Making Decisions for Fall Turkey Harvest in New York State


Wild Turkeys In New York State

Over the last 15 years, turkey populations have been declining across the northeastern United States, including in New York State. Many hunters have noted this also, and voiced concerns to DEC. This population decline could be the result of a variety of environmental factors, including changing habitat conditions, weather conditions that affect productivity or survival, and larger predator populations. However, fall harvest, particularly of hens, could be contributing to this decline. Recent data from fall harvests in New York indicate that the proportion of the total hen population harvested in the fall has increased. Although changing fall season structure (season length, bag limit) is the best tool to manipulate fall harvests, the

actual effect on hen harvest rates is poorly understood.

In addition to concerns about the turkey population, DEC was interested in understanding hunters' current interest and satisfaction with fall turkey hunting and in taking hunter concerns and values into account when considering changes to fall hunting seasons.

To help managers make informed recommendations, DEC developed a structured decision-making process to evaluate potential fall turkey hunting season changes that account for hunter desires and the need to address the decline of turkey populations in each region of the state.

Wild Turkey Spring Harvest and Fall Sightings, 2000 – 2014
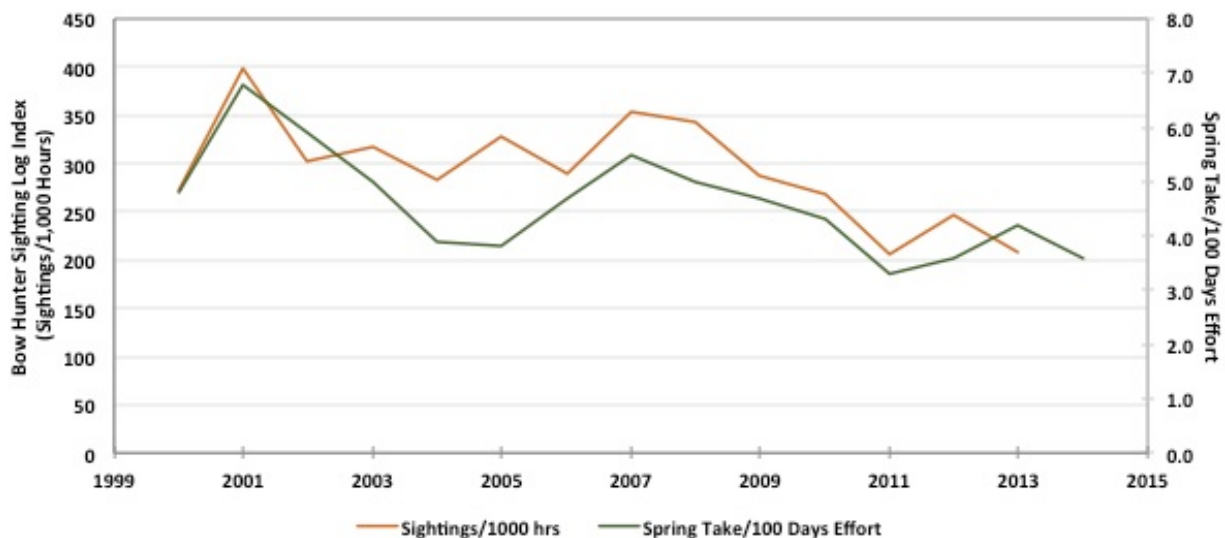
New Turkey Management Zones Based on Environmental Factors and Harvest Potential

To begin the decision making process, we developed a new fall turkey management zone (TMZ) structure. The first step in this process was to identify the appropriate spatial scale for setting fall seasons. We assessed how weather and landscape-scale habitat characteristics interact to influence turkey productivity and the turkey harvest potential of regions across the state. We found that May and June rainfall and the complexity of habitat types and edges between habitats are important determinants of the number of turkeys a particular region produces.

