

Raven banding in Nova Scotia.—I began banding on 2 January 1965 and finished 23 December 1970. During this period I tagged 2,018 Common Ravens (*Corvus corax*). My chief concern in this project was to determine where the Ravens, which concentrated in this area during the winter, spend the summer months. I used a walk-in type trap for Ravens. It measured 10 X 10 ft. and 6 ft. high on corner posts with a slatted ladder type opening on the top. Refuse from slaughtered farm animals was used for bait. By using this material by the ton, which I hauled to the location on truck or tractor, I was able to attract birds to the feeding area by the hundreds. After feeding in close proximity to the trap for several days, they were easily enticed inside for banding. Cold weather was best, but I was able to capture many during the summer months.

Presumably our winter populations were migrants from the northern parts of the eastern seaboard, possibly Labrador and Newfoundland. Banding, however, has proven this idea to be entirely wrong. Of 203 recoveries received at present, only 12 have come from outside Nova Scotia, and of the remainder about 90 per cent fall within a 70-mile radius. Considering the fact that these birds were banded during every month of the year except July and returns have been taken every month, it tends to indicate the Ravens are very sedentary in their habits and definitely non-migratory. Most of these returns were reported as shot, with a few found dead or caught in steel traps. Repeating banded birds in the trap were very numerous, some with a time lapse of a few days, but others, a few months or years later. Occasionally a chronic repeater would be in the trap every day for a short time.

The most interesting thing about returns taken in the trap was the occurrence on several occasions of two birds banded on the same day and then being found in the trap together again, some months later. My banding records show, for example, the following:

Band number	Banding date	Recaptured date
687-74990	27 March 1967	11 Sept. 1967
687-74992	27 March 1967	11 Sept. 1967
827-16920	2 Dec. 1967	10 Feb. 1968
827-16921	2 Dec. 1967	10 Feb. 1968
547-12017	22 Nov. 1966	21 Aug. 1968
547-12032	22 Nov. 1966	21 Aug. 1968
687-74868	18 Oct. 1969	20 Jan. 1970
687-74873	18 Oct. 1969	20 Jan. 1970
607-84764	30 Nov. 1969	14 May 1970
607-84768	30 Nov. 1969	14 May 1970

From these records it seems reasonable to assume that Ravens perhaps mate for life and remain in close company throughout the entire year. Each of these five pairs was in the trap together when captured.

Although the full story of these birds will not be known for a number of years, I do not expect the pattern of their movements to change much.

I have banded a small number of Common Crows (*Corvus brachyrhynchos*) and Blue Jays (*Cyanocitta cristata*) over the years, and their return patterns seem to be the same as the Ravens. Perhaps this sedentary habit is typical of at least our local corvids.—Cyril Coldwell, Wolfville, R. R. 3, Kings County, Nova Scotia, Canada. Received 1 September 1972, accepted 21 September 1972.

Sparrow Hawk as a predator in a Least Tern colony.—While I was making a population study of a Least Tern (*Sterna albifrons*) colony on Cape Cod's Nauset Beach, Massachusetts on 3 July 1971, a screaming mob of terns alerted me to a small hawk flying off with prey dangling from its talons. The colony had many nests with eggs, many small chicks, and a few good-sized but non-flying chicks that ran on the bare sand of the ocean ridge and were easily visible. The hawk, flying away from me, was too distant for positive identification. Some 40 terns pursued and harried it a quarter of a mile across a cove to the trees of the mainland. Then, all but three terns returned. The three continued across a farther inlet and into distant woods, finally out of range of my 9X binoculars.

I remained in the colony. Three hours later a small hawk again flew up from the ocean ridge, the hawk holding a clearly discernible chick. This time there was no mobbing, only a few terns giving a cursory pursuit and for only a few hundred feet. The hawk perched on a post, then, perhaps disturbed by my advance, dropped out of sight on the sand behind a large log. Leaving the prey behind, it flew up and away. It was then identified as a female Sparrow Hawk (*Falco sparverius*). Behind the log I found the remains of a Least Tern chick, well grown but not yet at the flying stage with down feathers still on the tips of the rectrices and upper tail coverts. The head was missing, the breast and upper contents of some of the belly torn out.

