

**MIDWEST DEER & WILD TURKEY STUDY GROUP  
2013 ANNUAL MEETING  
ROBERT ALLERTON PARK, MONTICELLO, IL  
AUGUST 18 – 21, 2013**



Submitted by:

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June 2014*



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## **Background**

The Midwest Deer and Wild Turkey Study Group (MDWTSG) meeting is an annual gathering of wildlife managers sanctioned by and affiliated with the Midwest Association of Fish and Wildlife Agencies. Primary objectives of the meeting include dissemination of deer and wild turkey management strategies, discussion of emerging or existing issues associated with deer and wild turkey management, and coordination of regional deer and wild turkey management or research efforts. The meeting location rotates among the Midwestern states that are active within the group.

Forums such as the MDWTSG meeting provide valuable opportunities for state deer and turkey biologists to become acquainted with emerging issues and exchange information and ideas related to deer and turkey research and management. The need for state fish and wildlife agencies to establish and maintain deer and turkey biologist positions and support travel of these biologists to the annual MDWTSG meeting is imperative for exchanging information to promote quality wildlife management and research in each state. It is more important than ever that state agencies are in the forefront of issues related to deer and turkey management in order to protect the heritage and recreational opportunities of hunting for future sportsmen and sportswomen.

## **Meeting Time and Place**

The Illinois Department of Natural Resources (IDNR) hosted the 2013 Midwest Deer and Wild Turkey Study Group Meeting at the Robert Allerton Park, Monticello, IL, on August 18 – 21, 2013. The field trip on August 20 consisted of a hike through fire- managed timber on-site with a discussion led by John Griesbaum, Allerton Park Natural Areas Manager and Eric Smith, Natural Heritage biologist, IDNR.

The MDWTSG appreciates the financial support provided by the Illinois Natural History Survey/Prairie Research Institute; University of Illinois/Natural Resources and Environmental Sciences; Whitetails Unlimited; National Wild Turkey Federation; Quality Deer Management Association; Professional Association of Conservation Resource Mangers; Fairmont Farms; and “Killin’ Fields” Private Huntin’ Area. Additional sponsors were Hunter’s Haven (caps and CDs) and Scheel’s (orange caps and a print).

## **Attendance**

Thirty-eight participants attended the workshop in 2013, including state deer and turkey biologists from 12 Midwest member states (Iowa, Illinois, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Ohio, South Dakota, and Wisconsin) and one Canadian Province, Ontario. Attendees from other organizations including the National Wild Turkey Federation, Whitetails Unlimited, Illinois Natural History Survey, University of Illinois, and Southern Illinois University.

A complete list of attendees and contact information for deer and turkey state biologists are available in Table 1.

## **Executive Summary**

Attendees at the 2013 Midwest Deer and Wild Turkey Study Group meeting were welcomed by Derek Peterson, Associate Director of Park Operations and John Griesbaum, Allerton Park Natural Areas Manager (Appendix 1) and included a history of Robert Allerton Park.

Several other speakers addressed the attendees as a joint group prior to the separate deer and turkey breakout sessions. Professional presentations given during the joint session included the following:

- Deer Management history on Robert Allerton Park
- LPDV (lymphoproliferative disease virus) in Wild turkeys
- External home range movement of white-tailed deer in agricultural landscapes
- Wild Turkey ecology in two intensively farmed landscapes in Central Illinois.
- Interacting with the press and the importance of good photos to enhance our message.
- Elk restoration in Missouri
- Elk restoration and management in Kentucky and Missouri
- Chronic Wasting Disease (CWD) management in Illinois

Numerous speakers presented timely information on issues related to deer and turkey research and management during individual deer and turkey breakout sessions. These topics included:

- Deer productivity by age class from fetal counts in northern Illinois.
- USDA gap analysis/countermeasures workshop on Orbiviruses.
- Captive cervid legislation: current status and proposed expansion
- Discussion and input on Wisconsin's white-tailed deer review and recommendations
- Wild Turkey Federation – “save the habitat, save the hunt” in Illinois, 2013 - 2023
- Monitoring bird population response to woodland management – implementation of the Illinois State Wildlife Action Plan
- Update on wild turkey consortium

The group participated in numerous discussions throughout the course of the meeting. Participants in the breakout sessions delivered state status reports on deer or wild turkey for their state or province and discussion focused on management issues. All participating states and provinces provided copies of annual status reports for deer (Appendix 4) and turkey (Appendix 5).

### **Business Meeting**

The Business Meeting was conducted as a joint session of the Deer and Wild Turkey groups on August 20, 2013 at 10 am. Several items of interest to the entire group were discussed as described below. Tom Micetich, Illinois DNR, moderated this session.

1. Future meeting location - No specific dates were proposed for the meeting, but it was identified that Missouri had always followed Illinois in the past; with Wisconsin and Iowa thereafter. Missouri will host 2014 meeting. A complete list of past host states is available in Table 2.
2. Cooperative deer genetics research update - Tom Litchfield (Iowa Department of Natural Resources) provided the group with an update from a deer research project at Iowa State University. The degree of relatedness of deer through space and how this may influence the spread of disease are of interest in this project. More to come.
3. Wild Turkey Consortium – Chad Parent offered an update of this ongoing project, and the potential importance of a regional framework for data sharing and management – which may be of assistance to biologists. To enable the management of a regional database to store these data and process analyses, financial support from numerous states or provinces has already been secured.



4. MDWTSG past proceedings/business collection and storage – an “atta boy” to North & South Dakota for creating a central storage location of past meeting information. Items included are past proceedings, resolutions, briefing papers, email surveys, and other historical documents. A website has been established to host all such information <http://mdwtsg.org/>. Bill Jensen worked on collecting all previous proceedings and some historical documents to be put on a CD, Andy Lindbloom developed a website for the Midwest Deer and Wild Turkey study group, 4 year cost is \$140.00
5. Midwest Deer-Vehicle Collisions – Project ongoing at Michigan State University, student interested in a geospatial statistical analysis of county level deer-vehicle collision data and traffic from across the region.
6. Discussion on what constitutes a summary report. Mike Tonkovich, Ohio, suggested adopting format similar to that of NE deer group. Our group decided to generate a list of items of interest from each state’s deer and turkey biologist. A smaller group will review the list and bring back suggestions for a summary “template” to be used in future reports.

#### **Director Information Items**

The Midwest Deer and Wild Turkey Study Group requests commitment by state Directors to support and encourage travel of state deer and turkey biologists to the annual Midwest Deer and Turkey Workshop.

**Table 1.** List of participants of the 2013 Midwest Deer and Wild Turkey Study Group Meeting.

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**Table 2.** Previous Midwest Deer and Wild Turkey meeting locations.

<b>Year</b>	<b>State</b>	<b>Location</b>	<b>Date</b>
1977	Missouri	Fountain grove Wildlife Area	January 17-19
1978	Wisconsin	Wyalusing State Park	January 16-17
1979	Iowa	Rathburn Fish Hatchery	January 15-18
1980	Minnesota	Whitewater State Park	January 21-24
1981	Indiana	Harrison-Crawford State Park	January 19-22
1982	Ohio	Lake Hope State Park	January 18-21
1983	Nebraska	Louisville 4-H Camp	January 17-21
1984	Kansas	Camp Aldrich	January 16-19
1985	South Dakota	Black Hills	May 7-10
1986	North Dakota	Camp-of-the-Cross	January 20-23
1987	Michigan	Kellogg Biological Station	January 27-29
1988	Illinois	Touch of Nature	February 1-4
1989	Missouri	YMCA Camp of the Ozarks	January 23-26
1990	Wisconsin	Bethel Horizons Prairie Center	January 15-18
1991	Iowa	Conservation Education Center	January 14-17
1992	Minnesota	Whitewater State Park	January 13-16
1993	Indiana	Harrison-Crawford State Park	January 11-14
1994	Ohio	Canter's Cave 4-H Park	January 30 - Feb 2
1995	Nebraska	Mahoney State Park	January 15-18
1996	Kansas	Camp Pecusa	January 14-16
1997	South Dakota	Camp NeSoDak	August 24-27
1998	North Dakota	Camp Grafton	August 9-12
1999	Ontario	Blue Springs Scout Reserve	August 15-18
2000	Michigan	Thunder Bay Resort	August 20-23
2001	Illinois	Dixon Springs Ag. Station	August 19-22
2002	Missouri	Conception Abbey	August 18-21
2003	Wisconsin	Bethel Horizons Prairie Center	August 24-27
2004	Iowa	Conservation Education Center	August 22-25
2005	Minnesota	Eagle Bluff Envir. Learning Center	August 21-24
2006	Indiana	Camp Ransburg, BSA	August 20-23
2007	Ohio	Canter's Cave 4-H Park	August 19-22
2008	Nebraska	Fort Robinson State Park	September 14-17
2009	Kansas	Rock Springs 4-H Camp	September 14-17
2010	North Dakota	Camp Grafton	August 22-25
2011	Michigan	Ralph A. MacMullen Center	September 25-28
2012	South Dakota	Custer State Park	October 16-19
2013	Illinois	Allerton Park and Retreat Center	August 18-21

**Appendix 1.** Agenda for the 2012 Midwest Deer and Wild Turkey Study Group Meeting, Allerton Park, Illinois.



**MIDWEST**  
Association of  
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## MEETING AGENDA

### Midwest Deer and Wild Turkey Study Group

18-21 August 2013, Allerton House

Robert Allerton Retreat and Conference Center, Monticello, IL

<http://allerton.illinois.edu/>



The Wildlife Society allows a maximum of 9 contact hours in Category I of the Certified Wildlife Biologist Renewal/Professional Development Certificate Program for participation in the 2013 Midwest Deer and Wild Turkey Study Group Meeting.

Joint Meeting/Business Meeting/Field Trip: 5.25 CEUs

Breakout Meetings: 3.75 CEUs for each category

### **SUNDAY - AUGUST 18**

6:00 PM Light buffet – Allerton House  
7:00 – 9:00 Social (open cash bar) Solarium  
4:30 – 8:00 Registration

### **MONDAY – AUGUST 19**

7:00 AM Breakfast – *Allerton House Dining Room*  
7:00 – 8:00 Registration

### **JOINT MEETING – The Library**

8:00 – 8:10 AM Opening remarks/logistics

8:10 – 8:50 **Welcome to Allerton Park and Allerton History** - John Griesbaum, Allerton Park Natural Areas Manager and Derek Peterson, Associate Director of Park Operations.

8:50 – 9:15 **Lymphoproliferative (LPDV) Disease in Wild Turkeys, an Update from Missouri and National Trends** – Jason Isabelle, Resource Scientist, Missouri Department of Conservation.

- 9:15 – 9:35      **External Home Range Movements of White-Tailed Deer in an Agricultural Landscape** – Matt Springer, Southern Illinois University – Cooperative Wildlife Research Lab.
- 9:35 – 10:00      **Wild Turkey Ecology in Two Intensively Farmed Landscapes in Central Illinois** – Dr. Patrick Hubert, Ontario Ministry of Natural Resources.
- 10:00              *Break*
- 10:30 – 10:55      **Interacting With the Press/Wildlife Photography** – Chris Young, Staff Writer/Photographer, The Illinois State Journal-Register.
- 10:55 – 11:25      **Elk Restoration in Missouri** – Dr. Lonnie Hansen, Resource Scientist, Missouri Department of Conservation.
- 11:25 – 11:40      **Elk Restoration and Management Q & A** – Dr. Tina Brunjes, Deer and Elk Program Manager, Kentucky Department of Fish & Wildlife Resources, Dr. Lonnie Hansen, Resource Scientist, Missouri Department of Conservation.
- 11:40 – 12:10      **Chronic Wasting Disease Research in Illinois** – Dr. Nohra Mateus-Panilla, Wildlife Veterinary Epidemiologist, Illinois Natural History Survey.
- 12:10 PM          *Lunch – Allerton House Dining Room*

## **DEER BREAKOUT MEETING – The Pine Room**

- 1:20 – 1:40      **Deer Productivity by Age Class from Fetus Counts in Northern Illinois** – Dr. Nohra Mateus-Panilla, Wildlife Veterinary Epidemiologist, Illinois Natural History Survey
- 1:40 – 2:10      **USDA Gap Analysis/Countermeasures Workshop on Orbiviruses** – Jason Sumners, Resource Scientist, Missouri Department of Conservation.
- 2:10 – 2:40      **Discussion of topics of interest to the group.**
- 2:40 – 3:00      **State Reports**
- 3:00 PM          *Break – Solarium*
- 3:20 – 5:00      **State Reports**

## **TURKEY BREAKOUT MEETING – The Oak Room**

- 1:20 – 1:45      **How NWTF Will Work to “Save the Habitat, Save the Hunt” in Illinois – 2013-2023** – John Burk, Regional Biologist, National Wild Turkey Federation.
- 1:45 – 2:05      **Monitoring Bird Population Response to Woodland Management - Implementation of the Illinois State Wildlife Action Plan** – Dr. T.J. Benson, Avian Ecologist, Illinois Natural History Survey.
- 2:05 – 3:00      **Update – The Midwest Wild Turkey Consortium** – Dr. Chad Parent, MWTC Coordinator, Michigan State University
- 3:00 PM            *Break – Solarium*
- 3:00 - 3:25      **Wild Turkey Response to Habitat Management** – Christopher Bottoms and Ryan Tebo, Southern Illinois University, Cooperative Wildlife Research Laboratory.
- 3:25 - 5:00      **State Reports**
- 6:00 PM            *Supper – Allerton Mansion Dining Room*
- 7:00 PM            **Evening Social – Solarium/Gallery/Terraces**

**TUESDAY – 20 AUGUST**

7:00 AM            *Breakfast – Allerton Mansion Dining Room*

**Deer Breakout Meeting – The Pine Room**

8:00 – 10:00      **State Reports**

**Turkey Breakout Meeting – The Oak Room**

8:00 – 10:00      **State Reports**

**Joint Meeting – The Library**

10:00 AM            *Break – Solarium*

10:20 – noon      **Business Meeting – The Library**

Noon                *Lunch – Allerton Mansion Dining Room*

1:00 – 3:00      **FREE TIME** – Explore the grounds and formal gardens, check out downtown Monticello, informal group discussions.



- 3:00 – 5:00            **Field Trip – National Natural Landmark – South Unit Forest Management** – John Griesbaum, Allerton Park Natural Areas Manager.
- 6:00 PM                *Banquet – Allerton Mansion Dining Room*
- 7:00 PM                SOCIAL and CASH BAR – Solarium

**WEDNESDAY – 21 AUGUST**

- 7:00 AM                *Breakfast – Allerton Mansion Dining Room*
- 8:00                    Depart



***A big thank you to the sponsors below!***

- Illinois Natural History Survey/Prairie Research Institute - U of I - \$1000**
- University of Illinois/Natural Resources and Environmental Sciences - \$1000**
- Whitetails Unlimited - \$750**
- National Wild Turkey Federation – \$500**
- Quality Deer Management Association – \$500**
- Illinois Professional Association of Conservation Resource Managers - Breaks**
- Fairmont Farms - \$320**
- “Killin’ Fields” Private Huntin’ Area - \$320**
- Hunter’s Haven – caps and CDs**
- Scheel’s – orange caps and print**
- Champaign Surplus – travel mugs and socks**

***Please support our sponsors!***



## **Appendix 2.** Joint Meeting and Deer Breakout Session notes provided by Robert E. Rolley.

**Welcome to Allerton.** We were welcomed by Derek Peterson who explained the history of the center and John Griesbaum who described the history of deer management and research on the park. Allerton Park was an un hunted refuge and the deer population grew through the 1980s and 1990s to a peak of 730 deer in 2004 (~75/mi<sup>2</sup>). Deer were causing extensive damage to the formal gardens and impacting the natural areas with significant mortality to oaks and ground flora. Bow hunting started in 2004, annual harvest ~100-150 deer. Hunting was supplemented in the early years with post-season sharpshooting. Deer counted on winter aerial surveys declined to 113 by 2012. There is continued monitoring of the response by spring wild flowers and hardwood regeneration. Surrounding farmers are satisfied with level of crop damage. Deer-vehicle accidents have declined. Number of hunters is restricted to 30, earn-a-buck policy is used, 30 hours of volunteer service is required in exchange for hunting opportunity.

**Lymphoproliferative Disease in Wild Turkeys, and Update from Missouri and National Trends** –Jason Isabelle, Missouri Department of Conservation. LPDV was first detected in Arkansas in 2009 and in Missouri in 2011. LPD is caused by a virus and produces pox-like lesions on the head and neck. Unlike avian pox lesions are also common on feet and legs. Yellow lesions in liver and spleen are common. LPDV has been documented in wild turkeys from 14 states from Maine to Georgia to Colorado. Prevalence rates have been as high as 40-50% but many birds did not show clinical signs of disease. LPDV was previously known from domestic turkeys in Europe and the Middle East. Missouri has been conducting surveillance by sending sampling kits to agency staff who are turkey hunters and having them submit bone marrow from leg bones. LPDV is not a threat to human health.

**External Home Range Movements of White-Tailed Deer in an Agricultural Landscape and Effect of Mortality on Social Behavior of Groups** – Matt Springer, Southern Illinois University. Described 2 studies that are underway at SIU. The mortality study is using GPS collars and proximity loggers to examine the dynamics of contact rates between social group members and non-members and how this changes with the mortality of particular individuals within social groups. Does the death of the matriarchal doe cause others in the group to mix more with non-group members, potentially increasing infectious contacts? The movement study is placing GPS collars on fawns to record details of dispersal and explorative movements. Documenting movement paths (step length and turning angles) and how these are affected by habitat features. Explorative movements have been documented in all seasons with some individuals making multiple movements in multiple directions. Plan to build an individual based movement model and compare it to an expert-based resistance map. Intent is to use model to assess potential for disease spread.

**Wild Turkey Ecology in Two Intensively Farmed Landscapes in Central Illinois** – Patrick Hubert, Ontario Ministry of Natural Resources. Reported on his study of turkey population dynamics in 2 counties in central Illinois, primarily hen survival and reproduction. The counties differed in turkey harvest success and reported turkey observations by deer hunters. These 2 citizen-based index to abundance suggested difference in abundance. Hen survival was similar between counties, relatively low; most mortality was during nesting season, primarily due to coyote predation. Nesting rates were similar between counties, low nest success and poult survival.

Habitat quality was low, large home range size, high predator density. Population dynamics were similar between counties. Believed citizen-based indices from 1 county was affected by attitudes of residents, more protective, less likely to report their observations to state.

**Interacting With the Press/Wildlife Photography** – Chris Young, Illinois State Journal-Register. Chris talked about the importance of good photographs for telling our stories in the media. Videos of people doing conservation work are critical as are pictures of rare plants and animals to connect the public with the work we do and the places we protect. Chris has a number of tips for getting the press to pick up agency press releases.

**Elk Restoration in Missouri** – Lonnie Hansen, Missouri Department of Conservation. Elk feasibility study was requested by Commission in 1999. DOC determined that a low density population could exist in the Ozarks. Mail/telephone surveys found general support by public but strong opposition was voiced at public meetings. Project was suspended. Interest was renewed in 2009. Obtained elk from Kentucky. Animals were held for 90-100 days in KY for disease testing and again in MO for soft release. Elk were released in 2011, 2012, and 2013. Survival of released elk was lower in 2012 (~60%) than in 2011 or 2013 (~90%). 2012 survival was affected by drought and brain worm. Documented mountain lion predation on brain worm affected elk in 2012. Known births were 9 in 2011, 26 in 2012, and 19 in 2013. Some births occurred inside of soft-release holding facility due to length of time elk were held. Research is documenting survival and reproduction, resource selection. All elk had GPS collars. Evaluating the use of aerial surveys without snow to monitor population size, potential competition between deer and elk. Considering creating food plots due to limited open habitat in area. Plan to start hunting as soon as possible; criteria of minimum population size, rate of growth, duration since release.

**Elk Restoration and Management Q & A** – Tina Brunjes, Kentucky Department of Fish & Wildlife Resources and Lonnie Hansen, Missouri Department of Conservation. Food plot creation may be controversial in southern MO. Population objective is 400-500 elk. KY has noted deer population decline in counties with elk, but whether there is significant competition is unclear. Elk love acorns. Some elk have moved out of MO's elk management zone, they have developed protocol for nuisance elk, includes hazing, trap and relocate, and as a last resort euthanasia.

**Chronic Wasting Disease Management in Illinois** – Nohra Mateus-Pinilla, University of Illinois - Illinois Natural History Survey. Described Illinois approach to CWD management, targeting specific sections where CWD positive deer have been identified for local culling while maintaining deer across broader areas. Compared prevalence trends between IL and WI. IL is showing a stable prevalence of ~1% while prevalence in WI is increasing. IL has seen a slight decrease in deer harvest in 2 of the 4 counties where most culling has occurred.

## **Deer Breakout Session**

**Deer Productivity by Age Class from Fetus Counts in Northern Illinois** – Nohra Mateus-Pinilla, University of Illinois - Illinois Natural History Survey. Winter deer culling for CWD management has provided access to more than 4,000 fetuses during 2003-2013. The ability to detect pregnancy varied with calendar date, stabilized by February 1. Pregnancy rate was approximately 0.2 for fawns, 0.75 for yearling, and 0.82 for adult does. Mean litter size was 1.9 fetuses/pregnancy. Fetal mass was not affected by number of offspring. CWD positive and negative does had similar pregnancy rates and litter sizes. Sharpshooting intensity did not affect litter size or pregnancy rates.

**USDA Gap Analysis/Countermeasures Workshop on Orbiviruses** – Jason Sumners, Missouri Department of Conservation. A workshop was held at the request of US Animal Health Association to determine research needs and identify and prioritize intervention strategies for EHD and Blue Tongue due to concerns about potential spillover to domestic livestock. A report is expected in October. Concern is increasing for potential effects to livestock producers, captive cervid industry and wild cervids due to increasing frequency of outbreaks, introduction of new serotypes, and geographic expansion of disease. This is a highly complex issue as there are 26 serotypes and antibodies to one serotype do not protect against other serotypes. There is lack of understanding about how exotic serotypes are introduced and questions about the potential role of other species as vectors. The geographic distribution of disease among cattle is poorly known. Potential to affect productivity of cattle, may have significant financial impacts. Current research is suggesting that EHD is of African origin and was introduced to Florida and Texas in late 1800s. In the Midwest EHD results in infrequent but severe outbreaks, cycles of 8-10 years, long enough that antibodies are not sustained in the population. The 2007 outbreak was mostly EHD2 while the 2012 outbreak included EHD6, lots of 2 and some 1. Florida maintains numerous serotypes but most have not yet spread. There is work on vaccines based on live viruses, but there is concern about incomplete attenuation of viruses and potential to spread disease. There are currently no good tools for vector control. Developing surveillance strategies for both viruses and vectors. A better understanding of impacts to deer populations and livestock is needed.

**Appendix 3.** Notes on interacting with the press and wildlife photography to tell your story, provided by Chris Young.

### **Press Release Guide: Dos and don'ts for getting the word out**

1. In Journalism 101, they teach you the “Five Ws.” Always include the who, what, where, why and when of the event. Put the most important information first.
2. Always include your contact number, including a good, reachable number (not the automated main number) and your e-mail address. Remember to include the area code.
3. Include addresses for events. Don't just say “VFW Hall.” An address will allow someone to punch it into Google Maps.
4. Allow some lead-time for the event. Sending the release at least two weeks prior is helpful (more for holiday-themed events).
5. Fax machines are dead (at least our fax machine is, and faxes are really hard to read most of the time). Send notices by e-mail.
6. Attachments sometimes are hard to open. If you attach a Word document, also copy and paste the release into the body of the e-mail.
7. Avoid adding quotes that cannot be verified. Most sound made up. The exception is when statements are issued on big events, where all reporters likely will have the same question. “Weather was a big factor this deer season,” said Director Leopold. “Two cold, rainy weekends depressed hunter turnout and kept harvest numbers lower than we would have liked.” Quotes of this nature can be referenced in stories, and we understand you are being asked the same thing over and over.
8. Consider using AP Style. This is a general news-writing style used by most news organizations. It makes it easier to share stories back and forth.

**Dates and times:** In AP Style, the notice would read:

The event will be held at 7 p.m. Sept. 21.

DON'T write it this way: “The event will be held on Thursday, September 21 starting at 7:00 p.m.” Time comes first. Then the date with the month abbreviated except for March, April, May, June and July. The general rule is that anything that creates extra characters (and thereby takes up more space) should be left out. For example: 7 p.m. instead of 7:00 p.m. (unless the time is 7:30 p.m.) The day of the week is not included, unless it is within the next seven days. Then you would simply say, “The event will be held at 7 p.m. Thursday.” The less editing involved, the more likely the notice will be published quickly.

**Capital letters:** In AP Style, capital letters are reserved for proper names and titles when they appear directly before the proper name. Changing capital letters to lowercase takes a lot of time and makes it easy for mistakes to creep in. The “2013 Illinois firearm deer season,” is fine. The “2013 Illinois Firearm Deer Season,” is not a proper name. Some day, when deer seasons have title sponsors like stadiums, we'll revisit this one. Then, “The Remington 2013 Illinois Firearm Deer Season” would be appropriate. And there, I've just given you an idea for

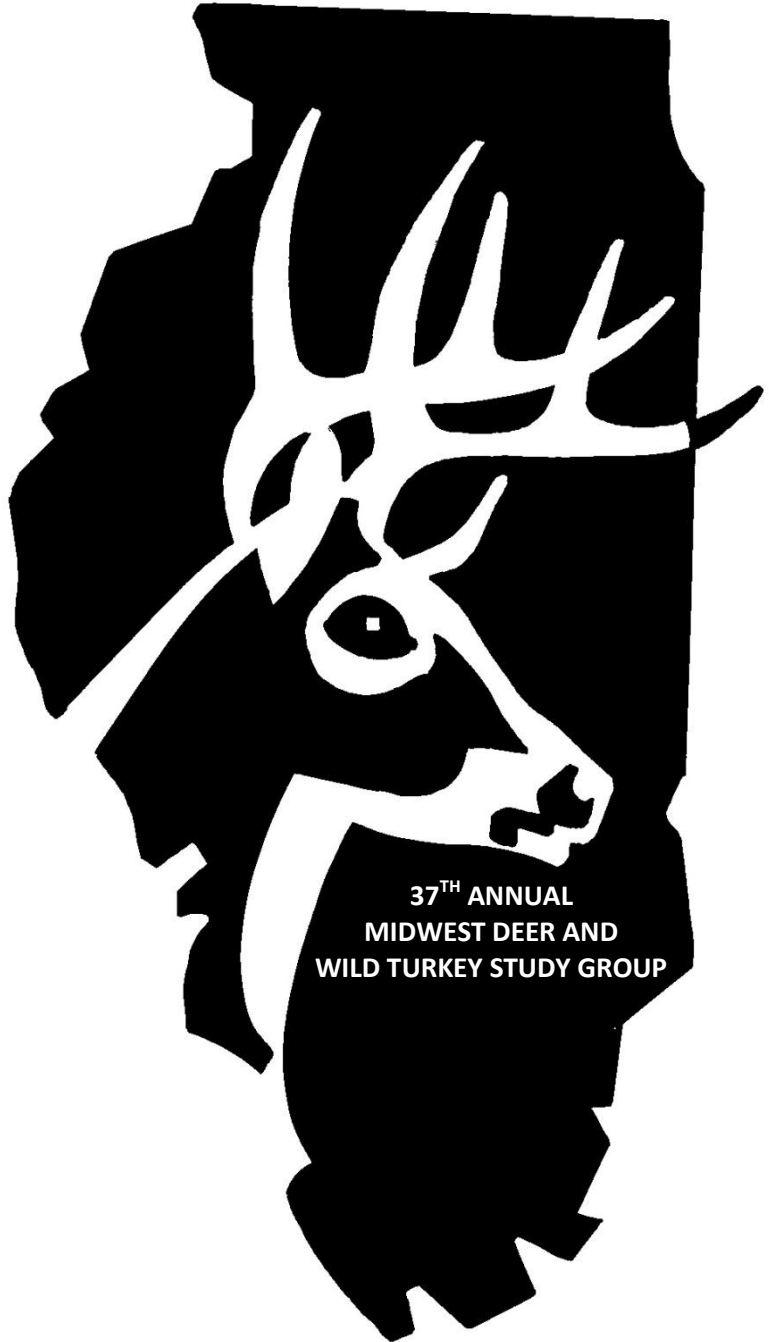
revenue enhancement.

In animal names, capital letters are reserved for proper names, such as place names or the scientist who discovered the bird or animal. For example: Cooper's hawk would be correct, but red-tailed hawk is lowercase. Genus is capitalized, but species is not. Scientific names are supposed to be italicized, but sometimes my editors do not leave it that way.

If you have specific questions, you can reach Chris Young at (217) 557-1240 or [Chris.Young@illinois.gov](mailto:Chris.Young@illinois.gov).

**Appendix 4.** Annual deer status reports submitted by participant states and provinces at the MDWTSG meeting in 2013, Illinois.

## Agency Deer Reports





**NOTE: In the following pages are found the state reports. Opening “brief” was provided by Robert Rolley, WI, in his notes of the event. Thanks, Robert!**

### **Illinois 2012-13 Deer Report**

**Illinois.** Total deer harvest ~180,800 (39% antlered, 61% antlerless). Total deer harvest peaked in mid-2000s at ~200,000 and declined gradually since then. The rate of deer-vehicle accidents have declined to goal levels. Removed 10 counties from the late-winter antlerless only season. IL hosted 5 open houses in June to provide information to and answer question from citizens interested in deer management; 117 people attended. Requests for permits to address deer damage were higher in 2012; these requests tend to increase in drought years. Thirty-two permits were issued to municipalities, airports, etc. for deer removal with 1,341 deer removed and donated to charity. Tested ~8,200 deer for CWD, 36 tested positive. CWD was detected in 2 new counties. Continued use of late winter sharpshooting to help control disease. EHD suspected mortalities were reported from 87 counties with ~1,000 citizens reporting ~3,000 dead/dying deer. Serotypes 2 and 6 and BTV-13 were documented. Their previous significant outbreak was in 2007. Legislation made crossbows legal for everyone to use in the late archery season. The number of deer killed by crossbow hunters increased slightly, but this appeared to be compensated by a reduced kill by compound bow hunters.

### **IL Report to 2013 Midwest Deer Study Group**

Automated harvest reporting system for deer and wild turkey serves us well. Few duplicate records are found in the deer harvest database as muzzleloader hunters who kill deer during the 2<sup>nd</sup> Firearm Deer weekend in manned deer check counties may use electronic harvest reporting, or bring their animal to a manned deer check station for Chronic Wasting Disease sampling during that weekend. Some do both, hence the duplication.

The annual deer harvest report format contains detailed current year information and summaries of the prior four years. With the background tables, it is updated rather efficiently. (Copy provided) Final reports for hunting years 2005-06 through 2012-13 can be found at:

<http://www.dnr.illinois.gov/hunting/deer/Pages/AnnualDeerHarvestReports.aspx>

The Department hosted five **open houses**, statewide, during June, 2013, in order to provide information to interested citizens and answer any questions regarding Illinois' deer management programs. A survey was filled out by all of the 117 attendees. A modified version was also available on-line for those unable to attend an open house.

Loss of staff within IDOT delayed DVC data availability until 15 August (formerly available by the end of June). DVC accident rates are the measure by which the Deer Task Force determines deer management success/failure in Illinois counties and statewide. Provisional data indicate that we were below the statewide goal accident rate (accidents/billion miles) in calendar 2012.

**Chronic Wasting Disease (CWD):** We continued to operate manned firearm deer check stations to facilitate CWD surveillance testing in select northern Illinois counties where CWD is a major concern. Nine check stations served ten counties. Contracting with cooperating meat lockers and others provided additional samples from within CWD zones as well as throughout the state. We sampled 8,069 deer statewide in 2012-13, down 1.6% from the 8,203 (highest number) sampled in 2011-12. There were 36 CWD-positives (same as last year) – hunters, 20; DNR sharpshooters, 11; other sharpshooters, 2; and suspect animals, 3. There have been 408 positives discovered since 2002 from the following sources: hunters, 190; sharpshooters, 189; suspects, 25; and road-kill/incidental, 4.

Two new counties reported positive animals in 2012-13 (Kendall and DuPage). All new sections were well within “walking distance” of prior positive sections. More information on Illinois CWD can be found at: <http://www.dnr.illinois.gov/programs/CWD/Pages/default.aspx>

**Nuisance Deer Removal Permits (DRP):** Requests for permits to alleviate deer damage and permits issued increased in 2012, but were below the drought year peak of 2007 (485); and “success” has dropped since 2006. In 2012, another drought year, we had 310 permits issued in 57 counties which authorized removal of 2,515 deer. A total of 1,503 were taken (59.8%). This compares the prior year issuance of 260 permits in 58 counties, authorizing removal of 2,037 of which 1,234 were taken (60.6%).

**Deer Population Control Permits (DPCP):** These permits are issued to land management agencies, municipalities, homeowner associations, federal entities, and airports for controlling deer in areas not suited to, or where traditional means have been insufficient to control deer numbers. There have been more than a million pounds of processed venison donated to numerous northern Illinois charities since this program’s inception in 1988-89.

Thirty-two permits, not including permit extensions for additional time and/or deer, were issued to 12 entities in 6 counties. There were no new sites, and 1,341 of 1,772 (75.6%) animals were collected.

This compares to the 2011-12 totals of forty-one permits (highest number to-date) issued to 16 entities in 7 counties. There were four new sites permitted and 1,687 of the 2,237 deer authorized (75.4%) were collected.

**Epizootic Hemorrhagic Disease, 2012:** We had 976 citizen reports of 2,925 dead/dying deer from 87 counties through mid-November. Highest numbers were reported from Cook (359); Calhoun (222); Coles (186); Schuyler (181); and Shelby (180). EHDV-6 and EHDV-2 were isolated from several animals; and isolation for BTV-13 (one animal). Our last major outbreak was in 2007, when we had 458 calls reporting 1,987 dead deer from 57 counties. EHDV-2 was isolated at that time.

#### **Changes implemented in 2012-13:**

Dates for firearm/muzzleloader permit ‘2nd lottery’ were moved up from early August to the end of June; and ‘Random Daily Drawing’ ran from 14 August through 10 September (formerly September 13 – October 10). This was made possible by electronic permit application and issuance capabilities; and will provide earlier notification of successful hunters.

Crossbows became legal for anybody of any age with or without a physical disability for any species (including, deer, turkey, squirrel, upland game) which may be legally taken by bow and arrow *following*

*the 2<sup>nd</sup> firearm season through the close of the archery deer season.* Those 62 and older, as well as younger hunters with physical limitations and a crossbow permit, may use a crossbow throughout the open seasons for which a bow and arrow is legal weaponry.

Forest Wildlife staff removed 10 counties from the Late-Winter Antlerless Only Deer Season (56 remain open). Each had reached the goal established by the Legislative Deer Task Force in their 2008 recommendations to the director.

The first CWD-positive deer was discovered in a Kendall County “suspect” deer in July, 2012. Kendall was added to the CWD season in December/January; bringing the number of open counties to 11.

The first CWD-positive deer was discovered in a DuPage County animal removed under a Deer Population Control Permit issued to the Forest Preserve District. This county is closed to firearm deer hunting.

**Changes proposed for 2013-14:**

The Youth Deer Season will be extended to 3 days (formerly the Saturday/Sunday prior to Columbus Day), and will now include the Columbus Day Holiday, Monday.

**Illinois – Yearly Deer Harvest, 1995 – 2012 (includes Percent Female and Percent Antlerless)**

Year	Youth Permits	Youth Harvest	Youth %F; %AO	Archery Harvest	Archery %F; %AO	Either-sex Permits	Firearm Harvest	M-L E/S Permits	Muzzleloader Harvest	Late-Winter Harvest	Firearm % F; % AO	Combined % F; % AO	Total
1995		N/A		34,491	44; N/A	190,806	105,067	5,428	846	1,829	43.9; N/A	43.9; N/A	142,233
1996		N/A		35,239	44; N/A	193,319	94,853	6,438	970	1,675	45.8; N/A	45.3; N/A	132,737
1997		N/A		36,763	42; N/A	189,092	93,621	6,192	1,114	1,776	44.8; N/A	44.0; N/A	133,274
1998		N/A		36,328	44; N/A	185,412	95,608	6,043	1,227	2,173	43.7; N/A	43.8; N/A	135,336
1999		N/A		41,310	43; N/A	191,047	92,196	6,190	1,309	1,719	41.2; N/A	41.7; N/A	136,534
2000		N/A		42,900	44; N/A	191,760	103,221	6,550	1,361	2,178	41.4; N/A	42.2; N/A	149,660
2001	1,039	298	75.2; 100	47,858	44; N/A	194,312	101,304	6,210	1,507	2,099	40.3; N/A	41.5; N/A	153,066
2002	1,512	308	76.8; 99.4	51,660	45; N/A	194,712	104,478	6,189	1,292	2,120	42.7; N/A	43.5; N/A	159,858
2003	2,015	383	73.9; 99.5	57,802	43; N/A	197,178	105,873	14,448	3,037	1,667	41.3; N/A	41.9; N/A	168,762
2004	2,358	612	74.2; 98.7	63,639	47; N/A	199,905	116,675	15,708	3,535	5,995	43.3; N/A	44.6; N/A	190,456
2005	3,109	1,065	77.3; 99.5	66,093	47.4; 59.7	208,148	123,792	19,998	4,879	5,380	45.0; 59.8	45.7; 59.7	201,209
2006	3,654	1,100	79.2; 99.7	64,770	50.6; 62.2	209,675	114,722	20,881	5,973	9,676	43.9; 57.6	46.1; 59.1	196,241
2007	5,205	898	53.6; 69.8	64,155	49.2; 60.1	212,127	117,755	24,172	4,387	12,415	45.2; 58.8	46.4; 59.2	199,610
2008	5,960	1,045	49.5; 64.5	64,920	50.4; 60.6	211,393	106,018	26,093	4,366	12,552	49.4; 62.7	49.7; 62.0	188,901
2009	8,085	2,409	51.8; 64.5	64,819	50.5; 60.6	211,951	99,755	26,390	4,745	17,906	50.4; 64.6	50.5; 63.2	189,634
2010	8,996	1,544	48.8; 61.1	63,570	50.4; 60.3	211,706	98,944	26,374	3,328	14,884	49.2; 63.0	49.6; 62.1	182,270
2011	8,999	1,849	48.1; 62.4	61,974	50.4; 60.1	208,391	97,820	26,763	4,902	14,906	43.6; 61.7	49.2; 61.1	181,451
2012	9,733	3,123	48.6; 60.2	59,805	49.9; 60.3	208,319	99,546	27,808	3,614	14,723	48.0; 62.0	48.6; 61.5	180,811

2012 Firearm and Muzzle-loader Seasons open in 99 of 102 Illinois Counties

2012 Archery Deer Season was open in all 102 Illinois Counties

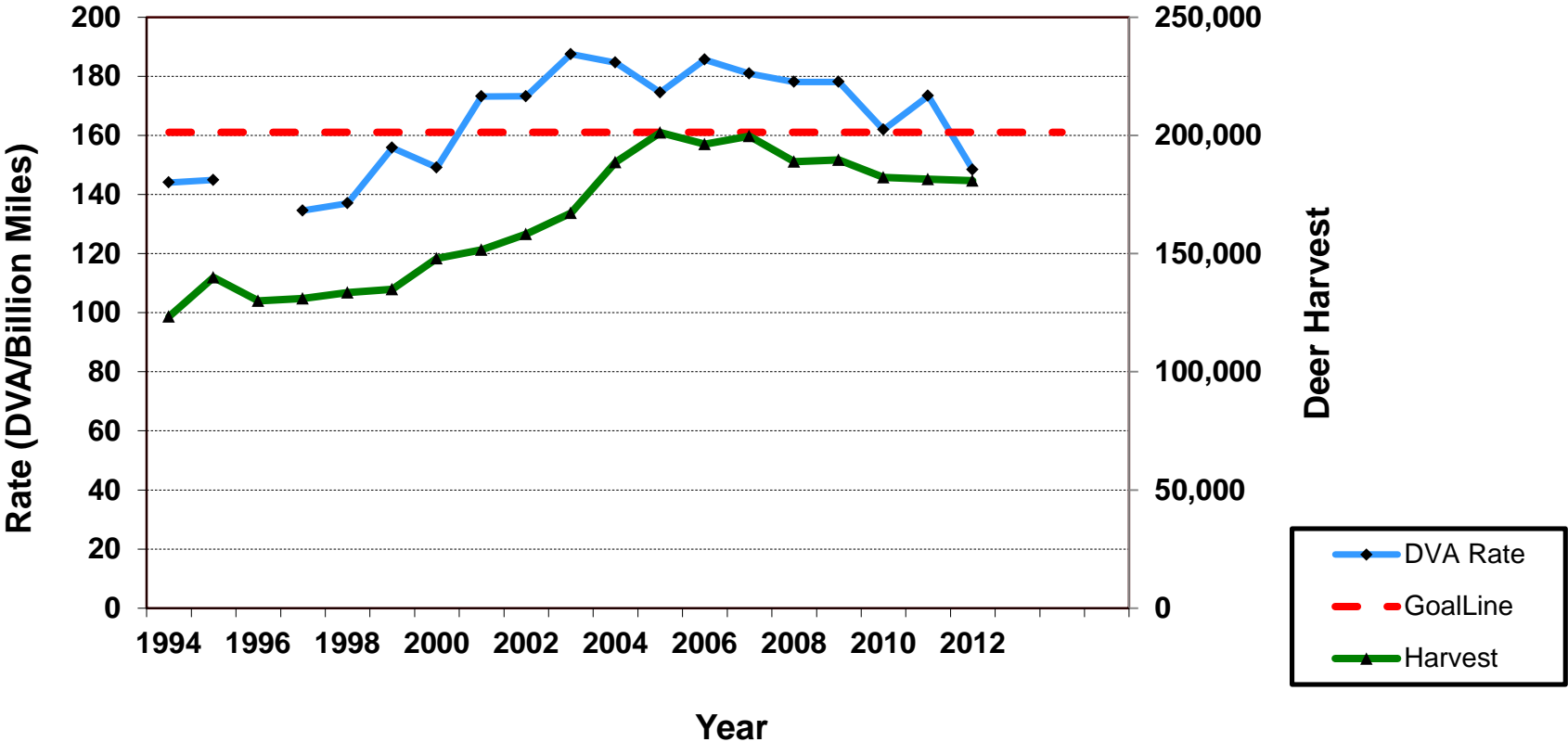
2012 Youth Firearm Deer Season was open in 99 Illinois Counties for any deer.

Late-Winter was open in 56 Illinois Counties; Unfilled firearm permits were allowed again this year.

11 additional counties were open to CWD Season which was concurrent with late-winter season and harvest included there.

Rev. 07/10/13

# Statewide



**Preliminary Analyses of Changes in Illinois Crossbow Usage  
2012 Archery Deer Hunting Season**

Legislation passed by the 97th Illinois General Assembly amended the Wildlife Code to allow any archery hunter to use crossbows during the archery deer season after the close of the second regular firearm deer season. Prior to the change, only disabled hunters and hunters  $\geq 62$  years of age were permitted to use crossbows. The change was in effect for the 2012 archery deer hunting season.

We compared deer harvest and average hunter age between the 2011 and 2012 archery deer hunting seasons. We also looked at differences in those two variables prior to the firearm deer seasons, and after the close of the second firearm deer season (when the change went into effect). We only included records for which we had complete data (i.e., hunter age, type of bow used, etc.), so figures discussed in this report will differ from final harvest totals.

Total archery deer harvest was slightly higher in 2011 than in 2012 (61,886 vs. 59,708), but the proportion of the harvest taken by each type of bow was very similar, as was the average age of hunters using each bow type (Tables 1 and 2). There was a very slight increase in the proportion of deer harvest taken by crossbows (+2.33%), almost all at the expense of compound bow users. Total crossbow harvest in 2012 was 6,379. Average age of compound users was 39 in both years, while users of traditional archery were on average 8-9 years older, and crossbow users were about 60 years old.

<b>Bow Type</b>	<b>2011</b>	<b>2012</b>
Compound	90.36%	88.11%
Recurve	0.88%	0.79%
Longbow	0.42%	0.41%
Crossbow	8.35%	10.68%
Grand Total	100.00%	100.00%

<b>Bow Type</b>	<b>2011</b>	<b>2012</b>
Compound	39.0	39.1
Recurve	46.9	47.7
Longbow	47.2	48.8
Crossbow	60.7	59.3
Grand Total	40.9	41.4

For the portion of the archery season before gun season, those trends remained consistent (Tables 3 & 4).

<b>Table 3. % Harvest Before Gun Season</b>		
<b>Bow Type</b>	<b>2011</b>	<b>2012</b>
Compound	90.37%	89.16%
Recurve	0.83%	0.69%
Longbow	0.38%	0.36%
Crossbow	8.42%	9.79%
Grand Total	100.00%	100.00%

<b>Table 4. Age of Hunters Before Gun Season</b>		
<b>Bow Type</b>	<b>2011</b>	<b>2012</b>
Compound	39.0	39.0
Recurve	46.8	47.6
Longbow	46.3	48.0
Crossbow	60.8	61.0
Grand Total	40.9	41.3



After the second firearm deer season, the total number of deer harvested during both years was relatively low (average = 8,005, which is <15% of the total archery harvest). In 2012, crossbow harvest comprised 16.7% of the archery take during this period, about double the percentage observed in 2011. Compared to the previous year, this represents an increase of 741 actual deer harvested by crossbow (1,383 vs. 642). However, note that the baseline figures for 2012 were slightly higher than 2011 (see Table 3), so the actual increase due to the legislative change is probably slightly less than 2X. Assuming a 2012 baseline of 9.79%, the actual change in crossbow harvest due to the legislative change is about +637 deer. If new crossbow users are coming primarily from the ranks of existing compound users, any increase in crossbow harvest during this period will at least be partially offset by the decline in compound bow users. Note that the average age of crossbow users declined significantly after the gun season in 2012, dropping from 61.0 years to 53.5 years, while remaining stable in 2011.

Bow Type	2011	2012
Compound	90.13%	81.61%
Recurve	0.93%	1.03%
Longbow	0.66%	0.62%
Crossbow	8.28%	16.74%
Grand Total	100.00%	100.00%

Bow Type	2011	2012
Compound	39.6	39.6
Recurve	48.6	50.4
Longbow	49.5	52.2
Crossbow	60.5	53.5
Grand Total	41.5	42.1

**Summary:** The actual crossbow harvest increase resulting from changes in the Wildlife Code is in the range of 600-700 deer, but there is no evidence at this time that those numbers are additive to the total harvest. They are probably offset at least in part by declines in compound bow users during that time period (individuals who switched to crossbows). Age of successful crossbow hunters declined by 7.5 years after the second gun season (from 61.0 to 53.5 years), as younger, able-bodied individuals formerly prevented from crossbow hunting opted to try it. If we assume a 20% success rate for crossbow hunters during this period, then the number of hunters using crossbows increased by about 3,200 (*we have no data to support that assumed success rate*). We cannot predict whether crossbow numbers under the new rules will stabilize at current levels, but we consider it likely they will increase over time. Under the current scenario limiting hunters to the last half of the archery season, current levels of harvest change are relatively minor. However, changes would likely be more significant if regulations allowed for crossbow use throughout the season.

Double-click, below, to reveal 2012-13 Illinois Deer Harvest Report:



Double-click, below, to reveal 2012-13 Illinois Chronic Wasting Disease (CWD) report:



Double-click, below, to reveal Illinois Deer Removal Permit (DRP), 2012 Report:



Double-click, below, to reveal 2012-13 Illinois Deer Population Control Permit (DPCP) report:



## INDIANA 2012-13 DEER REPORT

**Indiana.** Total deer harvest ~136,200 (34% antlered, 66% antlerless), highest reported harvest on record. Mix of in-person, on-line, and telephone registration. 60% of deer registered in-person, <1% by phone because there was a \$3 charge for telephone registration. Introduced a new license bundle with 2 antlerless tags and 1 antlered tag, tags were good in any season. This was very popular. Crossbows were permitted in the early archery season for the first time and crossbow harvest increased from ~1,000 to >8,000. Added a late antlerless gun season in late December-early January in ~70 counties. EHD was reported in 67 of 92 counties in 2012. Serotypes 1, 2, and 6 detected with 6 associated with greatest effects. Doing surveillance for CWD and bovine TB but have not detected either to date.

Double-click, below, to reveal 2012-13 Indiana Deer Harvest Report



## IOWA 2012-13 DEER REPORT

**Iowa.** Reported total deer harvest ~115,600 (41% antlered, 59% antlerless). Estimated total harvest adjusted for non-reporting ~144,500. The number of hunters has been stable at ~180,000 for last 8 years. Estimate that populations are at or near goal in 81 counties and declining toward goal in 18 counties. Reducing antlerless harvest quotas as populations near or reach goal. The early antlerless season was discontinued. Winter aerial surveys were discontinued in 2013. Bowhunter observation survey has become operational as an index of population trends. Other indices include spotlight surveys and roadkill data. Bowhunter observations were increased, suspect that drought and poor mast crop increased deer movements. 2012 was Iowa's largest EHD outbreak with nearly 3,000 suspected mortalities reported. Maximum reported mortalities reported in 1 county was 570. CWD was identified in 3 captive facilities in 2012, a total of 13 captive deer tested positive. Tested 4,400 wild deer in 2012-13 and CWD was not detected. Total wild deer tested to date is ~47,000.

Double-click, below, to reveal 2012-13 Iowa Deer Harvest Report



## KANSAS 2012-13 DEER REPORT

**Kansas.** Total deer harvest ~94,000 (~91,300 WTD [53% antlerless], 2,700 MD [16% antlerless]). Growing interest in use of crossbows resulted in legislation mandating a 2-year trial in 4 deer management units of allowing crossbow use during the archery season by people of any age or physical condition. A survey of crossbow users found that 88% would use them in future years. The legislature mandated a pre-rut antlerless-only firearm season. Kansas had regulations on specific caliber and cartridge case lengths for firearms for deer hunting but has relaxed them to allow use of any center fire rifle or handgun. EHD was widespread in 2012 with 1,274 suspects reported from 46 counties, but hunter harvest and deer-vehicle crashes did not change notably. Due to elimination of federal funds CWD surveillance was substantially reduced. The number of deer tested during 2003-2011 ranged from 2,000-3,000 while the number tested in 2012 was only 425. Seven positive deer were detected. KS conducts landowner deer surveys every 5 years. In 2012 fewer landowners reported deer damage than in any year since 1985. The majority of landowners were satisfied with the number of deer and hunters in 2012.

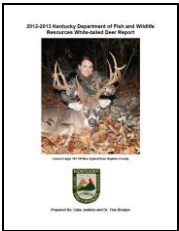
Double-click, below, to reveal 2012-13 Kansas Deer Harvest Report



## KENTUCKY 2012-13 DEER REPORT

**Kentucky.** Total deer harvest ~131,400 (~56% male, 44% female), a record harvest. The high harvest was attributed to good weather conditions on all 3 weekends of the November gun season and rebound of populations following the 2007 EHD outbreak. Mean harvest per successful hunter was 1.3 deer. Assessing fawn survival in SE KY where population has declined. EHD occurs annually, 2012 was slightly above average. Tested 713 hunter-harvested, targeted, and roadkills for CWD in 2012-13, all negative. Five captive facilities have received deer from other facilities near positive farms in Iowa and Pennsylvania. KY has a reduced cost senior (65)/disabled license (\$5 versus \$30 for statewide deer permit). Sales of senior license are increasing while regular deer permit sales are decreasing as the population of hunters is aging. Will be requesting an increase in license fees.

Double-click, below, to reveal 2012-13 Kansas Deer Harvest Report



## MICHIGAN 2012-13 DEER REPORT

**Michigan.** Total deer harvest ~418,000 (~54% antlered, 46% antlerless). Deer populations have increased in northern 2/3s of state due to 3 mild winters. Southwestern Michigan was hit hard by EHD with an estimated 30-50,000 deer killed but southern populations are believed to still be fairly high. 2012 was first year of mentored youth hunting open to youths 9 and under. Youth season harvest increased 72%. Crossbows were permitted for use by everyone starting in 2010 during the entire archery and firearm seasons in the Lower Peninsula and in the early archery season and November firearm season in the Upper Peninsula. An estimated 142,500 archers used a crossbow in 2012 and harvested ~59,800 deer. A dairy herd in Saginaw County was identified as bovine TB+, will be testing deer in this area the fall. Will conduct a 3 year trial of antler point restrictions in 12 counties in the northwestern portion of the Lower Peninsula after a survey of area hunters found 68% of hunters supported the restriction. There is a proposal to expand APRs to the rest of the Lower Peninsula.

Double-click, below, to reveal 2012-13 Michigan Deer Harvest Report



Double-click, below, to reveal 2012-13 Michigan Crossbow Deer Hunter Survey



Double-click, below, to reveal 2012-13 Michigan Antler Points Restriction Survey, NW lower peninsula





## MINNESOTA 2012-13 DEER REPORT

**Minnesota.** Total deer harvest ~184,700 (~52% antlered, 48% antlerless). Deer population goals were revised in 2005-06. Goals in the forested and mixed forest/ag DMUs were reduced or maintained while goals in many of the farmland DMUs were increased. Deer populations in most forested DMUs are at or near goal while populations in many ag units are below goal. Bovine TB was detected in 2005 but no new detections have occurred since 2009, TB reduced to undetectable levels. Will end TB monitoring. Will continue CWD testing in southeast MN where a single wild positive was detected and will test around a CWD+ captive red deer herd near the Twin cities. Have used antler point restrictions (APR) in 11 DMUs in SE MN for a 3-year trial. APRs reduced total buck harvest and reduced the percentage of yearling bucks in the harvest from 42% to ~20%. Hunter support for APRs increased from 48% to 62%. Will continue to use APRs in SE and are relaxing the requirement for in-person registration. A stakeholder round-table process in 2012 in SW MN generated results that were difficult to apply to management ~50/50 split between those who thought that deer populations were about right and those who thought populations were too low. Mail surveys of both landowners and hunters in the region showed that most hunters were satisfied with deer population size while landowners were either satisfied or wanted populations reduced. Conducting research to assess effectiveness of depredation permits for controlling deer damage.

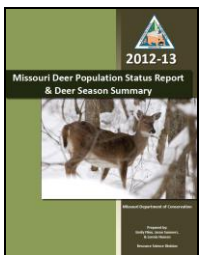
Double-click, below, to reveal 2012-13 Minnesota Deer Harvest Report



## MISSOURI 2012-13 DEER REPORT

**Missouri.** Total deer harvest ~309,900 (~40% antlered, 61% antlerless). Deer harvest increased substantially in southern MO due in part to poor acorn production that altered deer movements and vulnerability to harvest. Harvest in northern MO declined, reflecting reduced population size. EHD and bluetongue were widespread, all counties reported cases; more than 10,000 suspected cases were reported. Expect to see reduced harvests 2-3 years following outbreak. Tested ~3,200 deer for CWD in 2012, 1,700 from the containment zone, 1 deer from the hunting season tested positive and 4 positives were removed by the focused culling. All positive deer were in close proximity to a positive captive cervid facility. MO removed the antler-point restrictions from the CWD containment zone to increase harvest of yearling bucks. They also prohibited the placement of feed, salt, and minerals. There has been an increasing trend in overall archery hunting participation over the past 9 years. Sales of youth archery permits and youth antlerless archery permits increased 10 and 21%, respectively, between 2011 and 2012. The number of hunters who purchased firearm permits increased 1%/year for the past few years.

