

NOTES ON THE FEEDING HABITS AND FOOD OF SOME HAWKS OF SURINAM

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Comparatively little is known about the food and feeding habits of the common hawks of Surinam, South America. I have given special attention to this subject in recent years and in addition to the identification of food remnants and of stomach contents of hawks collected, I have made careful notes on the feeding and hunting habits of these birds. Since I did not collect hawks exclusively to examine stomach contents, my data are not extensive. In order to give an idea of the size of the hawks mentioned in this paper, I have recorded the weights of all the specimens taken.

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Elanus leucurus. White-tailed Kite. A bird of open country with scattered trees, this kite hunts here, as elsewhere in its range, by hovering above the ground with the wings held horizontally. When plunging, the wings are fully stretched upward, the tips almost touching each other. This kite feeds on small mammals. A juvenile on the wing had a specimen of *Holochilus brasiliensis* (Cricetidae) in its stomach. A number of pellets collected at a nest between February and April, 1961, contained six *Holochilus brasiliensis* and eight *Zygodontomys microtinus*. The pellets of this kite are quite small; most of them are about the size of a marble. Some of them measured only 16×14 mm. and consisted solely of mouse hair. The larger ones contained fragments of skulls and measured 22×18 mm.

Weights of three males, 250 to 297 gm. (mean, 273 gm.); weight of one female, 307 gm.

Elanoides forficatus. Swallow-tailed Kite. Common in all kinds of forests and seldom seen in open country. These are social birds and they are often seen in groups of up to 30 individuals circling and gliding above the forest. I never saw this species on or even close to the ground.

Swallow-tailed Kites feed in flight on insects, and I observed them gliding low over the treetops, almost touching them. Apparently they catch insects in this way from the leaves of the upper branches. The stomachs of these kites contained hemipterans (Pentatomidae, Fulgoridae, Membracidae). A bird taken on November 1, 1961, had its gizzard filled with female *Atta sexdens* (Hymenoptera, Formicidae), apparently obtained from a flight of these ants.

Weights of two males, 390 and 407 gm.; weights of four females, 372 to 435 gm. (mean, 399 gm.).

Leptodon cayanensis. Gray-headed Kite. This is a forest hawk which is usually seen perched on an exposed branch of a tree. I have watched it suddenly dart from its perch and pursue an insect, sideslipping with great velocity and impetus. In the stomachs I found only insects: isopterans in great numbers, hymenopterans (Apidae, Vespidae), coleopterans (Curculionidae), orthopterans (Locustidae), and larvae of lepidopterans. I also found remnants of a frog and the almost intact shell of a bird's egg which was white with small red spots.

Weights of three males, 434 to 455 gm. (mean, 446 gm.); weights of two females, 416 and 472 gm.

Chondrohierax uncinatus. Hook-billed Kite. A forest hawk living in the lower canopy and among dense undergrowth. This kite is a secretive bird and I never saw it hunting. My encounters with it always happened in the same way. When walking through the forest my attention would be drawn by a few wing beats and a passing shadow. Following this the bird would alight on a low, nearby branch where it would sit looking at me. I found only tree snails in its stomach.

Weights of three males, 251 to 257 gm. (mean, 253 gm.); weights of three females, 240 to 300 gm. (mean, 255 gm.).

Harpagus bidentatus. Double-toothed Kite. A hawk of the hilly forests of the interior. I have taken only two specimens. I know nothing of its hunting habits as the birds I obtained were sunning themselves on the dead top of a tree. One stomach contained a small lizard (*Teiidae*), a small Gecko (*Thecadactylus rapicaudus*) and insects of the orders Hemiptera Homoptera (Cicadidae), and Orthoptera (Phyllidae).

Weights of two males, 168 and 182 gm.

Ictinia plumbea. Plumbeous Kite. This hawk is quite common along forest edges and forest-fringed rivers where it sits on dead tree tops. It hunts both from a perch and also on the wing. It feeds on insects.

