

dive consistently from the same height, enter the water at approximately a 60-degree angle and completely submerge. Upon surfacing (headed in the same direction), it would fly to a suitable height from which it would dive again. If a gull caught a fish, it left the flock, usually with two or three other gulls in pursuit. The flock was silent except when a fish was caught. The great individual variation in this general feeding pattern seemed to depend on the intensity of the individual's feeding behavior.

The next weekend, 19 November, Wolf made the following observations of Bonaparte's Gulls in the same area. The foraging flock of gulls fluctuated between 2 and 25 birds. No definite feeding pattern of the sort observed the previous week was noted. The birds were feeding close to the mouth of the hot-water outlet and fished mainly at the periphery of the strong current. The feeding area was almost circular with a diameter of about 20 yards. The birds flew rather irregularly about the area, occasionally veering to avoid a collision.

The birds did not dive directly into the water, but maneuvered to the surface from a height of 5 to 15 feet. No birds were seen to submerge completely. The only food which we noted being taken by the gulls was small fish. The gulls seemed to be catching more fish per unit of time than in the previous week.

A possible explanation for the differences in feeding behavior on the two days might be found in the fact that fish are discharged with the water at the outlet. The water is drawn up from the lake and used to cool generators in the power plant. Some of the discharged fish are brought close to the surface by the churning action of the water in the immediate vicinity of the outlet. Thus on 19 November the birds feeding on the edges of the turbulent water did not have to submerge to obtain a morsel. The small number of feeding individuals probably did not necessitate an organized feeding pattern. On 12 November, however, the gulls may have been feeding on a school of fish, which in turn were feeding on the morsels discharged at the outlet. Since the pieces of food would be sinking in the more slowly moving water, the gulls would have to submerge to catch the fish. The school of fish would be a rich, localized food source, which would be best exploited by a large flock of gulls if they fed in an organized manner. The efficiency of this organized flock was less than that of the birds observed on 19 November because submergence, which was less often used than picking morsels off the surface of the water, is less efficient. Diving and complete submergence has been noted for a number of species of gulls (Tinbergen, 1953. "The Herring Gull's World," p. 36).

Organized flock feeding behavior has been described only infrequently. Bartholomew (1942. *Condor*, 44:13) describes the organized fishing behavior of flocks of Double-crested Cormorants (*Phalacrocorax auritus*) on San Francisco Bay. Hailman (1960. *Raven*, 21:109) describes feeding by a flock of Ring-billed Gulls (*Larus delawarensis*) following a plow in Virginia. Inasmuch as the most recently plowed soil is the richest food source, the rotation of the flock facilitates a more efficient exploitation of the exposed grubs, larvae, etc. A similar "leap-frog" feeding behavior was described by Meyerriecks (1960. *Natural History*, 69 [7]:51-52) for the Cattle Egret (*Bubulcus ibis*).—LARRY L. WOLF and FRANK B. GILL, *University of Michigan Museum of Zoology, Ann Arbor, Michigan, 22 December 1960.*

**Range extensions of herons in the Northeastern United States.**—The rapid northward expansion of several species of Ardeidae has rendered obsolete the range descriptions in the AOU Check-list. Following is a list of these species and their northern breeding limits in New Jersey, New York, and New England, as of the summer of 1960.

**Little Blue Heron** (*Florida caerulea*).—*AOU Check-list Status*: "Breeds . . . on the Atlantic coast from Massachusetts (Marshfield, casually) to southern Florida."

1960 Status: New Jersey.—“Nests locally in the southern part of the state” (Fables, 1955: 18). The farthest north that this species has been reported to breed in New Jersey is at Brigantine, Atlantic County (Forward, *vide* Potter, 1957:394), and at Island Beach, Ocean County (*vide* Potter, 1951:284). New York.—During the late 1920's, when the general increase of “white herons” due to protection became evident north of the breeding range, the Little Blue Heron was the most frequently noted of the three in the New York City area. This species was “occasionally encountered in flocks of over one hundred. The largest concentration occurred on the Newark Marshes on September 3, 1930, when 329 birds were counted” (Cruickshank, 1942: 71-72). By the mid-1940's it had become the rarest of the three (Bull, 1958: 9). Today such numbers of Little Blues are unheard of in the area.

