

Impact of Fire on Mountain Lions in and around Cuyamaca Rancho State Park

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Description of the project: The major goal of this project is to evaluate the impact of the Cedar Fire of 2003 on the distribution and abundance mountain lions in the park. Mountain lions are important indicators of the overall health and ecological integrity of the Cuyamaca Rancho State Park (CRSP) ecosystem. They are also a key management concern from the public safety perspective. The presence of lions (number and distribution) in the park is directly dependent upon the presence of adequate prey (deer) and vegetative cover, which in turn are directly tied to the health of the soil and primary plant production. Thus lions serve as an excellent indicator of overall post-fire recovery.

Study objectives:

- 1) Determine the distribution and abundance of lions in CRSP and the surrounding area by capturing and monitoring radio collared lions;
- 2) Quantify habitat use in CRSP and the surrounding area relative to burn severity;
- 3) Use lion distribution and abundance to assess the level of recovery post-fire in CRSP;
- 4) Formulate management recommendations for CRSP regarding ongoing management of lions.

Methodology or approach: The UC Davis Wildlife Health Center will be responsible for capturing, radio collaring and monitoring lions that use CRSP. Lions will be fitted with satellite radio collars that determine their precise location on a daily basis. Key collaborators are California State Parks (CSP), California Department of Fish and Game (CDFG), and USDA Wildlife Services. All data collected will be incorporated into a Geographic Information System (GIS), posted on the Wildlife Health Center website (www.wildlifehealthcenter.org) and provided to land and wildlife managers (CSP, CDFG, etc.).

Accomplishments/Results: The Cedar Fire of 2003 burned over 95% of CRSP dramatically altering habitat conditions for wildlife. Pre-fire data on mountain lion distribution and abundance in CRSP that was collected from 2000-2003 provides an excellent baseline for post-fire comparisons (report posted at www.wildlifehealthcenter.org). At least 8 adult lions used some or all of CRSP in 2003 before the fire, while fewer than half that number use the park in 2004. Substantial numbers of deer were killed in the fire but post-fire conditions favor rapid growth of the deer population. Lions do not remain in the park, but move in and out of the park apparently searching for prey on surrounding public and private lands.

Benefits to California State Park and people of California: This study will allow us to address important questions such as: Do mountain lions avoid areas that burned during the Cedar Fire, or are they attracted to these areas (perhaps because of shifts in deer numbers)? Is there a relationship between burn severity and lion habitat use? How are mountain lions distributed in CRSP relative to trails and structures, and does this differ from pre-fire conditions? What management strategies are most appropriate to enhance coexistence between lions and people in CRSP? The results will provide park managers and the public with reliable information for making decisions regarding mountain lions.