When "still hunting" from a perch, the bird suddenly leaves the perch and flies, with long-drawn wing beats, downward in pursuit of its prey, sideslipping with great velocity to return with its catch to the perch.

When hunting on the wing, sometimes a number of these hawks assemble in a favorite spot. On January 1, 1954, four birds were catching flying termites, taking the termites with their feet and bringing them to their bills. The air was full of flying termites at that time. These were identified as *Nasutitermes surinamensis*.

Insects of the following groups were identified in stomachs of the Plumbeous Kite: Odonata (Aeschnidae); Coleoptera (Cetonidae, Elateridae); Hymenoptera (Formicidae, Vespidae, Apidae: Xylocopinae), Neuroptera (Ascalaphidae); Hemiptera Heteroptera (Pentatomidae), Homoptera (Fulgoridae), Orthoptera (Locustidae).

Weights of five males, 190 to 267 gm. (mean, 239 gm.); weights of five females, 232 to 272 gm. (mean, 255 gm.).

Rostrhamus sociabilis. Snail Kite. The manner in which this kite extracts snails from their shells has been reported by Murphy (Auk, 72, 1955:204-205). The snails used as food by the kites I observed were identified as *Pomacea doliooides*. Under perches I often found great numbers of intact shells of this snail. On October 23, 1960, half a dozen birds in immature plumage were feeding at a trench along a ricefield and were perched on banana plants around the field. Under one perch lay 246 snail shells



Fig. 1. Intact shells of snails found under a perch of the Snail Kite (*Rostrhamus sociabilis*). Paramaribo, Surinam, October 23, 1960.

(fig. 1), and under another perch there were 129 snail shells. This kite roosts in groups, and as I have reported elsewhere (Wilson Bull., 66, 1954:264), several birds may be seen with snails either in their bills or in their claws as they fly to their evening roost.

Weights of four males, 304 to 385 gm. (mean, 357 gm.); weights of two females, 384 and 413 gm.

Heterospizias meridionalis. Savanna Hawk. This hawk is rather common in open, not too dry

country with scattered trees. It is a clumsy bird and sits mostly on a lookout at a low elevated place and plunges down rather awkwardly with partly-opened wings to the ground to catch its prey. It feeds on small mammals, lizards, and also snakes. Among the lizards identified were *Ameiva ameiva* and *Iguana iguana* (jv.).

Weights of three males, 825 to 1042 gm. (mean, 929 gm.).

Buteo magnirostris. Roadside Hawk. This is the commonest hawk in Surinam; it lives at forest edges and in open forests. It hunts from a lookout, often from the top of a telephone pole along the road. In capturing prey it plunges in a downward glide with closed wings to the ground. This glide can cover a distance of at least 25 meters. The Roadside Hawk feeds mainly on lizards, but it also eats frogs, snakes, and large insects. I never found any evidence that it preys on birds. Insect groups identified were: Orthoptera (Locustidae and Gryllidae), Arachnoidae (Araneidae) and Hymenoptera (Apidae).

Weights of eight males, 206 to 290 gm. (mean, 251 gm.); weights of five females, 268 to 350 gm. (mean, 303 gm.).

Buteo nitidus. Gray Hawk. Definitely less numerous than the Roadside Hawk but yet a common bird which lives in the same habitat. It is more powerful and faster than the Roadside Hawk and hunts lizards mostly as a "still hunter" from a perch. It resembles the Roadside Hawk in having a similar downward glide with closed wings as it drops to the ground. These glides cover distances of up to 40 meters.

On June 2, 1952, I saw a Gray Hawk suddenly dash into a tree where a number of Shining Honeycreepers (*Cyanerpes caeruleus*) were feeding. It caught one of the birds with a sudden grip of its talons. I also saw a Gray Hawk in immature plumage with a medium-sized lizard (*Tupinambis* sp.) in its claws, which it was just able to carry. Stomachs of these hawks contained lizards (*Ameiva ameiva*), and once I found remains of a small mammal.