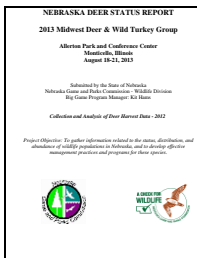
Double-click, below, to reveal 2012-13 Missouri Deer Harvest Report



## NEBRASKA 2012-13 DEER REPORT

**Nebraska.** Total deer harvest ~60,800 (~51,300 WTD [49% antlerless], 2,700 MD [21% antlerless]). Deer harvest decreased 30% from 2011, largely due to EHD. Approximately 6,000 suspected cases were reported in 2012 and estimated 30% population reduction. Bi-weekly reports of suspected EHD mortalities peaked in late September with 1,841. Reduced antlerless permit allocation in 2013, typically takes 3-5 years to rebuild populations. Long-term mule deer decline believed to be due to meningeal worm, CWD, drought, and predation. Sampled 1,300 deer for CWD in 2012 with 10 new positives and 4 new counties. Will be suspending CWD sampling for a few years then will retest high prevalence areas. Hunter interest in donating deer to the deer exchange program was down substantially due to reduced antlerless harvest.

Double-click, below, to reveal 2012-13 Nebraska Deer Harvest Report



## NORTH DAKOTA 2012-13 DEER REPORT

While not present for the meeting, Bill Jensen has provided a deer summary report to be included.

### 2013 STATUS REPORT ON DEER MANAGEMENT IN NORTH DAKOTA

by

**Bill Jensen and Bruce Stillings**

**North Dakota Game and Fish Department**

**(October 22, 2013)**

**2012 Regular Deer-Gun Season Structure** - Regulations for the 2012 regular deer-gun season were applied to all 38 hunting units within the state (Figure 1). Deer licenses are initially issued through a lottery except for landowner gratis licenses. In 1993, a weighted priority lottery system was instituted. The priority system is similar to South Dakota's in which unsuccessful applicants have their name entered more times in the drawing the longer they have been unsuccessful. The licenses are issued for specific deer types (antlered or antlerless white-tailed deer, antlered or antlerless mule deer, and antlered or antlerless any deer). The gratis landowner licenses allow any deer to be taken, but are restrictive in that the holders may only hunt on their own land. A total of 61,973 licenses were issued of the 65,150 licenses made available for the 2012 regular deer-gun season (Table 1a).

The deer-gun season throughout the state was 16½ days in length (November 9 to 25). The deer gun season started at noon, CST, November 9, 2012 for all units. The daily hunting hours are from one-half hour before sunrise to one-half hour after sunset.

**2012 Deer-Gun Season Harvest** - Based upon harvest survey questionnaires it is estimated that 88.5% of the licensees actively attempted to hunt and harvest a deer. This resulted in the harvest of 32,538 white-tailed deer and 2,058 mule deer. The overall success rate for licensees that actually hunted was 67.2%. A breakdown of the harvest, by species of deer and hunting unit, is provided in Table 2a.

**2012 Muzzleloading Long Gun Season Structure** - The muzzleloader season was first mandated by the state legislature for the 1987 season. This season was modified during the 1996-97 state legislature. The change allowed for 2% of the white-tailed deer gun permits to be allocated for muzzleloader season, of which up to one-half may be antlered licenses. In 2012, there were 641 antlered and 641 antlerless white-tailed deer licenses issued. The season opened at noon, CST, November 30, 2012 and ran from one-half hour before sunrise to one-half hour after sunset each day thereafter through December 16, 2012. Licenses are valid for all of North Dakota. The licenses were issued by lottery. A priority system is in place for the drawing of these licenses. Legal weapons were long guns of .45 caliber or larger, and handguns .50 caliber or larger, loaded through the muzzle, with flint or percussion ignition, firing black powder or black powder substitutes. Smokeless powders are not legal. In-line type percussion locks were legalized in 1994, but telescopic sights remain illegal. No magnification (1x) scopes are legal.

**2012 Muzzleloading Long Gun Harvest** - All 1,282 muzzleloader licensees were sent a questionnaire, of which an estimated 1,151 actually hunted during the season (90%). The projected harvest of white-tailed deer was 397 deer (212 antlered and 185 antlerless) for an overall success rate of 34.5% (Table 3a).

**2012 Archery Season Structure** - Archery deer licenses are issued over the counter through license vendors and county auditors with no restrictions on species or sex. The 2012 archery deer season started at noon, CTS, August 31, 2012 and continued from one-half hour before sunrise to one-half hour after sunset each day until January 6, 2013. The deer-bow season is open during the entire deer-gun season with the restriction that all bow hunters must wear blaze orange during the deer gun season. Any deer was legal, with no unit restrictions for residents. Nonresidents are restricted in the number of mule deer licenses available to 15% of the previous season's regular-gun mule deer licenses (n=682).

**2012 Archery Harvest** - In total, 19,940 resident and 2,336 nonresident archery licenses were sold in 2012. After the season, 5,783 questionnaires were sent to resident and nonresident license holders from the 2011 season. Expanding the sample results projected that 19,302 of the hunters who bought a license actually went hunting (86.6%). These deer-bow hunters had an overall success rate of 35.5%, with a total harvest of 6,856 deer (6,440 white-tailed deer and 416 mule deer) (Table 3a).

**2012 Youth Deer Gun Season** - An experimental youth deer gun season was initiated in 1994. The season is a one-time opportunity for youths 14 and 15 years of age at the time of the application deadline. All regular deer gun season regulations and weapon restrictions applied. This includes a half price (\$10.00) license for all youths under sixteen. In addition, each youth licensee must be accompanied by at least one unarmed parent, guardian, or adult authorized by their parent or guardian. In 2012, an unlimited number of any white-tailed deer and antlerless mule deer permits were available and a limited number of antlered mule deer permits (i.e., 10% of the total antlered mule deer licenses available, or 120 licenses in 2012). The nine and one-half day season ran from noon, CTS, September 14 and closed September 23, with the option that youth license holders can also hunt during the regular deer-gun season if they are unsuccessful in the youth season. In addition to the regular youth deer season, the 2009 legislature approved a law that allowed individuals whose 12<sup>th</sup> birthday occurs on or before the opening of deer hunting season but is younger than fourteen years of age is entitled to receive a statewide white-tailed antlerless deer permit but may hunt only in the youth deer hunting season. All regular deer gun season regulations applied to this youth deer gun season and in addition each youth licensee must be accompanied by at least one unarmed parent, guardian, or adult authorized by their parent or guardian.

**2011 Youth Deer Gun Season Harvest** – A total of 3,683 youth licenses were sold. After the youth season, questionnaires were sent to all 3,683 licensees. An estimated 3,188 teenagers participated in the youth season (87%). They experienced an overall success rate of 56.5%, with a total harvest of 1,800 deer (1,701 white-tailed deer and 99 mule deer). When harvest during the regular deer-gun season is included, a total overall harvest by youth hunters was 1,946 deer (1,817 white-tailed deer and 129 mule deer) (Table 3a).

**2011 Special Herd Reduction Deer Bow Season** - There are four areas in North Dakota open for special herd reduction seasons. These areas include: within the city limits of Bismarck; Fargo; USDA-ARS Research facility in Mandan; and Graham's Island State Park near Devils Lake. These areas each have special regulations to fit their individual needs.

In the city of Bismarck, the chief of police issued antlerless white-tailed deer permits for portions of the city as the need arises. The season ran from August 31, 2012 through January 31, 2013. These special hunt permits are above the allotted number of permits allowed by the state during regular deer-gun season. All the information and paperwork for these hunts are handled by the entity in charge; therefore, it requires a minimum effort by the Game & Fish Department. The harvest from these special hunts has been minimal in recent years, 50-75 animals, but it does help to disperse the deer, and reduce deer depredation conflicts.

**2012-2013 Population Trend** - White-tailed deer are distributed throughout North Dakota. Population densities vary by region and are influenced by land use patterns, human population densities, habitat types, and climate. In 1958, big game biologists divided the state into 41 subunits with permanent boundaries that most nearly coincide with identified environmental influences. These management subunit's boundaries also coincide with hunting unit boundaries. To provide comparative annual population trend data, permanent aerial winter survey areas have been established within each

of the 41 subunits, thus permitting unit specific deer management. Since 1999, population trend data has also been collected on deer sighted per hour of effort by hunters. Additionally, information on deer-vehicle collisions has been compiled on a county-by-county basis across the state. Regular population indices mentioned above, have been used to monitor white-tailed deer population trends. Population trends and indices for white-tailed deer are summarized in Table 4a. Available data suggests decreasing white-tailed deer numbers after three severe winters across the state.

The primary range of mule deer in North Dakota is the region of the state southwest of the Missouri River. The unitized system of management for white-tailed deer is also the basis for mule deer management. The Badlands region is considered the primary mule deer range and permanent deer population study areas have been established since 1954. Population trend and demographic data for mule deer is obtained from aerial survey areas each spring and fall, respectively. Population trend data for mule deer is also obtained from hunter observations. Population index data for mule deer is summarized in Table 5a. Available data suggests decreasing mule deer numbers throughout the badlands and that portion of the state south and west of the Missouri River after two severe winters in the state. Demographic information, based upon hunter observations and aerial surveys, are summarized for white-tailed and mule deer in Tables 6a and 7a, respectively.

Finally, in addition to the information mentioned above that the hunter observation forms provide (demographics of our deer population and an index of the relative change in deer numbers); hunters are also asked the number of elk sighted, the number of moose sighted, and if they observed mountain lions or feral pigs. Observations of elk and moose are displayed in Figures 4 and 5, respectively. Observations of mountain lions and pigs are shared with other biologists.

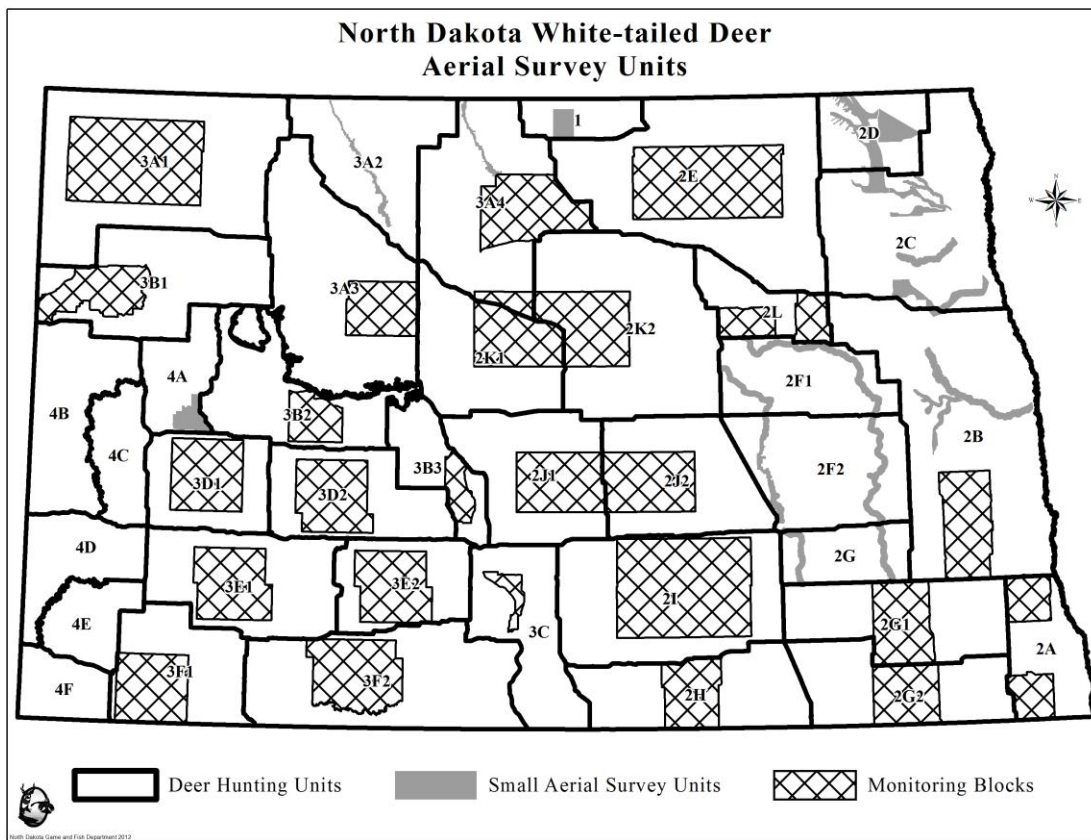


Figure 1. A map of North Dakota that shows the distribution of deer-gun hunting units within the state; also displayed within each hunting unit are the locations of winter aerial white-tailed deer survey units and monitoring blocks.

## **Appendix A:**

### **Summary of 2012-2013 Mule Deer and White-tailed Deer**

#### **Harvest, Census, and Demographic Data**

1. A total of 61,973 licenses were issued of the 65,150 licenses made available for the regular deer-gun season (Table 1a).
2. The overall hunter success for the 2012 regular gun season was 67.2 percent.
3. Deer-gun hunters harvested an estimated 32,499 white-tailed deer and 2,056 mule deer during the 2012 season (Table 2a).
4. Youth deer hunters in 2012 had a success rate of 56.5 percent during the youth season, and harvested 1701 white-tailed deer and 99 mule deer during the youth deer season (Table 3a). During the regular deer-gun season an additional 116 white-tailed deer, and 30 mule deer harvested by youth hunters.
5. Muzzleloader hunters in 2012 had a success rate of 34.5 percent, and harvested 397 white-tailed deer (Table 3a).
6. Archery hunters in 2010 had a success rate of 35.5 percent, and harvested 6,440 white-tailed deer and 416 mule deer (Table 3a).
7. Population indices for white-tailed deer suggest a stable to decreasing numbers in a most of the state (Table 4a) (See Figures 1 and 2).
8. Population indices for mule deer suggest a stable to decreasing numbers in the badlands and stable to increasing numbers in portions of the Slope and Missouri River Major Management areas (Table 5a) (Figure 3).
9. Based on 1064 useable questionnaires from the 2012 Hunter Observation Survey (n=32,233 white-tailed deer and 2,499 mule deer classified), overall population demographics suggest that about 20 percent of the white-tailed deer and 18 percent of the mule population were antlered deer prior to, or on the opening weekend of the deer-gun season (Table 6a).
10. Based on fall aerial surveys (n=1,224 mule deer classified) results for the Badlands Major management Units, overall mule deer population demographics suggest that 19 percent of the population were antlered deer prior to the opening weekend of the deer-gun season (Table 7a).
11. In 2008 information on the number of elk and moose observed during the opening weekend of the deer was added to the hunter observation questionnaire. Maps summarizing the results of the 2012 data set for elk and moose observations are given in Figures 4 and 5. Trend data provide by this survey will also be evaluated in the elk and moose PR Reports.

**Table 1a. Summary of license numbers available for hunting units by license type for the 2012 regular deer gun season. Total licenses = 65,300.**

MGMT UNIT	HUNTING UNIT	DEER TYPE A	DEER TYPE B	DEER TYPE C	DEER TYPE D	DEER TYPE E	DEER TYPE F
		Any ♂	Any ♀	WTD ♂	WTD ♀	♂ MD	MD ♀
TURTLE MTS	I	600	600				
RED RIVER	2A	400	200				
	2B	2,000	2,000				
	2C	1,500	2,000				
PEMBINA HILLS	2D	1,000	1,000				
SHEYENNE	2F1	1,300	1,300				
	2F2	1,300	1,300				
	2G	400	400				
	2G1	1,000	1,000				
	2G2	900	900				
COTEAU	2E	1,000	1,000				
	2H	900	900				
	2I	1,200	1,200				
	2J1	500	500				
	2J2	1,200	1,200				
	2K1	800	1,100				
	2K2	2,000	3,500				
	3A1	600	50				
	3A3	600	600				
DEVILS LAKE	2L	600	800				
SOURIS	3A2	1,200	1,700				
	3A4	1,500	1,500				
MISSOURI	3B1			150	100	250	0
	3B2			250	250	100	0
	3B3	100	100	900	900		
	3C	100	100	1,100	1,100		
SLOPE	3D1	200	200	100	100		
	3D2	200	200	200	200		
	3E1	300	300	500	500		
	3E2	600	600	450	450		
	3F1	350	500	600	600		
	3F2	450	800	800	800		
BADLANDS	4A			100	100	150	0
	4B			100	100	200	0
	4C			100	100	200	0
	4D			150	150	150	0
	4E			100	100	100	0
	4F			200	400	50	0
	<b>TOTALS</b>	<b>24,800</b>	<b>27,550</b>	<b>5,800</b>	<b>5,950</b>	<b>1,200</b>	<b>0</b>



**Table 2a. Summary of 2012 white-tailed deer and mule deer harvest data and buck:doe:fawn ratios, by hunting unit, for all regular deer-gun license holders.**

Hunting Unit	White-tailed Deer				Mule Deer			
	Antlered	Antlerless	Total	Ratios (B/D/F)	Antlered	Antlerless	Total	Ratios (B/D/F)
<b>1</b>	285	258	543	1.43/1/0.29				
<b>2A</b>	209	83	292	4.10/1/0.63				
<b>2B</b>	1095	1088	2183	1.41/1/0.40				
<b>2C</b>	732	813	1545	1.10/1/0.22				
<b>2D</b>	429	441	870	1.58/1/0.63				
<b>2F1</b>	793	743	1536	1.44/1/0.34				
<b>2F2</b>	568	660	1228	1.18/1/0.37				
<b>2G</b>	236	166	402	2.15/1/0.51				
<b>2G1</b>	643	545	1188	1.94/1/0.65				
<b>2G2</b>	558	491	1049	1.46/1/0.29				
<b>2E</b>	526	338	864	2.21/1/0.42				
<b>2H</b>	616	481	1097	1.97/1/0.54				
<b>2I</b>	807	663	1470	1.93/1/0.58				
<b>2J1</b>	347	234	581	2.13/1/0.44				
<b>2J2</b>	745	638	1383	1.77/1/0.52				
<b>2K1</b>	517	571	1088	1.26/1/0.39				
<b>2K2</b>	1018	1819	2837	0.87/1/0.55				
<b>3A1</b>	213	6	219	35.50/1/0.0				
<b>3A3</b>	390	298	688	1.94/1/0.48				
<b>2L</b>	290	310	600	1.12/1/0.20				
<b>3A2</b>	692	729	1421	1.24/1/0.31				
<b>3A4</b>	965	863	1828	1.66/1/0.48				
<b>3B1</b>	110	4	114	27.50/1/0.0	88	0	88	88.00/1/0.00
<b>3B2</b>	155	96	251	2.07/1/0.28	79	3	82	79.00/1/3.00
<b>3B3</b>	580	519	1099	1.39/1/0.25	47	22	69	2.94/1/0.38
<b>3C</b>	800	530	1330	2.04/1/0.35	47	15	62	3.62/1/0.15
<b>3D1</b>	93	87	180	1.43/1/0.34	86	48	134	2.61/1/0.45
<b>3D2</b>	202	158	360	1.82/1/0.42	69	61	130	1.47/1/0.30
<b>3E1</b>	430	310	740	1.74/1/0.26	121	64	185	2.81/1/0.49
<b>3E2</b>	584	298	882	2.70/1/0.38	139	135	274	1.72/1/0.67
<b>3F1</b>	672	162	834	5.55/1/0.34	64	72	136	1.21/1/0.36
<b>3F2</b>	789	250	1039	4.75/1/0.51	136	117	253	1.35/1/0.16
<b>4A</b>	54	23	77	3.18/1/0.35	94	0	94	94.0/1/0.00
<b>4B</b>	54	26	80	3.60/1/0.73	145	0	145	145.0/1/0.00
<b>4C</b>	54	25	79	3.00/1/0.39	144	0	144	144.0/1/0.00
<b>4D</b>	104	64	168	2.36/1/0.45	137	0	137	137.0/1/0.00
<b>4E</b>	67	41	108	1.86/1/0.14	81	0	81	81.0/1/0.00
<b>4F</b>	154	92	246	2.52/1/0.51	42	0	42	42.0/1/0.00
<b>Total</b>	<b>17576</b>	<b>14923</b>	<b>32499</b>	<b>1.66/1/0.41</b>	<b>1519</b>	<b>537</b>	<b>2056</b>	<b>3.93/1/0.39</b>

**Table 3a. Summary of 2012 September Youth Deer Seasons (N=3,683 licenses issued; including new 12-year-old antlerless white-tailed deer only season), muzzleloader (N=1,282 licenses issued), and archery season (N=22,276 licenses issued) harvest data and buck:doe:fawn ratios, by license type for those license holders that hunted.**

License Type	White-tailed Deer				Mule Deer			
	Antlered	Antlerless	Total	Ratios (B/D/F)	Antlered	Antlerless	Total	Ratios (B/D/F)
<b>Youth Season</b>	353	1,348	1,701	0.41/1/0.54 (353/871/477)	88	11	99	8.00/1/4.50 (88/2/9)
<b>Muzzleloader</b>	212	185	397	1.78/1/0.55 (212/119/66)				
<b>Archery</b>	4,581	1,859	6,440	3.30/1/0.34 (4581/1385/474)	398	18	416	36.18/1/0.64 (398/11/7)
<b>Total</b>	<b>5,146</b>	<b>3,392</b>	<b>8,937</b>	<b>2.17/1/0.43</b> <b>(5,146/2,375/1,017)</b>	<b>486</b>	<b>29</b>	<b>515</b>	<b>37.38/1/1.23</b> <b>(486/13/16)</b>

**Table 4a. Summary of white-tailed deer population indices for 2012-2013 (i.e., 2013 winter aerial survey (Deer/ Sq. Mi.), 2012 deer-vehicle collisions, and 2012 white-tailed deer observed by hunters per hour of effort during the first Saturday and Sunday of the 2012 regular deer season (number of useable surveys).**

Hunting Unit	2013 Winter Aerial Survey (Sample Size)	2012 Deer-Vehicle Collisions (MD & WTD)	2012 Hunter Obs. WTD/Hr. + s.d. (Sample Size)
<b>Turtle Mountains 1</b>	4.3 (397/93.0) Decrease	Stable	1.45 ± 1.44 (28) Increasing
<b>Red River All Units</b>	5.6 (5344/947.8) Decrease	Stable	Stable to Increasing
<b>2A</b>	2.1 (889/433.5) Increase	Stable	2.09 + 3.16 (10) Stable to Increase
<b>2B</b>	10 (1898/180) Decrease	Stable	1.40 ± 1.17 (62) Stable to Increase
<b>2C</b>	7.6 (2557/334.3) Decrease	Stable	2.08 ± 1.87 (50) Stable to Increase
<b>Pembina Hills 2D</b>	7.7 (2230/289) Decrease	Stable	1.33 ± 1.23 (43) Stable to Increase
<b>Sheyenne-James River All Units</b>	5.9 (7987/886.1)	Stable to Decreasing	NA
<b>2F1</b>	13.5 (2443/181) Increase	Decreasing	2.58 ± 1.95 (46) Stable
<b>2F2</b>	19.8 (1227/62) Increase	Stable	2.06 ± 1.64 (50) Stable to Increase
<b>2G</b>	7 (707/100.5) Decrease	Stable	1.42 ± 1.06 (45) Stable
<b>2G1</b>	2.6 (1425/544)	Stable	1.74 ± 2.08 (63) Stable to Increase
<b>2G2</b>	4.6 (2022/441)	Stable to Decreasing	1.64 ± 1.29 (53) Stable to Increase
<b>Devils Lake 2L</b>	4.4 (1645/375.1)	NA	3.62 ± 3.55 (41) Stable to Increase
<b>Coteau Hills All Units</b>	2.1 (8516/4055) Decrease	Stable to Decreasing	NA
<b>2E</b>	1.3 (1601/1200) Decrease	Stable	1.98 ± 1.69 (30) Stable Increase
<b>2H</b>	0 (0/432)	Stable	2.58 ± 2.06 (40) Stable to Increase
<b>2I</b>	0 (0/1480)	Stable	2.57 ± 2.84 (53) Stable to Increase
<b>2J1</b>	0 (0/588)	Stable	1.97 ± 2.51 (2)** Stable to Increase
<b>2J2</b>	0 (0/612)	Stable to Decreasing	2.46 ± 1.91 (48) Stable to Increase

Hunting Unit	2013 Winter Aerial Survey (Sample Size)	2012 Deer-Vehicle Collisions (MD & WTD)	2012 Hunter Obs. WTD/Hr. + s.d. (Sample Size)
<b>Coteau Hills 2K1</b>	5.5 (2926/532)	Stable	1.91 ± 1.22 (33) Stable to Increase
<b>2K2</b>	2.9 (1876/636)	Stable to Decreasing	2.72 ± 3.23 (46) Stable to Increase
<b>3A1</b>	1.1 (1392/1260) Decrease	Stable	0.00 ± 0.00 (0)
<b>3A3</b>	1.7 (721/427)	Stable	3.40 ± 4.76 (10) Increase
<b>Souris Des Lacs All Units</b>	5.5 (4078/744)	Stable	NA
<b>3A2</b>	18.7 (1143/61)	Stable	2.73 ± 3.19 (34) Stable
<b>3A4</b>	4.3 (2935/683)	Stable	2.19 ± 3.11 (32) Stable
<b>Missouri River All Units</b>	NA	Stable to Decreasing	NA
<b>3B1</b>	0 (0/471)	NA	0.00 ± 0.00 (0)
<b>3B2</b>	0 (0/267)	Stable to Increasing	0.00 ± 0.00 (0)
<b>3B3</b>	0 (162)	Stable	2.39 ± 2.14 (46) Stable to Increase
<b>3C</b>	7.1 (689/97)	Stable to Decreasing	3.14 ± 2.87 (41) Stable to Decrease
<b>Slope All Units</b>	0 (0)	Stable to Increasing	NA
<b>3D1</b>	0 (0/574)	Stable to Increasing	0.00 ± 0.00 (0)
<b>3D2</b>	0 (0/577)	Increasing	1.91 ± 0.00 (1)**
<b>3E1</b>	0 (0/586)	Stable to Decreasing	3.98 ± 4.62 (43) Stable to Increase
<b>3E2</b>	0 (0/570)	Stable to Increasing	3.53 ± 4.26 (41) Stable to Decrease
<b>3F1</b>	0 (0/560)	Stable to Increasing	7.55 ± 4.99 (40) Increasing
<b>3F2</b>	0 (0/656)	Stable to Decreasing	8.65 ± 9.66 (29) Increasing
<b>Badlands All Units</b>	NA	Stable to Decreasing	NA

Hunting Unit	2013 Winter Aerial Survey (Sample Size)	2012 Deer-Vehicle Collisions (MD & WTD)	2012 Hunter Obs. WTD/Hr. + s.d. (Sample Size)
4A	0.0 WT & 0.0 MD (0 WT & 0 MD/92.1)	NA	0.00 ± 0.00 (0)*** (All Deer Hunter Observations)
4B	NA	Decreasing	0.00 ± 0.00 (0)*** (All Deer Hunter Observations)
4C	NA	Decreasing	0.00 ± 0.00 (0)*** (All Deer Hunter Observations)
4D	NA	Decreasing	0.00 ± 0.00 (0)*** (All Deer Hunter Observations)
4E	NA	Decreasing	0.00 ± 0.00 (0)*** (All Deer Hunter Observations)
4F	NA	Stable to Increasing	21.55 ± 8.86 (4)*** Increasing (All Deer Hunter Observations)

\*\*\* Small Sample

**Table 5a. Summary of mule deer population indices for 2012-2013 (i.e., 2013 winter/spring aerial survey, 2012 Deer-vehicle collisions, and 2012 mule deer observed by hunters per hour of effort during the first Saturday and Sunday of the 2008 regular deer season(number of useable surveys).**

<b>Hunting Unit</b>	<b>2013 Winter(*) or Spring Aerial Survey (Sample Size)</b>	<b>2012 Deer-Vehicle Collisions (MD &amp; WTD)</b>	<b>2012 Hunter Obs. MD/Hr. + s.d. (Sample Size)</b>
<b>Missouri River All Units</b>	NA	Stable to Decreasing	NA
<b>3B1</b>	NA	NA	0.00 ± 0.00 (0) All Hunters
<b>3B2</b>	NA	Stable to Increasing	0.00 ± 0.00 (0) All Hunters
<b>3B3</b>	NA	Stable	0.18 ± 0.50 (46) Stable to Increase All Hunters
<b>3C</b>	NA	Stable to Decreasing	0.37 ± 0.75 (41) Stable to Decrease All Hunters
<b>Slope All Units</b>	0.9 (0/3532)	Stable to Increasing	NA
<b>3D1</b>	0 (0/574)	Stable to Increasing	0.00 ± 0.00 (0) All Hunters
<b>3D2</b>	0 (0/577)	Increasing	1.27±0.00 (1)*** All Hunters
<b>3E1</b>	0 (0/586)	Stable to Decreasing	0.81 ± 0.1.31 (43) Stable to Increase All Hunters
<b>3E2</b>	0 (0/570)	Stable to Increasing	0.58 ± 0.84 (41) Stable All Hunters
<b>3F1</b>	0 (/560)	Stable to Increasing	1.41±1.41 (40) Stable to Increase All Hunters
<b>3F2</b>	0 (/683)	Stable to Decreasing	1.98 ± 2.46 (27) Increasing All Hunters

Hunting Unit	2013 Winter(*) or Spring Aerial Survey (Sample Size)	2012 Deer-Vehicle Collisions (MD & WTD)	2012 Hunter Obs. MD/Hr. + s.d. (Sample Size)
<b>Badlands All Units</b>	6 (1756) Decreasing	Stable to Decreasing	NA
<b>4A</b>	8.7 (239) Decreasing	NA	0.00 ± 0.00 (0) All Hunters
<b>4B</b>	4.7 (336) Decreasing	Decreasing	2.25 ± 0.00 (0) All Hunters
<b>4C</b>	5.1 (316) Decreasing	Decreasing	2.89 ± 0.00 (0) All Hunters
<b>4D</b>	8.8 (613) Decreasing to Stable	Decreasing	3.04 ± 0.00 (0) All Hunters
<b>4E</b>	5.6 (246) Decreasing	Decreasing	2.78 ± 0.00 (0) All Hunters
<b>4F</b>	3.6 (140) Decreasing to Stable	Stable to Increasing	2.91 ± 4.51 (4)*** All Hunters

\*\*\* Small Sample

**Table 6a. Summary of white-tailed deer buck:doe:fawn ratios based upon observations by white-tailed deer hunters during the first Saturday and Sunday of the 2012 regular deer season.**

<b>Hunting Unit</b>	<b>2012 Hunter Obs. Buck:Doe:Fawn (Sample Size)</b>
<b>Turtle Mountains 1</b>	0.24:1:0.82 (53:222:181)
<b>Red River All Units</b>	0.22:1:0.51 (259-1173-598)
<b>2A</b>	0.57:1:0.53 (30-53-28)
<b>2B</b>	0.39:1:0.44 (22:573:253)
<b>2C</b>	0.38:1:0.58 (207-547-317)
<b>Pembina Hills 2D</b>	0.43:1:0.63 (130-304-191)
<b>Sheyenne-James River All Units</b>	0.37:1:0.47 (1047-2836-1326)
<b>2F1</b>	0.38:1:0.61 (251-659-402)
<b>2F2</b>	0.34:1:0.37 (238-710-263)
<b>2G</b>	0.35:1:0.40 (118-340-135)
<b>2G1</b>	0.34:1:0.46 (207-617-281)
<b>2G2</b>	0.46:1:0.48 (233-510-245)
<b>Devils Lake 2L</b>	0.43:1:0.52 (269-630-327)
<b>Coteau Hills All Units</b>	0.44:1:0.55 (1454-3304-1806)
<b>2E</b>	0.38:1:0.48 (128-336-161)
<b>2H</b>	0.43:1:0.58 (228-525-305)
<b>2I</b>	0.45:1:0.47 (315-696-328)
<b>2J1</b>	0.41:1:0.18 (7-17-3)***
<b>2J2</b>	0.47:1:0.58 (308-661-382)



<b>Hunting Unit</b>	<b>2012 Hunter Obs. Buck:Doe:Fawn (Sample Size)</b>
<b>Coteau Hills 2K1</b>	0.49:1:0.62 (133-273-168)
<b>2K2</b>	0.43:1:0.52 (269-630-327)
<b>3A1</b>	0.0:1:0.0 (0-0-0)
<b>3A3</b>	0.40:1:0.80 (66-166-132)
<b>Souris Des Lacs All Units</b>	0.35:1:0.54 (321-909-494)
<b>3A2</b>	0.30:1:0.36 (147-494-180)
<b>3A4</b>	0.42:1:0.76 (174-415-314)
<b>Missouri River All Units</b>	0.43:1:0.56 (552-1270-707)
<b>3B1</b>	0.0:1:0.0 (0-0-0)
<b>3B2</b>	0.0:1:0.0 (0-0-0)
<b>3B3</b>	0.46:1:0.63 (265-570-357)
<b>3C</b>	0.41:1:0.50 (287-700-350)
<b>Slope All Units</b>	0.38:1:0.44 (2097-5563-2470)
<b>3D1</b>	0.0:1:0.0 (0-0-0)
<b>3D2</b>	0.31:1:0.31 (4-13-4)***
<b>3E1</b>	0.42:1:0.49 (377-902-446)
<b>3E2</b>	0.62:1:0.76 (371-603-461)
<b>3F1</b>	0.30:1:0.43 (606-2022-869)
<b>3F2</b>	0.37:1:0.34 (739-2023-690)
<b>Badlands All Units (All Hunters)</b>	0.23:1:0.39 (122-521-205)

<b>Hunting Unit</b>	<b>2012 Hunter Obs. Buck:Doe:Fawn (Sample Size)</b>
<b>4A (All Hunters)</b>	0.0:1:0.0 (0-0-0)
<b>4B (All Hunters)</b>	0.0:1:0.0 (0-0-0)
<b>4C (All Hunters)</b>	0.0:1:0.0 (0-0-0)
<b>4D (All Hunters)</b>	0.0:1:0.0 (0-0-0)
<b>4E (All Hunters)</b>	0.0:1:0.0 (0-0-0)
<b>4F (All Hunters)</b>	0.23:1:0.39 (122-521-205)
<b>Statewide (All Hunter Observations)</b>	<b>0.38:1:0.50 (6536-17111- 8586)</b>

\*\*\* Small Sample

**Table 7a. Summary of mule deer buck:doe:fawn ratios based upon fall 2012 aerial survey and observations by hunters during the first Saturday and Sunday of the 2012 regular deer season.**

<b>Hunting Unit</b>	<b>Fall 2012 Aerial Survey Buck:Doe:Fawn (Sample Size)</b>	<b>2012 Hunter Obs. Buck:Doe:Fawn (Sample Size)</b>
<b>Missouri River All Units</b>	NA	0.28:1:0.55 (46-163-90) (All Hunters)
<b>3B1</b>	NA	0.0:1:0.0 (0-0-0)
<b>3B2</b>	NA	0.0:1:0.0 (0-0-0)
<b>3B3</b>	NA	0.21:1:0.59 (12-56-33)
<b>3C</b>	NA	0.32:1:0.53 (34-107-57)
<b>Slope All Units</b>	NA	0.30:1:0.32 (367-1225-386) (All Hunters)
<b>3D1</b>	NA	0.0:1:0.0 (0-0-0)
<b>3D2</b>	NA	0.20:1:0.20 (2-10-2)***
<b>3E1</b>	NA	0.28:1:0.16 (54-192-30)
<b>3E2</b>	NA	0.45:1:0.42 (60-134-56)
<b>3F1</b>	NA	0.27:1:0.29 (121-442-126)
<b>3F2</b>	NA	0.27:1:0.36 (130-447-172)
<b>Badlands All Units</b>	0.34:1:0.59 (233-623-368)	0.26:1:0.63 (10-38-24)***
<b>4A</b>	0.34:1:0.65 (32-94-61)	0.0:1:0.0 (0-0-0)
<b>4B</b>	0.42:1:0.55 (48-114-63)	0.0:1:0.0 (0-0-0)
<b>4C</b>	0.29:1:0.70 (23-80-56)	0.0:1:0.0 (0-0-0)
<b>4D</b>	0.38:1:0.58 (77-205-119)	0.0:1:0.0 (0-0-0)
<b>4E</b>	0.38:1:0.78 (27-72-56)	0.0:1:0.0 (0-0-0)

<b>Hunting Unit</b>	<b>Fall 2012 Aerial Survey Buck:Doe:Fawn (Sample Size)</b>	<b>2012 Hunter Obs. Buck:Doe:Fawn (Sample Size)</b>
<b>4F</b>	0.45:1:0.22 (26-58-13)	0.26:1:0.63 (10-38-24)***
<b>Statewide</b>	<b>NA</b>	<b>0.30:1:0.34 (458-1520-521) (All Hunters)</b>

\*\*\* Small Sample

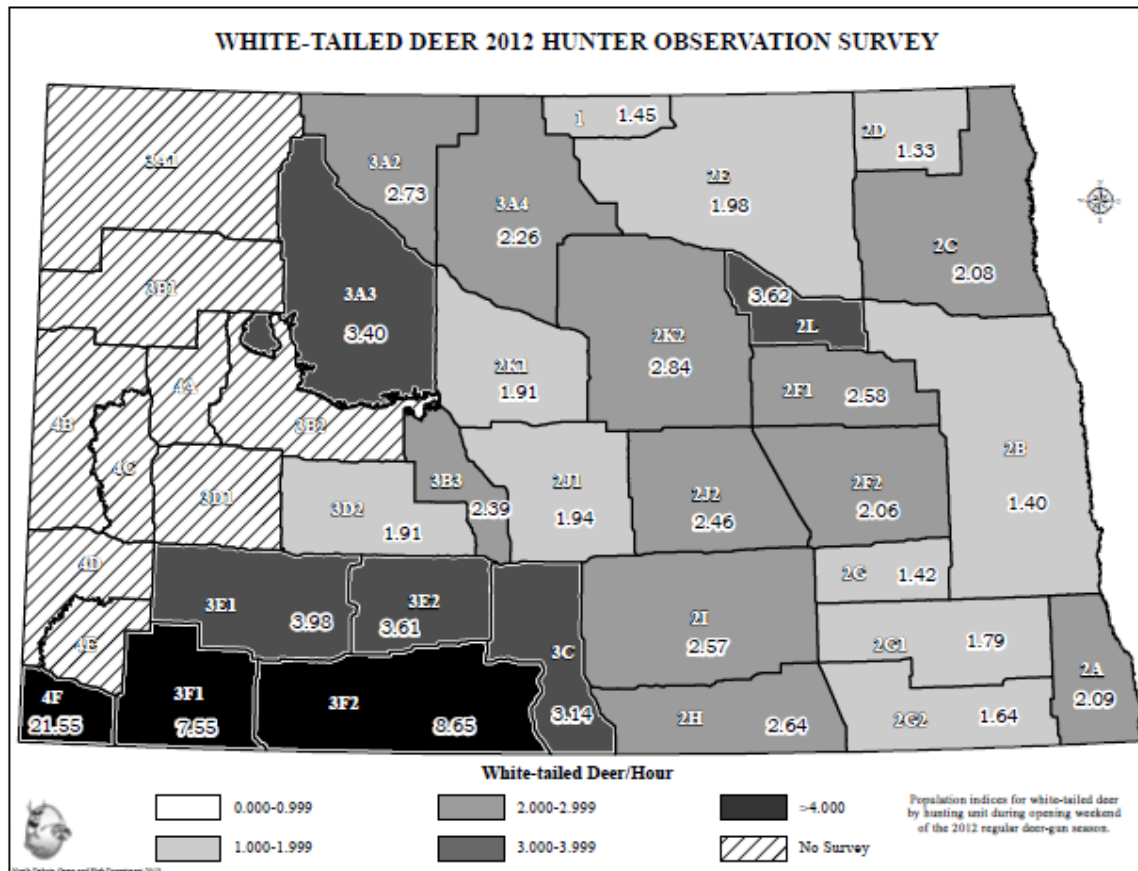


Figure 1. Map of North Dakota illustrating the use of observation rates by hunters (white-tailed deer sighted/hour of effort spent hunting) as a population index for each deer-hunting unit. Hunter observations were made during the first Saturday and Sunday of the regular 2012 deer-gun season. Year-to-year changes in hunter observation rates have been monitored statewide for white-tailed deer population trends since 2004.

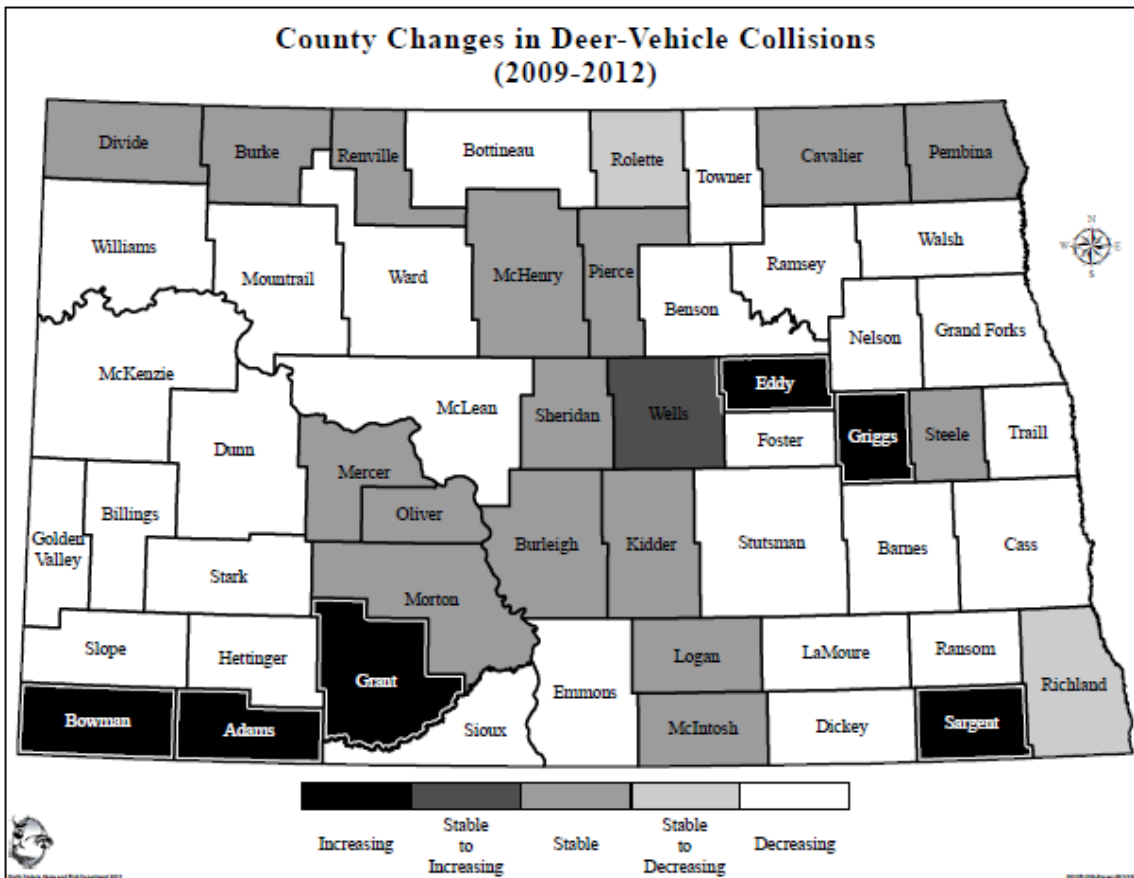


Figure 2. Map of North Dakota illustrating trends in Deer-Vehicle Collisions (DVC) as a population index for each county (2009-2012). Year-to-year changes in DVC rates have been monitored statewide for deer population trends since 2001.

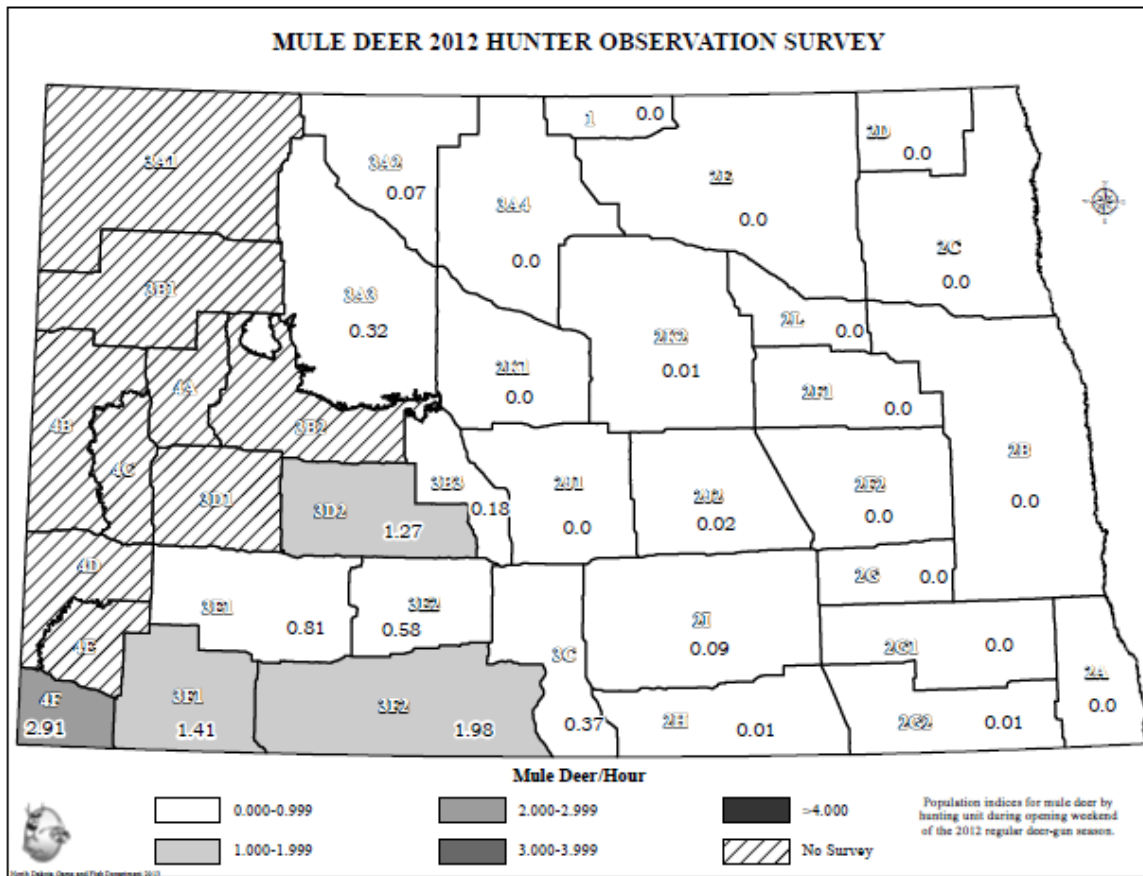


Figure 3. Map of North Dakota illustrating the use of observation rates by hunters (mule deer sighted/hour of effort spent hunting) as a population index for each deer-hunting unit. Hunter observations were made during the first Saturday and Sunday of the regular 2012 deer-gun season. Year-to-year changes in hunter observation rates have been monitored for mule deer population trends in the Badlands units (4A – 4F) since 1998, and statewide since 2004.

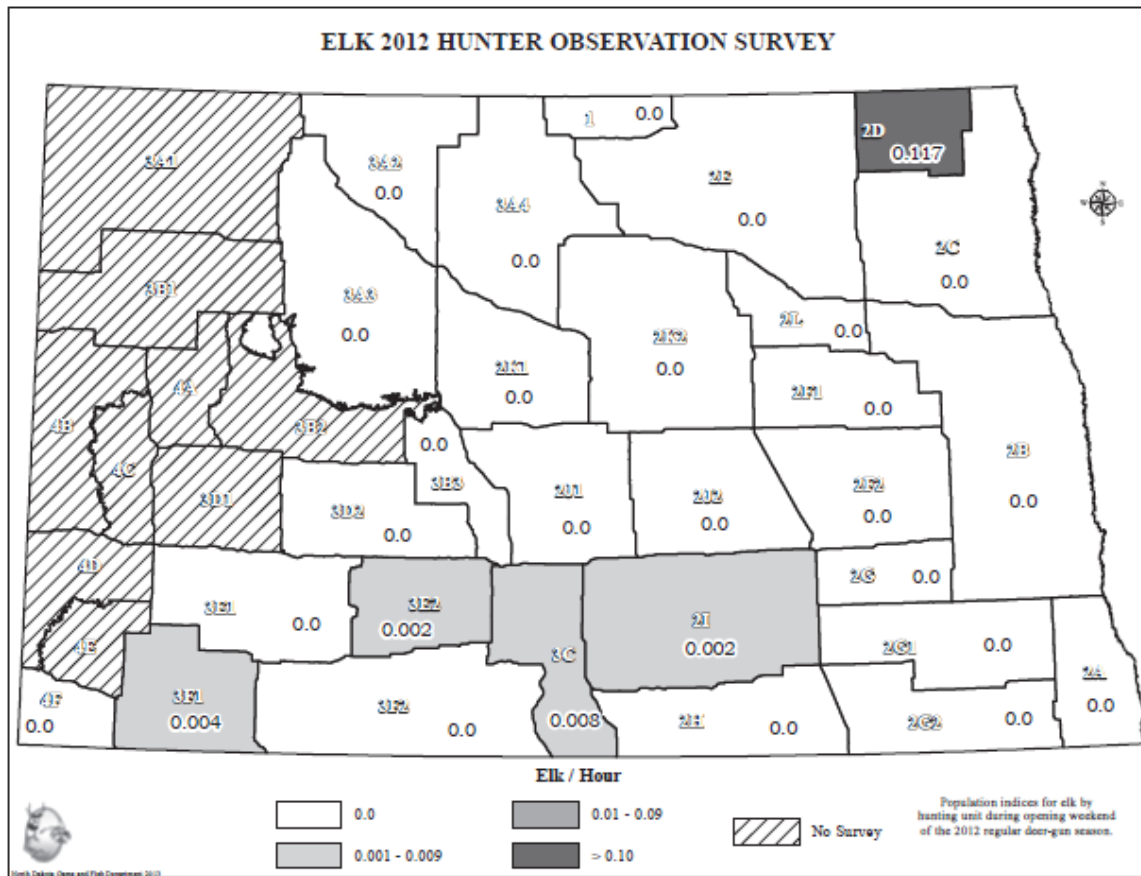


Figure 4. Map of North Dakota illustrating the use of observation rates by hunters (elk sighted/hour of effort spent hunting) as a population index for each deer-hunting unit. Hunter observations were made during the first Saturday and Sunday of the regular 2012 deer-gun season. Year-to-year changes in hunter observation rates have been monitored statewide for elk population trends since 2007.



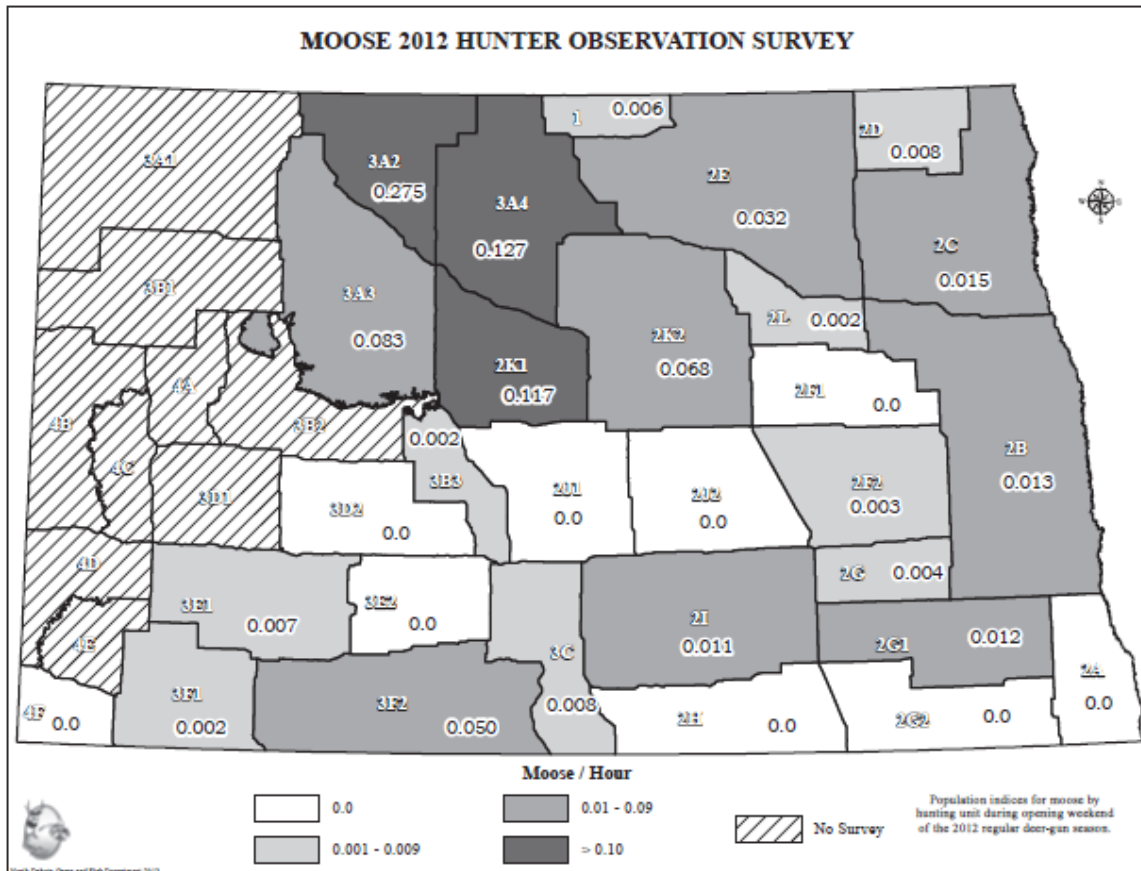


Figure 5. Map of North Dakota illustrating the use of observation rates by hunters (moose sighted/hour of effort spent hunting) as a population index for each deer-hunting unit. Hunter observations were made during the first Saturday and Sunday of the regular 2012 deer-gun season. Year-to-year changes in hunter observation rates have been monitored statewide for moose population trends since 2007.

## OHIO 2012-13 DEER REPORT

**Ohio.** Total deer harvest ~217,200 (~37% antlered, 63% antlerless). Harvested peaked in 2009. Regulations have been stable for 6 years, enacting a number of changes in 2013. Maximum county bag limit was 6, will reduce to 4. Mean harvest per successful hunter was 1.3; less than 1% of successful hunters harvested more than 4 deer. The higher bag limit contributed little to the total harvest yet was a major concern of hunters. Ohio established an early antlerless-only muzzleloader season in mid-October. Ohio currently manages by 88 counties; research is underway to create fewer, larger deer management units. Next will be a project to develop management goals. Deer damage complaints have declined from peak levels during the mid-2000s. CWD surveillance was limited to sampling 600 road-killed deer. EHD was detected in a few counties, mostly in NE Ohio.

