



# Lake Tahoe West Restoration Partnership: Landscape Restoration Strategy and TRPA Code Update

DECEMBER 12, 2019



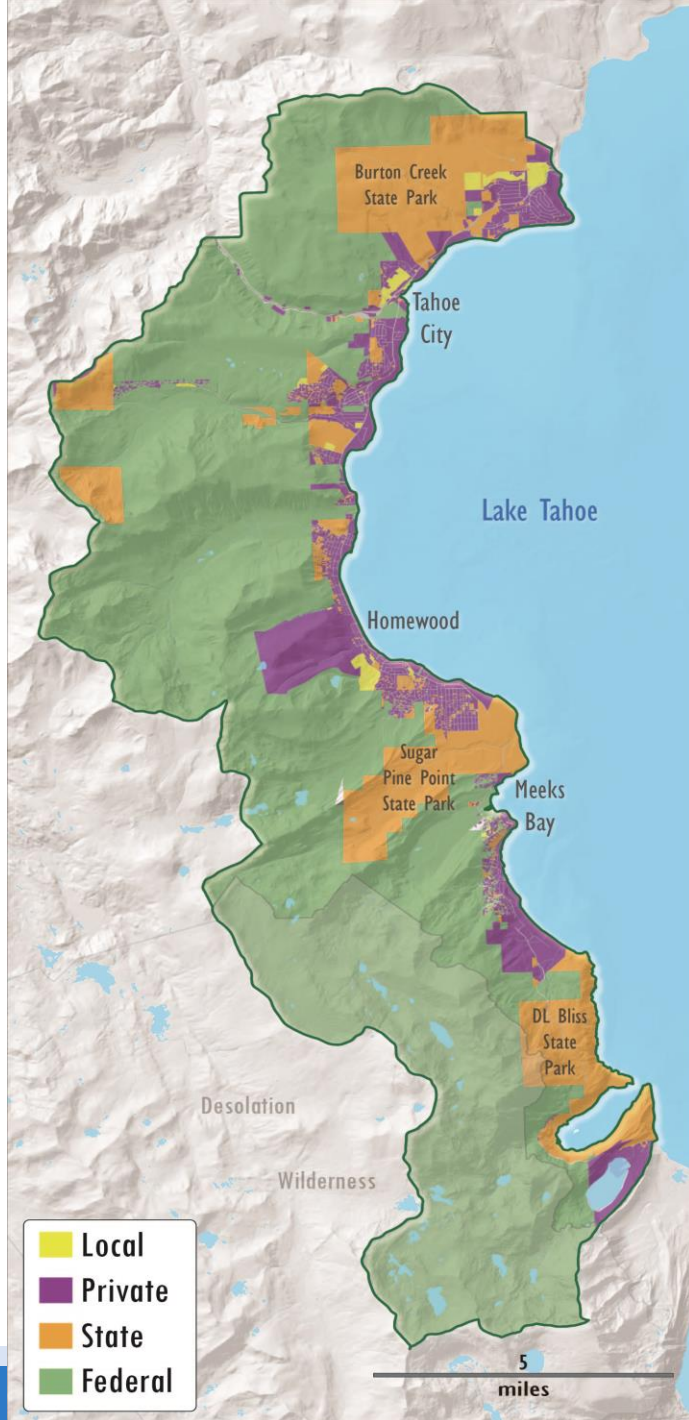
# Lake Tahoe West Restoration Partnership

- Formed in 2016
- Multiple agencies and stakeholders
- Seek to increase ecosystem resilience on 60,000 acres of west shore
- At risk of high-severity fire and tree mortality
- Increase pace and scale of restoration





# TAHOE REGIONAL PLANNING AGENCY



December 12, 2019

# Phases of LTW Process

Phase of LTW Collaborative Process	Activity
Phase 1	Landscape Resilience Assessment (LRA)
Phase 2	Landscape Restoration Strategy (LRS)
Phase 3	Project Planning
Phase 4	Permitting
Phase 5	Implementation
Ongoing	Monitoring and Adaptive Management
Ongoing	Community Protection Actions

# Landscape Resilience Assessment

- Identified landscape attributes and their current levels of resilience to disturbance.
- Concluded west shore forests and watersheds are not currently resilient to fire, drought, and climate change.
- High tree density, fuel loading, high levels of ladder fuels.
- Meadows cannot provide refuge in changing climate and 80% of streams have barriers to fish passage.



