

model to show when this should occur. (Such behavior is, of course, the opposite of brood reduction by selective starvation.) To the extent that this occurs, the difference in size between cowbirds and most of their host species would be less advantageous for the parasite than is usually supposed. Notably, Elliott (Auk 95:161–167, 1978) reported that one of the cowbird's largest hosts, the Eastern Meadowlark (*Sturnella magna*), appeared better able to feed more than one cowbird per nest than two smaller host species. The mean number of cowbird eggs per nest was higher for meadowlarks than for the smaller hosts in the same study. With data presently available, however, I can only suggest that growth of brood parasites and their hosts may be influenced to a considerable degree by behavioral interactions.

Considering the results of the present work and theoretical interest in growth of brood parasites and their hosts, recommended further studies would include: (1) thorough study of growth in a nonspecialized brood parasite such as the Brown-headed Cowbird and a full range of its hosts with respect to body size, growth rates, and behavior; (2) experimental manipulation of brood-size and composition; and (3) direct observations of feeding activity to determine if adults feed their own young or the smaller of the brood preferentially.

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A Common Loon nest from Minnesota containing four eggs.—On 12 June 1982 we found a Common Loon (*Gavia immer*) nest containing four eggs. The nest was located on a lake approx. 50 ha in size, 25 km NE of Bemidji, Beltrami Co., Minnesota, and was situated about 30 m from shore on a mat of floating vegetation. Two adult loons, the only loons observed on the lake, were nearby and were diving repeatedly within 40–60 m of the nest. When we visited the nest 6 days later it was destroyed. The large end had been broken away from one egg and the contents removed except for a small amount of albumen that still appeared fresh. The other three eggs were found intact in shallow water adjacent to the nest. Two loons were observed on the opposite side of the lake. The eggs were collected and placed in a refrigerator. Later, they were measured, weighed, and examined for fertility.

The four eggs were similar in size to those measured by other authors (Table 1). Weights of the three whole eggs were 140, 144, and 146 g, respectively. Nearly equal volume:weight ratios indicated the eggs were at similar stages of incubation. When examined for fertility on 26 July, one of the three whole eggs contained a 30 mm long embryo. The contents of the other two eggs had putrified and no signs of embryonic development could be detected.

Nests with more than two eggs have been rarely documented for the Common Loon. Audubon (*Ornithol. Biogr.* 4:43–57, 1838) believed three-egg clutches were fairly common, while Bent (*U.S. Natl. Mus. Bull.* 107:47–62, 1919) thought them to be very rare. Henderson (*Condor* 26:143–145, 1924) reported two, three-egg clutches in 19 nests from Alberta, and Vermeer (*Can. Field-Nat.* 87:403–408, 1973) observed one, three-egg clutch in Alberta nests. In contrast, Olson and Marshall (*Minn. Mus. Nat. Hist., Occ. Paps.* 5:76, 1952) recorded

TABLE I
MEASUREMENT RANGES FOR COMMON LOON EGGS

Location	N	Range		Reference
		Length (mm)	Width (mm)	
Minnesota	3 ^a	87.7–88.8	53.8–56.1	This report
Minnesota	30	80.5–94.2	52.0–58.5	Olson and Marshall (1952)
Alberta	40	74.3–93.8	47.0–56.6	Vermeer (1973)
Various	41	82.0–96.5	52.0–61.0	Bent (1919)

^a Four eggs were in the nest but the length of one egg could not be measured.

only one- and two-egg clutches from 47 Minnesota nests although they reported “hearing” of a three-egg clutch.

More recently, McIntyre (Ph.D. diss., Univ. Minnesota, Minneapolis, Minnesota, 1975) reported one, three-egg clutch in 51 Minnesota nests. We know of only two reported four-egg loon nests. Peck (pers. comm.) recorded one from Ontario and believed the clutch was laid by two females. Since 1979, information concerning loons has been solicited from the public by the Minnesota Department of Natural Resources (MDNR). Of 76 nests for which clutch-size was reported, one contained three eggs and one contained four (MDNR files).—MICHAEL C. ZICUS, ROSS H. HIER, AND STEPHEN J. MAXSON, *Minnesota Dept. Natural Resources, Wetland Wildlife Research Group, 102 23rd St., Bemidji, Minnesota 56601. Accepted 30 Mar. 1983.*

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A Common Loon nest from New Hampshire containing four eggs.—The Common Loon (*Gavia immer*) is a determinate layer with a clutch-size of two (Yonge, M.Sc. thesis, Univ. Manitoba, Winnipeg, Manitoba, 1981). Of 252 clutches examined, Yonge reported that only one contained three eggs. Although a few other three-egg clutches have been documented (Vermeer, *Can. Field Nat.* 87:403–408, 1973), they are unusual (Sutcliffe, M.Sc. thesis, Univ. New Hampshire, Durham, New Hampshire, 1975). I report here the observation of a four-egg clutch in New Hampshire.

While monitoring approximately 15 loon pairs as part of an intensive nesting survey, I discovered a Common Loon incubating a four-egg clutch on 10 June 1980 on a 22-ha pond inhabited by only one pair of loons. Observations of the pair on open water on 31 May and 7 June indicated incubation had not yet begun. Therefore, the onset of incubation likely occurred between 7 and 10 June. I observed only three eggs on 16 June and one egg on 27 June. The egg remaining on 27 June was cold, indicating the nest had been abandoned.

Several explanations are suggested by these findings. One is that the eggs were laid by different females. This is improbable, however, since the territoriality exhibited by Common Loons would likely prevent another loon from participating in nesting activities. A four-egg clutch could have resulted from a second pair laying eggs in the abandoned nest of another pair. While I never observed more than two loons on the pond during the nesting period, identification of individuals was not possible. Another possibility is that one female laid all four eggs in one breeding cycle. Assuming a laying interval of at least two days (Yonge 1981), this would place the laying of the first egg on or before 4 June, well before the observed