Double-click, below, to reveal 2012-13 Ohio Deer Harvest Report



## SOUTH DAKOTA 2012-13 DEER REPORT

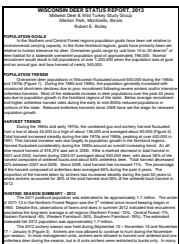
**South Dakota.** Total deer harvest ~69,400 (~61,100 WTD [52% female], 8,300 MD [44% female]), a decrease of 19% from 2011. Populations of both species peaked in 2005-06. Severe winters in 2009-10 and 2010-11 contributed to population declines. Most deer management units are below population objectives, working to rebuild deer populations. Experienced a significant EHD outbreak in 2012, with 3,700 suspected cases reported. Highest mortality was in SE part of the state, but reports of dead deer were received from 51 counties. EHD-2, EHD-6, and Bluetongue 3 and 13 were documented. Unsold permits were withdrawn from a number of counties and refunds were offered to hunters that wanted to return their licenses. CWD sampling was mostly limited to voluntary submission of heads by hunters due to lack of federal funds. Samples were obtained from 128 elk, 24 MD and 81 WTD with 6 WTD, 1 MD and 5 elk testing positive. SD conducts fall classification surveys during September and October to estimate fall recruitment rates. They are starting research to estimate survival of WTD and MD fawns in various habitats and geographic areas of SD. Other research projects are developing aerial survey methods for MD, studying population dynamics in the Black Hills and evaluating herd composition surveys. The governor requested a review of the big game management program due to public concerns with reduced populations of elk, deer, and pronghorns. The Wildlife Management Institute received the contract to conduct the review. Expect to receive the report this fall.

Double-click, below, to reveal 2012-13 South Dakota Deer Harvest Report



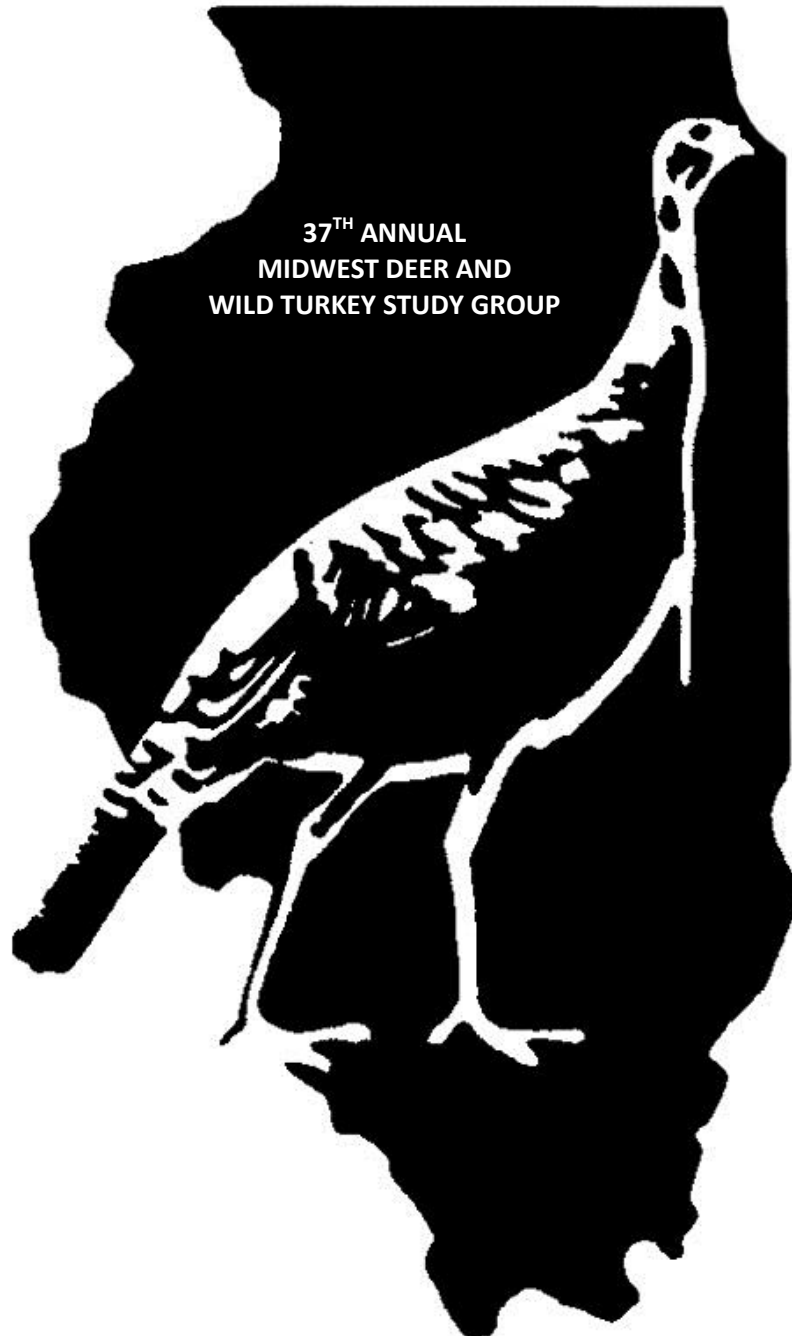
## WISCONSIN 2012-13 DEER REPORT

Double-click, below, to reveal 2012-13 Wisconsin Deer Harvest Report



**Appendix 5.** Annual turkey status reports submitted by participant states and provinces at the MDWTSG meeting in 2013, Illinois.

## Agency Turkey Reports



**ILLINOIS WILD TURKEY REPORT NARRATIVE**  
**MIDWEST DEER & WILD TURKEY STUDY GROUP**  
**ALLERTON PARK AND RETREAT CENTER, ILLINOIS, 2013**

**HARVEST**

Minor changes were made to any of the quotas in 2013, with those occurring on some state sites. Youth harvest was the second highest harvest after the record year last year, with 923 birds harvested during the youth seasons in 2012. The overall Spring Turkey harvest of 14,133 was 11.3% below than the 2011 harvest. Much of Illinois' north hunting zone experienced rain or snowfall for 20 days of the 32 day total season.

**BROOD SURVEYS & DEER HUNTER SIGHTINGS**

We continue efforts to improve our brood survey information. In 2010, we added mailings to all county Soil and Water Conservation Districts, and in 2011 we asked NWTF chapter around the state to assist as well. This increased the number of cooperators receiving the Brood Surveys to 2400. We provide a separate color-coded card for each month during the survey period of June-August, and included a more detailed instruction sheet for the surveys, including an illustrated example card. New data is now stored in an MS Access database for easier retrieval and analysis.

Brood surveys for this year (2013) have not been completed, but analysis of observations returned so far for June and July indicate a poult to hen ratio of 1.71. This is down sharply from an index of 2.03 in 2011 and the previous 10-year mean for 2012 of 2.35. Six of the last seven springs in Illinois have had colder and wetter than average weather, with April of 2013 being the 4<sup>th</sup> wettest on record.

Archery and gun hunters saw a total of 990,016 turkeys with 27.49% of successful turkey hunters observing an average of 5.48 turkeys each. This compares to 937,882 turkeys observed in the fall of 2011 with 27.43% of hunters observing an average of 5.17 turkeys each.

<b>2012 Turkey Observations by Deer Hunters, by Season</b>						
<b>SEASON</b>	<b>No. of Successful</b>	<b>No. Hunters Saw Turks</b>	<b>Total Turks Obs</b>	<b>Avg # Obs That Saw Turks</b>	<b>Avg # Obs. by All Hunters</b>	<b>% of Succ Saw Turks</b>
ARCHERY	59805	19217	403620	21.00	6.75	32.13
FIREARM	99546	23934	428472	17.90	4.30	24.04
MUZZLE	3614	1232	28250	22.93	7.82	34.09
LW/CWD	14723	4505	119539	26.53	8.12	30.60
YOUTH	3123	814	10135	12.45	3.25	26.06
<b>TOTAL</b>	<b>180811</b>	<b>49702</b>	<b>990016</b>	<b>19.92</b>	<b>5.48</b>	<b>27.49</b>

# Hunters Bag 14,133 Birds During 2013 Illinois Spring Wild Turkey Season

*Cold and wet weather greeted turkey hunters for much of the season*

Hunters in Illinois harvested a preliminary statewide total of 14,133 wild turkeys during the 2013 Spring Turkey Season, including the youth seasons. The 2013 total compares with the statewide turkey harvest of 15,941 in 2012. Hunters took a state-record 16,605 turkeys during the spring season in 2006. Youth hunters took a 2<sup>nd</sup> highest season preliminary total of 923 birds, down from the 2012 record of 1300 turkeys harvested.

Four new counties were opened this season: Ford, Douglas, Kane and Lake. This brings the total of counties open for spring turkey hunting to 100 of Illinois' 102 counties.

Turkey hunters this spring took a preliminary total of 6,494 wild turkeys during all seasons in the South Zone, a decrease from the harvest of 7,006 last year in the south. The North Zone total of 7,639 wild turkeys compares with last year's total of 8,935 in the north. During the 2006 record year, harvests were 6,530 in the south and 10,075 in the north.

"Many hunters commented on the cold and wet weather making hunting very difficult," said Paul Brewer, Illinois Department of Natural Resources Wild Turkey Project Manager. "Breeding activity was delayed, and gobblers were not very responsive for much of the season." As an example, in JoDaviess County, typically one of the leading counties in harvest, there was some rain or snow every day of the first 5-day season. For all 5 seasons combined (32 days) in JoDaviess County there was rain or snow fell on 20 days of the season, while wind gusts exceeded 20mph on 21 days as well. Statewide, the month of April was the 4<sup>th</sup> wettest on record.

"Cold and wet springs are typically not good for turkey production, and we have experienced those conditions for six of the last seven years," said Brewer. "The long term key in improving wild turkey populations continues to be habitat management, particularly restoration of open oak woodlands for nesting and brood rearing."

The 2013 Spring Turkey seasons were April 8 - May 9 for the South Zone and April 15 - May 16 for the North Zone. Youth Spring Turkey Seasons were March 30 - 31 in the South Zone and April 6-7 in the North Zone.

The top five counties for wild turkey harvest in the South Zone were Jefferson (411), Pope (360), Marion (344), and a tie for 4<sup>th</sup> with Randolph and Wayne (333). Top five North Zone counties this year were JoDaviess (552), Pike (396), Fulton (328), Macoupin (293) and Adams (290).

The table below includes the preliminary 2013 county-by-county spring turkey harvest results with comparable totals for 2012.

<b>County</b>	<b>2012</b>	<b>2013</b>
Adams	366	290
Alexander	119	115
Bond	154	158

<b>County</b>	<b>2012</b>	<b>2013</b>
Boone	75	69
Brown	242	205
Bureau	140	121
Calhoun	252	264
Carroll	222	229
Cass	246	215
Champaign	17	19
Christian	64	50
Clark	165	146
Clay	219	237
Clinton	114	80
Coles	49	36
Crawford	161	152
Cumberland	78	53
DeKalb	22	13
DeWitt	62	41
Douglas	closed	13
Edgar	120	84
Edwards	103	104
Effingham	103	109
Fayette	268	246
Ford	closed	14
Franklin	234	188
Fulton	404	328
Gallatin	123	106
Greene	190	175
Grundy	47	42
Hamilton	207	220
Hancock	230	185
Hardin	154	162
Henderson	168	127
Henry	82	75
Iroquois	75	56
Jackson	323	301
Jasper	141	93
Jefferson	468	411
Jersey	203	201
Jo Daviess	638	552
Johnson	261	249
Kane	closed	3
Kankakee	39	34

<b>County</b>	<b>2012</b>	<b>2013</b>
Kendall	18	10
Knox	241	207
Lake	closed	1
LaSalle	123	101
Lawrence	127	117
Lee	81	87
Livingston	24	19
Logan	35	26
Macon	33	26
Macoupin	314	293
Madison	280	233
Marion	331	344
Marshall	86	58
Mason	194	164
Massac	92	97
McDonough	119	91
McHenry	60	44
McLean	77	66
Menard	117	97
Mercer	209	177
Monroe	170	166
Montgomery	158	159
Morgan	185	144
Moultrie	24	28
Ogle	192	167
Peoria	155	130
Perry	226	243
Piatt	15	8
Pike	452	396
Pope	380	360
Pulaski	140	111
Putnam	52	38
Randolph	332	333
Richland	124	121
Rock Island	207	176
Saline	145	129
Sangamon	90	85
Schuyler	269	179
Scott	85	67
Shelby	96	83
St. Clair	135	120



<b>County</b>	<b>2012</b>	<b>2013</b>
Stark	6	8
Stephenson	216	169
Tazewell	63	60
Union	290	294
Vermilion	157	122
Wabash	54	41
Warren	65	56
Washington	157	133
Wayne	386	333
White	166	136
Whiteside	185	167
Will	64	61
Williamson	319	252
Winnebago	191	155
Woodford	81	74
<b>TOTAL</b>	<b>15,941</b>	<b>14,133</b>



# Wild Turkey Brood Survey and Hunter Observation Report – 2013

Forest Wildlife Program, Illinois Department of Natural Resources  
 Paul A. Brewer – Wild Turkey Project Manager



December 2013

## General Information

**Survey Procedure:** 2,400 surveys were mailed to cooperating landowners, mail carriers, biologists, Conservation Police Officers, state park and wildlife area managers, National Wild Turkey Federation chapters, and Soil and Water Conservation District employees. Observers were asked to record sightings of hen turkeys and turkey broods for the months of June, July and August. 587 cards were returned in 2013 for a return rate of 24.5%. This compares to a return rate of 21.7% for 2012.

The Poult/Hen Index is calculated as follows:

$$\text{Poult/Hen Index} = \frac{\text{Total Number of Poults Reported}}{\text{Total Number of Hens Reported}}$$

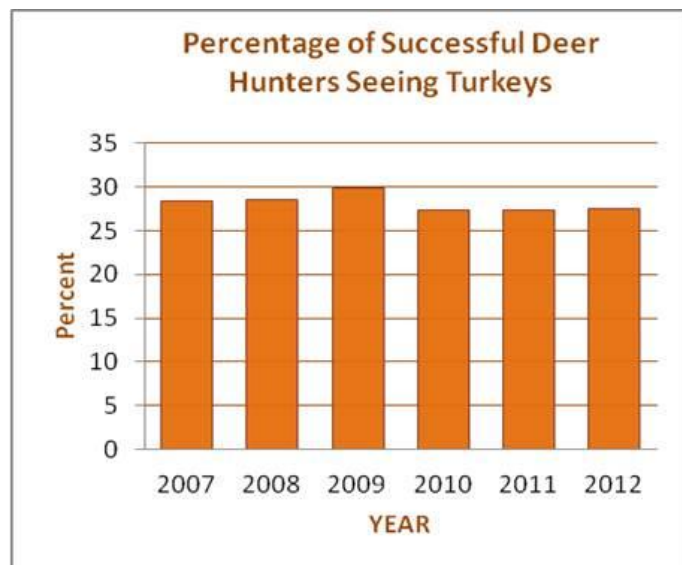
Successful deer hunters from all firearm and archery seasons were required to register their harvest on the same calendar day as the deer was taken. As part of the registration process, these hunters were asked to report the total number of wild turkeys observed during their hunt.

The Hunter Turkey Sighting Index is calculated as follows:

$$\% \text{ Hunters Seeing Turkeys} = \frac{\text{Total \# of Hunters Seeing Turkeys}}{\text{Total \# of Successful Hunters}} \times 100$$

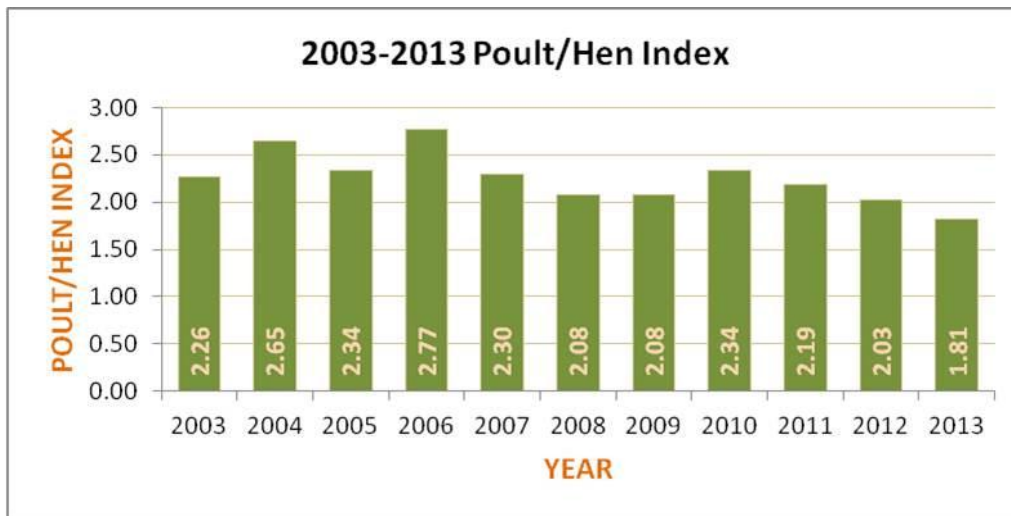
**Significant Findings:** The 2013 Statewide Poult/Hen Index of 1.81 was well below the previous 10 year mean of 2.27 and is also below the recent 5-year average of 2.14. The 2012 Deer Hunter Turkey Sighting Index of 27.49 is below the previous 5 year average of 28.35, and is almost identical to the sighting index of 27.43 observed in 2011.

YEAR	# Hens With/Without Broods	# Poults	Poults/Hen Index
2003	1,276	2,886	2.26
2004	1,590	4,219	2.65
2005	1,389	3,251	2.34
2006	1,746	4,834	2.77
2007	2,631	6,051	2.3
2008	2,109	4,387	2.08
2009	2,789	5,798	2.08
2010	2,129	4,975	2.34
2011	2,264	4,957	2.19
2012	2,658	5,387	2.03
2013	2,342	4,248	1.81
Previous 10 Year Mean	20,581	46,745	2.27



## Poult/Hen Index by Management Region

Region	Hens w/ Broods	Hens w/o Broods	Poults Observed	Poult/Hen Index
1	261	260	971	1.86
2	20	68	99	1.13
3	114	38	408	2.68
4	172	181	497	1.41
5	549	679	2,273	1.85
<b>Totals</b>	<b>1,116</b>	<b>1,226</b>	<b>4,248</b>	<b>1.81</b>



## 2012 Deer Hunter Wild Turkey Sighting Information (Combined Archery and Firearm)

Region	# Successful Hunters	# Hunters Observing Turkeys	# Total Turkeys Seen	Average # Turkeys Observed by Hunters Seeing Turkeys	% Successful Hunters Seeing Turkeys
1	46,572	12,171	264,471	21.73	26.13%
2	5,373	886	13,581	15.33	16.49%
3	19,553	4,052	63,429	15.65	20.72%
4	55,843	16,578	286,108	17.26	29.69%
5	53,470	16,015	362,427	22.63	29.95%
<b>Statewide</b>	<b>180,811</b>	<b>49,702</b>	<b>990,016</b>	<b>19.92</b>	<b>27.49%</b>

## INDIANA WILD TURKEY STATUS REPORT

37<sup>th</sup> Annual Midwest Deer and Turkey Group Meeting  
Robert Allerton Retreat and Conference Center, Monticello, IL  
Hosted by Illinois Department of Natural Resources  
August 18-21, 2013

Steven E. Backs, Wildlife Research Biologist, Division of Fish and Wildlife, 562 DNR Rd., Mitchell, IN 47446  
TX: 812-849-4586 (ext 222); Fax 849-6013; Email: [sbacks@dnr.IN.gov](mailto:sbacks@dnr.IN.gov)

*Note: Complete results of turkey population and harvest surveys found at: <http://www.in.gov/dnr/fishwild/3352.htm>*

### WILD TURKEY PRODUCTION AND POPULATION SURVEYS

#### Summer Brood Survey

District wildlife biologists and conservation officers' record observations of wild turkey hens and poults during normal duty hours in July and August. The wild turkey summer brood Production Index (PI) is the total poults/total adult hens (poults:hen ratio) compiled from July and August into one combined index. The statewide mean production index of 2.5 poults:hen (PI) was significantly greater than the 1.5 PI of 2011, the lowest PI since the survey began in 1993 (**Figure 1**). The 2012 PI was not statistically different from mean 2.2 PI of the 5 prior summers (2007-2011). The increased 2012 PI ended 3 consecutive years of decline but was the 8<sup>th</sup> consecutive year at or below the long term log trend linked primarily to above normal precipitation during the early brood period in June. The general decreasing log trend (1993-2012) in the annual summer production of wild turkeys is indicative of a population whose growth rate has leveled off to "maintenance" or stable population level, but the rate of decline the last 3 years was of concern. The above normal temperatures and dry conditions in 2012 likely increased overall brood survival, especially early broods observed in early-mid May in some regions of the state.

Preliminary data compilations indicate that 2013 production is quite variable due to the cool/wet June through July but brood observations have been hindered by the dense, lush vegetation which might actually improve the survival of the poults that survived through July.

#### Roadside Gobbling Counts

Roadside gobbler trend routes (10 routes; 14 counties; 15 stops/route) are conducted annually (late March to April) in conjunction with roadside trend routes for ruffed grouse. The number of male wild turkeys heard gobbling along the traditional 10 control roadside routes during 1-28 April 2013 was 0.69 gobblers heard per stop, a 20% decrease compared to the gobbling index of 0.86 in 2012. Four new routes were re-established in 2012 to expand the statewide coverage and experienced a 15% decrease in 2013 compared to 2012. Overall, the statewide gobbling index for the 14 routes decreased 19% in 2013. The long-term trend, based on a 5-yr moving average, shows a general increase from 1987-2006, followed by a general decrease since the 2006 peak (**Figure 2**). The 2013 gobbling index of 0.73 was not different than the 5 yr-mean ( $P > 0.05$ ) likely due to the addition of values from the 4 routes added in 2012.

### WILD TURKEY HARVESTS

#### 2012 Fall Season Results

Hunters harvested 610 wild turkeys during the 8th fall turkey hunting season. The 2012 fall harvest was 11% more than the 549 birds taken in the 2011. The 52 days of the two archery-only portions of the season accounted for 29% of the harvest with 71% during the 5-12 days of the combined shotgun and archery portion. Shotgun hunters accounted for 51% of the harvest. Weekends accounted for 52% of the total harvest with 32% during the 1-2 weekends of the combined archery and shotgun portions. Juvenile birds made up 26% of the harvest with a juvenile to adult ratio of 1:2.8. The proportion of adults in the fall harvest dropped slightly (74%, although still relatively high, probably reflected a slight

increase in the 2012 summer brood production, hunter selection for larger adult birds, and age determination errors. Counties harvesting at least 20 birds ( $\geq 3\%$  of the total harvest) were Harrison (29), Jackson (26), Warrick (24), Greene (21), and Jefferson (21) (**Figure 3**). The proportion of the fall to spring harvest by county ranged from 0% to 25% and the statewide fall to spring harvest proportion was 5% due to the conservative season structure and relatively low hunter interest. The fall turkey bag limit remains at 1 bird either sex per hunter for the entire fall season irrespective of weapon used or portion of the fall season hunted (open permits/over-the-counter). The newly implemented (Spring 2012) web-based “CheckIN Game” harvest reporting system accounted for 54% of the fall harvest reports. **Table 1** is a historical summary of Indiana’s fall turkey season parameters.

### **2013 Spring Season Results**

Harvest data was collected at 362 volunteer check stations and from the roughly 4,170 (37%) reports submitted on web-based “Check-IN-Game” harvest reporting system implemented in 2012. Hunters harvested 11,374 wild turkeys in 89 of the 92 counties (**Figure 4**). The 2013 harvest was 10% less than the 2012 harvest of 12,655. The majority of the birds was harvested in the early part of the season and the early morning hours. A total of 1,403 birds (12% of total harvest) was taken during the youth-only weekend prior to the regular season. The proportion of juvenile turkeys in the harvest was 24% with 38% 2-yr-olds, and 38%  $\geq 3$  yr-olds. The northern region had the least notable decrease (-6%) and supported 25% of the harvest, with 47% of the harvest occurring in the south-central and southeast regions (**Figure 5**).

Reasons for the 10% decrease in 2013 were generally related to inclement wet & cool weather that prevailed through much of the season, especially during the first 5 days of the season. Low summer production over the last decade continues to be an underlying factor. Annual harvest levels have been fluctuating up and down the last decade around a mean of 12,000 birds with a mean hunter success of 23% (**Figure 6**). The estimated number of hunters afield increased by nearly 3,000 to 59,092 in 2013, with an estimated hunter success of 19%, the lowest success rate since 1992. **Table 2** is a historical summary of Indiana’s spring turkey season parameters.

### **Crop or Nuisance Issues**

Crop depredation complaints in row crops continue to diminish each year. District biologists generally hear crop complaints about turkeys when called out to investigate deer damage. No crop damage complaints so far in the 2013 have been forwarded District Biologists to the turkey project’s attention. Nuisance complaints are now more common than crop complaints on a year to year basis, but most nuisance complaints involve “backyard” situations, wildlife feeding, cars/residences, and sometimes linked to birds of questionable origin (imprinted wild or pen-reared). The primary root cause appears to related to “progressive generational acclimation” resulting from the increasing practice of winter feeding for songbirds/deer using mechanical automatic feeders.

### **Other Chronic or Evolving Issues**

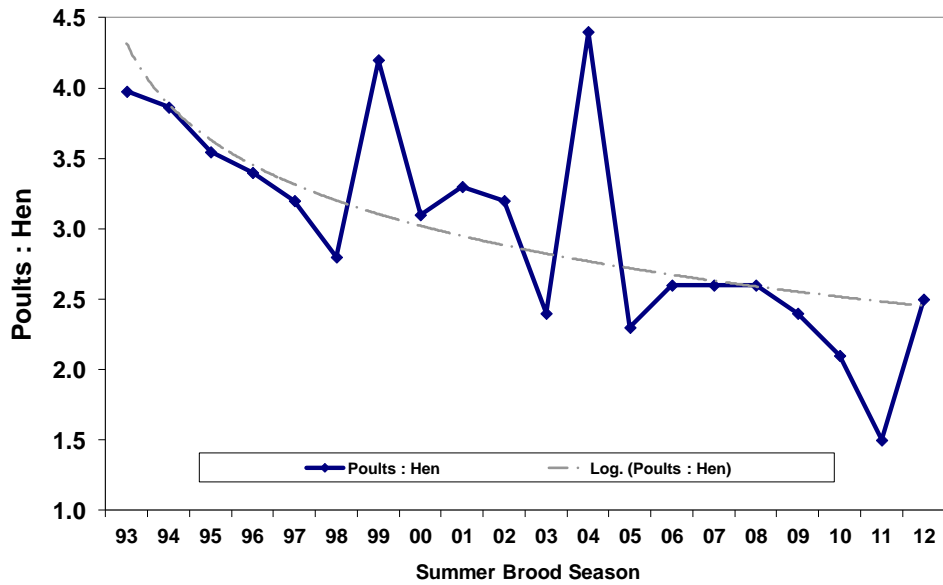
Each spring there are complaints from a small group of hunters about season dates being too late. The issue of spring season dates was most contentious in 2012, with one of the earliest springs of record for temperatures and crop planting completion. Despite having almost opposite climatic and planting conditions and “winter” flocks observed a week prior to season, the “season is too late, the breeding is done” complaints continued in 2013, especially after it rained the first 5 days of the season. Interest in a 2 bird bag in the spring has dropped off almost entirely with 8 years of relatively poor production.

### **Disease Monitoring Test Case – Coronavirus Follow up testing 2013.**

Following a small outbreak of Coronavirus in 2010 at a commercial poultry company in southern Indiana, we in cooperation with Purdue University’s Avian Disease Diagnostic Lab, a commercial facility, and USDA-APHIS Wildlife Services, implemented a testing protocol to collect blood and organ samples from spring harvested turkeys. The sampling was expanded slightly in 2011-13 to include samples submitted by agency biologists from their personal hunts and a few cooperating hunters from across the state. The samples were also tested for several pathogens of concern to the poultry industry (*Mycoplasma* spp., avian influenza, New Castle’s Disease, and *Salmonella pullorum*). These same tests were cooperatively made back in the mid-1980’s, when state wild turkey restoration programs across much of the US were

scrutinized by the USDA and the poultry industry. Throughout our restoration effort, no positive samples were detected in our source populations (In-State and Out-of-State), gaining us a “disease free” status. The unexpected results of our 2010-12 testing showed a scattering of positive ‘exposure’ results from around the state for several of the selected pathogens but not necessarily indicating active infections. The results raised several questions regarding, “How were the disease free sources environmentally exposed post restoration to these pathogens across the state?” Another potential question was whether the positive exposures were part of a natural population maturation process where various mortality or welfare factors come into play, possibly influencing such things as reduce production. The logical corollary, “Is why didn’t the restoration sources show some positive exposure as well.” We scrutinize aspects of the 2012 testing regiments for possible sources of errors (i.e., false positives) and found some issues with the NCD testing protocol that were corrected, and no NCD positives were found. Preliminary data from 2013 testing indicates a significant drop in “positives” for several pathogens and analysis is still ongoing.

**Figure 1. Wild Turkey Production - Indiana**



**Figure 2. Roadside Gobbling Indices**

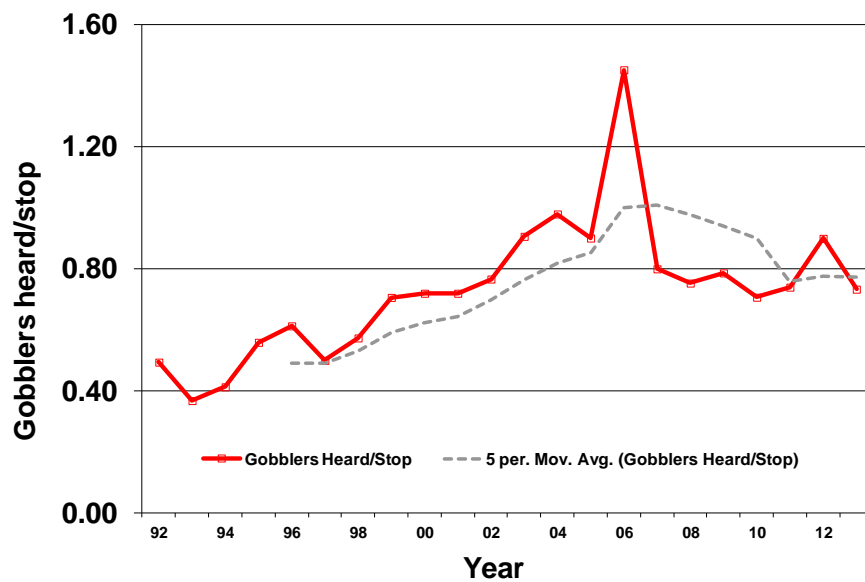




Figure 4. 2013 Spring Turkey Harvest

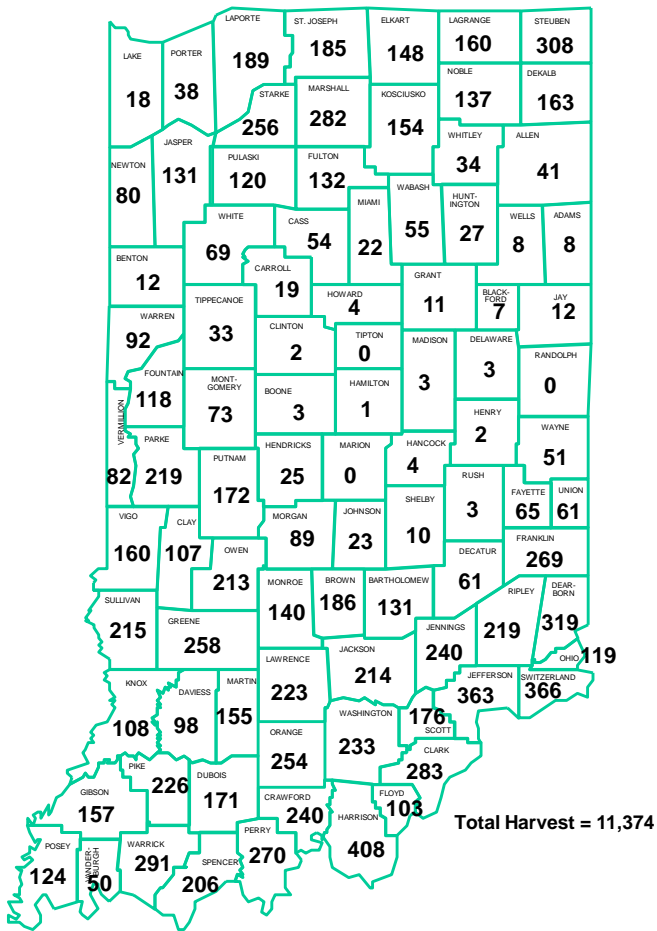


Figure 5. 2013 Spring wild turkey harvest and age structure by region.

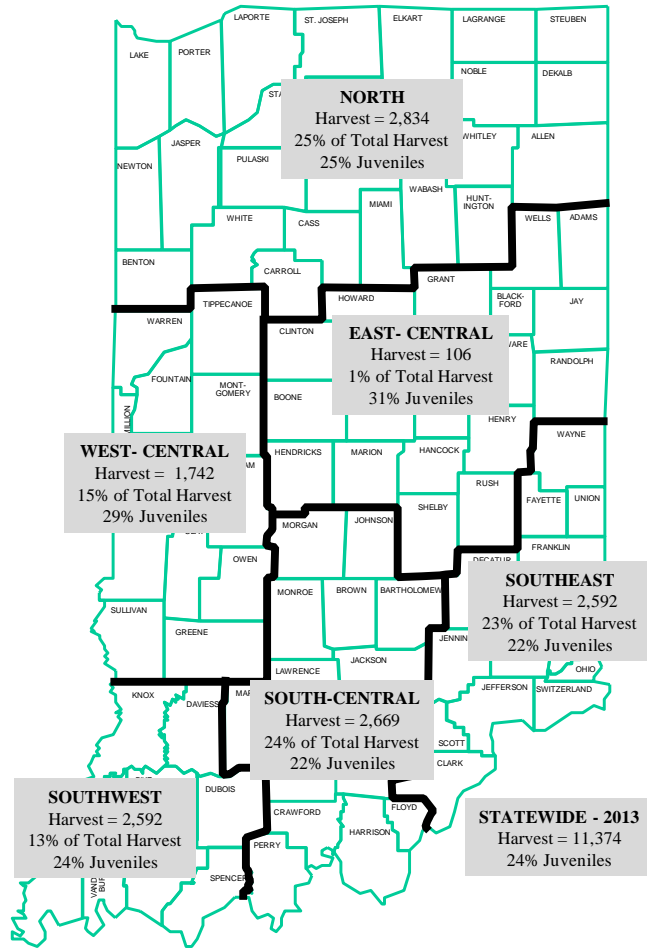


Figure 6. Indiana Spring Turkey Seasons

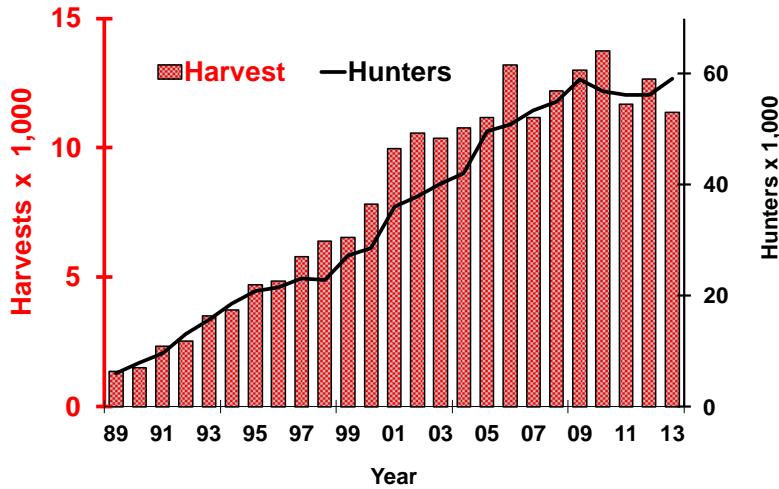




Table 2. Indiana's spring wild turkey hunting seasons, 1970 to 2013.

Year	Regular Season Dates	Season Length (Days)	No. of Counties	No. of Permits Sold*	Est. No. of Hunters**	Reported Harvest	Hunter Success
1970	5/2-5/5	4	3	75	62	6	9.7%
1971	5/1-5/5	5	9	298	224	11	4.9%
1972	4/26-4/30	5	9	585	422	12	2.8%
1973	4/25-4/29	5	11	625	503	27	5.4%
1974	4/24-4/28	5	11	665	496	26	5.2%
1975	4/29-5/5	7	11	722	501	15	3.0%
1976	4/29-5/5	7	13	666	500	32	6.4%
1977	4/28-5/5	8	16	668	520	46	8.8%
1978	4/26-5/7	12	18	852	619	33	5.3%
1979	4/25-5/6	12	19	932	860	48	5.6%
1980	4/23-5/4	12	17	706	670	54	8.1%
1981	4/22-5/3	12	18	922	814	90	11.1%
1982	4/21-5/2	12	18	1,125	696	73	10.5%
1983	4/20-5/1	12	18	1,218	984	93	9.5%
1984	4/25-5/6	12	18	1,320	1,205	104	8.6%
1985	4/24-5/5	12	25	1,882	1,302	255	19.6%
1986	4/23-5/4	12	25	2,523	1,648	293	17.8%
1987	4/22-5/6	15	33	3,348	2,619	741	28.3%
1988	4/27-5/11	15	33	10,894	4,677	905	19.4%
1989	4/26-5/10	15	39	11,442	6,068	1,359	22.4%
1990	4/25-5/9	15	39	14,379	7,860	1,505	19.1%
1991	4/24-5/8	15	43	16,387	9,643	2,318	24.0%
1992	4/22-5/6	15	43	18,735	13,110	2,531	19.3%
1993	4/28-5/16	19	48	21,078	15,673	3,500	22.3%
1994	4/27-5/15	19	48	23,357	18,622	3,741	20.1%
1995	4/26-5/14	19	52	28,858	20,861	4,706	22.6%
1996	4/24-5/12	19	52	28,733	21,442	4,859	22.6%
1997	4/23-5/11	19	74	32,703	23,085	5,790	25.1%
1998	4/22-5/10	19	74	32,889	22,876	6,384	27.9%
1999	4/21-5/9	19	74	38,730	27,285	6,548	24.0%
2000	4/26-5/14	19	74	<b>40,801</b>	<b>28,615</b>	7,822	<b>27%</b>
2001	4/25-5/13	19	74	<b>43,815</b>	<b>36,103</b>	9,975	<b>28%</b>
2002	4/24-5/12 <sup>†</sup>	19	90	44,333	37,919	10,575	28%
2003	4/23-5/11	19	90	<b>48,857</b>	<b>40,110</b>	10,366	<b>26%</b>
2004	4/21-5/9	19	90	<b>50,839</b>	<b>41,996</b>	10,765	<b>26%</b>
2005	4/27-5/15	19	88	<b>50,839</b>	<b>49,684</b>	11,159	<b>22%</b>
2006	4/26-5/14	19	88	<b>67,290</b>	<b>50,880</b>	13,193	<b>26%</b>
2007	4/25-5/13 <sup>††</sup>	19	91	69,861	53,402	11,163	21%
2008	4/23-5/11	19	91	<b>71,052</b>	<b>55,022</b>	12,204	<b>22%</b>
2009	4/22-5/10	19	92	<b>75,161</b>	<b>59,000</b>	12,993	<b>22%</b>
2010	4/21-5/9	19	92	<b>73,089</b>	<b>56,891</b>	13,742	<b>24%</b>
2011	4/27-5/15	19	92	<b>72,323</b>	<b>56,220</b>	11,669	<b>21%</b>
2012	4/25-5/13	19	92	<b>71,836</b>	<b>56,144</b>	12,655	<b>23%</b>
2013	4/24-5/12	19	92	<b>74,966</b>	<b>59,092</b>	11,374	<b>19%</b>
2014	4/23-5/11	19	92				

\* Includes all allowable license types (e.g., lifetime, youth licenses sold by May, non-residnets, and apprentice).

\*\* No. of hunters includes those permit holders who hunted  $\geq 1$  day and since 1986, the number of hunters includes an estimate of license exempt landowners or military hunters on active leave participating in the spring season.

<sup>†</sup> "All-day" turkey hunting initiated; 1/2 hr prior to sunrise to sunset.

<sup>††</sup> Beginning with the spring 2007 season, a special 2-day youth-only season is held the weekend prior to the regular season opening.

**Bold italics** = preliminary estimates based on projecting previous years' trends or means

# IOWA WILD TURKEY STATUS REPORT

## Midwest Deer and Turkey Study Group Meeting

### Allerton Park, Monticello, IL, August 18-21, 2013

Todd E. Gosselink, Ph.D., Forest Wildlife Research Biologist  
 IA DNR Chariton Research Station, 24570 US HWY 34, Chariton, IA 50049  
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#### STATUS REPORT SUMMARY:

<i>Gun/bow combo licenses</i>	Licenses issued <sup>a</sup>	Harvest totals <sup>a</sup>	Hunter numbers <sup>a</sup> (> 1 license/hunter)	Success rates (per lic.)	Season dates	Licenses fees
Resident Fall 2012	6,636 (+6%)	748 (+6%)	6,150 5,761 (+6%)	10%	15 Oct - 30 Nov	Hunting fee: \$19.00 Habitat fee: \$13.00 Turkey lic. fee: \$24.50 Total fees: \$57.50
Youth Season (< 16) Spring 2013	4,039 (+15%)	1,039 (+4%)	One license/youth	26%	6 Apr - 14 Apr	
Resident - Spring 2013	38,588 (+2%)	7,799 (-3%)	28,906 (-3%)	20%	15 Apr - 18 Apr 19 Apr - 23 Apr	
Nonresident Spring 2013	1,952 (+4%) (91% available sold)	741(-1%)	One license/ non-resident	38%	24 Apr - 30 Apr 1 May - 19 May	Hunting fee: \$112.00 Habitat fee: \$13.00 Turkey lic. fee: \$102.00 Total fees: \$227.00
<b>Bow only Licenses</b>						
Resident Fall 2012	2,301 (+17%)	131 (+15%)	2,138 (+13%)	6%	1 Oct - 30 Nov 17 Dec - 10 Jan	Hunting fee: \$19.00 Habitat fee: \$13.00 Turkey lic. fee: \$24.50 Total fees: \$57.50
Resident - Spring 2013	6,630 (+20%)	986 (+19%)	5,929 (+17%)	15%	15 Apr - 19 May	
<b>Totals</b>						
Fall 2012	8,664 (+2%)	879 (+9%)	8,288 (+8%)	10%		
Spring 2013	49,257 (+8%)	10,565 (+1%)	40,826 (+6%)	---		

<sup>a</sup> parentheses indicates percent change from previous year

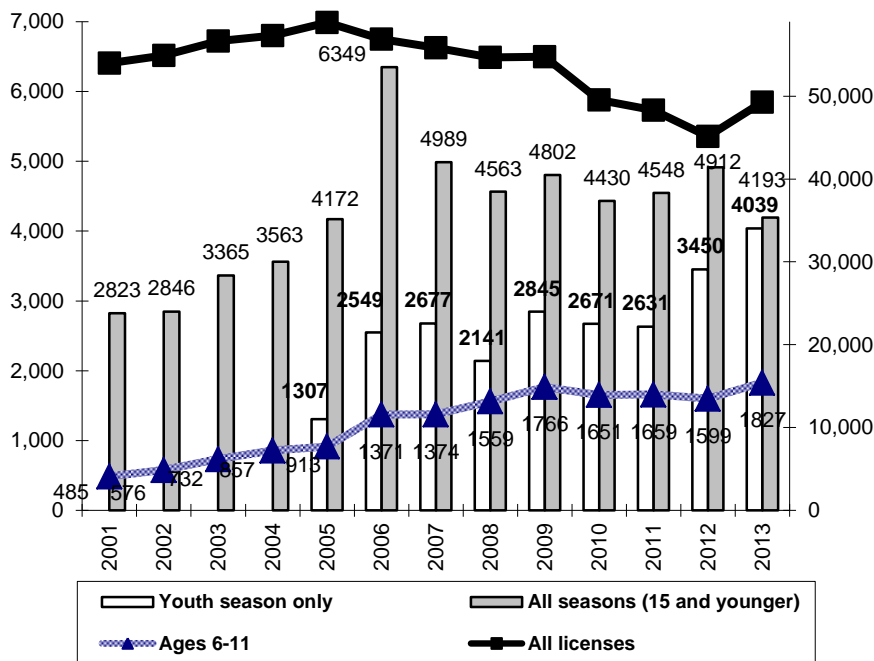


Figure 1. Iowa spring turkey license issue by age, 2001-2013.

## YOUTH TURKEY HUNTING

Iowa's 8th youth spring turkey season has held in April 6-14, 2012. During the 9 day season, youth 15 and younger were allowed to participate with an accompanied licensed adult (adult licensed for one of the regular seasons). In 2005, the first year of the youth season, ages were limited to ages 12-15. Starting in 2006, ages 15 and younger could participate in the youth season. A total of 4,039 youth purchased licenses for the 2013 season (Fig. 1). Youth season license sales increased (589 more licenses sold) in 2013.

Since the inception of ELSI (Electronic Licensing System of Iowa) in 2001, hunter age and gender has been recorded (Fig. 1). From 2001-2006, youth spring turkey hunters (age 15 and under) increased each year, but have remained similar since. However, youth's using the youth season has increased each year since 2011. The total number of licenses sold has decreased each year since 2005 with a slight increase in 2009, with another increase in 2013 (Fig. 1).

## BOWHUNTER SURVEY

### Wild Turkey Observations Per 1,000 Hours Hunted

Bowhunter Observation Survey, Iowa Dept. of Natural Resources

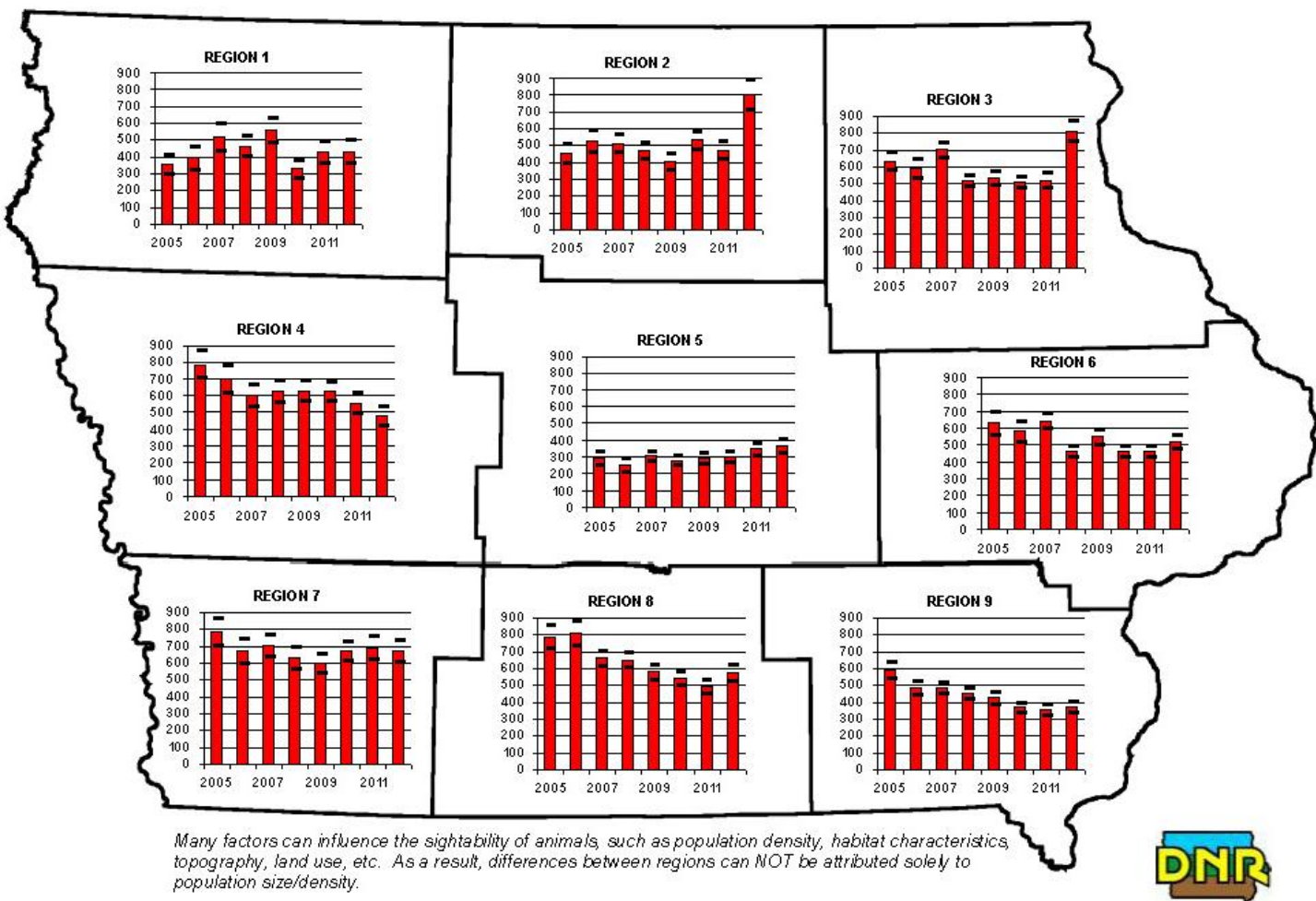


Figure 2. Bowhunter observation survey, wild turkey observations per 1,000 hrs, 2005-2012.

## 2012 Bowhunter Observation Survey Iowa Department of Natural Resources

Chris S. Jennelle, Ph.D., Biometrician, Iowa DNR  
William R. Clark, Ph.D., Professor, Iowa State University

The Iowa Department of Natural Resources (DNR) solicited responses from bow hunters for the annual Bowhunter Observation Survey from October 1 to November 30, 2012. This was the ninth year of the survey, which was designed jointly with William R. Clark, Professor at Iowa State University. The two primary objectives for this survey are to: 1) determine the value of bowhunter observation data as a supplement to other deer data collected by the DNR; and 2) develop a long-term database of selected furbearer data for monitoring and evaluating population trends. Bowhunters are a logical choice for observational-type surveys because the methods used while bowhunting deer are also ideal for viewing most wildlife species in their natural environment. In addition, bowhunters typically spend a large amount of time in bow stands: more than 40 hours/season is not uncommon. We believe avid bowhunters (defined as those purchasing a license three years in a row prior to the survey year) are the best hunters to select for participation in this survey because they not only hunt often, but they also have the most experience in selecting good stand locations, controlling or masking human scent, using camouflage, identifying animals correctly, and returning surveys.

Participants for the 2012 survey were selected either from a core list of avid bowhunters that indicated interest in the survey from 2010, or from a list of avid bowhunters who had purchased a license for each of the 3 years prior to 2012. Our goal was to select approximately 999 bowhunters in each of Iowa's 9 climate regions. Each climate region contains approximately 11 counties, and approximately 91 bowhunters were selected per county in an effort to evenly distribute observations in each region. Selection of participants consisted of a 3-step process. In each county, participants were first selected from a core group of avid bowhunters who had previously indicated an interest in participating in this survey. If fewer than 91 core group participants existed in a county, additional participants were randomly selected from a separate list of avid bowhunters who were not in the core group. Finally, if the number of "core group" and "randomly selected" participants in a county was less than 91, additional avid hunters were selected from other counties in the region to reach the regional goal of 999 participants. A total statewide sample of 8,991 bowhunters was selected for participation. Of surveys mailed, 141 were either returned due to USPS address issues or hunters indicated they did not hunt this year, making the final statewide sample 8850.

Responses were obtained from 1,883 bowhunters who recorded their observations during 27,740 hunting trips, yielding 95,425.6 hours of total observation time ( $3.44 \pm 0.021$  hours/trip; mean  $\pm$  95% CL). Bowhunters reported a median of 14 trips during the 61-day season. Regionally, the number of bow hunting trips (and hours hunted) ranged from 2,034 (6,338.5 hours) in northwest Iowa (Region 1) to 4,283 (14,760.5 hours) in east central Iowa (Region 6). The raw survey response rate was 21.3%.

Observations were standardized for each of the 12 species to reflect the number of observations per 1,000 hours hunted in each of the 9 regions. In addition, 95% confidence limits were calculated for each estimate. Precision among estimates for common species, such as deer, wild turkeys, and raccoons, was good: confidence limits were generally within  $\pm 15\%$  of the estimate. However, for less common species, such as badgers, bobcats, gray fox, and otters, the uncertainty associated with the estimate was quite large and occasionally exceeded the estimated value.

A comparison of results from 2011 and 2012 suggests that the number of total deer observed/1,000 hours increased significantly across the northern third of Iowa and in regions 5 and 6, while no significant declines were detected. Turkey observations increased significantly in regions 2 and 3 (and possibly in 6 and 8), while remaining consistent in the rest of Iowa. Bobcat observations/1,000 hours remain stationary, except for modest declines in regions 7 and 9 in the southern third of the state.

We at the DNR thank all hunters who participated in the 2012 Bowhunter Observation Survey. The volume of information provided by bowhunters could never be duplicated by the staff of biologists, technicians, and conservation officers in the Iowa DNR. Iowa's bowhunters are the best group of hunters to provide this observational information, and their participation in this survey plays a critical role in the conservation of these and other wildlife species for the future.