Lake Tahoe

Homewood



# Landscape Modeling and Analysis

- Modeled 4 scenarios:
  - Scenario 1: Suppression only
  - Scenario 2: Thinning in WUI only
  - Scenario 3: Thinning in WUI, General Forest, and Wilderness ★
  - Scenario 4: Thinning in WUI, Rx Fire in all management zones, allow for managed natural ignitions.

# Phases of LTW Process

Phase of LTW Collaborative Process	Activity
Phase 1	Landscape Resilience Assessment (LRA)
<b>Phase 2</b>	<b>Landscape Restoration Strategy (LRS)</b>
Phase 3	Project Planning
Phase 4	Permitting
Phase 5	Implementation
Ongoing	Monitoring and Adaptive Management
Ongoing	Community Protection Actions



# Landscape Restoration Strategy

- Informed by the modeling results
- Combines aspects of Scenarios 3 and 4
- Continue to reduce risk near communities
- Expand forest and watershed restoration in general forest
- Increase forest thinning and Rx fire

# Key Recommendations

- Substantially increase forest thinning and prescribed fire
- Protect communities from high-severity wildfire.
- Minimize smoke impacts
- Actively manage forested habitat, including Protected Activity Centers.



# Key Recommendations

- Restore meadow, riparian, aquatic, and aspen ecosystems to support native species.
- Restore streams and streamside habitat to increase resilience.
- Prioritize programs to manage and reduce invasive species.



# Key Recommendations

- Collaborate to facilitate cross-jurisdictional restoration.
- Enhance engagement with the Washoe Tribe.
- Support and build resilience into the local economy and recreation industry.



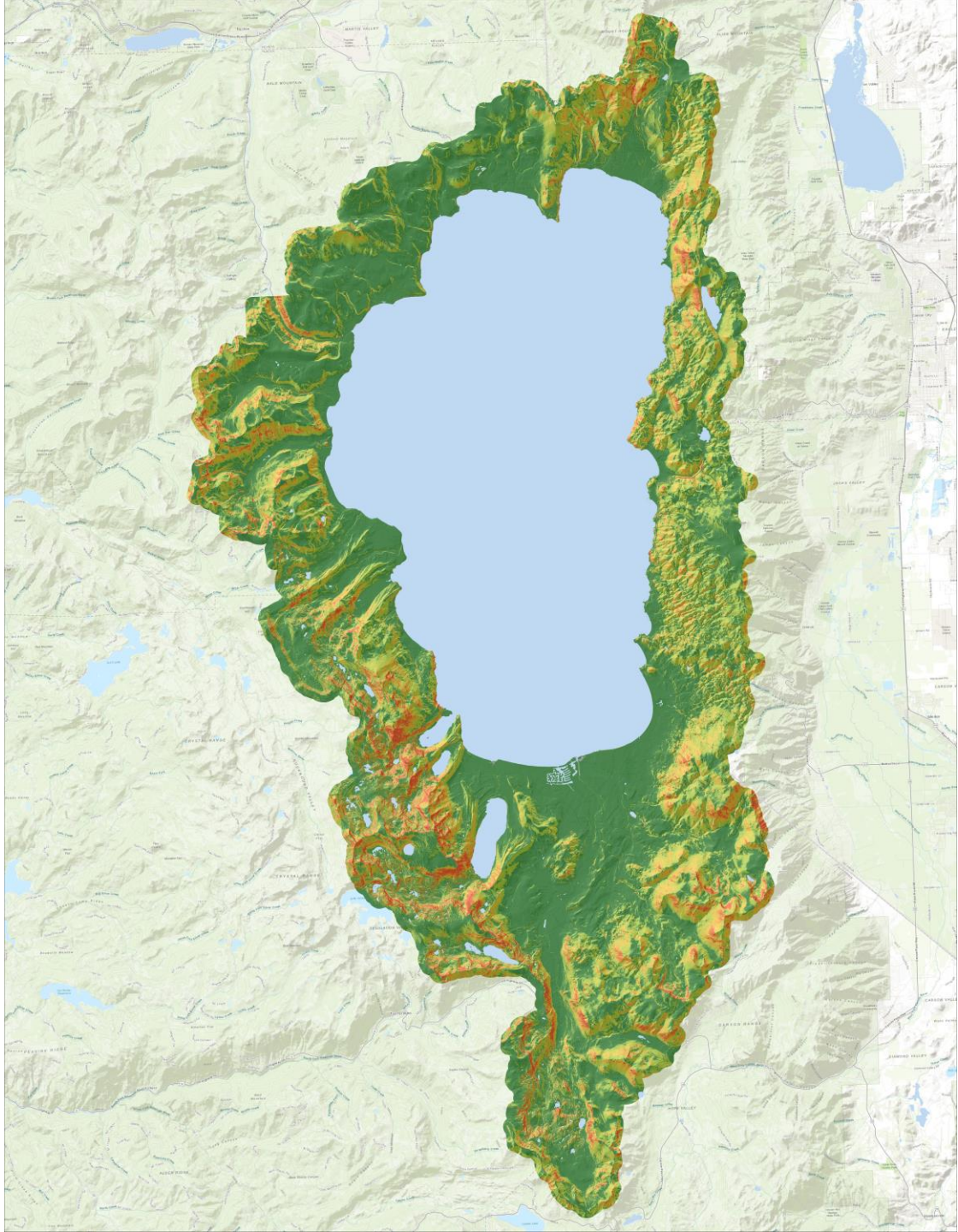
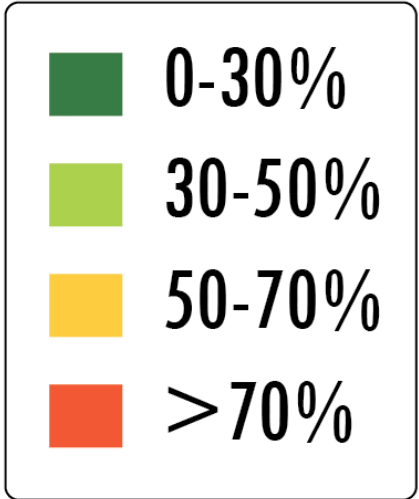
# Phases of LTW Process

