

NOTES

FIRST DOCUMENTED RECORD OF THE BARRED OWL IN THE SOUTHERN SIERRA NEVADA

GEORGE N. STEGER, LORI R. WERNER, and THOMAS E. MUNTON, USDA Forest Service, Pacific Southwest Research Station, 2081 East Sierra Ave., Fresno, California 93710; tmunton@fs.fed.us

The range expansion of the Barred Owl (*Strix varia*) into California is being documented incidentally during the annual monitoring of the Northern Spotted Owl (*S. occidentalis caurina*) and the California Spotted Owl (*S. o. occidentalis*) at sites of timber sales and demographic studies in northern California and along the Sierra Nevada. Barred Owls were first recorded in northwestern California in 1981 and have subsequently been observed over much of the northern third of the state, as far south as Nevada County in the Sierra Nevada (Dark et al. 1998) and Marin County along the Coast Range (D. Adams, Point Reyes National Seashore, pers. comm.) (Figure 1). Recent Barred Owl sightings include a pair in Lassen National Forest in 2002 (D. Shaw, U. S. Forest Service, Chester, pers. comm.) and a single individual in the Plumas National Forest in 2004 (P. Shaklee, U. S. Forest Service, Quincy, pers. comm.). Gordon Gould (California Department of Fish and Game, Sacramento,

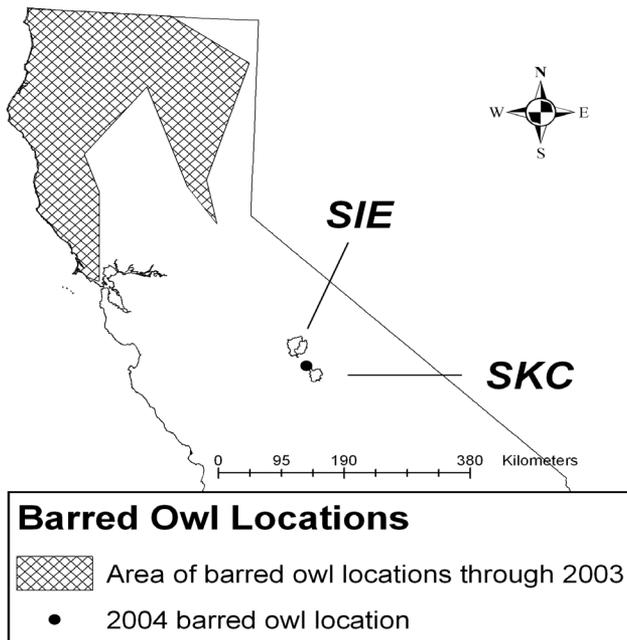


Figure 1. Sierra National Forest (SIE) and the Sequoia and Kings Canyon National Parks (SKC) study areas for Spotted Owl demography and the previously known range of the Barred Owl in California (modified from Dark et al. 1998). •, 1 June 2004 detection of the Barred Owl in Kings Canyon National Park.

NOTES

pers. comm.) informed us that the 2003 California Department of Fish and Game database on Barred and Spotted Owl locations had no new detections of the Barred Owl south of those previously reported by Dark et al. (1998). Subsequently, Seamans et al. (2004) encountered a hybrid Barred × Spotted Owl during a demographic study of the Spotted Owl in the Eldorado National Forest, Placer County, in 2003, and a pair consisting of two hybrids was detected there in 2004 (M. Seamans pers. comm.). There is one unconfirmed report of a Barred Owl in 1991 near Hume Lake in the Sequoia National Forest, Fresno County. This observation had no follow-up by Forest Service biologists to confirm the identification of the bird, and no formal documentation of the sighting was filed.

We detected a male Barred Owl on 1 June 2004 at 19:23 while surveying for California Spotted Owls along Sequoia Creek in Kings Canyon National Park, Tulare County (Figure 1). The owl was located just north of the Big Stump parking area (36° 43' N, 118° 58' W) at an elevation of 1890 m; this location is approximately 350 km southeast of any previously reported location of a Barred Owl in California and 265 km from the Barred × Spotted pair found in Placer County. The Barred Owl, responding to an imitation of the Spotted Owl's call, gave the typical Barred Owl call of "who cooks for you—who cooks for you all—," and the volume of the call was greater than that of the typical Spotted Owl vocalization. The bird was wary of our presence, did not respond to offered prey, and was difficult to observe, but we made visual contact for 2 minutes, enabling us to confirm its identity as a Barred Owl. We returned on 2 June 2004 at 10:50 and watched the owl for 22 minutes in a white fir (*Abies concolor*). The roosting area of this Barred Owl was within Kings Canyon National Park approximately 200 m from the border of the Sequoia National Forest. The vegetation at the site was a mixed conifer forest of white fir, sugar pine (*Pinus lambertiana*), ponderosa pine (*P. ponderosa*), and young giant sequoia (*Sequoiadendron giganteum*) with a canopy cover of 85% as estimated from aerial photographs taken in 2000. The area within the park had been prescribed-burned in the summer of 2002, resulting in removal of most of the understory vegetation. Although the fire's intensity varied across the area burned, the roost area used by the Barred Owl showed moderate to heavy scorching of trees >25 cm in diameter. On 3 June 2004 we found the Barred Owl again, with the aid of mobbing Steller's Jays (*Cyanocitta stelleri*), roosting in an incense cedar (*Calocedrus decurrens*) 146 cm in diameter at breast height (dbh), in the same roost area as previously described. Again, the owl was wary of humans and moved to another tree where we were able to get several photographs (Figure 2) before it moved to a dense white fir to roost. The Barred Owl was last observed on 7 June 2004 in this same roost tree. After 7 June 2004 we visited the Sequoia Creek site 14 times, 7 in the vicinity of the roost area and 7 visits 0.25 to 1 km north and east of the roost area. Using vocal calls to elicit responses, we also surveyed sites within 2 km to the north, east, and south of Sequoia Creek. The area to the west was outside our study area and was not surveyed, so the Barred Owl may have moved into an area where it would not have been detected.

