

# Using Big Science to Manage Vernal Pool Grasslands

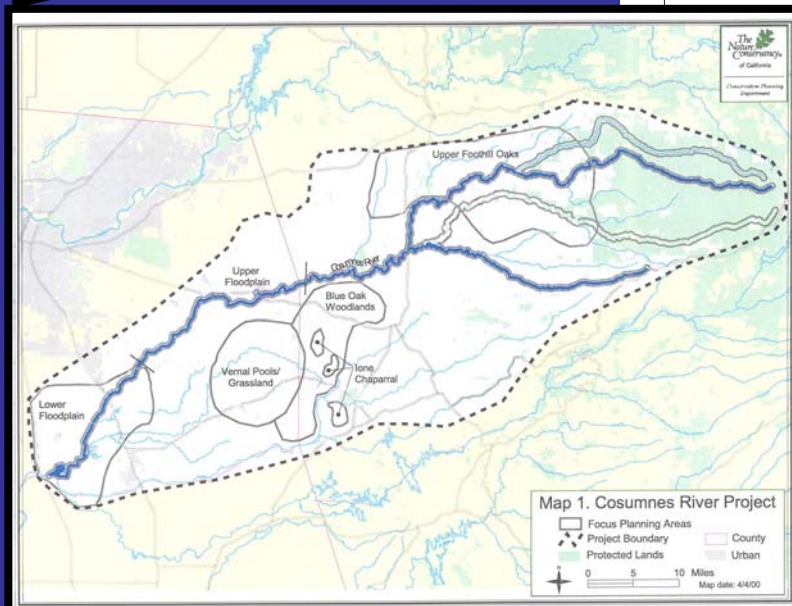
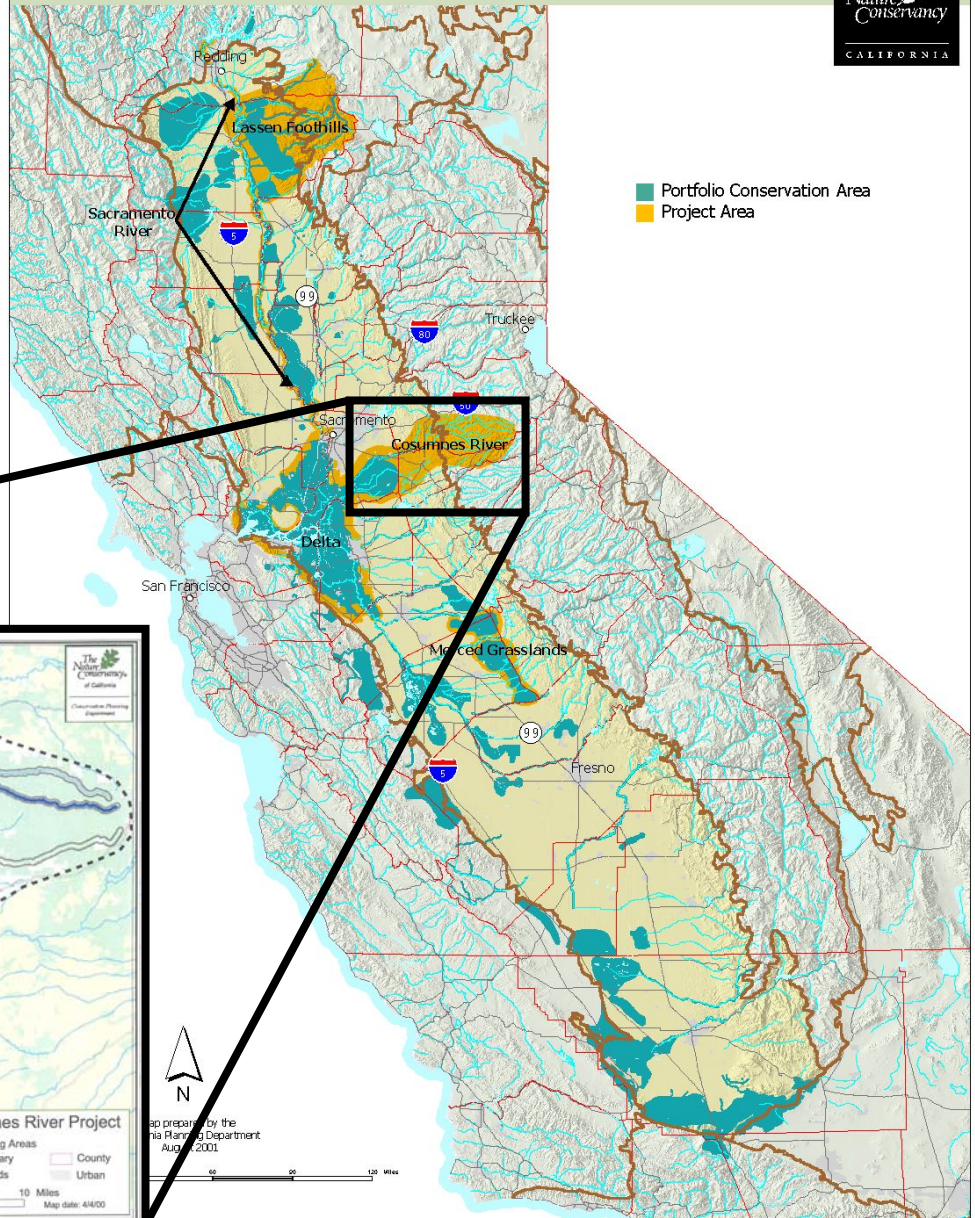
**Jaymee Marty**  
**The Nature Conservancy**





