

THE WILD TURKEY IN NEW YORK STATE

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Since World War II exciting new developments in the reestablishment of certain breeding birds have been taking place in New York State. Several species of Herons, have reestablished nesting status with range extensions up the Atlantic Coast, several species of ducks and even the Canada Goose now breed again in New York, but the most interesting example to those of us living in the southern tier counties is the success of the Wild Turkey.

Of the 170 odd families of living birds of the world, only the Meleagridae is considered by students of zoogeography to be typically North American in origin (Mayr 1946). The Turkey has also had an intimate part in the colonization and development of the New World. Europe appears to have learned of 'our' bird in about the middle of the 16th century probably through the Spanish and Portuguese explorers of Mexico (Wright 1914-1915), but Benjamin Franklin seemed to have felt that Jesuits from Canada first took them to Europe, and Spencer Fullerton Baird postulated they first went to Europe from some extinct West Indian subspecies.

Often the Turkey has entered the vernacular. We have all sat down with someone to "talk turkey" and Wright (op. cit.) cited a Lieut. Abert who contributed this saying . . . "It is related that a white man and an Indian went hunting; and afterwards when they came to divide the spoils, the white man said, 'you may take the buzzard and I will take the Turkey or I will take the Turkey and you may take the buzzard.' The Indian replied, 'You never once said Turkey to me.'" The more modern version of "heads I win, tails you loose." may well have been derived from this.

Wright (op. cit.) goes on to cite Jared Sparks in *The Works of Benjamin Franklin*. Sparks tells of Franklin's objection to the Bald Eagle as the National emblem. Among various reasons Franklin said, . . . "The little Kingbird, not bigger than a sparrow, attacks him boldly and drives him out of the district . . . The Turkey is in comparison a much more respectable bird, and withal a true original native of America."

Accounts of great numbers of Turkeys inhabiting New York State during the 17th century can be found in the writings of the Dutch, French and English. The Iroquois made a kind of cloak "a fathom square" of woven Turkey feathers. Feathers of the Turkey were used in many other ways by the Indians and early settlers — as feathers to guide arrows in flight, tied on the end of a stick to sweep the hearth, and during hot weather the wings were used as fans.

Accounts of Turkeys in New York during the 18th century come from the Niagara area, Painted Post, Unadilla River to the Chemung and the Genesee River valley.

In the 19th century, following the revolution and General Sullivans expedition much more traveling into the hinterlands of the State occurred and much colonization began particularly in the western parts of the State. This advance of civilization appears to have reduced Turkey populations

rapidly so that by 1844 when James E. DeKay wrote the bird part of a large series on the natural history of the State he said on page 200 . . . "I have not met with them (Turkey) in this State, where they were once exceedingly numerous but as I am well informed, are now only found in the counties of Sullivan, Rockland, Orange, Allegany and Cattaraugus." Shortly after this date they seem to have been completely extirpated from the State.

Wild populations continued to hold out in Central Pennsylvania into the 20th century. In 1929 (Cristy and Sutton 1929) said . . . "If any Turkeys of pure blood remain in Pennsylvania they are to be found in and near Huntingdon Co." This county is 100 miles due south of Bolivar (Allegany Co.), New York. Mosby and Handley (1943) said that by 1929 twenty-six states had attempted artificial propagation and release as a tool in restoring Wild Turkey populations. These efforts were all failures.

The wild-pen-mating system established principally in Pennsylvania during the 1930's started to show some favorable results. This technique involved holding game farm wild hens in large pens adjacent to wild populations where wild toms flew into the pens to fertilize the hens. It was found by Gerstell and Long (1939) that poults from these matings reacted more to changes in the environment and had more physiological resistance to fasting than tame poults. Leopold (1943) in a classic paper concluded that the wilderness syndrome was associated with the central and sympathetic nervous systems and the endocrine glands. Knoder (1959) carried out further more practical studies and concluded that the hybrid turkeys used for stocking in Ohio established a home range within $\frac{1}{2}$ to 5 miles of the release site. Three types of Turkey flocks emerged after dispersal (1) *domestic* (flock stayed close to barnyards), (2) *semi-feral* (dispersed to vicinity of farms and returned to barns rather regularly) and (3) *feral*, remained $\frac{1}{2}$ to several miles from nearest dwellings.

