2015 Proceedings
Midwest Deer & Wild Turkey Study Group Meeting
September 8th-11th, 2015
Lake Delton, Wisconsin

Submitted by:
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Wisconsin Department of Natural Resources
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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 at 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 Wisconsin Department of Natural Resources (WDNR) hosted the 2015 MDWTSG meeting at the Perlstein Resort and Conference Center in Lake Delton, Wisconsin on September 8-11. The MDWTSG appreciates the financial support provided by the National Wild Turkey Federation (NWTF), the Wisconsin Chapter of NTWF, and the Quality Deer Management Association (QDMA) in sponsoring the evening socials. Additionally, we thank the Port Huron Brewing Company for donating beverages for socials.

Attendance

Fifty-seven participants attended the 2015 meeting, including state deer and turkey biologists from 13 Midwest member states (Indiana, Iowa, Illinois, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin) and attendees from other organizations and institutions including the NWTF, the QDMA, Michigan State University, National Wildlife Health Center, and the University of Wisconsin. A complete list of attendees and contact information for deer and turkey state biologists are available in Table 1.

Executive Summary

Attendees at the 2015 MDWTSG meeting were welcomed by Kevin Wallenfang, WDNR Deer and Elk Program Specialist. Following the meeting introduction, there were seven presentations that occurred during the joint session, including the following topics:

- A Massive Open Online Course on perceptive hunting, Aldo Leopold and conservation
- Snapshot Wisconsin, a citizen-science trail camera project
- Why fewer gun-deer hunters bought licenses in 2010 and 2011
- Hunter retention and recruitment
- County deer advisory councils
- Understanding climate change in Wisconsin
- National update on chronic wasting disease

Following the joint session, a number of presentations were given during both the deer and wild turkey break-out sessions. These topics included:

- Custom web applications to automate wildlife workflow
- Integration of harvest and time-to-event data to estimate deer demographic parameters
- Deer dispersal research
- National Deer Alliance
- Wisconsin's deer management assistance program
- E-registration and biological checkstation pilots
- Deer reproduction and nutritional condition in Wisconsin
- Wisconsin's wild turkey management plan
- Continuous versus discontinuous spring turkey seasons
- 11th National Wild turkey Symposium
- Wisconsin's wild turkey research

During a portion of the wild turkey break-out session, meeting attendees participated in a Midwest Wild Turkey Consortium Workshop. The Workshop provided attendees with an update about the Midwestern cooperative wild turkey research project and fostered discussion of project future direction. State status reports were presented in both the deer and wild turkey break-out sessions.

A field trip was conducted on the afternoon of the second day of the meeting to the Aldo Leopold Foundation. The field trip included a tour of the Leopold shack as well as talks about the Driftless Forest Network and the Leopold-Pine Island Important Bird Area.

Business Meeting

The Business Meeting was conducted as a joint session involving both deer and wild turkey program leaders. The 2016 MDWTSG meeting will be hosted by the Kentucky Department of Fish and Wildlife Resources.

The group discussed maintaining the website which has been hosted by South Dakota (http://mdwtsg.org/). The website has been a useful tool for MDWTSG members, providing a means to disseminate meeting proceedings, a repository for study group documents and meeting notes, and information about upcoming meetings. South Dakota is willing to continue to maintain the website, but would be happy to hand it off if anyone else is interested.

The study group approved a resolution related to federal funding for CWD management. The group also voted to request commitment by state Directors to fill vacant turkey project leader positions. The vacancies are resulting in knowledge gaps and limiting the analyses of the Midwest Wild Turkey Consortium.

There is interest in updating the multi-state CWD guidelines. A subcommittee agreed to discuss this with the Midwest Wildlife Health Committee.

The study group agreed to update the deer harvest density maps that were compiled in 2009. Over the next year the study group will work on compiling regional deer research needs.

Director Information Items

The Midwest Deer and Wild turkey Study Group request commitment by state Directors to fill vacant turkey project leader positions.

The Study Group also request a commitment by state Directors to support increased federal funding for chronic wasting disease management. A draft resolution is included.

Resolution by the Midwest Association of Fish and Wildlife Agencies regarding federal funding for chronic wasting disease management and research.

Whereas, chronic wasting disease (CWD) is a fatal neurological disease of mule deer, white-tailed deer, elk, moose and reindeer/caribou;

Whereas, CWD has been detected in captive and/or free-ranging cervid populations in 24 states (including all but 2 of the Midwestern states), 2 Canadian provinces, the Republic of South Korea, and Norway;

Whereas, the geographic distribution and prevalence of CWD continue to grow;

Whereas, CWD poses a threat to the health of cervid populations wherever it occurs;

Whereas, consequent to the ongoing spread of disease, domestic livestock and human exposure to the causative agent of CWD are increasing;

Whereas, effective surveillance of free-ranging and captive populations is a critical component of CWD management;

Whereas, public demand for hunter service testing will likely increase as the size of CWD affected areas increase;

Whereas, indemnification of captive cervid producers has been important for timely depopulation of CWD-positive herds;

Whereas, there remain research needs that are critical for disease control efforts in captive and free-ranging cervids including development of an effective live-animal test and construction of a successful vaccine;

Whereas, the USDA declared CWD to be a national emergency in 2001 and Congress appropriated more than $18 million per year in the early 2000s to USDA for CWD surveillance, management, and research; **Whereas**, recent federal appropriations for CWD management have decreased markedly to approximately $1 million to $3 million per year and surveillance has consequently diminished; and

Whereas, in the early 2000s CWD had been detected in free-ranging cervid population in only a handful of states, and the level of federal appropriations for CWD surveillance reflected this level;

Now, therefore, be it resolved that the Midwest Association of Fish and Wildlife Agencies encourages AFWA to request restoration of federal funding for CWD management and research in both free-ranging and captive cervid populations to levels greater than those of the early 2000s and commensurate with the needs of the states to (1) conduct adequate surveillance among free-ranging herds and (2) indemnify owners of depopulated positive captive herds.

Table 1: List of Participants

Last	First	Agency/Affiliation	Phone	Email
Adams	Kip	Quality Deer Management Association	814-326-4023	kadams@qdma.com
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Table 2: Previous Midwest Deer & Wild Turkey Study Group Meeting Locations

Year	State	Location Date	Date
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	Louisbille 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	August 18-21
2014	Missouri	YMCA Camp of the Ozarks	September 9-12
2015	Wisconsin	Perlstein Conference Center	September 8-11

39th Annual Midwest Deer & Wild Turkey Study Group Meeting

Perlstein Resort & Conference Center, Lake Delton WI
Tuesday, Sept. 8 - Friday, Sept. 11, 2015

Agenda

Tuesday, September 8th, 2015

4:00-8:00 p.m.	Registration	Office / Dining Room
5:00 p.m.	Evening Social *Sponsored by NWTF & QDMA*	Gym Camper Lounge

Wednesday, September 9th, 2015

7:00-7:45 a.m.	Registration, continued	Office / Dining Room
7:00-8:00 a.m.	Breakfast	Dining Room
8:00 a.m.	Joint Meeting - see detailed schedule below	Pavilion
8:00-8:15 a.m.	Welcome *Kevin Wallenfang, Wisconsin Department of Natural Resources*	
8:15-8:45 a.m.	Land Ethic Reclaimed: Perceptive Hunting, Aldo Leopold, and Conservation *Tim Van Deelen, University of Wisconsin-Madison*	
8:45-9:15 a.m.	SnapShot Wisconsin *Jennifer Stenglein, Wisconsin Department of Natural Resources*	
9:15-9:45 a.m.	Why Fewer Gun-deer Hunters Bought Licenses in 2010 and 2011 *Robert Holsman, Wisconsin Department of Natural Resources*	
9:45-10:00 a.m.	BREAK	
10:00-10:30 a.m.	Hunter Retention and Recruitment *Keith Warnke, Wisconsin Department of Natural Resources*	
10:30-11:00 a.m.	County Deer Advisory Councils *Kevin Wallenfang & Ben Beardmore, Wisconsin Dept. of Natural Resources*	
11:00-11:30 a.m.	WICCI: Understanding Climate Change in Wisconsin *David S. Liebl, University of Wisconsin-Madison*	

11:30-12:00 p.m.	Chronic Wasting Disease: National Update *Bryan Richards, National Wildlife Health Center*	
12:00-1:00 p.m.	LUNCH	Dining Room
1:00-5:00 p.m.	Breakout Sessions - see detailed schedules below	
5:00-6:00 p.m.	Free Time	
6:00-7:00 p.m.	Dinner	Dining Room
7:00 p.m.	Evening Social *Sponsored by NWTF & QDMA*	Gym Camper Lounge

9/9/15: Deer Breakout Session - Pavilion, 1:00-5:00 p.m.

1:00-1:30 p.m.	Big Data for Big Game: Custom Web Apps to Automate and Simplify the Wildlife Workflow *James Nowak, University of Montana*
1:30-2:00 p.m.	Integration of Harvest and Time-to-event Data Used to Estimate Demographic Parameters for White-tailed Deer *Andrew S. Norton, University of Wisconsin-Madison*
2:00-2:20 p.m.	Deer Dispersal Research *Brittany Peterson, University of Wisconsin-Madison*
2:20-2:40 p.m.	National Deer Alliance Update *Kip Adams, Quality Deer Management Association*
2:40-3:00 p.m.	Wisconsin's Deer Management Assistance Program *Bob Nack, Wisconsin Department of Natural Resources*
3:00-3:20 p.m.	BREAK
3:20-3:40 p.m.	E-registration and Biological Checkstation Pilots *Brian Dhuey and Dan Storm, Wisconsin Department of Natural Resources*
3:40-4:00 p.m.	Assessing Deer Reproduction and Nutritional Condition in Wisconsin *Dan Storm, Wisconsin Department of Natural Resources*
4:00-5:00 p.m.	State Reports

9/9/15: Wild Turkey Breakout Session - Gym Staff Lounge, 1:00-5:00 p.m.

1:00-1:30 p.m.	Revising Wisconsin's Wild Turkey Management Plan *Krista McGinley, Wisconsin Department of Natural Resources*
1:30-2:00 p.m.	Discussion: Pros and Cons of a Continuous, Statewide Spring Turkey Season vs. Separate Zones and Time Periods

2:00-2:30 p.m.	Update/Discussion: 11th National Wild Turkey Symposium *Steve Backs, Indiana Division of Fish & Wildlife*	
2:30-3:00 p.m.	Update: Wisconsin Wild Turkey Research *Chris Pollentier, Wisconsin Department of Natural Resources*	
3:00-3:20 p.m.	BREAK	
3:20-4:20 p.m.	Update: Status of the Midwest Turkey Consortium *Chad Parent, Michigan State University*	
4:20-5:00 p.m.	State Reports	

Thursday, September 10th, 2015

7:00-8:00 a.m.	Breakfast	Dining Room
8:00-11:00 a.m.	Deer Breakout Session - State Reports Wild Turkey Breakout Session - State Reports	Pavilion Gym Staff Lounge
11:00-12:00 p.m.	Business Meeting	Pavilion
12:00-1:00 p.m.	Lunch	Dining Room
1:00-5:00 p.m.	Field Trip - Aldo Leopold Foundation	
5:00-6:00 p.m.	Free Time	
6:00-7:00 p.m.	Dinner	Dining Room
7:00 p.m.	Evening Social	Gym Camper Lounge

Friday, September 11th, 2015

7:00-8:00 a.m.	Breakfast	Dining Room
8:00 a.m.	Departure	

Thank you to our generous sponsors!

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2015 Illinois Deer Report MDWTSG

Current Harvest: All seasons deer harvest was 52.9% male: 47.1% female; 41.7% antlered: 58.3% antlerless.

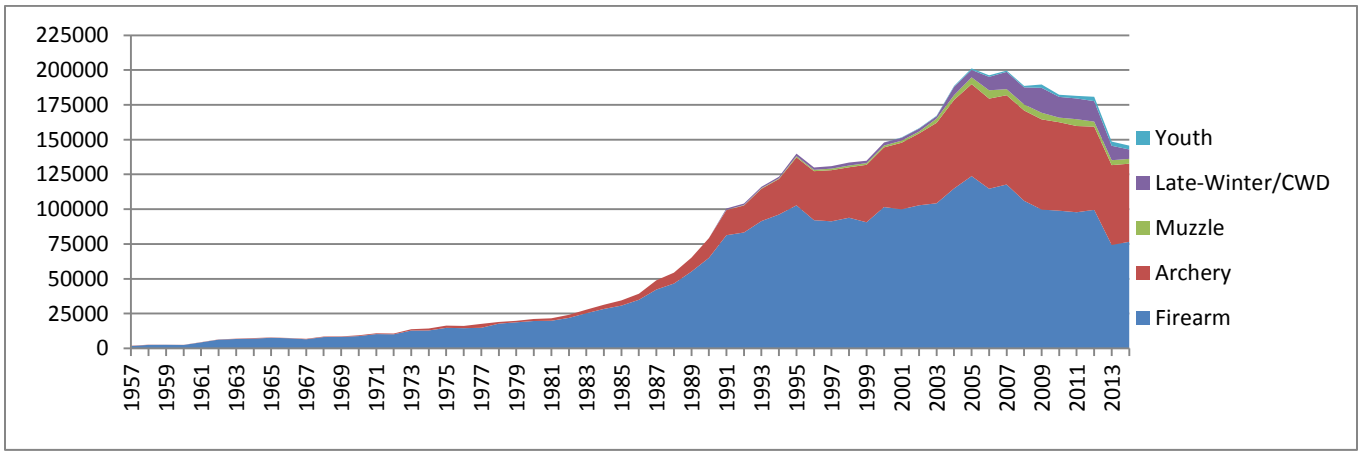
	Antlered			Button Bucks			Does			Total		
Season	**2013**	**2014**	**% Change**	**2013**	**2014**	**% Change**	**2013**	**2014**	**% Change**	**2013**	**2014**	**% Change**
Archery	22911	24508	7.0%	5749	4963	-13.7%	28704	26672	-7.1%	57364	56143	-2.1%
Youth	1157	1199	3.6%	380	301	-20.8%	1479	1270	-14.1%	3016	2770	-8.2%
Muzzle	1128	1105	-2.0%	474	444	-6.3%	1934	1922	-0.6%	3536	3471	-1.8%
LWS	179	137	-23.5%	1712	908	-47.0%	7029	4107	-41.6%	8920	5152	-42.2%
CWD	272	371	36.4%	297	229	-22.9%	891	1009	13.2%	1460	1609	10.2%
Firearm	32403	33632	3.8%	9053	9332	3.1%	32863	33611	2.3%	74319	76575	3.0%
Total	**58050**	**60952**	**5.0%**	**17665**	**16177**	**-8.4%**	**72900**	**68591**	**-5.9%**	**148615**	**145720**	**-1.9%**

NOTE: "LWS antlered" includes animals older than fawn which had already cast antlers. "CWD antlered" includes antlered and cast antlered animals.

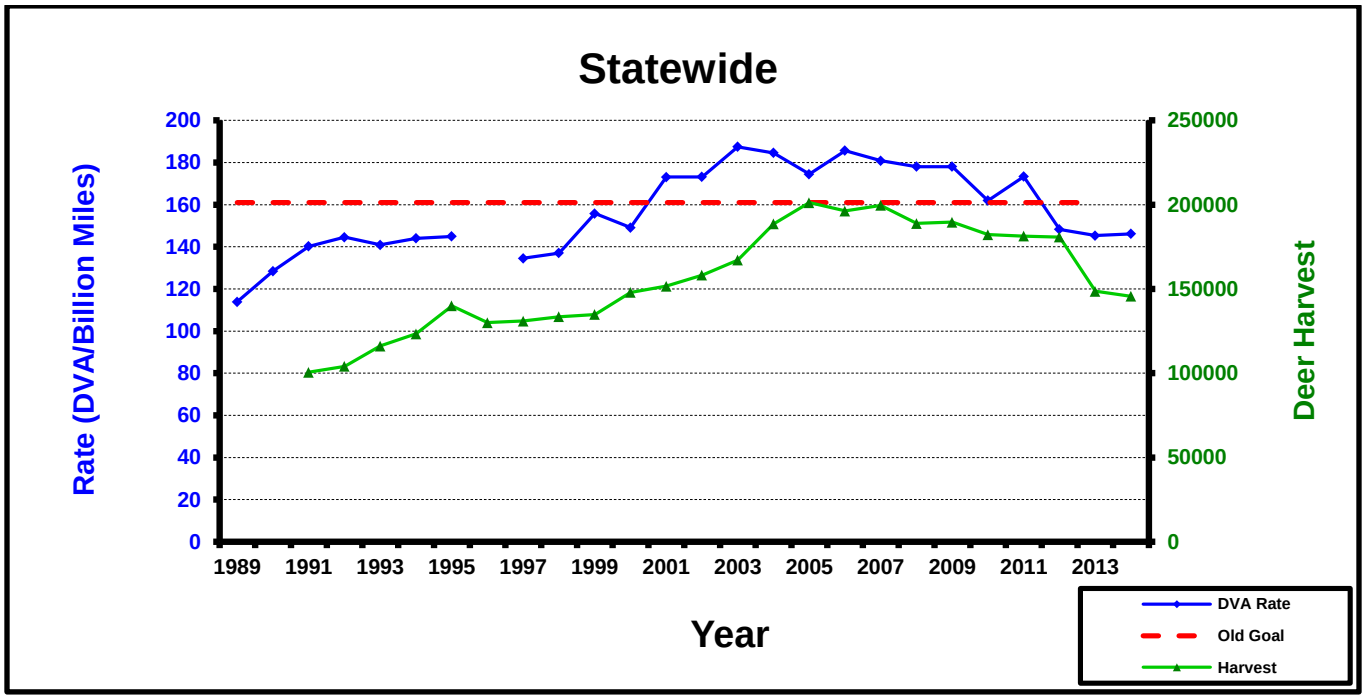
Increased firearm season harvest was attributed to better weather conditions during the 7-day hunting period compared to that of 2013. CWD season increase was due to the addition of another county; and, perhaps, increased interest in participating due to meetings which highlighted the importance of hunter harvest/testing in order to *reduce agency sharpshooting* in CWD zones. Factors contributing to recent overall harvest declines include: 1) the ongoing effort to reduce deer-vehicle accident rates to goals established for each county and statewide; 2) two consecutive years of measurable EHD loss (2012, 2013); 3) Closure of 20 more LWS counties which met DVA rate goals; and, 4) More than 26,000 fewer permits allocated, down 4.2% from 2013-14. There was also a "voluntary restraint" program announced by the Illinois Whitetail Alliance which may (or may not) have had an effect on antlerless deer harvest.

We had at least 259,477 individuals who obtained permits for at least one of our deer seasons. There were 207,378 with gun permits (firearm, muzzleloader, late-winter, CWD, or youth). There were 156,324 who had archery permits. Of the total number of hunters, 40.2% (104,225) hunted with both bow and gun, 39.8% (103,153) hunted with gun only, and 20.1% (52,099) hunted only with a bow. Success rates were 26.3% for archery hunters; 34.0% for gun hunters – all gun seasons combined; and 38.2% for all seasons combined.

Historic Harvest:



Population Estimate/Trend: Illinois harvest (green) and deer-vehicle accident rate (blue) trends may be seen below. We achieved the agreed upon goal for statewide DVA rate in 2012. Statewide goal remained unchanged while modifications (upward) were made to 40 or so county goals in early 2014, which can be viewed here: http://www.dnr.illinois.gov/conservation/wildlife/Documents/RevisingIllinoisDeerManagementObjectives.pdf



Regulation/legislation changes:

The 2014-15 season changes included closing 20 additional counties to the Late-winter Season (LWS) as they had reached their deer-vehicle accident rate goals, leaving 35 of 102 open; and adding Will County to the Special CWD Season after discovery of chronic wasting disease there.

Changes proposed for 2015-16 include the elimination of over-the-counter (OTC) access to non-resident antlerless only archery deer permits; allowing unfilled Youth Deer Season permits to be valid during the 1st Firearm Season weekend; and crossbows allowed for youths who have a youth hunting license (does not require hunter safety) and an archery deer permit.

We have added two more mandatory firearm deer check counties (Kendall, Will). We will operate 10 check stations for deer taken in 12 counties. Livingston and Kankakee positives were not confirmed until after decisions were made regarding firearm deer check operations; Lake and Du Page are closed to gun deer hunting.

Two new counties (Kankakee and Livingston) will be added to the CWD season in 2015-16. Illinois now has a total of 16 CWD-positive counties, three of which are represented by a single positive animal; and detected a total of 538 through 30 June 2015.

There were 10 of last year's open LWS counties which were below their DVA rate goals in 2013, eight of them were also below goal in 2014 and will be removed from the LWS for 2015-16, leaving 27 (of 102) counties open this year. We had ten more counties which were below their DVA rate goal in 2014. If they remain at or below current levels during 2015 they may be removed from the LWS in 2016-17.

An on-line survey of all deer hunters was conducted in early June to evaluate attitudes toward archery deer limits. There were a little over 7,000 respondents. The archery limit question will be further studied with questions added to our annual hunter survey this winter.

Urban/Special Hunts: Forty Deer Population Control Permits (DPCPs) were issued to 10 municipalities/agencies in six counties. There were 1,650 deer authorized and 1,338 (81.1%) were collected. All adult animals taken on DPCPs are now sampled for CWD. One Winnebago county CWD-positive animal was detected during DPCP sampling in 2014-15. (See complete report, in "Relevant Links" section.)

Deer Management Assistance/Crop Damage: There were 164 Deer Removal Permits (DRPs) issued in 54 counties during 2014; compared to 264 issued in 57 counties during 2013. The 161 lethal removal permits authorized take of 1,234 deer (839 antlerless; 16 antlered; 379 either sex) and 754 (61%) were collected. Sixty-six percent of permits issued were for excessive damage to corn and/or soybeans; 77% of all permits were issued during the period June through August. Thirty-two permits were issued for public safety at airports. (See complete report, in "Relevant Links" section.)

DISEASES: After two consecutive years of significant localized **EHD** losses, 2014 was a non-event. Nine citizens reported the loss of 12 animals from nine, mostly southern Illinois counties. EHD loss in 2013 (1,220), was not as bad as the number reported during the 2012 outbreak (2,968). There were 318 reports from 63 counties in 2013; down from the record number of reports (977) and counties (87) in 2012.

Chronic Wasting Disease (CWD) management continued in Illinois. There were 7,902 animals tested (7,861 usable) statewide, with 71 positives (highest) identified in FY'15 (7,397 tested; 59 positives in FY'14). Livingston and Kankakee counties were added to our list of those with documented CWD cases, now totaling 16 counties. Between 15 January and 31 March, 2015, agency sharpshooters took 861 (24 positive) from 103 sections in 12 counties. This compares to 721 deer (18 positive) from 87 sections in 13 counties in FY'14. Additionally, Deer Population Control Permit holders tested 515 animals, 1 positive; and Deer Removal Permit holders tested another 17, none positive. Prevalence rates (hunting): for all adult deer was at 1.20%; adult males, 1.68%; and adult females, 0.72%. We have now documented 538 positives from 89,448 animals tested to-date. (See complete report, in "Relevant Links" section.)

http://www.dnr.illinois.gov/programs/CWD/Documents/CWDMap.pdf (map of cumulative positive animal locations)

Research: Current research projects include the effects of culling on social affinity of white-tailed deer and its potential to impact disease spread; deer dispersal patterns in highly fragmented environments; and effects of CWD on gene expression in deer.

Hot Topics: In Illinois and throughout the Midwest, reduced deer numbers have spurred hunters to form 'alliances' (i.e., Illinois Whitetail Alliance (IWA); National Deer Alliance (NDA)) that promote managing for herd increases and/or restoration of trophy abundance.

Relevant Links:

2015-16 Illinois Hunting Digest: http://www.dnr.illinois.gov/hunting/Documents/HuntTrapDigest.pdf

Annual Deer Harvest Summary - link to Illinois deer harvest reports (2005-2014) may be found at this location on our website: http://www.dnr.illinois.gov/hunting/deer/Pages/AnnualDeerHarvestReports.aspx

Chronic Wasting Disease Annual Report - link to all Illinois CWD information, including latest annual report, will be found at this location on our website: http://www.dnr.illinois.gov/Programs/CWD/Pages/default.aspx

Late-winter/CWD Season - **2015-16** map is found at this location on our website: http://www.dnr.illinois.gov/conservation/wildlife/PublishingImages/LateWinterDeerSeasonMap.jpg

Embedded documents removed due to unavailability:

- **Deer Removal Permit Annual Report**
- **Urban Deer Population Control Permit Annual Report**

2014 INDIANA DEER SEASON SUMMARY

DNR
Indiana Department
of Natural Resources

"A PARTICULAR VIRTUE OF WILDLIFE ETHICS IS THAT THE HUNTER ORDINARILY HAS NO GALLERY TO APPLAUD OR DISAPPROVE OF HIS ACTS, THEY ARE DICTATED BY HIS OWN CONSCIENCE, RATHER THAN A MOB OF ONLOOKERS. IT IS DIFFICULT TO EXAGGERATE THE IMPORTANCE OF THIS FACT."

— ALDO LEOPOLD, A SAND COUNTY ALMANAC, 1949

2014 Indiana Deer Harvest Summary

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Federal Aid in Wildlife Restoration Program

This program supports state fish and wildlife agencies to conserve, protect, and enhance fish, wildlife, their habitats, and the hunting, sport fishing and recreational boating opportunities they provide. This program was initiated in 1937 as the Federal Aid in Wildlife Act and created a system where by taxes are paid on firearms, ammunition and archery equipment by the public who hunts. Today this excise tax generates over a hundred million dollars each year that are dedicated to state wildlife restoration and management projects across the United States.

OVERVIEW

The 2014 Indiana deer hunting season was composed of three statewide seasons: Archery (Oct. 1 to Jan. 4), Firearms (Nov. 15-30), and Muzzleloader (Dec. 7-21). A Late Antlerless season was available from Dec. 26 to Jan. 4 in some counties. Additionally, licensed youths age 17 or younger were eligible to participate in a youth-only season on the weekend of Sept. 28-29 if accompanied by an adult at least 18 years old. Youths could take multiple deer during this special season for the third consecutive year.

The statewide archery bag limit was two deer. Hunters could take one deer per license for a total of either two antlerless or one antlered and one antlerless deer. A hunter could take only one antlered deer during all statewide seasons combined, including Archery, Firearms, Muzzleloader, and Youth season (when applicable). Hunters were allowed to use crossbows throughout the entire archery season for the third year when in possession of a crossbow license. Any deer taken with a crossbow counted toward the hunter's archery bag limit of two deer.

Hunters using bows or crossbows could harvest additional deer beyond the statewide bag limits in designated Urban Deer Zones. Beginning with an antlerless deer, archers were allowed to harvest up to four additional deer under a separate urban zone bag limit, for a total of either four antlerless or one antlered and three antlerless deer. Harvest of these additional deer required the possession of one Urban Deer Zone license per deer, and antlered deer harvested under this type of license did not count toward a hunter's statewide bag limit of one antlered deer. Deer harvested in designated urban zones with other license types (e.g., archery, bonus antlerless, bundle, etc.) counted toward statewide bag limits, not toward the Urban Zone bag limit, and did not require the harvest of an antlerless deer prior to taking an antlered buck. The Urban Deer season opened two weeks prior to the beginning of Archery Season (Sept. 15) and continued through Jan. 31.

The bag limit during Firearms season was one antlered deer, and for Muzzleloader season it was one deer of either sex (antlered deer were only allowed for hunters who had yet to satisfy their one-buck bag limit across all statewide seasons). A single firearms license was required to hunt with any combination of shotgun, muzzleloader, rifle, or handgun during Firearms season, and a muzzleloader license (separate from the firearms license) was required to hunt during Muzzleloader season.

Most resident deer licenses could be purchased for $24, and nonresident licenses for $150. This was the third year that the deer license bundle was available for purchase at $65 for residents and $295 for nonresidents. The deer license bundle allowed hunters the opportunity to take up to three deer while attempting to satisfy statewide bag limits (archery, firearms, muzzleloader, and bonus antlerless—not including the urban zone bag limit). The three deer could be either two antlerless and one antlered, or three antlerless deer. Resident landowners and lessees who worked Indiana farmland were exempt from possessing deer licenses when hunting on that land. Hunters were required to register all harvested deer through one of three methods: online, by phone, or at traditional check stations located throughout the state. 2014 was the third consecutive year that online or phone registration was available to hunters.

Special public hunts were held at Muscatatuck and Big Oaks National Wildlife Refuges, Naval Surface Activity Crane, and Camp Atterbury Joint Maneuver Training Center.

BONUS ANTLERLESS LICENSES

An unlimited number of bonus antlerless licenses were available to resident and nonresident hunters, and each license could be used in any county. County bag limits ranged from A to 8 (Figure 1). Each permit was valid for one antlerless deer, and hunters were allowed to take as many bonus antlerless deer as desired, as long as they did not exceed the antlerless bag limit in any county.

The first purchase of a bonus antlerless license cost $24 for residents and $150 for nonresidents. Purchase of any additional bonus licenses cost $15 for residents and $24 for nonresidents; this discount was not available for any other type of deer license. Bonus antlerless licenses could be used during any deer hunting season in counties they were allowed, except in "A"-designated counties, where the license could only be used beginning on Nov. 28, or for the Urban Deer season.

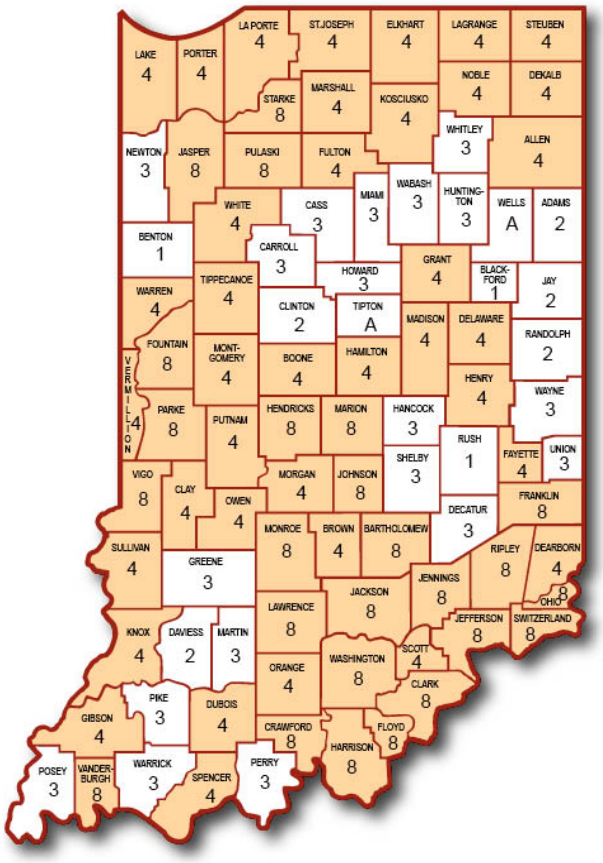


Figure 1. Bonus antlerless bag limits in 2014. Shaded counties were eligible for the late antlerless season.

DEER HARVESTED BY SEASON

A total of 120,073 harvested deer were reported in Indiana during the 2014 season (Figure 2). This was 4% lower than the 125,635 deer harvested during the 2013 season. The antlered deer harvest of 45,686 was 1% less than the 46,240 reported in 2013. The antlerless harvest of 74,387 was 6% less than the 79,395 harvested in 2013. In 2014, the reported harvest for total deer ranks 12th all-time, while the total antlerless deer harvest ranks as the 10th highest all-time in Indiana history. The antlered harvest ranks 18th all-time.

Of the deer reported this year, 54,034 (45%) were registered at check stations, 63,927 (53%) were checked in online, and 2,112 (2%) were checked in via phone. The phone call-in system cost users $3/reported deer. Approximately 3.38 million deer have been reported harvested during the past 63 deer hunting seasons in Indiana.

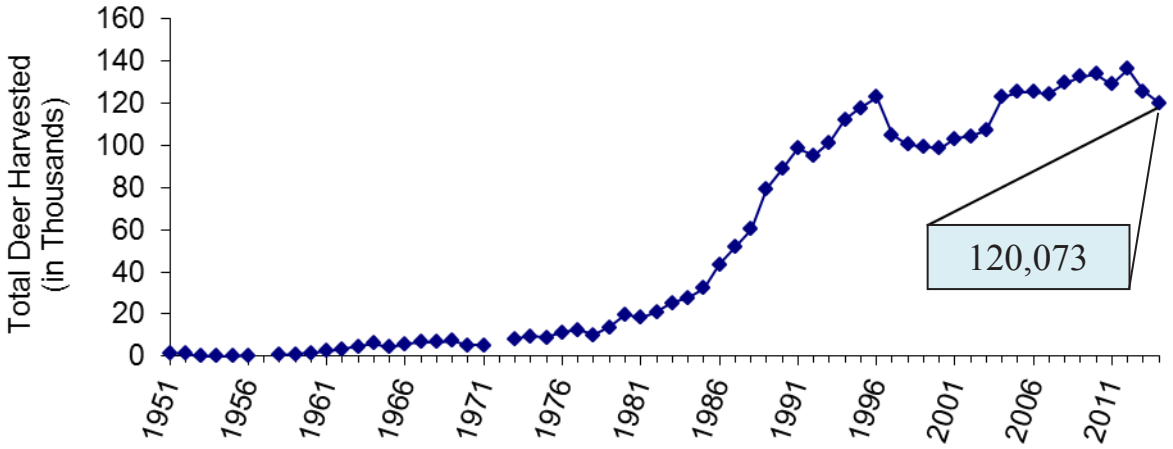


Figure 2. The total number of deer harvested in each Indiana deer season 1951-2014.

The hunting season began with Urban Deer Zones (Sept. 15) followed by a Youth-Only weekend (Sept. 27-28). This season was created in 2006 and allowed youths age 15 and younger to harvest one antlerless deer. It was changed in 2009 to include all youths age 17 and younger. This was the fifth year youths could harvest an antlered deer and the third year they could harvest more than one deer during the youth season. A total of 2,488 deer were reportedly harvested in 2014 during this season, a decrease of 4% from the 3,603 in 2013. This season resulted in 2% of the total harvest (Table 1). Antlered bucks made up 31% of the harvest, while 10% was composed of button bucks (Figure 3).

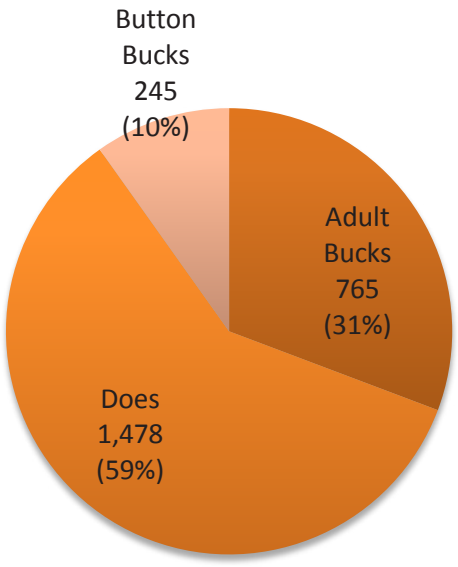


Figure 3. 2014 youth season harvest composition.

Table 1. Number of deer harvested in each segment of the 2014 Indiana deer hunting season. Values in parentheses represent percent of total harvest for each type of deer (totals may not be exactly 100 due to rounding).

Season	Number of deer harvested		
	Antlered#	Antlerless	Total
Youth season (27-28 Sept)	765 (2)	1,723 (2)	2,488 (2)
Archery* (1 Oct - 4 Jan)	12,632 (28)	21,968 (29)	34,600 (29)
Firearms (15-30 Nov)	29,323 (64)	38,666 (52)	67,989 (57)
Muzzleloader (6 - 21 Dec)	2,834 (6)	7,991 (11)	10,825 (9)
Late Antlerless** (26 Dec - 4 Jan)	70 (0.2)	4,101 (6)	4,171 (3)
Totals	45,624	74,449	120,073

*Includes Urban Zone deer **In 63 counties #Includes shed buck harvest

The Archery season harvest (including Urban Zone deer) of 34,600 deer represented 29% of the overall harvest and was nearly identical to the 34,477 harvested in 2013 (Table 1). Antlerless deer made up 63% of the total archery harvest, while the remaining 37% were antlered bucks (Figure 4).

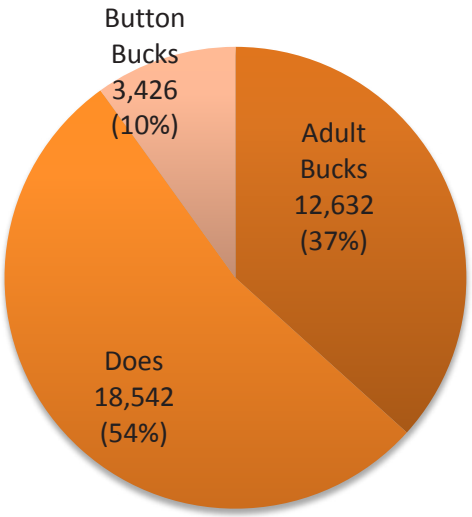


Figure 4. 2014 archery harvest composition.

Table 2. Number of deer harvested on each day of the 2014 Indiana firearm season (includes deer taken by bow, crossbow, shotgun, handgun, rifle, and muzzleloader).

		Antlered#		Antlerless		Total	
Date	Day	N	Daily %	Day	N	Daily %	Total %
15 November	Sat	12,249	51	11,604	49	23,853	34
16 November	Sun	4,924	49	5,062	51	9,986	14
17 November	Mon	1,330	43	1,762	57	3,092	4
18 November	Tue	723	43	966	57	1,689	2
19 November	Wed	826	39	1,285	61	2,111	3
20 November	Thu	897	41	1,270	59	2,167	3
21 November	Fri	1,160	39	1,831	61	2,991	4
22 November	Sat	1,794	38	2,883	62	4,677	7
23 November	Sun	843	42	1,188	58	2,031	3
24 November	Mon	240	38	385	62	625	1
25 November	Tue	483	33	969	67	1,452	2
26 November	Wed	570	31	1,278	69	1,848	3
27 November	Thu	882	32	1,871	68	2,753	4
28 November	Fri	1,052	29	2,630	71	3,682	5
29 November	Sat	1,177	29	2,834	71	4,011	6
30 November	Sun	690	29	1,705	71	2,395	3
Totals		29,840		39,523		69,363	100

The Firearms season harvest of 67,989 deer was a decrease of 5% from the 71,772 deer harvested in 2013 and represented 57% of the total harvest (Table 1). The antlerless harvest of 38,666 deer was 5% less than the 2013 antlerless harvest of 40,558. The antlered harvest of 29,323 was 6% less than the antlered deer harvest in 2013 (31,212). Antlered deer made up at least half of the total harvest only on opening day of Firearms season (Nov. 15), while the harvest of antlerless deer outnumbered antlered deer during the remaining 15 days of the season (Table 2). During the opening weekend of Firearms season, 49% of the total Firearms season harvest occurred, up 17% from 2013, and similar to the 50% harvested during opening weekend in 2012. Opening weekend contributed to 28% of the statewide total harvest for all seasons, 9% more than the opening weekend harvest of 2013, and similar to the 27% harvested during opening weekend in 2012. Antlerless deer accounted for 57% (82% of which were does) of the Firearms season harvest (Figure 5).

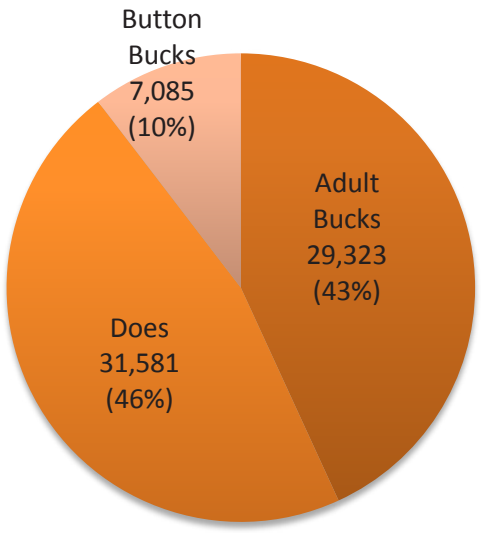


Figure 5. 2014 firearm harvest composition.

At 10,825 deer, the Muzzleloader season harvest accounted for 9% of the total 2014 harvest, up 1% from last year (Table 1). This year's reported Muzzleloader season harvest was 5% lower than the 2013 Muzzleloader harvest (10,347). As in years past, a large percentage of the deer harvested during Muzzleloader season were antlerless (74%, Figure 6).

The Late Antlerless season was available for the third year in counties with a bonus county designation of four or more (Figure 1). A total of 63 counties met this criterion in 2014, down from 69 in 2013. The reported harvest during this season was 4,171, with 82% of the harvest reported as does (Figure 7). Less than 2% of the antlerless harvest was reported as adult males who had already shed their antlers.

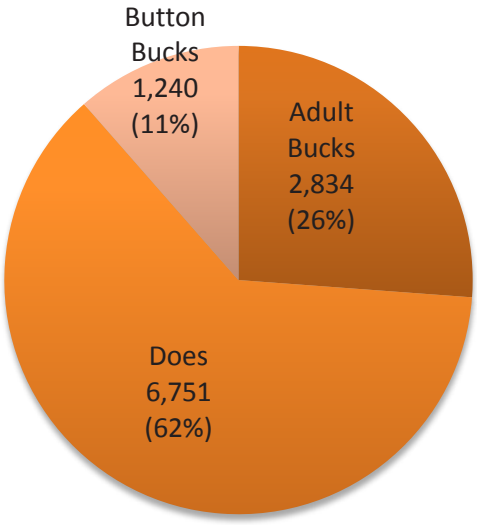


Figure 6. 2014 muzzleloader harvest composition.

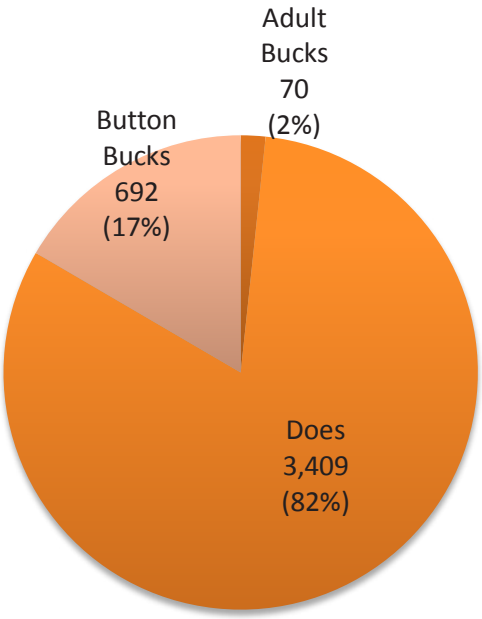


Figure 7. 2014 late antlerless harvest composition.

HARVEST BY EQUIPMENT TYPE

Six types of equipment were legal for hunting deer during 2014: archery (traditional and compound bows), crossbows, shotguns, muzzleloaders, handguns, and rifles. Rifle cartridges were restricted to those with a bullet diameter of .357 or larger, and case length had to be between 1.16 and 1.8 inches. Harvest by equipment type is illustrated in Figure 8. Shotgun harvest decreased 10% from 2013, while muzzleloader decreased 5%. Harvest by bows and handguns also decreased (8% and 10% respectively), while reported harvest by crossbows and rifles continued to increase, up 15% and 4% from 2013, respectively (Table 3). This was the third year that crossbows were allowed throughout Archery season without restriction, facilitating the rapid increase in their use since 2012.

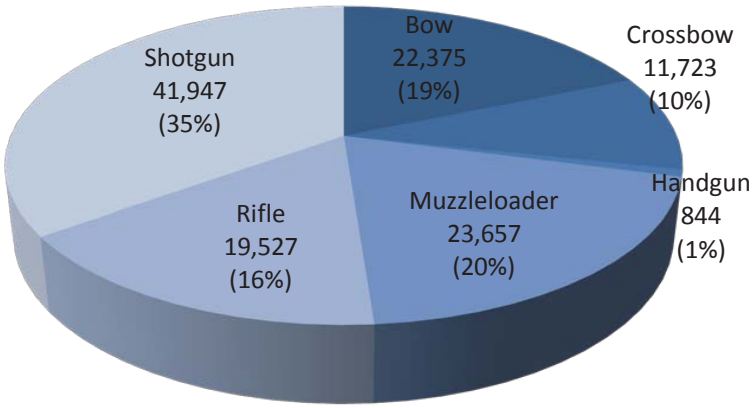


Figure 8. 2014 harvest by equipment type in Indiana.

Table 3. Number of deer harvested by type of legal hunting equipment between 2009-2014 seasons*. Approximate percent of total harvest shown in parentheses.

Equipment type	2009	2010	2011	2012	2013	2014
Bow	28,497 (21)	27,186 (20)	26,715 (21)	27,580 (20)	24,288 (19)	22,375 (19)
Shotgun	65,839 (50)	61,920 (46)	54,683 (42)	51,815 (38)	46,458 (37)	41,947 (35)
Muzzleloader	32,745 (25)	33,527 (25)	33,571 (26)	29,488 (22)	24,935 (20)	23,657 (20)
Handgun	1,932 (1)	1,318 (1)	1,028 (1)	1,086 (1)	937 (1)	844 (1)
Rifle	2,809 (2)	9,125 (7)	11,930 (9)	17,827 (13)	18,846 (15)	19,527 (16)
Crossbow	930 (1)	928 (1)	1,091 (1)	8,452 (6)	10,171 (8)	11,723 (10)
Total	132,752	134,004	129,018	136,248	125,635	120,073

*Values within this table do not exactly equal those tallied by season (Table 1) due to the fact that multiple equipment types can be used during the firearm season. Additionally, slight differences arise when partitioning harvest of unknown equipment type versus unknown season.

HARVEST BY LICENSE STATUS

Licensed resident hunters (Lifetime, Resident, and Youth license holders) accounted for 83% of the total deer harvest, while licensed nonresidents represented 3.5% of the total harvest (Table 4). Hunters who purchased regular annual deer hunting licenses (resident plus non-resident) took only 55% of the total deer harvest; other individuals using discounted licenses or exemptions (i.e., Lifetime license holders, Youth license holders, landowners/tenants, and active-duty military personnel) took 45% of the total harvest. Landowners and lessees who hunted on their own land without a license and military personnel on official leave status accounted for around 14% of the total deer harvest. Of the deer harvested by license-exempt hunters, nearly 99% were taken by landowners/tenants, while only 1% was taken by military personnel on leave.

Table 4. Harvest distribution of deer by license type during 2014 hunting season.

License Status	Deer Harvested	Percent of Harvest
Resident	61,278	51.0
Lifetime	27,484	22.9
Land Owner	16,109	13.4
Youth	10,848	9.0
Nonresident	4,147	3.5
Military	208	0.2
Total	120,073	100.0

HARVEST AGE AND SEX STRUCTURE

The age and sex structure of the 2014 deer harvest was 38% adult males (antlered bucks), 39% adult females, 11% male fawns (button bucks), and 12% female fawns (Table 5). Antlerless deer continue to represent a high proportion of the total deer harvest at 62%, dropping from an all-time high of 66% in 2012. During the opening weekend of Firearms season, DNR biologists have traditionally manned check stations throughout the state to collect age-structure data and tissue samples for disease testing. Prior to the 2012 deer season, all deer had to be brought to a check station; therefore, age data collected during the opening weekend of Firearms season provided an unbiased method for determining the age structure of the deer harvest. However, with hunters having the option to check-in deer online and via phone, age estimates of adult deer, such as the proportion of yearling bucks in the harvest, became unreliable. Evaluation of the on-line check-in data for the opening weekend of the Firearms season showed that hunters were more likely to report antlered bucks at check stations than online, but were more likely to report button bucks online than at check stations, thus biasing estimates toward an older age structure than the actual harvest. For this reason, we cannot continue to provide age class estimates of adult deer until we can find a valid method for correcting this bias.

Table 5. Sex and age structure of the Indiana deer harvest 1987-2014, as determined from check stations and online registration.

	Adults		Fawns		
Year	Males (%)	Females (%)	Males (%)	Females (%)	Total
1987	29,530 (57)	11,139 (21)	6,164 (12)	4,945 (10)	51,778
1988	34,358 (57)	13,170 (22)	7,050 (12)	5,656 (10)	60,234
1989	40,503 (51)	19,464 (24)	10,737 (14)	8,614 (11)	79,318
1990	43,080 (48)	23,680 (27)	12,373 (14)	9,630 (11)	88,763
1991	41,593 (42)	31,211 (32)	14,626 (15)	11,253 (11)	98,683
1992	43,508 (46)	25,387 (27)	14,262 (15)	12,157 (13)*	95,314
1993	44,424 (44)	27,704 (27)	14,751 (15)	14,335 (14)*	101,214
1994	50,812 (45)	32,466 (29)	15,487 (14)	13,651 (12)*	112,416
1995	47,098 (40)	40,946 (35)	16,398 (14)	13,287 (11)*	117,729
1996	47,315 (38)	39,913 (32)	17,307 (14)	18,551 (15)*	123,086
1997	42,537 (41)	35,163 (34)	14,039 (13)	13,198 (12)*	104,937
1998	44,955 (45)	30,711 (31)	12,257 (12)	12,538 (12)*	100,461
1999	46,371 (46)	30,474 (31)	11,645 (12)	11,129 (11)*	99,618
2000	44,621 (45)	31,986 (32)	11,072 (11)	11,046 (11)*	98,725
2001	48,357 (47)	31,806 (31)	11,230 (11)	11,770 (11)*	103,163
2002	47,177 (45)	35,357 (34)	11,291 (11)	10,603 (10)*	104,428
2003	49,533 (46)	36,303 (34)	10,262 (10)	10,887 (10)*	106,986
2004	54,743 (44)	41,749 (34)	12,501 (10)	14,065 (11)*	123,058
2005	52,488 (42)	44,286 (35)	13,030 (10)	15,722 (13)*	125,526
2006	49,097 (39)	45,257 (36)	13,688 (11)	17,339 (14)*	125,381
2007	49,375 (40)	44,514 (36)	13,313 (11)	17,225 (14)*	124,427
2008	50,845 (39)	46,666 (36)	13,083 (11)	19,154 (15)*	129,748
2009	52,878 (40)	48,222 (36)	13,040 (10)	18,291 (14)*	132,431
2010	53,007 (40)	49,911 (37)	13,367 (10)	17,719 (13)*	134,004
2011	50,717 (39)	45,931 (36)	13,058 (10)	19,312 (15)*	129,018
2012	45,936# (34)	54,983 (40)	15,911 (12)	19,418 (14)*	136,248
2013	46,240# (37)	46,229 (37)	14,100 (11)	19,066 (15)*	125,635
2014	45,686# (38)	46,760 (39)	12,694 (11)	14,933 (12)*	120,073

* Number of adult and fawn females is projected from the % fawns of all females aged at the biological check stations (not from the ratio of fawn doe to fawn bucks in the total deer harvest).
# Includes shed antlered bucks

DEER LICENSE SALES

Deer license sales decreased this year from 2013 by 4% (Table 6). The number of privileges (number of deer legally allowed to be harvested) was nearly identical to 2013, however (0.5% decrease), due to a continued increase in the proportion of bundle licenses purchased. Each deer license bundle includes three deer privileges.

Table 6. Deer license sales in Indiana by type, 2011-2014*.

	2011	2012	2013	2014
Resident Deer License Bundle	n/a	56,606	59,546	62,092
Resident Archery/Crossbow/Urban	60,844	33,428	32,669	31,108
Resident Firearm	103,284	57,092	52,175	47,158
Resident Muzzleloader	23,956	7,883	6,450	6,641
Resident Military/Refuge	3,138	1,413	1,116	1,352
Resident Bonus Antlerless	73,287	32,403	27,993	24,241
Nonresident	11,889	10,717	10,626	10,937
Youth	39,030	39,389	41,137	39,298
Total Licenses (Excluding Youth)	276,398	199,542	190,575	183,529
Total Privileges (Excluding Youth)**	276,398	316,858	314,881	313,235

*Total numbers subject to change slightly via refunds or voids
** Includes additional privileges from nonresident bundle licenses

DISTRIBUTION OF THE HARVEST

The number of deer harvested in individual counties ranged from 88 in Benton County to 3,056 in Harrison County (Table 7). Harvest exceeded 1,000 deer in 58 counties; 2,000 deer in 16 counties; and 3,000 deer in one county. The antlered buck harvest exceeded 1,000 in one county (down from three in 2013), while the antlerless harvest exceeded 1,000 deer in 27 counties compared with 31 the previous year. Antlerless deer accounted for at least 50% of the total harvest in 89 of the state's 92 counties in 2014. The counties with the highest harvests were, in descending order, Harrison, Washington, Switzerland, Franklin, Noble, Steuben, Dearborn, Parke, Kosciusko, and Jefferson. The counties with the lowest harvests, beginning with the lowest, were Benton, Tipton, Blackford, Clinton, Hancock, Howard, Wells, Rush, Marion, and Boone.

Table 7. Number of deer harvested in each Indiana county during 2014 (after adjustment for unknowns).

County	Number Harvested			County	Number Harvested		
	Antlered#	Antlerless	Total		Antlered#	Antlerless	Total
Adams	199	297	496	Lawrence	782	1,392	2,174
Allen	644	1,024	1,668	Madison	211	311	522
Bartholomew	470	757	1,227	Marion	113	321	434
Benton	50	38	88	Marshall	714	1,329	2,043
Blackford	125	184	309	Martin	641	954	1,595
Boone	185	272	457	Miami	470	650	1,120
Brown	496	967	1,463	Monroe	578	887	1,465
Carroll	339	532	871	Montgomery	460	695	1,155
Cass	501	647	1,148	Morgan	422	666	1,088
Clark	676	1,162	1,838	Newton	353	412	765
Clay	413	641	1,054	Noble	923	1,692	2,615
Clinton	157	182	339	Ohio	311	511	822
Crawford	752	1,422	2,174	Orange	839	1,323	2,162
Daviess	391	670	1,061	Owen	612	922	1,534
Dearborn	886	1,648	2,534	Parke	893	1,486	2,379
Decatur	330	502	832	Perry	773	1,032	1,805
DeKalb	701	1,080	1,781	Pike	635	875	1,510
Delaware	275	420	695	Porter	427	923	1,350
Dubois	689	1,268	1,957	Posey	582	712	1,294
Elkhart	489	825	1,314	Pulaski	631	1,080	1,711
Fayette	387	665	1,052	Putnam	759	938	1,697
Floyd	287	534	821	Randolph	253	343	596
Fountain	495	783	1,278	Ripley	708	1,230	1,938
Franklin	872	1,748	2,620	Rush	193	217	410
Fulton	560	986	1,546	Saint Joseph	402	753	1,155
Gibson	511	823	1,334	Scott	348	643	991
Grant	303	504	807	Shelby	191	300	491
Greene	823	1,215	2,038	Spencer	605	812	1,417
Hamilton	182	335	517	Starke	543	1,052	1,595
Hancock	127	212	339	Steuben	934	1,602	2,536
Harrison	1,067	1,989	3,056	Sullivan	694	968	1,662
Hendricks	241	404	645	Switzerland	905	1,816	2,721
Henry	254	341	595	Tippecanoe	427	725	1,152
Howard	137	241	378	Tipton	72	49	121
Huntington	362	501	863	Union	196	329	525
Jackson	718	1,183	1,901	Vanderburgh	282	708	990
Jasper	581	777	1,358	Vermillion	405	542	947
Jay	317	625	942	Vigo	602	733	1,335
Jefferson	826	1,432	2,258	Wabash	551	787	1,338
Jennings	749	1,341	2,090	Warren	427	633	1,060
Johnson	228	364	592	Warrick	661	792	1,453
Knox	338	443	781	Washington	990	1,804	2,794
Kosciusko	898	1,435	2,333	Wayne	443	693	1,136
LaGrange	647	1,160	1,807	Wells	219	179	398
Lake	386	811	1,197	White	364	591	955
LaPorte	656	1,010	1,666	Whitley	422	575	997

*Totals may be off ±1 due to rounding during partitioning of harvested deer of unknown sex or county.
Includes shed antlered bucks.

DISEASE MONITORING

Epizootic Hemorrhagic Disease

Epizootic Hemorrhagic Disease (EHD) is caused by a group of related viruses and is spread to deer through biting midges. Often worse in drought years, infection rates tend to shift in five- to10-year cycles. In 2014, no cases of EHD were confirmed in Indiana. The last major outbreak of EHD occurred in 2012, with a less widespread, but significant outbreak in 2013.

Chronic Wasting Disease

Chronic Wasting Disease (CWD) is one of a group of diseases called Transmissible Spongiform Encephalopathies, which includes scrapie in sheep, mad cow disease in cattle, and Creutzfeldt-Jakob disease in humans. The infectious agents of CWD are prions, which are abnormal, protease-resistant (difficult to destroy) versions of normal cellular proteins, that are synthesized in the central nervous system and lymphoid tissues. Prions that cause CWD are highly resistant to heat or disinfectant. The disease is always fatal to infected deer and there is no effective vaccine or treatment. There is currently no verifiable evidence that CWD is transmissible to humans.

CWD has been reported in Wisconsin, Illinois, and most recently, Ohio, among other states. In 2002, Indiana initiated a monitoring program to randomly sample tissues (obex or retropharyngeal gland) from hunter-harvested deer throughout the state (active surveillance). Reported carcasses of noticeably sick deer are also tested (targeted surveillance). In 2007 Indiana also began testing tissue samples from random road-killed deer. This monitoring continues today.

The DNR Division of Fish & Wildlife's 2014 CWD sampling effort collected 927 deer through active and targeted surveillance efforts. Lab results failed to detect CWD in any of those samples. As of today, no CWD

prions have been detected in more than 17,700 sampled deer since monitoring began (2002-present).

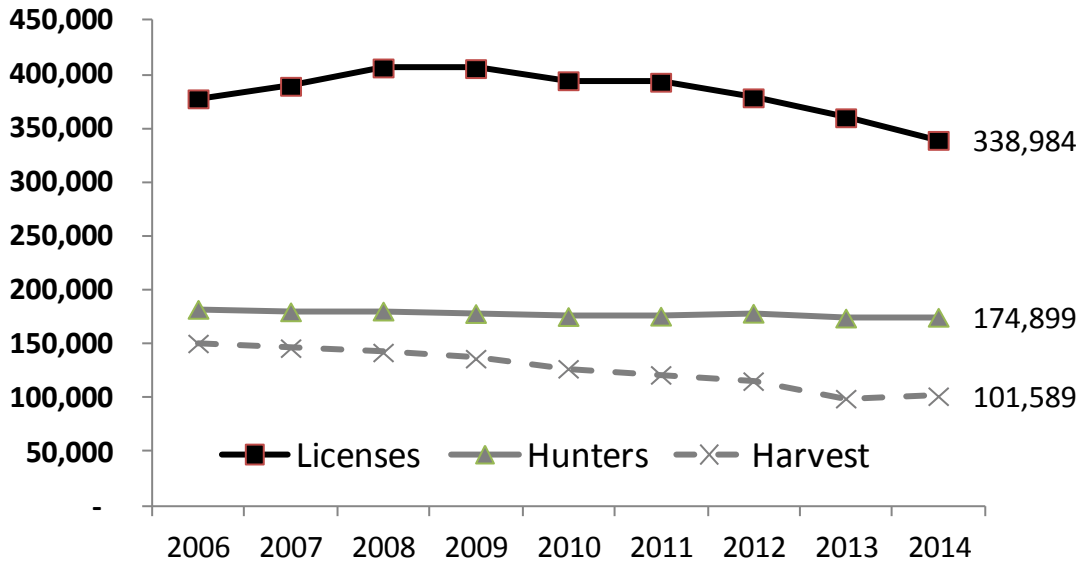
Bovine Tuberculosis

Since 2009, the DNR Division of Fish & Wildlife, in partnership with the Indiana Board of Animal Health and the United States Department of Agriculture, has engaged in monitoring efforts to identify Bovine Tuberculosis (TB) in free-ranging white-tailed deer in southeastern Indiana. In 2014, a total of 107 deer were sampled from Franklin, Dearborn, and Ripley counties. Completed analysis from Purdue Animal Disease Diagnostic Lab and the National Veterinary Services Laboratory failed to detect the presence of TB in any of the tested samples. Since monitoring began in 2009, Indiana has tested more than 1,300 deer and has failed to detect TB the free ranging herd.

For more information on deer health, visit www.in.gov/dnr/fishwild/5466.htm.

Midwest Deer and Turkey Group Report: Iowa 2014/15 Season

About 21,000 fewer licenses were issued for the 2014 deer season mostly due to reduced antlerless quotas and elimination of the January antlerless season as well as generally lower deer numbers across the state. This is a decline of 6% from 2013 and is 17% lower than the peak in 2008. The number of hunters remained the same as in 2013 and is 4% lower than the peak in 2006.



The reported harvest increased slightly compared to 2013 but is 33% lower than in 2006. The reduced kill is directly related to the above factors as well as the reduction in deer numbers statewide. Does made up 46% of the reported harvest in 2014.

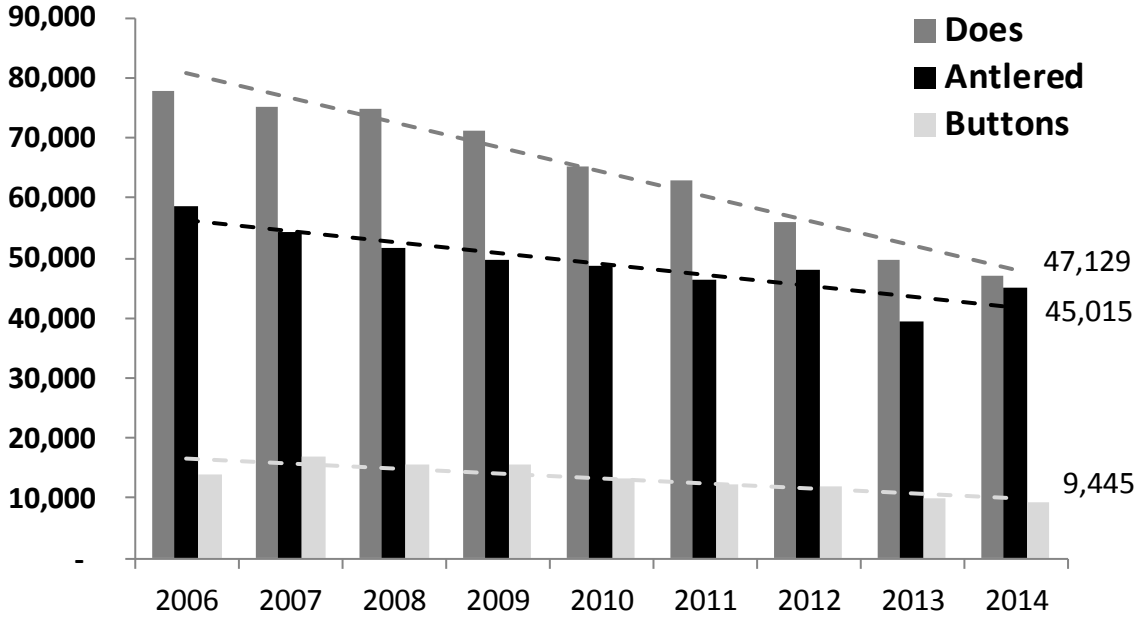
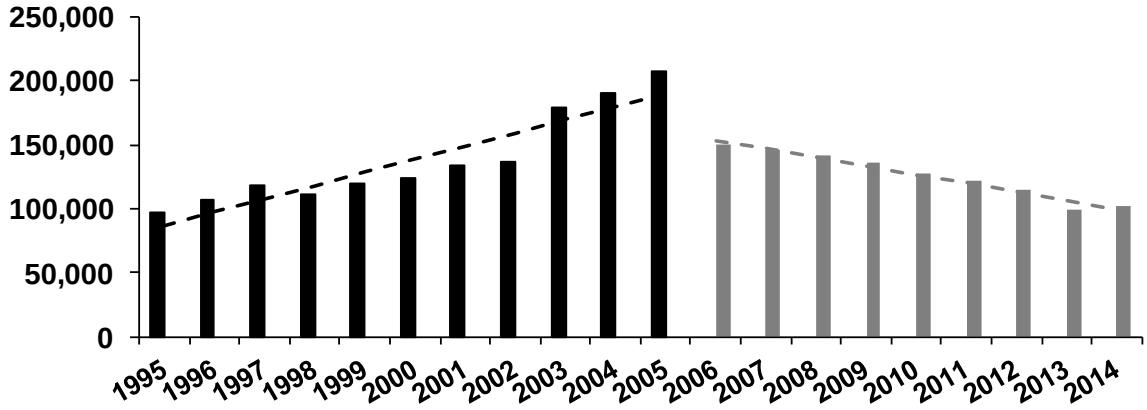


Table 1. The number of deer licenses issued and the reported deer harvest by season for the 2014/15 deer season.

Season	Licenses	Does	Antlered	Buttons	Shed	Total	Success	% does
Youth	10,324	1,301	1,729	311	9	3,350	32%	39%
Disabled	457	78	49	17	0	144	32%	54%
Archery	86,235	7,931	11,800	1,345	39	21,115	24%	38%
E Muzz	11,763	1,570	1,848	279	3	3,700	31%	42%
Nov Antlerless								
Gun 1 (Paid)	68,171	11,653	12,981	2,646	95	27,375	40%	43%
Gun 2 (Paid)	60,668	8,832	6,545	2,042	112	17,531	29%	50%
Gun L/T	42,436	5,923	3,470	1,247	57	10,697	25%	55%
L Muzz	36,822	4,532	3,221	828	134	8,715	24%	52%
Jan Antlerless								
Special Hunts	4,208	1,574	71	257	6	1,908	45%	82%
Depred/SP	3,386	1,455	20	190	6	1,671	49%	87%
Nonres	14,514	2,230	2,761	276	13	5,280	36%	42%
Total	**338,984**	**47,129**	**44,540**	**9,445**	**475**	**101,589**	**30%**	**46%**

The number of deer harvested increased by 113% from 1995 to 2005 and decreased by 33% from 2006 to 2014.



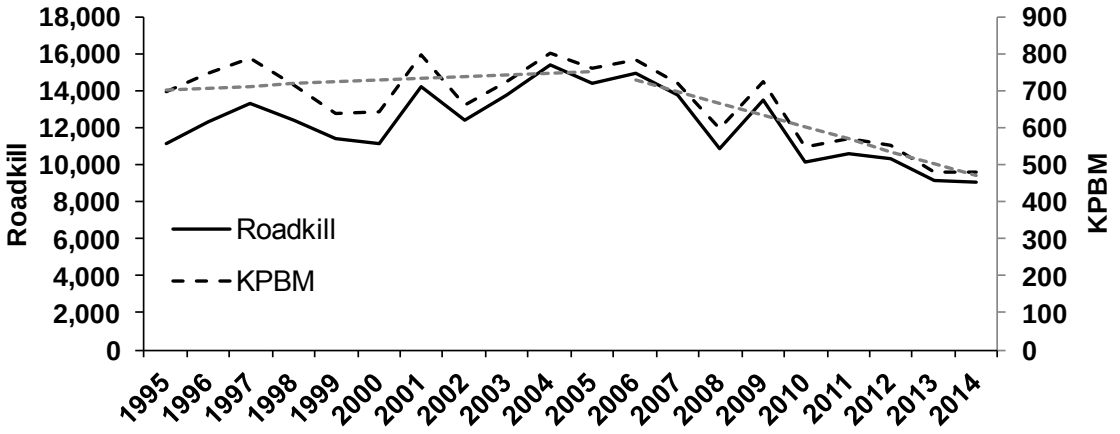
Beginning in 2006 the harvest was reported by all hunters electronically and is not directly comparable to the harvest estimates prior to 2006 which were statistically estimated from a post-season mail survey.

Population Trend Surveys

Three techniques are currently used to monitor trends in Iowa deer populations. These are 1) spotlight surveys conducted in April, 2) a record of the number of deer killed on Iowa's rural highways throughout the year adjusted for the total miles driven, and 3) the bowhunter observation survey conducted during October–November. All of these surveys correlate well with the corrected harvest estimates and appear to provide reliable long-term trend indices. However, these surveys exhibit annual variability due to the survey conditions, deer behavior, and habitat conditions.

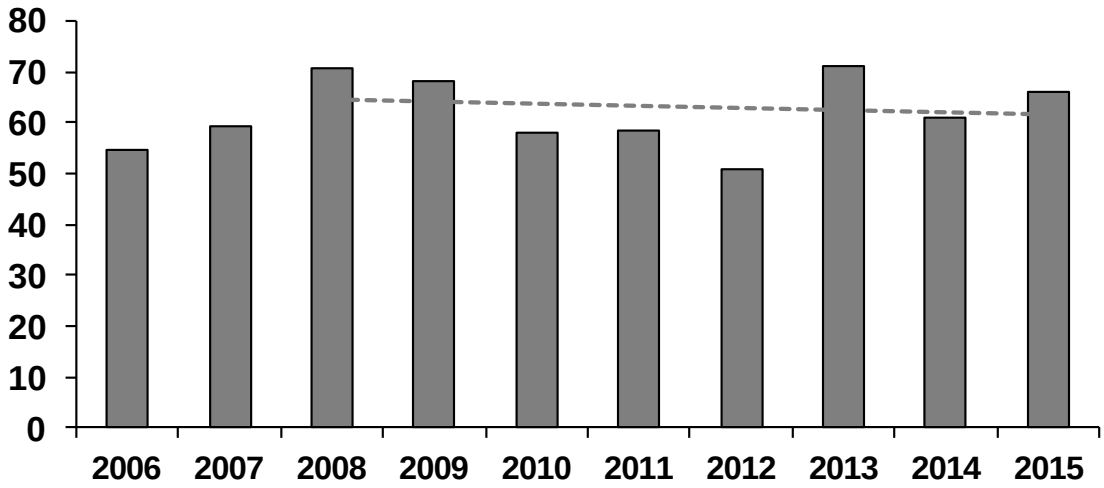
Road-killed deer information has been collected in Iowa since 1951. The information is collected by the Department of Transportation personnel and law enforcement officers throughout Iowa. The number of deer killed decreased by about 1% in 2014. The estimated number of vehicle miles driven increased only slightly in 2014 when compared to 2013 and the resulting adjusted road kill (kills per billion miles – Kpbm) also decreased by about 1% overall. The reported number of road killed deer increased by 9% from 1995 to 2005 and decreased by 38% from 2006 to 2014 when adjusted for the changes in traffic volume (Kpbm).

The reported number of road killed deer and the adjusted numbers (Kpbm).



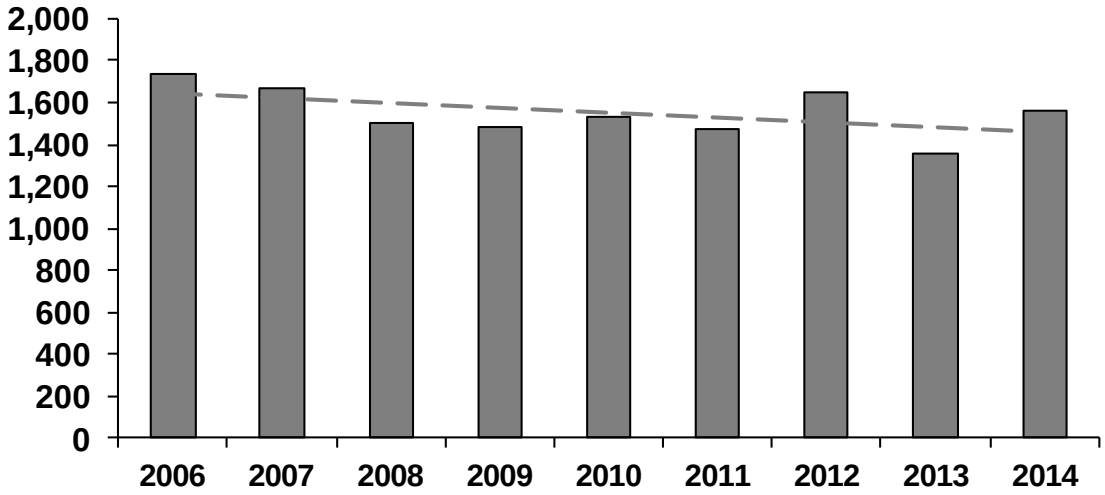
The spotlight survey routes were changed in 2006 to be more representative of Iowa's landscape. There are 199 transects (2 per county except for one county which has 3 transects) for a total of 4,750 miles. Location, distance, and bearing are recorded for each deer/deer group observed allowing for density estimates to be calculated. The number of deer observed per 25 miles in 2015 increased by 8% on the survey.