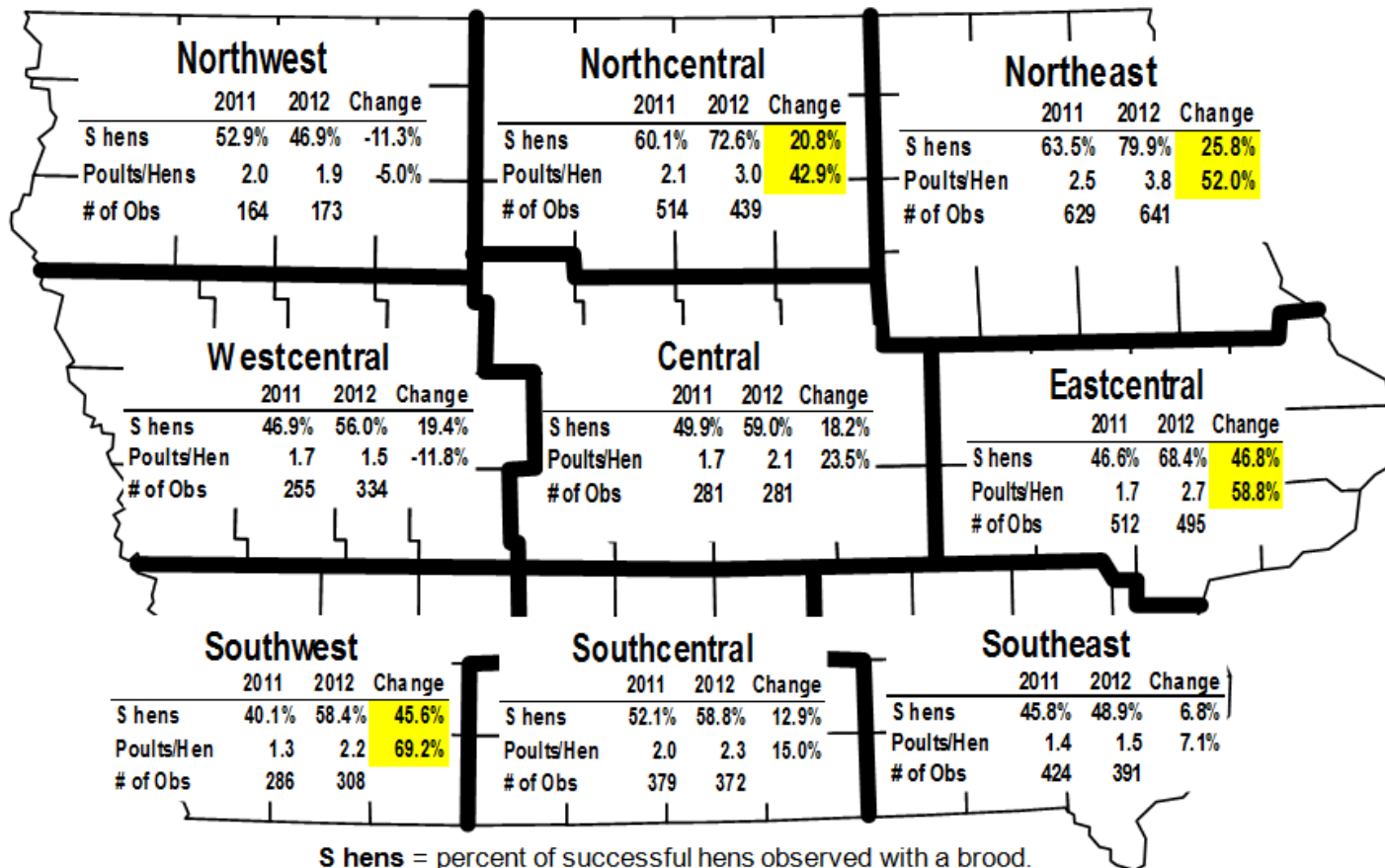
***When looking at the following charts, we caution against making comparisons between regional estimates for any species. Any differences in observation rates between regions could be related to differences in many factors such as population size, habitat, topography, land use, or any other factor affecting the sightability of animals. For each of the selected species, any differences between regions are NOT entirely related to regional differences in population size.***

TURKEY BROOD SURVEY

2012 Summer Turkey Survey

Statewide

	2011	2012	Change
S hens	50.6%	60.6%	19.8%
Poults/Hens	1.8	2.3	27.8%
# of Obs	3444	3434	



S hens = percent of successful hens observed with a brood.  
 Poults/AH = number poults observed per all hens.  
 # of Obs = number times turkeys were observed by cooperators.  
 Percent change highlighted if statistically significant

Figure 3. Iowa turkey brood survey statewide results, 2011 & 2012.

Results from Iowa's 2012 summer wild turkey survey indicated a statewide increase in turkey reproduction from the previous year. Statewide, the average number of hens observed with a brood increased by 20%, while the average number of poults observed per hen increased by 28%. Regionally, north central, northeast, east central, and southwest Iowa all experienced a significant increase in turkey reproduction for both categories (hens observed with broods and number of poults per hens). All other regions except northwest & west central experienced increases in turkey reproduction, but they were not statistically significant. Only Northwest Iowa experienced a significant decline in both categories between 2012 and 2011. The west central region appeared to have an increase in successful hens and a decrease in the number of poults observed with hens, but differences between years were not statistically significant. Dry weather patterns in the spring and summer of 2012 likely helped the large increases in turkey reproduction throughout most of the state. May rainfall was 50-75% below average in most of the

state, with the exception of northwest Iowa, which experienced 150-200% increase in rainfall. June weather patterns continued to be dry, with nearly all the state experiencing 4 inches below normal rainfall (<http://www.ncdc.noaa.gov/temp-and-precip/maps.php>).

The bowhunter observation survey has recorded declines in turkey numbers in southern Iowa over the past several years. This is expected because of several repeated years of above normal spring rainfall contributing to reduced turkey reproduction. This year's substantial increase in turkey reproduction will hopefully end this downward trend. The bowhunter observation survey will be conducted in fall 2012 and will supplement information on turkey population trends across the state.

### FALL 2012 HARVEST SURVEY

Fall hunting was allowed in the entire state in 2012, which was the 7th consecutive year (Fig. 4). Fall turkey hunter success rates remained the same in 2012 from 2011 (Fig. 7), but still well below the 2005 and prior estimates due to the change in harvest estimation. In fall of 2006, mandatory harvest reporting required successful hunters to report turkey harvested, and many hunters likely did not report turkeys harvested. Prior to this, harvest totals were estimated using a postcard survey after the seasons closed.

Shotgun/bow license issue (paid and free combined) increased from 2011 to 6,636 for the 47-day season that ran from 15 October through 30 November 2012. Forty-nine percent of the fall licenses were issued free to landowners. An additional 2,301 archery-only licenses were issued for a season that ran from 1 October through 30 November, 2012 and 17 December, 2012 through 10 January, 2013. Hunter success rates varied from 21% in zone 8 to 14% in Zone 5 (Fig. 4). Archery only licensed hunters reported a harvest of 131 turkeys in 2012 which increased 15% from the 2011 archery-only license harvest. The 6% success rate for 2012 archery only licenses was similar to the previous year's success rates for archery-only hunters. Nonresidents have not been permitted to hunt fall turkeys in Iowa since 1990.

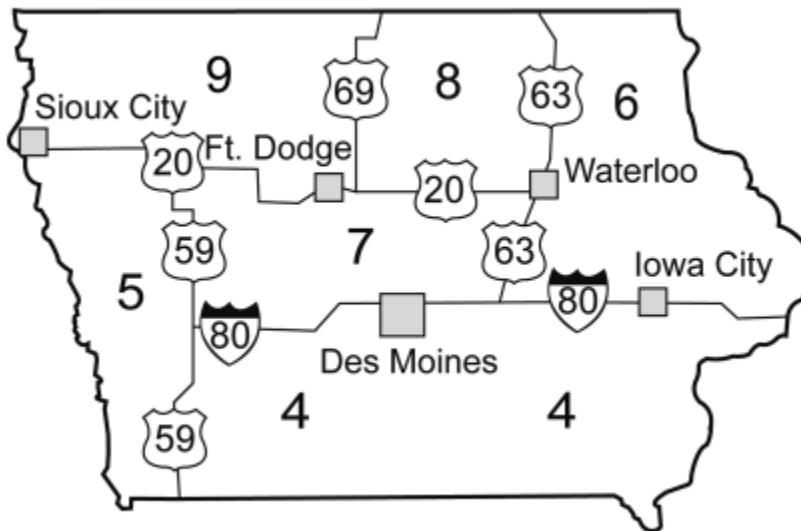
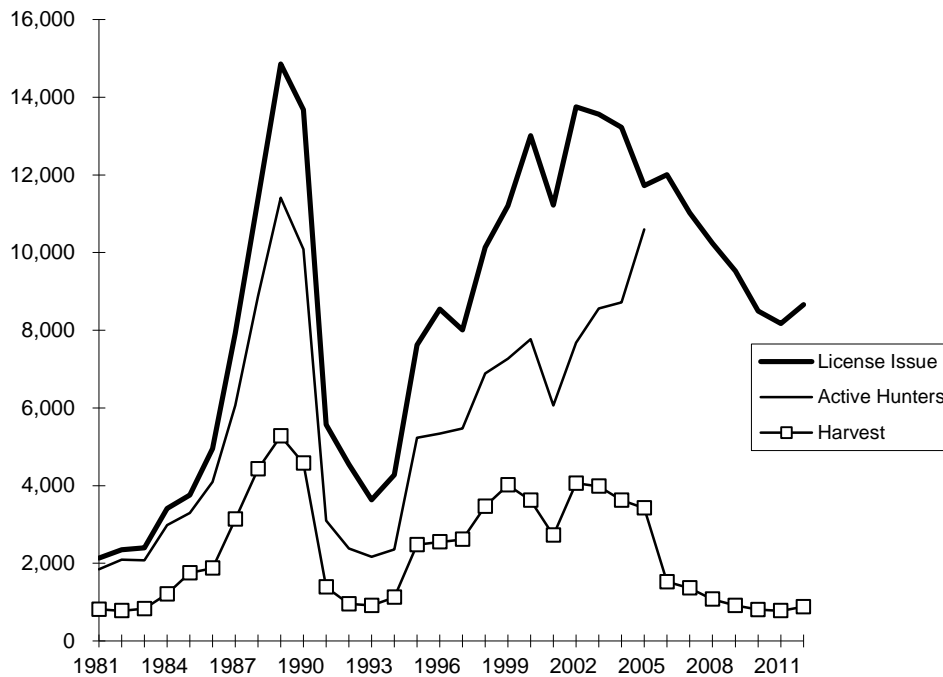


Figure 4. Fall turkey hunting zones in Iowa, 2012.





**Figure 5. Iowa fall turkey hunting statewide estimates, 1981-2012**

## SPRING 2013 HARVEST SURVEY

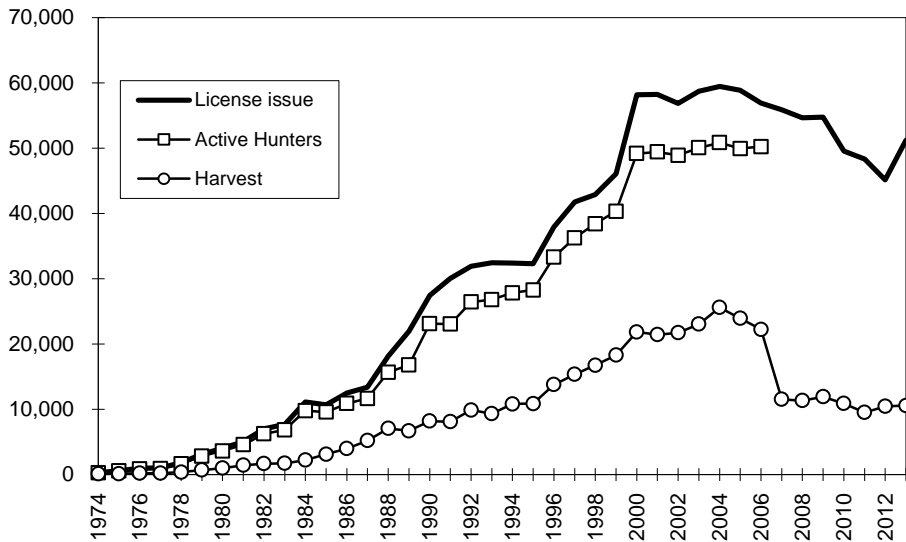
Iowa's 40th modern spring hunting season recorded an increase in licenses sold (51,209) and an increase in turkeys reported harvested (10,565) in 2013 (Fig. 6). This was the 25<sup>th</sup> year the entire state was open to spring turkey hunting. The 44-day season (6 April through 19 May, 2013) was partitioned into 5 separate seasons: a 9-day youth-only season, and 4 regular seasons (4, 5, 7, and 19-day seasons). An increase in the number of licenses sold (4,039) for the youth-only season with 589 more youth licenses sold (Fig. 1). The 4-season format, with an unlimited license quota (maximum of 2 licenses per hunter) for all the periods, resulted in 42,627 resident shotgun licenses issued. An additional 6,630 archery-only licenses were issued. Archery-only licenses harvested 986 turkeys, resulting in a 15% success rate in 2013.

Twenty percent of the resident hunters were successful in harvesting a gobbler in 2013 (Fig. 7). Spring harvest success rates fluctuated around 20-30% during the first 12 years (unweighted average = 25.1 for 1974-85) but success increased each year during 1985-88 (Fig. 7). Declines observed in spring hunter success rates during 1983 and 1984 (Fig. 7) can be partially explained by poor brood production during the summers of 1982 (Fig. 7). Similarly, the decline in hunter success rates between 1988 and 1993 may be explained by 6 years of poor brood production starting in 1988. The success rates from 2002-2006 averaged 46.0%.

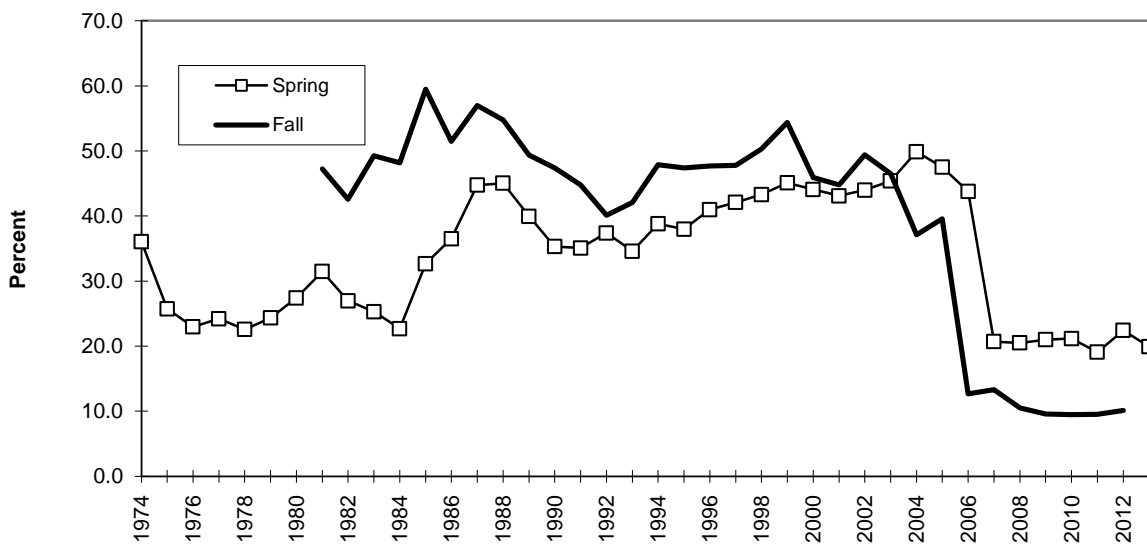
The decrease in success rates beginning in 2007 and number of turkeys harvested is likely due the change in survey methods. In spring of 2007, mandatory harvest reporting required successful hunters to report turkey harvested. A follow-up post card survey for spring of 2007 revealed 74% compliance rate, which equated to nearly 4,000 harvested turkeys that were not reported initially during the spring season. The major reasons for the non-reports were attributed to hunters forgetting to report (40%), difficulty in reporting process (29%), and unaware of the requirement (22%).

This was the 24<sup>th</sup> spring that non-residents were allowed to hunt turkeys in Iowa. Quotas filled in zone 4 (all seasons), zone 5 (seasons 1 & 2), Zone 6 (season 4), and Zone 8 (seasons 2-4) in 2013, leaving 196 licenses available. Non-resident hunters harvested 741 turkeys. Non-residents reported more turkeys harvested per hunter than residents in harvesting a spring gobbler (20% versus 38%, respectively).

In spring of 2013, known jakes (spurs < 1/2") harvested were 20% of the total harvest (16% the previous year). Turkeys harvested with spurs 1/2" - 3/4" were 23% (24% in 2012) of the total harvest. The majority (57%) of turkeys harvested had spurs > 3/4".



**Figure 6. Iowa spring turkey hunting statewide estimates, 1974-2013. Beginning in 2007, the harvest estimates are based on mandatory harvest reporting instead of mail surveys.**



**Figure 7. Iowa fall and spring turkey harvest statewide success rates, 1974-2013. Beginning in 2006, survey estimates are based on mandatory harvest reporting instead of mail surveys.**

## RESTORTATION

Restoration efforts within Iowa ended in 2001, with a total of 3,583 Eastern wild turkeys that have been trapped and released at 265 sites at a stocking rate of approximately 5 adult gobblers and 9 hens per site. Nearly all sites are considered successful; however the most recent stockings are still being evaluated. No sites are currently considered to be unsuccessful. Most sites were opened to hunting after populations were established, usually about 5 years post-stocking. Restorations by the IDNR during the last 2 decades have returned wild turkeys to about 95% of the remnant timber stands in the state (Fig. 8).

Eastern turkeys adapted so well to habitat conditions in Iowa that by 1980 the IDNR decided to start trading turkeys for other extirpated wildlife. Since 1980, 7,501 Iowa turkeys have been traded for prairie chickens, ruffed grouse, river otters, habitat monies, and sharp-tailed grouse with 11 states and 1 Canadian province.



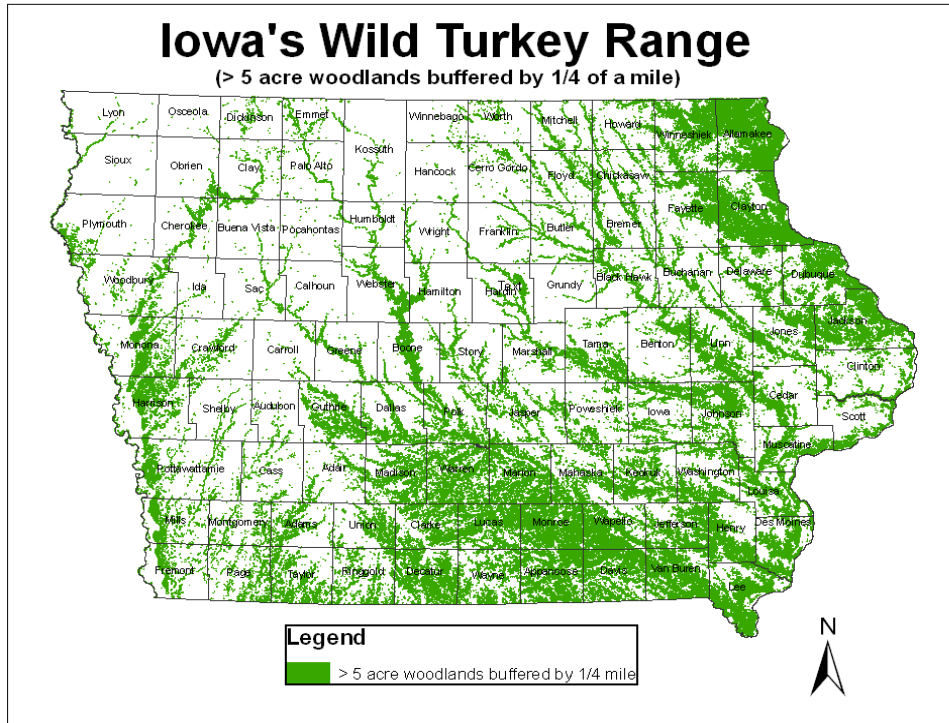


Figure 8. Iowa's wild turkey range (5 acre and greater woodlands buffered by ¼ mile).

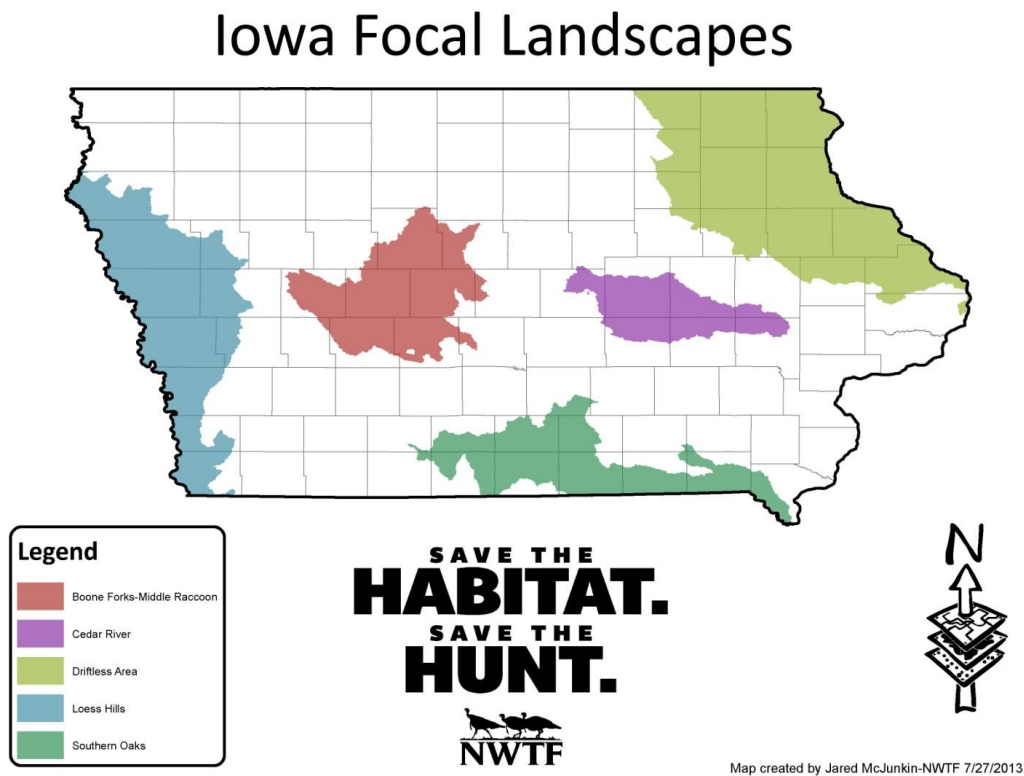


Figure 9. Iowa NWTF focal areas habitat and land acquisition projects.

**KANSAS WILD TURKEY UPDATE**  
**MIDWEST DEER & WILD TURKEY STUDY GROUP**  
**MONTICELLO, IL**  
**AUGUST 18-21, 2013**

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**Population Trends and Productivity**

The rural mail carrier survey (RMCS) has been utilized since 1986 to monitor wild turkey abundance in Kansas. The RMCS is conducted 4 times annually during the 3<sup>rd</sup> weeks of January, April, July, and the 2<sup>nd</sup> week of October. During each survey period approximately 400-500 carriers travel 200,000+ miles of Kansas roadway and record observations of wild turkeys and other species. Observations are standardized (obs./100 mi.) to provide an index to the population in the state's 6 turkey management regions (Figure 1). In approximately 1998, growth of the Kansas turkey population began to accelerate in each of the 6 management regions (Figure 2). The rate of population growth was much slower in the 2 westernmost management regions likely due to less suitable habitat and frequent drought. In the mid-2000s, the Kansas turkey population in the eastern 1/2 of the state declined sharply due to several poor reproductive years brought about by excessively wet springs and summers. Recent severe drought has had varied effects on turkey populations across the state due to the gradient in average precipitation amounts. The dryer than average conditions have improved production in Eastern Kansas where precipitation is often too great and hampered production in Western Kansas where normal conditions are already droughty. The variation in production in recent years has increased turkey abundance in Eastern Kansas and reduced abundance in the Western part of the state.

The Kansas Department of Wildlife, Parks, & Tourism (KDWPT) estimates wild turkey productivity using data collected primarily during the summer RMCS. Since 1987, the carriers have been asked not only to record the number of turkeys observed but to differentiate between young and adults. The department uses the ratio of young:adult as an index to productivity. The RMCS young:adult ratio indicated that statewide production was 52.2% above the previous 10-year average during 2012 and 150.4% better than the previous year. The indices indicate that production was above the 10-year average in every region of the state which was most likely due to dry conditions during the period of peak hatching and early brood rearing (Figure 3).

Employees of the KDWPT also record observations of pheasant, bobwhite, and turkey broods from the 3<sup>rd</sup> week of July through the 4<sup>th</sup> week of August. Turkey observations were not recorded until 2006 and the survey protocol changed in 2012 to a more standardized design. Thus, these data do not yet provide a long-term series of consistently collected poult:hen ratios from which trends can be assessed. However, the new protocol that was adopted in 2012 for this survey will improve our ability to assess trends in productivity in future years. The 2012 poult:hen ratios from the newly designed survey were >1.5 in all but the Southwest region where no broods were observed. The highest poult:hen ratios were recorded in the South-central (3.6) and Southeast (2.6) management regions.

## **Harvest Regulations**

The first modern wild turkey season in Kansas was an archery-only spring season in 1974. During that first season a total of 400 permits were issued to residents and landowner/tenants. The season was open for only 9 days and 123 birds were harvested. Kansas now offers some of the most liberal seasons and bag limits in the country. Additionally, there is no minimum age to hunt turkeys in Kansas and hunters that are 15 and younger can hunt without hunter education certification if they are directly supervised by an adult. Hunters that are 12 or older can hunt by themselves during the regular season if they have completed a hunter education course.

The fall 2012 turkey season was open for 93 days across 3 segments in 5 of the 6 turkey hunting units (Table 1). Hunters pursuing turkeys in Unit 2, 3, 5, and 6 (Figure 3) were also able to purchase 3 either sex game tags in addition to their initial permit. Only the southwestern corner of the state was closed to fall turkey hunting. The 2013 spring turkey season ran for 61 days (including the special seasons) and permits were available over-the-counter for Units 1, 2, 3, 5, and 6. Only 500 spring permits were available to general residents and landowners for Unit 4 (southwest KS) through a pre-season drawing. Any youth (<16) could purchase an over-the-counter permit valid for any unit in the state (including Unit 4). All spring hunters had the option to purchase a second permit called a game tag which was valid in Unit 1, 2, 3, 5, and 6. Additionally, all hunters (resident and non-resident) had the opportunity to purchase a combination license prior to March 31 that contained both spring carcass tags. These combination licenses were sold at a \$7.50 discount over buying both permits individually.

## **Estimation of Hunter Activity and Harvest**

The KDWPT estimates turkey hunter activity and harvest through post-season online questionnaires sent to a stratified sample of hunters that equates to 20% of the people that purchased each permit type. The selected individuals are drawn from the group of people that provide the department with their e-mail address when purchasing a license (35-40% of total permit holders). The selected individuals are sent an e-mail with a link directing them to an online questionnaire. About one week after the first notification a second e-mail is sent to those individuals who have not yet responded. A third e-mail blast is sent to non-respondents about 2 weeks after the second attempt. To increase response rate, all respondents are entered into a drawing for a framed turkey print and 10 KDWPT magazine subscriptions.

## **Permit Sales and Harvest Estimates**

The KDWPT currently sells spring turkey permits to >47,000 hunters and fall turkey permits to >10,000 hunters (Table 2). For the most recent seasons, non-residents accounted for 30.7% of Kansas' spring hunters and 19.4% of the fall hunters. Kansas turkey hunters purchase approximately 87,000 carcass tags (~73,000 spring and 15,000 fall) annually and harvest about 38,000 birds (~34,000 spring and 4,000 fall; Table 1-2). The most recent figures indicate that the percentage of hunters harvesting at least one bird was 57% (2013) and 36% (2011) for spring and fall seasons, respectively.

## **Regulation Changes**

Last fall the KDWPT commission approved a regulation that allowed spring permits drawn for Unit 4 (SW Kansas) to be valid in an adjacent unit. That change took affect for the spring 2013 season. At the same time the commission approved a change to the spring bag limits that allowed 2 birds to be

harvested in Unit 1 starting with the 2013 season (previously 1 bird bag). The KDWPT commission also recently approved some equipment changes for turkey and big game. Those changes took effect after the start of the spring 2013 season (April 19) and reduced the minimum shotgun size from 20 gauge to .410 gauge and allowed crossbows to be used by any licensed hunter during an archery season. The archery turkey season had already been completed by the time the regulation took effect. Thus, the spring 2014 season will be the first time crossbows will be legal equipment for any licensed hunter during the archery season.

The KDWPT will be voting on three additional regulation changes in October. Those recommendations are as follows:

1. The first recommendation is to lower the fall bag limit from 4 to 1 in Units 3, 5, & 6 and would take effect starting with the fall 2014 season. The recommendation is being guided by the KDWPT harvest management strategy that has been recently adopted. That strategy established triggers based on resident spring hunt success and the percentage of jakes in the spring harvest. The triggers for harvest reduction have been hit in the listed units and the recommended bag limits are one notch down on our hierarchy of regulation packages.
2. The second recommendation being considered by the KDWPT commission would change the spring season dates starting in spring 2015. The recommendation is being made to try and provide one full weekend for youth/disabled hunters that is free from competition. In 2007 the KDWPT created an archery-only season that ran concurrent with the youth/disabled season. The number of archers participating in that special season has more than doubled since its inception. The conflicts between archers and youth/disabled hunters have continued to increase. The increased competition appears to be hurting youth/disabled participation as it has dropped by nearly 50% since the start of the archery-only season. The staff recommendation is to open the youth/disabled season on April 1 and run it through the first full weekend with the archery-only season starting the following day. The youth/disabled and archery-only would then run concurrent through the start of the regular season which is proposed to open on the first Wednesday following the second Saturday in April and run through May 31. The proposed season dates would give youth/disabled hunters a full weekend without any competition from other hunters and provide the archers one weekend each year prior to the regular opener. The regular open would move one week later than the current season structure in 4 or 7 years.
3. Lastly, the commission will be voting on a recommendation to reduce youth big game and turkey permits to \$5 for residents and \$10 for non-residents. The current prices are \$10 and \$30 for resident and non-resident youth, respectively.

### **Access Programs with Turkey Hunting Opportunities**

In addition to publicly owned properties, all Kansas turkey hunters have access to private lands leased for public hunting through the department's Walk-In Hunting Access (WIHA) program. During the fall of 2012, approximately 1.0 million acres were enrolled; some of which provided fall turkey hunting opportunities. These parcels were open to public access from either 1 September – 31 January or 1 November – 31 January and leased for an average of \$2.21/acre. The spring turkey WIHA program is still expanding in the state and enrollment for the spring 2013 season was >199,000 acres. Landowners enrolled in the spring WIHA program received an average of \$1.79/acre and allowed access to their property from 1 April – 31 May. The state chapter of the National Wild Turkey Federation (NWF) again made a monetary contribution to the spring WIHA program from the state superfund. Through a sign-up incentive program in an area of the state where turkey populations are abundant but access growth was stagnant, their contribution of \$5,000 allowed for the enrollment of 4 new spring contracts. These contracts increased access in the six-county area by 977 acres. Approximately 15% of both fall

and spring turkey hunters indicated that they pursued turkeys on WIHA at some point during the past year.

The KDWPT also leases additional private land for limited access special hunts. The program was started to try and acquire more public hunting access near our urban areas. It was believed that landowners near major urban areas would be more willing to enroll their properties in an access program if we limited the number and/or type (e.g. youth) of hunters. The program allows landowners to choose the number of hunter days and/or type of hunters they will allow on their property. The payment rates are adjusted according to the number of hunter days with more days equaling a greater payment. The spring special hunts program opened over 3,700 acres in twelve of the target counties to turkey hunting for spring 2012 which provided 83 available hunts.

### **Translocation Efforts**

For the most part, turkey stocking efforts have been completed in Kansas. However, the department still moves birds occasionally to address nuisance complaints. The departmental turkey committee develops a priority list for translocated turkeys each fall should birds need to be moved. For the winter of 2012-2013 the field staff identified 4 suitable sites for translocations but no birds were moved. The department did capture 30 birds (23F and 7M) in an area where problems regularly occur and released them on-site with leg bands. That was done as an attempt to identify how much harvest pressure that population experiences.

### **Research**

No wild turkey research is currently being conducted in Kansas.

Table 1. Kansas wild turkey season dates, total harvest, and hunter success for each of the last 5 seasons, 2009-2013.

Year	Spring			Fall		
	Season Dates	Total Harvest	Success <sup>a</sup> (%)	Season Dates	Total Harvest	Success <sup>a</sup> (%)
2009	Archery-only: Apr. 1-7 Youth/Disabled: Apr. 1-7 Regular: Apr. 8– May 31	33,350	61	Seg. 1: Oct. 1–Dec. 1 Seg. 2: Dec. 14-31 Seg. 3: Jan 11-31 (10)	4,664 (35%) <sup>b</sup>	41
2010	Archery-only: Apr. 1-13 Youth/Disabled: Apr. 1-13 Regular: Apr. 14– May 31	34,991	63	Seg. 1: Oct. 1–Nov. 30 Seg. 2: Dec. 13-31 Seg. 3: Jan 10-31 (11)	3,954 (38%)	39
2011	Archery-only: Apr. 1-12 Youth/Disabled: Apr. 1-12 Regular: Apr. 13– May 31	32,298	61	Seg. 1: Oct. 1–Nov. 29 Seg. 2: Dec. 12-31 Seg. 3: Jan 9-31 (12)	3,677 (39%)	36
2012	Archery-only: Apr. 1-10 Youth/Disabled: Apr. 1-10 Regular: Apr. 11 – May 31	31,239	60	Seg. 1: Oct. 1– Nov. 27 Seg. 2: Dec. 10-31 Seg. 3: Jan 14-31 (13)	NA <sup>c</sup>	NA
2013	Archery-only: Apr. 1-19 Youth/Disabled: Apr. 1-19 Regular: Apr. 10 – May 31	33,925	57	Seg. 1: Oct. 1– Dec. 3 Seg. 2: Dec. 16 – Jan. 31 (14)	NA	NA

<sup>a</sup> Success was the percentage of active hunters harvesting  $\geq 1$  bird

<sup>b</sup> Percentage of harvest composed of females

<sup>c</sup> NA = not available

Table 2. Number of permits sold for Kansas' fall and spring turkey seasons, 2012-2013.

Permit <sup>a</sup>	Fall (2012-2013)	Spring (2013)
Resident permit (\$22.50) <sup>b</sup>	5,848	17,540
Resident combo (\$27.50)	NA	4,500
Non-resident permit (\$32.50)	2,056	12,230
Non-resident combo (\$47.50)	NA	2,193
Resident Landowner/tenant permit (\$12.50)	1,919	4,654
Resident Landowner/tenant combo (\$17.50)	NA	1,015
Resident youth permit (\$12.50) <sup>c,d</sup>	759	4,064
Resident youth combo (\$17.50)	NA	957
Non-resident tenant permit (\$12.50)	NA	115
Non-resident tenant combo (\$17.50)	NA	19
Resident game tags (\$12.50)	3,000	8,935
Non-resident game tags (\$22.50)	679	8,675
<b>Total Carcass Tags</b>	<b>14,261</b>	<b>73,581<sup>e</sup></b>

<sup>a</sup> Turkey hunters must also buy an annual small game license (resident = \$20.50, non-resident = \$72.50, and non-resident under 16 = \$37.50)

<sup>b</sup> The price of all permits includes an agent fee (\$1.00) and processing fee (\$1.50).

<sup>c</sup> Individuals  $\leq 16$  are considered youth.

<sup>d</sup> Non-resident youth must purchase a regular price non-resident permit.

<sup>e</sup> The total number of carcass tags does not equal the sum of the issuances because the combinations include two carcass tags.

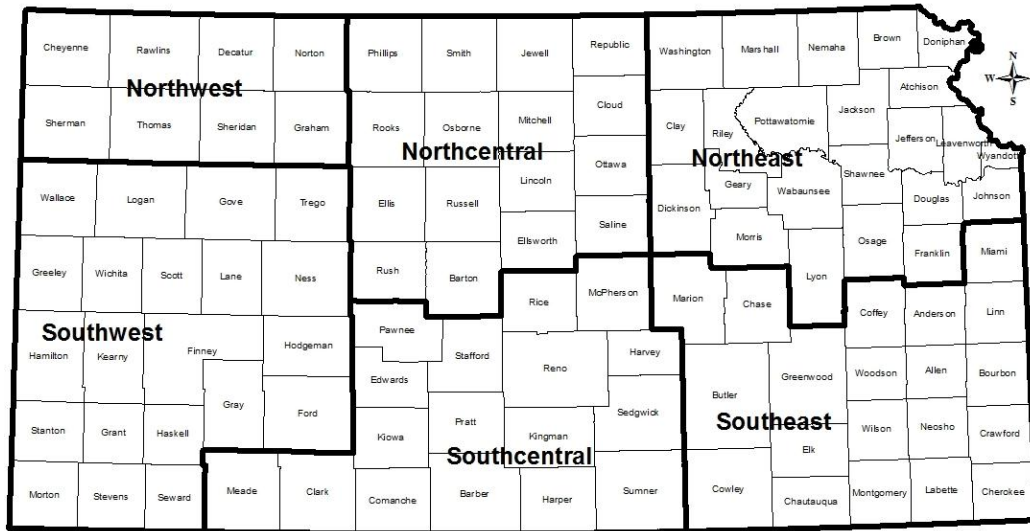


Figure 1. The 6 wild turkey management regions of Kansas, 2012-2013.

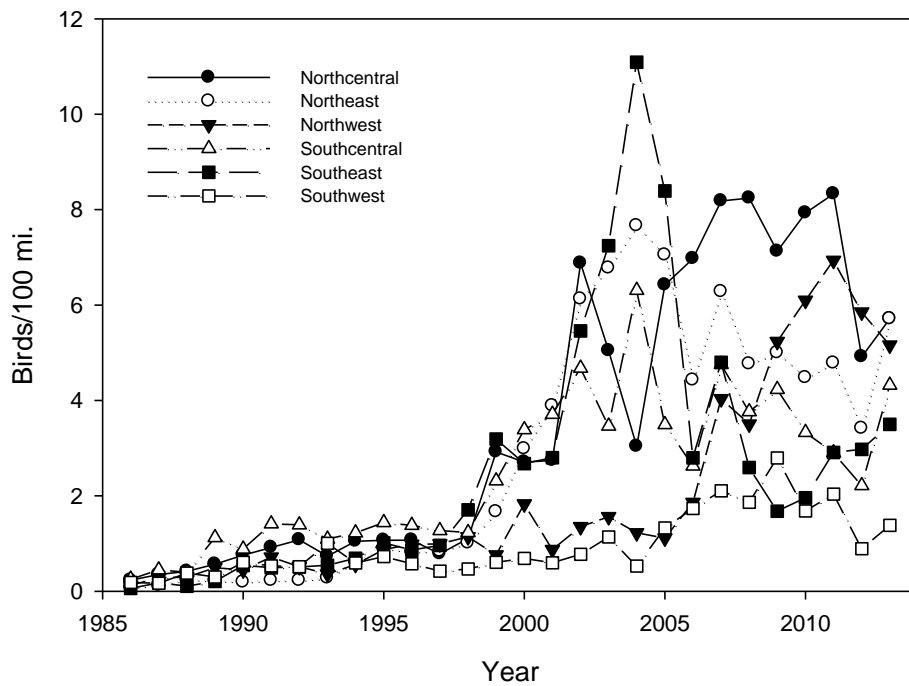


Figure 2. The spring rural mail carrier index (birds/100 mi. traveled) to wild turkey populations in the 6 Kansas management regions, 1986-2012.

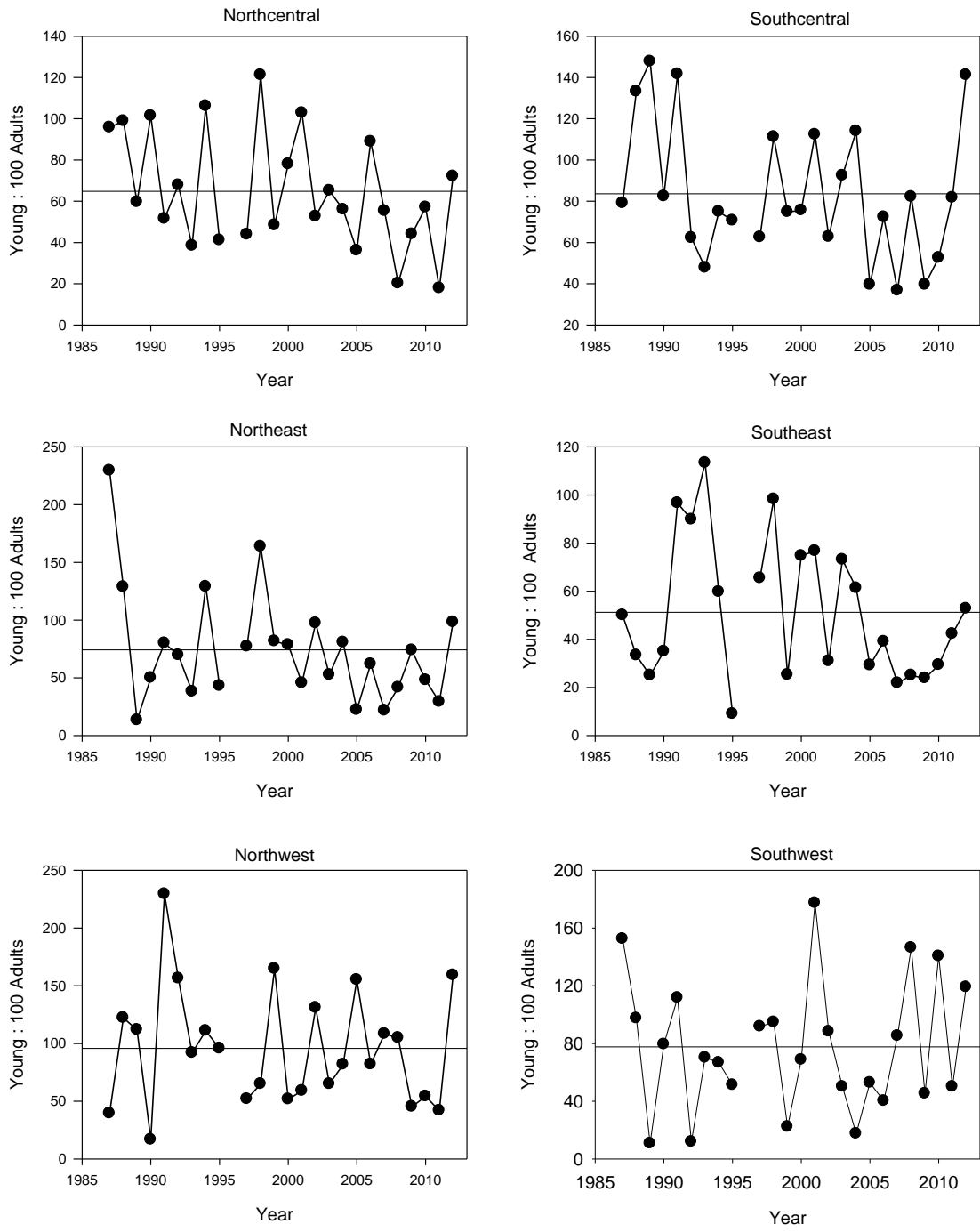


Figure 3. Wild turkey production indices (young : 100 adults) for the 6 Kansas turkey management regions, 1986-2012. The long-term mean production index is depicted as a solid line.



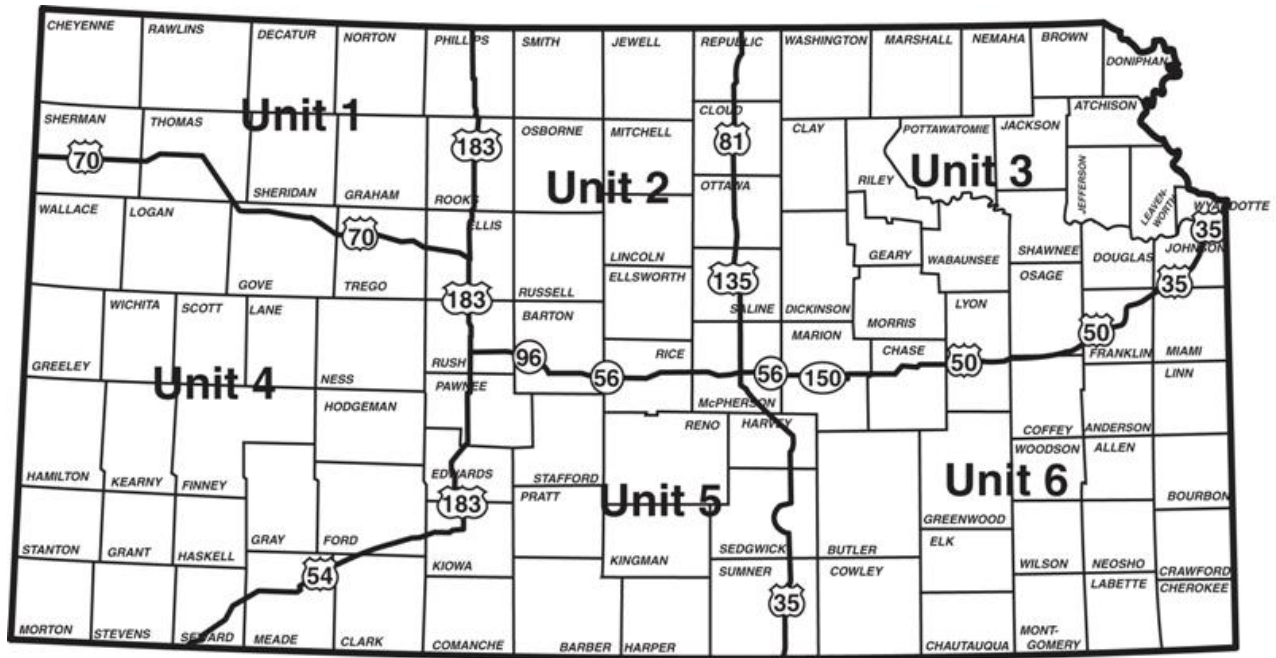


Figure 4. The map depicts the hunting units for Kansas’ fall 2012 and spring 2013 turkey seasons. A fall turkey permit could be purchased over-the-counter for Units 1, 2, 3, 5, and 6. Up to 3 additional fall turkey game tags could be purchased and were valid in Units 2, 3, 5, and 6. There was no fall turkey hunting allowed in Unit 4. A spring turkey permit could be purchased over-the-counter for Units 1, 2, 3, 5, and 6. Five hundred spring permits were issued for Unit 4 through a pre-season drawing and they were also valid in adjacent units. An additional spring game tag could be purchased over-the-counter and was valid in Units 1, 2, 3, 5, and 6.



# 2013 MICHIGAN SPRING TURKEY HUNTER SURVEY

Brian J. Frawley

## ABSTRACT

*A survey of turkey hunters was conducted following the 2013 spring hunting season to determine turkey harvest and hunter participation. In 2013, about 82,621 hunters harvested about 31,931 turkeys. Statewide, 39% of hunters harvested a turkey. Nearly 68% of the hunters rated their hunting experience as excellent, very good, or good in 2013. About 90% of the hunters reported they experienced no or only minor interference from other hunters. The number of hunters, their hunting effort, harvest, and hunter success were not significantly different between 2012 and 2013. However, hunter satisfaction in 2013 increased significantly from 2012 (68% versus 65%).*

## INTRODUCTION

Michigan's spring turkey (*Meleagris gallopavo*) hunting season was based originally on an area and quota system. This system was set up primarily to distribute hunters across geographic areas (management units) and time (hunt periods). As the turkey population has expanded statewide, license types were created that allowed hunters to hunt in multiple management units. The goal of the current system has been to provide hunting opportunities while maintaining acceptable levels of hunter satisfaction (Luukkonen 1998).

In 2013, nearly the entire state was open for wild turkey hunting from April 22 through May 31 (Figure 1). The area open for turkey hunting (58,114 square miles) was the same as last year. The statewide hunting area was divided into 12 management units (Figure 1). Hunting licenses were available on these management units for three types of hunts: (1) quota [limited licenses available] hunts on both public and private lands in a specific management unit, (2) quota hunt on private lands in southern Michigan [Hunt 301 in Unit ZZ], and (3) a guaranteed hunt (no quota) that included all units [Hunt 234], but excluded public lands in the Southern Lower Peninsula (SLP).



A contribution of Federal Aid in Wildlife Restoration, Michigan Project W-147-R

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IC2042-500 (01/07/2014)

People interested in obtaining a turkey hunting license could enter into a random drawing (lottery) conducted by the Department of Natural Resources (DNR) or purchase a license for Hunt 234 between January 1 and May 1 without going through the lottery. Each applicant in the lottery could select up to two hunt choices (any combination of quota and unlimited quota hunts). The lottery consisted of two drawings. The first drawing was used to select applicants based on their preferred hunt choice. The second drawing was among applicants who were not successful in the first drawing, and was based on the hunter's second choice for a hunt. Any licenses available after the drawing was completed were made available on a first-come, first-served basis to applicants that were unsuccessful in the drawing. Unsuccessful applicants could purchase one leftover license or a license for Hunt 234. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses except licenses for Hunt 234 were made available to non-applicants. After May 1, Hunt 234 was available for purchase only to applicants. Hunters were allowed to purchase one license and take one bearded turkey with the harvest tag issued with their license.

A limited number of licenses were available for quota hunts, and they were valid only in a certain management unit and only during a limited time period (7-40 days). Most quota hunts began before May 6 and lasted for seven days. A private land management unit (Unit ZZ) was created in 2002 that included all private lands in southern Michigan (Figure 1). Hunters who selected Hunt 301 could hunt the first two weeks of the season (April 22-May 5) anywhere on private lands in Unit ZZ. This unit and hunt period was created to provide additional hunting opportunity and increased flexibility for hunters who had difficulty finding time to hunt during shorter quota hunts.

Licenses for Hunt 234 could be used in any management unit. They were valid on public and private lands, except in Unit ZZ, where they were only valid on private lands or on Fort Custer military lands. Hunt 234 started later than most quota hunts but lasted for 26 days (May 6-31). An unlimited number of licenses were available for Hunt 234.

The Pure Michigan Hunt (PMH) was a unique multi-species hunting opportunity offered for the first time in 2012. Individuals could purchase an unlimited number of applications for the PMH. Three individuals were randomly chosen from all applications, and winners received elk, bear, spring turkey, fall turkey, and antlerless deer hunting licenses and could participate in a reserved waterfowl hunt on a managed waterfowl area. The turkey hunting licenses were valid for all areas open for hunting turkey and during all turkey hunting periods. Furthermore, the PMH license holder could hunt any season until their turkey harvest tag was filled.

A mentored youth hunting program started in 2012. Under this program, a mentored youth hunting license was created and could be purchased by youth hunters aged 9 and younger. The youth hunter had to participate with a mentor who was at least 21 years old. The mentored youth hunting license allowed the youth hunter to hunt small game, turkey, deer, trap furbearers, and fish for all species. A turkey kill tag issued under the mentored youth hunting license was valid for one turkey during any hunt period, in any open hunt unit, on private or public land. No application was required to purchase the mentored youth license.

Hunters could use a bow and arrow, crossbow, or shotgun with number 4 or smaller shot (including a muzzleloading shotgun) to hunt turkeys. Hunters using a crossbow were required to obtain a free crossbow stamp, except hunters with a disability already hunting under a DNR-issued crossbow permit, did not need the stamp.

The DNR and the Natural Resources Commission have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest surveys are a management tool used by the Wildlife Division to accomplish its statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are the primary objectives of this survey.

## **METHODS**

The Wildlife Division provided all hunters the option to report voluntarily information about their turkey hunting activity via the internet. This option was advertised in the hunting regulation booklet and through a statewide news release. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, the days spent afield, whether they harvested a turkey, type of device used while hunting (i.e., firearm, crossbow, or bow and arrow), and whether other hunters caused interference during their hunt (none, minor, some irritation, or major problem). Successful hunters were also asked to report where their turkeys were taken (public or private land), date of harvest, and beard length of the harvested bird. Birds with a beard less than six inches were classified as juveniles (one year old), while birds with longer beards were adults (two years old or greater; Kelly, 1975). Finally, hunters were asked to rate their overall hunting experience (excellent, very good, good, fair, or poor), and indicate the status of the turkey population in their hunting area (increasing, decreasing, stable, or unknown).

Following the 2013 spring turkey hunting season, a questionnaire was sent to 13,937 randomly selected people that had purchased a turkey hunting license (resident turkey, senior resident turkey, nonresident turkey, mentored youth, and Pure Michigan hunting licenses) and had not already voluntarily reported harvest information via the internet. Hunters receiving the questionnaire were asked to report the same information that was collected from hunters that reported voluntarily on the internet.

Estimates were calculated using a stratified random sampling design that included 17 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (12 management units). Hunters who purchased a license that could be used in multiple management units (mentored youth hunters, PMH license holders, and licenses for hunts 234 and 301) were treated as separate strata (strata 13-16). Moreover, people that had voluntarily reported information about their hunting activity via the internet were treated as a separate stratum (seventh stratum).

A 95% confidence limit (CL) was calculated for each estimate. This CL could be added to and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval was a measure of the precision associated with the estimate and implies the true value would be within this interval 95 times out of 100. Estimates were based on information collected from random samples of hunting license buyers. Thus, these estimates were subject to sampling errors (Cochran 1977). Estimates were not adjusted for possible response or nonresponse biases.

Statistical tests are used routinely to determine the likelihood that differences among estimates are larger than expected by chance alone. The overlap of 95% confidence intervals was used to determine whether estimates differed. Non-overlapping 95% confidence intervals was equivalent to stating the difference between the means was larger than would be expected 995 out of 1,000 times ( $P < 0.005$ ), if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during early July 2013, and non-respondents were mailed up to two follow-up questionnaires. Although 13,937 people were sent the questionnaire, 203 surveys were

undeliverable resulting in an adjusted sample size of 13,734. Questionnaires were returned by 8,343 people, yielding a 61% adjusted response rate. In addition, 2,196 people voluntarily reported information about their hunting activity via the internet before the random sample was selected.

## RESULTS AND DISCUSSION

In 2013, licenses were purchased by 104,279 people, an increase of nearly 2% from 2012 (Table 1). Most of the people buying a license were males (92%), and the average age of the license buyers was 44 years (Figure 2). Nearly 12% (12,656) of the license buyers were younger than 17 years old. Mentored youth hunting licenses were purchased by 2,711 youths.

The number of people buying a turkey hunting license in 2013 decreased by about 3% in ten years from 2003 (107,866 people purchased a license in 2003). There were fewer license buyers for age classes between 25 and 50 years of age in 2013, compared to 2003 (Figure 3). However, there were increased hunter numbers among the youngest and oldest age classes in 2013. The increased hunter numbers in the oldest age classes likely represented the rising share of older people in the population as the baby-boom generation aged and life expectancies have increased. The increased participation among the youngest hunters reflected the lowering of the minimum age requirements. In 2013, there was no minimum age limit to hunt turkeys; while hunters had to be at least 12 years old to participate in 2003.

About 79% ( $\pm 1\%$ ) of license buyers hunted turkeys (82,621 hunters). Most of these hunters were males (76,360  $\pm$  1,009), although nearly 8% ( $\pm 1\%$ ) of the hunters were females (6,261  $\pm$  532). Estimated hunter numbers (Table 2) were similar in 2012 and 2013 (82,297 versus 82,621 hunters). Counties listed in descending order with more than 2,200 hunters afield included Allegan, Kent, Newaygo, Montcalm, Jackson, and Sanilac (Table 3).

Hunters spent an estimated 341,113 days afield pursuing turkeys (4.1  $\pm$  0.1 days/hunter), and harvested approximately 31,931 birds (Figure 4). Counties listed in descending order with hunters taking more than 900 turkeys included Kent, Montcalm, Ottawa, and Jackson (Table 3). Hunter effort and harvest in 2013 were not significantly different from 2012. Hunter success was 39% in 2013, which was not significantly different from the 38% hunter success experienced in 2012.

About 25% ( $\pm 2\%$ ) of the harvested birds were juvenile males (8,108  $\pm$  604); 73% ( $\pm 2\%$ ) were adult males (23,334  $\pm$  935), and about 1% were bearded females (291  $\pm$  112). Additionally, the age of a small number of harvested birds (<1%) was unknown (199  $\pm$  107) because hunters failed to report a beard length.