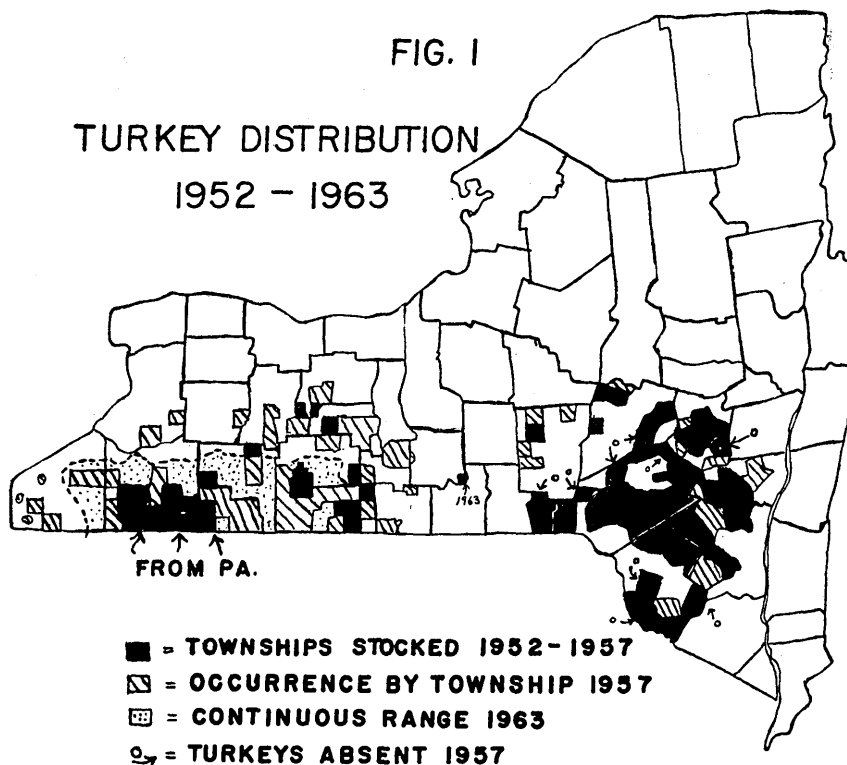
With a biological basis and greater practical experience developing in the stocking programs, more and more successful reestablishment programs developed. By 1959 thirty-seven States supported a stock of this bird (Mosby 1959) and they were legal game in 20 States. Since 1959 New York has had a limited open season in October. It has been estimated by the Conservation Department that the hunter take in Chautauqua, Cattaraugus, Allegany and Steuben Counties (the only counties opened to hunting) has averaged about 300 birds a year.

Sources of Our Present Populations

During the mid-1940's the Wild Turkey populations of Pennsylvania started to invade the Beech-Birch-Maple-Hemlock forests of McKean and Potter Counties. This area is part of the High Plateau and is just north of the ridge and valley province of central Pennsylvania, which is predominantly forested by Oak and Hickory. The populations in McKean and Potter counties multiplied rapidly, perhaps partly as a consequence of gas rationing and lower hunting penetration of their haunts but most important, a wilder strain of bird, able to cope with the environment, had been established.

About 1949 reports of feral birds started to become rather frequent from the vicinity of Wellsville (Allegany Co.) N. Y. on the east to Allegany State Park (Cattaraugus Co.) on the west. By 1952 (before State stocking)

Eaton (1953) called them uncommon (found in restricted areas in small numbers) near Olean, N. Y. In November 1952, the Bureau of Game personnel of the New York State Conservation Department liberated 170 hand reared Wild Turkeys in Allegany State Park. These were liberated in the fall and many died before spring. Later stockings were carried out mainly in April and were more successful. During the next five years (1952-1957) 2,575 Turkeys, all banded, were released in 13 counties of the State (Fig. 1). These birds were reared at the Sherburne State Game Farm from eggs or poults supplied by the Pennsylvania State Game Commission (Brown 1957).