Deer per 25 miles on the spotlight survey.



The bowhunter observation survey, which was initiated in the fall of 2004, is a stratified random sample of avid bowhunters (hunters who have purchased archery licenses for at least 3 consecutive years). Since most bow hunters hunt from elevated stands this should allow hunters to gather good observational data. Bow hunters are responsible for recording the date and time of their hunts and also observations of deer along with other selected animals. The average number of deer sighted per 1000 hours by bow hunters decreased by 10% from 2006 to 2014.

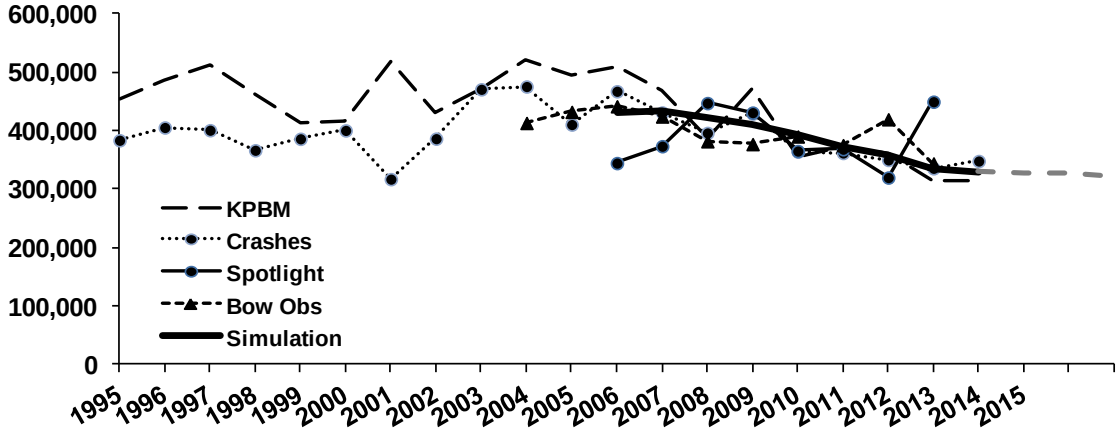
The average number of deer sighted per 1000 hours by bow hunters.



The value of the variety of population trend surveys utilized is that no single survey method is relied upon to determine current trends in Iowa's deer herd. Instead simulation models use the harvest data to project population simulations that "best fit" all the available trend information.

The best fit simulation model declines by 22% from 2006 to 2015 and indicates that deer numbers will stabilize under the current level of harvest.

The best fit simulation model.



Antlerless Quotas for the 2015/2016 Deer Season

The simulations were used to estimate the level of harvest needed in 2015 to stabilize deer numbers at the department's goal. The goal is a deer population that approximates levels that occurred in the mid-to-late 1990s when the public's acceptance of deer numbers was more evenly balanced. On a statewide basis the current level of harvest will stabilize deer numbers.

Simulations were conducted for each wildlife management unit (WMU) to determine the county antlerless quotas needed to meet goals. The map below shows the antlerless licenses available in each county for the 2015/2016 deer seasons. A total of 74,575 antlerless licenses will be available. Hunters in the 27 shaded counties on the map in northwest Iowa will again be restricted to taking antlered during the first shotgun and early muzzleloader seasons to further reduce doe harvest in these counties. The January antlerless season was eliminated in 2014 for the first time since 1996 and will not be offered in 2015.

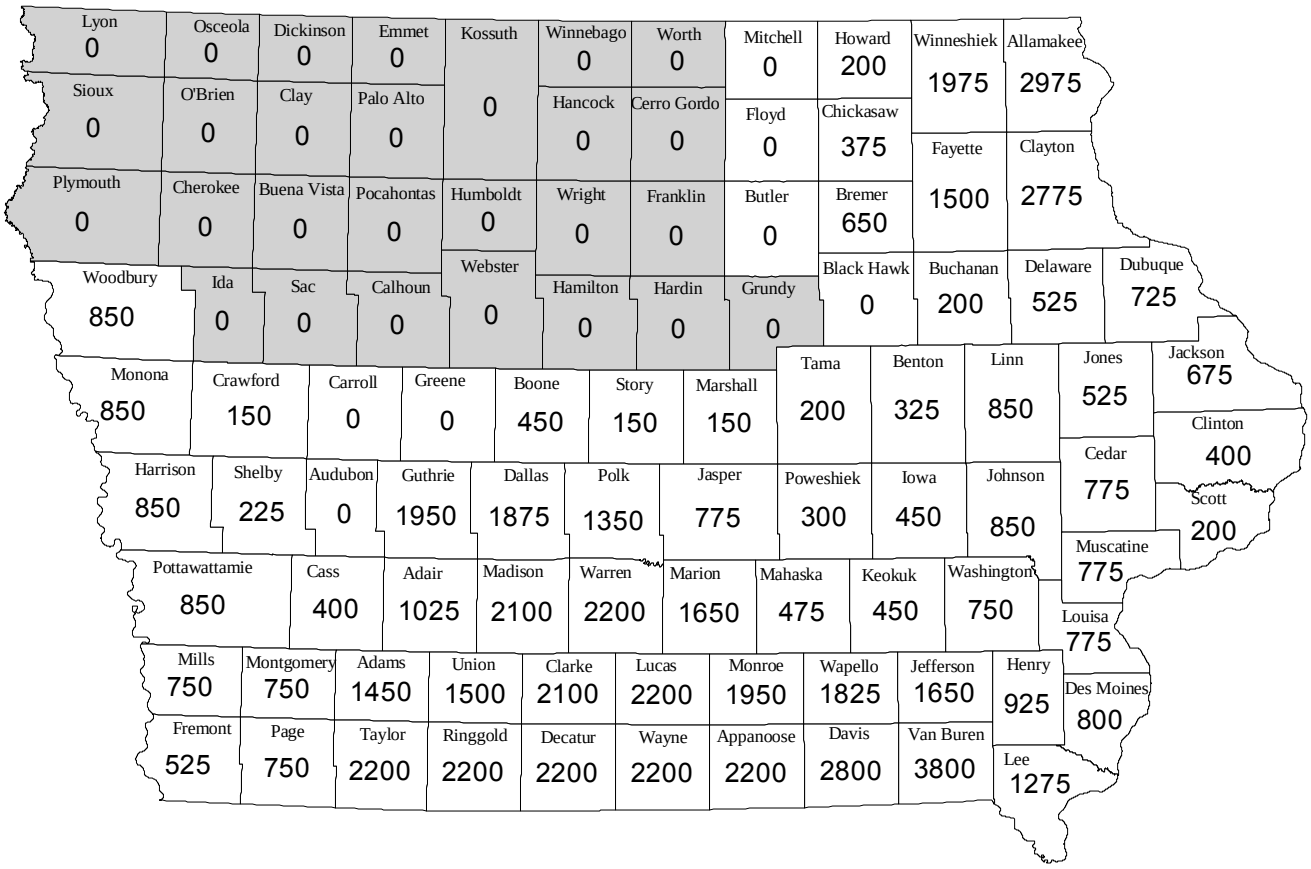


Table 2. The number of deer licenses issued and the reported harvest by season and license type for the 2014/15 deer season.

Season	License Type		Licenses	Does	Antlered Bucks	Buttons Bucks	Shed Bucks	Total	Success Rate	% Does
Youth	Paid	Either-sex	9,730	1,171	1,710	283	8	3,172	33%	37%
		Antlerless	444	116	4	25	1	146	33%	79%
	L/T	Either-Sex	98	7	14	3	0	24	24%	29%
		Antlerless	52	8	1	0	0	9	17%	89%
Disabled	Paid	Either-sex	340	39	47	11	0	97	29%	40%
		Antlerless	71	33	1	5	0	39	55%	85%
	L/T	Either-Sex	24	1	1	0	0	2	8%	50%
		Antlerless	22	5	0	1	0	6	27%	83%
Early	Paid	General	7,497	678	1,567	127	1	2,373	32%	29%
Muzzleloader		Antlerless	1,541	515	11	85	0	611	40%	84%
	L/T	Either-Sex	1,683	150	259	23	2	434	26%	35%
		Antlerless	1,042	227	11	44	0	282	27%	80%
Nov	Paid	Antlerless								
	L/T	Antlerless								
Gun 1	Paid	General	52,830	5,615	12,878	1,534	61	20,088	38%	28%
		Antlerless	15,341	6,039	103	1,112	34	7,288	48%	83%
Gun 2	Paid	Either-sex	47,022	4,672	6,505	1,263	68	12,508	27%	37%
		Antlerless	13,646	4,161	42	779	44	5,026	37%	83%
Gun 1 & 2	L/T	Either-Sex	23,801	1,525	3,320	413	20	5,278	22%	29%
		Antlerless	18,635	4,400	152	834	37	5,423	29%	81%
L Muzz	Paid	Either-sex	20,711	1,517	2,994	321	43	4,875	24%	31%
		Antlerless	9,973	2,275	7	405	68	2,755	28%	83%
	L/T	Either-Sex	2,330	136	245	26	3	410	18%	33%
		Antlerless	3,808	639	12	82	20	753	20%	85%
Archery	Paid	Either-sex	54,386	1,215	10,663	294	23	12,195	22%	10%
		Antlerless	21,946	5,459	55	878	13	6,405	29%	85%
	L/T	Either-Sex	4,872	175	1,075	31	2	1,283	26%	14%
		Antlerless	4,790	1,033	8	133	2	1,176	25%	88%
January	Paid	Antlerless								
	L/T	Antlerless								
Senior Crossbow		Antlerless	241	55	4	10	0	69	29%	80%
Special Hunts		Antlerless	4,208	1,578	71	258	6	1,913	45%	82%
Depredation		Antlerless	3,386	1,456	20	191	6	1,673	49%	87%
Nonresident	Paid	Either-sex	6,063	115	2,602	12	5	2,734	45%	4%
		Antlerless	8,451	2,116	160	264	8	2,548	30%	83%
Total	Paid	Either-sex	198,579	15,022	38,966	3,845	209	58,042	29%	26%
		Antlerless	79,248	23,803	478	4,012	180	28,473	36%	84%
	L/T	Either-Sex	32,808	1,994	4,914	496	27	7,431	23%	27%
		Antlerless	28,349	6,312	184	1,094	59	7,649	27%	83%
		Either-Sex	231,387	17,016	43,880	4,341	236	65,473	28%	26%
		Antlerless	107,597	30,115	662	5,106	239	36,122	34%	83%
	Paid		277,827	38,825	39,444	7,857	389	86,515	31%	45%
	L/T		61,157	8,306	5,098	1,590	86	15,080	25%	55%
Total			**338,984**	**47,131**	**44,542**	**9,447**	**475**	**101,595**	**30%**	**46%**

Iowa Status Report Summary – 2014

Licenses Issued: Total: 338,984 Resident: 324,470 Nonresedent: 14,514 Youth: 10,324

Reported Harvest: Total: 101,589 Antlered Buck: 44,540 Antlerless: 57,053
"Antlered Buck" includes shed-antlered bucks also

Age of Bucks: UNK

% Antlerless in Total Harvest: 561%

Hunter Numbers: Res: 166,426 Nonres: 8,474 Youth Season: 9,861 (figure included in the resident statistic)

Minimum Age: None. Must be 12 years old with Hunter Safety to hunt without direct supervision

Fees: Res: $28.50 Nonres: $426.00

Season Dates:
Archery: 10/1- 12/5 & 12/22 – 1/10
Muzzleloader: 10/11 – 10/19 & 12/22 – 1/10
Shotgun: 12/6 – 12/10 & 12/13 – 12/21
Youth/Disabled: 9/20 – 10/5
Jan. Antlerless: None
Nonres. Hol. Antlerless: 12/24 – 1/02

Disease Issues 2013/2014:

Iowa's CWD statewide surveillance efforts focused on NE Iowa and SC Iowa and also included concentrated sampling efforts around captive facilities where deer had tested positive. Tissue samples were gathered from 4,368 wild deer. Three more deer tested positive in 2014 and all were from the area in Allamakee county where the positive deer was harvested in 2013. Another 85 deer were collected in the 30 square mile around the three positives in Feb 2015 and none tested positive. Efforts are currently underway to gather additional samples in the vicinity where the positive animals were harvested.

Since 2002, Iowa has tested 55,366 wild deer and 3,735 captive deer and elk. Three captive deer collected by IDNR staff in 2012 tested positive for presence of PrP protein.

In 2014 there were 4 reported suspect cases of hemorrhagic disease in 4 Iowa Counties. Tissue samples were collected from 1 deer in Polk County that had been dead for less than 24 hours and submitted to the National Veterinary Services Lab in Ames, Iowa for virus isolation. No virus isolates for EHDV or BTV were detected in the sample.

Population Trend: Statewide: Deer herd stable and is at or near statewide goal in all counties.

2015 Kansas Deer Program Report

I. Current Harvest

Hunter harvest of deer during the 2014-15 seasons was estimated to be 97,394. That includes 3,454 deer that could not be classified to species, age and sex class and have not been estimated and reported in previous years. For comparison there 93,940 classified deer taken in 2014; up 4.8% from the 89,665 estimated for the 2013-14 season. The Kansas Outdoor Automated Licensing System data showed 123,207 people purchased 211,537 permits for the 2014-15 seasons, up 1.6% and 2.0% respectively from values in 2013-14.

Harvest Age Structure*

	Antlered Ad Bucks	Male Fawns	Adult Does	Female Fawns	Ad Buck Shed Antler	Total
White-tailed Deer	40,249	4,051	42,875	3,667	690	91,531
Mule Deer	1,929	13	438	24	3	2,409
By Residents	31,197	3,659	35,530	3,360	480	74,225
By Non-Residents	10,981	406	7,782	331	213	19,715
Total	**42,178**	**4,064**	**43,313**	**3,691**	**693**	**93,940**

Harvest By Equipment*

	Compound Bow	Recurve / Long Bow	Crossbow	Total
Archery	25,980	770	5,541	32,291

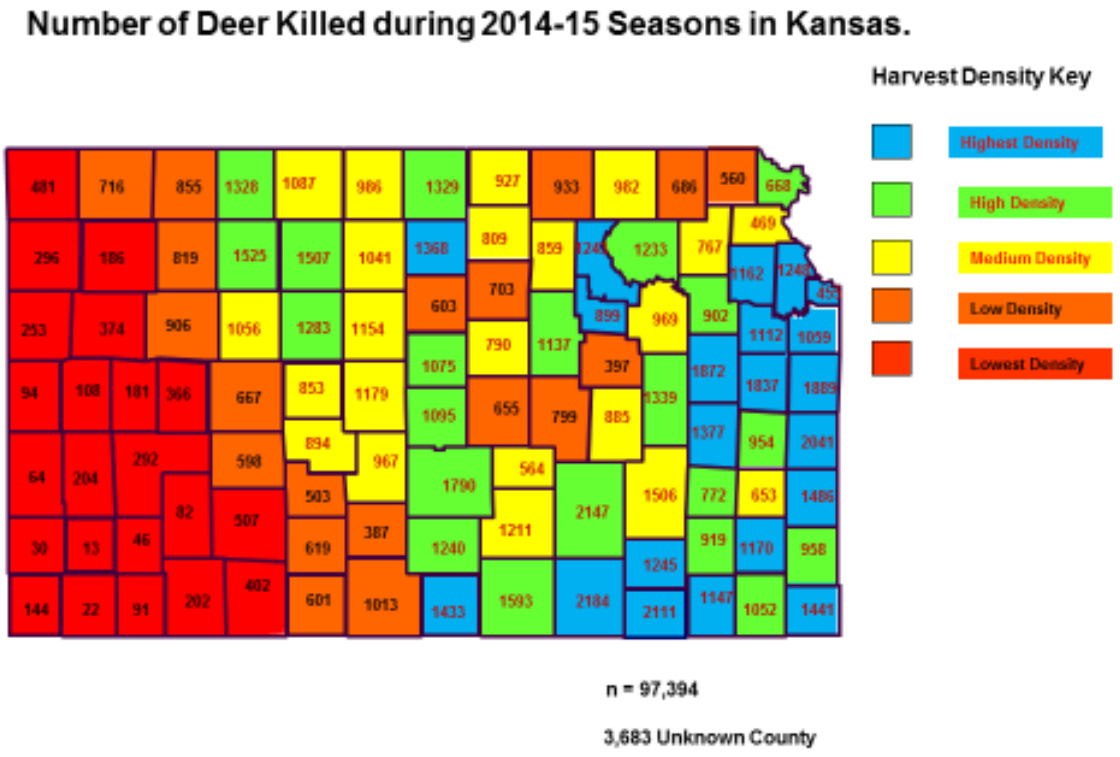
	In-Line MZ	Traditional MZ	Total
Muzzleloader	3,511	678	4,189

	Centerfire Rifle	Shotgun and Slug	Pistol	Total
Firearms	56,857	376	226	57,459

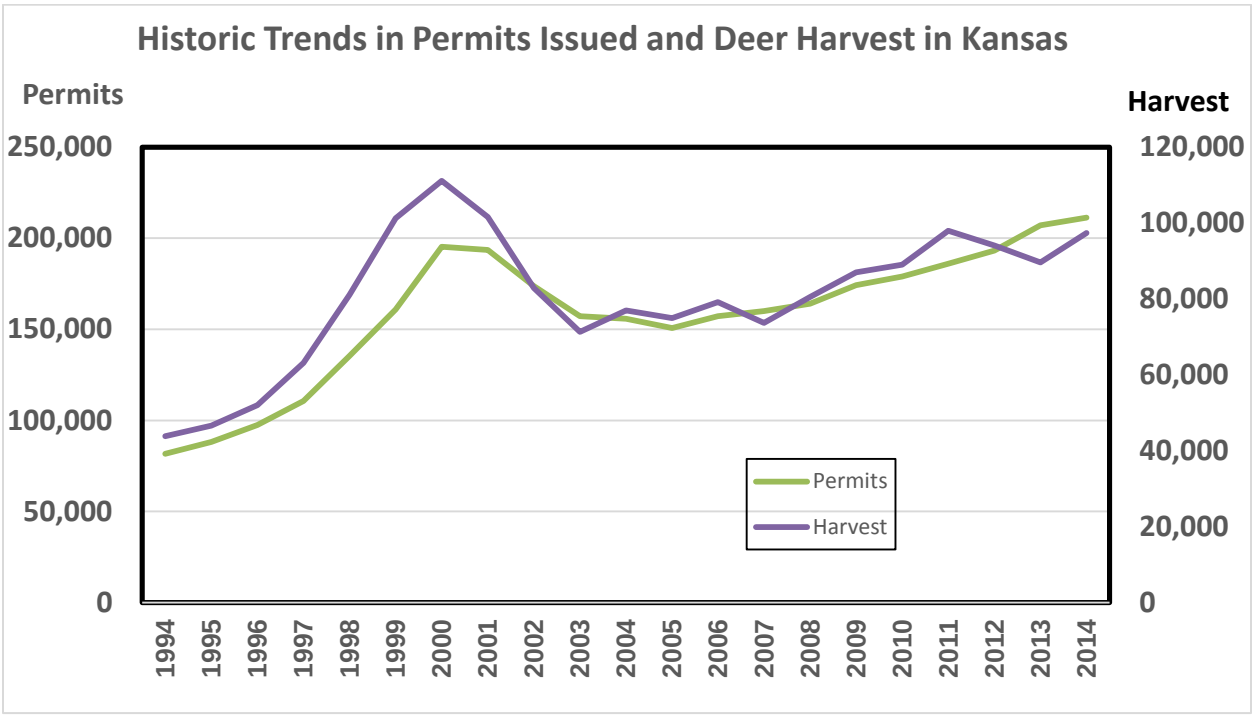
Harvest By Season*

Youth/ Disability	Early MZ	Pre-Rut	Archery	Firearms	Whitetail Antlerless-Only	Total
1,660	3,758	1,731	33,578	44,901	11,765	97,394

- All estimates are rounded to nearest whole number. Sub-totals may not add exactly.

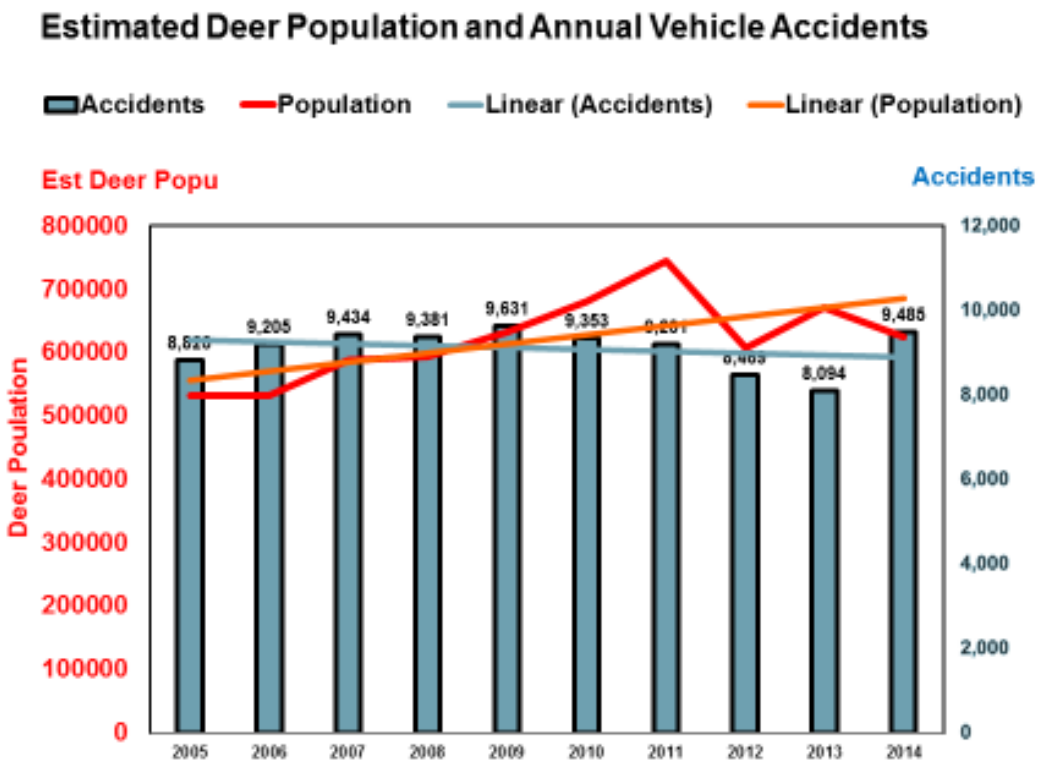


II. Historical Harvest

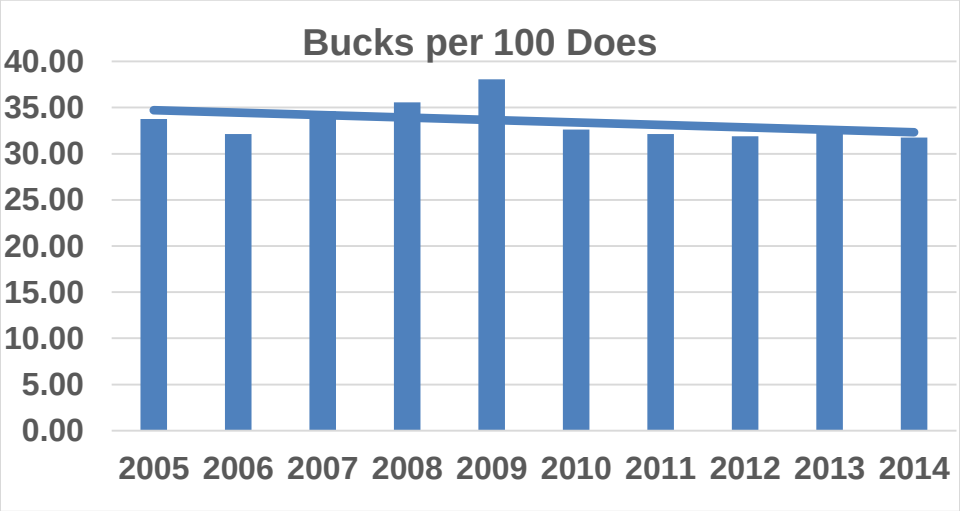


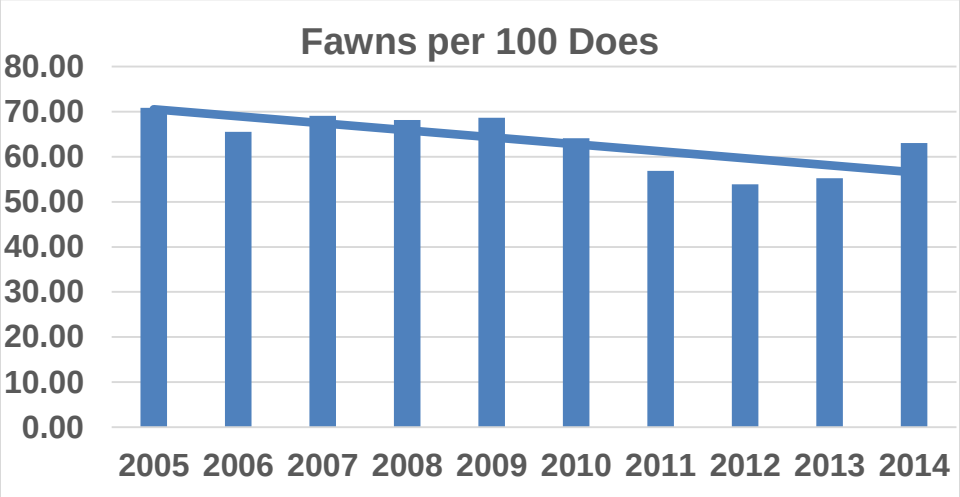
III. Population Estimate/Trends

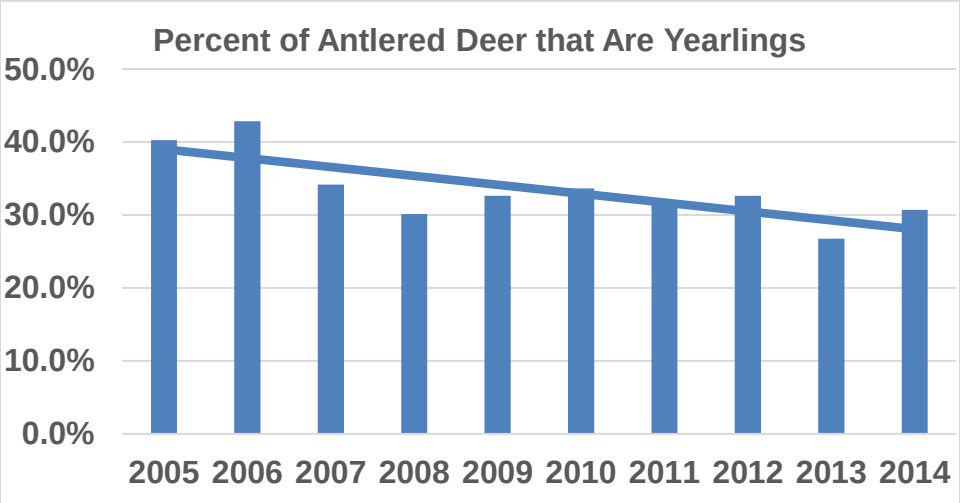
Population – Deer related vehicle accidents have provided a long term deer population trend indicator in Kansas. In the early 2000s we initiated line transect and distance sampling procedures to assist in the monitoring of population trend.



Demographics – Historically we monitor age structure from a sample of teeth mailed to the department by hunters. Changes in USPS procedures prohibits that technique. As a result we switched to observations made by KDWPT employees during spotlight surveys. Since 2005 we have been able to classify about 4,500 deer per year. Approximately 33 antlered bucks and 62 fawns have been observed per 100 adult does. Approximately a third of the antlered deer have been estimated to be yearlings, however the portion of yearlings in the populations appears to be declining through the years.

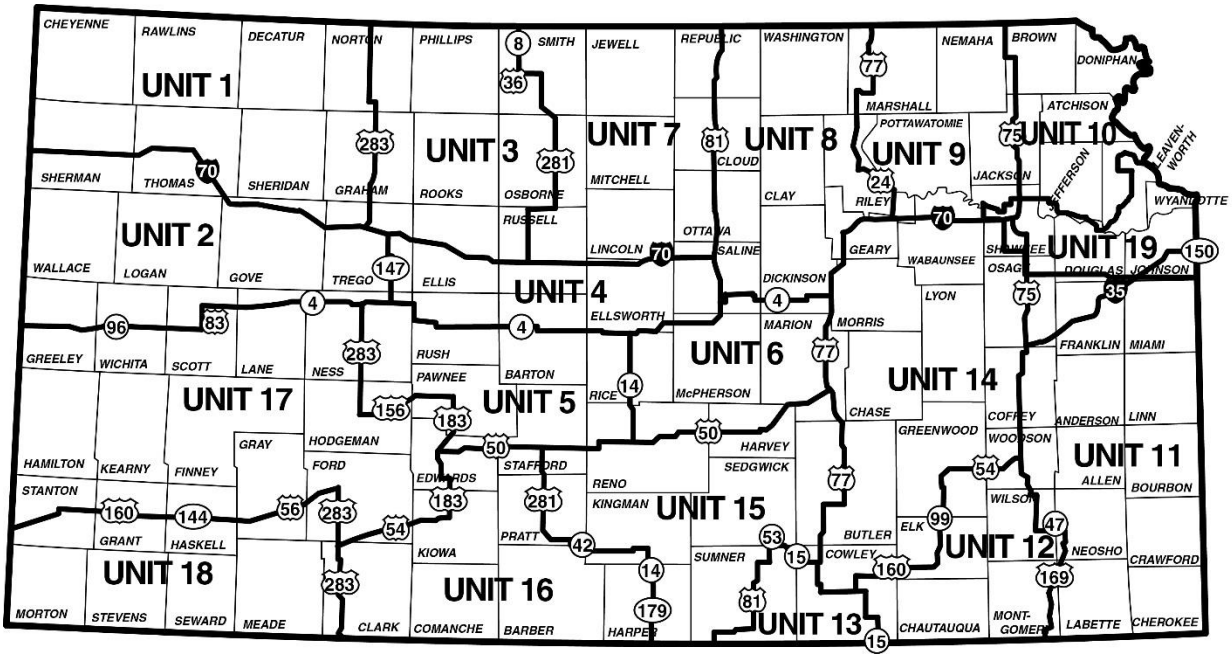

Bucks per 100 Does
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014


Fawns per 100 Does
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014


Percent of Antlered Deer that Are Yearlings
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014

IV. Deer Management Units:

The Kansas Department of Wildlife Parks and Tourism (KDWPT) manages deer at the level of Deer Management Units (DMU). Population trends, harvest and human dimensions aspects to deer management are summarized by these units. Boundaries are established by major state and federal highways easily identified and located by hunters, while the shapes are intended to capture areas of similar physiographic and ecological values. No attempt has been made to align DMU with political or administrative areas. Long term maintenance of unit boundaries is desired for trend analysis.



V. Regulation/legislation

2015-2016 Season

Only minor season date changes were made from the regulations in 2014-15. They continue to be:

1. Non-resident deer hunters in the limited quota drawings were required to purchase an additional white-tailed deer antlerless-only permit. However, the price of the required WAO was set at $15 (the same cost a resident would pay) instead of the $50 former charged when the permit was optional. Non-residents purchased only 6,458 of the WAO permits and killed 3,137 deer on them in 2012, whereas they purchased 24,835 WAO permits and killed 7,448 deer on them in 2013 and they purchased 24,860 WAO permits and killed 8,510 deer on them in 2014. This change has substantially increased the take of antlerless white-tailed deer by non-resident hunters. The goal of the change included shifting the location of antlerless harvest to properties leased by non-residents.
2. A 2-day firearm season for antlerless white-tailed deer was created in mid-October.
3. Archers were allowed to continue either sex hunting during the pre-rut firearm season.
4. Firearms hunters were allowed to use any centerfire rifle during 2013 whereas the prior regulation had required them to use only rifles as large as or larger than the Winchester 243.

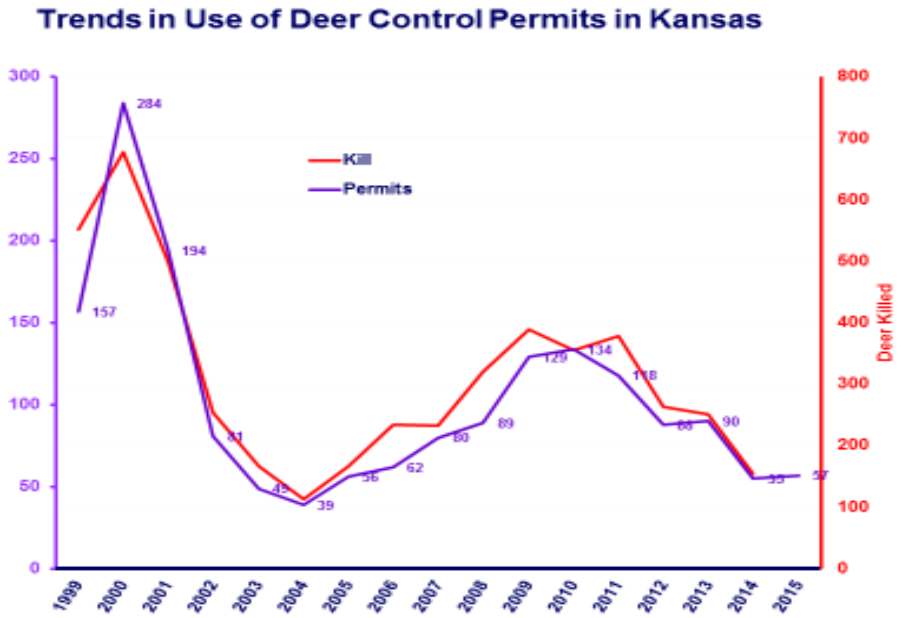
5. Non-resident deer permit quotas were reduce in DMU 8 and 16 by 102 and 110 permits respectively in 2015. All either-species antlerless permits in the eastern mule deer zone were eliminated in 2015 and there was a reduction in other quota levels that allowed the hunter to take a mule deer.

VI. Urban/Special Hunts

Special permits have been issued to municipalities (including parks in suburban areas and airports) to allow culling in areas where local deer abundance created safety or public intolerance of the deer and traditional hunting by citizens had been prohibited by local ordinances. KDWPT continues to create and expand special hunts to encourage the harvest of deer or to provide special access for youth, veterans and individuals with disabilities. Special hunts are being used to create some areas where limited entry will create low hunter densities to emphasize the experience, while in other situations they are being used to emphasize the need to remove additional antlerless deer. In 2015 there will be 232 special hunts for deer. That included 50 hunts for youth, 40 hunts with mentors, 2 hunts for people with disabilities and 140 hunts that will be open to anybody. The hunts allowed 418 people to participate for a total of 14,270 hunter days on 65,632 acres that would not traditionally be opened to deer hunters.

VII. Deer Management Assistance/Crop Damage

KDWPT District Wildlife Biologists, Public Land Manager and Natural Resource Officers have been authorized since 1999 to issue Deer Control Permits (DCP) to landowners suffering from damage caused by deer. DCP allow landowners and up to two resident agents to kill deer outside the dates of traditional hunting seasons. They allow the use of techniques typically not allowed where fair chase is a goal. The issuing employee reviews each site and confirms damage caused by deer. They specify conditions and times when the permit may be used. So far in 2015 there have been 57 permits issued.



VIII. Diseases

Following two years with unusually high number of reported cases of EHD (2011 and 2012) we initiated a program to encourage the public to assist KDWPT field employees in detecting sick or recently dead deer. The system allows people to report sightings of sick or dead deer at our website. This was done to promote the collection of samples usable for viral isolation testing. However, only 4 specimens were collected in 2013 and only 3 specimens have been collected in 2014. Viral isolation conducted at SCWDS was successful in finding EHDV-2 from only one deer submitted in 2013 from Atchison County. As of the time of this report, two deer have been confirmed with viral isolation as having EHDV-2 during 2015.

Monitoring deer populations for chronic wasting disease is currently funded through Pittman/Robertson Act (W39 R019 Subproject 8115). The level of funding is less than we had used from 2003-2011 under USDA grants. Sampling rotates to a different region each year. In 2014 we focused on the south central and southwest portion of the state. In addition to the hunter harvested deer we collected samples from selected vehicle killed deer, and all elk killed in the state. The sampling protocol included testing of all suspect deer. We also collected information on deer from hunters who paid for private testing.

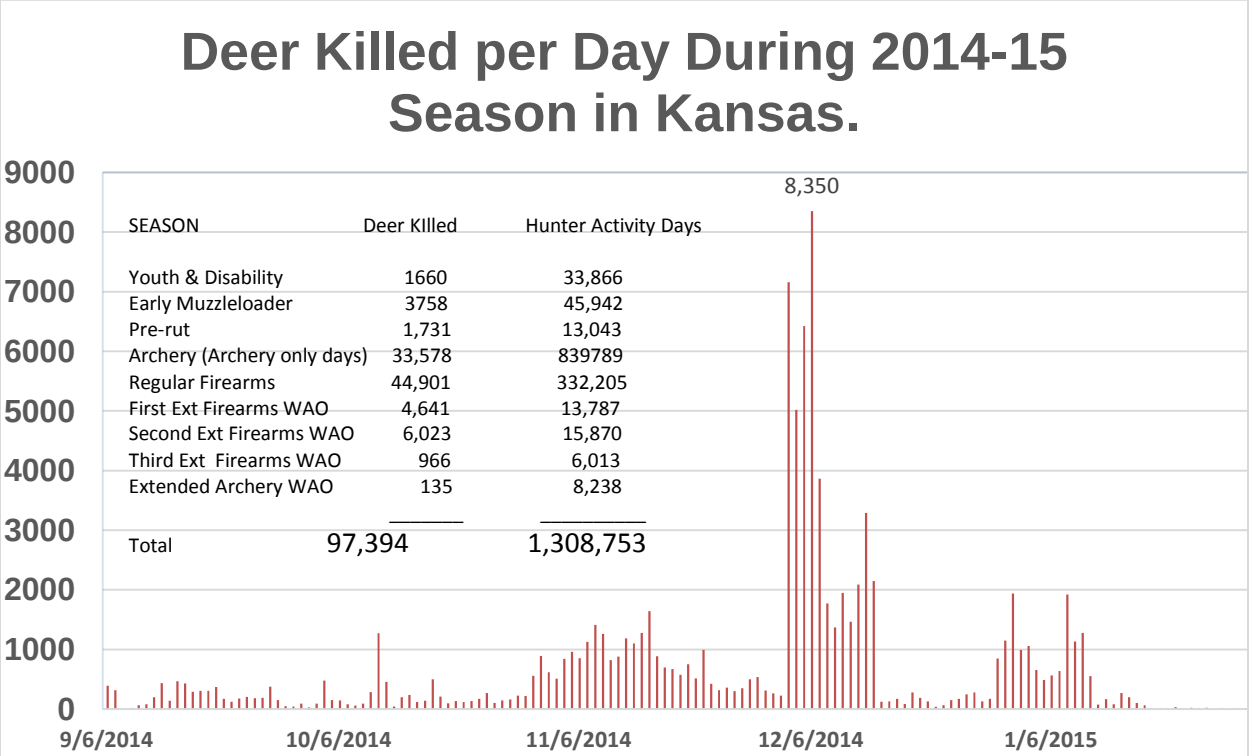
KDWPT collected samples from 640 cervids during 2014. CWD was detected in 10 deer (8 white-tailed deer and 2 mule deer). Since 1996 KDWPT has tested 24,891 deer and elk with 74 testing positive for the CWD prions.

IX. Research

No research projects emphasizing deer management were conducted in 2014.

<u>Deer Hunter Surveys</u>

Deer hunter harvest surveys are conducted annually to determine harvest, success rates, activity days and participation during various seasons. It is used to determine deer hunter use and hunter harvest on public hunting areas and the Walk-In-Hunting-Area program. This survey is used to gather opinion information from deer hunters and as measure of hunters' season satisfaction, and to survey hunter opinions on various hot-button topics that may come before the Commission for regulatory review. Public lands make up 1.9% of the state. They are used by 12.1% of the deer hunters, who harvest nearly 5,000 deer or 5% of the statewide harvest. The harvest density of deer on public managed lands is 3.17 deer per square mile while the corresponding density on private land is 1.13, and the density on private property open in the WIHA program is 2.09.



X. Hot Topics

Antlers to Landowners

All things considered, 2014 in Kansas was a relatively calm period for deer management. Antlers continue to draw attention, with one set from a notorious poaching event being the focus of controversy. The event started in 2011 when a 14 point typical white-tailed buck was poached and the headless body was found. The antlers were submitted as a hunter kill at a "Monster Buck Expo" but identified by a landowner from photos taken while the deer was live. The antlers scored in the 198 range and were considered highly valuable. A person who claimed the deer used his property demanded that the antlers should be given to him. Eventually the issue surfaced at the state legislature in House Bill 2538 with a provision that:

> "Landowners shall have the right of first refusal to all wildlife illegally hunted on such landowner's land unless such wildlife was illegally hunted by said landowner."

The bill was defeated but sent back to a conference committee where it may emerge at a later date. The department see this topic as a potential threat to the North American Model of Conservation and public ownership of wildlife.

Trophy quality deer at heart of controversy over Landowner versus public ownership.

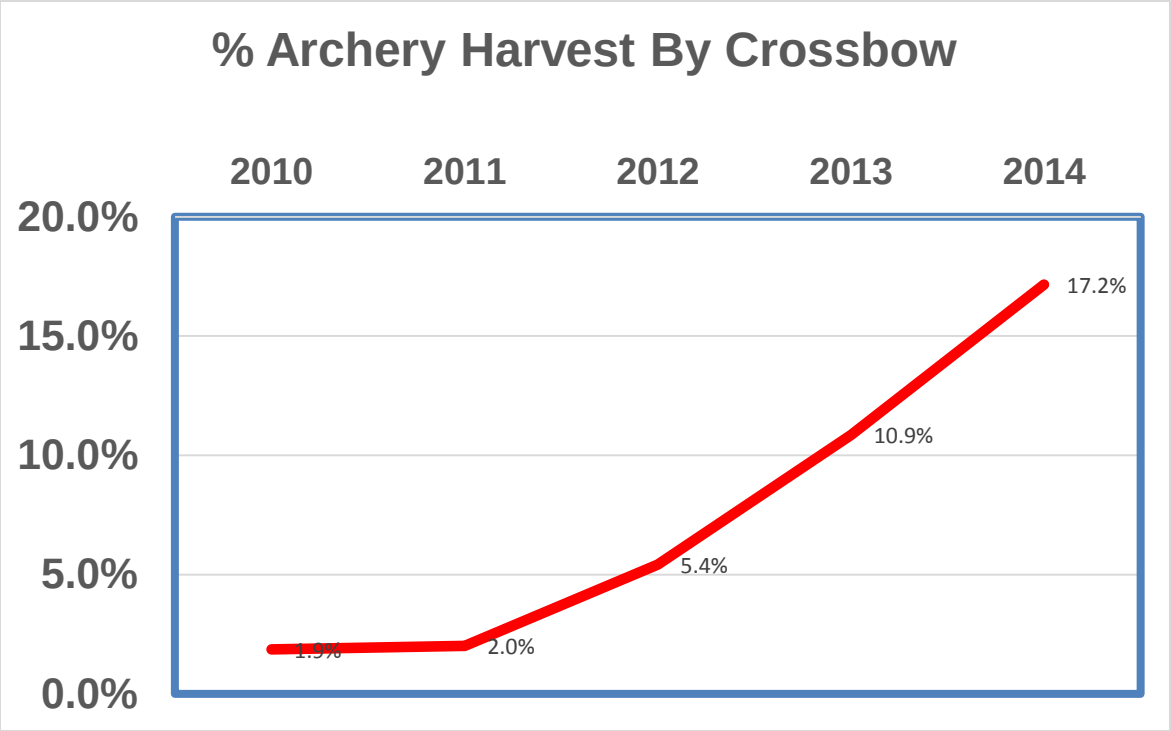
Permit and License Fee Increase

KDWPT is going through a review process on license and permit fees. Permit prices for deer and turkey have not changed since 1984. The current proposal would increase the resident hunting license from $18 to $25 and the non-resident from $70 to $95. The general resident either-sex deer permit would increase from $30 to $40, while the non-resident permit that include both an either-sex deer and white-tailed antlerless permit would increase from $315 to $415.

Equipment

Regulation of equipment continues to be a hot topic in Kansas. Crossbows were allowed as archery equipment during 2012. The removal of size restrictions on rifles also caused much discussion. We had asked about the types of equipment used by hunters in past harvest surveys. We estimated that 2.6% of the firearms hunters used calibers of rifles smaller than the 243 during the 2013 seasons. The change in the regulation did not appear to encourage additional youth or female hunters to take up deer hunting. The use of small caliber firearms was not disproportionally selected by young hunters or females.

Crossbows continue to increase in popularity in Kansas. We estimated that crossbows were used to harvest 3,511 deer in 2014-15. The portion of the harvest during the archery season that is taken with crossbows has increased from approximately 2% when that equipment was allowed for just people with disabilities to 17% when it is allowed for any person. The total harvest during the archery season has increased from 20,291 in 2010 to 32,291 in 2014.



XI. Relevant Links

KDWPT Regulations are available on-line at:
http://kdwpt.state.ks.us/news/Hunting/Hunting-Regulations

General information on deer management may be located at:
http://kdwpt.state.ks.us/news/Hunting/Big-Game-Information

Chronic wasting disease information and maps may be found at:
http://kdwpt.state.ks.us/news/Hunting/Big-Game-Information/Chronic-Wasting-Disease

2014-15 Kentucky Deer Report

I. Current Harvest

The 2014-15 deer harvest was one for the record with a harvest of 138,899. Although it was a 4% decrease from the 2013-14 harvest. It was the second highest harvest on record, beating the 2012 harvest record (131,395) by 7,500 deer. It was a 6% increase from 2012-13 season and was a 16% increase from the 2010-11 season (119,653).

Deer Season Harvest Comparison: 2013-14 & 2014-15

Weapon/Sex	2013-14	2014-15	% Difference
Archery	20,835	18,369	-12%
Modern Gun	104,621	102,893	-2%
Muzzleloader	15,642	14,675	-6%
Crossbow	3,311	2,962	-11%
Total	144,409	138,899	-4%
Females	66,688	63,520	-5%
Male Visible	67,760	66,080	-2%
Male Not Visible	9,961	9,299	-7%
Total	144,409	138,899	-4%

2014-15 Hunter Success Rates

Successful hunters	# deer killed	% of successful hunters
76,994	1	78%
18,570	2	19%
4,269	3	4%
2,486	4+	3%
Total successful hunters	102,319	
Average Hunter Harvests:	1.36	

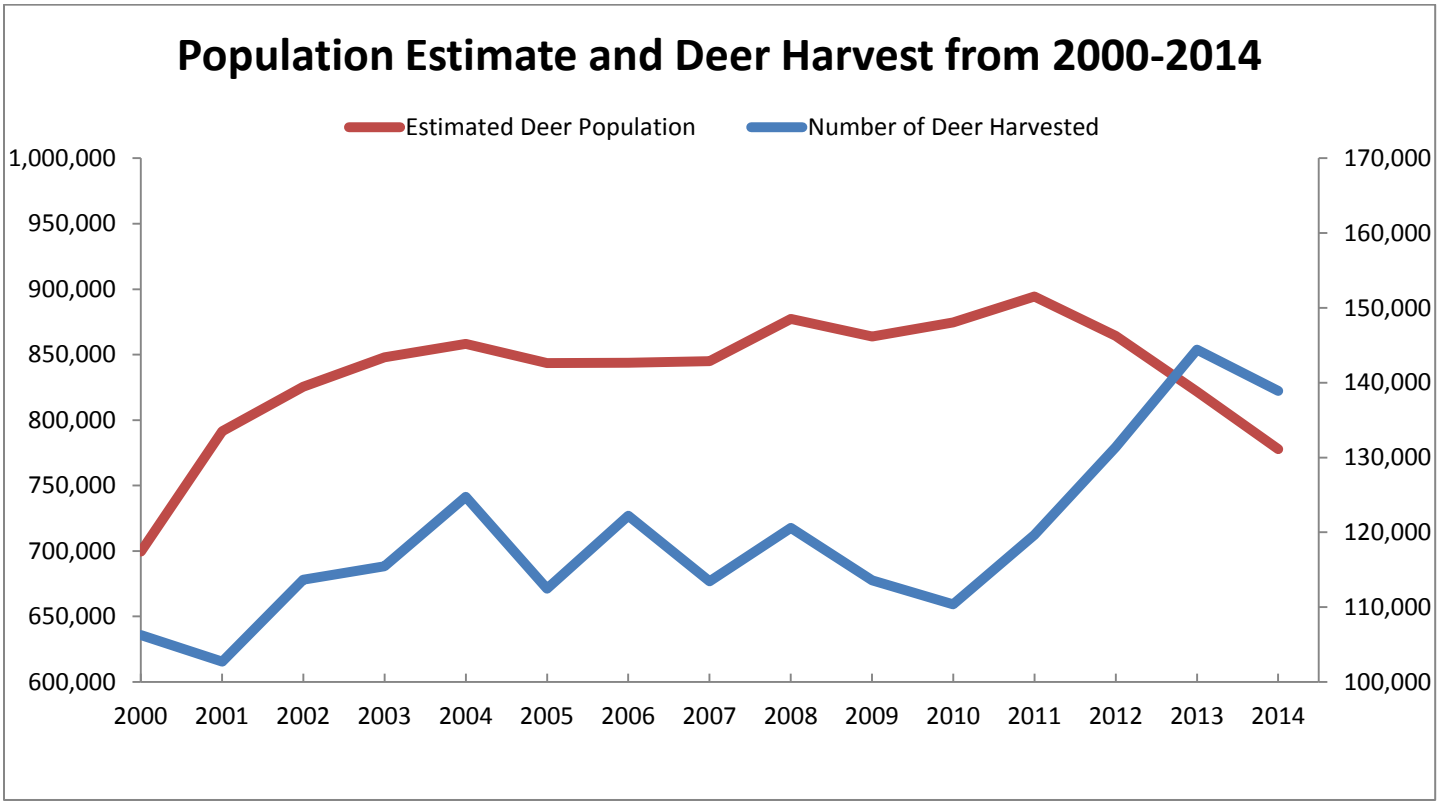
II. Historical Harvest

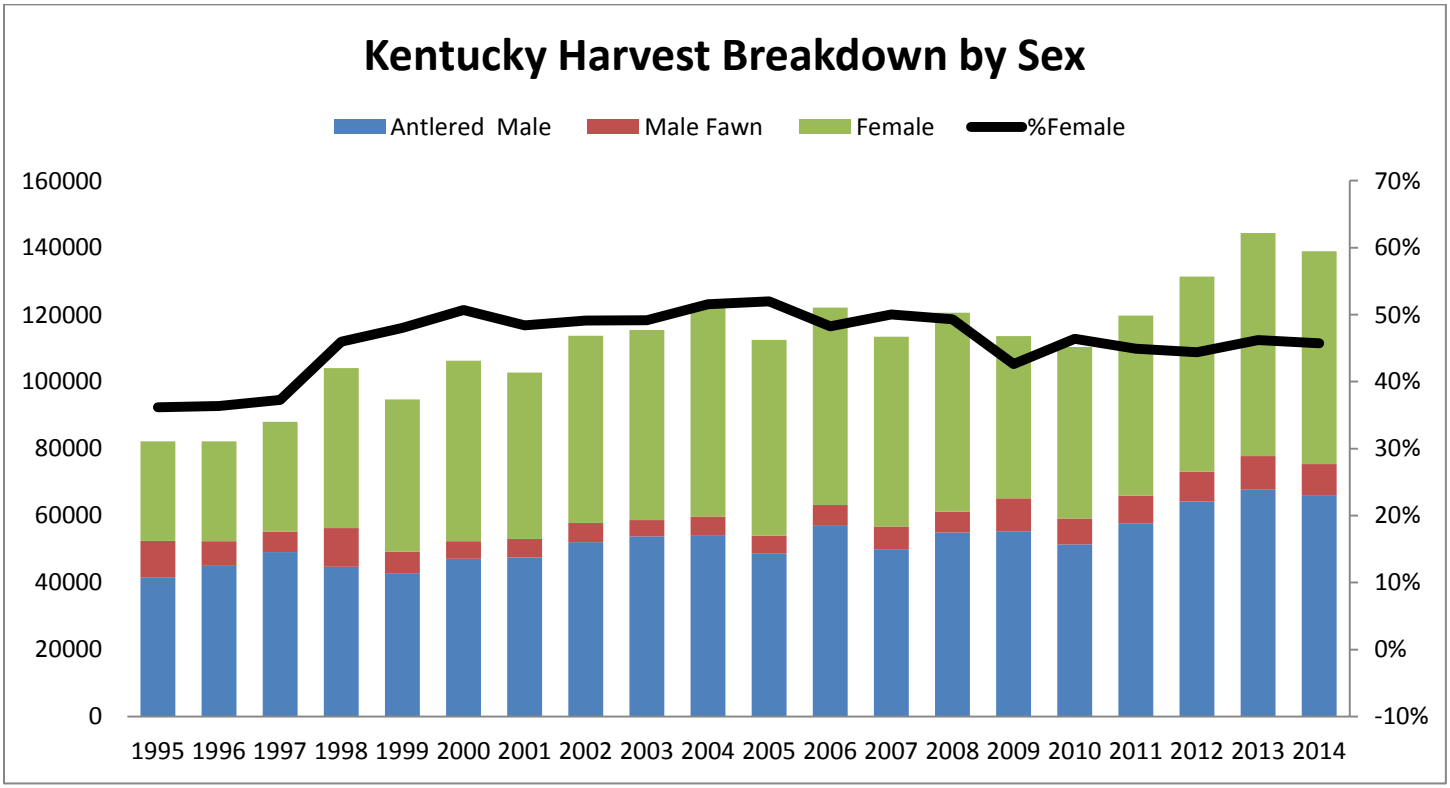
Firearms*					Archery**				Grand Total	
Year	Males	Females	Total	% of Grand Total	Males	Females	Total	% of Grand Total	Total	Change
1976	3042	434	3476	100%					3476	
1977	5257	425	5682	100%					5682	63%
1978	5633	379	6012	93%	265	156	421		6433	13%
1979	6864	578	7442	92%	426	194	620	8%	8062	25%
1980	7323	665	7988	82%	1004	710	1714	18%	9702	20%
1981	12079	1055	13134	88%	1145	704	1849	12%	14983	54%
1982	13908	1896	15804	88%	1308	857	2165	12%	17969	20%
1983	14383	1644	16027	86%	1607	1098	2705	14%	18732	4%
1984	17174	3170	20344	88%	1650	1018	2668	12%	23012	23%
1985	21551	4473	26024	87%	2724	1327	4051	13%	30075	31%
1986	27773	6884	34657	88%	3144	1719	4863	12%	39520	31%
1987	37790	16582	54372	90%	3831	2169	6000	10%	60372	53%
1988	38528	19025	57553	90%	4444	2263	6707	10%	64260	6%
1989	39564	23103	62667	89%	4887	2595	7482	11%	70149	9%
1990	42863	23288	66151	89%	4798	2969	7767	11%	73918	5%
1991	48881	36037	84918	91%	3979	4037	8016	9%	92934	26%
1992	45108	28556	73664	90%	4243	4031	8274	10%	81938	-12%
1993	41809	19738	61547	89%	4148	3829	7977	11%	69524	-15%
1994	47310	22387	69697	88%	4427	4665	9092	12%	78789	13%
1995	47854	25336	73190	89%	4591	4359	8950	11%	82140	4%
1996	48538	25161	73699	90%	3760	4696	8456	10%	82155	0%
1997	51820	28996	80816	92%	3350	3776	7126	8%	87942	7%
1998	52125	42174	94299	91%	4115	5656	9771	9%	104070	18%
1999	45040	38267	83307	87%	4396	7524	11920	13%	95227	-8%
2000	48212	45572	93784	88%	4175	8303	12478	12%	106262	12%
2001	48747	41233	89980	88%	4263	8463	12726	12%	102706	-3%
2002	53972	48157	102129	90%	3837	7686	11523	10%	113652	11%
2003	54745	49282	104027	90%	3943	7487	11430	10%	115457	2%
2004	55518	55083	110601	89%	4754	9247	14001	11%	124602	8%
2005	49670	50558	100228	89%	4322	7864	12186	11%	112414	10%
2006	57630	49055	106685	87%	5537	9850	15387	13%	122072	9%
2007	51368	46780	98148	87%	5343	9945	15288	13%	113436	-7%
2008	55733	49375	105108	87%	5431	10071	15502	13%	120610	6%
2009	58387	39135	97522	86%	6757	9305	16062	14%	113584	-6%
2010	52254	39951	92205	84%	6916	11255	18171	16%	110376	-3%
2011	58159	41358	99517	83%	7765	12371	20136	17%	119653	8%
2012	64665	45530	110195	84%	8429	12765	21194	16%	131389	10%
2013	68703	51559	120262	83%	9018	15128	24146	17%	144409	10%
2014	67221	50347	117567	85%	8157	13174	21330	15%	138899	-4%

* Includes muzzleloader and modern firearms.

** Records of archery harvest began in 1978. Includes crossbow harvest.

II. Historical Harvest (Continued)



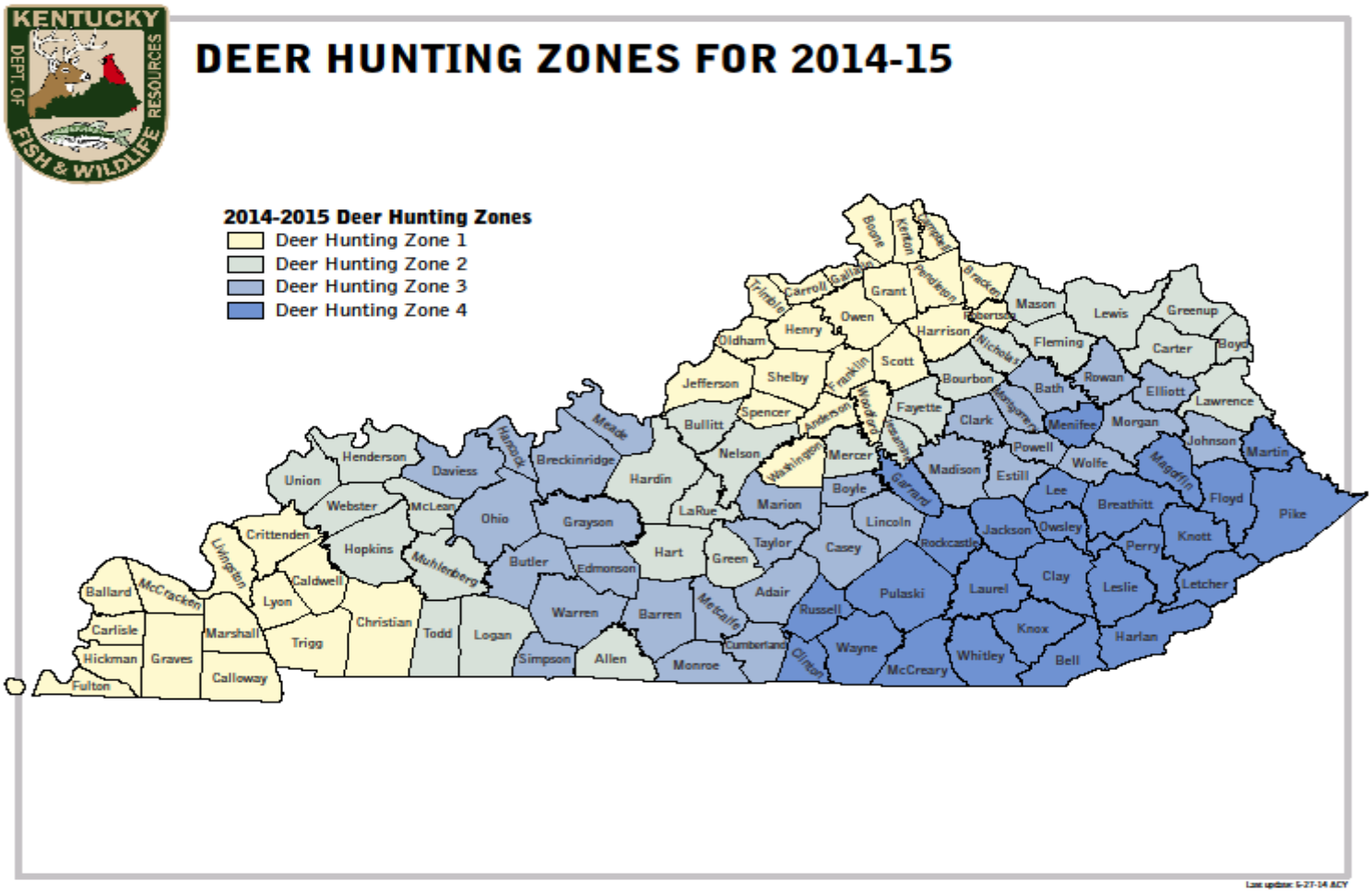


III. Population Trends

The overall herd estimate shows a stable to slightly decreasing trend. The current statewide estimate is 777,912 deer statewide, post 2014 hunting season, which is a 5% decrease from 2013. The estimate is generated from harvest and age structure data. Age structure data is collected by KDFWR staff and telecheck records are used for harvest data in the model.

IV. Deer Management Zones

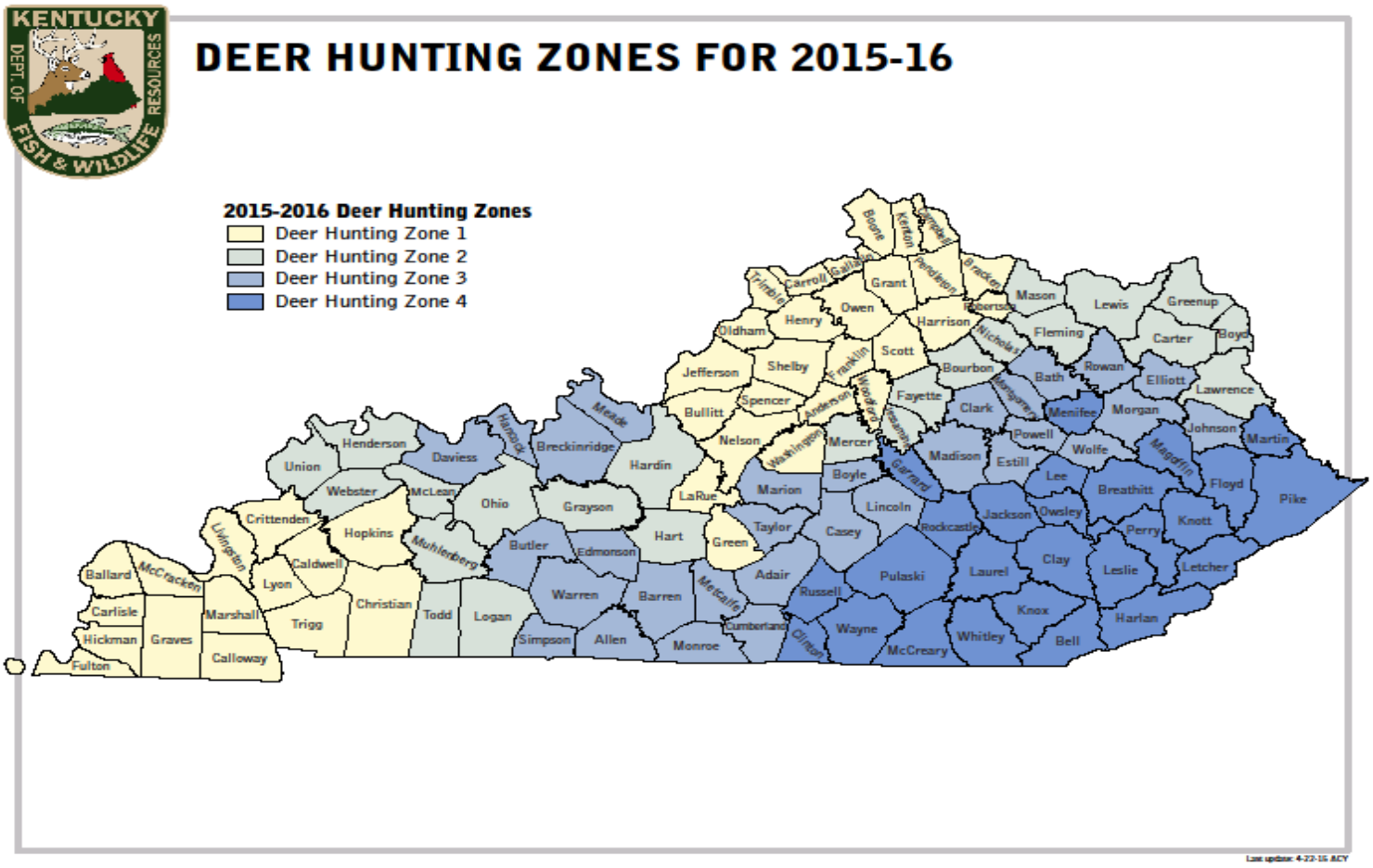
Each of Kentucky's 120 counties serves as an individual management zone. There are currently 4 different zones that are used to influence the herd: Zone 1 being the most liberal and zone 4 being the most restrictive on antlerless harvest. All zones allow for only one antlered deer per person per season. In Zone 1 counties, hunters may take either sex with no season limit on antlerless deer using all weapon types. In Zones 2, 3, and 4 counties, hunters may take a total of 4 deer (1 antlered & 3 antlerless or 4 antlerless). Zone 2 hunters may use all weapon types to harvest the 4 deer limit. Zone 3 hunters may only harvest 2 deer with a firearm. Zone 4 hunters may take no more than 2 deer with a firearm (1 with a modern firearm and one with a muzzleloader, or both with a muzzleloader). Antlerless deer in a zone 4 county may only be taken with a



firearm during the last 3 days of the late muzzleloader season.

V. Changes for the upcoming 2015-16 season

Bullitt, Green, Hopkins, Larue, and Nelson Counties will be changed from a zone 2 to a zone 1. Grayson and Ohio counties will be changed form a zone 3 to a zone 2.



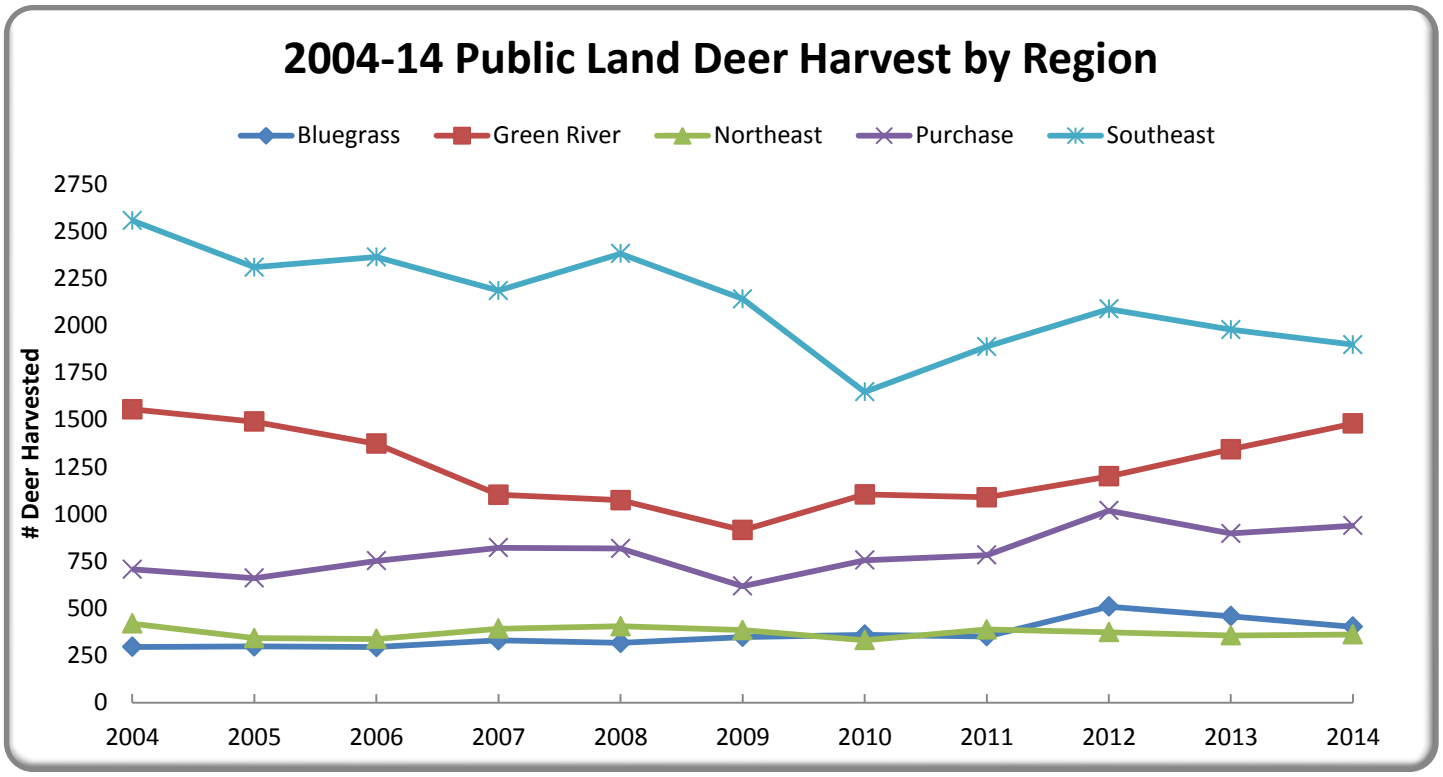
VI. Public Land/Quota Hunts

KDFWR owns, leases, or manages more than 80 Wildlife Management Area's (WMA) across the state for public use. On some areas, users must purchase a user permit. The rest are open to hunting through quota hunts or statewide regulations. The WMA's are separated by five wildlife regions and are managed by regional staff. The number of WMA's per region differs from region to region. The number of WMA's per region are: Purchase Region (16), Green River Region (14), Bluegrass Region (15), Northeast Region (12), Southeast Region (38).

There are 30 KDFWR quota hunts in the state along with 3 quota hunts on military installations (Ft. Knox, Bluegrass Army Depot, and Ft. Campbell). Any resident or nonresident hunter may apply for a deer quota hunt in the state. Each hunter who applies correctly, but isn't selected, will receive a preference point that increases the odds of being drawn the next year. Unselected hunters who do not apply the following year will lose all previously credited preference points. Applicants are selected based on individual preference points.

Up to five people can apply together with one call. If anyone of the group's Social Security numbers is drawn, the others in the group are automatically drawn, as well.

For the 30 KDFWR quota hunts held in the 2014-15 season, there were 4,192 spots available in which 7,819 people applied for quota hunts across the state. There are quota hunts for any resident or nonresident hunters, mobility impaired hunters, archery/crossbow hunters, and youth hunters. Some quota hunts are for



antlerless deer, some areas have a 15 in minimum spread restriction on bucks and some quota hunts only allow 1 deer to be taken per hunt. Each of the five wildlife regions across the state have deer quotas.

VII. Deer Management Assistance/Crop Damage

Currently, aside from using the hunting season as a control method, Kentucky has two additional ways to help alleviate damage issues: 1) Deer Control Tags (in-season), are issued to landowners who need additional deer tags during the hunting season and are for antlerless deer only. Each control tag issued has a unique identifying number that is used to report a single harvested deer via telelcheck. During the 2014-15 season, 5,255 deer control tags were issued to landowners, in which only 34% were reported via telechecked. 2) Deer Destruction Tags (out-of-season), are issued to landowners during the growing season to reduce the herd and diminish damage. These tags can be for either sex, but require landowners to relinquish any antlers to KDFWR. Additionally, KRS 150.170(7) states, "Landowners, their spouses or dependent children, or their designee who must be approved by the commissioner, who kill or trap on their lands any wildlife causing damage to the lands or any personal property situated thereon shall not be required to have a hunting or trapping license and may do so during periods other than the open season for the particular species without a tag and dispose of the carcass onsite. Tenants, their spouses, their dependent children, or other persons approved by the commissioner, shall also have the same privilege."

