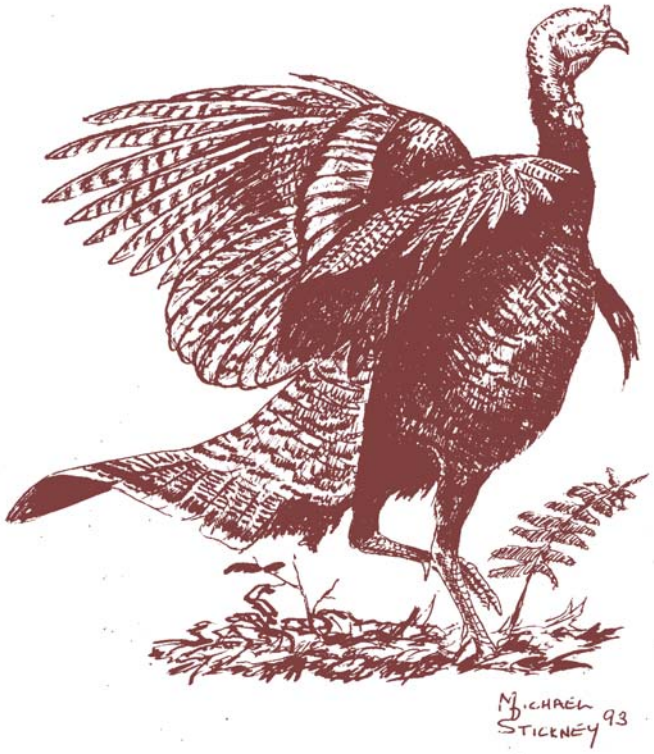
Wild Turkey Management Plan



New York State
Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources

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Wild Turkey Management Plan

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Prepared by the
Bureau of Wildlife
Wild Turkey Management Plan Team

Project Team Members
Robert Sanford (Albany) - Team Leader
Kurt Armstrong (Region 6)
Tom Jurczak (Region 9)
Art Kirsch (Region 8)
Karl Parker (Region 4)

Guidance Team Members
Gordon Batcheller (Albany)
Russ Biss (Region 9)
Dan Rosenblatt (Region 1)

I. Management Plan Overview

The New York State Department of Environmental Conservation (DEC) is charged under the Environmental Conservation Law (ECL) Section 3-0301(1)(c) with ".... propagation, protection and management of...wildlife and the preservation of endangered species." In ECL Section 11-0303(1) the Department is further charged with "...the efficient management of the fish and wildlife resources of the state." The wild turkey (*Meleagris gallapavo*) is a valuable resource and we plan to manage that resource for the greatest possible benefit to the people of the State of New York.

Now that the wild turkey has been restored to New York State, our goal is to ensure that a vigorous, self-sustaining population is maintained in all suitable habitats of the State. Furthermore, turkeys will be managed to best meet the needs and desires of the people of the State of New York, using the steps outlined in this plan.

In managing New York's wild turkey resource, we focus on four primary areas, based on the strategic goals (in parentheses) of the Division of Fish, Wildlife and Marine Resources.

Monitoring and Protection (Ecosystem Protection): The first and most important part of the program is to ensure that the wild turkey population remains secure and of appropriate size to meet the demands placed upon it by the people of the State. Under sound management, wild turkeys should continue to exist and thrive in suitable habitats throughout New York. The requirement for balanced use means that the Department must understand public attitudes and needs towards wild turkeys, while following our legal mandate to maintain turkey population security. The Department fully recognizes that the requirement to provide population security must be balanced with a variety of competing demands associated with the wild turkey resource (e.g., demands for quality hunting and demands for relief from damage caused by turkeys).

Public Use (Resource Use and Allocation): The most widely recognized part of our management involves public use of wild turkeys. Traditionally, this consisted of establishing hunting seasons to allow regulated take. This is and will continue to be the largest part of our program. However, there are many other legitimate uses of this resource. Turkeys are widely sought by bird watchers, wildlife photographers, and other naturalists. Many people in New York enjoy watching turkeys in their yards. We will work with interested individuals and groups to continue and, where appropriate, expand the use of the wild turkey resource.

Nuisance and Damage Management (Protection of Human Health, Safety and Welfare): Turkeys may cause damage or raise concerns about the potential for damage. This plan describes how we will respond to damage concerns. These issues vary from cases where the mere presence of turkeys is considered a problem to cases of significant economic loss. We will work with those individuals reporting nuisance problems to determine the cause and severity of the damage. Where wildlife is found to be causing damage we will provide information or assistance to reduce the damage, whether caused by turkeys or other species.

Information and Outreach (Fish, Wildlife and Marine Resource Extension): We recognize that a large number of people are interested in and concerned about wildlife. We will provide information on wild turkeys by answering questions and providing information on the status of wild turkey populations. This includes basic turkey biology and life history, and opportunities for learning about and enjoying wild turkeys. Information will be made available electronically, in printed form, through speaking engagements, telephone calls, and any other appropriate means.

The purpose of this plan to present a method for balancing all of these factors. We present a decision-making framework to achieve this balance. We have developed a tool to assess proposals and suggestions for changes to turkey management in New York. This tool will be used to structure and formalize our assessment of the effects of any proposal on both the turkey population and people concerned with turkey management. This process also documents the basis for our decisions. It is our sincere hope and expectation that the outcome will be a well balanced program for the good of both the public and the wild turkey resource.

II. Short History of Turkey Management in New York

For the last half century, the Department's wild turkey management has focused on completing the restoration of the turkey and managing a newly re-established population. Key management considerations included defining suitable wild turkey range in New York, trapping and transferring turkeys to these areas, establishing appropriate hunting regulations, and developing relationships with and responding to a new constituent, the wild turkey hunting enthusiast.

Now, with wild turkeys successfully re-established in nearly all areas of suitable habitat, and a well established and dedicated constituency, it is necessary to develop a long-range plan for managing New York's wild turkey resource. This management plan will guide wild turkey management in New York for the foreseeable future by outlining the process we will use for decision making.

At the time of European colonization in the early 1600s, wild turkeys were abundant and widely distributed throughout most of New York south of the Adirondack Mountains. However, by the mid-1840s, wild turkeys were extirpated or reduced to extremely low levels. In 1909, Eaton (1909) reported that he could find no records of wild turkeys in New York. The major factors responsible for the wild turkey's decline were destruction of forest by excessive logging and intensive farming, coupled with unrestricted personal subsistence and market hunting by early settlers (Kennamer et al. 1992). By 1850, more than 60% of the land in New York was farmed. This trend continued until the late 1800s when nearly 75% of New York State was cleared of trees.

