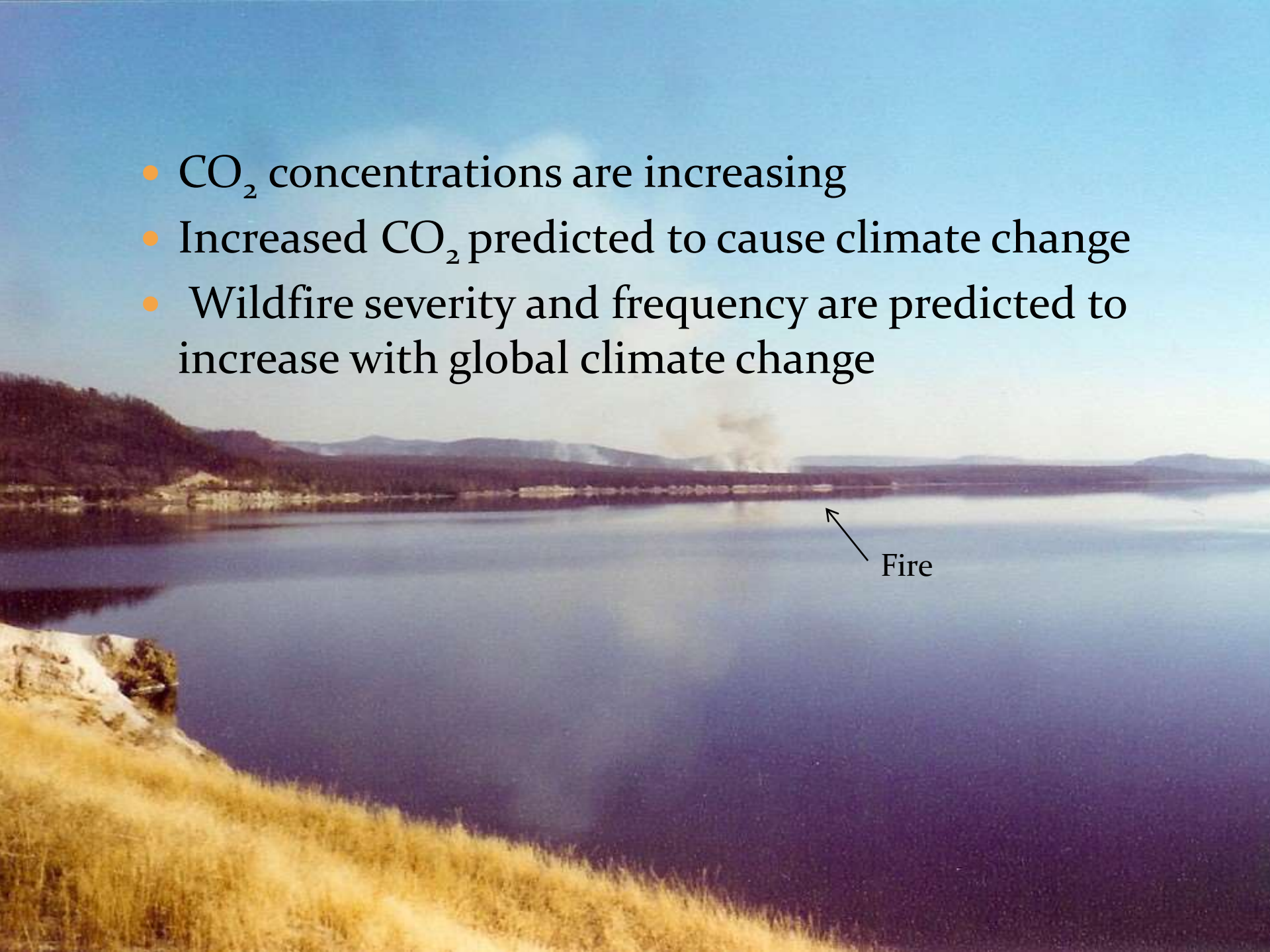


How wildfire affected aquatic invertebrates in Yellowstone National Park, Wyoming

Cody Bish and Lusha Tronstad
Wyoming Natural Diversity Database

- CO₂ concentrations are increasing
- Increased CO₂ predicted to cause climate change
- Wildfire severity and frequency are predicted to increase with global climate change



Wildfires in Yellowstone National Park

- 1.4 million acres burned in the 1988 wildfire
 - 1/3 of streams in the park were affected
 - Watersheds of 4 largest lakes in Yellowstone were burned
- Several wildfires have burned in Yellowstone since 1988 fire