The situation in regard to the Snowy Egret (*Leucophoyx thula*), on the other hand, is the reverse. During the period when the Little Blue Heron occurred in flocks of one hundred or more, the largest flock of Snowy Egrets reported about New York numbered 12 (Cruickshank, 1942: 70). When the Little Blue Heron became scarce, the Snowy Egret became common and became a locally numerous nester on Long Island.

Therefore, when, on 15 July 1956 Alperin, Buckley, Bull, Phelan, Smith, and I found as many as four to six adult Little Blues, one pied bird, and four to six white birds in the Tobay Beach, Long Island, Nassau County, heron colony, we were greatly surprised. These birds were found among 6 pairs of Green Herons (*Butorides virescens*), 15 pairs of Common Egrets (*Casmerodius albus*), 80 to 90 pairs of Snowy Egrets, 20 pairs of Black-crowned Night Herons (*Nycticorax nycticorax*), and 40 pairs of Yellow-crowned Night Herons (*Nyctanassa violacea*). However, no positive evidence that the Little Blues were breeding was found. The white birds appeared to be birds of the year, but they were fully grown and flying, and the possibility of post-breeding wanderers from the south could not be ruled out.

Access to young and nests was also extremely difficult, for the herons were nesting in almost impenetrable tangles of cherries (*Prunus* sp.), cat brier (*Smilax* sp.), bayberry (*Myrica cerifera*), and an especially luxurious growth of posion ivy (*Rhus radicans*), reaching 6 to 7 feet in height.

Positive evidence of breeding of the Little Blue Heron in New York State was not obtained until two years later, when, on 18 July 1958, in the same colony, John L. Bull observed an adult feeding young (Elliott, 1958: 95). The second and only other definite breeding of the Little Blue Heron in New York was in a heron colony on Canarsie Pol, an island in Jamaica Bay, Kings County, which is within the city limits of New York. This colony was discovered by Ernest J. Restivo and me on 16 July 1960. Among 6 pairs of Green Herons, 25 pairs of Common Egrets, 90 pairs of Snowy Egrets, and 12 pairs of Black-crowned Night Herons, was at least one pair of Little Blue Herons. The Little Blues acted as if they were breeding, and a search produced one flightless young bird, out of the nest, fully feathered, with the primaries only about 2 inches out of their sheaths. These feathers were edged in dark gray, characteristic of the young of this species. One primary was taken for documentation of the record, and the bird was banded.

Although only two adult Little Blue Herons were seen, it is believed that two pairs were present. When I was in the area where the young Little Blue Heron was found, only one adult flew about, croaking. The other Little Blue Heron was observed at a distance sitting on a bush, as if on a nest.

The color of the soft parts of the young Little Blue Heron is given here because of the scarcity of such descriptions in the literature. Bill: dark blue changing to black toward the tip. Legs and feet: bright greenish-yellow. Iris: light grayish-blue.

New England.—North of New Jersey the only other definite breeding records are two

from Marshfield, Plymouth County, Massachusetts—1940 and 1941 (Hagar, 1941: 568–569) and the two from New York here mentioned.

**Common Egret.**—*AOU Check-list Status*: “Breeds from southwestern New Jersey (Salem and Gloucester counties) south . . .” *1960 Status*: New Jersey.—“Breeds locally as far as Sandy Hook, Monmouth Co.” (Fables, 1955: 18). This species has been breeding at Sandy Hook, at least since 1952 (Stout, *vide* Nichols, 1952: 274). New York.—Nests only on Long Island, where it “breeds very locally” (Bull, 1958: 9). The first definite breeding for the state was from Fisher’s Island, Suffolk County, during 1953 (Ferguson, in litt.). This remains the farthest north and east this species breeds in New York. The 15 pairs at the Tobay colony and the 25 pairs at Canarsie Pol are the two largest breeding concentrations north of Brigantine, New Jersey, where 75 pairs were recorded in 1957 (Forward, *vide* Potter, 1957: 394). New England.—Discovered breeding at South Hanson, Plymouth County, Massachusetts in 1954 (Griscom and Snyder, 1955: 31). This species has since been discovered nesting at Manchester, Essex County, Massachusetts in 1956 (*vide* Baird and Emery, 1956: 370).