Despite the known facts that terns have a variety of predators (gulls, crows, snakes, and owls) and Sparrow Hawks occasionally capture small birds, I can find no previous record of a Sparrow Hawk taking young terns.—Erma J. Fisk, 17101 S. W. 284 St., Homestead, Florida 33030. Received 31 August 1972, accepted 21 September 1972.

Data on nictitation rates in birds.—Anyone who has “looked a bird in the eye” at very close range has noticed the transparent nictitating membrane, sometimes called the “third eyelid.” This thin structure lies deep to the other lids and repeatedly sweeps across and moistens the surface of the cornea. The initial or closing movement is from anterior to posterior; an almost instantaneous reverse movement leaves the cornea exposed. This two-way sweep usually requires but a fraction of a second. Such rhythmic activity may be thought of as the bird’s way of “blinking,” the rate of which is not difficult to measure.

In recent years I have gathered data intermittently on nictitation rates, as I call them, from some 257 individuals representing 44 species. These birds, mostly passerines, were mist-netted and banded in Alabama, Georgia, Florida, and Massachusetts. My method was uncomplicated: for each individual, which was held in hand and viewed from one side only, I simply recorded the number of nictitations or blinks per minute. Although this particular physiological rhythm is readily observed, I have not found quantitative data concerning it in the ornithological literature, hence my decision to put on record these preliminary findings.

In the list beyond, a single number following a species name indicates a sample of one. For samples of two or more, average rates are given. These are followed by numbers in parentheses, which refer to size of samples and to extreme values. Thus, nictitation rates of four Red-bellied Woodpeckers averaged 27.0 per minute, with extremes of 19 and 35. The use of more elaborate statistics (such as *t*-tests or coefficients of variability) seems unnecessary owing to limited sample sizes.

Mourning Dove, 24; Red-bellied Woodpecker, 27.0 (4: 19-35); Red-headed Woodpecker, 12; Great Crested Flycatcher, 23; Barn Swallow, 19.0 (2: 17-21); Blue Jay, 3.0 (6: 0-7); Black-capped Chickadee, 40.7 (9: 19-66); Carolina Chickadee, 30; Tufted Titmouse, 4.4 (7: 0-16); House Wren, 7; Carolina Wren, 20.8 (6: 3-54); Mockingbird, 27.5 (2: 15-40); Catbird, 21.9 (30: 2-44); Brown Thrasher, 19.6 (5: 3-56); Robin, 5.6 (22: 0-17); Wood Thrush, 19.7 (3: 8-38); Gray-cheeked Thrush, 25; Veery, 8; Ruby-crowned Kinglet, 24.3 (3: 19-31); Starling, 17.8 (4: 5-28); White-eyed Vireo, 16.5 (11: 4-26); Red-eyed Vireo, 22.5 (4: 8-37); Black-and-white Warbler, 11.3 (7: 2-24); Prothonotary Warbler, 0; Parula Warbler, 17; Yellow Warbler, 26.0 (3: 12-42); Chestnut-sided Warbler, 34; Kentucky Warbler, 13; Yellowthroat, 23; Hooded Warbler, 7.8 (4: 7-15); House Sparrow, 20-2 (4: 4-40); Bobolink, 35.5 (2: 26-45); Eastern Meadowlark, 10.0 (2: 1-19); Red-winged Blackbird, 40.7 (10: 4-70); Baltimore Oriole, 39.0 (3: 3-62); Common Grackle, 5.7 (3: 0-12); Summer Tanager, 3.2 (4: 0-5); Cardinal, 14.8 (32: 1-41); Purple Finch, 34; American Goldfinch, 23.0 (2: 18-28); Rufous-sided Towhee, 24.8 (11: 2-52); Chipping Sparrow, 9.5 (2: 5-14); White-throated Sparrow, 13.4 (13: 2-34); Song Sparrow, 23.7 (9: 2-53).