This program is currently being reviewed and revised to improve reporting and consistency across the state.

VIII. Disease Issues

EHD

HD is reported in deer from at least a few counties nearly every year in Kentucky, although outbreaks can be considerably large and widespread. The 2007 outbreak of HD was the most widespread outbreak reported on record. Over 4,000 suspected cases were reported in Kentucky. When possible, KDFWR will test animals that have died of apparent EHD. Four deer were clinically diagnosed as EHDV positive with serotype-2 in 2014-15. Of those 4, 2 were from Jefferson County, 1 from Hardin County and 1 from Hart County.

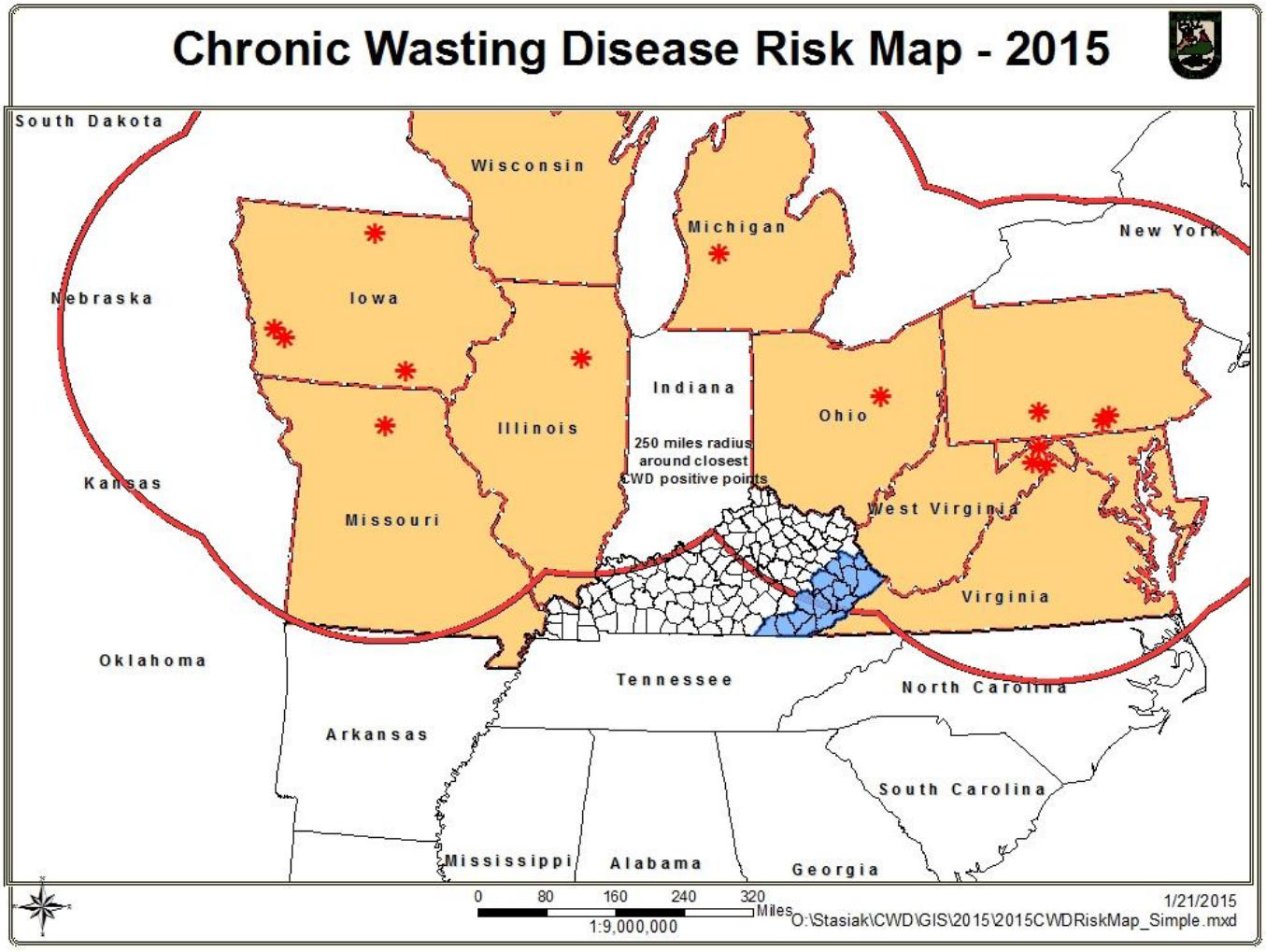
CWD

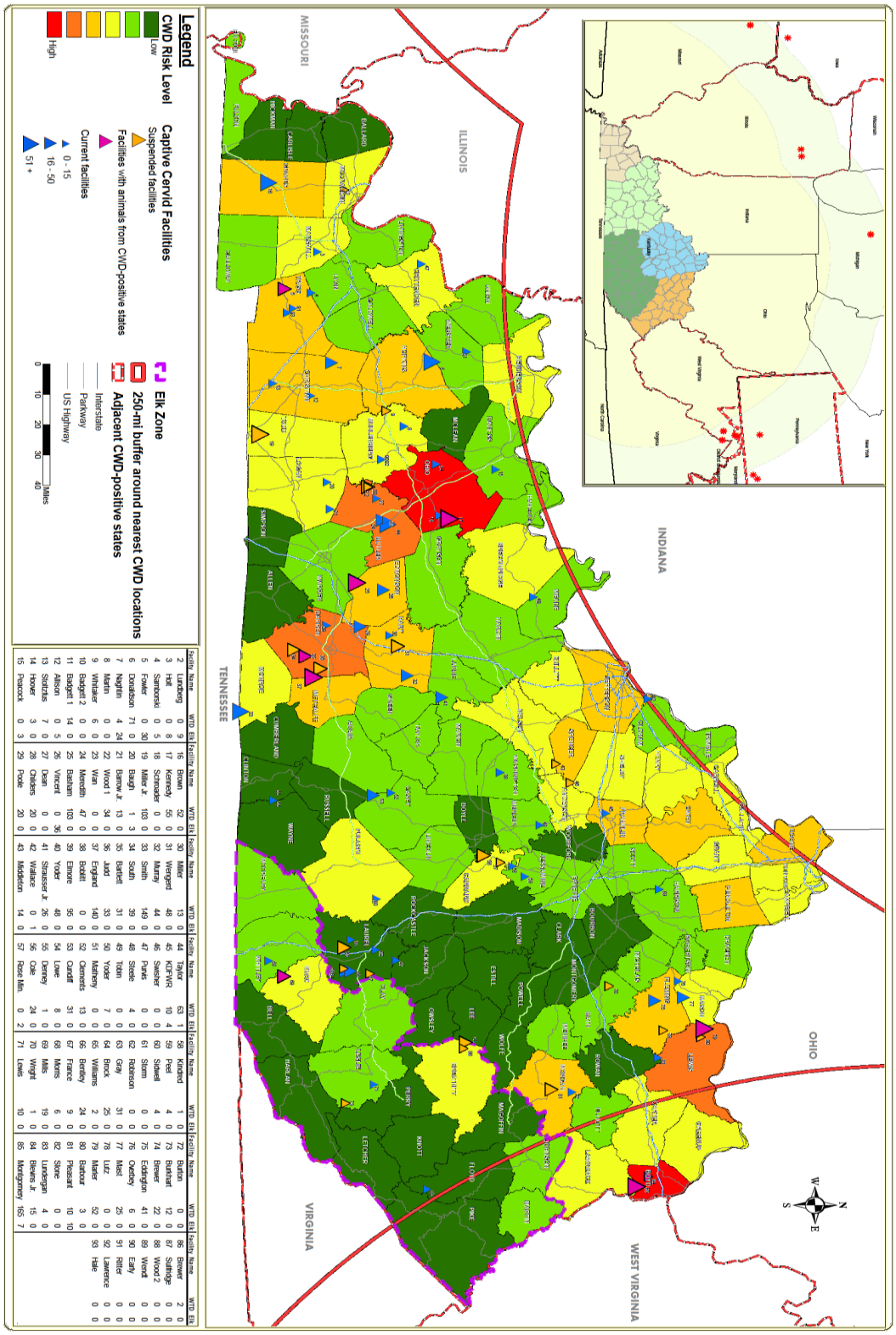
To detect CWD should it arrive in Kentucky, KDFWR adopted a CWD monitoring plan in 2002. That plan is a 4 part monitoring program to test 1) a random sampling of hunter-harvested deer, 2) target or suspect animals (animals that appear ill), 3) a random sample of roadkill deer, and 4) all captive deer mortalities. In 2006, KDFWR adopted a contingency plan to deal with CWD if it was ever found in Kentucky. Since 2002, approximately 25,000 hunter-harvested and roadkill deer samples have been tested. In 2014-15, 885 hunter-harvested, targeted, and roadkill samples were submitted for CWD testing. All samples have tested negative for CWD.

New Risk Assessment Strategy for CWD sampling.

- Due to loss of USDA funding and the increase cost of sample testing at SCWDS, a new CWD protocol has been developed. The new strategy will target more “higher risk” animals and focus less on hunter harvested animals.

- Assessment is based upon captive cervid locations, number of cervid transportation permits per facility, wild deer density estimates and proximity to CWD + areas.


Chronic Wasting Disease Risk Map - 2015
South Dakota
Wisconsin
Michigan
New York
Nebraska
Iowa
Indiana
Ohio
Illinois
250 miles radius
around closest
CWD positive points
Kansas
Missouri
West Virginia
Virginia
Oklahoma
Tennessee
North Carolina
Arkansas
South Carolina
Mississippi
Alabama
Georgia
0 80 160 240 320
Miles
1:9,000,000
1/21/2015
O:\Stasiak\CWD\GIS\2015\2015CWDRiskMap_Simple.mxd


Chronic Wasting Disease Risk Map - 2014
Legend
CWD Risk Level
LOW
High
Captive Cervid Facilities
Suspended facilities
Facilities with animals from CWD-positive states
Current facilities
0 - 15
16 - 50
51 +
Elk Zone
250-mi buffer around nearest CWD locations
Adjacent CWD-positive states
Interstate
Parkway
US Highway
Miles
0 10 20 30 40
ILLINOIS
INDIANA
OHIO
WEST VIRGINIA
VIRGINIA
TENNESSEE
MISSOURI

IX. Research

In collaboration with the University of Kentucky, KDFWR has initiated a study of deer in Southeastern Kentucky to evaluate the population dynamics of adult female deer and survival, cause-specific mortality, and recruitment of neonates.

Population Dynamics of Adult Female White-tailed Deer in Southeast Kentucky

Although most of the state contains healthy numbers of deer, many counties in southeastern Kentucky are thought to have stable, low density populations.

Research will focus on adult does in Clay County, KY, in efforts to identify survival, cause-specific mortality, fecundity, and natality of this important reproductive demographic group in an area of relatively low deer density. Does will be captured and immobilized using clover traps, drop-nets, and free-range darting, then fitted with a very high frequency (VHF) radio-transmitter collar. Pregnancy and number of fetuses will be determined using an ultrasound, and a vaginal implant transmitter (VIT) will be inserted in pregnant does to facilitate location of birth-site locations and fawns for a different study. Adult does will be monitored twice weekly for mortality for 18-24 months.

Thus far 52 adult female deer have been captured. These data should inform state wildlife managers about regional deer population dynamics that can be helpful for refinement of population models and overall management of this important game species.

Survival, Cause-Specific Mortality, and Recruitment of White-tailed Deer Neonates in Southeastern Kentucky

An extensive trapping and relocation project that ended in 1999 revealed that white-tailed deer populations in southeastern Kentucky were in decline while populations in the rest of the state were stable or increasing. Because the factors influencing this decline in southeastern Kentucky are unknown, the goal of this research project is to determine the recruitment rate, or the rate at which juveniles survive to adulthood and consequently become part of the breeding population, of deer populations through estimates of survival and cause-specific mortality of fawns. Understanding cause-specific mortality and survival of fawns is important when preparing deer population models that inform management decisions.

Data collection will continue into the 2015 fawning season by capturing and collaring fawns during the months of May and June in Clay county. Fawns will be captured using vaginal implant transmitters (VITs) inserted into known females that were captured during a complimentary mortality survey occurring in the same region. Fawns will also be found by utilizing thermal imaging cameras at night to detect the heat signature of these deer. Once captured, fawns will be fitted with an expandable neonate collar that will allow us to monitor the animals until death or until the collar releases at around nine months. Data generated from these fawns will allow us to understand what factors are influencing fawn mortality, as well as how many fawns are surviving into the fall hunting season.

35 fawn collars were deployed during the 2014 fawning season: 20 from VITs and 15 from a combination of ground and thermal searches. At the end of the 2015 fawning season, 31 fawn collars were deployed: 21 from VITs and 10 from a combination of ground and thermal searches. Upon completion, the results of this project will support future decisions made by biologists regarding deer management in southeastern Kentucky populations.

X. Hot Topics

Deer Damage

HB 448 – amended KRS 150.170 to allow landowners (resident and non-resident), their spouses, dependent children, or their designees to kill or trap on their lands any wildlife causing damage to the lands or personal property with a tag. The amendment has forced us to allow the landowner to designate individuals who will remove wildlife causing damage throughout the year.

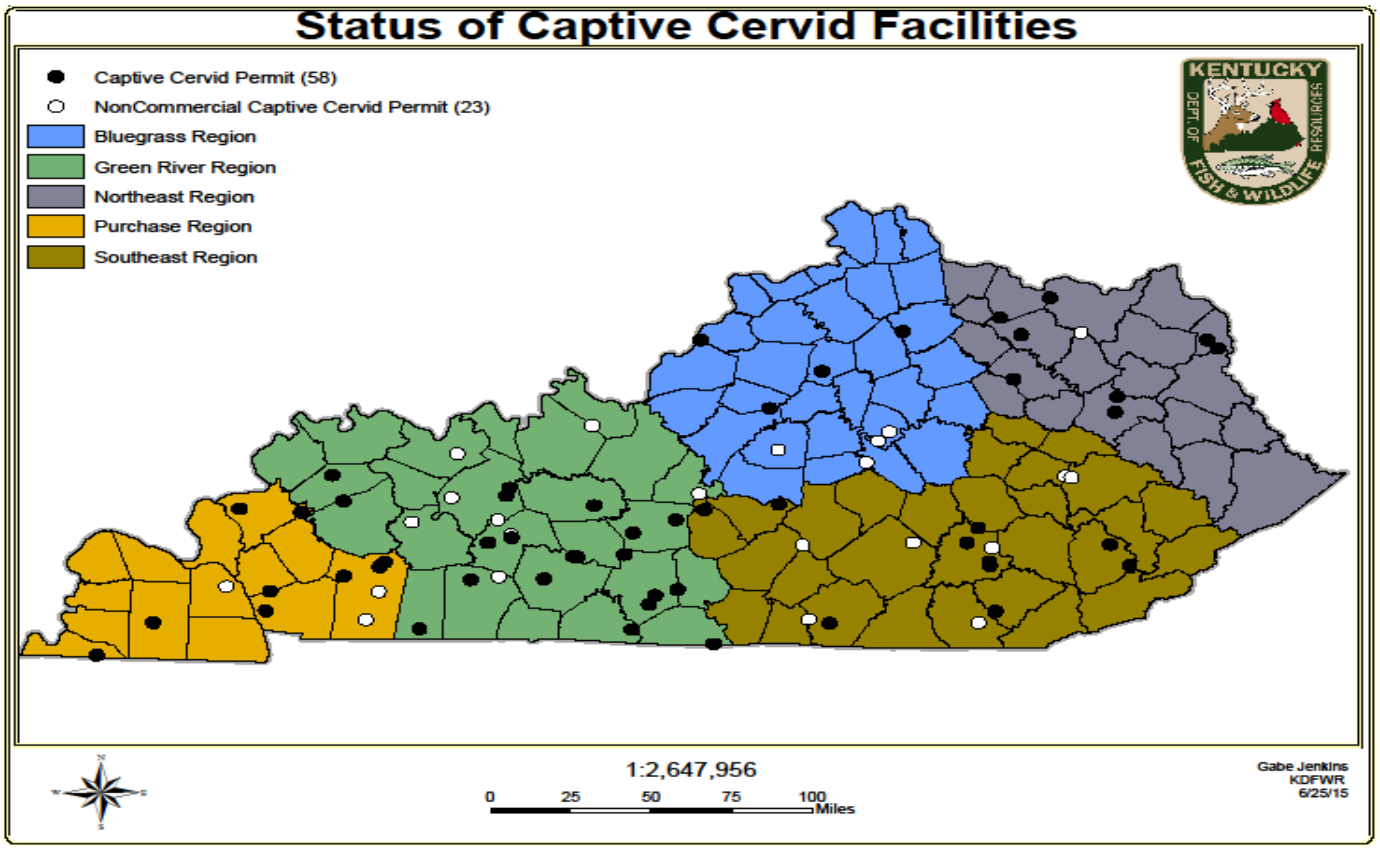
In-season control - are issued to landowners who need additional deer tags during the hunting season and are for antlerless deer only. Each control tag issued has a unique identifying number that is used to report a single harvested deer via telelcheck.

Out-of-season control - are issued to landowners during the growing season to reduce the herd and diminish damages. These tags can be for either sex, but require landowners to relinquish any antlers to KDFWR. This program is currently being reviewed and revised to improve reporting and consistency across the state.

Captive Cervids

Commercial and Non-commercial Facilities – At this time we have two types of captive cervid groups, Commercial Captive Cervids and Non-commercial Captive Cervids. Commercial facilities require the owner to renew their application ($150) and be re-inspected annually. Non-commercial facilities are required to renew their application ($75) every three years and be inspected annually. Additionally, KDFWR along with the Kentucky Department of Agriculture (KDA) have joint jurisdiction over captive cervids. The KDA regulates the transportation of captive cervids between facilities and disease testing. White the KDFWR regulates the infrastructure of the facilities themselves.

Currently, importation of captive cervids is only allowed from the state of Indiana. An importation ban from Indiana was in place for 4 months in the spring of 2015. The ban was implemented due to concerns of the transportation of animals into Indiana from positive facilities in Ohio and Pennsylvania. A comprehensive epidemiological investigation was completed and the ban was removed and importation was again allowed with a few new restrictions. Those restrictions are that all cervids imported from Indiana to a Kentucky HMP herd for harvesting shall be tested for CWD. HMP facilities shall continue to test the first 10 animals harvested in addition to the Indiana imports. The intent of HMP facilities receiving Indiana cervids, shall be that all of those cervids be harvested and tested within the current season (~ 6 months; August – January). The continued presence of hold-over cervids on a HMP premises may result in issuance of an official herd plan to achieve that goal. Cervids imported into a Kentucky HCP herd that die for any reason shall be tested for CWD.



XI. Relevant Links

KDFWR Home Webpage – http://fw.ky.gov/Pages/default.aspx

KDFWR Deer Regulation Webpage – http://fw.ky.gov/Hunt/Pages/Deer-Hunting-Regs.aspx

KDFWR Diseases & Wildlife Health Webpage – http://fw.ky.gov/Wildlife/Pages/Diseases-and-Wildlife-Health.aspx

KDFWR Live Wildlife Possession Webpage – http://fw.ky.gov/Wildlife/Pages/Live-Wildlife-Possession.aspx

I. Current Harvest

The 2014-15 total deer harvest was estimated to be 329,040; down significantly by 15% from 2013-14. The decline was likely due to a myriad of factors: a new license package contributed to a ~7% decline in hunters from 2013-2014, the UP (total harvest down 35.5%) had been subjected to two severe winters previously, and the southern lower (total harvest down 11.1%) had >20% of standing corn compared to their 5 year history.

	Bucks		Does		Buttons		Total		
	2014	2013	2014	2013	2014	2013	2014	2013	Change (%)
Firearms	**105,258**	**125,625**	**57,040**	**69,628**	**10,463**	**13,065**	**172,761**	**208,317**	**-17.1**
Archery									
Crossbow	31,985	30,375	27,281	28,397	N/A	N/A	59,266	58,772	**0.8**
Vertical Bow	29,901	32,558	20,855	25,493	N/A	N/A	50,756	58,051	**-12.5**
Total	**61,886**	**62,933**	**48,136**	**53,890**	**N/A**	**N/A**	**110,022**	**116,823**	**-5.8**
Muzzleloader	**6,816**	**9,020**	**11,514**	**16,916**	**1,890**	**2,395**	**20,220**	**28,331**	**-28.6**
Antlerless									
Early Antlerless	N/A	N/A	2,740	5,098	346	722	3,086	5,820	**-47.0**
Late Antlerless	N/A	N/A	9,114	9,813	1,150	1,415	10,264	11,228	**-8.6**
Total	**N/A**	**N/A**	**11,854**	**14,911**	**1,496**	**2,137**	**13,350**	**17,048**	**-21.7**
Youth	**4,079**	**5,285**	**1,475**	**2,394**	**171**	**302**	**5,725**	**7,981**	**-28.3**
Total*	**178,228**	**203,057**	**123,239**	**149,728**	**20,900**	**26,009**	**322,367**	**378,794**	**-14.9**

*Totals include additional disability hunts not previously recorded. An additional 6,673 deer were taken on DMAP permits that are not included in this total.

II. Historical Harvest

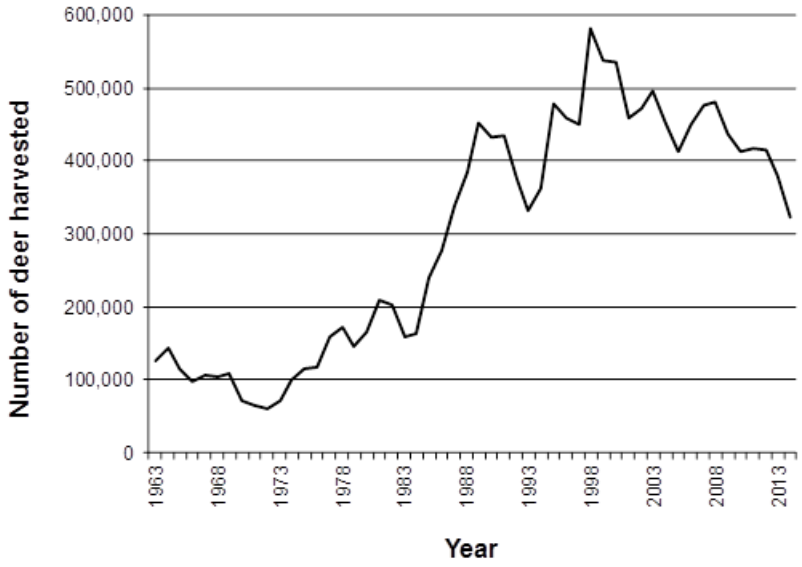


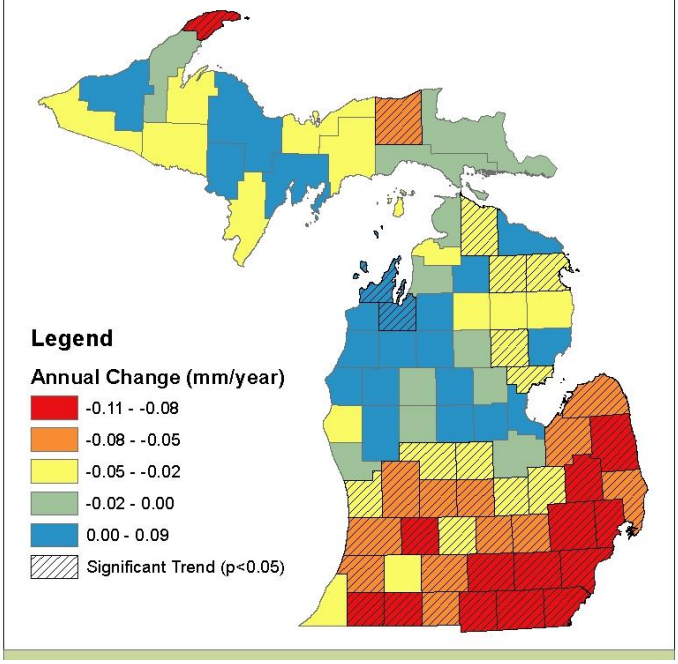
Figure 13. Number of deer harvested in Michigan's hunting seasons, 1963-2014. Harvest from all seasons and for all deer sexes was combined.

III. Population Estimate/Trends

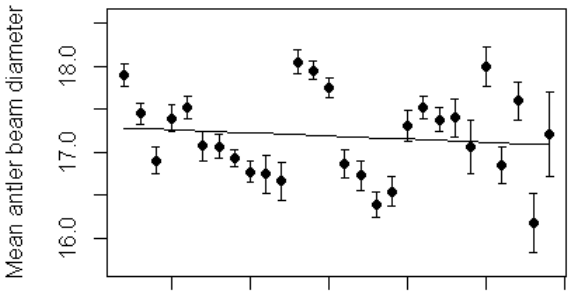
Michigan DNR no longer conducts population estimates.

There has been a decline in yearling antler beam diameter over the past ~30 years, with the most notable declines occurring in the southern part of the state. This is occurring in spite of having reduced deer numbers from a peak in the late 1990's.

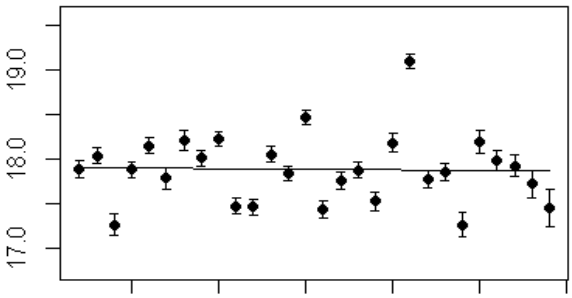
Annual Antler Beam Trends 1987 - 2014

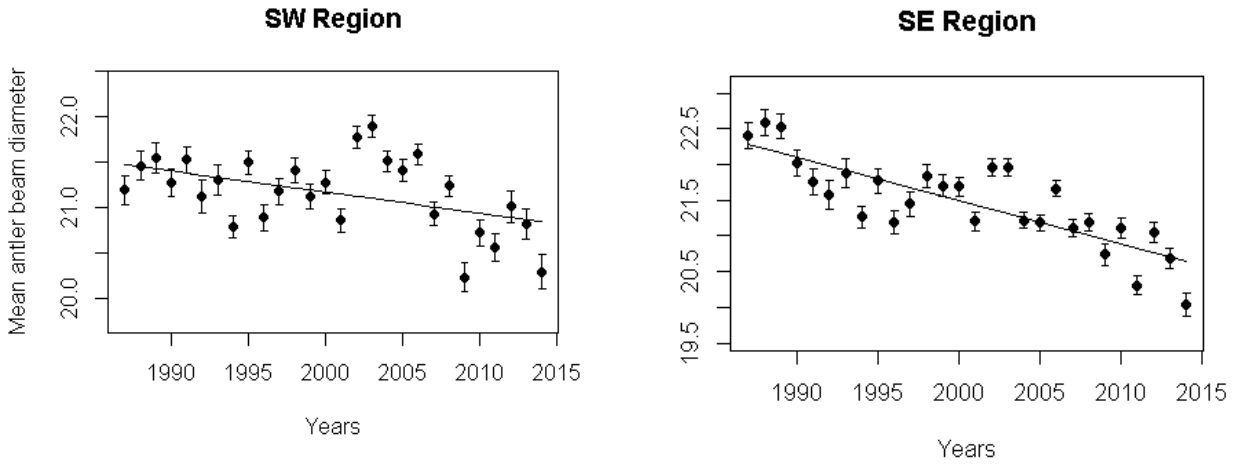


UP Region



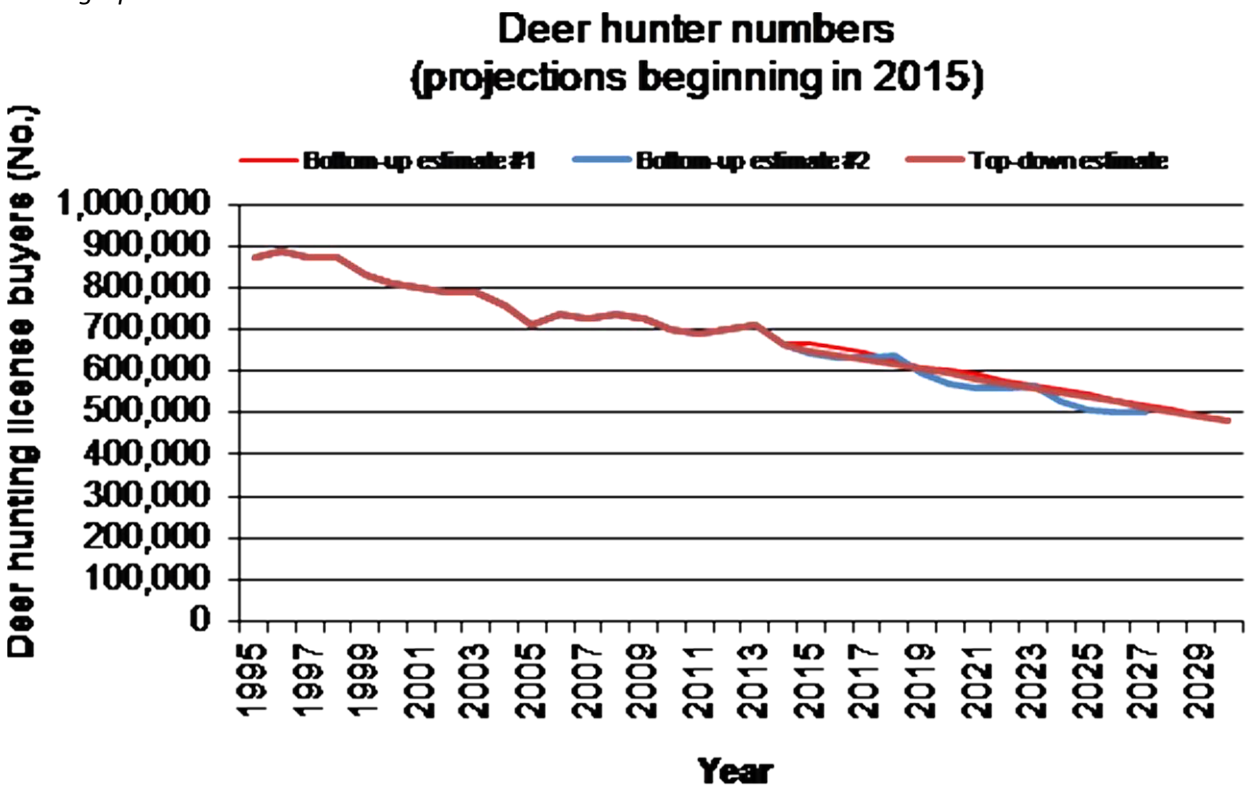
NLP Region



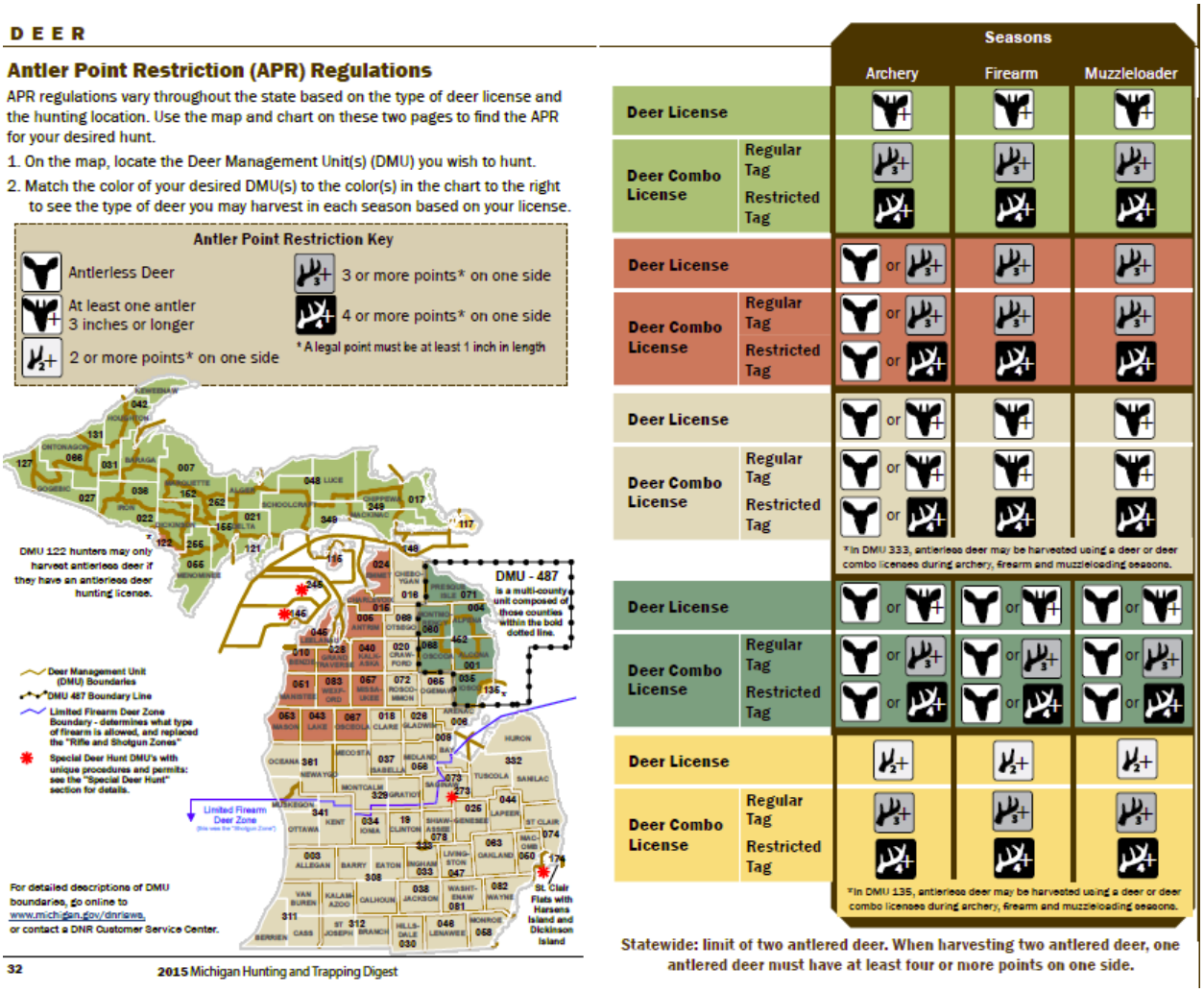


III. Population Estimate/Trends (cont'd)

Demographics –



IV. Deer Management Zones (For 2015):



2014-15 Harvest Regulation Summary

V. Regulation/legislation

1. <u>New for 2015</u>
    a. Hunters in the UP will no longer be allowed to take an antlerless deer with their archery equipment. This has effectively turned the entire UP into a "buck only" region. Antlerless harvest is still allowed in units with open antlerless quotas.

VI. Urban/Special Hunts

No special hunts of note. Ann Arbor has set aside $90,000 to cull up to 100 deer from their city. To date, no permit has been issued.

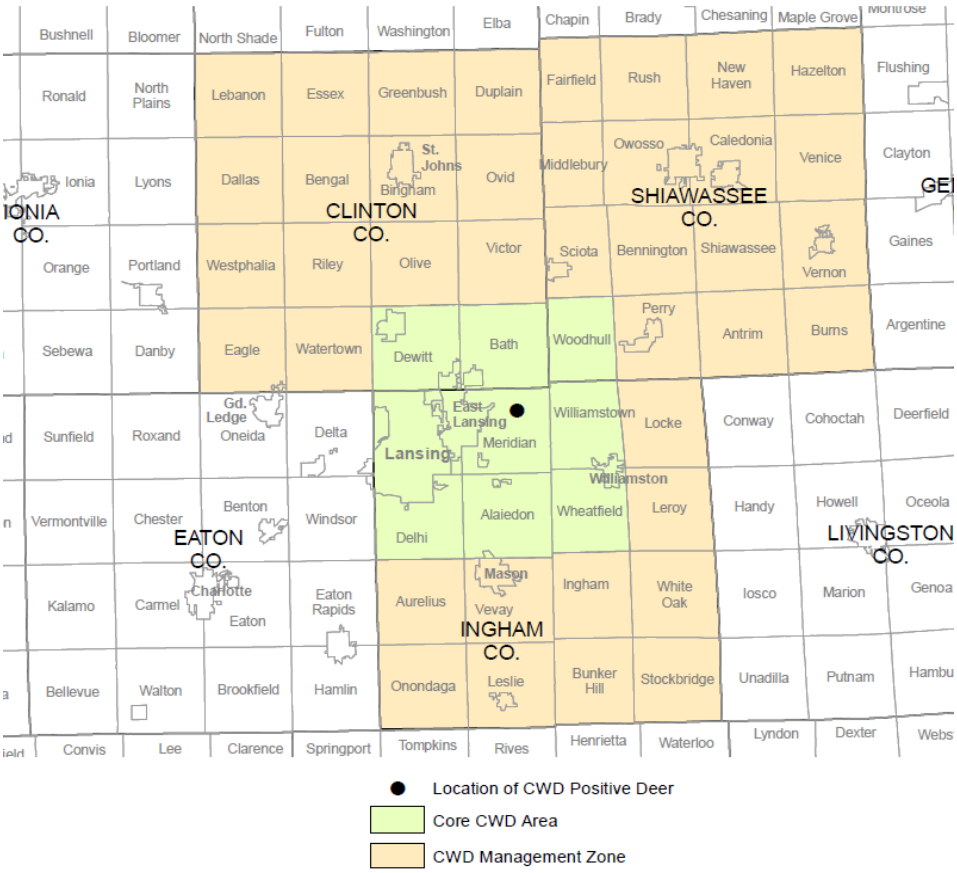
VII. Deer Management Assistance/Crop Damage

The agency is one year in to a 3 year pilot program to look at an exception to the Deer Management Assistance Permit (DMAP) regulations that allows for the use of firearms/rifles during the archery season (except Oct 1-4 and Nov 10-14) and/or to harvest one antlered deer per year with either method of take by season or with a firearm. This pilot program is located in 5 counties in the orchard belt of Michigan and was created to alleviate concerns with damage to fruit bearing trees. DMAPs were previously only allowed to be used with the proper equipment in the appropriate season. However, several landowners requested additional methods to protect their agricultural interests, such as the allowance of firearms regardless of the season. Results from 2014 show that 80 permittees were granted the firearm exception (i.e. allowance to use firearms with DMAP during the archery season) and contributed 94 kills to a total of 458 reported DMAP kills. There were 29 permittees to the antlered deer exception, with 2 reported animals killed.

VIII. Diseases - CWD

On May 20, 2015, the MI DNR Wildlife Disease Lab confirmed a CWD positive deer from Ingham County, Michigan. The index animal was a 6 year old doe expressing symptoms of late stage CWD. The doe was pregnant with two fetuses and detected in the suburb of Haslett, MI. The incident kicked off Michigan's CWD Response Plan, which includes completing a population survey, establishing a CWD Management Zone, implementing a feeding and baiting ban, prohibiting the movement of deer or deer parts from the Management Zone, and intensifying surveillance of free ranging deer in the zone. The source of the infection is unknown; there are three captive cervid operations in a 15 mile radius, and none are expected to be the cause of the outbreak.

A genetic relatedness study through Michigan State University in 2013 identified, at minimum, approximately 60 deer per square mile in the affected area through pellet collection and DNA sequencing. To date, a baiting and feeding ban has been created for all of Ingham, Clinton, and Shiawassee Counties, with a core-CWD management area created in the 9 township area surrounding the index animal. The MDNR has contracted with USDA sharpshooters to remove deer from a two mile radius from the index animal. As of August 27, 2015, 373 deer have been removed via sharpshooting, with 2 additional positives detected. To date, all 3 deer seem to be a part of a familial group, and all positives have been within 0.8 mile. A total of 657 deer have been tested to date statewide since the initial discover of the disease.



IX. Research

EHD Recovery

Research from MSU is looking at the rebound of deer populations after an EHD outbreak. The project is headed by Sonja Christensen, previous Massachusetts Deer Project Leader, through Michigan State's Boone and Crockett Quantitative Wildlife Center.

Explaining trophy white-tailed deer harvest data

Research from MSU is looking at using trophy white-tailed deer harvest data to help determine possible explanations for the landscape distribution of trophy harvest occurrences that are seen throughout the Midwest. Project is being headed by Rebecca Cain through Michigan State's Boone and Crockett Quantitative Wildlife Center.

Predator-Prey Project

Project is entering its seventh year looking at the complex interactions of deer survival, winter severity, and predators in Michigan's Upper Peninsula. The initial study was set in the low snow fall zone, and the

team is currently in the process of completing its research in the mid-snowfall zone. A final three years will begin in the high snow fall zone where deer are obligate migrators. Project is funded by Safari Club International and headed up by researchers at Mississippi State and Northern Michigan University. Visit http://www.fwrc.msstate.edu/carnivore/predatorprey/index.asp for more details.

X. Hot Topics

CWD, UP Deer Regulations, DMAP/Out of Season Permits

XI. Relevant Links

www.michigan.gov/deer

www.michigan.gov/cwd

Minnesota Deer Status Report

2015 Midwest Deer & Wild Turkey Study Group
Perlstein Resort & Conference Center, Lake Delton, WI

I. Current Harvest

In 2014, hunters registered 139,442 deer, down 19% from 2013 (Table 1, Figure 1). This is the 4th consecutive year of decline and lowest harvest in nearly 3 decades. This drop in harvest was anticipated, given the declining trend in deer numbers throughout many areas of the state and the conservative antlerless harvest strategy in 2014. Multiple deer could be taken in only 5% of Deer Management Units (DMU) in 2014, compared to 30% in 2013. Overall, firearm, muzzleloader, and archery kill decreased 21%, 17%, and 10%, respectively, in 2014. Firearm hunters account for 83% of total harvest, while archers and muzzleloader hunters account for 13% and 4%, respectively. Archery license sales were stable, while firearm and muzzleloader license sales decreased 21% and 17%, respectively.

Management designations throughout the state for the 2014 deer season were conservative to intentionally reduce harvest of antlerless deer to offset deer mortality due to the harsh winter of 2013-14. With more antlerless deer left on the landscape and mild winter conditions throughout much of the state, deer populations in most DMUs likely increased above 2014 levels following reproduction in 2015. In terms of management intensity, the 2015 season will be similar to the 2014 season with approximately 7% more antlerless deer harvest opportunities afforded to hunters. The estimated total statewide harvest for 2015 will likely be slightly more than the 2014 season.

Table 1. Registered deer harvest in Minnesota, 2012-2014.

	Antlered			Antlerless			Total		
Season	2012	2013	2014	2012	2013	2014	2012	2013	2014
Firearm	83,957	77,820	70,466	71,123	68,071	45,248	155,080	145,891	115,714
Archery	8,738	7,573	8,111	13,160	12,231	9,764	21,898	19,804	17,875
Muzzleloader	3,229	2,472	2,459	4,460	4,614	3,394	7,689	7,086	5,853
Total	95,924	87,865	81,036	88,743	84,916	58,406	184,667	172,781	139,442

II. Historical Harvest

The statewide deer harvest generally increased from the mid-1970s through the early-2000s. After a record harvest of 289,421 in 2003, management changes were made to lower densities across much of Minnesota. From 2005-2007, through a public goal-setting process, goals for much of the state were set to lower deer densities. High antlerless harvest rates, along with liberal bag limits contributed to high harvest numbers, and the statewide deer population declined toward goals by the late-2000s. In most DMUs, recent management efforts have focused on maintaining or increasing deer populations.

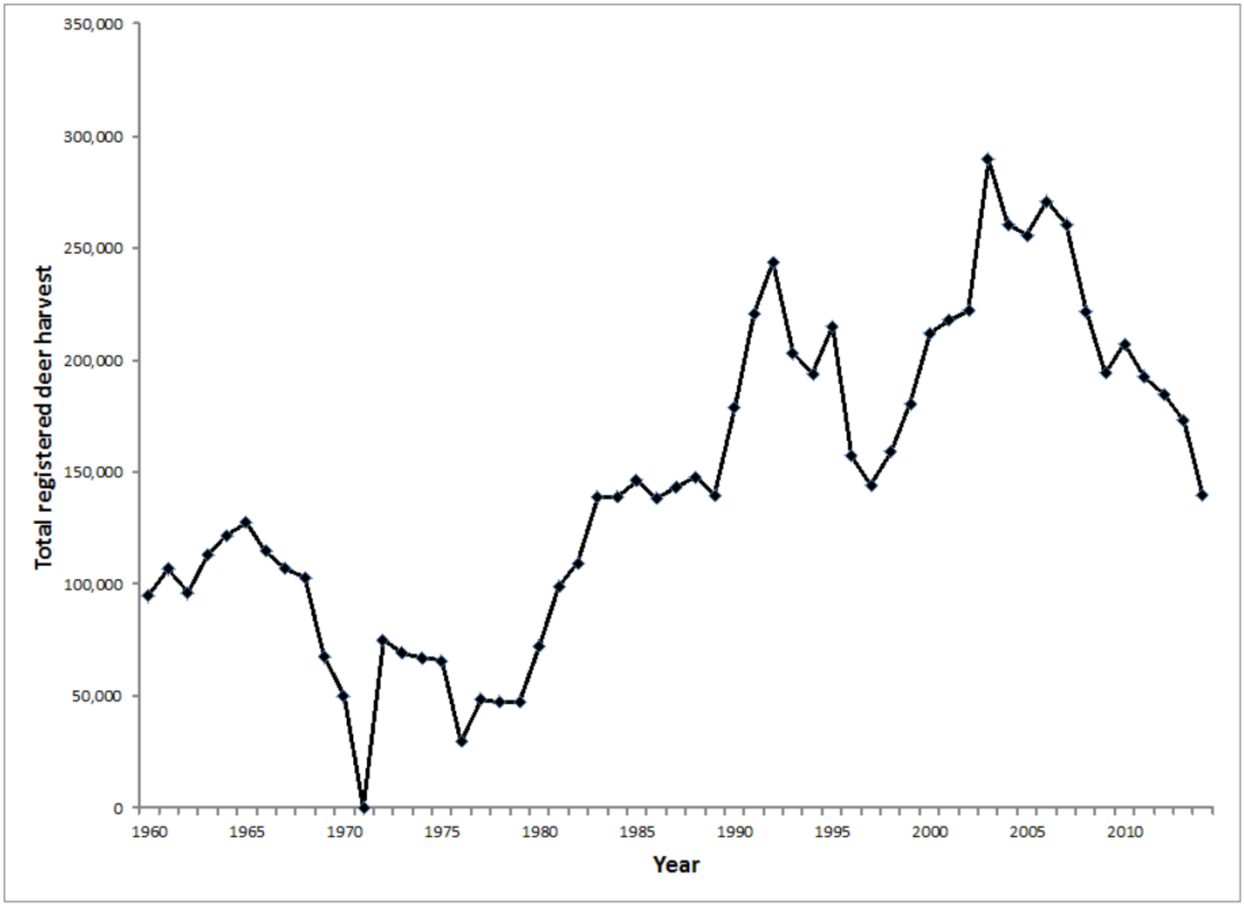


Figure 1. Total registered deer harvest in Minnesota, 1960-2014.

III. Population Estimates/Trends

MNDNR estimates deer populations at the DMU level and adjusts management strategies to achieve population goals. Where possible, population estimates from modeling are calibrated with data from aerial surveys. Deer population increases over the past few decades were influenced by relatively mild winter weather and lower antlerless deer quotas in the 1970s, 1980s, and again following the severe winters of 1995-96 and 1996-97. Following deer population goal revisions during 2005-2007, deer densities in most DMUs were intentionally reduced and stabilized through the 2013 deer season. Management strategies are adjusted accordingly as new goals are established through the public goal-setting process.

IV. Deer Management Units/Zones

Annually, 1 of 7 management strategies are implemented within each DMU, based upon estimated deer density in relation to population goal. During 2014, DMUs were partitioned into 14 Bucks Only areas, 69 Lottery areas, 38 Hunter Choice areas, 3 Managed areas, 3 Intensive areas, and 1 No Limit Antlerless area (Figure 2). The statewide management strategy will remain conservative in 2015.

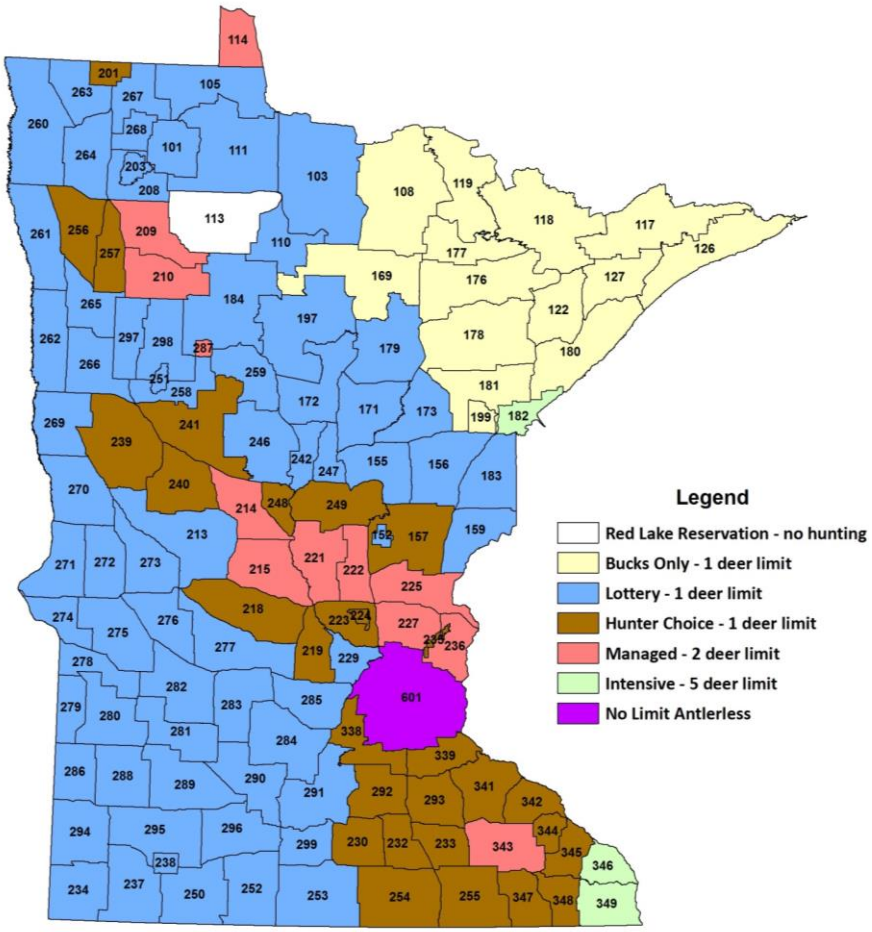


Figure 2. Deer season management designations in Minnesota, 2014.

V. Regulation/Legislation Changes

Licenses:

- A deer license purchased after the opening day of the season is valid the first day after it is issued. A deer license purchased before legal shooting hours begin is valid when the season opens.

Seasons and Bag Limits:

- Two southeast DMUs will be open to a 4-day, early antlerless season to address high deer densities and damage to agricultural crops. This season is considered annually when formulating deer management recommendations.
- Licensed hunters age 60 or over may use magnifying scopes during the muzzleloader season. Scopes were previously banned during the muzzleloader season for all hunters, except by special permit.
- Residents of veteran's homes may take deer of either sex, regardless of DMU designation, during the firearm and muzzleloader seasons.
- Residents who are ≥84 years of age may take deer of either sex, regardless of DMU designation, during any deer season.

DMU Designation:

- A youth-only, antlerless harvest strategy will be implemented in 3 southwestern DMUs. No antlerless deer may be taken in these areas by adult hunters during any season, except for residents of veteran's homes and hunters age 84 and up.
- A bucks-only harvest strategy will be implemented in 14 northern DMUs. No antlerless deer may be taken in these areas by any hunters during any season, except for residents of veteran's homes and hunters age 84 and up.

VI. Urban/Special Hunts

Special hunts: MNDNR cooperates with municipalities, state and county parks, and other public land entities throughout Minnesota to administer special hunts in areas where the number of hunters and weapon types must be limited to control the harvest or in the interest of public safety. During the 2014 deer season, special hunts were held in 57 areas and 1,581 deer were harvested.

Urban Deer Damage Management: An approximately 300-square mile area surrounding the Twin Cities metropolitan area is designated a "metro zone" where hunters may harvest an unlimited number of antlerless deer with proper licenses.

In rare circumstances, MNDNR issues shooting permits for managing deer in urban areas. When permits are issued, deer may be removed outside of hunting seasons, at night, over bait, and with firearms. Either animal damage contractors or local law enforcement conduct the deer removals and all venison must be donated for charitable food distribution. Approximately 12 permits are issued annually in Minnesota, usually in the Twin Cities metropolitan area.

VII. Deer Management Assistance/Crop Damage

MNDNR does not compensate farmers financially for crop damage caused by deer. Wildlife managers are available to work cooperatively with agricultural producers to develop strategies to reduce deer damage and to improve deer population management. Farmers who enter into a Cooperative Damage Management Agreement with MNDNR are eligible to receive material assistance from the state, including installation of exclusion fencing. To minimize damage to standing crops, localized population management techniques (including hunting and shooting permits) are used to decrease deer numbers where they are causing damage. If sport-hunting is utilized to the fullest extent and damage is still excessive, MNDNR may issue shooting permits to agricultural producers to harvest deer outside of hunting seasons. In addition, a pilot program was instituted in 2012 in southeastern Minnesota, which allows the use of depredation permits allocated to specific properties where deer damage is occurring. Depredation permits allow increased bag limits for private sport-hunters to harvest additional antlerless deer during regular hunting seasons. We are currently evaluating the efficacy of localized management as a technique to reduce deer densities and to improve the satisfaction of agricultural producers with deer management.

VIII. Diseases

CWD Surveillance: To date, CWD has been diagnosed in 3 captive elk herds (2002, 2009), 1 captive white-tailed deer herd (2006), 1 captive European red deer herd (2012), and a single, wild white-tailed deer (2010) within the state of Minnesota. All captive elk and deer herds have subsequently been depopulated, with 4 additional CWD-positive elk found in 1 herd. After 3 years of testing (>4,000 samples) and aggressive management surrounding the single, CWD-positive wild deer, no additional cases were detected and surveillance has been discontinued in this area. During 2014, over 400 deer were tested in southeast Minnesota (DMUs 348 and 349) in response to the discovery of CWD in northeast Iowa. No disease was detected. Current plans are to terminate the southeast surveillance efforts, but continue statewide targeted CWD surveillance of deer exhibiting clinical signs of illness.

IX. Research

Agricultural Deer Damage Research: Damage caused by white-tailed deer can be severe in Minnesota with substantial annual losses reported by agricultural producers. Previous research demonstrated that intensified population reduction of deer in a small geographic area, also known as localized management, effectively reduced the abundance of deer to maintain lowered deer densities over time. In theory, damage to resources targeted for protection should be reduced because fewer deer are available to cause damage. The objective of this study is to evaluate the effectiveness of localized management for reducing fine-scale deer abundance and to examine whether damage caused by deer to agricultural crops is reduced on properties where deer densities are lowered. One field season of the study was completed during 2014 in southeast Minnesota. Baited infrared camera surveys were used to estimate deer abundance on focal properties. Yields of corn in fenced and unfenced plots were evaluated to estimate the impacts of browsing by deer. Corn yield loss averaged 9%, and there was no difference in corn damage between properties where localized management was utilized versus normal sport-hunting. Corn damage could not be explained solely by deer abundance at the property level. However, extra deer harvest opportunities were utilized when requested. Landowners utilizing depredation tools exceeded harvest objectives for antlerless deer recommended as part of the research and management was 34% more intensive on these properties versus those using normal sport-hunting. A second field season is being conducted in 2015. The results of this study will provide a basis for improving the framework for future application of localized management in agricultural regions.

Distance Sampling – Roadside Surveys: A Minnesota State University–Mankato M.S. student (Eric Anstedt) is creating and testing a habitat suitability index (HSI) model for white-tailed deer to quantify deer habitat quality along roadways in an intensively farmed region of southwest Minnesota. Spotlight surveys were conducted during evenings in March and April 2015 and will be repeated in 2016 to examine the relationship between number of deer observed and HSI scores. Results of this study may provide the information needed to improve our ability to stratify the agricultural-dominated landscape and enhance the efficiency of collecting distance sampling data to estimate deer densities.

X. Hot Topics

Goal Setting: New deer population goals have been approved for large portions of northeastern, north-central and east-central Minnesota, covering 40 of 128 deer permit areas in the state. The new goals will result in management to increase deer numbers in relation to last year's levels in most of the 40 permit areas. The new goals largely reflect the desires shared by stakeholders who participated in the deer goal setting process and generally reflect the public feedback heard during the past few years. As a result of this process, 85 percent of the 40 areas will be managed for populations higher than those experienced in 2014; the remaining will see no change. Of the 40 deer permit areas with new goals, 26 will be managed for deer densities higher than those established by the previous goals; eight will be managed at similar densities to former goals; and six will be managed for densities below former goals. Goals are intended to be in place for three to five years. The DNR shortened the goal timeframe to allow more frequent opportunities to revisit and adjust goals with input from stakeholders. DNR will postpone goal setting in the remaining 54 deer permit areas scheduled for consideration in 2016 until the current legislative audit of Minnesota's deer population management program is complete.

Deer Audit: Hunters have raised concerns over lower numbers of deer harvested in recent years and the accuracy of DNR's deer population estimates. They have also expressed dissatisfaction with the availability of information on DNR's deer management activities. As a result, the Minnesota Office of the Legislative Auditor (OLA) will examine the extent to which DNR uses appropriate data, tools, and techniques for monitoring and estimating deer populations, based on recommended practices in research literature and methods implemented in other states. Assessing DNR's deer population estimates also requires technical expertise to test the sensitivity of DNR's statistical model. To conduct this work, OLA will hire a consultant familiar with factors and methods for estimating and forecasting deer populations. Further, OLA will describe how deer management is funded and the costs associated with DNR's activities. OLA also will examine DNR's processes for setting deer population goals and hunting permit strategies for harvesting deer, including how DNR addresses stakeholder interests and concerns when setting population goals around the state. The final report, scheduled to be completed in early 2016, will provide insight on how well these goals align with DNR's responsibilities to conserve and manage all of the state's natural resources.

XI. Relevant Links

2015 Hunting & Trapping Regulations –
http://files.dnr.state.mn.us/rlp/regulations/hunting/2015/full_regs.pdf

2015 Deer Hunting Season Information –
http://www.dnr.state.mn.us/hunting/deer/index.html

General information on deer management, including annual season outlook, goal setting, and harvest reports –
http://www.dnr.state.mn.us/mammals/deer/mgmt.html

2014 Missouri Deer Program Report

By: Emily Flinn & Jason Sumners

I. Current Harvest

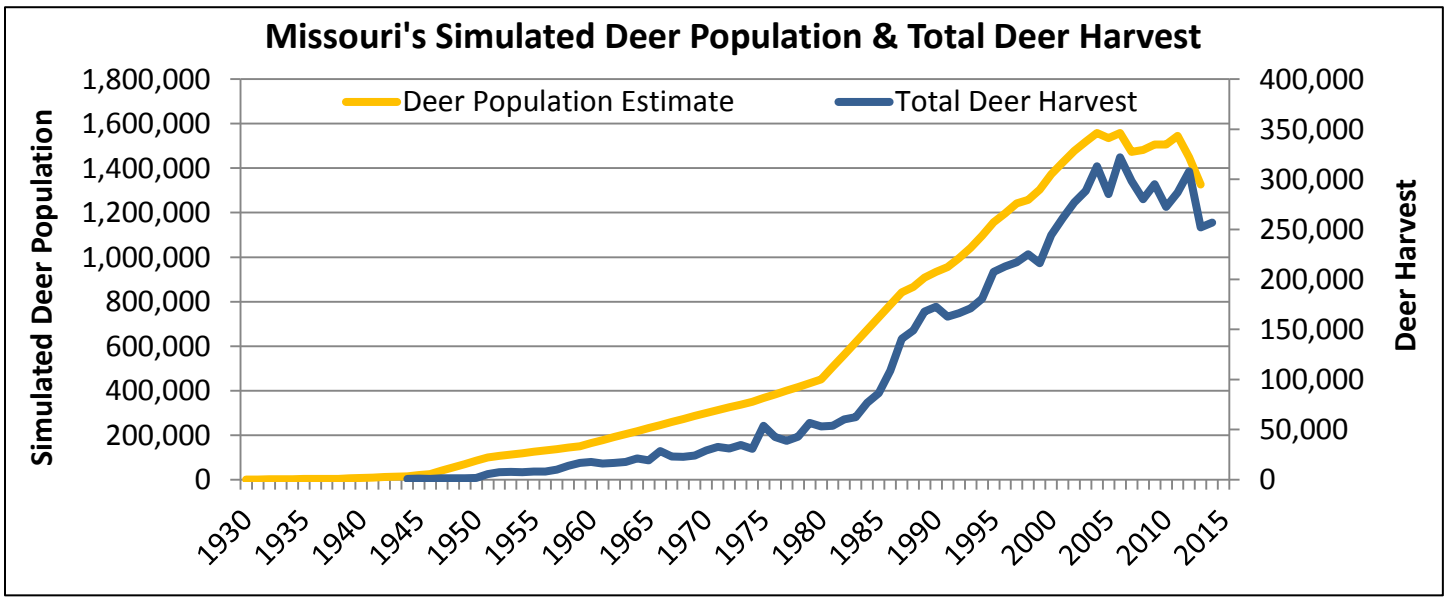
The 2014-2015 deer harvest of 256,753, was a 2% increase from 2013-14 and the second lowest statewide harvest since 2000. The statewide harvest total is a result of significant declines in central, northern, and western counties and increased harvest across portions of southeast and southwest Missouri compared to past ten years.

Deer Season Harvest Comparison: 2013 & 2014

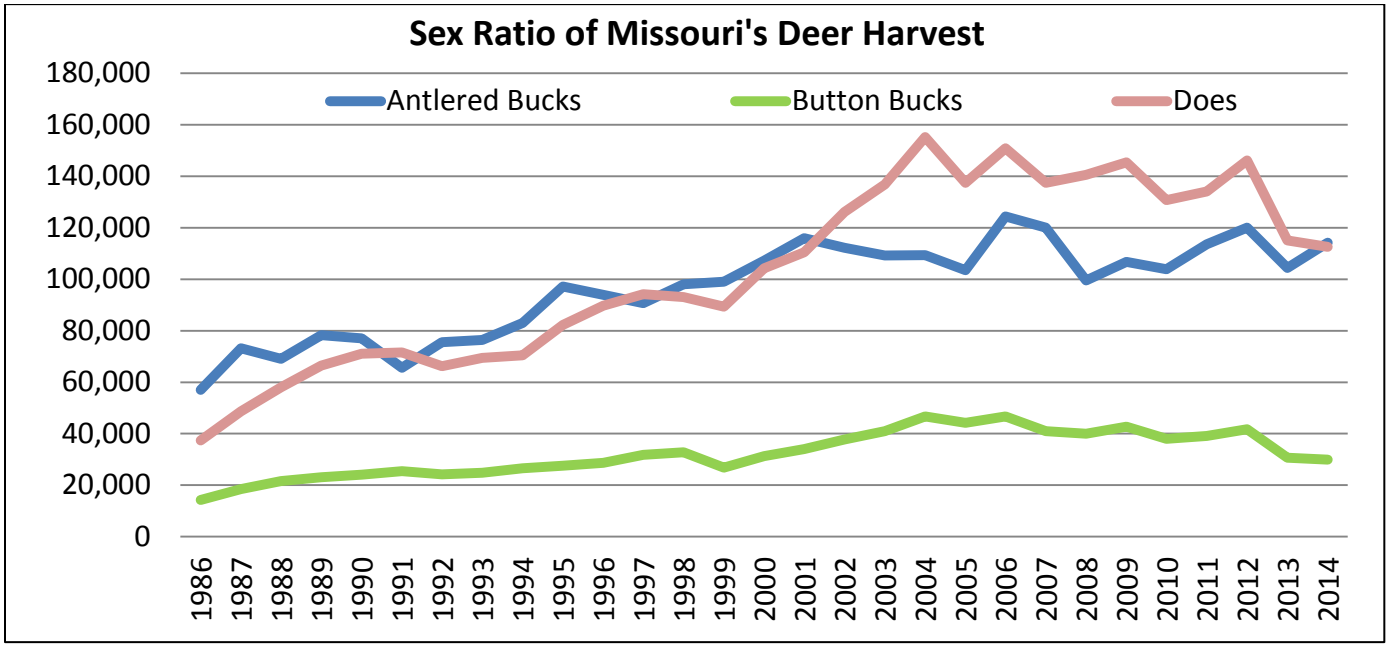
Hunting Portion	Antlered Deer			Button Bucks			Does			Total		
	2013	*2014*	*% Diff*	*2013*	*2014*	*% Diff*	*2013*	*2014*	*% Diff*	*2013*	*2014*	*% Diff*
Archery	**20,267**	**20,395**	**1**	**5,426**	**5,156**	**- 5**	**24,483**	**22,898**	**- 6**	**50,176**	**48,449**	**- 3**
Managed Hunts	**457**	**427**	**- 7**	**275**	**275**	**0**	**1057**	**962**	**- 9**	**1,789**	**1,664**	**- 7**
Urban	1	3	200	105	99	- 6	499	497	0	605	599	- 1
Early Youth	12,079	11,621	- 4	1,857	1,735	- 7	4,923	4,938	0	18,859	18,294	- 3
November	68,926	78,556	14	19,496	19,300	- 1	68,320	68,527	0	156,742	166,383	6
Antlerless	133	124	-7	1,888	1,642	- 13	8,545	7,354	- 14	10,566	9,120	- 14
Alt. Methods	2,632	2,851	8	1,760	1,503	- 15	7,553	6,713	- 11	11,945	11,067	- 7
Late Youth	285	239	- 16	191	179	- 6	718	705	- 2	1,194	1,123	- 6
CWD Seals*	35	34	- 3	3	6	100	10	14	40	48	54	13
Total Firearms	**84,091**	**93,428**	**11**	**25,300**	**24,464**	**- 3**	**90,568**	**88,748**	**- 2**	**199,959**	**206,640**	**3**
Total	**104,815**	**114,250**	**9**	**31,001**	**29,895**	**- 4**	**116,108**	**112,608**	**- 3**	**251,924**	**256,753**	**2**

***** CWD Management Seals are part of the MDC's management plan to limit the spread of CWD and were distributed to landowners who own 5 acres or more in the CWD Core Area (30 square mile area in Linn and Macon counties), which permit the harvest of one deer of either sex on the specific property for which it was issued.

II. Historical Harvest

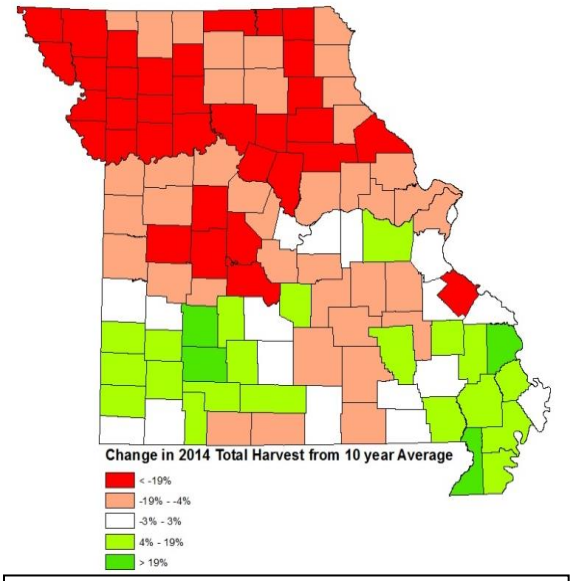


II. Historical Harvest (Continued)



III. Population Trends

Missouri's simulated deer population as a result of a simple, deterministic accounting style model indicates statewide trends of decreasing deer populations with a peak occurring in the early 2000's (see figure in Current Harvest section). However, it is important to note that deer populations vary throughout the state due to habitat use and cover, hunter density and goals, harvest regulations, and hemorrhagic disease outbreaks. Historically higher deer numbers have occurred in northern Missouri that were above culturally acceptable levels, thus harvest opportunities were liberalized to reduce deer numbers. This coupled with hemorrhagic disease outbreaks have reduced deer densities in these areas, in some areas below desirable levels, thus regulations have been changed to promote population stabilization/increase. Generally, areas of southern Missouri have been stable to slightly increasing due to conservative antlerless harvest opportunities.



Percent change in county harvest totals in 2014-15 compared to the 10-year average.

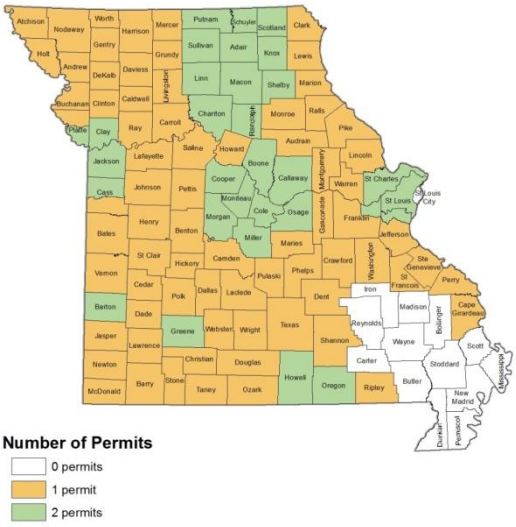
IV. Deer Management Units: Each of Missouri's 114 counties serves as a separate deer management unit. Additionally, some counties have portions designated as Urban Zones, thus are considered separate management units.

V. Regulation/legislation Changes

<u>2014-2015 Season (significant changes)</u>

1. Changed the availability of Firearms Antlerless Permits in 80 counties, with 60 counties changed to 1 and 20 counties to two firearms antlerless permits.

V. Regulation/legislation Changes (Continued)



Firearm Antlerless Permit Allocation for the 2015-16 Deer

2015-2016 Season (significant changes)

1. The Antler Point Restriction (APR) was removed from 14 counties. Thirteen of these counties because of CWD management and one was a result of population declines due to increased harvest pressure on does due to APR coupled with high hunter density.
2. Allowance of a hunter to fill two firearms Antlerless Permits in counties added to the CWD Management Zones, as many previously allowed only one.

2016-2017 Season Changed Proposed (significant changes): Will be taken to Regulations Committee & Commission during the summer of 2015 for approval.

1) Reduce the length of the November portion of the firearms deer season from 11-days to 9-days
2) Expand and move the late youth portion of the firearms deer season to a 3-day portion beginning the first Friday after Thanksgiving
3) Reduce the length of the antlerless portion of the firearms deer season to 3-days and begin on the first Friday in December.
4) Eliminate the urban zones portion of the firearms deer season
5) Allow the use of crossbows by all hunters during the archery deer and turkey hunting season
6) Allow the use of crossbows during the fall firearms turkey season
7) Reduce the limit of antlered deer from 3 to 2 during the combined archery and firearms deer hunting season, with no more than one antlered deer taken during the firearms deer hunting season

VI. Urban/Special Hunts

Annually there are managed deer hunts that occur on state (e.g., parks, some MDC lands) and federal properties that restrict the number of hunters and harvest based on a lottery, quota system. These are approved by the Missouri Department of Conservation annually, and run by the agency with authority over that area.

Currently, there are 3 urban zones in Missouri, including St. Louis, Kansas City, and Springfield. These areas include whole or portions of a county and have more liberal regulations than other areas to increase the harvest of deer. Additionally, these three areas are open to the Firearms Urban Zones Portion, a 4-day firearm hunt in October. However, because of the urban nature of these areas and subsequent municipality and city ordinances dictating the discharge of weapons, this hunt contributes relatively little to the overall harvest. It is being proposed to be removed in 2016-17 due to confusion regarding the regulation and little population impact.