After the Civil War, many New York farms were abandoned as agriculture shifted to better land to the west. Abandoned farm fields, beginning with those on the infertile hilltops, gradually reverted to woodlands, and by the 1940s much of the southern tier of New York was again forested and capable of supporting turkeys. By 1993, New York was about 62% forested according to the USDA Northeastern Forest Experiment Station. In the late 1940s, turkeys expanded from Pennsylvania into parts of southwestern New York. Turkeys had begun a recovery after an absence of 100 years (Eaton 1964).

The return of the wild turkey to southwestern New York sparked an interest in restoring the species to other areas of the state. In 1952, DEC's predecessor, the New York State Conservation Department, started a wild turkey restoration effort using game farm turkeys raised at an existing game farm in Sherburne, NY. Over the next 8 years, 3,100 game farm turkeys were released throughout the state. This effort failed because the game farm birds did not exhibit adequate wildness to avoid predation and lacked the capacity to survive. The wild turkey game farm operation ended in 1959. The release of captive-reared or game farm turkeys has not been allowed since that time.

In southwestern New York, wild turkeys from Pennsylvania established healthy breeding populations and expanded rapidly. In 1959, the Conservation Department started trapping wild turkeys in southwestern New York for release in suitable unoccupied habitats elsewhere in the

State. This allowed more rapid expansion than would occur naturally. Over the next 35 years, the Department moved nearly 1,400 birds within New York State. This trap-and-transfer effort was an unqualified success. Wild turkey populations are now established statewide and occur in parts of the state that were considered unsuitable for wild turkey when transfers were first started. This expansion is due to the adaptability of the bird and beneficial habitat changes caused by human activity (e.g., dairy farms enhance turkey habitat).

In addition to in-state trap-and-transfer, New York has sent nearly 800 turkeys to Vermont, Massachusetts, New Hampshire, New Jersey, Connecticut, Minnesota, Rhode Island, Delaware, and the Province of Ontario, helping to re-establish populations throughout the Northeast and Midwest.

New York's first modern wild turkey hunting season was held in the fall of 1959, one year after the Legislature granted the Conservation Department the authority to regulate turkey hunting. The first fall season was a three-day either-sex season limited to two southern tier counties (Allegany and Cattaraugus); an estimated 250 birds were taken. The first spring turkey hunting season was held in five Southern Tier counties (Allegany, Cattaraugus, Chautauqua, Chemung, and Steuben) in 1968 with an estimated take of 135 male turkeys or "gobblers".

Since 1959, many regulation changes have occurred. Turkey hunting opportunities have expanded with new areas opened to hunting, harvest limits increased, and seasons lengthened as wild turkey populations expanded. At the present time, all 55 counties north of the Bronx/Westchester County line are open to spring hunting with a bag limit of two bearded birds (primarily males or gobblers). These same 55 counties are also open to either-sex fall hunting, with some areas having a two-bird limit and the remainder a one-bird limit (see Appendix I). Additionally, many thousands of New Yorkers have excellent opportunities to observe and enjoy wild turkeys.

III. Wild Turkey Population Dynamics

While much is known about wild turkey population dynamics, the relationships between weather, habitat, and turkey populations are not fully understood. Turkey production and mortality can fluctuate greatly in response to environmental conditions. Turkey populations may increase dramatically one year and decline just as rapidly the next, based solely on environmental conditions.

In its simplest form, population dynamics can be broken into two components: births and deaths. When more turkeys are added to the population in a year than are removed, the population increases, and vice versa. Changes in wild turkey populations are caused by changes in production and mortality. In turn, each of these major factors are influenced by many environmental variables.

Production

Production is expressed as the number of "poults" or young turkeys, added to the population for each adult hen (poults/adult hen). The production for any given year is determined by the percentage of adult hens that breed and attempt to nest, the number of eggs laid, the percentage of hens that successfully nest (successfully hatch one or more eggs), and the poult survival rate. Of these factors, the first two tend to be fairly stable and do not cause much variability in production. Variation in nesting success and poult survival cause much of the annual variation in production.

The percentage of hens successfully nesting varies greatly based on habitat quality, predator populations, and weather. Many nests are destroyed by raccoons, skunks and other predators. Adult hens are sometimes killed as well. As predator populations increase, or nesting habitat quality decreases, the predation rate increases and production drops. Predator populations and habitat quality change, but slowly. Most of the annual fluctuation in nesting success appears to be caused by weather, especially rain. While some nests can be lost to flooding of low areas or freezing temperatures, some turkey biologists now believe that rain increases the ability of predators to find and prey on hens and nests. (Moisture enhances a predator's ability to find prey through smell.) Under good conditions, 60-70% of hens may nest successfully. In poor conditions, nesting success may be 40% or less.

Poult survival also is highly variable and driven by weather. Even under the best of conditions, poults have a very high mortality rate (approaching 50%) during the first month of life. During abnormally wet years this mortality can be even higher. In years of very cold, wet springs, or years with violent spring storms, these losses can reach 75% or higher. This occurs primarily at 10-20 days of age when the poults are too large for the hen to effectively brood them, but not yet large enough to maintain their body temperature. In addition, poults require large numbers of insects for food. In years with low insect populations, they may have trouble finding adequate food supplies to support their growth.

Mortality

After the first two months of life, the primary source of mortality for turkeys is predation, which generally exceeds hunting mortality. Hens suffer heaviest predation during the nesting season, while incubating their eggs. Mortality rates of 10% or more have been observed for hens during the nesting and brood-rearing period. Predation rates for hens are relatively constant but lower for the remainder of the year. Annual mortality rates approaching 50% are common. Natural predation rates for adult toms are much lower than for hens. However, in a heavily hunted population, a high percentage ($\geq$25%) of adult toms may be taken by hunters.

At the northern extreme of their range, which includes much of New York State, deep snow can cause additional winter mortality. Because turkeys generally walk to food sources rather than fly, they encounter problems when there is soft snow in excess of 6-8" on the ground. Soft snow in excess of 12" can stop almost all turkey movement on the ground. During periods of very deep soft snow turkeys may remain on the roost for days at a time. A healthy turkey has adequate fat reserves to last for 2-3 weeks. If they continue to have limited (or no) access to food, turkeys will die from starvation. In extreme cases, winter mortality rates of up to 50% have been observed.

