Upper Mokelumne River Wildlife Conservation Board Grant

Draft Monitoring Plan

July 15, 2020

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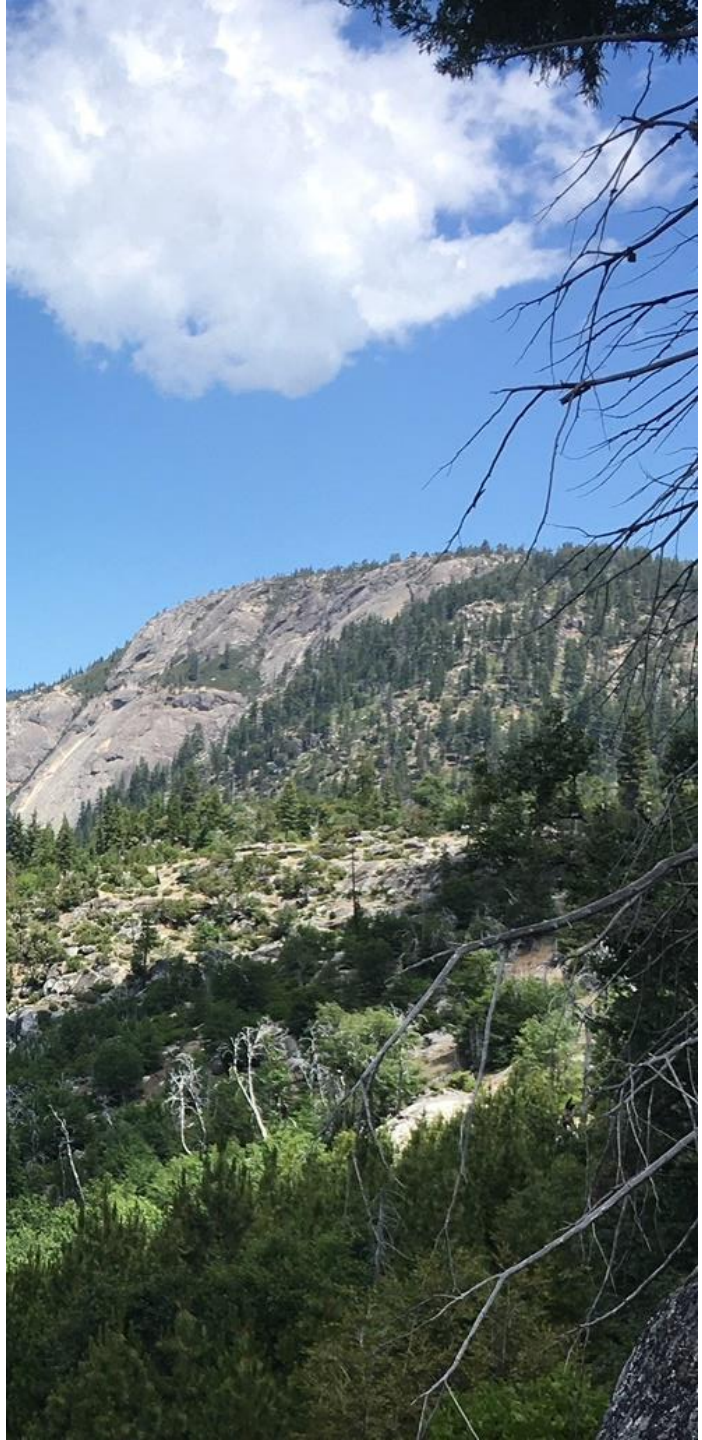
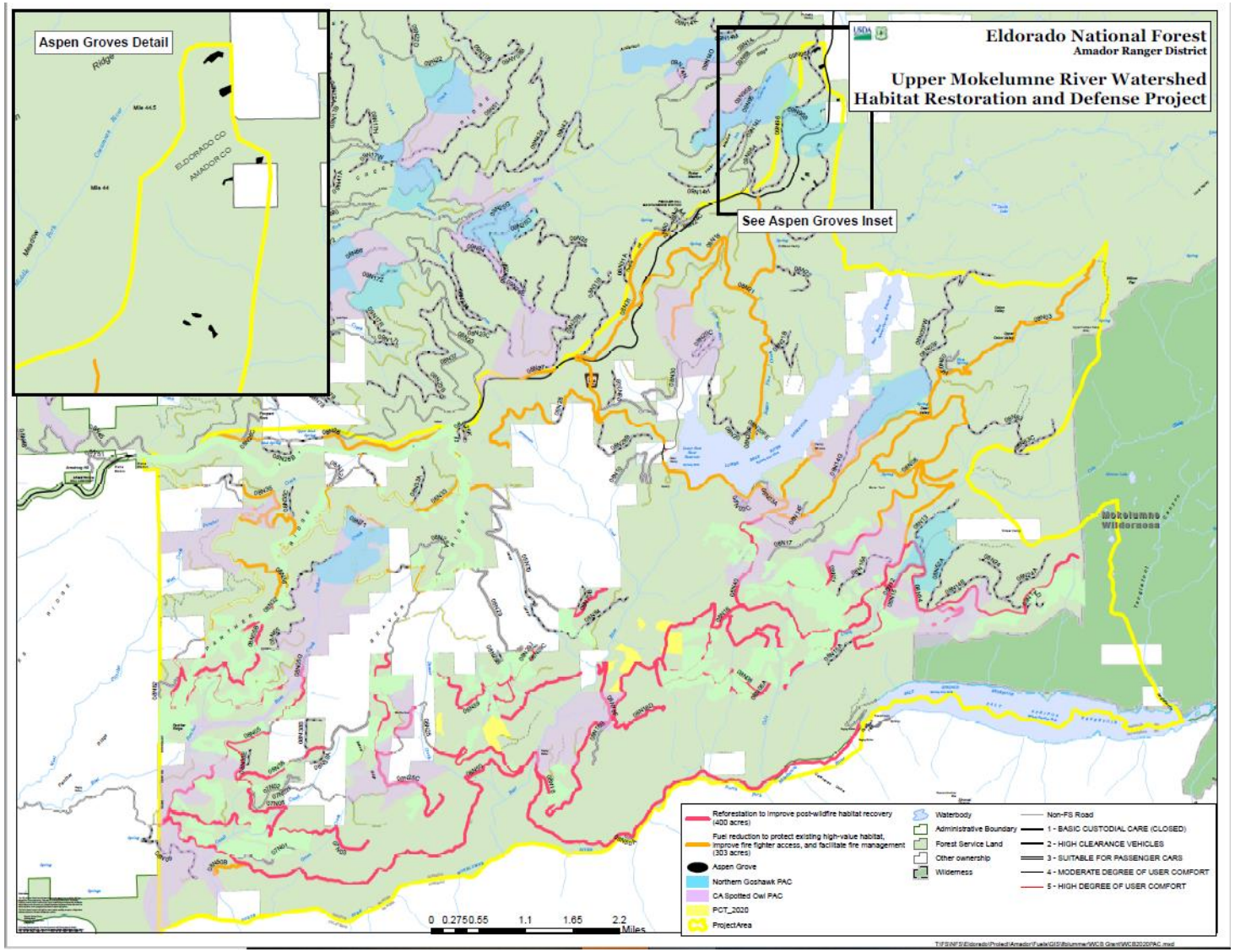