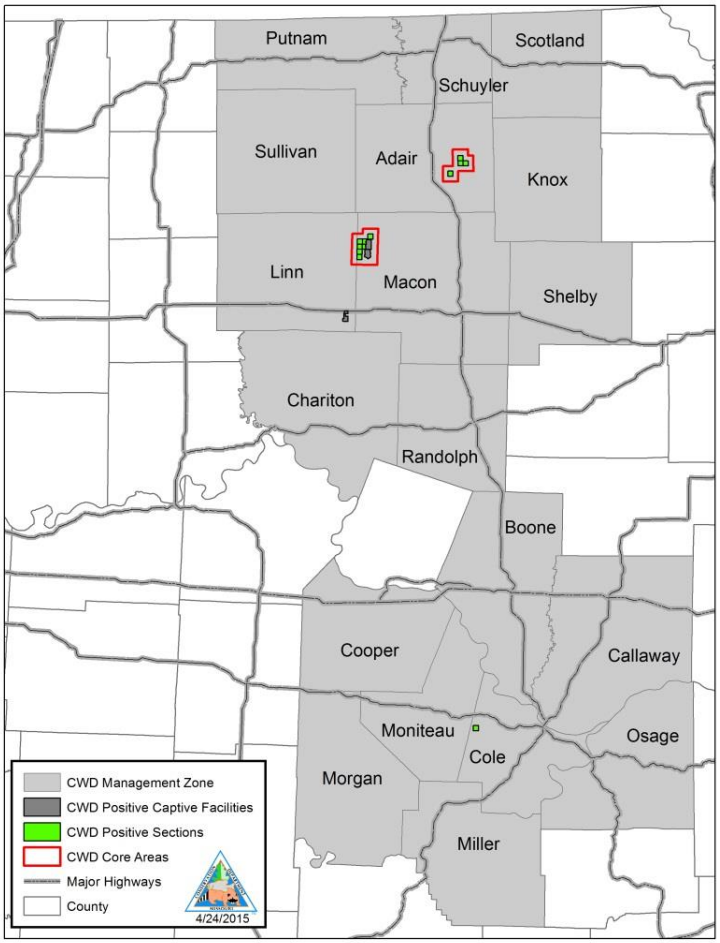
VII. Deer Management Assistance/Crop Damage

Currently, MDC can provide deer depredation permits to landowners and lessees to address deer conflicts resulting in significant economic losses (e.g., crop damage, nursery damage) and risks to human safety (i.e., airports). However, this program is currently being reviewed and revised to increase program consistency and effectiveness. Additionally, deer depredation permits are not always appropriate or publically acceptable; therefore MDC is currently in the initial stages of developing a deer management assistance program (DMAP) to offer several options to localized deer management issues. We would anticipate a DMAP implementation to occur fall of 2017.

VIII. Disease Issues / Updates

Chronic Wasting Disease

In December of 2014 a CWD-positive deer was detected in Adair County, representing the first CWD detection outside the original CWD Core Area (~23 aerial miles from the known CWD-positives). Additionally, in March of 2015, a hunter-harvested deer from the 2014-15 deer season tested positive for CWD in Cole County marking the first time CWD was detected outside of the Containment Zone. As of June 2015, CWD has been detected in 26 free-ranging deer in Macon (19), Adair (6), and Cole (1) counties, and 11 captive deer in Linn (1) and Macon (10) counties.



This map illustrates the distribution of detected CWD-positive deer, CWD Management Zones, and Core Areas as of June 2015.

In response, the CWD Management Zones have been expanded (refer to shaded counties in the adjacent map) and during the 2015-16 deer season will have increased CWD testing of hunter-harvested deer, removal of the antler point restriction, and allowance of two firearm antlerless permits per hunter within each county. However, the 6 original CWD Containment Zone counties (Adair, Chariton, Linn, Macon, Randolph, and Sullivan) still have regulations banning the placement of feed, minerals, and other consumable attractants intended for deer. Additional regulations will be considered for the 2016-17 deer season, including:

- Mandatory sampling
- Restricting carcass transport out of the CWD Management Zone, as well as from out of state
- Banning the placement of feed and other consumptive materials for deer throughout the area

IX. Research

Statistical Population Reconstruction - In collaboration with the University of Missouri and the University of Washington, MDC has investigated a new method of modeling deer populations called Statistical Population Reconstruction (SPR). This new method provides several improvements over current population models that will increase model accuracy and strengthening the foundation for monitoring regional and county-specific deer populations. This modeling approach uses a variety of data that MDC currently collects including age at harvest information, hunter effort, and harvest data. However, additional information will be needed, determining harvest vulnerability of antlered males and survival rates via the Deer Survival Project, as well as expanding the age at harvest data collection samples and methods.

Modeling Chronic Wasting Disease Dynamics and Impacts - In collaboration with the University of Missouri, MDC has implemented a research project to model CWD distribution and potential impacts on Missouri's deer population. We plan to model the distribution and prevalence of CWD currently and in the future given various scenarios. This will allow us to model potential impacts of CWD on the deer herd, including survival and abundance. Additionally this information may provide insight on management adjustments that could limit CWD distribution and prevalence. In addition to the

application to the CWD Management Zones it will allow MDC to evaluate the impact of various management practices on CWD prevalence and distribution. Also, the study will provide the ability to compare various monitoring strategies, thus increase our ability to detect CWD early so that management efforts can be effective, while ensuring the efficient use of resources.

Deer Survival, Recruitment, and Movements in Two Contrasting Habitats

The Missouri Department of Conservation and the University of Missouri have initiated a 5-year study to evaluate deer survival, reproduction, and movement patterns within two contrasting habitats with application to deer population models (e.g., SPR), disease management protocols (e.g., development of CWD Management Zones, Core Areas) and localized deer management efforts.

This study is occurring in both the Ozarks and Northwest portions of Missouri that represent contrasting compositions of public land, habitat, and harvest regulations. Trapping efforts began in January 2015 to capture, GPS-collar, and monitor deer of all age and sex classes within both study areas. Our annual target sample size is a total of 180 deer (i.e., 30 adult bucks, 30 yearling bucks, and 30 does in both regions) between both regions from the winter capture. Although we were able to achieve 100 deer total during 2015's winter capture, this is a great start and confident in future capture seasons. The sample of collared deer will be replenished annually due to losses as a result of natural mortalities, hunter harvest, and deer maturing into older age classes. Additionally in 2015, VITs, collared doe locations, and blind searches were used to locate 56 neonates in May-June, which were radio-collared and monitored for survival.

X. Hot Topics

Lacy Act Violation Regarding Captive Cervids – On June 10, 2015 Charles "Sam" James, 54, of Columbia, Missouri was charged in a one-count federal indictment for violations of the Lacey Act for engaging in conduct that involved the sale of white-tailed deer transported in violation of Missouri and Florida law. See link below for press release:
http://www.justice.gov/usao-edmo/pr/missouri-resident-charged-federal-lacey-act-violations

XI. Relevant Links

2015-16 Fall Deer & Turkey Hunting Booklet
http://mdc.mo.gov/sites/default/files/resources/2010/03/2015fdt.pdf

2014-15 Deer Harvest & Population Status Report
http://mdc.mo.gov/sites/default/files/resources/2015/06/2014_15deerstatus.pdf

White-tailed Deer Management Plan
http://mdc.mo.gov/sites/default/files/resources/2014/05/deer_management_plan.pdf

NEBRASKA DEER STATUS REPORT

2015 Midwest Deer & Wild Turkey Group

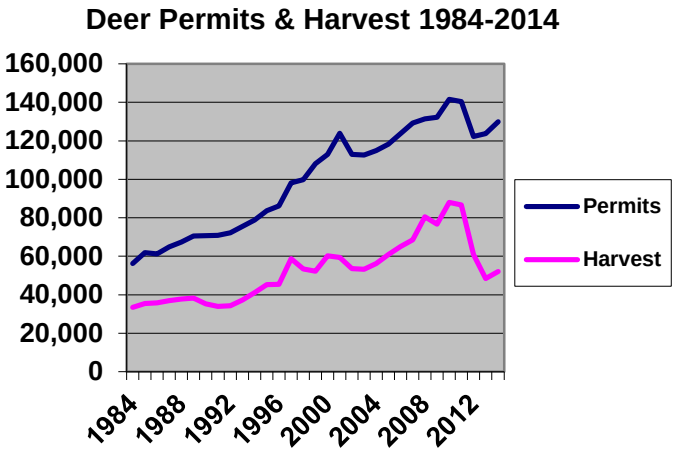
Perlstein Resort & Conference Center
Lake Delton, Wisconsin
September 8-11, 2015

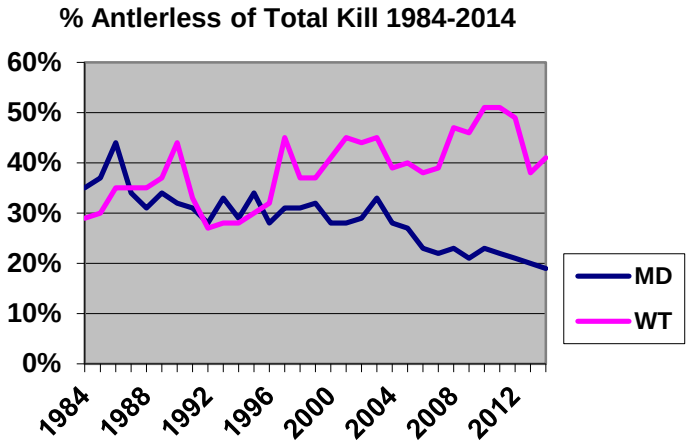
Submitted by the State of Nebraska
Nebraska Game and Parks Commission - Wildlife Division
Big Game Program Manager: Kit Hams

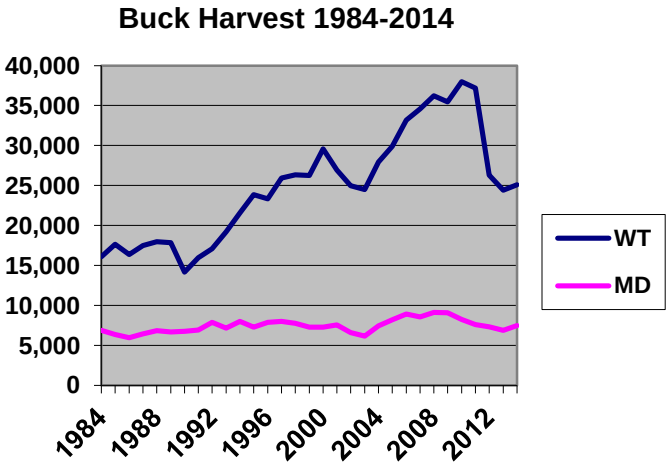
Collection and Analysis of 2014Deer Harvest Data

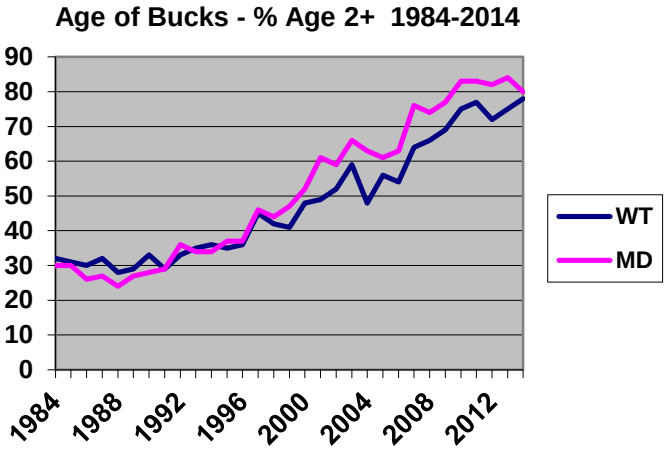
Project Objective: To gather information related to the status, distribution, and abundance of wildlife populations in Nebraska, and to develop effective management practices and programs for these species.

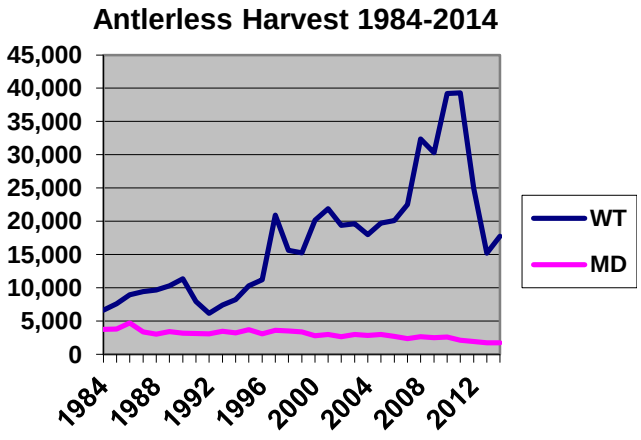
Nebraska 2014 Deer Season Statistics











Nebraska: 2014 Deer Seasons (Dates, Permits & Harvest)

2014 Seasons	Length	Dates	Permits	Total Kill	Whitetail Antlerless Kill
Nov. Firearm	9 days	Nov. 15 – 23	42,580	20,830	3,676
Statewide Buck	9/108 days	Sept. 15 – Dec. 31	11,096	2,986	39
SCA Antlerless	137 days	Sept. 1 – Jan. 15	16,650	6,305	5,545
Archery	122 days	Sept. 1 – Dec. 31	16,692	3,923	613
Landowner	123 days	Sept. 15 – Jan. 15	12,944	6,504	1,820
Muzzleloader	31 days	Dec. 1-31	7,691	1,661	526
Youth	137 days	Sept. 1 – Jan. 15	12,294	5,169	1,217
River Antlerless	137 days	Sept. 1 – Jan. 15	7,000	4,140	4,140

2014 Season Highlights

Permits Issued:	**126,947 permits sold**	**10% below peak in 2010**
Harvest:	**52,051 deer**	**41% below peak in 2010**
	25,082 WT bucks	**34% below peak in 2010**
	17,730 WT Antlerless	**55% below peak in 2011**
	7,497 MD bucks	**18% below peak in 2008**
	1,742 MD antlerless	**68% below peak in 1957**
	46% of MD bucks age 3+	**Record high**
	36% of WT bucks age 3+	**Record high**
	41% hunter success	**4th lowest on record**
	41% of WT harvest is antlerless	
	19% of MD harvest is antlerless	**Lowest since 1980**

Mule deer Goal: Increase herds in 12 of 14 mule deer units
Reduce MD antlerless harvest in Sandhills unit

Whitetail Goal: Increase WT herds in 15 of 18 DMU
Reduce WT herds on Republican River and Central Platte River

2015 Season: Continue recovery of WT and MD herds in most units
Add 5,000 River Antlerless whitetail permits to limit growth of WT on rivers
Increase antlerless mule deer protection to allow growth in MD herds
Bonus antlerless WT tags remain on approximately 27,000 permits
Hunter avoidance of young bucks results in record % of older bucks

2015 North Dakota Deer Project Report for Midwest Deer and Turkey Study Group

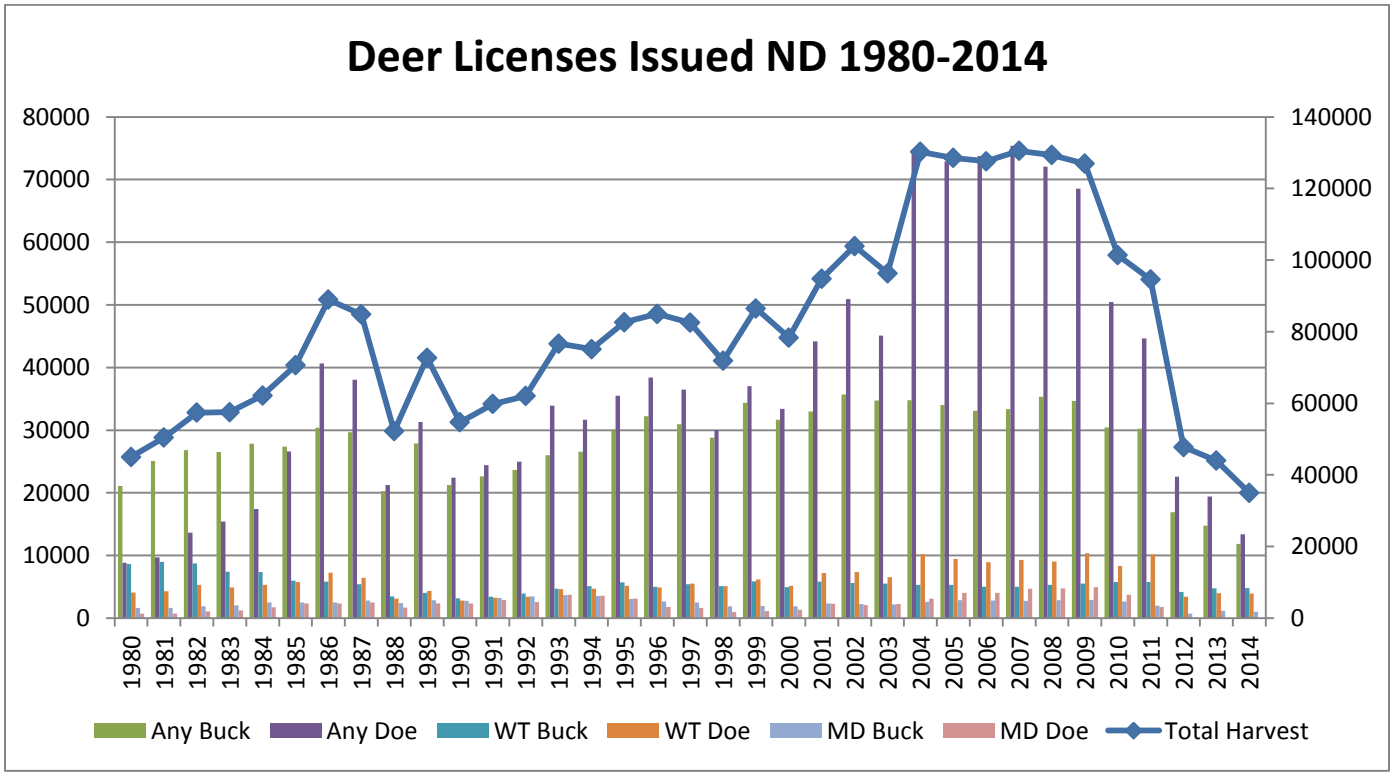
Bill Jensen, Big Game Biologist
North Dakota Game and Fish Department
100 North Bismarck Expressway
Bismarck, ND 58501
E-mail: bjensen@nd.gov Phone: 701-220-5031

I. Current (2014) Deer Harvest

Season	License Issued	White-tailed Deer Harvested	Mule Deer Harvested	Season Dates
Youth Gun[1]	4,064	1,594	156	19/09/2014 to 28/09/2013
Archery	23,463	5,613	463	29/08/2014 to 04/01/2015
Regular Deer-Gun	48,044	23,605	2,729	7/11/2014 to 23/11/2014
Muzzleloader	932	356	0	28/11/2014 to 14/12/2014
Total	76,503	31,168	3,348	

[1]Unsuccessful youth hunters may also hunt during the regular deer gun season.

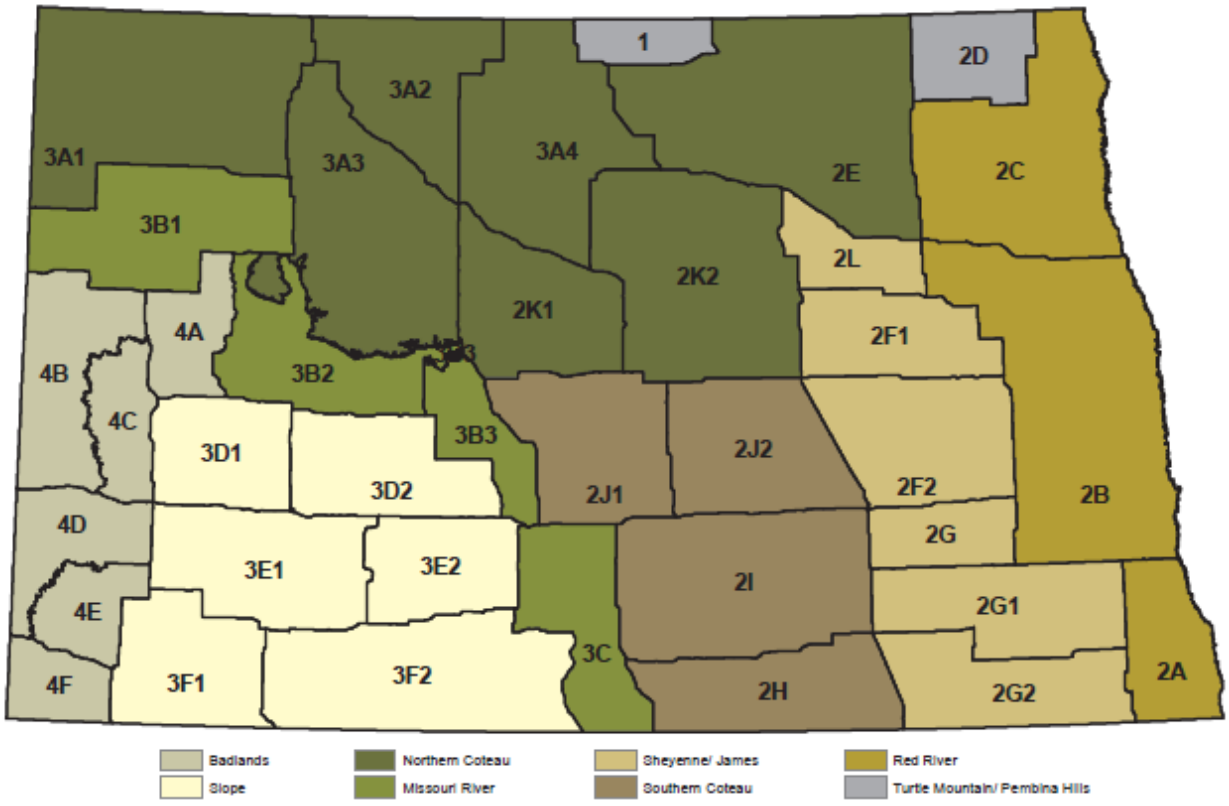
II. Historical Harvest



III. Population Estimate

We use a series of population indices to set harvest rates. We do not attempt to estimate the statewide deer population.

IV. North Dakota Deer Hunting Units and Major Management Regions



V. Regulation/Legislation Changes/Management Notes

The 2015 North Dakota deer hunting season will include 43,275 licenses, 4,725 fewer than 2014 and the lowest number since 1978. A concurrent season will not be held again in 2015, and hunters will be allowed only one license for the gun season.

Management Notes:

Even after six years of reducing gun licenses, harvest and survey data revealed that deer populations remain well below management objectives in most units. Therefore, more license reductions are needed to encourage deer populations to increase toward management goals. The statewide hunter success rate in 2014 was 60%, which is slightly higher than 2013 (55%), but well below our goal of 70%. No winter aerial surveys occurred this year due to lack of required snow conditions.

Deer numbers remain below objectives due to prolonged effects of severe winters during 2008-2010, which not only increased adult mortality but also reduced fawn production. The extreme winter conditions followed nearly a decade of aggressive deer management that featured large numbers of antlerless licenses in most units. In addition, the northeastern part of the state experienced severe winters during 2012-2013 and 2013-2014 which continues to impede population recovery. Further, high quality deer habitat continues to be lost statewide and will limit the potential for population recovery.

The 2015 badlands mule deer spring index increased by 24% from 2014. This is the third consecutive year of population growth following three consecutive years with no antlerless harvest and improved fawn production in 2013 and 2014. These three years with population increases follow a 5 year population decline with the badlands mule deer spring index decreasing by 49% and record low fawn production following the winters of 2008-2010. A conservative management approach will continue for mule deer in the badlands for 2015. No antlerless mule deer licenses will be issued for the 2015 deer season in hunting units 3B1, 3B2, 4A, 4B, 4C, 4D, 4E, and 4F. This restriction pertains to sportsmen gun licenses, resident and non-resident any deer bow licenses, gratis licenses, and youth licenses.

* Total licenses available for the 2015 regular season are 43,275. This is a decrease of 4,725 licenses from 2014.
    - Any Antlered licenses reduced by 1,150
    - Any Antlerless licenses reduced by 2,650
    - Antlered white-tailed deer licenses reduced by 650
    - Antlerless white-tailed deer licenses reduced by 800
    - Antlered mule deer licenses increased by 525

* A total of 1,875 antlered mule deer licenses will be available in 2015; however no antlerless licenses will be issued in hunting units 3B1, 3B2, 4A, 4B, 4C, 4D, 4E, and 4F. This is an increase of 525 mule deer licenses from 2014.

* A total of 828 muzzleloader licenses will be available in 2015. The total is comprised of 414 antlered white-tailed deer licenses and 414 antlerless white-tailed deer licenses. This is a decrease of 104 muzzleloader licenses from 2014.

* In 2015 there will be 187 “I” licenses available for the youth deer hunting season. This is an increase of 53 licenses from 2014. “I” licenses are limited in number and are valid for any deer, except antlerless mule deer, in units 4A, 4B, 4C, 4D, 4E, 4F, 3B1, and 3B2. There are unlimited “H” youth deer hunting licenses that are valid for any deer statewide except mule deer in the above restricted units.

* A total of 202 nonresident any deer archery licenses are available for 2015. This is an increase of 30 any deer archery licenses from 2014. The number of nonresident any deer archery licenses will increase to 281 in 2016.

VI. Urban/Special Herd Reduction Deer Seasons

Three special concurrent experimental deer bow seasons are proclaimed for portions of the City of Bismarck, and private land in Burleigh County located adjacent to the City of Bismarck. The private land in Burleigh County is described as follows: starting where the southwest boundary of the city limits of Bismarck joins the east bank of the Missouri River, then following the city limits of Bismarck easterly to the point where it meets the west bank of Apple Creek in the northeast one-quarter of Section 26, Township 138 North, Range 80 West, then following the west bank of Apple Creek in a general southwest direction to its junction with the north boundary of Apple Creek Wildlife Management Area (WMA) and then west and south along the WMA boundary to the Missouri River, then following the east bank of the Missouri River to the point of origin. This does not include the NDDOCR property referred to in Section 4(E).

Hunters who desire to hunt within the city limits of Bismarck must receive a trespass permit from the Bismarck Chief of Police (701-223-1212), prior to being issued up to three special deer bow licenses from the Game and Fish Director. Hunters will be restricted to those dates and locations specified on the trespass permit(s). No orange clothing is required when hunting within the Special Herd Reduction areas unless required by city officials within city limits. In addition, hunters may use their Deer Bow license during the Deer Bow season (August 29, 2014 through January 4, 2015) after obtaining a trespass permit. In the area outside the city limits of Bismarck no trespass permit is needed. These licenses are available only at the North Dakota Game and Fish Department headquarters in Bismarck.

VII. Deer Management Assistance/Crop Damage Harvest

Depredation Assistance Program - provides funding for activities used to alleviate/minimize damage to private livestock feed supplies caused by big game animals (manpower, technical assistance, temporary fencing, repellents, scare devices, and deer-proof hay yard fences). Payments will not be made for damage caused by wildlife. Since 2005 the department has been facilitating a program that couples producers that have chronic deer depredation problems with hunters interested in harvesting antlerless does. Interested hunters enter their contact information on our website. Landowners determine how many hunters they are willing to host. The predetermined number of hunters are randomly selected from the website and sent a letter with the phone number of a landowner wanting deer removed. Over the past decade the number of landowners in the program has gradually declined as deer depredation problems have been reduced and hunters have developed relationships with landowners.

VIII. Disease Issues

North Dakota Game and Fish Department Wildlife Disease Report for MAFWA WHC Meeting
April 2015
Prepared by Dan Grove, DVM
Wildlife Veterinarian NDGFD

CWD

Background: In 2007 the NDG&F revised their hunter-harvested deer CWD surveillance strategy to increase sampling efficiency and efficacy. Six surveillance units have been established with sampling occurring in two surveillance units each year (See Map 1). This allows collection and sampling efforts to be focused in one-third of the state and for all surveillance units to be sampled over a three year period. All age classes are sampled for CWD.

2014 Surveillance: In 2014 the NDG&F collected and submitted 89 samples for CWD testing from targeted surveillance animals and 1253 from hunter harvested animals (See Table 1 for breakdown by species).

Targeted surveillance occurs statewide and continues year-round. Samples from free-ranging cervids which exhibit signs consistent with CWD, died of unknown causes, were road killed, or were removed due to destruction of captive cervid facilities are considered targeted.

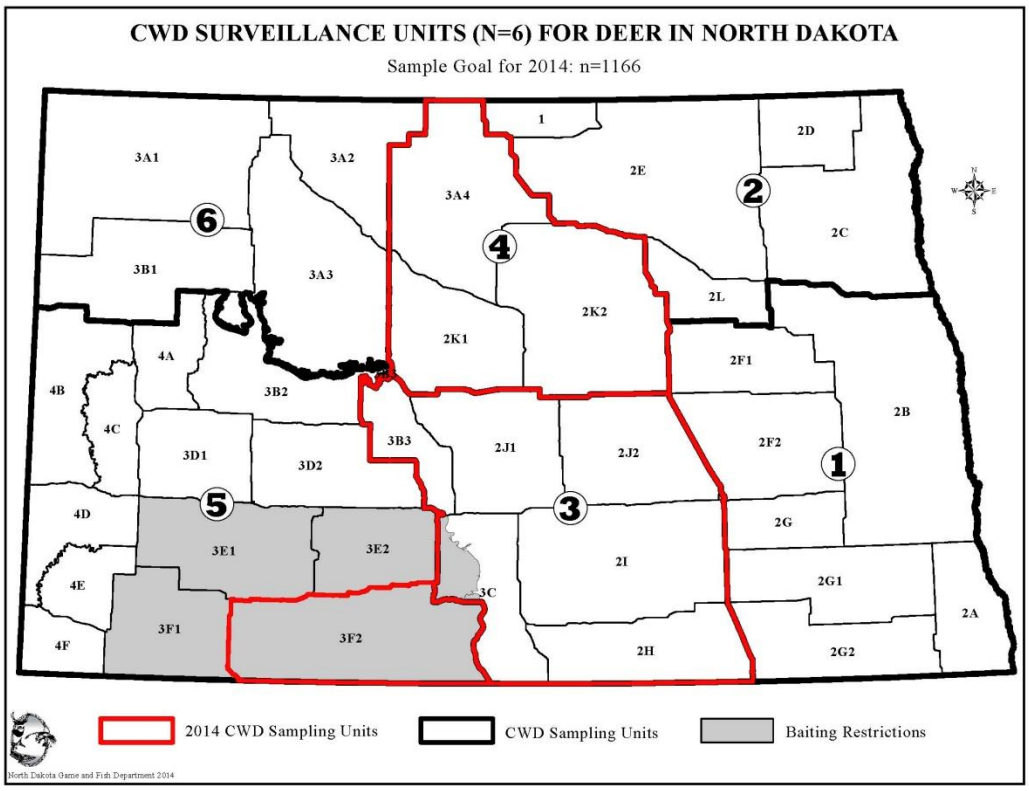
The goal for the 2014 hunter-harvested surveillance was to collect 916 deer samples (458 from 2 units) from eastern ND, which should allow for detection at 1% prevalence with 99% certainty. In addition a special CWD surveillance unit has been established (see Map 1) to enhance surveillance in Deer Hunting Unit 3F2 where 4 mule deer and 1 white-tailed deer had tested positive for CWD since 2009.

Two adult mule deer bucks in 2014. Both animals were from DHU 3F2 (see Map 2 for locations)

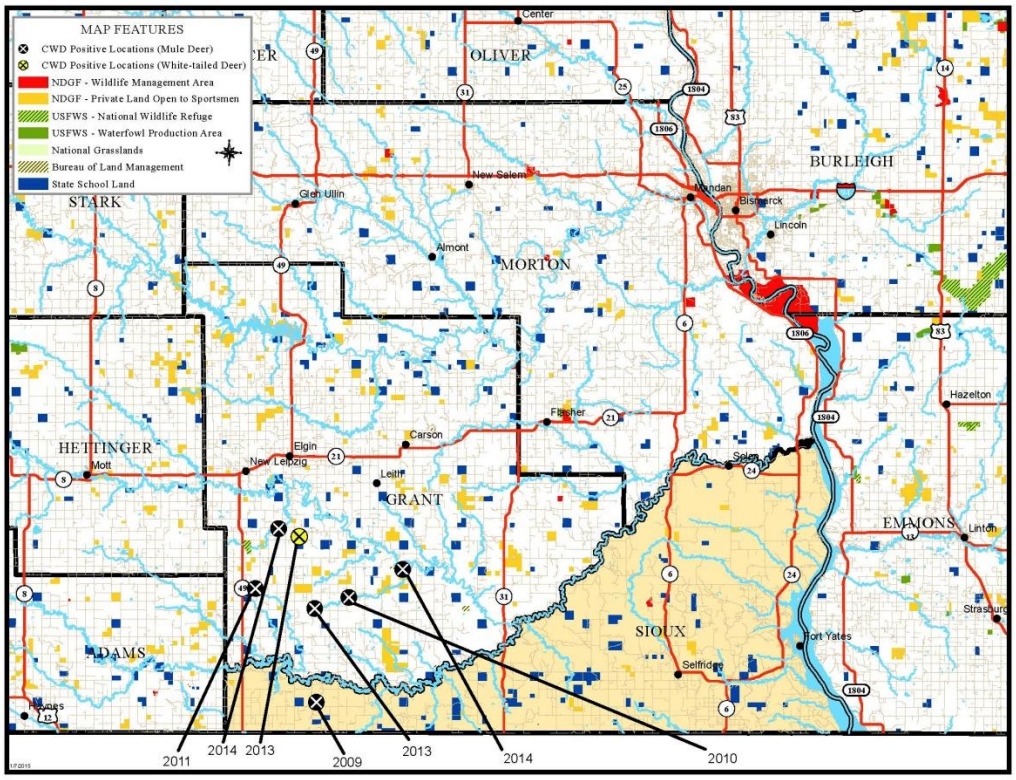
Table 1. Free-ranging cervids sampled for CWD as part of Hunter Harvested and Targeted Surveillance in ND

Species	**Number Tested in 2014** HH (TS)	**HH + TS Cumulative Testing 2000-2014**	**Number Collected as of April 1, 2015**
White-tailed Deer	1036(56)	22,358	12
Mule Deer	156 (30)	4238	9
Elk	30(2)	1083	0
Moose	31(31)	355	2
Total	**1253(89)**	**28,034**	**23**

Map 1. NDGFD CWD Units Sampled Fall 2014

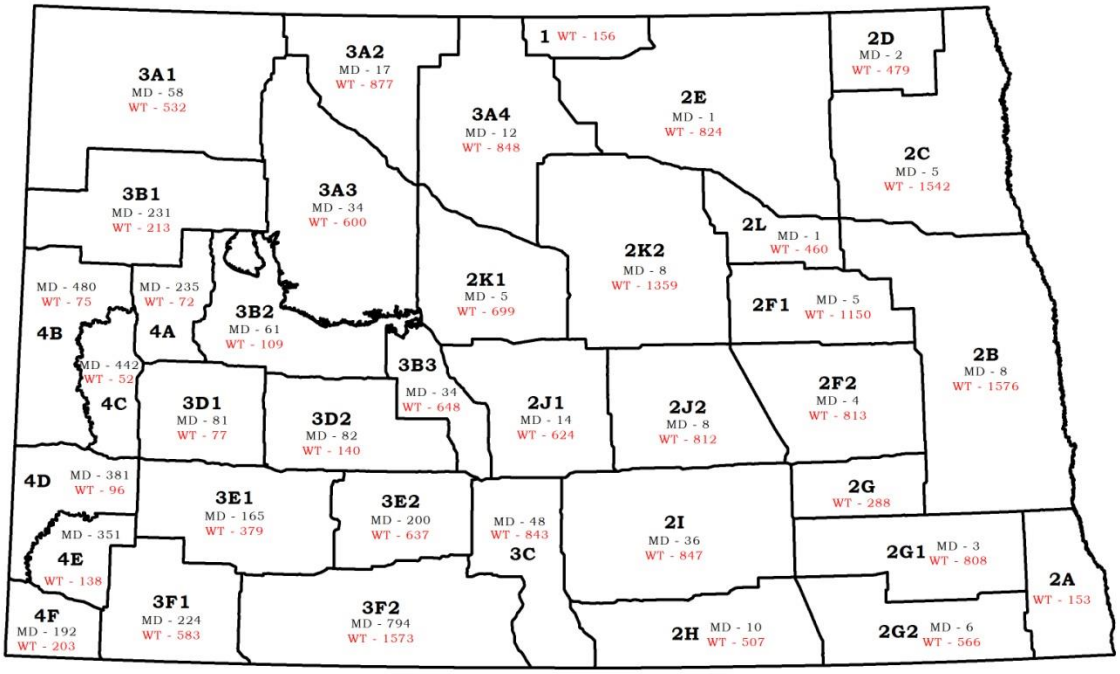


Map 2. ND CWD Positives Map



Maps 3,4,5. Deer, Elk, Moose Cumulative CWD Testing.

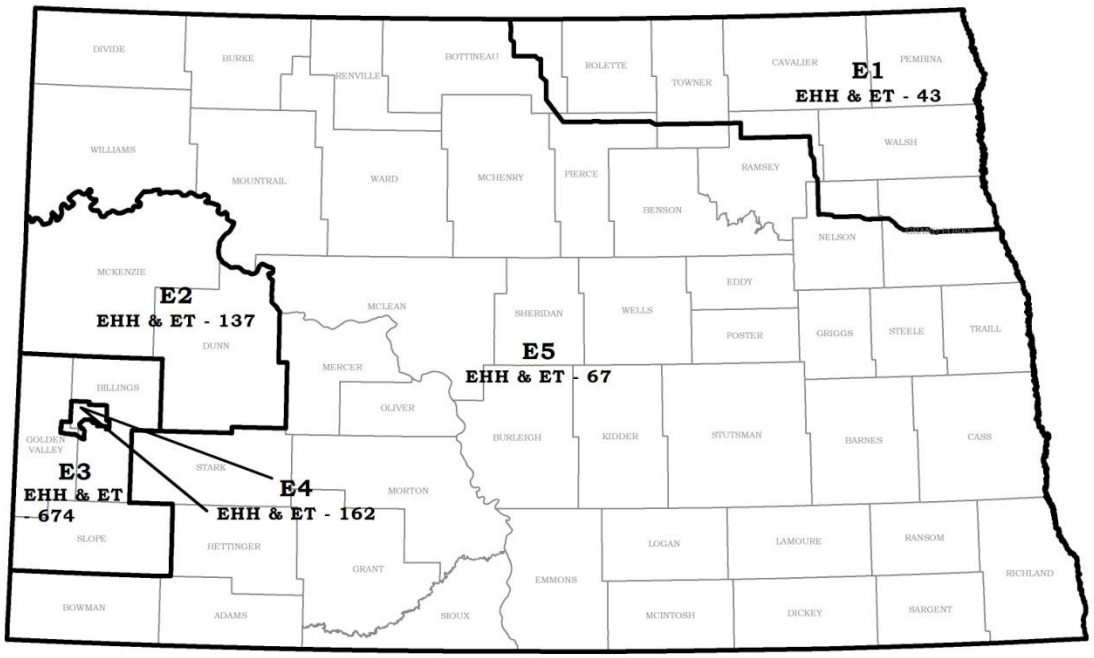
CWD Deer Sampling Effort 2000 - 2014



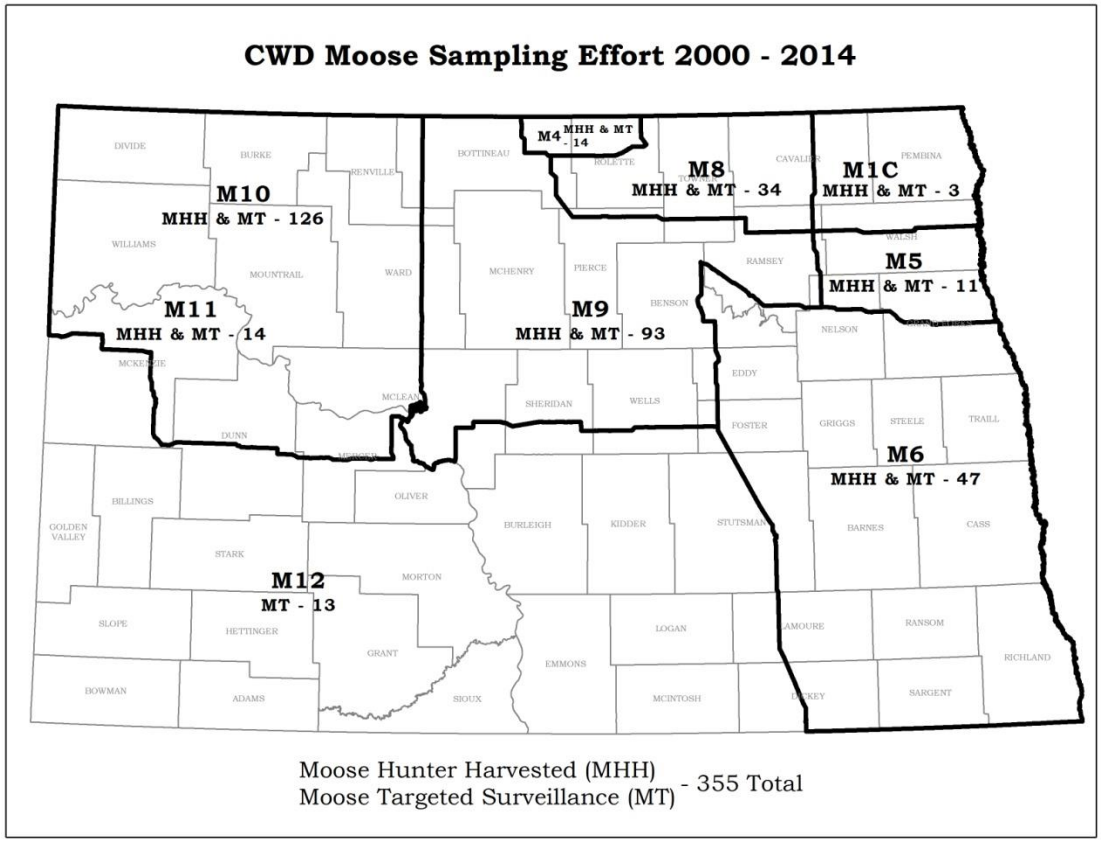
Mule Deer Hunter Harvested
Mule Deer Targeted Surveillance
Combined Total - 4238

White-tailed Deer Hunter Harvested
White-tailed Deer Targeted Surveillance
Combined Total - 22,358

CWD Elk Sampling Effort 2000 - 2014



Elk Hunter Harvested (EHH)
Elk Targeted Surveillance (ET) - 1083 Total



BOVINE TUBERCULOSIS

Surveillance for bovine tuberculosis in North Dakota is conducted via hunter harvested animals and targeted surveillance animals on a yearly basis. In addition to this samples are taken for bovine TB testing from all targeted surveillance animals. A total of 122 samples were collected for TB testing from wild ruminants in 2014. Results are still pending on these animals. In the fall of 2014 hunter harvested surveillance of deer harvested in Deer Hunting Unit 3B3 was conducted in response to TB being identified in domestic dairy cattle. A total of 63 samples were collected. Results are pending.

VIRAL HEMORRHAGIC SEPTICEMIA

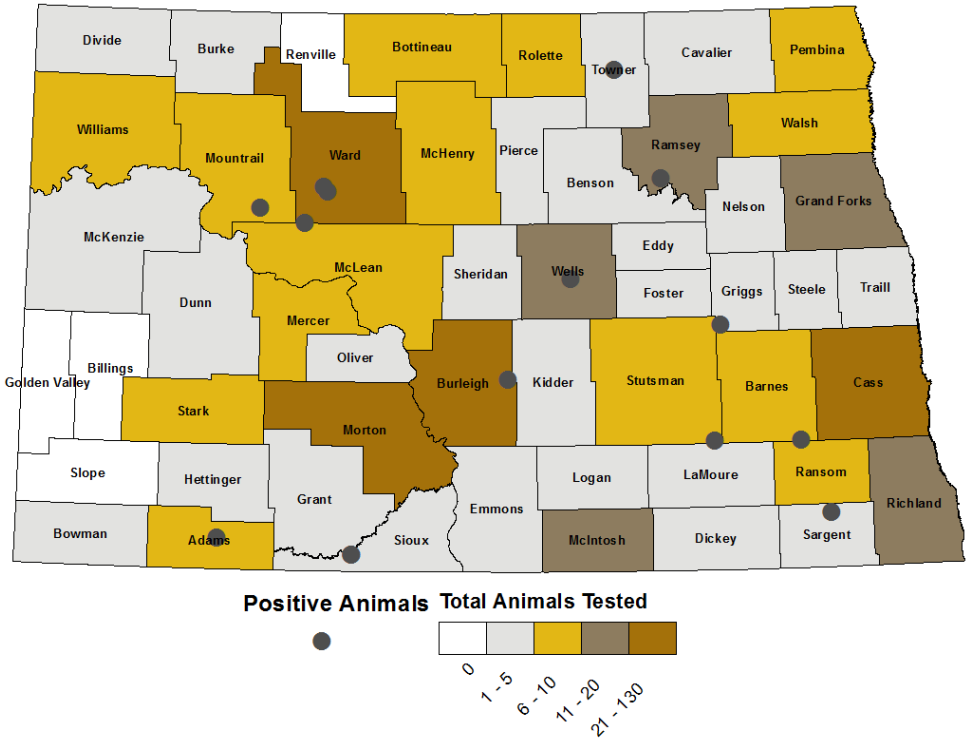
In 2014, 2 waterways were sampled for the presence of VHS in adult and young of the year Walleye. Samples were collected from Lake Sakakawea and Devils Lake. All samples were negative for VHS. These efforts were undertaken at the behest of states that receive fish from North Dakota hatcheries. All animals tested negative for VHS. As a result of changes in funding and federal regulations there are no plans to continue VHS testing at this time.

RABIES

In 2014 rabies surveillance was conducted by the ND Department of Public Health and NDSU Veterinary Diagnostic Laboratory on suspect animals that involved human and domestic animal exposures.

In 2014 a joint effort to increase rabies surveillance from wildlife was conducted by NDGFD, NDPHD, NDSU VDL and USDA-WS. Surveillance animals will be collected from routine trapping efforts performed by USDA-WS and NDGFD and through collection of road-kill and removal of neurologic wild animals. Sampling goals are set at 600 animals statewide. All positives will be variant typed by the CDC.

Map 6. ND Rabies Activity 2014



In 2014, 1 bat, 2 cows, and 12 skunks tested positive for rabies in ND. Additional archived samples from trapper/hunter harvested animals are still being processed at this time.

NEWCASTLE DISEASE

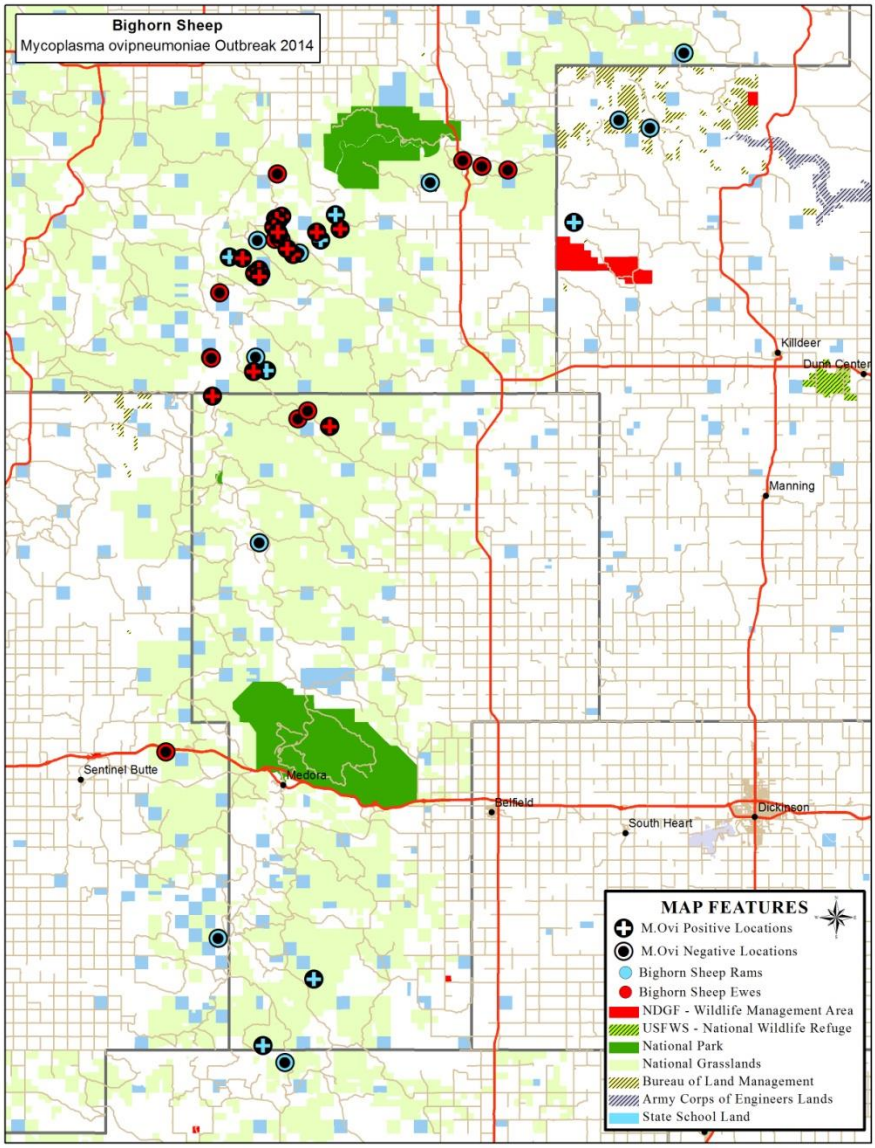
In August of 2014 a mortality event on a small body of water known as Hoggarth Dam in Stutsman County just northeast of Jamestown in central ND was reported. Multiple species of birds were identified nesting and feeding on the lake. Upon investigation numerous dead and moribund double crested cormorants were found. Fresh carcasses were sent to USGS NWHC. Avian paramyxovirus type-1 (APMV-1) was identified in several of the birds. Notices about the outbreak were posted on access points to the lake and local farmers were notified about the disease. The site was monitored until the birds migrated in late October.

BIGHORN SHEEP PNEUMONIA

In late July 2014 several dead bighorn sheep were found dead in the southern sub populations of what is considered the Northern Badlands population. The carcasses of the first several animals were too badly scavenged for proper diagnostics. In early August several of the newly transplanted Alberta BHS were found freshly dead. Subsequent necropsy and testing identified pneumonia. Between mid-August and December an additional 30+ collared sheep died and samples were collected. Pneumonia was the attributed cause in almost all of the animals that were able to be reached before scavenging. Of the 24 newly translocated Alberta sheep 3 are left alive. Of the 17 sub populations in the Northern Badlands interaction with infected sheep has occurred at some level. The first affected sub populations had zero lamb recruitment during the fall surveys. Overall it is estimated that 30% of the 350+ sheep in the Northern Badlands population have been lost. In February 2015 and additional 21 sheep were captured and collared (including 1 re-collar). Nasal swabs and blood samples were collected. See Table 2 below for results.

Table 2. Bighorn Sheep Test Results from dead and live capture.

Bacteria	Number affected
Mycoplasma ovipneumoniae (Movi)	19/35 (dead), 7/21(live)
Pasturella multocida	15/56
Bibersteinia trehalosi	20/56
Mannheimia hemolytica	7/56
Trueperella pyogenes	4/56
Movi+ with multiple bacteria	7/56



Moose Disease Testing

In March 2014, forty adult female moose were captured and collared as part of a population study in northwestern North Dakota. During capture blood was drawn and later submitted for a general health assessment and disease screening. The results are as follows:

Malignant Catarrhal Fever (MCF) 0/40
Borrelia 22/40
Brucellosis 0/40

Bluetongue Virus (BTV) 0/40
Epizootic Hemorrhagic Disease (EHD) 2/40
Eastern Equine Encephalitis (EEE) 1/40
Western Equine Encephalitis (WEE) 1/40
West Nile Virus (WNV) 39/40
Anaplasmosis 22/40
Infectious Bovine Rhinotracheitis (IBR)
Johnnes 0/40
Neospora 0/40
Parainfluenza Virus-3 (PI3) 4/20
Bovine Viral Diarrhea Virus Type-1 (BVD-1) 2/40
Bovine Viral Diarrhea Virus Type-2 (BVD-2)
Leptospira bratislava 1/40
Leptospira canicola 0/40
Leptospira interrogans 0/40
Leptospira grippotyphosa 0/40
Leptospira hardjo 0/40
*Leptospira icterohaemorrhagia*e 8/40
Leptospira pomona 0/40

IX. Research

Long Term White-tailed Deer Research Project: An Evaluation of Life History Parameters and Management of White-tailed Deer in North Dakota.

The goal of this research project is to collect information on specific life history parameters and evaluate accuracy of various population indices used for predicting changes in North Dakota's white-tailed deer populations. The information gathered from these studies will provide the missing data that has prevented us from developing and implementing an effective population modeling effort. Additionally, ecological information will be collected on adult female white-tailed deer, as opportunity permits, to facilitate sound science-based management.

Specifically the priority objectives are: (1) Enhance the ability to set harvest rates to coincide with population management goals, (2) Determine annual number of fawns per doe surviving until fall, (3) Determine annual hunter harvest rates for yearling and adult females, (4) Determine winter mortality rates for radio-collared females after winter aerial surveys have been completed, (5) Determine the impact of hunter harvest on radio-collared deer and use this information to extrapolate harvest rates, and (6) Determine sightability of deer, via winter aerial surveys, and compare to other population indices. Secondary objectives include: (1) Determine seasonal movements of females for designing disease testing procedures, and (2) Determine important locations for habitat improvement projects.

The long term strategy of this research project is to conduct a multiphase deer study, using the same methodology in various locations around the state. The focus of the deer project was initially the Coteau region (northeastern Burleigh County). Brain Schaffer completed his thesis in 2013.

The second study shifted to the northern Red River Valley (Walsh County). This location for the deer study area was selected for the following reasons. This region of the state contains marginal winter habitat for deer. Based upon an evaluation of the historical Winter Severity Index for the state (1949 to present), on average the northeastern portion of North Dakota has the most severe winter conditions in the state; thus deer within this area are most likely to experience highly variable stresses and responses to winter weather conditions. Secondly, this portion of the state is closest to the TB infected white-tailed deer in Minnesota. Finally, prior to

this study, no deer research had been conducted in this portion of the state. Field work was completed in December 2013. South Dakota State University Graduate student, Kristin Sternhagen, began classes in January of 2014. Data analysis was completed by June of 2014 and a first draft of a thesis will be completed in September 2014. The completion of course work and the defense of a thesis (final report) are anticipated to occur in October of 2015.

In January 2014 the third phase of the project shifted to the Slope region of the state (Grant and Dunn counties). Additionally, we are working cooperatively with South Dakota Game Fish and Parks (SDGFP) with this research project. SDGFP is sponsoring field work in Perkins County, SD. The reason for selecting these three study areas is to evaluate life history parameters in a portion of the state that has received no research attention in the past, collect baseline information on a deer population that is infected with CWD (Grant County), and evaluate the impacts of energy development on white-tailed deer (Dunn County). Data from the three study areas (Grant, Dunn, and Perkins counties) will be analyzed collectively. The final reports for each phase of the study will constitute a completed thesis.

Between mid-November 2013 and early February 2014 all landowners within the three study areas were either personally contacted or received a flyer providing information about the project. Between 25 February and 2 March a professional helicopter crew was contracted to capture and radio-collar 50 yearling and adult does; 30 of these does were fitted with VITs on each of the three study areas. All 150 deer were captured and radio-collared in six days. Monitoring of the radio-collared deer began immediately after the capture operation by South Dakota State University graduate students Bailey Gullikson and Katherine Moratz, and their technicians.

During May and June of 2014 and 2015 a total of 87 and 73 fawns, respectively, were captured and fitted with expandable radio collars and monitored on a daily basis; two fawns were found stillborn. In addition to monitoring for mortality, bed site analysis was conducted during the first 30 days of each fawn's life. In addition to monitoring for mortality, bed site analysis was conducted during the first 30 days of each fawn's life. During the firearms seasons in 2014 and 2015 hunter access and deer distribution between land ownership types will be monitored. Field work for Bailey Gullikson and Katherine Moratz will be completed December 2015. Their completion of course work and the defense of a thesis (final report) will occur in December of 2016.

Additional Products:

Ciuti, S., W.F. Jensen, S.E. Nielsen, and M.S. Boyce. 2015. Predicting Mule Deer Recruitment From Climate Oscillations for Harvest Management on the Northern Great Plains. J. Wildl. Manage. (In Press)

After completion of the Slope regional deer study we plan to reanalyze all the telemetry and life history data for all white-tailed deer studies that have been conducted in North Dakota and South Dakota, and compile this review into a monograph.

Pilot Study on presence of neonicotinoid insecticides in white-tailed deer.

Recent studies have suggested that immune suppression by neonicotinoid insecticides are the root cause of declining pollinator insects, and may also be affecting a wide range of wildlife taxa. Laboratory tests have shown neonicotinoids to cause birth defects in mice and rats. We are in the process of retrieving archived liver samples from big game that were necropsied at the Wildlife Health Lab in Bismarck. Currently 265 white-tailed deer liver samples are being tested for the three most common neonicotinoids; Clothianidin, Imadacloprid, and Thiamethoxan.

X. Hot Topics

We are in the process of reviewing changes to how deer licenses are allocated.

XI. Relevant Contact Information and Links

Department Contact Information:
North Dakota Game and Fish Department
100 N. Bismarck Expressway, Bismarck, ND 58501-5095
Phone: 701-328-6300
E-mail: ndgf@nd.gov
Website: http://gf.nd.gov/

Midwest Deer and Turkey Study Group
Website: http://mdwtsg.org/

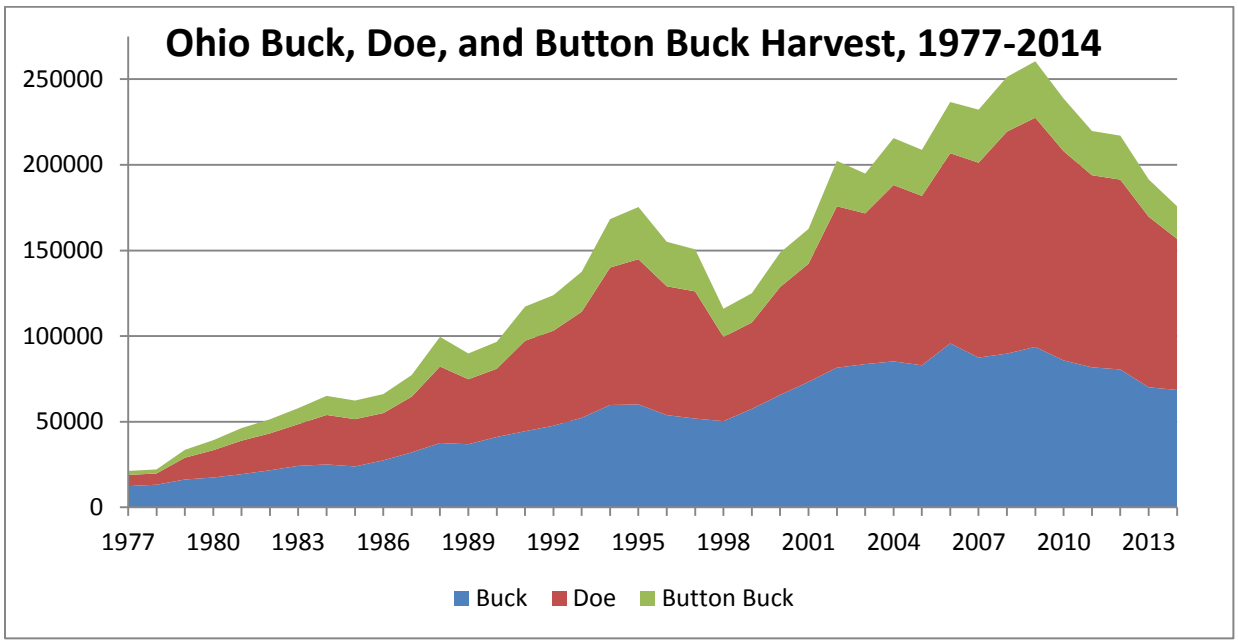
I. Current Harvest

The 2014-15 total deer harvest was 175,801; down 8.2% from the 191,503 reported in 2013-14. Though some of the decrease was due to fewer deer, much of the decline in total harvest can be attributed to fewer antlerless opportunities, as total buck harvest was down only 2%. Archers accounted for a record 46% of all deer harvested last year.

	Bucks*		Does		Buttons		Total		
	2014	2013	2014	2013	2014	2013	2014	2013	Change (%)
Gun	**23,807**	**26,349**	**33,842**	**39,838**	**7,835**	**9,221**	**65,484**	**75,408**	**-13.2**
Archery									
Crossbow	21,843	20,957	21,023	22,935	4,672	5,149	47,538	49,041	-3.1
Vertical Bow	15,091	14,723	16,260	18,357	2,761	3,440	34,112	36,520	-6.6
Total	**36,934**	**35,680**	**37,283**	**41,292**	**7,433**	**8,589**	**81,650**	**85,561**	**-4.6**
Muzzleloader									
Early Antlerless	112	69	5,521	4,655	980	884	6,613	5,608	17.9
Late Either-sex	4,078	4,352	8,001	10,141	1,645	1,971	13,724	16,464	-16.6
Total	**4,190**	**4,421**	**13,522**	**14,796**	**2,625**	**2,855**	**20,337**	**22,072**	**-7.9**
Youth	**2,989**	**3,043**	**2,556**	**2,671**	**908**	**926**	**6,453**	**6,640**	**-2.8**
Total	**68,515**	**70,100**	**88,241**	**99,587**	**19,045**	**21,816**	**175,801**	**191,503**	**-8.2**

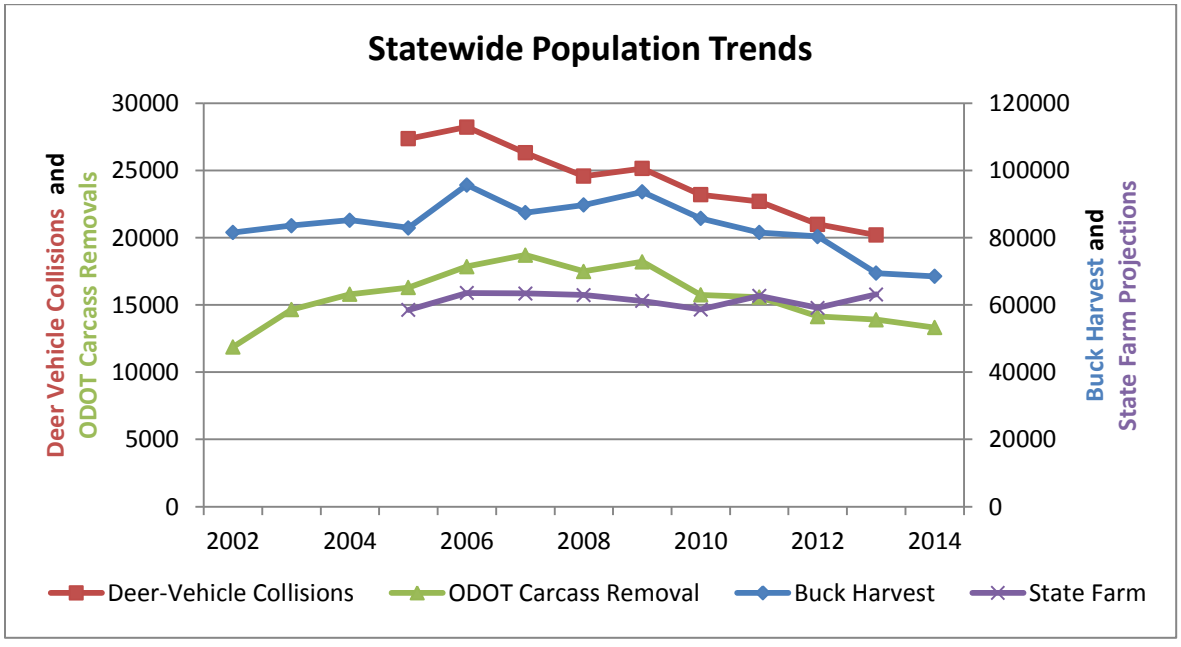
*Includes “antlerless bucks” – bucks with antlers < 3” (1,926) and bucks with shed antlers (516).

II. Historical Harvest



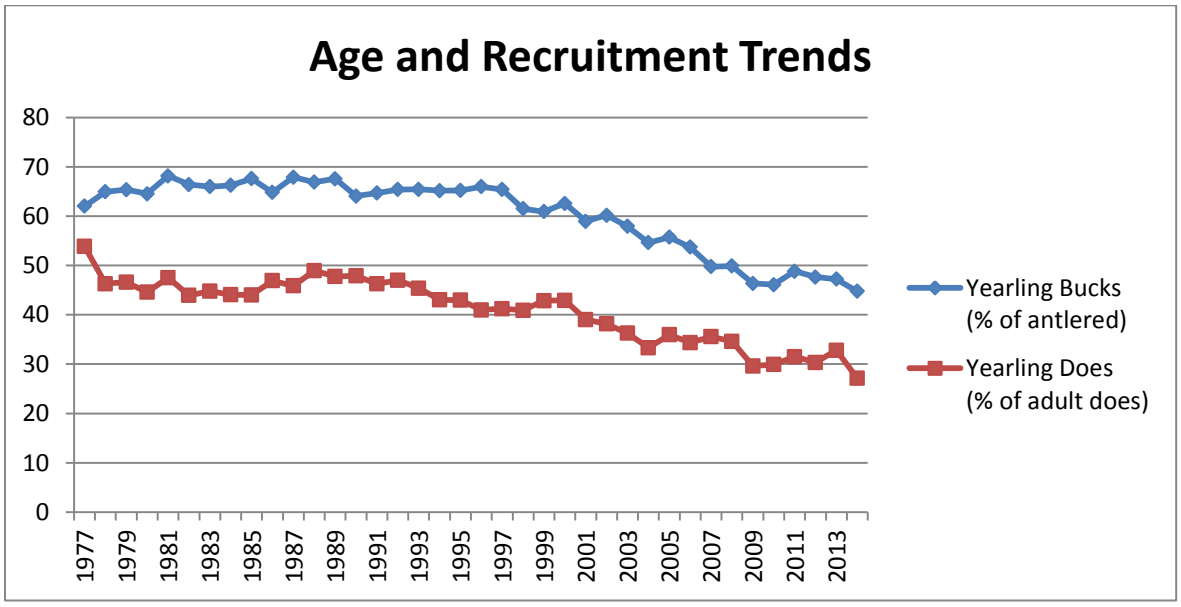
III. Population Estimate/Trends

Population – Trend data suggest that our statewide population peaked in the mid- to late 2000s. With the introduction of the reduced-cost antlerless permit in 2007, significant progress has been made in reducing deer populations across much of the state. We are shifting focus in many areas from population reduction to stabilization.

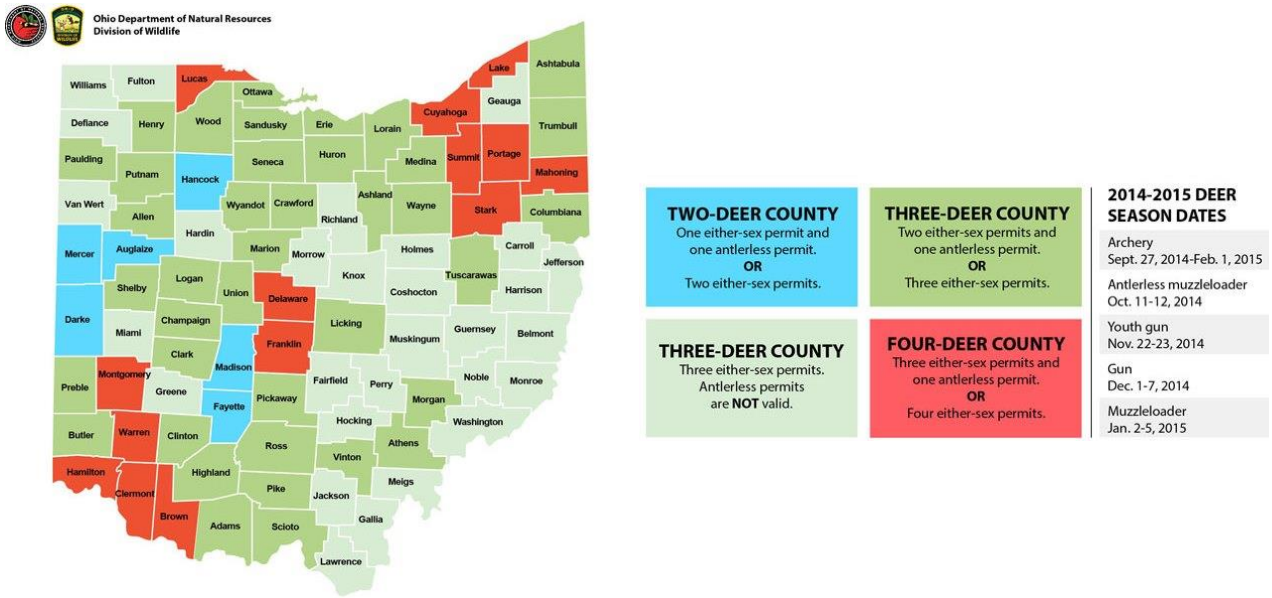


III. Population Estimate/Trends (cont'd)

Demographics – The age structure of antlered bucks has increased steadily since the late '90s as evidenced by the corresponding decrease in percent yearling bucks in the aged harvest sample. The percent yearlings among adult does has also declined steadily since the late '80s, corroborating data from reproductive studies that show a decline in herd productivity.



IV. Deer Management Zones: Each of Ohio's 88 counties serves as a separate deer management unit.



2014-15 Harvest Regulation Summary

V. Regulation/legislation

2013-2014 Season

1. Legal shooting hours were extended to one-half hour past sunset for all firearms seasons.
2. A 2-day, mid-December, either-sex gun season was removed.
3. A 2-day antlerless-only muzzleloader season was added to the 2nd weekend of October. Archers could hunt, but were limited to antlerless deer as well.

2014-2015 Season

1. A limited selection of straight-walled cartridge rifles was legal for use during the 2-day youth and 7-day firearm seasons. Because of the difficulty in plugging some of these rifles, the "plug rule" has been eliminated. However, hunters are still restricted to loading no more than three rounds in any firearm.
2. Further reductions in bag limits and antlerless harvest opportunities imposed to stabilize populations.
3. Non-resident license fee increase failed.

2015-2016 Season

1. The mid-October 2-day antlerless-only muzzleloader season was removed.
2. A 2-day either-sex gun season was added between Christmas and New Year's.
3. Further reductions in bag limits and antlerless harvest opportunities to stabilize populations.
4. Non-resident license fee increase failed.

