

# 2005 JFSP Principal Investigator Workshop

## Project Progress Report

**Project Title:** *Effects of Fire Severity and Distance from Unburned Edge on Mammalian Community Post-fire Recovery*

**JFSP Project No.:** 04-2-1-94

**Project Location:** CA, San Diego County

**Principal Investigators:** Wayne Spencer, Jay Diffendorfer, Jan Beyers

**Contact Information (Phone, e-mail):**

**Wayne Spencer, (619) 296-0164, wdspencer@consbio.org**

**Jay Diffendorfer, (217) 244-4385, jdiffer@inhs.uiuc.edu**

**Jan Beyers, (951) 680-1527, jbeyers@fs.fed.us**

**Brief Description of Project:** Documenting reestablishment patterns of mammal species and communities following the October 2003 wildfires in San Diego County for several years post-fire. Pre-fire fuel status, burn severity, and distance from fire perimeter are primary study covariates. Methods include small mammal trapping, bat detection using Anabat detectors, and carnivore surveys using baited camera stations and other methods. Vegetation surveys are also performed at study plots. Information collected can help guide decisions on the size, location, and intensity of prescribed fires in chaparral to avoid conflicts with wildlife management goals in this biodiversity hotspot.

**Status Report (include planned and accomplished science delivery and application efforts, deliverables, and management implications of your research- summarize information with bullet statements):**

We established 40 small mammal study plots across the Cedar Fire, including plots inside and outside of the burn perimeter and across gradients of distance from unburned edge and fire severity. These plots are trapped twice per year for the presence and absence of small mammals and are intensively sampled for vegetation composition. Similar designs were established for bat and carnivore sampling. In addition, more intensive, population-level sampling is being performed at the Rancho Jamul Ecological Reserve (RJER), where pre-fire small mammal population studies were already underway before the area burned.

### **Planned Science Delivery**

- Evaluate the effects of fire on mammals and study patterns of post fire recovery
- Determine the role of burn severity on diversity and patterns of recovery
- Determine the role of distance from burn perimeter on diversity and patterns of recovery
- Elucidate future fire intensity levels and perimeter sizes for prescribed fires
- Determine minimum fire intervals and maximum fire sizes to minimize adverse effects
- Disseminate results in reports, journal articles, public presentations, and other outlets.

### **Accomplished Science Delivery**

- First-year data suggest both burn severity and distance to edge impact certain small mammal species.
- The carnivore and bat data are too preliminary for analysis.
- Vegetation results indicate we are sampling a strong gradient in burn severity.
- Vegetation and small mammal results at RJER show severe impacts on some locations. Two study plots that had some exotic grasses pre-fire are not recovering shrub cover and only support small mammals preferring grassy habitats.

### **Application Efforts**

We are too early in this long-term study to have applicable results.

### **Deliverables**

- Yearly progress reports and a final report submitted to the Joint Fire Sciences Program

- Annual presentations and or meetings with USFS officials and any other interested land managers
- A presentation to the San Diego Partners for Biodiversity, a 70-100 member group of land managers, agencies, and nonprofits who meet monthly to network and discuss management issues.
- Presentations at appropriate conferences or workshops (e.g., at the Third International Fire Ecology & Management Congress to be held in San Diego, November 2006).
- Submission of at least one manuscript to a refereed journal.
- Provide GIS map layers of the data to various local agencies and post to San Diego County Mammal Atlas web page.

**Management Implications**

All results too preliminary to support management recommendations at this time.

**Issues/Concerns; changes in research objectives, methods, or products:**

- The project is on schedule and within budget.
- We added annual vegetation surveys and increased large mammal survey sites from 20 to 36.
- We increased the complexity and scope of bat research.
- A bobcat telemetry study is being proposed under separate funding to complement this JFSP with additional data inside/outside of the Cedar Fire perimeter.