Impact of Wildfire

- Wildfires impact watersheds
 - Eliminates forest cover and vegetation
 - Influences hydrology
 - Changes nutrient cycling
 - Alters biological life

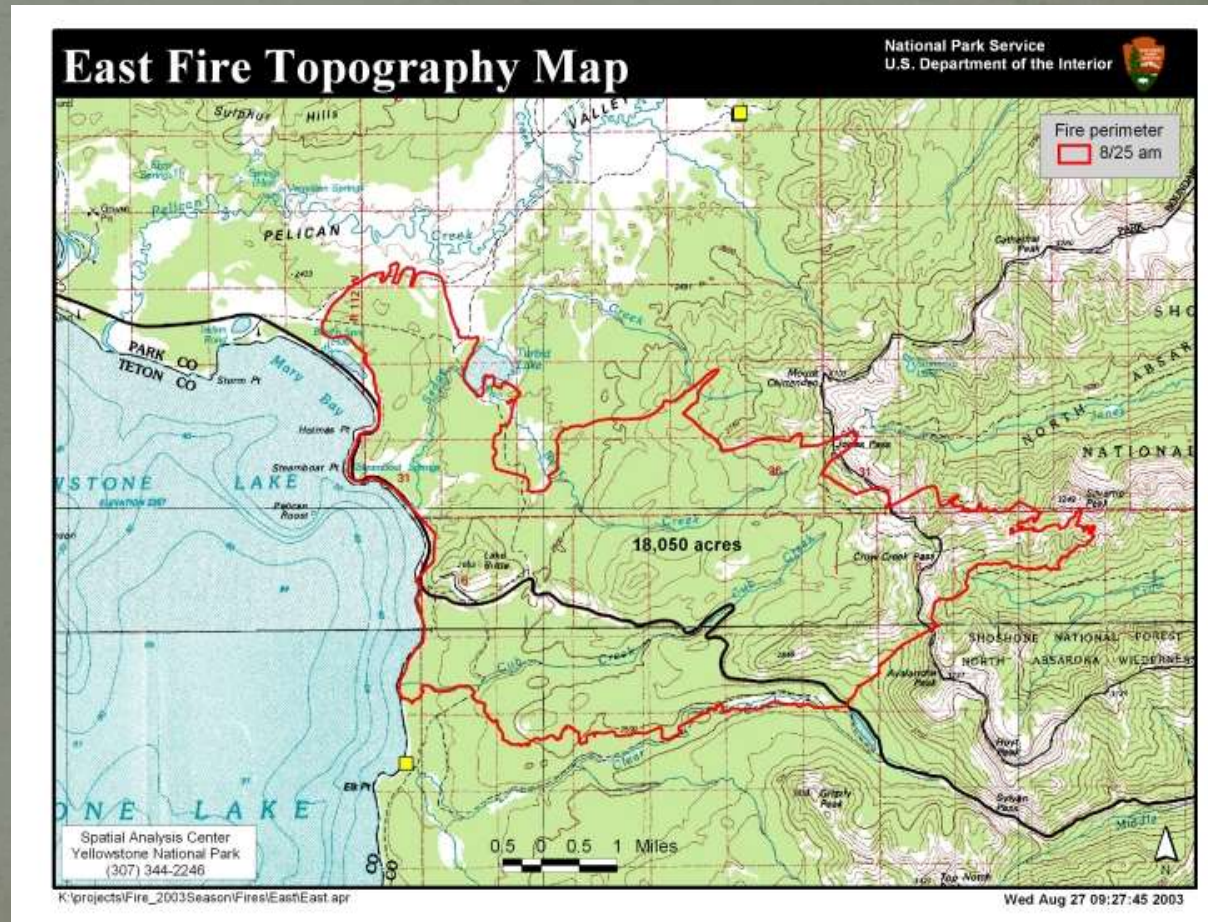


Our questions

- How were aquatic invertebrates affected by wildfire?



