

Wood Ducks versus squirrels.—Much is written regarding the interrelations between competitive species, but field observations of the actual contacts between individuals of these species are rare. I live in a wooded tract on the Mississippi bank, five miles north of Minneapolis. For the past five years one or two pairs of Wood Ducks have nested in hollow basswoods within easy observing distance of our windows. Here we have had excellent opportunities to watch the activities of the ducks around the nest cavities during the early part of the nesting season, before the leaves have fully grown. On March 20, 1946, while eating breakfast, I noticed a female Wood Duck alight in the old nesting tree, and a moment later the male settled in a near-by tree. They were obviously exploring for a possible nest site. A red squirrel in the tree near the female seemed irritated by their presence and immediately ran to the limb on which she was perched and dashed out toward her with all the confidence in the world. I had no doubt that the duck would fly, but to my surprise it did not; in fact, it sat calmly awaiting the onrushing squirrel, whose attack proved to be largely bluff. The squirrel, nonplused by her refusal to budge, stopped short a few feet away and, backing up, rushed at the duck a second and a third time with no better success. Then the squirrel changed its tactics, and slipping around underneath the three-inch limb, it attempted to attack the duck from beneath. Each time the squirrel showed its head around the limb, however, it was met by a determined peck from the duck and in a few moments the squirrel gave up, leaving the Wood Duck complete master of the situation. The squirrel then went directly to the tree in which the male was perched on a ten-inch horizontal limb. Here it attempted to dislodge the male with exactly the same type of attack, but met the same resistance and retired without in the least disturbing the ducks. Neither did the red squirrel's presence deter them from nesting, for a few days later the duck began laying in the old nest cavity and, perhaps aided by a second female, deposited twenty-five eggs of which nineteen appeared to hatch successfully.—W. J. BRECKENRIDGE, *Minnesota Museum of Natural History, University of Minnesota.*

Rôle of male Yellow-bellied Sapsucker in the care of the young.—Observations made at the nest site of a pair of Yellow-bellied Sapsuckers (*Sphyrapicus varius*) revealed some unusual types of behavior as well as a daylight attempt at predation by a weasel. Although, from one viewpoint, the record appears to give data on two different organisms, the resulting behavior of each in the situation described will be of interest to many. Therefore, it seems wise to report the story in detail.

The loud noise of the young of this bird often, as in this case, discloses the location of the nest hole. This one was situated in a dead sugar maple standing in an old sap orchard in central New York State. The nest hole was about thirty feet above the ground. There on June 24, 1945, when the study began, the young birds were estimated to be about half-grown. Detailed notes of the behavior of the adults were made on that date for one and one-half hours in the middle of the day and again on June 26 and 27, from 7:00 P. M. on the 26th, continuously through the night until 7:00 A. M. June 27. The most interesting findings of this study might be classified in three parts as follows: (1) Feeding behavior; (2) adult reactions and duties of the birds; (3) weasel predation.

FEEDING BEHAVIOR

During a ninety-two-minute period on June 24 the male fed seventeen times, never spending more than two minutes in the nest hole. During the same period the female fed eleven times, spending shorter periods at the nest than the male. Of the ninety-two minutes, the male spent fifteen inside the nest hole, the female eight and one-half minutes.

On June 26, during the two hours of feeding in the evening, the male fed seventeen times, the female six times. In the early morning, between 5:05 A. M. and 7:00 A. M. the male fed eighteen times, the female once. Feeding ceased at 9:00 P. M. and began in the morning, at 5:27 on June 27. During the last one and one-half hours of observation on June 27, the female was absent from the immediate territory and did not feed the young until 6:58 A. M. although she had reported at the nest site at 5:05 A. M. when the male flew out from roosting.

ADULT DUTIES

The male did all the nest cleaning. Frequently he would emerge from the nest hole after feeding, with a beak full of fecal material and wood shavings resembling sawdust. This material was always (so far as these observations record) taken to a specific location on another tree about forty feet from the nest hole—a location that might be described as an old healed-over knot with rough bark protruding. This tree is known in my notes as the 'cleaning tree.' The male repeatedly carried the waste from the nest to this old knot on the 'cleaning tree' at which point he dropped the material and cleaned his beak by wiping it several times on the rough bark around the knot. Following the act of cleaning his beak, he sometimes went up or down the tree a few feet before leaving in search of food among the surrounding trees. At the base of the 'cleaning tree' I collected a quantity of the fecal masses for study of the insect fragments. The female never cleaned the nest but occasionally she visited the knot on the 'cleaning tree' and inspected some fragments of the cleanings adhering there.