Turkey Management Zone
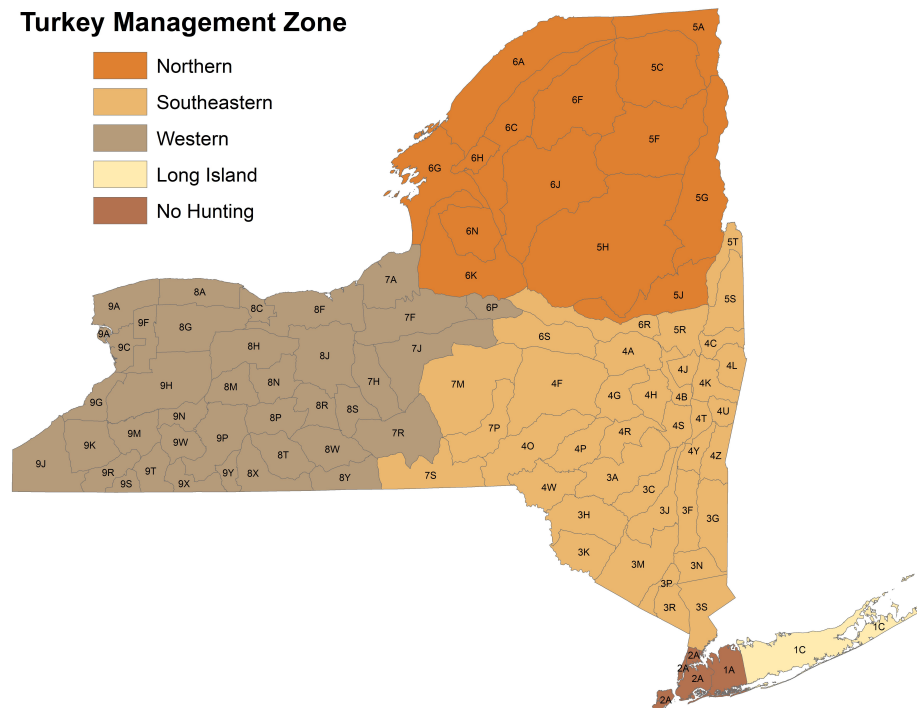
The resulting zones (Northern, Southeastern, and Western TMZs) were each evaluated for the optimal fall turkey harvest management strategy that best balanced turkey abundance and hunter satisfaction. Data from Long Island were too sparse for a full analysis, so we decided that the most conservative optimal management strategy from the other three TMZs would be applied to Long Island.

Structured Decision Making

Structured decision making, or "SDM", is a framework for making decisions that is very helpful when there are different stakeholder groups that have competing values and concerns about how a resource should be managed. SDM uses scientific evaluation of population biology and stakeholder values to identify an outcome that best balances competing interests. We used SDM to evaluate alternative fall turkey harvest strategies that incorporate the biological and social aspects of turkey harvest management in New York State.