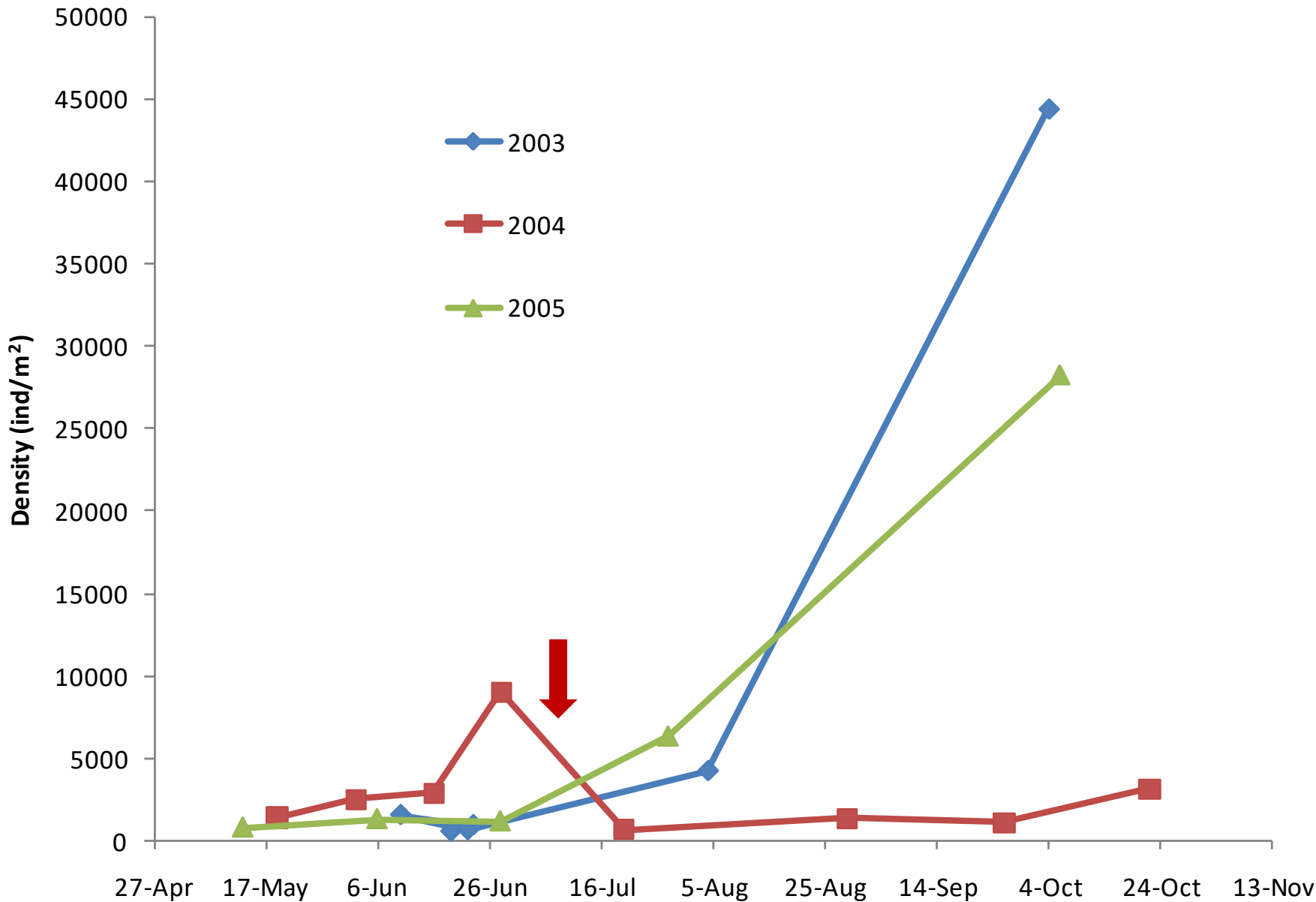
- The East wildfire burned in August through September 2003
- East side of Yellowstone Lake
- Crown fire
- Started by lightning



