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JAMES F. PARNELL, *Department of Biology, University of North Carolina at Wilmington, Wilmington, North Carolina 28401*, and ROBERT F. SOOTS, *Department of Biology, Campbell College, Buies Creek, North Carolina 27506*. Accepted 28 Dec. 73.

Relationships of nesting hawks with Great Horned Owl.—Several studies of raptor breeding populations have intimated that the Great Horned Owl, *Bubo virginianus*, does not normally tolerate other raptors nesting near its nest (Smith 1943, Craighead and Craighead 1956, Hagar 1957), but the literature reports the following raptors nesting close to the owl: Harris' Hawk, *Parabuteo unicinctus* (Freemyer and Freemyer 1970); Red-tailed Hawk, *Buteo jamaicensis* (Smith 1970); Red-shouldered Hawk, *Buteo lineatus* (Bendire 1892, Sharp 1906); Bald Eagle, *Haliaeetus leucocephalus* (Jacobs 1908, Broley 1947).

While investigating the breeding biology of the Red-shouldered Hawk I watched several Great Horned Owl nests from January through July 1973 in Orange County, California. A pair of Cooper's Hawks, *Accipiter cooperii*, attempted to use a Great Horned Owl nest after the owl nest had failed. The owl began nesting activity in a stick nest that Cooper's Hawks had built the previous year. In 1972 three Cooper's Hawks fledged from the nest, which was 6.7 m high in a small live oak (*Quercus engelmannii*) in a large grove above the floodplain of a seasonal stream. The Great Horned Owl laid three eggs beginning on 18 February 1973. Regular nest checks showed the owl incubating between 18 February and 14 March. I saw an adult Cooper's Hawk within 200 m of the owl nest tree on 24 and 28 February, and on 19 March watched an adult Cooper's Hawk vigorously attack an adult Horned Owl approximately 30 m from the owl nest tree. The hawk dived on the owl from an overhead perch while cackling. The owl flew to another perch 10 m away with the hawk in close pursuit. The hawk did not strike the owl, but dived close enough to displace it. After 5 min the Cooper's Hawk flew to a perch out of my sight where it continued to cackle loudly for 4 min. Throughout the attacks another adult Great Horned Owl remained on the nest in a low profile incubating position.

No owl was seen at the nest on 27 March and a check of its contents revealed no eggs. Both adult owls were found still within 100 m of the nest.

A female Cooper's Hawk was on the nest incubating two eggs on 5 May. On 9

May the female was again seen incubating, now with three eggs in the nest. The hawk was still incubating on 11, 14, 17, and 21 May. On 24 May no adult hawk was at the nest and the eggs were gone. The Cooper's Hawks could not be found in the vicinity although both Great Horned Owls were seen near the nest tree (they had been seen occasionally throughout the hawks' incubation activity). Though the area was visited regularly through 7 June, the Cooper's Hawks were not seen again.

In Orange County during 1973 a pair of Red-shouldered Hawks successfully nested near a pair of Great Horned Owls in a 19 m tall California sycamore (*Platanus racemosa*) on a cut bank of a small seasonal creek in a wide canyon. The owls nested in a hollow of the main trunk 12 m from the ground. The hawks built a new nest in an upper crotch of the same tree, 5.8 m above the owl nest hollow. The hollow opened on the opposite side of the trunk from the hawk nest and was thereby not within the line of sight from the hawk nest.

Egg-laying by the owls was calculated as beginning on 22 February using the 32-day mean incubation period of two other Great Horned Owl nests. Three eggs were laid. The first owl hatched on 27 March. Nest building by the Red-shouldered Hawks began on 15 February. Three eggs were laid beginning on 10 March and hatching began on 14 April.

