

## THE WILD TURKEY: AN UPDATE

by James E. Cardoza

Wild Turkeys (*Meleagris gallopavo*) are uniquely American birds, native to North America from Mexico north through the central and eastern United States to southern Canada. Five subspecies of Wild Turkey are recognized. The Ocellated Turkey (*Agriocharis ocellata*) is found in Central America. Our domesticated turkeys are derived from birds raised by the Incas and other Mesoamerican natives and subsequently brought to Europe by the Spanish conquistadors circa 1524 (Schorger 1966). The appellation "turkey" probably results from confounding the Wild Turkey with peafowl, which were erroneously associated with the Turkish empire.

Turkeys were abundant in the pre-settlement hardwood forests of eastern North America, from the Gulf states to southern New England. In Massachusetts they were probably found throughout the state except on Martha's Vineyard and Nantucket and in the higher areas of the Berkshire and Hoosac ranges, where spruce-fir stands predominated. Based on a potential habitat of 7600 square miles and an estimated density of five turkeys per square mile, Massachusetts may have had as many as 38,000 turkeys around 1600.

Several writers (Forbush 1912; Wright 1915; Allen 1921) have reviewed the historical accounts for Wild Turkey in New England and discussed the turkey's decline and eventual extirpation in the late 1800s. Widespread habitat changes resulting from land-clearing were probably the primary factor in the turkey's extirpation (Miller and Sherro 1987).

Despite its absence, interest in the Wild Turkey remained high among sportsmen and general naturalists, and between 1911 and 1967 at least nine attempts in five counties were undertaken to restore turkeys to Massachusetts (Cardoza 1983). Eight failed, and one (in the Quabbin Reservation area) resulted in a marginal population estimated at fifty to sixty birds and inhabiting less than forty-two square miles twenty years after their release.

In consultation with biologists from other eastern states, the Massachusetts Division of Fisheries and Wildlife (DFW) began a vigorous effort in the early 1970s to obtain suitable wild stock and to restore this native bird to Massachusetts. DFW staff evaluated brood and wintering habitat, climatic conditions, food availability, and other parameters important to the needs of the Wild Turkey. The New York State Department of Environmental Conservation subsequently extended hearty cooperation and agreed to provide wild-trapped turkeys in the interest of regional restoration efforts. In 1972-1973 my assistants and I traveled to Allegany State Park in western New York on three occasions and trapped thirty-eight turkeys (fifteen males, seventeen females, and six young of unknown sex). These birds were released in Beartown State Forest in

southern Berkshire County between March 1972 and September 1973.

Initially the turkey population did not appear to increase, perhaps because of the paucity of hens in the 1972 and 1973 spring releases. From 1972-1974 turkeys were reported only in Beartown State Forest and its immediate periphery. From 1974-1976, however, the success of the release became apparent. Turkeys were now found in most of southern Berkshire County and were expanding their range (Cardoza 1977). Brood counts were high, and public excitement began to grow. Then, from 1976-1978, turkeys were reported in most of Berkshire County, except for the very high elevations, and in adjacent parts of Franklin and Hampden counties. This range expansion was bolstered by nearby releases in New York and Vermont, from which birds moved east and south into Massachusetts. Simultaneously, some of the Massachusetts birds moved into Connecticut. By 1978, we were confident that this restoration effort had been a success, with an estimated fall population of one thousand birds.

Although turkey populations can expand rapidly on their periphery in suitable habitat, the birds are nonmigratory, and range expansion can be stymied by barriers such as urban complexes, major waterways, or large tracts of open land. Thus, in order to expedite the restoration of the Wild Turkey to all suitable habitat in the state, the DFW began live-trapping and transplanting turkeys from the Berkshires to more eastward sites in 1978. About twenty to twenty-four birds (two-thirds female and one-third male) were placed at a single release site, sometimes in two to three bunches over the course of a winter.