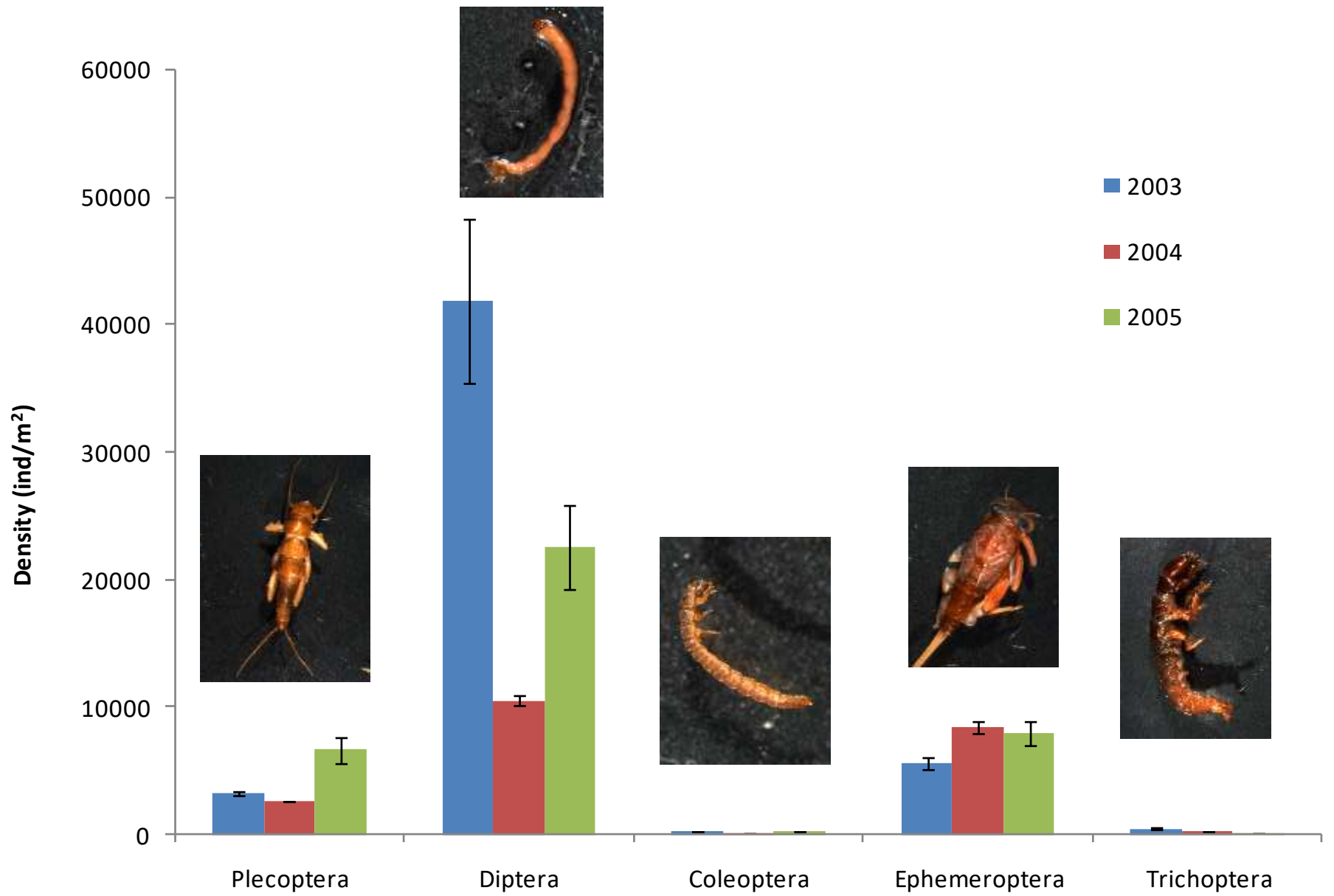
Methods

- Samples were collected in Cub Creek
- 95% of watershed burned in East fire
- Collected samples summers of 2003 (pre-fire) and 2004 & 2005 (post-fire)
- Collected aquatic invertebrates with a Hess sampler every 2-4 weeks
- Samples were then sorted, counted, measured, and identified under a dissecting microscope
- Calculated density and biomass

