American Kestrel (*Falco sparverius*), we designed a candler requiring only sunlight to determine the fertility of kestrel eggs, as well as those of several other avian species.

The candler, depicted in Fig. 1, was constructed of 1.3 cm plywood. The front hole was tapered on the outside to facilitate light penetration into the egg. Dark green cloth tape was applied to all seams and black cloth was stapled in a ruffled manner to the large opening to minimize light penetration into the candler.

To candle, the egg held in one hand was inserted through the large clothed hole and the blunt end held firmly up to the small hole. The latter opening was directed towards the sun and the fertility and stage of embryonic development determined by peering through the top visor. Light penetration into the candler was minimized by keeping the face tightly against the visor. To accommodate different egg sizes, interchangeable front hole plates could be used.

The candler was 100% efficient in our efforts to determine the fertility and stage of embryo development of 56 kestrel eggs in the field. Light conditions were not sufficient, however, on heavily overcast days, but holding a 6-volt flashlight to the outside hole rectified this situation.

We were also able to candle the eggs of the following species: Domestic Chicken (*Gallus domesticus*), European Starling (*Sturnus vulgaris*), Northern Flicker (*Colaptes auratus*), Red-winged Blackbird (*Agelaius phoeniceus*), Song Sparrow (*Melospiza melodia*), and Tree Swallow (*Tachycineta bicolor*). We were unable to candle the heavily-marked cinnamon eggs of the Peregrine Falcon (*Falco peregrinus*), the thick-shelled (but not heavily marked) eggs of the Red-tailed (*Buteo jamaicensis*) and Rough-legged hawks (*B. lagopus*), and the highly cryptic eggs of the Killdeer (*Charadrius vociferus*).—STEFAN T. SOBKOWIAK, *Dept. of Renewable Resources, Macdonald Campus of McGill University, Ste. Anne de Bellevue, P.Q., Canada, H9X 1C0;* and DAVID M. BIRD, *Macdonald Raptor Research Centre, Macdonald Campus of McGill University, Ste. Anne de Bellevue, P.Q., Canada, H9X 1C0.* Received 21 Mar. 1983; accepted 24 Jan. 1984.

The Use of the Tremolo Call During Mobbing by the Common Loon.—We report here an observation of predator mobbing by the Common Loon (*Gavia immer*). The behavior was in response to an unusual attack by a coyote (*Canis latrans*), and illustrates a previously unreported function of the tremolo vocalization of the loon.

The incident occurred on 11 August 1980, beginning about 14:05 on Snowshoe Lake, in north central Maine. Observations were made with 7 × 35 binoculars and 30 × spotting scopes. The loon vocalizations were not tape recorded, but notes were taken regarding changes in tremolo call type. (See Barklow, Condor 81:53–64, 1979, for a discussion of tremolo call types and the contexts in which the call is given.)

In late summer Common Loons spend much of their time in small flocks alternating feeding with bouts of intraspecific displays. A component of these displays involves swimming in single file followed by a shift to swimming abreast (rank formation). When the coyote first appeared 10 adult loons were swimming in rank about 300 m north of the coyote's position on the south shore of the lake. We first sighted the coyote as it came out of the woods. It appeared to be hunting near the edge of the water when it stopped, lifted its head and looked out in the direction of the loons. The coyote maintained this position for approximately 30 sec, then entered the water (14:08) and began swimming to the east of the loons. When it was within 100 m, one of the loons gave a type 2 tremolo. The coyote immediately lifted its head and swam toward the loons. As it approached, the loons were giving type 1 and type 2 tremolos, but they maintained their positions and made no attempt to flee. The coyote passed 10 m in front of the first 5 loons on the left (east) side of the rank. The sixth bird swam in an erect posture, towards the coyote. When they were within 2 m of each other the coyote, with its mouth open, lunged at the loon. It appeared to come within a few centimeters of catching the bird. The loon escaped by running for about 10 m on the surface while giving type 3 tremolos; it then dove. The loon surfaced a few meters from where it dove, and continued the type 3 tremolos. After