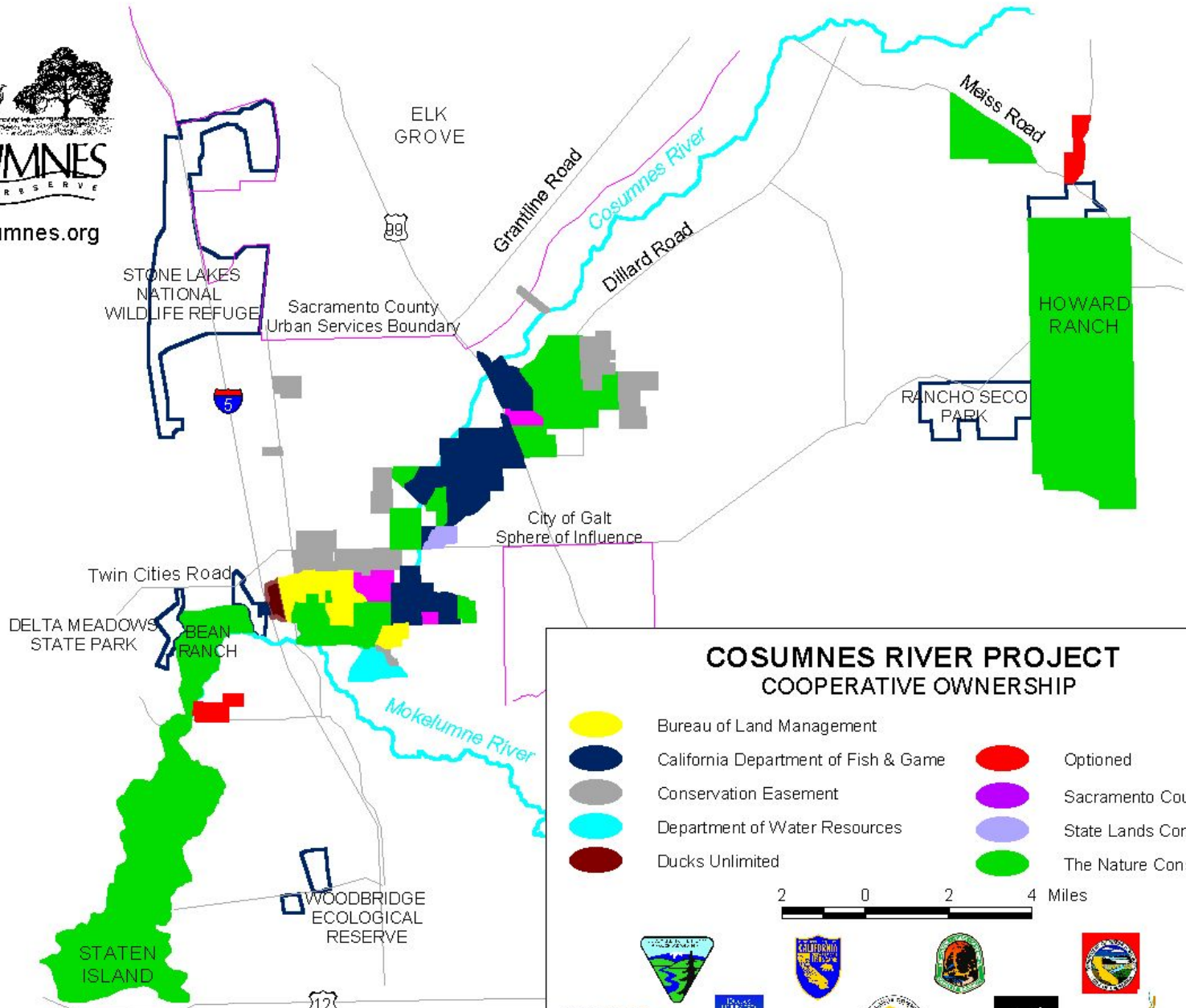
# Cosumnes River

## Central Valley Ecoregion





www.cosumnes.org



### COSUMNES RIVER PROJECT COOPERATIVE OWNERSHIP

- Bureau of Land Management
- California Department of Fish & Game
- Conservation Easement
- Department of Water Resources
- Ducks Unlimited
- Optioned
- Sacramento County
- State Lands Commission
- The Nature Conservancy

