

are no trees large enough to contain cavities of a size that could be inhabited by the owls, they were perching on branches. During daylight hours Barn Owls were frequently flushed in the marsh several miles from the nearest trees.

A total of 804 Barn Owl pellets were collected over a six-month period from November 1959 to April 1960. They were collected on the tree-covered portion of the Gulf beach, around a trapper's camp, at the main headquarters camp, and under a steel radio tower on the Refuge. Analysis revealed that the pellets contained remnants of 1,008 vertebrate animals. Of this number, 984 (97.5 per cent) were rice rats (*Oryzomys palustris*) and 24 (2.5 per cent) were small passerine birds. The pellets contained an average of 1.22 rice rat skulls and 0.03 bird skulls. Since the rice rat was the only small mammal found in the pellets, trap sampling was done to determine if other small rodents were present on the island. Snap-type mouse traps were operated for 300 trap-nights. Only ten animals were captured and all were rice rats. Since some traps were set at camp and no house mice were caught, it is assumed that none was present on the island.

Since the rice rat was the only small mammal found in the owl pellets and during the trapping operation, it is probable that it was the only small mammal present on the island in significant numbers; hence, the only one available to Barn Owls.

Although passerine birds were abundant during the time of the study, particularly during fall and spring migrations, they were of little importance in the diet of the owls. Of particular significance is the fact that many of the small birds were in a weakened condition on arrival at the Refuge during spring migration, many barely able to fly. Consequently, they could have easily fallen prey to Barn Owls.

The young of nutria (*Myocastor coypus*), muskrat (*Ondatra zibethica*), swamp rabbit (*Sylvilagus aquaticus*), and mink (*Mustela vison*) did not occur in the pellets. The nutria population was very high. The young of this species are not only nocturnal and precocial but they are also born and suckled on exposed platforms where they are readily exposed to Barn Owls. Evidently the young of nutria are larger than the prey items desired by Barn Owls. At birth the young of the other fur animals are concealed and thus are not available to owls until partially grown.—E. S. JEMISON, *Louisiana State University School of Forestry, Baton Rouge, Louisiana*, and ROBERT H. CHABRECK, *Louisiana Wildlife and Fisheries Commission, Grand Chenier, Louisiana*, 10 July 1961.

**Nest sanitation of Yellow-bellied Sapsucker.**—Yellow-bellied Sapsuckers (*Sphyrapicus varius*) feed sap to their young along with insects and the fact that nestlings have fairly liquid excreta may account for the somewhat unusual methods which this species uses in nest sanitation. The following observations were made over the course of six years on 20 pairs which nested at Tamworth, New Hampshire.

Male sapsuckers, do most of the nest cleaning. On 17 June 1957, for example, I heard a steady pecking from inside the nest hole of Pair A, then saw the male appear at the entrance with a large billful of mushy feces. He flew to a maple trunk 40 feet away, shook the excreta loose, and wiped his bill on the bark a few times as if cleaning it. The male then returned to the nest. He carried out his routine three times in a row, always flying to the same place on the maple trunk to scatter the feces onto the dry leaves on the ground below. Observations made in 1959 brought out additional aspects of this routine sapsucker behavior. Thus, on 21 June I saw a female emerge from a nest with a billful of feces, then fly to an oak trunk 25 feet away and scatter it. Three days later, I watched the male scattering excreta from the oak. Both members of the pair, therefore, were frequenting the same spot for this purpose and the spattered leaves below

indicated that it had been used many times. On inspection I found the accumulations of feces were well mixed with sawdust.

Sapsuckers continue to enlarge the nest cavity after the eggs have hatched, for I have heard males as well as females excavating in nests with young for as long as five minutes at a stretch. The sawdust produced soaks up excreta and appears to facilitate its removal. Another indication of an enlarging process was that a nest collected when the young had just hatched was considerably smaller than one collected at the end of the nesting period when the two nestlings were ready to fly. Early and late measurements of a single nest cavity, however, have not been made.

I began watching Pair C on 14 May 1960. Both male and female were taking turns at excavating the nest hole and each threw repeated billfuls of sawdust from the entrance, and the ground below was well covered. On 20 May the female exhibited a new form of behavior. She had laid her first egg in the morning, but the excavating was continuing as before when she appeared within the entrance with a large billful of fresh sawdust, then flew to a maple trunk 30 feet away, scattered her load, and wiped her bill. She repeated this performance on two other occasions during the afternoon. This early appearance of a behavior pattern characteristic of parents caring for young in the nest suggests that the mechanism for nest sanitation is employed before there is any real need for it. A similar situation among Yellow-shafted Flickers (*Colaptes auratus*) has been described elsewhere (Kilham, 1959. *Wilson Bull.*, 71:323-336).

Flickers have a fecal sac which consists of a tough, white membrane. This sac can be seen clearly when a parent leaves the nest with excreta, and two nestlings which I raised in captivity produced fecal sacs when poked at the cloaca after being fed. Yellow-bellied Sapsuckers, in contrast, do not appear to produce fecal sacs. I never saw any being carried from the nests of the 20 pairs observed, nor were any ever produced by six young sapsuckers which I have raised by hand. The diet of these latter individuals did not include sap. Two of them, however, voided shortly after removal from the nest, one leaving a puddle and the other a wet mash of fecal matter, without enclosing sacs.

However, Wible has written of the Yellow-bellied ("Red-naped") Sapsucker of Montana as having a fecal sac (1960. *Wilson Bull.*, 72:399). It is not clear, however, that she is using the term in the sense that I have used it in regard to flickers, for she stated that the sac she observed was "transparent" and was "eaten by the bird, the fecal contents dropping to the ground." If the fecal matter is picked up with sawdust as I have described, it is difficult to see how it could be enveloped in a fecal sac.—LAWRENCE KILHAM, *Dept. of Microbiology, Dartmouth Medical School, Hanover, N.H.*, 3 February 1961.

**Wing-flashing of Graceful Mockingbird while assembling sticks.**—Hailman (1960. *Wilson Bull.*, 72:346-357) concludes that foraging is probably the main factor involved of wing-flashing in Mockingbirds. In Surinam I regularly observe the wing-flashing of the Graceful Mockingbird (*Mimus gilvus*) when running on lawns and sand-paths. On 3 February 1960, I observed in my garden a different kind. An adult bird was running on the ground picking up sticks, so I got the impression that it was assembling nest material. When it took a stick in its bill, it dropped it and immediately a "hitch" of wing-flashing followed. The wings were held above the horizontal and the tail was lifted and spread like those of the bird in the upper figure opposite page 341 in *Wilson Bull.* 72. Then the wings and tail were closed and the bird ran a few steps to pick up another stick, dropped it and another hitch followed. This was repeated a few times but I omitted to count how many times.—F. HAVERSCHMIDT, *Paramaribo, Surinam*, 3 February 1961.