the first loon dove, the coyote turned and swam towards the flock. When it got within ca. 15 m, the birds began to run and make short dives; all were giving type 2 and type 3 tremolos. The coyote changed its direction 3 or 4 times in the next 3 min, apparently attempting to reach nearby loons. It then began a steady course to the northwest, and except for veering slightly to the north, continued in this direction for the next 25 min. During this entire time the loons, giving type 2 and type 3 tremolos, repeatedly approached the coyote, then either dove, or ran on the surface and then dove. After one of these approaches the coyote changed direction to the northeast and maintained a course parallel to and approximately 500 m from the north shore for another 22 min. Loon approaches decreased in frequency during this period, but every 4 to 5 min a loon appeared close to the coyote, gave a type 1 or type 2 tremolo and dove.

By 15:09 the coyote was noticeably lower in the water; in the next 5 min it changed direction 4 or 5 times and then stopped moving. The coyote apparently drowned at this point. A loon, in an erect posture, approached the floating carcass and dove without giving any vocalizations. We paddled across the lake and found the body floating 200 m from the north shore. The coyote had been in the water and swimming for 65 min and covered a distance of approximately 4 km.

The loons' movements before the initial attack suggested curiosity, or an attempt to become familiar with an unusual object in their environment. This seemed especially true of the bird who cautiously approached the coyote. The behavior after the attack corresponds well with Curio's (Z. Tierpsychol. 48:175–183, 1978) definition of mobbing: they remained close to the predator, changed their position frequently and gave a loud easily locatable call. Since the tremolo contains information concerning motivational intensity, it may act as signal for coordinating movements during mobbing. It would be interesting to determine, for example, if mobbing becomes more intense after a type 3 call from one of the birds.

Coyotes often hunt in shallow water (Moore, J. Mammal. 10:255, 1929; Springer, J. Mammal. 61:373–374, 1980), but we found no report of them swimming in pursuit of prey. Although unusual, the coyote's behavior is not surprising in view of the opportunistic nature of their hunting (M. Bekoff, pers. comm.). The coyote, however, had obvious difficulties navigating, and we believe the loons' behavior added to the animal's confusion.

It is unlikely that the loons actually killed the coyote. Although there are reports of loons attacking and killing geese (Zicus, Auk 92:611–612, 1975), there was no blood in the water near the coyote nor any obvious wounds on the body.

Loons often use the tremolo as part of a nest or chick distraction display (Barklow, pp. 23–44 *in* The Common Loon: Proceedings of the Second North American Conference on Common Loon Research and Management, 1979), but this is the first report of the use of the tremolo as a component of mobbing behavior.—WILLIAM E. BARKLOW, *Department of Biology, Framingham State College, Framingham, Massachusetts 01701*; and JUNE A. CHAMBERLAIN, *Department of Biology, Tufts University, Medford, Massachusetts 02155.* Received 14 Mar. 1983; accepted 12 Oct. 1983.

Violet-green Swallows Help Western Bluebirds at the Nest.—Recognized cases of interspecific cooperation in antipredator behavior (e.g., Stefanski and Falls, Can. J. Zool. 50:1513–1525, 1972), antiparasite behavior (e.g., Smith, Nature 219:690–694, 1968), and brood care (see Shy, J. Field Ornithol. 53:370–393, 1982, for a review of interspecific feeding) are growing in number. Cooperative relationships between species are especially interesting in light of sociobiological theory, because seeming altruism cannot be accounted for by kin selection (Dawkins, The Selfish Gene, Oxford Univ. Press, New York, 1976). As an outgrowth of a long-term program to monitor the reproductive success of Western Bluebirds (*Sialia mexicana*) near Corvallis, Oregon, we noted an unusual cooperative relationship between nesting bluebirds and Violet-green Swallows (*Tachycineta thalassina*).

In three independent situations, one in 1981 and two in 1982, Violet-green Swallows were observed occupying boxes in which Western Bluebirds were currently nesting, in-