2 0 2 4 Miles

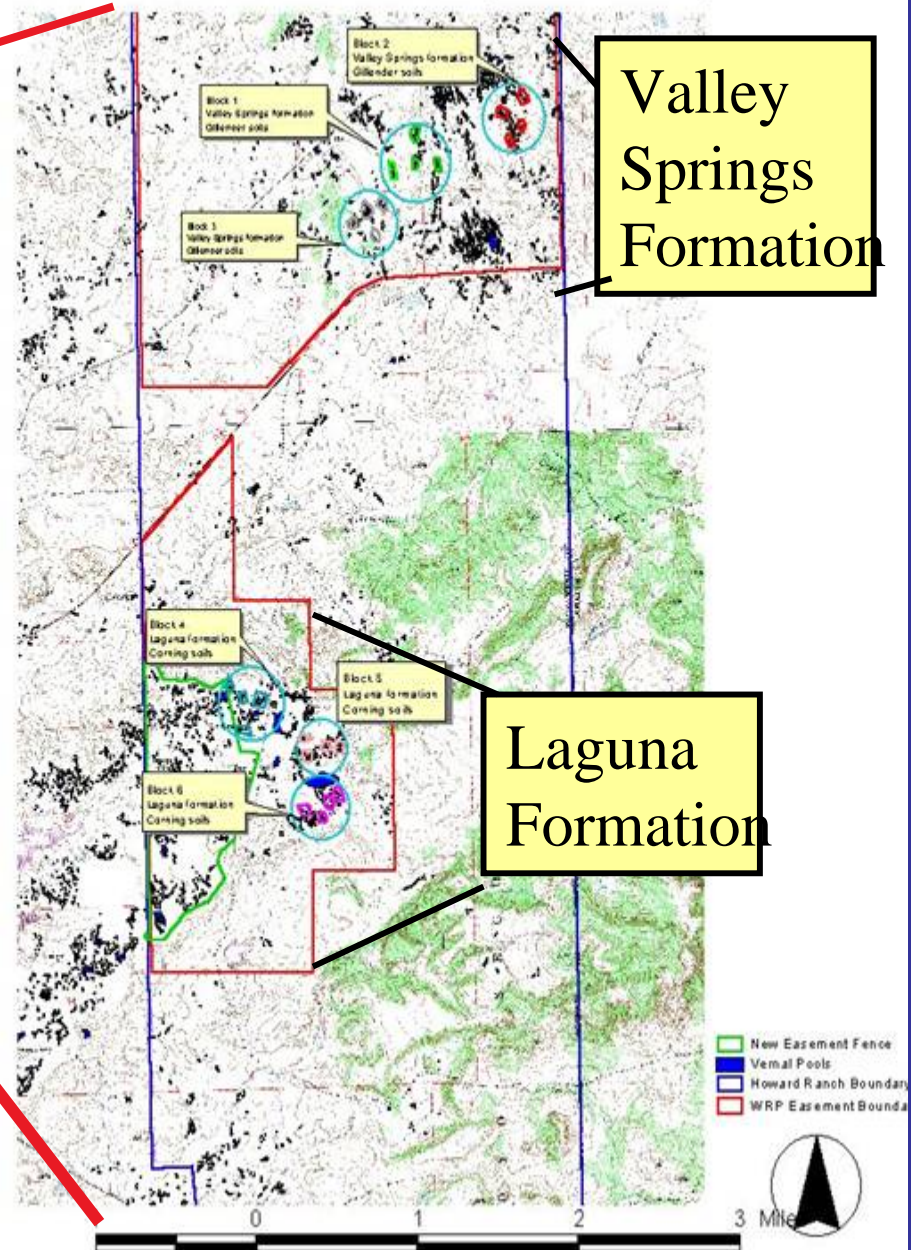


# We own it, now what?

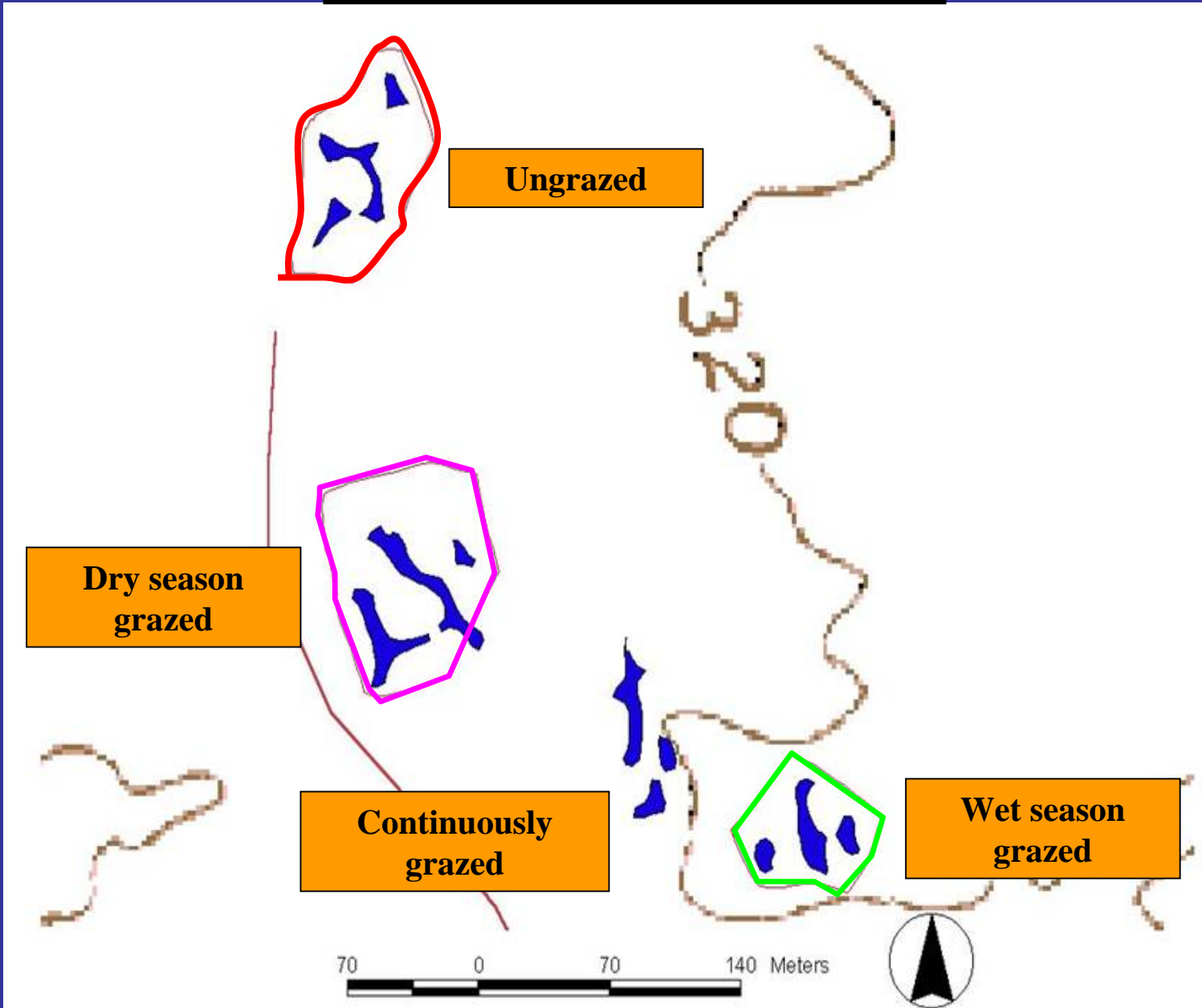
- Change Current Management
  - Seasonal Grazing (Oct – June): change to no grazing in wet season
    - Rotational grazing MUST be better
    - Political reasons
  - Add fire to control weeds
- Science based?
  - No replicated studies on either subject
  - Keep guessing or set up robust monitoring