The Barred Owl was found within one of two areas of study of the Spotted Owl's demographics in the southern Sierra Nevada (Figure 1): Sequoia and Kings Canyon National Parks (SKC) and Sierra National Forest (SIE). In these studies, initiated in 1990 by the Pacific Southwest Research Station, Spotted Owls have been banded and monitored for 15 years. The site where the Barred Owl was detected has been occupied by Spotted Owls for all 15 years of this study, and reproduction was successful 5 times, producing 7 young. The female Spotted Owl identified at this site was at least 2 years old and unbanded when detected in 2004; she replaced a female that had been a resident for 9 years (1995–2003). In 2003, a one-year-old male replaced an adult male last observed in 2002. The replacement male was visually identified by band color in 2004 prior to the Barred Owl detection. At the time of the Barred Owl's discovery we were attempting to assess the reproductive success of the pair of

NOTES



Figure 2. Barred Owl perched on white fir branch in Kings Canyon National Park, California, 3 June 2004.

Photo by George N. Steger

Spotted Owls that we confirmed were nesting on 4 May 2004, approximately 250 m from where the Barred Owl was later observed roosting. The nest tree was a white fir snag, 120 cm dbh, with canopy cover of 81%. The Spotted Owls were not detected while the Barred Owl was known to be in the roost area. The male Spotted Owl was relocated on 24 June 2004, approximately 350 m northwest of the nest tree, and the female Spotted Owl was detected near the male on 29 June 2004. Visits to the site on 29 and 30 June indicated that these Spotted Owls did not reproduce in 2004.

Our record from Kings Canyon National Park provides the first documentation of the Barred Owl for the southern Sierra Nevada and the southernmost record yet for California. The presence of Barred Owls in the southern Sierra Nevada may have detrimental effects on the population of California Spotted Owls because of hybridization or competition for food and space. Kelly et al. (2003) warned land managers and regulatory agencies that Barred Owls should be regarded as a threat to Spotted Owls in Oregon. Kelly and Forsman (2004) hypothesized that competition for food and space is a more serious long-term threat to Spotted Owls than is hybridization. In northern California and Oregon the numbers of Barred Owls have been increasing and displacement of paired Spotted Owls has been observed (Dark et al. 1998, Kelly et al. 2003). Our record suggests that Barred Owls may be able to disperse over great distances or that Barred Owls have moved incrementally south without detection.

Results from the Pacific Northwest (e.g., Kelly et al. 2003, Pearson and Livezey 2003, Kelly and Forsman 2004) suggest that future increases in the size and distribution of the Barred Owl population in the Sierra Nevada may pose additional threats to the California Spotted Owl's population viability.

NOTES

We thank the Pacific Southwest Region, USDA Forest Service, for providing funding for this study, and we thank W. F. Laudenslayer, Jr., and J. Keane for their support and input on the manuscript. We thank Sequoia and Kings Canyon National Parks for allowing us to conduct this study, and we thank our field technicians who collected data during 2004. We appreciate the review and comments regarding an earlier draft of the manuscript made by T. Manolis, T. Rickman, and J. Winter.

LITERATURE CITED

- Dark, S. J., Gutiérrez, R. J., and Gould, G. I., Jr. 1998. The Barred Owl (*Strix varia*) invasion in California. *Auk* 115:50–56.
- Kelly, E. G., Forsman, E. D., and Anthony, R. G. 2003. Are Barred Owls displacing Spotted Owls? *Condor* 105:45–53.
- Kelly, E. G., and Forsman, E. D. 2004. Recent records of hybridization between Barred Owls (*Strix varia*) and Northern Spotted Owls (*S. occidentalis caurina*). *Auk* 121:806–810.
- Pearson, R. R., and Livezey, K. G. 2003. Distribution, numbers, and site characteristics of Spotted Owls and Barred Owls in the Cascade Mountains of Washington. *J. Raptor Res.* 37:265–276.
- Seamans, M. E., Corcoran, J., and Rex, A. 2004. Southernmost record of a Spotted Owl \times Barred Owl hybrid in the Sierra Nevada. *W. Birds* 35:173–174.

Accepted 8 July 2005