

OWLS OF NEW YORK STATE

DAVID C. GORDON

Owls are among the least known and understood birds in our state. They have long been the victims of human persecution due to superstition, fear and ignorance. Most of the larger owls are readily shot whenever seen by a man or boy with a gun. Today, these chiefly nocturnal birds of prey are all protected by New York State law, but it will take education of the public before legal protection will achieve the desired effect.

The owls belong to the order Strigiformes which consists of two families — Tytonidae, the barn owls; and Strigidae, the typical owls. Both are world-wide in distribution. There are over 50 distinct species and over 200 described varieties. Of the 18 species in the United States and Canada, 11 have been recorded in New York State. These are the Barn, Screech, Great Horned, Snowy, Hawk-owl, Barred, Great Gray, Long-eared, Short-eared, Boreal and Saw-whet.

Owls are clearly differentiated from other birds by their flat faces called facial discs with both eyes in the front of their head. Their soft lax plumage permits soundless flight. In addition to hooked bills they have taloned feet. Most birds with four toes have three in front and one behind. However, an owl can reverse each of the outer front toes to have two in front and two behind for a better grip on its prey.

Both the eyes and ear openings are extremely large for the size of the bird, permitting extraordinary senses of sight, and hearing in the high frequency range. Like most birds, they apparently have a poor sense of smell. Unaccountably, the ear cavities are either asymmetrical or symmetrical by species. That is, the ear openings are not at the same level on both sides of the head in many of the species.

An owl can twist its head around to a 270 degree angle if need be without moving the rest of the body and then quickly snap it back around the other way to pick up at the same point so fast that it looks as if it were twisting completely around. This is because the eyeballs in the sockets have no movement of their own and an owl must start straight ahead.

Contrary to popular belief, in spite of excellent night vision, all owls do not hunt by night. Three New York owls: the Snowy, the Hawk-owl and the Short-eared owl are daytime hunters. The first two are normally found in the far north where there is a "midnight sun" for six months each year. The Barred and Great Horned owls also see well in daylight as you would know if you have ever discovered them. However, most owls are active only after dark. When discovered in the daytime by other birds, especially crows, owls are often mobbed and noisily persecuted.

There are more rods than cones in the retina of the eye which is an aid to night vision. They also have a conspicuous third eyelid or nictitating membrane. The Barred and the Barn Owls alone of all our species have brown eyes. All the rest have yellow ones.

The sexes are similar in outward appearance except that the female may be slightly larger. The Great Horned is our largest bodied owl, although the Great Gray and Snowy have greater wingspreads and the thicker covering of feathers gives them a larger appearance.

Of our 11 owls, only seven are known to nest in New York State. Most owls are considered mainly resident in the region where they breed. However, a few are partially or irregularly migratory.

The Snowy Owl has become an irregular winter visitor in this state due to the supposed scarcity of its natural food, lemmings and snowshoe rabbits, on the Arctic tundra. Some years there are large scale invasions and in others they are completely absent. The appearances of the Snowy Owl are correlated with the cyclic fluctuation of its prey species. They are usually seen from November to February, but have been seen as late as the middle of May.

The Great Gray and Hawk-owls are very rare winter visitors to the northern part of the state. They, too, move south of their normal range during food shortages. I know of no recent reliable records of the Great Gray, but one Hawk-owl was seen by several people in the neighborhood of Three Mile Bay, Jefferson County, from December 11, 1958 to January 1, 1959.

The Boreal or Richardson's owl and the two previously mentioned species are the rarest in the state. The Boreal is also a northern visitor from Canada. The most recent record available is of one that flew in an open car window and was killed the night of March 9, 1958 near Ogdensburg, St. Lawrence County.

The Short-eared Owl is regularly migratory in the fall and spring and those from farther north spend the winter regularly in this state. Up to 25 or more have been seen where there are suitable meadows and marshes and the populations of meadow mice, their favorite food, are high. The Short-eared Owl once nested more commonly throughout the state in open and marshy situations than now. Recent nesting records are desirable. Today it is more often seen from November to April especially in central New York and along the Lake Ontario shore. This owl has a spectacular aerial courtship display. The male climbs high in the sky where it gives its call, then claps its wings together beneath its body making audible sounds while diving toward the ground. This is then repeated.

The Barn and Long-eared owls seem to have an irregular dispersal southward in the fall, while the Saw-whet and Barred owls desert the northern parts of their breeding ranges during hard winters.

