

THE OCCURRENCE OF TWO-EGG CLUTCHES IN COOPER'S HAWKS

SCOTT CROCOLL

Several authors reported that the range of Cooper's Hawk (*Accipiter cooperii*) egg clutches varies between three and six eggs (Bent 1937, Meng 1951, Bull 1974, Rosenfield and Anderson 1983). A search of Cornell Nest Record cards for New York State also revealed a range of three to six eggs. However, Beardslee and Mitchell (1965) reported that W. A. and George M. Smith, when checking eight clutches of Cooper's Hawk in western New York, found a range of clutch sizes between two and five. Unfortunately, Dr. Robert Andrie (pers. comm.) of the Buffalo Museum of Science was unable to find any more information about these data, and Bull (1974) seems to have disregarded this record. Dr. Andrie did find two sets of Cooper's Hawk two-egg clutches in the Buffalo Museum of Science collection. One was collected in New York in the town of Hamburg in 1909. Because no other data on this clutch were available, there was no way to determine if it was complete. Moore and Henny (1984) reported the occurrence of a two-egg clutch for Cooper's Hawk in Oregon. Further, they associated this reduced reproductive effort and success with habitat and the first-time nesting of yearling parents. I report here the first documented occurrence of a two-egg clutch in New York since 1909 and comment on the possible reason for its occurrence.

The nest was first observed from a road during April 1985 but was not visited until 2 May 1985 when a brown-backed individual was sitting on the nest. The nest was in a Sugar Maple (*Acer saccharum*) 76.5 feet from a road and 45 feet from the closest water, a small seasonal stream. The nest was 20 feet up from the ground and supported by five limbs. The habitat around the nest was second-growth hardwood with two small (less than one acre) planted conifer stands nearby.

The nest was visited six more times during the breeding season. A brown-backed adult was seen at the site five times, and on one trip another bird was heard calling while the brown-backed bird was at the nest. The nest was first climbed on 24 May when two eggs were found. The nest was next climbed on 2 July when two young (one more than four weeks of age; one three to four weeks of age) were found. One nestling attempted to fly out of the nest but was not capable of sustaining flight and was recaptured on the ground. The size of these young and their degree of feathering indicated they were Cooper's Hawks and not Goshawks. The birds were about the same size as Broad-wings but

much more slender. Also, the adults at this nest exhibited no aggressive behavior when I was present at the nest. The birds either called from nearby trees or left the area when the nest site was visited. A visit to the same nest in May, 1986 revealed an adult-plumaged bird on the nest.

Heinz Meng (*pers. comm.*) believes that Cooper's Hawk clutch sizes smaller than three are probably the result of predation by American Crows (*Corvus brachyrhynchos*). However, Moore and Henny (1984) found that clutch size was significantly smaller for pairs of birds with a second-year (brown-backed plumage) female than pairs with after-second-year (gray-backed plumage) females. Cooper's Hawks commonly breed in immature plumage (Meng 1951, Reynolds and Wight 1978, Rosenfield 1982, Moore and Henry 1984). The only two-egg clutch Moore and Henry recorded was from a second-year (SY) female. They also noted that in most measures of productivity, pairs of Cooper's Hawks with after-second-year (ASY) females were more productive than pairs with SY females.

Ian Newton (1981) has also noted productivity differences with different-aged pairs of European Sparrowhawks (*Accipiter nisus*), a close congener of the Cooper's Hawk, with younger birds laying smaller clutches and generally with lower reproductive success.

These authors suggest that pairs with SY females nest in habitat that is somewhat different than pairs with ASY females. They characterized the nest site habitat of SY females as of younger successional stages with a greater proportion of small trees and shrubs. Also the nest elevations of SY females tended to be lower than for ASY females. This is consistent with the observations from this study. The average height of nests reported in the Nest Record Card program was 45.4 feet with a range of 30-75 feet. The nest height of 20 feet reported here is the lowest, to my knowledge, recorded in New York State.

It is likely that in New York, as in Oregon, SY Cooper's Hawk use somewhat poorer nesting habitat than older pairs and lay smaller clutches, but more extensive data are needed to confirm this. Efforts to survey for breeding activity and management activities that might affect this species should take into consideration this variable habitat utilization and the resultant variable reproductive effort.

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*New York State Department of Environmental Conservation,
50 Wolf Road, Albany, New York 12233*