The Steps of SDM

1. Define the Problem

2. Determine Objectives

3. Identify Alternative Management Actions

4. Evaluate Consequences (Outcomes) of the Management Actions

5. Evaluate Tradeoffs Among Objectives

6. Decide and Take Action

Objectives

1. Maximize the wild turkey population size in New York
   a. Minimize fall hen harvest rate
2. Maximize turkey hunter satisfaction
   a. Maximize fall harvest opportunity (turkeys available for harvest)
   b. Maximize fall harvest success
   c. Minimize conflicts with other hunters
   d. Maximize fall hunting opportunity (season length and bag limit)
   e. Maximize fall turkey observations
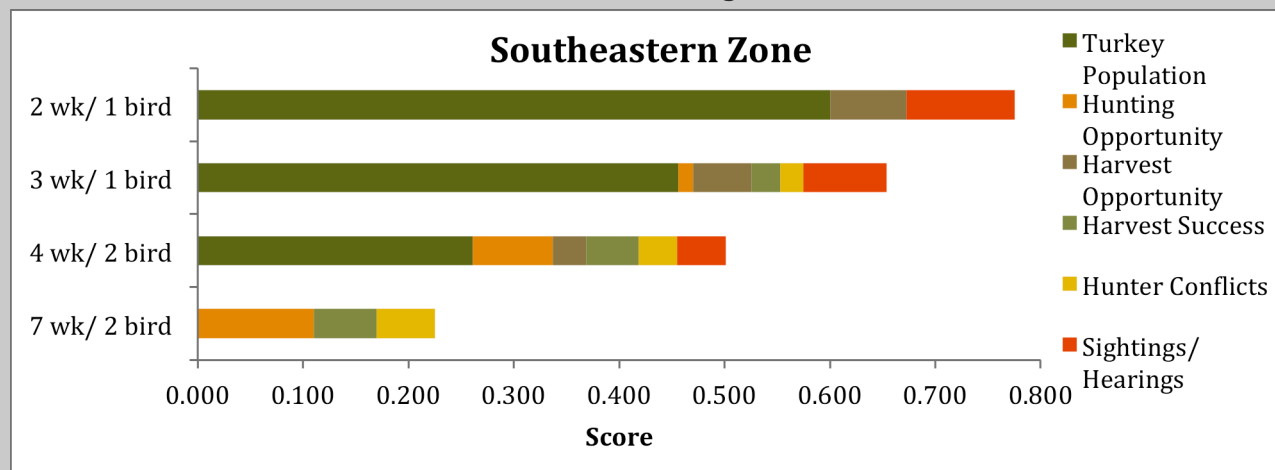
Alternative Harvest Packages

1. 2-week season / 1-bird bag limit
2. 3-week season / 1-bird bag limit
3. 4-week season / 2-bird bag limit (1/day)
4. 7-week season / 2-bird bag limit (2/day)
   (bag limit is a bird of either sex)

Outcomes of Harvest Packages

We evaluated how well each of the four harvest packages (see box to left) would achieve each of the specified objectives (see box to left). To do this:

1. We created a turkey population model to predict the outcome of each harvest package on population size and population growth rate projected over a five-year period when compared to current conditions.

2. We surveyed a random sample of turkey hunters throughout New York to determine the desired outcomes of hunters, what aspects of hunting they value, and how important the chance to go afield and harvest a bird was relative to turkey abundance. This helped us to determine, for each region, the relative importance of the hunter satisfaction objectives.

Evaluation of Tradeoffs

In SDM, tradeoffs among objectives are made by weighting the objectives based on stakeholder values. DEC biologists placed 60% of the relative importance weight on the turkey population and 40% on overall hunter satisfaction. This reflected DEC's concern about turkey population declines. The weight that hunters put on various objectives related to their satisfaction with fall hunting opportunity was determined through a survey of 6,250 fall turkey hunters. The weights identified by DEC biologists and hunters were then combined to calculate total weights for the turkey population and hunter satisfaction objectives. For each harvest package, a "score" was calculated 3 to reflect the degree to which each objective was satisfied.

Recommended Fall Harvest Strategies

Based on the important values of New York turkey hunters and DEC, the regulation package that could best achieve the multiple objectives was a **2-week season with a 1-bird bag limit**. This package was identified by the analysis as "optimal" for all turkey management zones, because it would result in the greatest potential for population growth, which served multiple objectives. We tested these results in several ways to see if they might have differed with small changes in the data we used. In all cases, the recommended strategies were the same.

Southeastern Zone

Legend:
- Turkey Population
- Hunting Opportunity
- Harvest Opportunity
- Harvest Success
- Hunter Conflicts
- Sightings/ Hearings

This figure shows how each objective contributed to the decision in the Southeastern Zone. Each color represents an objective, and the regulation package with the score was the "optimal" regulation. The turkey population objective was most influential.

Next Steps

The proposed fall hunting season changes will be evaluated as part of a four-year research program. DEC staff banded over 1,000 hens in 2013 and 2014, attaching satellite radios to a portion of these, to assess survival rates and harvest rates under our current fall season structure. DEC staff will continue to band and track hens in 2015 and 2016 in order to evaluate the impact of the modification to the fall season on harvest and survival. This approach allows for adaptive harvest management whereby this information is used, in addition to the abundance, productivity, and hunter survey data collected annually, to offer sustainable fall harvest opportunities that reflect environmental conditions and current trends in turkey populations.

Acknowledgments