Weights of five males, 430 to 497 gm. (mean, 465 gm.); weights of two females, 516 and 592 gm.

Urubitinga urubitinga. Great Black Hawk. Found in open country with scattered trees and mostly seen near water; feeds partly on carrion. On May 17, 1947, I watched a pair feeding on a dead cayman in a ricefield with about fifteen Black Vultures (*Coragyps atratus*) and ten Yellow-headed Caracaras (*Milvago chimachima*). This hawk also feeds to a large extent on insects such as orthopterans (Locustidae, Acrididae) and hemipterans (Belostomatidae). It also takes frogs.

Weights of two males, 1250 and 1306 gm.

Buteogallus aequinoctialis. Crab Hawk. Confined to the coastal mangroves and outer rivers where it is the most characteristic hawk. This hawk is conspicuous by its melodious whistle. It seems to feed on crabs exclusively as I never found any other food remains. In Surinam it is called "Krabboe Akka" or Crab Hawk. The plate by Grönvöld (*in* Swann, Monograph of the Birds of Prey, vol. 1, 1930) showing a bird feeding on a lizard appears to be incorrect.

When hunting the bird sits on a low branch above a creek and plunges down into the mud. The crab is seized with the talons and taken to a dry place on the ground, a stump (fig. 2), or a low branch. Sometimes the remains of large numbers of crabs are found at certain places, often with a molted primary or tail feather as proof that a Crab Hawk had used the place for feeding. The bill and feet of this hawk are often covered with sticky mud as a result of feeding. Two species of crabs were identified: *Ulcides cordatus* and *Callinectes bocourti*.

Weights of seven males, 505 to 665 gm. (mean, 595 gm.); weights of five females, 720 to 945 gm. (mean, 796 gm.).

Busarellus nigricollis. Black-collared Hawk. Common near overgrown creeks and trenches and also found in the mangroves. Feeds mainly on fish which are taken from a low perch above the water. The bird plunges rather clumsily into the shallow water and catches the fish in its talons. It feeds also on hemipterans (Belostomatidae: *Belostoma dentatum*).

Weights of two males, 675 and 717 gm.; weights of three females, 720 to 829 gm. (mean, 769 gm.).

Circus brasiliensis. Long-winged Harrier. A bird of open, moderately wet fields. This hawk hovers in a buoyant flight low over the ground from which position it pounces down on its prey. On May 24, 1953, I observed two birds in immature plumage hovering over a colony of nesting herons in the mangroves at the mouth of the Coppename River. I collected one of the hawks, and when I picked it up, a heron's egg fell out of its bill. The staple food of this bird consists of small mammals.

Weights of two males, 391 and 403 gm.; weights of two females, 580 and 645 gm.



Fig. 2. Remains of crabs used as food by the Crab Hawk (*Buteogallus aequinoctialis*).
Coronie, Surinam, July 10, 1946.

Geranospiza caerulescens. Crane Hawk. A most interesting hawk which is not uncommon in forests and mangroves. It feeds in trees and clings with its very long legs on a tree trunk like a wood-creeper, with partly opened wings and spread tail, from which position it takes tree lizards and insects. Its feeding habits resemble those of the Harrier Hawk (*Gymnogenys typicus*) in Africa as described by Meinertzhagen (*Pirates and Predators*, 1959).

On February 12, 1956, I saw one of these hawks in a tree with a lizard in its bill, but I found only arthropods in the stomachs of the specimens I collected. These were identified as orthopterans (Gryllidae, Locustidae) and arachnids (Araneidae: Mygalidae).

Weights of five males, 225 to 295 gm., (mean, 253 gm.); weights of three females, 273 to 328 gm. (mean, 295 gm.).

Herpetotheres cachinnans. Laughing Falcon. Common in open forests and at forest edges. Its laughing note is only uttered when the bird is alarmed. It is a rather noisy bird, and often two birds utter their wailing cry in a duet. Strangely enough, either a single bird or two in a duet often call at night during absolute darkness for long periods of time.