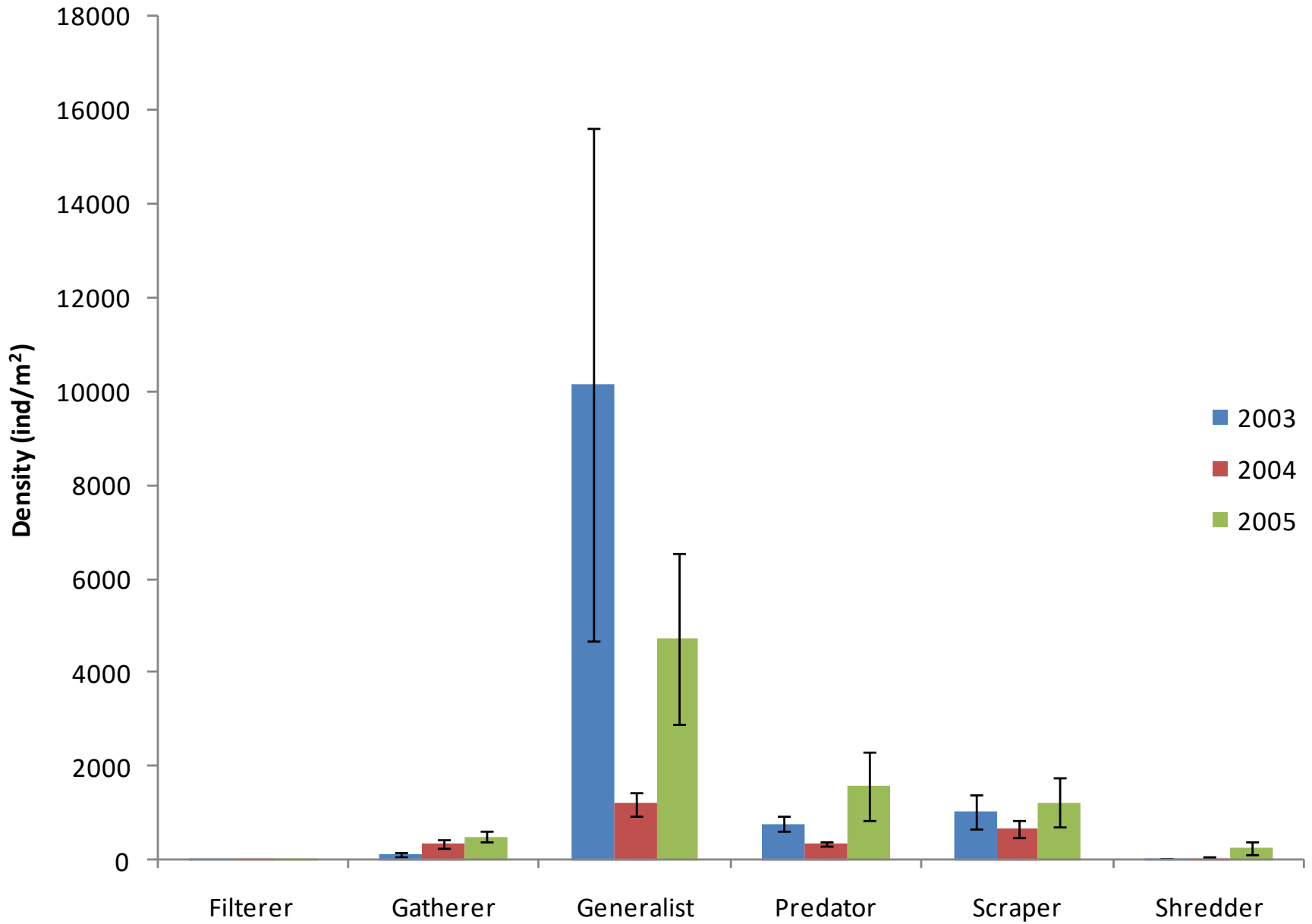




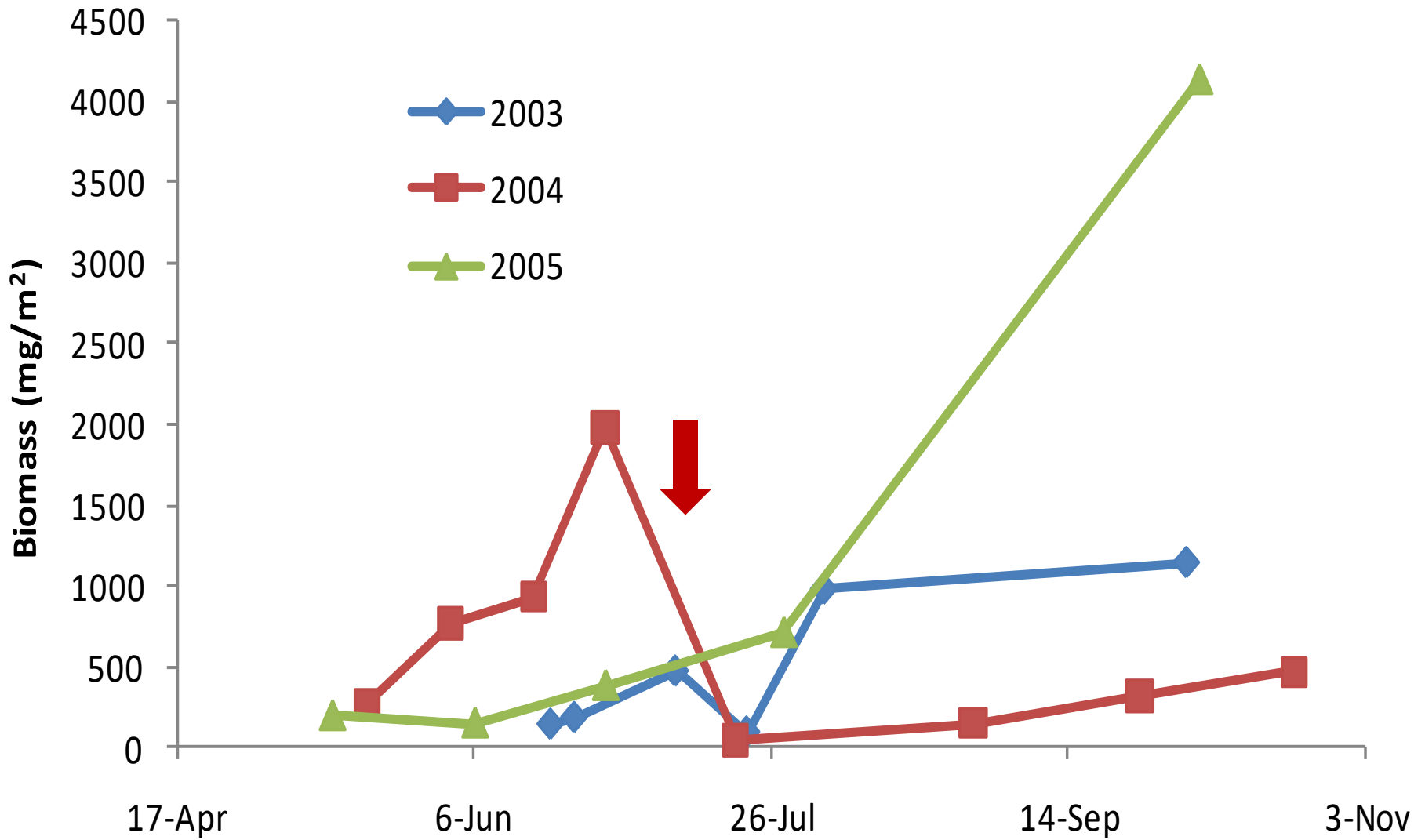
2004 flood reduced invertebrate densities



