

Aerial Pursuit of Hawks by Turkeys.—Observations of wild Turkeys (*Meleagris gallopavo*) protecting their young from predators on the ground are not uncommon. However, I know of no published accounts of Turkeys actually taking flight to chase birds of prey. Such an occurrence of aerial pursuit was observed at the Peterson Ranch (at the head of Workman Creek) in the Sierra Ancha, Gila County, Arizona, on 4 August 1960, by Gene Seeley and Mike Stapley, U.S. Forest Service employees, who were watching two Turkey hens with poults in a clearing when a "large, dark hawk" flew into view. The hens gave a warning sound, and the poults (which were about one third grown) ran toward nearby cover at the edge of the clearing. The poults reached cover just as the hawk made an initial, unsuccessful dive at them. The hawk then circled and made a second pass but this time was met (at a height of approximately six meters above the ground) head-on and knocked to the ground by one of the hens. The hawk then flew into a nearby tree.

One of the hens flew from the ground toward the tree in which the hawk had perched, whereupon the hawk dove toward the poults and the hen that was on the ground. Again the hawk encountered a hen in the air and returned to a tree only to be chased out, as before, by one of the hens. After a "few minutes" the hawk retreated, minus several wing and tail feathers.

The hawk, judging from the description given to me, was a Zone-tailed Hawk (*Buteo albonotatus*). On 9 August I saw one member of the pair of Zone-tailed Hawks, which had a nest in a large ponderosa pine tree (downstream from the Peterson Ranch), soaring above the scene of the Turkey-hawk fight. Several feathers were missing from the wings and tail, and this made me wonder if this hawk was the one that had encountered the Turkey hens.

I know of only one other similar incident, which also occurred in central Arizona. Reginald Reynolds, Pleasant Valley Ranger, Young, Arizona, told me that he once watched a Turkey hen fly in pursuit of a Red-tailed Hawk (*Buteo jamaicensis*) that endangered her poults.—R. ROY JOHNSON, *Museum of Natural History, University of Kansas, Lawrence, Kansas.*

Peregrine Falcon Hunting Bats While Wintering in Brazil.—The well-known behavior of the Peregrine Falcon (*Falco peregrinus*) to retire only when darkness has almost set in should afford this raptor opportunity for bat hunting. In spite of this there is very little evidence of bats being taken and few observations on the manner in which this falcon catches bats (e.g., Stager 1941, *Condor*, 43: 137, Observations in Southern Texas).

As already stated (*Publ. Avuls.* 34, Mus. Nac. Rio de Janeiro, 1960: 10), I have suspected for some time that the Peregrine Falcon pursues bats in Brazil. In 1960 I succeeded in making some definite observations.

A flock of bats selected for their diurnal shelter the bottom of a slab protruding from one of the many rocks that tower over the city of Rio de Janeiro. At dusk the bats were leaving their shelter flying so thickly bunched that, from a distance, they resembled a cloud of smoke driven by the wind; they kept together as long as they remained visible through my binoculars. Their number was usually about 500.

An old Peregrine Falcon, which had discovered their roost, used to come as the sun was setting, using as his post a *Cecropia* tree that was growing one-third of the way down from the top of the rock wall. This tree, which is typical of the

tropical zone of South America, has long and bare, horizontal branches, which afford easy opportunity for landing and take-off and a commanding view of hunting territory.

As soon as the first bats appeared, the Peregrine Falcon dove at them. Sometimes a catch was made at the first attempt, quite near to the wall. The hawk would then return to his tree and eat his prey. This required about five minutes. He usually ate with his back in the direction where the bats were leaving. After finishing he would jump to another branch facing the bats, ready to attack again. This would happen often enough whenever the bats departed in two or three groups.

Between 2 and 24 March 1960 I made 10 observations. On eight days I observed hunting of bats; on one day I only saw the falcon at his post but could not wait for the hunt. Only once did I come in vain. This was on a rainy evening during which the bats did not leave their shelter.

The great speed of the action and the fading light prevented observation of possibly interesting details. Most observations could only be made against the light, evening sky. At each time it was definitely noted that the falcon threw itself into the stream of bats. The best indication of a successful hunt was the falcon's return to the *Cecropia* tree. At times it was noted that the flying Peregrine lowered his head and raised his feet, probably killing with one bite the still-struggling bat. Once, I discovered a bat wing on the silhouette of the returning bird.

When the first attack was not immediately successful, the hawk would fly with the stream of the bats, which, as mentioned before, would stick together for a long while and which the falcon hardly dispersed. Although I could only see the rear of the bird and that from ever-increasing distances, his short and rapid turns indicated that he was continuing the chase. It was always noted that the Peregrine Falcon only chased bats flying in the flock and not those flying singly. Even then, the hunt was not always successful. Once, as if playing, the bird only followed the bats without making a real attack; he soon left and flew off, not returning to his *Cecropia* tree, although the bats continued to leave from their hiding place for another four minutes.

Once, on 6 March 1960, another Peregrine Falcon appeared after the first one had already caught one bat. The two raptors, which were of markedly different size, chased each other in a playing manner. A harsh, shrill chattering and an occasional, deeper *ga-ga-ga* could be heard. No more interest for bats was shown. The second falcon departed soon, and the first one returned to the rock wall. In the meantime the bats had all left, and night had almost fallen.

I was not able to ascertain whether the Peregrine Falcon used the *Cecropia* tree for sleeping also. It may be that he left for some shelter in the rock after darkness set in. My observations were made more difficult as I had to avoid drawing the attention of people living nearby. The falcon had become famous in Rio de Janeiro in the preceding year as a pigeon chaser (several individuals were then observed, *vide op. cit.*), and there was a clamor for its extermination. This would have been easy at the rocky wall. Apparently, his activity on this spot had not been noted—amazingly enough as the snowy-white belly of the big bird sitting in the *Cecropia* tree could be seen from a great distance at dusk. His regular hunting activities should also have become noticeable. One of the residents told me that he had at least noticed the bats, which he thought to be sparrows! In

order not to endanger the falcon by being discovered, I refrained too from looking for remains of bats at the bottom of the rocky wall. Thus, I am unable to state the species of the bats involved.

The observed bird was definitely one individual only. Weather permitting, it is likely that the falcon came every day, probably starting before 2 March, the day on which I discovered the bat roost. He also probably continued after 24 March. I had to leave Rio de Janeiro on 25 March for one month. When I returned on 22 April, I saw the Peregrine again at his post. This was unexpected, as I have usually only observed the species in Rio up to the middle of March and once at the beginning of April (5 April 1958). However, at that time I did not know of as favorite a spot as the one near the bat roost, which might have enabled me to make more accurate observations about the length of his stay in this region.

The date of 22 April 1960 appears to be of some significance. In spite of daily visits I did not see the bird again during that season. The next time I observed a Peregrine Falcon near this spot was on 5 October 1960. However, up to 20 January 1961, no falcon was seen by me on the *Cecropia* tree, nor did I notice any bat hunting in spite of frequent searches.

It may be added that I have observed the Peregrine Falcon in Rio each year since 1950. The species was unknown here. In the literature I found only about half a dozen notes on observations in all of Brazil.—HELMUT SICK, *Fundação Brasil Central, Av. Nilo Peçanha 23 III, Rio de Janeiro, Brazil.*