Phase of LTW Collaborative Process	Activity
Phase 1	Landscape Resilience Assessment (LRA)
Phase 2	Landscape Restoration Strategy (LRS)
<b>Phase 3</b>	<b>Project Planning</b>
Phase 4	Permitting
Phase 5	Implementation
Ongoing	Monitoring and Adaptive Management
Ongoing	Community Protection Actions

# Next Steps: Implementation

- Multiple projects are in progress or being planned
- ★ Landscape-wide planning-  
October 2019
  - Implementation in 2022
- Funding Strategy
- Monitoring and Adaptive Management Plan








Lake Tahoe

Homewood

-  Slopes 30-50%
-  Resilient Forest Density
-  Non Resilient Forest Density



# Lake Tahoe West: Implementation

- 20% of the LTW landscape has slopes 30-50%
- TRPA code restricts mechanical treatment to slopes less than 30%.
- Areas with slopes over 30%, treatments are limited to hand thinning or aerial yarding



# Lake Tahoe West: Implementation

- Current TRPA code was created:
  - Based on the Bailey Land Capability Classification System
  - To address concerns regarding erosion and sediment delivery from steeper slopes to waterways

TABLE 61.1.5-4: TREE REMOVAL METHODS

Land Capability District	Removal Method
1a, 1c, or 2	Aerial removal, hand carry, and use of existing roads, in conformance with subsection 61.1.6. Over-snow removal may be approved pursuant to subparagraph 61.1.6.F.1.
1b (Stream Environment Zone)	As permitted in Land Capability District 1a, end lining may be approved when site conditions are dry and stable, or when winter conditions are adequate for end lining operations so as to avoid adverse impacts to the soil and vegetation. The use of “innovative technology” vehicles and/or “innovative techniques” for removing trees from SEZs may be considered pursuant to subparagraph 61.1.6.C.1.b.
3	As permitted in Land Capability District 1b, Ground skidding pursuant to subparagraph 61.1.6.F.2 may be approved.
4 - 7, Inclusive	As permitted in Land Capability District 1b. Ground skidding, as well as pickup and removal by conventional construction equipment, may be approved. Ground-based vehicle systems for removing trees without skidding may be approved pursuant to subparagraph 61.1.6.F.5.