Hunting effort and the number of turkeys harvested were generally highest during the earliest hunting periods (Figures 5-8). For turkeys that the harvest date was known, 44% of these birds were taken during the first seven days (April 22-28). Daily hunter success generally was more than 8% during April 22 through May 9. Daily hunter success was generally below 8% during May 10-31. Hunting effort and harvest generally was greater on the weekends than weekdays.

About 86% of turkey hunters hunted solely on private land; 8% hunted on public land only; and 5% hunted on both private and public lands (Table 4). Of the 31,931 turkeys harvested in 2013, 90  $\pm$  1%

were taken on private land (28,572 ± 993 birds). About 10 ± 1% of the harvest (3,285 ± 384 birds) was taken on public land.

Seventeen percent of turkey hunters believed turkey numbers were increasing in their hunting area (Table 5); while, 43% thought turkey numbers were stable, 23% thought turkey were decreasing; 17% of turkey hunters were uncertain about the status of turkeys; and 1% did not comment on the status of turkey.

Hunter satisfaction is one measure used to assess the turkey management program in Michigan. Of the estimated 82,621 people hunting turkeys in 2013, 68 ± 1% of the hunters rated their hunting experience as either excellent (16,178 ± 806 hunters), very good (17,424 ± 839), or good (22,933 ± 943) (Table 6). Nearly 18 ± 1% of the hunters rated their experience as fair (15,140 ± 818 hunters). Only 12 ± 1% of the hunters rated their experience as poor (10,023 ± 684 hunters). About 1% of the hunters (924 ± 219 hunters) failed to rate their hunting experience.

Hunter satisfaction is affected by many factors such as hunting success and whether hunting activities were completed without interference (Luukkonen 1998). In 2013, 71 ± 1% of the hunters reported no hunter interference; 19 ± 1% reported minor interference; 7 ± 1% reported some irritation caused by hunter interference; and 2 ± 1% reported hunter interference was a major problem (Table 7).

Although interference can affect hunter satisfaction, hunter satisfaction was more closely associated with hunter success (Figures 9 and 10). Hunter success was greatest for hunts beginning April 22; however, satisfaction varied little among the hunt periods (Table 8).

Compared to 2012, hunter numbers, hunter effort, and harvest statewide in 2013 were not significantly different (Table 9). In addition, hunter success and the proportion of hunters that indicated they experienced no or only minor interference with another hunter were similar in both 2012 and 2013 (Table 10). However, statewide hunter satisfaction increased significantly in 2013.

Most hunters (91 ± 1%) used firearms while hunting turkeys, although 7 ± 1% of the hunters used archery equipment (compound, recurve, or long bows), and 5 ± 1% used a crossbow. Most hunters (94 ± 1%) used a firearm to harvest their turkeys, while 3 ± 1% used archery equipment, and 3 ± 1% used a crossbow. About 39% of hunters using a firearm harvested a turkey, while 22% of hunters using a crossbow took a turkey, and 18% of hunters using another type of bow (longbows, recurve, or compound bows) took a turkey (Table 11).

Hunters using a crossbow to hunt turkeys were required to obtain a crossbow stamp, unless they were a disabled hunter that already had a DNR-issued crossbow permit. About 37 ± 5% of the turkey hunters using a crossbow had obtained the crossbow stamp.

## **ACKNOWLEDGEMENTS**

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Table 1. Number of hunting licenses available and people applying for licenses during the 2013 Michigan spring turkey hunting season.

Management unit or hunt period	Licenses available (quota)	Number of eligible applicants <sup>a</sup>	Number of applicants successful in drawing	Number of licenses remaining after drawing	Number of licenses purchased by successful applicants <sup>b</sup>	Number of licenses purchased by unsuccessful applicants <sup>b</sup>	Number of licenses purchased by people not in the drawing <sup>b</sup>	Number of licensees <sup>b</sup>
A	5,500	1,747	1,762	3,738	1,266	2	973	2,241
E	1,700	1,834	1,700	0	1,226	6	2	1,234
F	5,000	3,156	3,153	1,847	2,335	2	530	2,867
J	4,000	1,558	1,587	2,413	1,189	0	692	1,881
K	8,500	8,866	8,383	117	6,275	25	86	6,386
M	8,000	1,039	1,050	6,950	784	0	3,730	4,514
ZA	4,800	1,853	1,883	2,917	1,411	1	1,612	3,024
ZB	1,750	922	893	857	666	3	517	1,186
ZC	2,400	1,329	1,298	1,102	927	3	827	1,757
ZD	40	77	40	0	19	0	0	19
ZE	2,000	1,737	1,450	550	1,036	45	406	1,487
ZF	5,600	1,923	1,947	3,653	1,489	2	2,504	3,995
Hunt 234	NA	318	480	NA	965	128	39,574	40,667
Hunt 301	65,000	7,772	7,859	57,141	6,575	82	23,661	30,318
Pure MI Hunts	3	NA	NA	NA	NA	NA	NA	3
Mentored Hunts	NA	NA	NA	NA	NA	NA	NA	2,700
Statewide	114,293	34,131	33,485	81,285	26,163	299	75,114	104,279

<sup>a</sup>Number of eligible applicants selecting the management unit as their first choice to hunt.

<sup>b</sup>If a licensee purchased more than one license, only the latest purchase is included in the summary of licenses purchased.



Table 2. Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2013 Michigan turkey hunting season.

Management unit	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>		Noninterfered hunters <sup>c</sup>	
	Total	95%	Total	95%	Total	95%	%	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Hunt periods with quotas (General limited quota hunt periods)												
A	1,963	91	7,615	675	627	121	32	6	52	6	94	3
E	1,113	43	3,543	268	411	66	37	6	65	6	93	3
F	2,504	110	8,586	624	559	127	22	5	55	6	89	4
J	1,583	85	5,521	480	537	103	34	6	68	6	91	4
K	5,566	254	18,670	1,560	1,977	343	36	6	56	6	88	4
M	3,422	242	17,401	2,479	1,050	236	31	7	55	7	91	4
ZA	2,517	141	8,659	1,002	877	169	35	6	72	6	89	4
ZB	1,014	54	3,625	414	341	68	34	6	70	6	86	5
ZC	1,305	102	4,900	671	434	99	33	7	68	7	81	6
ZD	18	1	96	17	2	1	13	5	50	8	81	6
ZE	1,246	70	4,102	430	498	89	40	7	79	6	84	5
ZF	3,128	212	14,353	2,072	1,088	225	35	7	70	7	88	5
Pure MI Hunt	3	0	6	0	3	0	100	0	100	0	100	0
Subtotal	25,382	486	97,077	3,978	8,406	566	33	2	63	2	89	1
Hunt period 301 with quota (Private lands in Management Unit ZZ; April 22-May 5, 2013)												
ZA	6,562	474	23,325	2,129	3,044	343	46	4	79	3	91	2
ZB	2,722	329	10,633	1,663	1,255	228	46	6	77	5	88	4
ZC	4,038	391	15,398	1,884	1,885	276	47	5	75	5	88	3
ZD	409	133	1,529	615	168	85	41	16	88	11	90	10
ZE	6,630	475	23,973	2,222	3,051	343	46	4	73	4	90	2
ZF	5,878	455	23,664	2,318	2,867	335	49	4	74	4	90	3
Unknown	570	158	2,444	892	64	53	11	9	53	14	89	9
Subtotal	26,268	395	100,965	3,298	12,335	564	47	2	75	2	90	1

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for hunts 234 and 301. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

<sup>c</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 2 (continued). Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2013 Michigan turkey hunting season.

Management unit	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>		Noninterfered hunters <sup>c</sup>	
	Total	95%	Total	95%	Total	95%	%	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Unlimited quota hunt period (Guaranteed Hunt 234; May 6-31, 2013)												
A	538	171	2,555	1,006	117	79	22	13	40	16	88	10
E	1,479	281	5,723	1,464	507	165	34	9	64	9	95	4
F	1,789	308	8,690	1,953	357	140	20	7	49	9	94	4
J	969	227	4,239	1,362	366	140	38	11	64	11	92	7
K	6,344	545	29,472	3,507	2,042	326	32	4	64	5	90	3
M	269	119	1,470	1,005	87	67	32	21	50	22	100	0
ZA	5,482	513	24,223	3,090	2,245	342	41	5	71	5	92	3
ZB	1,754	307	7,555	1,687	707	197	40	9	68	8	94	4
ZC	2,284	345	10,315	2,009	660	188	29	7	73	7	96	3
ZD	241	115	1,070	600	111	79	46	24	87	16	93	12
ZE	4,340	462	17,939	2,444	1,911	315	44	6	75	5	92	3
ZF	4,259	461	20,478	3,164	1,403	272	33	5	71	5	91	3
Unknown	602	183	2,305	1,109	95	73	13	10	37	15	76	13
Subtotal	28,985	684	136,034	6,058	10,608	657	37	2	67	2	92	1

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for hunts 234 and 301. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

<sup>c</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 2 (continued). Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2013 Michigan turkey hunting season.

Management unit	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>		Noninterfered hunters <sup>c</sup>	
	Total	95%	Total	95%	Total	95%	%	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)												
A	41	15	87	37	8	7	19	15	69	18	94	9
E	74	21	288	121	8	7	10	9	76	12	90	9
F	51	17	148	59	15	10	30	16	85	12	85	12
J	60	18	245	94	14	9	23	13	83	12	96	6
K	301	40	949	153	64	19	21	6	73	6	93	4
M	79	21	293	106	18	10	23	11	68	13	94	7
ZA	407	45	1,366	206	140	28	34	6	76	5	91	3
ZB	162	30	536	128	49	17	31	9	81	8	97	3
ZC	280	39	875	151	78	21	28	6	82	6	88	5
ZD	20	11	64	39	3	4	13	18	63	26	100	0
ZE	297	40	1,021	184	98	24	33	7	83	5	91	4
ZF	299	40	1,131	204	86	22	29	6	80	6	94	3
Unknown	20	11	36	26	3	4	13	18	38	26	63	26
Subtotal	1,986	56	7,037	373	583	52	29	2	78	2	92	2
Statewide	82,621	929	341,113	7,972	31,931	1,036	39	1	68	1	90	1

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for hunts 234 and 301. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

<sup>c</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3. Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2013 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>		Noninterfered hunters <sup>c</sup>	
	95%		95%		95%		95%		95%		95%	
	Total	CL	Total	CL	Total	CL	%	CL	%	CL	%	CL
Alcona	999	193	3,641	883	237	94	24	8	52	10	90	6
Alger	139	90	959	732	78	71	56	32	73	27	96	4
Allegan	2,764	366	11,949	2,226	893	215	32	7	69	6	87	5
Alpena	671	148	2,721	811	237	91	35	11	46	12	94	7
Antrim	648	146	2,349	673	253	95	39	12	72	11	94	6
Arenac	513	132	1,490	466	205	79	40	13	64	13	94	6
Baraga	20	37	7	0	1	0	5	9	100	0	100	0
Barry	2,048	318	9,583	2,052	615	174	30	7	71	7	89	5
Bay	560	164	2,227	803	214	102	38	14	57	15	84	11
Benzie	424	171	1,091	481	168	112	40	20	80	17	88	15
Berrien	1,083	233	4,409	1,294	450	147	42	11	72	10	96	4
Branch	823	192	3,398	968	365	128	44	12	78	10	89	7
Calhoun	1,739	286	5,974	1,271	880	201	51	8	76	7	86	6
Cass	905	208	4,771	1,606	289	113	32	11	73	10	89	7
Charlevoix	518	139	1,717	710	215	91	41	14	64	13	86	10
Cheboygan	431	114	1,716	521	121	60	28	12	60	14	86	10
Chippewa	237	125	961	670	61	64	26	24	42	27	100	0
Clare	1,091	198	4,027	979	323	112	30	9	62	9	92	5
Clinton	1,341	249	4,510	1,056	428	140	32	9	70	9	87	6
Crawford	666	164	2,748	848	142	79	21	10	54	13	91	7
Delta	705	204	2,943	1,163	254	126	36	15	56	15	92	9

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

<sup>c</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2013 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>		Noninterfered hunters <sup>c</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Dickinson	545	182	2,442	1,282	124	90	23	15	50	18	86	13
Eaton	1,254	244	4,477	1,080	537	161	43	10	75	9	97	3
Emmet	362	115	1,247	574	156	78	43	16	89	10	98	4
Genesee	1,667	266	6,822	1,326	644	163	39	8	76	7	90	5
Gladwin	1,048	193	3,801	942	393	121	37	9	70	9	95	4
Gogebic	175	108	1,172	830	21	37	12	20	57	31	99	0
Gd. Traverse	915	249	3,477	1,113	246	132	27	12	55	14	90	9
Gratiot	1,320	248	5,046	1,275	565	163	43	9	72	9	93	5
Hillsdale	1,633	272	5,984	1,281	824	194	50	8	77	7	83	6
Houghton	3	0	6	0	2	0	67	0	100	0	100	0
Huron	1,419	234	5,414	1,135	611	161	43	8	70	8	84	6
Ingham	1,321	242	4,432	1,035	576	159	44	9	74	8	87	6
Ionia	1,428	255	4,951	1,073	532	156	37	9	74	8	91	5
Iosco	744	176	2,566	736	195	93	26	11	45	12	90	7
Iron	510	175	2,669	1,336	150	97	29	16	57	18	92	10
Isabella	1,392	252	4,581	1,073	686	176	49	9	81	7	95	4
Jackson	2,307	311	8,470	1,471	931	204	40	7	68	6	92	3
Kalamazoo	1,207	246	4,704	1,252	473	152	39	10	74	9	86	7
Kalkaska	799	228	2,617	890	210	119	26	13	54	14	85	10
Kent	2,554	340	10,300	2,028	1,062	219	42	7	77	6	93	4
Keweenaw	1	0	5	0	0	0	0	0	100	0	100	0

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

<sup>c</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2013 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>		Noninterfered hunters <sup>c</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Lake	1,384	303	4,929	1,312	196	116	14	8	40	11	89	7
Lapeer	2,200	304	8,004	1,487	864	192	39	7	75	6	92	4
Leelanau	421	173	1,636	890	113	94	27	19	68	19	85	16
Lenawee	1,038	208	3,462	851	330	116	32	9	74	9	88	7
Livingston	1,437	235	5,297	1,217	569	148	40	8	74	7	90	5
Luce	0	0	0	0	0	0	0	0	0	0	0	0
Mackinac	22	37	197	371	0	0	0	0	100	0	100	0
Macomb	668	176	2,712	1,008	248	106	37	13	76	11	89	8
Manistee	931	248	3,904	1,317	266	136	29	12	67	13	89	8
Marquette	302	137	1,188	733	42	52	14	16	46	23	93	12
Mason	907	251	2,920	933	257	136	28	13	47	14	94	7
Mecosta	1,014	252	3,811	1,194	502	180	49	13	68	12	93	7
Menominee	880	222	4,078	1,363	342	147	39	13	61	13	89	9
Midland	1,111	225	3,904	950	493	152	44	10	75	9	95	4
Missaukee	616	205	2,437	949	192	108	31	15	59	17	88	11
Monroe	568	161	2,229	762	197	96	35	14	83	10	90	8
Montcalm	2,331	324	8,223	1,514	1,037	222	45	7	76	6	91	4
Montmorency	640	141	2,686	737	118	59	18	9	46	12	91	7
Muskegon	1,412	265	6,101	1,458	601	170	43	9	69	9	91	5
Newaygo	2,479	386	10,200	2,064	804	226	32	8	61	8	88	6
Oakland	1,472	229	5,208	1,057	525	139	36	8	71	8	84	6

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

<sup>c</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2013 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>		Noninterfered hunters <sup>c</sup>	
	Total	95%	Total	95%	Total	95%	%	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Oceana	1,026	256	3,903	1,245	443	168	43	13	65	12	90	8
Ogemaw	1,008	199	3,516	855	236	96	23	9	59	10	90	6
Ontonagon	176	109	1,266	1,093	39	52	22	26	45	32	100	0
Osceola	867	237	2,596	853	250	129	29	13	71	13	82	11
Oscoda	695	172	2,824	862	108	69	16	9	41	13	88	8
Otsego	589	141	2,327	818	174	82	29	12	65	12	95	5
Ottawa	1,992	309	7,747	1,602	933	212	47	8	73	7	88	5
Presque Isle	618	138	2,486	648	236	86	38	12	56	12	94	6
Roscommon	899	195	3,703	1,080	151	80	17	8	59	11	89	7
Saginaw	1,917	295	7,041	1,385	757	187	39	8	73	7	93	4
St. Clair	1,983	293	8,286	1,552	756	181	38	7	73	7	90	5
St. Joseph	1,104	233	4,151	1,149	556	164	50	11	78	9	96	4
Sanilac	2,227	314	8,779	1,537	869	197	39	7	73	6	90	4
Schoolcraft	61	61	165	153	40	52	66	44	66	44	92	12
Shiawassee	1,416	255	5,588	1,227	479	145	34	9	73	8	88	6
Tuscola	2,046	278	7,313	1,336	860	182	42	7	73	6	92	4
Van Buren	1,344	255	5,148	1,300	599	170	45	10	71	9	92	5
Washtenaw	1,347	232	4,894	1,079	525	143	39	8	81	7	89	5
Wayne	103	70	324	265	87	66	84	22	100	0	99	1
Wexford	1,252	287	4,885	1,331	437	175	35	11	57	12	87	8
Unknown	3,183	398	12,673	2,135	335	126	10	4	51	6	87	4

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

<sup>c</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 4. Estimated number and proportion of hunters hunting on private and public lands during the spring 2013 Michigan turkey hunting season.<sup>a</sup>

Management unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
Hunt periods with quotas (General limited quota hunt periods)																
A	1,413	132	72	6	349	99	18	5	201	79	10	4	0	0	0	0
E	718	70	65	6	291	61	26	5	87	37	8	3	16	17	1	1
F	1,270	163	51	6	941	153	38	6	260	94	10	4	33	35	1	1
J	1,000	116	63	6	295	83	19	5	262	81	17	5	26	28	2	2
K	3,235	375	58	6	1,495	317	27	6	737	241	13	4	99	94	2	2
M	2,231	281	65	7	639	195	19	6	532	182	16	5	19	37	1	1
ZA	1,217	184	48	7	921	171	37	6	339	118	13	5	40	43	2	2
ZB	438	73	43	7	489	74	48	7	74	37	7	4	12	15	1	2
ZC	483	104	37	7	710	114	54	8	85	50	6	4	28	29	2	2
ZD	11	1	63	8	6	1	31	8	1	1	6	4	0	0	0	0
ZE	400	84	32	6	711	94	57	7	128	54	10	4	7	14	1	1
ZF	1,528	248	49	7	1,209	234	39	7	318	139	10	4	74	70	2	2
PMH	1	0	33	0	0	0	0	0	2	0	67	0	0	0	0	0
Subtotal	15,085	633	57	2	8,119	542	31	2	3,060	392	11	1	354	143	1	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 22-May 5, 2013)																
ZA	6,562	474	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZB	2,722	329	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZC	4,038	391	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZD	409	133	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE	6,630	475	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZF	5,878	455	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	570	158	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	26,268	395	100	0	0	0	0	0	0	0	0	0	0	0	0	0

<sup>a</sup>Row totals may not equal 100% because of rounding errors.



Table 4 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2013 Michigan turkey hunting season.<sup>a</sup>

Management unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	95% %	95% CL	Total	95% CL	95% %	95% CL	Total	95% CL	95% %	95% CL	Total	95% CL	95% %	95% CL
Unlimited quota hunt period (Guaranteed Hunt 234; May 6-31, 2013)																
A	389	146	72	14	69	60	13	10	64	60	12	10	16	30	3	5
E	1,174	252	79	8	177	99	12	6	127	84	9	5	0	0	0	0
F	913	223	51	9	638	185	36	8	207	108	12	6	0	0	0	0
J	592	178	61	12	232	112	24	10	98	73	10	7	47	52	5	5
K	4,301	461	68	4	1,358	269	21	4	638	188	10	3	47	52	1	1
M	200	103	74	19	22	30	8	11	32	42	12	15	16	30	6	11
ZA <sup>b</sup>	5,482	513	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZB <sup>b</sup>	1,754	307	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZC <sup>b</sup>	2,284	345	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZD <sup>b</sup>	241	115	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE <sup>b</sup>	4,340	462	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZF <sup>b</sup>	4,259	461	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	364	143	61	15	64	60	11	9	0	0	0	0	173	99	29	14
Subtotal	25,048	733	86	1	2,268	344	8	1	1,386	272	5	1	284	126	1	0

<sup>a</sup>Row totals may not equal 100% because of rounding errors.

<sup>b</sup>Licenses for the unlimited quota hunt were valid only on private lands in Management Unit ZZ in southern Michigan (Figure 1).

<sup>c</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunts.

Table 4 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2013 Michigan turkey hunting season.<sup>a</sup>

Management unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)																
A	41	15	100	0	0	0	0	0	0	0	0	0	0	0	0	0
E	54	18	72	13	8	7	10	9	13	9	17	11	0	0	0	0
F	38	15	75	15	5	6	10	10	8	7	15	12	0	0	0	0
J	38	15	64	15	18	10	30	14	4	4	6	6	0	0	0	0
K	212	34	70	6	54	18	18	5	36	14	12	5	0	0	0	0
M	66	20	84	10	10	8	13	9	3	4	3	5	0	0	0	0
ZA	382	44	94	3	13	9	3	2	13	9	3	2	0	0	0	0
ZB	151	29	94	5	10	8	6	5	0	0	0	0	0	0	0	0
ZC	254	37	91	4	23	12	8	4	0	0	0	0	3	4	1	1
ZD	20	11	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE	278	39	94	3	10	8	3	3	6	6	2	2	3	4	1	1
ZF	267	38	89	4	21	11	7	4	8	7	3	2	0	0	0	0
Unknown	13	9	63	26	3	4	13	18	0	0	0	0	5	6	25	23
Subtotal	1,731	61	87	2	146	29	7	1	99	24	5	1	10	8	1	0
Statewide <sup>c</sup>	66,959	1,048	81	1	10,468	642	13	1	4,512	478	5	1	682	196	1	0

<sup>a</sup>Row totals may not equal 100% because of rounding errors.

<sup>b</sup>Licenses for the unlimited quota hunt were valid only on private lands in Management Unit ZZ in southern Michigan (Figure 1).

<sup>c</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunts.

Table 5. Status of turkey population reported by turkey hunters during the spring 2013 Michigan turkey hunting season.

Management unit	Turkey population status (% of hunters) <sup>a</sup>				
	Increasing	Decreasing	Stable	Unknown	No answer
Hunt periods with quotas (General limited quota hunt periods)					
A	10	43	30	17	0
E	14	27	40	19	0
F	11	29	31	26	3
J	14	27	42	16	1
K	11	32	40	16	1
M	15	38	30	16	1
ZA	15	21	41	22	1
ZB	22	13	43	21	1
ZC	18	16	39	25	1
ZD	25	0	13	44	19
ZE	16	10	48	25	1
ZF	20	21	40	16	2
Pure MI Hunt	0	0	33	67	0
Mean	15	27	38	19	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 22-May 5, 2013)					
ZA	18	21	49	11	1
ZB	25	14	46	14	1
ZC	19	16	50	13	2
ZD	35	0	47	19	0
ZE	23	18	47	12	1
ZF	18	22	48	12	0
Unknown	16	25	27	27	7
Mean	20	18	48	13	1

<sup>a</sup>Row totals may not equal 100% because of rounding errors.

Table 5 (continued). Status of turkey population reported by turkey hunters during the spring 2013 Michigan turkey hunting season.

Management unit	Turkey population status (% of hunters) <sup>a</sup>				
	Increasing	Decreasing	Stable	Unknown	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 6-31, 2013)					
A	12	42	24	19	3
E	16	18	48	16	1
F	9	43	23	24	1
J	19	24	37	20	0
K	13	34	36	16	0
M	12	25	32	31	0
ZA	15	21	48	16	0
ZB	22	15	46	16	1
ZC	13	17	53	17	0
ZD	33	7	34	27	0
ZE	19	17	48	15	1
ZF	15	22	47	15	1
Unknown	8	24	32	31	5
Mean	15	24	43	17	1
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)					
A	6	44	19	31	0
E	24	17	28	31	0
F	0	25	35	35	5
J	13	30	32	26	0
K	9	25	40	25	1
M	23	13	42	23	0
ZA	13	20	37	29	1
ZB	17	8	54	21	0
ZC	23	15	37	26	0
ZD	38	13	50	0	0
ZE	22	11	37	27	3
ZF	15	11	44	30	0
Unknown	0	25	13	38	25
Mean	17	16	39	27	1
Statewide <sup>b</sup>	17	23	43	17	1

<sup>a</sup>Row totals may not equal 100% because of rounding errors.

<sup>b</sup>Statewide mean interference levels (all hunts and periods).

Table 6. How hunters rated their hunting experience during the spring 2013 Michigan turkey hunting season.

Management unit	Satisfaction level (% of hunters) <sup>a</sup>					
	Excellent	Very good	Good	Fair	Poor	No answer
Hunt periods with quotas (General limited quota hunt periods)						
A	10	17	25	19	27	2
E	17	18	30	18	16	0
F	11	14	31	27	15	3
J	14	22	31	16	15	1
K	17	17	22	25	17	2
M	11	17	27	24	20	1
ZA	20	17	35	13	14	1
ZB	17	23	29	15	11	3
ZC	21	21	26	21	8	2
ZD	6	25	19	19	13	19
ZE	25	24	30	12	9	1
ZF	19	16	35	20	8	2
Pure MI Hunt	100	0	0	0	0	0
Mean	17	18	28	20	15	2
Hunt 301 with quota (Private lands in Management Unit ZZ; April 22-May 5, 2013)						
ZA	21	29	29	13	7	0
ZB	25	27	24	13	9	1
ZC	27	21	27	12	9	3
ZD	32	28	28	12	0	0
ZE	24	24	25	17	9	1
ZF	23	23	27	16	9	0
Unknown	9	20	24	31	13	2
Mean	24	25	27	15	9	1

<sup>a</sup>Row totals may not equal 100% because of rounding errors.

Table 6 (continued). How hunters rated their hunting experience during the spring 2013 Michigan turkey hunting season.

Management unit	Satisfaction level (% of hunters) <sup>a</sup>					No answer
	Excellent	Very good	Good	Fair	Poor	
Unlimited quota hunt period (Guaranteed Hunt 234; May 6-31, 2013)						
A	12	12	16	33	24	3
E	14	23	27	20	15	1
F	12	14	23	25	25	1
J	15	25	24	19	17	0
K	14	21	29	19	17	0
M	13	25	12	42	7	0
ZA	19	21	31	17	12	1
ZB	20	19	28	24	8	0
ZC	16	28	29	17	9	1
ZD	40	13	33	7	7	0
ZE	24	26	25	18	6	1
ZF	19	18	33	18	11	0
Unknown	19	5	13	42	18	3
Mean	18	21	28	20	13	1
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)						
A	13	19	38	13	13	6
E	21	24	31	21	3	0
F	40	35	10	10	0	5
J	32	26	26	4	13	0
K	25	17	31	18	8	2
M	23	13	32	26	6	0
ZA	27	23	27	17	7	0
ZB	26	19	36	11	8	0
ZC	30	19	33	14	5	0
ZD	13	38	13	38	0	0
ZE	37	20	26	12	3	2
ZF	28	25	26	17	3	0
Unknown	13	13	13	13	25	25
Mean	28	21	29	15	6	1
Statewide <sup>b</sup>	20	21	28	18	12	1

<sup>a</sup>Row totals may not equal 100% because of rounding errors.

<sup>b</sup>Statewide mean satisfaction levels (all hunts and periods).

Table 7. Estimated amount of hunter interference experienced by turkey hunters during the spring 2013 Michigan turkey hunting season.

Management unit	Interference level (% of hunters) <sup>a</sup>				
	None	Minor	Some irritation	Major problem	No answer
Hunt periods with quotas (General limited quota hunt periods)					
A	77	17	6	1	0
E	72	22	6	0	0
F	65	24	7	2	2
J	67	24	5	3	2
K	62	26	8	3	1
M	76	15	5	2	2
ZA	70	19	9	2	1
ZB	56	30	11	2	1
ZC	54	27	16	2	1
ZD	63	19	0	0	19
ZE	64	19	11	4	1
ZF	55	33	8	2	1
Pure MI Hunt	100	0	0	0	0
Mean	66	23	8	2	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 22-May 5, 2013)					
ZA	73	18	7	1	0
ZB	66	22	8	3	1
ZC	71	17	9	1	2
ZD	78	12	10	0	0
ZE	70	20	8	2	1
ZF	72	18	8	2	0
Unknown	73	16	9	0	2
Mean	71	18	8	2	1

<sup>a</sup>Row totals may not equal 100% because of rounding errors.

Table 7 (continued). Estimated amount of hunter interference experienced by turkey hunters during the spring 2013 Michigan turkey hunting season.

Management unit	Interference level (% of hunters) <sup>a</sup>				
	None	Minor	Some irritation	Major problem	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 6-31, 2013)					
A	85	3	6	3	3
E	78	16	2	1	2
F	79	15	5	1	0
J	75	17	7	2	0
K	74	16	9	1	1
M	92	7	0	0	0
ZA	78	14	7	1	0
ZB	77	17	5	1	0
ZC	80	17	3	0	1
ZD	60	33	7	0	0
ZE	78	14	5	3	1
ZF	73	17	7	1	0
Unknown	58	18	13	5	5
Mean	76	16	6	1	1
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)					
A	81	13	6	0	0
E	72	17	3	7	0
F	80	5	10	0	5
J	87	9	4	0	0
K	82	11	4	2	1
M	84	10	6	0	0
ZA	78	13	9	0	0
ZB	68	28	3	0	0
ZC	67	21	11	1	0
ZD	88	13	0	0	0
ZE	81	9	5	3	1
ZF	77	17	5	1	0
Unknown	50	13	0	13	25
Mean	77	15	6	1	1
Statewide <sup>b</sup>	71	19	7	2	1

<sup>a</sup>Row totals may not equal 100% because of rounding errors.

<sup>b</sup>Statewide mean interference levels (all hunts and periods).



Table 8. Estimated number of hunting efforts, hunters, hunting success, noninterfered hunters, and hunter rating of the 2013 spring turkey hunting season, by hunt periods.

Variable	Hunt periods beginning									
	April 22		April 29		May 6		May 13		All periods <sup>a</sup>	
	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Hunting efforts (days)	164,634	4,806	21,177	1,901	148,287	6,424	7,015	1,245	341,113	7,972
Number of hunters	43,052	713	6,225	473	31,736	744	1,608	206	82,621	929
Successful hunters (n)	17,890	727	1,906	314	11,544	690	592	135	31,931	1,036
Successful hunters (%)	42	2	31	4	36	2	37	7	39	1
Noninterfered hunters (n) <sup>b</sup>	38,456	762	5,479	458	29,108	774	1,463	201	74,507	1,036
Noninterfered hunters (%) <sup>b</sup>	89	1	88	3	92	1	91	3	90	1
Favorable rating (n) <sup>c</sup>	30,260	789	3,793	406	21,280	799	1,203	185	56,535	1,130
Favorable rating (%) <sup>c</sup>	70	1	61	5	67	2	75	6	68	1

<sup>a</sup>Row totals may not equal totals for all periods because of rounding errors.

<sup>b</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

<sup>c</sup>Hunters rating their hunting experience as excellent, very good, or good.

Table 9. Comparison of the estimated number of hunters, hunting effort, and harvest between 2012 and 2013 Michigan spring turkey hunting seasons, summarized by regions.

Region <sup>a</sup>	Hunters (No.) <sup>b</sup>					Hunting efforts (days)					Harvest (No.)				
	2012		2013		Change (%)	2012		2013		Change (%)	2012		2013		Change (%)
	Total	95% CL	Total	95% CL		Total	95% CL	Total	95% CL		Total	95% CL	Total	95% CL	
UP	3,183	237	3,537	284	11	18,551	2,935	18,056	2,680	-3	988	208	1,155	245	17
NLP	23,249	700	23,603	744	2	94,084	4,580	93,971	4,793	0	7,472	550	7,583	578	1
SLP	52,861	872	53,133	918	1	211,209	6,449	216,413	6,584	2	22,571	834	22,859	859	1
Unknown	3,581	404	3,183	398		14,649	2,404	12,673	2,135		346	127	335	126	
Total	82,297	866	82,621	929	0	338,493	7,921	341,113	7,972	1	31,377	998	31,931	1,036	2

<sup>a</sup>Regions included the Upper Peninsula (UP), the Northern Lower Peninsula north of Management Unit ZZ (NLP), and Management Unit ZZ in the Southern Lower Peninsula (SLP).

<sup>b</sup>Number of hunters did not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunt.

\*P<0.005.

Table 10. Comparison of estimated hunter success, hunter satisfaction, and hunt interference between 2012 and 2013 Michigan spring turkey hunting season, summarized by regions.

Region <sup>a</sup>	Hunter success					Hunter satisfaction <sup>b</sup>					Noninterfered hunters <sup>c</sup>				
	2012		2013		Differ-ence (%)	2012		2013		Differ-ence (%)	2012		2013		Differ-ence (%)
	%	95% CL	%	95% CL		%	95% CL	%	95% CL		%	95% CL	%	95% CL	
UP	31	6	33	6	2	56	7	56	7	-1	91	4	93	4	2
NLP	32	2	32	2	0	58	2	60	2	2	91	1	90	1	-1
SLP	43	1	43	1	0	70	1	74	1	4*	91	1	90	1	-1
Total	38	1	39	1	1	65	1	68	1	3*	91	1	90	1	0

<sup>a</sup>Regions included the Upper Peninsula (UP), the Northern Lower Peninsula north of Management Unit ZZ (NLP), and Management Unit ZZ in the Southern Lower Peninsula (SLP).

<sup>b</sup>Hunters rating their hunting experience as excellent, very good, or good.

<sup>c</sup>Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

\*P<0.005.

Table 11. Number of turkeys harvested and hunter success, summarized by hunting device, during the spring turkey hunting season in Michigan, 2010-2013.

Year	Number of turkey harvested by device								Hunter success by device <sup>a</sup>					
	Firearm		Crossbows		Other bows <sup>b</sup>		Unknown		Firearm		Crossbows		Other bows <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
2010	34,984	1,093	525	161	1,519	279	22	32	41	1	20	6	20	3
2011	28,831	1,017	590	170	1,143	228	23	34	37	1	17	5	17	3
2012	29,611	984	650	172	1,055	214	62	57	39	1	17	4	18	3
2013	29,875	1,018	892	202	1,071	225	93	79	39	1	22	5	18	4

<sup>a</sup>Hunters harvesting a turkey.

<sup>b</sup>Included longbows, recurve, and compound bows.

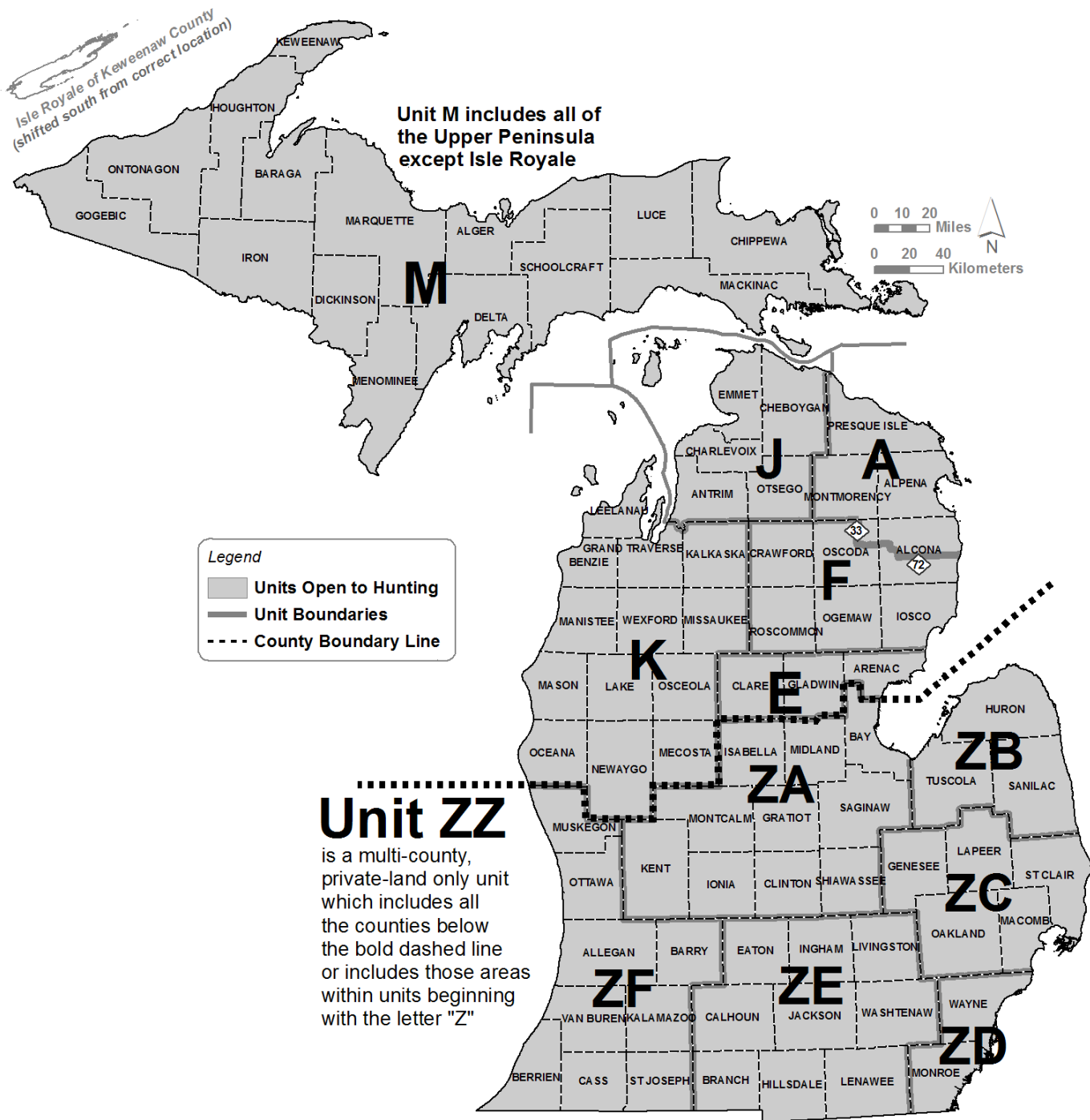
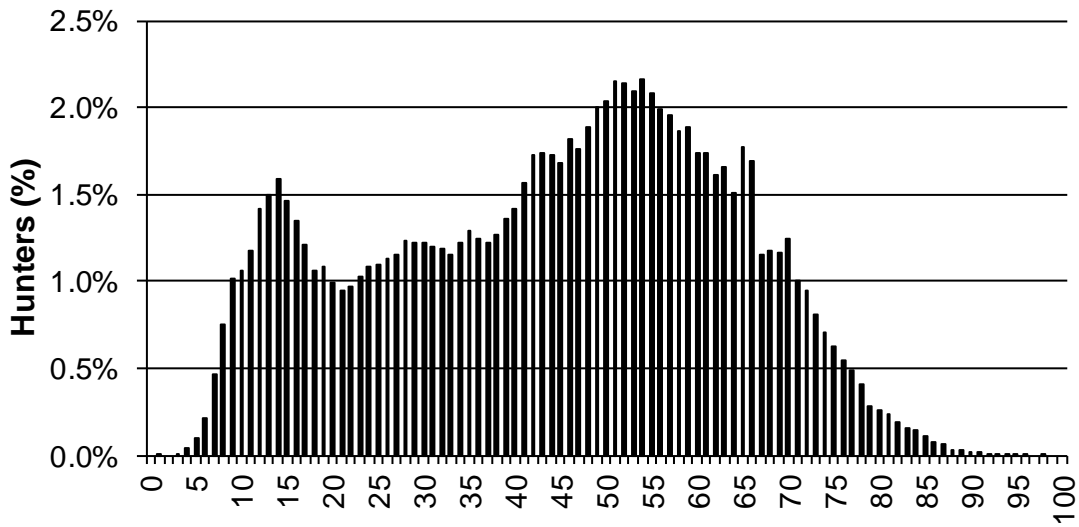


Figure 1. Management units in Michigan open to spring turkey hunting in 2013.



**Hunter's Age on April 22, 2013**

Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2013 spring hunting season ( $\bar{X} = 44$  years). Licenses were purchased by 104,279 people.

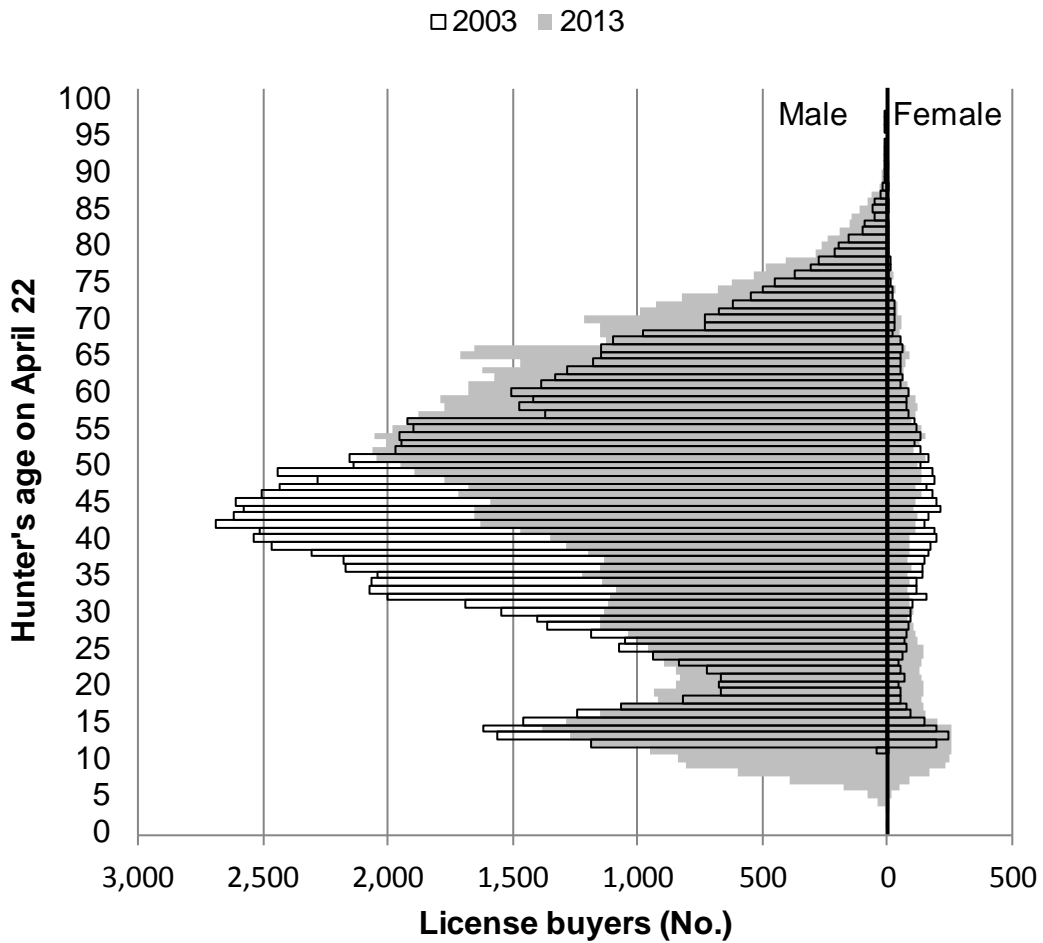


Figure 3. Number of spring turkey hunting license buyers in Michigan by age and sex during 2003 and 2013 hunting seasons. The number of people buying a license was 107,866 in 2003 and 104,279 in 2013.

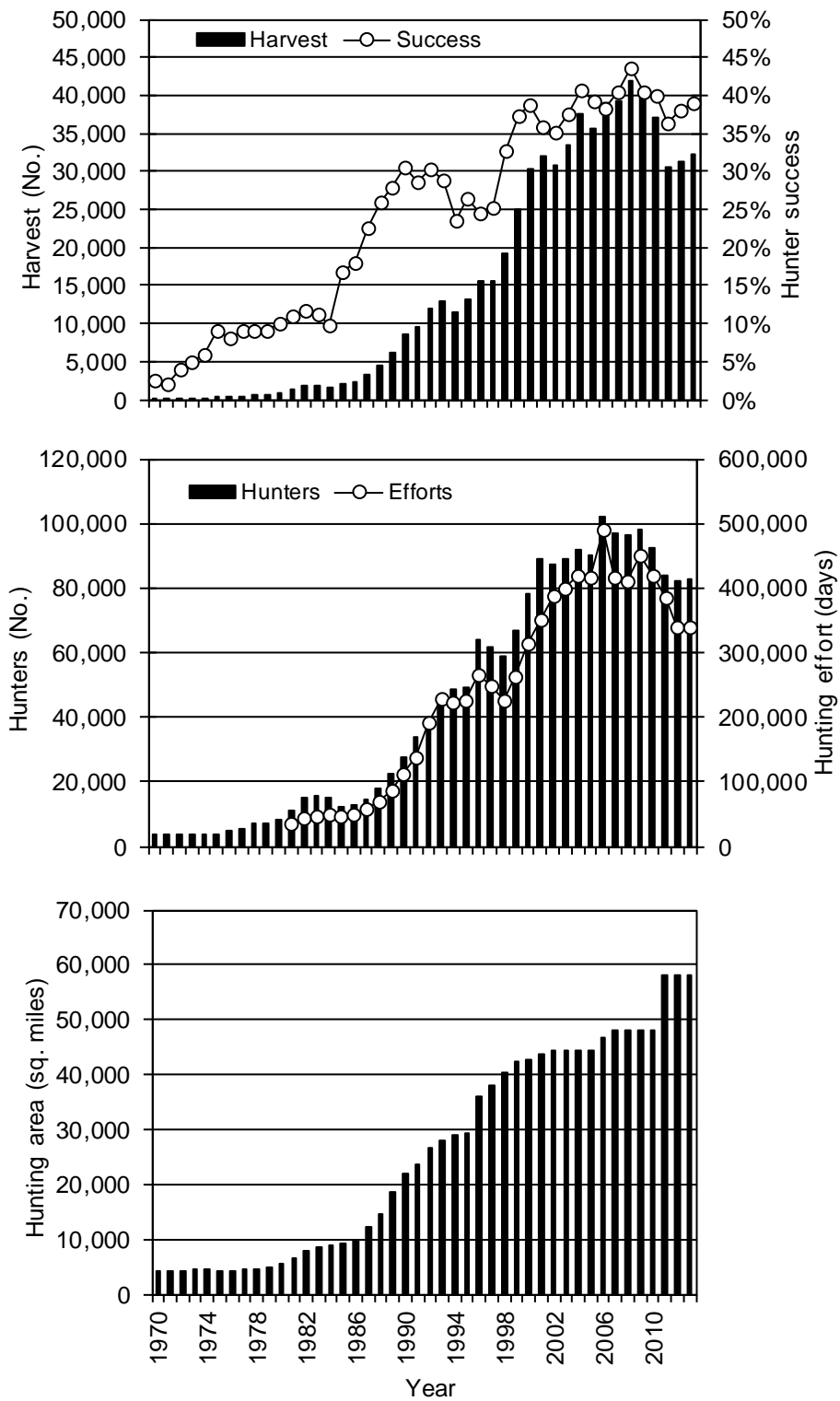


Figure 4. Estimated number of hunters, harvest, hunting efforts, hunter success, and area open to hunting during the Michigan spring turkey hunting season, 1970-2013. Estimates of hunting effort generally were not available before 1981.

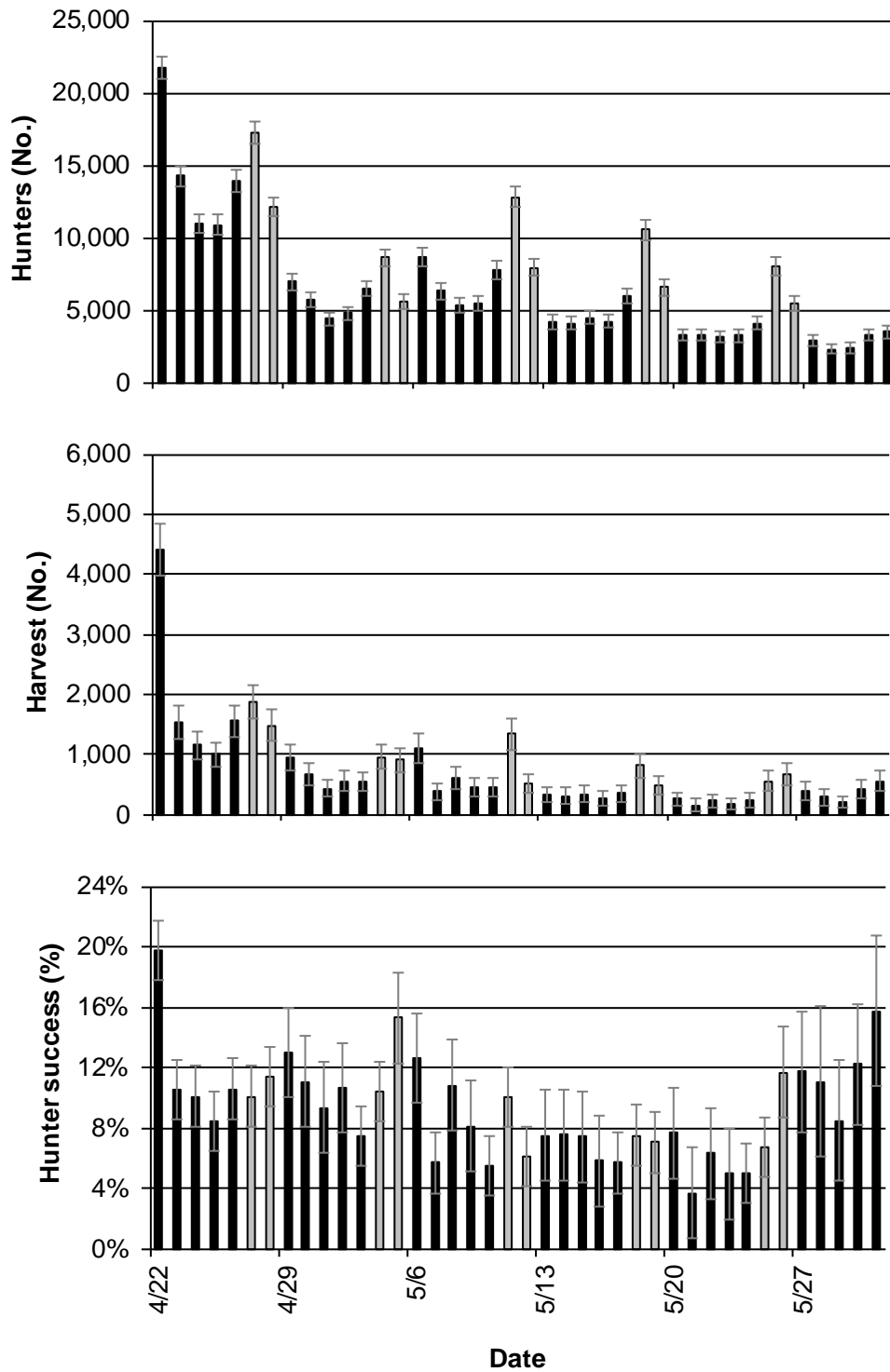


Figure 5. Estimated number of hunters, harvest, and hunter success by date during the 2013 Michigan spring turkey hunting season (includes all hunts). An additional 2,983 ± 380 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

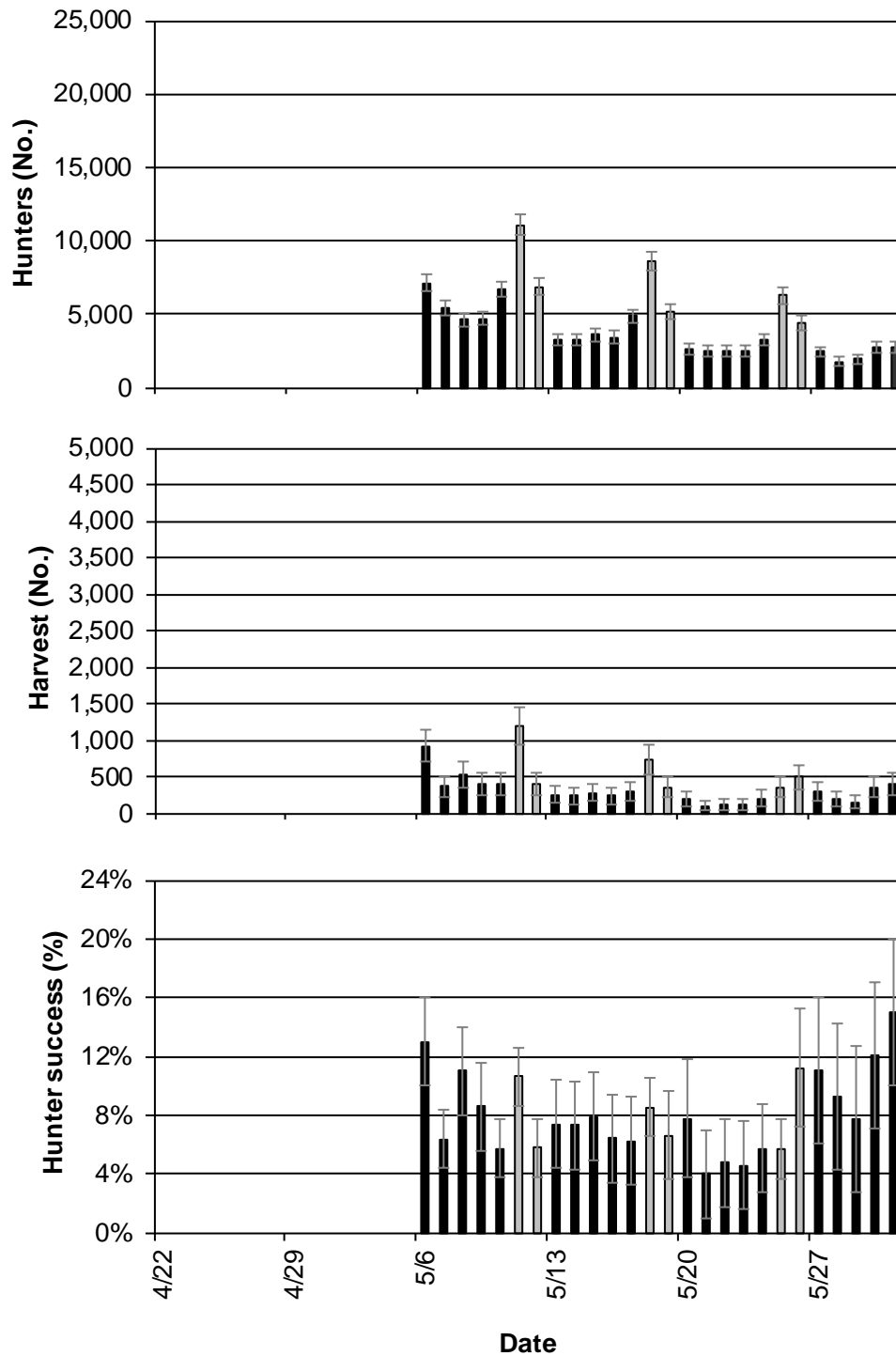


Figure 6. Estimated number of hunters, harvest, and hunter success by date during Hunt 234 of the 2013 Michigan spring turkey hunting season (May 6-31). An additional  $1,521 \pm 275$  birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.



