



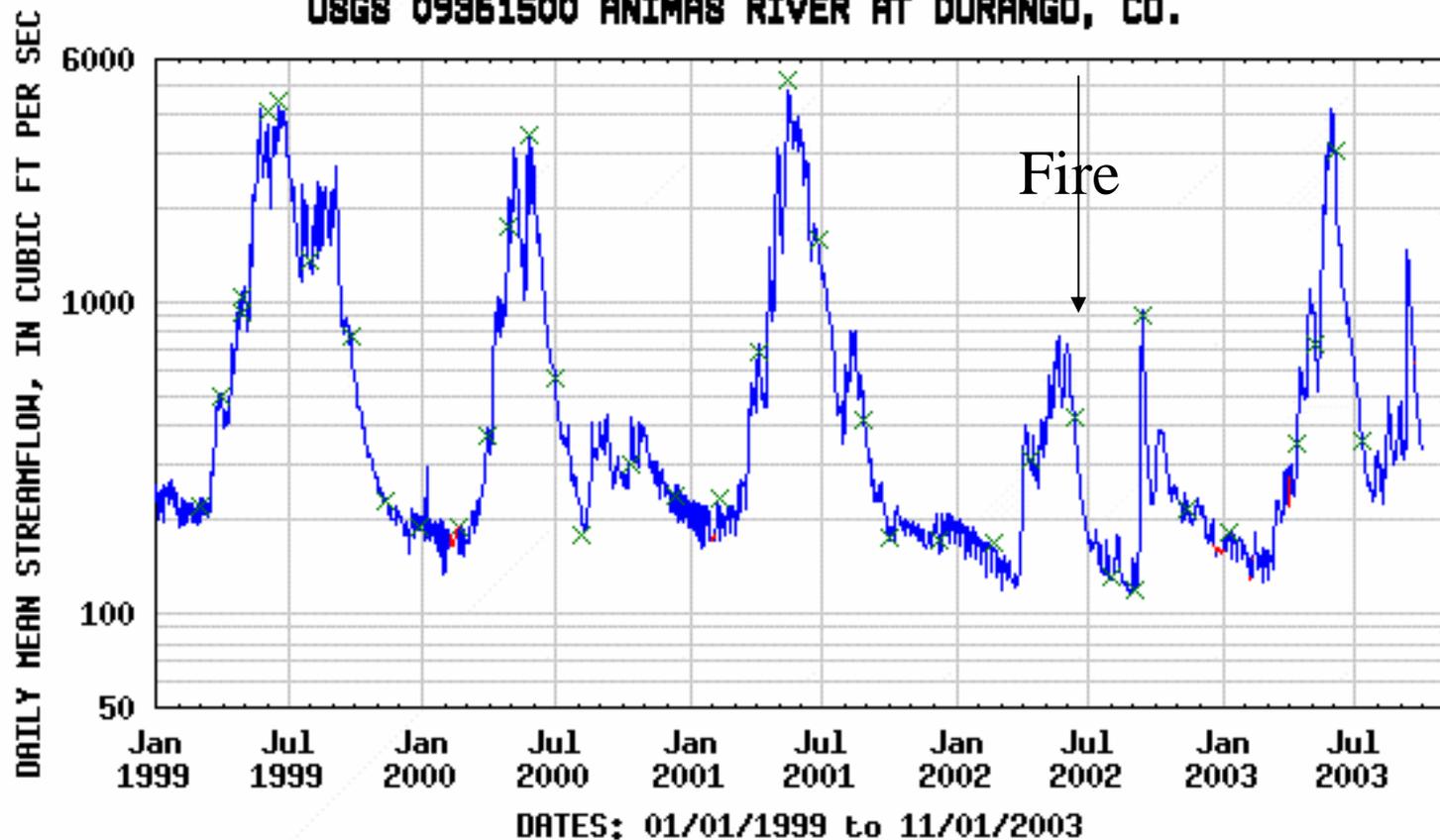
# Fire

- June/July 2002
- Area 72,962 acres
  - 22,542 acres burned at a high severity
  - 21,822 acres at moderate severity
  - 13,872 at low severity and
  - 14,728 acres essentially unburned.
- Occurred at the height of a record drought