VI. Urban/Special Hunts

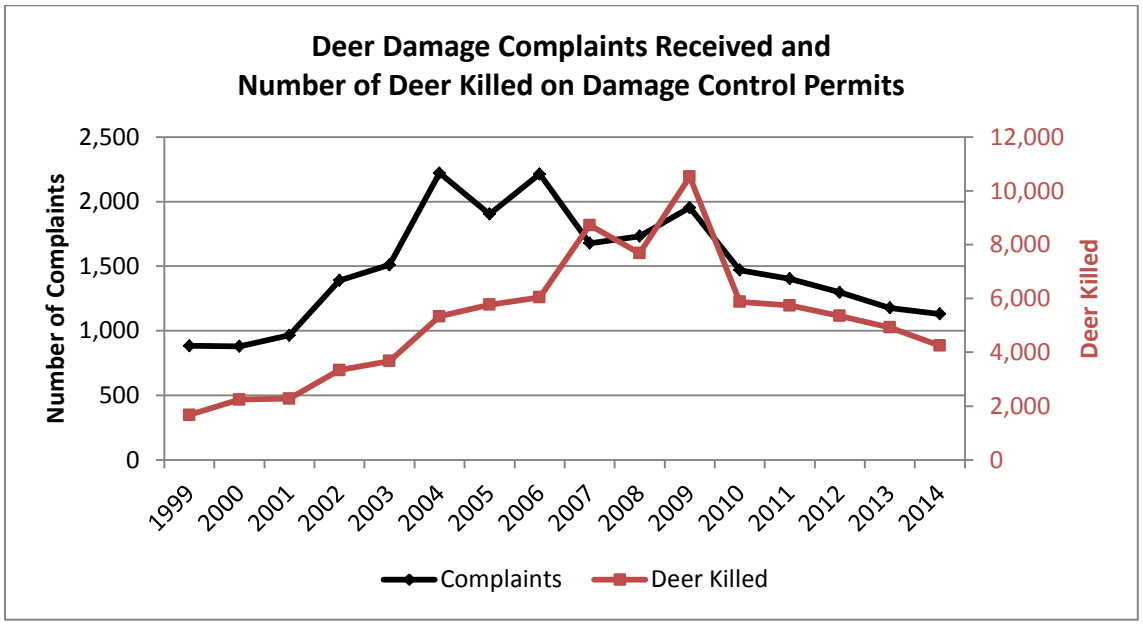
Numerous managed deer hunting programs continue in Ohio's urban/suburban areas. Thanks to the success of their urban deer management programs, specifically in their metro parks, Hamilton County (Cincinnati) and Lucas County (Toledo) rank 4th and 6th (out of 88), respectively, in public land deer harvest as a percentage of the county's total. ODNR, Division of Watercraft, which administers the state scenic rivers program, will offer archery hunts on six of its properties this fall. A number of state nature preserves will hold controlled hunts as well this year.

White Buffalo Inc. will conduct a 2-year white-tailed deer sterilization project in conjunction with the Hamilton County parks in southwest Ohio. The project gets underway this winter with a stated goal of documenting the lowest achievable deer density using only nonlethal control methods.

VII. Deer Management Assistance/Crop Damage

Landowners may be issued Deer Damage Control Permits (DDCP) at the time damage is occurring to kill deer during the dates and under the conditions specified on the permit. For most agricultural problems, these permits will be valid from January 1 until the start of the archery season. Under limited circumstances, permits may be extended until the start of the youth gun season (mid-November). Permits may be valid year-round to control damage at orchards, nurseries, inside municipalities, and airports. Except in the case of rub damage, permit holders are strongly encouraged to kill antlerless deer. In 2014, a total of 1,130 crop damage complaints was received by the Division of Wildlife, 4%

fewer than the previous year. This is the fifth year in a row that both the number of complaints received and the number of deer killed on damage permits have declined. Out of the 1,130 complaints received, the Division of Wildlife issued permits in 1,097 cases. In 2014, these permits resulted in 4,244 deer killed, 14% fewer than the 4,923 killed in 2013.



VIII. Diseases - CWD

The Ohio Department of Agriculture (ODA) and the U.S. Department of Agriculture (USDA) are integral partners in all disease surveillance plans, and ODNR has worked with these partners to test nearly 12,000 free ranging deer since 2002. To date, there has yet to be a wild, free-ranging deer test positive for the disease in Ohio. In 2014, Division of Wildlife personnel collected 837 road-killed deer from 57 counties. As in previous years, CWD was not detected in any of the road-killed deer samples. However, in October of 2014, a mature buck from a shooting preserve in Holmes County tested positive for CWD, becoming the first-ever CWD-positive deer in Ohio. Subsequent testing of nearly 300 free-ranging deer in an 8-township area around the captive facility failed to detect any CWD positives. In late March of 2015, a second CWD-positive deer was found in a captive white-tailed deer breeding pen in Holmes County. A third Ohio deer to test positive for CWD was found dead at the same Holmes County breeding facility in late April 2015. Both the shooting preserve and breeding facility have been depopulated. No additional positives were found in the shooting preserve, but 16 of the 242 animals from the breeding facility were confirmed positive for CWD, bringing the total number of positive cases to 19.

IX. Research

New Deer Management Units (DMUs)

A post-doc from The Ohio State University, Gabe Karns, has completed a project that divided Ohio into Deer Management Units. The intent of the project was to use empirical data to maximize the homogeneity of sociological, ecological, and biological factors affecting antlerless harvest. The project was designed so that deer populations within each DMU would respond similarly to harvest regulations. Additionally, reducing the number of management units would allow for more efficient collection of age, condition, and survey data while increasing precision of estimated parameters. Proposed DMUs (n = 26) are currently under review, and implementation is tentatively set for the 2017-18 season.

Aerial Deer Surveys

Aerial snow counts in Holmes and Trumbull counties were conducted this winter. Results compared very favorably with deer population model projections. In Holmes County our harvest-based population model estimate differed from the count-based estimate by less than 5%. In Trumbull County, model and aerial survey estimates differed by just 34 deer. Results lend a great deal of credibility to annual population projections, which serve an important role in harvest recommendations.

Deer Hunter Surveys

We have conducted deer hunter surveys annually since 2011 to quantify hunter effort, participation and success rates, and to survey hunter opinions on various hot-button topics such as baiting, leasing, and restrictions on public land access. Further details and results can be found in the 2014-15 Deer Season Summary in the 'Relevant Links' section.

X. Hot Topics

Quality vs. Quantity

We published *Quality vs. Quantity: A closer look at deer herd condition trends in Ohio*, a document that summarized trends in herd productivity, condition, and trophy buck entries for the past three decades. All three metrics – productivity, yearling beam diameter, and trophy buck entries – exhibited declines coincident with increases in the size of Ohio's deer herd and simultaneous loss of high quality, early successional habitats. A summary of our results was presented and a copy of the publication was distributed to participants at each of five "Deer Summits" held around the state in early February 2015. See 'Relevant Links' section for the complete publication.

Goal Setting

Population reduction measures have been largely successful, but have caused concern among some of the hunting public. Many opposed to these reductions point to the dated population goals, which are based on farmer attitude surveys, the last one being in 2000. With the transition from counties to DMUs planned for 2017, new population goals are needed, as is a broader, more comprehensive goal-setting process. We have contracted with the National Agricultural Statistics Service (NASS) to conduct

two separate surveys this fall – one for production landowners and one for deer hunters. We plan to use the results of farmers replying "too many" and hunters replying "too few" to inform the direction of future management, steering the population towards a level that balances these competing opinions.

XI. Relevant Links

2015-16 Regulations
http://wildlife.ohiodnr.gov/hunting-trapping-and-shooting-sports/hunting-trapping-regulations/deer-hunting-regulations

2014-15 Season Summary
http://wildlife.ohiodnr.gov/Portals/wildlife/pdfs/publications/hunting/Pub%205304_DeerSummary_FINAL.pdf

Quality vs Quantity: A Closer Look at Deer Herd Condition Trends in Ohio
http://wildlife.ohiodnr.gov/Portals/wildlife/pdfs/hunting/OhioDeerHerdUpdate_Web.pdf

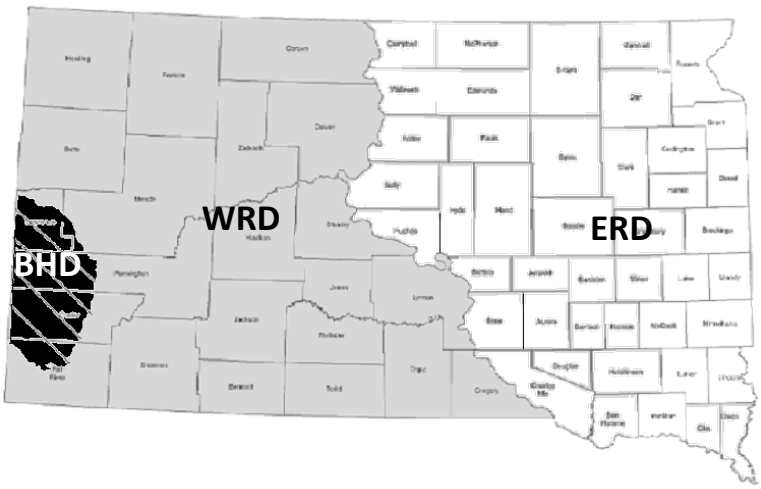
SOUTH DAKOTA
2015 DEER REPORT

MIDWEST DEER AND WILD TURKEY STUDY GROUP
Lake Delton, WI

OVERVIEW

East River Deer Management Area (ERD)

Over the past few years deer populations have decreased throughout much of the east river deer management area. White-tailed deer population densities are below management objectives in 71% of the deer management units in this area; mule deer densities are below objective in all units. In the western and central portions of this management area populations appear to be more stable and closer to objective. White-tailed deer are the predominant deer species east of the river, with 98% of last year's firearm season harvest in this management area being whitetails. The winters of 2009-13 were severe in eastern South Dakota, especially along the northern portions, presumably causing substantial over-winter mortality and reduced recruitment rates. The 2014/15 winter was mild in most units east of the Missouri River, with reported WSI values below long term averages. Overall, recruitment estimates have trended downward in this region, and the 2014 east river preseason fall recruitment rates of 96 fawns:100 does (95% CI: 91-101) were similar to the 93 fawns:100 does experienced in 2013. Hunter harvest rates in 2014 throughout most of the area were down considerably from the record harvest in 2010. Firearm antlerless tags for the 2015 season were increased 15% to begin to slow growth in whitetail populations in units at or near objective, whereas buck tags were increased 1%.



West River Deer Management Area (WRD)

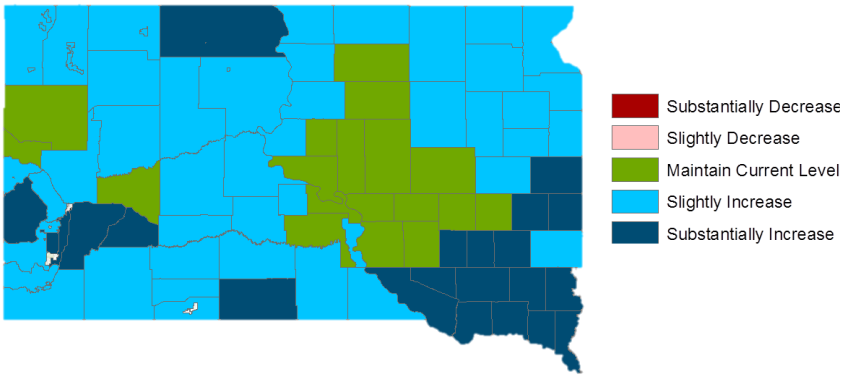
Deer populations have decreased over the past few years throughout most of the west river deer management area. Both deer species are abundant in this area, but white-tailed deer harvest was 74% of last year's firearm season harvest. Approximately 87% of deer management units in this area have objectives to increase white-tailed deer populations, and 100% of unit objectives for mule deer are to increase populations. Mule deer populations have declined in most units across the west river deer management area. The winters of 2008 - 11 have had negative impacts on mule deer populations and conservative harvest strategies have been implemented the last few years. Mule

deer fall recruitment rates in 2014 were 73 fawns:100 does (95% CI 67-79), slightly higher than recruitment rates of 61:100 observed in 2013. White-tailed deer populations in this area appear to be stable in some units but decreasing in others. The far northwestern portion of the state likely experienced above average winter loss in 2010/11 and antlerless harvest has been reduced accordingly. White-tailed deer recruitment rates in 2014 were 86 fawns: 100 does, up substantially from 59:100 observed in 2013. Less deer licenses will be available in 2014; buck licenses were reduced by less than 1% and antlerless licenses by 3%.

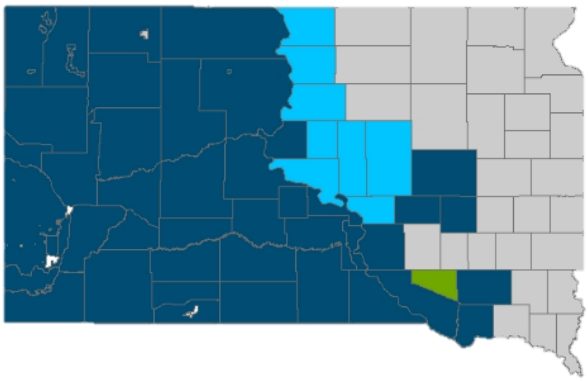
Black Hills Management Area (BHD)

The Black Hills deer population continues to remain at densities lower than the mid-2000s. White-tailed deer are the predominant species, with 98% of last year's firearm harvest in the Black Hills being whitetails. Mule deer populations appear to be stable but remain at low densities, whereas whitetail populations are at higher densities but have declined in recent years. Both white-tailed deer and mule deer are substantially below management objectives. Recruitment of white-tailed deer remains lower than the prairie units, with 74 fawns per 100 does counted in 2014. Several mortality factors have contributed to the lower deer densities and these potentially include hunter harvest, predation, disease, severe winters, and vehicle collisions. Conservative antlerless harvest will continue throughout the hills region. Anterless firearm deer licenses were removed in the Black Hills Deer Management area in 2013. Youth, muzzleloader, and archery deer statewide deer seasons are now restricted to one license in this management area, and no muzzleloader or archery antlerless tags are authorized in the Black Hills.

2015 White-tailed Deer Management Objectives



2015 Mule Deer Management Objectives



DEER HARVEST

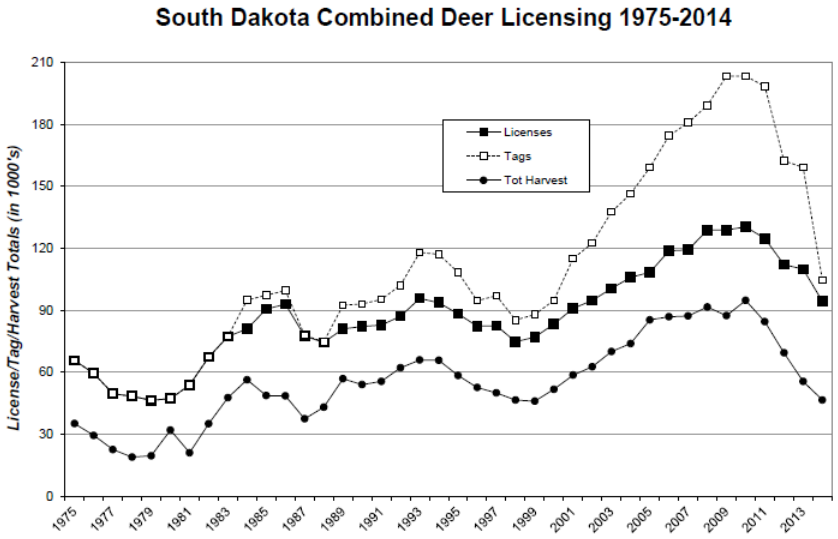
Statewide

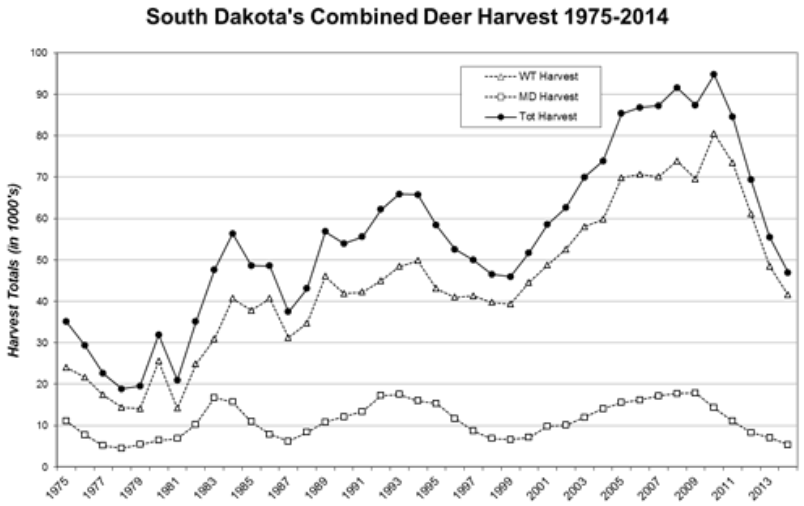
There were 48,901 resident deer licenses (plus unlimited licenses) available in 2014 and 87,011 were issued. Nonresidents had 2,244 licenses (plus unlimited licenses) available and 7,263 were issued. Statewide, there were a total of 94,274 licenses sold that represented a total of 104,464 tags, a decrease in 15,583 licenses and 54,653 tags from 2013. After 5 consecutive years issuing triple-tag licenses, none were offered for either East or West River seasons in 2014. A total of 58,383 individual hunters were issued deer licenses in 2014.

Random samplings were taken for each unit within each season unless the numbers of hunters were low enough that all were sampled to satisfy the statistical analyses. Response rates ranged from 70% for Custer State Park (online only) to 85% for Lacreek Refuge.

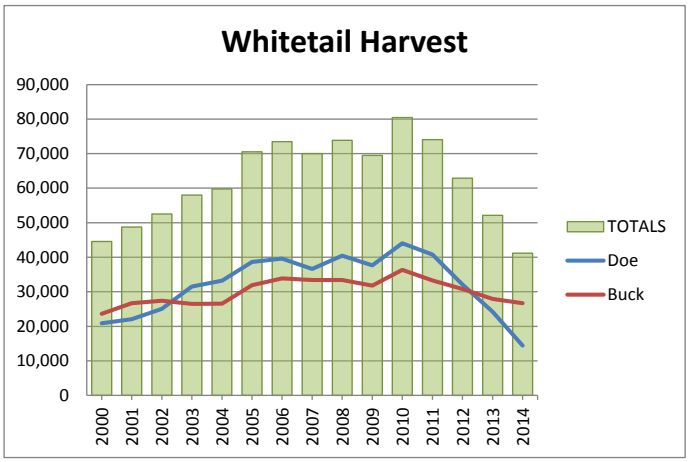
The projected statewide deer harvest was 46,526, a 16% decrease from 2013. This projection included 26,704 whitetail bucks, 14,453 whitetail does, 4,396 mule bucks and 973 mule does. A decrease in overall harvest of nearly 9,000 deer with a significant reduction in the number of tags issued resulted in a 10% increase in harvest success from 2013.

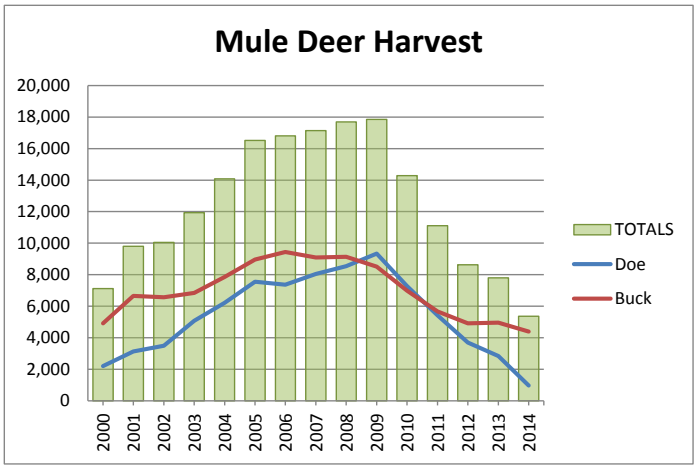
Reductions in doe harvest for East River Deer and West River Deer accounted for most of the decrease from 2013. Both whitetail and mule doe harvest estimates decreased from 2013 by 8,822 and 1,785 respectively. Whitetail and mule buck harvest increased from 2013 by 1,505 and 145 respectively. Mule deer made up approximately 12% of the total harvest.





The 2014 overall statewide harvest success increased significantly to 45% from 35% in 2013. Harvest success ranged from 25% for Archery Deer to 76% for West River Special Buck. Average hunter satisfaction values (1=very dissatisfied to 7=very satisfied) varied between seasons and ranged from 4.40 at Lacreek Refuge to 6.33 for Custer State Park.



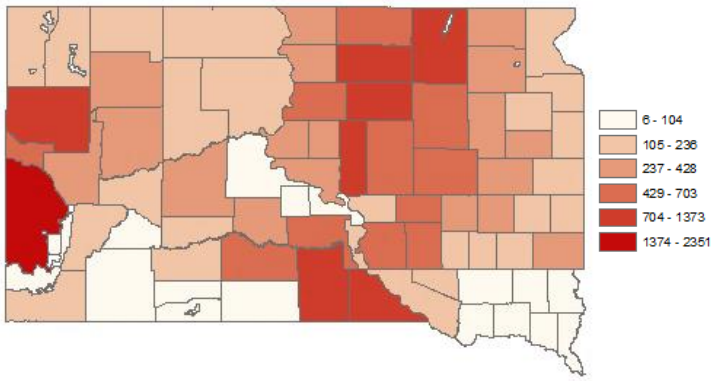


2014 Statewide Deer Harvest Projection Summary

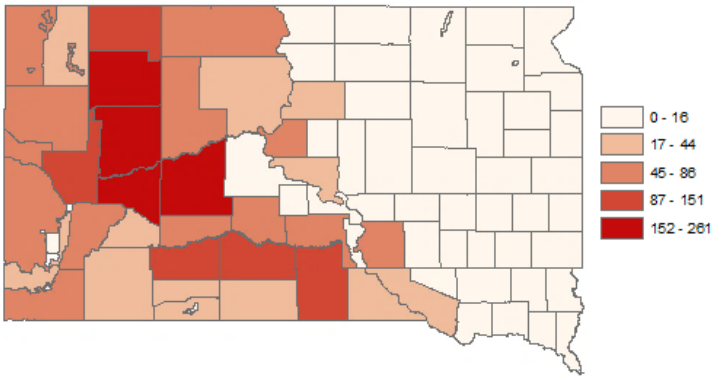
last revised: 6 May 2016

SOUTH DAKOTA Harvest Statistic	Season Archery	Youth Antlerless	Mentored Youth	Muzzleloader	Landowner Own Land Antlerless	West River	West River Landowner Own Land	West River Special Buck Unit	East River	East River Landowner Own Land	East River Special Buck Unit	Sand Lake NWR (Refuges)	Lacreek NWR (Refuges)	Waubay NWR (Refuges)	Black Hills	Custer State Park	Grand Totals
Licenses/Tags																	
Resident Licenses																	
Available	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	18,310	Unlimited	500	26,025	Unlimited	656	120	30	30	3,200	30	48,901
Sold	21,647	4,467	3,096	3,073	0	17,793	1,943	500	25,171	5,210	656	122	30	31	3,242	30	87,011
Resident Tags																	
Available	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	19,930	Unlimited	500	30,075	Unlimited	656	120	30	30	3,200	30	54,571
Sold	21,647	4,467	3,096	3,073	0	19,366	3,167	500	28,808	8,371	656	122	30	31	3,242	30	96,606
Nonresident Licenses																	
Available	Unlimited	Unlimited	N/A	Unlimited	N/A	1,469	N/A	500	Leftovers	N/A	N/A	12	4	3	256	N/A	2,244
Sold	2,840	571	N/A	140	N/A	2,035	N/A	500	912	N/A	N/A	11	0	2	252	N/A	7,263
Nonresident Tags																	
Available	Unlimited	Unlimited	N/A	Unlimited	N/A	1,599	N/A	500	Leftovers	N/A	N/A	12	4	3	256	N/A	2,374
Sold	2,840	571	N/A	140	N/A	2,216	N/A	500	1,326	N/A	N/A	11	0	2	252	N/A	7,858
Total Licenses																	
Available	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	19,779	Unlimited	1,000	26,025	Unlimited	656	132	34	33	3,456	30	51,145
Sold	24,487	5,038	3,096	3,213	0	19,828	1,943	1,000	26,083	5,210	656	133	30	33	3,494	30	94,274
Total Tags																	
Available	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	21,529	Unlimited	1,000	30,075	Unlimited	656	132	34	33	3,456	30	56,945
Sold	24,487	5,038	3,096	3,213	0	21,582	3,167	1,000	30,134	8,371	656	133	30	33	3,494	30	104,464
Hunters	20,132	5,038	3,096	3,174	0	18,518	1,943	1,000	25,135	5,210	656	133	30	33	3,494	30	58,383
Recreation																	
Average Days Hunted	10.80	4.61	3.98	3.79		3.25	3.94	3.40	4.10	4.59	5.19	2.34	3.10	1.54	4.82	2.19	5.18
Total Days Hunted	217,441	23,250	12,333	12,044	0	60,275	7,655	3,403	106,880	23,934	3,403	311	93	51	16,839	66	487,976
Mean Satisfaction Score	4.97	5.47	5.70	4.58		4.88	5.03	5.74	4.80	4.82	5.17	5.20	4.40	4.90	5.48	6.33	
Harvest																	
White-tailed Deer																	
Bucks	3,948	317	214	235		6,641	634	371	9,648	2,214	350	35	7	7	2,076	8	26,704
Does	1,459	1,924	1,186	498		2,244	167	4	5,853	812	6	9	1	1	275	13	14,453
Total	5,407	2,241	1,400	733	0	8,885	801	375	15,501	3,026	356	44	8	8	2,351	21	41,157
Mule Deer																	
Bucks	562	37	29	85		2,447	415	385	254	95	27	3	0	0	59	0	4,396
Does	84	287	166	11		274	55	5	49	37	1	1	0	2	0	0	973
Total	645	324	195	96	0	2,722	470	389	303	131	28	4	0	2	59	0	5,368
Total Deer Harvest																	
Bucks	4,509	354	243	320	0	9,089	1,048	756	9,902	2,308	377	38	7	7	2,135	8	31,100
Does	1,543	2,211	1,352	509	0	2,518	222	8	5,902	849	7	11	1	4	275	13	15,426
Total	**6,052**	**2,565**	**1,595**	**829**	**0**	**11,607**	**1,271**	**764**	**15,803**	**3,157**	**384**	**48**	**8**	**10**	**2,410**	**21**	**46,526**
Success	25%	51%	52%	26%		54%	40%	76%	52%	38%	59%	36%	27%	32%	69%	68%	45%

2014 White-tailed Deer Harvest



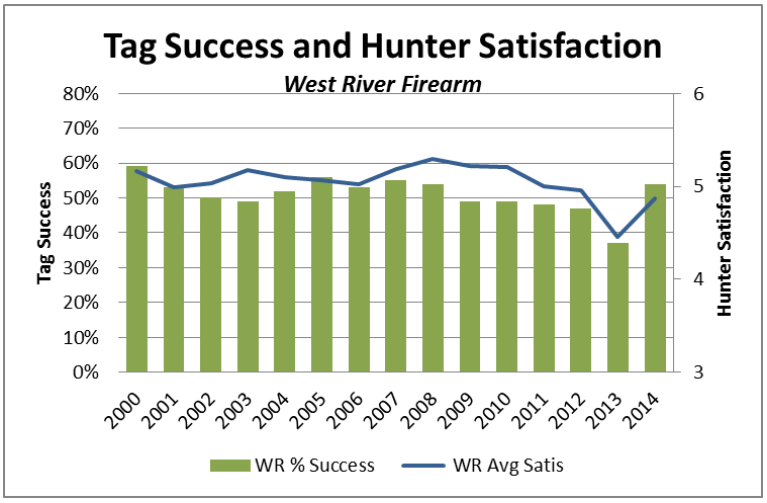
2014 Mule Deer Harvest



West River Deer

There were 22,771 licenses issued for the 2014 West River Firearm Deer season (19,828 regular, 1,000 Special Buck and 1,943 Landowner Own Land Only) for a total of 25,749 tags. The West River season was open 16 days from November 15-30 in most units and from November 1-23 in Corson, Dewey and Ziebach counties. Units 50A in Mellette County and 30A in Gregory County were open from Nov. 1-4 and 17-23, while units 50B and 30B were open from November 15-30. The season was also open from December 27, 2014 - January 4, 2015 for all unfilled antlerless deer tags.

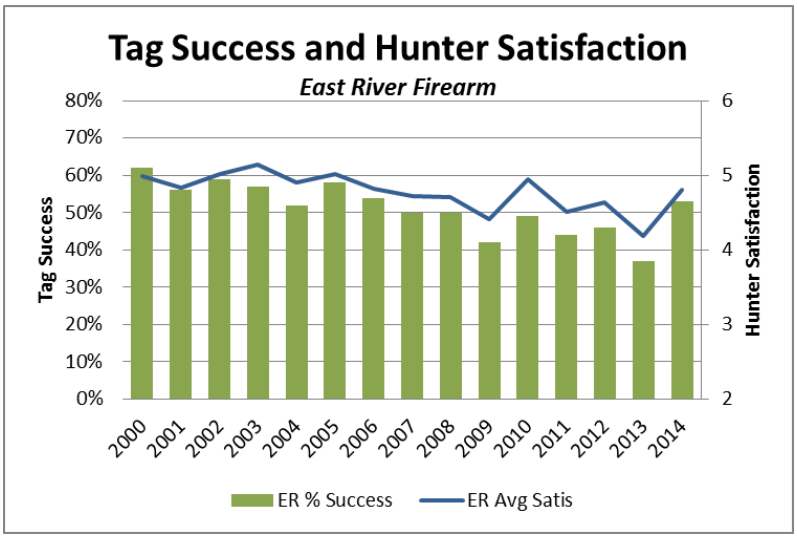
A random sample of 8,817 hunters was taken from the regular West River season, 1,937 from the Landowner Own Land Only licenses, and 1,000 from the Special Buck licenses. All hunters that listed an email address were surveyed using Qualtrics for the first attempt. Approximately 65% of regular season, 43% of Landowner Own Land, and 61% of Special Buck hunters surveyed through Qualtrics responded. All hunters who did not respond or did not supply an email address were mailed paper surveys which could be responded to either online or through the mail. Final response rates were 81% for regular West River Deer, 71% for Landowner Own Land and 83% for Special Buck. Of all responding hunters, 71% of regular West River, 44% of Landowner Own Land and 69% of Special Buck hunters responded over the Internet.



The West River projected deer harvest was 11,607 for the regular season, 1,271 for landowner on own land, and 764 for the Special Buck licenses. Success rates were 54% for the regular season, 40% for landowner and 76% for Special Buck. Success for the regular West River season "any deer and any antlerless deer" and "any whitetail and antlerless whitetail" license 1st tags (any) was 55% and for 2nd (antlerless only) tags was 38%. Success for "any antlerless deer and any antlerless deer" and "antlerless whitetail and antlerless whitetail" license 1st tags was 35% and for 2nd tags was 20%. No triple-tag licenses were available in 2014. The mean satisfaction score for those responding to the regular West River season was 4.88 (1 being very dissatisfied and 7 very satisfied).

East River Deer

There were 31,949 licenses issued for the 2014 East River Firearm Deer season (26,083 regular, 656 Special Buck and 5,210 Landowner Own Land Only) for a total of 39,161 tags. The East River season was open 16 days from November 22 through December 7 in all units. The season was also open from December 27, 2014 - January 4, 2015 for all unfilled antlerless deer tags. A random sample of 12,320 hunters was taken from the regular East River season, 2,489 from the Landowner Own Land Only licenses, and all 656 Special Buck hunters. All hunters that listed an email address were surveyed using Qualtrics for the first attempt. Approximately 60% of regular season, 43% of Landowner Own Land, and 58% of Special Buck hunters surveyed through Qualtrics responded. All hunters who did not respond or did not supply an email address were mailed paper surveys which could be responded to either online or through the mail.



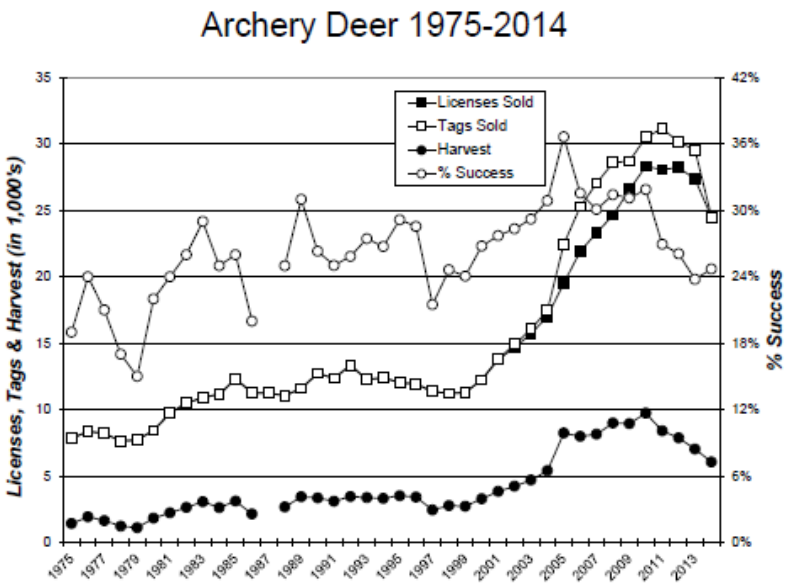
Final response rates were 78% for regular East River Deer, 73% for Landowner Own Land and 83% for Special Buck. Of all responding hunters, 69% of regular East River, 47% of Landowner Own Land and 68% of Special Buck hunters responded over the Internet.

The East River projected deer harvest was 15,803 for the regular season, 3,157 for Landowner Own Land, and 387 for the Special Buck season. Success rates were 52% for the regular season, 38% for Landowner Own Land, and 59% for Special Buck. Success for the regular East River season "any deer and any antlerless deer" and "any whitetail and antlerless whitetail" license 1st tags (any) was 59% and success for 2nd (antlerless only) tags was 37%. Success for "any antlerless deer and any antlerless deer" and "antlerless whitetail and antlerless whitetail" license 1st tags was 53% and success for 2nd tags was 31%. No triple-tag licenses were available in 2014.
The mean satisfaction score for those responding to the regular East River survey was 4.80, for the Landowner Own Land survey was 4.82, and for the Special Buck survey was 5.17 (1 = "very dissatisfied" and 7 = "very satisfied").

Archery Deer

There were 24,487 archery deer licenses issued in 2014 (21,647 resident, 2,840 nonresident) for a total of 24,487 tags. All were single any-deer tags or single antlerless whitetail tags for the Statewide, LM1 (Limited Statewide), East River or West River units. A random sample of 6,310 hunters were surveyed and 4,862 responded for a 77% return rate. Approximately 65% of responding hunters used the Internet to respond.

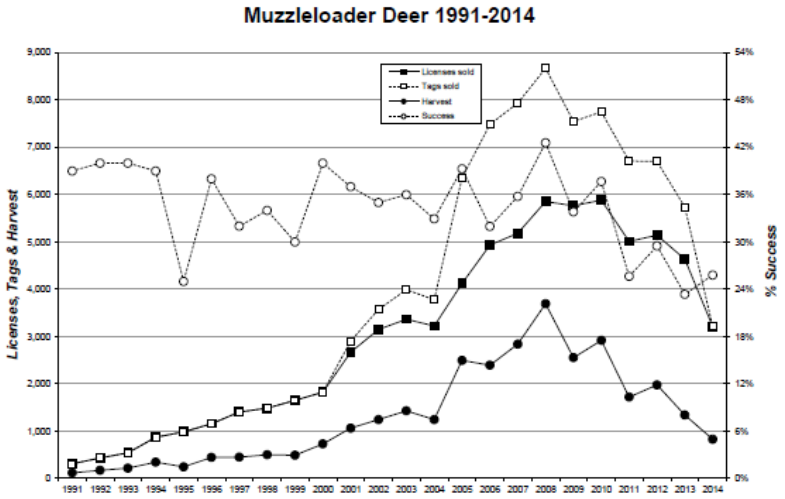
The 2014 Archery Deer season ran from September 27, 2014 through January 15, 2015, however only unfilled antlerless tags were valid from January 1-15. Respondents reported hunting 10.80 days per hunter, which projects to a total of 217,441 recreation days for the season. The projected harvest for the archery season was 6,052 deer (3,948 whitetail bucks, 1,459 whitetail does, 562 mule deer bucks, and 83 mule deer does). The success rate for the season was 25%. Satisfaction was also measured (1=very dissatisfied to 7=very satisfied) and the average response for this season was 4.97.



Muzzleloader Deer

There were 2,200 antlerless deer licenses (2,060 resident, 140 nonresident) and 1,013 "any deer" licenses issued for the 2014 Muzzleloader Deer season, which represented a total of 3,213 tags. A sample of 3,147 hunters were surveyed and 2,465 responded for a response rate of 78%. Approximately 65% of muzzleloader hunters used the Internet to respond.

The 2014 Muzzleloader season was open from December 1, 2014 through January 15, 2015, however only unfilled antlerless tags were valid from Jan. 1-15. This was the tenth year that "any deer" licenses were available for the muzzleloader season with 5,861 applicants. The number of "any deer" licenses available was increased to 1,000 in 2008. Respondents averaged 3.79 days of hunting for a projected total of 12,044 recreation days for the season. The estimated harvest for the Muzzleloader season was 829 deer (235 whitetail bucks, 498 whitetail does, 85 mule deer bucks, and 11 mule deer does). The overall success rate for the muzzleloader season was 26% and average satisfaction was 4.58 (1 = very dissatisfied, 7 = very satisfied).

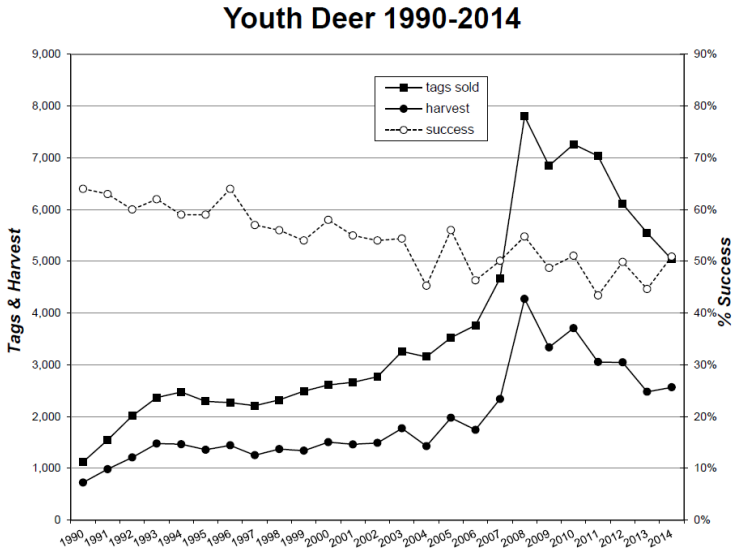


Youth Deer

There were 5,038 single-tag antlerless licenses issued for the 2014 Youth Deer hunting season (4,467 resident, 571 nonresident). Approximately 60% of hunters were sampled and 2,199 responses (73%) were received. Approximately 52% of responding hunters used the Internet to respond.

The Youth season ran from September 13, 2014 through January 15, 2015. Respondents reported hunting an average of 4.61 days each, which projected to 23,250 recreation days for the season.

Projections for the season indicated that a total of 317 whitetail bucks, 1,924 whitetail does, 37 mule deer bucks, and 287 mule deer does were harvested. The estimated total harvest for the Youth Deer season was 2,565, and the overall success rate was 51%. The five deer management units with the highest reported harvest were the Black Hills, Minnehaha, Brown, Deuel, and Roberts, which accounted for 21% of the total youth season harvest. The average satisfaction rating for those responding (1 being very dissatisfied and 7 very satisfied) was 5.47.



Mentored Youth Deer

There were 3,096 resident single-tag antlerless mentored youth deer licenses issued for 2014. All mentors/hunters were sampled and 2,432 responses (79%) were received. Approximately 67% of responding mentors/hunters used the Internet to respond. The Mentored Youth licenses were valid during the Youth Deer season which ran from September 13, 2014 through January 15, 2015. Respondents reported hunting an average of 3.98 days each, which projected to 12,333 recreation days for the season. Projections for the season indicated that a total of 214 whitetail bucks, 1,187 whitetail does, 29 mule deer bucks, and 167 mule deer does were harvested. The total harvest for the Mentored Youth Deer season was 1,595, and the overall success rate was 52%. The average satisfaction rating for those responding (1 being very dissatisfied and 7 very satisfied) was 5.70.

National Wildlife Refuge Deer

There were a total of 200 licenses issued for the 2014 Wildlife Refuge Deer seasons, which included 133 at Sand Lake (122 residents and 11 nonresidents); 34 at Lacreek (30 residents and 4 nonresidents); and 33 at Waubay (31 residents and 2 nonresidents). All license-holders for each season were surveyed and response rates for Sand Lake, Lacreek, and Waubay refuges were 83%, 85%, and 85%, respectively. Approximately 83% of survey respondents did so through the Internet. The seasons had different opening dates at each refuge. The average days hunted were 2.34 at Sand Lake, 3.10 at Lacreek and 1.54 at Waubay.

The reported harvest at the refuges consisted of only white-tailed deer. The projected harvest for Sand Lake was 4 bucks and 4 does, for Lacreek was 8 bucks and 0 does, and for Waubay was 8 bucks and 2 does. The projected success rate for Sand Lake was 36%, for Lacreek was 24%, and for Waubay was 32%.

Black Hills Deer

There were 3,494 single-tag licenses issued for the 2014 Black Hills Deer season (3,242 resident, 252 nonresident). A random sample of 1,243 hunters was taken (36% of license holders) and there were 986 responses for a 79% return rate. Approximately 65% of responses were received through the Internet. The season ran the month of November, a total of 30 days. Those responding reported hunting an average of 4.82 days, which projected to 16,839 recreation days for the season. Of those responding, 5% stated they did not hunt at all during the season. The mean satisfaction score for all combined units was 5.48 on a scale ranging from 1 = “very dissatisfied” to 7 = “very satisfied”.

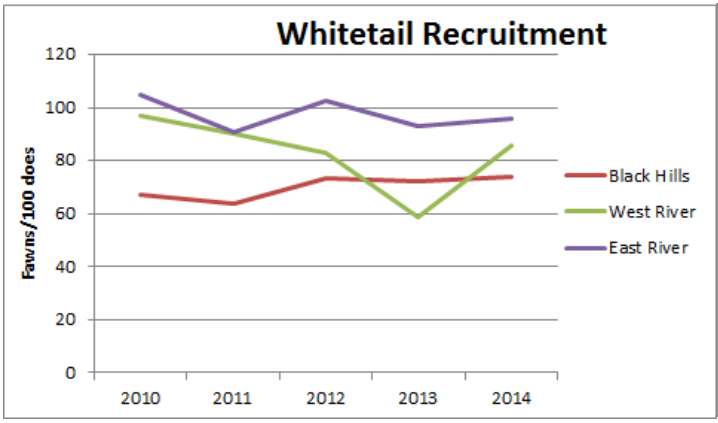
The harvest projection for the Black Hills Deer season was 2,410 deer (2,031 adult whitetail bucks, 45 fawn whitetail bucks, 252 adult whitetail does, 23 fawn whitetail does, 59 adult mule deer bucks, and no fawn mule deer bucks, or adult or fawn mule deer does). The overall season harvest success rate was 69%. Including the estimated Black Hills harvest of 1,139 deer from the Archery, Youth and Muzzleloader seasons, approximately 3,549 deer were harvested in the Black Hills proper.

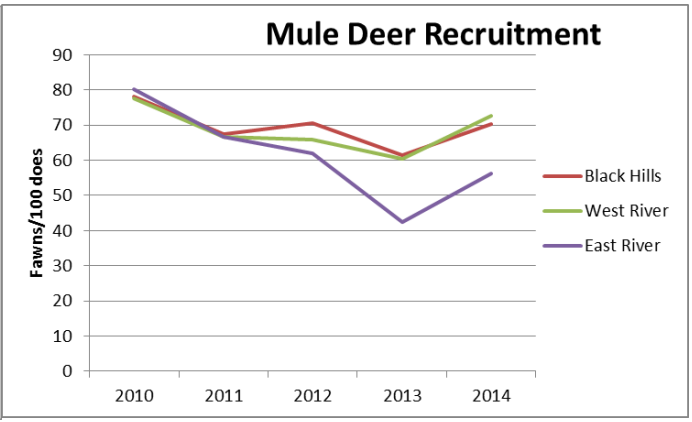
RECRUITMENT SURVEYS

Fawn and doe classification counts were conducted in September and October to determine fall recruitment rates across the state. A total of 14,679 deer were classified during the fall of 2014; 1,099 deer for the Black Hills, 4,863 for West River Prairie and 8,717 for East River Management Units. Binomial (95%) confidence intervals are reported in parentheses.

Fall classification counts for 2014 in the Black Hills resulted in a whitetail fawn:100 doe ratio of 74 (95% CI: 64-84) and mule deer ratio of 70 (47-105). West River fawn per 100 doe ratios were 86 (79-93) for whitetails and 73 (67-79) for mule deer; east River whitetail age ratios were 96 (91-101) in 2014. Overall downward trends in recruitment have been observed in white-tailed deer and mule deer in many parts of the state, but overall recruitment appeared to rebound slightly in 2014.

Statewide sex ratios observed in 2014 were 32 whitetail bucks per 100 does (31-34) and 38 mule deer bucks:100 does (35-42).





WORKING POPULATION ESTIMATES - DEER

All prairie deer units are divided into four data analysis units (DAU's). Deer within individual DAUs are assumed to have similar demographics. Annual survival (*s)* and hunter harvest mortality [(*hm)*- the proportion of total mortality caused from hunter harvest] rates are estimated based on recent research findings obtained in those designated DAU's through radio-collared individuals. Survival and *hm* rates are quantified separately between species and geographical area. The current year harvest projections *(h)* (including total harvest of all user groups combined) are calculated for each prairie deer unit and then analyzed at the DAU level. The pre-season population estimate (*N)* is then formulated for each DAU and combined for an East River and West River prairie estimate using the formula: *N=((h)/(hm))/ (1-s).* Pre-season estimates for deer are derived when populations are at their highest before any hunting or other sources of mortality have occurred. Therefore, pre-season estimates for deer do not take into account additional mortality factors that occur on populations over the summer months. The pre-reproduction estimates (*pN*) (remaining population after all mortality factors are taken into account) are then derived for each DAU using the formula: *pN= (N)-((h)/(hm)).*

Confidence intervals for population estimates are derived using Markov Chain Monte Carlo (MCMC) simulation methods in Program R. Standard errors are calculated for all survival input variables using the maximum likelihood estimator and sex and age ratio standard errors are calculated using the binomial proportion confidence interval estimator. One million random inputs are generated through MCMC simulations for each input variable from a probability distribution over the domain of each standard error. The results of the simulation are then aggregated to formulate the confidence interval for the population estimate of interest.

Population projections are then calculated for the next two years using current year fall deer herd composition data and 2009-2014 annual survival rates from radio-collared animals. Lambda (the annual rate of change overtime) is then calculated to indicate if the population of interest is increasing, decreasing or stable. Confidence intervals for lambda are developed using MCMC simulation methods in Program R, incorporating standard errors for all input variables. To predict how different license recommendations may impact λ, change in harvest is assumed to be additive, and the potential number of animals added or removed from the population is derived from the previous 3-year average success rate for that license type.

All Black Hills deer units are combined into one DAU. Black Hills deer populations are estimated separately for each species. Age and sex ratio data are obtained through the fall deer herd composition survey. Survival estimates and cause-specific mortality information quantified over the last 15 years is calculated using radio-collared individuals throughout the Black Hills. Predation rates are obtained through recent predator-prey interaction findings and these rates are included in modeling procedures along with the current year firearm, archery, muzzleloader, and youth hunter harvest information. Confidence intervals for (*N*) are derived through MCMC simulation methods in Program R. Projection modeling is performed to formulate lambda to indicate if the population of interest is increasing, decreasing or stable. Further advanced models will be developed when more recent survival and cause-specific mortality rates on deer in the Black Hills becomes available.

Species	Geographic Area	Estimate	95% CI	Time period
White-tailed Deer				
	East River & West River Prairie	370,054	232,150 - 507,958	Pre-season 2014
	Black Hills Proper	45,055	31,695 - 58,415	
Mule Deer				
	East River & West River Prairie	94,820	60,183 - 129,457	Pre-season 2014
	Black Hills Proper	9,357	6,018 - 12,696	

DISEASE

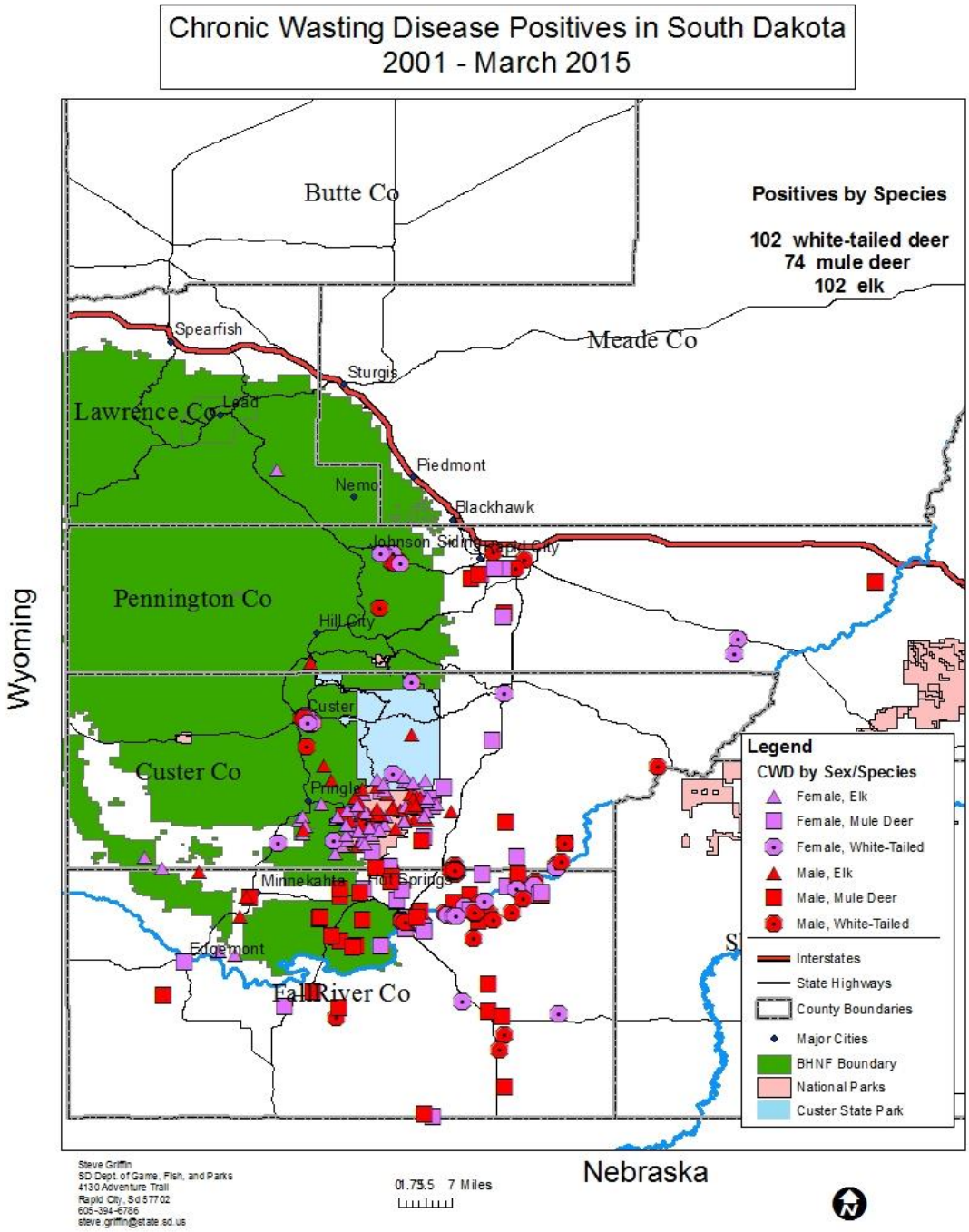
Chronic Wasting Disease

Surveillance for chronic wasting disease (CWD) in South Dakota during the period of July 1, 2014 through March 31, 2015 resulted in the testing of 120 elk, 12 mule deer and 17 white-tailed deer, for a total of 149 samples. Most of the sampling again involved collection of heads of hunter-killed animals which were voluntarily submitted by hunters upon request by the Department of Game, Fish and Parks (GFP). No active sampling was conducted from vehicle killed animals, or from City deer reduction programs. Samples were obtained primarily from the Black Hills and extreme southwestern part of the state, with sick surveillance testing occurring statewide. South Dakota GFP asked hunters to submit all elk heads for sampling, and offered to sample deer heads for anyone submitting samples to the Game, Fish, and Parks Regional Office in Rapid City, SD.

Test results received on 135 of the 149 samples indicate 3 white-tailed deer, 5 mule deer, and 9 elk were CWD positive. Hunter harvest accounted for 6 of the CWD positive cervids (2 elk, 4 deer), and sick surveillance accounted for 11 of the CWD positive cervids (7 elk, 4 deer). The total number of

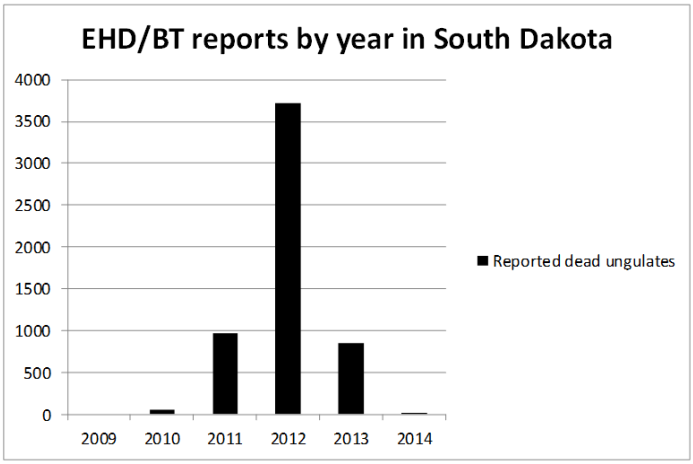
CWD positive animals discovered in SD (including WICA) since the first free ranging white-tailed deer was found in the fall of 2001 is now 277, including 101 elk, 74 mule deer and 102 white-tailed deer. Wind Cave National Park (WICA) has reported 10 deer and 65 elk as positive for CWD since 2002 as part of these totals.

South Dakota Department of Game, Fish, and Parks will continue to review our surveillance program. In 2014_2015, we continued, as in the previous year, with a reduced CWD surveillance program, and we will continue to evaluate to what level we will test for CWD in South Dakota.



Epizootic Hemorrhagic Disease

The State of South Dakota did not experience any significant die-off of white-tailed deer during 2014. There were only 21 total deer reported as suspect EHD in South Dakota in 2014. Eleven of these were from Bennett County in SW South Dakota (Region 1). Region 2 reported only 3 deer; 1 in Hughes County, and 2 in Sully County. Region 3 reported no dead deer, and Region 4 reported 6 deer in Faulk County and 1 deer in Spink County. No samples in South Dakota were confirmed as Epizootic Hemorrhagic Disease (EHD) or Blue Tongue (BT).



RESEARCH

Current Deer Projects

Estimating population size of deer in the Black Hills (Kris Cudmore and Jon Jenks. South Dakota State University - SDSU) *Objectives:*

1. Estimate population size of deer in the Black Hills using general randomized tessellation stratified samples by 30 June 2015.
2. Compare estimates of population size of deer among management units by 30 June 2015.
3. Evaluate factors affecting population size of deer relative to management units in the Black Hills by 30 June 2015.
4. Develop population model and survey methodology and recommendations to South Dakota Department of Game, Fish and Parks for implementation in the Black Hills by 30 June 2015.

Evaluation of deer and pronghorn herd composition surveys (Kris Cudmore and Jon Jenks. SDSU) *Objectives:*

1. Determine minimum sample size requirements
2. Compare September and October counts for deer, August and September for pronghorn
3. Compare spotlight and daylight counts
4. Assess feasibility of obtaining male:female ratios
5. Evaluate impacts of other survey variations such as a) counting all animals observed vs. only conclusive counts, b) distance from cover, and c) number of observers.

Dietary preference and nutritional quality of annual forages planted during late summer for white-tailed deer in eastern South Dakota (Troy Wieberg and Jon Jenks. SDSU). *Objectives:*

1. Determine preference and use of purple top turnips, winter rye, Austrian winter pea, Chicory, Daikon radish, and Crimson clover by captive white-tailed deer by 30 June 2015.
2. Quantify physical and nutritional characteristics among forage types and determine crude protein, phosphorus, crude fat and digestible dry matter for each species by 30 June 2015.
3. Assess feasibility of which forage types would be most suitable for late summer planting conditions in eastern South Dakota by 30 June 2015.
4. Formulate management recommendations that directly apply to maximizing deer harvest in highly depredated areas using annual forage plots by 30 June 2015.
5. Determine what annual forage species would be the most successful at luring deer away from winter depredation areas (i.e., hay yards and feedlots) by 30 June 2015.

Survival of white-tailed deer and mule deer fawns within various habitat types and geographical areas throughout South Dakota (Kevin Robling, et al. SDGFP) *Objectives:*

1. Estimate 6-month and annual survival rates of white-tailed deer fawns occupying agricultural landscapes in northeastern and southeastern South Dakota.
2. Estimate 6-month and annual survival rates of mule deer fawns occupying grassland habitats in central and western South Dakota.
3. Develop population models for white-tailed deer and mule deer in prairie and agricultural landscapes of South Dakota.

An assessment of mule deer population dynamics and trend indicators in the Black Hills, Badlands, and Missouri River regions of South Dakota (Andy Lindbloom, et al. SDGFP) *Objectives:*

1. Quantify annual and over-winter survival rates of fawn, yearling female, and adult female mule deer in the Black Hills, Badlands, and Missouri River breaks of South Dakota.
2. Determine cause-specific mortality of mule deer in the Black Hills.
3. Measure pregnancy and fetal rates of yearling and adult female mule deer.
4. Evaluate and compare annual recruitment estimates using fall herd composition and reproduction/fawn survival datasets.
5. Quantify and evaluate relationships between severe weather (winter and drought severity) and mule deer nutritional condition, survival, and reproduction/recruitment.
6. Evaluate distance sampling techniques to estimate mule deer populations and trends in the Black Hills.
7. Update SDGFP models to estimate mule deer populations, projections, and growth rates (λ).

Survival, cause-specific mortality, and reproductive rates of white-tailed deer in the Black Hills of South Dakota (SDGFP) *Objectives:*

1. Determine survival rates and cause-specific mortality of adult and fawn white-tailed deer in the Black Hills of South Dakota.
2. Determine reproductive rates of female white-tailed deer in the Black Hills.
3. Calculate population estimates for white-tailed deer occupying the Black Hills using obtained vital rates in Department population models and formulate an annual rate of change (λ).
4. Quantify hunter harvest mortality rates during years of varying harvest strategies.

Effects of Neonicotinoid Insecticides on Physiology and Reproductive Characteristics of Adult and Fawn Captive White-Tailed Deer (Jon Jenks and MS student TBD, SDSU) Objectives:

1. Document thyroid hormones in does exposed to Imidacloprid and control does to determine physiological responses of insecticide exposure via consumption of agricultural crops.
2. Determine Imidacloprid concentrations in milk of lactating female white-tailed deer.
3. Compare jaw and genital characteristics of white-tailed deer fawns born to does exposed to Imidacloprid and control fawns.

An Evaluation of the Impacts of Energy Development on Life History Parameters and Management of White-tailed Deer in the Cedar Creek Anticline of Southwestern North Dakota and Northwestern South Dakota (Jon Jenks and 3 MS grad students, SDGFP/NDGF/SDSU cooperative project)
O*bjectives:*

1. Determine the impacts of oil and gas energy development and disturbance on movements and survival rates of white-tailed deer in the Cedar Creek Anticline of North and South Dakota.
2. Determine habitat selection and critical deer seasonal habitats and concentration areas in the Cedar Creek Anticline of North and South Dakota.
3. Determine cause-specific mortality factors on both radio-collared adults and neonate fawns.
4. Determine an annual rate change (λ) for white-tailed deer populations in the Cedar Creek Anticline of North and South Dakota.

The development of a Sequel Server database and R software package to model deer populations in South Dakota (Paul Lukacs and Josh Novak, University of Montana) Objectives:

1. Compile, evaluate, and analyze deer population data needed for population modeling.
2. Develop SQL database for all applicable deer population data.
3. Design appropriate level deer “data analyses units”.
4. Develop Program R population model, and user-friendly interface.
5. Complete cost: benefit analyses for additional deer data inputs.

WISCONSIN DEER STATUS REPORT, 2015

Midwest Deer & Wild Turkey Study Group
Perlstein Conference Center, Lake Delton, Wisconsin

Current Harvest

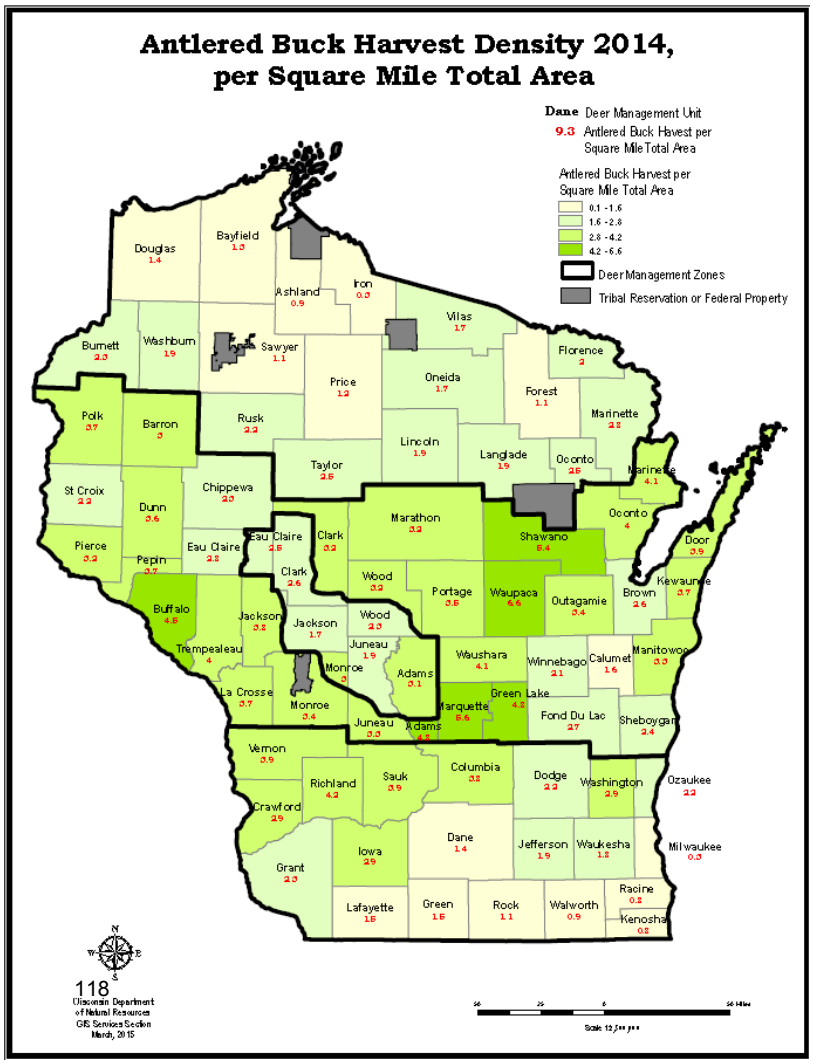
Total harvest was 11% lower in 2014 than in 2013; antlered harvest decreased <1% but antlerless harvest was 19% lower. Reduced antlerless harvests were primarily due to "bucks-only" regulations in most Northern Forest and some Central Forest counties.

	Antlered			Antlerless			Total*		
Season	2012	2013	2014	2012	2013	2014	2012	2013	2014
Early Archery**	43,197	39,747	44,385	38,587	39,744	30,818	82,677	80,262	76,065
Youth Hunt	3,364	2,591	3,655	5,072	4,057	4,940	8,515	6,693	8,671
9-day Gun	112,521	96,172	90,701	131,901	132,090	107,838	246,041	229,890	199,583
Muzzleloader	2,348	2,491	2,759	4,792	4,181	4,347	7,183	6,729	7,157
Late CWD	1,187	902	50	3,758	2,491	2,592	5,074	3,458	2,711
Dec. Antlerless***	49	65	31	7,064	8,069	4,395	7,234	8,233	4,466
Late Archery	2,791	1,770	1,816	8,656	5,526	3,759	11,590	7,366	5,636
Off-Reserv. Tribal	666	542	423	943	817	702	1,609	1,359	1,125
Total	166,123	144,280	143,820	200,773	196,975	159,391	369,923	343,990	305,414

* Totals include deer of unknown type.
** Archery season harvests include deer harvested with vertical bows and crossbows. Crossbow licenses were available to all hunters starting in 2014.
** Disabled hunters and members of the armed forces on leave may harvest antlered deer during antlerless-only seasons.

Buck Harvest Density

Buck harvest density in 2014 varied among deer management units from less than 1 to more than 6 bucks/mi^2 of land area. Management units with the highest buck harvest density were mostly in the east-central, west-central, and southwestern parts of the state. Units with the lowest buck harvest densities were mostly in north-central, northeastern, and southeastern Wisconsin. The abundance of woodlands interspersed with agriculture throughout much of central and southwestern Wisconsin results in high quality deer habitat. This together with relatively mild winters in these regions in most years facilitates higher deer densities than in northern Wisconsin.

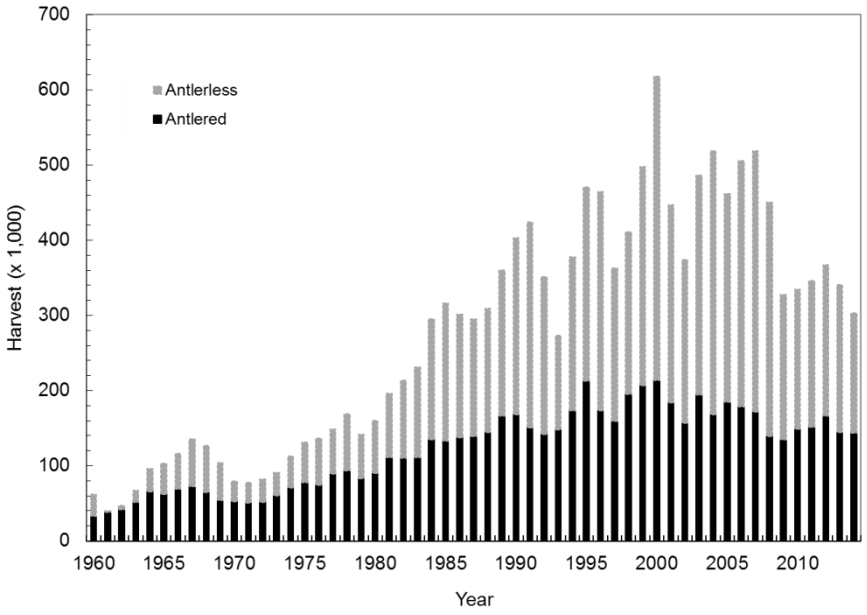


Miscellaneous facts

State land area: 54,313 mi^2
2014 deer hunting licenses purchased:
Archery -- 214,213; Gun -- 609,779,
Crossbow -- 108,765
Licensed deer hunters -- 649,151
35% of hunters harvested 1 or more deer

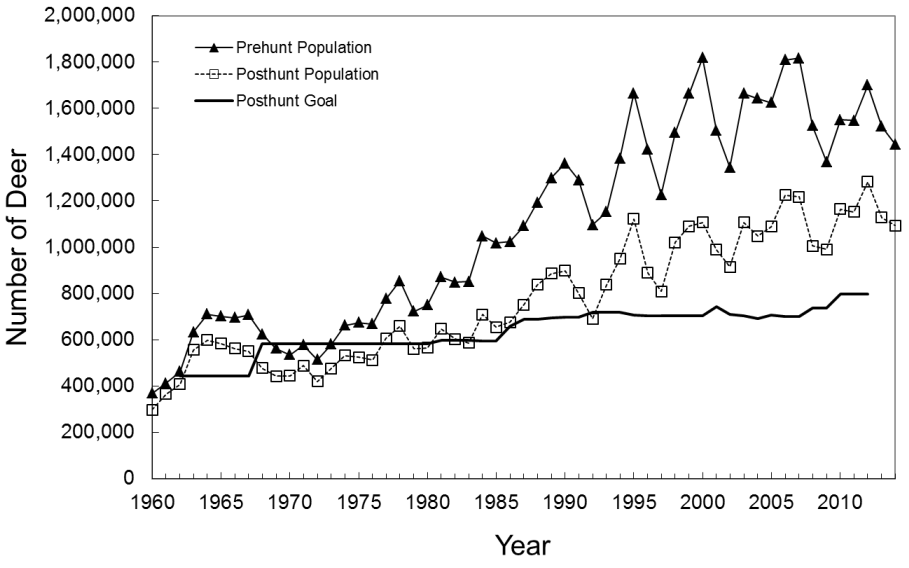
2014 deer hunting accidents: 8 non-fatal.

Historical Harvest



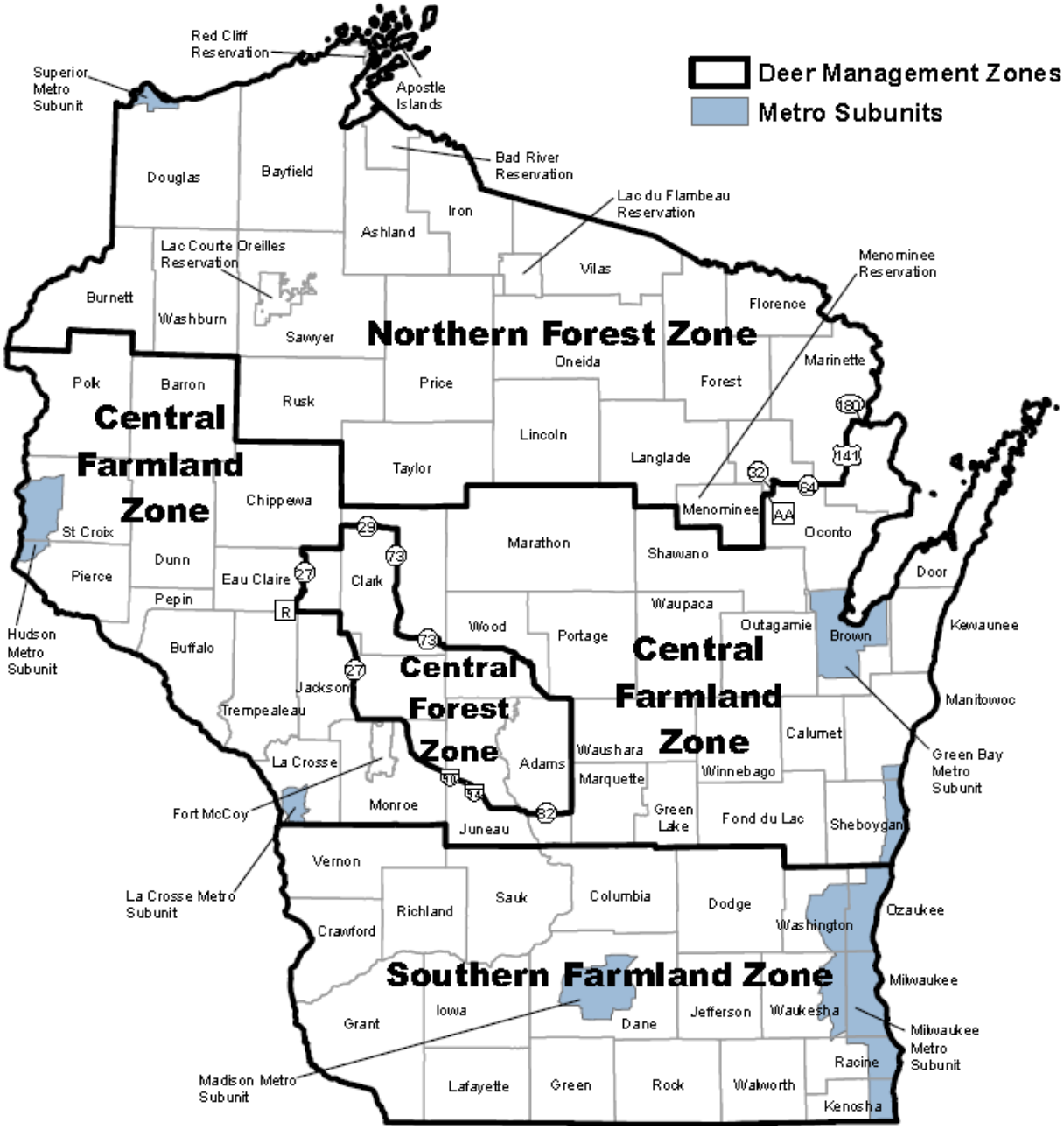
During the 1960s and early 1970s, total harvest averaged about 90,000. Total harvest increased steadily during the late 1970s and 1980s, largely due to population growth in the farmland regions. An all-time record harvest of 618,274 was set in 2000. After a marked decrease in harvest in 2001 and 2002, harvest during 2003-07 averaged about 500,000 deer, with about 64% of the harvest composed of antlerless deer. Total harvest decreased 42% between 2007 and 2009. Total harvest increased annually during 2009-12 and then decreased the past 2 years. Antlerless deer comprised an average of 55% of the harvest during the past 5 years. The proportion of harvest taken by archers has increased steadily during the past 50 years to where archers accounted for 26% of the total harvest and 29% of the antlered buck harvest in 2013. Nine percent of the total harvest and 11% of the buck harvest was taken with crossbows in 2014.

