A Research Partnership to Facilitate Collaborative Restoration *Across* Mixed-Conifer Ecotones

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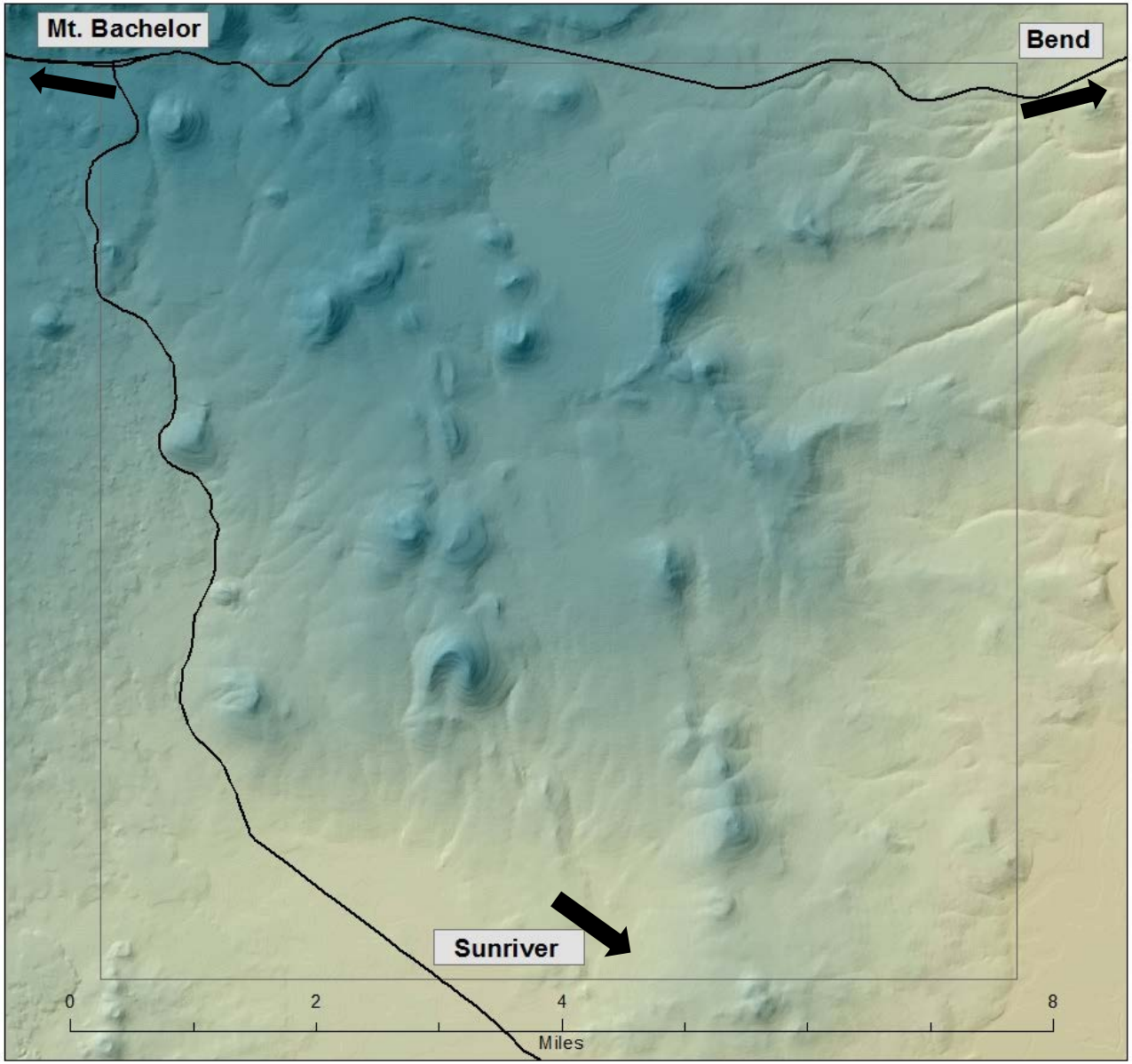
Variability in the Planning Area

Topography, Climate, & Composition



Research and Restoration Partnership

Study Design & Implementation

Field Trip to Present Preliminary Results

Development of Recommendations

Spring 2014

Identify Research Needs with DCFP

Field Trip to Understand Research Approach & Methods

Monthly Presentations of Results

Benefits of this Research Partnership

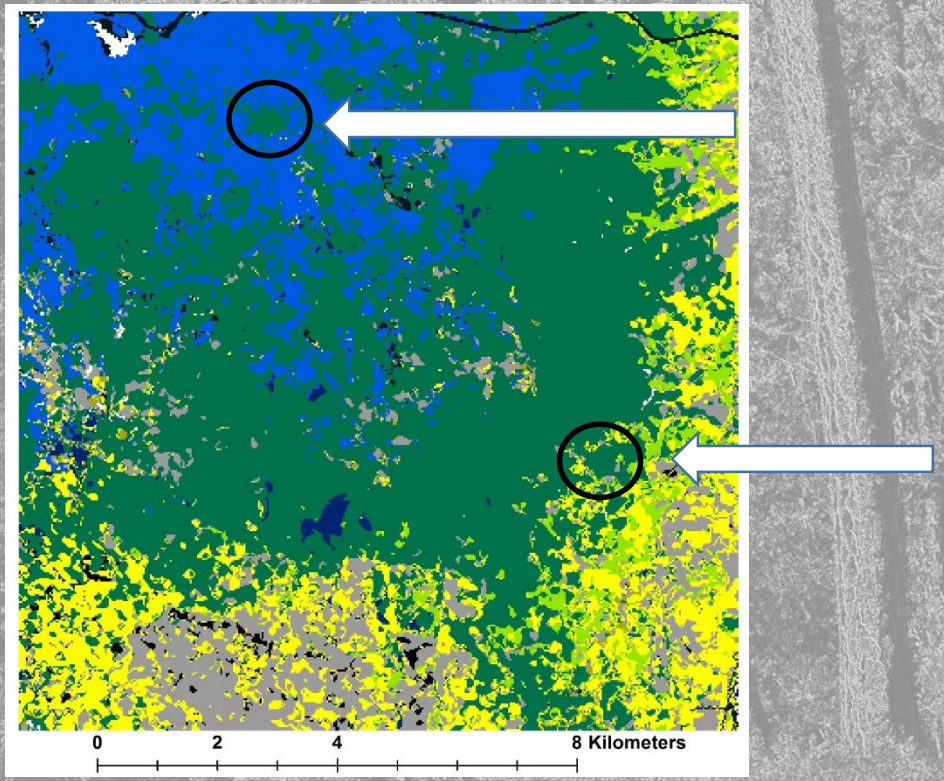
- DCFP involvement from start to finish creates a connection to the study that increases collaborative participation and interest in science based restoration
- Transparency of research process creates a shared understanding of the methods, results, and implications for restoration and management
- Develops common language between the collaborative and agency (USFS)
- Provides a framework to develop management recommendations from the stand to landscape scale based on local science