Studies of wild turkey populations strongly suggest that hunting is "additive" to mortality from other sources (e.g., accidents, disease or predation). This means that when hunting mortality increases, overall mortality increases and the population may decline. When the harvest rate of adult hens during the fall hunting season is about 10%, the population tends to stabilize. When harvest rates are 15% or higher, long-term population declines may occur. To read more about turkey population dynamics and hunting mortality see the following references: Little et al. (1990), Vangilder and Kurzejeski (1995), and Pack et al. (1999).

Two excellent sources of information on the biology and management of wild turkeys are Dickson (1992) and Healey and Powell (2000).

IV. Monitoring and Protecting the Wild Turkey Population

Objective: Obtain and maintain the necessary information about the status of wild turkeys to ensure the long-term security of the population and to support our outreach programs. Provide an annual assessment of wild turkey population status.

Monitoring population status is a critical component of any wildlife species management program. The results of population monitoring are used for two important yet very different purposes. First, management decisions depend on our ability to determine if the population is increasing, decreasing, or stable. Without the ability to monitor population trends we would be limited to conservative management regimes to ensure that the population remains secure. Second, population monitoring is used to support our outreach programs. Knowledge about turkey densities, hunter densities, and hunter success is of great interest to turkey hunters. The availability of information about wild turkey biology and the status of turkey populations is also important to the non-hunting community. These data provide the basis for responding to numerous contacts from hunters, the media, and others. If we are unable to provide credible information of this type, public confidence in DEC's turkey management program will suffer.

We collect several kinds of information to monitor the status of New York's wild turkey population. Collectively, they are an excellent data set for monitoring trends in the turkey population for management purposes, and to provide information of interest to the public. Turkey populations can fluctuate greatly from year-to-year. In addition, turkey population indexes fluctuate due to environmental factors, which may influence turkey behavior and survey results. Due to these annual fluctuations, a minimum of 3-5 years of data are needed to identify real population trends.

Our current data sets give us a reasonable level of confidence that we can identify population trends and provide good information for our outreach program. Currently, New York has a level of monitoring similar to that recommended by Healey and Powell (2000) for "Spring Gobbler and Limited Either Sex Fall" turkey seasons, the season framework currently used in New York.

New York's wild turkey monitoring program consists of the following elements:

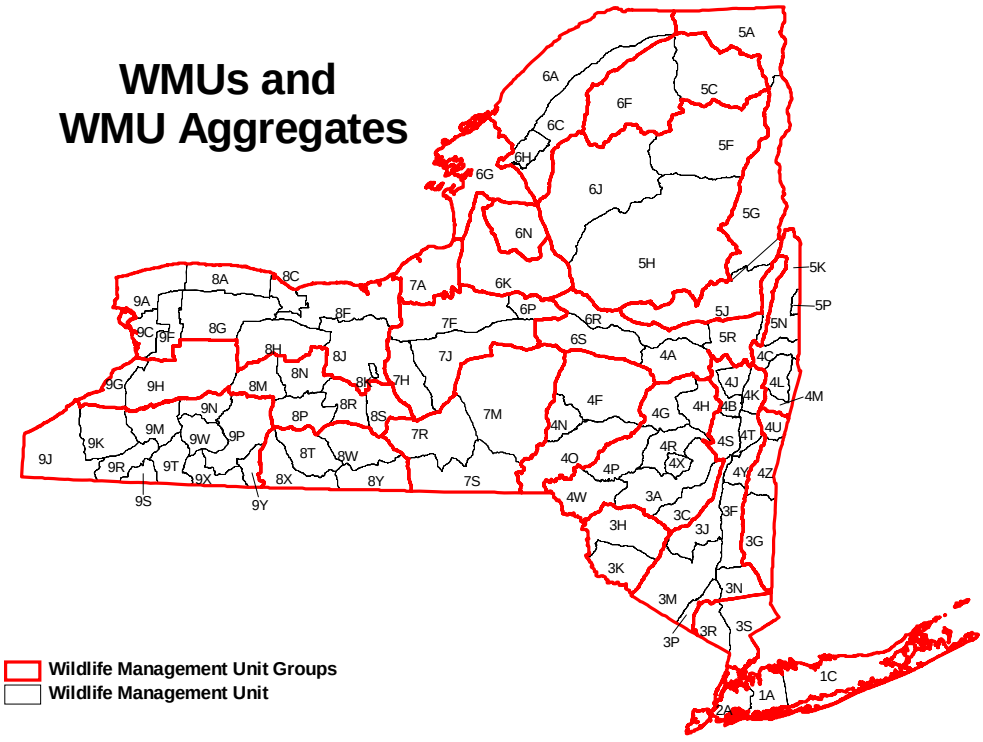
Turkey Hunter Pressure Survey

The Turkey Hunter Pressure Survey (THPS) provides estimates of the total harvest, the number of hunters, and the number of days of hunting pressure for various regions of the state. This survey has been conducted after each turkey season (spring and fall) since 1982. At the end of each season, approximately 12,000 randomly selected turkey permit holders are surveyed by mail to determine participation, effort, and success for that season. This survey provides statistically valid estimates of hunter pressure, effort, success, and harvest by various geographic units based on Wildlife Management Units (WMUs). With the current sample size, the 95% confidence intervals for statewide spring harvests are within ±10% of the estimates and for statewide fall harvests are within ±15% of the estimates. Estimates for smaller areas (e.g.,

aggregates of WMUs) are less precise and sample sizes would have to be increased significantly to obtain higher levels of precision.

There have been efforts for a number of years to use harvest data to index wild turkey populations. Take-per-unit-effort indices account for the effect of changing effort over time when using harvest as an index to population size. Indices of this type have been recommended by many wild turkey researchers as the best available index to turkey population levels and trends. The THPS was designed to provide such an index. In addition, the survey provides information on hunter effort per square mile, which can help predict the impacts of changing regulations. This information is also important to some hunters, as they attempt to find areas with good turkey populations and lower hunter densities.

The THPS is used to produce tables and maps of estimated harvest, numbers of hunters, days of effort and harvest per unit of effort for various geographic regions of the State. Although this survey collects data at the town and county level, the results are usually pooled to provide more reliable estimates at the county level or for aggregates of WMUs (see map below). A sample of THPS output data is provided in Appendix I.