**Snowy Egret.**—*AOU Check-list Status*: “Breeds from southern New Jersey (Cape May County) . . .” *1960 Status*: New Jersey.—“A local breeder as far north as Island Beach, Ocean county” (Fables, 1955: 18). First found breeding at Island Beach in 1951 (*vide* Potter, 1951: 284). As many as 2,000 birds in the Stone Harbor colony, Cape May County, on 9 July 1959 (Potter, 1959: 422). New York.—Breeds only on Long Island where it breeds “chiefly on the south shore . . . in several places” (Bull, 1958: 9). The 100 pairs in the Tobay colony (Guthrie, *vide* Elliott, 1958: 95), and the 90 pairs at Canarsie Pol are the largest breeding concentrations recorded north of Stone Harbor, New Jersey. First recorded breeding in New York in 1949, at Oak Beach, Suffolk County (Elliott, *vide* Nichols, 1949: 229). New England.—One breeding record for Massachusetts—1955 at Quivet Neck, Cape Cod, Barnstable County (Le Baron, *vide* Morgan and Emery, 1955: 365).

**Louisiana Heron** (*Hydranassa tricolor*).—*AOU Check-list Status*: “Breeds from coastal Maryland (Worcester County) south . . .” *1960 Status*: New Jersey.—First found breeding at Stone Harbor in 1948 (Wright, *vide* Potter, 1948: 200). This species “has shown a considerable increase since 1954. H. H. Mills counted 210 birds in three colonies in 1958. Rare north of Stone Harbor” (Fables, 1959, p. 4). The farthest north this species has been reported breeding in New Jersey is at Brigantine, where two pairs were found in 1957 (Forward, *vide* Potter, 1957: 394). New York.—The increase in New Jersey has been reflected in New York. This species has been recorded annually on Long Island since 1952, with a maximum count of six, and has been suspected of nesting in the Tobay colony since 1956 but no positive proof of breeding was ever found. There is only one definite breeding record for the state—Jamaica Bay Wildlife Refuge, Long Island, Queens County, 1955 (Meyerriecks, 1957:184). New England.—No breeding records, but several sight observations of wandering birds.

**Yellow-crowned Night Heron.**—The present breeding range of this species in the Northeast is essentially as outlined in the AOU Check-list. The large numbers breeding in the Tobay colony, with 40 pairs the largest concentration (during 1956), deserves special mention. As far as can be determined from the available literature, this species is usually considered as a rare and local breeder—at least in the northern part of its breeding range. The largest concentration in any one colony usually numbers only several pairs.

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PETER W. POST, 575 West 183 St., New York 33, New York, 18 August 1960.

**Migration of Blue Jays at Madison, Wisconsin.**—The morning of 24 April 1960, while walking from Picnic Point to Second Point on Lake Mendota, I noticed small flocks of Blue Jays (*Cyanocitta cristata*) drifting northward through the woods. On arriving at Picnic Point I observed jays leaving the conifers and circling higher and higher until they were barely visible to the naked eye, then flying northward. Due to the swirling about of the birds, I could not make an accurate count, but a conservative estimate of the number would be 75. The exodus took place at 11:05, daylight saving. Not all of the jays left as some could still be heard calling in the conifers. At the time that the jays were circling a Sharp-shinned Hawk appeared and also circled. The jays, from all appearances were completely ignored. On returning to Picnic Point I met Alex Dzubin and mentioned the migration to him. The following day he told me that on reaching the neck of Picnic Point, a flock of 19 jays came past going in the direction of Second Point.