Since the winter of 1957-58 in western New York the Conservation Department has carried on a program of trapping feral birds and transferring these to potentially good areas not frequented by Turkeys. Most trapping in recent years has been in Allegany State Park. Mr. Fred Evans, Conservation Foreman, has perfected a technique for capturing these birds by cannon netting. I have watched him and his crew in operation and they are certainly to be congratulated on the way in which these operations are conducted. Very few birds have been injured and great patience and skill is needed for such exacting work. During the winter of 1962-1963 fifty-three birds were trapped, banded, and moved to other areas (Evans 1963).

The stocking of hand reared birds has been discontinued since 1957 so that all birds now have either lived in a feral or semi-feral state for 5 years or have been reared in the wild.



Photograph by P. E. O'Stricker Jan. 1959, France Brook Area, Allegany State Park. Cannon net visible on left ready to be fired over 9 young toms. These were banded and transferred to other areas. Project directed by Fred M. Evans, Conservation Foreman, New York State Conservation Dept.

For the past 7 years detailed census work by Region 2 of the Conservation Department has been carried out mostly under the immediate supervision of Mr. Evans (op. cit.). In the spring of 1963 the results of this census work showed Steuben Co. to be inhabited by about 644 birds; Allegany Co. 829; Cattaraugus by 1265, and Chautauqua by 628. This gave a total of about 3,366 Turkeys in the western New York populations. In these counties about a thousand more birds now exist (according to these censuses) than were originally released in the entire State.

Habits and General Behavior

What kind of a new resident do we have and how does he behave? The toms over a year old range between 16 and 22 pounds, the hens 8 to 10 pounds. They are relatively long legged and long necked with small heads. The tips of the tail feathers and tail coverts are a rich chestnut color. The toms are an iridescent, shiny black color and the hens somewhat more brownish. These birds are quite close to the untainted *Meleagris gallopavo silvestris* of the primeval northeastern United States.

The bird, is primarily a walker, only resorting to flight when suddenly disturbed and when flying up to roosting sites. In about 25 such sites located in Cattaraugus Co. beech trees about 10-18 inches in diameter at breast height were most commonly used. In very cold snowy weather the lower, large, dead limbs of hemlocks may be used. Once when I was observing three adult toms scratching on the forest floor for beechnuts about 50 yards away, they became suddenly alert and all put their long necks up and began uttering the alarm "turk, turk". For a few seconds I thought they had detected me but soon, above me on the ridge, a red fox appeared following their scent trail into the feeding area. The toms became more and more nervous as the fox approached to about 50 yards; then with a great thrashing of wings they flew into some large beech trees almost over my head. The fox ran through the area where they had been feeding and continued to my right until he caught my scent, whirled, and ran rapidly out of sight.

The birds leave their roosting trees about dawn and feed for three or four hours. Then they either fly up to roost or, if the weather is very unfavorable, they may just stand 'humped up' in the snow with necks pulled down and tail depressed. But this is not the normal roosting position. In roosting the birds breast bone rests on a limb. About 3 p.m. the birds return to the ground or to actively moving and start filling up their crops. This, in an adult tom during the fall will amount to as much as a pound and a half of beechnuts, acorns or wild black cherries. When the snow melts in the early spring they return to feeding on mast until it starts sprouting and also eat rootlets and tubers. In the summer they feed mainly on sedge seeds of the genus *Carex* and grass seeds. Perhaps they will resort to a field or forest opening and, if the grasshoppers there are abundant and easy to catch as on a cool, wet, summer morning they may catch a few hundred for breakfast. This fall one crop I examined contained over 1000 winged males and wingless female of *Alsophila pometaria*, the fall cankerworm.

I am not sure whether Turkeys eat snow but they seem to require some water in their daily rounds. Spring runs are usually present in their home ranges and furnish water, grit, and small animals, and plants.