Reported Harvest

Any hunter who takes a turkey is required by law to report the harvest to DEC within 48 hours of taking the bird. The reported harvest provides a measure of the distribution of the harvest by season date and town, wherever hunting occurs. However, due to incomplete reporting by hunters, the reported take is less than the actual total harvest. The degree of under-reporting has been increasing and currently only about 20% of the spring harvest and about 33% of the fall harvest are reported. The reported harvest also provides information used to estimate the sex and age (juvenile vs. adult) distribution of birds harvested, based on a follow-up collection of turkey legs by mail (see below).

Reported harvest data are available for every season since turkey hunting was re-opened in New York in 1959. This data set provides an excellent history of the expanding distribution of the turkey population across New York State. It also provides a history of the sex and age ratios of birds harvested during both spring and fall hunting seasons over a 40+ year period. While this may not accurately reflect the actual sex and age ratios in the population, it documents the demographics of the birds harvested. This information will be important for developing wild turkey population models for New York State.

The reported harvest has been used to produce harvest tables by county and town, maps of reported harvest per unit area, and tables of the sex and age composition of the harvest. All of this information is of great interest to turkey hunters and has been used in outreach efforts since the 1960s. New York's turkey hunters want to know what was harvested and where. A sample of reported take data is presented in Appendix I.

While the reported take provides the most accurate information on distribution and composition of the harvest, the hunter pressure survey gives a much better estimate of hunter effort, success, and total harvest, over broad areas. The best picture available, however, comes from a combination of both. By using the two data sets, we can estimate reporting rates for various regions of the states and expand the reported take to a realistic estimate. The resulting "calculated harvest" gives a good picture of the distribution of harvest and a reasonable estimate for relatively small areas of the state. These data were not historically used in public reports due to delays in sampling and analysis. With the implementation of DEC's Automated Licensing System (DECALS), these problems have been eliminated and these data can now be used as the primary harvest estimates we report, starting with the spring 2004 harvest estimate. Spring and fall calculated harvest by county for 1999-2003 and the corresponding reported take can be found in Appendix I.

August Sighting Survey

Beginning in 1996, DEC staff and volunteers have reported turkeys they see during the month of August. We selected the month of August because poults are large enough to be easily seen but are still noticeably smaller than the hen. In addition, the second or third cutting of hay is being harvested and turkeys are more visible in fields. Observers report the number of adult toms, adult hens, and poults in each flock, observed during routine travel. These reports are used

as an index of production (poults/hen) for that year. This survey provides an index only to the current year's production, not population size or trends. This is the only index to production we have prior to the fall hunting season, independent of harvest.

This information has a variety of uses. It is used in our outreach programs just prior to and during the fall hunting seasons, to provide status information to hunters and the sporting media. It is used to help predict and explain short-term changes in the turkey population, and in some cases turkey behavior and hunter success. Because we do not change hunting regulations based on annual fluctuations, these data are not used for setting seasons. However, it provides information that can help explain or model long-term population trends.

Bow Hunter Log

Beginning in 1998, New York implemented a statewide bow hunter sighting log to index the relative abundance of various wildlife species, including turkeys. Log sheets are distributed annually to several thousand cooperating archery deer hunters across the state. These archers record wildlife seen and time spent hunting. The data are converted to the number of animals seen per 1000 hours. The analysis done includes an overall index of abundance for each year (by geographic area) and an analysis of change for just those hunters who reported observations for consecutive years.

Surveys of this type have been developed and used successfully in several states including West Virginia, Missouri, Minnesota and Wisconsin. This survey provides an index to turkey populations that is independent of the turkey hunting season. Like the fall harvest, this index is heavily influenced by environmental factors, other than the size of the turkey population, such as habitat and food supplies. This index is not directly comparable between geographic regions because of differences in hunting effort and distribution. It also is not a reliable index for simple year-to-year changes, but it does provide a useful long-term trend index for a given area. With only 7 years of data so far, we are just beginning to examine the bow hunter log data to look for trends in wild turkey populations.

Additional Monitoring

Given the limitations associated with the various surveys described above, there remains a need for a more systematic and reliable assessment of turkey population status. Ideally, this should be independent of harvest, less sensitive to observer variation or bias, and conducted in time to be considered in season-setting when necessary. In the next several years, we will investigate additional population surveys and monitoring methods as appropriate, such as winter sighting surveys, mast surveys, and use of the North American Breeding Bird Survey (BBS).

In addition to population surveys, we will investigate the feasibility of periodically determining wild turkey harvest and/or survival rates. Leg-banding wild turkeys in winter, with a sub-sample of birds radio-tagged may be a useful program to explore. DEC, in cooperation with Pennsylvania and Ohio, has submitted a project proposal to the National Wild Turkey Federation (NWTF) to help fund such a study.

V. Public Use and Enjoyment of the Wild Turkey Resource

Objective: By 2010, 80% of surveyed turkey hunters will indicate that they are satisfied (including at least 25% highly satisfied) with turkey hunting opportunities and turkey populations.

Ever since the wild turkey was restored to New York State, there has been interest in public use of this resource. Interests range from commercial use to enjoyment from simply knowing that turkeys were restored.

Traditionally, the Department's focus for wild turkeys has been on hunting. Turkey hunting is very popular and is one of the few types of hunting that has had an increasing number of participants. Sales of turkey hunting permits have exceeded 250,000 per year since 2000 (Fig. 1) , and DEC surveys indicate that more than 100,000 of those permit holders participate in turkey hunting spending in excess of 1 million days annually in this activity (Fig 2). These same surveys indicate that New York hunters take 50,000 to 70,000 wild turkeys each year (Fig. 3). In addition to being very popular recreation, turkey hunting is a major contributor to New York State's economy. In 2003, spring turkey hunting alone was estimated to contribute $100 million to New York State's economy (Southwick Associates 2003).