# Howard Ranch Vernal Pool Study Block Layout



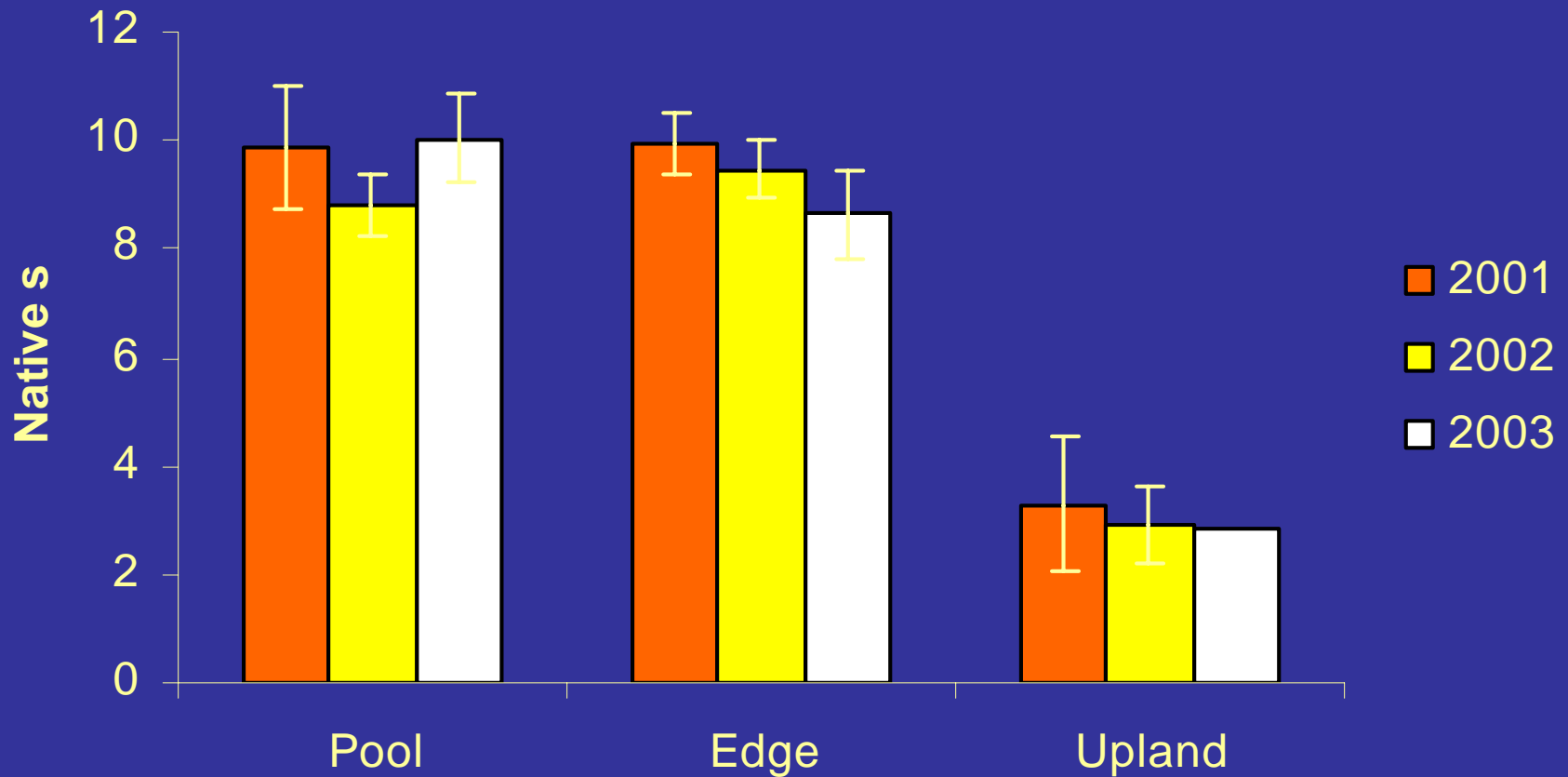
# Grazing Treatment Layout





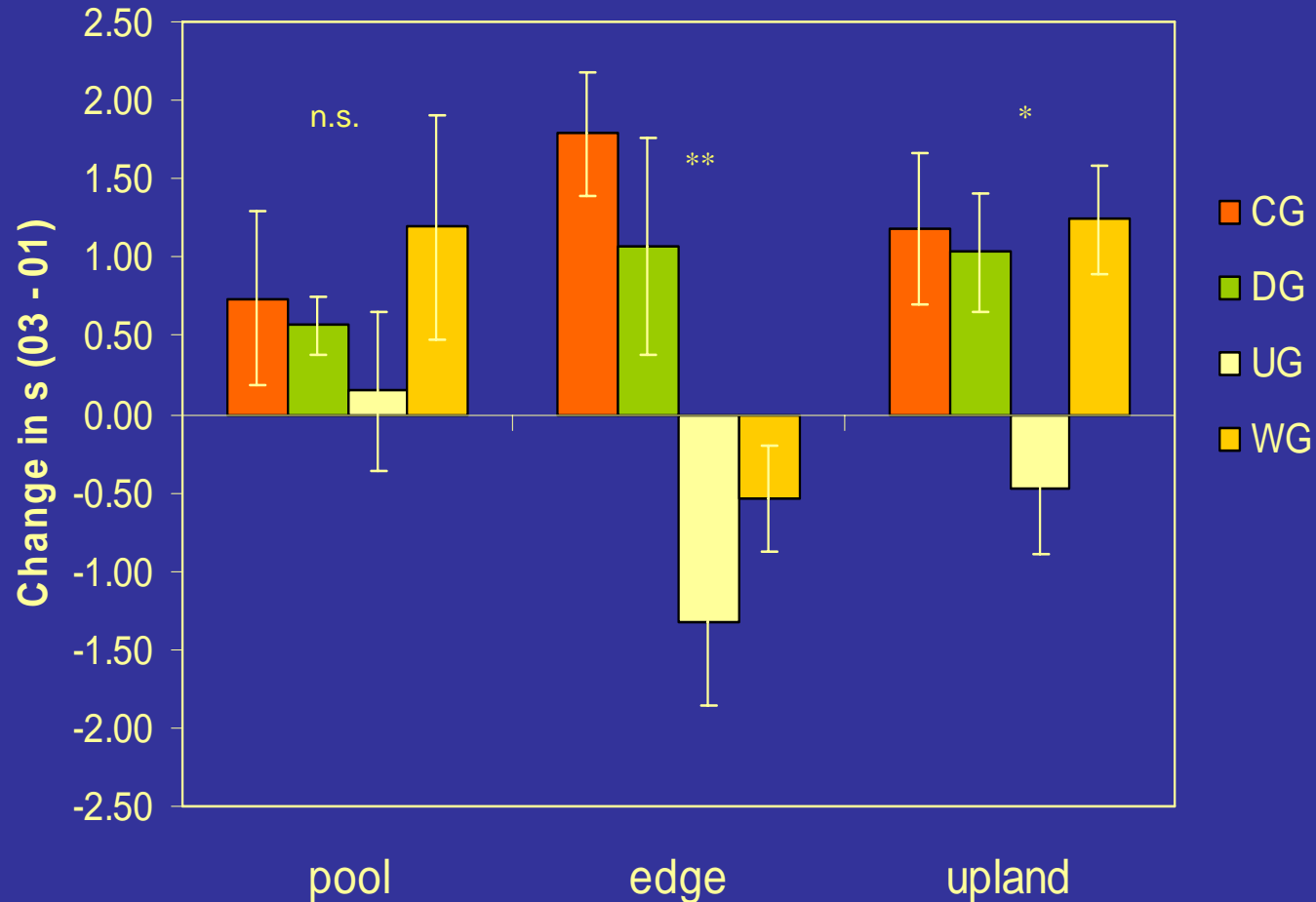


# Native species richness in ungrazed pools: doing fine?



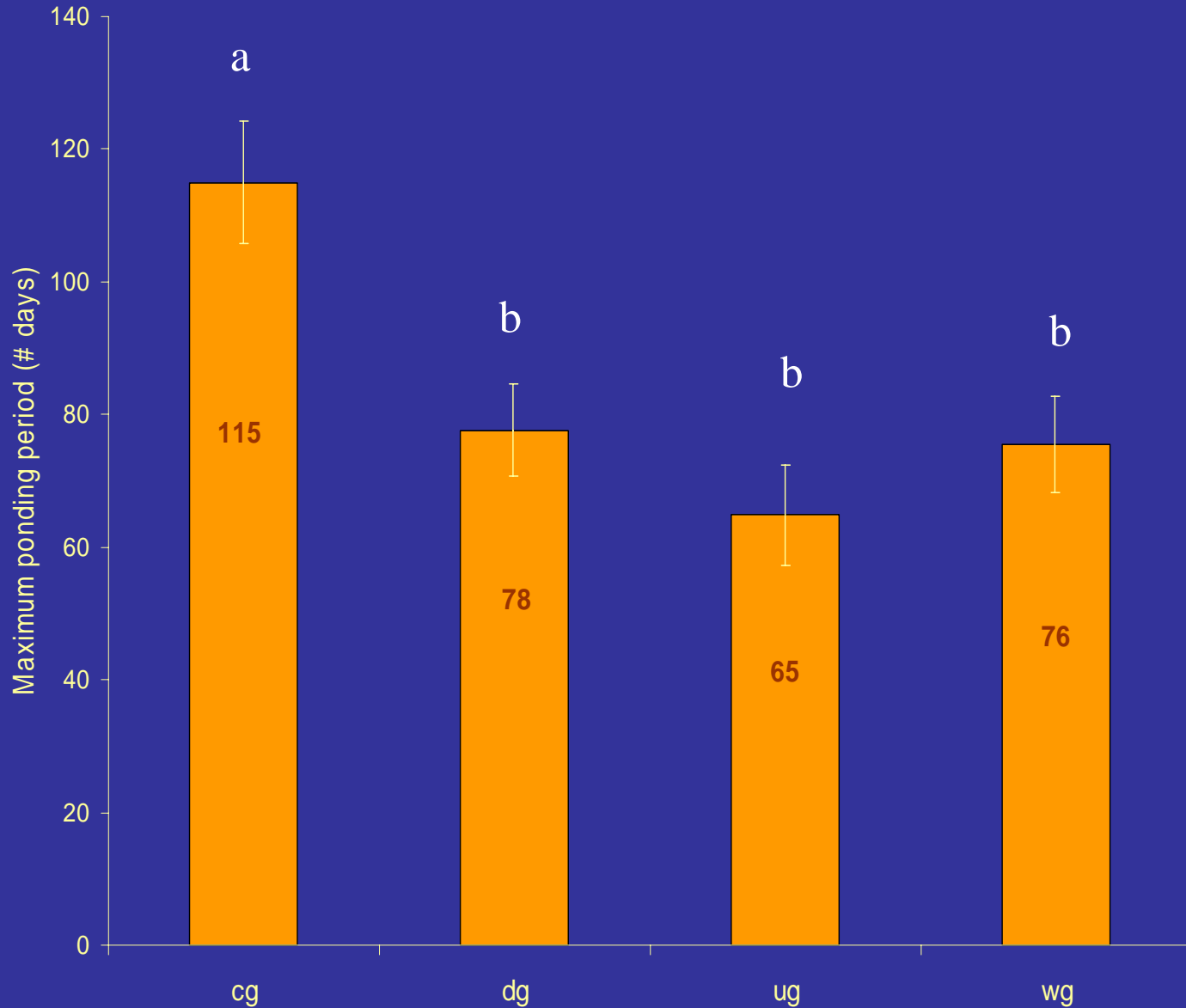