There is no true migration of the Great Horned and Screech owls in New York, although there is considerable shifting of territory within the breeding range to adjust to local conditions.

Unlike most birds, both right and left ovaries and oviducts are functional in owls. Owl eggs are always white and the nestling young are downy white. The Barn owl is the exception to the rule that owls nest only once a year, because they may nest twice a year and have been known to nest in every month of the year. The Great Horned Owl may lay a new clutch if the first nesting attempt fails. This owl and the Barred owl usually nest in the late winter and early spring (February to April). Most other owls nest in the spring.

The start of incubation may not wait until the full clutch is laid and this often results in young of different sizes because of different hatching dates.

Originally most owls probably nested in hollow trees and old woodpecker holes although three, the Great Horned, Barred and Long-eared, prefer to use old crow and hawk nests especially those of the Red-tailed and Red-shouldered hawks. Other nesting sites for owls are in squirrel leaf nests, in cases, and on rock ledges. Rarely does any owl build a nest of its own. The exceptions to the rules for the others are the Snowy and the Short-eared which build simple nests on the ground.

The Barn owl depends on man to provide nesting sites such as barns, abandoned buildings and church belfries or any other dark and sheltered place. This owl does not build a nest but lays the 5 to 11 eggs among the debris of accumulated pellets which are broken up by the female. The Barn owl is an uncommon nesting bird with scattered records from Long Island north as far as Syracuse and in the Buffalo area. However, this bird may be slowly extending its range north. One was seen briefly in Dexter, Jefferson County, on May 25, 1958. Where the Barn Owl is not well known, reports of Barn Owls often refer to the Screech Owl which is sometimes called a "Barn Owl".

The Screech Owl is a locally common resident throughout the state except that it is apparently rare or absent in the Adirondacks. It is fond of nesting in cavities of old apple trees and similar places if near water. However, it is the commonest owl in cities and may be persuaded to occupy nest boxes.

The Eastern Screech Owl differs from those in the far west by appearing in two colors, red and gray. This is called dichromatism and has no relationship to sex, age or season. There are also intergradations of a brownish color. In New York the gray phase is much more common than the red although both may occur in the same litter.

The Great Horned Owl is common, at least locally, throughout the state. The Barred owl is also found in all parts of the state wherever extensive woodlands exist. The Great Horned prefers drier, higher and less dense deciduous woods while the Barred Owl inhabits lower, swampy coniferous forests although both may be found in the same wooded areas.

Most owl records are winter records, but this may be because the observers can see them better, or else are out looking for them more in winter, rather than an indication of what months they occur in a territory. The most abundant owl species in the United States is the Horned Owl based on Audubon Society Christmas Bird Counts in 1956 and 1957. The Screech and Barred Owls are the next most common although approximately twice as many Horned owls are seen.

The Barred Owl is solitary except during the breeding season. Most owl family groups keep together for varying periods into the early summer. Only the Short-eared and Long-eared species congregate in large numbers in the winter. The usual number of young is two each for Great Horned and Barred, four or five for the Screech and Long-eared, five or six for the Saw-whet and Short-eared and the most prolific, 5 to 11 for the Barn Owl.

There are few data concerning relative numbers of owls in a given area. In a wild 36 square mile area of Michigan the year-round population of Great Horned owls over three years ranged from 11 to 19, or one to every

two or three square miles. In this same area and period there were from 1 to 7 Long-eared owls and 14 to 70 Screech owls*.

The Long-eared owl is seldom seen although its range includes the woodlands of the entire state. In winter it becomes gregarious and collects together in groups of a few to a couple of dozen in dense stands of pines, cedars or other evergreens. It will puff out its feathers, raise wings and tail and swell to a much greater size to intimidate an intruder at its nest. It has also been known to do the broken-wing act usually associated with ground-nesting birds.

Our smallest nesting owl, the Saw-whet, is the least known but is probably far more common than is supposed. It is found rarely, but in every corner of the state. Its small size, (7-8½"), nocturnal and retiring habits may account for its supposed rarity, but once it is located it appears quite tame and may easily be picked up.

Owls cannot chew food so the animals they eat are swallowed whole or by pieces. Later, after digestion takes place in the stomach, the undigestible bones, hair and feathers are rolled into balls and these pellets are regurgitated. The finding and examination of owl pellets makes analysis of food habits quite easy. Owls that roost in the woods often do most of their hunting after dark over open fields.

