

NESTING PIGEON HAWKS

BY JOHN AND FRANK CRAIGHEAD

EVER since we first saw Pigeon Hawks¹ passing over Cape May, New Jersey, on their southward migration, we had hoped some day to study and to photograph their nesting habits. When we learned from Captain R. L. Meredith that the species nests in the "Border Lakes" region of Minnesota and Ontario, the possibility of realizing our ambition seemed within reach. In the summer of 1935, with the Pigeon Hawk nesting grounds as our objective, we traveled north 40 miles from Grand Marais, Minnesota, to Gunflint Lake.

The Pigeon Hawk country is a land of heavy timber interspersed with numerous lakes and bare, burned-over, open areas of glacier-scarred, metamorphic rocks. Spruce, birch, and tamarack grew in the low, swampy areas bordering the lakes. Jack pine, aspen, and birch occupied the higher ground and ridges, while the numerous islands were clothed with heavy, mixed stands of white pine, spruce, balsam, and a few old scattered jack pines. Bare rocks, large burned-over tracts, and numerous lakes formed the open areas; it was the type of country in which one would expect to find Sharp-shinned Hawks and Goshawks rather than falcons. Goshawks, Ruffed Grouse, and Spruce Grouse were abundant in the heavy forest, while the Common Loon, the Goldeneye, and the American Merganser nested on the small islands in the lakes.

LOCATING NESTS

Although the country was new and strange to us, we had no difficulty in locating the first Pigeon Hawk nest. Far out across Gunflint Lake, we heard one of the birds calling. Thus guided, we paddled to the end of a long peninsula and there 35 feet above the ground in the top of a spruce tree was a nest containing four young falcons about six days old (July 5).

We located seven nests between July 5 and July 9. Five were disclosed by the calls and excited behavior of the birds when we were in the general vicinity of their nest. The birds called from conspicuous perches and were often heard and seen from a quarter to a half mile across the water. Two nests were discovered by climbing the trees to inspect stick structures. At these sites neither parent birds were seen for several hours, but when they did return, they screamed and dove at us just as the hawks had done at the other nests. Presumably they had been hunting at too great a distance to detect our presence when we first arrived. All the nests were from 35 to 60 feet above the ground and with one exception were located

¹ *Falco columbarius*.

in the very tops of the trees. The rather bulky nests were constructed of large twigs, lined in most cases with very small twigs and coniferous needles. One nest was lined with cedar bark and contained deer hair. Nests were at least 2 miles apart, distributed over a large area, and all were located near water.



Figure 1. Typical Pigeon Hawk country. Nest No. 5 was located on the small island at the right.

PHOTOGRAPHIC TECHNIQUE

At only two nests was it at all possible to take photographs. Even these were so situated that we could not build a tree blind but were forced to release our still and movie cameras by remote control from a blind on the ground. Glasses were used to keep watch on the nest. The cameras were fastened to the swaying tree tops by angle irons and ball and socket joints. The slender tree tops bent under our weight and in order to have the cameras sighted properly after we had descended and the tip of the tree had straightened up, it was necessary to sight and focus below the nest. In spite of this precaution, the swaying of the trees caused several pictures to show only half a hawk and half a nest. The blind was constructed of shelter-tent halves and dyed mosquito netting. The netting and a fly spray were a most important part of the equipment to protect us at least partially from the hordes of mosquitoes that beset us day and night. It was necessary to climb the tree after every feeding, wind the movie camera and reload the still cameras. Fortunately

this did not seem to disturb the hunting and feeding routine of the hawks too much, or to cause undue alarm or suspicion. It was not the hawks that caused our greatest photographic difficulty, but the very poor and often-changing light conditions. It was necessary to make many exposures in order to obtain a few good pictures.



Figure 2. Female Pigeon Hawk at the nest.

