



# Climate-wise Reforestation Toolkit

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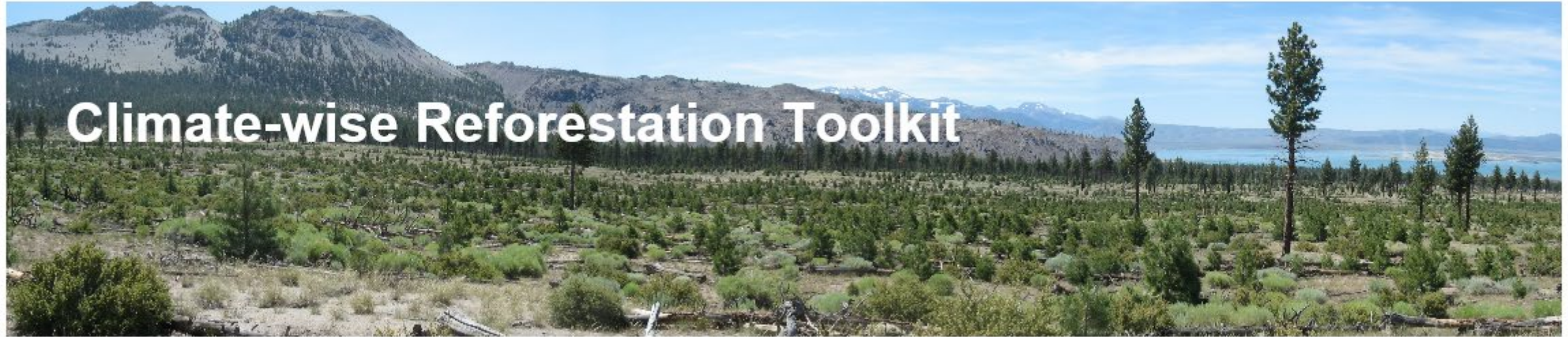


California Climate Hub  
U.S. DEPARTMENT OF AGRICULTURE



UC DAVIS  
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Welcome to the **climate-wise reforestation toolkit**. Due to significant levels of tree mortality during the 2012 to 2016 California drought, there is now a need to reforest in areas where much of the forest overstory has been lost. The toolkit consists of three resources that can be used individually or together to inform reforestation decisions in context of tree mortality and climate change. The **reforestation prioritization tool** was designed to help locate where to

- 3 main components
  - Reforestation prioritization tool
  - Post-drought stand condition tool
  - Best management practices (BMP)



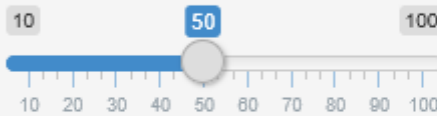
# Why build a reforestation prioritization tool?

- Managers wanted to know how to “fix” the problem
- Foster holistic thinking about the landscape
- We have limited resources for vast landscape
  - Designed the tool to show
    - Areas with the biggest tree losses
    - Accessible places
      - Moderate constraints
      - Fewer constraints
    - Areas with higher probability of planting success
      - Climatic water deficit
    - High severity fire core

**Step 2: Select reforestation need threshold:**

Mortality Threshold (% loss)

