

Fire and Forest Ecosystem Health

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Objectives

- Evaluate effects of fuel modification on potential fire behavior and forest ecosystem health at the watershed/fireshed scale (approx. 10,000 ac)
 - How will strategically placed area treatments (SPLATs) work in a real landscape?
 - How will treatments affect tree vigor and resiliency?
- Project will address key aspects of forest ecosystem health (i.e., water and wildlife) and this module will focus on the growth and mortality of mature trees
 - These are key elements in forested ecosystems
 - Habitat, nutrient cycling, micro-climate modification



Tasks

- Model fire behavior and effects before and after fuel modifications
 - Predict tree mortality, change in forest canopy cover, bare soils surfaces, spatially (30 m grid)
- Compare treated area with control or area in the untreated condition (BACI)
- Model probability of non-catastrophic mortality of stratified random sample of canopy trees before and after fuel treatments



Justification

- Fire behavior modification is the driving force of the SNFPA in midslope, mixed conifer forests
- Canopy tree mortality is a major determinant of ecosystem structure and function
- Evaluations based on generalized growth-mortality relationships are inclusive in that they do not focus on specific causal agents (e.g., pest, pathogen, competition) and can be scaled to the size of the experimental unit (i.e., a small fireshed).



Response to Comments

- We will provide concise definitions for such terms as forest health, watershed, and fireshed
- We will strive to include diverse aspects of fire, wildlife, and water in our definition of forest health
- We are working with our USFS partners to select areas that will have a high probability of success in terms on SPLAT installations during the study
- Entire study will be integrative and we are working closely with the other 3 themes of the study
 - i.e. changes in tree canopy cover and bare soil after fire linked to water and hydrology