BEHAVIOR AT THE NEST

While the blind was being built and the cameras were being placed in a nearby tree, both birds attacked us, striking repeatedly and scolding fiercely. The protesting call of the Pigeon Hawk is very much like the *killi, killi* cry of the Sparrow Hawk (*Falco sparverius*) but much shriller and repeated so rapidly that it ends with a piercing *ki-ki-ki-ki-kieeee* or a guttural *kac, kac, kac* when the hawk is exceptionally frightened or excited. Once heard it can hardly be mistaken. The female was especially aggressive, but the male soon retired and by the time we were ready to crawl into the blind he had left on a hunting excursion. Even after the photographic preparations had been completed the falcon continued to dive at the cameras, then returned to the nest to inspect the young. A little before sunset the male returned from across the lake with food. When he approached the island, the female left the nest, took the bird from him in the air and returned to feed the young ones. The next morning the male went hunting again while the female

kept guard from the top of a spruce tree. The male soon came in with a small bird. Before we could see him we heard his call from far out over the lake. The call was very similar to the long drawn out food cry of the Duck Hawk (*Falco peregrinus*) but higher pitched. He circled several times then transferred the bird to his beak. The



Figure 3. Young Pigeon Hawks being fed. The parent birds always plucked the prey before bringing it to the nest.

female did not fly out to take the food from the male as before, but remained perched on a limb. As the male flew past very close to her, she took the bird from him with her talons. After transferring the prey to his mate, the male left and before long returned with another bird. Instead of passing the food to the female as before, he went straight to the nest and fed the young. The click of our camera did not disturb him.

When the feeding was completed both birds went hunting. The female returned at intervals to inspect the young. The male paid a call late in the afternoon while the female was away. Finding everything in order he cruised off again and later returned with food which he fed to the young.

There were three feedings between 9:00 A.M. and 5:00 P.M.; the male brought all the food and fed the young twice. The female kept guard most of the day. If undisturbed both birds would probably have hunted.

On July 9 a blind was built at the other nest where photographing was possible. The cameras were set up, and two hours elapsed before

either bird appeared. Both were hunting, evidently at a great distance from the nest. The female returned without food, but later the male flew in with a bird and passed it to the female in the air. The next day when we climbed to the nest and set up our cameras both birds attacked us. The little male struck us repeatedly and drew blood on our heads and hands. He was exceptionally bold and did not hesitate to strike while flying at full speed. A strong wind and a cold rain made photographing difficult and hunting poor. The young hawks were fed only once.

TABLE 1
PIGEON HAWK NESTS

| Nest No. | Date covered | Location | Nesting Site | | Distance of young from water | Number of young | | Approximate age |
|----------|--------------|--|--------------|----------------|------------------------------|-------------------|--------|-----------------|
| | | | Tree | Height of Nest | | Male ¹ | Female | |
| 1 | July 5 | Peninsula in Gunflint Lake, Minnesota | Spruce | 35 ft. | 100 ft. | 2 | 2 | 6 or 7 days |
| 2 | July 5 | Small island in Big Saganaga Lake, Minnesota | White pine | 40 ft. | 50 ft. | 1 un-hatched egg | 2 | 6 or 7 days |
| 3 | July 6 | Small island in Big Saganaga Lake, Minnesota | White pine | 60 ft. | 150 ft. | 1 | 3 | 2 days |
| 4 | July 6 | Northern Shore of Big Saganaga Lake, Ontario | White pine | 40 ft. | 300 ft. | 0 | 1 | 4 or 5 days |
| 5 | July 7 | Small island in Northern Light Lake, Ontario | White pine | 50 ft. | 200 ft. | 2 | 3 | 14 days |
| 6 | July 7 | Same as above | Jack pine | 50 ft. | 20 ft. | 2 | 1 | 4 or 5 days |
| 7 | July 7 | Southern edge of Saganagons Lake, Ontario | | | | 1 | 1 | 5 or 6 days |

¹ By the time the young are 5 or 6 days old the sexes can generally be distinguished by weight and size of feet. The females have noticeably larger feet. The sex ratio indicated in the chart was determined by this method and later checked with the sex ratio of the young when full grown.