10 50 100



10 20 30 40 50 60 70 80 90 100

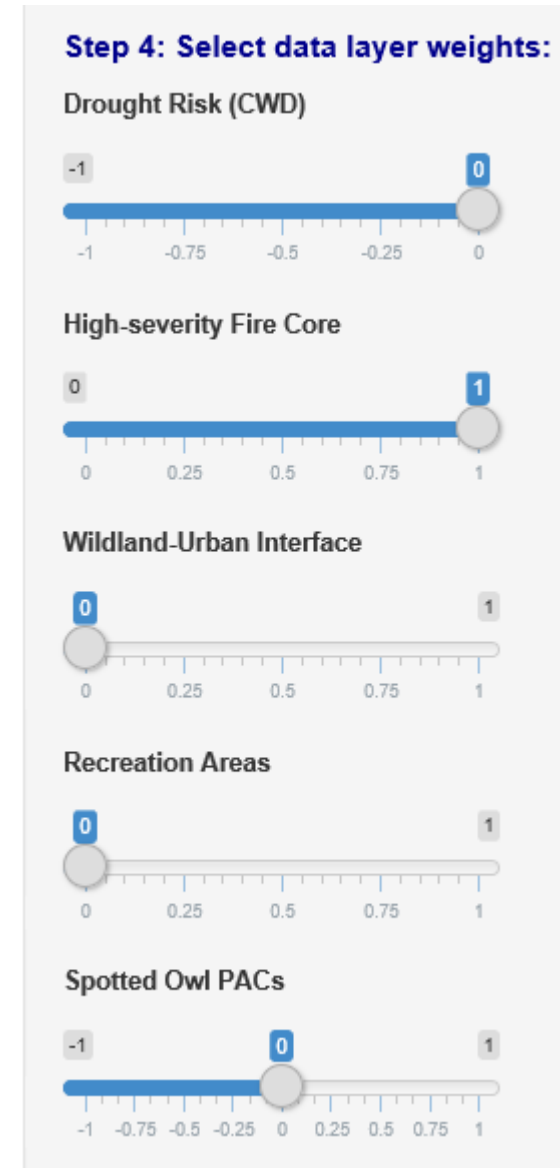
**Step 3: Select mechanical constraint scenario:**

Moderate constraints

Fewer constraints

# Tool design

- We wanted to help managers incorporate values
  - Wildland-urban interface
  - Recreation areas
  - Spotted owl PACs
  - Fisher core habitat
- Balance of art of management with simplicity



# Best Management Practices Guide

[About](#)[Prioritization tool](#)[Stand summary tool](#)[BMP guide](#)[Technical Info](#)

## Best Management Practices for climate-wise reforestation

This document outlines some recent advances in reforestation strategies in an age of climate change and altered disturbance regimes. We rely heavily on the 2019 [Tamm Review: Reforestation for resilience in dry western U. S. forests](#) by North et al, which readers are encouraged to review for further details. A research brief of the article is also available [here](#). For brevity, conventional reforestation practices are not covered in this document. It is our hope that practitioners will incorporate these state of the science strategies with previously established forestry knowledge and tailor solutions for each unique project.

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## 1 - Seed Zonation

We suggest areas of recent drought- or wildfire-caused tree mortality be subdivided into three management zones:

1. Areas where natural tree recruitment is likely to be successful and active reforestation is unnecessary. Specifically aforested lands near existing seed sources. As a course rule of

# Stand Summary Tool

[About](#)[Prioritization tool](#)[Stand summary tool](#)[BMP guide](#)[Technical Info](#)