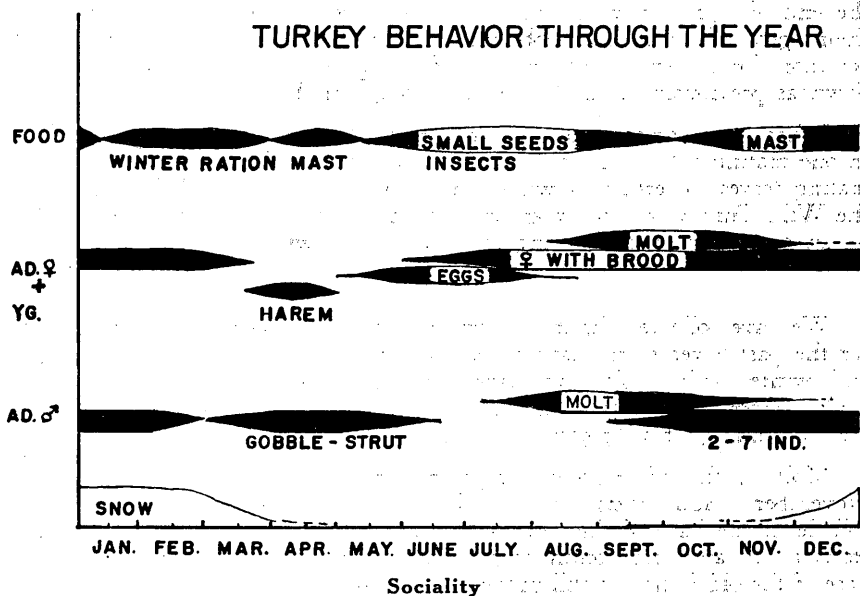
From the middle of January to the middle of March the western New York populations are essentially on what I have termed a winter ration. In 1957-1958 snow piled up in the woods to great depths without a thaw to produce walkable crusts. About 12 Turkeys were brought in to Conservation officials who turned most of these over to me. These had died for various reasons. Most commonly found were immature males which succumbed after dropping in weight to around 6 pounds. The females were found when their weights had dropped to about 4 pounds. At this time of year they may fast for a whole week, then, if the weather ameliorates, start feeding on the nearest available food. Three toms I tracked in the snow, following one of these subzero periods, ate mostly beech and hemlock buds as they moved slowly through the woods on the snow surface. When they break out into a clearing they will peck at the dock seeds protruding above the snow. They will go up to every large burdock in a clearing, often getting them stuck to their down feathers. The fertile fronds of

sensitive ferns are also eaten. Along the edges of conglomerate boulders they will eat polypody fern, and in glades where intermediate shield fern and Christmas fern abound they will eat these evergreens.

When the snow melts they become for a while specialists in spring flowers. The spring beauty, *Claytonia*, has a large tuber which is particularly cherished. This is often scratched up in the fall as well, particularly when beechnuts, cherries and acorns are scarce. Jack-in-the-pulpit bulbs, which develop in late summer, are also eaten.

From studies of food habits I can only conclude that these Turkeys are the most adaptable in food habits of any of our northeastern birds. Perhaps their lack of the migratory habit, their large size, and their cursorial feeding are mainly responsible for this varied diet. The Ruffed Grouse, a sedentary relative in the same area, eats a less varied diet. In the winter, for instance, the grouse with its short legs feeds mainly on birch catkins and becomes more of an arboreal feeder. It cannot cover as much ground as a Turkey but these short legs make it possible for him to feed at the terminal twigs of pendulous boughs — denied to the 10 to 20 pound Turkey.

FIG. 2



In figure 2 are shown important events in Turkey behavior through the year. Laying by hens may start as early as April 15. We flushed a hen from 14 eggs on April 30, 1959 about 9 miles south of the State line in Pennsylvania. Two eggs were taken; one was preserved in our egg collection to substantiate the record and another was incubated. The egg hatched on May 28 for an incubation length of 28 days. The hen had

evidently just started to incubate on April 30. The latest bird found incubating was flushed from 12 eggs by Mrs. George Charles about 8 miles north of Allegany, N. Y., on Aug. 27, 1959. All of these eggs were infertile. Probably the hen had been sitting for much more than the normal incubation period. Most nests have been found in May and June with an average hatching date of approximately June 15. The hen and her poults remain together as a social unit through the summer and in the fall may join other family units to form flocks of about 25 birds. Only rarely are flocks of 40 seen and these are usually semiferall birds at the edge of a corn field.

The old toms, birds in their second fall or older, form social units of 2-7 individuals. These old birds are practically indestructable. We have never found one in the woods which had died a natural death. One badly crippled from the hunting season was brought into our laboratory by Mr. Terry Moore, but never a winter killed bird. The old toms start associating with each other in September or earlier and travel in these groups until about the middle of March. They become antagonistic to one another at this time, develop enlarged wattles on the neck, and strutting and gobbling begins. Shortly after, the old gobblers are most often seen with a small group of hens, usually referred to as harems. These harems last until about the end of April by which time the hens have all sneaked off to incubate their eggs. During May gobbling by the males seems to become more common for a period and, instead of being restricted to a period before dawn as previously, it can be heard throughout the day.

