A Communal Roosting of the Great Horned Owl (*Bubo virginianus*)

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tie a square knot with the trailing thread and the thread attached to the needle. When I have that first knot tied, I check the fit on the harness. If the fit is satisfactory, I continue stitching, tying a knot after every five or six stitches. This ensures that if the thread breaks at some point, the stitching cannot entirely unravel. When I am done stitching, I cut off the ends of the harness straps that extend past the point where the straps are stitched together (Fig. 1B, Fig. 2), and then cut the template so it can be removed.

This technique has substantially reduced the time it takes to process a bird, and thus reduces stress on the bird being tagged (as well as the researcher!). Two anonymous reviewers provided useful suggestions on the first draft of this letter.—**Richard O. Bierregaard[1] (e-mail address: rbierreg@gmail.com), UNC-Charlotte, Biology Department, 9201 University City Boulevard, Charlotte, NC 28223 U.S.A.**

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A COMMUNAL ROOSTING OF THE GREAT HORNED OWL (*BUBO VIRGINIANUS*)

KEY WORDS: *Great Horned Owl*; Bubo virginianus; *roost*; *Utah*.

While conducting roadside eagle surveys on 27 November 2012 in west-central Utah, we found two Great Horned Owls (*Bubo virginianus*) roosting in a group of six deciduous trees along the southern boundary of a 3-ha farm lot. Upon investigating further, we found an additional four owls also roosting in this group of trees. The owls were dispersed at random in the trees, with the average distance between owls being approximately 1 m, and the largest distance between owls approximately 5 m. The number of owls per tree never exceeded two, and two owls perched in trees alone. Our proximity to the owls caused three birds to flush from the trees and retreat to a nearby hayloft 100 m to the west.

The presence of more than two adult Great Horned Owls is counter to the species' typical roosting behavior. The Great Horned Owl is an aggressive and highly territorial species (Houston et al. 1998). They generally roost alone, except prior to or during breeding season when members of a mated pair may roost in close proximity (Houston et al. 1998). Over the course of our field season, we observed numerous pairs roosted as close as 1 m apart. Though these birds may tolerate the presence of their mate, they aggressively defend their territory against other conspecifics, including juveniles, which are driven away in autumn (Houston et al. 1998). The Great Horned Owl has also been reported to engage in cannibalism, a dramatic example of their aggressive behaviors (Millard et al. 1978).

Considering the known aggressive and territorial nature of this species, we question why multiple birds were roosting together. Unmated individual Great Horned Owls that are unable to establish territories may be solitary wanderers, often occurring at territory boundaries (Rohner 1995, 1996). Communal roosting has never been reported for floaters, but factors related to high prey density could contribute to their roosting in close proximity. The farm plot was surrounded on all sides by agricultural pastures. The presence of perches (fence posts and power poles) and potentially high prey availability in the surrounding habitat could have reduced competition and induced the owls to remain close to optimal foraging habitat. However, the farm and surrounding area seemed at least superficially similar to other farmlands in the region, which also had an abundance of perch sites, roost trees, similar foraging habitat, etc. Extreme weather might cause unusual behaviors, but can be disregarded in this instance as our visit was during mild weather, with typical winter temperatures for the area. It is possible that parents might tolerate the presence of their young until near to the following breeding season. Great Horned Owl clutches containing five eggs have been reported (Houston et al. 1998), and young may not disperse the territory till January (Peterson 1979), which suggests the possibility that these birds may have been a family group. Still, the presence of six birds would suggest that either the previous year had an uncharacteristically high fledging rate, or there were at least two broods of offspring present, which is highly unlikely.

Three additional visits were conducted to observe the roosting owls from 3 December 2012 to 8 January 2013, during which three, two, and three owls were found in the roost trees. On the second visit, we experimented with call-playbacks to learn something about the territoriality of the roosting birds. Hooting between mated pairs is a regular

behavior, used to defend territory boundaries and strengthen pair bonds (Houston et al. 1998). We observed no response to call-playbacks, supporting the hypothesis that these birds were not territorial. On the final visit, we observed the birds until sunset. Each owl gave at least one shriek contact call before leaving the roost, with one bird giving five shrieks, about 30 sec apart, before leaving the trees. No owls hooted.

We found no prior records of communal roosting in Great Horned Owls. Because communal roosting is not characteristic of this species, further research could reveal whether this instance was unique, or if observed elsewhere, what specific factors contribute to this behavior. We are indebted to the Raptor Research Center at Boise State University, and HawkWatch International for their support. We especially thank Vincenzo Penteriani, Cheryl Dykstra, and one anonymous reviewer for their detailed edits that shaped the final manuscript. We are grateful to David L. Anderson, Shawn Hawks, Steve Slater, Markus Mika, Marc Bechard, and Jerry Liguori for their helpful guidance, and for comments and edits on earlier drafts of the manuscript.—**Bryce Robinson, (e-mail address: brycerobinson@u.boisestate.edu), Raptor Research Center, 1910 University Drive, SN 100, Boise State University, Boise, ID 83725 U.S.A.; and Caitlin Davis, 35 Old Farm Road, Glen Burnie, MD 21060 U.S.A.**

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COOPERATIVE KLEPTOPARASITISM BY A PAIR OF BALD EAGLES AT LAKE SONOMA, CALIFORNIA

KEY WORDS: *Bald Eagle*; Haliaeetus leucocephalus; *Osprey*; Pandion haliaetus; *cooperative hunting*; *kleptoparasitism*.

The Bald Eagle (*Haliaeetus leucocephalus*) is well known for its piratical and kleptoparasitic foraging behavior, taking prey from other eagles or other birds and mammals (Stalmaster 1987, Gerrard and Bortolotti 1988, Buehler 2000), particularly Ospreys (*Pandion haliaetus*; Poole et al. 2002). Less well documented for Bald Eagles, and also for other sea and fish eagles in the genus *Haliaeetus*, is the extent to which they employ cooperative hunting tactics to increase capture rate. According to Ellis et al. (1993), the characteristics of cooperative hunting include a clear division of labor and the orderly sharing of spoils with enhanced success, with coordinative signals sometimes present. When employed by raptors, separate roles are sometimes evident, but sharing of prey is limited. Cooperative hunting by Bald Eagles and other *Haliaeetus* eagles has been reported by Thiel (1983), Fischer (1984), Folk (1992), Berger (1994), Poole (1994), Berkelman et al. (1999), and Stanley (2002). Cramp and Simmons (1980) reported cooperative hunting by pairs of White-tailed Eagles (*H. albicilla*) in Norway as ''not uncommon,'' particularly when the eagles were pursuing sea-ducks (e.g., eiders [*Somateria* spp.]). In addition, immature Bald Eagles hunted cooperatively in a group in Oregon and Washington (Buchanan and Watson 2010). Herein, we report behavior we believe to be previously undescribed: namely, ''cooperative kleptoparasitism'' by a pair of Bald Eagles robbing an Osprey at Lake Sonoma in northern California.

Lake Sonoma is located on Dry Creek, a tributary of the Russian River in Sonoma County, about 120 km north of