Figure 1. Number of turkey permit holders in New York

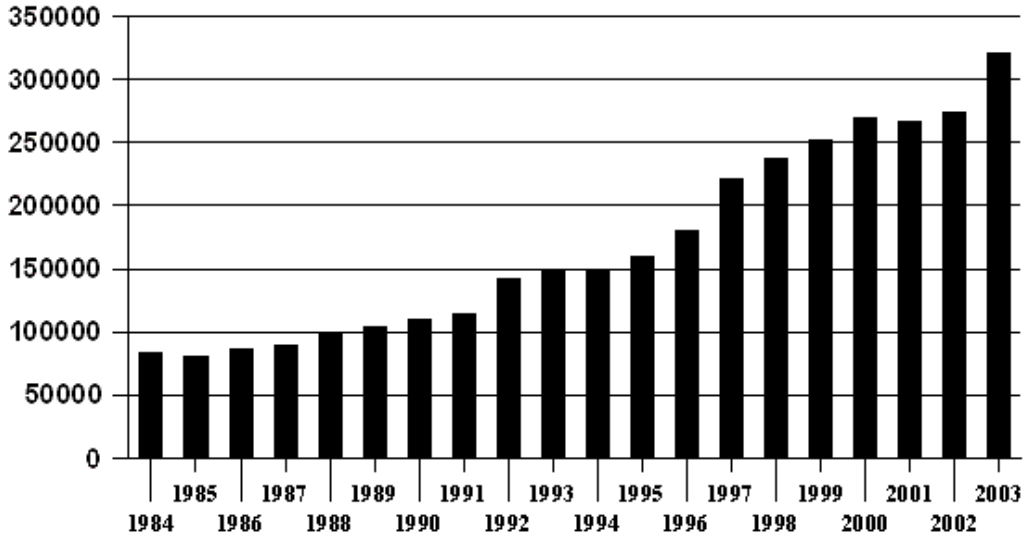


Figure 2. Number of days spent turkey hunting in NY

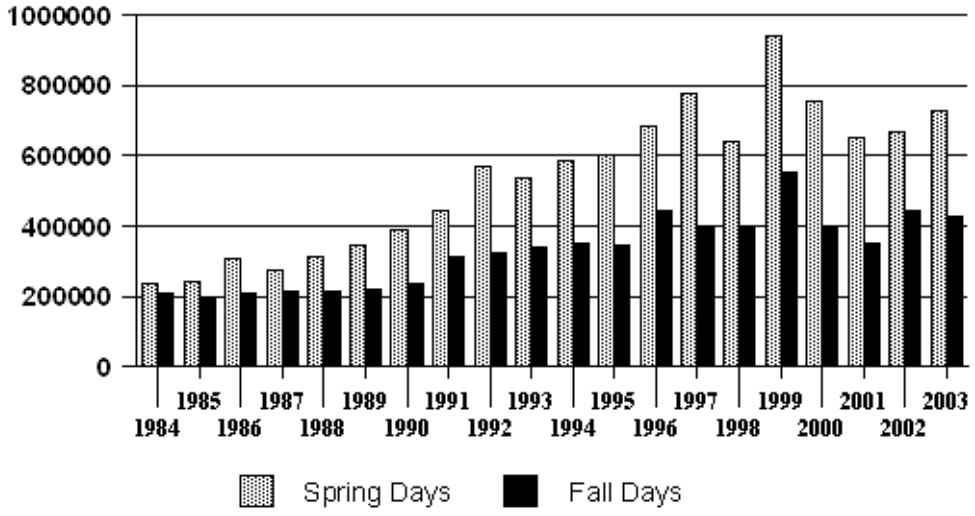
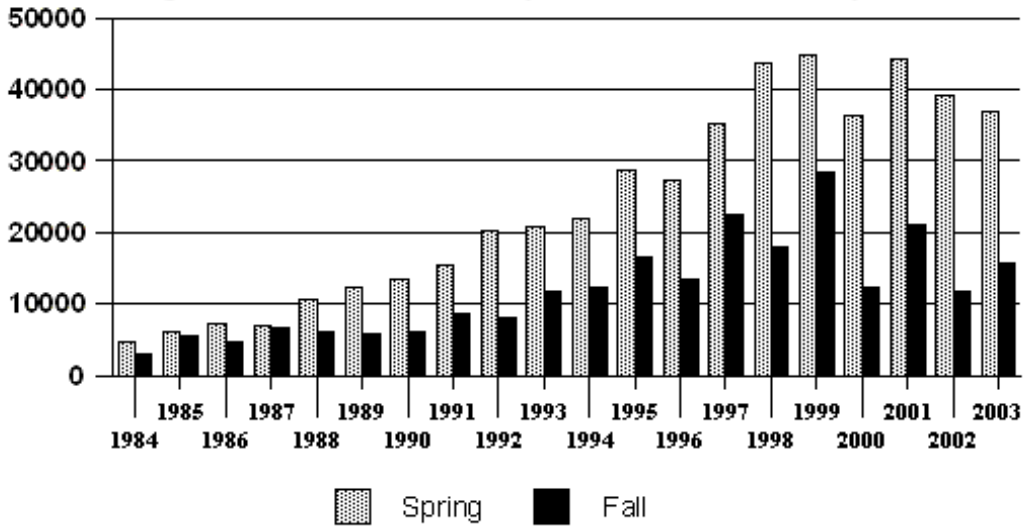


Figure 3. Calculated turkey take in New York, by season



Some hunters have suggested that hunting opportunities should be increased when populations are high and reduced when populations are lower. However, frequent changes in turkey populations due to environmental factors make it impractical to adjust annual hunting regulations in response to periods of greater abundance or scarcity (see "Population Dynamics", page 5). While it is theoretically possible to adjust seasons in response to short-term changes in populations, the necessary data (e.g., a production index) would not be available until weeks before opening of fall seasons. At that point, there is not enough time to amend hunting regulations for that season, and it would be impractical to communicate changes in season dates or bag limits to hunters. Also, it would be prohibitively expensive to collect and analyze data to document these short-term population changes in a meaningful and scientific manner. Therefore,

development of any criteria or "trigger" mechanism for regulations changes would have to be based on longer term (e.g., 3-5 year) trends rather than year-to-year changes in turkey abundance.

Consequently, we have chosen the approach of setting relatively liberal (but sustainable) seasons that remain stable regardless of possible short-term changes in populations. This approach provides excellent opportunities for hunters, without threatening the long-term health of the wild turkey population. Relatively stable and easily understood regulations allow hunters to plan trips and vacation time well in advance. It is also easier for us to evaluate the effects of regulations on the turkey population.

For longer term adjustment of regulations, we will investigate the use of various criteria, such as take-per-unit-effort based on the Turkey Hunter Pressure Survey data, to trigger an evaluation of season structure in response to changes in the turkey population. To date, we have not employed any specific criteria for changing regulations to increase or decrease harvest opportunities or hunter satisfaction. This is due in part to the continued growth of wild turkey populations under the regulations we have adopted. However, we may need to have such a tool when populations stabilize or decline, or in response to hunter concerns about populations or hunting quality.

