**Turkey Hen Harvest and Survival Rate Study (2010-2014) Summary**

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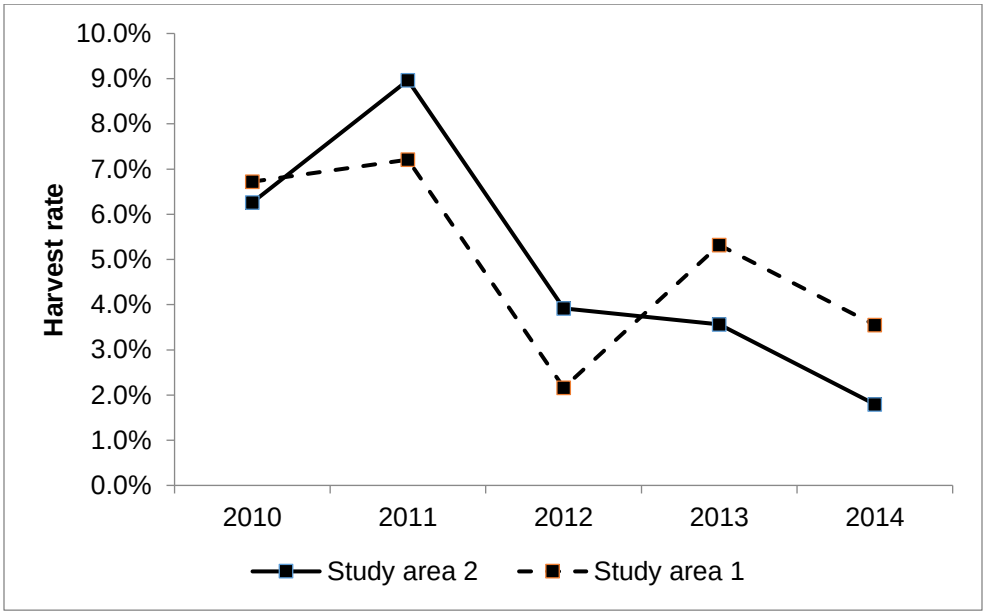
**Pennsylvania Game Commission**

One of our primary forms of turkey population management is maintaining a conservative fall either-sex harvest to regulate harvest of female turkeys, because hens are the driving force of the population via nesting, brooding and raising of young. However, another goal of maximizing recreational opportunities for fall turkey hunters competes with this conservative approach. Therefore, the goals of our 5-year hen turkey were to estimate the effect of a 1-week change in fall season length on harvest rates and incorporate harvest rate and survival data in models of turkey population dynamics to help direct future management decisions to provide the most recreational opportunity without impacting the turkey population.

We marked (via $100 reward leg-bands) 2,047 females via late summer and winter trapping (1,068 in Study Area 1 and 979 in Study Area 2) to estimate fall harvest rates each year. Of these, 288 also received backpack-style satellite transmitters (157 in Study Area 1, 131 in Study Area 2) to estimate survival from capture to fall hunting season. Fall hunting seasons differed by one week between study areas, then after 2 years seasons were reversed between study areas.

Results confirmed fall season length affected fall harvest rates; a 1-week season length change was associated with a 1.8% hen harvest rate change. This small change is significant because fall harvest rates were <10% during the 5-year study, especially given that hen annual survival is naturally low and variable by year. Adult hen survival from February - October averaged 55% (range, 34-71%) and juvenile survival averaged 39% (range, 19-56%).




Estimated harvest rates for female wild turkeys where Study Area 2 had a 1 week longer season during 2011-2012 and Study Area 1 had a 1 week longer season in 2013-2014, Pennsylvania, 2010-2014.

Additionally, annual productivity and hunter density also affect harvest rate. The next step is to develop a population model and a structured decision making criteria for fall hunting season recommendations that incorporate harvest and survival rate data obtained from this study, gobbler harvest rates from our 4-year gobbler study, productivity from our annual summer turkey sighting surveys, hunter and harvest densities from our annual hunter surveys, oak mast production from our annual acorn surveys and possibly habitat and weather data.

This study and the other two large-scale wild turkey studies we have undertaken since 1999 (WMU 5A population study and gobbler harvest rate study) have allowed us to learn a great deal about turkey population management. The culmination of these studies is now incorporating the data and knowledge gained into a dynamic population model and a structured, defensible, transparent decision-making model for establishing fall turkey hunting seasons. The fall season decision model provides a format that evaluates management strategies that balance competing objectives (e.g., turkey abundance and harvest opportunity), while seeking to provide for the simultaneous goals of sustainable use of turkey populations and optimal opportunities for hunters and other stakeholders.

The approach we envision for setting fall hunting seasons eliminates subjectivity by using data and a population model to identify an optimal season structure on an annual basis. We are developing these models cooperatively with Dr. Duane Diefenbach (Leader and Adjunct Professor of Wildlife Ecology USGS, Pennsylvania Cooperative Fish & Wildlife Research Unit, Pennsylvania State University), and Dr. Paul Fackler (Professor in Agricultural and Resource Economics, North Carolina State University), pending funding for Dr. Fackler. Model approval will be August 2017 in order to be used for the 2018-19 turkey hunting season recommendations.