Planned Project Activities



- Pre-commercial thinning
- Variable density planting
- Roadside and fuelbreak thinning
- Fencing released aspen stands

Monitoring Objectives

- Did reforestation planting and thinning encourage a structure consistent with a more resilient forest stand? (variable spacing designed to maintain the individual, clump and opening pattern, a desired future tree density consistent with historic forest conditions and moderate levels of shrub cover)
- Do different planting densities affect competition with the dominant cover type?
- Do different planting densities affect survival and growth of planted seedlings?

Monitoring Methods

Monitoring Methods	Pre-commerical thinning	Planting	Roadside & fuelbreak thinning	Aspen fencing
CSE protocol	x	x		x
ICO protocol	x	x		
Photo monitoring			x	x
Contract compliance	x	x	x	x

CSE = Common Stand Exam; ICO = Individuals, Clumps, Openings

NRIS FSVeg
Natural Resource Information System: Field Sampled Vegetation

Common Stand Exam Field Guide Region 5

July 2014

USDA Forest Service

https://www.fs.fed.us/nrm/fsveg/index.shtml

The ICO Approach to Quantifying and Restoring Forest Spatial Pattern

Implementation Guide

Version 3 - May 2016

The Nature Conservancy
Protecting nature. Preserving life.

Stewardship Forestry & Science

http://www.nwfirescience.org/biblio/ico-approach-quantifying-and-restoring-forest-spatial-pattern-implementation-guide-version-30