In recent years, the Department has recognized the demand for enjoyment of wild turkeys for reasons other than hunting. These include nature photography, wildlife feeding, casual observation (both in the wild and at feeders), and formal observation/nature study. The sight of turkeys feeding in fields or along roadsides adds to the quality of life for many people who may know little about these birds. Feeding wild turkeys is allowed in New York State, as long as it does not serve to "bait" turkeys into huntable areas (during hunting seasons) and as long as deer are not attracted to the food provided. In addition, there are activities not commonly thought of as "use" such as habitat management through which people derive enjoyment or satisfaction in seeing wildlife use.

There is currently no estimate of the amount of recreation generated by non-consumptive activities associated with wild turkeys in New York. However, the 2001 National Survey of Hunting, Fishing and Wildlife Associated Recreation (U.S. Fish and Wildlife Service 2001) estimated that 3.9 million people participated in traditional wildlife watching/photography/feeding recreation in New York State. Because of the tremendous surge in popularity of wildlife viewing across a wide spectrum of social, age, educational, and economic classes, it is essential to recognize wildlife viewing as a major benefit of the wild turkey population.

The Department is open to proposals for new, expanded or reduced recreational uses of New York's wild turkey resource. Proposals to change turkey management will be evaluated using the "Decision Making Tool" developed for this plan (see Appendix II). This includes management initiatives from all sources, both within the Department and from the public.

VI. Turkey Nuisance and Damage Management

Objective: By 2010, 80% of persons who complain about turkey nuisance or damage problems will receive information, services, or both, sufficient to satisfactorily resolve their concerns.

The growth in the wild turkey population over the last 2-3 decades has seen this species become established in virtually all areas of the state. While turkey complaints have not been uniformly recorded, reports from field staff indicate that there has also been an increase in turkey nuisance and damage complaints. Most of these complaints still concern agricultural damage, but there are now cases of turkeys causing problems in nonagricultural situations. As we shift from an era of population restoration to long-term stewardship of an established and secure turkey resource, it is necessary to address wild turkey nuisance complaints and damage.

In this section of the plan, we will:

- describe the current scope and magnitude of turkey damage problems in New York as we understand them;
- explain DEC's legal authority and approach in handling damage problems; and
- discuss the various options available for landowners and wildlife managers for alleviating nuisance turkey problems.

Overview of Turkey Damage in New York

Prior to the mid-1980s, turkey damage complaints were rare in New York State. Fewer birds, coupled with their general restriction to non-agricultural (forested) portions of the state, meant that turkeys seldom posed problems to farmers and other landowners. By the 1990s, however, the number of complaints was rising. As turkeys expanded into previously unoccupied range, complaints came from geographically diverse areas of the state. While not approaching the magnitude of complaints generated by deer or beaver, turkey damage does occur and needs to be addressed. In a recent study by the Human Dimension Research Unit at Cornell University, 30% of farmers reporting wildlife damage listed turkeys among their top three species of concern (Brown et al. 2004).

As turkey populations have grown and expanded into new areas of the state, the types of damage have also expanded. Fifteen years ago, a typical complaint may have involved corn or winter wheat. Today, complaints also include damage to golf greens, stored silage, vineyards and hazards to aircraft when turkeys are on runways.

Because turkeys are large, conspicuous, and active in daytime, they are easily seen. In some cases, they may appear to be damaging crops when they are actually feeding on insects. For example, recent research in the Midwest indicates that turkeys are often blamed for agricultural damage caused by other species such as raccoon and deer (Gabrey 1991, Payer and Craven 1995,

Swanson et al. 2001). Similar findings have been reported for vineyards in western New York (R. Eriksen, National Wild Turkey Federation, unpubl. data). Therefore, one of our biggest challenges may be determining what species is actually responsible, and addressing that damage with the landowner's understanding and support. This illustrates the important role of staff in verification of damage.

Definition of Damage

For the purposes of this plan, damage occurs when wild turkeys become a nuisance, destructive to public or private property (including agriculture), or threaten public health or welfare. DEC staff verify the cause and magnitude of the damage and recommend solutions to alleviate the damage.

Legislative Authority and Legal Mandates

The Environmental Conservation Law (ECL) specifies in:

§11-0303(2): "...the Department is directed...to develop and carry out programs and procedures which will...lead to the observance of sound management practices with regard to...the compatibility of production and harvesting of fish and wildlife crops with other necessary or desirable land uses."

§11-0521(1): "The Department may direct any Environmental Conservation Officer, or issue a permit to any person, to take any wildlife at any time whenever it becomes a nuisance, destructive to public or private property, or a threat to public health or welfare...Wildlife so taken shall be disposed of as the Department may direct."

§11-0521(3): "Nothing in this section shall be construed as requiring or obligating the Department to take wildlife or to direct the taking of wildlife when in its opinion the nuisance, destruction of property, or threat to public health and welfare will not be effectively abated thereby."

§11-0709(1): "When a license or permit issued by the department...permits taking of fish or wildlife, such taking is exempt from the requirement of a license...unless the license or permit or the statute authorizing its issuance states that such a license is required."

Current Status of Damage by Wild Turkeys

Types of Damage

Department staff have received complaints about turkey damage or nuisance involving:

- grapes in vineyards
- stored silage - pecking holes in agricultural silage storage bags ("ag-bags") or entering bunker silos and eating silage, or both
- strawberries

- harvested ear corn stored in outside cribs
- seed, seedling, and mature standing corn
- seed and seedlings of other grains such as wheat, rye, and oats
- clover and alfalfa, especially digging up roots
- tearing up turf on golf greens and newly-established lawns
- digging up residential gardens and consuming vegetables and flower bulbs
- acting aggressively toward people
- damaging cars by scratching and pecking
- posing a hazard to aircraft on runways

Based on our own observations and complaints received, damage to grapes and stored silage appear to be the most significant concerns. In many cases, the level of concern and severity of the damage is in direct proportion to the number of turkeys involved. However, in some cases even a small number of birds can cause significant damage (e.g., golf greens, high-value crops, or turkeys on runways).