Population Estimates and Trends



Population estimates were based on Sex-Age-Kill calculations and accounting models calibrated to aerial surveys. The 2014 prehunt population estimate was approximately 1.4 million and the posthunt estimate was approximately 1.1 million. Posthunt deer populations in Wisconsin fluctuated around 500,000 during the 1960s and 1970s. During the 1980s and 1990s, the population generally increased with occasional short-term declines due to poor recruitment following severe winters and/or intensive antlerless harvests. Most of the statewide increase in deer populations over the past 40 years was due to growth in the farmland regions of the state. Higher antlerless harvests during the mid-2000s together with below average recruitment reduced populations in portions of the state. Reduced antlerless harvests since 2009 have set the stage for renewed population growth, especially in the farmland zones.

Deer Management Units/Zones



2015 DEER SEASON STRUCTURE
Archery and Crossbow – Sept. 12 - Jan. 3 - Statewide

Gun Deer Seasons (Statewide)
- **Youth** (Oct. 10-11, 2 days)
- **Nov. Gun** (Nov. 21 – 29, 9 days)
- **Muzzleloader** (Nov. 30 - Dec. 9, 10 days)
- **Dec. Antlerless-only** (Dec. 10-13, 4 days)

Metro Subunits -- Archery Season: Sept. 12 - Jan. 31 -- Gun Season: Nov. 21- Dec. 9

Regulation and Statute Changes

The Deer Trustee Report administrative rule package that was approved by the Natural Resources Board in January 2014 was an "emergency rule" so that it could be effective by the 2014 deer season. It was followed with a "permanent rule" that was approved by the Board in February 2015. Prior to the Board meeting the department gathered public input via 9 public hearings with 256 attendees. Additionally, a web-based public input questionnaire was developed and over 87,000 people were e-mailed invitations to complete the questionnaire. Responses from approximately 6,400 people were received and summarized.

While many parts of the "permanent rule" were similar to the "emergency rule", a number of changes were enacted as a result of the rule-making process. Additionally, some aspects of the rule package are first being implemented in 2015 due to the time required to change the license issuance system and develop the electronic registration system.

- Antlerless permits are specific to land type (public or private) within management units. This includes one Farmland Zone carcass tags issued with the purchase of each deer license and bonus antlerless permits.
- "Bonus buck", whereby hunters in CWD zones could earn an additional buck when they harvested and antlerless deer, has been discontinued.
- Electronic registration will be used to register all deer. Deer must be registered by 5 p.m. the day after harvest.
- The December 4-day antlerless-only hunt will again be offered statewide for those with unused tags.
- The antlerless-only Holiday Hunt, previously held in the Southern Farmland Zone will not be offered in 2015. A Holiday Hunt could be offered in farmland zone only counties in future years at the request of individual the CDACs (County Deer Advisory Councils).
- Junior license buyers, age 17 or younger, currently receive a free antlerless tag with each license (gun and archer/crossbow) and can use it in any unit statewide, including buck-only units. Starting in 2016, the department can restrict the use of this tag in buck-only units.
- White and albino deer are protected statewide; they previously could be harvested in the former CWD Management Zone. The permanent rule clarified that white deer with stained or dirty hair are still considered to be white.

The Natural Resources Board used the rule making process to gather public input on several additional matters of interest. Antler point restrictions and allowing bucks to be harvested only during the first 2 days of the 9-day firearm season were not included as options in the permanent rule due to public opposition.

Winter 2014-15

Following the record breaking very severe winter of 2013-14, the average winter severity index (WSI) in 2014-15 for the 33 northern Wisconsin recording stations with complete records was 49. This was on the upper end of the mild category on the WSI scale. Average WSI during the previous 30 years was 55. On average, snow depths greater than or equal to 18 inches were recorded on 7 days in 2014-15 and minimum temperatures less than or equal to 0°F occurred on 42 days. A few stations along the border with the Upper Peninsula of Michigan recorded indices of 76-113, reflecting more severe winter conditions in this portion of the state.

County Deer Advisory Councils (CDACs)

Beginning in September 2014, each county in Wisconsin formed a deer advisory council to provide the department with recommendations on deer population objectives, antlerless quotas and herd management strategies. County councils were chaired by a member of the Wisconsin Conservation Congress. Stakeholder groups invited to be represented on these councils include a hunting/sporting group, agriculture, forestry, local government, transportation, tourism, Chippewa tribes, and the Deer Management Assistance Program. At least three members of each council must have purchased deer hunting licenses in seven of the past 10 years.

The councils met 3 times during fall 2014 to develop 3-year population objectives. County wildlife biologists, foresters, and law enforcement staff served as liaisons, providing information and answering questions.

Agency staff assisted with meeting logistics such as scheduling meetings and providing community outreach. Council members were provided with county-specific metrics on deer herd trends, impacts to habitat and agriculture, and human-deer interactions. All meetings were open to the public and web surveys were conducted to help gather public input.

CDACs recommended “increase” objectives for 34 management units (counties or portions of counties), “maintain” objectives for 40 management units, and decrease objectives for 6 units. All units in the Northern and Central Forest zones received “increase” objectives, while most units in the farmland zones received “maintain” objectives. The Natural Resources Board accepted all CDAC population objectives at the February 2015 meeting.

The CDACs met again during March and April to develop antlerless quota and permit recommendations for the 2015 deer season. An online public questionnaire was developed and feedback on quotas and permits was shared with the CDACs before their final recommendations were made. CDACs recommended 13 units as “bucks-only”. Antlerless permit recommendations were divided between public and private land. Council recommendations were reviewed by the department’s deer advisory committee and department administration before being presented to the Natural Resources Board. The Board approved all CDAC recommendations in May.

Deer Management Assistance Program (DMAP)

DMAP provides habitat and herd management assistance to landowners interested in managing their property for deer and other wildlife. The department assists landowners with the implementation of forest regeneration and deer hunting practices that emphasize property goals while considering the ecological and social impacts of white-tailed deer. Landowners can enroll in one of three levels. Level 1 has no minimum acreage and no enrollment fee. Level 2 has a 160 acre minimum and a $75/3 year enrollment fee. Level 3 has a 640 acre minimum and a $150/3 year enrollment fee. Participants receive personal interaction with DNR staff and communication on land and herd management, networking with other landowners with common goals, property site visits by a wildlife biologist and forester, written site-specific management plan, and reduced price antlerless tags. Properties can be enrolled by an individual landowner or as a cooperative.

In its first year (2014), more than 300 landowners enrolled over 43,000 acres in DMAP. Enrollees were surveyed to gain insight into their experience with the program. Most landowners desire to improve habitat for deer and other species of wildlife. Landowners liked the ease of enrollment and the resources provided through the website. Most landowners were satisfied with the site visit by the local biologist and forester and most felt the property management plan was useful. Ninety-seven percent of DMAP enrolled landowners intend to implement at least some of the recommendations provided in their plan. Overall, landowners gave the program high marks for customer service. Landowners signed up another 44,000 acres in DMAP in 2015. The program is currently working with over 700 landowners across the state.

Four workshops were held around the state to share information with enrollees about cost-share program availability, invasive species management, timber harvest strategies, and updates on deer research and herd health. Workshops included tours of enrolled properties led by the landowner who shared their experiences and lessons learned. Additionally, DMAP cooperators will be able to voluntarily participate in mentored hunting and trapping programs that may help them achieve their property goals.

Wildlife Damage Abatement and Claims Program

During 2014, 745 crop owners enrolled in the Wildlife Damage Abatement and Claims Program (WDACP) for deer damage abatement assistance. Appraised deer damage totaled $903,902, the lowest amount in the past 20 years. Forty-six percent of appraised deer damage was to corn; 22% to soybeans; 9% to forage; and 5% each to orchards and nursery stock, fruits and vegetables, and Christmas trees. During the past 20 years, appraised deer damage averaged approximately $1,749,000 (range $903,902 - $2,865,572).

The most commonly used abatement measure was deer damage shooting permits. In 2014, we issued 617 Agricultural Damage Deer Shooting Permits under which 3,457 deer were removed. In addition, 65 Nuisance

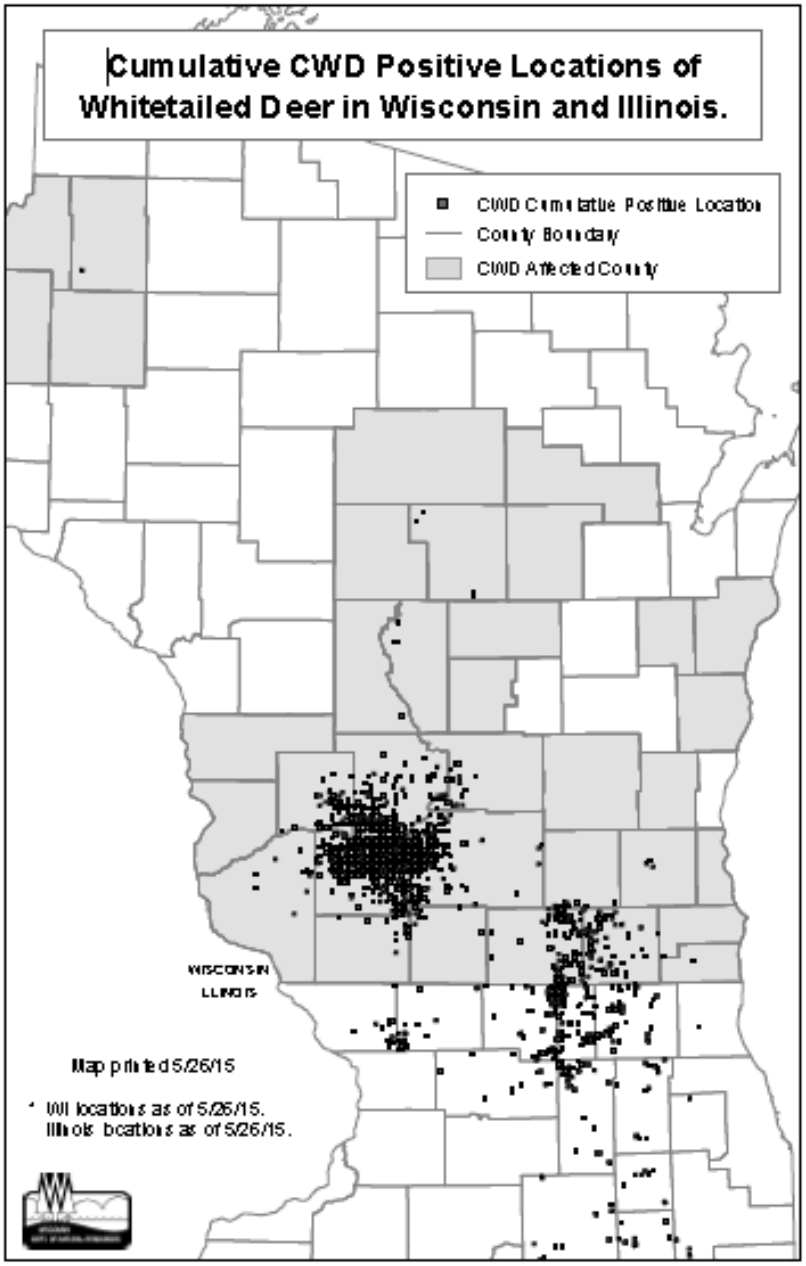
Deer Shooting Permits were issued for urban, airport, and nuisance situations, resulting in the removal of 822 deer.

In 2014, WDACP paid 75% of the cost for construction of 8 permanent fences to protect 150.6 acres on farms with a history of deer damage to high value crops (e.g., cranberries, strawberries, orchards, and tree nurseries). Landowners enter into a 15 year agreement to maintain the fences.

Since 2000, the WDACP has been authorized to pay for processing venison donated to food pantries. In 2014, 115 meat processors in 57 counties participated in the donation program. In those counties, hunters donated 1,622 deer amounting to approximately 73,000 pounds of venison. The cost of the venison donation program in 2014 was approximately $103,656, 90% for venison processing and 10% for advertising and administration.

Chronic Wasting Disease

CWD has been detected in wild deer in 18 of Wisconsin's 72 counties. Surveillance activities in 2014 focused on the long-term monitoring areas in southern Wisconsin, selected counties along the outer edge of the CWD affected area, and areas in central and northern Wisconsin where outlying positives have been detected. Approximately 5,460 deer were tested during 2014. Two more positives were detected in Adams County; bringing its total to four.



CWD prevalence continues to increase in southern Wisconsin. In northcentral Iowa County, prevalence in males ≥2.5 years old has risen to more than 30%.

In June 2015, a 7 year old doe from a breeding facility in Eau Claire County tested positive for CWD (not shown on map). This farm had 20 deer escape in May due to a tree falling across the fence. Most were recaptured, but 2 remained on the landscape as of July. Another breeding facility in Richland County tested positive in October 2014.

As of August 2015, 38 of Wisconsin's 72 counties have been designated as a "CWD Affected County" (3 counties added since map was produced). An affected county refers to all counties where CWD has been detected in wild or captive cervids and counties within 10 miles of CWD positives. Baiting and supplemental feeding are banned in the CWD Affected counties.

Electronic Harvest Registration

Electronic registration will be fully implemented in fall 2015. In fall 2014, over 14,000 hunters were invited to test electronic registration, resulting in over 10,000 deer registered by over 5,000 hunters. Of those, 3,000 who used e-registration were surveyed about their experience. The vast majority found it fast, easy and convenient. They also provided a number of recommendations to improve the system, many of which have

been incorporated into the final product. Hunters can resister their deer by phone or internet. Businesses that want to provide hunters with an in-person option can provide a phone or an internet connection, and can contact the department to be listed in an online directory. Registration of all deer harvest remains mandatory.

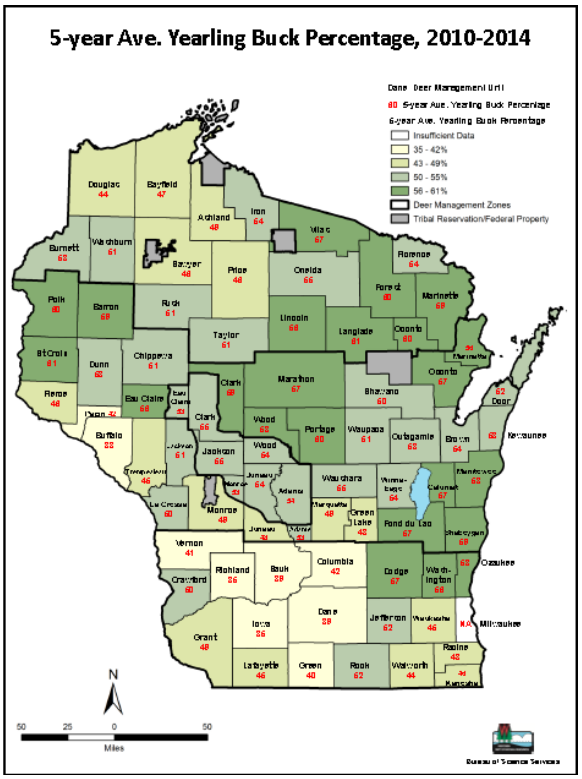
A pilot study was conducted in 2014 to assess the ability to age harvested deer at meat lockers. Biologists visited meat lockers in 8 counties and aged 2,200 deer, 90% had complete data recorded. Participating biologists mostly thought the process worked well and was an efficient way to age harvested deer. Generally yearling buck percentages were higher in meat locker samples than in samples from in-person registration stations while yearling doe percentages tended to be lower in meat locker samples, but these patterns varied among counties. We are planning to fully implement meat locker aging in 2015.

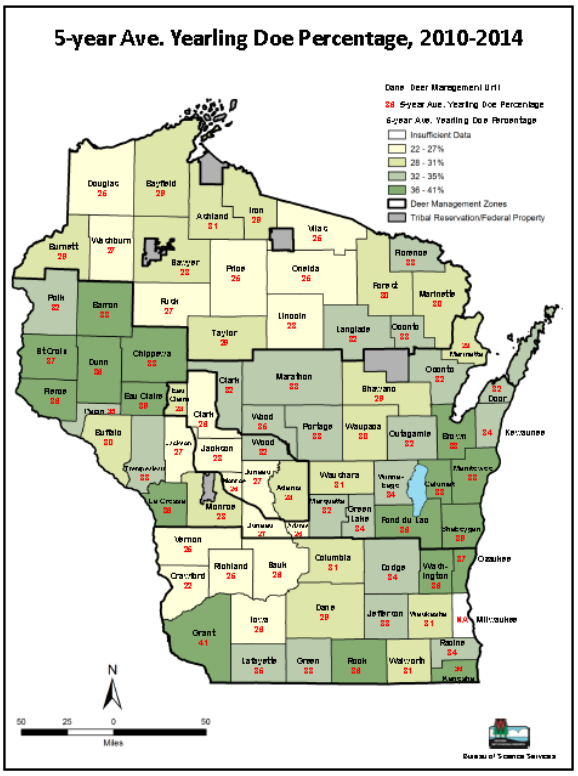
Deer Research Update

During the late spring of 2014, we initiated a new study to better understand geographic and temporal variation in fecundity and nutritional condition. Wildlife biologists assessed the pregnancy rates and fat reserves of deer killed in vehicular collisions. Specifically, biologists examined fat stores at various points within the deer carcass, including the rump, around the heart and kidneys, and in bone marrow. This statewide effort will help to better understand how weather and habitat impact the deer herd. Biologists examined 522 deer in 2014 and 459 in 2015. Biologists found that deer in farmland regions tended to have greater fat reserves than deer in the northern forest, confirming that habitat and winter weather impact deer condition. Over 90% of does, 2 years of age or older were found to be pregnant. In farmland regions, about 70% of these deer had twins or triplets. In the north, about half of these does had twins or triplets. Research is ongoing to learn more about how local habitat conditions and weather influence deer condition and reproduction. The current plan is for this to be an annual monitoring effort.

Biological Check Stations

Staff aged 16,193 deer (including deer sampled for CWD) during the opening weekend of the 2014 9-day gun season. The average percentage of yearlings among harvested bucks tends to be lower in southern and western counties than in eastern and northern counties. The average percentage of yearlings among harvested does tends to be lower in forest zone counties and in southwestern counties compared to other parts of the state. Counties in the western and eastern parts of the Central Farmland Zone generally have higher yearling doe percentages.





Relevant Links

WDNR Deer Hunting Webpage: http://dnr.wi.gov/topic/hunt/deer.html

WDNR Deer Hunting Regulations Booklet: http://dnr.wi.gov/files/PDF/pubs/wm/WM0431.pdf

2014 Wisconsin Big Game Harvest Summary: http://dnr.wi.gov/files/PDF/pubs/wm/WM0284.pdf

WDNR Chronic Wasting Disease Webpage http://dnr.wi.gov/topic/wildlifehabitat/regulations.html

Common health issues for Wisconsin deer: http://dnr.wi.gov/topic/wildlifehabitat/deerhealth.html

Deer Management Assistance Program (DMAP) http://dnr.wi.gov/topic/wildlifehabitat/DMAP.html

County Deer Advisory Councils (CDACs) http://dnr.wi.gov/topic/hunt/cdac.html

Wild Turkey Hunter Harvest, Brood Survey, & Turkey Observation Report – 2015

Forest Wildlife Program, Illinois Department of Natural Resources

Midwest Deer & Wild Turkey Study Group Meeting

September 1, 2015

Hunter Harvest

Spring 2015 turkey harvest (14103) was up 4.4% compared to that of the 2014 season (13513). The Youth Season portion (901; North, 547; South, 354) was up 15.4% compared to the 2014 tally (781). The 2014 fall archery total of 664 was up 5.6% compared with 2013 (629). The 2014 fall gun total of 444 was down 21.0% from 2013 (562). All turkey harvest is reported electronically.

Turkey Surveys

Brood Survey Procedure: Surveys were mailed to 2,291 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. Each survey consisted of 3 postcards (one each for the months of June, July, and August. Observers were asked to record sightings of hen turkeys and turkey broods for each survey period, and return the prepaid postcards at the end of each month. As of 9/1/2015, 411 cards had been returned.

The Poult/Hen Index is calculated as follows:

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

Deer Hunter Survey Procedure: 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:

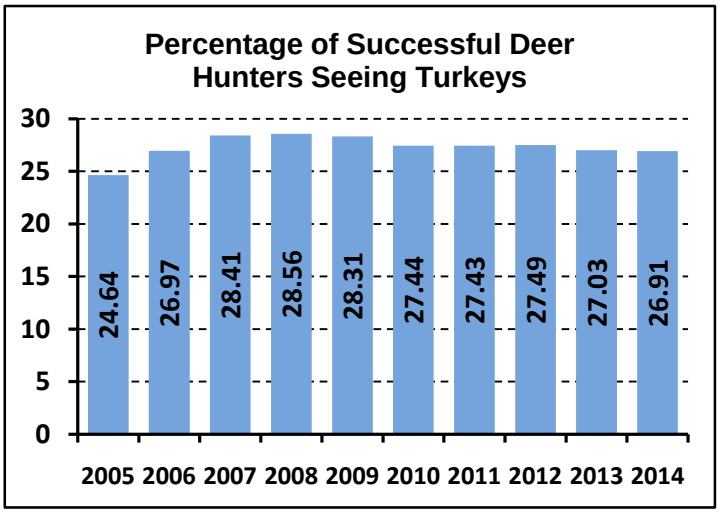
$$\text{\% Hunters Seeing Turkeys} = \frac{\text{Total \# of Hunters Seeing Turkeys}}{\text{Total \# of Successful Hunters}} \times 100$$

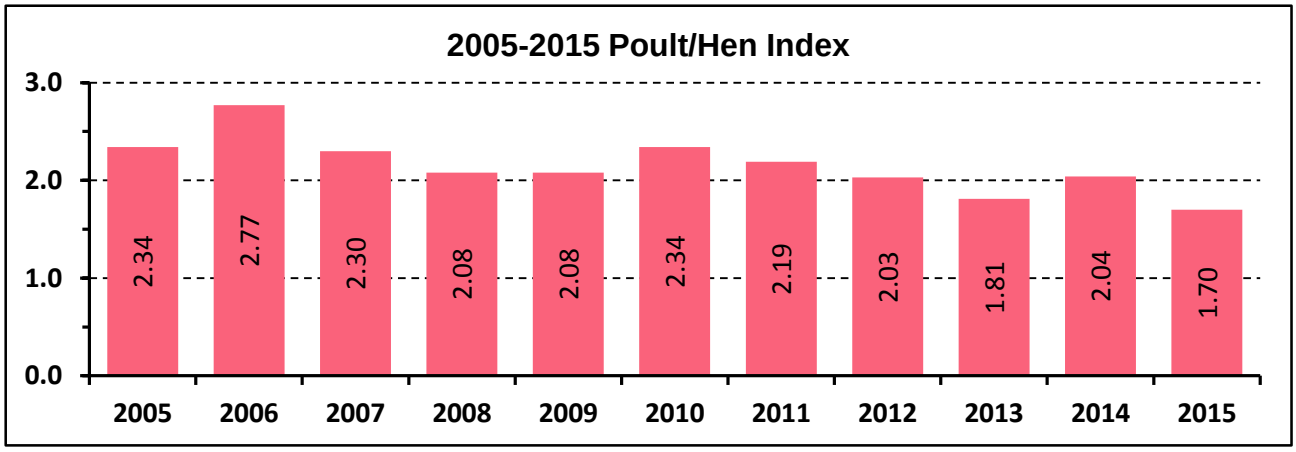
2015 Early Results: Poult/Hen Index by Management Region (as of 9/1/15)

Region	Hens w/ Broods	Hens w/o Broods	Poults Observed	Poult/Hen Index
1	205	275	902	1.88
2	44	198	174	0.72
3	70	74	330	2.29
4	116	222	490	1.45
5	447	675	2049	1.83
Totals	**882**	**1444**	**3945**	**1.70**

Significant Findings: The preliminary 2015 statewide poult/hen index of 1.70 remains well below the previous 10 year mean of 2.20, and the recent 5-year average of 2.08. The 2014 Deer Hunter Turkey Sighting Index of 26.91 is 2.29% below the previous 5 year average of 27.54.

YEAR	# Hens With/Without Broods	# Poults	Poults/Hen Index
2005	1,389	3,251	2.34
2006	1,746	4,834	2.77
2007	2,631	6,051	2.30
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
2014	2,897	5,918	2.04
2015	2,326	3,945	1.70
Prior 10-Yr Mean	2,295	4,981	2.20





2014 Deer Hunter Wild Turkey Sighting Information (All Deer Seasons)

Region	# Successful Hunters	# Hunters Observing Turkeys	Total # Turkeys Seen	Average # Turkeys Observed by Hunters Seeing Turkeys	Average # Turkeys Observed by All Hunters	% of Successful Hunters Seeing Turkeys
1	35920	9538	185846	19.48	5.17	26.55
2	4672	727	12060	16.59	2.58	15.56
3	14446	2726	41177	15.11	2.85	18.87
4	42218	12026	199732	16.61	4.73	28.49
5	48464	14198	298710	21.04	6.16	29.30
Statewide	**145720**	**39215**	**737525**	**18.81**	**5.06**	**26.91**

Preliminary Harvest Results of the 2015 Spring Turkey Season

County	2015	2014
Adams	389	300
Alexander	143	134
Bond	159	143
Boone	74	57
Brown	319	201
Bureau	171	135
Calhoun	201	196
Carroll	184	228
Cass	257	187
Champaign	26	15
Christian	52	46
Clark	170	125
Clay	165	197
Clinton	101	81
Coles	26	29
Crawford	135	132
Cumberland	59	42
DeKalb	13	16
DeWitt	52	41
Douglas	5	4
Edgar	83	80
Edwards	109	112
Effingham	109	84
Fayette	224	203
Ford	12	13
Franklin	187	169
Fulton	401	364
Gallatin	120	116
Greene	165	149
Grundy	49	36
Hamilton	223	228
Hancock	259	243
Hardin	159	138
Henderson	144	135
Henry	93	75
Iroquois	63	51
Jackson	280	322
Jasper	128	76
Jefferson	433	399
Jersey	184	142
Jo Daviess	601	594
Johnson	260	243
Kane	1	0
Kankakee	36	33
Kendall	18	16
Knox	246	208
Lake	3	0
LaSalle	114	106
Lawrence	110	109
Lee	96	62
Livingston	24	17
Logan	40	27

County	2015	2014
Macon	25	20
Macoupin	328	259
Madison	246	226
Marion	333	298
Marshall	69	53
Mason	143	124
Massac	99	81
McDonough	139	91
McHenry	68	65
McLean	54	53
Menard	114	66
Mercer	178	188
Monroe	162	151
Montgomery	183	189
Morgan	210	138
Moultrie	21	21
Ogle	191	150
Peoria	142	128
Perry	221	215
Piatt	7	6
Pike	341	298
Pope	366	352
Pulaski	81	121
Putnam	46	35
Randolph	300	326
Richland	116	108
Rock Island	186	173
Saline	143	122
Sangamon	106	85
Schuyler	306	190
Scott	65	59
Shelby	95	81
St. Clair	112	89
Stark	5	2
Stephenson	255	203
Tazewell	70	66
Union	312	301
Vermilion	119	115
Wabash	49	46
Warren	66	70
Washington	131	142
Wayne	271	299
White	120	135
Whiteside	152	172
Will	53	36
Williamson	280	286
Winnebago	164	143
Woodford	81	78
Statewide	**14999**	**13514**

Statewide Turkey Harvest, by Season, 1995 – 2015

	Youth	Spring	Fall Gun	Archery	Total
1995	--	6,918	885	163	7,966
1996	--	7,262	862	165	8,289
1997	--	7,134	976	277	8,387
1998	--	9,125	1,203	299	10,627
1999	--	10,061	1,460	470	11,991
2000	--	11,494	1,715	542	13,751
2001	75	12,840	1,427	537	14,879
2002	198	14,106	1,495	545	16,344
2003	346	14,631	1,368	555	16,900
2004	498	15,066	1,485	680	17,729
2005	450	14,962	1,120	692	17,224
2006	512	15,628	1,197	717	18,054
2007	570	14,197	1,161	754	16,682
2008	635	15,159	878	731	17,403
2009	617	15,487	760	821	17,685
2010	729	15,836	719	704	17,988
2011	748	14,373	638	678	16,437
2012	1300	14,641	596	736	17,273
2013	923	13,210	562	629	15,324
2014	781	12,732	444	664	14,621
2015	896	14,103			

INDIANA WILD TURKEY STATUS REPORT

39th Annual Midwest Deer & Wild Turkey Study Group Meeting,
Perlstein Resort & Conference Center, Lake Delton, WI, September 8-11, 2015

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

***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 - 2014

District wildlife biologists and conservation officers' record observations of wild turkey hens and poults during normal duty hours in July and August. The statewide mean production index of 2.9 total poults: total adult hens (PI) was a 45% improvement over the 2.0 PI reported in 2013 and significantly ($P > 0.05$) greater than the mean of 2.1 of the previous 5 years (2009-2013). Since 1993, the average PI has progressively declined, leveling off at a lower level indicative of a turkey population stabilizing post restoration **(Figure 1).** Annual fluctuations in the PI around the long term average are expected and characteristic of a stabilized population as it settles to a new level reflective of the suitable habitat conditions across the landscape. Climatically, the spring/early summer of 2014 had above normal precipitation and below normal temperatures, marking the 9th consecutive year of flooding events in various regions of the state associated with the nesting season in April-May or early brood rearing periods of June-July. Due to a significant loss of field employees and a need to increase the range of coverage across the state, we are in the process of developing an on-line turkey brood reporting system for 2016.

Roadside Gobbling Counts- 2015

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 30 March to 21 April, 2015 was 0.59 gobblers heard per stop (GI), 14% less than the 0.69 heard in 2014. Four new routes re-established in 2012 showed a 13% decrease in 2015. The 5-yr moving average, shows a general increase from 1987-2006, followed by a general decrease since the 2006 peak **(Figure 2).** The 2015 statewide gobbling index of 0.59 was not statistically different than the 5 yr-mean of 0.74 ($P > 0.05$) but was the lowest GI since 1998.

WILD TURKEY HARVESTS

Fall Season Results - 2014

The 10th modern day fall wild turkey hunting season in Indiana was held with statewide early and late archery portions (October 1-26, 2014 and December 7 – January 5, 2015; 57 days) and one combined shotgun and archery portion with regionally different length (5 days from October 15-19 in 7 northern Indiana counties; 12 days from October 15-26 in 43 west-central and southern Indiana counties). Hunters harvested 548 wild turkeys 67(-11%) less than the 615 bird harvest in 2013-14. The combined shotgun and archery portion of the season accounted for 53% of the harvest, archery hunters taking 58% of the total harvest, with 56% of the harvest occurring on weekends. Adult birds made up 72% of the harvest with a juvenile to adult ratio of 1:2.6. The proportion of adults in the fall harvest is relatively high and likely reflects a combination of low summer brood success, hunter selection for larger adult birds, and age determination errors. Counties harvesting at least 15 birds were Steuben (21), Harrison (20), Jefferson (19), Warrick (19), Dearborn (18) and Switzerland (18) and Greene (15); **Figure 3.** The web-based "Check-In-Game" harvest reporting system accounted for 69% of the 2014-15 harvest reports. During the first 10 years of fall hunting in Indiana, the mean annual harvest was 640 birds with an average of 8,771 hunters annually participating with an estimate mean success rate of 7.4%. The interest in fall turkey hunting in Indiana remains relatively low **(Figure 4; Table 1).**

Spring Season Results - 2015

Hunters harvested 11,583 wild turkeys in 89 of the 92 counties **(Figure 5)** during the 46th spring wild turkey season based on reports from 335 check stations (48% of the harvest records) with the remaining 52% of the harvest records from the web-based "Check-IN-Game" (50%) and tele-check (2%) systems implemented in 2012. The 2015 harvest was a 9% increase over the 2014 harvest of 10,582. Harvests in 26 counties exceeded 200 birds with 65 counties showing increased harvests. The majority of the birds was harvested in the early part of the season and the early morning hours. A total of 1,177 birds (10% of total harvest) was taken during the youth-only weekend prior to the regular season. The proportion of juvenile turkeys in the harvest was 21% with 46% 2-yr-olds, and 33% $\geq$ 3 yrs. The northern region, the largest region, supported 28% of the harvest, with 44% of the harvest occurring in the south-central and southeast regions **(Figure 6).** The estimated number of hunters afield was 59,412 in 2015, with an estimated hunter success of 20%. Annual harvest levels have leveled off in last 5 years in the range of 11,000 to 12,000 birds with the number of hunters in the field ranging from 56,000 to 60,000 **(Figure 7).** The 2015 harvest was the 6th highest spring harvest. **Table 2** is a historical summary of Indiana's spring turkey season parameters since the first modern day spring season in 1970.

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. Nuisance complaints are now more common than crop complaints on a year to year basis; most nuisance complaints involve "backyard" situations and wildlife feeding. We did have a unique complaint this year involving a small orchard of very short dwarf early ripening apples (fruit within 2-3 ft of ground level). Wild turkeys were supposedly knocking apples off trees and damaging the skin surface of some apples by pecking. After abatement measures were employed (mylar tape and bottle rockets), the orchard owner reported turkey use of the orchard diminished.

Other Chronic or Evolving Issues

The chronic issue of late spring season dates was much less contentious this year, perhaps because the breeding chronology the last 2 years has been much later (~2 weeks) than in previous years. Interest in a 2 bird bag in the spring has dropped off almost entirely with almost a decade of relatively poor production.

New Regulations

The firearms (shotgun) portion of the fall season will be extended in northern Indiana to 12 days, making the length of the firearms portion the same for both the southern and northern parts of the fall hunting range.

Figure 1. Wild Turkey Production - Indiana

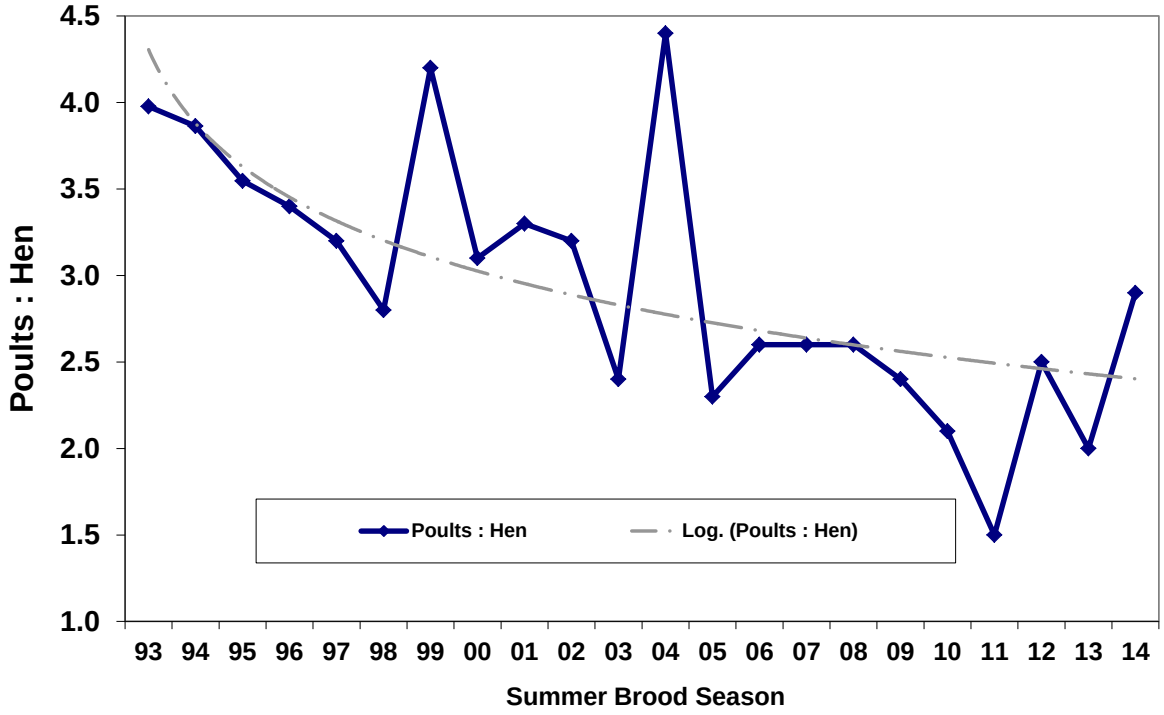


Figure 2. Roadside Gobbling Indices

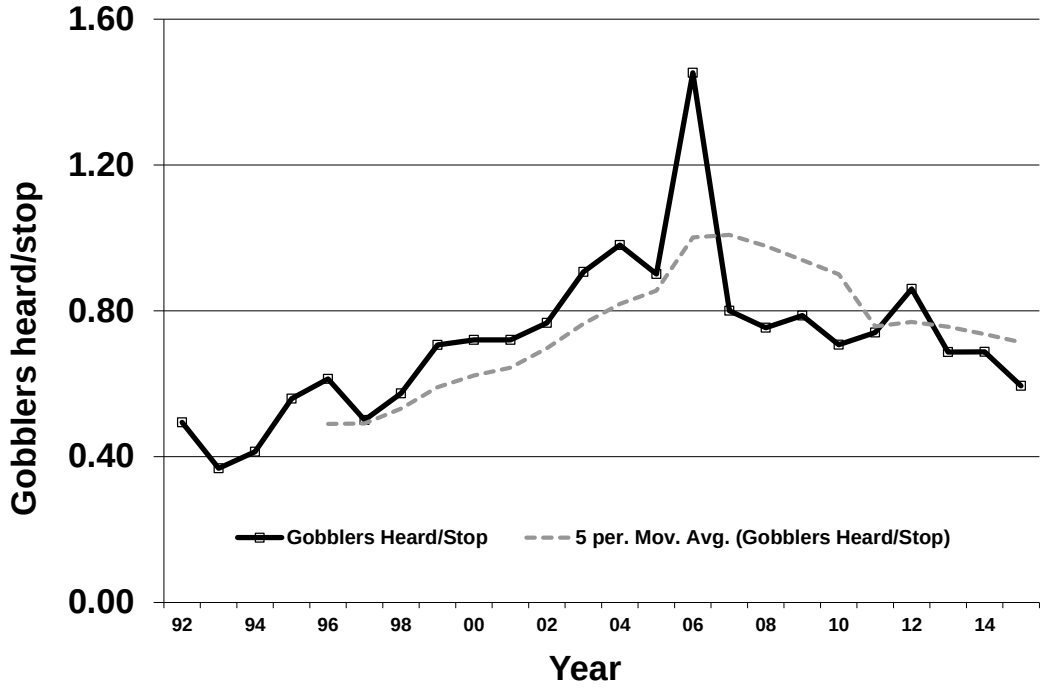


Figure 3. 2014-15 Fall Turkey Harvest

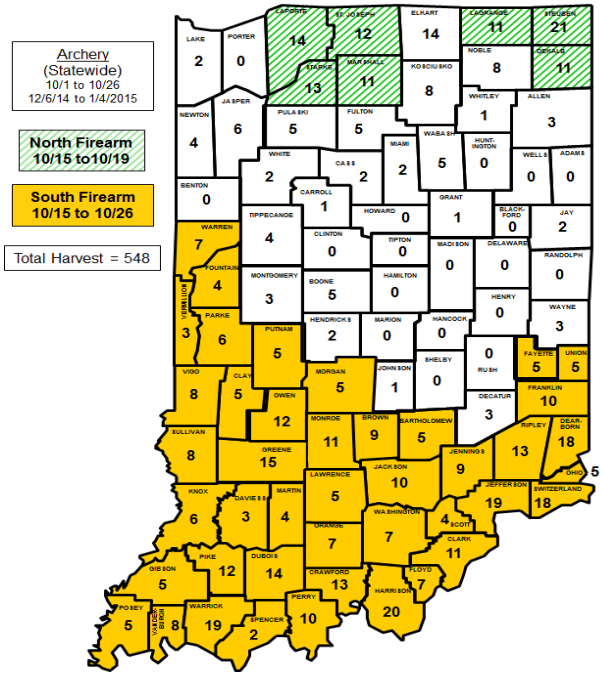


Figure 4. Fall Wild Turkey Harvests

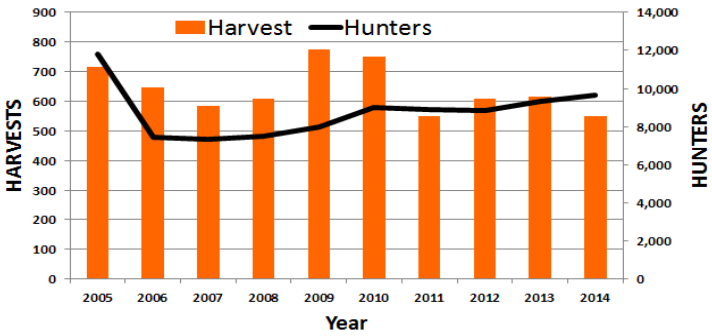


Table 1. Indiana Fall Wild Turkey Season Summary 2005 to 2014.

	YEAR									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Annual Harvest	716	646	585	610	773	751	549	610	615	548
Counties Open to Archery Hunting Only	60	74	74	74	74	92 (ALL)	92	92	92	92
Days of Archery Only	18	17	16	14	20	61	65	52	45	56
Counties Open to Shotgun and Archery	26	26	26	34	34	43S/7N	43S/7N	43S/7N	43S/7N	43S/7N
Days of Combined Shotgun and Archery	5	5	5	5	5	12S/5N	12S/5N	12S/5N	12S/5N	12S/5N
Statewide Fall/Spring Ratio in %	6%	5%	5%	5%	6%	6%	5%	5%	5%	5%
County F:S Ratios (range of values)*	0-15%	0-17%	0-18%	0-11%	0-17%	0-12%	0-25%	0-25%	0-25%	0-63%
No. Resident Fall Licenses Sold	2,225	1,682	1,557	1,689	2,054	2,591	2,476	2,411	2,824	2,890
Estimate of Fall Turkey Hunters**	11,787	7,455	7,312	7,493	7,955	8,980	8,887	8,849	9,332	9,660
Estimate of Fall Hunting Success	6%	9%	8%	8%	10%	8%	6%	7%	7%	6%

* High side of range related to counties with low spring harvests e.g., 1 fall/4 spring

** Estimate based on rough extrapulation of particiaption rates of approximately 43,000+ lifetimers, 38,000+ youth hunters, <30 nonresidents, and an undetermined but license exempt landowners/active military.

Figure 5. 2015 Spring Turkey Harvest

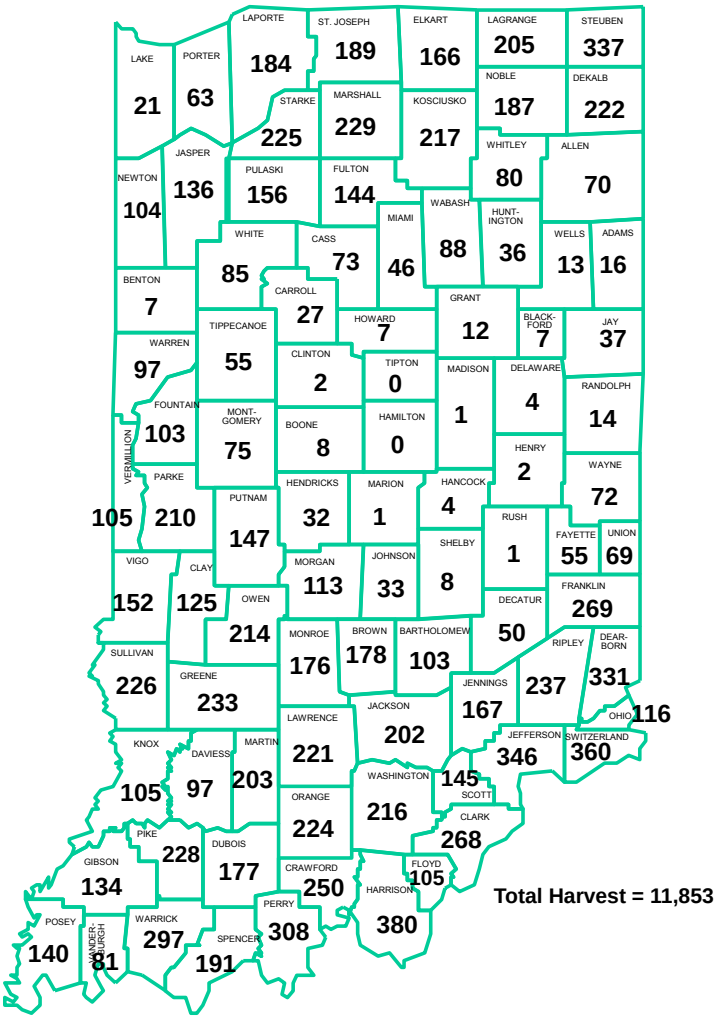


Figure 6. 2015 Spring wild turkey harvest and age structure by region.

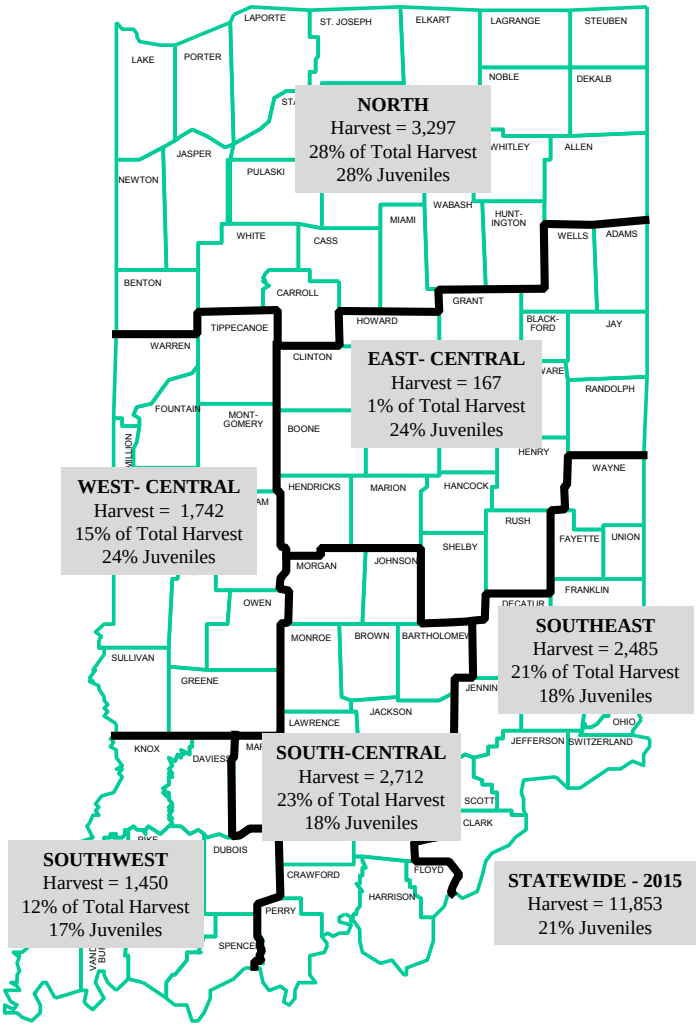


Figure 7. Indiana Spring Turkey Seasons

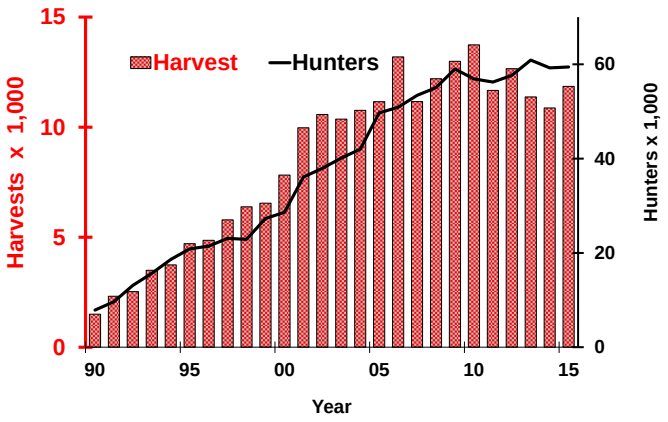


Table 2. Indiana's spring wild turkey hunting seasons, 1970 to 2015.

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	***40,801***	***28,615***	7,822	***27%***
2001	4/25-5/13	19	74	***43,815***	***36,103***	9,975	***28%***
2002	4/24-5/12†	19	90	44,333	37,919	10,575	28%
2003	4/23-5/11	19	90	***48,857***	***40,110***	10,366	***26%***
2004	4/21-5/9	19	90	***50,839***	***41,996***	10,765	***26%***
2005	4/27-5/15	19	88	***50,839***	***49,684***	11,159	***22%***
2006	4/26-5/14	19	88	***67,290***	***50,880***	13,193	***26%***
2007	4/25-5/13††	19	91	69,861	53,402	11,163	21%
2008	4/23-5/11	19	91	***71,052***	***55,022***	12,204	***22%***
2009	4/22-5/10	19	92	***75,161***	***59,000***	12,993	***22%***
2010	4/21-5/9	19	92	***73,089***	***56,891***	13,742	***24%***
2011	4/27-5/15	19	92	***72,323***	**56,220**	11,669	**21%**
2012	4/25-5/13	19	92	***71,836***	***57,631***	12,655	**22%**
2013	4/24-5/12	19	92	***74,966***	***60,889***	11,374	**19%**
2014	4/23-5/11	19	92	***73,279***	***59,237***	10,872	**18%**
2015	4/22-5/10	19	92	***73,462***	**59,412**	11,853	**20%**
2016	4/27-5/15	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 ≥1 day and since 1986, the number of hunters incldes an estimate of license exempt landowners or military hunters on active leave particpating in the spring season.

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

†† 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

Lake Delton, Wisconsin September 8th – 11th, 2015

Jim Coffey, Forest Wildlife Research Technician
IA DNR Chariton Research Station, 24570 US HWY 34, Chariton, IA 50049
james.coffey@dnr.iowa.gov 641-774-2958

STATUS REPORT SUMMARY:

Gun/bow combo licenses	**Licenses issued** [a]	**Harvest totals** [a]	**% Hunter numbers >1 License**	**Success rates (per lic.)**	**Season dates**	**License fees**
Resident Fall 2013	6,164 (+2%)	755 (+7%)	9%	10.1%	13 Oct – 5 Dec	Hunting fee: $19.00 Habitat fee: $13.00 Turkey lic. fee: $24.50 Total fees: $56.50
Youth Season (< 16) Spring 2014	5,471(+8.7%)	1,302 (+9%)	One license/youth	26%	4 Apr - 12 Apr	
Resident - Spring 2014	37,602 (-3%)	8,285 (+6%)	23.3%	22%	13 Apr - 16 Apr 1 Apr - 21 Apr 22 Apr - 28 Apr 29 April – 17May	
Nonresident Spring 2014	1,918 (+1%) (83% available sold)	784(+4%)	One license/ non-resident	40%		Hunting fee: $112.00 Habitat fee: $13.00 Turkey lic. fee: $102.00 Total fees: $227.00
Bow only Licenses						
Resident Fall 2013	2,343 (+5%)	135 (+10%)	5%	5.7%	1 Oct – 5 Dec 22 Dec - 10 Jan	Hunting fee: $19.00 Habitat fee: $13.00 Turkey lic. fee: $24.50 Total fees: $56.50
Resident - Spring 2014	6,886 (+7%)	1090 (+3%)	11%	16%	13 Apr - 17 May	
Totals						
Fall 2013	8,507 (+3%)	890 (+26%)	9%	10%		
Spring 2014	51,143 (0.5%)	11,405 (0%)	25	22%		

[a] parentheses indicates percent change from previous year

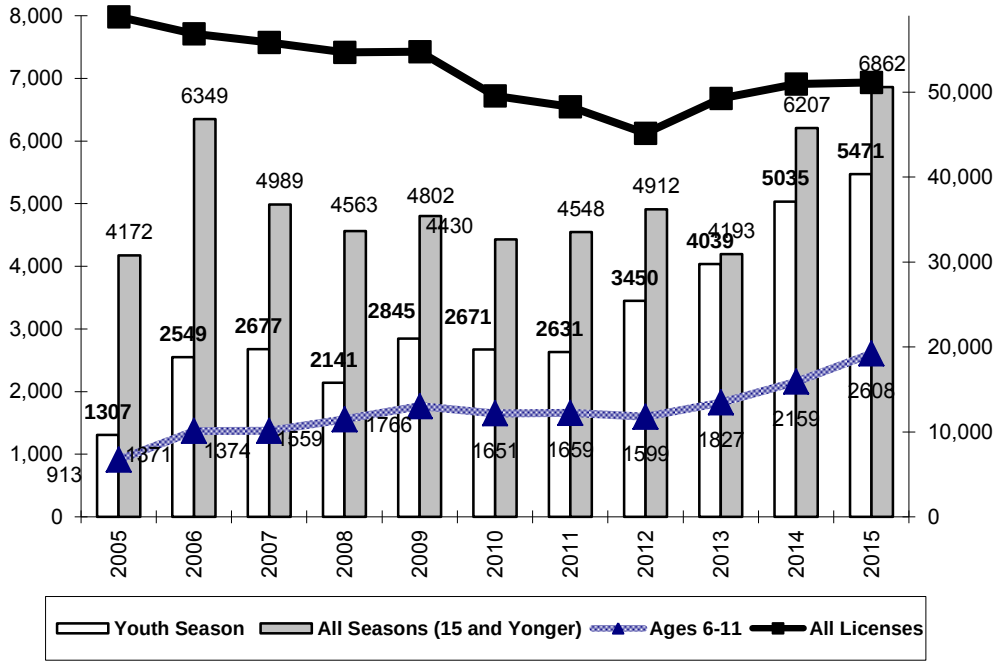


Figure 1. Iowa Spring Turkey License issue by Age, 2005-2015.

YOUTH TURKEY HUNTING

Iowa's 11th youth spring turkey season was held April 4-12, 2015. 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 5,471 youth purchased licenses for the 2015 season (Fig. 1). Youth season license sales increased by 436 from 2014.

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 continued to fluctuate each year since 2005 with an upward trend since 2010, only dipping in 2013 (Fig. 1). Unfilled youth licenses became valid for any other spring season in 2014.

BOWHUNTER SURVEY:

2014 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 December 6, 2014. This was the eleventh year of the survey, which was designed jointly with William R. Clark, emeritus Professor at Iowa State University. The two primary objectives for this survey are to: 1) provide an independent supplement to other deer data collected by the DNR; and 2) develop a long-term database of selected furbearer data for monitoring and evaluating an index of species activity (rate of species observation). 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 inbow 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 2014 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 2014. Our goal was to select approximately 999 bowhunters in each of Iowa's 9 climate regions. Each climate region contains approximately 11counties, 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 randomly selected from a core group of avid bowhunters who had previously indicated an interest in participating in this survey. If fewer than 91core 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 of999 participants. A total statewide sample of 8,991 bowhunters was selected for participation. Of surveys mailed, 129 were either returned due to USPS address issues or hunters indicated they did not hunt this year, making the final statewide sample 8862.

Responses were obtained from 1,560 bowhunters who recorded their observations during 20,545 hunting trips, yielding 67,308 hours of total observation time (3.28 ± 0.057 hours/trip; mean ± 95% CL). Bowhunters reported a median of 13 trips during the 67-day season. Regionally, the number of bow hunting trips (and hours hunted) ranged from 1,615 (4,736 hours)

in northwest Iowa (Region 1) to 3,013 (11,168 hours) in east central Iowa (Region 6). The raw survey response rate was 17.6%.

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 high: confidence limits were generally within ±15% of the mean estimate. However, for less common species, such as badgers, bobcats, gray fox, and otters, precision was very low and there was considerable uncertainty in the mean estimate.

A comparison of results from 2013 and 2014 suggests that the number of total deer observed/1,000 hours increased or stayed the same across all nine regions of Iowa. Likewise, turkey observations generally increased or stayed the same across all regions of Iowa. Bobcat observations/1,000 hours remain very low in regions 1,2,3,5, and 6, while regions 4, 7, 8, and 9 appear to have a consistent observation rate with previous years.

We at the DNR thank all hunters who participated in the 2014 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.

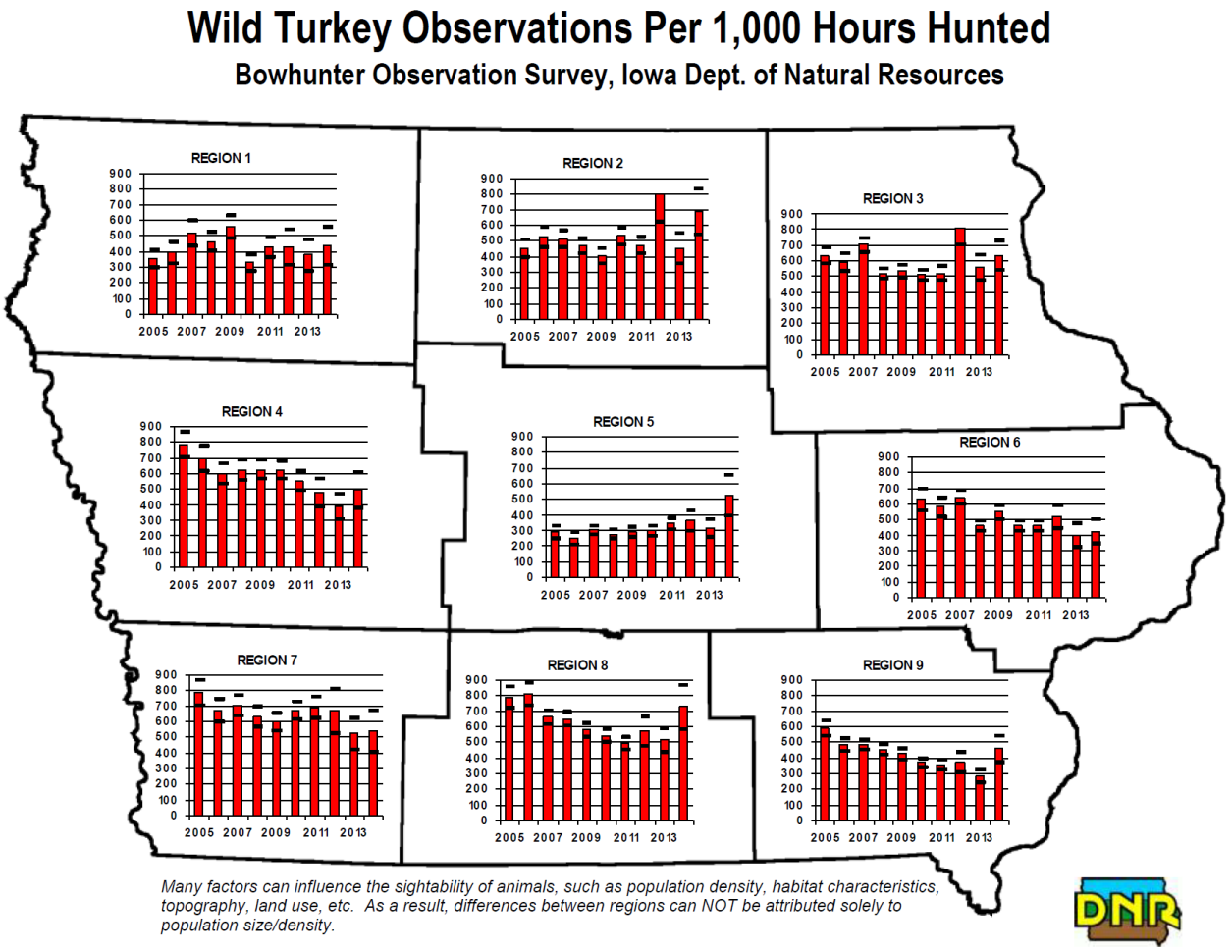


Figure 2. Bowhunter observation survey, wild turkey observations per 1,000 hrs, 2005-2014.

TURKEY BROOD SURVEY:

Due to poor survey response the 2014 brood survey did not provide enough observations for any estimates to be calculated. The 2015 survey period has just concluded (July 1-August 31). This year a random sample of turkey hunters were contacted with a traditional post card survey. In addition a sample of email addresses, captured from the DNR electronic license system, were sent a notification to respond to an online survey. The survey was also made available to the general public through the DNR webpage. Anyone could submit observations to the online version of the brood survey.

It was generally felt by staff that the 2014 hatch was better statewide than it has been in many years. Early nesting conditions allowed for greater success in nesting and poult survival. A slight increase in fall hunting license sales may be indicative or more birds on the landscape.

FALL 2014 HARVEST SURVEY

Fall hunting was allowed in the entire state in 2014, which was the 10th consecutive year (Fig. 4). Fall turkey hunter success rates remained the same in 2014 from 2013 (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) was 6,164 for the 54-day season that ran from 13 October through 5 December 2014. An additional 2,343 archery-only licenses were issued for a season that ran from 1 October through 5 December 2014 and 22 December 2013 through 10 January 2014. Hunter success rates varied from 27% in zone 8 to 10% in Zone 9 (Fig. 4). Archery only licensed hunters reported a harvest of 135 turkeys in 2014 which increased 10% from the 2013 archery-only license harvest. The 6% success rate for 2014 archery only licenses was similar to the previous year's success rate. Nonresidents have not been permitted to hunt fall turkeys in Iowa since 1990.

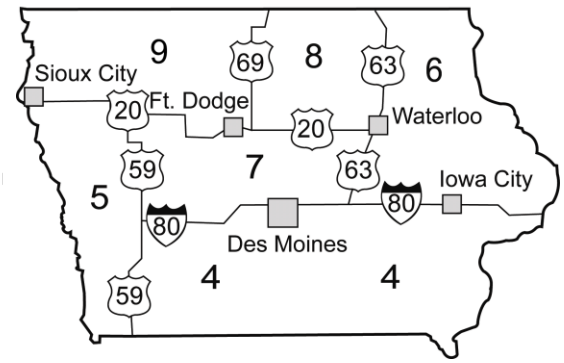


Figure 4. Fall turkey hunting zones in Iowa, 2014.

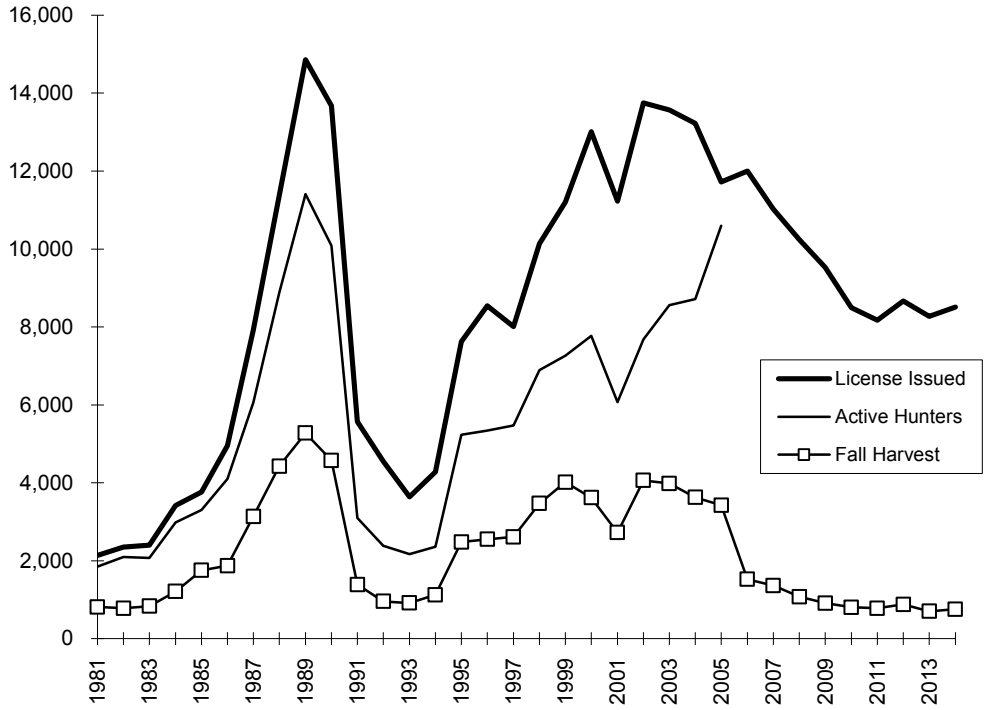


Figure 5. Iowa fall turkey hunting statewide estimates, 1981-2014

SPRING 2015 HARVEST SURVEY

Iowa's 42st modern spring hunting season recorded a increase in licenses sold (51,143) and an increase in turkeys reported harvested (11, 405) in 2015 (Fig. 6). This was the 26th year the entire state was open to spring turkey hunting. The 44-day season (4 April through 17 May, 2015) was partitioned into 5 separate seasons: a 9-day youth-only season, and 4 regular seasons (4, 5, 7, and 19-day seasons). There was an increase in the number of licenses sold (5,471) for the youth-only season with 436 more youth licenses sold than 2014 (Fig.1). The 4-season format, with an unlimited license quota (maximum of 2 licenses per hunter) for all the periods, resulted in 36,857 resident shotgun licenses issued. An additional 6,421 archery-only licenses were issued. Archery-only licenses harvested 1,090 turkeys, resulting in a 16% success rate in 2015.

Twenty-two percent of the resident hunters were successful in harvesting a gobbler in 2015 (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 to 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 25th spring that non-residents were allowed to hunt turkeys in Iowa. Quotas filled in zone 4 (seasons 2,3,4), zone 5 (seasons 2,4), Zone 6 (season 4), and Zone 8 (seasons 3,4) in 2015, leaving 380 licenses available. Non-resident hunters harvested 787 turkeys. Non-residents reported more turkeys harvested per hunter than residents in harvesting a spring gobbler (41% versus 22%, respectively).
In spring of 2015, known jakes (spurs < ½") harvested were 21% of the total harvest (12% the previous year). Turkeys harvested with spurs ½" – ¾" were 22% (27% in 2014) of the total harvest. The majority (56%) of turkeys harvested had spurs > ¾".

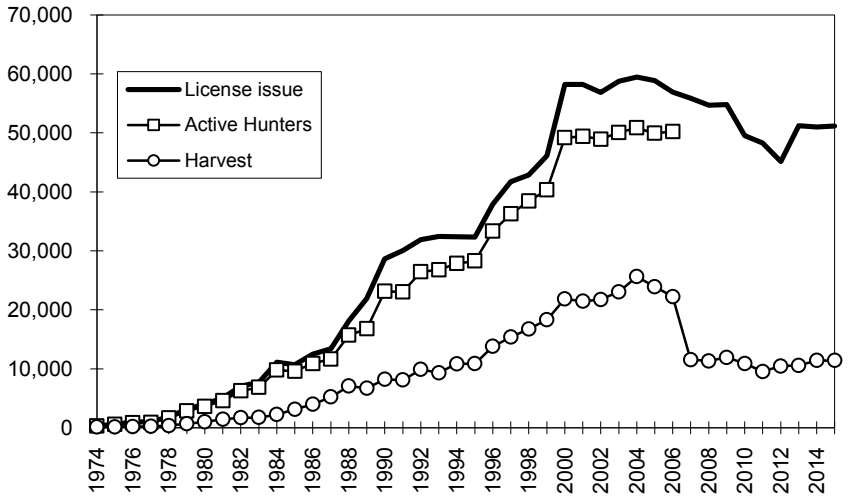


Figure 6. Iowa spring turkey hunting statewide estimates, 1974-2015. Beginning in 2007, the harvest estimates are based on mandatory harvest reporting instead of mail surveys.

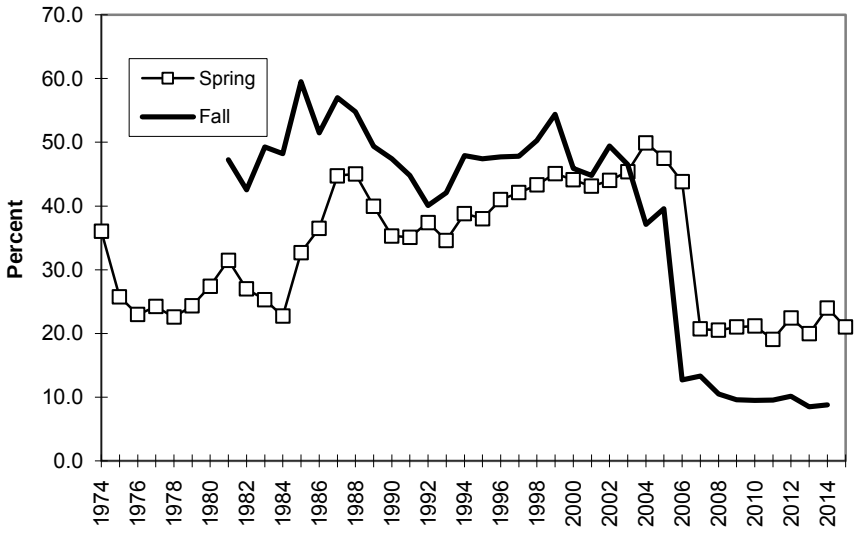


Figure 7. Iowa fall and spring turkey harvest statewide success rates, 1974-2015. Beginning in 2006, survey estimates are based on mandatory harvest reporting instead of mail surveys.

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. 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. With restorations complete in Iowa, the focus has shifted to managing the timber resource. As part of the North American Turkey Plan Iowa has designated focal areas across the state for emphasis (Fig. 9). National Wild Turkey Federation dollars will be focused for land acquisition and habitat improvement in these areas.

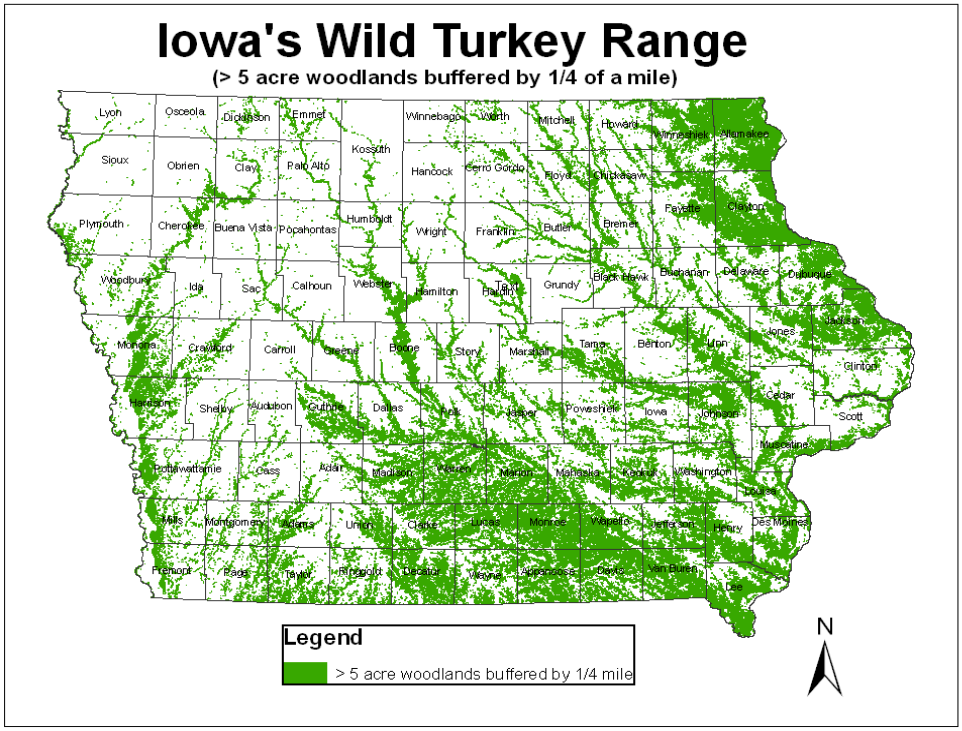


Figure 8. Iowa's wild turkey range (5 acre and greater woodlands buffered by ¼ mile).