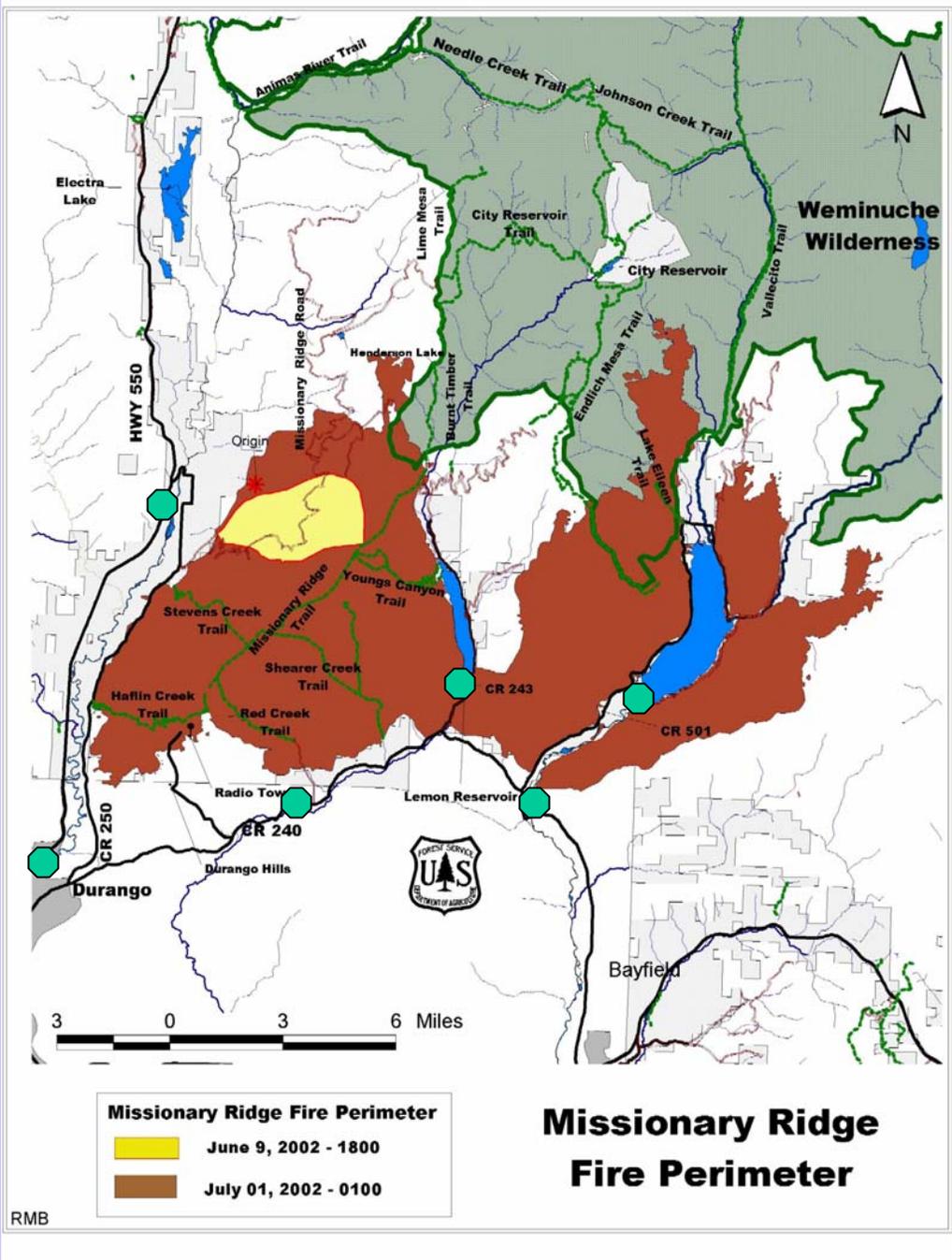


### USGS 09861500 ANIMAS RIVER AT DURANGO, CO.



**EXPLANATION**

— DAILY MEAN STREAMFLOW    × MEASURED STREAMFLOW    — ESTIMATED STREAMFLOW



RMB

# Concerns:

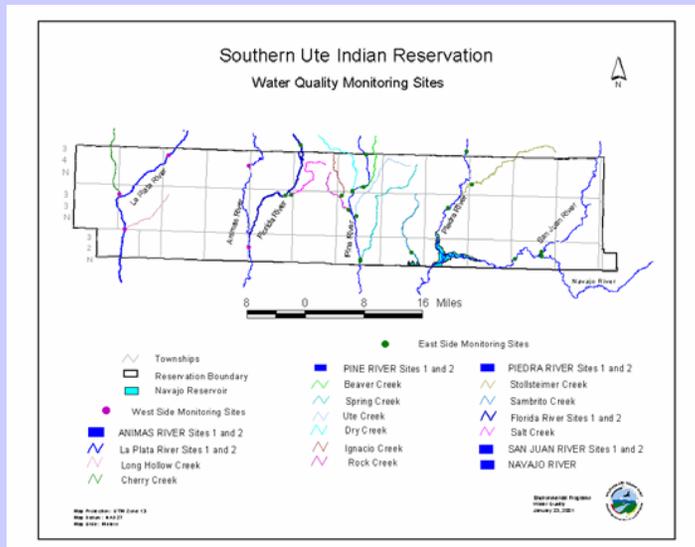
- Large quantities of
  - organic matter and sediment
  - impacts to habitat
  - impacts to water chemistry
- Monitoring
  - Distinguish effects of fire from human disturbance



# S. Ute Monitoring Program

## Collected:

- Water chemistry data since 1991 (TN, TP, turbidity)
- Macroinvertebrate data since 1995
  - (single habitat - riffle)



# Methods - Low Flow

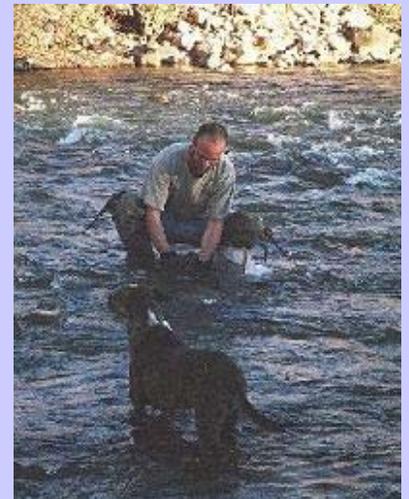
- Habitat
  - 3 Transects at each sample site (riffles)
  - Water depth profile
  - Characterized stream bottom (intermediate axis)
  - Measured percent embeddedness