Vineyards

It is not surprising that damage to grapes is an issue of growing concern in the agricultural community. The increase in wild turkey populations, coupled with a shift towards premium varieties of grapes, has set the stage for this situation. Wineries in New York, many with their own vineyards, now number more than 160, located in 32 of New York's 62 counties. Although the Finger Lakes area is still the largest and best-known wine-making region in the state, it only has about half of New York's vineyards. The Hudson Valley, Long Island, Lake Erie Lake Plain, and Central New York are also important grape producing regions. During 2003 and 2004, DEC and the National Wild Turkey Federation cooperated in studies using motion-activated cameras to document wildlife damage in selected vineyards in Chautauqua County. They found that turkeys were responsible for little (if any) damage to grapes in those vineyards. In most cases, deer and raccoons were the primary species eating grapes in those fields. Additional studies in other areas of the state are planned.

Stored Silage

Damage to agricultural storage bags ("ag-bags") and stored silage has also become more of an issue in recent years. Just as grape damage is largely confined to certain areas of the state, damage to stored silage is found wherever dairy farms and turkey habitat overlap, and is especially acute in areas of heavy snowfall. When snow blankets the ground in these areas, turkeys turn to stored silage for a readily available source of food. Hungry turkeys, stressed by severe winter conditions, can be very difficult to discourage. Birds under these conditions may lose much of their normal fear of humans and actively feed on silage in close proximity to people and barnyard activity. Fecal contamination of silage is a related concern expressed by farmers.

Other Types of Damage

Another common complaint from farmers involves turkeys digging up newly-planted corn, or the roots of small crops. While turkeys are capable of this type of damage, crows, blackbirds, and small mammals are often causing the damage. From late spring to early fall, turkeys spend considerable time in fields eating insects, which are needed for protein and may not be damaging crops at all.

In suburban areas, turkeys not subject to hunting pressure may appear tame and may be more prone to inflict damage to golf courses, gardens, and lawns. Sometimes during the spring breeding season, turkeys in suburban areas are reported pecking at cars, and chasing or otherwise intimidating people. Large, shiny objects such as cars or windows may prompt aggressive behavior by males during the breeding season.

Airport managers are understandably concerned about turkeys near runways, as a turkey strike to an aircraft can result in significant structural damage to the plane, and endanger the occupants.

Dealing with Problems

The Department will use all available measures to provide solutions to farmers, homeowners, other individuals, businesses, or other entities that are experiencing problems with wild turkeys. While the Department will be unable to make field inspections in all cases, we are committed to maintaining current knowledge of the nature of turkey complaints, trends in reports of turkey damage, and how to alleviate problems in the most cost-efficient and timely manner possible. The Department will provide the following forms of assistance:

- *Damage Verification* - Research has shown that turkeys may not necessarily be responsible for damage they are thought to cause. This is a critical determination if staff and landowner effort is to be directed appropriately and the problem solved. This determination may be made with or without a site visit, depending on such things as the type of crop or resource affected, available evidence, past experience, and landowner interest and knowledge. Staff familiarity with the damage patterns of various species is key, and creative or non-traditional verification methods may be necessary. Under certain circumstances, motion-triggered cameras may be used. In other cases, a limited kill permit and subsequent analysis of crop contents may be used. Staff will assist landowners in resolving their wildlife damage problems, regardless of what species is responsible.

- *Information and Education* - Once a complaint has been evaluated, DEC will provide information and advice to the affected landowner. This information will vary depending on severity of the damage and the species believed to be responsible. In cases where a species other than wild turkey is found to be the cause, we will proceed as appropriate for that species. In cases where turkeys are found to be causing nuisance or damage, we will provide information and assistance to reduce or prevent this nuisance or damage. A good source of information on wildlife damage management is the recently published “Best Practices for Nuisance Wildlife Control Operators: A Training Manual ” (NYSDEC et al. 2004), which can be viewed on-line at: http://www.nwco.net/.

- *Technical Assistance* - In situations where information and education alone will not mitigate concerns about turkey damage, site-specific technical assistance will be offered to the landowner. This technical assistance may include lethal or non-lethal methods and, in either case, will include planning and action to prevent future problems.

- *Lethal Control* - In appropriate situations, permits will be issued authorizing the destruction of turkeys causing damage, as specified in ECL §11-0521.

- *Non-Lethal Control* - This may include attempts to modify the behavior of the turkeys causing damage, removing the attractant, habitat modification, or installing barriers to reduce the damage (see Management of Problem Turkeys below). Non-lethal control methods may be used at any time without a DEC Permit.

Management of Problem Turkeys

Turkeys can be very persistent, and efforts to control them must be just as persistent. The good news is that, unlike other species such as deer or raccoon, turkeys are not active at night. This makes it easier to confirm the source of damage and to develop solutions to reduce problems. A variety of techniques that may be used to alleviate problems associated with turkeys are discussed below. For additional information, consult the Nuisance Wildlife Control Manual (NYSDEC et al. 2004), cited above.

Removal of the Attractant

Sometimes just removing or covering an attraction will solve a nuisance problem. Situations related to seasonal territoriality may be resolved in this way by temporarily removing an item such as a car, or by covering reflective surfaces with non-reflective material for a few weeks. If turkeys are digging up flower bulbs or certain vegetables in a garden, landowners may want to consider planting alternate species that are less attractive to turkeys.

Habitat Modification

Modifying habitat in the vicinity of a problem area may help reduce turkey damage by reducing the number of birds present in that area. Reduction in the amount of brushy cover on-site may discourage nesting, which would affect future numbers in the local area. Elimination of certain favorite roost trees also may cause turkeys to roost farther from the damage area. Turkeys drawn to an area by an unrelated natural food source may be doing damage opportunistically, as a by-product of spending more time in the area. In such cases, removal of the primary food source may cause the birds to move on.

Exclusionary Devices and Fencing

Short of removing the attractant altogether, the next best thing is a physical barrier of some kind between the attractant and the birds themselves. Since turkeys can fly quite well, the

best barriers are those that totally enclose the attractant. However, this may only be practical for small areas such as residential gardens or small corn cribs. Top-netting over a conventional welded wire or chicken wire enclosure would serve this purpose. Although turkeys can fly, they prefer to walk. Even conventional fencing without top-netting may deter birds from areas of slight to moderate attractiveness, especially in conjunction with other control methods such as scare devices or dogs.

Behavior Modification Through Scaring

While total removal or physical protection of the attraction is the best long-term solution to a chronic damage situation, it is not always possible or practical. Scaring, in its various forms, is often the first thing relied upon to resolve a problem and in some instances can be a good deterrent for turkeys. Scaring is a type of behavior modification in which an attempt is made to teach or condition turkeys to avoid an area.