FEEDING OF THE YOUNG

The next day the wind blew the storm clouds away and swayed the slender tree that held our cameras. About noon the female returned with a Purple Martin (*Progne subis*). Having had only one meal the day before, the young hawks were extremely hungry, and

rushed for the food pulling and tugging at the prey. The old bird braced her feet on the edge of the nest, and a tug of war ensued. All four young pulled against the mother and got possession of the Martin, for in spite of their small size they were more than a match for her. Dodging back and forth across the nest, she attempted to regain the bird with which the young ones were eagerly but unsuccessfully struggling. Finally they quieted down, the falcon took possession of the prey, tore it into bits, and fed her hungry family. When the meal was almost completed one little hawk, not satisfied with her share seized the remains of the Martin and scurried to the far edge of the nest. She attempted to swallow the large morsel and almost succeeded when a sister pulled the food out of her mouth, turned her back on the first bird, spread her tiny wings, and took her turn trying to devour it. The mother falcon then left. Alone the young hawks struggled for the possession of the remains of their meal. Each one after snatching the food from his neighbor attempted to gulp it down. The remains of the Martin went the rounds; none could swallow it and all were too young to tear it up.

Between feedings the little falcons slept and occasionally preened their coats of down. Mosquitoes made life miserable for us in the blind and also attacked the young falcons. The mosquitoes bit their unprotected ears and even penetrated the down on their well covered backs and breasts.

In the afternoon the male returned twice with food; the young were fed once, and the female ate the second bird herself.

The parent falcons plucked all of the birds they brought to the nest as food for their young. Since we usually photographed or watched the process from a distance without interrupting it, only one food item (a Purple Martin) could be positively identified. We often saw the hawks chasing Purple Martins and Tree Swallows (*Iridoprocne bicolor*), and many small birds which appeared from a distance to be of these species were brought back to the nest.

W. J. Breckenridge has reported (*Auk*, 55, 1938: 669) similar feeding habits in the case of a pair of Pigeon Hawks with half-grown young which he studied "near Lake Saganaga" on the Minnesota side of the International Boundary in 1937. The prey consisted of small birds and dragonflies and the male "captured almost all of the prey."

HUNTING HABITS

From within the blind we saw the female Pigeon Hawk catch a large dragonfly and eat it while on the wing. The dragonfly, although very difficult for most birds to catch, appeared to be easy prey for the swift Pigeon Hawk. But how did these hawks catch birds? We had seen them vainly pursue Tree Swallows and Purple Martins. How could they catch them? One morning our question was answered. We saw a female Pigeon Hawk glide lazily above the lake and then



Figure 4. An immature male Pigeon Hawk from the Border Lakes region.

drift slowly over a large tract of burned-over land where only charred stubs stood high above the new, thickly-matted vegetation. When she reached this open, waste land, Tree Swallows suddenly appeared and darted at her as she spiraled lazily up and up. When so high in the sky that the swallows looked like tiny insects, the falcon turned over suddenly and dived earthward with the swallows chasing behind. As her speed increased she pulled away from the trailing swallows. When almost to the ground the Pigeon Hawk zoomed

upward and as she shot skyward the swallows that were flying behind also turned and shot skyward in front of her. She was now the pursuer and they the pursued. The greater weight of the hawk had so increased her downward speed that when she pitched up she mounted faster than the light swallows ahead of her. The swallows climbed upward in an attempt to escape, but the hawk mounted faster and deftly snagged a swallow as it seemed to hang motionless in the air. The rest milled about the hawk at a safe distance as she glided down over the lake and out of sight.

BEHAVIOR IN CAPTIVITY

On July 12 we took several young hawks and left the mosquitoes and Pigeon Hawk country behind. The young birds developed into trim hawks. In order that we might learn more about their flying habits and ability, we trained them and flew them at various kinds of prey. The trained falcons easily caught Starlings, Blue Jays, Purple Grackles, and Bob-white. They could overtake pigeons but these were too heavy for the falcons to hold and after several unsuccessful flights they refused to chase them any more. The little males preferred smaller birds and were flown successfully at English Sparrows. Our Pigeon Hawks would often "bind" to their quarry after the manner of the short-winged hawks, but at other times they would "stoop" and strike down their prey like a Duck Hawk. When necessary they would even follow their prey into the woods.

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