Research Questions

1. What are the current forest types in the project area and how are they related to environmental setting?

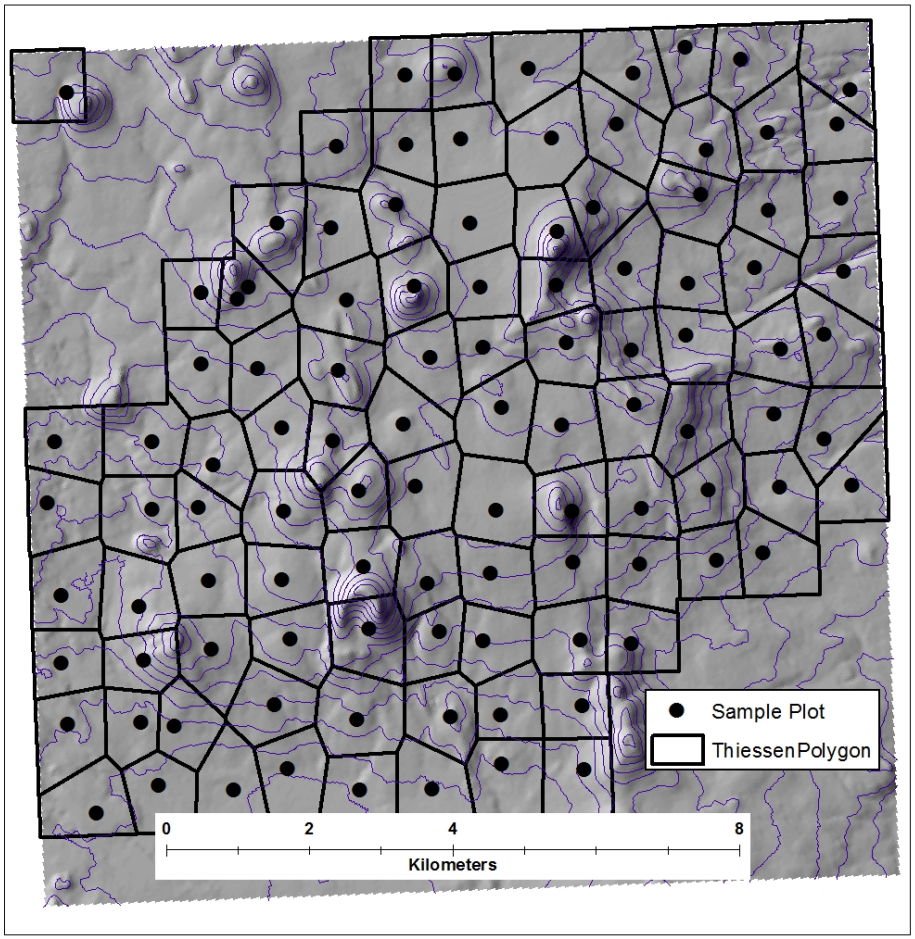
2. What was the historical development pattern for these types and how has fire exclusion, logging, and thinning modified this pattern?

3. How did historical fire frequency and effects on structure and composition vary with environmental setting and landscape context?