It has been demonstrated in the domestic turkey that hens are fertilized in one mating and do not come back to the tom for further servicing. One mating serves to fertilize a whole clutch of eggs. This probably occurs in the Wild Turkey but to my knowledge has not been thoroughly established — an extremely difficult thing to prove in the wild.

Molt

We have collected flight feathers dropped by Turkeys on the forest floor for the past 9 years and have saved the wings and tails from hunting kills and winter kills. Also we have kept notes on molt in wild trapped birds. From these data a fair idea of the molt has been gathered but we are continuing this project.

Molt in the adult toms begins in early July and continues on into November. Adult toms taken in November still show the base of the old follicle at the base of the new outermost primary. Molt in adult females starts a bit later and continues on into December. By early January the base of the old follicle is still present at the base of the new outer primary.

Leopold (1943) showed differences in molt between domestic turkeys, hybrids, and pure *Meleagris gallopavo silvestris* in a study done in Missouri. He showed that the domestic turkey has a more complete molt than the wild type in first fall birds. This molt in the western New York populations was compared with Leopold's figures and shows our birds close to the wild *M.g. silvestris* except in the tail where 3-5 pairs of central tail feathers are replaced in our birds as opposed to only 2 pairs in the pure wild type.

TABLE 1

Plumage characteristics of domestic, hybrid, and wild Turkeys (Leopold 1943) compared to western New York First Fall Birds.

Plumage of 1st Winter	Domestic	Hybrid	New York	M.g. Silvestris
Retention juv. primaries 9 and 10	0	15	9	5
Retention juv. prim. 10 only	19	17	0	0
Retention tail feathers In 1st winter molt				
Replace 2 central pairs	0	4	0	5
Replace 3-5 pairs	7	18	7	0
Replace 6-9 pairs	12	1	0	0

This appears to be the only plumage character still remaining which points to their hybrid origin. With more and more generations in which natural selection is allowed to operate we can expect these populations to become even closer to the original wild type, but, of course, wild populations of animals continually change to some degree.

In summary, we can say that most of the 3,500 Turkeys in the western New York populations are behaving as Knoder (op. cit.) would call feral birds. They stay back away from civilization and can withstand the severe winters of the area. Plumage and other morphological characteristics also point to their similarity to the original wild *Meleagris gallopavo silvestris*.

We can conclude, then, that these birds should be treated as wild populations. Well meaning but uninformed persons should be prevented from attempting to privately stock semi-feral or tame birds and, further, these flocks should not be maintained superficially by winter feeding. A hunting season should also be continued to further aid in the selection for wildness. Only wildness in these populations can insure their continued success as a noble member of our avifauna.

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SEVENTEENTH ANNUAL MEETING OF THE FEDERATION OF NEW YORK STATE BIRD CLUBS, INC.

The 17th Annual Meeting of the Federation of New York State Bird Clubs, Inc., will convene in Poughkeepsie, May 22-24, 1964.
Headquarters will be the Poughkeepsie Inn

FRIDAY — May 22

Various committees meet in the evening, according to tradition.

SATURDAY — May 23

Official meeting of Delegates — in the morning
Paper Sessions — in the afternoon
Annual Banquet — in the evening

TRIPS

Saturday — morning for those in attendance who are not delegates.

Sunday — General field trips will be the main order of the day.

Some outstanding field trips are promised in the scenic Hudson valley. A few of the rare birds to be seen are: Blackburnian and Cerulean Warblers, Traill's Flycatcher, Least Bittern, Blue-gray Gnatcatcher not to mention many others.

It's not too early to start making plans to attend the meeting; to present a paper; to hear the outstanding speaker at the banquet; and to join the field trips which, weather permitting, are always the high points of any bird club meeting. Members will receive mailings about reservations etc., as the committees advance in their work.

Let's see YOU in '64 — at Poughkeepsie on May 22-24!

Otis T. Waterman, Chairman

Mary Key, Co-chairman.