# Other Agencies

- Other agencies within the basin currently allow treatment on slopes 30%-50%
- Specifically Lahontan Water Board allows mechanical thinning on slopes over 30% under the 2019 Timber Waiver with BMPs and monitoring requirements

# Lake Tahoe West: Implementation

- New innovative technologies and harvest methods for mechanical thinning on steep slopes
  - Low-pressure systems reduce soil impacts
    - Tracks versus wheels
    - More trees removed with less movement
  - Allow treatment of steeper slopes
    - Self-leveling cabs



December 12, 2019



December 12, 2019

## Drive to Tree

A drive to tree feller buncher is a rubber-tired machine with the cutting head mounted directly to the carrier. The whole machine drives up to each tree to cut it.

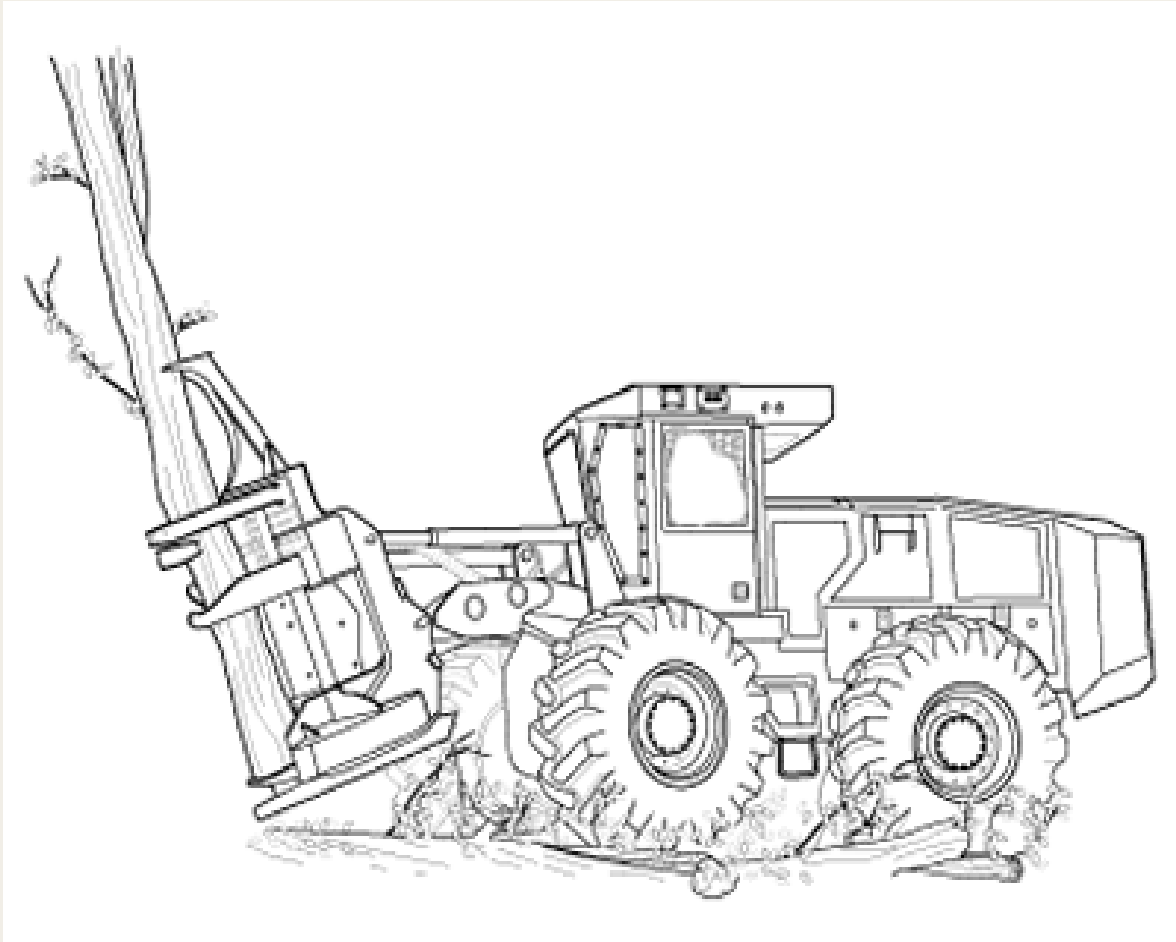


Figure 1. - Drive to tree feller buncher.

## Swing Boom

A swing boom feller buncher is a tracked machine with the cutting head mounted on a boom. The machine does not have to drive up to each tree to cut it.