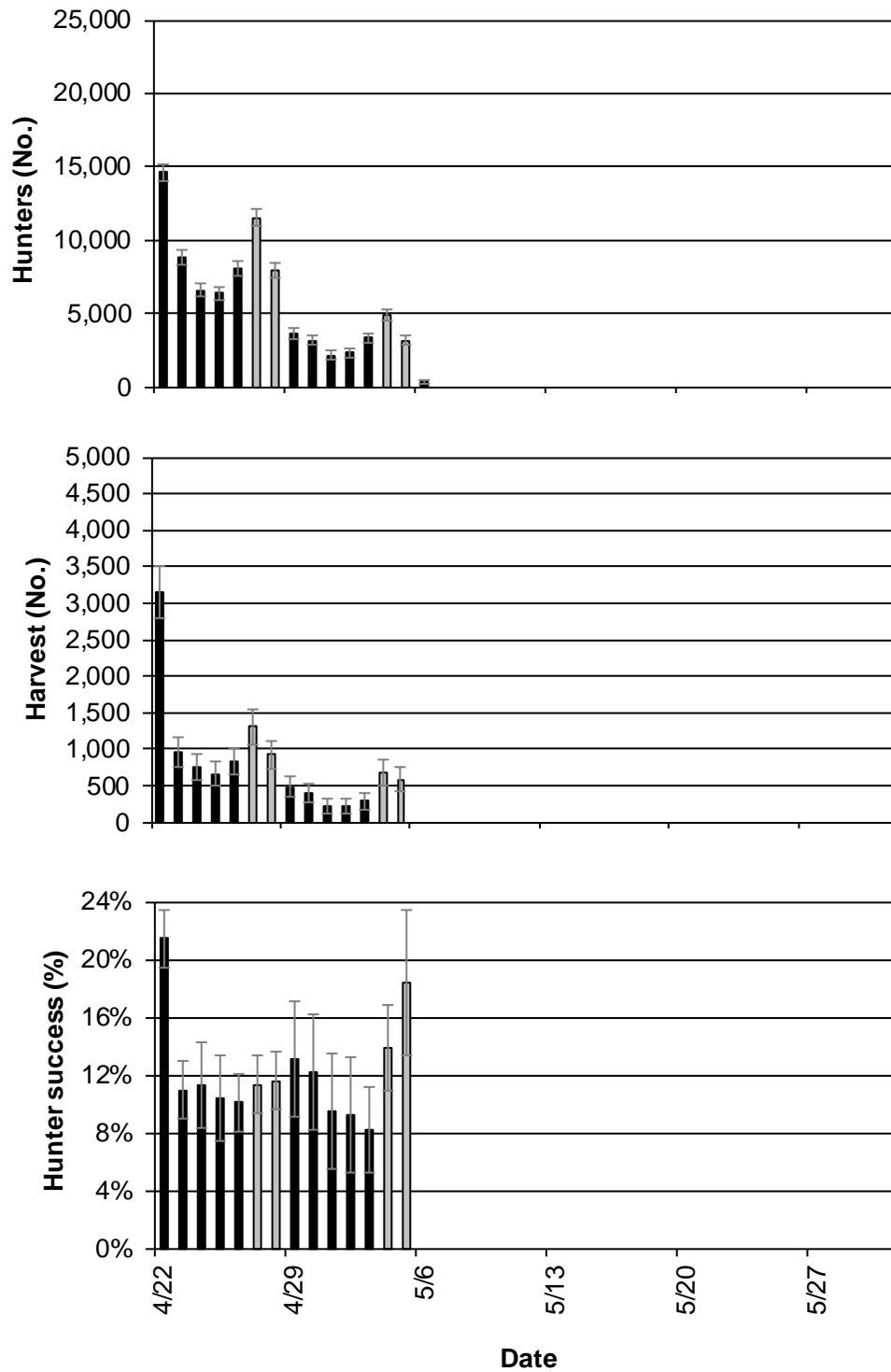


Figure 7. Estimated number of hunters, harvest, and hunter success by date during Hunt 301 of the 2013 Michigan spring turkey hunting season (April 22-May 5). An additional  $968 \pm 203$  birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

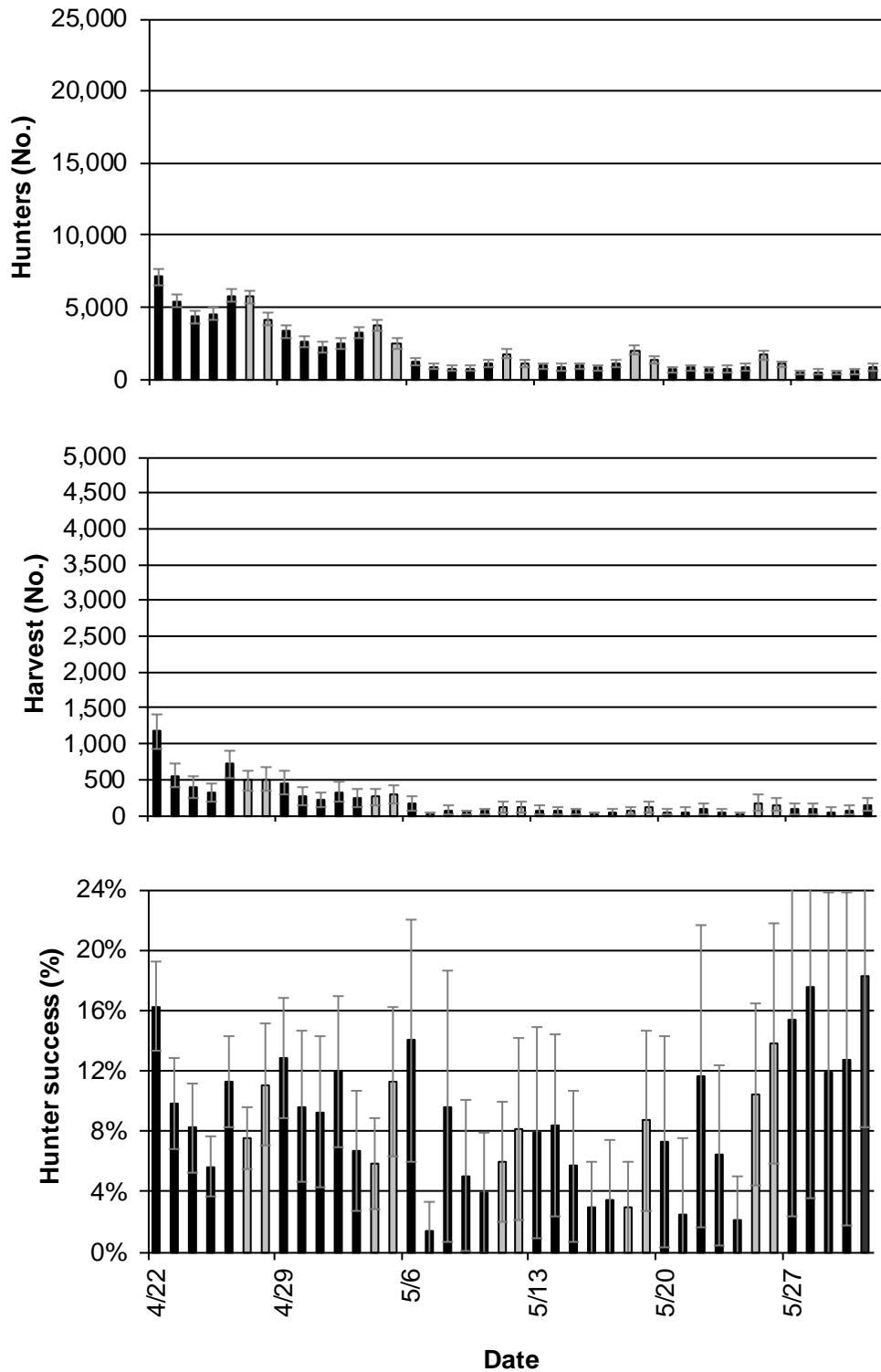


Figure 8. Estimated number of hunters, harvest, and hunter success by date during all hunts, except for mentored youth hunts and hunts 234 and 301 of the 2013 Michigan spring turkey hunting season. An additional  $480 \pm 167$  birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

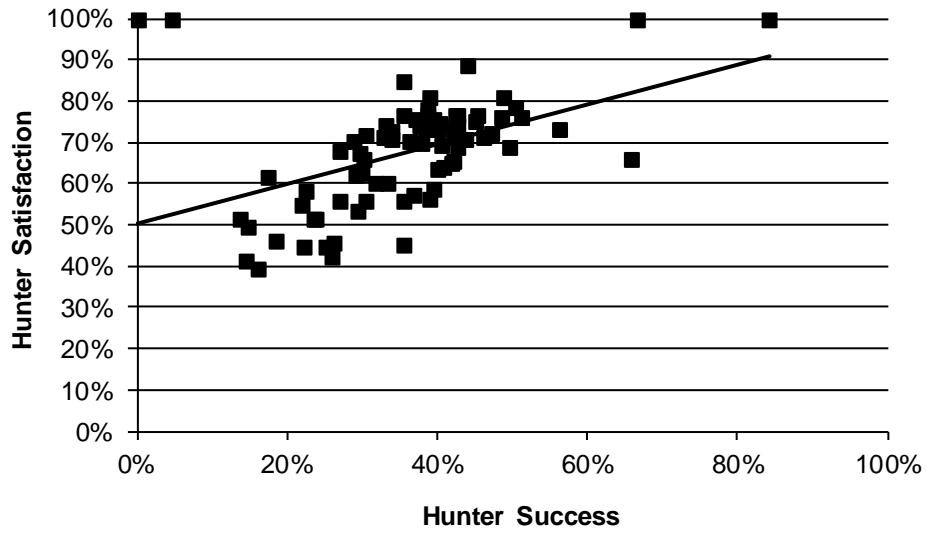


Figure 9. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter success for each of 78 counties in Michigan during the 2013 spring turkey hunting season (included only counties with at least 30 hunters).

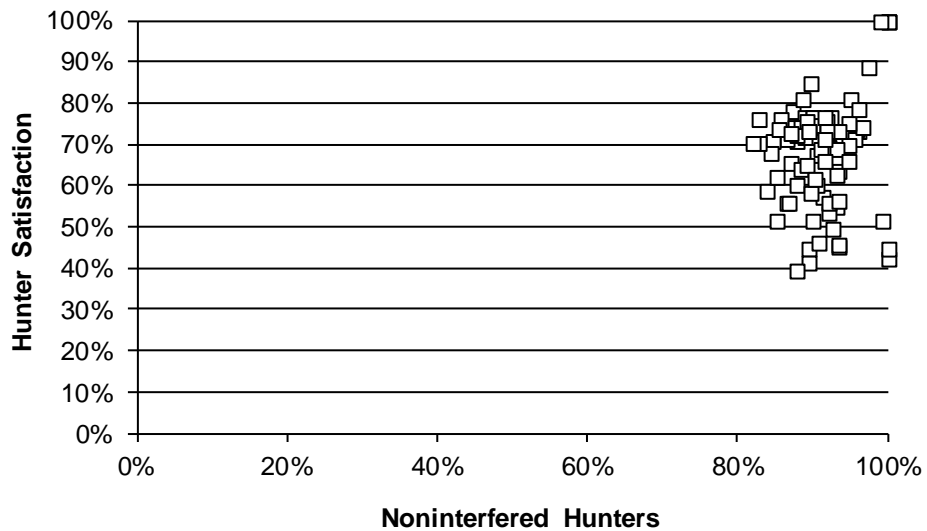


Figure 10. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter interference for each of 78 counties in Michigan during the 2013 spring turkey hunting season (included only counties with at least 30 hunters). Noninterfered hunters were the proportion of hunters that indicated that they experienced no or only minor interference from other hunters.

## Minnesota's Wild Turkey Harvest - 2013

Marrett Grund, Farmland Wildlife Populations and Research Group

Minnesota offers fall and spring turkey hunting seasons. The fall turkey season was 30 days in length (October 1-30) and allowed for an unlimited number of hunters to take one wild turkey of either sex. The spring turkey season regulated harvest and distributed hunting pressure by allocating permits across 12 permit areas (PAs; Figure 1) and 8 time periods using a quota system for the first 4 time periods. During spring, adult hunters interested in pursuing turkeys for the first 4 time periods were required to apply for a permit through a lottery system but youth hunters were able purchase a permit over-the-counter. Preference for this lottery system was determined by the number of years a valid but unsuccessful application had been submitted since last receiving a permit. Hunters could apply individually or in a group of up to 4 hunters. Successful applicants were notified through U.S. Mail and unsuccessful applicants were awarded a preference point. Hunters could simply purchase a permit for the last 4 seasons. The goal of this system was to provide quality turkey hunting opportunities by minimizing hunter interference rates while allowing hunters to take the harvestable surplus of turkeys.

*Fall 2012 Turkey Season* – This was the first year that a quota system was not used to restrict hunter numbers during the fall season. Consequently, the number of permits issued to hunters doubled from 5,382 permits in 2011 to 10,779 permits in 2012 (Table 1, Figure 2). Hunters still needed to select and hunt within one of the twelve permit areas. There were 1,753 turkeys harvested during Fall 2012, which was about 400 more turkeys than the record harvest in 2010 (Table 1). Hunter success rates averaged 16%, which was slightly below the 5-year average (22%). These lower hunter success rates may be related to hunters interested in harvesting a turkey opportunistically while pursuing other species and therefore were expending less effort; and/or allowing more casual turkey hunters who may not have as much experience with turkey hunting during the fall season. It is unlikely these reduced hunter success rates are related to fewer turkeys in the pre-hunt population because turkey population growth rates have been stable to slightly increasing throughout Minnesota (Giudice et al. 2011) and the 2011-12 winter was relatively mild, which would suggest above average survival and reproduction rates should have occurred the previous year. Weather conditions were favorable throughout the season and most crops were harvested in early- to mid-October.

*Spring 2013 Turkey Season* – There were 38,831 permits issued during the spring season, including 19,113 general/landowner permits, 5,539 youth permits, 4,550 archery permits, and 9,629 surplus permits (Table 2). Hunters registered 10,390 turkeys (Table 3), which was about 12% below the 5-year average (Figure 3). Hunter success rates averaged 30% at the statewide level, which was comparable to the 5-year average of 30% (Table 3). The winter of 2012-13 was relatively mild through February, but then measurable snow was on the ground through much of April in most of the range where turkeys were abundant in Minnesota. The impact of the delayed but extended winter weather on turkey populations is unknown, but it is reasonable to believe that the weather likely affected hunter effort and turkey activity. This likely explains much of the reduced harvest success rates and hunter participation rates, particularly during the early hunting seasons. Wisconsin and Iowa both reported similar trends in 2012 spring turkey harvests as well.

### LITERATURE CITED

GIUDICE, J. M., M. TRANEL, and K. HAROLDSON. 2011. Fall Wild turkey Population Survey, 2010. Minnesota Department of Natural Resources, St. Paul, MN, Agency Report.

Table 1. Permits available and issued, applicants, registered harvest, and hunter success rates for fall wild turkey seasons 1990 – 2012, Minnesota.

Year	Permits available	Applicants	Permits issued	Registered harvest	Hunter success (%) <sup>a</sup>
1990	1,000	4,522	951	326	34
1991	2,200	2,990	2,020	552	27
1992	2,200	2,782	2,028	588	29
1993	2,400	3,186	2,094	605	29
1994	2,500	3,124	2,106	601	29
1995	2,500	3,685	2,125	648	30
1996	2,500	4,453	2,289	685	30
1997	2,580	4,574	2,378	698	29
1998	2,710	4,526	2,483	828	33
1999	2,890	5,354	2,644	865	33
2000	3,090	5,263	2,484	735	30
2001	2,870	4,501	2,262	629	28
2002	3,790	5,180	2,945	594	20
2003	3,870	5,264	2,977	889	30
2004	4,380	5,878	3,277	758	23
2005	4,410	4,542	2,978	681	23
2006	4,290	4,167	2,802	618	22
2007	4,490	4,464	2,837	695	24
2008	7,560	5,834	4,981	1,187	24
2009	9,330	7,738	5,019	1,163	23
2010	10,430	6,869	6,607	1,353	20
2011	10,430	3,538	5,382	953	18
2012	Unlimited	N/A	10,779	1,753	16

<sup>a</sup> Success rates not adjusted for non-participation.

Table 2. Permits issued, registered harvest, and hunter success during the 2013 Minnesota spring wild turkey season.

Permit Area	Permits Issued <sup>a</sup>	Harvest	Success (%) <sup>b</sup>
501	9,050	2,639	29
502	610	169	28
503	3,961	1,255	32
504	930	278	30
505	3,150	908	29
506	1,334	317	24
507	8,107	2,628	32
508	3,868	1,170	30
509	246	102	41
510	2,788	886	32
511	133	27	20
512	38	11	29

<sup>a</sup> Permits issued for the Camp Ripley disabled veterans hunt and archery permits were not included.

<sup>b</sup> Success rates were not adjusted for non-participation.

Table 3. Permits available, permits issued, and registered harvest from 1978 – 2013 for all spring wild turkey hunting seasons in Minnesota.

Year	Permits			Registered harvest	Success (%) <sup>a</sup>
	Available	Issued	Issued (%)		
1978	420	411	97.9	94	23
1979	840	827	98.5	116	14
1980	1,200	1,191	99.3	98	8
1981	1,500	1,437	95.8	113	8
1982	2,000	1,992	99.6	106	5
1983	2,100	2,079	99.0	116	6
1984	3,000	2,837	94.6	178	6
1985	2,750	2,449	89.1	323	13
1986	2,500	2,251	90.0	333	15
1987	2,700	2,520	93.3	520	21
1988	3,000	2,994	99.8	674	23
1989	4,000	3,821	95.5	930	24
1990	6,600	6,126	92.8	1,709	28
1991	9,170	8,607	93.9	1,724	20
1992	9,310	9,051	97.2	1,691	19
1993	9,625	9,265	96.3	2,082	23
1994	9,940	9,479	95.4	1,975	21
1995	9,975	9,550	95.7	2,339	25
1996	12,131	10,983	90.5	2,841	26
1997	12,530	11,610	92.7	3,302	28
1998	14,035	13,229	94.3	4,361	33
1999	18,360	16,387	89.3	5,132	31
2000	20,160	18,661	92.6	6,154	33
2001	22,936	21,404	93.3	6,383	30
2002	24,136	22,607	93.7	6,516	29
2003	25,016	22,770	91.0	7,666	34
2004	27,600	25,261	91.5	8,434	33
2005	31,748	27,638	87.1	7,800	28
2006	32,624	27,876	85.4	8,241	30
2007 <sup>b</sup>	33,976	28,320	83.4	9,412	33
2008 <sup>b</sup>	37,992	31,942	84.1	10,994	34
2009 <sup>b</sup>	42,328	36,193	85.5	12,210	34
2010 <sup>b</sup>	55,982	46,548 <sup>c</sup>	83.0	13,467	29
2011 <sup>b</sup>	Unlimited	43,521 <sup>c</sup>	N/A	10,055	23
2012 <sup>b</sup>	Unlimited	38,906 <sup>c</sup>	N/A	11,325	29
2013 <sup>b</sup>	Unlimited	34,281 <sup>c</sup>	N/A	10,390	30

<sup>a</sup> Success rates not adjusted for non-participation

<sup>b</sup> Youth hunt data included

<sup>c</sup> Permits issued to archery hunters were not included. There were 2,462, 3,911, and 4,550 permits issued to archers in 2011, 2012, and 2013, respectively

Table 4. Permits available and issued by license type (resident and non-resident) and time period for the spring 2013 wild turkey season, Minnesota.

Time period	Permits available	Permits issued			
		General lottery	Landowner	Surplus	Youth <sup>b</sup>
A	5,705	4,807	628	1	1,284
B	5,705	4,707	271	90	221
C	5,705	5,091	236	0	1,682
D	5,705	3,307	57	1,960	958
E	Unlimited	5	0	4,844	377
F	Unlimited	0	0	856	168
G	Unlimited	4	0	1,490	499
H	Unlimited	0	0	388	350
Total <sup>a</sup>	Unlimited	17,921	1,192	9,629	5,539

<sup>a</sup> Excludes archery permit sales.

<sup>b</sup> Total excludes youth archery permits.



# 2012 Spring Wild Turkey Permit Areas

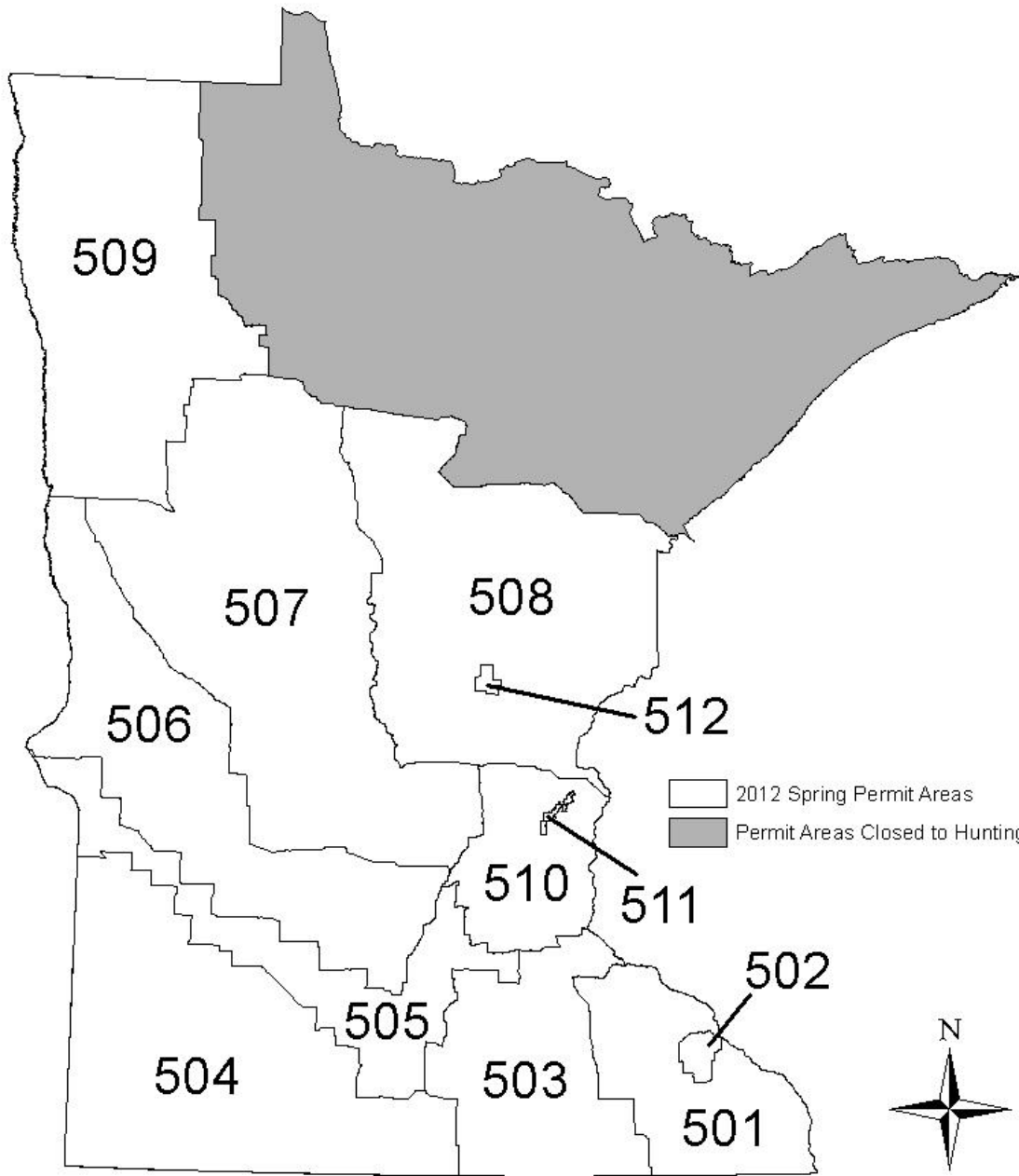


Figure 1. Permit areas open for hunting during the 2013 spring turkey hunting season, Minnesota.

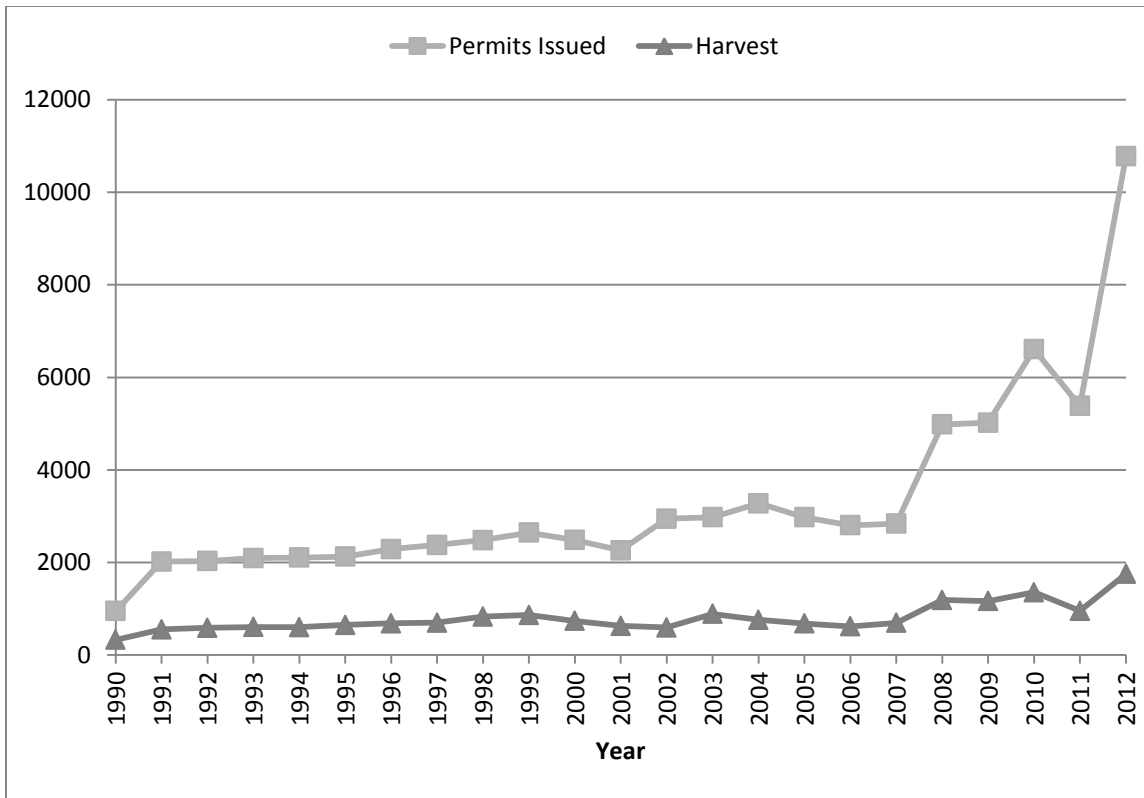


Figure 2. Permits issued and registered harvest for fall wild turkey seasons, 1990-2012, Minnesota.

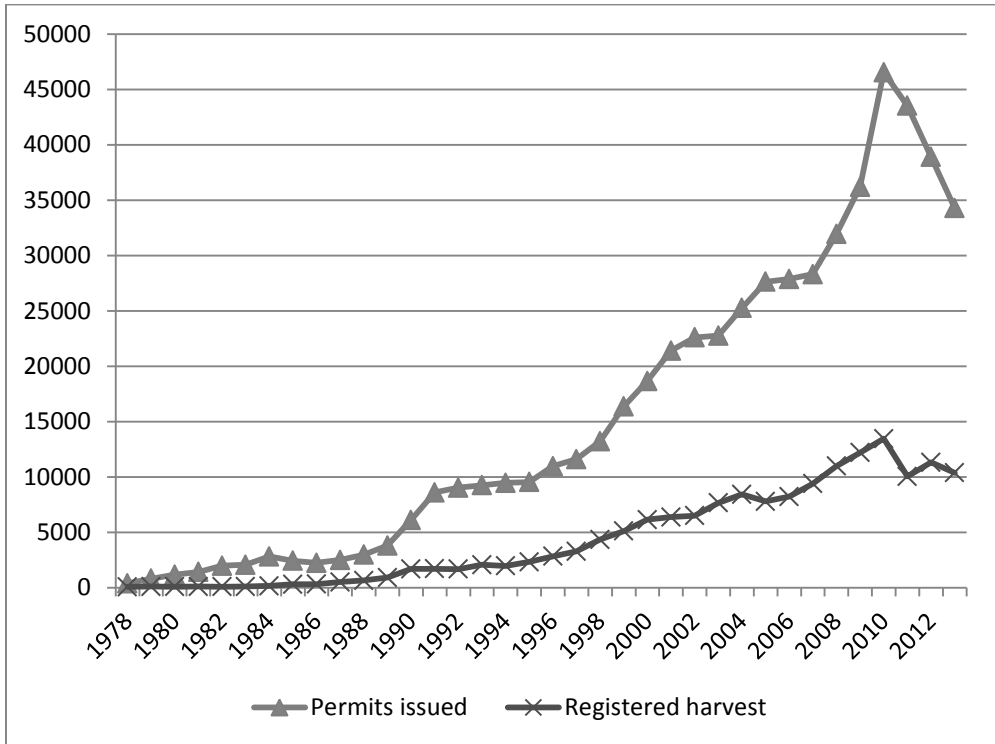


Figure 3. Permits issued and registered harvest for spring wild turkey seasons, 1978-2013, Minnesota.

# MISSOURI WILDLIFE HARVEST AND POPULATION STATUS REPORT

## WILD TURKEY – 2013

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### POPULATION STATUS

Missouri's wild turkey population estimate during spring 2013 is approximately 300,000 birds. This estimate is based on the assumption that 15% of the population was harvested during the 2013 spring season. From the late 1990s to the late 2000s, population indices indicated that the state's turkey population declined by approximately a third. During the past 5 years, statewide turkey abundance appears to be stable to slightly increasing, although there is considerable regional variation. Following a peak in abundance in the early 2000s, turkey numbers in much of western Missouri have declined by more than 50% in the last decade. While numbers in the West Prairie region of the state appear to have stabilized during the past 5 years, numbers in the Northwest region have continued to decline.

Similar to what has been observed in the Northwest and West Prairie regions, both the Northeast and Ozark Border regions of Missouri have experienced declines in turkey numbers exceeding 50% since the population peaks of the late 1990s and early 2000s. Improved production in these regions has increased turkey numbers during the past 2 years; however, turkey abundance remains well below the peak numbers observed more than a decade ago.

Wild turkey populations in the Ozark Mountains of southern Missouri have experienced declines just as in the northern and western regions of the state; however, declines have not been of the same magnitude. Within the Ozarks, wild turkey abundance has declined by approximately a third from the peak years of the early 2000s, with current numbers throughout much of the region similar to those observed during the mid to late 1990s. Following the declines that occurred during the 2000s, turkey numbers throughout the Ozarks have shown an increasing trend during the past 5 years, resulting mostly from improved production during 2011 and 2012. In the Lindley Breaks and Union Breaks regions of central, east-central, and southeast Missouri, turkey numbers during the past 5 years have been relatively stable to slightly increasing after declining by approximately a third since the late 1990s and early 2000s.

Throughout most of Missouri, wild turkey production showed an increasing trend during the late 1990s and early 2000s. During the following decade, data from the wild turkey brood survey indicated a considerable decline in production. During 2011 and 2012, production increased throughout most of the state. Declines in production following peak population numbers, coupled with the increasing trend in production observed since the late 2000s, could be indicative of a density-dependent effect on production.

## REPRODUCTION – WILD TURKEY BROOD SURVEY

The Missouri Department of Conservation (MDC) has been conducting a wild turkey brood survey annually since 1959. During the survey, Department staff and citizen volunteers record observations of hens and poults (and gobblers since 2008) during June, July, and August. Turkey sightings are recorded on observation cards, which MDC mails to participants at the beginning of each survey month. By recording observations of hens and poults, survey participants provide information that serves as an index to turkey production. It is through this survey that MDC determines the success of each year's turkey hatch. Turkey observations are collected at the county-level and analyzed by Turkey Productivity Region (Figure 1), which are counties grouped by similar land cover composition.

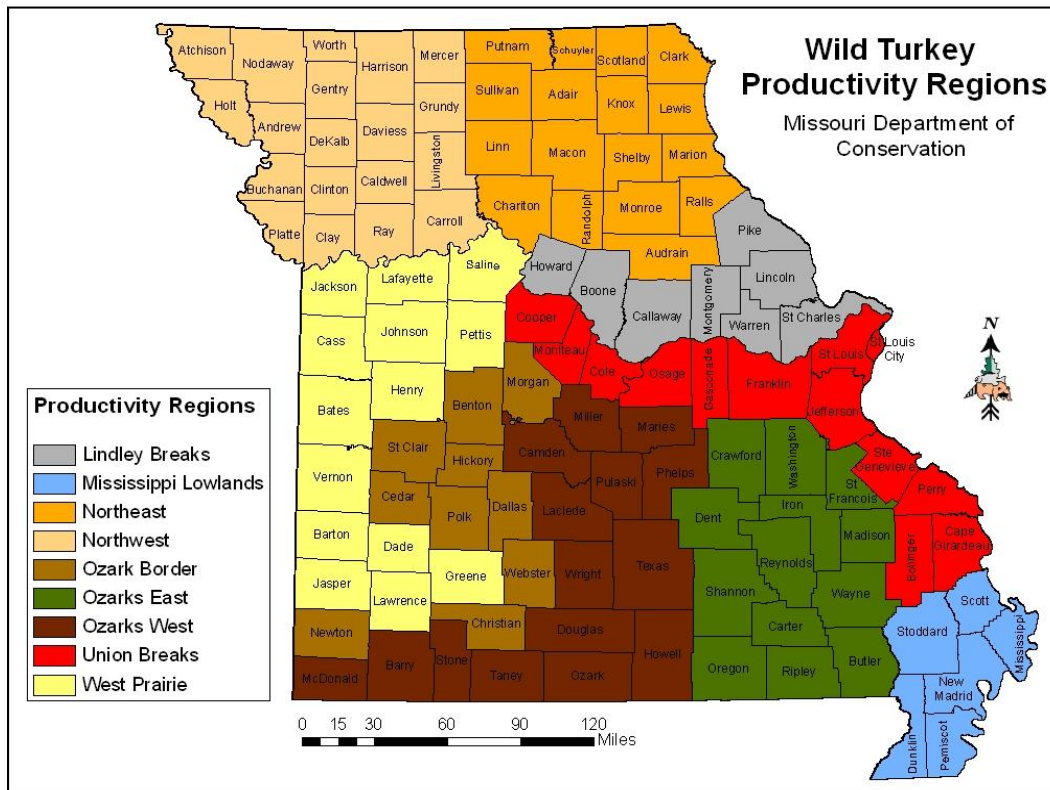


Figure 1. Turkey Productivity Regions in Missouri. Each region consists of counties grouped by similar land cover composition.

MDC staff determines the percentage of hens observed with and without poults, as well as the average number of poults per hen for those hens observed with a brood. Observations of hens and poults are also used to calculate a productivity index, which is reported as the average number of poults per hen. The productivity index includes observations of hens observed with and without broods. Observations of more than 2 hens per brood are not included in the index.

In 2012, MDC staff and citizen volunteers recorded observations of over 60,000 turkeys during the 3-month survey, including 3,973 broods (Table 1). At the statewide scale, 48% of hens were observed with poults (Table 2). The percentage of hens observed with a brood ranged from 45% in the Northeast region to 69% in the

Mississippi Lowlands region. Statewide, the average brood size was 4.2 poult (Table 2). Average brood size ranged from 3.9 poult in the Lindley Breaks region to 4.6 poult in the Ozarks East and Ozarks West regions. Table 1. Wild turkey observations by Turkey Productivity Region (Figure 1). Data were obtained during Missouri's wild turkey brood survey conducted in June, July, and August, 2012.

Productivity Region	Hens w/ Broods	Hens w/o Broods	Total Hens	<u>Poults</u>	Broods	Gobblers
Lindley Breaks	863	1,010	1,873	3,374	454	1,287
Mississippi Lowlands	184	81	265	799	74	171
Northeast	888	1,072	1,960	3,652	475	1,536
Northwest	582	672	1,254	2,498	324	1,129
Ozark Border	805	950	1,755	3,353	418	1,474
Ozarks East	941	570	1,511	4,337	481	883
Ozarks West	965	1,136	2,101	4,417	492	1,254
Union Breaks	1,745	1,930	3,675	7,017	877	2,324
West Prairie	724	808	1,532	3,064	346	1,199
<b>Statewide</b>	<b>7,766</b>	<b>8,271</b>	<b>16,037</b>	<b>32,768</b>	<b>3,973</b>	<b>11,301</b>

The 2012 statewide productivity index of 1.7 was identical to the 2011 index, and 42% higher, 21% higher, and 6% lower than the 5, 10, and 20-year statewide indices, respectively (Table 3). Among Turkey Productivity Regions, index values ranged from 1.5 in the Northeast, Union Breaks, and West Prairie regions to 2.5 in the Ozarks East region (Table 3).

Table 2. Wild turkey brood survey data by Turkey Productivity Region (Figure 1). Data were obtained during Missouri's wild turkey brood survey conducted in June, July, and August, 2012.

Productivity Region	<u>% Hens w/ Poults</u>	Average Brood Size	<u>Productivity Index<sup>a</sup></u>	Gobblers Per Hen
Lindley Breaks	46%	3.9	1.6	0.69
Mississippi Lowlands	69%	4.3	2.3	0.65
Northeast	45%	4.1	1.5	0.78
Northwest	46%	4.3	1.7	0.90
Ozark Border	46%	4.2	1.7	0.84
Ozarks East	62%	4.6	2.5	0.58
Ozarks West	46%	4.6	1.6	0.60
Union Breaks	47%	4.0	1.5	0.63
West Prairie	47%	4.2	1.5	0.78
<b>Statewide</b>	<b>48%</b>	<b>4.2</b>	<b>1.7</b>	<b>0.70</b>

<sup>a</sup> Average number of poult per hen. Observations of >2 hens per brood are not included.

Table 3. Productivity index<sup>a</sup> listed by Turkey Productivity Region (Figure 1). Data were obtained from the 2012 brood survey and are compared to previous years. For each interval value, the % change indicates how the 2012 index compares to the previous year or the average for periodic intervals.

Productivity Region	2012 Index	1-year (2011) Change	5-year (2007-2011) Change	10-year (2002-2011) Change	20-year (1992-2011) Change
Lindley Breaks	1.6	-30%	+14%	+7%	-16%
Mississippi Lowlands	2.3	+29%	+38%	-4%	+5%
Northeast	1.5	-29%	+25%	+15%	-12%
Northwest	1.7	+21%	+55%	+21%	-11%
Ozark Border	1.7	+6%	+55%	+31%	0%
Ozarks East	2.5	+14%	+67%	+56%	+32%
Ozarks West	1.6	+7%	+33%	+14%	-6%
Union Breaks	1.5	-6%	+15%	+7%	-12%
West Prairie	1.5	+7%	+50%	+25%	-17%
<b>Statewide</b>	<b>1.7</b>	<b>0%</b>	<b>+42%</b>	<b>+21%</b>	<b>-6%</b>

<sup>a</sup> Average number of poults per hen. Observations of >2 hens per brood are not included.

The highest production in 2012 occurred in portions of southeast Missouri, where the index exceeded 2.0 poults per hen. Notable improvements occurred in the Northwest, Ozark Border, and West Prairie regions (Figure 1), where index values were at least 50% higher than the previous 5-year average (Table 3).

Statewide, Missouri's productivity index peaked at 4.6 in 1971 and has steadily declined since the late 1980s, other than an increase in production that occurred during the late 1990s (Figure 2). Production had been especially poor in recent years, with the statewide index exceeding 1.5 only once between 2005-2010. The 2011 and 2012 hatches represent considerable improvements from those of recent years and should serve to bolster turkey numbers throughout much of Missouri.

## Index of Wild Turkey Production in Missouri

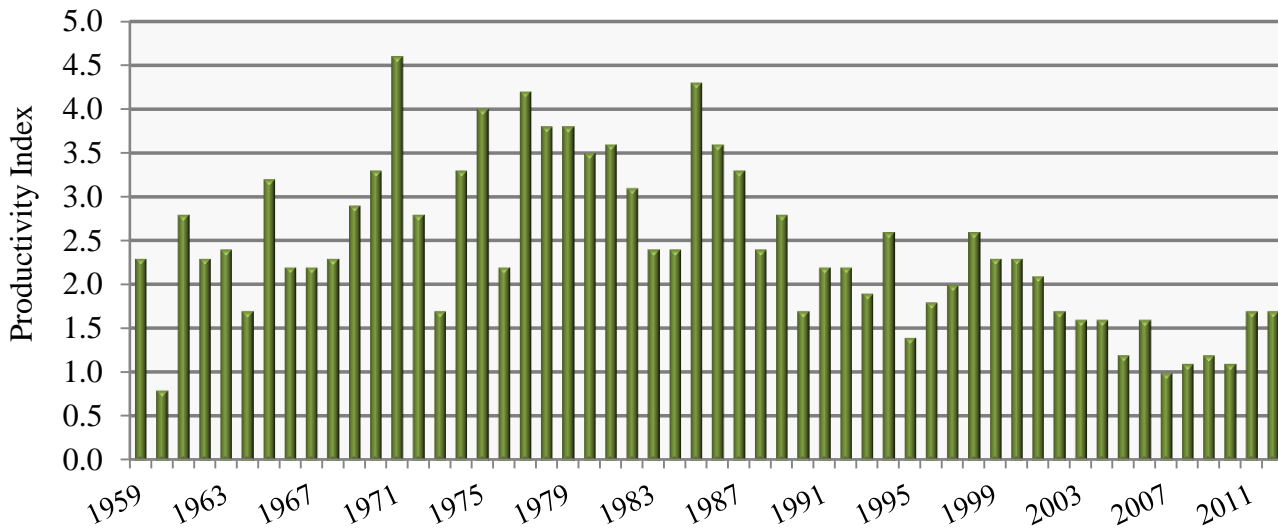


Figure 2. Missouri statewide productivity index values (average number of poult per hen) from the wild turkey brood survey conducted in June, July, and August, 1959-2012. Observations of >2 hens per brood are not included.

### RESTORATION

Turkey translocations have not occurred since the winter of 2006-2007 when 100 birds were released in the Mississippi Lowlands region (Figure 1). Missouri's primary efforts to establish wild turkey populations ended in 1979 after several thousand turkeys had been translocated to areas identified as having suitable habitat but no turkey population. The recent attempts since 2000 to translocate wild turkeys into southwest and southeast Missouri, where turkeys already exist at relatively low densities, have been only marginally successful. Because of the high cost of translocation and the marginal potential for long-term population increase in areas already containing turkeys, translocation of turkeys is currently a low priority for the Department.

### HARVEST

#### *2013 Spring Turkey Season*

During the 2013 youth spring turkey season, which took place on April 6-7, hunters harvested 3,915 turkeys. This harvest total represents a 9% decrease from the 2012 youth season harvest, and was 9% higher than the previous 5-year average. The 2013 youth season harvest was the third highest since the season was initiated in 2001. Hunters harvested 42,220 turkeys during the 21-day regular spring turkey season, which ran from April 15 – May 5. This harvest total represents a 4% increase from the 2012 regular season harvest, and is 2% higher than the previous 5-year average.

Juvenile male turkeys represented 18% of the regular season harvest, which is 15% lower than the previous 5-year average. Improved production in 2011 appears to have had an effect on the percentage of juvenile males harvested during the 2013 season. It appears that the abundance of 2-year old male turkeys present during 2013 may have reduced the harvest of juvenile males, causing divergence in the relationship between the percentage of juvenile males harvested and the previous year's productivity index (Figure 3). The total 2013 spring harvest, including both the youth and regular seasons, was 46,141. This harvest total represents a 3% increase from the 2012 harvest, and is 3% higher than the previous 5-year average (Table 4). Counties with the highest total



spring harvest in 2013 were Franklin, Texas, and Callaway, where 1,102, 937, and 786 turkeys were harvested, respectively (Figure 4).

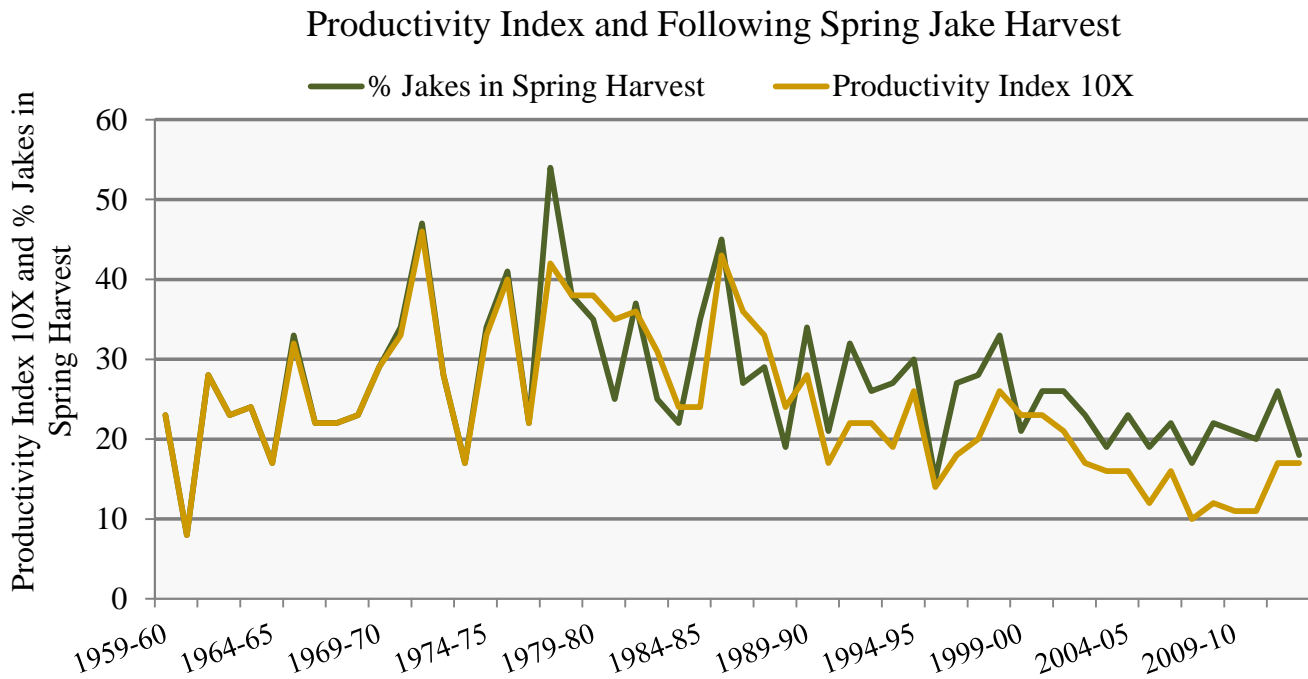


Figure 3. Missouri’s statewide wild turkey productivity index multiplied by 10, compared with the percentage of jakes in the following year’s spring harvest, 1959-2013. Observations of >2 hens per brood are not included in productivity index calculations.

Table 4. Total spring turkey harvest and permit sales<sup>a</sup> in Missouri, 1987-2013<sup>b</sup>.

Year	Spring Harvest	% Change From Previous Year	Spring Permit Sales <sup>a</sup>	% Change From Previous Year
1987	35,951	+16.1	85,723	+9.9
1988	33,187	-7.7	94,301	+10.0
1989	35,618	+7.3	92,901	-1.5
1990	30,056	-15.6	92,093	-0.9
1991	32,237	+7.3	89,077	-3.3
1992	33,035	+2.5	89,803	+0.8
1993	34,354	+4.0	89,899	+0.1
1994	37,721	+9.8	90,810	0.0
1995	37,472	-1.2	99,412	+8.8
1996	37,708	+0.3	99,879	+0.5
1997	33,216	-12.4	99,933	+0.1
1998 <sup>c</sup>	48,462	+45.9 <sup>c</sup>	105,518	+5.6
1999	50,299	+3.8	110,939	+5.1
2000	56,841	+13.0	115,190	+3.8
2001 <sup>d</sup>	57,842	+1.7	117,736	+2.2
2002	57,034	-1.3	125,157	+6.3
2003	58,421	+2.4	130,021	+3.8
2004	60,744	+3.9	124,533	-4.2
2005	57,743	-5.2	120,215	-3.5
2006	54,712	-5.2	114,529	-4.8
2007	48,472	-11.0	115,897	+1.2
2008	46,134	-4.4	115,047	-0.7
2009	44,713	-3.5	112,579	-2.1
2010	46,194	+3.3	105,501	-6.3
2011	42,220	-8.6	101,106	-4.2
2012	44,766	+6.0	101,534	+0.4
2013	46,141	+3.0	115,020	+13.3

<sup>a</sup> Does not include no-cost landowner permits.

<sup>b</sup> First modern spring turkey season held in 1960.

<sup>c</sup> Season length increased to 21 days.

<sup>d</sup> 2-day youth season initiated.

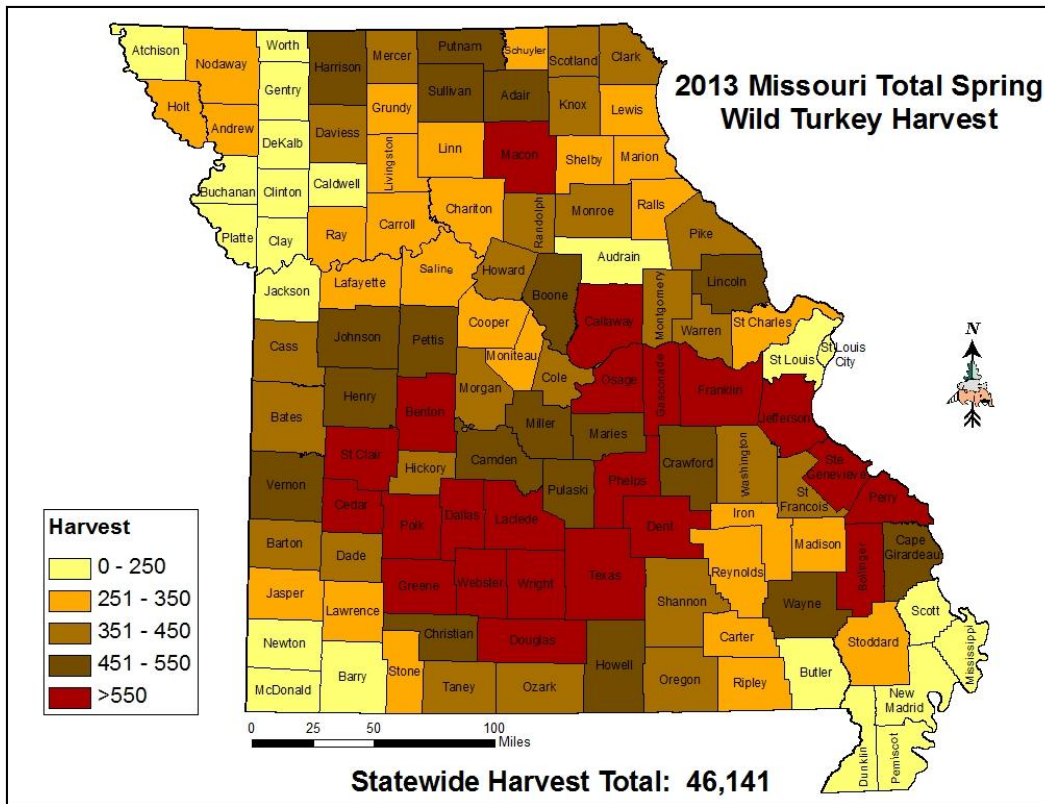


Figure 4. Total spring wild turkey harvest in Missouri, 2013.

Spring turkey hunting in Missouri is a substantial recreational activity with typically more than 500,000 days spent afield annually. Total permit sales for the 2013 spring turkey season (115,020; excluding no-cost landowner permits) increased by 13% from the 2012 spring permit sales total. Spring turkey permit sales during 2013 remain 12% below the permit sales record set in 2003 (130,021; Figure 5, Table 4). Spring turkey permit sales in 2013 included 107,932 (94%) resident permits and 7,088 (6%) nonresident permits. An additional 45,623 no-cost permits were distributed to landowners. The total number of spring turkey hunters in Missouri in 2013 was 155,489 (note that the total number of hunters does not equal the permit sales total, as some hunters purchase a permit in addition to receiving a no-cost landowner permit).

## Missouri Spring Wild Turkey Harvest and Permit Sales

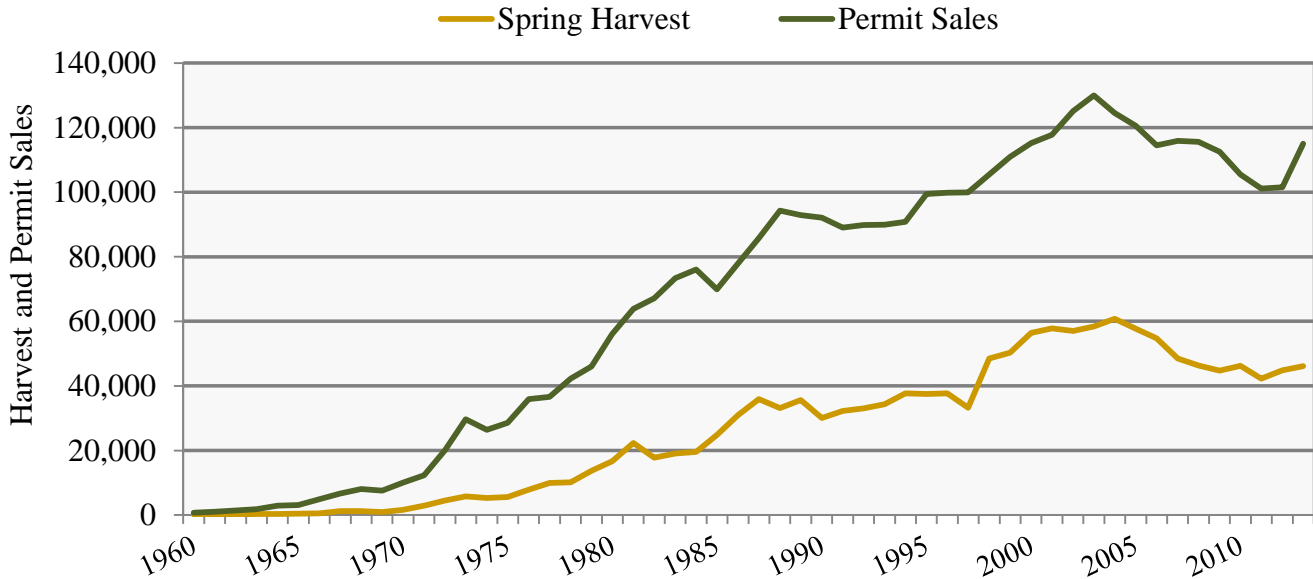


Figure 5. Number of wild turkeys harvested during the spring season (youth and regular seasons) in Missouri, and the number of turkey hunting permits sold for the spring season, 1960-2013. Permit sales do not include no-cost landowner permits.