Trapping is done during January to March using a rocket-propelled net modified to shoot out of a box. Snowy conditions facilitate trapping because the birds are hungry and readily come to the bait. Cooperative farmers and landowners inform DFW staff when they see large flocks of turkeys. Technicians then set out bait stations and a dummy rocket net box. When turkeys are consuming the bait regularly, the trapping crew sets up the real net box in the early morning hours. Once the equipment is set up, the wait begins. The wait can be long, tiring, chilly, and frustrating. I have waited as little as fifteen minutes and as long as nine hours for turkeys to arrive. Sometimes, they dash to the bait as soon as they come off roost, while at other times they do not show at all or perhaps they sit at the field's edge, pecking sporadically along hedgerows. Sometimes, as many as eighty to one hundred birds have been in sight, while only a handful seek the bait, only to leave and be replaced by other birds. A dozen or twenty birds on bait is excellent; too few are not worth the effort, and too many present a chance of injury. Patience and caution are warranted. If all goes well, when birds are clustered on the bait and are feeding head-down, the rocket-propelled net thrusts up and over the startled turkeys. The trapper rapidly disentangles the birds from the net and places them in darkened, padded crates. Returning to a barn or garage, the birds are examined, banded, and their sex and age determined. Placed back in their crates, they are usually

transported and released the following day. A capture-and-handling protocol (Cardoza 1991) details the methods for accomplishing the transplant while minimizing effects on the birds.

Since 1978 the DFW has captured 558 turkeys and released 479 (most of the remaining turkeys were released at the capture site) at sites in Barnstable (1), Bristol (2), Dukes (1), Essex (2), Franklin (2), Hampden (1), Hampshire (2), Middlesex (3), Plymouth (2), and Worcester (6) counties (number of sites in parentheses). Release sites usually comprise large tracts of hardwood or mixed forest and are normally on public land, such as state forests or wildlife management areas. The transplants have been highly successful. West of the Connecticut River, turkeys are found in every town except the immediate environs of Springfield. Between the Connecticut River and the eastern boundary of Worcester County, turkeys are found everywhere except the immediate vicinity of Worcester and parts of southeastern Worcester County. East of Worcester County, the range is more fragmented, and turkey populations are not and will not be contiguous. While the birds are doing well at the release sites, their ability to pioneer into new habitats is limited both by anthropogenic barriers and by direct human influence. It can be difficult to estimate the size of wildlife populations, and turkeys are no different from deer or grouse in this regard. However, using a simple population model incorporating both known and estimated variables, a fall population of 8000-10,000 turkeys in the five western counties is reasonable.

In conjunction with the DFW, a graduate student from the University of Massachusetts investigated Wild Turkeys in central Berkshire County from 1983-1985. Using radiotelemetry, he determined that the mortality rate for turkeys in Massachusetts was relatively low for a northern population (Vander Haegen et al. 1988). Ninety-three percent of the turkeys survived during the winters because of favorable weather conditions during the study period and an abundant food supply. The nesting rate was ninety-two percent, and fifty-five percent of nesting hens produced broods. Poul survival through summer was twenty-three percent, and recruitment of young females into the fall population was 0.59 per female in the breeding population. These natality and recruitment rates were similar to those in a New York population believed to be at carrying capacity. Predation exhibited the greatest influence on productivity (Vander Haegen et al. 1988), accounting for ninety-two percent of nest losses.

Despite the northerly location of Massachusetts and periodic harsh winters, turkeys have been able to flourish in the state. Telemetry studies (Vander Haegen et al. 1989) indicated that turkeys spent fifty-four percent of their daytime activity in croplands and pastures. During deep snow periods, turkeys limited their movements to less than twenty hectares, used coniferous stands and adjacent farmland, and fed largely on manure spreads. Similarly, critical periods of the breeding cycle were associated with agricultural practices (Vander

Haegen et al. 1991). Most first nests (seventy-six percent) were in forested habitat with an understory of stems and slash. Renests, however, were likely in either forested or open habitats. Broods preferred croplands and old fields during the early brood period and mixed hardwood/softwood stands later. Cropland was used more than any other habitat during both brood periods. Thus, agricultural practices, particularly those associated with dairy farms, are important to turkeys in Massachusetts, and the decline of these farms may adversely affect local turkey populations (Vander Haegen et al. 1991).

Despite their poor track record and their virtual abandonment by conservation agencies, pen-raised or "game-farm" Wild Turkeys are still coveted by some individuals. These birds are physically similar to, but behaviorally different from, wild birds. Sometimes, the incentive is to release these birds on private game preserves for hunting, while in other instances the birds are liberated (often illegally) with the intent of establishing wild flocks. The inimical effects of these semi-wild birds have been reviewed by Ruzs (1987). In addition to potential disease implications (Schorr et al. 1988), game-farm turkeys may inhibit the genetic vigor of wild populations, detract resources from wild-trapped restoration efforts, and may be just plain nuisances. Game-farm wild turkeys are subject to the fisheries and wildlife laws in Massachusetts, and they may not be imported, possessed, sold, or liberated without a permit. Such permits are rarely granted except for scientific or educational purposes. Violations are investigated by the environmental police, and illegally held birds are subject to confiscation.