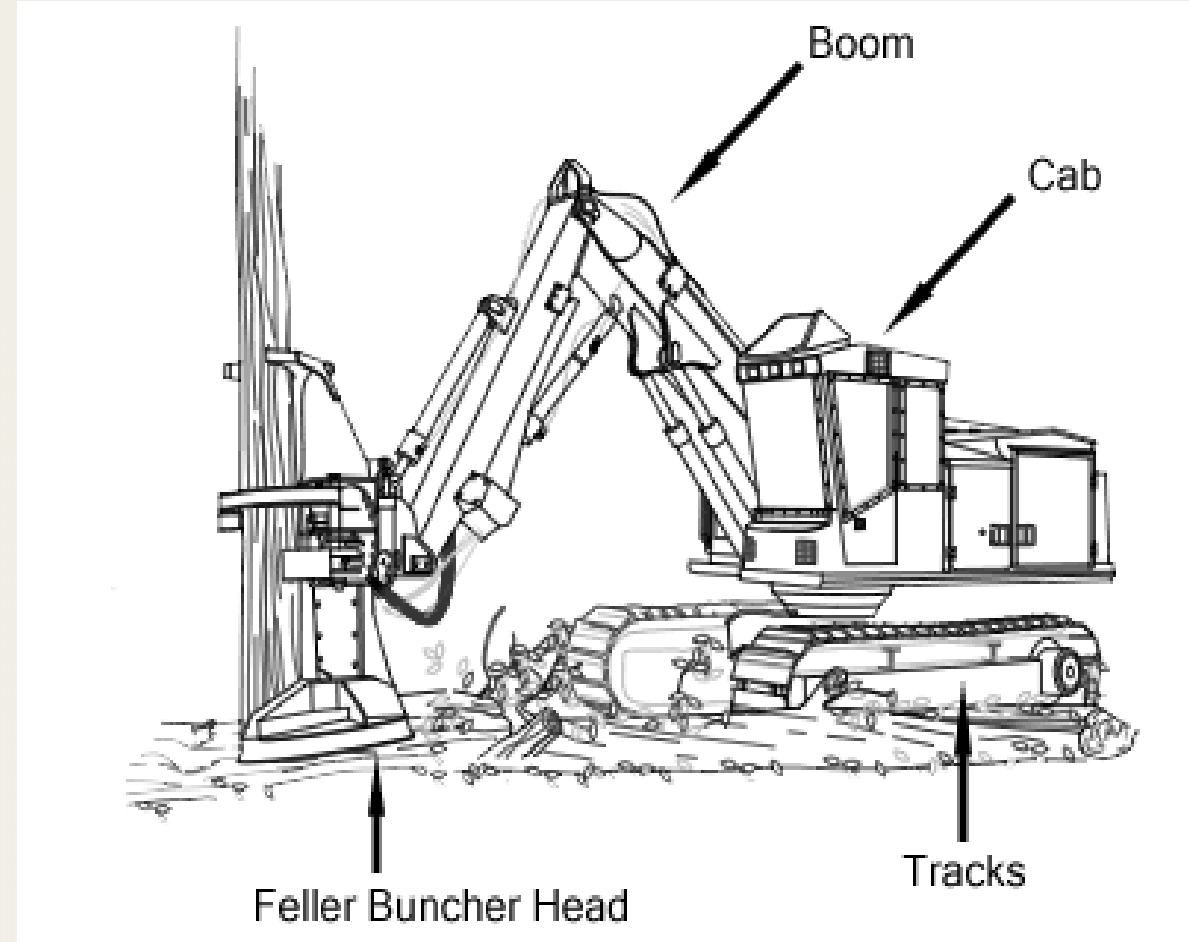


Figure 2. - Swing boom feller buncher.

# Lake Tahoe West and Basin Wide Benefits

- Basin-wide benefits
  - Outside LTW, 43,427 acres on slopes between 30%-50%
    - About 30% of total basin acreage (excluding LTW)
- Reduce acres treated by hand, burn piles and backlog, and smoke emissions
- Increase ecosystem resilience, decrease fire risk across basin
- Increase pace and scale of restoration
  - Mechanical treatments often less costly than hand and aerial thinning

# Future Analysis

- Recognition that not every slope is the same
- Will need analysis to identify soils, slopes, erosion risk, and treatments available
- Analysis to occur within Lake Tahoe West environmental review
- Initial findings indicate erosion from catastrophic wildfire is significantly larger than erosion from treatments.