Spring turkey harvest in Missouri during 2013 was 24% below the record harvest of over 60,000 birds in 2004. Spring turkey hunter success has stabilized since 2007, after declining from 2000-2006 (Figure 6). Based on harvest and hunter effort data, the success rate for permit-buyers that hunted during the 2012 spring season was 31%. The previous 5 and 10-year average success rates for permit-buyers were 30% and 33%, respectively. Spring turkey hunter success rates during the 2013 season were not available prior to completion of this document.

## Spring Turkey Hunter Success Rates in Missouri

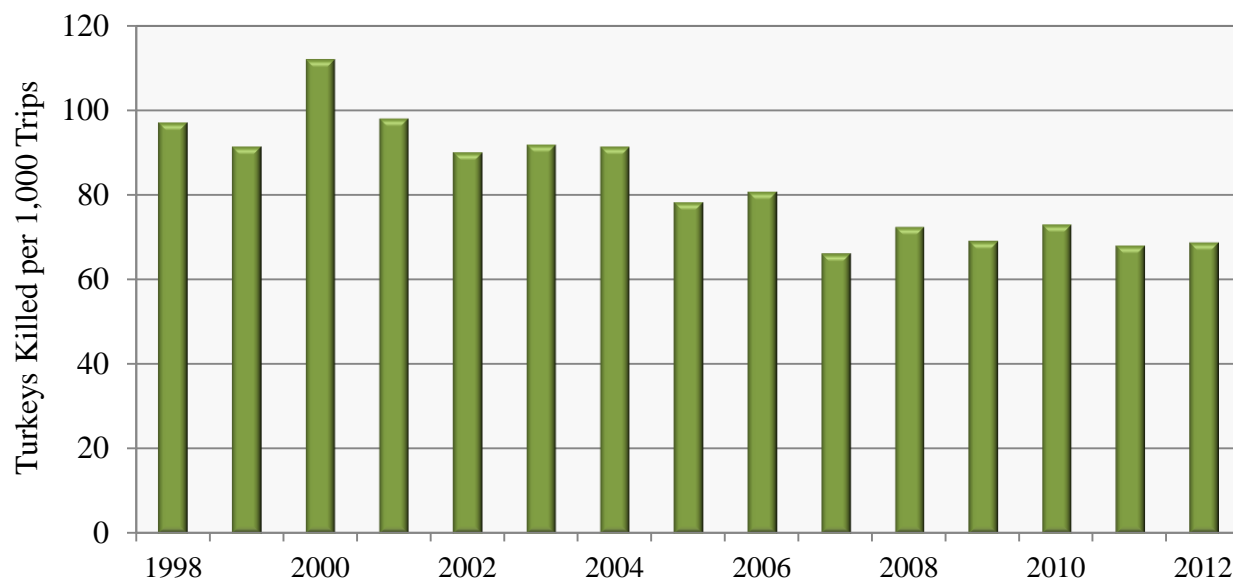


Figure 6. Statewide spring turkey hunter success rates in Missouri. Data are the number of turkeys harvested per 1,000 hunting trips, 1998-2012. Harvest data were obtained from the Telecheck reporting system and trip data from post-season turkey hunter surveys. Spring turkey hunter success rates during the 2013 season were not available prior to completion of this document.

### ***2012 Fall Firearms Turkey Season***

The 2012 fall firearms turkey harvest total of 8,498 represents a 20% increase in harvest from the 2011 season, and was 7% higher than the previous 5-year average. The majority of the fall firearms harvest occurred in southern Missouri (Figure 7). The top 3 counties in harvest were Webster, Laclede, and Greene, where 225, 223, and 216 turkeys were harvested, respectively.

The increase in fall firearms turkey harvest in 2012 was likely due in part to a greater abundance of turkeys on the landscape throughout much of Missouri. In addition to increased turkey numbers, fall firearms turkey permit sales increased by 9% in 2012. Of the 16,413 fall firearms turkey permits sold in 2012, 16,161 (98%) were purchased by Missouri residents and 252 (2%) by nonresidents; an additional 63,715 no-cost permits were distributed to landowners. Although permit sales increased in 2012, fall firearms turkey hunting in Missouri has generally been declining in popularity since the late 1980s when over 50,000 permits were sold and over 28,000 turkeys were harvested during the 14-day season (Figure 8, Table 5).

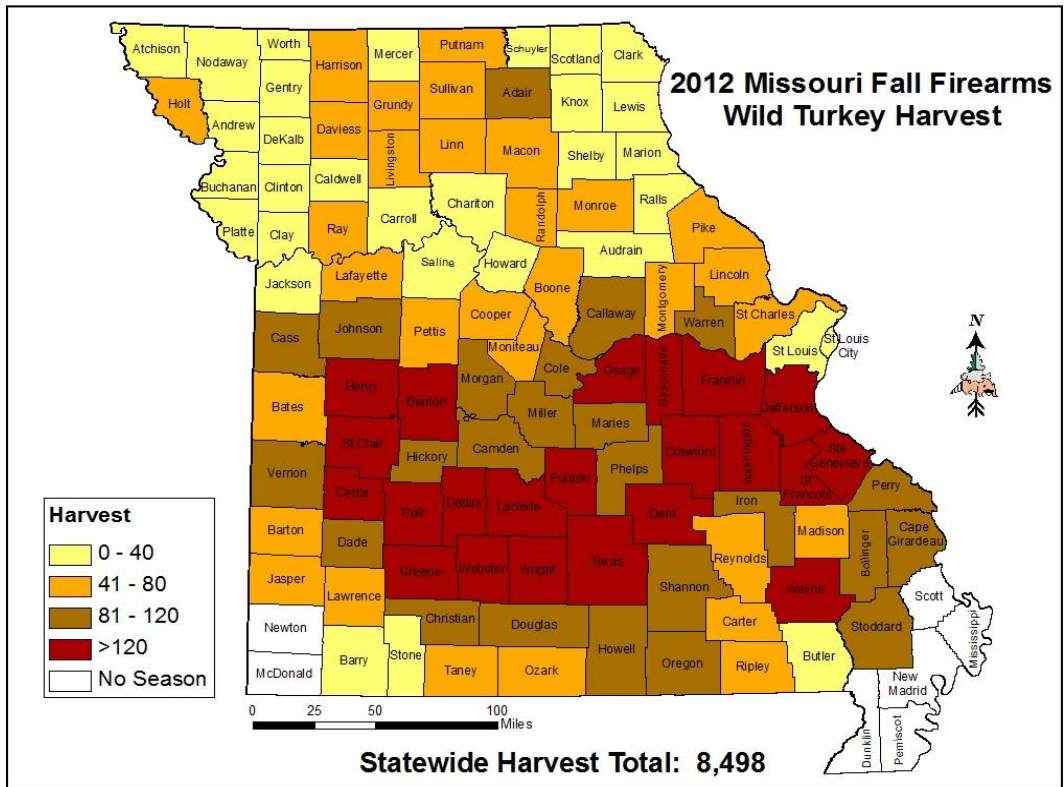


Figure 7. Missouri fall firearms wild turkey harvest, 2012.

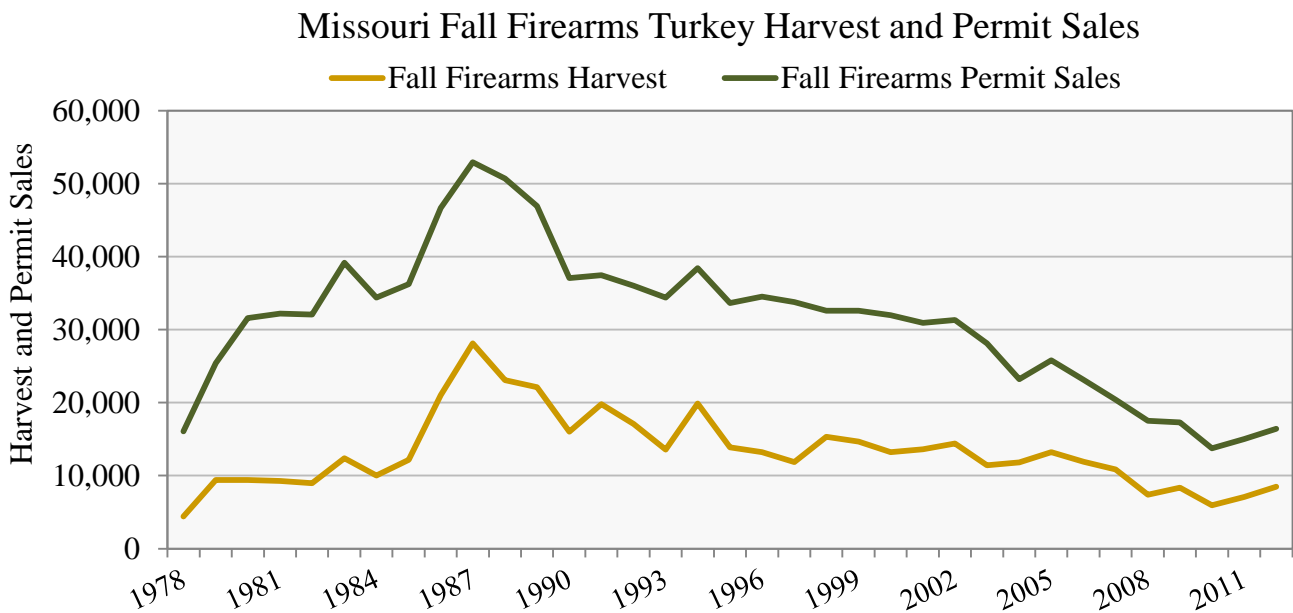


Figure 8. Number of wild turkeys harvested during the fall firearms turkey season in Missouri, and the number of fall firearms permits sold, 1978-2012. Permit sales do not include no-cost landowner permits.

Table 5. Fall firearms turkey harvest and permit sales<sup>a</sup> in Missouri, 1987-2012<sup>b</sup>.

Year	Fall Firearms Harvest	% Change From Previous Year	Fall Permit Sales <sup>a</sup>	% Change From Previous Year
1987	28,139	+33.9	52,922	+13.4
1988	23,080	-18.0	50,715	-4.2
1989	22,131	-4.1	46,946	-7.4
1990	16,015	-27.6	37,080	-21.0
1991	19,788	+23.6	37,469	+1.0
1992	17,061	-13.8	36,033	-3.8
1993	13,569	-20.4	34,379	-4.6
1994	19,869	+46.4	38,424	+11.8
1995	13,866	-30.2	33,642	-12.6
1996	13,207	-4.8	34,522	+2.6
1997	11,866	-10.2	33,765	-2.2
1998	15,343	+29.3	32,593	-3.5
1999	14,651	-4.5	32,606	0.0
2000	13,230	-9.7	31,968	-2.0
2001	13,596	+2.8	30,949	-3.2
2002	14,392	+5.9	31,329	+1.2
2003	11,436	-20.5	28,108	-10.3
2004	11,824	+3.4	23,215	-17.4
2005 <sup>c</sup>	13,233	+11.9	25,805	+11.2
2006	11,927	-9.9	23,141	-10.3
2007	10,859	-9.0	20,397	-11.9
2008	7,389	-32.0	17,533	-14.0
2009	8,351	+13.0	17,287	-1.4
2010	5,928	-29.0	13,736	-20.5
2011	7,077	+19.4	15,020	+9.3
2012	8,498	+20.1	16,413	+9.3

<sup>a</sup> Does not include no-cost landowner permits.

<sup>b</sup> First modern fall firearms turkey season held in 1978.

<sup>c</sup> Season length increased to 31 days.

## 2012 Fall Archery Turkey Season

Hunters harvested 3,217 turkeys during the 2012 fall archery turkey season (Figure 9), the second highest archery harvest since the season's inception in 1975 (Figure 10). The 2012 archery turkey harvest total represents a 10% increase from the 2011 season, and was 20% higher than the previous 5-year average. Unlike the fall firearms turkey harvest, which has shown a general declining trend since the late 1980s (Figure 8), the fall archery harvest continued to increase until the mid-2000s. Since 2005, archery turkey harvests have fluctuated substantially on an annual basis (Figure 10, Table 6).

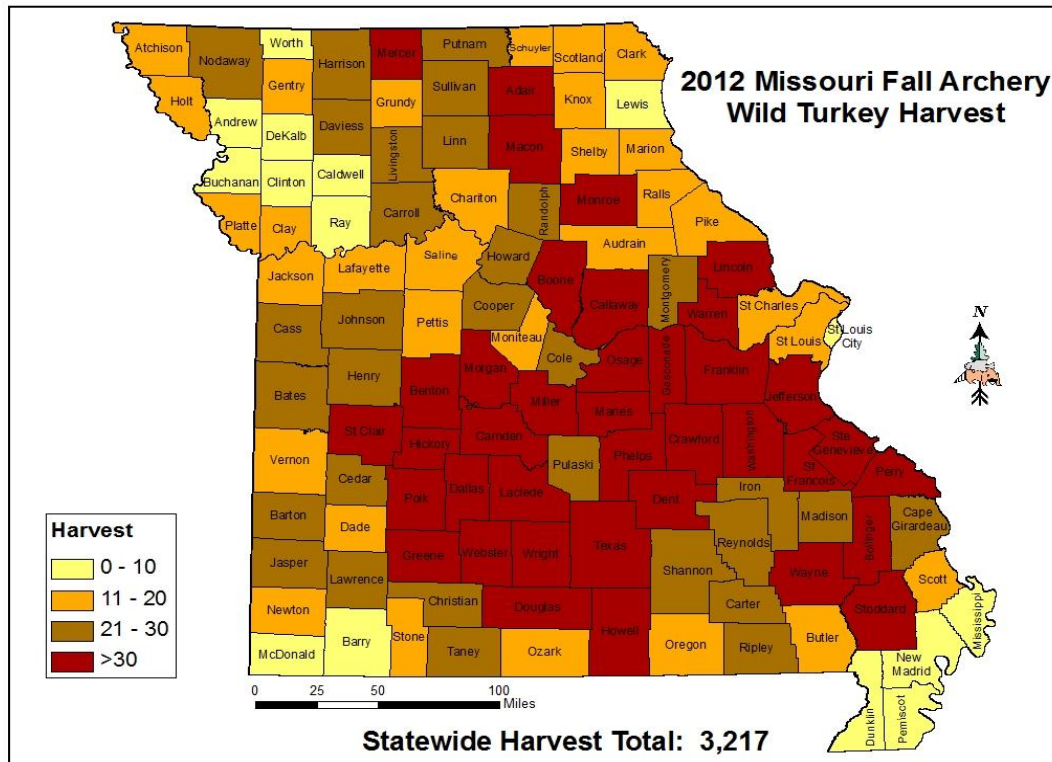


Figure 9. Missouri fall archery wild turkey harvest, 2012.

Although archery permit sales were relatively stable from the mid-1990s through the mid-2000s, permit sales have since shown an increasing trend (Figure 11, Table 6). In 2012, 116,209 permits were sold; the highest number since the season's inception. Of the 116,209 archery permits sold in 2012, 107,787 (93%) were purchased by Missouri residents and 8,422 (7%) by nonresidents. An additional 86,212 no-cost landowner permits were distributed, which brought the total number of archery permits in 2012 to 202,421.



### Missouri Fall Archery Turkey Harvest

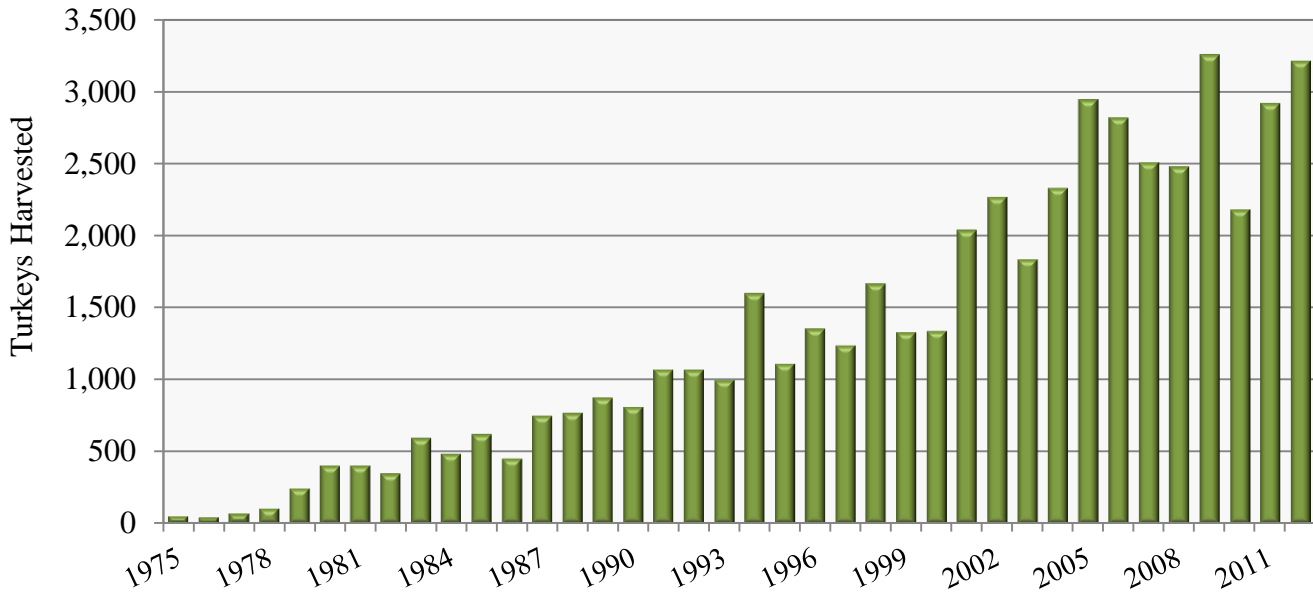


Figure 10. Missouri fall archery wild turkey harvest, 1975-2012.

### Missouri Fall Archery Deer and Turkey Permit Sales

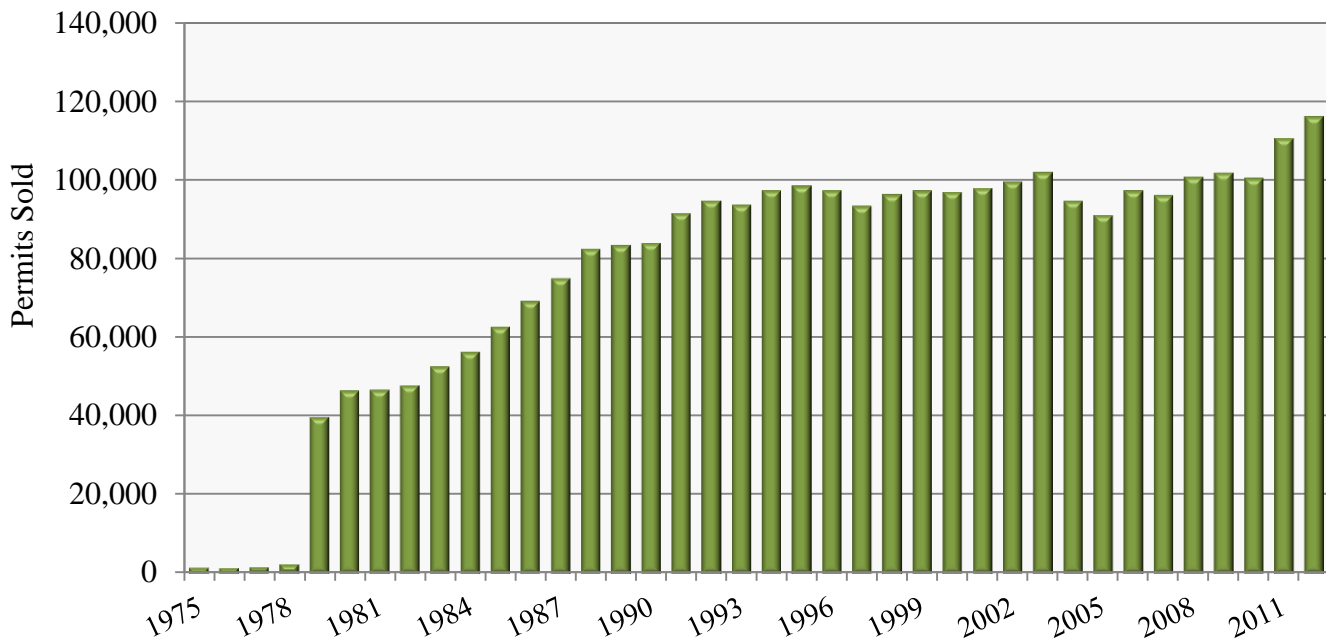


Figure 11. Missouri archery deer and turkey permit sales, 1975-2012. Permit sales do not include no-cost landowner permits. Prior to 1979, hunters purchased archery deer and turkey permits separately.

Table 6. Fall archery turkey harvest and permit sales<sup>a</sup> in Missouri, 1987-2012<sup>b</sup>.

Year	Fall Archery Harvest	% Change From Previous Year	Fall Archery Permit Sales <sup>a</sup>	% Change From Previous Year
1987	753	+65.9	75,064	+8.4
1988 <sup>c</sup>	770	+2.3	82,612	+10.1
1989	878	+14.0	83,440	+1.0
1990	812	-7.5	84,018	+0.7
1991	1,073	+32.1	91,656	+9.1
1992	1,071	-0.2	94,835	+3.5
1993	999	-6.7	93,729	-1.2
1994	1,604	+60.6	97,441	+4.0
1995 <sup>d</sup>	1,113	-30.6	98,601	+1.2
1996	1,357	+21.9	97,417	-1.2
1997	1,241	-8.5	93,402	-4.1
1998	1,670	+34.6	96,374	+3.2
1999	1,331	-20.3	97,345	+1.0
2000	1,340	+0.7	96,980	-0.4
2001	2,043	+52.5	97,966	+1.0
2002	2,272	+11.2	99,630	+1.7
2003 <sup>e</sup>	1,840	-19.0	102,012	+2.4
2004	2,333	+26.8	94,693	-7.2
2005	2,949	+26.4	91,152	-3.7
2006	2,823	-4.3	97,302	+6.7
2007	2,513	-11.0	96,204	-1.1
2008	2,484	-1.2	100,860	+4.8
2009	3,263	+31.4	101,930	+1.1
2010	2,184	-33.1	100,491	-1.4
2011	2,923	+33.8	110,647	+10.1
2012	3,217	+10.1	116,209	+5.0

<sup>a</sup> Does not include no-cost landowner permits.

<sup>b</sup> First modern fall archery turkey season held in 1975.

<sup>c</sup> Bag limit increased from 1 to 2 turkeys.

<sup>d</sup> Season extension: October 1 – January 15.

<sup>e</sup> Season extension: September 15 – January 15.

## HUNTING INCIDENTS

There was 1 non-fatal hunting incident that occurred during the 2013 spring turkey season.

## RECENT REGULATION CHANGES

Beginning with the spring 2013 spring turkey season, turkey hunters were no longer required to affix “Be Safe” stickers to their firearms while turkey hunting.

## POPULATION/ABUNDANCE INDEX - BOWHUNTER OBSERVATION SURVEY

Since 1983, MDC staff and citizen volunteers have recorded the number of wild turkeys observed while bowhunting. Since archers also record the number of hours that they bowhunt, an index of wild turkey abundance is reported as the number of turkeys observed per 1,000 hours bowhunting.

At the statewide scale, the number of turkeys observed per 1,000 hours bowhunting in 2012 was 424 (Figure 12). At the regional scale, index values ranged from 109 in the Mississippi Lowlands region to 549 in the Ozark Border region (Table 7). The statewide average of 424 represents a 5% decline from 2011 and a 4% increase from the previous 5-year average. The statewide index remains 17% and 22% below the previous 10 and 20-year averages, respectively (Table 7).

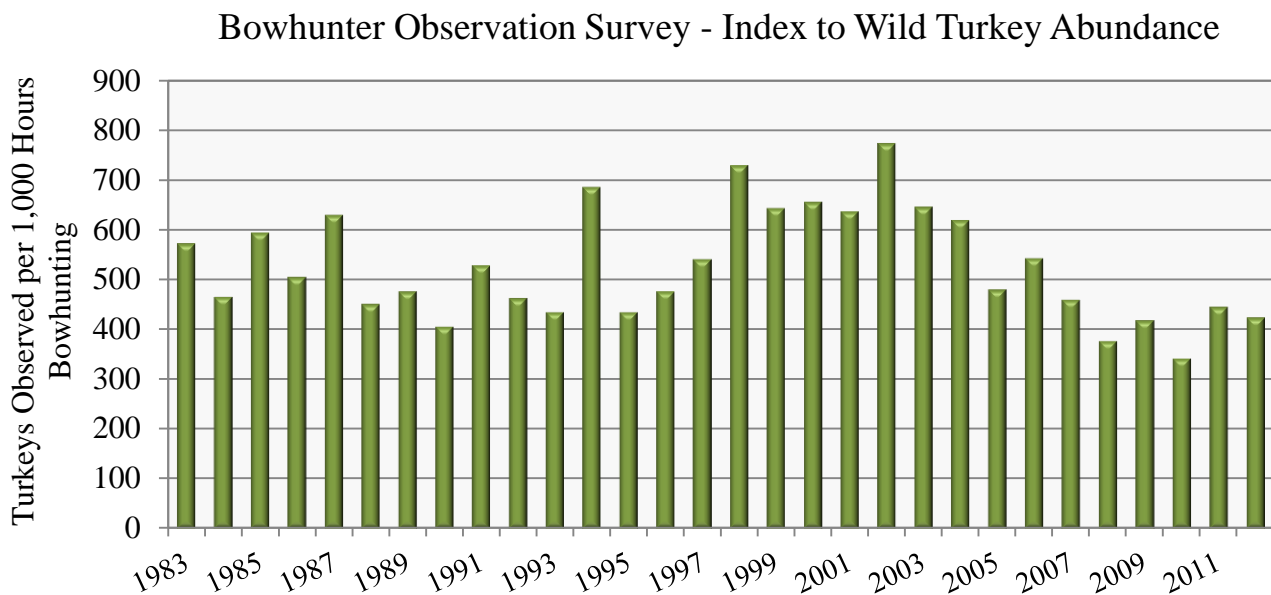


Figure 12. Statewide observations of wild turkeys by bowhunters in Missouri, 1983-2012. Data are the average number of turkeys observed per 1,000 hours bowhunting.

Table 7. Index of wild turkey abundance in Missouri by Turkey Productivity Region (Figure 1). Data were obtained from the bowhunter observation survey. Index values are the number of turkeys observed per 1,000 hours bowhunting. For each interval value, the % change indicates how the 2012 index compares to the previous year or the average for periodic intervals.

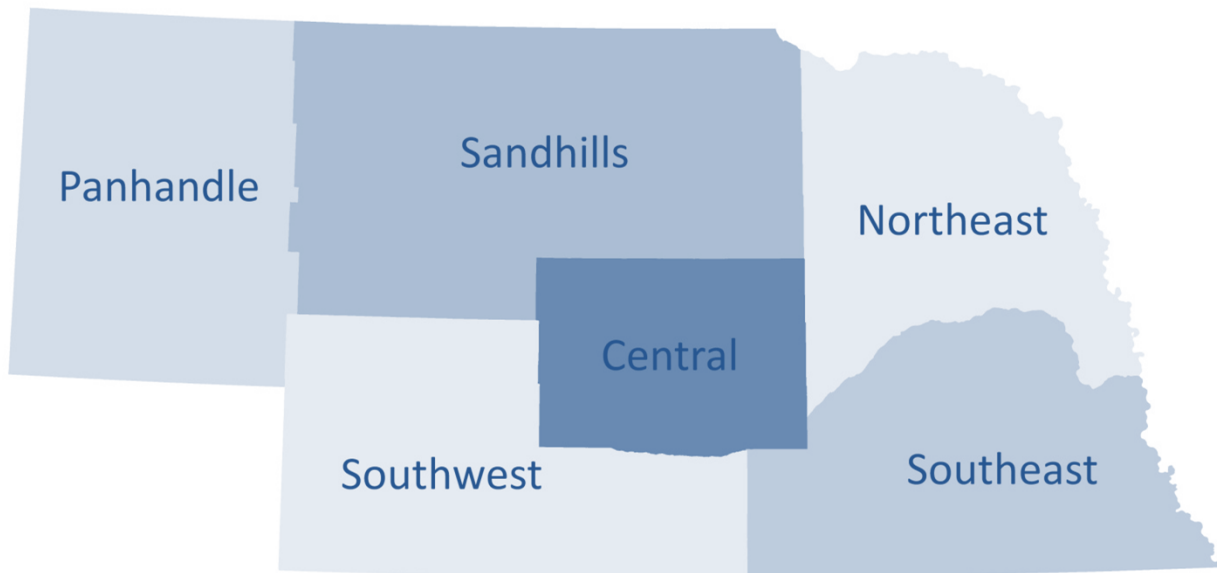
Productivity Region	2012 Index	1-year (2011) Change	5-year (2007-2011) Change	10-year (2002-2011) Change	20-year (1992-2011) Change
Lindley Breaks	378	+2%	+13%	+2%	-10%
Mississippi Lowlands	109	-60%	-69%	-68%	-63%
Northeast	458	-21%	+14%	-19%	-32%
Northwest	466	-5%	-22%	-39%	-40%
Ozark Border	549	+33%	+44%	+11%	+2%
Ozarks East	319	+7%	+19%	+2%	0%
Ozarks West	382	+24%	+13%	-9%	-15%
Union Breaks	379	-7%	-3%	-12%	-15%
West Prairie	467	-20%	-15%	-34%	-29%
<b>Statewide</b>	<b>424</b>	<b>-5%</b>	<b>+4%</b>	<b>-17%</b>	<b>-22%</b>

*Population Assessment*

The relative abundance of the wild turkey population in Nebraska is assessed each year with the three Rural Mail Carrier Surveys conducted in April, July, and October. Survey results are summarized by management zone (Figure 1). Results from the October survey were not available at the time of report preparation. The 2013 April Rural Mail Carrier Survey was conducted 1-4 April and resulted in 454 usable survey cards of 465 returned. Rural carriers made observations while traveling 187,802 miles along rural roads in 88 of Nebraska's 93 counties. Compared to results from the 2012 survey, statewide turkey indices were down by 28%. Regionally, there were declines in all regions except for the Northeast (Table 1, Figure 2).

The 2013 July Rural Mail Carrier Survey was conducted during 1-5 July 2013 and resulted in 426 usable survey cards of the 449 returned. Rural carriers made observations while traveling 175,181 miles along rural roadways in 89 of Nebraska's 93 counties. Compared to results from 2012, turkey indices were lower (Table 2, Figure 3). Indices were down 35%.

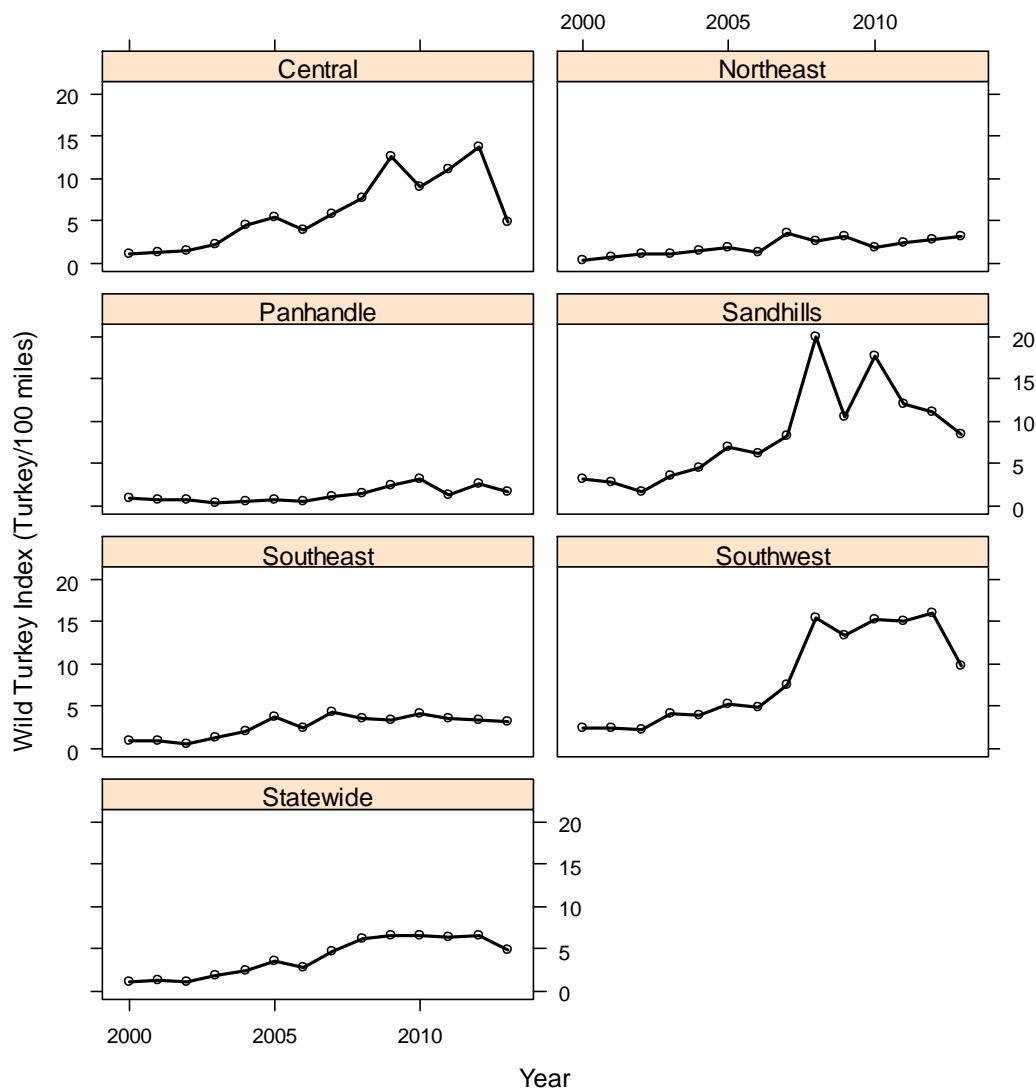
**Figure 1.** Management zones for summarizing results from the Rural Mail Carrier Surveys.



**Table 1.** Wild turkey indices from the 2013 April Rural Mail Carrier Survey by management region (Figure 1). Carrier means are weighted by miles traveled per carrier.

Region	Mean Wild Turkeys per 100 miles & 90% Confidence Limits	Percent Difference from:		
		2012	Mean 2006-2012	Mean 2002-2012
Central	4.83 (3.01-6.65)	-65	-52	-36
Northeast	3.28 (1.71-4.85)	16	17	43
Panhandle	1.67 (0.16-3.18)	-36	-18	16
Sandhills	8.54 (5.12-12.0)	-23	-36	-15
Southeast	3.23 (2.35-4.11)	-4	-13	1
Southwest	9.70 (5.44-13.9)	-39	-29	-4
Statewide	4.80 (3.98-5.62)	-28	-22	1

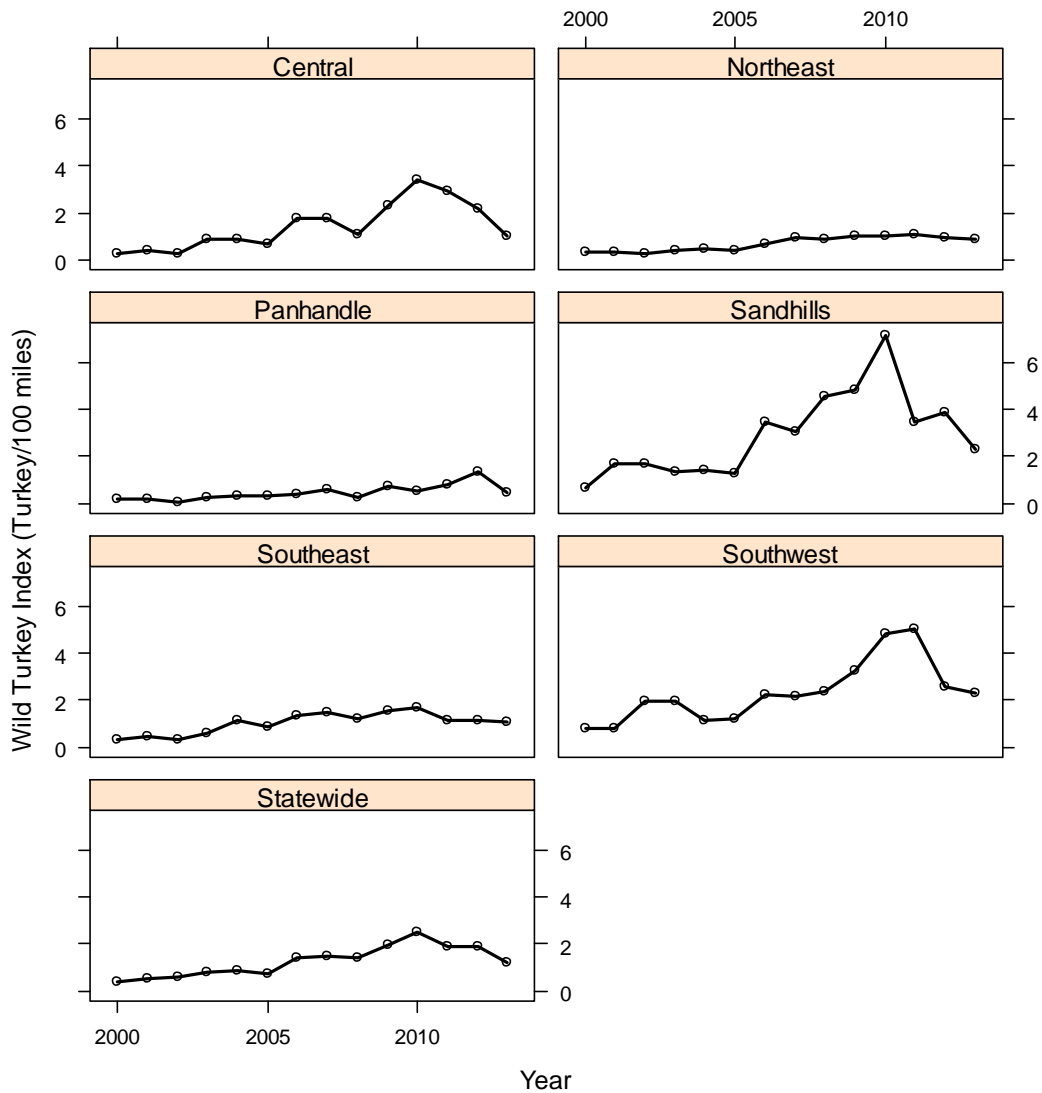
**Figure 2.** Regional and statewide time series (2000-2013) of wild turkey population indices from the April Rural Mail Carrier Survey by management region (Figure 1).



**Table 2.** Wild turkey indices by management region from the 2013 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean Turkeys per 100 miles & 90% Confidence Limits	Percent Difference from:		
		2012	Mean 2008-2012	Mean 2003-2012
Central	1.01 (0.59-1.44)	-54	-58	-44
Northeast	0.88 (0.58-1.17)	-8	-12	11
Panhandle	0.46 (0.11-0.81)	-65	-36	-16
Sandhills	2.29 (0.98-3.61)	-41	-52	-33
Southeast	1.07 (0.77-1.37)	-6	-20	-12
Southwest	2.28 (1.19-3.37)	-10	-37	-15
Statewide	1.22 (0.99-1.45)	-35	-36	-18

**Figure 3.** Regional (Figure 1) and statewide time series (2000-2013) of wild turkey abundance indices from the July Rural Mail Carrier Survey.



## Harvest Assessment

*Fall 2012.* The bag limit remained at two birds per permit with a limit of 2 permits per person, as occurred for the first time in 2007. A separate archery permit is no longer required to hunt with archery equipment; hunters may hunt with either shotgun or archery equipment during the fall season. The Commission extended the fall season through the end of January and taking effect fall 2012.

Permit sales increased (+8.4%) from 11,482 in 2011, to 12,449 in 2012. The fall 2012 season was the third fall season that \$5.00 youth permits were available to hunters, and 20.9% of permit sales (2,601) were youth permits. The season extended from 15 September through 31 January. The season was open during the November firearm deer season (10-18 November 2012), and hunters were required to wear at least 400 square inches of hunter orange on head, chest, and back during this time.

Harvest is assessed annually using an email survey sent to fall turkey permit holders who provided email addresses at the time of purchase. Among the 12,449 hunters purchasing turkey permits for the fall 2012 season, 6,702 provided valid email addresses. An invitation to participate in the survey was emailed to turkey hunters on 6 March 2013, and a follow-up email was sent on 15 March 2013. The survey was closed to participants on 8 April 2013, at which time 1,392 hunters had responded (20.8% raw response rate). The total number of permits represented by the respondents was 1,495 (22.3% permit response rate), and reported harvest was 1,022 (68.4% success rate). Total estimated harvest for the fall 2012 season was 8,362 turkeys (Tables 3 & 4, Figure 4).

**Table 3.** Summary of the 2012 fall turkey hunter survey.

Type	Permits	Surveys		Returns*		Successful		Estimated Harvest
		Mailed	No.	%	No.	%		
Statewide	12,449	6,702	1,392	20.8	1,022	68.4	8,362	

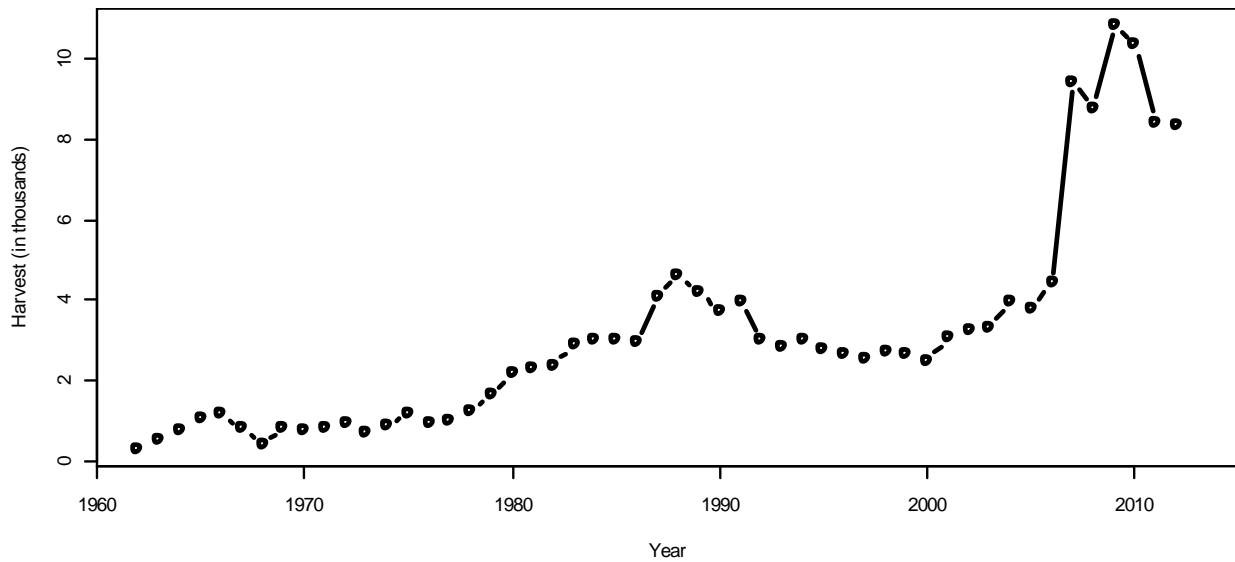
**Table 4.** Historical (2004-2012) permit sales, harvest, and harvest success.

Type		Year								
		2004	2005	2006	2007	2008	2009	2010	2011	2012
Shotgun	Permits	7,199	7,415	8,373	10,784	9,855	12,738	12,241	11,482	12,449
	Harvest	3,691	3,565	4,092	8,857	8,236	10,853	10,356	8,405	8,362
	% Success	51	48	49	82	84	85.2*	84.6	73.2	68.4
Archery	Permits	1,125	1,022	1,269	1,499	1,480				
	Harvest	255	251	334	572	539				
	% Success	23	25	26	38	36				

\* In 2009, permits were valid for both the archery and shotgun seasons, so results are reported in aggregate.



**Figure 4.** Long-term (1962-2012) total fall harvest (archery and shotgun).



*Spring 2013.* Spring bag limits remained at 1 male or bearded female turkey per permit with a limit of 3 permits per person. A separate archery permit is no longer required to hunt with archery equipment. Beginning in spring 2011, crossbows are now considered legal archery equipment for hunting resident wildlife in Nebraska.

Permit sales were higher (+3.9%) in 2013 (36,904 permits) compared to 2012 (35,520 permits). Spring 2013 was the fourth spring season for which \$5.00 youth permits were available to hunters, and 20.0% of permit sales (6,144 permits) were youth permits. Youth permit sales in 2013 increased by 2.8% compared to spring 2012 sales. The youth archery and regular archery season ran between 25 March and 31 May 2012, youth shotgun season began 6 April through 31 May 2012, and the regular shotgun season ran from 13 April through 31 May.

Harvest is assessed annually using an email survey sent to spring turkey permit holders who provided email addresses at the time of purchase. Among the 36,904 hunters who purchased turkey permits for the spring 2013 season, 17,500 provided valid email addresses. An invitation to participate in the survey was emailed to prospective participants on 25 June 2013 and a follow-up email was sent on 9 July 2013. The survey was closed to participants on 26 July 2013, at which time we had received 4,296 responses (25.9% raw response rate). These respondent provided harvest and satisfaction information related to 6,179 permits (37.2% permit response rate). Harvest reported by respondents was 3,605 (58.3% success rate). Total estimated harvest for the spring 2013 season was 21,442 turkeys (Tables 5 & 6, Figure 5).

**Table 5.** Summary of the 2013 spring turkey hunter survey.

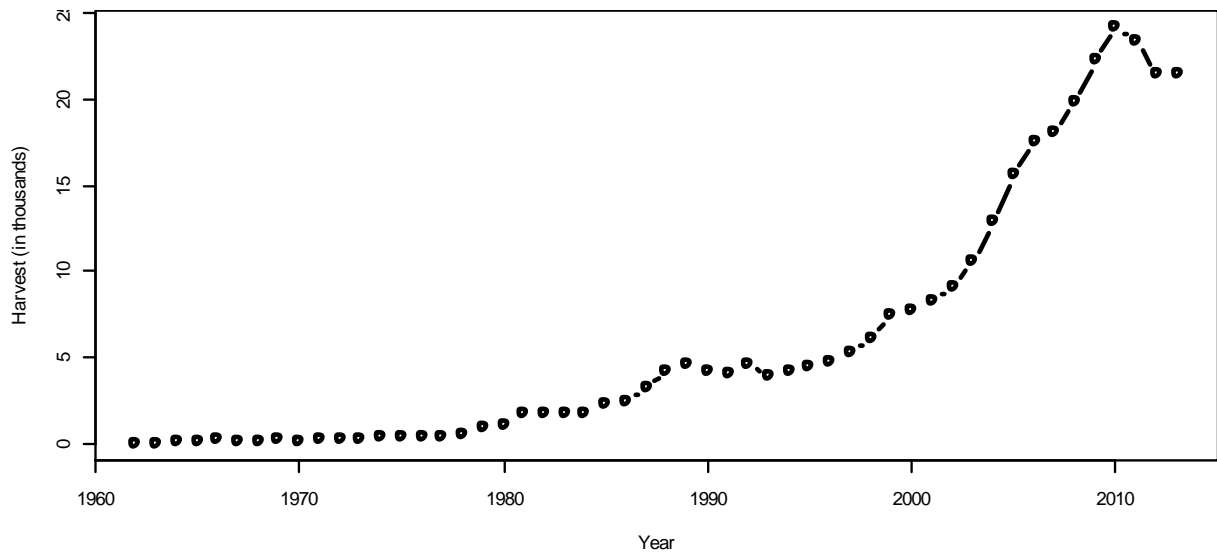
Unit	Permits Sold	Mailings	Permits Reported	Reported Harvest	Estimated Harvest	Harvest Success
Youth	6,144		690	270	2,402	39.1
Regular	30,760		5,489	3,335	19,040	61.9
<b>Total</b>	<b>36,904</b>	<b>17,500</b>	<b>6,179</b>	<b>3,605</b>	<b>21,442</b>	<b>58.3</b>

**Table 6.** Historical (2006-2013) permit sales, harvest, and harvest success.

Type	Statistic	Year							
		2006	2007	2008	2009	2010*	2011	2012	2013
Archery	Permits	5,902	6,830	6,792	7637				
	Harvest	2,424	2,601	2,888	3,688				
	Success	41%	38%	43%	48%				
Shotgun/ Regular	Permits	22,716	25,432	24,650	24,880	30,693	30,341	25,520	30,760
	Harvest	12,636	14,270	15,333	17,009	21,270	20,237	18,884	19,040
	Success	56%	56%	62%	68%	69.3%	66.7%	65.9%	61.9%
Youth	Permits	1,394	1,490	2,480	2,776	6,210	6,385	5,979	6,144
	Harvest	750	1,130	1,548	1,485	2,912	3,065	2,535	2,402
	Success	54%	76%	62%	53%	46.9%	48.0%	42.4%	39.1%

\* Starting in 2010 a separate archery permit was no longer required and the regular permit was valid with appropriate weapon during both seasons.

**Figure 5.** Long-term (1962-2013) spring total turkey harvest (archery, youth, regular).



# MIDWEST DEER/TURKEY WORKSHOP

Allerton House  
Monticello, IL  
August 18 - 21, 2013

## NORTH DAKOTA WILD TURKEY REPORT

Stan Kohn  
North Dakota Game and Fish Department  
Bismarck, N.D. 58501

### **POPULATION ESTIMATES, 2013**

The Department uses several population techniques to obtain trends on our wild turkey population. We have a landowner survey that is sent to most landowners who have turkeys winter on their land (Figure 1). We also obtain population estimates from rural mail carriers who count upland game birds four times of year, January, April, July and October. Finally, our district biologists and game wardens annually record observations of wild turkey hens, broods and poults on standardized pheasant brood routes during July and August (Figure 2). Collecting incidental turkey brood data (Figure 3) by our field staff was re-initiated after a couple years of no effort.

Results of the 2013 statewide brood survey showed number of turkeys, number of broods, and young per adult hen to be all up from 2012 and up slightly over the past five years (Table 1). Broods per 100 miles were up 33% statewide and total number of birds per 100 miles was the same as in 2012. Average brood size was 6.45 poults per adult hen, down 4% from 2012. Age ratio was 0.95 poults per adult. Other population surveys, like our midwinter landowner survey and rural mail carrier survey, showed similar trends in number of birds observed over the past five years. Our 2013 winter landowner survey of turkeys showed numbers to be up about 17% from 2012. However, many landowners in the western and eastern part of the state are still reporting low turkey numbers and very few poults. Turkey production has been rather poor the last three years, especially in western one-third of the state primarily due to cool, wet springs, causing poor nesting success and poor young survival.

### **FALL HUNTING SEASON, 2012**

The state is divided into twenty-two hunting units and these areas include all 53 counties of North Dakota's (Figure 4). During the fall of 2012, twenty of 22 counties were open for wild turkey hunting. Unit 53 in the northwestern part of the state and unit 21 in the southwest were closed. These two units have been closed for the past three fall hunting seasons because of low turkey numbers.

Licenses are issued by weighted lottery after gratis licenses are deducted from the total available. Only North Dakota residents are eligible to apply in the first lottery. If licenses remain after the first lottery, then nonresidents can apply.

North Dakota has no specific youth hunting season for wild turkeys in the fall. We also do not have a specific bow season for turkeys. We provide only a one time period for hunting wild turkeys in the fall, and you can choose your weapon from shotguns, muzzle loading rifles, handguns and bow/arrows. During the fall of 2012, the season was held from October 13, 2012 through January 13, 2013. There were 4,145 permits available and 4,190 were issued (244 gratis and 3,946 general permits). This was a decrease of 485 permits available (-10 percent) over 2011.

From the wild turkey questionnaire, it was determined that 2,652 license holders (63.3 percent) hunted during the fall. Hunters harvested 1,212 wild turkeys for a success of 45 percent. A summary of the fall hunting statistics for ND since 1958 can be found in Table 2. Figure 5 is a graph of fall harvest statistics from 1980 – 2012. Data regarding sex and age of the harvest was determined by a voluntary sample of wing tips and breast feathers sent in by hunters. Based upon a sample of 246 harvested birds, 41 percent of the 2012 fall harvest were females; 59 percent males, and 38 percent were juveniles; 62 percent adults.

### **SPRING HUNTING SEASON, 2013**

Similar to fall turkey hunting, the state uses the same twenty-two hunting units during the spring season. These units include all of North Dakota's 53 counties. During the spring of 2013, the entire state was open for wild turkey hunting except for unit 21 in the southwestern part of the state. This area has been closed for the past four spring hunting seasons because of low turkey numbers in this unit.

Licenses are issued by weighted lottery after the number of gratis licenses is deducted from the total available. Only residents are eligible to apply for spring licenses, although one spring license is provided to the NWTF for auction.

First time spring turkey hunters age 15 or younger can receive one spring license valid for the regular hunting season for a specific unit. We provide only a one time period for hunting wild turkeys in the fall, and you can choose your weapon from shotguns, muzzle loading rifles, handguns and bow/arrows.

The season opened April 13 and closed May 19 (36 days). Only bearded wild turkeys were legal to be harvested. A total of 7,015 applicants (up 21 percent from 2012) were received for the 5,930 permits (up 2 percent from 2012) that were available. This included 361 gratis, 182 youth and 5,510 general permits.

Data from the spring hunter harvest questionnaire showed that 4,534 of the license holders (75%) hunted. Hunters harvested 1,905 wild gobblers (down 10 percent from 2012) for a hunter success of 42 percent (Table 3, Figure 6).

### **FALL HUNTING SEASON, 2013**

For the 2013 fall hunting season, there are 4,020 permits available, 125 less than during fall 2012. Two hunting units, one in the northwest and one in the southwest, were closed this fall due to low turkey numbers. The season opened on October 12 and closed on January 5, 2014 (100 days). This is the same season length as in the past several years. Only residents are eligible to apply for the first drawing of licenses. If licenses are left after the first drawing, then both residents and nonresidents can apply for the remaining licenses on a first come basis. This will be the twelfth year

that the entire state will be open to wild turkey hunting.

### **TRAP/TRANSPLANT PROGRAM**

During the 2012-2013 wild turkey trapping period, 252 wild turkeys were trapped at five locations. Two locations were in the eastern portion of the state and the other three in the south-central/southwest. The trapped turkeys were released at wildlife management areas in the vicinity of the trapping. Of the total birds trapped and released, the age ratio was 94A:158J and the sex ratio was 80M:172F. The drop-net was used in both trapping operations. All birds were of the Eastern subspecies. We are beginning to see more turkeys showing up in urban settings. This will probably cause us more problems in the future.

### **PRESENT RESEARCH (Josh Courlas – Univ. Of Wisconsin)**

Turkeys are not native to North Dakota but have been in the state for about 50 years, and they have been hunted during most of this time. There are many biological and ecological factors we would like to look at with our birds, but we have decided to evaluate our various population survey techniques first. We have initiated a research project with Dr. Scott Lutz at the Univ. of Wisconsin – Madison to evaluate our population sampling techniques plus try a gobbler survey to see which technique works the best in our various habitats. The student has finished his field work is working on data analysis at present. He plans to have his thesis completed by June 30, 2014.

