

## Potential Effects of Sudden Oak Death on the Small Mammal and Herpetofaunal Communities in San Luis Obispo County Coast Live Oak (*Quercus agrifolia*) Woodlands

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Sudden Oak Death has the potential to greatly alter the structure and composition of California oak woodlands. In turn, wildlife communities may be highly impacted by the resulting changes in habitat structure. The pathogen has not yet been detected in San Luis Obispo County, but has recently been detected 10 miles away in Monterey County. To assess the potential impacts of the pathogen in San Luis Obispo County, we surveyed small mammals and herpetofauna at three sites located in coast live oak (*Quercus agrifolia*) woodlands at high risk of infection; we considered the presence of California bay (*Umbellularia californica*) to be an indicator of high-risk locations.

We established fifteen, 1.1-ha trapping grids with  $8 \times 8$  dimensions. During 2003-2004 (as well as 2002 at one site), we live-trapped and ear-tagged small mammals twice per year (fall and spring) on each grid, then conducted mark-recapture analyses to estimate species abundance. During January-April of 2003 (as well as 2002 at one site), we surveyed herpetofauna using plywood coverboards; coverboards were checked every 2-3 weeks. We used the number of individuals sighted as an index of species abundance. In addition, we collected data on potentially important habitat elements within each grid—shrub cover, canopy cover, coarse and fine woody debris, tree size and composition, duff and litter layer depth, and woodrat houses. We then developed a priori regression models relating species abundance to habitat structure and selected the best model for each species using  $AIC_c$  values.

Three species dominated the small mammal community—dusky-footed woodrat (*Neotoma fuscipes*), brush mouse (*Peromyscus boylii*), and parasitic mouse (*P. californicus*). Two salamanders dominated the herpetofaunal community—Monterey salamander (*Ensatina eschscholtzii*) and slender salamander (*Batrachoseps spp.*). Each species appeared to respond most strongly to a different habitat element. Woodrat abundance was positively correlated with shrub cover, brush mouse abundance was negatively correlated with tree density, and parasitic mouse abundance was positively correlated with coarse woody debris. *Ensatina* abundance was not strongly correlated with any habitat element but had a site-specific positive correlation with elevation, whereas slender salamander abundance displayed a site-specific positive correlation with the depth of the litter and duff layer.

During October 2004, we collected data on all of our habitat variables from a heavily infected site (China Camp State Park) and an uninfected site (Helen Putnam Regional Park). Vegetation plots at the infected site were located near coast live oak trees with known infection and failure histories, while those at the uninfected site were located near coast live oak trees of a similar size to the infected trees. Coarse woody debris amounts near infected trees were nearly 70 times greater than those near uninfected trees. While canopy cover was slightly lower near infected trees than uninfected trees (79% vs. 84%), shrub cover was greater near infected trees than uninfected trees (57% vs. 31%). Using this information, we will predict the effects of Sudden Oak Death on the wildlife communities should the pathogen become established in San Luis Obispo County.