

## GENERAL NOTES

**Feeding Habits of the Everglade Kite (*Rostrhamus sociabilis*).**—Thirty years ago, Herbert Lang (Nautilus, 1924, 37: 73–77) gave the first description of the manner in which the Everglade Kite extracts the gastropod *Ampullaria* from its shell. The title of Lang's article has found its way into ornithological citations, as in Bent (Bull. U. S. Natl. Mus., 167, 1937) and Strong (Bibliography of Birds, 1939), but, very curiously, the *content* of his paper has apparently been ignored by ornithological writers. I have watched in vain for the truth as text after text discussing the Everglade Kite has been published. The matter has just been brought again to my attention by the appearance of Sprunt's Florida Bird Life (1954), which merely quotes the largely incorrect account from Howell's book of the same title (1932). This is:

"Upon seizing a snail in its sharp talons, it carries it to a bush or a little mound, where the mollusk is extracted from its shell with the sharp, hooked bill of the bird and swallowed in pieces about a half or three-quarters of an inch in length. The snails are sometimes shifted from the foot to the bill and occasionally are eaten by the kite while flying. The shells are unbroken, as a rule, although occasionally one is seen with a puncture in the side."

It is evident that the facts should no longer be left concealed in a conchological journal that ornithologists fail to open. I have had the opportunity to confirm Lang's observations, made in British Guiana, during field work in the vicinity of Estancia La Segunda, Chascomús, Argentina.

The Everglade Kite does not pull or tear *Ampullaria* out of its shell. The kite's bill is not only extremely slender terminally but is also delicate and relatively flexible. The ring muscles of the snail, on the other hand, are extraordinarily tough. It would require much more horse-power than the bird possesses to obtain its prey by main force, and subsequently to rend it into small pieces.

On the pampas in the Province of Buenos Aires, January 28, 1954, the astonishing numbers of *caracoleros* or snail hawks were amazing to one who had known only the pitiful remnant of the species in Florida. While slithering in a motor car along extremely muddy roads, we passed hundreds of the birds, many sitting calmly on roadside fence posts as we passed. I stopped to pick up several clean and perfect *Ampullaria* shells that the kites had dropped, one of which hit the ground just before I obtained it. The feeding technique, the discovery of which should be credited to Herbert Lang and which is here recorded partly in his own words, is as follows:

The kite darts and skims about over the pools and their shores, and, after spying a snail, it grasps it in one foot and at once flies to a perch. The period of hunting is usually late afternoon or at some other hour when the sun glare is reduced. It is then that the snails move about most, and crawl from the water onto the stems of the low vegetation.

The kite must have a perch to enjoy the fruits of its search. It sits on one foot and holds the snail gently in the other, doing nothing that would inhibit the mollusk from emerging from the whorl of the shell. The bird makes no effort to obtain its food by force; it waits for the voluntary extension of the animal beyond the aperture. When that happens, the bird quickly pierces the snail behind the operculum, always in the same place which is evidently a nerve plexus.

The kite then sits and waits again, with the snail spiked on its maxilla, from which it stands out like a bump as large as the bird's head. Gradually the muscles of the numbed snail relax. After two minutes, more or less, the kite vigorously shakes its head and swallows the mollusk whole, operculum and all, before the empty shell has reached the ground.

The fragile shell is never broken or abraded by the captor. The long, slender bill is used not as a hook but as a lancet or poniard. It is a feat of instinctive correlation as exact as that of the spider-paralyzing wasps.—ROBERT CUSHMAN MURPHY, *American Museum of Natural History, New York.*

**Possible Function of the Flicker's Black Breast Crescent.**—For periods of 75 and 20 minutes, on July 15, 1954, I watched a male Flicker (*Colaptes auratus*) work over the lawn of a Baltimore park, accompanied by two juveniles. The latter were practically full-grown and on the verge of becoming independent; one, in particular, foraged much for itself, neither was ever fed without having solicited the feeding, and one or both were sometimes pecked at and driven away by the adult when they did solicit. The manner of their solicitation was, almost invariably, to nuzzle directly into the parent's breast, to run rapidly beneath his throat from one side to the other, or to stroke his breast with the bill. The performances suggested that the black crescent on the breast of this species functions as a directive marker, or "target," for such food solicitation; lying as it does over the lower part of the throat, pressure exerted on or near it in the ways observed might very well stimulate regurgitation, it seems—and, in fact, regurgitative feedings did sometimes follow immediately.

My notes on the food solicitation and feedings, made at the time, follow:

4:15 P.M. One of the juveniles nuzzles directly forward against the male's breast, and thereupon is fed briefly by regurgitation. Twice before, during the half-hour I have already watched, the juvenile that was closely accompanying the male had crawled rapidly across under his throat from one side to the other, but no feedings followed and I did not realize what now appears to be the case—that this was solicitation.

4:39. A juvenile rubs against the male's right side at the front of his body, then goes close directly in front of him and holds up its open bill, and is fed.

4:41. A juvenile goes in front of the male and, without touching him, holds its bill open and is fed.

4:48. A juvenile runs across, from right to left, directly or virtually under the male's black crescent; then, from the left, soon goes under the male and nibbles at his throat.

4:50. A juvenile again runs across under the male's throat, from his right to his left.

4:51. Both young repeatedly run under the male, simultaneously but in opposite directions, distinctly posterior to the crescent, and after some seconds the male feeds one.

4:53. A juvenile repeatedly nuzzles the male, first from his right, then from his left, then from directly in front with head low and finally motionless between the male's legs. All of this nuzzling was well posterior to the crescent (except that of course the juvenile's back must finally have been pressing against that) and all of it was vain; but may not the crescent still have been the "target"?

6:38 P.M. A juvenile goes up to the male and from directly in front rubs its bill up and down once or twice against his breast, crossing the crescent vertically. No feeding made.

6:49. The male passes in front of a juvenile, and as he does so it nibbles at his chin and breast. He does not feed it.—HERVEY BRACKBILL, 4608 Springdale Avenue, Baltimore 7, Maryland.