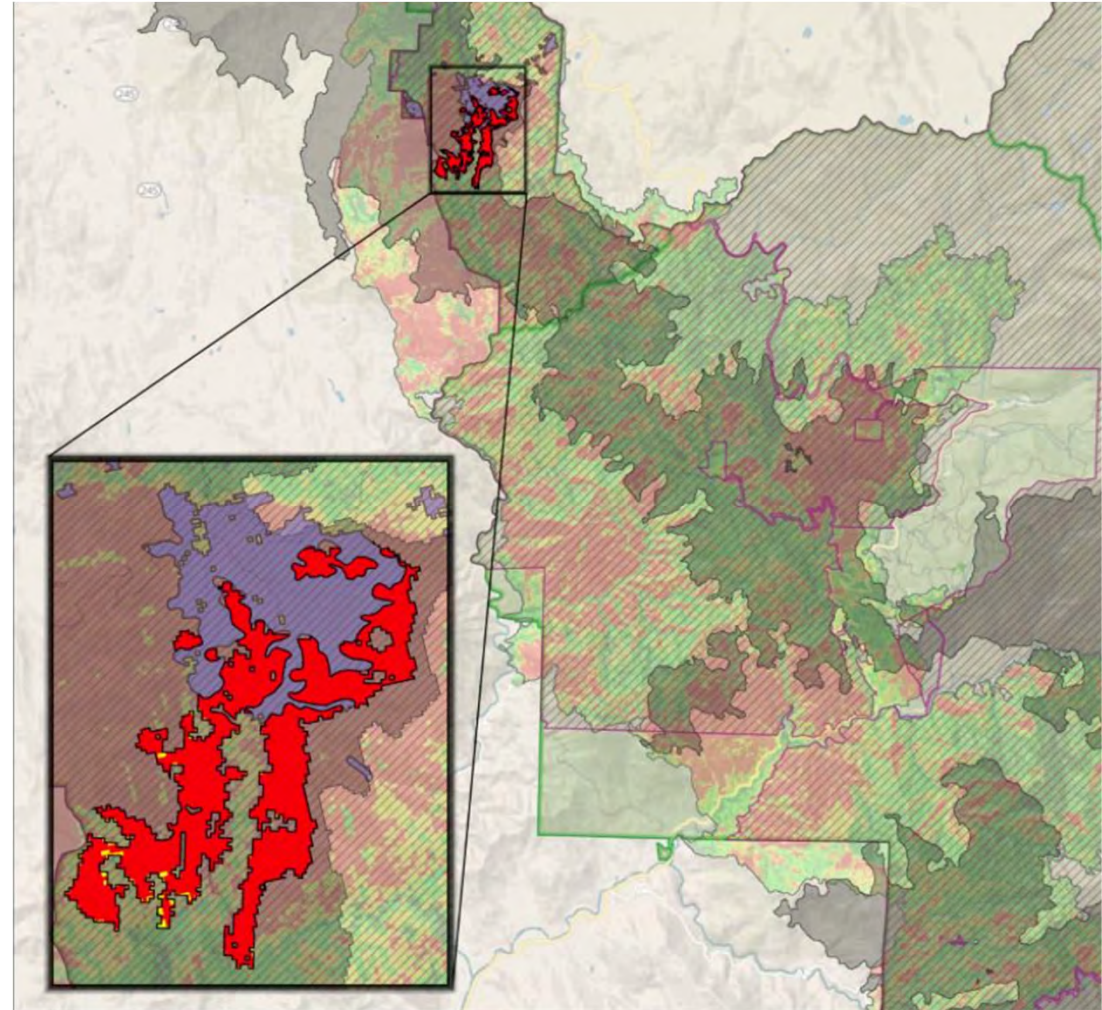
Grove Overview

Grove Name	Total Acres High Severity	Total Acres Proposed Potential Planting	Field Survey Status
Board Camp	38	38	completed
Redwood Mountain	516	493	completed
Suwanee	27	26	initiated
Dillonwood	111	86	initiated
Homer's Nose	55	52	scheduled summer 2023
New Oriole Lake	3	3	scheduled summer 2023
Total	750	698	



Fisher Habitat Corridor

- 72,219 acres proposed critical habitat
- 12,411 acres burned at high severity
- Habitat Connectivity analysis
- Proposed potential planting of 485 acres
- Field Surveys Initiated





Board Camp Grove. NPS Photo.

