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**Canvasback tolerance of Redhead parasitism: an observation and an hypothesis.**—At 09:00 on 24 May 1978, while observing waterfowl from a blind 10 km NE of Minnedosa, Manitoba, I saw a Canvasback (*Aythya valisineria*) return to her nest, which was in sparse bulrush (*Scirpus* sp.) cover about 90 m away and visible through a 60× spotting-scope. At 09:05 a Redhead (*A. americana*) hen, which had been feeding with a drake immediately in front of the Canvasback nest for 1 h, approached the nest. The Canvasback moved to the side of the nest and the Redhead settled in the middle of the nest, facing in my direction. For 15 min, while the Redhead made pulsating movements, the Canvasback, facing in the opposite direction, sat pressed against the Redhead; she occasionally preened herself or rested her bill on the Redhead's back, but never showed aggression such as that seen by Weller (Ecol. Monogr. 29:333–365, 1959) and McKinney (Wilson Bull. 66:146–148, 1954). When the Redhead left, the Canvasback rearranged the eggs with her bill and then resettled on them. At 09:27, I flushed her and found 8 Redhead and 4 Canvasback eggs. On the afternoon of 28 May, the nest contained 10 Redhead and 3 Canvasback eggs; 1 egg of each was outside the nest. The nest was found destroyed on 31 May.

Besides the Canvasback's non-aggressive behavior, 2 points are worth emphasizing. First, the Redhead's intrusion was as other authors have described—in particular, she spent a long time in the vicinity of the Canvasback nest before intruding (Weller 1959, McKinney 1954). Second, considerable parasitism was sustained (11 Redhead:4 Canvasback eggs) without nest desertion, which can result from numerous parasitic intrusions (Weller 1959).

Although Canvasbacks accept foreign eggs (Weller 1959), tolerance of Redhead intrusions has not been reported. This is not an isolated case, however, as R. Sayler (pers. comm.) observed such behavior in his detailed studies of Canvasback-Redhead interactions at Delta Marsh. As parasitism is detrimental to the host (see below), its tolerance seems curious, although parasitism may benefit some hosts (Smith, Nature 219:690–694, 1968). Can tolerance of parasitism benefit a Canvasback?

Post-hatch costs of harboring parasitic young are relatively small for precocial species. Canvasbacks do not distinguish their young from Redhead young, although some interspecific aggression and segregation occurs in mixed broods after 3–4 weeks (Weller 1959). Thus, post-hatch costs of parasitism may not be great enough to select for consistent defence of the nest. However, as aggressive nest defence does occur, why is it shown only sometimes (or by some females)?

Pre-hatch costs of parasitism to Canvasbacks (Weller 1959) include: (1) reduced clutch-size because Canvasbacks are indeterminate layers; (2) egg losses from (a) inability to incubate too many eggs; (b) eggs rolling from nests containing very large clutches, even during normal movements; and (c) possibly increased predation due to eggs being outside the nest; (3) nest desertion and (4) increased egg breakage or spillage during aggressive encounters between host and parasite. Thus, parasitism is probably always costly to Canvasbacks; but as Redheads attempt parasitic laying in spite of host aggression, parasitized Canvasbacks may recoup some of their losses in 2 ways. First, of the pre-hatch costs of parasitism, the fourth may be the most easily "remedied" in an evolutionary sense if tolerance behavior, by reducing egg breakage or spillage, reduces the overall costs of parasitism by more than that resulting from aggressive nest defence. Second, tolerance may enhance the post-hatch survival of Canvasback ducklings in mixed broods due to a "selfish herd" effect (Hamilton, J. Theoret. Biol. 31:295–311, 1971) if the probability that a Canvasback duckling being taken by a predator from a mixed brood is reduced. This may help explain why many Canvasback nests contain more Redhead eggs than Canvasback eggs (Weller 1959).

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