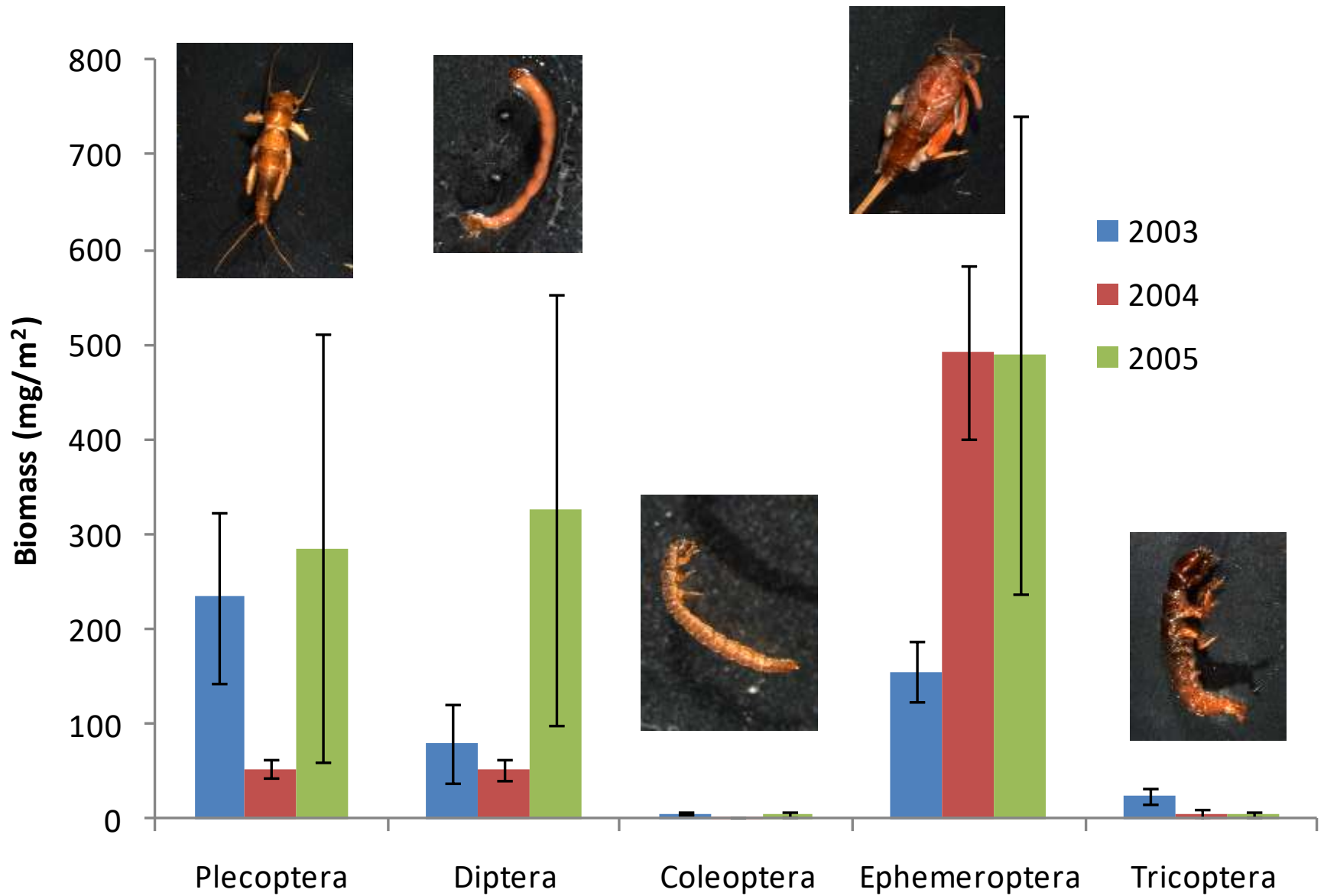
Diptera decreased after fire