Proposed Next Steps

- 1) Complete field assessment for Suwanee, Dillonwood, Homer's Nose, New Oriole Lake and Fisher Habitat.
- 2) Where indicated based on the decision tree, move forward with planting-related actions.
- 3) Collect cones and grow seedlings.
- 4) Develop site-specific planting plans.
- 5) Plant in Fall/Spring.
- 6) Monitor.



Cone Collection

- Initiated in September 2022
- <10% seed production per year per grove
- Augmented with ground collections



Cone Collector. NPS Photo.



Propagation

- Initiated with cold storage in January
- Sowing in March
- Seedling size between Styro 4 and Styro 15 (4-15 cubic inch root plug)
- 3-8 inch tall seedlings
- Sequoia Groves:
 - giant sequoia
 - sugar pine
- Fisher Habitat Corridor:
 - Ponderosa Pine
 - Jeffrey Pine
 - Sugar Pine



Sequoia Propagation. Photo by Steen Christensen.



Sequoia Seedlings. NPS Photo.

Proposed Planting

- Site-specific planting plan
- 200-600 seedlings per acre
- Plant individuals and clusters with openings: better survivorship and to mimic stand structure
- October or early spring
- Crew of roughly 15 to plant
- Planting by hand with small spade shovels or planting bars (dibbles)
- Planned Plantings: fall 2023-fall 2025





Monitoring

- Track survivorship percentage (not individual trees)
- Planting density may be updated based results and analysis
- If low survival, we would consider supplemental plantings as late as 2028

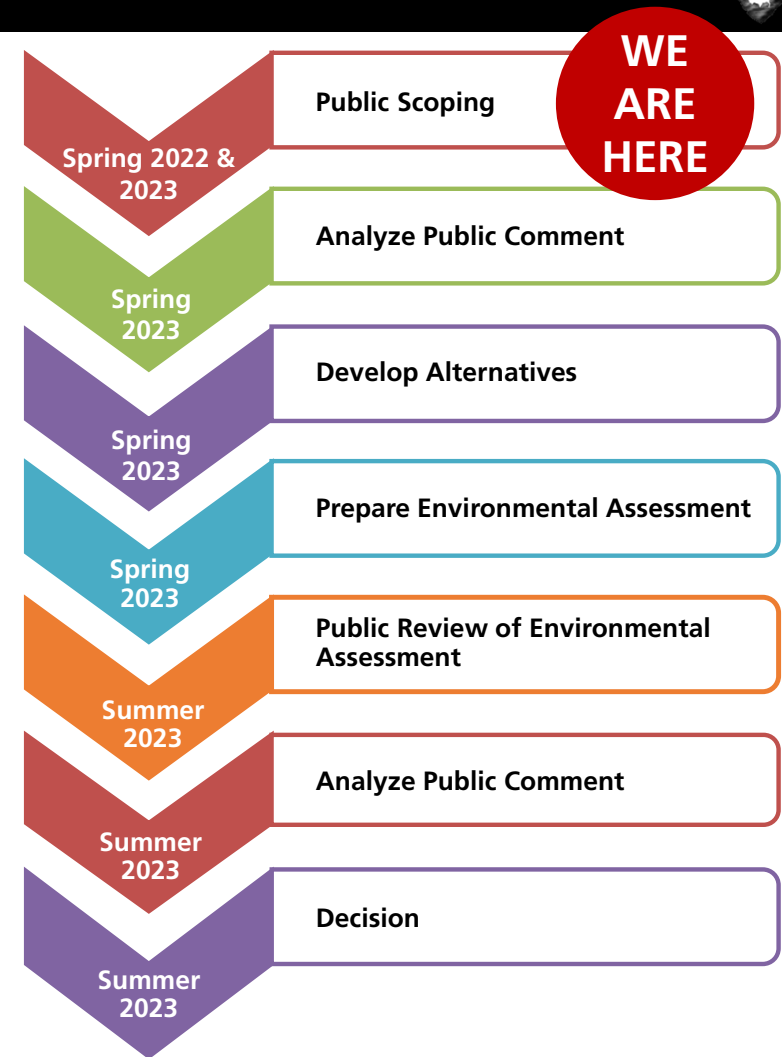


Redwood Mountain Grove. NPS Photo.