Change in native richness positive in grazed pools  
negative in ungrazed pools  
(Marty 2005)



n.s., not significant; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

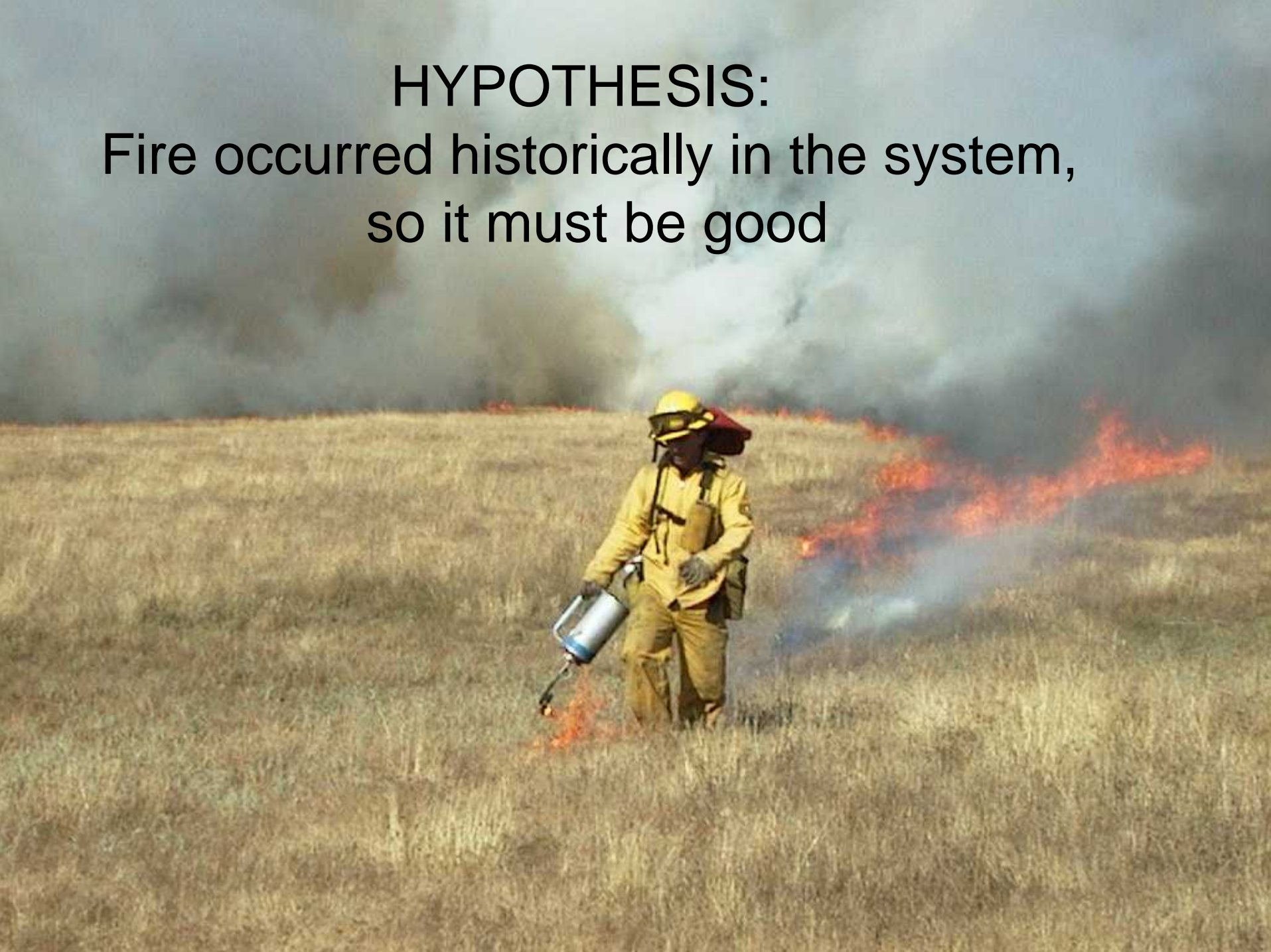
# Average maximum ponding period 50 days less in ungrazed pools vs. continuously grazed pools

