

Fire and Fire Surrogate Study Sequoia National Park

*(The Sierra Nevada Global Climate Change
Research Program connection)*

U.S. Geological Survey/ Biological Resources Division
Western Ecological Research Center
Sequoia and Kings Canyon Field Station



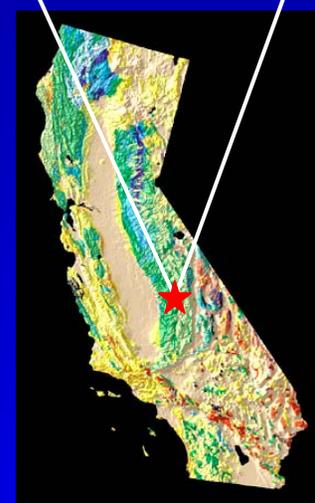
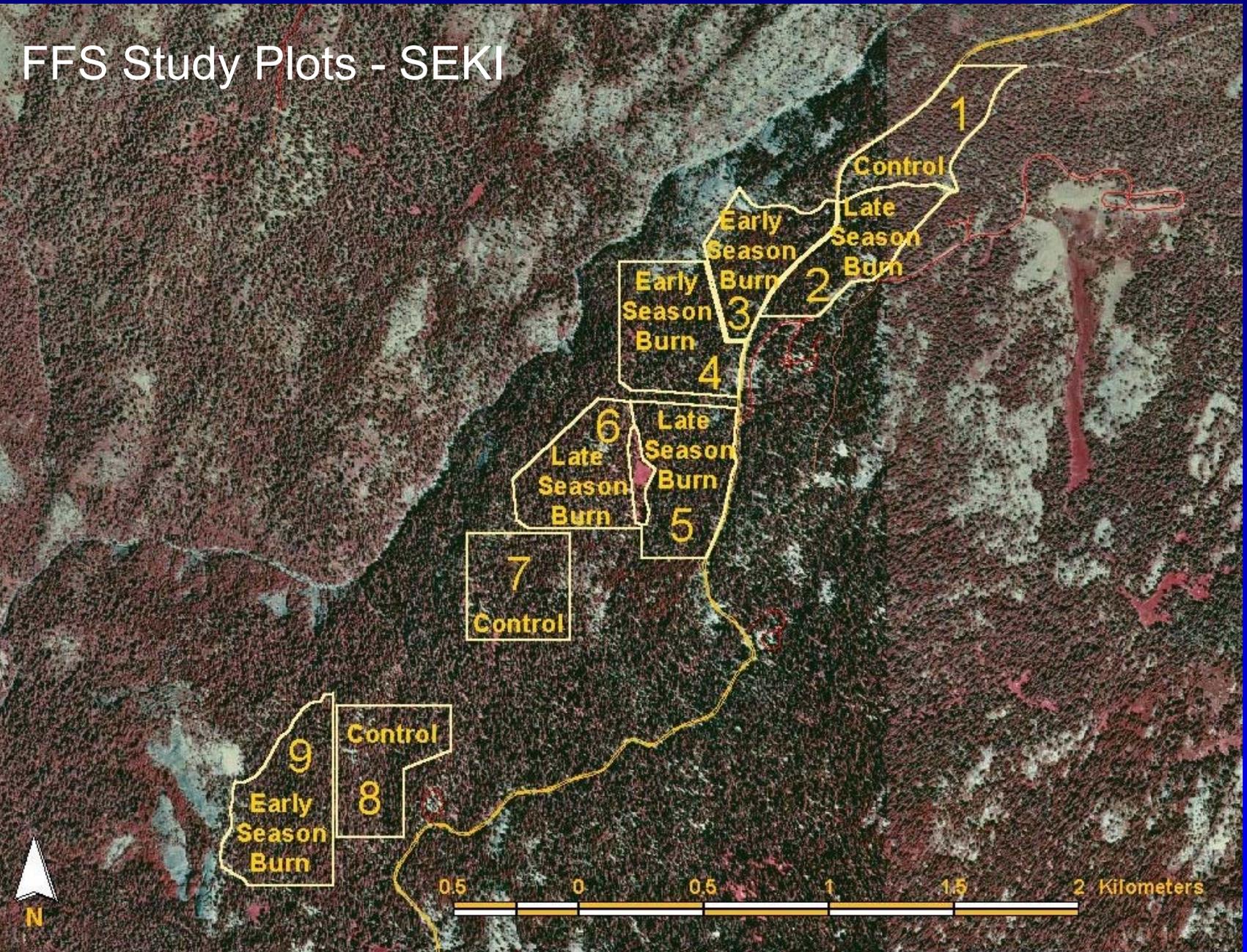
Objective of National FFS Study: Evaluate ecological impacts of different fuel reduction/ forest restoration treatments, including prescribed fire, mechanical thinning, and a combination of both.