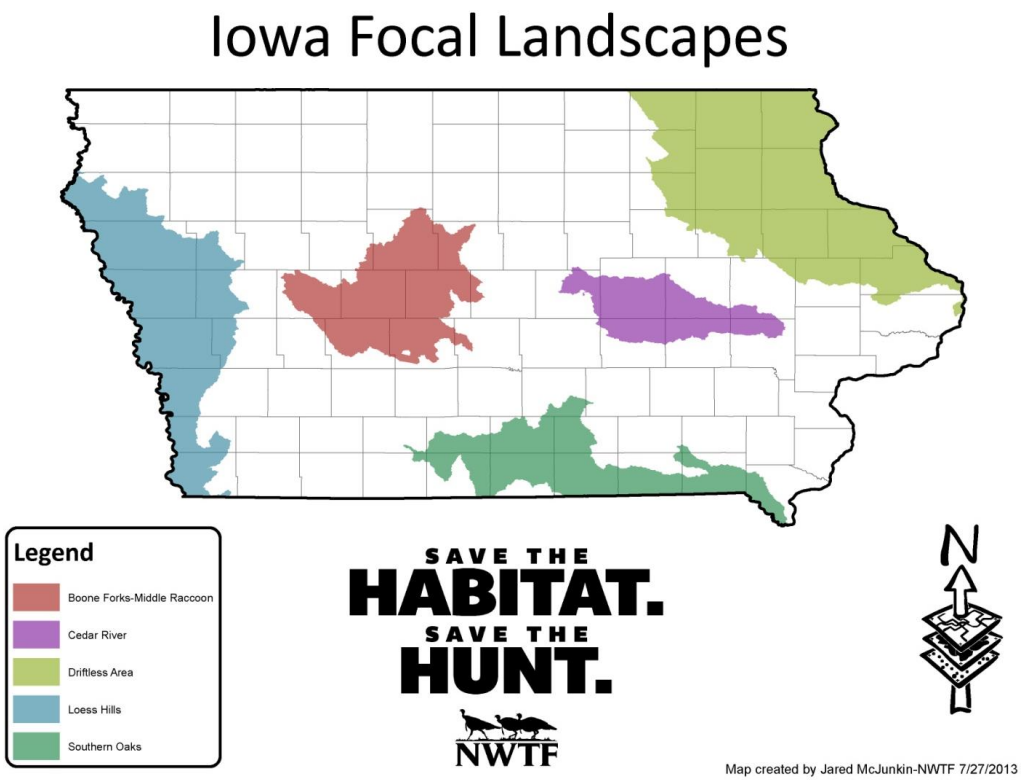


Figure 9. Iowa NWTF focal areas habitat and land acquisition projects.

KANSAS WILD TURKEY UPDATE

MIDWEST DEER & WILD TURKEY STUDY GROUP

POTOSI, WI

SEPTEMBER 8-11, 2015

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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 3rd weeks of January, April, July, and the 2nd 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). The declines in spring population densities observed in western units observed during the drought have stabilized to slightly improved, all 6 each management units displaying at least minimal increases in spring densities this year (Figure 2).

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 30% below the previous 10-year average during 2015 and 50% lower than the previous year. The indices indicate that production was below the 10-year average in every region of the state (Figure 3). The inferior production is likely due to above normal precipitation that the state received this year. While western regions were recovering from drought and needed this moisture to provide adequate nesting cover, timing of this rainfall likely impacted overall success.

Employees of the KDWPT also record observations of pheasant, bobwhite, and turkey broods from the 3rd week of July through the 4th 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. The statewide poult:hen ratios were 1.7 and 1.7 for 2014 and 2015, respectively. The regional ratios for 2015 were as follows: Northcentral (1.7), Northeast (1.6), Northwest (0.2), Southcentral (2.6), Southeast (1.8), and Southwest (1.1).

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 2014 turkey season was open for 112 days across 2 segments in 5 of the 6 turkey hunting units. 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 2015 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 (Table 1). 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 10% (spring) or 20% (fall) 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 >45,000 hunters and fall turkey permits to >10,000 hunters (Table 2). Hunters purchased a record high 74,609 carcass tags for the most recent spring season (2015) and 12,976 for the most recent fall season (2014; Table 2). Non-residents account for 33.0% of Kansas' spring hunters and 19.2% of the fall hunters. Harvest has averaged around 33,000 and 3,700 over the last several spring and fall seasons, respectively (Tables 1). In the spring of 2015 we estimated a record spring harvest at 36,758 birds. The most recent figures indicate that the percentage of hunters harvesting at least one bird was down slightly at 54% (2015) and 36% (2011) for spring and fall seasons, respectively.

Regulation Changes

In 2013 the commission approved staff recommendations to change the season structure to allow a youth only weekend in the spring prior to the archery season. This was delayed one year and took effect in the spring of 2015.

The turkey committee uses an adaptive harvest management strategy to make bag limit recommendations. Triggers are based on success of residents on their primary permit and structured to maintain a minimum of 55% success in each unit. No units eclipsed the triggers this year and as such no changes were recommended to the commission.

In recent years fee fund balances have fallen well below target levels, in response the commission is considering a fee fund increase this year. Kansas has not had any license fee increase since 2002 and permits for turkey have not increased since 1980. The proposal would increase resident turkey permits from $22.50 to $27.50 and nonresident permits from $32.50 to $52.50. Proposed increase would move the cost of a resident hunting license from $20.50 to $27.50 and a Non- resident hunting license from $72.50 to $97.50. Game tags and combination permit are recommended to change as well. Given the requirement to possess a general hunting license to pursue any in Kansas this will bring the total cost for residents to $55 and non-residents to $150 to hunt turkeys.

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 2015, slightly >1 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 ~$2.25/acre The spring turkey WIHA program is still expanding in the state and enrollment for the spring 2015 season was >242,000 acres. Landowners enrolled in the spring WIHA program received an average of ~$1.75/acre and allowed access to their property from 1 April – 31 May 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 >3,200 acres on private lands for spring 2015. With this program including private and public land hunts provided 194 individual special hunt permits for spring 2015.

Kansas was the recent recipient of a Voluntary Public Access Grant (VPA) From the U.S. Department of Agriculture. Through this grant KS will have 2.7 million dollars to enroll additional acres into the existing WIHA program. Through this project contracts are targeted at property that is recently enrolled into CRP and enrolled into long-term contracts paid up front. Through this the intent is to pair access with quality habitat and reduce annual turnover of WIHA acres. When appropriate habitat exists contracts will be enrolled through the end of May to provide turkey hunting opportunity.

Trapping and 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 2014-2015 the field staff identified 3 suitable sites for translocations but no birds were moved. The department did capture 44 male turkeys (19 Adults and 25 Juveniles) 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, 2011-2015.

	Spring			Fall		
Year	Season Dates	Total Harvest	Success[a] (%)	Season Dates	Total Harvest	Success[a] (%)
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[c]	NA
2013	Archery-only: Apr. 1-9 Youth/Disabled: Apr. 1-9 Regular: Apr. 10 – May 31	33,925	57	Seg. 1: Oct. 1– Dec. 3 Seg. 2: Dec. 16 – Jan. 31 (14)	NA	NA
2014	Archery-only: Apr. 1- 8 Youth/Disabled: Apr. 1- 8 Regular: Apr. 9 – May 31	31,988	55	Seg. 1: Oct. 1– Dec. 2 Seg. 2: Dec. 15 – Jan. 31 (15)	NA	NA
2015	Youth/Disabled: Apr. 1- 14 Archery-only: Apr. 6-14 Regular: Apr. 15 – May 31	36,,758	54	Seg. 1: Oct. 1– Dec. 1 Seg. 2: Dec. 14 – Jan. 31 (15)	--	--

[a] Success was the percentage of active hunters harvesting ≥ 1 bird
[b] Percentage of harvest composed of females
[c] NA = not available, data has been collected

Table 2. Number of issuances sold for Kansas' spring and fall seasons, 2014-2015.

Permit[a]	Spring (2015)	Fall (2014-2015)
Resident permit ($22.50)[b]	16,812	5,593
Non-resident permit ($32.50)	11,972	1,965
Resident game tags ($12.50)	8,174	1,951
Non-resident game tags ($22.50)	8,868	652
Resident combo ($27.50)	3,815	NA
Non-resident combo ($47.50)	2,560	NA
Resident Landowner/tenant permit ($12.50)	4,056	1,641
Non-resident Landowner/tenant permit ($12.50)	133	52
Resident Landowner/tenant combo ($17.50)	812	NA
Non-resident Landowner/tenant combo ($17.50)	22	NA
Resident youth permit ($7.50)[c,]	4,126	774
Non-resident youth permit ($12.50)[c,]	940	128
Resident youth game tags ($7.50)	1,420	177
Non-resident youth game tags ($12.50)	595	41
Resident youth combo ($12.50)	1,063	NA
Non-resident youth combo ($22.50)	217	NA
Total Carcass Tags	74,609	12,976

[a] Hunters must also buy an annual small game license (resident = $20.50, non-resident = $72.50, & non-resident under 16 = $37.50)
[b] The price of all permits includes an agent fee ($1.00) and processing fee ($1.50).
[c] Individuals ≤16 are considered youth.
[d] Non-resident youth had to purchase a regular price non-resident permit.
[e] Price reduced starting with the spring 2014 season.
[f] The total number of carcass tags does not equal the sum of the issuances because the combinations include two carcass tags.

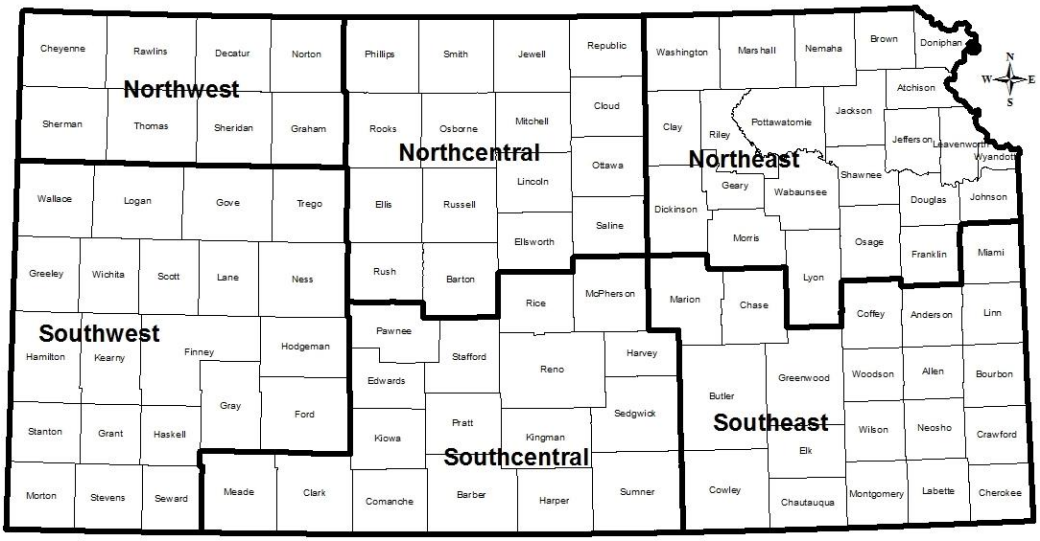

Figure 1. The 6 wild turkey management regions of Kansas, 2014-2015.

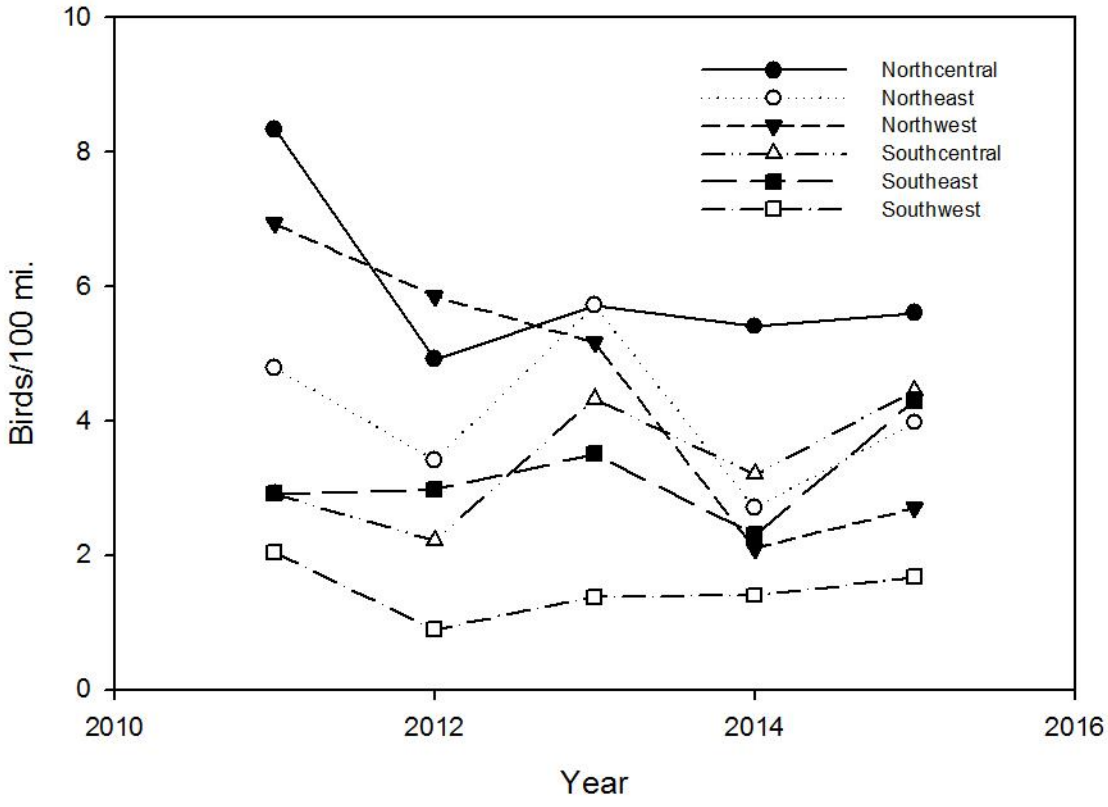

Figure 2. The spring rural mail carrier index (birds/100 mi. traveled) to wild turkey populations in the 6 Kansas management regions, 2011-2015.

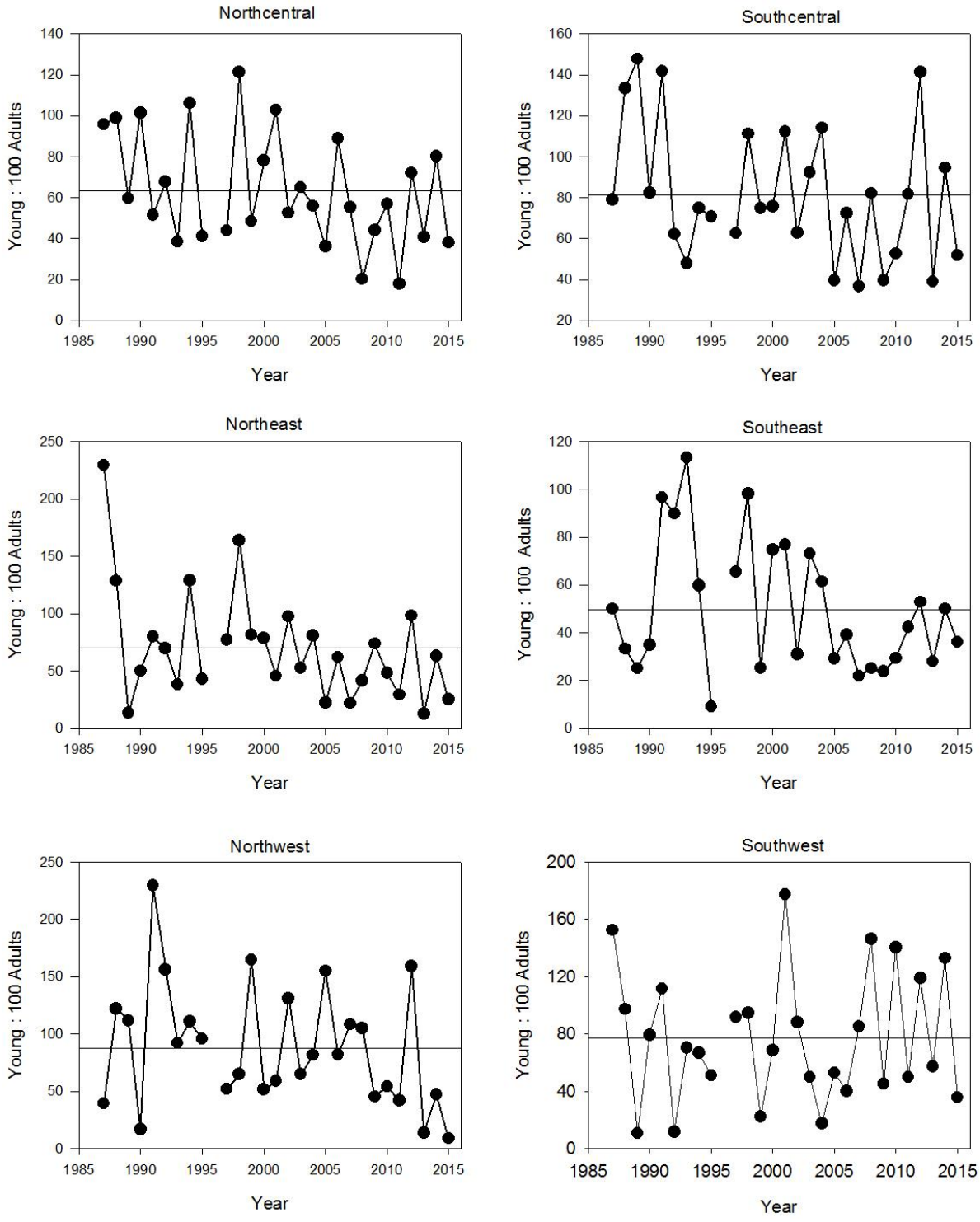

Figure 3. Wild turkey production indices (young : 100 adults) for the 6 Kansas turkey management regions, 1986-2015. The long-term mean production index is depicted as a solid line.

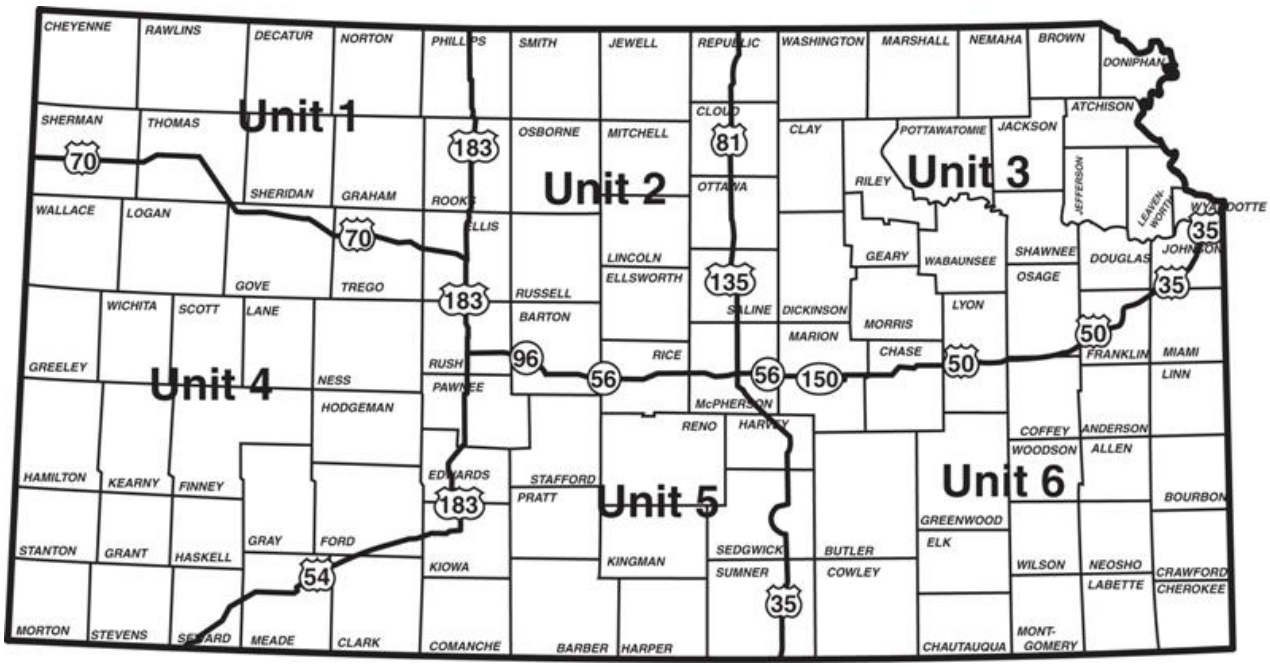

Figure 4. The map depicts the hunting units for Kansas' spring and fall 2014 turkey seasons. A spring turkey permit could be purchased over-the-counter for Units 1, 2, 3, 5, and 6. Five hundred spring permits were issued to residents for Unit 4 through a pre-season drawing and they were also valid in adjacent units. An additional spring game tag could be purchased over-the-counter and was valid in Units 1, 2, 3, 5, and 6. A fall turkey permit can be purchased over-the-counter for Units 1, 2, 3, 5, and 6. Up to 3 additional fall turkey game tags can be purchased and will be valid only in Unit 2. There will be no fall turkey hunting authorized for Unit 4.

Michigan Department of Natural Resources
Wildlife Division Report No. 3592
October 2014

2013 MICHIGAN FALL TURKEY HUNTER SURVEY

Brian J. Frawley

ABSTRACT

A survey of turkey hunters was conducted following the 2013 fall hunting season to determine turkey harvest and hunter participation. Overall, 31,823 people purchased 33,313 licenses in 2013 (versus 30,620 people purchased 32,271 licenses in 2012). The number of licenses sold in 2013 increased 3% from 2012. Excluding the Mentored Youth Hunt licenses, 20,078 hunters purchased 21,483 licenses in 2013, which was nearly 5% fewer licenses sold than in 2012 (21,001 hunters purchased 22,580 licenses in 2012). Most license buyers (97%) purchased a single hunting license. During the 2013 fall hunt, an estimated 17,761 hunters harvested about 5,430 turkeys. Hunter numbers and their hunting effort increased significantly by 14% and 16%, respectively, from 2012. The 2013 harvest decreased 10% from 2012 (6,042 turkeys harvested in 2012). Hunter success was 28% in 2013 (versus 36% success in 2012). About 59% of the hunters in 2013 rated their hunting experience as excellent, very good, or good (versus 61% satisfaction in 2012). The number of turkey harvested and hunting success in 2013 decreased significantly from 2012; however, hunter satisfaction did not change significantly from 2012.

INTRODUCTION

Fall wild turkey (*Meleagris gallopavo*) hunting seasons were implemented in Michigan to help maintain turkey populations at levels matching biological and social carrying capacities. In 2013,11 management units totaling about 44,943 square miles were open for fall turkey hunting during September 15 through November 14 (Figure 1). The area open to hunting in 2013 increased by 25% from 2012 (an additional 8,865 square miles), and three new management units were created (units J, T, and WA).

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

IC2042 (10/02/2014)

Most 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 501 without going through the lottery. Applicants could choose one hunt area for the drawing. Any licenses available after the drawing was completed were made available on a first-come, first-served basis to applicants unsuccessful in the drawing. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses were made available to nonapplicants. Licenses were available for six management units (units HA, J, L, M, W, and YY) after the drawing was completed (Table 1). Hunters could purchase one of these remaining licenses per day until quotas were met.

Licenses for Hunt 410 (Unit HA) and Hunt 501 (Unit YY) were valid on private lands only, while licenses for hunts 401, 402, 403, 404, 405, 406, 407, 408, and 409 (units G, GB, GC, J, L, M, T, W, and WA) were valid on either land ownership types (i.e., public or private land). Hunters were allowed to take one turkey of either sex with the harvest tag issued with each license. Turkey could be harvested with a shotgun, crossbow, or archery equipment. Hunters 12-years-old or older could use a crossbow 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.

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.

The Pure Michigan Hunt (PMH) was a unique multi-species hunting opportunity offered for the first time in 2010. 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 fall turkey hunting licenses were valid for all areas open for hunting turkey.

The Natural Resources Commission and DNR have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest surveys are one of the management tools used to meet their statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are among the primary objectives of these surveys.

METHODS

The DNR provided hunters the option to voluntarily report information about their turkey hunting activity via the internet. This option was advertised in the hunting regulations booklet, on the DNR website, and in an email message that was sent to licensees that had provided an email address to the DNR. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, number of days spent afield, and how many turkeys they harvested. Successful hunters also were asked to report where their turkeys were taken (public or private land) and beard length of harvested birds. Birds with a beard <4 inches long were classified as juveniles (<1 year old), while birds with longer beards were adults (≥1 year old) (Kelly 1975). In addition, hunters were asked what type of hunting equipment was used to hunt turkeys and kill turkeys. Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2013 fall turkey hunting season, a questionnaire was sent to 13,473 randomly selected people that had purchased a 2013 turkey hunting license (resident turkey, senior resident turkey, nonresident turkey, Mentored Youth Hunt, Pure Michigan 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 15 strata (Cochran 1977). Strata 1-11 consisted of hunters with licenses for a single management unit (N_G=106; N_{GB}=127; N_{GC}=119; N_{HA}=1,017; N_J=925; N_L=617; N_M=1,040; N_T=106; N_W=104; N_{WA}=46; and N_{YY}=15,202). The twelfth stratum included hunters obtaining only a Mentored Youth Hunt license (N=11,743). The thirteenth stratum included hunters obtaining only a Pure Michigan Hunt license (N=3). The fourteenth stratum consisted of hunters having licenses for multiple management units (N=180). Finally, hunters that had voluntarily reported information about their hunting activity via the internet before the mail survey sample was selected were treated as the fifteenth stratum (N=488).

Because estimates were based on information collected from random samples of hunting license buyers, these estimates were subject to sampling errors (Cochran 1977). Thus, a 95% confidence limit (CL) was calculated for each estimate. In theory, this CL can be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies the true value would be within this interval 95 times out of 100. Unfortunately, there are several other possible sources of error in surveys that are probably more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (nonresponse bias), question wording, and question order. It is very difficult to measure these biases; thus, estimates were not adjusted for these possible biases.

Statistical tests are used routinely to determine the likelihood that the 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, if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during mid-December 2013, and up to two follow-up questionnaires were mailed to nonrespondents. Although 13,473 people were sent the questionnaire, 209 surveys were undeliverable resulting in an adjusted sample size of 13,264. Questionnaires were returned by 7,719 people, yielding a 58% adjusted response rate. In addition, 488 people voluntarily reported information about their hunting activity via the internet.

RESULTS

In 2013, the DNR offered 51,850 licenses for sale (4% greater than the quota in 2012), excluding Pure Michigan Hunt and Mentored Youth Hunt licenses (Table 1). A total of 2,942 licenses were purchased by people successful in the drawing, and another 497 leftover licenses were purchased by people that had applied for a hunt in the drawing. A total of 18,041 licenses were purchased by people that had not entered into the drawing. In addition, 3 people were awarded a Pure Michigan Hunt license, and 11,830 youth obtained a turkey hunting license when they obtained their Mentored Youth Hunt license.

Overall, 31,823 people purchased 33,313 licenses in 2013 (versus 30,620 people purchased 32,271 licenses in 2012). The number of licenses sold in 2013 increased 3% from 2012. Excluding the Mentored Youth Hunt licenses, 20,078 hunters purchased 21,483 licenses in 2013, which was nearly 5% fewer licenses sold than in 2012 (21,001 hunters purchased 22,580 licenses in 2012).

Excluding people obtaining a Mentored Youth Hunt license, the average age of the 20,078 license buyers was 48 years (Figure 2), and about 8% of the license buyers were younger than 17 years old (1,548). Hunters with a Mentored Youth Hunt license were excluded because only 19 ± 2% of them actually hunted (Table 2).

Including all license types, most license buyers (97%) purchased a single hunting license in 2013 (Figure 3). About 3% of hunters purchased 2 licenses and less than 1% of hunters purchased 3 or more licenses.

Excluding people obtaining a Mentored Youth Hunt license, the number of people buying a license in 2013 (20,078) increased by about 6% in ten years from 2002 (19,025 people purchased a license in 2003). Although more people purchased a license in 2013 than in 2003, there were fewer license buyers for most age classes between 30 and 50 years of age in 2013 (Figure 4). 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 likely reflected the lowering of the minimum age requirements. In 2013, hunters had to be at least 10

years old to participate (excluding Mentored Youth Hunts); while the hunters had to be at least 12 years old to participate in 2003.

In 2013, about 17,761 hunters spent 111,414 days afield pursuing turkeys ($\bar{x}$ = 6.3 ± 0.2 days/hunter) (Tables 3 and 4, Figure 5). The number of people pursuing turkeys and their hunting effort in 2013 increased significantly from 2012 (14% and 16% increase, respectively). About 93% of the hunters that went afield were males (16,485 ± 265) and 7% of the hunters were females (1,276 ± 132).

About 28% of active hunters successfully harvested a turkey in 2013, and they harvested an estimated 5,430 turkeys (Tables 5 and 6). The number of turkeys harvested decreased significantly by 10% from 2012 (6,042 turkeys harvested in 2012), and hunter success was significantly lower (28% versus 36%) than in 2012 (Figure 5). Among the 5,036 hunters that took at least one turkey, 94% (4,732 ± 206) of these hunters took one turkey, 5% (236 ± 50) took 2 turkeys, and about 1% (68 ± 24) took more than 2 turkeys (Figure 6). Hunter success was statistically greater for hunters using private lands than for hunters using public lands in 2013 (29% versus 19%, Table 5).

About 93% (16,439 ± 267) of turkey hunters hunted solely on private land, 5% (925 ± 64) hunted on public land only, and 2% (359 ± 44) hunted on both private and public lands. Additionally, less than 1% of hunters (39 ± 21) hunted on land of unknown ownership. Of the 5,430 turkeys harvested in 2013, 95% of these birds were taken on private land (5,171), while about 3% of the harvest (249) was taken on public land (Table 6). About 62% of the harvested birds had a beard (3,363 ± 189). Most of these bearded birds (84%) were adults (2,828 ± 175); 16% were juvenile birds (535 ± 78).

Of the 17,761 turkey hunters in 2013, nearly 59% rated their hunting experience as either excellent, very good, or good (Table 7). Satisfaction was statistically greater for hunters using private lands than for hunters using public lands (59% versus 50%). Changes in hunter satisfaction between years generally parallel changes in hunter success (Figure 7). Between 2012 and 2013, hunter success decreased significantly (36% in 2012 versus 28% in 2013); however, satisfaction did not change significantly (61% in 2012 versus 59% in 2013).

Hunter numbers were greatest in Lapeer, Sanilac, Tuscola, and St. Clair counties; these counties had more than 600 hunters (Table 8). Harvest was greatest in Sanilac, Tuscola, and Lapeer counties; these counties had more than 200 turkeys taken by hunters.

Most hunters (64 ± 1%; 11,443 ± 280 hunters) used shotguns while hunting turkeys, although 26 ± 1% (4,613 ± 212) used a crossbow, and 22 ± 1% (3,865 ± 189) of the hunters used either a compound, recurve, or long bow. About 71% (3,838 ± 209) of the harvested turkeys were taken with a shotgun, while 17% (931 ± 104) of harvested turkeys were taken with a crossbow. About 9% (500 ± 76) were taken with either a compound, recurve, or long bow. About 31 ± 1% of the hunters using a shotgun took at least one turkey with their shotgun; 20 ± 2% of the hunters using a crossbow harvested

a turkey; and 13 ± 2% of hunters using either a compound, recurve, or long bow took a turkey.

About 71 ± 2% of the turkey hunters using a crossbow had obtained the crossbow stamp. However, 81 ± 2% of the hunters using a crossbow in 2013 had obtained a crossbow stamp during at least one year during 20011 through 2013.

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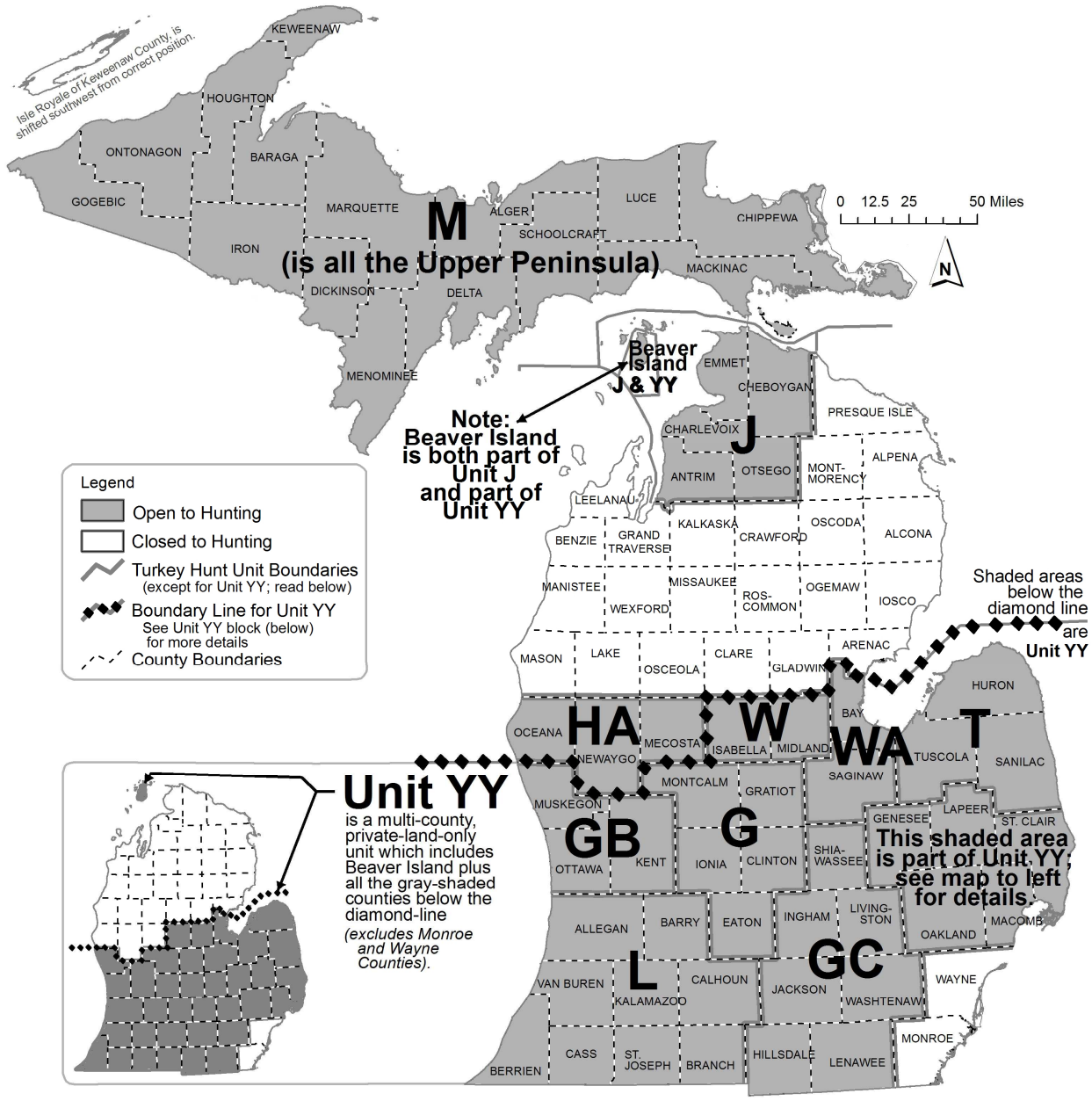

Figure 1. Management units open for fall turkey hunting in Michigan, 2013.

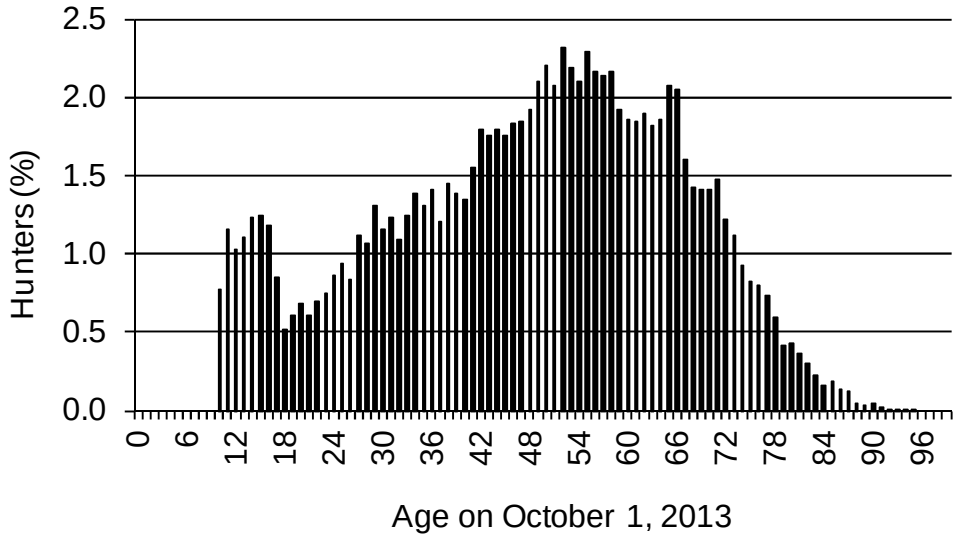

Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2013 fall hunting season ($\bar{x}$ = 48 years). Licenses were purchased by 20,078 people, excluding Mentored Youth Hunt license buyers.

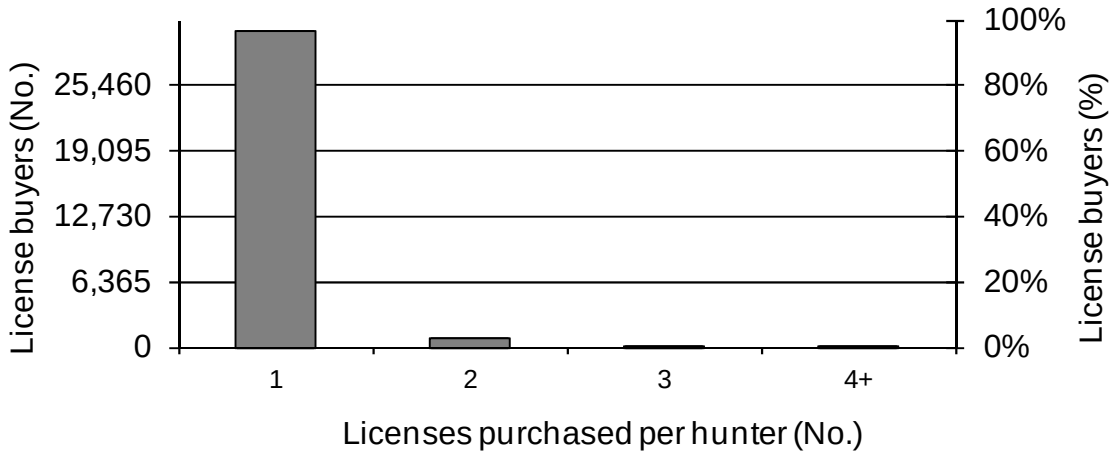

Figure 3. Number of licenses purchased per person for hunting turkey in Michigan during the 2013 fall hunting season (included all hunting license types).

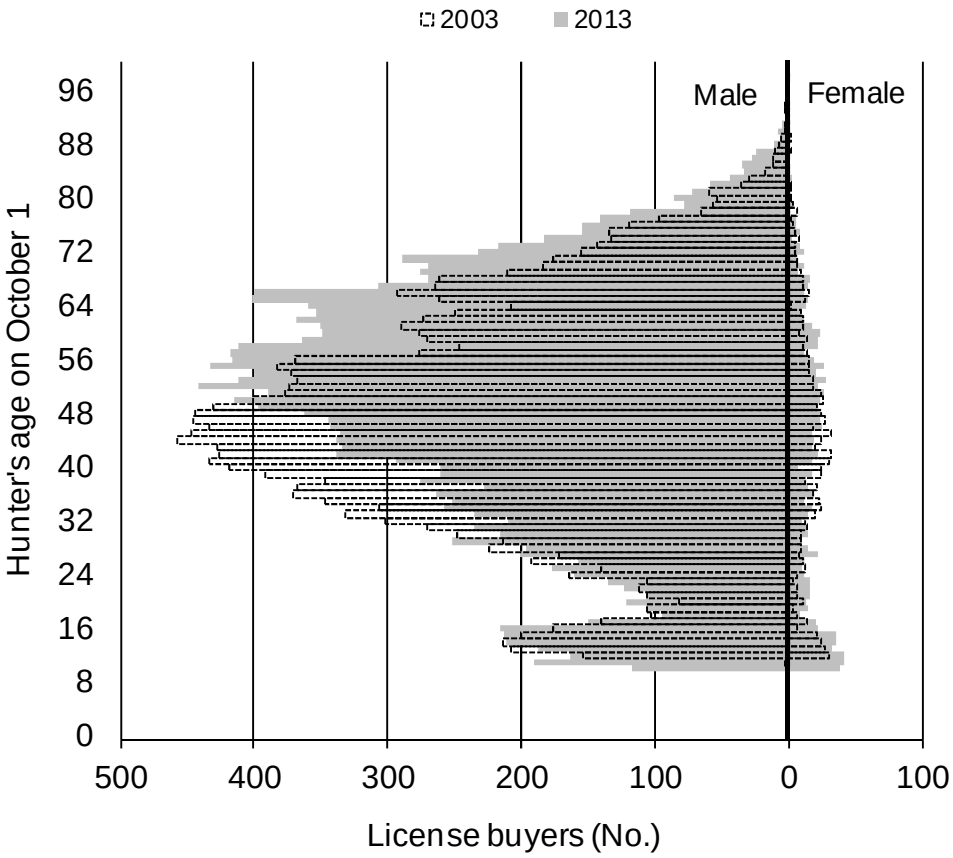

Figure 4. Number of fall turkey hunting license buyers in Michigan by age and sex during 2003 and 2013 hunting seasons, excluding Mentored Youth Hunt licenses. The number of people buying a license was 19,025 in 2003 and 20,078 in 2013.

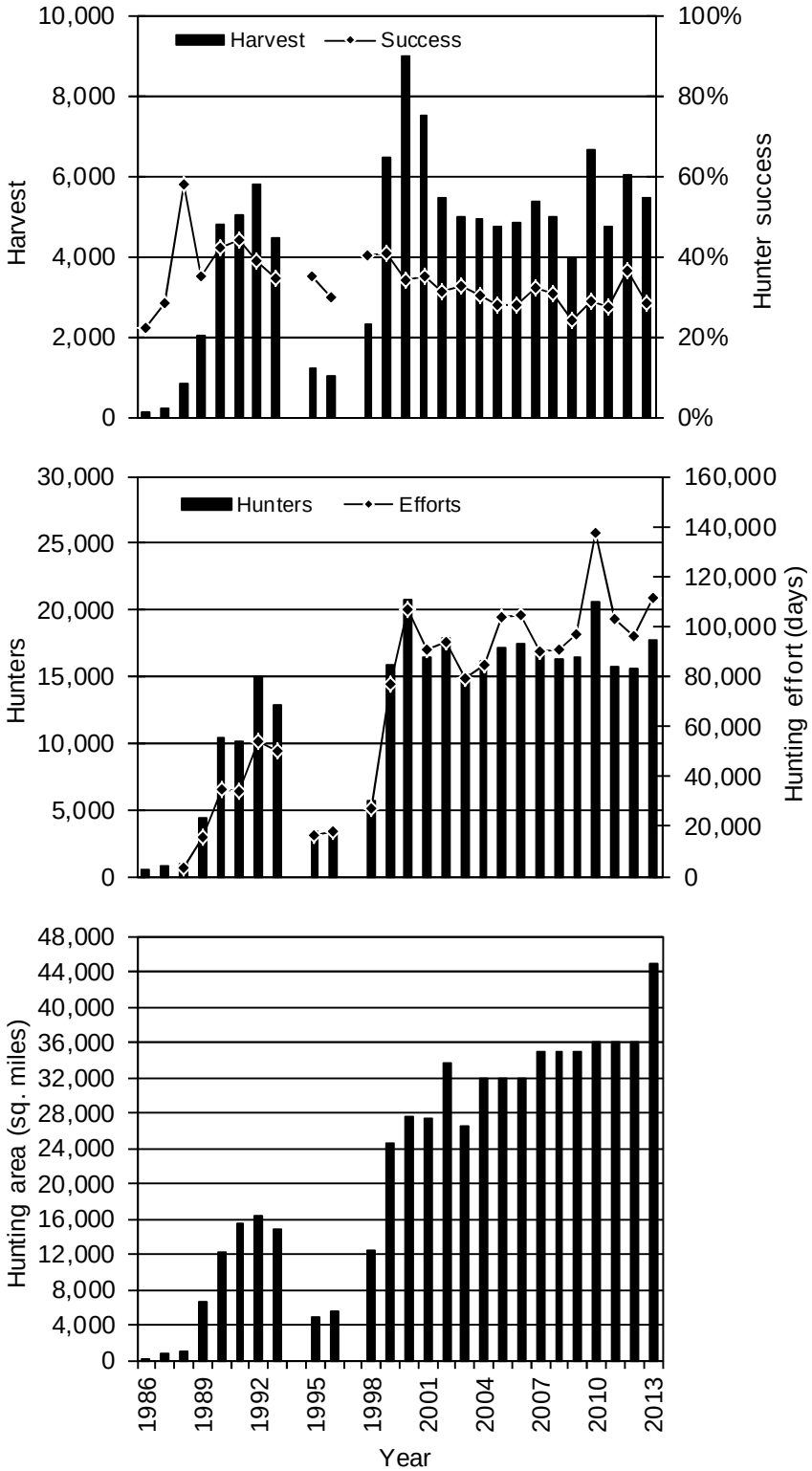

Figure 5. Number of hunters, hunting efforts (days), harvest, hunting success, and hunting area during the fall turkey hunting season, 1986-2013. Turkeys were not hunted during the fall in 1994 and 1997.

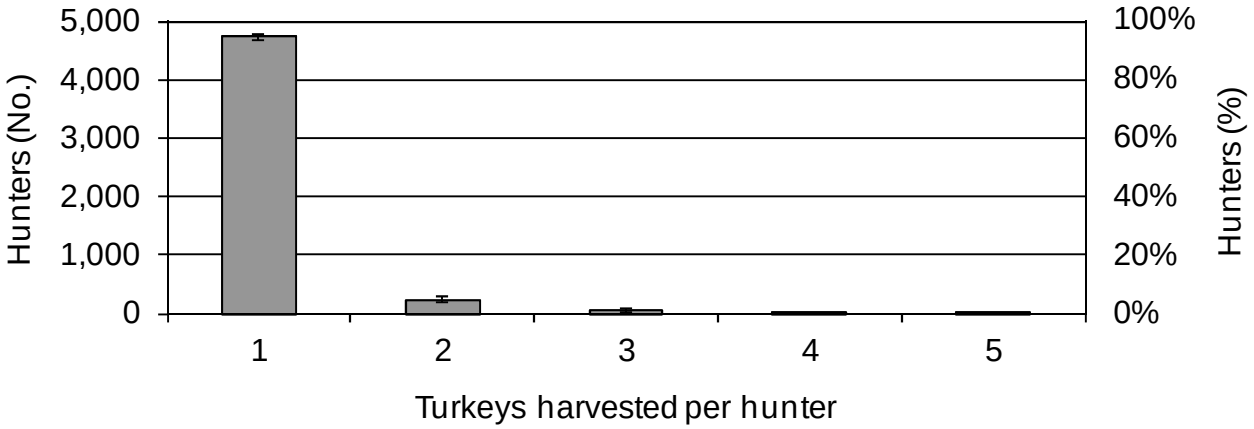

Figure 6. Number of turkeys harvested per successful hunter in Michigan during the 2013 fall hunting season.

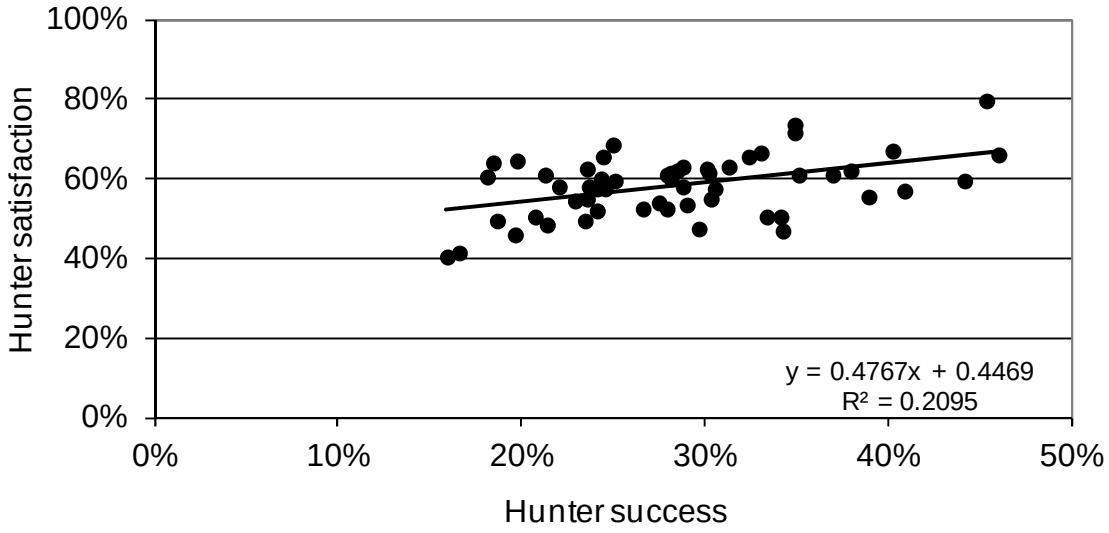

Figure 7. Hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) associated with hunter success for each of 55 counties in Michigan during the 2013 fall turkey hunting season (only included counties with at least 20 hunters).

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

Manage-ment unit	Hunt	Licenses available (quota)[a]	Number of eligible applicants	Number of applicants successful in drawing	Number of licenses remaining after drawing	Number of licenses purchased by successful applicants	Number of leftover licenses purchased by applicants	Number of leftover licenses purchased by people not in the drawing	Licenses sold
G	401	200	316	200	0	127	0	0	127
GB	402	250	338	250	0	143	0	0	143
GC	403	200	861	200	0	133	0	0	133
HA[b]	410	1,700	1,166	1,166	534	720	67	406	1,193
J	404	1,500	778	778	722	463	70	499	1,032
L	405	1,000	635	635	365	424	51	264	739
M	406	1,500	691	691	809	434	62	692	1,188
T	407	200	304	200	0	125	0	0	125
W	408	200	141	141	59	71	4	44	119
WA	409	100	105	100	0	48	0	0	48
YY[b]	501	45,000	0	0	45,000	254	243	16,136	16,633
Pure MI[c]	NA[c]	NA	0	0	NA	0	0	0	3
MYH[d]	Any	NA	0	0	NA	0	0	0	11,830
Statewide	All	51,850	5,335	4,361	47,489	2,942	497	18,041	33,313

[a]Quotas were assigned by hunts within each management unit.
[b]Licenses were valid on private lands only.
[c]Pure Michigan Hunt. These hunters could hunt in any management unit.
[d]Mentored Youth Hunts. These hunters could hunt in any management unit.

Table 2. Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2013 Michigan fall turkey hunting season, summarized for hunters that obtained a Mentored Youth Hunt license.

Hunters		Hunting efforts (days)		Harvest		Hunter success		Hunter satisfaction[a]	
Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
2,185	188	8,785	1,063	352	84	16	3	67	5

[a]Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3. Number of hunters during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type							
	Private		Public		Unknown		All land types	
	Total	95% CL	Total	95% CL	Total	95% CL	Total[a]	95% CL
G								
401	36	6	61	7	0	0	87	5
501[b]	1,191	118	0	0	0	0	1,191	118
MYH[c]	173	58	12	16	0	0	180	59
Multiple[d]	40	4	12	2	0	0	49	4
Subtotal	1,440	132	85	17	0	0	1,506	132
GB								
402	67	9	47	9	0	0	106	7
501[b]	889	103	0	0	0	0	889	103
MYH[c]	192	61	6	11	0	0	198	62
Multiple[d]	49	5	7	3	0	0	54	5
Subtotal	1,196	121	61	14	0	0	1,247	121
GC								
403	46	7	48	7	4	3	92	6
501[b]	2,532	164	0	0	0	0	2,532	164
MYH[c]	279	74	6	11	6	11	291	75
Multiple[d]	79	4	8	2	0	0	85	4
Subtotal	2,936	180	62	13	10	11	3,001	181
HA								
410[b]	816	24	0	0	0	0	816	24
MYH[c]	155	55	0	0	0	0	155	55
Multiple[d]	66	4	0	0	0	0	66	4
Subtotal	1,038	61	0	0	0	0	1,038	61
J								
404	508	37	211	31	3	4	668	33
501[b]	4	7	0	0	0	0	4	7
MYH[c]	81	40	12	16	0	0	87	41
Multiple[d]	30	3	9	1	0	0	37	4
Subtotal	623	55	233	35	3	4	796	54
L								
405	288	21	246	21	2	2	486	17
501[b]	2,364	159	0	0	0	0	2,364	159
MYH	235	68	31	25	0	0	254	70
Multiple[c]	105	6	26	3	0	0	124	6
Subtotal	2,993	175	303	32	2	2	3,228	175

[a]Number of hunters may not add up to total because hunters could hunt on both private and public lands.
[b]Licenses were valid on private lands only.
[c]Mentored Youth Hunts.
[d]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[e]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[f]Hunting activity occurred at unknown location within Management Unit YY.

Table 3 (continued). Number of hunters during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type							
	Private		Public		Unknown		All land types	
	Total	95% CL	Total	95% CL	Total	95% CL	Total[a]	95% CL
M								
406	554	32	356	31	10	6	791	28
MYH[c]	105	46	25	22	6	11	136	52
Multiple[d]	25	3	13	2	0	0	32	4
Subtotal	684	56	393	38	16	13	959	59
T								
407	52	7	50	7	1	2	93	5
501[b]	1,372	126	0	0	0	0	1,372	126
MYH[c]	211	64	19	19	0	0	217	65
Multiple[d]	55	4	5	2	0	0	57	4
Subtotal	1,689	142	73	21	1	2	1,739	142
W								
408	61	6	21	5	0	0	75	6
501[b]	526	80	0	0	0	0	526	80
MYH[c]	74	38	6	11	6	11	87	41
Multiple[d]	21	2	1	0	0	0	22	2
Subtotal	682	89	28	12	6	11	709	91
WA								
409	24	4	13	4	0	0	37	3
501[b]	522	80	0	0	0	0	522	80
MYH[c]	105	46	12	16	0	0	111	47
Multiple[d]	23	2	0	0	0	0	23	2
Subtotal	675	92	25	16	0	0	694	93
Eastern YY[e]								
501[b]	2,053	150	0	0	0	0	2,053	150
MYH[c]	291	75	0	0	0	0	291	75
Multiple[d]	85	4	0	0	0	0	85	4
Subtotal	2,429	168	0	0	0	0	2,429	168
Unknown YY[f]								
501[b]	569	84	0	0	0	0	569	84
MYH[c]	192	61	19	19	0	0	204	63
Multiple[d]	17	2	1	1	0	0	17	2
Subtotal	778	104	20	19	0	0	791	105
Statewide								
Total	16,780	268	1,281	74	39	21	17,761	269

[a]Number of hunters may not add up to total because hunters could hunt on both private and public lands.
[b]Licenses were valid on private lands only.
[c]Mentored Youth Hunts.
[d]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[e]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[f]Hunting activity occurred at unknown location within Management Unit YY.

Table 4. Days of hunting effort during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type							
	Private		Public		Unknown		All land types	
	Total	95% CL	Total	95% CL	Total	95% CL	Total[a]	95% CL
G								
401	166	39	362	68	0	0	527	68
501[b]	8,498	1,250	0	0	0	0	8,498	1,250
MYH[c]	657	253	50	70	0	0	706	273
Multiple[d]	234	35	50	19	0	0	284	47
Subtotal	9,554	1,276	462	100	0	0	10,016	1,282
GB								
402	482	90	283	76	0	0	765	98
501[b]	5,940	952	0	0	0	0	5,940	952
MYH[c]	1,059	506	12	22	0	0	1,071	506
Multiple[d]	312	51	42	25	0	0	354	59
Subtotal	7,793	1,083	338	83	0	0	8,131	1,084
GC								
403	179	33	266	64	45	27	490	68
501[b]	15,556	1,426	0	0	0	0	15,556	1,426
MYH[c]	991	357	25	44	6	11	1,022	359
Multiple[d]	532	44	35	14	0	0	567	45
Subtotal	17,258	1,471	325	79	51	29	17,634	1,473
HA								
410[b]	5,004	334	0	0	0	0	5,004	334
MYH[c]	514	223	0	0	0	0	514	223
Multiple[d]	330	26	0	0	0	0	330	26
Subtotal	5,849	402	0	0	0	0	5,849	402
J								
404	2,483	290	978	190	13	19	3,474	335
501[b]	13	22	0	0	0	0	13	22
MYH[c]	223	143	43	60	0	0	266	170
Multiple[d]	130	6	38	1	0	0	168	6
Subtotal	2,848	324	1,060	199	13	19	3,921	377
L								
405	1,926	238	1,678	221	7	9	3,611	296
501[b]	17,178	1,626	0	0	0	0	17,178	1,626
MYH	1,003	426	105	95	0	0	1,109	440
Multiple[c]	900	90	167	33	0	0	1,067	95
Subtotal	21,007	1,700	1,950	243	7	9	22,964	1,713

[a]Column and row totals for hunting effort may not equal statewide totals because of rounding errors.
[b]Licenses were valid on private lands only.
[c]Mentored Youth Hunts.
[d]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[e]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[f]Hunting activity occurred at unknown location within Management Unit YY.

Table 4 (continued). Days of hunting effort during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type							
	Private		Public		Unknown		All land types	
	Total	95% CL	Total	95% CL	Total	95% CL	Total[a]	95% CL
M								
406	3,302	339	2,205	273	35	25	5,541	431
MYH[c]	446	219	111	124	19	33	576	254
Multiple[d]	147	18	98	18	0	0	245	25
Subtotal	3,894	404	2,415	301	53	42	6,362	501
T								
407	228	49	343	89	22	25	593	90
501[b]	8,283	1,069	0	0	0	0	8,283	1,069
MYH[c]	879	369	50	52	0	0	929	375
Multiple[d]	317	39	23	3	0	0	340	39
Subtotal	9,708	1,133	415	103	22	25	10,145	1,137
W								
408	301	53	165	58	0	0	466	75
501[b]	3,089	630	0	0	0	0	3,089	630
MYH[c]	285	179	31	56	6	11	322	188
Multiple[d]	122	3	4	0	0	0	126	3
Subtotal	3,796	657	200	80	6	11	4,003	662
WA								
409	142	37	76	29	0	0	219	37
501[b]	3,606	729	0	0	0	0	3,606	729
MYH[c]	359	172	50	65	0	0	409	200
Multiple[d]	152	3	0	0	0	0	152	3
Subtotal	4,260	750	126	71	0	0	4,386	757
Eastern YY[e]								
501[b]	12,471	1,270	0	0	0	0	12,471	1,270
MYH[c]	1,202	399	0	0	0	0	1,202	399
Multiple[d]	529	46	0	0	0	0	529	46
Subtotal	14,202	1,331	0	0	0	0	14,202	1,331
Unknown YY[f]								
501[b]	3,102	630	0	0	0	0	3,102	630
MYH[c]	526	203	105	124	0	0	632	246
Multiple[d]	64	8	4	4	0	0	68	9
Subtotal	3,692	662	109	124	0	0	3,801	677
Statewide								
Total[a]	103,862	2,954	7,400	499	152	61	111,414	2,992

[a]Column and row totals for hunting effort may not equal statewide totals because of rounding errors.
[b]Licenses were valid on private lands only.
[c]Mentored Youth Hunts.
[d]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[e]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[f]Hunting activity occurred at unknown location within Management Unit YY.

Table 5. Hunting success (proportion of hunters taking at least one turkey) during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type						All land types	
	Private		Public		Unknown			
	%	95% CL	%	95% CL	%	95% CL	%[a]	95% CL
G								
401	24	9	14	6	0	0	20	6
501[a]	26	5	0	0	0	0	26	5
MYH[b]	11	10	0	0	0	0	10	10
Multiple[c]	40	5	17	3	0	0	36	4
Subtotal	25	4	13	5	0	0	24	4
GB								
402	7	5	14	8	0	0	11	5
501[a]	30	5	0	0	0	0	30	5
MYH[b]	19	13	0	0	0	0	19	12
Multiple[c]	44	5	31	15	0	0	41	5
Subtotal	27	5	14	7	0	0	27	4
GC								
403	15	7	15	6	0	0	15	5
501[a]	29	3	0	0	0	0	29	3
MYH[b]	16	10	0	0	100	0	17	10
Multiple[c]	34	3	16	13	0	0	33	3
Subtotal	28	3	13	6	60	46	28	3
HA								
410[b]	27	3	0	0	0	0	27	3
MYH[b]	12	12	0	0	0	0	12	12
Multiple[c]	43	4	0	0	0	0	43	4
Subtotal	26	3	0	0	0	0	26	3
J								
404	30	5	14	6	0	0	26	4
501[a]	100	0	0	0	0	0	100	0
MYH[b]	8	13	50	63	0	0	14	17
Multiple[c]	33	6	22	3	0	0	33	5
Subtotal	27	5	17	7	0	0	26	4
L								
405	21	4	15	4	0	0	20	3
501[a]	27	3	0	0	0	0	27	3
MYH[b]	8	8	0	0	0	0	7	7
Multiple[c]	39	3	20	4	0	0	37	3
Subtotal	25	3	14	3	0	0	25	3

[a]Licenses were valid on private lands only.
[b]Mentored Youth Hunts.
[c]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[d]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[e]Hunting activity occurred at unknown location within Management Unit YY.

Table 5 (continued). Hunting success (proportion of hunters taking at least one turkey) during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type						All land types	
	Private		Public		Unknown			
	%	95% CL	%	95% CL	%	95% CL	%[a]	95% CL
M								
406	40	4	29	5	20	25	41	3
MYH[b]	35	21	0	0	0	0	27	17
Multiple[c]	43	6	52	9	0	0	55	6
Subtotal	39	5	28	5	12	18	39	4
T								
407	31	9	12	6	100	0	25	6
501[a]	37	5	0	0	0	0	37	5
MYH[b]	12	10	33	49	0	0	14	11
Multiple[c]	38	4	28	20	0	0	39	4
Subtotal	34	4	18	14	100	0	33	4
W								
408	27	7	13	9	0	0	26	6
501[a]	33	7	0	0	0	0	33	7
MYH[b]	50	26	0	0	0	0	43	24
Multiple[c]	31	4	0	0	0	0	29	4
Subtotal	34	6	10	8	0	0	33	6
WA								
409	18	10	11	12	0	0	15	8
501[a]	36	7	0	0	0	0	36	7
MYH[b]	18	17	0	0	0	0	17	16
Multiple[c]	23	4	0	0	0	0	23	4
Subtotal	32	6	6	7	0	0	31	6
Eastern YY[d]								
501[a]	29	4	0	0	0	0	29	4
MYH[c]	19	10	0	0	0	0	19	10
Multiple[c]	36	2	0	0	0	0	36	2
Subtotal	28	3	0	0	0	0	28	3
Unknown YY[e]								
501[a]	24	6	0	0	0	0	24	6
MYH[b]	3	6	0	0	0	0	3	5
Multiple[c]	37	6	0	0	0	0	37	6
Subtotal	19	5	0	0	0	0	19	5
Statewide								
Total	29	1	19	2	25	25	28	1

[a]Licenses were valid on private lands only.
[b]Mentored Youth Hunts.
[c]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[d]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[e]Hunting activity occurred at unknown location within Management Unit YY.

Table 6. Number of turkeys harvested during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type							
	Private		Public		Unknown		All land types	
	Total	95% CL	Total	95% CL	Total	95% CL	Total[a]	95% CL
G								
401	9	4	9	4	0	0	17	5
501[b]	332	68	0	0	0	0	332	68
MYH[c]	19	19	0	0	0	0	19	19
Multiple[d]	18	4	2	0	0	0	20	4
Subtotal	378	71	11	4	0	0	389	71
GB								
402	5	3	7	4	0	0	11	5
501[b]	276	62	0	0	0	0	276	62
MYH[c]	37	27	0	0	0	0	37	27
Multiple[d]	28	6	2	1	0	0	30	7
Subtotal	346	68	9	4	0	0	355	69
GC								
403	7	3	7	3	0	0	14	4
501[b]	807	110	0	0	0	0	807	110
MYH[c]	43	29	0	0	6	11	50	31
Multiple[d]	28	4	1	1	0	0	29	4
Subtotal	885	114	8	3	6	11	900	115
HA								
410[b]	236	28	0	0	0	0	236	28
MYH[c]	19	19	0	0	0	0	19	19
Multiple[d]	30	4	0	0	0	0	30	4
Subtotal	285	34	0	0	0	0	285	34
J								
404	165	32	30	13	0	0	196	35
501[b]	4	7	0	0	0	0	4	7
MYH[c]	6	11	6	11	0	0	12	16
Multiple[d]	10	2	2	0	0	0	12	2
Subtotal	186	35	39	17	0	0	224	39
L								
405	61	13	38	11	0	0	100	16
501[b]	712	110	0	0	0	0	712	110
MYH	19	19	0	0	0	0	19	19
Multiple[c]	50	7	5	1	0	0	55	7
Subtotal	842	112	44	11	0	0	885	113

[a]Column and row totals for hunting effort may not equal statewide totals because of rounding errors.
[b]Licenses were valid on private lands only.
[c]Mentored Youth Hunts.
[d]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[e]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[f]Hunting activity occurred at unknown location within Management Unit YY.

Table 6 (continued). Number of turkeys harvested during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type							
	Private		Public		Unknown		All land types	
	Total	95% CL	Total	95% CL	Total	95% CL	Total[a]	95% CL
M								
406	233	29	114	23	2	3	349	35
MYH[c]	37	27	0	0	0	0	37	27
Multiple[d]	11	2	7	2	0	0	18	3
Subtotal	281	40	121	23	2	3	404	44
T								
407	16	5	6	3	1	2	24	6
501[b]	552	90	0	0	0	0	552	90
MYH[c]	31	29	6	11	0	0	37	31
Multiple[d]	24	4	1	1	0	0	25	4
Subtotal	623	95	13	12	1	2	638	96
W								
408	17	5	3	2	0	0	19	5
501[b]	181	50	0	0	0	0	181	50
MYH[c]	37	27	0	0	0	0	37	27
Multiple[d]	6	1	0	0	0	0	6	1
Subtotal	241	57	3	2	0	0	244	57
WA								
409	4	3	1	2	0	0	6	3
501[b]	198	53	0	0	0	0	198	53
MYH[c]	19	19	0	0	0	0	19	19
Multiple[d]	5	1	0	0	0	0	5	1
Subtotal	227	57	1	2	0	0	228	57
Eastern YY[e]								
501[b]	634	94	0	0	0	0	634	94
MYH[c]	56	33	0	0	0	0	56	33
Multiple[d]	32	3	0	0	0	0	32	3
Subtotal	722	100	0	0	0	0	722	100
Unknown YY[f]								
501[b]	142	44	0	0	0	0	142	44
MYH[c]	6	11	0	0	0	0	6	11
Multiple[d]	8	2	0	0	0	0	8	2
Subtotal	156	45	0	0	0	0	156	45
Statewide								
Total[a]	5,171	237	249	34	10	12	5,430	240

[a]Column and row totals for hunting effort may not equal statewide totals because of rounding errors.
[b]Licenses were valid on private lands only.
[c]Mentored Youth Hunts.
[d]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[e]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[f]Hunting activity occurred at unknown location within Management Unit YY.

Table 7. Proportion of hunters that rated their hunting experience as excellent, very good, or good during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type							
	Private		Public		Unknown		All land types	
	%	95% CL	%	95% CL	%	95% CL	%[a]	95% CL
G								
401	56	11	67	8	0	0	62	7
501[a]	57	5	0	0	0	0	57	5
MYH[b]	71	15	50	63	0	0	72	15
Multiple[c]	68	4	81	9	0	0	72	4
Subtotal	59	5	66	11	0	0	60	4
GB								
402	46	10	38	11	0	0	43	8
501[a]	61	6	0	0	0	0	61	6
MYH[b]	68	15	100	0	0	0	69	15
Multiple[c]	77	4	83	15	0	0	77	4
Subtotal	62	5	50	13	0	0	61	5
GC								
403	52	9	50	9	33	29	52	6
501[a]	62	3	0	0	0	0	62	3
MYH[b]	64	13	100	0	100	0	66	12
Multiple[c]	78	2	71	13	0	0	77	2
Subtotal	62	3	58	10	73	33	62	3
HA								
410[b]	53	3	0	0	0	0	53	3
MYH[b]	80	14	0	0	0	0	80	14
Multiple[c]	70	3	0	0	0	0	70	3
Subtotal	58	4	0	0	0	0	58	4
J								
404	52	5	44	8	100	0	50	5
501[a]	100	0	0	0	0	0	100	0
MYH[b]	54	25	50	63	0	0	57	24
Multiple[c]	63	5	46	7	0	0	64	4
Subtotal	53	5	44	8	100	0	51	5
L								
405	57	5	50	5	0	0	53	4
501[a]	54	4	0	0	0	0	54	4
MYH[b]	47	15	20	32	0	0	46	14
Multiple[c]	70	3	67	6	0	0	68	3
Subtotal	54	3	48	6	0	0	54	3

[a]Licenses were valid on private lands only.
[b]Mentored Youth Hunts.
[c]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[d]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[e]Hunting activity occurred at unknown location within Management Unit YY.

Table 7 (continued). Proportion of hunters that rated their hunting experience as excellent, very good, or good during the 2013 Michigan fall turkey hunting season.

Area and hunting license	Land type						All land types	
	Private		Public		Unknown			
	%	95% CL	%	95% CL	%	95% CL	%[a]	95% CL
M								
406	59	4	49	5	40	31	57	4
MYH[b]	65	21	75	39	100	0	68	18
Multiple[c]	74	6	75	8	0	0	76	6
Subtotal	60	5	51	6	63	33	59	4
T								
407	60	9	47	10	100	0	52	7
501[a]	63	5	0	0	0	0	63	5
MYH[b]	71	14	33	49	0	0	69	14
Multiple[c]	64	4	100	0	0	0	65	4
Subtotal	64	4	47	15	100	0	63	4
W								
408	43	8	60	13	0	0	46	7
501[a]	61	8	0	0	0	0	61	8
MYH[b]	75	22	100	0	100	0	79	20
Multiple[c]	56	4	0	0	0	0	54	4
Subtotal	61	6	67	16	100	0	62	6
WA								
409	41	13	56	18	0	0	46	11
501[a]	58	8	0	0	0	0	58	8
MYH[b]	59	21	0	0	0	0	56	21
Multiple[c]	74	2	0	0	0	0	74	2
Subtotal	58	7	28	20	0	0	57	7
Eastern YY[d]								
501[a]	57	4	0	0	0	0	57	4
MYH[c]	66	12	0	0	0	0	66	12
Multiple[c]	71	2	0	0	0	0	71	2
Subtotal	58	4	0	0	0	0	58	4
Unknown YY[e]								
501[a]	47	7	0	0	0	0	47	7
MYH[b]	77	13	67	49	0	0	76	13
Multiple[c]	53	7	0	0	0	0	53	7
Subtotal	55	7	62	46	0	0	55	7
Statewide								
Total	59	1	50	3	72	18	59	1

[a]Licenses were valid on private lands only.
[b]Mentored Youth Hunts.
[c]Hunters that purchased multiple hunting licenses for multiple hunting areas.
[d]Included Genesee, Lapeer, Macomb, Oakland, and St. Clair counties within Management Unit YY.
[e]Hunting activity occurred at unknown location within Management Unit YY.