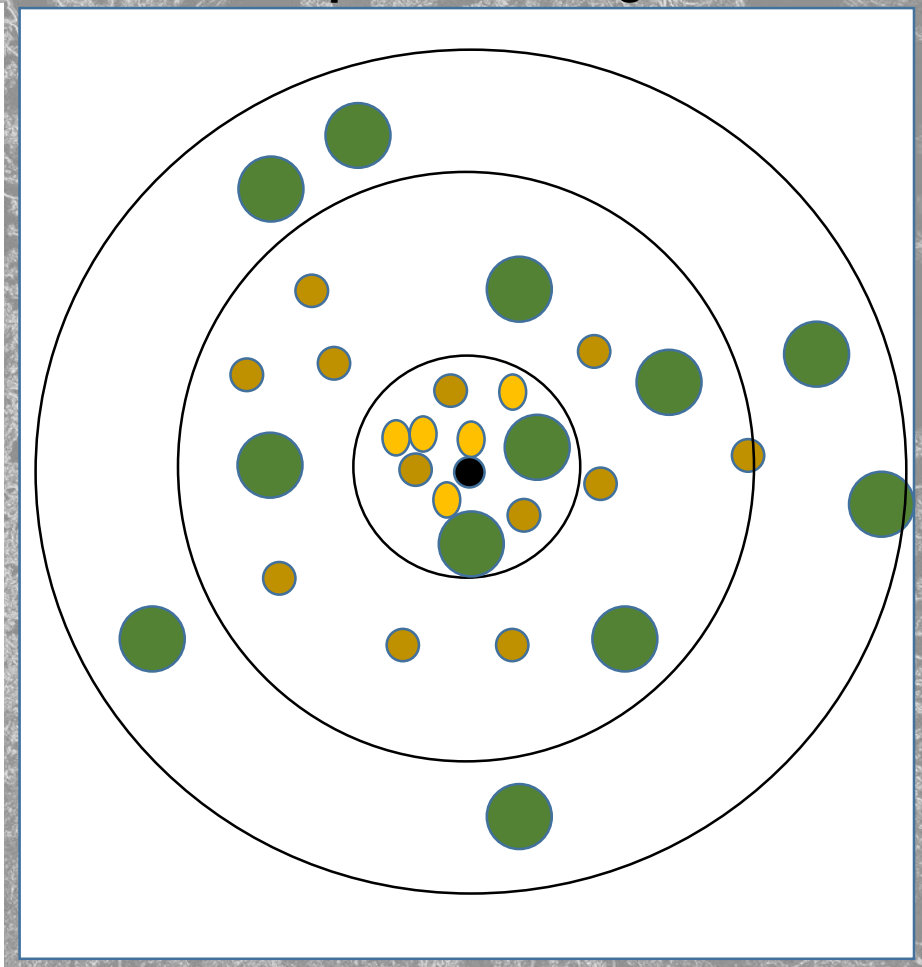
Data Collection

Sample Plot Distribution



Mean Polygon Area = 247 acres
Range =174-320 acres
Study area 26,000 acres

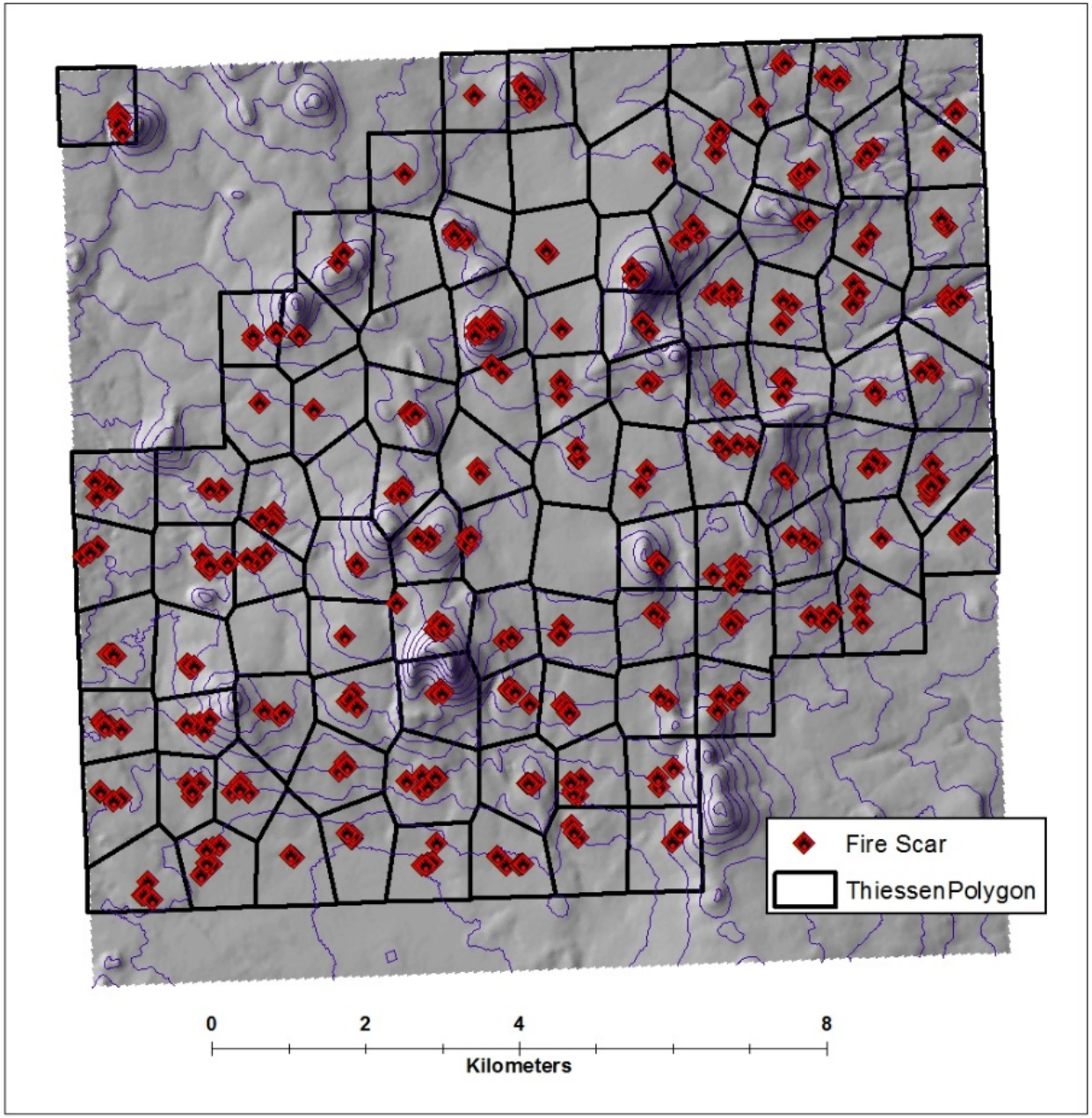
Sample Plot Design

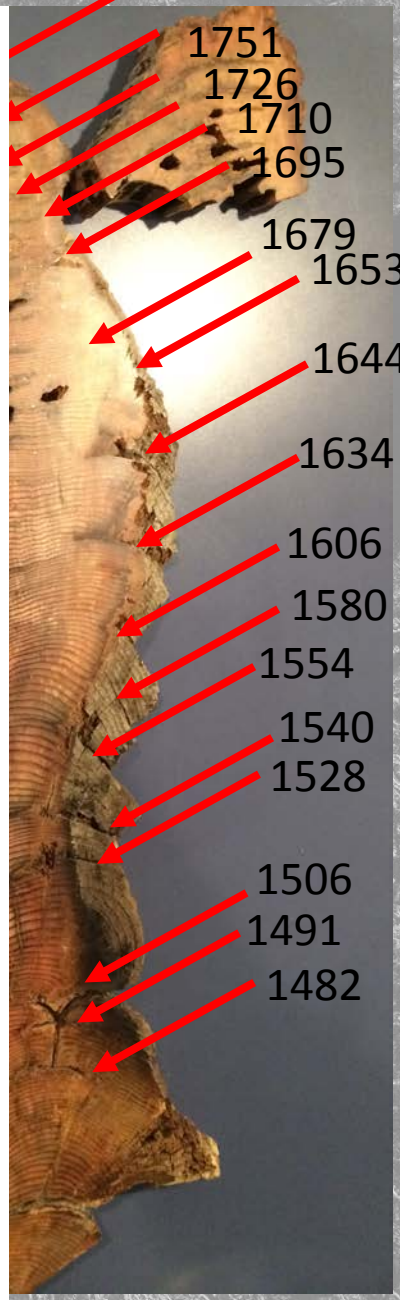


For live and dead trees we recorded:

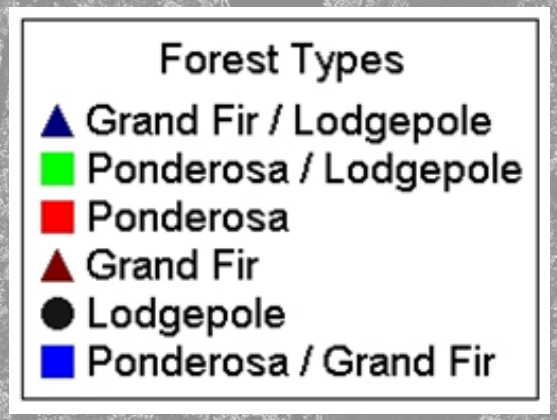
- **Size**
- **Species**
- **Establishment Date (Age)**