Treatments at Sequoia NP: Early season prescribed fire, late season prescribed fire, control

FFS Study Sites



FFS Study Plots - SEKI



FFS Sequoia Research Team

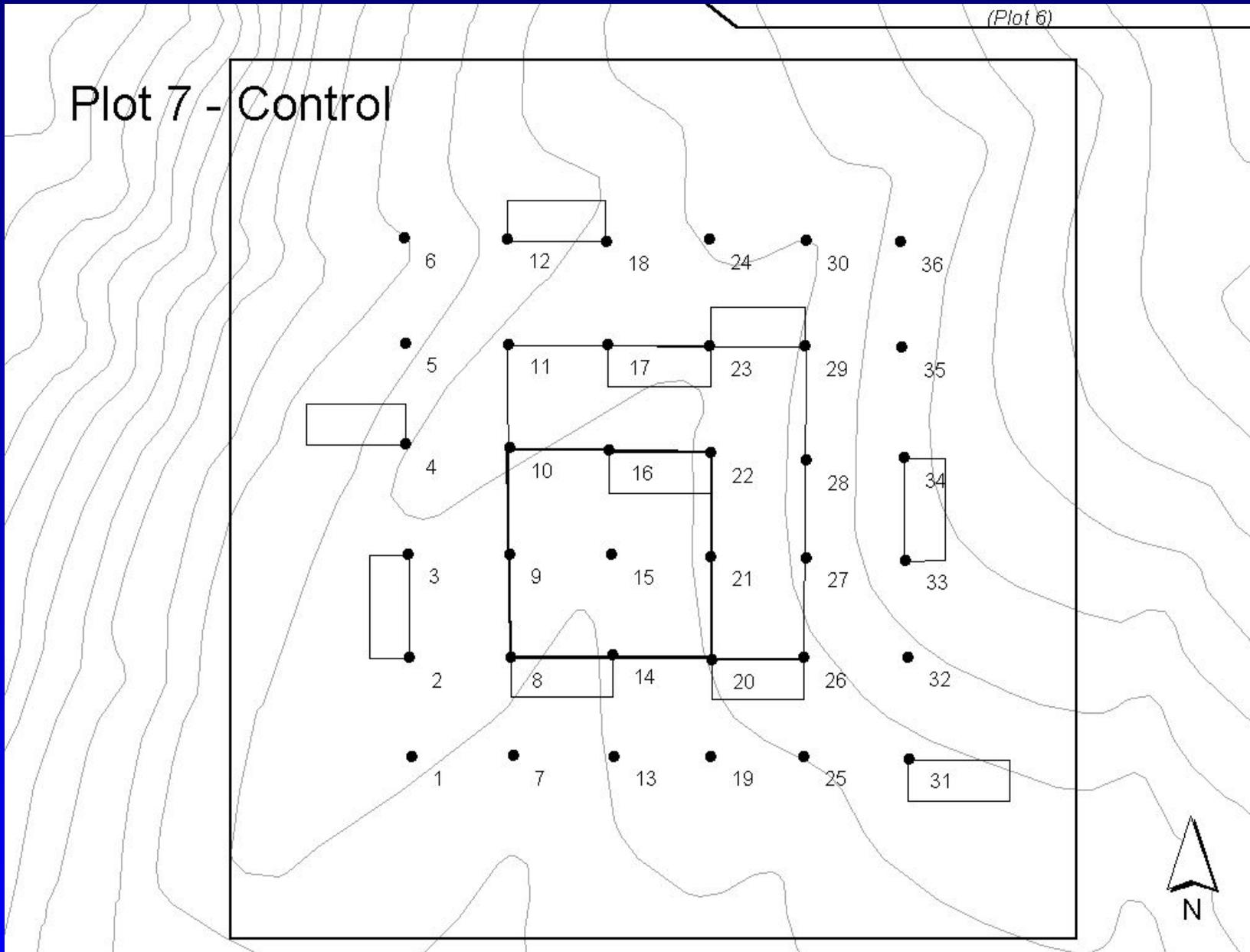
- **Vegetation** (Forest overstory and understory) - USGS Sequoia
- **Fuels** - USGS Sequoia
- **Soils** - Indy Burke & Sarah Hamman (Colorado State Univ.), Phil Rundel (UCLA)
- **Wildlife** - Kerry Farris, Steve Zack (Wildlife Conservation Society), Michelle Gagnon (UC Davis)
- **Tree Pathology** - Tricia Maloney (UC Davis)
- **Entomology/ bark beetles** - USGS Sequoia
- **Economics** - Jamie Barbour (USFS PNW), Bruce Hartsough (UC Davis)
- **Other studies:**
 - Monique Rocca, Dean Urban (Duke Univ.) - Spatial heterogeneity of fire effects
 - Bill Zielinski, Rick Truex (USFS PSW) - Fisher habitat and fire
 - Anthony Caprio (NPS) - Landscape variability in fire return interval
 - Winifred Fricke (Oregon State Univ.) - Fire and habitat use by forest bats (proposed)

Sierra Nevada global climate change research plots

- 24 permanent plots
- only two have burned after plot establishment
- The role of fire is important in shaping seedling and mature tree demographic patterns
- Interactions w/ fire may need to be considered when developing climate change vegetation models

Plot 7 - Control

(Plot 6)



