

the nestling was missing. Best (Auk 91:169, 1974) found that snakes would return for the remainder of the nest contents when disturbed. This pair of vireos renested about 15 m from the old site and successfully fledged 3 young.

On 27 June 1975, I heard mobbing calls from several species of birds near a Bell's Vireo nest. As I approached the dogwood where the nest was located I saw a black rat snake slipping away through the grass. I killed the snake and found that it had eaten the 3 Bell's Vireo nestlings from the nest.

Bell's Vireos nest very close to the ground and it is not surprising that snakes are important predators on them. Black rat snakes are good climbers, regularly take birds as prey (e.g., Jackson, Wilson Bull. 82:329-330, 1970), and can often be located by mobbing calls of birds (Fitch, Copeia 1963:649-658, 1963). Although red-sided garter snakes are not regarded as climbers they occasionally take nestling birds as prey (Fitch, Univ. Kansas Publ. Mus. Nat. Hist. 15:493-564, 1965).

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Crow predation on Black-crowned Night Heron eggs.—Corvids prey on the eggs of many species of birds. They feed on some eggs at nest sites and fly off and cache others at a distance. Descriptive and experimental data on crow predation has come from work in gull colonies located on flat ground with high visibility because the vegetation is sparse and low (e.g. Tinbergen et al., Behaviour 28:207-321, 1967). However, Fish (*Corvus ossifragus*) and Common crows (*C. brachyrhynchos*) also prey on the eggs of herons, egrets, and ibises that nest in dense tree colonies where nests are not as visible from the air (Milstein et al., Ardea 58:171-255, 1970; Meanley, Wilson Bull. 67:84-99, 1955; Dusi and Dusi, Wilson Bull. 80:458-466, 1968). No estimation of actual predation rates or descriptions of crow-heron interactions from heron and egret colonies are available. In this note we report on interactions between Black-crowned Night Herons (*Nycticorax nycticorax*) and Common and Fish crows observed in 5 heronries in southern New Jersey from 1973 to 1975. Data were collected in 3 Cherry (*Prunus* sp.) and Poison Ivy (*Rhus toxicodendron*) tree colonies of Black-crowned Night Herons, Snowy Egrets (*Egretta thula*), and Glossy Ibis (*Plegadis falcinellus*) on Little Beach Island, Brigantine National Wildlife Refuge; and in 2 *Phragmites* (with scattered *Iva* and *Juniperus* bushes) colonies of Black-crowned Night Herons, Snowy Egrets, Common Egrets (*Casmerodius albus*), Cattle Egrets (*Bubulcus ibis*) and Glossy Ibis on Big Heron and Islaajo islands near Atlantic City (see Adams and Miller, EBBA News 38:103-107, 1975 for description).

All 5 heronries examined had at least 1 active crow nest. Two of the 3 heronries on Little Beach Island had cache nests (used only to store food items), located near the active nests. These contained heron eggshells, the unbroken eggs of night heron, Clapper Rail (*Rallus longirostris*) and Glossy Ibis, diamondback turtle (*Malaclemys terrapin*) eggs and hatchlings, and a dead Glossy Ibis chick. We often observed crows eating the numerous bird and turtle eggshells that were scattered on *Spartina* mats in the grassy areas near the heronries.

We systematically searched the tree areas on the northern end of Little Beach Island and found 2 inactive heronries each with an inactive crow nest, but no other crow nests. Similarly, crow nests were only located in the heronries (in *Juniperus*) on Islaajo and Big Heron islands.

Heron egg success was determined in 1 heronry on Little Beach Island by marking all eggs and checking nests every other day. In 1974 the heronry contained 22 Black-crowned Night Heron nests, 6 Snowy Egret nests, and 1 crow nest. From a blind we observed crows taking all of the eggs in 5 and some of the eggs in 2 night heron nests. Egg loss at 5 other nests was attributed to crows when shells with peck holes were found. No other aerial predators were observed in this colony. We also observed crows carrying night heron eggs. We observed no egg loss in Snowy Egret nests. In 1975 this colony contained 21 night heron nests, 6 Glossy Ibis nests, 2 Snowy Egret nests, and 1 Fish Crow nest. In 1975 only 10% of the eggs were eaten compared to 36% in 1974. In both years there was an active crow nest, but in 1975 the nest was deserted halfway through the night heron incubation period. This crow nest was only 1 m above a night heron nest, and the heron pair might have caused the crow's desertion.

Corvids were the only aerial predators we observed in any of the heronries. Common Crows were seen most often. We observed 1 Blue Jay (*Cyanocitta cristata*) take and eat a Black-crowned Night Heron egg.

We observed Black-crowned Night Herons from blinds for 50 hours each year. Night herons react to crows in several ways: (1) an incubating bird remains silent on the nest when a crow flies over, (2) a night heron standing near its uncovered eggs (less than 3.5 m) walks quickly down to its nest and resettles when a crow approaches, (3) a night heron standing more than 3.5 m from its uncovered eggs flies to the nest and settles when a crow approaches and (4) a night heron whose mate is incubating either ignores a crow, flies out of the heronry squawking, or aggressively moves toward a crow while vocalizing. Crows were successful in taking eggs only when night herons failed to return quickly to their nests, when an incubating bird left before its mate returned, and before incubation began. Usually night herons did not actively chase or attack crows although night herons did supplant crows sitting near night heron nests 20% ($n = 25$) of the time. On 2 occasions we saw night herons chase and mob crows flying over the heronry located in *Phragmites*. The night herons did not dive-bomb or attack the crow, but flew very close to it.

Crows were observed flying slowly over areas known to contain heron nests, and swiftly over other areas. Once crows descended into the trees within the heronry, the night herons squawked until the crow left.

Although nestling Black-crowned Night Herons actively and pugnaciously defend their nests (this study; Teal, Wilson Bull. 77:257-263, 1965), adults do not overtly attack crows or other predators near their nests. Other herons such as Snowy and Cattle egrets seemed far more aggressive. Thus one advantage of nesting in mixed species colonies may be the anti-predator behavior of other species. For example, the senior author, working at Agassiz National Wildlife Refuge in northwestern Minnesota (1969-1971) observed Black-crowned Night Herons nesting in cattails with Franklin's Gull (*Larus pipixcan*). Whenever the gulls changed the location of their colony, the night herons also deserted the old location and nested in the new colony. When predators (weasel, skunk) approached the colony, the night herons remained on their nests and the gulls mobbed the predator.

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