The adult owls were not attacked by the Red-shouldered Hawks during my observations, but an adult female American Kestrel, *Falco sparverius*, that nested in a sycamore 32 m from the owl and hawk nest tree regularly attacked the Horned Owls as they flew through the Kestrel's nest area. The adult owls did not roost near the owl-hawk nest tree. When an adult owl returned to the nest from a distant perch it flew directly to the nest and quickly dropped out of sight within the hollow. The owls confined most of their nest activity to the night although some activity was noted 45 min after sunrise (returning with prey once) and 1 h before dark (adult leaving nest). When I climbed the nest tree for regular nest checks the owl flew to a sycamore 40 m away and gave threat vocalizations, but did not attack.

The young owls left the nest at 19 to 21 days of age, well before they could fly. Perhaps the early fledging was a result of my activity at the nest, although none of the young owls left the nest hollow while I was at the nest.

The nest was checked only from the ground on 15 April and three young owls were in the nest hollow at that time. On 16 April two of the young owls were found at the base of the nest tree. One was found at 0600 before I had climbed the tree that day. The second owl was found on the ground at 1530 the same day when I returned to check the first owl. I did not climb the tree in the afternoon and the third chick was still in the nest hollow (I could see into it from a hillside above it.). At 0600 the following day the third chick was at the tree base. As the nest tree is within 5 m of a heavily traveled highway I moved the young owls to a more concealed site approximately 20 m from the nest tree to avoid their detection by man. The adults fed the young owls during their first night out of the nest. Weight gains appeared normal and were comparable to other nestling Horned Owls in the area. The young owls perched farther from the nest tree each day until contact was finally lost on 27 April. I did not see the Red-shouldered Hawks mob the young Horned Owls even though the owls frequently perched in full view of the hawk nest.

The young Red-shouldered Hawks fledged on 24 May at 41 days, slightly earlier than the median fledging period (45 days) for 25 Red-shoulder broods on the study area. The survival and movements of the color-marked young hawks were followed carefully for some time after fledging. All three young survived at least until 9 July 1973 when study was terminated at this nest.

Two Red-shoulder nests on the study area failed as a result of Great Horned Owl predation. Two partially eaten Red-shouldered Hawk nestlings were found at one nest along with signs of predation by a Horned Owl. Another Red-shoulder nest with two 19-day old nestlings was destroyed and Horned Owl signs were found nearby. When a nearby (450 m from the hawk nest) Horned Owl nest was checked, remains of one of the 19-day-old Red-shouldered Hawk nestlings were found.

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- JAMES W. WILEY, *Department of Natural Resources, P.O. Box 5887, Puerta de Tierra, Puerto Rico 00906*. Accepted 14 Jan. 74.

California Gulls attack waterfowl broods in Alberta.—California Gulls, *Larus californicus*, are known to prey on the eggs and young of waterfowl (Odin 1957, Auk 74: 185; Vermeer 1968, Wilson Bull. 80: 78). Vermeer (1970, Canadian Wildl. Serv. Rept. Ser. No. 12) and Dwernychuk and Boag (1972, Canadian J. Zool. 50: 559) reported large numbers of gulls attacking waterfowl broods near island colonies of gulls at Miquelon Lake in Alberta. This paper reports losses of entire broods of Lesser Scaup, *Aythya affinis*, and American Wigeon, *Anas americana*, in 1969 in the vicinity of an island larid colony at Chip Lake, Alberta, 120 km west of Edmonton (53° 41' N, 115° 24' W). All observations were made from a blind built 3 m above the ground on the island before the previous year's breeding season.

When a duck brood left the island, groups of up to 50 gulls quickly circled it. Single gulls dove down on the broods and grabbed ducklings with their bills. Broods usually bunched together until attacked at close quarters when they usually dove and became separated. Some female ducks did not respond to the attack, others feinted or flew up at the attackers. Occasionally the female returned to the island with two or three ducklings, but these were destroyed on later attempts to leave. Broods could not hide from the attackers while on the water as the nearest emergent aquatic vegetation was 0.8 km away.

Gulls did not bother waterfowl broods on land, though they often perched only 3 m away. Dwernychuk and Boag (*ibid.*) noted that gulls on a Miquelon Lake