

PREDATION BY A RUBBER BOA ON CHESTNUT-BACKED CHICKADEES IN AN ARTIFICIAL NESTING SITE

WILLIAM A. COPPER, CLIFFORD P. OHMART and DONALD L. DAHLSTEN,
Division of Biological Control, Department of Entomological Sciences, University
of California, Berkeley, California 94720

During the past 9 years, by use of artificial nest boxes, we have conducted studies on the life history of the Mountain (*Parus gambeli*) and Chestnut-backed (*P. rufescens*) chickadees and their impact on insect populations. Nine study plots consisting of 50 nesting boxes per plot at 100 m intervals (area of 50 ha) have been established in several montane regions of California (Dahlsten and Copper, unpublished manuscript).

During the study years various mortality factors (weather, disease, starvation, parasites and predators) have acted upon these avian populations and use of nesting boxes has facilitated the detection of predation during the nesting period. Although considerable nest predation (presumably by weasels, mice and chipmunks) was noted, the evidence has always been circumstantial. In most instances the nests have been found in disarray and have contained remnants of adults and/or nestlings. However, on numerous occasions nests have been found in which eggs



Rubber Boa (*Charina bottae*) in nest box of Chestnut-backed Chickadee (*Parus rufescens*), Blodgett Experimental Forest, El Dorado Co., California, 6 June 1974.

Photo by Cliff Ohmart

NOTES

and/or nestlings have disappeared with little or no disturbance to the nest.

In these instances birds or snakes would seem to be the most likely predators. A large bird such as a jay can reach its head inside the nest box and pluck out the nestlings (Copper, pers. observation of Scrub Jay, *Apelocoma coerulescens*), and small snakes can simply glide through the 32 mm diameter opening. The latter was the case on 6 June 1974 at the University of California's Blodgett Experimental Forest, El Dorado Co., California (elevation 1300 m), when a Rubber Boa (*Charina bottae*) was found preying upon a nest of a Chestnut-backed Chickadee.

Rubber Boas are believed to be good climbers and have been found in tree cavities (Ross 1931) and behind loose bark of dead trees (Robert F. Hoyer pers. comm.). Only one report (Weeks and Davis 1963), however, refers to this snake taking birds in the wild. Judging from what little is known of their habits, these snakes could and probably would prey upon many ground nesting birds or their nestlings. However, the degree to which these boas forage in trees for cavity or cup nesting birds is unknown.

The nest box in which the boa was found had been checked the previous afternoon (5 June) and contained six nestlings 9 days old. It was attached about 5 feet above the ground to the trunk of a Ponderosa Pine (*Pinus ponderosa*), 25-30 cm in diameter at breast height. The nest box was approached at 0930 on a sunny, warm day. The adult birds were calling in a highly distressed manner. The Rubber Boa (60 cm long) was already one-third inside the box and was virtually motionless. The adult chickadees were flitting from branch to branch around the box. After 10 minutes (0940) of this activity, first one adult then the other flew off. Five minutes later (0945) one bird, then the other, returned with food. They at once became excited and either ate, dropped or, as we have observed in the past, placed the food on a branch. The snake remained motionless. At 0954 one bird left, to return with food at 1000. By 1002 both birds had left again. At 1012 one bird returned with food. This time the bird did not seem as excited, even though it still could not enter the nest box. This bird left by 1019 and a few seconds later the snake began slow, intermittent movements into the nest box. One bird returned with food at 1022 and the other by 1024. One of these birds left almost immediately. The movement of the snake evoked an instant response from the remaining bird, which began calling repeatedly and flying at the snake. The latter disappeared into the box at 1028. After a few minutes (1030) the single remaining bird flew to the entrance, looked into the box and returned to a nearby branch. At 1032 the snake's head appeared at the entrance. The bird immediately flew at it, causing the snake to retreat. At 1035 the other bird returned and the snake's head appeared again at the entrance. As the snake began to emerge both birds flew and struck at its head, again making the snake retreat. The snake again began to emerge at 1046. Both birds flew and struck the head and "neck" area repeatedly, but by 1047 the snake was out of the box and on the trunk of the tree. Once the snake was out of the box and on the tree the birds left (1050). The snake moved easily straight down along the crevices in the bark and was on the ground by 1052. The birds returned to the box again at 1053 with food, but flew off almost immediately without entering. The box was observed until 1121, but neither of the birds returned. Examination of the box showed the nest material only slightly disturbed and pressed down. All six nestlings were gone.

LITERATURE CITED

- Ross, R. C. 1931. Behavior of the rubber snake. *Copeia* No. 1: 7-8.
Weeks, S. E. and C. V. Davis. 1963. Montana snakes. *Montana Wildlife*, August:2-11.

Accepted 21 April 1978