The Laughing Falcon is a "still hunter" which appears to feed exclusively on snakes; it often attacks large ones. When hunting and watching the ground, the bird sits in a very upright attitude in a tree; I have even seen it with its head turned backward 180° looking attentively at the ground. I have seen nine successful catches, and the great force with which the bird pounced downward was always very striking. The actual contact on the ground was clearly audible. This hawk must have marvelous eyesight as I have seen it pounce down amidst thick undergrowth and take a snake. After the catch the snake is held a little behind its head and chiefly in the bill but sometimes in the talons; it is then taken to a branch where the bird starts feeding. By this time, in most cases, the snake is dead. No snakes could be identified as to species.

Weights of four males, 567 to 590 gm. (mean, 575 gm.); weights of two females, 590 and 655 gm.

Daptrius ater. Black Caracara. Not uncommon in savanna forests and forests of the interior and mostly seen alone or in pairs on treetops near the forest edge or along forest-fringed rivers. I never saw this bird hunting. It appears to be partly vegetarian, as I found a number of the characteristic

scales of the fruits of palms, *Mauritia flexuosa* and *Desmoncus* sp., in its stomach. I also found remains of frogs, bird feathers, hair of mammals, dragonflies (Libellulidae), larvae of flies, and spiders and ticks (Ixodidae).

Weight of one male, 330 gm.; weights of five females, 345 to 445 gm. (mean, 378 gm.).

Milvago chimachima. Yellow-headed Caracara. A common hawk in open country with scattered trees. It is almost omnivorous and feeds partly on carrion. On May 17, 1947, about ten were feeding on a carcass of a cayman in a ricefield (see p. 156). On May 24, 1947, a few were seen feeding on dead caterpillars drowned in great numbers in a flooded ricefield.

This hawk regularly feeds on small mammals such as opossums (*Didelphis* sp.) and rats killed by cars on the roads. I have even seen it feeding on horse dung. It also plunders birds' nests, for on March 9, 1959, I surprised it robbing a nest of the Ruddy Ground Dove (*Columbigallina talpacoti*) in a shrub in my garden. Also I have found bird remains in its stomach.

On December 18, 1949, I watched a caracara in a tree catching and eating large caterpillars of the family Sphingidae, and one bird I collected had its stomach filled with about 30 pupae of moths. I have also seen this hawk catching lizards by plunging down on them. I was rather surprised that it is also a vegetarian, as three specimens had dense masses of fruits of an oilpalm (*Elaeis* sp.) in their stomachs. It has been known for a long time that this hawk feeds on ticks, but I never observed it taking ticks from live animals.

The following arthropods were identified: ticks (Ixodidae) in great numbers and dipterans.

Weights of ten males, 277 to 335 gm. (mean, 315 gm.); weights of six females, 307 to 364 gm. (mean, 335 gm.).

Falco albigularis. Bat Falcon. Rather common in open country with scattered trees, along forest edges and forest-fringed rivers, and in forest clearings. This little falcon resembles in all respects the Hobby (*Falco subbuteo*) of the Old World. It has the same dashing hunting flight from a perch, and its shrill call, *kuu, kuu, kuu*, is identical. This species lives in pairs and is usually seen sitting on dead tops of tall trees from which it makes forays after insects. It is very active during the late afternoon and around sundown, when it not only hunts bats but also moths.

On November 3, 1951, I watched a bird at sundown suddenly dash after a small moth but miss it. The distance from the perch to the moth was at least 40 meters. Apart from insects I have found remains of small birds and small mammals in the stomachs of this hawk.

The following insect groups were identified: Orthoptera (Mantidae); Hymenoptera (Apidae); Hemiptera Homoptera (Cicadidae, Libellulidae: *Tauriphila argo*, Aeschnidae: *Tricantaga septima*, and *Coryphaesna viriditas*).

Weights of eleven males, 108 to 148 gm. (mean, 129 gm.); weights of six females, 177 to 242 gm. (mean, 202 gm.).

Paramaribo, Surinam, July 26, 1961.