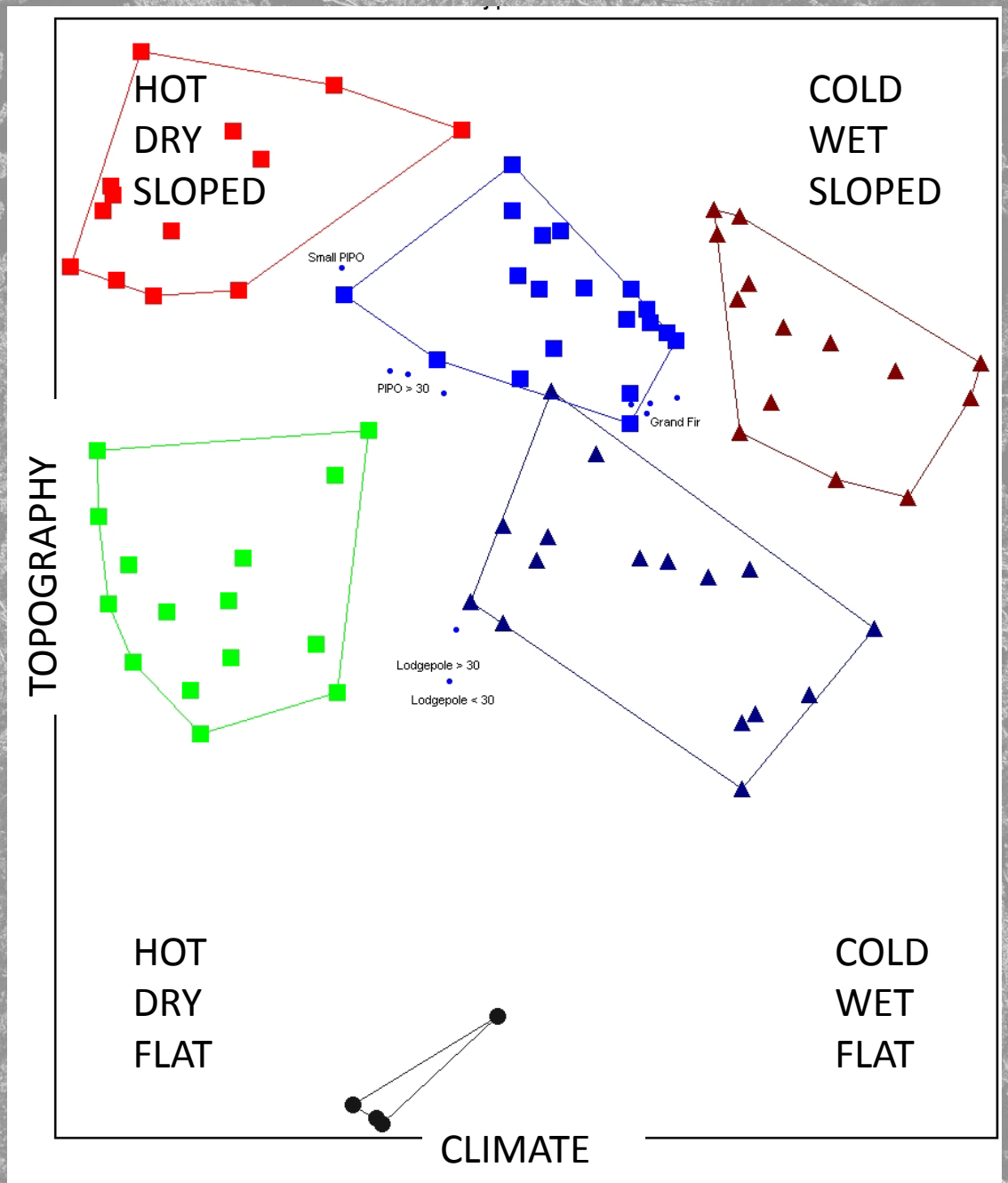
Historical Fire Record





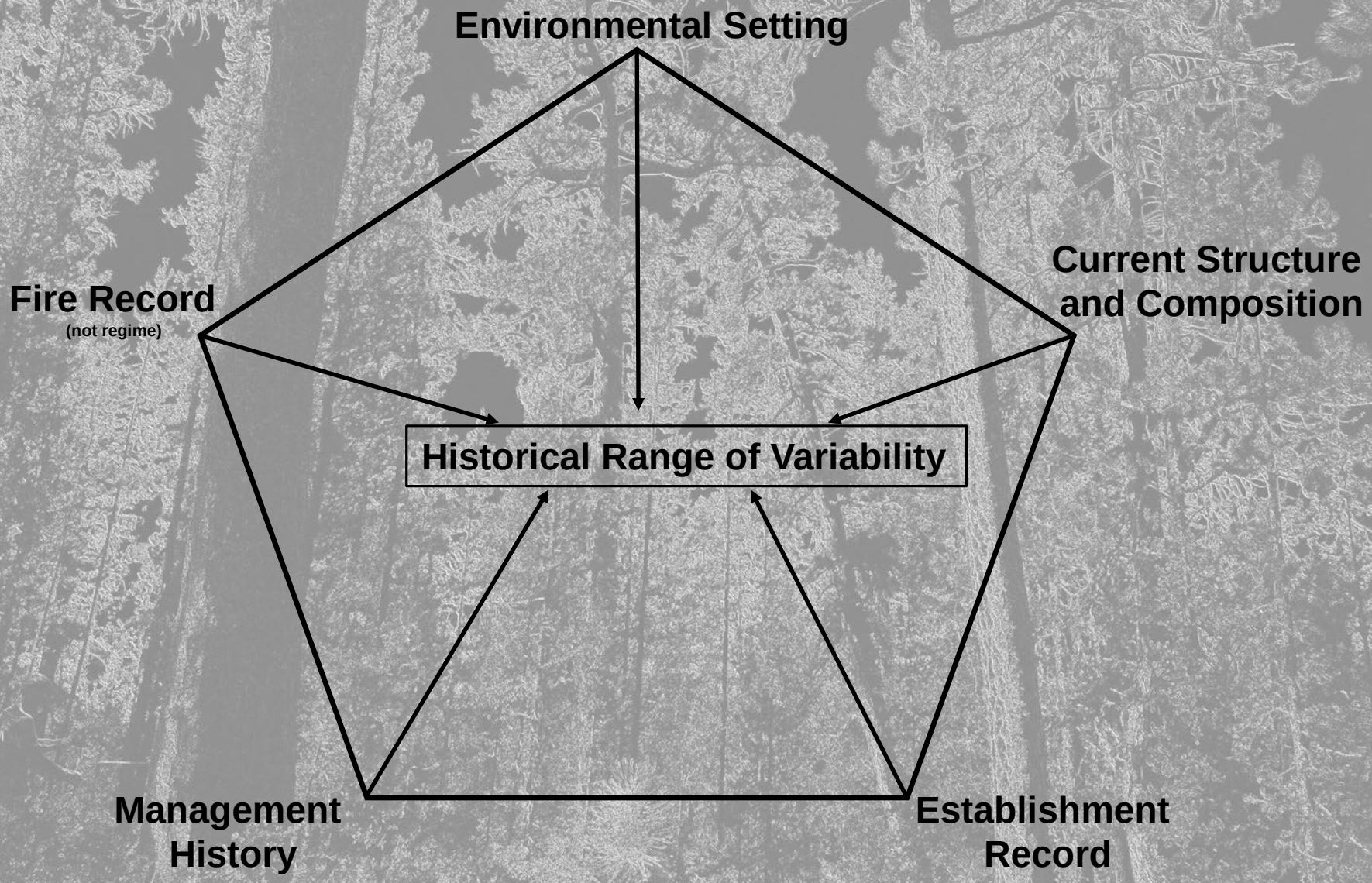
Stand Types and Environmental Distribution



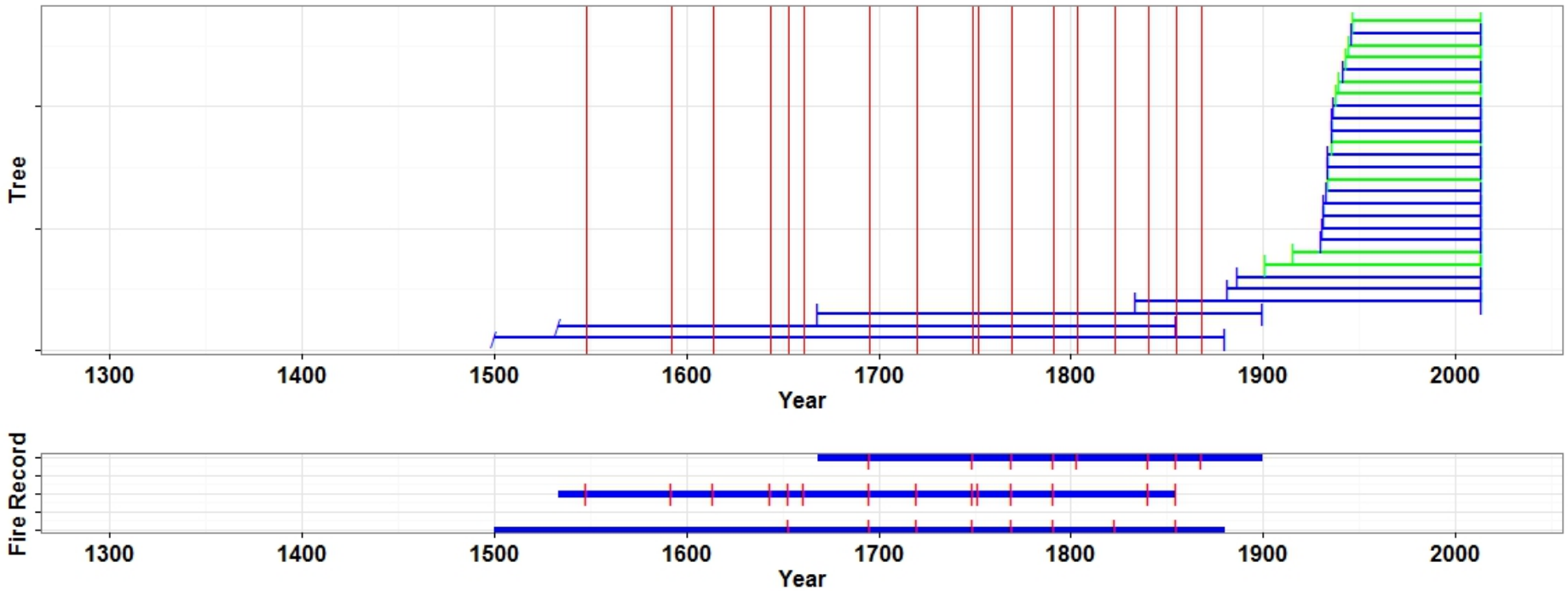


Dataset at the Site Scale

5 types of data



Recent Grand Fir – Site History (KC18)