The effectiveness of scaring as a solution to turkey damage problems is dependent upon four factors:

- *Desirability of Food Source/Motivation Factor* - A turkey under the rigors of winter or presented with highly nutritious, easily accessible, or highly palatable foods will be more difficult to discourage.

- *Unpredictability of the Deterrent* - Scaring, whatever the method, works best when it is unexpected. Turkeys can become accustomed to scare techniques, especially if they are delivered without variation. The best strategy is always to vary the method and timing of scare tactics as much as possible.

- *Frightening Power* - Some things are just inherently more frightening to turkeys than other things. Overhead moving objects, loud disturbing noises, real or simulated natural predators, and the human form are all worrisome to the average turkey. The use of pie tins on strings, pinwheels, and rubber snakes will have limited effectiveness over time.

- *Persistence* - Perhaps the most important component of a plan to frighten turkeys is the tenacity and motivation of those responsible for the scaring. Animals learn by repetition, and someone must be in charge of seeing that the deterrent is a regular consequence of the undesired behavior. From the turkey's perspective, fear of the deterrent must be greater than the attraction to the food or resource, and it must be repeated enough to remain so over time.

Scare techniques can be broken down into several categories:

- *Manual activities,* such as shooting over the heads of turkeys, use of pyrotechnics such as shellcrackers or screamers[1], and manual harassment such as shouting and chasing;

- *Inanimate devices,* such as scarecrows, effigies, and imitation predators;

- *Wind-activated devices,* such as windmills, streamers, mylar balloons, wind chimes, and kites;

- *Remote-activated devices,* such as propane cannons, loud radios, and motion-detector sprinklers and noise devices; and

- *Use of live animals to chase/scare turkeys,* such as tethered dogs, or invisible-fence type systems with dogs trained to stay within the fenced area. The use of invisible-fence type systems and dogs for resolving turkey damage to agricultural crops is a method that holds considerable promise. Proven to work well for deer in certain situations such as orchards, its use for turkeys, in vineyards particularly, needs to be studied, and if proven effective, encouraged.

Monitoring Wild Turkey Nuisance and Damage Complaints

There is a need for better information on trends in wild turkey damage and nuisance complaints. Although Department staff have recognized an increase in the number of comments about turkey nuisance or damage, complaints were not common historically and record-keeping was not uniformly done by staff across the state. This is due in part to many comments being received while investigating other wildlife damage complaints, so they have not been recorded systematically. There is a need for more systematic documentation of nuisance and damage problems associated with wild turkeys in New York.

[1]Commercially available pyrotechnic devices that are shot over the heads of turkeys to frighten them. Shellcrackers are shotshell-like devices containing noise makers that are shot out of a shotgun, exploding 50–75 yards downrange. Screamers are rocket-like, making a loud whistling noise throughout their trajectory.

VII. Information and Outreach

Objective: Meet all information requests related to wild turkey conservation, use or enjoyment. All requests will be efficiently answered within one week of receipt.

Wild turkeys have a large support base among residents of New York. They are a highly sought-after game species and they are a highly visible species across the state throughout most of the year. They are among the most "watchable" wildlife species in New York, because of their large size, easy identification, conspicuous flocking and courtship behaviors, use of open fields, diurnal activity, and broad geographic distribution.

Because of these factors, there is a high level of public interest in wild turkey life history, management, and associated opportunities for people to enjoy the myriad benefits wild turkeys provide to New Yorkers. It is to the benefit of DEC, as well as to conservation organizations, that the phenomenal success of wild turkey restoration is understood and appreciated by the citizens of the State. The goal of our information and outreach programs will be to satisfy the public interest while promoting this broader understanding of wildlife management.

High Priority Outreach Activities

Wild turkeys provide myriad opportunities and needs for information and outreach activities. At a minimum, DEC will continue to be responsive to this in the following ways:

- *Respond to telephone, e-mail and regular mail requests for information on wild turkey biology, management, and hunting.* Timely and authoritative responses are essential to sustain support for turkey management programs.

- *Maintain wild turkey information on DEC's web site (www.dec.state.ny.us).* Specific web pages on various topics provide information to the public with the greatest efficiency and can greatly reduce staff time spent responding to individual requests. When possible, inclusion of information about habitat management techniques, viewing techniques and opportunities, and urban/suburban turkey issues would increase the value of these pages.

- *Meet regularly with key constituent groups, such as the New York State Conservation Council, the National Wild Turkey Federation, county sportsmen's federations, and agricultural interests.* These groups have a high interest in turkey biology and management. By meeting or communicating with them on a regular basis, we build and maintain strong working relationships with key stakeholders.

Medium Priority Outreach Activities

As time and resources allow, DEC and partner organizations interested in wild turkeys should cooperate and seek ways to carry out some additional information and outreach activities, such as those listed below. The list is meant to be illustrative of possible activities, and should not preclude other activities that may be suggested in the future.

- *Publish articles related to wild turkey issues in The Conservationist magazine.* The Conservationist magazine provides a very efficient method to reach a large and varied audience interested in wildlife and environmental issues in New York.

- *Update and expand the publications available on wild turkeys in New York.* The availability of good, current publications will speed and improve responses to requests for information. Publications on biology, management, life history, turkey restoration, hunting techniques, viewing opportunities, diseases and mortality, agricultural damage, and urban and suburban issues, especially related to feeding and nuisance problems, should be included.

- *Make presentations to school and community groups on wild turkey biology and management.* These presentations provide opportunities to educate our current and future constituents and improve the image and credibility of DEC, partner organizations, and the wildlife profession.

- *Develop multi-media presentations and/or slide shows for statewide use with various audiences.* The availability of one or more prepared programs would greatly reduce the time required to give consistent, high quality presentations to groups.

- *Produce a video that tells the story of wild turkey restoration in New York.* If possible, this should be done as soon as possible while those who participated in the restoration program are available to provide their personal recollections and insights.

- *Produce an annual report which summarizes current information and issues related to wild turkey population status and management.* Several states such as Connecticut have publications of this type which include harvest and production numbers, survey data, and updates on management programs. These are very popular with hunters.

- *Provide formal opportunities for the public to inform and educate DEC staff concerning their views, ideas, issues, and concerns related to wild turkeys.* This is done informally whenever we communicate with the public. However, a more formal process could improve the information received. This could include a special feedback section on the turkey page of DEC's website.

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