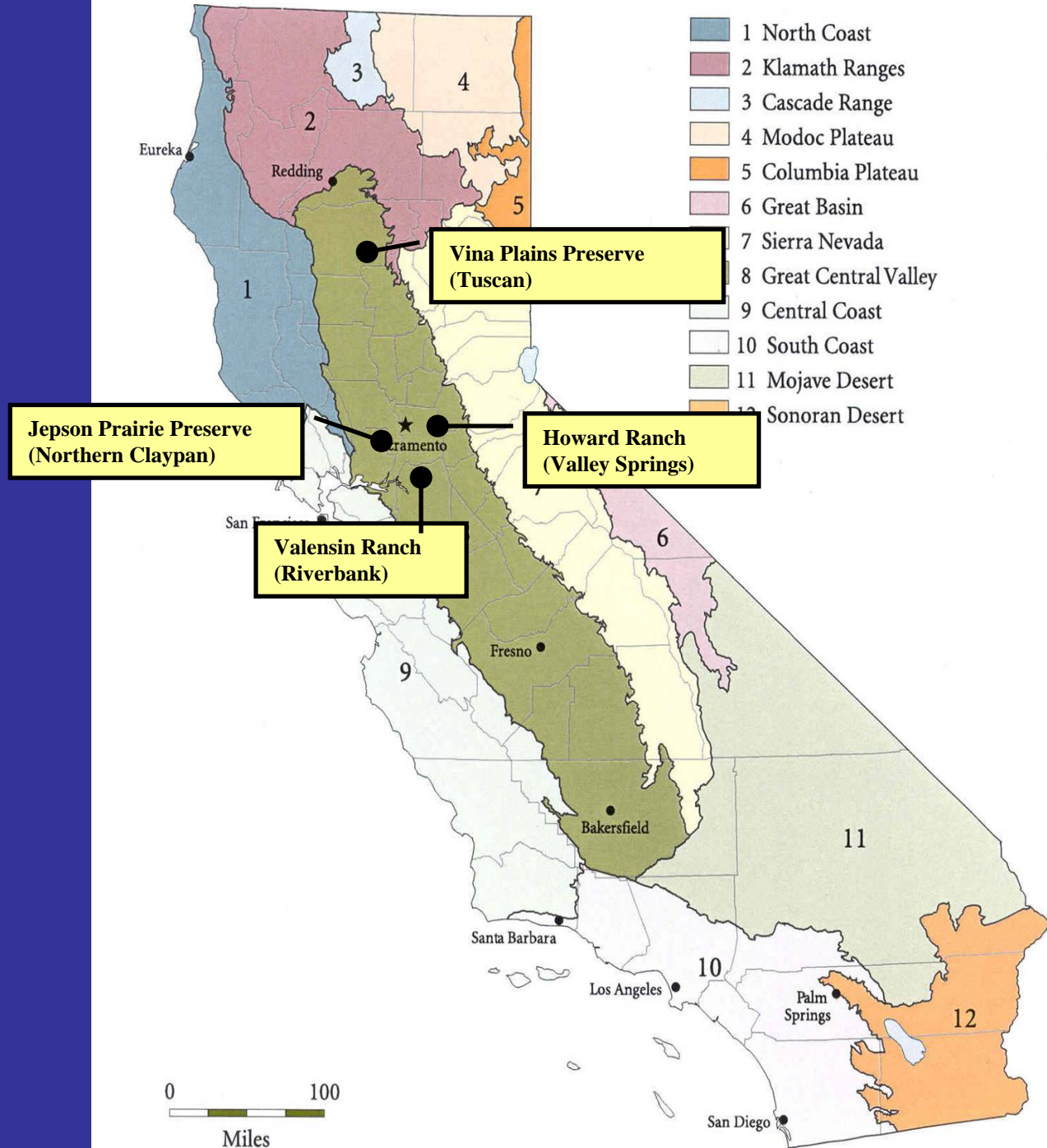




# HYPOTHESIS:

Fire occurred historically in the system,  
so it must be good







# 2001 Burn Units at the Valensin Ranch Cosumnes River Preserve



5 pools

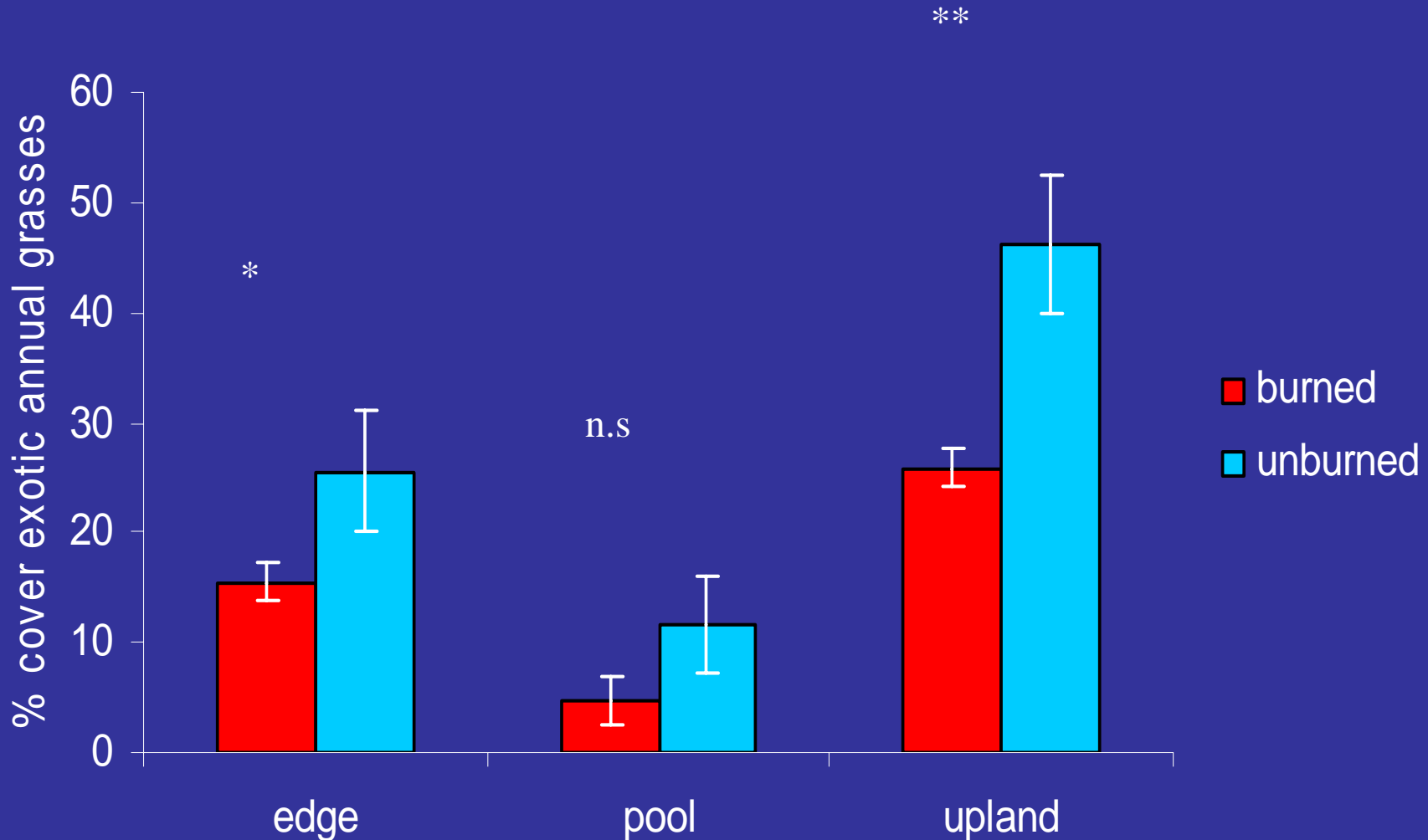
5 pools

5 pools

5 pools

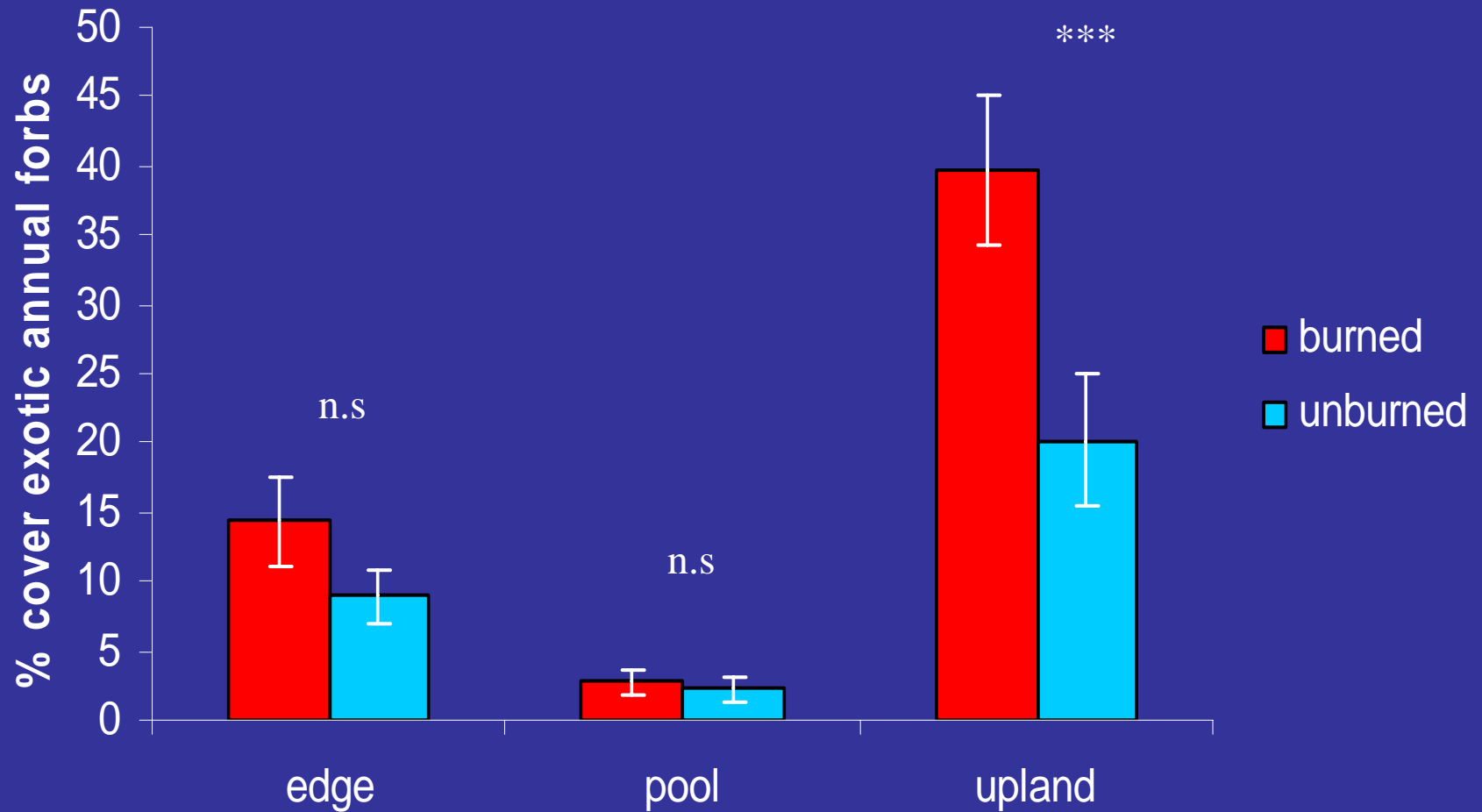
# One year post burn results

Exotic annual GRASS cover declines in burned plots at 2003 burned sites

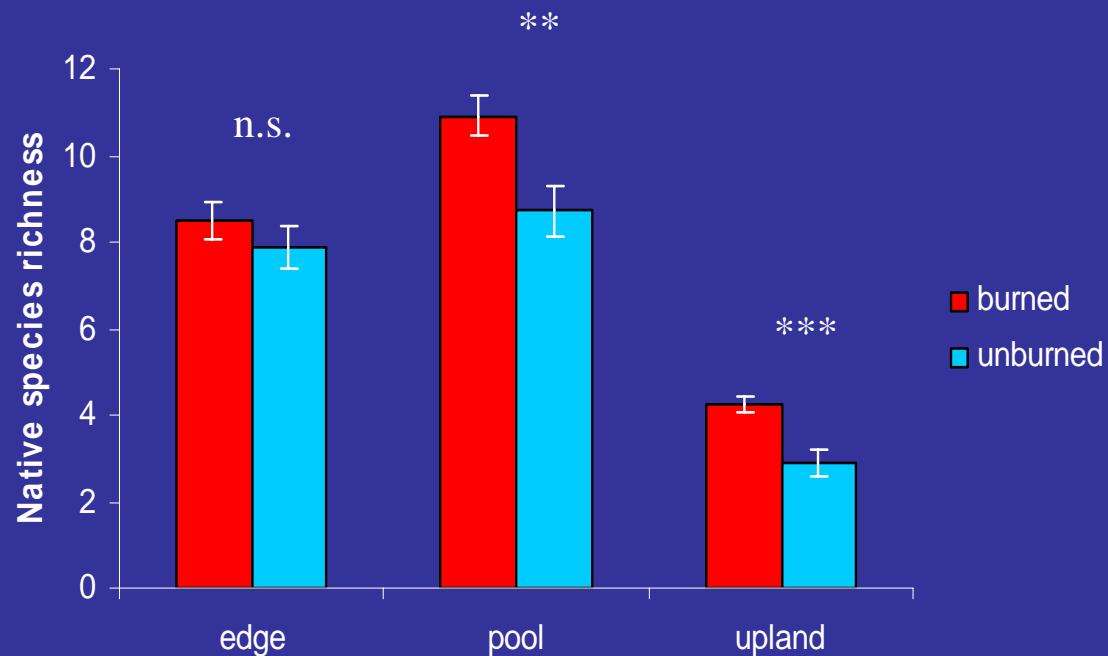