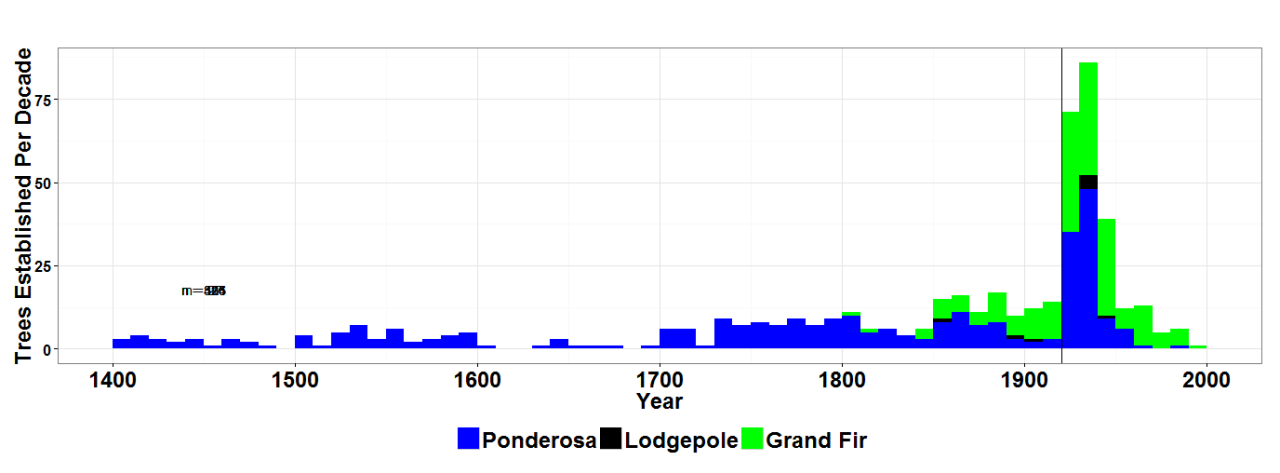


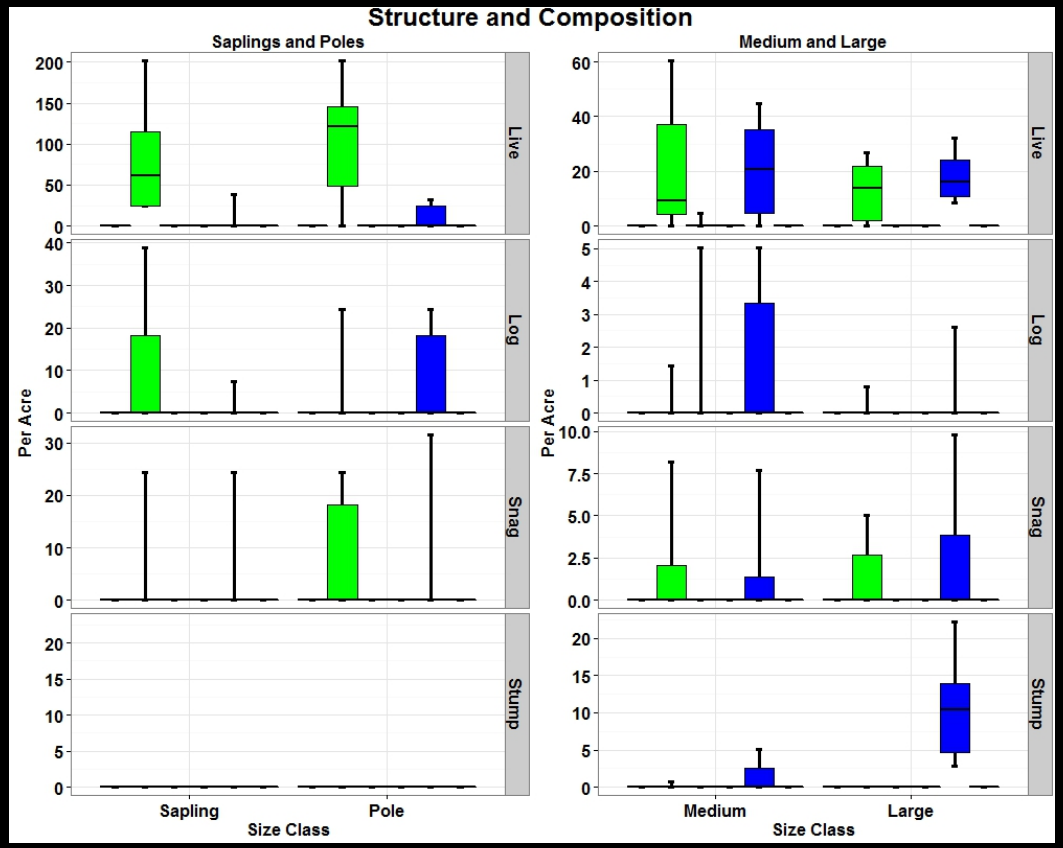
Ponderosa Pine / Grand Fir (warm, dry-moist, and not flat)

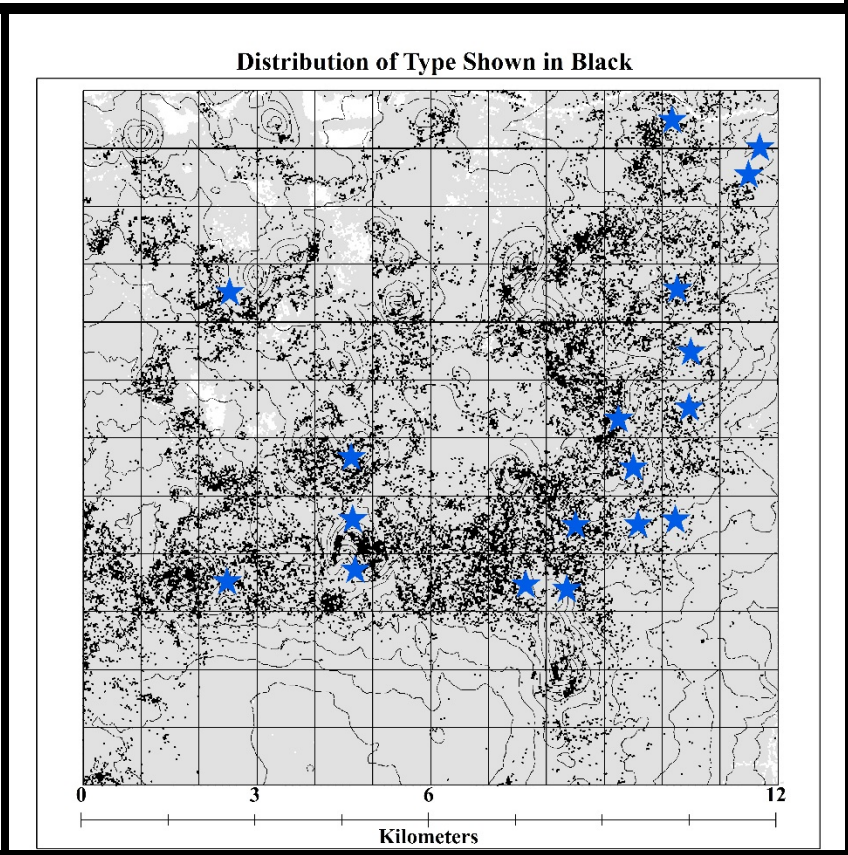
Historical Composition: Predominantly ponderosa pine (old-growth grand fir present at some moist productive sites near springs)

Historical fire regime : Frequent with predominantly low-severity effects on mature trees.

