

10 min after their chick had been captured. The pair of cranes remained in the area for 1 week after the incident but the chick was never seen again.

These observations establish the ability of the red fox to prey on Sandhill Crane chicks up to 1 week of age. The extensive use of upland fields and wooded pastures as feeding sites by cranes with young chicks increases the opportunity for encounters with fox. In the case of Bennett's observation, the ability of the fox to surprise the cranes with a short run from cover was probably very important in his success. The normal distraction behavior of the adults afforded no protection in this situation. Although observations described here are chance encounters, we believe that fox predation may play a more important role than previously believed in the loss of young Sandhill Crane chicks in Wisconsin.

We are grateful to Ron Sauey, International Crane Foundation, Baraboo, Wisconsin, for aging the crane chicks, and Richard Hunt and Jack Toll for helpful suggestions and review of the manuscript.—ROBERT L. DRIESLEIN, *Horicon National Wildlife Refuge, Route 2, Mayville, WI 53050*, and ALAN J. BENNETT, *College of Natural Resources, Univ. of Wisconsin, Stevens Point, WI 54481*. Accepted 30 Nov. 1977.

Wilson Bull., 91(1), 1979, p. 133

Owl predation on a mobbing crow.—On 29 November 1962, at 16:30 on an overcast afternoon in a hilly wooded area near Amherst, Virginia, I watched a flock of Common Crows (*Corvus brachyrhynchos*) mob a Great Horned Owl (*Bubo virginianus*). I was 200 m distant and had 7× binoculars. The loud cawing of the crows drew my attention. The owl was located 10 m up in a tree. The crows flew around the tree, dove at the bird, and perched on nearby branches, as they directed their vocalizations at the predator. After I had observed this activity for 5 min, the owl quickly extended its left foot and grasped a crow which had ventured within reaching distance. At this action, the cawing and diving became more frenzied. The owl held the crow in its talons and pinned it against its lower body and the limb for 30 sec. I didn't observe struggling from the crow. The owl still in possession of the captured bird then flew out of sight into the woods pursued by the noisy flock of crows.

Current thought views mobbing as relatively safe and of correspondingly low risk to those participating in the action. I am unaware of any examples in the literature which reference a mobbing bird actually falling prey to a predator during the mobbing event. This incident demonstrates the relativity of the current theory in relation to mobbing behavior.—RENDER D. DENSON, *Dept. Biological Sciences, Box 5640, Northern Arizona Univ., Flagstaff, AZ 86001*. (Present Address: *Kramer, Chin and Mayo, Inc., 1917 First Ave., Seattle, WA 98101*). Accepted 9 Dec. 1977.

Wilson Bull., 91(1), 1979, pp. 133–135

Ruddy Turnstones destroy Royal Tern colony.—The Ruddy Turnstone (*Arenaria interpres*) occasionally eats eggs of other birds. Parkes et al. (*Wilson Bull.* 83:306–308, 1971) summarized 3 reports of such behavior by the Old World subspecies (*A. i. interpres*) and presented 2 instances involving the New World subspecies (*A. i. morinella*). We report here a seemingly extreme instance of this behavior.

In May and June of 1977, we observed the large scale destruction by turnstones of eggs laid in a large colony of Royal Terns (*Sterna maxima*) at Bird Island and Little Bird Island in Nassau Sound, Duval Co., Florida, and the subsequent abandonment of the colony by the terns. The terns had nested successfully here in most years since the late 1950's (Sam Grimes, pers. comm.). This was the fourth year of our studies in this colony and the first time we observed the turnstone behavior.

On 15 May, Sutton found Royal Terns making a strong start toward the establishment of their annual colony. The first subcolony (A) had 282 eggs and was well tended. Adults were typically calm, allowing close approach before flushing. Returning birds landed and calmed down quickly. Indications were that the colony was off to a good start and would continue to build up to about 2000 nests as it did in 1976.

On 20 May, we found subcolony A abandoned; 20% of the eggs were broken and many of the remainder were partially buried or rolled together in groups. Two new subcolonies (B and C) had been started about 100 m west, each contained about 150 eggs. It was apparent from the actions of the birds that they were under stress. They flushed when observers were far from the colony and did not remain in groups directly over the colony as is normal. Both subcolonies contained some broken and some partly buried eggs, indicating abandonment or improper care by adults. The birds did not return while we were in a blind about 20 m away. This was unusual. When we retired to a greater distance, they returned with much hesitation, flushing repeatedly before settling down.