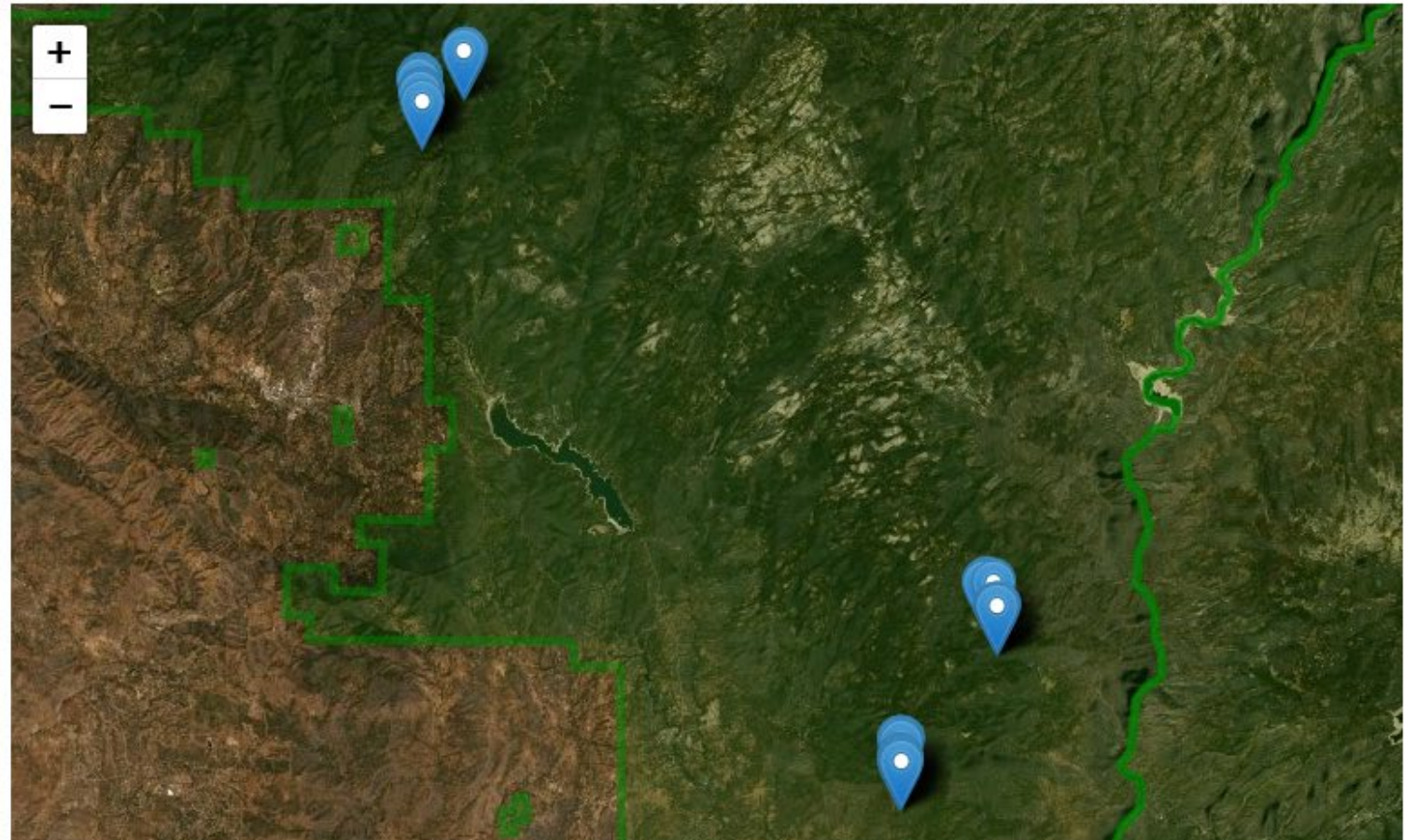
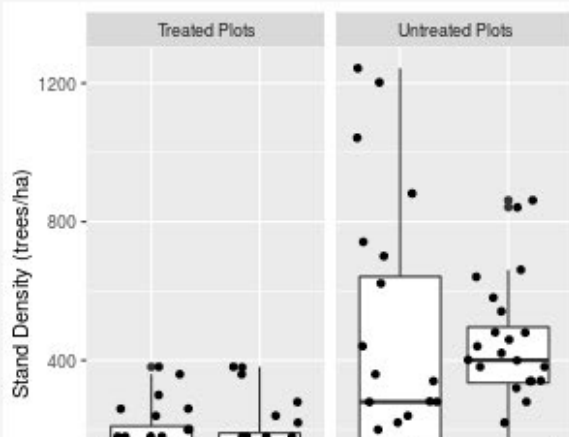
## Post-drought Stand Condition Summary Tool