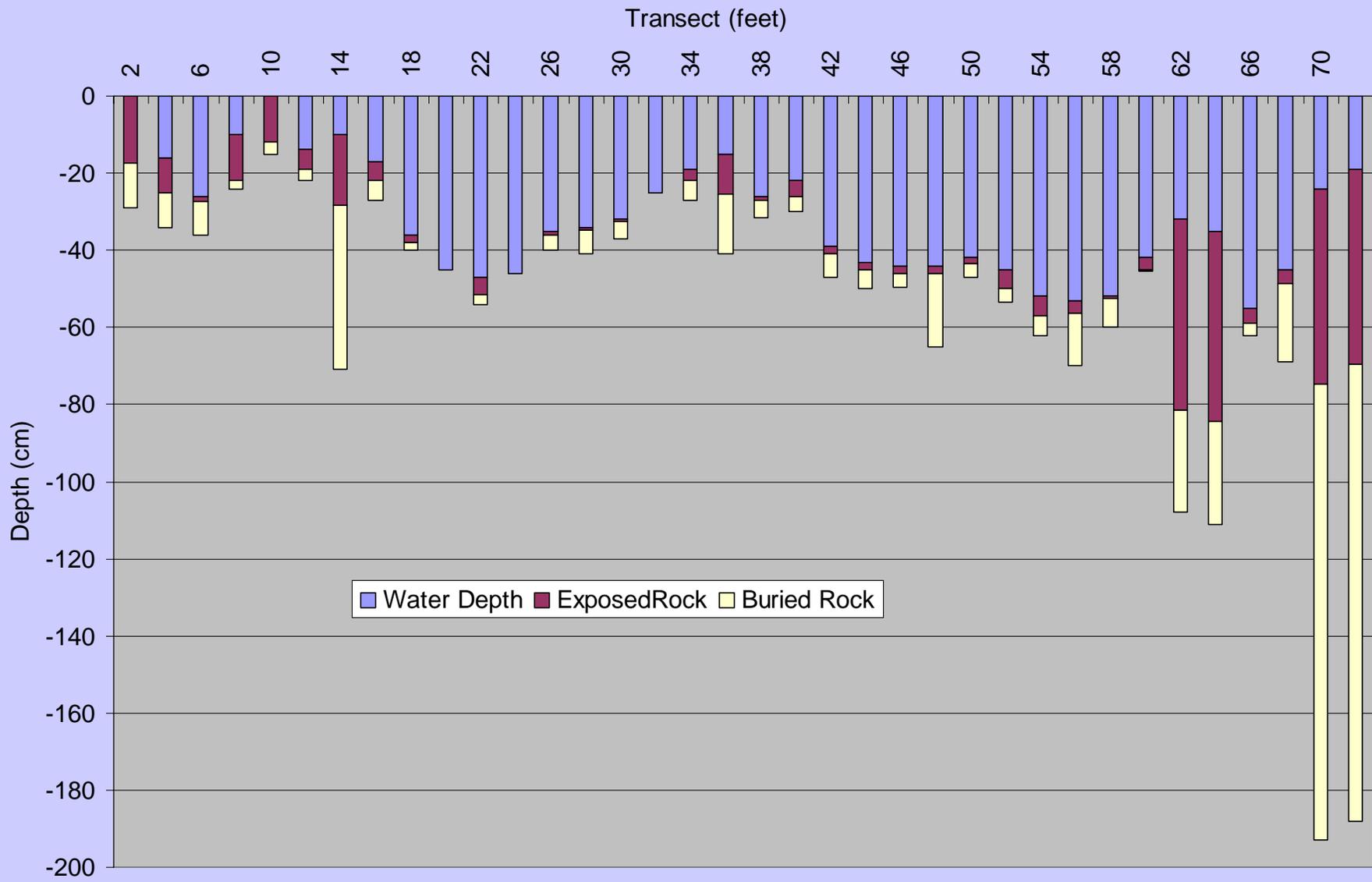


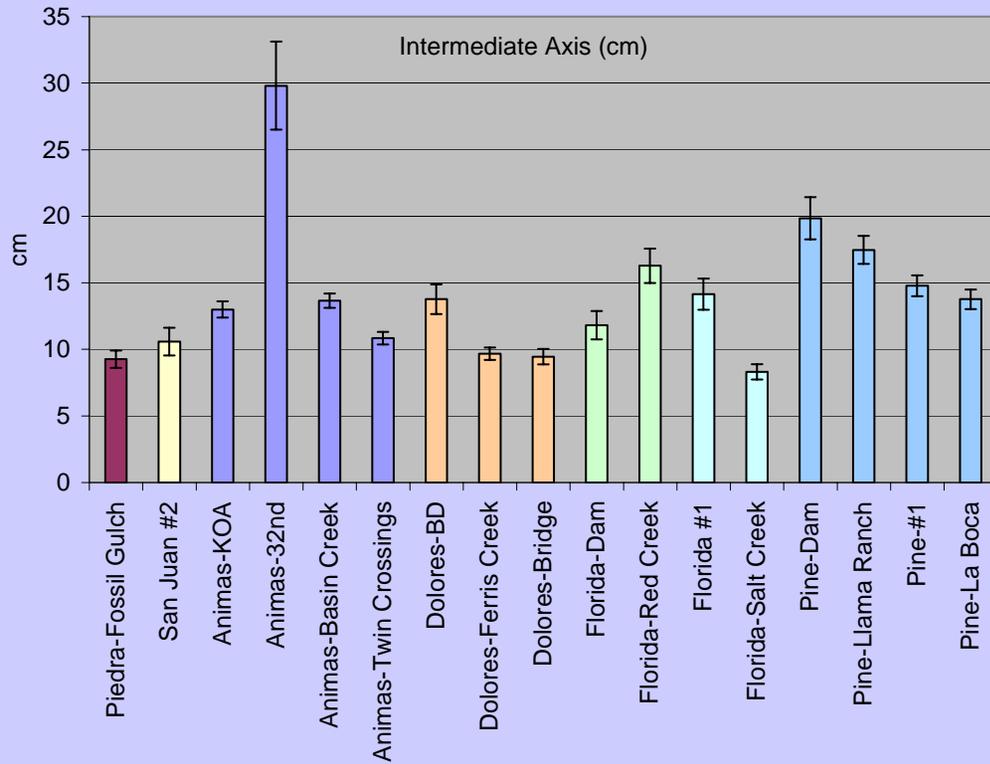
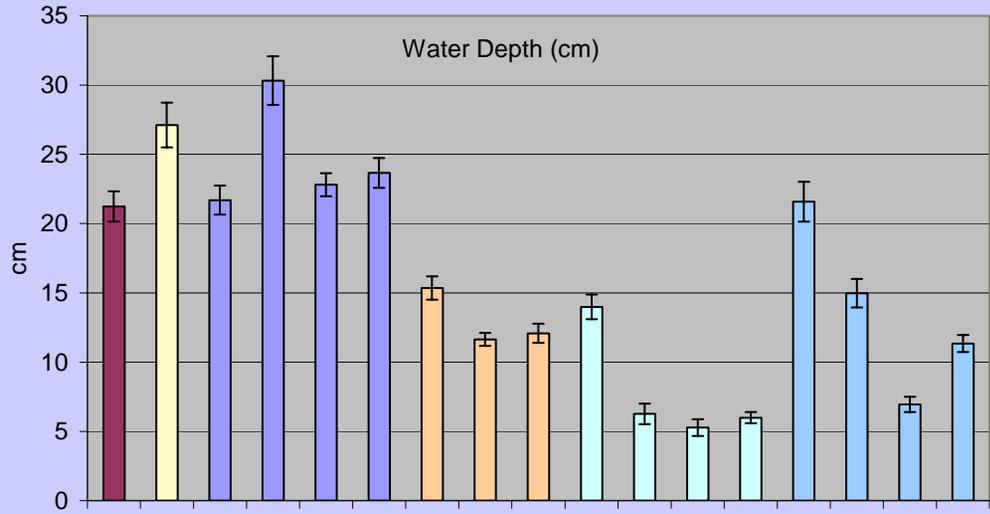
- Organic matter
  - Collected composite samples below point bars
  - Ash samples - percent organic matter