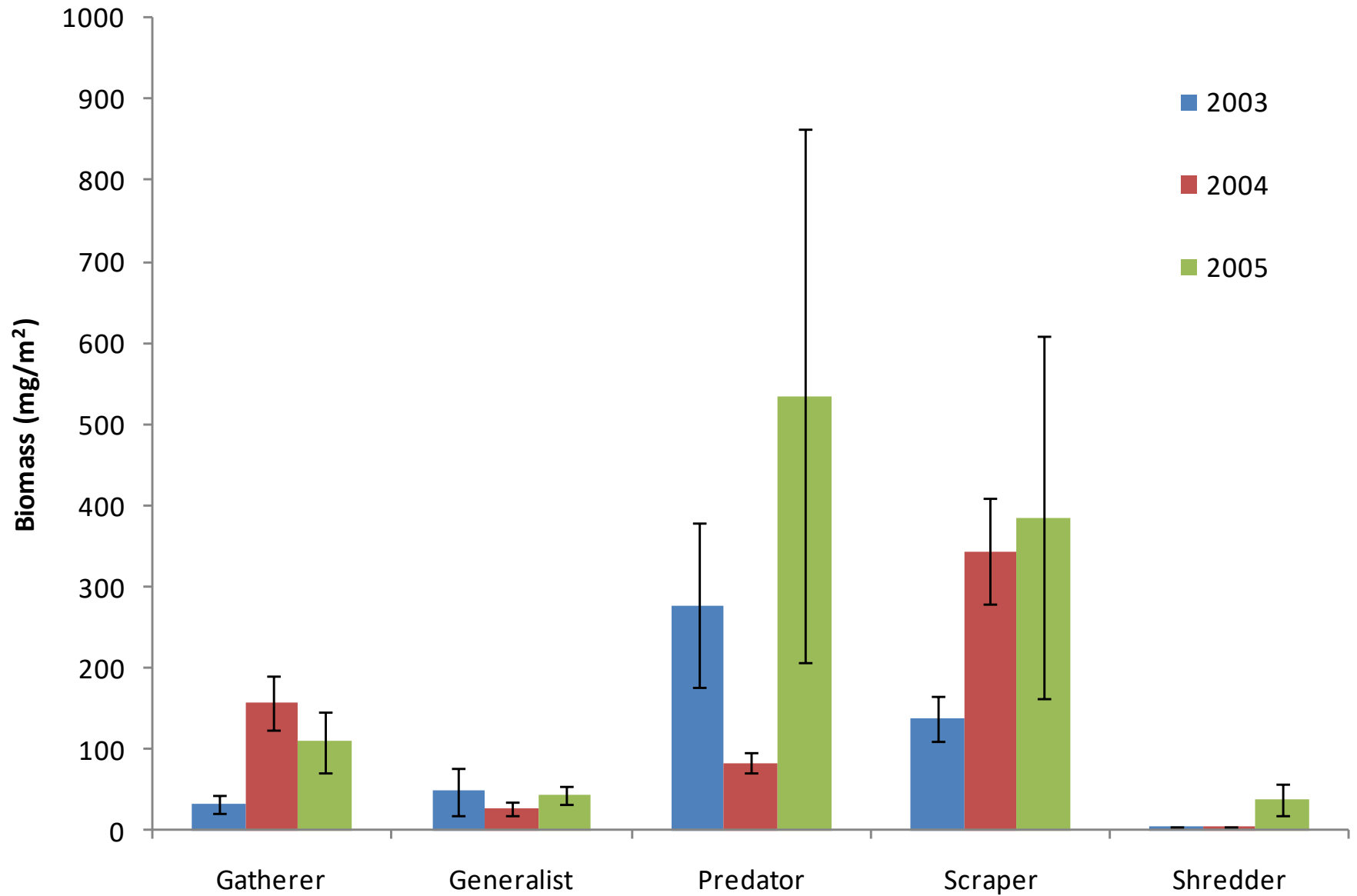
The response of functional feeding groups after fire varied