The Wild Turkey's success is not limited to Massachusetts. In 1942 the bird was found only in twenty-one states and was in "critical condition" in much of its occupied range (Mosby and Handley 1943). By 1952 there were only about 320,000 turkeys nationwide (Mosby 1974). Subsequently, conservation efforts brightened the picture. By 1974 there were 1.3 million turkeys (Mosby 1974), increasing to about 3.6 million in 1989 (National Wild Turkey Federation 1992). Turkeys are now found in forty-nine of the fifty states (Alaska excepted), well beyond the limits of their ancestral range. Thirty-nine states sustained a turkey hunting season in 1974; now all forty-nine states do so. In Massachusetts a permit-only spring hunting season has been allowed since 1980, with harvest trends following the growth of the overall population. Despite high interest, the turkey is a challenging prey: only six to eight percent of Massachusetts hunters enjoy a Wild Turkey dinner.

The Massachusetts legislature chose the Wild Turkey in 1991 as the "state game bird," and Governor William Weld proclaimed November 18, 1992, as "eastern Wild Turkey in Massachusetts Day." Yet, turkeys hardly appeal only to the sportsman. The turkey was a strong contender for "state bird" in 1941 (Anonymous 1940), despite its long absence from the state. In a recent survey of 1500 New England residents (Stevens et al. 1990), over eighty-one percent of

respondents ranked the existence of the Wild Turkey as "very" or "somewhat" important. The respondents were also asked questions about their willingness to pay for programs or activities concerning Wild Turkeys. Extrapolating from these responses, the aggregate "existence value" of turkeys to New Englanders was estimated as \$85.7 million annually.

Restoration of the bird to all suitable habitats in the United States is projected to occur by the year 2000, and populations are healthy and abundant throughout the bird's range. What next for the turkey? Can we afford to be complacent? Several questions remain to be answered, and several needs have been identified (Healy 1990; Dickson 1992): 1) synthesize habitat use, home range, and movement data into a generalized habitat theory that can form the basis of management-oriented models to evaluate the usefulness of habitats; 2) institute long-term, large-scale studies of turkey population dynamics; 3) further define the relationship of turkeys with their environment; 4) refine our knowledge of the role of disease, predation, and population genetics as affecting turkey population dynamics; 5) develop broad-scale, consistent means for censusing or monitoring trends in turkey populations; 6) emphasize safe, quality hunting rather than maximum sustained yield; and 7) effectively communicate environmental awareness and resource goals to the public.

Turkeys have long been touted as the "noblest" game bird, wary, keen-eyed, and exotically alluring. Among artists, Audubon strongly admired the turkey, and his "Great American Cock" was the first (and now most valuable) of his famed *Birds of America*. Aside from its recreational value, the Wild Turkey holds a cherished place in the American mythos. Roast turkey is the centerpiece of our Thanksgiving feast, yet turkey was only a passing component of the 1621 Pilgrim harvest festival (Bradford 1908), and Thanksgiving itself was not a national holiday until about 1863. Ben Franklin putatively recommended the turkey as our National Bird, an apocryphal story at best (Tuleja 1987), despite the bourbon ads. Conversely, we deride slow, buffoonish characters or useless artifacts as "turkeys." Turkeys are part of our natural heritage, and we must continue to ensure the Wild Turkey's survival.

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**JAMES E. CARDOZA** has been a wildlife biologist with the Massachusetts Division of Fisheries and Wildlife since 1969. Among other

duties, he is the project leader for the Division's Wild Turkey and black bear studies. He has a B.S. and M.S from the University of Massachusetts in Amherst. This article is a contribution of Massachusetts Federal Aid in Wildlife Restoration Project W-35-R. Jim would like to thank R.D. Deblinger for his review and comments.

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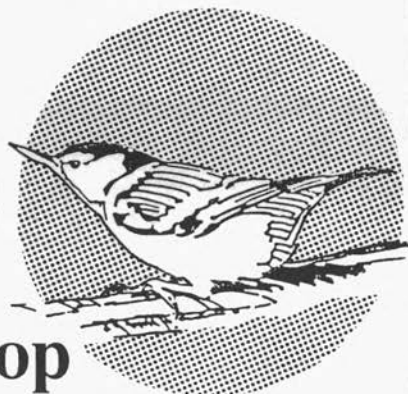
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