### Step 1: Select area of interest

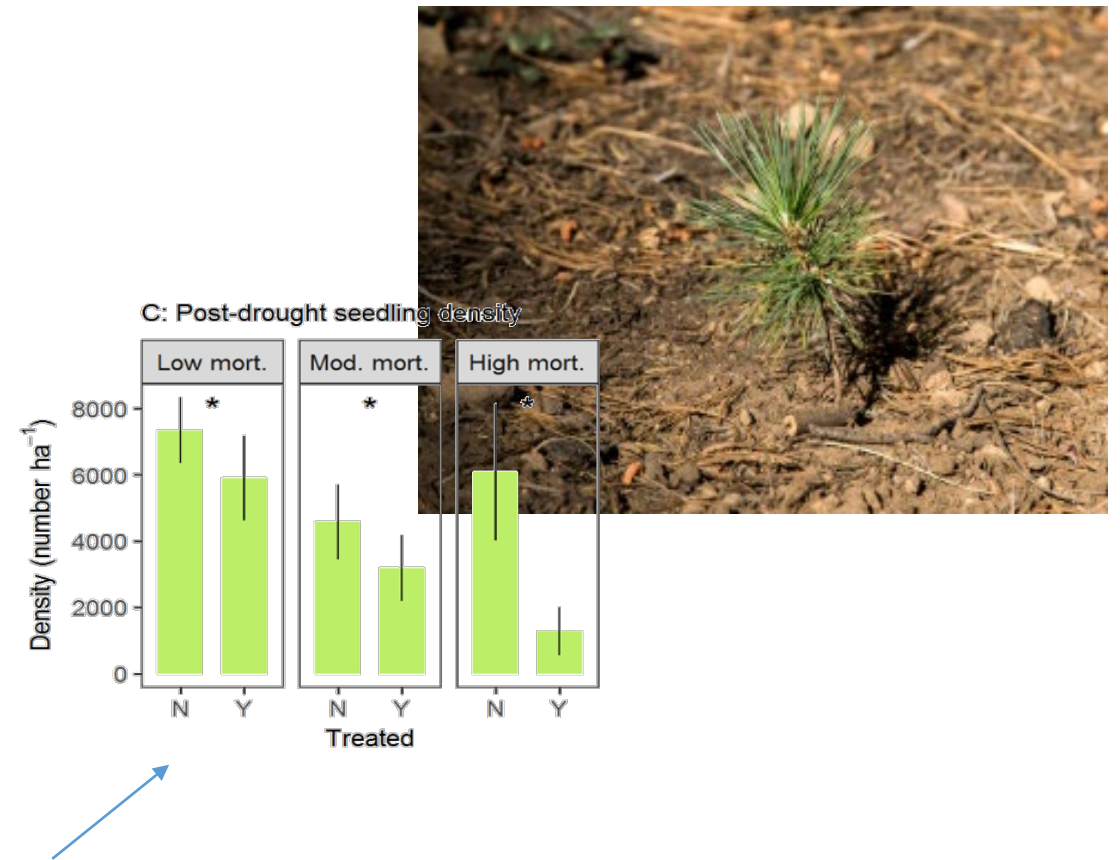
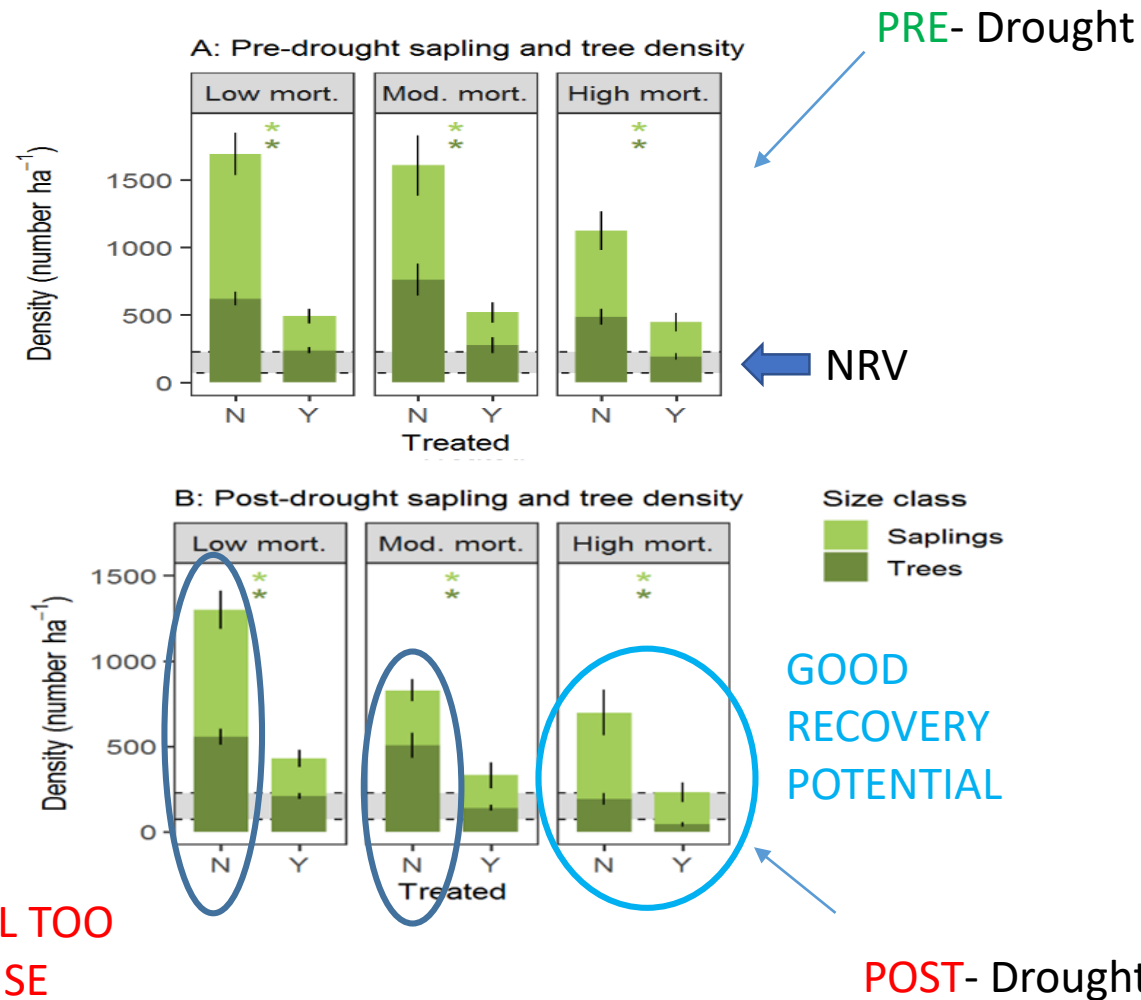
Sierra - Bass Lake