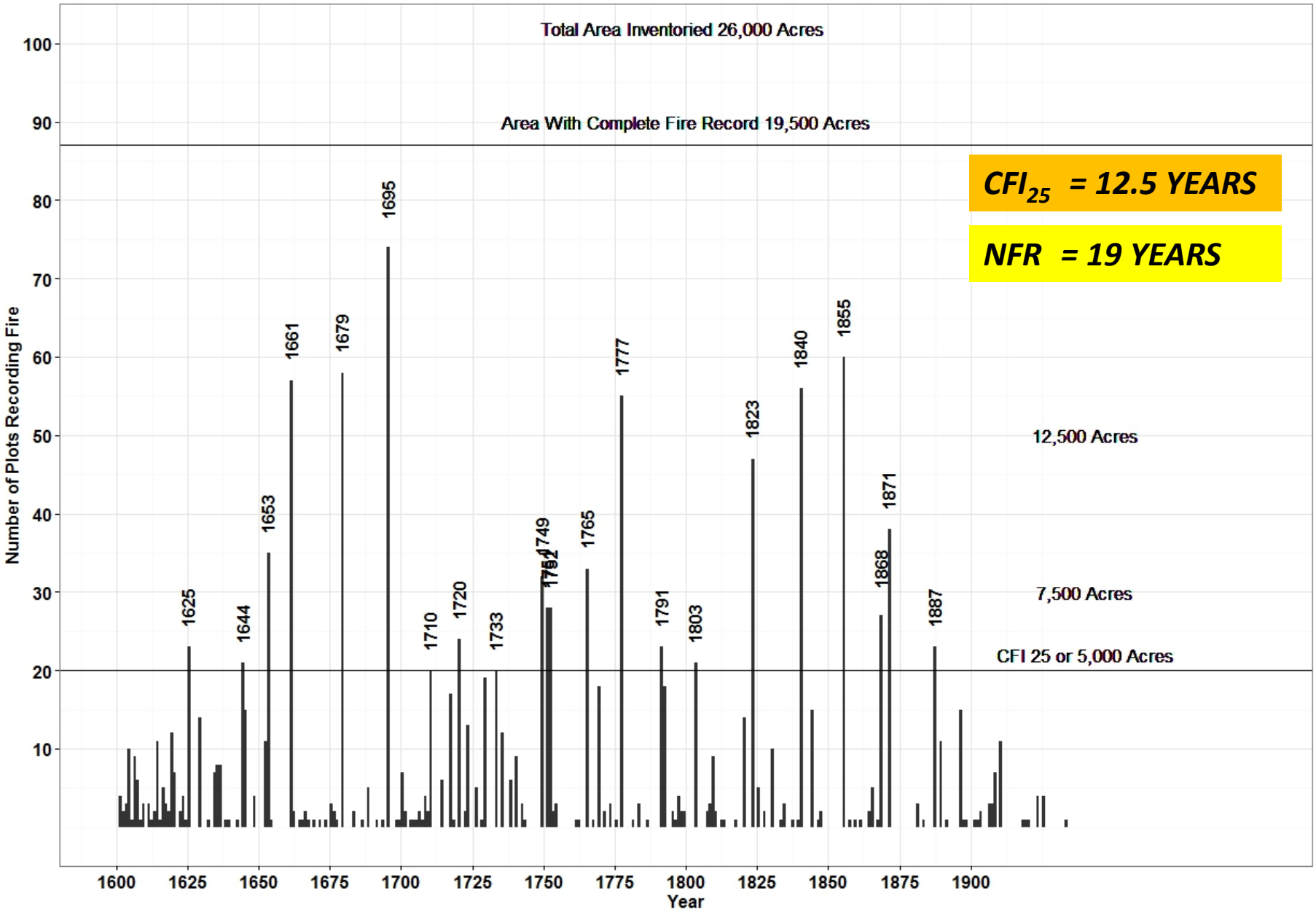
Management: Predominantly regeneration harvest, some selective harvest, small tree thinning, and little undisturbed.