Individual body size increased in 2005 compared to 2003



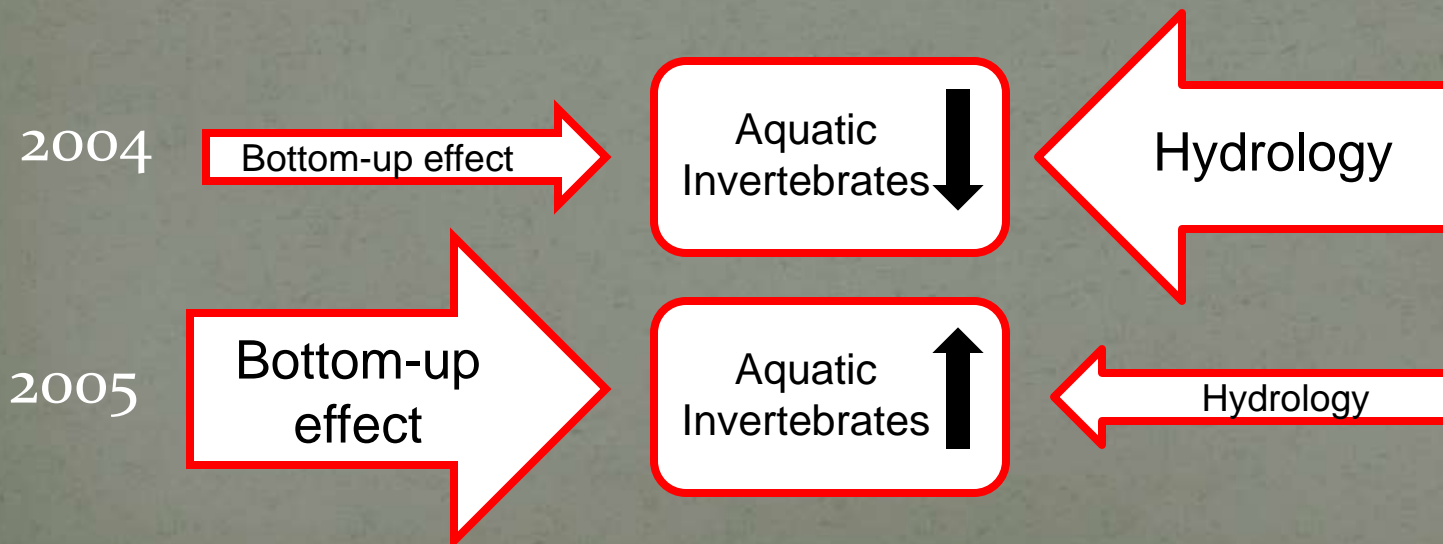
In general invertebrate biomass increased two years post fire



Functional feeding groups increased biomass post fire

Wildfire and Cub Creek Invertebrates

- Wildfire can both positively and negatively affect invertebrates
- First year post-fire densities and biomass decrease due to floods
- Two years post-fire densities and biomass increase



Questions?