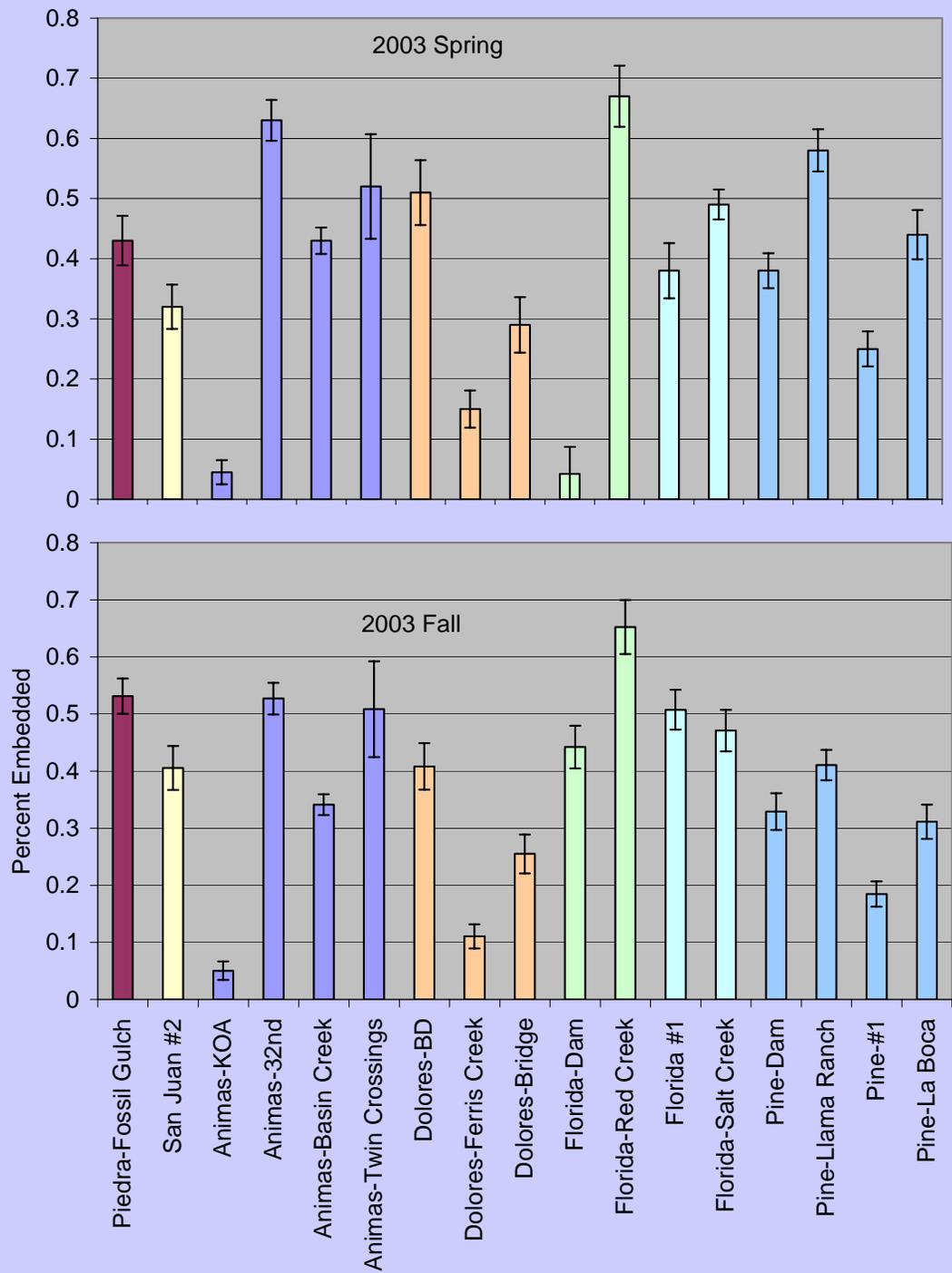


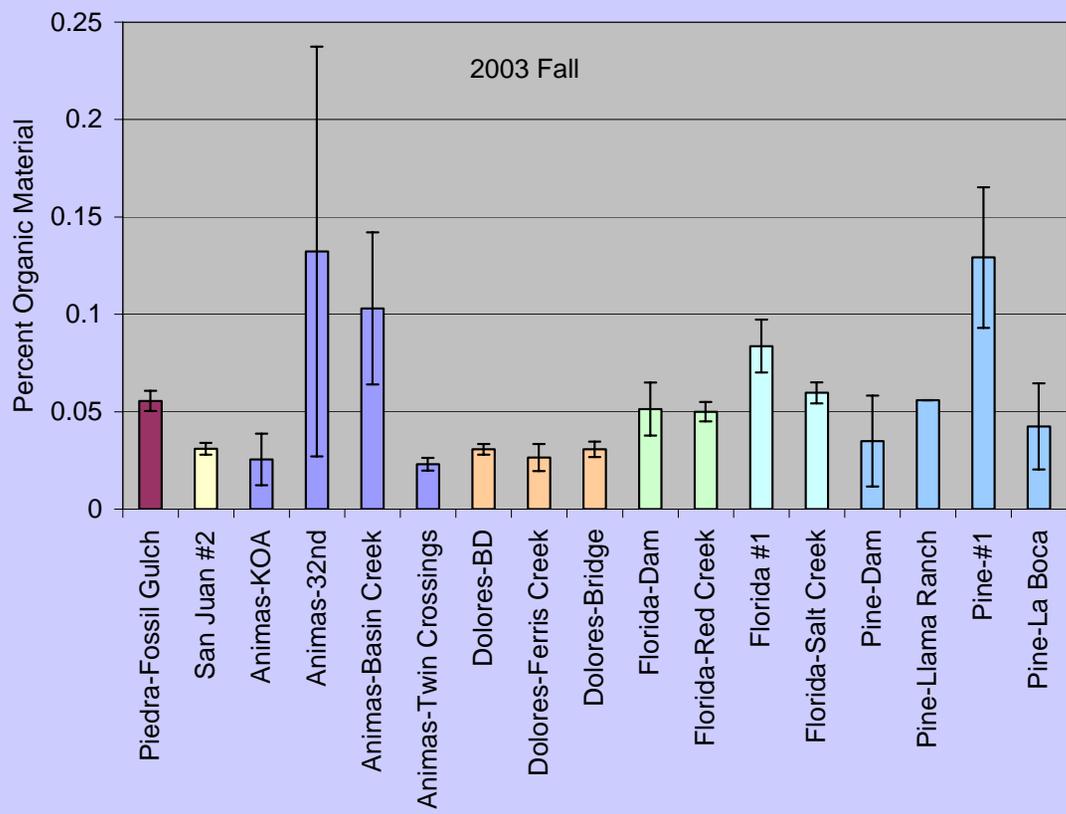