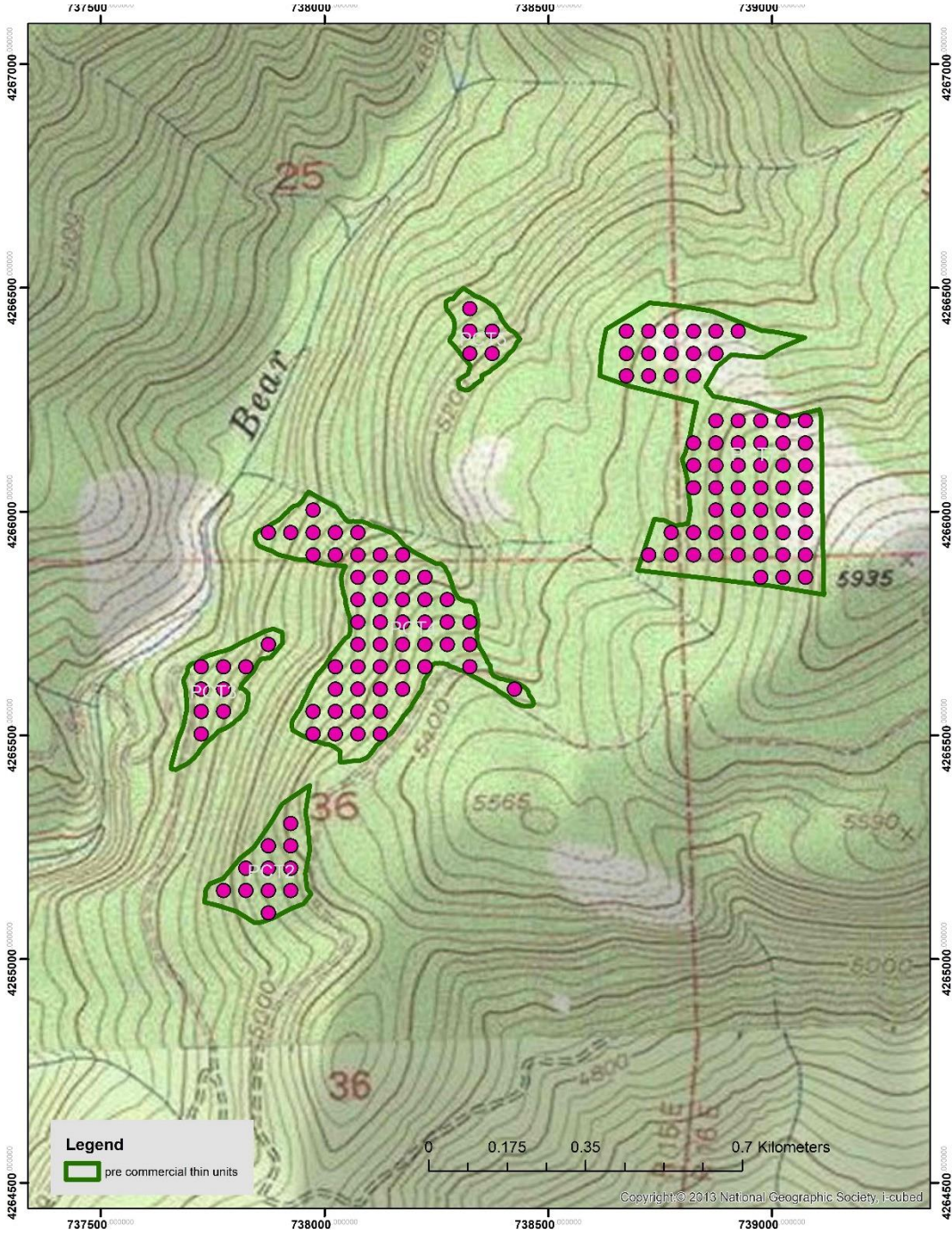
Plot shape: Circular

Plot sizes:

- Cover and Composition: 405 sq m (11.3 m radius) = 1/10 acre.
- Tree and sapling stem and cluster ICO mapping: 1256 sq m (19.6 m radius) = 1/3 acre.
- Regeneration seedling: 60 sq m (4.37 m radius) = 1/68 acre

Plot location: Center the plots on the vertices of a 50m x 50m grid across the Project treatment units. These areas have been predetermined in GIS

Sampling intensity: randomly select at least 3 plot locations per unit, and as time permits complete additional plots until we have completed approximately 1/10th of the total unit acreage (based on the tree mapping plots = 1/3 acre) or 3 plots for every 10 acres within the units.



