
OCCUPANCY DYNAMICS, ROOST HABITAT AND PREY OF MEXICAN SPOTTED OWLS IN UTAH

D. Willey, C. Hockenbary, J. Rotella, Ecology, Montana State University, Bozeman, MT 59717

Mexican spotted owls (*Strix occidentalis lucida*) occupy canyon habitats that have received less attention than owls in forested environments, and yet canyon environments represent a significant portion of the owl's range. In Utah, the owls occupy narrow and steep-walled canyons that attract high levels of human use, including climbing and hiking through nest areas, and human use levels have strongly increased in the canyons, for example, permits for access to popular climbs and hikes increased over 1700% during 1998 to 2002 in Zion National Park. To examine potential effects of recreation on the owls, we studied temporal variability of detection, occupancy, local extinction, and colonization probabilities. Our study sites included several National Parks and BLM resource areas. Our primary objective was to examine effects of recreation on site occupancy dynamics. We also investigated reproductive success, roost habitat, and prey selection. The analysis of detection rate showed strong support for constant detection probability of 89% for spotted owls among 47 sites. For both single owls and owl pairs we estimated initial occupancy rate of 83% for mesic sites and 43% for relatively xeric sites. We found that recreation was not associated with occupancy, detection, nor extinction and recolonization probabilities. Although reproductive rates varied by year, recreation was not negatively associated with production of fledgling owls per site. We also studied prey selection and roost habitat in the canyon environments. Roosts were placed on steep-walled cliffs with greater number of perches than adjacent habitats, and roosts possessed relatively high overhead tree cover, cool daytime temperatures, and thus a suitable thermal environment in the arid canyons. Pellets collected at roosts sites, upon dissection, indicated that rodents were primary prey, but also included birds, bats, and various arthropods. Woodrats (*Neotoma* sp.) dominated the prey frequency and biomass.