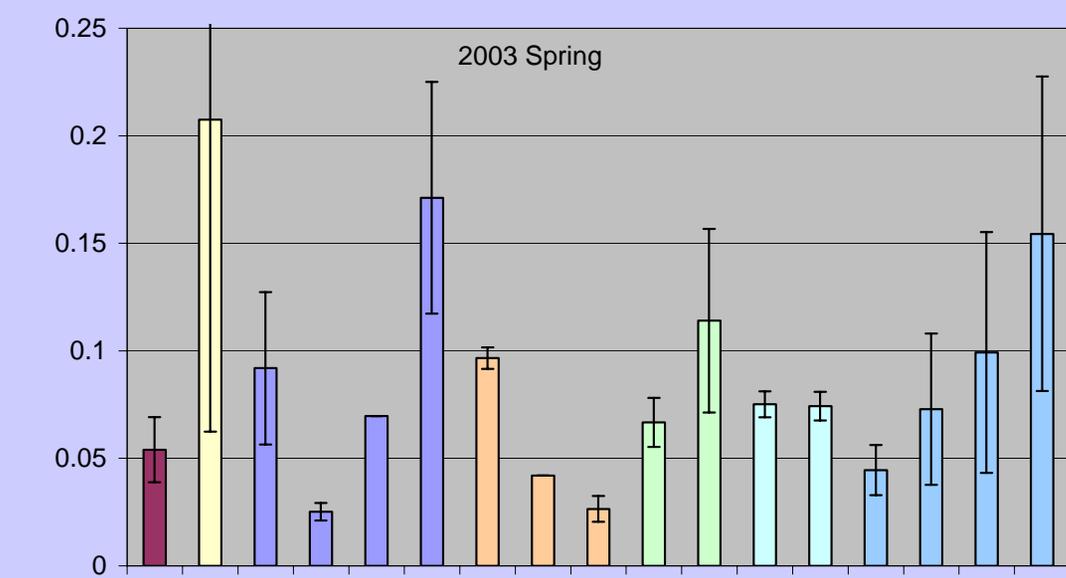
- Periphyton as chlorophyll-a
- Macroinvertebrate and water chemistry