The male roosted in the nest hole at night. He appeared to be just inside the hole looking outward rather than hovering the young. This manner of roosting effectively shut off the sound of the noisy young. Whereas the young had been emitting a continuous chatter during the day, they became quiet at roosting time and did not make any appreciable amount of noise until after feeding was resumed the next day.

WEASEL CLIMBS THE NEST TREE

Repeated attempts of a weasel to climb to the nest hole were thwarted only because of the absence of bark on the dead nest tree for a distance of three feet below the nest. The weasel could not climb this barkless portion of the tree trunk. The notes quoted below were taken at the time from a position on the ground about 20 feet from the nest tree.

"7:20 P. M.—The male bird came to the nest tree calling excitedly and immediately went into the nest hole, quickly reversed, facing outward, calling. The female was on hand at once, flying about excitedly. Then I noticed a weasel at the base of the nest tree, starting to climb. It climbed easily up to the barkless area. Meanwhile both birds flew at the intruder, the male bird actually striking the weasel with the beak, finally knocking it free from the tree. The weasel after the fall immediately climbed the tree again in spite of renewed attacks. This time it went up the smaller of the two branches of the tree trunk to the barkless area where it attempted to cross over the intervening space toward the nest hole in the opposite fork of the tree trunk. A crossing required a jump of about thirty inches which the animal did not attempt. Under severe attack it retreated to the crotch between the two forks of the trunk. After two minutes of uncertainty it tried again to go directly to the nest hole but could go only as far as the bark of the tree provided it with a toe hold. Then it came down, circled the base of the tree and went directly to the 'cleaning tree' 40 feet away. After smelling over the nest cleanings on the ground

it climbed up 30 feet to the first branch and then to the knot where the male bird had been cleaning his bill. The fragments adhering to the bark around this knot were examined thoroughly before the weasel started back down the tree. The birds continued to attack and did again knock the animal loose from the tree when it was 20 feet from the ground. These falls did not disturb the weasel. Back on the ground it spent two minutes smelling the bird droppings at the base of the 'cleaning tree' before leaving the neighborhood in the direction of a pine thicket.

"After a period of quiet and normal feeding at 8:08 P. M. the male bird was cleaning his bill at the 'cleaning tree' when the weasel suddenly returned. I heard it on the ground passing near me. When I turned my head it stopped and tried to smell me but I remained quiet and it soon turned its attention in the direction of the noisy young birds in the nest tree. This time the weasel went up another tree—one close to the nest tree. The male bird again attacked, and the weasel started down the tree head first in the manner of a squirrel. When about fifteen feet from the ground the bird again dislodged the animal and caused it to fall. After this it circled the base of the nest tree but did not try to climb again. Soon it left the neighborhood in the same direction as before."

It seems likely from this record that the weasel had visited the birds before the first recording by this observer. Its ability to climb and its persistence in the attempt to get to the nest during these daylight hours may be an indication of what happens to many hole-nesting birds during the dark hours as well as in daylight. The author is of the opinion that we need many more observations of what is going on in the bird world during the twilight hours and during the nights.—R. A. JOHNSON, 98 *East St., Oneonta, New York.*

Flight speed of Wild Turkeys.—While conducting a Wild Turkey investigation in West Virginia, the author has had several opportunities to check accurately the flight speed of these large game birds. On September 11, 1946, a large gobbler was flushed by the car from a mountain road. The gobbler took a few running steps and, with several heavy, powerful strokes of his wings, was soon in the air. For about 50 to 60 yards the bird flew with a rapid and strong wing beat. He then set his wings and sailed for a short distance following this by another series of rapid wing beats. This intermittent wing beat of turkeys in flight has been observed many times by the writer. The gobbler flew directly down the road and was followed closely by the car. A flight speed of 38 to 42 miles per hour was recorded for a distance of approximately one-half mile. The turkey finally veered sharply to the left and sailed out over the forested valley.

Again on October 21, 1946, the writer flushed a flock of 8 to 10 Wild Turkeys from a ridge. In this instance the birds flew close together like a covey of quail and landed on a beech flat below. They flew the entire distance through the forest and it was wonderful to observe their dexterity in flying through the trees. The distance flown was 722 feet in 17 seconds giving an average flight speed of 29 miles per hour. A similar observation was made on December 5, 1946, when three turkeys (one hen and two gobblers) were flushed along a road. Their flight speed for a short distance was checked with the speedometer of the car and found to be around 32 miles per hour. On December 11, 1946, a small flock of three turkeys was flushed along a forest trail. Their flight speed for 370 feet was about 36 miles per hour. Mr. Henry Perkins, resident game manager of Cranberry Game Breeding Area, reported checking the flight speed of a young gobbler with his car on October 10, 1946, when he found the speed to be approximately 32 miles per hour.

These five instances are not comprehensive but do give an indication to the range