Next Steps in the Planning Process

- **Public Scoping:** Comments will be accepted through midnight, March 18, 2023.
- **Public Comment Analysis:** The planning team will evaluate public comments for consideration in the preparation of the environmental assessment.
- **Public Review:** The public will have an opportunity to review and comment on the environmental assessment later this spring or summer.
- **Decision:** The NPS intends to make a decision on this planning effort by fall 2023.
- **Additional Compliance:** The NPS is completing additional analyses and consultations to ensure agency decision-making conforms with all federal resource protection laws.





Resources of Particular Concern

- Sequoia Grove Recovery and Resilience
- Fisher and Fisher Habitat
- Wilderness



Board Camp Grove. NPS Photo.



Proposal Review and Compliance with Federal Resource Protection Laws

- National Environmental Policy Act (NEPA)
- Wilderness Act
- National Historic Preservation Act (NHPA)
- Endangered Species Act (ESA)



Board Camp Grove. NPS Photo.



How to Comment

Comments will be accepted through midnight, March 18, 2023.

Comments accepted via project website:

<https://parkplanning.nps.gov/ReEstablishGiantSequoiaPostFire2021>

OR

Via mail:

Superintendent

Sequoia and Kings Canyon National Parks

Attn: Re-establish Giant Sequoia

47050 Generals Highway

Three Rivers, CA 93271

National Park Service (PEPC) Planning, Environment & Public Comment

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PROJECT LINKS

- [Project Home](#)
- [Plan Process](#)
- [Meeting Notices](#)
- [Links](#)
- [Document List](#)
- [Open For Comment \(1\)](#)

A comment period for this project closes Mar 18, 2023: 20 Days, 0 Hours, 20 Min.

Re-establish Tree Seedlings in Severely Burned Giant Sequoia Groves and Adjacent Fisher Habitat in Sequoia and Kings Canyon National Parks



[Sequoia and Kings Canyon National Parks » Re-establish Tree Seedlings in Severely Burned Giant Sequoia Groves and Adjacent Fisher Habitat in Sequoia and Kings Canyon National Parks » Document List](#)

The National Park Service (NPS) is seeking public feedback on a proposal to replant giant sequoia and other mixed conifer seedlings in up to six giant sequoia groves and in an endangered fisher mixed conifer habitat corridor severely impacted by recent wildfires. Although other groves and mixed conifer forests in Sequoia and Kings Canyon National Parks were impacted to some extent by recent wildfire, these seven areas burned at such high and unprecedented severity and resulted in such extensive sequoia and mixed conifer mortality that the natural species composition of these forest ecosystems are unlikely to recover—and will instead remain vulnerable to fire initiated long-term conversion from forest to shrub dominated communities.

Under the proposal, the NPS is considering action in areas where data shows insufficient natural regeneration for forests to successfully re-establish and as further determined necessary by site-specific minimum requirement analyses for actions proposed in wilderness. Should action be taken in any of the areas being considered, the establishment of seedlings in severely burned areas would mimic natural processes—pointing these groves and critical habitat toward forest recovery—as they would have done naturally had they not experienced severe fire effects during recent fires.

NPS is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) and is completing supporting analyses in accordance with the Wilderness Act and other resource protection laws to facilitate decision-making and to ensure proposed agency action conforms with all resource protection laws. Consultation with the tribes and state and federal agencies will also be completed prior to making a final decision.

Additional information about the proposed action can be accessed via the "Document List" link on the left-hand side of this page. The NPS is also hosting a virtual public meeting on the proposed action on Monday, February 27, 2023, from 5:00 to 6:00 pm. A link to this public meeting is available via the "Meeting Notices" link on the left-hand side of this page.

Public comments on the proposed action will be accepted through midnight March 18, 2023. Please click "Document List" or "Open for Comment" on the left-hand side of this screen to comment on the project documents. The NPS anticipates the EA will be available to the public for their review in Summer 2023.

Contact Information
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Questions?