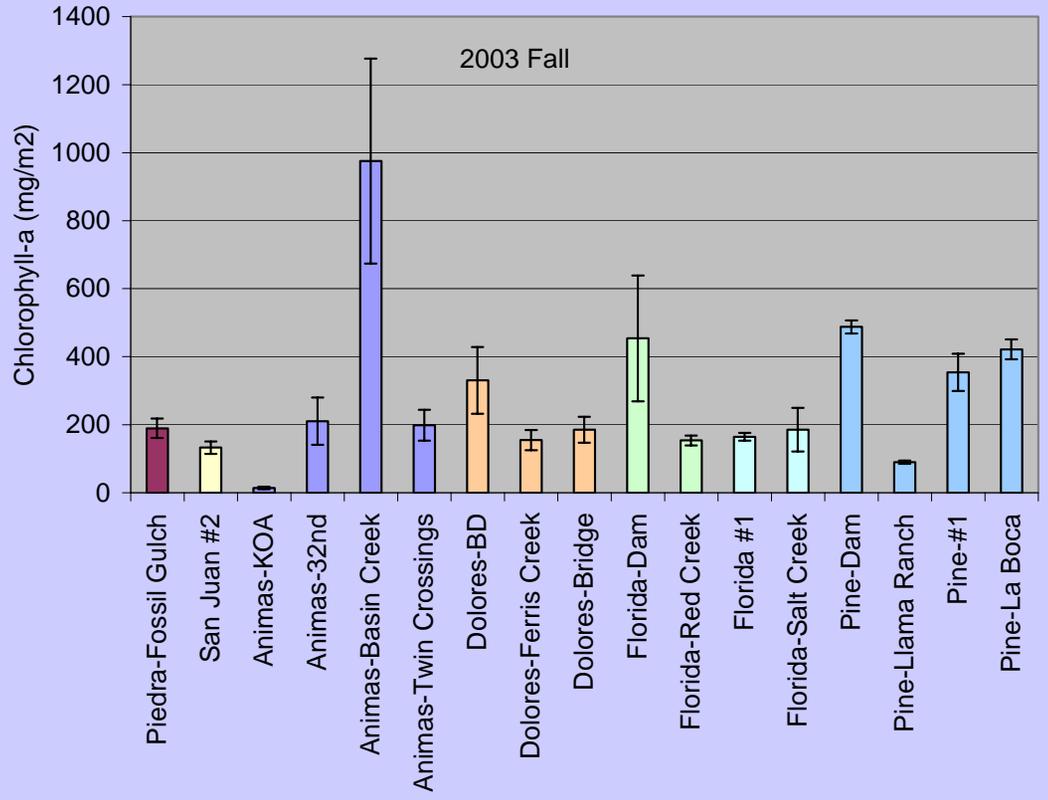
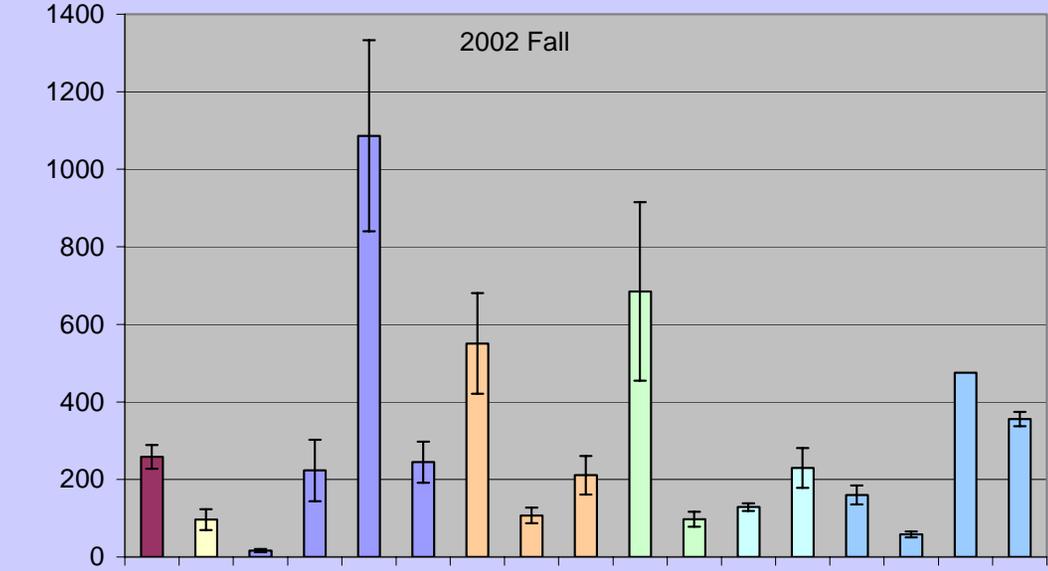