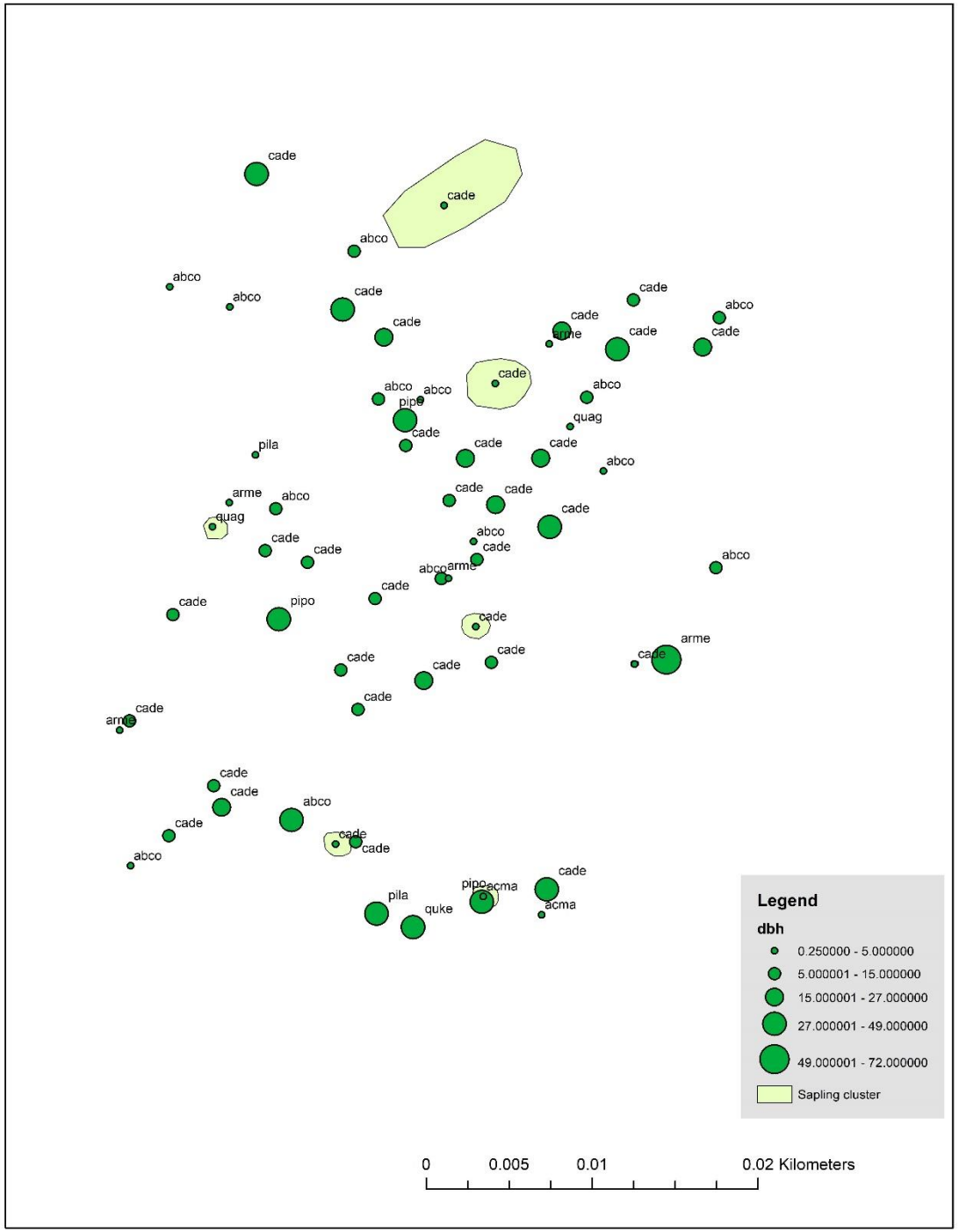
PRE COMMERCIAL THINNING

CSE components:

- Slope, slope position, aspect, etc.
- % cover and modal height for all vegetation classes (mature trees, saplings, shrubs, herbaceous vegetation)
- Species composition of shrub layer
- Regeneration seedling counts by age class & species with modal heights

ICO components:

- Individual GPS stem mapping of all trees ≥ 4” DBH
  - Species & DBH of each tree
- Clump mapping of all trees <4” DBH
  - Record top 3 tree species per clump
  - Record modal DBH



Planting

Planting Arrangement M3.C Plant approximately 140-200 trees per acre by hand. Trees would be planted individually or in groups of 2 to 10 trees.

Planting

CSE components:

- Slope, slope position, aspect, etc.
- % cover and modal height for all vegetation classes (mature trees, saplings, shrubs, herbaceous vegetation)
- Species composition of shrub and tree layers
- Regeneration seedling counts by age class & species with modal heights

ICO components:

- Individual GPS stem mapping of planted seedlings
  - Species, height, last years growth
- Individual GPS stem mapping of all trees ≥ 4” DBH
  - Species & DBH of each tree
- Clump mapping of all trees <4” DBH
  - Record top 3 tree species per clump
  - Record modal DBH

Roadside/Fuelbreak thinning

Treatment along roads both within and outside the Power Fire footprint.
Fuelbreaks to help protect Spotted Owl and Northern Goshawk PACs.

- Establish photo point monitoring. Utilize agency implementation and contract monitoring.

Aspen Fencing

Up to 6 stands of Aspen are being fenced following varied degrees of thinning in 2019.

- Photo point monitoring
- Belt transects to monitor growth of aspen and response of suckers to overstory thinning and subsequent fencing.