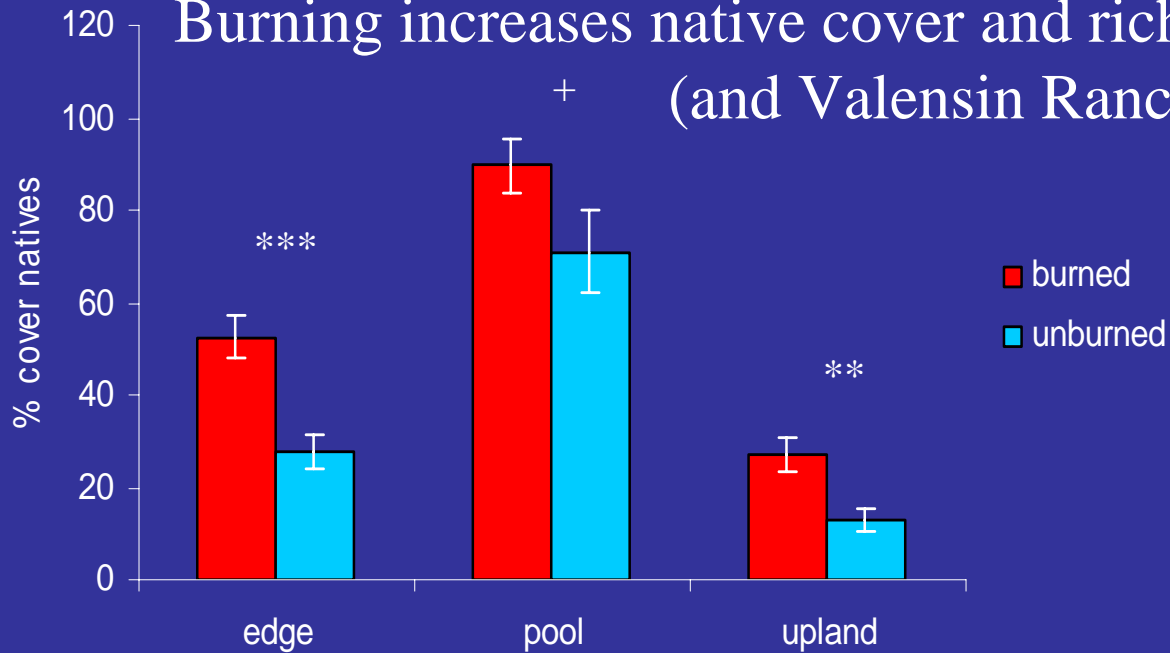




# Exotic annual FORB cover increases in burned plots at 2003 burned s

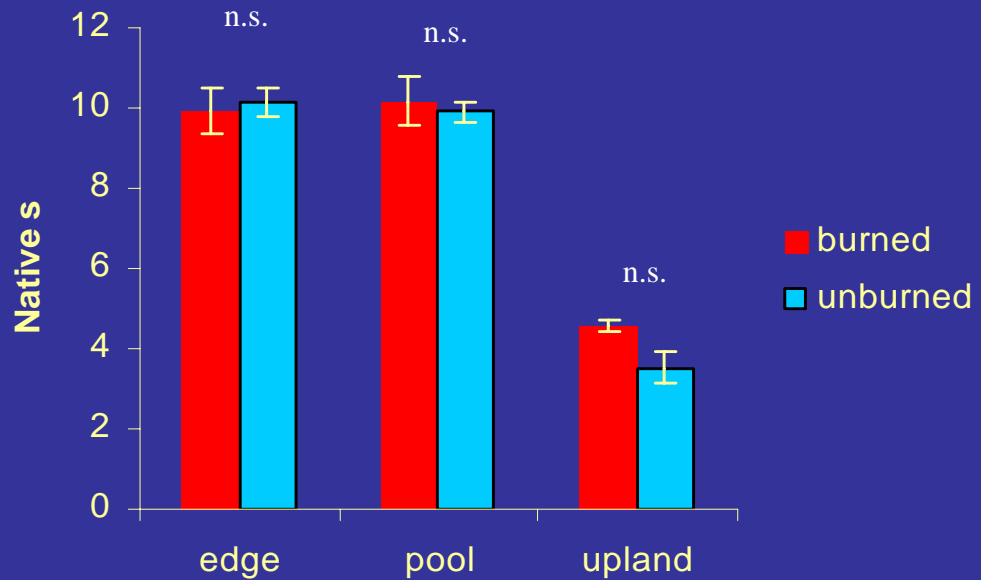
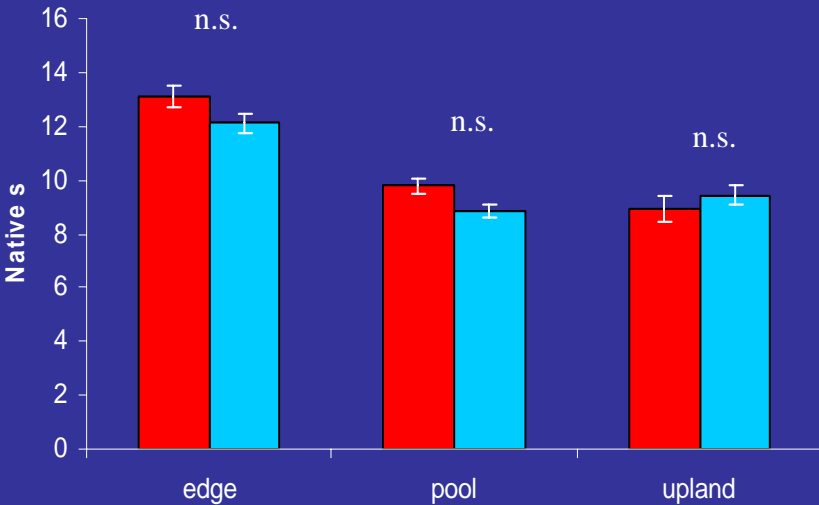


# Burning increases native cover and richness at Jepson Prairie (and Valensin Ranch)





# No effect of burning on native diversity at Vina and Cosumnes Foothills sites



# What have we learned?

- **Don't change management regime unless you have a very compelling science-based reason to do so**
  - **Sometimes politics get in the way**
- **When you do make a change, MONITOR**
  - **ALWAYS include a control**
  - **Know why you're monitoring and keep it simple**
  - **Stats heads may know numbers, but may not understand biology or monitoring efficiency**
  - **Analyze your data!**



## Helpers

CRP Interns and staff  
Volunteer naturalists  
CRP Hard Corp crew  
Sac Co. Sheriff work crews  
CDF

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