Ohio Department of Natural Resources

**TURKEY SEASON RESULTS, SPRING 2013**Waterloo Wildlife Research Station  
Athens, OH 45701

In 2013, 18,409 gobblers were harvested during the Ohio spring wild turkey season, an increase of 4% compared to 2012 (Table 1). The total was composed of 1,802 turkeys harvested during the 2-day youth spring wild turkey season on April 20 and 21 (+10%), and 16,607 turkeys harvested during the 4-week spring wild turkey season open from April 22 through May 19 (+4%). Wild turkey abundance was expected to be somewhat higher in 2013 than in the previous year as the statewide reproductive index increased in response to favorable hatch and brood-rearing conditions in 2012.

Ashtabula County, with a reported harvest of 767 gobblers, ranked first in the State in the 2013 spring turkey season (Fig. 1). Rounding out the top 5 counties were Guernsey ( $n = 541$ ), Muskingum ( $n = 535$ ), Coshocton ( $n = 531$ ), and Tuscarawas ( $n = 529$ ) counties. Compared to the 2012 spring turkey season, the 2013 harvest increased in 50 counties, decreased in 37 counties, and remained the same in 1 county (Table 1).

Based off spur measurements reported by hunters, the spring turkey harvest was composed of 69% adult gobblers and 31% jakes. Most hunters reported harvesting a turkey on private land (90%); only 10% reported harvesting a gobbler on public land. Landowners reported a harvest of 4,066 gobblers representing 21% of the statewide total harvest.

Seventy-six percent of the spring turkey harvest occurred during the first half of the 2013 season; 10% of the harvest occurred in the 2-day youth season while 47%, 19%, 12%, and 12% of the harvest occurred during the first, second, third, and fourth weeks of the spring turkey season, respectively. A similar percentage of turkeys (22%) were harvested during the afternoon hours in the final 2 weeks of the season in 2013 as in 2012 (22%), 2011 (20%), and 2010 (25%), the first three years in which spring turkey hunting hours were extended from 12:00 pm until sunset.

Licensed hunters purchased 48,318 spring turkey permits, 10,934 youth spring turkey permits, 4,272 senior reduced-cost spring turkey permits, and 8,806 senior free spring turkey permits. The 72,330 spring turkey permits sold in 2013 was an increase of 5% above the 2012 spring turkey permit sales (Table 2). Success rates in 2013 were 22% for spring turkey permits, 21% for youth spring turkey permits, 19% for senior reduced-cost spring turkey permits, and 4% for senior free spring turkey permits. These success rates may be conservative (especially for the senior free spring turkey permits) because participation rates may be <100%.

Table 1. Spring turkey harvest in 2012, 2013, and the percent change in the harvest in 88 Ohio counties.

County	2012	2013	% Change	County	2012	2013	% Change
Adams	420	418	-1	Licking	380	363	-4
Allen	45	43	-4	Logan	166	145	-13
Ashland	238	236	-1	Lorain	177	149	-16
Ashtabula	762	767	1	Lucas	46	62	35
Athens	335	331	-1	Madison	1	5	400
Auglaize	34	31	-9	Mahoning	238	236	-1
Belmont	456	471	3	Marion	49	41	-16
Brown	350	349	-1	Medina	120	108	-10
Butler	184	197	7	Meigs	366	399	9
Carroll	385	373	-3	Mercer	20	16	-20
Champaign	87	96	10	Miami	12	23	92
Clark	18	19	6	Monroe	418	486	16
Clermont	338	340	1	Montgomery	20	14	-30
Clinton	60	58	-3	Morgan	292	343	17
Columbiana	410	425	4	Morrow	212	208	-2
Coshocton	492	531	8	Muskingum	489	535	9
Crawford	77	94	22	Noble	333	320	-4
Cuyahoga	2	5	150	Ottawa	9	5	-44
Darke	52	44	-15	Paulding	99	91	-8
Defiance	218	205	-6	Perry	247	277	12
Delaware	126	104	-17	Pickaway	26	26	0
Erie	60	62	3	Pike	280	264	-6
Fairfield	111	92	-17	Portage	234	259	11
Fayette	6	11	83	Preble	91	87	-4
Franklin	21	24	14	Putnam	51	61	20
Fulton	92	102	11	Richland	393	375	-5
Gallia	289	360	25	Ross	333	329	-1
Geauga	276	296	7	Sandusky	13	25	92
Greene	20	23	15	Scioto	210	229	9
Guernsey	495	541	9	Seneca	165	154	-7
Hamilton	119	111	-7	Shelby	42	64	52
Hancock	23	34	48	Stark	213	266	25
Hardin	88	82	-7	Summit	42	48	14
Harrison	451	479	6	Trumbull	428	479	12
Henry	32	51	59	Tuscarawas	531	529	-1
Highland	402	333	-17	Union	38	36	-5
Hocking	296	315	6	Van Wert	11	17	55
Holmes	259	266	3	Vinton	263	324	23
Huron	152	186	22	Warren	90	111	23
Jackson	293	311	6	Washington	390	439	13
Jefferson	365	426	17	Wayne	97	116	20
Knox	451	469	4	Williams	261	253	-3
Lake	84	67	-20	Wood	19	30	58
Lawrence	179	170	-5	Wyandot	88	114	30
				<b>Total</b>	<b>17,657</b>	<b>18,409</b>	<b>4</b>



Table 2. Ohio's spring turkey season dates, permits sold, and harvest, 1966-2013.

<b>Year</b>	<b>Season Dates</b>	<b>Open Counties</b>	<b>Bag Limit</b>	<b>Permit Fee</b>	<b>Permits Sold<sup>a</sup></b>	<b>Total Harvest<sup>b</sup></b>
1966	05/04 – 05/07	9	1	Free	500	12
1967	05/03 – 05/06	9	1	Free	898	18
1968	05/08 – 05/11	9	1	Free	914	20
1969	05/07 – 05/10	9	1	Free	945	37
1970	04/29 – 05/02	14	1	Free	909	30
	05/06 – 05/09				896	36
1971	04/28 – 05/01	14	1	Free	1,000	37
	05/05 – 05/08				1,000	17
1972	05/03 – 05/06	14	1	\$5.35	917	32
	05/10 – 05/13				881	25
1973	05/02 – 05/05	14	1	\$5.35	1,034	39
	05/09 – 05/12				1,034	32
1974	05/01 – 05/04	14	1	\$10.50	999	61
	05/08 – 05/11				184	10
1975	04/28 – 05/03	14	1	\$10.50	996	75
	05/05 – 05/10				267	19
1976	04/26 – 05/08	14	1	\$10.50	1,471	139
1977	05/02 – 05/14	14	1	\$10.50	1,751	137
1978	05/01 – 05/13	18	1	\$10.50	2,000	147
1979	04/30 – 05/12	18	1	\$10.50	2,000	265
1980	04/21 – 05/03	20	1	\$10.75	2,097	387
1981	04/27 – 05/09	20	1	\$10.75	3,458	577
1982	04/26 – 05/08	20	1	\$10.75	4,262	651
1983	04/25 – 05/07	21	1	\$10.75	5,141	764
1984	04/23 – 05/12	31	1	\$10.75	6,935	1,233
1985	04/22 – 05/11	31	1	\$10.75	10,084	1,583
1986	04/28 – 05/17	31	1	\$10.75	11,913	1,816
1987	04/27 – 05/16	32	1	\$10.75	13,396	2,268
1988	04/25 – 05/14	32	1	\$11.00	16,208	2,629
1989	04/24 – 05/13	36	1	\$11.00	18,887	3,171
1990	04/23 – 05/12	37	1	\$16.00	19,613	4,096
1991	04/22 – 05/11	38	1	\$16.00	22,898	5,009
1992	04/27 – 05/16	38	1	\$16.00	28,974	5,678
1993	04/26 – 05/15	42	1	\$16.00	29,538	7,470
			2	\$32.00	4,106	
1994	04/25 – 05/14	44	1	\$16.00	29,334	9,098
			2	\$32.00	5,187	
1995	04/24 – 05/13	44	1	\$20.00	30,837	10,892
			2	\$40.00	6,136	
1996	04/22 – 05/11	46	1	\$20.00	31,003	12,098
			2	\$40.00	7,700	
1997	04/28 – 05/17	47	1	\$20.00	30,511	12,393
			2	\$40.00	8,130	
1998	04/27 – 05/16	50	1	\$20.00	31,037	13,251
			2	\$40.00	8,133	
1999	04/26 – 05/16	57	1	\$20.00	42,363	14,419
			2	\$40.00	7,846	
2000	04/24 – 05/14	88	1	\$20.00	49,982	20,276

Table 2. Continued.						
Year	Season Dates	Open Counties	Bag Limit	Permit Fee	Permits Sold <sup>a</sup>	Total Harvest <sup>b</sup>
			2	\$40.00	9,720	20,276
2001	04/23 – 05/13	88	1	\$20.00	54,841	26,156
			2	\$40.00	11,092	
2002	04/22 – 05/19	88	1	\$20.00	48,821	22,190
			2	\$40.00	24,633	
2003 <sup>c</sup>	04/28 – 05/25	88	2	\$20.00	94,989	20,368
2004	04/26 – 05/23	88	2	\$24.00	74,119	16,927
2005	04/18 – 05/15	88	2	\$24.00	85,053	18,833
2006	04/24 – 05/21	88	2	\$24.00	85,248	20,023
2007	04/23 – 05/20	88	2	\$24.00	75,408	18,584
2008	04/21 – 05/18	88	2	\$24.00	79,962	20,389
2009	04/20 – 05/17	88	2	\$24.00	81,049	20,710
2010	04/19 – 05/16	88	2	\$24.00	78,388	23,421
2011	04/18 – 05/15	88	2	\$24.00	74,957	18,162
2012	04/23 – 05/20	88	2	\$24.00	68,952	17,657
2013	4/22 – 5/19	88	2	\$24.00	72,330	18,409
<sup>a</sup> Includes youth and senior spring turkey permits (Ohio residents 66 years of age and older). <sup>b</sup> Total recorded harvest by all hunter types (paid, youth, senior, and exempt). <sup>c</sup> The special bonus wild turkey permit was eliminated in 2003 and hunters no longer could be classified as 1-bird or 2-bird permit holders.						

## **TURKEY HUNTING SEASON RESULTS, FALL 2013**

Olentangy Wildlife Research Station  
Delaware, Ohio 43015

A total of 1,037 wild turkeys, 308 less than in 2012, were harvested in 56 counties during the 2013 Ohio fall wild turkey hunting season (Table 1; Figure 1). Fall turkey harvests have remained low and permit sales have generally declined since the record harvest of 2002 except for a modest increase in harvest and permit sales associated with an expanded fall season in 2008 (Table 2).

Columbiana County had the highest reported fall harvest in 2013 ( $n = 52$ ), followed by Knox ( $n = 44$ ), Ashtabula ( $n = 41$ ), Clermont ( $n = 33$ ), and Harrison ( $n = 33$ ) counties. The top 5 counties collectively accounted for 20% of the 2013 fall turkey harvest.

As in most years, adult females ( $n = 459$ ) comprised the bulk of the harvest (44%), followed by adult males ( $n = 303$ , 29%), juvenile females ( $n = 160$ , 15%), and juvenile males ( $n = 115$ , 11%).

The majority of turkeys were harvested on private land (91%), and 38% of the harvest was checked by landowners. Most successful hunters used a shotgun (69%), but 17% of hunters used crossbows and 14% used vertical bows to harvest a fall turkey.

The fall turkey harvest was well distributed throughout the entire 7-week season with 8% of turkeys harvested during the first weekend, 23% harvested during the first week, and 9 – 15% harvested during each of the remaining 5 weeks of the 2012 season.

Fall turkey permit sales ( $n = 6,162$ ) increased >1% from 2012 sales and were 60% below the record fall turkey permit sales of 2002. Youth fall turkey permit sales ( $n = 853$ ) decreased by 4% and resident reduced-cost senior fall turkey permit sales ( $n = 1008$ ) increased by 4%. Resident free senior fall turkey permits ( $n = 4,181$ ) declined (-48%) for the ninth consecutive year.

Success rates of fall turkey permit holders were slightly lower in 2013 (5%) than in 2012 (9%) and 2011 (10%). Success rates for youth fall turkey permits (5.5% vs. 9%) were lower in 2013 than 2012. Success rates for resident reduced cost senior permits (7% vs. 9%), and resident free senior fall turkey permits (0.9% vs. 0.8%) were similar in 2013 and 2012. Note that success rates are likely conservative because participation rates for each permit type are unknown.

It is unclear why fall turkey hunting success rates have been relatively low as compared to spring turkey hunting success in Ohio. Furthermore, the number of licensed fall turkey hunters is far fewer than the number of spring turkey hunters. Fall turkey hunting in Ohio may be ancillary to archery hunting for deer or other small game hunting seasons. Hunters may be harvesting turkeys when the opportunity is presented, but not actively seeking turkeys in the fall.

Table 1. Fall 2013 either-sex wild turkey harvest in 56 Ohio counties and comparisons with 2012 and 2011.

County	Sex and age of turkeys harvested, 2013				Total harvest		
	Adult male	Adult female	Juvenile male	Juvenile female	2013	2012	2011
Adams	6	14	0	3	23	37	35
Ashland	10	6	1	1	18	22	17
Ashtabula	10	21	4	6	41	61	67
Athens	3	7	1	1	12	32	27
Belmont	5	2	2	5	14	27	32
Brown	6	9	3	4	22	21	26
Butler	5	5	0	0	10	NA	NA
Carroll	7	8	1	2	18	29	38
Clermont	13	16	2	2	33	43	32
Columbiana	17	21	6	8	52	29	37
Coshocton	6	14	2	9	31	56	44
Cuyahoga	0	1	0	0	1	2	0
Defiance	6	8	4	1	19	20	13
Delaware	2	1	1	2	6	NA	NA
Fairfield	2	2	3	1	8	NA	NA
Franklin	1	1	0	0	2	NA	NA
Gallia	2	6	3	5	16	25	36
Geauga	6	10	5	3	24	53	31
Guernsey	7	11	5	5	28	40	53
Hamilton	12	3	2	1	18	NA	NA
Harrison	6	20	1	6	33	34	38
Highland	3	9	5	7	24	32	37
Hocking	1	5	3	4	13	28	20
Holmes	9	16	1	3	29	38	42
Huron	2	5	2	2	11	NA	NA
Jackson	5	5	0	5	15	21	17
Jefferson	10	6	1	4	21	24	20
Knox	11	18	8	7	44	46	55
Lake	3	3	0	1	7	9	7
Lawrence	4	5	3	2	14	14	21
Licking	5	12	0	5	22	41	40
Lorain	6	8	5	1	20	9	29
Mahoning	5	11	2	3	21	23	24
Medina	2	8	3	0	13	11	17
Meigs	5	6	2	1	14	30	15
Monroe	5	8	0	6	19	34	45
Morgan	2	6	0	1	9	17	23
Morrow	3	3	1	2	9	16	11
Muskingum	5	5	1	2	13	35	36
Noble	6	9	1	4	20	31	49
Perry	5	4	2	1	12	29	26
Pike	2	12	0	4	18	21	21

Table 1. Fall 2013 either-sex wild turkey harvest in 56 Ohio counties and comparisons with 2012 and 2011 (continued).

County	Sex and age of turkeys harvested, 2013				Total harvest		
	Adult male	Adult female	Juvenile male	Juvenile female	2013	2012	2011
Portage	6	8	2	4	20	19	19
Richland	8	14	2	1	25	37	39
Ross	7	8	3	3	21	20	19
Scioto	4	2	1	1	8	25	22
Seneca	1	4	1	1	7	NA	NA
Stark	6	12	3	2	23	18	23
Summit	3	8	0	0	11	9	3
Trumbull	9	11	5	4	29	36	32
Tuscarawas	9	12	2	5	28	53	53
Vinton	0	5	0	1	6	34	21
Warren	4	8	0	0	12	NA	NA
Washington	4	6	4	3	17	24	24
Wayne	5	1	1	2	9	7	9
Williams	6	10	5	3	24	22	27
Totals	303	459	115	160	1,037	1,345	1,425

Table 2. Summary of Ohio's fall wild turkey hunting seasons, 1996-2013.

Year	Counties open	Bag limit	Permits sold <sup>a</sup>	Total harvest
1996	22	1	10,050	1,250
1997	22	1	8,240	1,210
1998	22	1	4,804	1,234
1999	25	1	7,008	3,071
2000	28	1	9,861	2,428
2001	32	1	13,447	3,331
2002	35	1	15,469	2,394
2003	36	1	10,989	2,060
2004	36	1	8,455	1,808
2005	37	1	8,000	1,339
2006	37	1	7,422	1,175
2007	37	1	6,847	1,216
2008	46	1	9,223	2,139
2009	48	1	9,536	2,255
2010	48	1	8,594	1,425
2011	48	1	8,064	1,375
2012	48	1	7,924	1,345
2013	56	1	8,023	1,037

<sup>a</sup>Total includes fall turkey permits, fall turkey youth permits, and fall turkey reduced cost senior permits, but not fall turkey free senior permits.

# 2013 Wild Turkey Program Status Report



*Photo courtesy of Rick Staniewicz*

## **2013 Spring Turkey Hunt**

Ontario's 2013 spring turkey hunt ran for 37 days, from April 25 to May 31. Hunters may purchase up to two turkey licences/seals and hunt in any open WMU for the duration of the season. Spring hunting hours are from ½ hour before sunrise to 7:00 pm. Only bearded birds can be harvested.

Reported spring turkey harvest in 2013 was 8,272 birds, which was 193 birds higher than spring 2012. The percentage of jakes in the reported harvest also increased compared to last year – from 28 to 33 percent. Turkey harvest indices combined with deer hunter sightings suggest populations continue to increase in a few areas at the edges of the turkey range in Ontario while they are stable and fluctuating in most other areas.

For 2013, a turkey licence in Ontario costs \$28.06 and turkey hunters must also have a small game licence which costs \$24.02 for residents and \$115.28 for non-residents. In 2012 Ontario modernized its hunting and fishing licence sales with an automated service that allows purchases online, by telephone and over the counter. Ontario sold 55,383 spring turkey licences in spring 2013, an increase of almost 5,000 over spring 2012.

Ontario requires all individuals wishing to hunt turkeys to take the Ontario Wild Turkey Hunter Education Course and pass a written exam. Prospective turkey hunters can do this in person or purchase a turkey hunter education course DVD and complete the

proctored exam by Skype. Ontario has trained almost 10,000 new turkey hunters so far in 2013.

## **2012 Fall Turkey Hunt**

Ontario's fall turkey season begins the day after Canada's Thanksgiving Day and runs for 13 days (October 9-21, 2012). Hunters may purchase one fall licence/seal, hunt in any open WMU, and harvest one turkey of either-sex.

Hunter interest in Ontario's fall turkey hunt remains much lower than the spring hunt, due in part to the number of other hunting options in mid-October (e.g. moose, bear, archery deer, small game, and waterfowl). The fall 2012 harvest in Ontario was 274 birds; 58 percent of the harvested birds were hens. Turkey hunters purchased 3,864 licenses for the 2012 fall season, an increase of over 500 from fall 2011.

## **Management Challenges**

- Lack of compliance with mandatory reporting
- Apparent population declines in some areas
- Agricultural conflicts
- Turkeys with lesions (poxvirus) being reported in new areas
- Optimal spatial scale at which to manage wild turkeys
- Barriers to participation by new turkey hunters

**South Dakota Game, Fish, and Parks**  
**2013 WILD TURKEY STATUS REPORT**

**Population Status**

Three subspecies (eastern, Rio Grande, and Merriam’s turkeys) occur in the state at varying levels. Eastern turkeys are most common in the eastern riparian/cropland habitats. Rio Grande turkeys occur in smaller populations in eastern and south-central South Dakota. Merriam’s turkeys primarily occur west of the Missouri River in prairie riparian and ponderosa pine habitats. In 2012, South Dakota Game, Fish, and Parks sold a total of 24,365 turkey hunting licenses (Fig. 1). The wild turkey harvest has decreased slightly (Fig. 2, 3, 4). South Dakota Department of Game, Fish, and Parks do not have a current estimate of turkey populations in the state but are working on some population models.

Fig. 1. Number of turkey licenses sold for the state of South Dakota from 1995-2012.

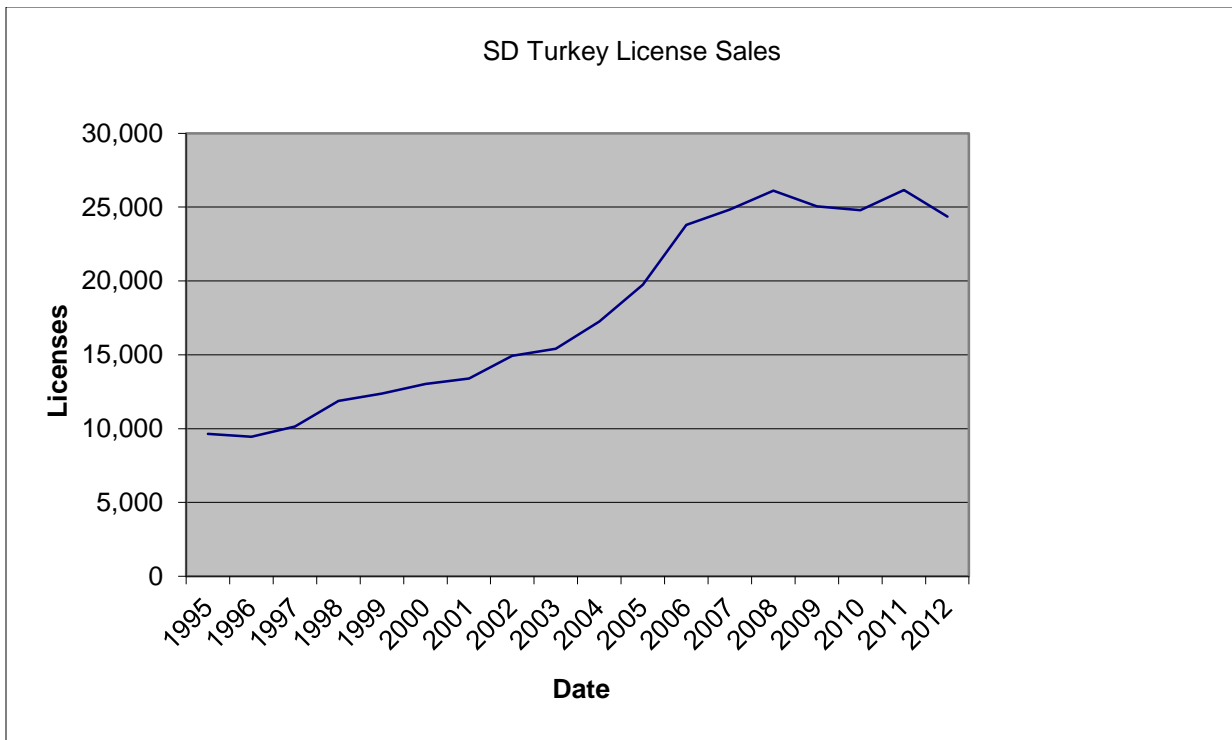




Fig. 2. State turkey harvest projections for South Dakota from 1995-2012.

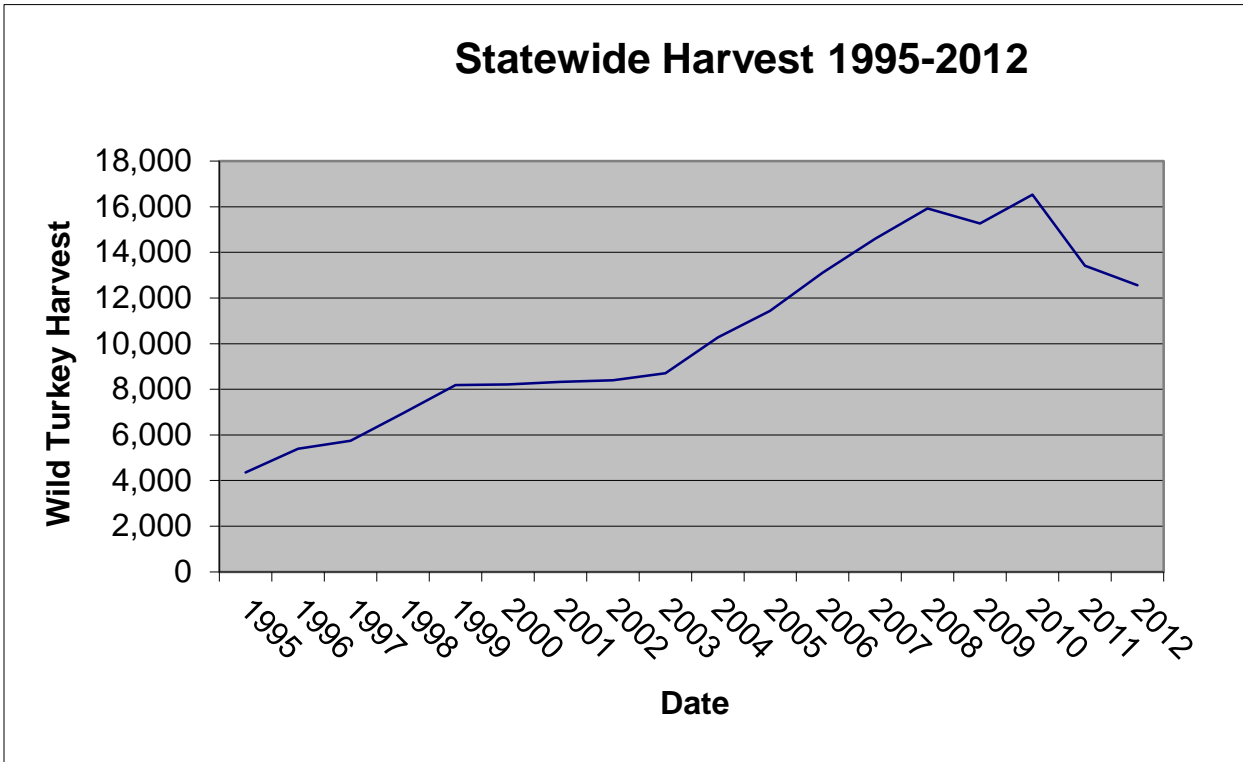


Fig. 3. Black Hills spring harvest projections from 1985-2012.

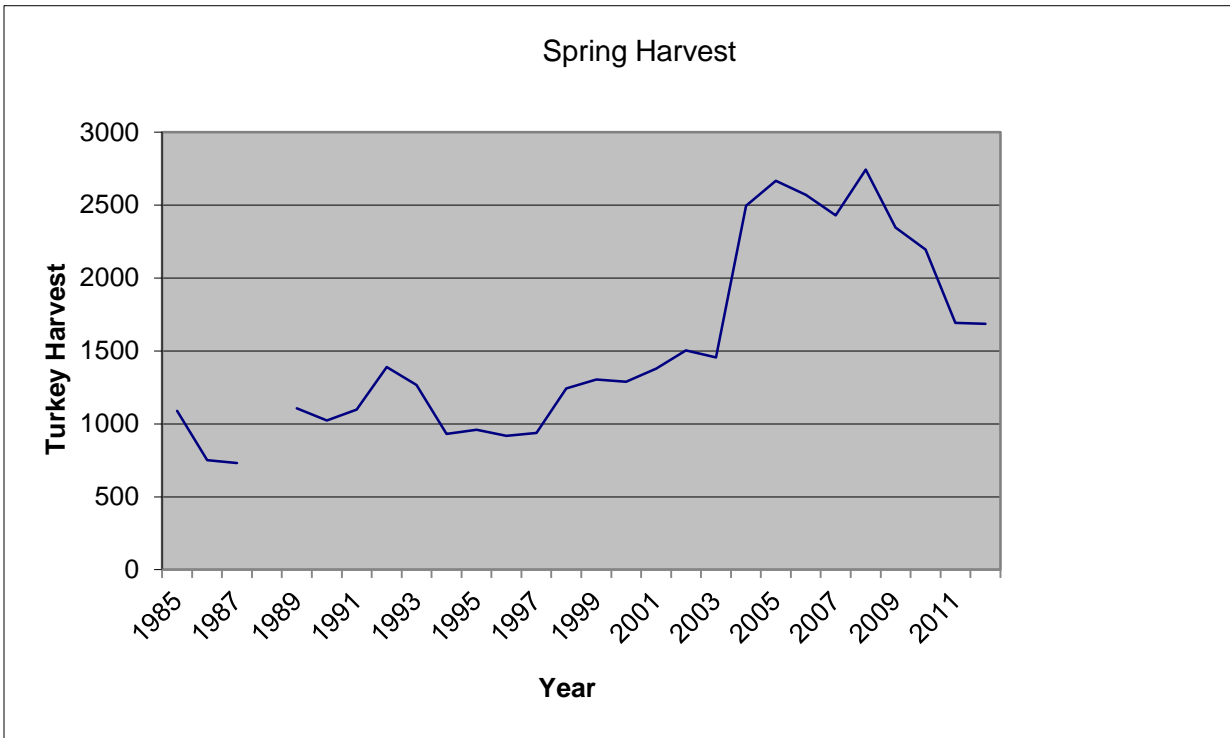
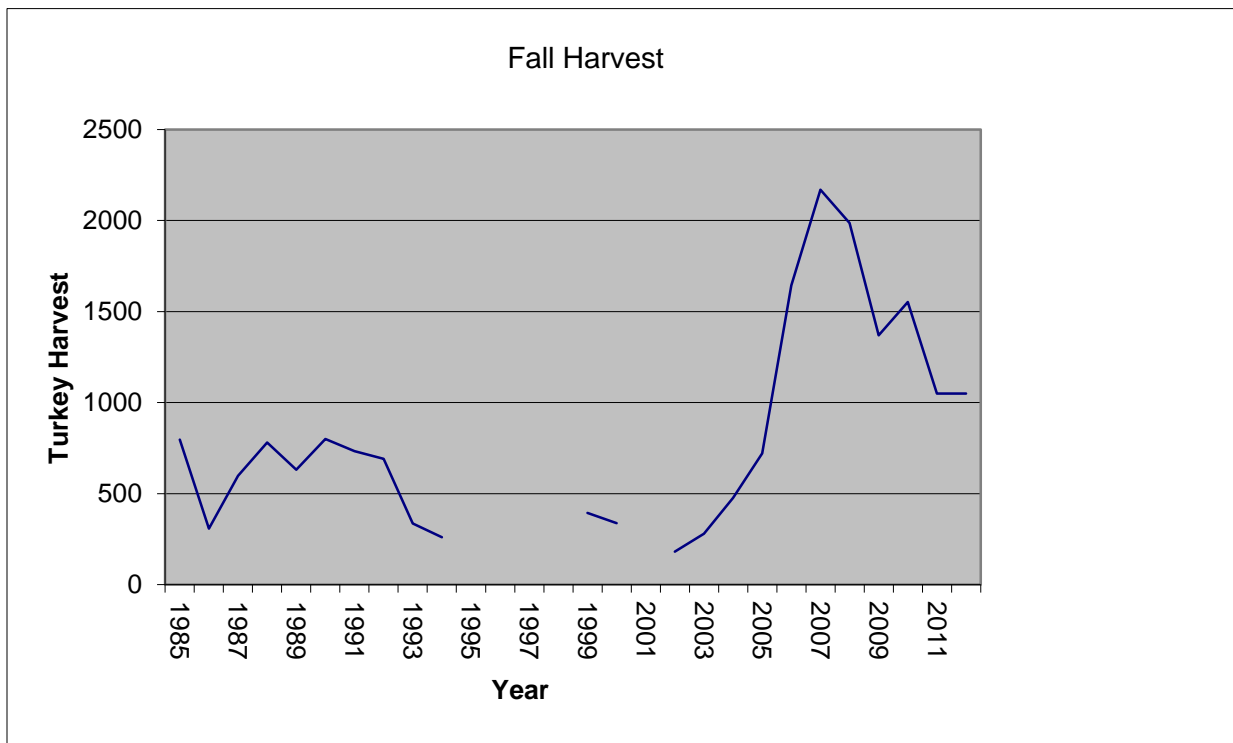


Fig. 4. Black Hills fall harvest projections from 1985-2012.



### Statistical Population Reconstruction

South Dakota is now collecting statistical population reconstruction (SPR) data for each region (Regions 1-4). We collected 125 observations of winter flocks where gender and age were classified by region. Region 1 classified 448 turkeys, Region 2 342 turkeys, Region 3 189 turkeys, and Region 4 194 turkeys. Unfortunately in Regions 2-4 most of the turkeys classified were adult gobblers. More training is needed with staff to correctly classify juvenile males and females, and differentiate those birds from adult hens. Additionally, we will be mailing out fall envelopes to hunters to collect 9-10<sup>th</sup> primary feathers and contour feathers to determine age and gender of fall harvested turkeys to use in SPR analysis. We plan to use harvest information, winter flock counts, summer brood counts, and previous research as auxiliary information in the SPR analysis.

## Wisconsin Department of Natural Resources

### 2013 Wild Turkey Status Report

by Krista McGinley & Scott Walter, Wisconsin DNR Upland Program

#### Historical Overview of Wild Turkeys in Wisconsin

Schorger (1942), through an exhaustive review of pioneer journals and early newspaper articles, suggested that wild turkeys were common in Wisconsin prior to settlement only southeast of a line connecting Green Bay and Prairie du Chien, with the highest numbers being found in the southwestern part of the state. The northern limit for turkeys during this period likely fluctuated in response to severe winter weather, and re-establishment of turkeys in the state following severe winters was believed to occur via immigration from adjacent populations in Illinois.

Turkeys were found throughout the prairie and oak savanna habitat that typified much of southern Wisconsin prior to settlement, but some early reports suggest that, locally, turkeys were tied to areas with standing timber (Schorger 1942), which likely provided winter food and roost sites. The removal of vast areas of timber from southern Wisconsin that took place concurrent with the conversion to intensive agriculture, high harvests supported by active markets for wildlife, and the disappearance of source populations in Illinois led to turkeys becoming rare in Wisconsin by 1860. Wild turkeys were considered entirely extirpated from the state by the late 19th century, with the last known turkey being harvested near Darlington in 1881. Given the dramatic landscape changes that led to the loss of turkeys from Wisconsin and adjacent states, Schorger (1942) predicted that “it is doubtful if a planting will ever become successful in Wisconsin.”

Indeed, the wild turkey remained largely absent from Wisconsin’s landscape for much of the next century, although numerous early restocking efforts were attempted. It seemed that Schorger’s cynical view of the future for wild turkeys in Wisconsin was warranted, and that successful restoration of turkeys was unlikely. Biologists learned from these early efforts, however, that a successful restoration effort would require the use of truly wild birds, not the game farm or semi-domestic turkeys typical of early releases. Research into wild turkey ecology had also provided an increased understanding of turkey habitat needs. With this new information in hand in the early 1970s, Wisconsin was set to join other states on the path toward turkey restoration.

An agreement between the Wisconsin DNR and the Missouri Department of Conservation paved the way for the successful restoration of wild turkeys to Wisconsin. Missouri, with a healthy wild turkey population, was interested in bolstering their flagging ruffed grouse population via translocation. Both agencies realized that a cooperative venture, whereby Wisconsin provided ruffed grouse in exchange for wild-captured Missouri turkeys, would be mutually beneficial and help to address the conservation goals for both species. In January 1976, 29 turkeys were released in the Bad Axe River watershed in Vernon County, and a total of 334 Missouri wild turkeys were released at various sites in southwestern Wisconsin over the following 9 years. Birds released were Eastern wild turkeys (*Meleagris gallopavo silvestris*), the largest of the 5 subspecies found in North America and likely the subspecies best adapted to the climatic conditions found in Wisconsin. These wild birds also proved to possess the survival skills lacking in the pen-reared or semi-domestic birds used in previous restocking efforts and benefited from mild winter weather and good production during the early years of translocation. As a result, turkeys began to increase in number in areas near the initial release sites.

To hasten expansion, the WDNR initiated intrastate translocation efforts in 1979, moving birds from established populations in southwestern Wisconsin and releasing them at suitable sites throughout the southern two-thirds of the state. These “trap and transfer” efforts to expand the range and increase numbers of turkeys in Wisconsin were initially hindered by staff inexperience with capture techniques, relatively little staff time allocated to the project, and a reliance on internal funding mechanisms (small game and deer license revenue and federal dollars allocated through the Pittman-Robertson Federal Aid in Wildlife Restoration Act). Given these constraints, only 300 turkeys were translocated within Wisconsin during the first 6 years of the project.

The National Wild Turkey Federation (NWTF) provided the solution for more rapid turkey restoration efforts in Wisconsin, and across the country, through their “Target 2000” program. Via this creative approach, NWTF staff developed partnerships with many state natural resource agencies to facilitate the interstate shipment of turkeys for restoration purposes. States providing turkeys to others were reimbursed at a standard rate of \$500 per turkey. Wisconsin, with an already established and healthy turkey flock in the southwestern part of the state, was able to provide turkeys to other states that were initiating their own turkey restoration efforts. Nearly 1,400 turkeys were shipped to Michigan, Minnesota, North Carolina, Kentucky, Texas, and Louisiana over the next decade. Moreover, staff had acquired significant experience with turkey capture techniques during the initial years of our intrastate translocation program, such that the cost to capture and transport turkeys was often less than \$500/bird. Net funding received through the Target 2000 program was reinvested in Wisconsin’s turkey program by updating trapping equipment and supporting greater staff investment in the trap-and-transfer efforts. By 1993, a total of 3,385 turkeys had been translocated to 164 release sites in 49 Wisconsin counties.

The Driftless Area of southwest Wisconsin was selected as the general area for initial stocking because it possesses key habitat elements believed at the time to be critical for the establishment of a turkey population. To insure the highest probability of successful restoration, specific release sites within this area were selected based on stringent criteria. To receive Missouri turkeys, areas were to have significant oak-hickory forest cover, south facing slopes, and spring seeps embedded in an agricultural matrix that provided open areas for spring breeding activities and brood-rearing habitat, and waste grains as a winter food source. This strategy proved very successful, as turkey numbers continued to climb throughout the region even as turkeys were being trapped for out-of-state shipment and to support intrastate restoration efforts.

While site-specific habitat factors are important in determining the success of release efforts, on a broad scale it was recognized that climate would ultimately determine the northern range limit of turkeys in Wisconsin. Wild turkeys face increased metabolic demands when temperatures drop below 50° F, and persistent deep snow inhibits their movements. As such, early release sites were confined to the southern two-thirds of the state, where 12” of snow persisted for no more than 30 days in an average winter. To the surprise of many, however, wild turkeys proved much better able to tolerate the habitat and climatic conditions typical of more northerly portions of the state. The successful establishment of turkeys at sites along this snow band eventually led to releases in more northerly counties. The 2004 release of 164 turkeys at 6 release sites in Douglas and Bayfield counties introduced turkeys to the far northern reaches of Wisconsin, and brought the restoration phase of Wisconsin’s turkey management program to a close. In total, at least 3,843 turkeys were captured, translocated, and released at 183 sites across Wisconsin.

Currently, wild turkeys are found in all Wisconsin counties, and both spring and fall seasons are open state-wide. The restoration of wild turkeys therefore stands as one of the greatest success stories in the history of wildlife management in Wisconsin. From complete absence to a healthy statewide population in 30 years, wild turkey restoration efforts in the state provide a classic example of how effectively wildlife research and management efforts can mesh, but also reveal how partnerships among dedicated conservation organizations can lead to landscape-level benefits to our wildlife community and the human users that enjoy it.

### Harvest Management

As turkeys expanded their range across Wisconsin, Turkey Management Zones (TMZs) were established so that harvest could be regulated in accordance with turkey population status and habitat suitability in specific areas. The first modern spring wild turkey season was held in 1983 in 4 southwestern Wisconsin zones, and by 2006 turkey hunting was available statewide. Forty-six individual TMZs were eventually created, along with 17 state park units and a federally-managed season at Fort McCoy. The numerous zones allowed managers a fine-grained approach to harvest management and also early initiation of turkey hunting in areas that could support harvest. As permits were issued by zone, however, the smaller zones limited hunter ability to explore and hunt new locations.

As turkey populations became well established across the state, hunters expressed interest in greater flexibility with respect to hunting location, and managers realized that turkey habitat quality was homogenous across regions, on a scale greater than that captured by the current 46-zone system. As a result, the 46 zones were consolidated into 7 larger TMZs in 2006. These larger zones allow hunters much greater mobility with respect to hunting location, yet still allow managers to monitor turkey populations and regulate harvest in accordance with regional assessments of turkey numbers and habitat quality.

The first modern spring turkey season in Wisconsin took place in 1983, and included three separate 5-day time periods, with the first time period commencing on the Wednesday nearest April 13th. Over the ensuing quarter century, turkeys and turkey hunting expanded across the state, three additional time periods were added, and the time periods were lengthened to 7 days. The first statewide spring season took place in 2006.

During the inaugural spring season in 1983, 182 turkeys were harvested by 1,200 hunters in 4 southwestern zones – a permit success rate of 15%. Statewide harvest increased rapidly over the following quarter century as turkeys expanded their range and new zones were opened to turkey hunting. Spring harvest peaked at 52,880 turkeys in 2008, and then declined 24% by 2011, when 40,133 birds were registered. While this decline was likely in part due to a recent shallow decline in permit sales, it also probably reflected impacts of wet spring and harsh winter weather during this 3-year period on turkey populations across the state. Harvest increased by 6% during the spring 2012 season, on the heels of a very mild winter and with good hunting conditions during the season.

2007 marked the first year that Wisconsin youth were able to participate in an annual Spring Turkey Youth Hunt. The hunt is designed to give youth hunters ages 10-15 an opportunity to hunt turkey and gain valuable experience at a time when other hunters are not authorized to hunt turkeys. Starting in 2010 for the Spring Turkey Youth Hunt, youth hunters 10-15 years of age, with or without Hunter Education certification, are eligible to participate with a mentor. In 2012, the Youth Hunt took place on April 7<sup>th</sup> & 8<sup>th</sup>, the Saturday and Sunday immediately prior to the opening of the regular spring turkey hunting season. Youth hunters harvested a total of 2,928 turkeys during this weekend, a 16% increase over the harvest from 2011's youth hunt. An additional 136 birds were harvested during Learn to Hunt Turkey events.

Either-sex fall hunting seasons have the potential to impact turkey population size, if hen harvest is excessive. Hence, the initial fall seasons were also designed to result in a conservative harvest. The first fall turkey season was held in 1989, with three 5-day time periods (Wednesday – Sunday) in several southwestern zones. As turkeys continued to increase in number and expand their range in Wisconsin, fall seasons were opened in new zones- generally a few years after the establishment of a spring hunt. In 1994, the fall hunt was expanded into a single, 28-day season, and additional days were added in 2005 and 2007, when the opening date was set to coincide with the opening of bow deer and many small game seasons. An experimental late-season hunt in Zones 1-5, from the Monday following the traditional 9-day gun deer hunt through the end of December, was initiated in 2009 and made permanent in 2011. The use of dogs to hunt fall turkeys was also introduced as a limited pilot program in 2007 and made legal statewide in 2010. Considering the 6 spring time periods and the extended fall season in zones 1-5, Wisconsin now offers turkey hunting opportunities >135 days each year!

Statewide harvest during the fall season increased from the 1,570 turkeys registered during the first season in 1989 to a peak of 12,554 in 2003. Harvest remained high (>10,000) and fairly stable from 1999 through 2008, but has since tapered off significantly, dropping to only 5,433 turkeys in 2011. This was the lowest fall harvest since 1994, when fall turkey hunting was still confined largely to the southern half of the state. The dramatic reduction in fall harvest may partially reflect a declining turkey population from 2008-2011, but declining hunter participation in the fall hunt is certainly a driving factor. The total number of permits issued for the fall season declined steeply over this time frame; the number of permits issued in 2011 was 36% lower than the number issued as recently as 2005. As well, hunters who purchase a fall permit may be less dedicated to pursuing turkeys than during previous years. Fall Turkey Hunter Survey data from 2006-2011 reveal that nearly one-third of individuals that purchase fall turkey permits do not hunt turkeys.

As well, an increasing percentage of respondents suggest that they hunt turkeys only “opportunistically while pursuing other game” during the fall; this percentage increased from ~10% in 2006 to ~30% from 2009-2011.

*Spring turkey harvest in Wisconsin, 1983 – 2013*

<b>Year</b>	<b>Permits Issued</b>	<b>Harvest</b>	<b>Success Rate</b>
1983	1,200	182	15.17%
1984	1,950	303	15.54%
1985	2,025	496	24.49%
1986	2,675	793	21.58%
1987	6,040	1,478	24.47%
1988	11,070	2,486	22.46%
1989	21,280	4,400	20.68%
1990	29,877	6,465	21.64%
1991	37,414	6,846	18.30%
1992	43,925	8,798	20.03%
1993	61,767	12,316	19.94%
1994	71,420	12,637	17.69%
1995	68,588	15,323	22.34%
1996	75,812	18,000	23.74%
1997	92,734	20,992	22.64%
1998	101,141	28,338	28.02%
1999	112,256	33,168	29.55%
2000	132,318	38,686	29.24%
2001	151,522	39,211	25.88%
2002	160,101	39,336	24.57%
2003	169,277	42,970	25.38%
2004	189,908	47,477	25.00%
2005	193,826	46,183	23.83%
2006	200,869	46,662	23.23%
2007	205,306	52,428	25.54%
2008	208,972	52,880	25.30%
2009	218,133	52,581	24.11%
2010	214,356	47,722	22.26%
2011	210,384	40,133	19.08%
2012	201,984	42,612	21.1%
2013	211,307	37,804	17.9%

*Fall turkey harvest in Wisconsin, 1989 – 2013*

<b>Year</b>	<b>Permits Issued</b>	<b>Harvest</b>	<b>Success Rate</b>
1989	7,260	1,521	20.95%
1990	12,465	3,266	26.20%
1991	16,668	2,878	17.27%
1992	24,997	4,983	19.93%
1993	31,449	5,502	17.49%
1994	17,889	3,896	21.78%

1995	28,555	6,172	21.61%
1996	30,554	6,305	20.64%
1997	32,569	6,004	18.43%
1998	40,750	8,843	21.70%
1999	55,479	10,802	19.47%
2000	69,556	11,263	16.19%
2001	71,601	11,029	15.40%
2002	75,040	10,860	14.47%
2003	78,831	12,554	15.93%
2004	78,900	10,216	12.95%
2005	85,678	10,591	12.36%
2006	78,782	12,033	15.27%
2007	80,382	12,010	14.94%
2008	76,448	10,693	13.99%
2009	68,814	8,028	11.67%
2010	61,567	7,394	12.01%
2011	54,949	5,523	10.10%
2012	54,500	7,054	12.9%
2013	64,983	4,633	7.1%

### Summary of Recent Turkey Hunting Incidents

*Spring 2013:* There were two hunting incidents during the spring 2013 wild turkey hunting season, neither of which was fatal. In the first incident, the shooter was a 27-year-old male Hunter Education graduate and the victim was a 54-year-old male Hunter Education graduate; the shooter and victim were not hunting together. The shooter was hunting turkey and mistook the victim for a turkey. The victim took #5 shot from 29 yards to the torso, shoulder, neck, and face. In the second incident, the shooter was a 22-year-old male Hunter Education graduate and the victim was a 47-year-old male Hunter Education graduate; the shooter and victim were hunting together. The shooter was unaware of the victim's exact location and mistook the victim's red shirt for a turkey. The victim took seven pellets of #5 shot from approximately 76 yards to the face and neck.

*Fall 2013:* No incidents reported.

### Results of the 2013 Spring Turkey Hunter Questionnaire

A sample of hunter names and addresses were randomly drawn from the current spring turkey hunter permit file. A survey was mailed to ≈10,000 spring turkey hunters after the completion of the spring turkey season. The questionnaire was mailed in proportion to the number of permits distributed in each zone. The questionnaire asked each hunter specific questions about their spring turkey hunting experience. A second mailing was made to 5,000 of the non-respondents. Data from all returned questionnaires were summarized using the Statistical Analysis System (SAS).

A total of 4,566 spring turkey hunter surveys were returned. After duplicates were removed, the resulting response rate was 46%. The proportion of respondents who applied with landowner preference for this spring's turkey hunt permit was 17.9%. Statewide, 31.6% of the respondents have 0-5 years of spring turkey hunting experience and 22.3% have 16+ years of experience.

Most spring turkey hunters are "Very Satisfied" (33.2%) or "Somewhat satisfied" (21.8%) with the current spring turkey hunting season framework of 6, 7-day time period, 7 zones, a limited draw for first permits, and over-the-counter sale of unissued permits. Only 16% of hunters are either "Somewhat dissatisfied" or "Very dissatisfied". More people feel that the "current permit allocations process affords them a fair chance at receiving a permit"; "feel that having separate, 6-

week time periods is important in maintaining a quality spring turkey hunting experience”; prefer the “current six, 1-week periods”; and “feel the current 7-zone system affords them sufficient opportunity to hunt different locations.”

Statewide, 14.5% of survey respondents participated in the Youth Turkey Hunt as a youth or chaperone; of those, 19.7% reported a turkey being harvested.

All surveyed hunters were asked who introduced them to turkey hunting; 36.7% introduced themselves, while 31.0% were introduced by a friend.

Statewide, 83.3% of the respondents hunted turkeys this spring. Of those who did not hunt, 42.6% bought a 2013 Wild Turkey Stamp. The success rate for active hunters who received a harvest permit was 33.2%. This success rate may be high because of response and prestige biases of a mail survey. The spring turkey harvest registration data success rate (17.4%) is uncorrected for non-hunters and is probably a low estimate.

Surveyed hunters were asked how difficult it was to find a place to hunt in the spring of 2013, and 86.8% of the respondents said it was “very easy” or “somewhat easy”. Spring turkey hunters were also asked to report the days on which they hunted. Hunting pressure was relatively constant Wednesday through Sunday, with the most pressure on Saturday. The new additional days, Monday and Tuesday, had the least hunting pressure. Hunters averaged 3.1 days afield perusing turkeys.

Statewide, the mean number of gobblers/jakes seen by hunters was 4.2; the mean number of gobblers/jakes heard by hunters was 4.8; the mean number of hens seen was 7.8, and the mean number of hens heard was 4.6. Most respondents that had a shot at a turkey did not shoot at the first turkey which presented an opportunity; 66.1% reported waiting for a better shot, or for an adult gobbler. Of the respondents that harvested a turkey, 26.2% with one tag harvested one turkey; 33.2% with two tags harvested one turkey, and 10.5% harvested two turkeys; 26.4% with three or more tags harvested one turkey, 23.9% harvested two turkeys, and 12.4% harvested three or more turkeys. Surveyed hunters were asked if they hit any turkeys that they were unable to retrieve; 3.4% were unable to find their bird, 87 hunters reported hitting one turkey, and 4 hunters reported hitting 2 or more turkeys. Ninety-six percent of turkey hunters used a gun “most” while hunting, while a gun was used 98.1% of the time to kill a turkey.

The percent of time turkey hunters spent on private land varied by TMZ from 57.7% in TMZ 7 to 88.2% in TMZ 4. Of the hunters on private land, 90.2% obtain access by either owning the land, hunting on a family member or relative’s land, or hunting a friend or neighbor’s land. Three percent obtain access via a public access program, of which most was Managed Forest Law. Nineteen percent (18.5%) of hunters responded to “other hunters kept me from hunting where I wanted to” with “definitely yes” or “somewhat.” Similarly, fourteen percent (14.4%) of respondents answered “there was too much competition from other hunters where I hunted” with “definitely yes” or “somewhat.” Only 11.3% of the respondents indicated that other hunters interfered with their chance to bag a bird.

Overall, 35.7% of respondents rated their spring turkey hunting experience as “very high” or “fairly high,” while 32.3% rated their hunt as “fairly low” or “very low”. The most important factors that influenced respondents’ perceptions of a quality hunt were “seeing turkeys/calling birds in/hearing gobbling” and “an opportunity to kill a turkey”. The least important factor was “killing a turkey”.

Most respondents (44.8%) feel that turkey numbers in the zones they hunted in the spring stayed the same relative to the year before. More than four times as many hunters would like to see the number of permits available for the zone(s) they hunted stay the same as opposed to increased.

Respondents were asked to rate their overall satisfaction with spring turkey hunting in Wisconsin on a scale of 1 to 10, with 10 being the best and 1 being the worst; statewide, they ranked their overall satisfaction level at 6.8.



## Preliminary Results of the 2013 10-week Brood Survey

While most of the winter was normal, a snowy late winter with lingering snow cover into early spring led to a later than normal spring green up. Timing of spring green up can affect game bird survival and physical conditions going into the breeding season and in turn affect brood survival. Brood rearing conditions in Wisconsin in 2013 were average for temperature with much of the state seeing temperatures about average for the months of June and July and slightly above for August. Widespread and heavy precipitation was the norm for much of the state for June, with areas in southwestern Wisconsin 4" to 7" inches above normal for the month. Precipitation levels returned to normal or below for the months of July and August and ended about average for the period. Early June weather is the most critical for turkey broods as this is when recently-hatched chicks are most susceptible to hypothermia if they get wet. Large rainfall events in much of Wisconsin could have affected brood survival during June, while much of July and August weather was excellent for brood rearing and survival.

DNR field personnel were asked to report the number and size of game bird broods observed from 9 June through 17 August during their normal working hours. At the end of the survey period, brood reports were then summarized and compiled by the wildlife surveys program. Reports from field staff fell 12% in 2013 from the previous year and are below historic averages.

Wild turkeys saw a decline of 49% in the number of broods seen per observer-hour and a decrease in the size of the broods seen compared to 2012. All 5 DNR regions showed decreases in the observation rate in 2013 from 2012 levels with the largest changes occurring in the southeastern (-76%), south-central (-65%), northern (-60%), northeast (-30), and west-central regions (-8%). The statewide observation rate was 34% below the long-term mean and similar to what was observed in 2011. The average size of a brood seen in 2013 was 4.2 young per brood, down from the 4.9 young per brood seen in 2012. There were many reports of turkeys having broods with small chicks late in the brood observation period, an indication of late nesting or re-nesting due to the harsh nesting and early brood rearing conditions.

## Revision of the Wisconsin Wild Turkey Management Plan

Following the successful reintroduction of wild turkeys to Wisconsin in the 1970s, turkeys have expanded their range so that they now occupy all counties in the state, and spring and fall turkey hunting have become very popular outdoor activities. The current Wisconsin Wild Turkey Management Plan, written in 1996, needs to be revised to include treatment of contemporary issues related to turkey management in the state. A critical part of the revision process includes soliciting, gathering, and analyzing input from the public regarding challenges and opportunities in turkey management and hunting in Wisconsin. During late April and early May of 2012, eleven public input sessions were held around the state, during which attendees were presented with background information and asked to complete a survey that addressed important issues related to the future direction of turkey management. The survey was also available online through the end of May. A total of 2,124 surveys were completed (2,047 submitted online; 77 from in-person sessions). Information gleaned from this survey will help all of the partners involved in managing our state's turkey flock in developing a plan that protects the turkey resource, but also optimizes recreational opportunities for outdoor enthusiasts. A draft of the revised plan will be developed by late winter of 2013-14, with the final plan being submitted for approval by fall 2014.