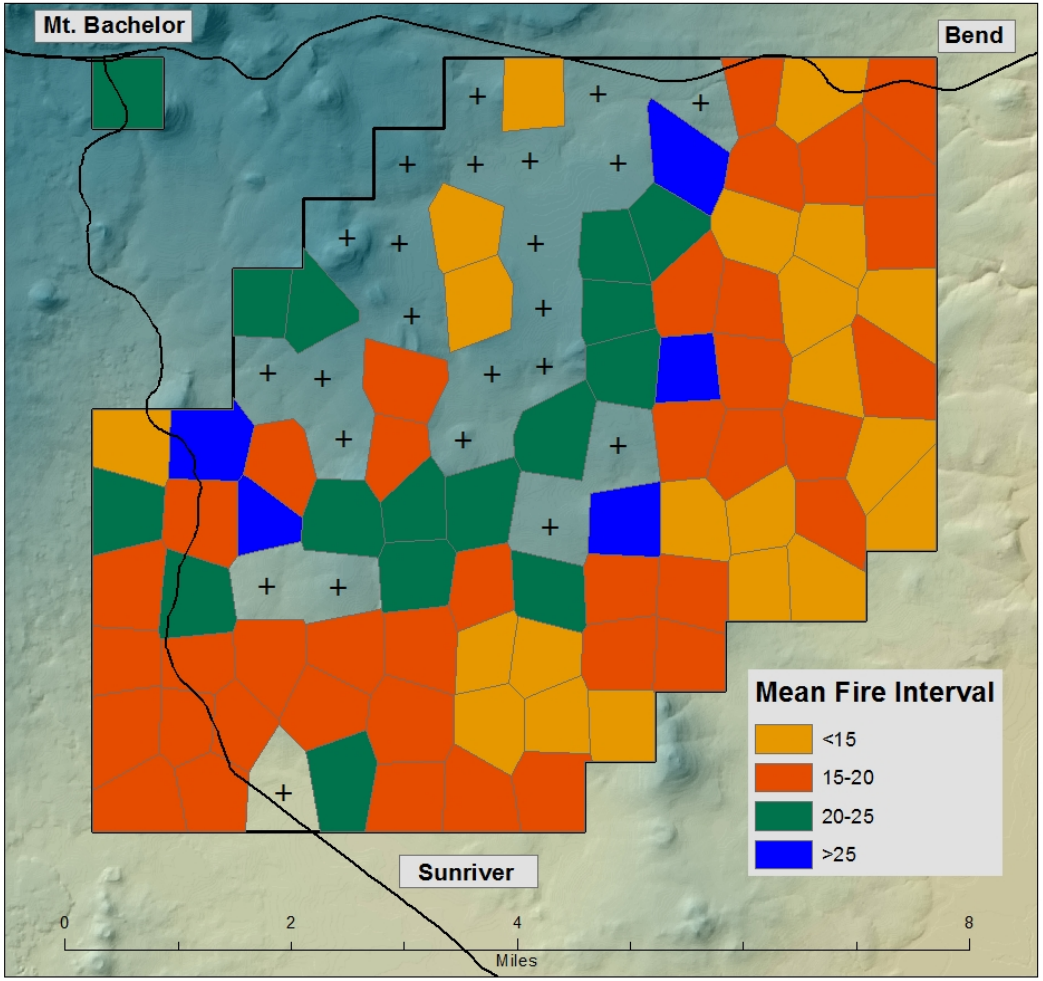


Landscape Fire Record

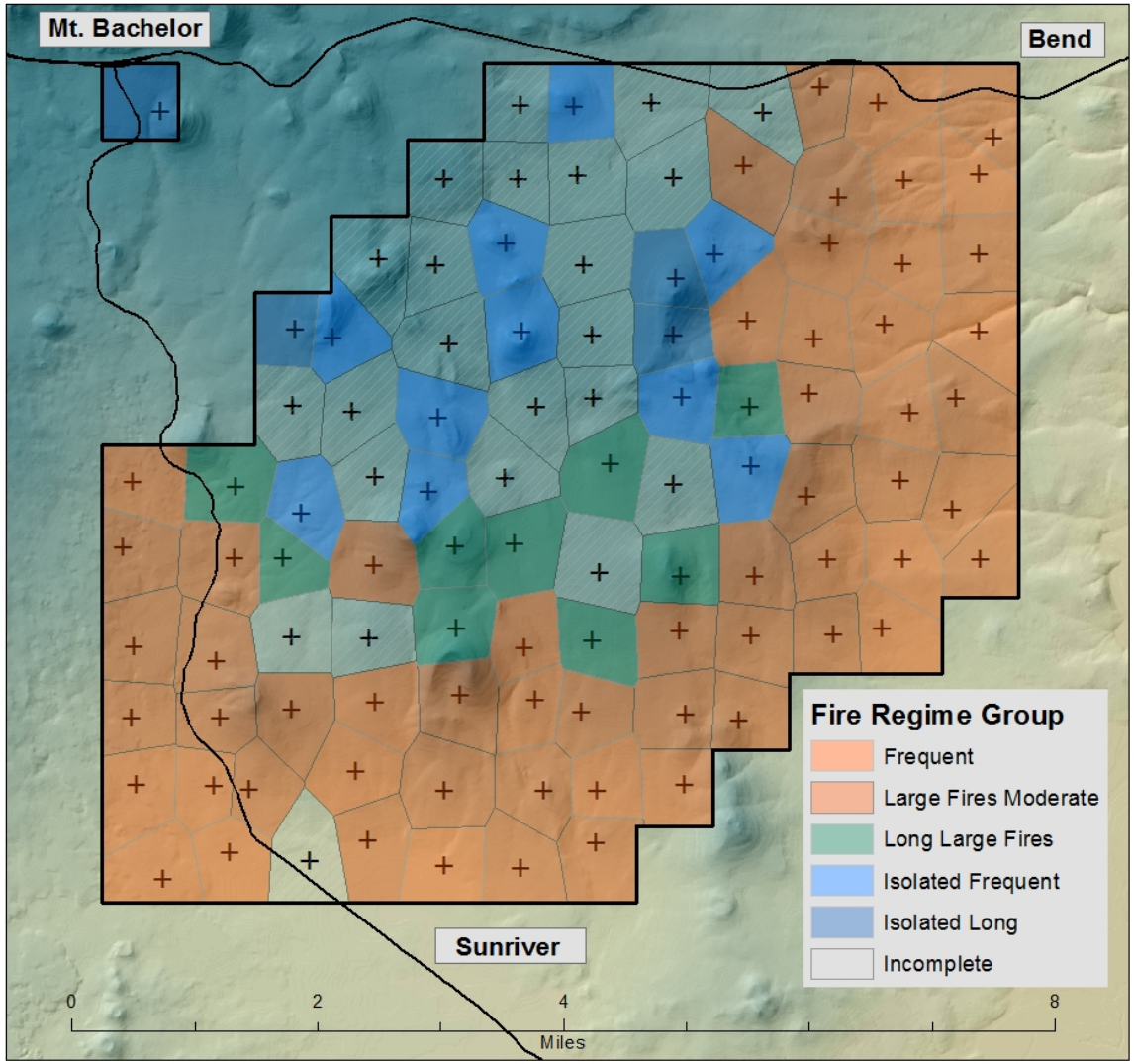


Classifying Fire Regimes

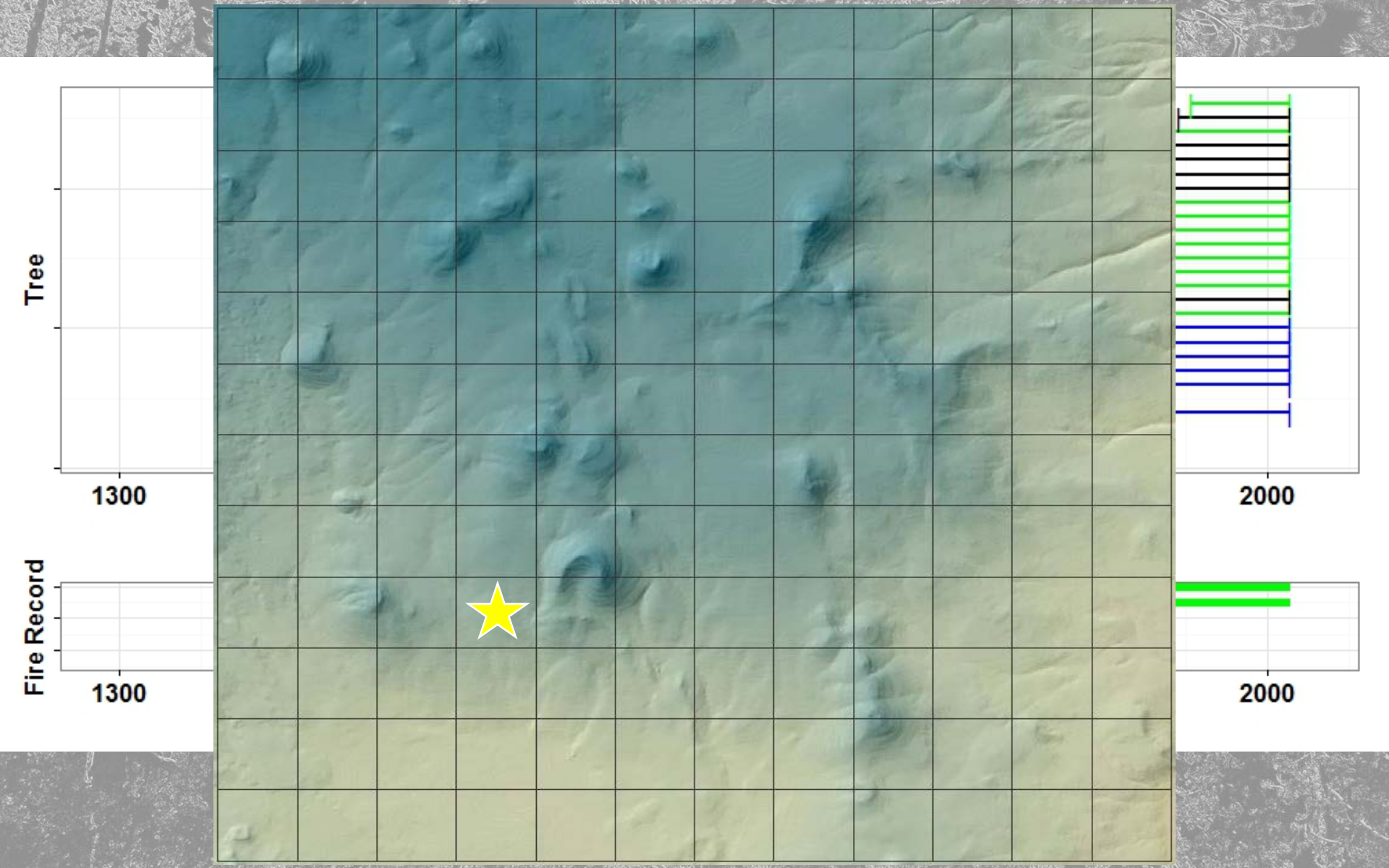
Frequency



Spatial Distribution of Fire Regime Groups



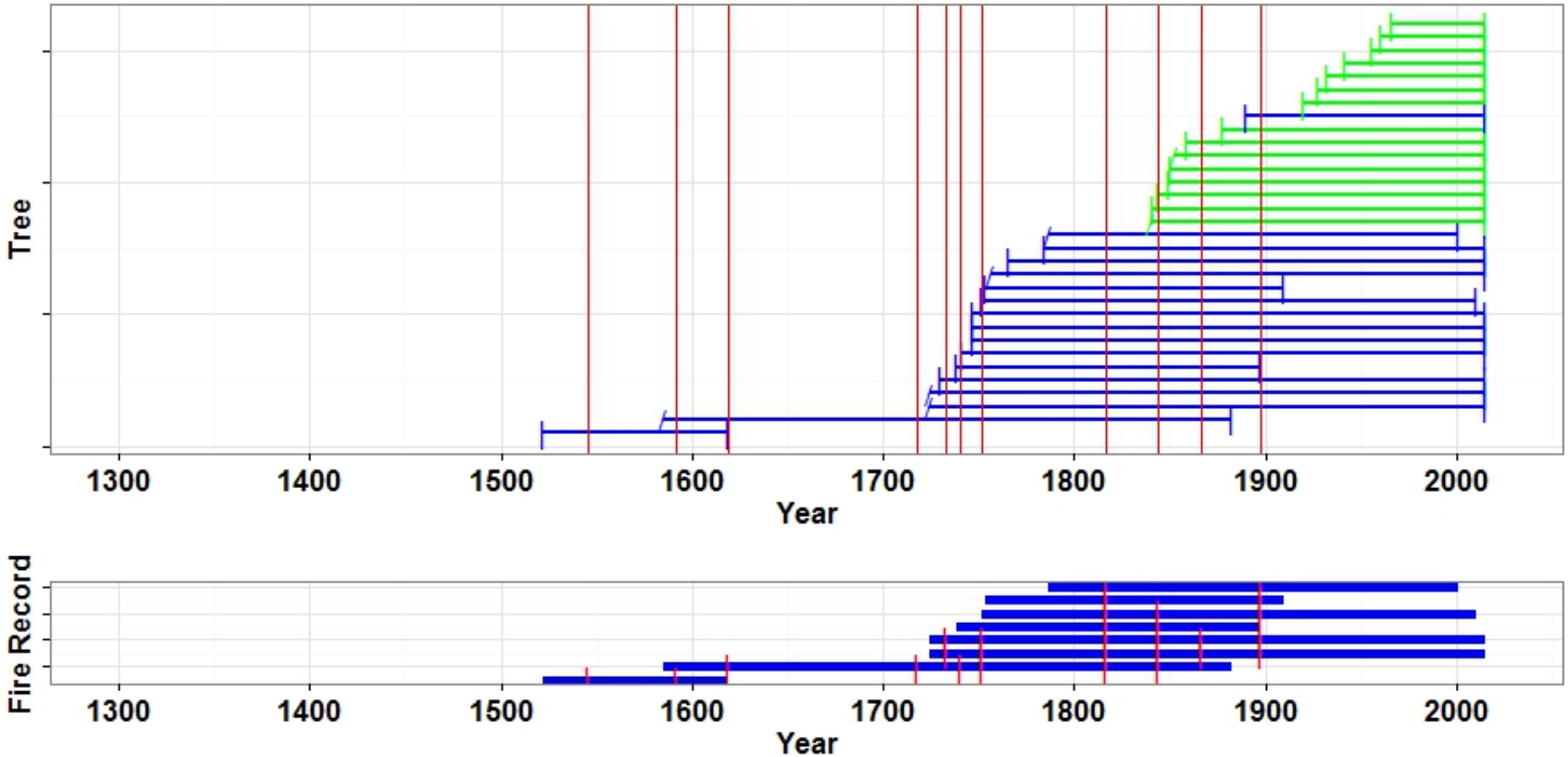
Development History in Moist and Non Isolated



Fire Landscape Position - Isolated

Surrounding topography limits the spread of fire to and from the site

Development History Moist and Isolated



Science Highlights

Structure and composition is strongly associated with local environmental setting (Elevation, Climate, Aspect, Soils, Slope)

Historical fire regimes were not as sensitive as structure and composition to variation in local environment, and varied at larger scales (1000s of acres) or across topographic barriers to fire spread

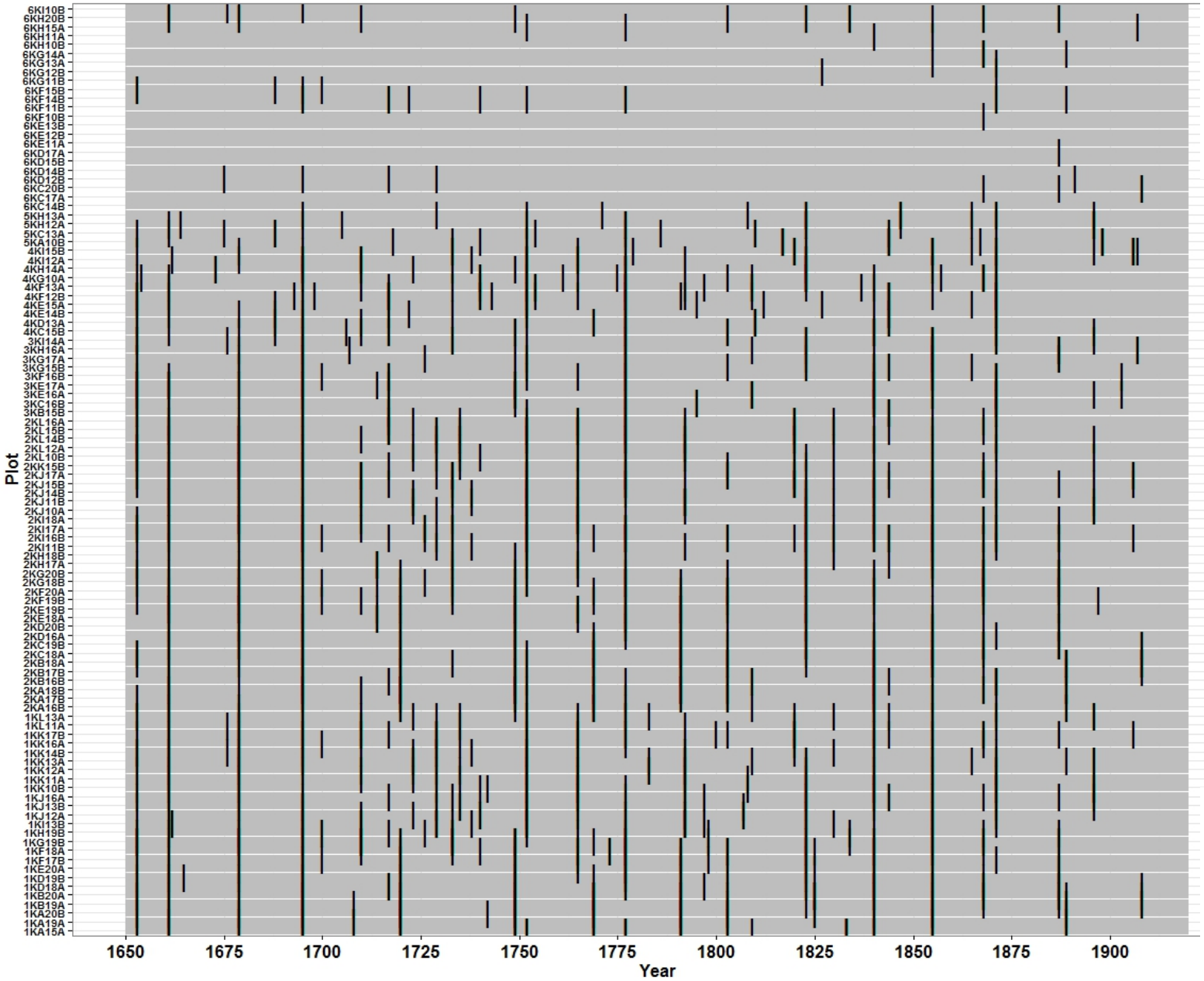
At local landscape scales landscape context > PVT or environment when developing management objectives in mixed-conifer forests based on the historical fire regime

Productive sites with a historically frequent regular fire regime are most departed

Benefits of Science Partnership

- Provided a ecologically based template to build DCFP recommendations in a complex project area
- Provided local data on historical and current conditions for the USFS to incorporate into planning efforts and use to support proposed actions
- Creates greater awareness of restoration needs in dry forests aren’t limited to ponderosa pine or “dry” mixed-conifer forests
- Help scientists understand research needs and increases the pace at which science is distributed

Landscape Fire Record By Plot



Less Frequent, Variable, Small

Frequent, Regular, Large-Small

Acknowledgements

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