A list of all foods eaten by the Great Horned Owl is lengthy. It has been studied more thoroughly than almost any other feathered raptor. The greatest percentage of its food is mammal — about 80 to 95%, 5 to 15% is birds and from one to five percent is composed of insects, amphibians and miscellaneous. The cottontail rabbit and both meadow and white footed mice are its most important foods. In addition to eating other rodents and insectivores, this owl is noted for its ability to dispatch full grown skunks, porcupines and house cats. Curiously, this owl often beheads its victims and leaves the bodies unconsumed.

An interesting sidelight is that larger owls prey on smaller owls. Forbush, a famous ornithologist, said the Great Horned "kills weaker owls from the Barred owl down". The Screech owl is a well-known victim of the Horned Owl.

While arousing the anger of sportsmen and farmers because an occasional gamebird, wild duck or poultry is taken, the entire species should not be condemned, because its overall effect is beneficial. Enormous quantities of rodents are destroyed and the predator-prey relationship is a natural check and balance of the environment that has evolved as animal life has evolved to eliminate the surplus, the weak and the least fit. Studies have shown that the Horned Owl takes for food those creatures that are most available.

The other owls, ranging in size from the Barred to the Saw-whet, may kill birds but they too live almost exclusively on small animals with meadow mouse at the top of the menu.

The Great Horned and Barred owls are great vocalizers and, in the woods, their calls may be confused. Both can engage in eerie screams, but the usual hoots of the Horned Owl are in a series of five while the Barred Owl or eight-hooter says in couplets — "Who cooks for you? Who cooks for you-all?"

*Craighead, Frank C., Jr. and John J. Craighead. 1950. "The Ecology of Raptor Predation". Trans. 15th N. Am. Wildlife Conf. pp. 209-223.

The Screech Owl doesn't screech. Its most usual call is a tremulous, mournful whinny running down the scale. The Long-eared has several notes including low "hoo-hoos" and a cat-like whine. The Short-eared has an explosive "kee-yow". The Saw-whet has a monotonous whistled note "too, too, too" like the rasping of a file over a saw. The Barn Owl makes more of a hiss for a sound. Owls are known for their "bill-clicking", the sound they make snapping the mandibles when disturbed. In addition, on getting too close to some, such as Great Horned Owls, they will hiss.

Much remains to be known about the biology and population dynamics of owls, but amateurs can contribute to our knowledge. Present information about their life histories suggests that owls play an important part in the scheme of nature and they are economically beneficial. From an esthetic point of view, I, for one, would rate the extinction of one single species of owl at the hands of man as a great loss.

1347 *Sherman St., Watertown, N. Y.*

BIBLIOGRAPHY OF NEW YORK STATE ORNITHOLOGY — 1958

ALLEN H. BENTON

State University of New York — College of Education
Albany, N. Y.

The bibliography which follows continues the pattern set in previous years. When the title is in parentheses this indicates that the item referred to had no title, and the one used here is aimed at expressing the content of the item as briefly as possible. When the bird species concerned was not implicit in the title of the article, this information is added after the citation, in parentheses. When the location from which the observations were made was not implicit in the title, the county is given after the citation, in parentheses, if it could be determined from the article. Where neither county or species is given, it is to be assumed that a) more than one county is concerned and b) several species of birds are concerned.

The compiler feels, as he has said previously, that more coverage of local lists and bird club publications would be desirable. No doubt many significant contributions are omitted by oversight. If individual authors would take it upon themselves to send copies of papers or citations of such papers to the author, coverage would be greatly improved.

Anonymous. Banded birds reported and traced.

Journ. British Guiana Museum Zool. 18:10-11. (Common Terns from Long Island).

Anonymous. Keeping up with the turkeys.

N. Y. S. Conservationist 12(3):35.

Anonymous. (Catbird bringing tree frog to young).

N. Y. S. Conservationist 12(5):32. (Orange county).

Anonymous. (18-year-old Black Duck).

N. Y. S. Conservationist 13(1):36. (Monroe county).

Barton, A. J. A releaser mechanism in the feeding of nestling Chimney Swifts.

Auk 75:216-217. (Suffolk county).

Beardslee, Clark S. The verifying account in ornithology.
Kingbird 7:109-112.