### Step 2: Select stand metric to summarize

Stand Density

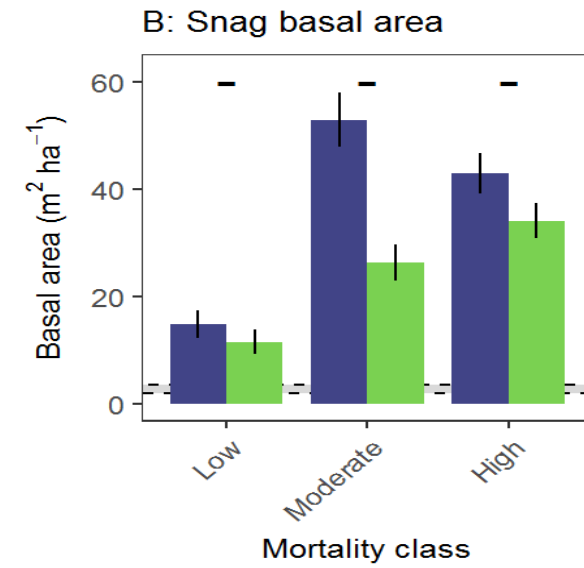


# Forest Structure: Tree, Sapling & Seedling Density



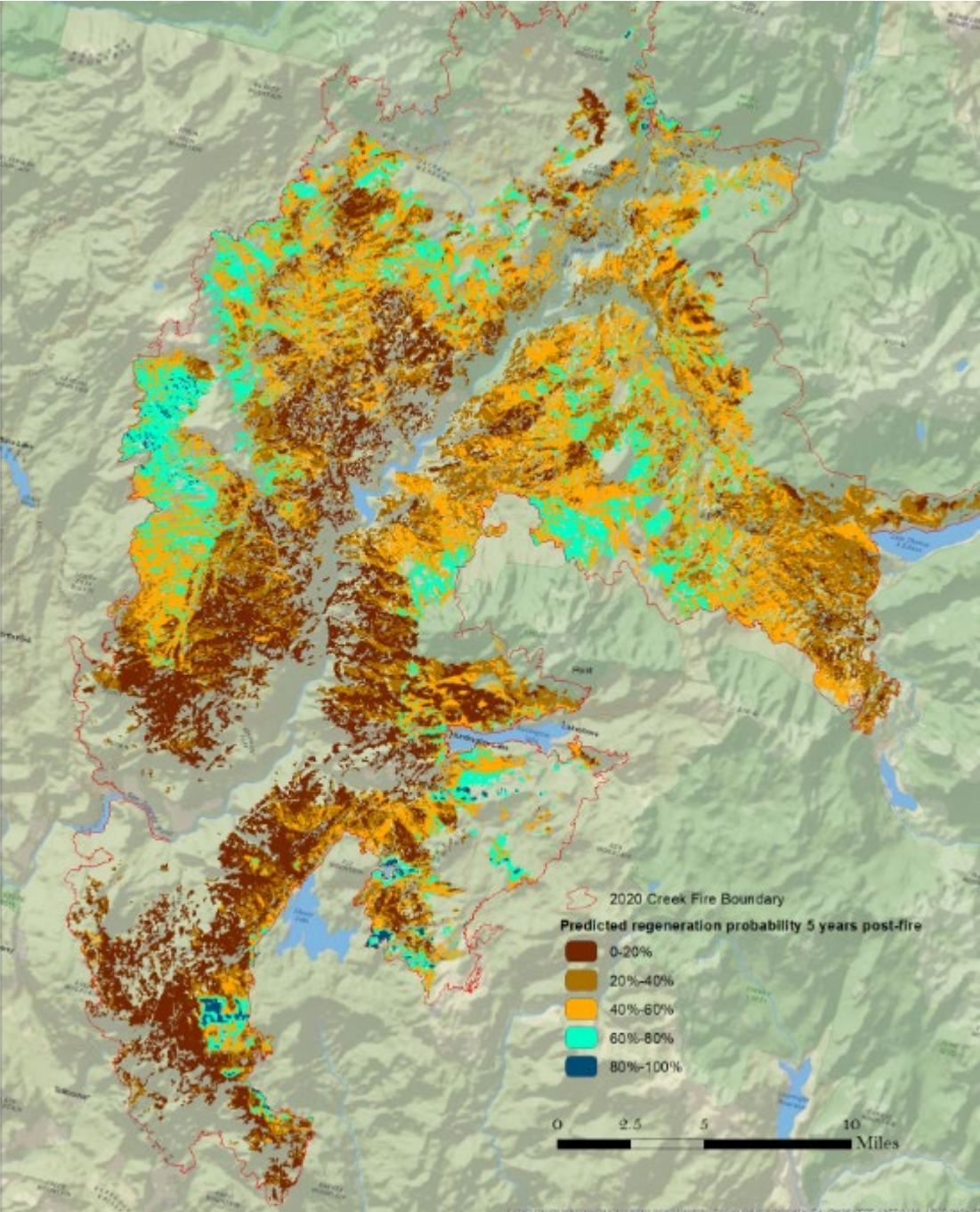


# Fuel Loads





# Reforestation Moving Forward



# New California Post-fire Regeneration and Reforestation Resources

- GTR 270 Postfire restoration framework for national forests in California
- POSCRPT – predicts natural regeneration probability
  - <https://stewartecology.shinyapps.io/PostfireSpatialConiferRestorationPlanningTool/>
- PreSET – predicts planting benefit and shrub cover
  - <https://reforestation.shinyapps.io/preset/>

The image shows a composite of three screenshots from the POSCRPT web application. The top screenshot is the title page for "Postfire Restoration Framework for National Forests in California", published by the USDA Forest Service in February 2021. The middle screenshot shows the main interface with a map of a fire area, a legend, and a panel for "Upload Fire Data" and "Upload past fire data". The bottom screenshot shows the "Analysis Options" panel, which includes settings for planting year, expected shrub cover, map filtering, and layers to display.

USDA Forest Service  
UNITED STATES DEPARTMENT OF AGRICULTURE  
Pacific Southwest Research Station | General Technical Report PSW-GTR-270 | February 2021

## Postfire Restoration Framework for National Forests in California

POSCRPT: Postfire Spatial Conifer Restoration Planning Tool | Application | Histogram | About

Upload Fire Data  
Upload fire data  
Browse... main\_fire\_ Upload complete

Upload past fire data  
Browse... past\_fires\_ Upload complete

Predict Regeneration

Analysis Options  
Apply Conifer Forest Mask?  
 Yes  
 No

Planting year:  
 1 year post-fire  
 2 years post-fire  
 3 years post-fire

Expected shrub cover:  
 Predicted (varies across space)  
 Low (30%) everywhere  
 Moderate (60%) everywhere  
 High (90%) everywhere

Map filtering:  
 Show high-severity area only  
 Show yellow pine & mixed-conifer only  
 Hide low model confidence areas (slow)

Layers to display:  
 Planting benefit  
 Shrub cover



Thank you.