On 22 May, the situation was as follows: subcolony B still contained about 40 eggs intact, but many others were freshly broken; subcolony C was gone and broken egg shells littered the area; and a new subcolony (D) containing 50 eggs had been started on Little Bird Island, 0.5 km to the west. We decided to make further observations with binoculars from a distance of about 200 m. After the royals had returned and settled down on subcolony B, we saw a small group of Ruddy Turnstones enter the colony and begin pecking at eggs. To confirm that these birds were actually breaking the eggs, we cleared the area of all shell fragments leaving 36 perfect eggs. After we retired and the royals had returned and settled down, 6 Ruddy Turnstones and 2 Sanderlings (*Calidris alba*) entered the colony and began to peck at the eggs, breaking them open and feeding on them. After about 30 min we again entered the colony and found 6 broken eggs. We did not see Sanderlings actually breaking eggs, they may well have been simply feeding on eggs broken by the turnstones.

The turnstones apparently broke eggs at a devastating pace. They dashed about in the colony almost in a frenzy, breaking an egg open, snatching a mouthful, dodging a lunge from a royal, and then pecking at another egg. Between 09:00 20 May, and 09:00 22 May about 260 eggs were broken at subcolonies B and C (30 h of daylight). This is about 8.7 eggs per daylight hour. During the 30 min observation period on 22 May, 6 eggs were broken by 6 turnstones, but the colony had been cleared by us. With no broken eggs to feed on, the rate may have been somewhat higher than it would have been with many broken eggs. The turnstones did not break open an egg and then finish it before going on to another as reported with undefended eggs (Parkes et al., op. cit.). Thus the ineffectual defense of their eggs by the royals probably resulted in more destruction than no defense at all. Royal Terns are relatively unaggressive toward predators (Buckley and Buckley, Ibis 114:351, 1972). Those we observed did not seem to recognize turnstones as a threat, limiting the defense of their eggs to an occasional lunge. In contrast, on 12 June, Sutton observed a Herring Gull (*Larus argentatus*) steal

an egg from a small colony of 4 Royal Tern nests on Bird Island. The terns reacted strongly, one chasing the gull out of the colony and actually striking it on the back.

On 30 May, we found no viable Royal Tern eggs on Bird Island. Subcolony D on Little Bird had grown to 688 eggs and had then been abandoned. We found another subcolony (E) of 98 eggs also abandoned with many broken eggs. Through June, the Royal Terns continued nesting attempts in small groups on both islands. They laid 76 eggs in 8 small subcolonies ranging in size from 2 to 26 eggs. All these were ultimately either broken or abandoned.

During our observations on 30 May, 22 Ruddy Turnstones were on the beach, but only 1 was seen feeding on broken eggs in abandoned subcolony D. This confirmed our suspicion that the turnstones were attracted to the densely packed mass of adult Royal Terns standing in the colony, rather than to the eggs themselves. During our observation period on 22 May, we twice observed that the turnstones did not enter the colony until after the royals had returned and settled down, even though they had an opportunity to attack the eggs when undefended. Once the royals abandoned the colony, most of the turnstones ignored it. After subcolony A was abandoned, scores of intact eggs lay completely unprotected for at least 7 days. In the meantime, turnstones were stealing eggs from subcolonies B and C where adult terns were still present. By contrast, in 4 of 5 cases discussed by Parkes et al. (op. cit.), turnstones were observed taking only undefended eggs.

Three other species had nests on the Bird Islands during this period. We found no Least Tern (*Sterna albifrons*) eggs broken in 200 nests, 7 Gull-billed Tern (*Gelochelidon nilotica*) eggs broken in 180 nests (3.9%), and 14 Black Skimmer (*Rynchops nigra*) eggs broken in 816 nests (1.7%). We did not see turnstones break these eggs, but we believe that they did. Gulls were probably not responsible as they usually remove eggs from the nest, rather than break them *in situ*. Least and Gull-billed terns are more aggressive toward predators than are Royal Terns, but whether they recognize turnstones as predators is not known. Of the 4 species, the royals seemed particularly vulnerable to turnstone predation because they lacked aggression, seemingly failed to recognize turnstones as predators, and tended to desert the colony en masse when disturbed (Buckley and Buckley, op. cit.).—ROBERT W. LOFTIN, *Univ. of North Florida, Box 17074, Jacksonville, FL 32216*, and STEVE SUTTON, *4419 Silverwood Lane, Jacksonville, FL 32207*. Accepted 19 Jan. 1978.

Wilson Bull., 91 (1), 1979, pp. 135–137

Predation of black rat snakes on a Bank Swallow colony.—The Bank Swallow, *Riparia riparia*, is well known for its gregarious breeding colonies which usually are composed of clusters of burrows in riverbanks, cliffs and the like. Studies of these colonies have recently provided data useful for tests of the theoretical benefits of coloniality (Emlen and Demong, *Science* 188:1029–1031, 1975; Hoogland and Sherman, *Ecol. Monogr.* 46:33–58, 1976), and have demonstrated the potential benefits of breeding synchrony within the colony and group defense of eggs and young from predators. The basic assumption is that fitness of Bank Swallows in colonies must ordinarily be greater than might be expected if the swallows nested individually, otherwise coloniality would not continue indefinitely. I do not dispute this assumption, but I note there appears to be little information on failure or desertion of colonies due to predation. As it is