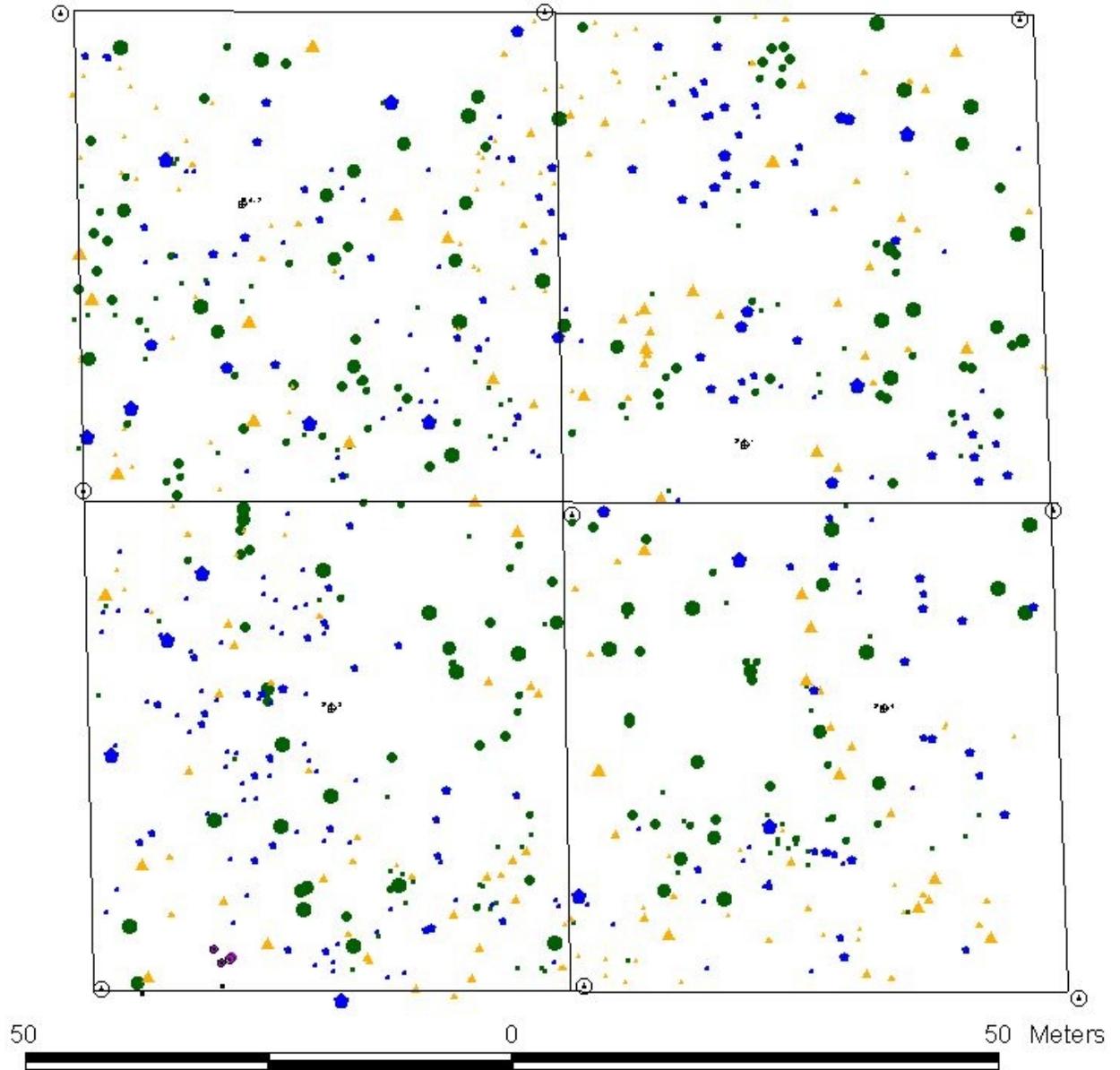
FFS/Global Change plots - Methods

- Four new 1 ha plots established
- One control, three late season prescribed fire
- All trees mapped using a TopCon total station/ GPS



Plot 7 - Control

- Cornus nuttallii*
 - 0 - 10 cm
 - 10 - 20 cm
 - 20 - 40 cm
 - 40 - 80 cm
 - 80 - 210 cm
- Pinus lambertiana*
 - 0 - 10 cm
 - 10 - 20 cm
 - 20 - 40 cm
 - 40 - 80 cm
 - 80 - 210 cm
- Calocedrus decurrens*
 - 0 - 10 cm
 - 10 - 20 cm
 - 20 - 40 cm
 - 40 - 80 cm
 - 80 - 210 cm
- Abies concolor*
 - 0 - 10 cm
 - 10 - 20 cm
 - 20 - 40 cm
 - 40 - 80 cm
 - 80 - 210 cm
- Gridpoints
- Survey Stations



FFS/ Global change plots

Methods - continued

- Status of mature trees evaluated yearly
- Tree seedlings tagged and counted yearly
- Seed traps to estimate potential reproduction
- Questions:
 - role of fire in tree recruitment
 - Spatial relationships in overstory and understory before and after fire



Change in Tree seedlings/m² between 2001 and 2002

Control plots



Late-season prescribed fire plots