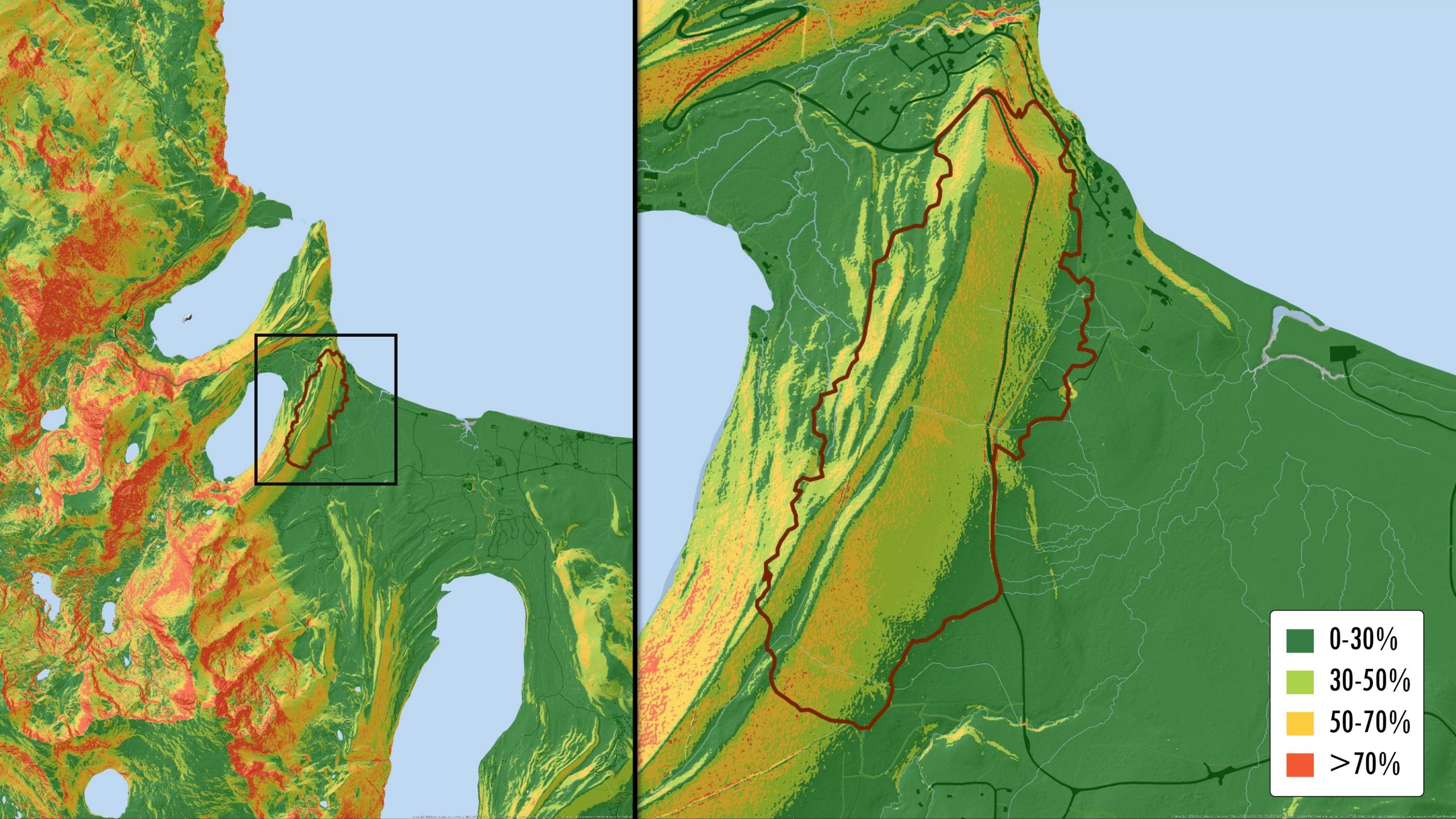


# Emerald Fire

- 2016
- 173 acres
- Fueled by high winds, followed by heavy rains



December 12, 2019



# The Emerald Fire- Not treated



# The Emerald Fire-Treated





# Summary

- Modeling indicates erosion and sediment delivery from high-severity wildfire is significantly greater than that from treatments.
- Emerald Fire provides an example of erosion, fire, and efficacy of treatments on steep slopes

# Timeline and Next Steps

- LRS released on December 6<sup>th</sup>, 2019
- Scoping February 2020
- Water quality, slopes, and soils analysis completed by Fall 2020

# Questions or Comments?