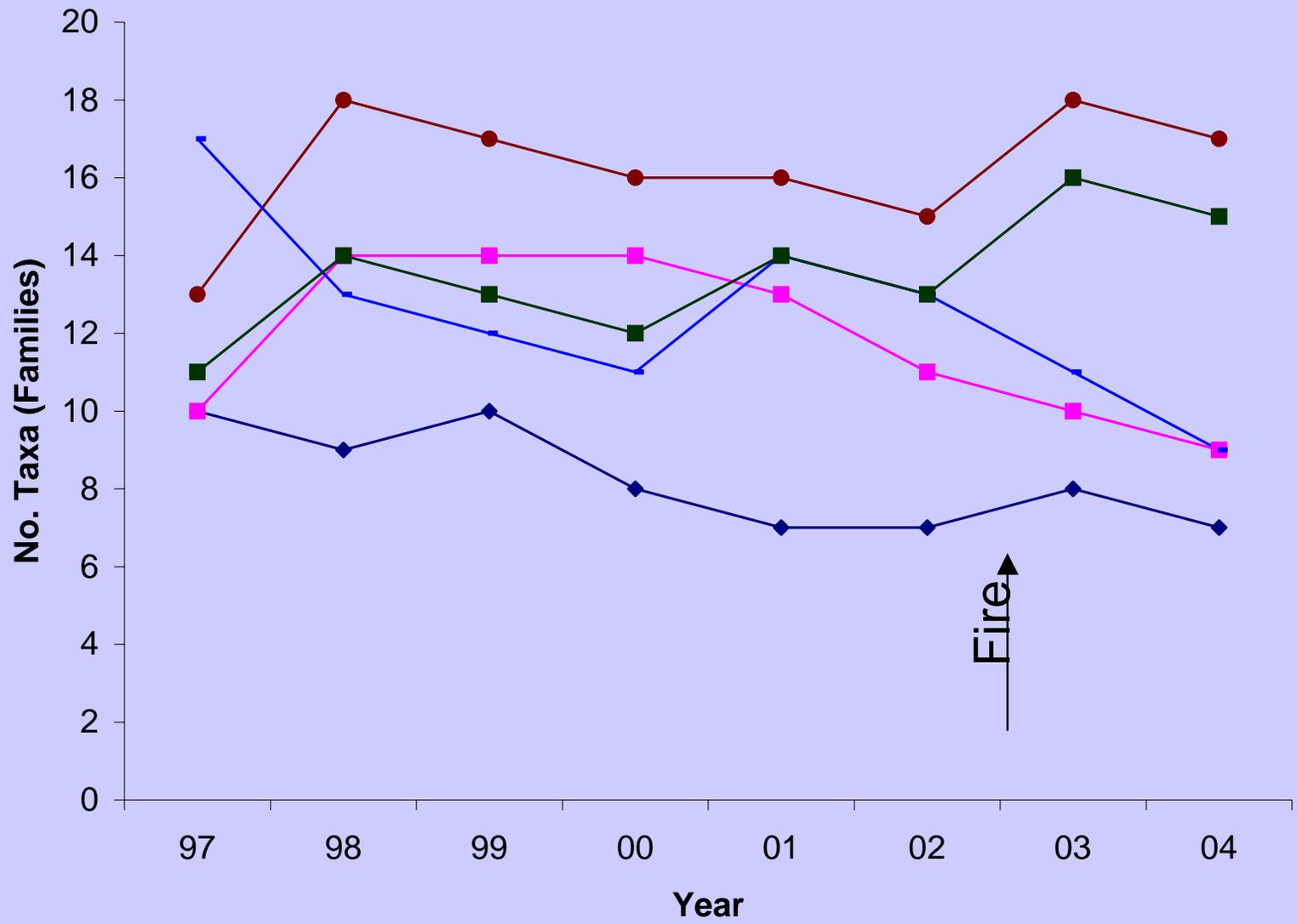




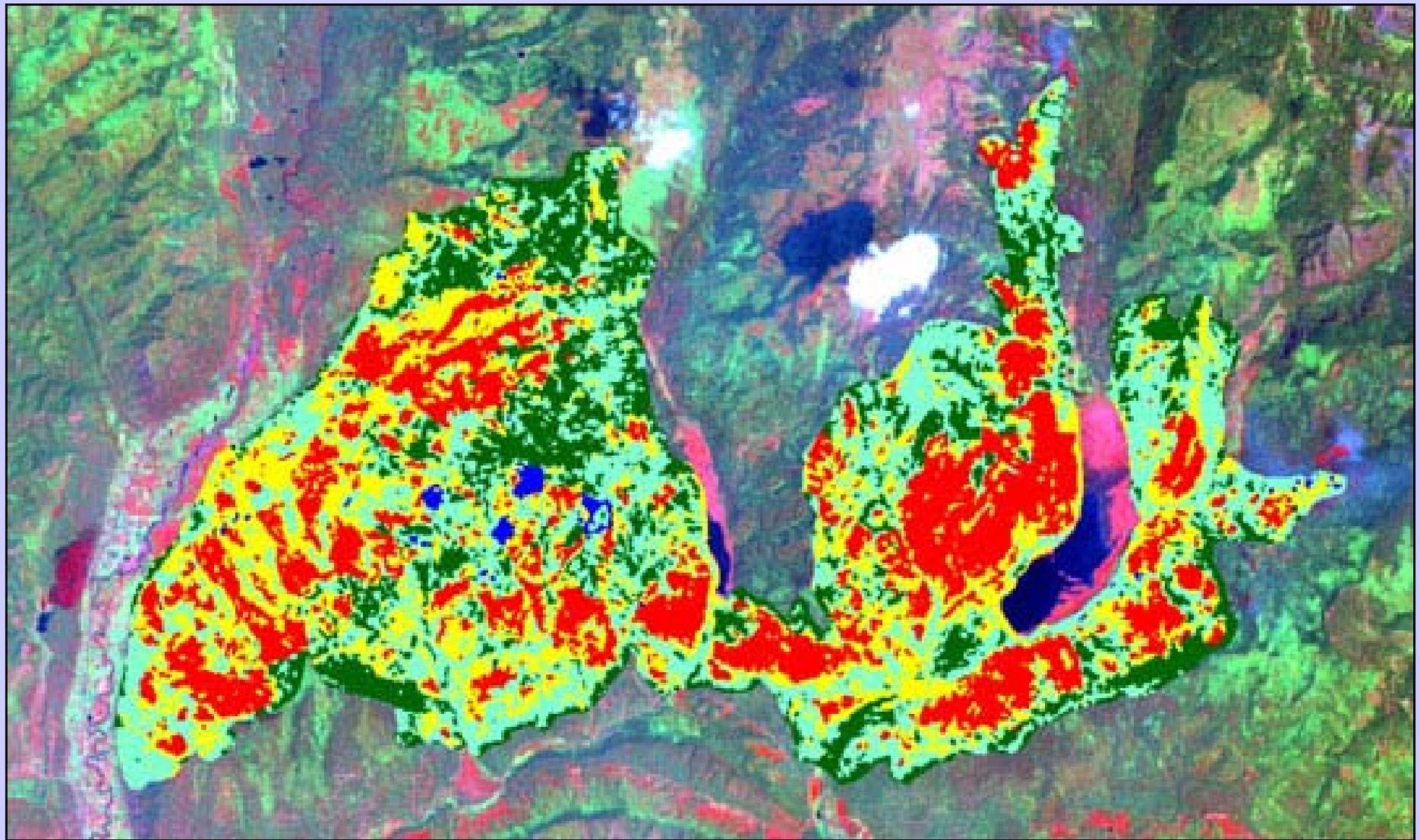






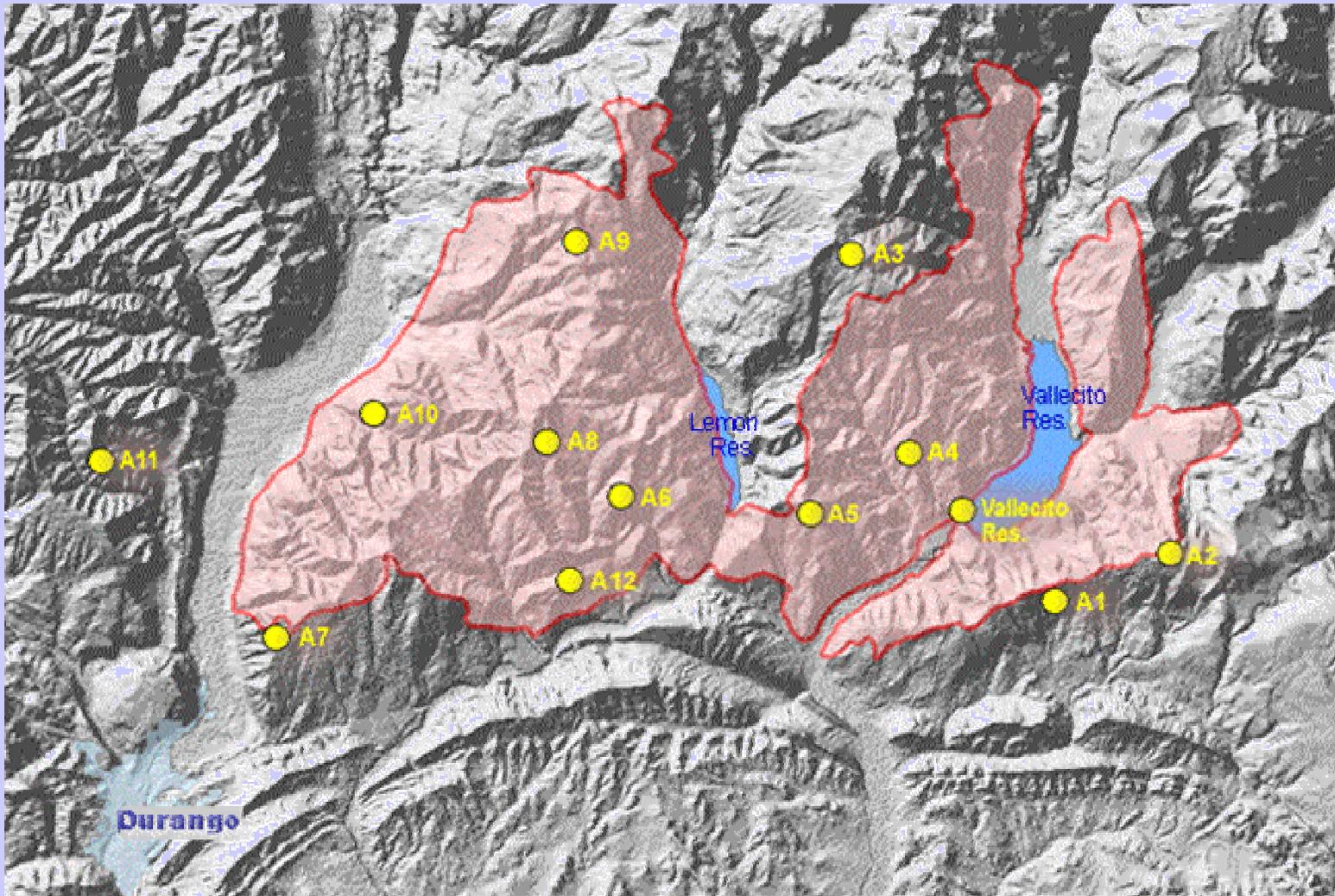






**Preliminary Burn Severity**

■ unburned    ■ low    ■ moderate    ■ severe



Precipitation Stations in the Missionary Ridge Burn Area

# Preliminary Conclusions

- Chronic effects of dams, urban development, and agriculture are greater than immediate effects of runoff from burn area
- Compounded by low flows due to drought
- Long-term effects need to be assessed

# To do:

- Multivariate analysis
  - Stressor variables: percent embedded, intermediate axis, stream size, water chemistry
  - Response variables: macroinvertebrates & periphyton
- Continued monitoring

# Funded

- EPA funds through Southern Ute Indian Tribe, Environmental Program, Water Quality Division