

An aerial photograph of a forest fire in the Sierra Nevada mountains. A rocky ridge runs through the center of the image, with thick white and blue smoke rising from it. The surrounding forest is dense and green, with some areas appearing charred or brown. In the background, more mountain ranges are visible under a clear blue sky.

ECOLOGICAL BURNING IN THE SIERRA NEVADA: ACTIONS TO ACHIEVE RESTORATION

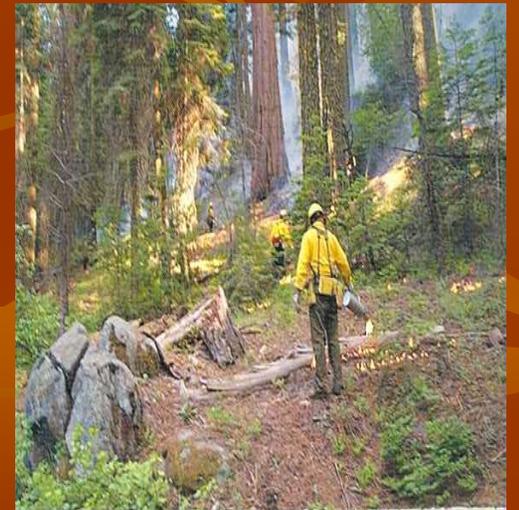
SIERRA FOREST LEGACY

Photo by: Robert Sanders



Sierra Forest Legacy

Protecting Sierra Nevada Forests and Communities



www.sierraforestlegacy.org

AGENDA

- Historical Patterns & Today's Situation
 - Ecological Benefits of Fire
 - Fire and Mechanical Treatments
 - Smoke Impacts
 - Barriers to Burning
 - Solutions

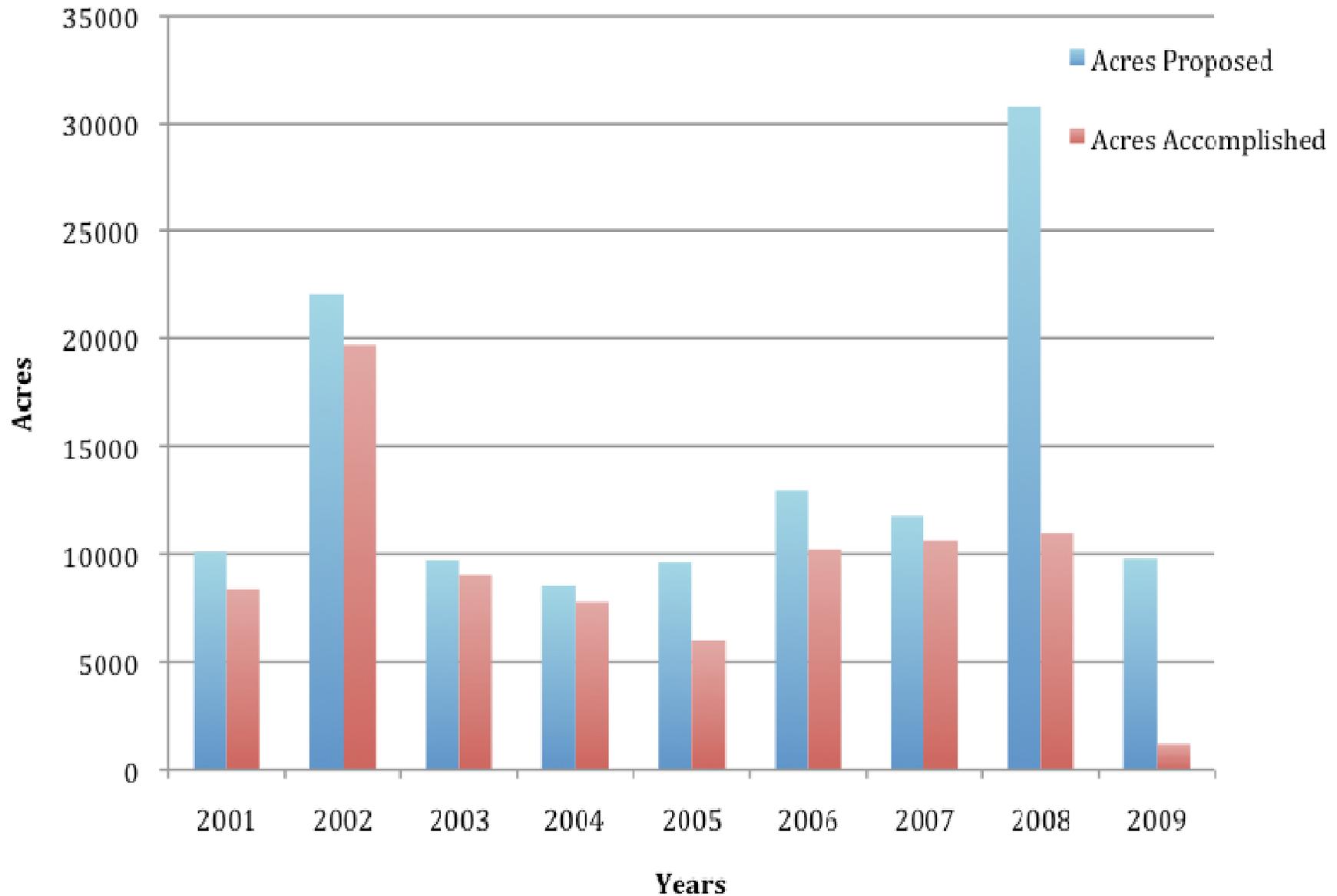
HISTORICAL FIRE PATTERNS

Vegetation Type	Fire Return Interval	Intensity	Severity	Fire Type
Chaparral	Medium (10-90 yrs)	High	High	Crown
Oak Woodland/grassland	Short (0-25 yrs)	Low	Low	Surface
Ponderosa pine/ black oak	Short	Low	Low - Moderate	Surface
Mixed conifer	Short	Low - Moderate	Low - Moderate	Surface - Mixed
Tanoak-mixed evergreen	Medium	Mixed	Mixed	Mixed
Red fir	Medium	Mixed	Mixed	Mixed
Lodgepole pine	Long (25-75 yrs)	Low	Mixed	Mixed
Mt. hemlock	Long	Low	Low	Surface

THE SITUATION TODAY



Managed fires proposed vs. accomplished acres on all forests from January 2001 - May 2009



PLANT ADAPTATIONS - TREES



- Thick bark
- Corky bark
- Hard bark
- Basal sprouts
- Serotinous cones
- Butt swell
- Seed crops



PLANT ADAPTATIONS - SHRUBS



- Stump sprouts
- New shoots from rhizomes
- Heavy seed production at early age
- Seeds dormant in soil
- Growing points below ground level

PLANT ADAPTATIONS - HERBACEOUS



- Sprouting from stems or roots; deep bulbs or tubers
- Dormancy during dry season
- Seeds underground in “seed bank”



SOIL BENEFITS



DISEASE AND PATHOGENS



CONTROL OF DENSITY



LADDER & GROUND-FUELS



FIRE RESILIENCE & HABITAT COMPLEXITY



FIRE & MECHANIZED TREATMENT



SMOKE IMPACTS



BARRIERS TO BURNING



- Short duration burn windows
- Lack of tolerance for smoke
- Staffing issues
- Burn day restrictions
- Risk to communities
- Forest location
- Funding

DESIRED CONDITION

- Low densities of large trees
- Low growing and scattered understory
- Increased structural diversity
- Variable age classes



HOW DO WE GET THERE?

- More collaboration
- Increased staffing
- Public education
- Reduced restrictions for ecological burns

