

James Hartshorne has pointed out that in his considerable experience with Bluebirds he has found that 'floor size' of the nesting cavity is of more importance than has generally been realized. Although the birds will accept and use a too-small cavity, proper nest sanitation so important for the young to survive, becomes difficult or impossible, if the nest bottom measures less than 20 square inches. (5" x 5").

Any information from readers on their campaigns to help Bluebirds in New York State would be welcome material for The Kingbird. Editor.

Bluebirds: On the afternoon of October 26, 1962, Mrs. Robert Owens on Rte. 380, about one half mile south of Rte. 20 near Brocton, phoned to say that their backyard had been covered with Bluebirds all afternoon and that if we could come some might still be there. At our visit to her home, we found, so it seemed, a Bluebird on every weed stalk, grape post and tree limb. The birds moved more or less in separate flocks. As a flock moved in, we would count them, keep track of their movements and then estimate numbers in the other flocks.

At one time there was a flock of about 50 in the frontyard, about 50 in the Lombardy Poplars beyond the backyard, about 50 in the grape vineyard and adjoining abandoned meadow and another group of 50 on the back lawn, in apple trees and the rose arbor.

Darkness eventually made it impossible to identify the birds by sight but their presence was made known by their "chirrup" which came from all directions. All evidently left in the night, for the Owens did not see a single Bluebird the next morning.

Mrs. Stanley E. Buck and Mrs. Nina Bates, Bear Lake Road, Brocton

Persistent Flight Behavior in Some Raptorial Birds: In many years of bird study I have observed different mannerisms of hawk flight behavior which have been obviously persistent. One example is the towering of the broad-winged species—Buteos, Eagles, etc — to avoid persecution by other avian adversaries, usually smaller than themselves.

With the Peregrine (*Falco Peregrinus*) of the Falcon group, towering is usually used for a different purpose — that of over-topping its victim, occasionally after chasing it into the upper air. Then there is the Peregrine's headlong pursuit with low, dashing flight as this winged conqueror demoralizes some flock or individual in passing, or when it snatches its victim out of the air, or from a perch. Many of us have seen this spectacular species chase some individual bird, or flock, to all appearances with serious intent and at other times playfully. One tragic example of apparent playfulness was that of a Peregrine which pursued a Barn Swallow high over the ocean one fall afternoon at Jones Beach and followed it so closely in a spectacular downward dive that the unfortunate victim dashed to the waves and was seen no more.

Regarding the serious approach, an almost human trait of "venting its spleen" was noted by the writer in early morning one spring day at Oak Beach. A Peregrine had seemingly fared poorly, as food appeared scarce. To add to the difficulty of its still hunting from a foot-high stub on a bare mud flat in the marshes, was the approach of a quartering Marsh Hawk (*Circus cyaneus*). With no hopes of an early meal, the Peregrine shot into the air and with quick powerful wing strokes made rapid progress over the brown marsh grass. A few hundred yards away and directly in its path arose a flock of about a dozen Canada Geese. These panicked as they saw the dashing hawk and beat a hasty retreat in confusion. The Peregrine added to this by swooping at the leading goose with such a vengeance that it drove it and its nearest companions violently downward for several feet; then apparently satisfied, the powerful hawk, never missing a stroke, soon disappeared at tremendous level flight over the bay islands and out of sight.

A good example of towering to overtop its victim occurred one fall day in Massapequa when a Peregrine, presumably in search of a meal, spectacularly drove a pigeon into the upper air, climbed above it and shot downward for the fatal thrust. The pigeon in this case, however, descended terrifically fast and, with a quick dodge avoided the clutching talons. Just before smashing into the ground the pigeon recovered itself and the Peregrine likewise checked its plunge and then gave

up the chase. Cornelius Ward of Freeport informs me that practically at all times under his observations of this sort, pigeons have escaped the Peregrine's downward rush.

Three examples of towering among the broad-winged raptors will be cited. In these the pursuers were smaller than their victims which undoubtedly would be hard pressed by their more agile attackers unless they flew into the upper air. Some years ago on a mid-winter day, a Rough-legged Hawk (*Buteo Lagopus*) was systematically hunting the marsh lands bordering the dunes at Oak Beach when a low quartering Marsh Hawk rose slightly to the hunting level of the Rough-leg to drive it off the latter's selected winter range. The chase began and on circling pinions the two hawks rose over the dunes. Here the broad expanse of the wing in the Rough-leg permitted it to rise in smaller circles and in the windless air the Marsh Hawk could be seen hard at work to press its adversary. With some gratification and admiration for the splendid close gyrations of the Rough-leg, I saw it out-distance the Marsh Hawk and, when mere specks in the sky, the Marsh Hawk quickly circled downward and the Rough-leg took off for more peaceful surroundings.

The second occasion, also some years ago, involved an Osprey and a splendid adult Bald Eagle (*Haliaeetus leucocephalus*) which were migrating through with other hawks early one fall morning at Massapequa, on the north side of the bay from Jones Beach. The Osprey (*Pandion haliaetus*) several Buteos and the Eagle, comprised a small migrating group, rare in this south shore area. In this instance the tables were turned and the Eagle, usually regarded as master over the Osprey especially when the latter has caught a fish, was pursued vigorously by the Osprey and once more the upper air was the haven for safety. Again the broad pinions of the Eagle were noted to give it tremendous soaring power and on tight circles it rose in the still morning air and majestically soared into the deep blue sky. The Osprey finally out-distanced, gave up the chase, but not until both had towered to mere specks.

The third example was the molesting of an immature Red-tailed Hawk (*Buteo jamaicensis*) by three crows. It was in early November, 1962, while driving along Meadowbrook Causeway south of Freeport that I saw the hunting Red-tail flying low over a tract of scrubby second growth. Suddenly the crows, cawing loudly, excitedly attacked the big hawk sending it off in rapid flight. Quite unlike an immature Bald Eagle seen at Hempstead Lake a month later, which practically disregarded the crow attacks, the Red-tail decided to lose its annoyers by circling upward as had the Rough-leg and adult Bald Eagles, previously mentioned. This was not nearly as easy as in the two former examples.

Various writers have mentioned that crows have excellent climbing abilities, especially adaptive to fresh or stormy winds. The wind that morning, officially reported at 15 to 18 knots from the west, gave them great speed and agility. In fact they were able to quite regularly over-top the big hawk and keep it on a level flight by swooping attacks around the head and shoulders. No actual blows were apparently struck, but the attacks were close and the hawk was enduring it in a slow attempt to gain altitude. The long upward slant brought it well to the eastward of the causeway as it climbed. Finally when well up, one of the crows gave up and swooped down. Another several minutes and the second crow followed. At this point the comparatively heavier and larger hawk could be barely discerned as the two specks still spiraled upward. The hawk was making better upward progress with only one attacker and apparently by this time I should report the departure of the third crow, but this particular bird seemed beserk with rage. Up and up went the two until out of sight and my 9 x 35 binoculars registered only deep blue sky. It took the inexplicable crow to baffle me as to the outcome of this, the third towering episode.

Relative to crows, it is well known that they are excellent performers in the upper air doing acrobatic feats, especially when descending from great heights. On one occasion I happened to look up in time to see a crow as a mere speck come tumbling down for a hundred feet or more fluttering as if shot then quickly recover and, head downward, plunge eathward as if to dash itself to pieces. It then recovered adeptly with an upward swoop, thereby ending as remarkable performance as I have ever witnessed in bird flight. This was a quick approach to join a flock of companion crows who were feeding among the numerous corn-laden shocks in a Massapequa farm-lot.

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