2011 Spring Edition **OWL RESEARCH TEAM UPDATE** Vol. 4 No. 3

A Newsletter from the SNAMP Public Participation Science Team - Volume 4, Number 3, Feb 2011

Sierra Nevada Adaptive Management Project newsletter

Figure 1: Vince Berigan, Rocky Gutiérrez, and Doug Tempel in the field.

Owl Research Team

Dr. R.J. Gutiérrez at the University of Minnesota and Dr. Zach Peery at the University of Wisconsin are the Lead Investigators for the Owl Research Team. Doug Tempel, a PhD candidate at the University of Minnesota, is the Project Leader for the Owl Team. Sheila Whitmore is the Assistant Project Leader for the Last Chance portion of the owl study area, and William (Vince) Berigan is the Assistant Project Leader for the Eldorado portion of the owl study area.

The Newest Owl Team Member

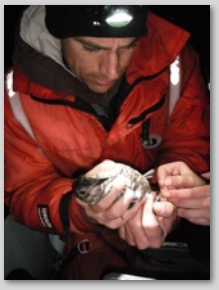

Figure 2: *Zach Peery banding a Murrelet.*

Dr. Zach Peery recently joined the owl team as a co-Lead Investigator. He is currently an assistant professor at the University of Wisconsin-Madison in the Department of Forest and Wildlife Ecology. Zach received a PhD from the Department of Environmental Science, Policy, and Management at U.C. Berkeley in 2004 and a Master of Science degree from Humboldt State University in Wildlife Biology in 1996. His Ph.D. and post-doctoral research focused on the behavior, demography, and genetics of the Marbled Murrelet, a seabird that in California nests almost exclusively in old-growth redwood forests. Between his master's and PhD projects, Zach worked on the Eldorado Spotted Owl demography project in the Sierra Nevada, California for Rocky Gutiérrez.

Spotted Owl Study

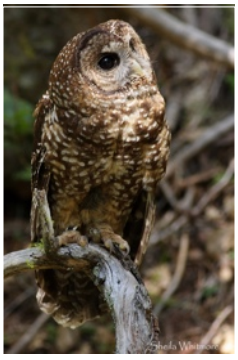

Figure 3: *Adult female spotted owl.*

The SNAMP owl team is studying the effects of SPLATs (Strategically Placed Landscape Area Treatments) on spotted owl site occupancy, survival and reproduction. We are collecting pre- and post-treatment data on vegetative structure within owl territories to estimate the effects of SPLATs on owl habitat (see "Research Methods"). We just finished our fourth field season on the SNAMP project, and are currently analyzing data from the last four field seasons.

Study Area

The owl study area consists of three components: (Figure 4):

(1) The Last Chance study area, which incorporates the core study area (i.e. the area being used by the other SNAMP science teams), plus a 1.5-mile buffer zone around the core study area.

(2) The Eldorado density study area, which is the site of Dr. Gutiérrez's long-term spotted owl population study that began in 1986.

(3) The Eldorado regional study area, which consists of owl territories outside of the density study area that have been surveyed since 1998. The Eldorado study area was included to obtain sufficient sample sizes for our SNAMP research.

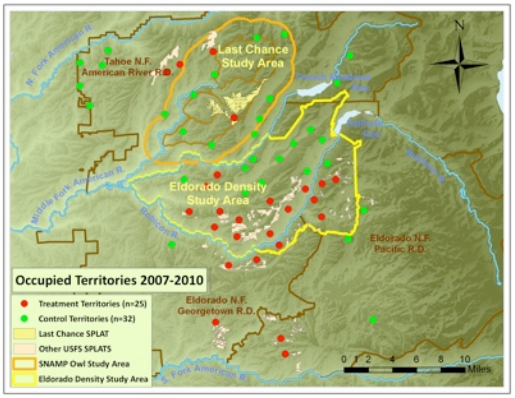

Figure 4: *Map of study area displaying treatment and control owl territories*

Research Methods

Owl surveys: We conduct annual surveys from April through August across the study area to detect and identify owls and assess their reproductive status. We attempt to capture and band all owls that we find within the study area (Figure 7). Banding each owl allows us to identify them in subsequent years and collect important demographic variables, such as territory, occupancy and survival. In order to be confident that we locate all owls on the study area, we conduct at least four rounds of nocturnal surveys during each field season.

Vegetation surveys: We measure owl habitat components in 0.5 acre plots that are evenly distributed throughout areas where SPLATs will occur within owl territories. Important owl habitat components include tree size, canopy cover, and the amount of understory. These variables are measured before and after SPLAT implementation to estimate how each SPLAT has impacted owl habitat (see before and after harvest photos – Figures 5 & 6). We will use these data as predictor variables in the final analysis conducted at the end of the study.

Habitat mapping: We use color digital aerial photographs to delineate different forest stands within owl territories based on tree size and canopy cover. From these habitat maps, we can for example, determine the amount of suitable habitat within an owl territory at the beginning of the study. We will also use these data as predictor variables in our final analysis.

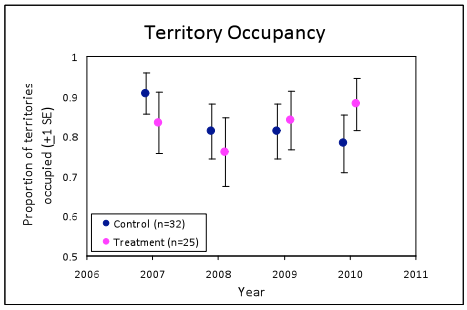

Figure 8: *Territory occupancy for treatment and control owl territories for the SNAMP study area, 2007-2010. Treatment and control areas are similar for occupancy prior to SPLAT treatments.*

Preliminary Results

We anticipate having 25 owl territories that will be impacted (to some degree) by SPLATs and 32 owl territories that will not be impacted. We refer to these two types of owl territories as "treatment" and "control" sites. Using data collected from 2007–2010, we compared owl site occupancy, survival, and reproduction between treatment and control sites to demonstrate their similarity prior to SPLAT treatments. We found that treatment and control sites were similar for all three response variables (Figure 8).

In response to a stakeholder's question at a SNAMP public meeting, we analyzed our historic nest location data from the Eldorado study area to determine if owls were selecting nest sites close to forest edges. For example, owls might nest near edges to gain better access to foraging areas. We found that owls were not selecting nest sites closer to forest edges than random locations within the nest stands. In fact, owls chose nest sites further from "hard" edges (e.g., an adjacent clearcut) than expected by chance. This work has now been published in the Journal of Raptor Research:

Phillips, C. E., D. J. Tempel, and R. J. Gutiérrez. 2010. Do California spotted owls select nest trees close to forest edges? Journal of Raptor Research 44:311-314.

Figure 5: *pre-treatment vegetation plot in an owl territory at the HeyJoe treatment site in the Eldorado National Forest, July 2008*

Figure 6: *the same vegetation plot as the above photo, post-treatment at the HeyJoe treatment site in the Eldorado National Forest, July 2009*

Figure 7: *Rocky Gutiérrez, Sheila Whitmore, and Vince Berigan banding an owl in the Eldorado National Forest.*

Figure 9: *Juvenile spotted owl.*

Next Steps

We will continue to collect data on site occupancy, reproduction, and survival at all owl territories for the remainder of the SNAMP study. We will also collect post-treatment vegetation data within owl territories when SPLAT harvests have been completed.

Newsletter created by Shasta Ferranto, Maggi Kelly, Rocky Gutiérrez, Zach Peery, Doug Tempel, Sheila Whitmore,, & Vince Berrigan; images courtesy of the SNAMP Owl Team