Table 8. Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2013 Michigan fall turkey hunting season, summarized by county.

	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]	
County	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Alger	57	17	306	129	16	7	28	12	53	15
Allegan	539	72	3,475	640	123	38	21	5	51	7
Antrim	219	38	1,134	247	60	22	23	7	55	9
Baraga	37	19	217	93	14	12	39	25	56	25
Barry	503	71	2,960	511	120	54	20	6	46	7
Bay	113	36	778	303	39	21	35	15	71	14
Berrien	333	59	3,004	692	90	32	27	8	53	9
Branch	225	54	1,254	387	65	33	25	10	69	11
Calhoun	452	76	2,969	686	128	46	24	7	60	8
Cass	311	58	2,529	653	82	36	21	8	49	9
Charlevoix	153	35	572	152	50	20	32	11	66	11
Cheboygan	140	31	610	159	55	23	34	11	50	12
Chippewa	55	17	323	107	25	14	45	16	80	11
Clinton	229	55	1,296	443	49	23	21	9	61	12
Delta	135	24	672	178	57	15	41	9	57	9
Dickinson	120	25	732	174	47	15	34	9	47	11
Eaton	395	71	2,573	617	87	33	22	7	58	9
Emmet	99	25	459	150	24	12	24	10	52	13
Genesee	480	79	2,787	597	165	48	33	8	51	8
Gogebic	53	14	352	111	28	12	44	13	60	13
Gratiot	302	62	2,233	641	116	45	31	9	63	10

[a]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.

[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 8 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2013 Michigan fall turkey hunting season, summarized by county.

	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]	
County	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Hillsdale	321	64	1,582	407	92	34	29	9	62	10
Houghton	49	22	287	128	8	6	17	12	42	22
Huron	466	76	2,502	565	149	44	30	7	62	8
Ingham	437	73	2,475	566	138	43	31	8	57	8
Ionia	238	54	1,459	499	45	22	18	9	64	11
Iron	188	34	1,088	206	82	22	38	9	62	9
Isabella	330	63	1,796	448	93	34	28	9	62	9
Jackson	589	86	3,335	642	144	43	25	6	66	7
Kalamazoo	410	70	2,602	574	119	37	29	8	58	8
Kent	583	86	3,815	784	142	43	24	6	63	7
Keweenaw	2	3	20	29	0	0	0	0	0	0
Lapeer	744	96	4,366	771	227	58	28	6	60	6
Lenawee	446	76	2,356	547	93	35	20	7	65	8
Livingston	489	77	3,238	700	123	39	24	7	57	8
Luce	0	0	0	0	0	0	0	0	0	0
Mackinac	11	6	101	82	0	0	0	0	55	28
Macomb	243	56	1,306	368	62	31	24	10	58	11
Marquette	68	21	440	160	14	9	18	10	61	14
Mecosta	232	33	1,129	192	48	14	19	5	50	8
Menominee	170	33	1,098	264	71	22	40	10	67	9
Midland	381	67	2,186	492	150	46	37	9	61	9

[a]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.

[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 8 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2013 Michigan fall turkey hunting season, summarized by county.

	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]	
County	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Montcalm	360	65	2,358	630	86	32	24	8	55	9
Muskegon	254	55	1,443	421	86	37	29	10	53	11
Newaygo	497	53	3,032	356	154	28	30	5	62	5
Oakland	385	71	2,186	545	109	35	28	8	61	9
Oceana	204	33	1,053	185	54	15	25	6	58	8
Ontonagon	58	20	433	189	27	14	46	18	66	15
Otsego	172	31	806	196	27	12	16	6	40	9
Ottawa	422	71	2,800	630	125	39	29	8	63	8
Saginaw	579	86	3,566	696	189	53	30	7	55	8
St. Clair	601	88	3,557	695	160	49	25	6	59	7
St. Joseph	225	50	1,559	469	68	29	28	10	54	11
Sanilac	664	92	3,634	656	250	63	33	7	67	7
Schoolcraft	16	8	95	88	7	5	48	24	48	24
Shiawassee	333	66	1,965	518	112	43	30	9	50	10
Tuscola	624	87	3,943	758	236	58	35	7	61	7
Van Buren	354	64	2,304	543	86	30	23	8	50	9
Washtenaw	465	74	2,635	574	198	63	35	8	73	7
Unknown	1,124	110	5,630	725	215	47	19	4	54	5

[a]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.

[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
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2014 MICHIGAN SPRING TURKEY HUNTER SURVEY

Brian J. Frawley and Caitlin E. Boon

ABSTRACT

A survey of turkey hunters was conducted following the 2014 spring hunting season to determine turkey harvest and hunter participation. In 2014, about 73,422 hunters harvested about 29,110 turkeys. Statewide, 40% of hunters harvested a turkey. Nearly 67% of the hunters rated their hunting experience as excellent, very good, or good in 2013. About 92% of the hunters reported they experienced no or only minor interference from other hunters. The number of hunters, hunting effort, and harvest decreased significantly between 2013 and 2014. However, hunter success and hunter satisfaction were not significantly different between 2013 and 2014.

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 2014, nearly the entire state was open for wild turkey hunting from April 21 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 13 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).

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 not allocated through the lottery (i.e., left-over licenses and licenses for Hunt 234). 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 were made available to nonapplicants. Hunters were allowed to purchase one license and take one bearded turkey with the harvest tag issued with their license. Hunters could use a bow and arrow, crossbow, or shotgun with number 4 or smaller shot (including a muzzleloading shotgun) to hunt turkeys.

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 5 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 21-May 4) 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 27 days (May 5-31). Licenses for Hunt 234 were sold as a leftover license with no quota and could be purchased throughout the entire spring turkey hunting season.

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.

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 2014 spring turkey hunting season, a questionnaire was sent to 13,520 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 18 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (13 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 14-17). Moreover, people that had voluntarily reported information about their hunting activity via the internet were treated as a separate stratum (eighteenth 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 2014, and nonrespondents were mailed up to two follow-up questionnaires. Although 13,520 people were sent the questionnaire, 195 surveys were undeliverable resulting in an adjusted sample size of 13,325. Questionnaires were returned by 7,811 people, yielding a 59% adjusted response rate. In addition, 1,552 people voluntarily reported information about their hunting activity via the internet before the random sample was selected.

RESULTS AND DISCUSSION

In 2014, licenses were purchased by 89,167 people, a decrease of over 14% from 2013 (Table 1). This decline was partially attributed to an increase in the cost of hunting licenses in 2014 (Frawley 2014). 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% (10,558) of the license buyers were younger than 17 years old. Mentored youth hunting licenses were purchased by 2,436 youths.

The number of people buying a turkey hunting license in 2014 decreased by about 19% in ten years from 2004 (110,617 people purchased a license in 2004). There were fewer license buyers for age classes between 24 and 57 years of age in 2014, compared to 2004 (Figure 3). However, there were increased hunter numbers among the youngest and oldest age classes in 2014. 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 2014, there was no minimum age limit to hunt turkeys; while hunters had to be at least 12 years old to participate in 2004.

About 82% (±1%) of license buyers hunted turkeys (73,422 hunters). Most of these hunters were males (68,003 ± 853), although over 7% (±1%) of the hunters were females 5,405 ± 476). Estimated hunter numbers (Table 2) decreased significantly by 11% from 2013 to 2014 (82,508 versus 73,422 hunters). Counties with more than 2,200 hunters afield were Allegan and Kent (Table 3).

Hunters spent an estimated 312,392 days afield pursuing turkeys (4.3 ± 0.1 days/hunter), and harvested approximately 29,110 birds (Figure 4). Counties listed in descending order with hunters taking more than 900 turkeys included Allegan, Jackson, and Sanilac (Table 3). Hunter effort and harvest in 2014 decreased significantly from 2013 (declined 8% and 10%, respectively). Hunter success was 40% in 2014, which was not significantly different from the 39% hunter success experienced in 2013.

About 20% (±2%) of the harvested birds were juvenile males (5,672 ± 494); 79% (±2%) were adult males (23,104 ± 863), and about 1% were bearded females (194 ± 83). Additionally, the age of a small number of harvested birds (<1%) was unknown (140 ± 84) 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, 42% of these birds were taken during the first seven days (April 21-27). Daily hunter success generally was more than 8% during April 21 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 81% of turkey hunters hunted solely on private land; 14% hunted on public land only; and 4% hunted on both private and public lands (Table 4). Of the 29,110 turkeys harvested in 2014, 90 ± 1% were taken on private land (26,114 ± 890 birds). About 10 ± 1% of the harvest (2,958 ± 360 birds) was taken on public land.

Twelve percent of turkey hunters believed turkey numbers were increasing in their hunting area (Table 5); while, 40% thought turkey numbers were stable, 31% thought turkey were decreasing; 16% 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 73,422 people hunting turkeys in 2014, 67 ± 1% of the hunters rated their hunting experience as either excellent (13,519 ± 700 hunters), very good (14,744 ± 743), or good (20,749 ± 852) (Table 6). Nearly 18 ± 1% of the hunters rated their experience as fair (13,502 ± 728 hunters). Only 14 ± 1% of the hunters rated their experience as poor (10,163 ± 648 hunters). About 1% of the hunters (746 ± 184 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 2014, 73 ± 1% of the hunters reported no hunter interference; 19 ± 1% reported minor interference; 6 ± 1% reported some irritation caused by hunter interference; and about 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 21; however, satisfaction varied little among the hunt periods (Table 8).

Compared to 2013, hunter numbers, hunter effort, and harvest statewide in 2014 decreased significantly (Table 9). In addition, significantly fewer hunters indicated that interference with another a hunter was a problem in 2014. In contrast, hunter success and hunter satisfaction were similar in both 2013 and 2014 (Table 10).

Most hunters (90 ± 1%) used firearms while hunting turkeys, although 5 ± 1% of the hunters used archery equipment (compound, recurve, or long bows), and about 4% used a crossbow. Most hunters (95 ± 1%) used a firearm to harvest their turkeys, while 3 ± 1% used archery equipment, and 2% used a crossbow. About 41% of hunters using a firearm harvested a turkey, while 17% of hunters using a crossbow took a turkey, and 21% of hunters using another type of bow (longbows, recurve, or compound bows) took a turkey (Table 11).

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Table 1. Number of hunting licenses available and people applying for licenses during the spring 2014 Michigan turkey hunting season.

Management unit or hunt period	Licenses available (quota)	Number of eligible applicants[a]	Number of applicants successful in drawing	Number of licenses remaining after drawing	Number of licenses purchased by successful applicants[b]	Number of licenses purchased by unsuccessful applicants[b]	Number of licenses purchased by people not in the drawing[b]	Number of licensees[b]
A	5,500	1,438	1,445	4,057	1,036	1	754	1,791
B	1,000	31	32	968	18	0	25	43
E	1,700	1,809	1,699	0	1,187	0	0	1,187
F	5,000	3,143	3,170	1,827	2,242	2	798	3,042
J	4,000	1,420	1,436	2,564	1,017	3	718	1,738
K	8,500	8,502	8,195	303	5,706	11	243	5,960
M	6,000	948	954	5,046	679	1	2,988	3,668
ZA	4,800	1,820	1,842	2,958	1,326	2	1,334	2,662
ZB	2,600	819	825	1,775	613	0	583	1,196
ZC	2,400	1,345	1,321	1,079	888	1	750	1,639
ZD	40	74	40	0	25	0	0	25
ZE	2,000	1,793	1,550	450	1,102	49	305	1,456
ZF	5,600	1,807	1,819	3,781	1,361	3	2,216	3,580
Hunt 234	NA	1,576	1,638	NA	1,809	97	32,141	34,047
Hunt 301	65,000	5,963	6,037	58,961	4,787	64	19,843	24,694
Pure hunts	3	NA	NA	NA	NA	NA	NA	3
Mentored youth	NA	NA	NA	NA	NA	NA	NA	2,436
Total	114,143	32,488	32,003	83,769	23,796	234	62,698	89,167

[a]Number of eligible applicants selecting the management unit as their first choice to hunt.
[b]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 2014 Michigan turkey hunting season.

Management unit	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Hunt periods with quotas (General limited quota hunt periods)												
A	1,472	89	6,248	739	421	98	29	6	45	7	93	4
B	32	5	87	19	19	6	59	16	82	12	94	8
E	1,038	48	3,481	294	287	62	28	6	55	6	93	3
F	2,638	123	9,618	879	607	142	23	5	58	6	94	3
J	1,410	88	5,190	573	486	100	34	7	55	7	90	4
K	5,232	229	18,104	1,557	1,708	311	33	6	58	6	93	3
M	2,608	217	15,641	2,790	914	205	35	7	59	8	93	4
ZA	2,226	128	7,819	1,017	731	151	33	7	68	7	90	4
ZB	1,032	56	3,619	401	333	72	32	7	71	7	82	6
ZC	1,271	99	4,955	672	392	99	31	7	70	7	89	5
ZD	21	2	75	11	7	2	31	11	56	12	88	8
ZE	1,245	65	4,146	490	364	79	29	6	65	7	88	5
ZF	2,970	173	14,952	2,275	1,022	205	34	7	68	7	86	5
Pure MI Hunt	3	0	6	0	1	0	33	0	67	0	100	0
Subtotal	23,198	443	93,939	4,360	7,291	518	31	2	62	2	91	1
Hunt period 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2013)												
ZA	5,651	403	20,180	1,859	2,635	295	47	4	71	4	94	2
ZB	2,330	281	8,382	1,429	1,109	198	48	6	78	5	91	4
ZC	3,055	315	10,639	1,409	1,628	236	53	5	78	5	90	3
ZD	472	132	1,588	639	210	88	45	14	77	12	100	0
ZE	5,564	400	20,637	1,994	2,687	297	48	4	77	3	92	2
ZF	4,492	370	17,613	1,917	2,392	282	52	5	66	4	91	3
Unknown	370	117	1,597	716	0	0	0	0	53	16	88	10
Subtotal	21,420	327	80,635	2,929	10,661	475	50	2	73	2	92	1

[a]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.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]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 2014 Michigan turkey hunting season.

Management unit	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2014)												
A	445	148	1,979	992	81	61	18	12	35	16	80	13
B	14	27	43	82	0	0	0	0	0	0	100	0
E	1,217	243	6,055	1,689	433	145	36	10	60	10	92	6
F	1,283	250	6,768	1,820	221	105	17	7	43	10	93	5
J	896	209	4,123	1,299	228	105	25	10	47	12	98	3
K	5,457	480	25,207	3,148	2,074	312	38	5	60	5	93	2
M	151	86	609	381	61	54	41	28	61	28	99	0
ZA	5,280	474	24,504	3,008	2,076	312	39	5	68	5	93	3
ZB	2,042	312	7,563	1,510	902	211	44	8	74	7	92	4
ZC	2,169	320	10,111	2,008	741	190	34	7	69	7	91	4
ZD	264	115	1,635	1,084	104	72	39	21	78	18	89	14
ZE	5,122	468	23,045	3,008	2,395	334	47	5	77	4	95	2
ZF	3,696	408	18,475	3,119	1,430	262	39	6	68	5	93	3
Unknown	347	132	1,849	879	0	0	0	0	38	19	83	14
Subtotal	27,107	531	131,965	5,895	10,745	608	40	2	66	2	93	1

[a]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.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]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 2014 Michigan turkey hunting season.

Management unit	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)												
A	42	16	112	49	18	11	44	19	88	13	94	9
B	0	0	0	0	0	0	0	0	0	0	0	0
E	57	19	257	120	5	6	9	9	77	14	86	11
F	65	20	166	61	10	8	16	11	68	14	92	8
J	42	16	122	59	3	4	6	9	69	18	94	9
K	249	37	802	152	57	19	23	7	68	7	91	5
M	60	19	247	104	13	9	22	13	57	16	96	7
ZA	365	44	1,213	189	99	24	27	6	72	6	93	3
ZB	138	28	415	112	55	18	40	10	83	8	89	7
ZC	174	31	582	134	34	14	19	7	79	8	90	6
ZD	13	9	26	19	3	4	20	28	80	28	80	28
ZE	247	37	898	169	65	20	26	7	85	6	88	5
ZF	278	39	992	183	52	18	19	6	82	6	88	5
Unknown	13	9	21	17	0	0	0	0	80	28	80	28
Subtotal	1,697	56	5,853	344	413	46	24	3	77	3	90	2
Statewide	73,422	767	312,392	7,903	29,110	930	40	1	67	1	92	1

[a]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.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]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 spring 2014 Michigan turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
County	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Alcona	764	169	3,901	1,263	147	77	19	9	34	11	91	6
Alger	139	90	419	289	1	0	1	0	27	29	100	0
Allegan	2,450	315	11,105	2,039	1,019	211	42	7	65	7	86	5
Alpena	595	135	2,345	729	162	71	27	11	43	12	94	7
Antrim	540	143	1,896	614	188	84	35	13	62	13	98	3
Arenac	408	122	2,390	1,139	173	80	42	15	54	15	92	8
Baraga	52	57	259	326	0	0	0	0	33	52	100	0
Barry	1,727	276	7,224	1,783	596	163	35	8	69	8	90	5
Bay	469	139	1,670	584	185	87	40	15	74	13	95	7
Benzie	346	139	1,685	861	89	69	26	17	57	20	96	8
Berrien	901	195	5,063	1,600	370	120	41	11	66	10	90	6
Branch	845	187	4,070	1,281	438	134	52	11	75	10	90	6
Calhoun	1,474	248	5,353	1,167	728	177	49	9	72	8	89	5
Cass	732	182	4,283	1,725	372	129	51	13	68	12	88	8
Charlevoix	533	134	2,084	762	164	70	31	11	58	13	96	4
Cheboygan	548	134	2,153	673	136	66	25	11	50	13	96	4
Chippewa	155	94	750	507	87	71	56	30	66	29	99	0
Clare	1,002	175	3,727	819	216	89	22	8	58	9	94	4
Clinton	1,176	222	5,241	1,256	495	145	42	9	65	9	89	6
Crawford	673	167	2,639	868	116	69	17	9	49	13	84	10
Delta	367	140	1,679	1,120	128	86	35	19	58	20	94	9

[a]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.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]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 spring 2014 Michigan turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
County	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Dickinson	523	165	2,699	1,222	149	92	28	15	46	17	93	9
Eaton	933	197	3,601	1,062	377	125	40	10	83	8	95	4
Emmet	279	100	999	414	73	47	26	15	32	17	97	6
Genesee	1,479	241	5,293	1,067	605	154	41	8	79	7	89	5
Gladwin	856	167	3,189	899	330	108	39	10	59	10	90	6
Gogebic	88	71	540	561	39	46	44	40	64	39	80	33
Gd. Traverse	785	217	3,278	1,287	300	139	38	14	60	14	96	5
Gratiot	1,048	208	3,868	1,097	470	138	45	10	65	10	89	6
Hillsdale	1,460	242	6,585	1,437	545	150	37	8	75	7	94	4
Houghton	138	91	882	964	17	33	13	22	63	33	100	0
Huron	1,476	229	5,490	1,031	595	152	40	8	73	7	89	5
Ingham	1,429	241	5,637	1,351	584	157	41	8	73	8	92	4
Ionia	1,454	247	5,381	1,170	673	170	46	9	73	8	93	4
Iosco	680	164	2,269	636	149	78	22	10	55	13	98	3
Iron	350	137	1,547	678	100	73	28	18	69	19	100	0
Isabella	1,304	228	4,321	959	625	158	48	9	70	8	93	5
Jackson	2,110	282	7,370	1,329	982	197	47	7	78	6	97	2
Kalamazoo	1,225	236	4,612	1,260	449	141	37	9	71	9	89	6
Kalkaska	733	211	3,020	1,058	168	98	23	12	48	15	91	9
Kent	2,303	307	7,983	1,453	831	186	36	7	74	6	93	4
Keweenaw	17	33	17	33	0	0	0	0	100	0	100	0

[a]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.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]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 spring 2014 Michigan turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
County	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Lake	1,187	273	4,737	1,446	220	121	18	9	48	12	92	7
Lapeer	1,783	262	7,012	1,489	711	167	40	7	70	7	91	4
Leelanau	429	164	1,770	985	196	114	46	19	74	17	87	13
Lenawee	1,041	209	3,904	1,222	491	143	47	10	71	9	89	6
Livingston	1,511	232	5,295	1,105	621	155	41	8	76	7	94	3
Luce	0	0	0	0	0	0	0	0	0	0	0	0
Mackinac	0	0	0	0	0	0	0	0	0	0	0	0
Macomb	586	153	2,231	742	222	91	38	13	76	11	93	7
Manistee	721	212	2,295	834	224	114	31	13	70	13	92	8
Marquette	187	104	1,213	1,088	2	0	1	1	36	27	82	22
Mason	767	215	3,021	1,124	336	148	44	14	63	13	98	4
Mecosta	1,093	253	4,064	1,132	489	174	45	12	73	11	95	4
Menominee	856	202	4,480	1,557	414	151	48	13	71	12	94	6
Midland	1,077	213	4,384	1,131	431	136	40	10	68	9	96	4
Missaukee	824	222	2,724	910	274	127	33	13	65	13	92	6
Monroe	607	155	2,927	1,235	234	97	39	13	74	11	97	4
Montcalm	1,943	284	8,468	1,769	765	178	39	7	64	7	96	3
Montmorency	420	108	2,088	871	114	56	27	12	52	14	79	12
Muskegon	777	182	2,671	823	393	128	51	12	77	10	96	5
Newaygo	1,661	310	6,053	1,342	715	207	43	10	63	10	95	4
Oakland	1,124	190	4,298	877	424	125	38	9	79	7	87	6

[a]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.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]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 spring 2014 Michigan turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
County	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Oceana	892	223	2,911	870	274	123	31	12	59	12	94	6
Ogemaw	796	171	2,834	773	190	90	24	10	61	11	92	6
Ontonagon	105	80	741	615	17	33	17	29	50	39	83	29
Osceola	833	223	3,237	1,050	221	111	27	12	51	14	95	6
Oscoda	665	161	2,521	886	149	78	22	11	54	13	90	8
Otsego	552	129	2,156	675	148	70	27	11	49	12	87	8
Ottawa	1,689	272	6,768	1,570	702	175	42	8	68	8	89	5
Presque Isle	419	115	1,562	499	175	74	42	14	53	14	89	9
Roscommon	773	177	3,203	929	96	62	12	8	47	12	93	6
Saginaw	1,774	269	6,840	1,350	616	160	35	7	68	7	90	5
St. Clair	1,653	254	6,344	1,393	767	172	46	8	73	7	94	4
St. Joseph	840	195	3,699	1,092	344	125	41	12	68	11	89	7
Sanilac	1,992	280	6,709	1,368	948	194	48	7	78	6	91	4
Schoolcraft	141	92	821	612	35	46	25	29	39	32	100	0
Shiawassee	1,136	213	4,372	1,038	435	131	38	9	72	9	92	5
Tuscola	2,002	261	7,035	1,286	849	178	42	7	76	6	89	4
Van Buren	1,208	229	5,247	1,349	539	154	45	10	61	9	92	5
Washtenaw	1,665	249	5,960	1,222	695	163	42	8	76	6	92	4
Wayne	146	77	361	238	74	53	50	26	85	18	88	18
Wexford	1,097	261	4,287	1,249	309	133	28	11	58	12	85	9
Unknown	2,992	358	12,630	1,997	377	127	13	4	52	6	87	4

[a]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.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]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 2014 Michigan turkey hunting season.[a]

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	1,158	110	79	6	215	74	15	5	81	48	5	3	18	23	1	2
B	23	6	73	14	3	2	9	8	6	4	18	12	0	0	0	0
E	765	70	74	6	199	54	19	5	68	34	7	3	6	10	1	1
F	1,315	177	50	6	938	165	36	6	299	107	11	4	85	60	3	2
J	942	111	67	7	294	83	21	6	148	63	11	4	26	27	2	2
K	3,083	347	59	6	1,575	306	30	6	417	177	8	3	158	113	3	2
M	1,815	238	70	7	408	149	16	6	282	127	11	5	104	80	4	3
ZA	1,108	169	50	7	911	162	41	7	144	77	6	3	64	53	3	2
ZB	364	74	35	7	600	81	58	7	48	32	5	3	20	21	2	2
ZC	509	109	40	8	676	116	53	8	66	45	5	3	20	26	2	2
ZD	11	3	50	12	11	3	50	12	0	0	0	0	0	0	0	0
ZE	394	82	32	6	764	92	61	7	59	36	5	3	29	26	2	2
ZF	1,528	226	51	7	1,152	213	39	7	241	113	8	4	49	54	2	2
PMH	2	0	67	0	1	0	33	0	0	0	0	0	0	0	0	0
Subtotal	13,828	585	57	2	7,780	509	32	2	1,890	299	8	1	579	178	2	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2013)																
ZA	5,651	403	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZB	2,330	281	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZC	3,055	315	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZD	472	132	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE	5,564	400	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZF	4,492	370	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	370	117	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	21,420	327	100	0	0	0	0	0	0	0	0	0	0	0	0	0

[a]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 2014 Michigan turkey hunting season.[a]

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
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2013)																
A	268	115	60	16	148	86	33	16	30	38	7	8	0	0	0	0
B	14	27	100	0	0	0	0	0	0	0	0	0	0	0	0	0
E	900	209	74	9	217	105	18	8	72	61	6	5	14	27	1	2
F	566	168	44	10	572	168	45	10	74	61	6	5	57	54	4	4
J	502	157	56	12	250	112	28	11	115	77	13	8	29	38	3	4
K	3,678	406	67	4	1,076	229	20	4	473	153	9	3	187	98	3	2
M	92	66	61	28	44	47	29	26	14	27	10	17	0	0	0	0
ZA[b]	5,280	474	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZB[b]	2,041	312	100	0	1	0	0	0	0	0	0	0	0	0	0	0
ZC[b]	2,169	320	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZD[b]	264	115	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE[b]	5,122	468	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZF[b]	3,696	408	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	230	108	66	18	31	38	9	11	14	27	4	8	72	61	21	16
Subtotal	23,706	605	87	1	2,119	317	8	1	923	211	3	1	359	135	1	0

[a]Row totals may not equal 100% because of rounding errors.
[b]Licenses for the unlimited quota hunt were valid only on private lands in Management Unit ZZ in southern Michigan (Figure 1).
[c]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 2014 Michigan turkey hunting season.[a]

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	34	14	81	15	5	6	13	13	3	4	6	9	0	0	0	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	44	16	77	14	10	8	18	13	3	4	5	7	0	0	0	0
F	36	15	56	15	21	11	32	14	8	7	12	10	0	0	0	0
J	34	14	81	15	8	7	19	15	0	0	0	0	0	0	0	0
K	184	32	74	7	34	14	14	5	26	13	10	5	5	6	2	2
M	47	17	78	13	8	7	13	11	3	4	4	7	3	4	4	7
ZA	327	42	89	4	18	11	5	3	16	10	4	3	5	6	1	2
ZB	130	27	94	5	8	7	6	5	0	0	0	0	0	0	0	0
ZC	161	30	93	5	10	8	6	4	3	4	1	2	0	0	0	0
ZD	13	9	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE	236	36	96	3	10	8	4	3	0	0	0	0	0	0	0	0
ZF	241	37	87	5	29	13	10	5	8	7	3	2	0	0	0	0
Unknown	10	8	80	28	0	0	0	0	0	0	0	0	3	4	20	28
Subtotal	1,453	60	86	2	156	30	9	2	73	21	4	1	16	10	1	1
Statewide[c]	59,552	905	81	1	10,005	600	14	1	2,854	367	4	0	1,011	230	1	0

[a]Row totals may not equal 100% because of rounding errors.
[b]Licenses for the unlimited quota hunt were valid only on private lands in Management Unit ZZ in southern Michigan (Figure 1).
[c]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 2014 Michigan turkey hunting season.

Management unit	Turkey population status (% of hunters)[a]				
	Increasing	Decreasing	Stable	Unknown	No answer
Hunt periods with quotas (General limited quota hunt periods)					
A	7	46	31	15	1
B	3	44	35	18	0
E	9	27	43	21	1
F	9	37	28	25	0
J	7	42	30	19	1
K	8	43	33	15	1
M	11	40	33	14	2
ZA	11	25	47	17	1
ZB	12	18	46	21	3
ZC	13	24	36	26	1
ZD	25	19	19	38	0
ZE	15	22	35	26	2
ZF	11	30	40	18	1
Pure MI Hunt	0	33	0	67	0
Mean	10	34	36	18	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2014)					
ZA	13	33	42	11	1
ZB	15	26	49	10	0
ZC	14	23	46	17	1
ZD	28	12	40	19	2
ZE	21	19	49	11	0
ZF	14	30	42	14	0
Unknown	12	33	26	21	9
Mean	16	26	45	12	1

[a]Row totals may not equal 100% because of rounding errors.

Table 5 (continued). Status of turkey population reported by turkey hunters during the spring 2014 Michigan turkey hunting season.

Manage-ment unit	Turkey population status (% of hunters)[a]				
	Increasing	Decreasing	Stable	Unknown	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2014)					
A	7	69	4	16	3
B	0	100	0	0	0
E	11	30	34	24	1
F	6	51	29	13	0
J	5	46	43	5	2
K	6	41	35	18	1
M	10	39	31	20	0
ZA	10	35	41	13	1
ZB	13	24	48	14	1
ZC	14	26	43	17	0
ZD	12	27	39	22	0
ZE	17	22	45	15	2
ZF	12	31	42	14	1
Unknown	8	25	25	38	4
Mean	11	33	40	16	1
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)					
A	13	25	25	38	0
B	0	0	0	0	0
E	14	14	27	45	0
F	12	28	24	32	4
J	6	31	31	31	0
K	10	38	20	32	0
M	13	35	26	22	4
ZA	11	30	30	26	3
ZB	25	9	43	23	0
ZC	13	13	51	22	0
ZD	20	20	40	20	0
ZE	23	12	33	32	1
ZF	16	18	41	21	4
Unknown	0	40	0	40	20
Mean	15	22	33	28	2
Statewide[b]	12	31	40	16	1

[a]Row totals may not equal 100% because of rounding errors.
[b]Statewide mean interference levels (all hunts and periods).

Table 6. How hunters rated their hunting experience during the spring 2014 Michigan turkey hunting season.

Management unit	Satisfaction level (% of hunters)[a]					
	Excellent	Very good	Good	Fair	Poor	No answer
Hunt periods with quotas (General limited quota hunt periods)						
A	14	12	19	23	32	1
B	36	23	23	6	12	0
E	10	19	26	23	21	1
F	12	14	32	21	20	1
J	16	16	24	23	21	1
K	15	20	24	21	20	0
M	11	17	31	20	19	2
ZA	17	22	29	18	13	1
ZB	25	19	27	15	11	3
ZC	16	23	31	14	14	1
ZD	25	6	25	13	31	0
ZE	18	20	27	23	11	1
ZF	17	20	31	20	10	2
Pure MI Hunt	33	0	33	33	0	0
Mean	16	19	27	20	17	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2014)						
ZA	21	22	28	17	11	1
ZB	26	19	33	13	9	0
ZC	24	24	30	14	6	1
ZD	24	32	21	12	12	0
ZE	28	24	26	15	8	1
ZF	23	19	24	19	14	1
Unknown	15	15	23	26	15	6
Mean	24	22	27	16	10	1

[a]Row totals may not equal 100% because of rounding errors.

Table 6 (continued). How hunters rated their hunting experience during the spring 2014 Michigan turkey hunting season.

Management unit	Satisfaction level (% of hunters)[a]					
	Excellent	Very good	Good	Fair	Poor	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2014)						
A	11	11	13	20	36	10
B	0	0	0	100	0	0
E	12	17	30	21	17	2
F	2	13	28	26	30	0
J	7	12	28	26	26	2
K	13	18	29	22	16	1
M	20	21	20	10	29	0
ZA	16	18	33	18	13	1
ZB	17	25	31	16	10	0
ZC	17	24	28	21	8	1
ZD	12	28	39	11	11	0
ZE	24	25	28	14	8	1
ZF	18	21	30	19	12	0
Unknown	0	0	38	37	25	0
Mean	16	20	30	19	14	1
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)						
A	31	31	25	6	6	0
B	0	0	0	0	0	0
E	27	9	41	14	5	5
F	20	16	32	16	16	0
J	19	6	44	31	0	0
K	25	14	29	19	14	0
M	9	22	26	26	13	4
ZA	26	27	19	20	7	1
ZB	30	21	32	9	8	0
ZC	10	30	39	15	6	0
ZD	20	60	0	0	20	0
ZE	32	26	27	7	5	2
ZF	21	26	36	15	2	1
Unknown	0	40	40	0	0	20
Mean	23	24	30	15	7	1
Statewide[b]	18	20	28	18	14	1

[a]Row totals may not equal 100% because of rounding errors.
[b]Statewide mean satisfaction levels (all hunts and periods).

Table 7. Estimated amount of hunter interference experienced by turkey hunters during the spring 2014 Michigan turkey hunting season.

Management unit	Interference level (% of hunters)[a]				
	None	Minor	Some irritation	Major problem	No answer
Hunt periods with quotas (General limited quota hunt periods)					
A	83	10	6	1	1
B	88	6	6	0	0
E	77	16	5	1	1
F	71	23	5	1	0
J	68	22	6	3	1
K	69	24	6	0	0
M	77	16	4	1	2
ZA	70	19	9	1	1
ZB	54	28	12	3	3
ZC	60	29	9	2	0
ZD	63	25	6	6	0
ZE	56	32	6	5	1
ZF	65	21	11	2	1
Pure MI Hunt	67	33	0	0	0
Mean	70	21	7	2	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2014)					
ZA	77	17	5	1	0
ZB	73	18	7	2	0
ZC	76	14	7	2	0
ZD	74	26	0	0	0
ZE	76	16	5	2	1
ZF	70	21	8	1	0
Unknown	65	23	3	3	6
Mean	75	17	6	1	1

[a]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 2014 Michigan turkey hunting season.

Management unit	Interference level (% of hunters)[a] None	Minor	Some irritation	Major problem	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2014)					
A	61	20	13	6	0
B	100	0	0	0	0
E	70	21	6	1	1
F	71	23	3	3	0
J	87	12	2	0	0
K	73	20	6	1	0
M	90	10	0	1	0
ZA	76	17	5	1	1
ZB	77	16	6	1	0
ZC	77	15	7	1	1
ZD	45	44	11	0	0
ZE	79	15	4	1	1
ZF	74	19	6	1	0
Unknown	67	17	8	8	0
Mean	75	18	5	1	0
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)					
A	69	25	6	0	0
B	0	0	0	0	0
E	68	18	9	5	0
F	80	12	8	0	0
J	75	19	6	0	0
K	75	16	9	0	0
M	87	9	0	0	4
ZA	76	17	5	1	1
ZB	74	15	11	0	0
ZC	72	18	9	1	0
ZD	80	0	20	0	0
ZE	75	14	8	2	1
ZF	69	19	10	2	0
Unknown	80	0	0	0	20
Mean	74	16	8	1	1
Statewide[b]	73	19	6	1	1

[a]Row totals may not equal 100% because of rounding errors.
[b]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 2014 spring turkey hunting season, by hunt periods.

	Hunt periods beginning									
	April 21		April 28		May 5		May 12		All periods[a]	
Variable	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Hunting efforts (days)	141,346	4,683	19,466	1,984	144,297	6,388	7,283	1,330	312,392	7,903
Number of hunters	36,675	646	5,745	453	29,463	596	1,539	202	73,422	767
Successful hunters (n)	15,593	639	1,611	286	11,448	633	458	122	29,110	930
Successful hunters (%)	43	2	28	4	39	2	30	7	40	1
Noninterfered hunters (n)[b]	33,515	676	5,418	447	27,218	633	1,339	193	67,490	861
Noninterfered hunters (%)[b]	91	1	94	2	92	1	87	5	92	1
Favorable rating (n)[c]	25,179	703	3,484	391	19,370	698	979	170	49,012	997
Favorable rating (%)[c]	69	2	61	5	66	2	64	7	67	1

[a]Row totals may not equal totals for all periods because of rounding errors.
[b]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.
[c]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 2013 and 2014 Michigan spring turkey hunting seasons, summarized by regions.

	Hunters (No.)[b]					Hunting efforts (days)					Harvest (No.)				
	2013		2014			2013		2014			2013		2014		
Region[a]	Total	95% CL	Total	95% CL	Change (%)	Total	95% CL	Total	95% CL	Change (%)	Total	95% CL	Total	95% CL	Change (%)
UP	3,521	291	2,732	238	-22*	17,798	2,716	16,047	2,827	-10	1,187	252	989	212	-17
NLP	23,507	755	20,530	667	-13*	93,783	4,823	85,039	4,631	-9	7,628	587	6,543	525	-14
SLP	53,177	932	47,867	800	-10*	216,806	6,703	198,676	6,550	-8*	23,084	877	21,201	779	-8*
Unknown	3,151	403	2,992	358		12,570	2,154	12,630	1,997		346	131	377	127	
Total	82,508	946	73,422	767	-11*	340,957	8,081	312,392	7,903	-8*	32,244	1,056	29,110	930	-10*

[a]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).
[b]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 2013 and 2014 Michigan spring turkey hunting season, summarized by regions.

	Hunter success					Hunter satisfaction[b]					Noninterfered hunters[c]				
	2013		2014		Difference	2013		2014		Difference	2013		2014		Difference
Region[a]	%	95% CL	%	95% CL	(%)	%	95% CL	%	95% CL	(%)	%	95% CL	%	95% CL	(%)
UP	34	7	36	7	2	57	7	60	7	2	93	4	95	3	2
NLP	32	2	32	2	-1	60	2	56	2	-3	91	1	93	1	2
SLP	43	1	44	1	1	74	1	72	1	-2	90	1	92	1	1
Total	39	1	40	1	1	69	1	67	1	-2	90	1	92	1	2*

[a]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).
[b]Hunters rating their hunting experience as excellent, very good, or good.
[c]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, 2010-2014.

	Number of turkey harvested by device								Hunter success by device[a]					
	Firearm		Crossbows		Other bows[b]		Unknown		Firearm		Crossbows		Other bows[b]	
Year	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	30,746	1,038	921	210	1,090	231	80	76	39	1	22	5	18	4
2014	27,746	919	516	143	838	195	9	13	41	1	17	4	21	4

[a]Hunters harvestting a turkey.
[b]Included longbows, recurve, and compound bows.

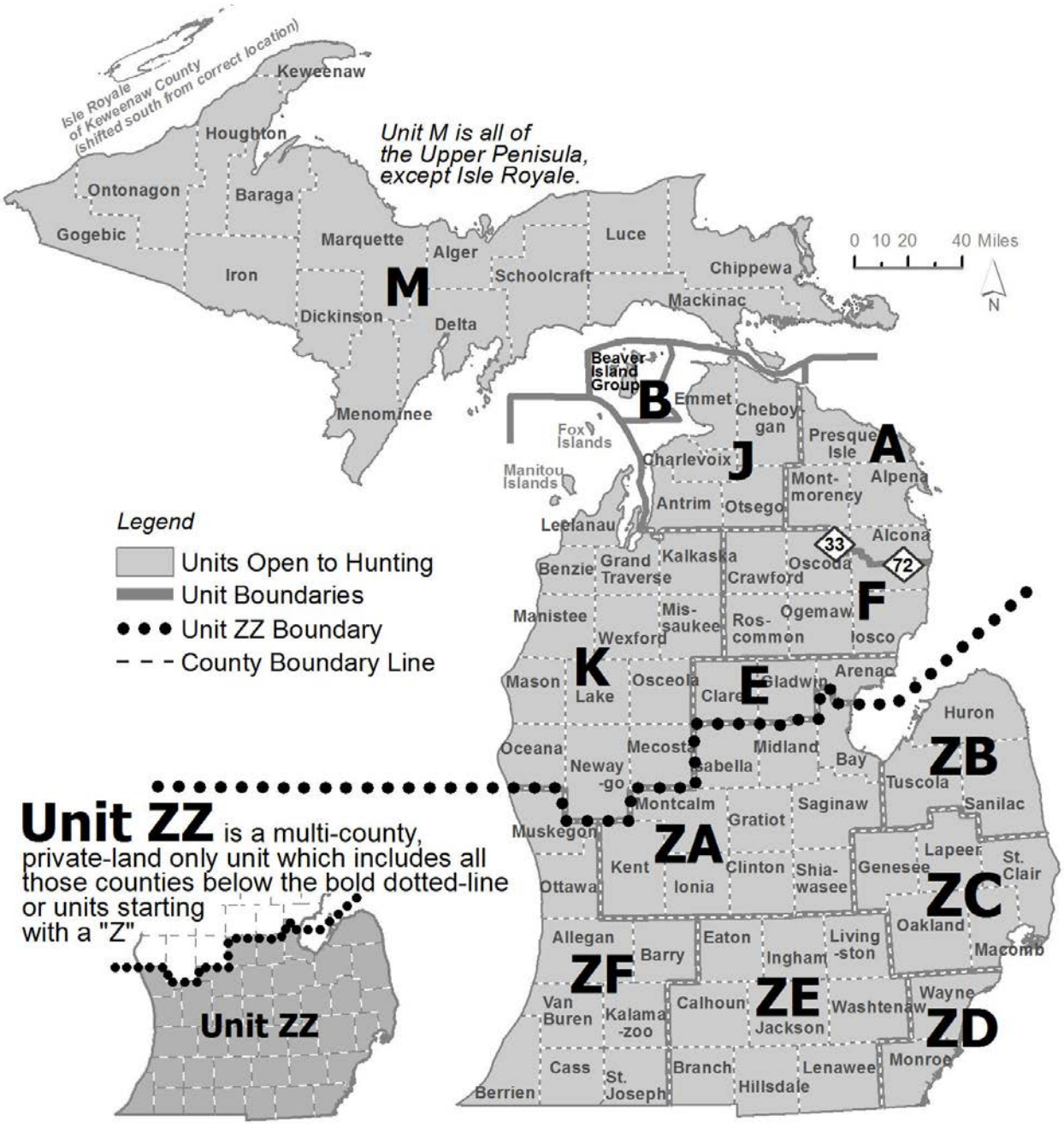


Figure 1. Management units in Michigan open to spring turkey hunting in 2014.

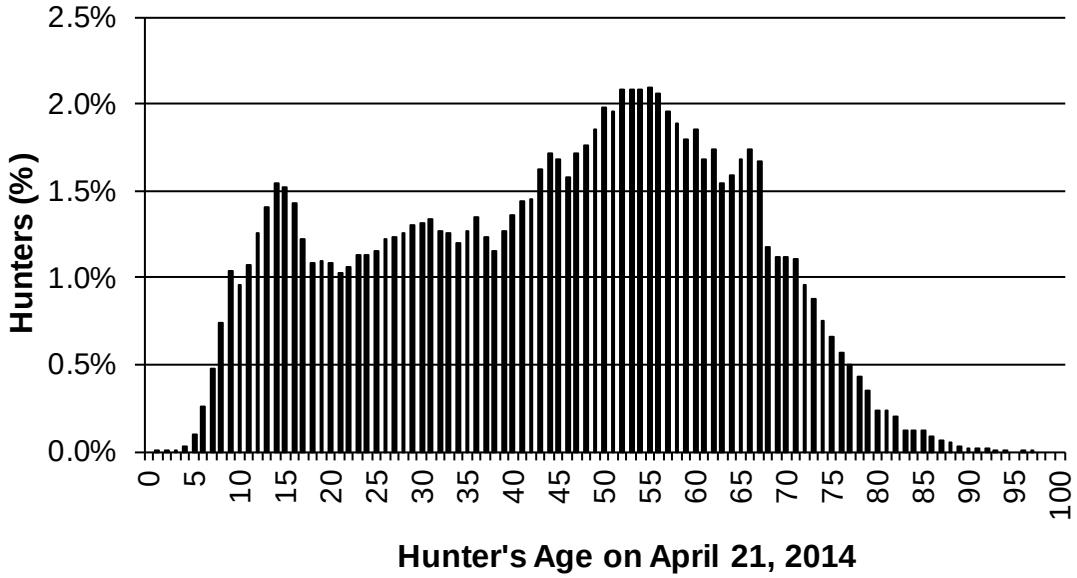


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2014 spring hunting season ($\bar{x}$ = 44 years). Licenses were purchased by 89,167 people.

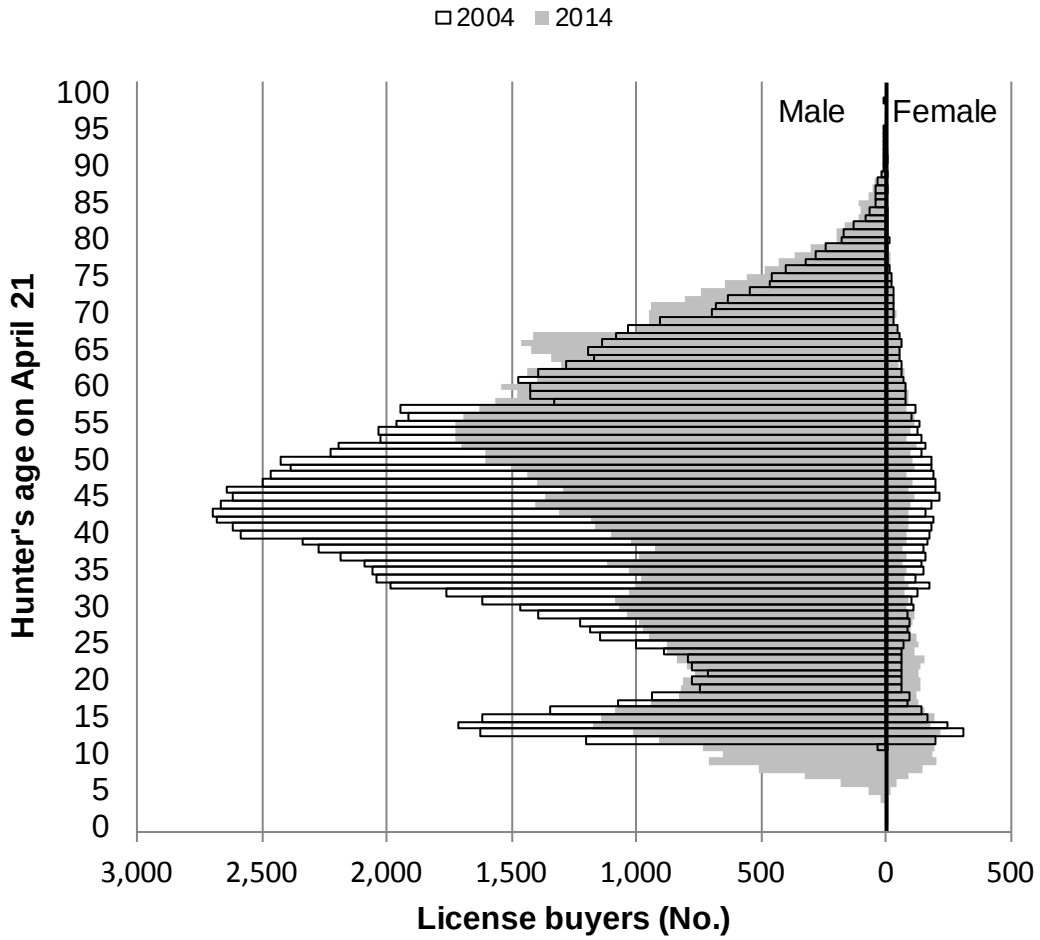


Figure 3. Number of spring turkey hunting license buyers in Michigan by age and sex during 2004 and 2014 hunting seasons. The number of people buying a license was 110,617 in 2004 and 89,167 in 2014.

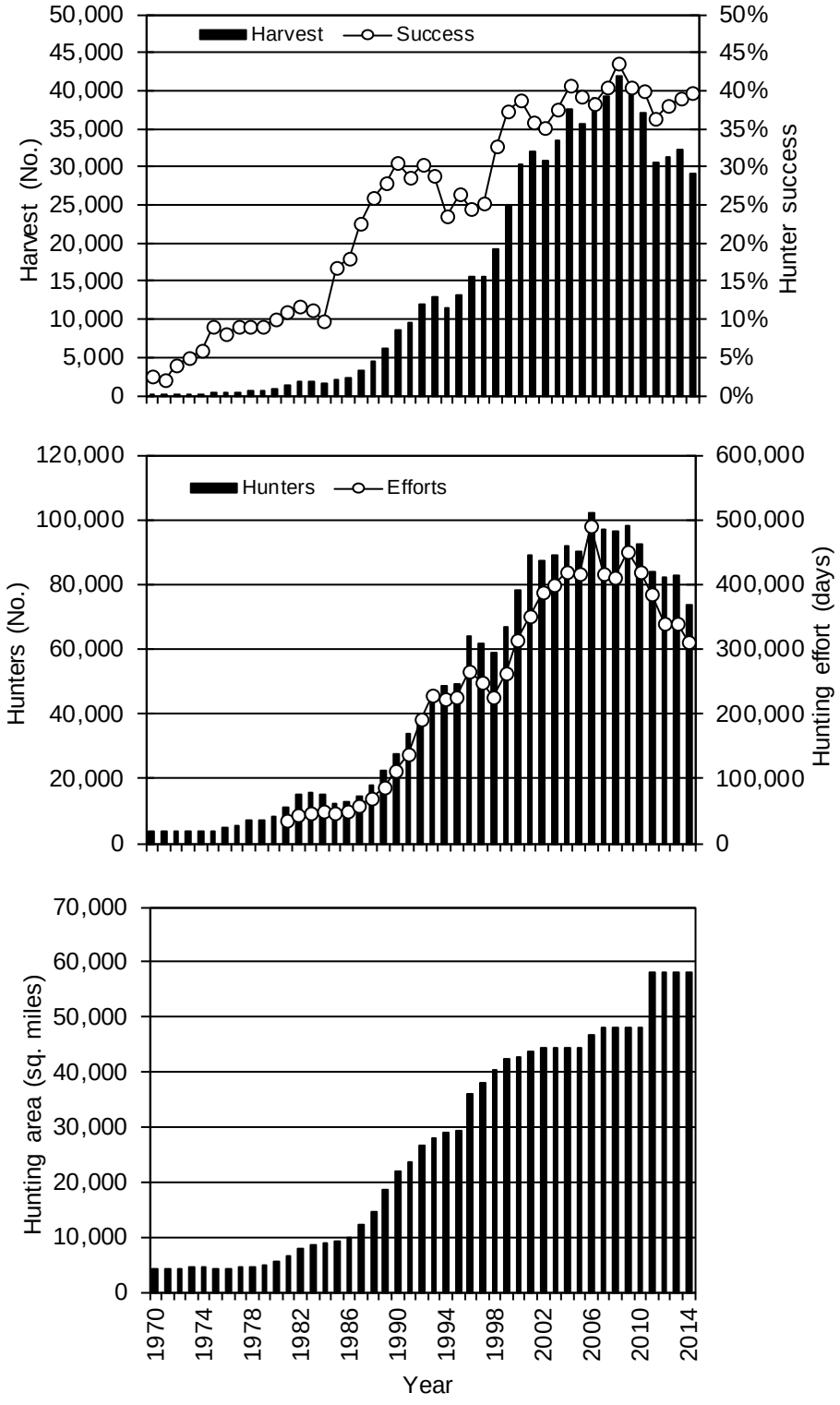


Figure 4. Estimated number of hunters, harvest, hunting efforts, hunter success, and area open to hunting during the Michigan spring turkey hunting season, 1970-2014. Estimates of hunting effort generally were not available before 1981.

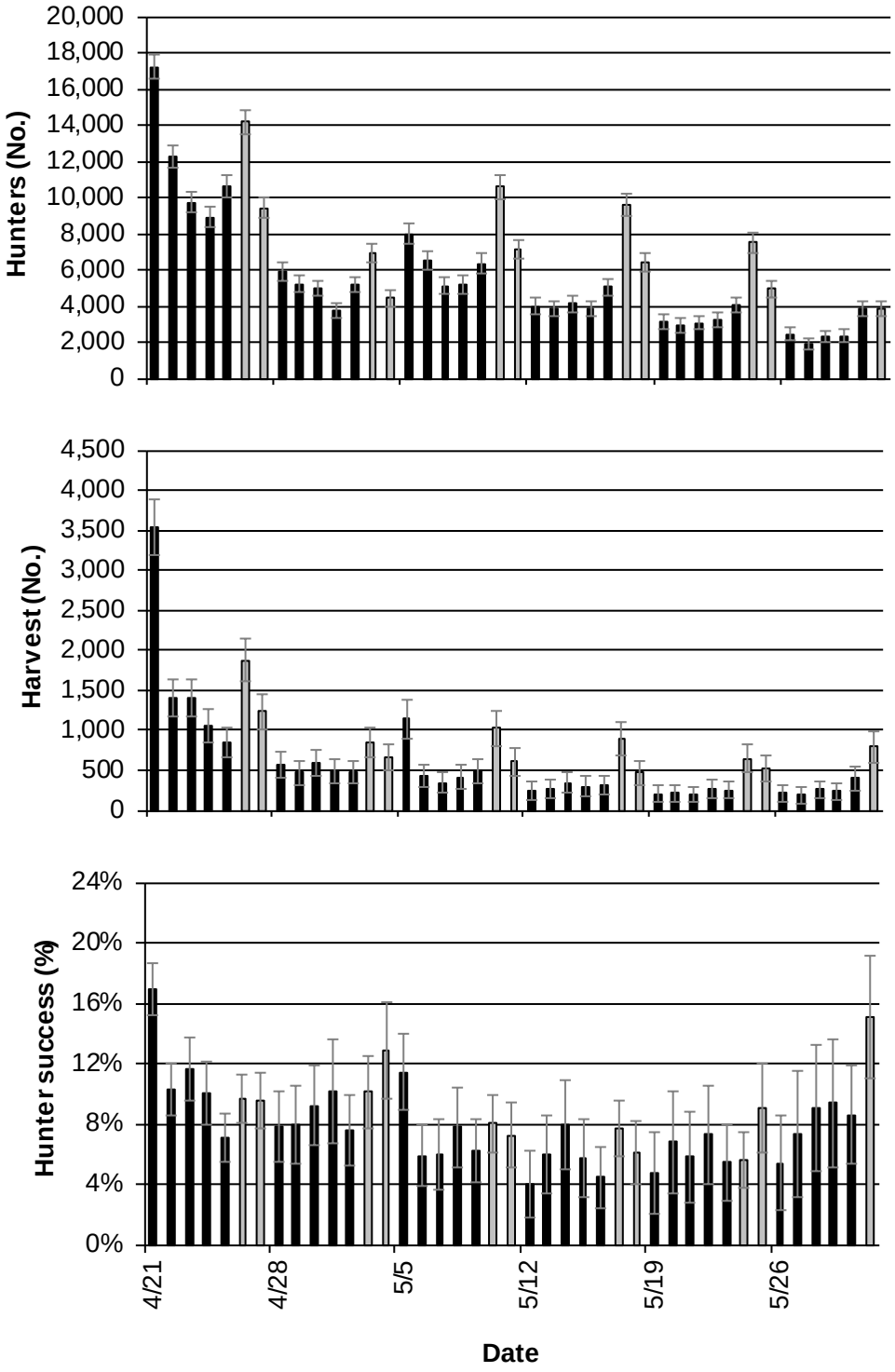


Figure 5. Estimated number of hunters, harvest, and hunter success by date during the 2014 Michigan spring turkey hunting season (includes all hunts). An additional 1,961 ± 295 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

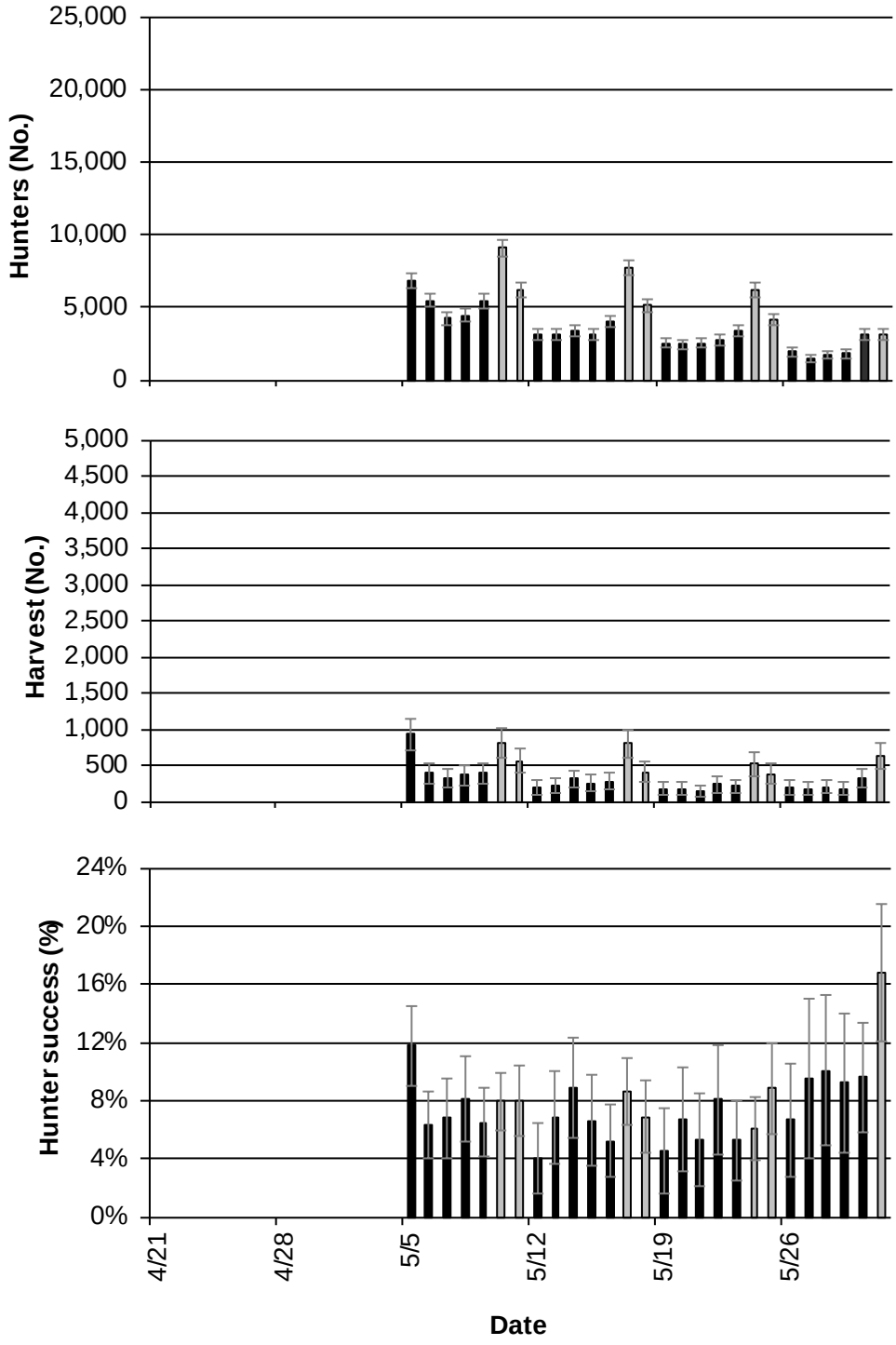


Figure 6. Estimated number of hunters, harvest, and hunter success by date during Hunt 234 of the 2014 Michigan spring turkey hunting season (May 5-31). An additional 1,001 ± 222 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

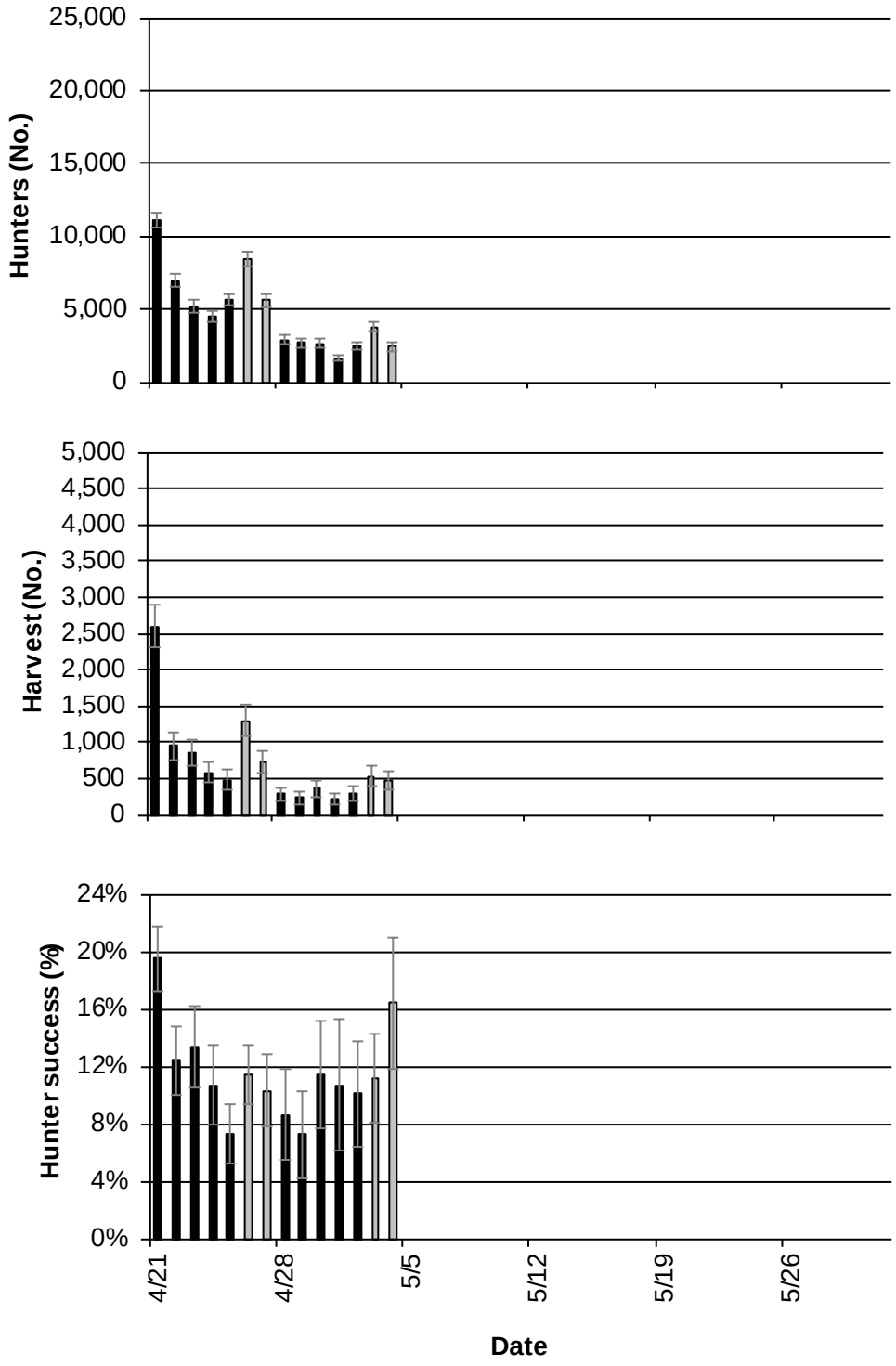


Figure 7. Estimated number of hunters, harvest, and hunter success by date during Hunt 301 of the 2014 Michigan spring turkey hunting season (April 21-May 4). An additional 777 ± 168 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

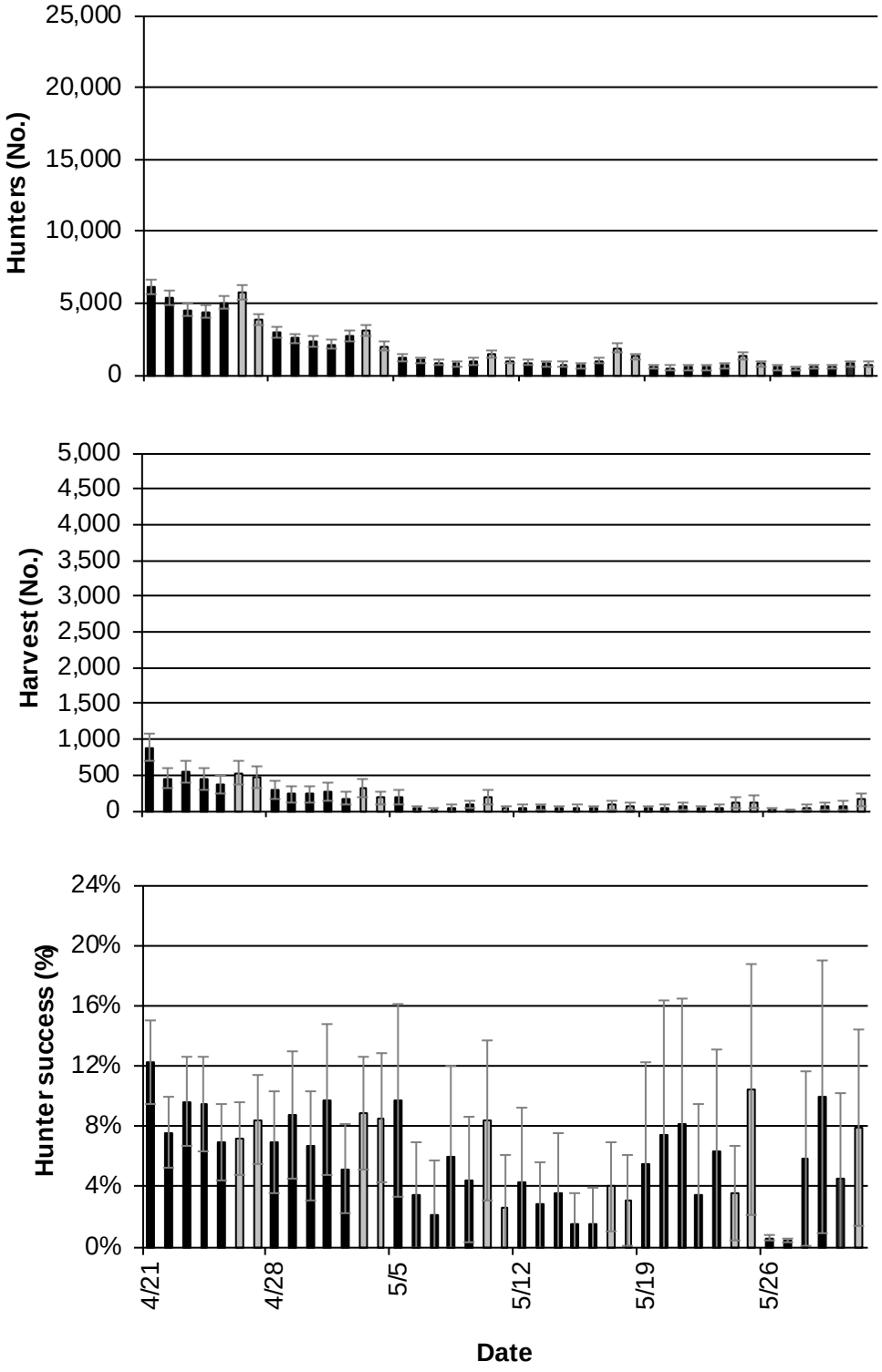


Figure 8. Estimated number of hunters, harvest, and hunter success by date during all hunts, except for mentored youth hunts and hunts 234 and 301 of the 2014 Michigan spring turkey hunting season. An additional 173 ± 95 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

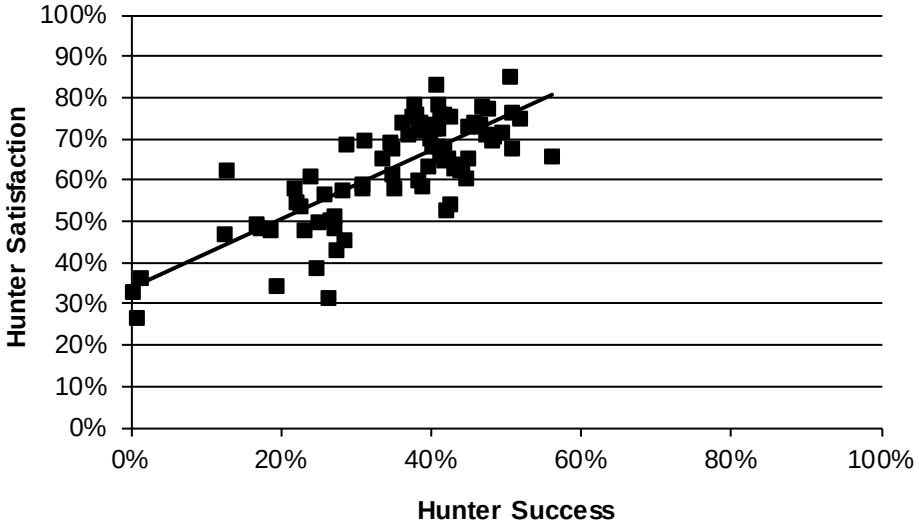


Figure 9. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter success for each of 80 counties in Michigan during the 2014 spring turkey hunting season (included only counties with at least 30 hunters).

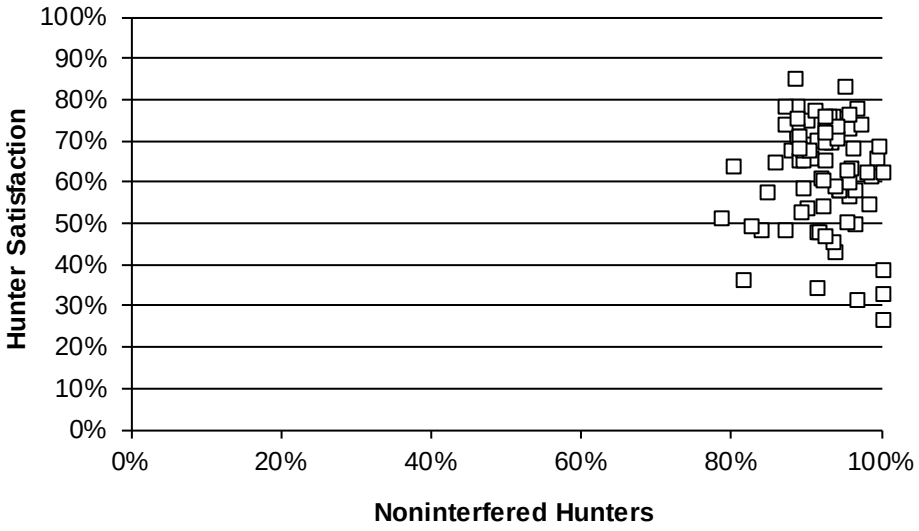


Figure 10. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter interference for each of 80 counties in Michigan during the 2014 spring turkey hunting season (included only counties with at least 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 – 2015

This report summarizes the fall 2014 and spring 2015 Minnesota wild turkey harvest information. The fall turkey season was 30 days in length (October 4- November 2) 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 (Figure 1) and 8 time periods using a quota system for the first 3 time periods. The first time period began on April 15, and the final time period concluded on May 28.

During spring, adult hunters interested in pursuing turkeys for the first 3 time periods were required to apply for a permit through a lottery system but youth hunters were able purchase a permit over-the-counter, and hunt in any permit area. 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.

Alternatively, firearms hunters could simply purchase a permit for one of the last 5 seasons, while persons with an archery turkey license could hunt the last 5 time periods in their entirety. The goal of this system is to provide quality turkey hunting opportunities by managing hunter interference rates while allowing hunters to take the harvestable surplus of turkeys.

Fall 2014 Turkey Season

The number of permits issued to hunters increased slightly from 8139 permits in 2013 to 8,339 in 2014(Table 1, Figure 2). Hunters still needed to select and hunt within one of the twelve permit areas. There were 1,137 turkeys harvested during fall 2014, which was a 5.5 percent increase from 2013 (Table 1). Hunter success rates in 2014 remained similar to 2013 (13.6% vs. 13.2% respectively), and remain below the 5-year average (16%).

Spring 2015 Turkey Season

There were 46,675 permits issued during the spring season, including 13,085 general lottery and landowner permits, 11,333 youth permits, 5,052 archery permits, and 17,205 surplus over-the-counter permits (Table 6). The number of youth permits declined from 2014 by 7 percent (-846), while archery permits increased by three percent (153). The total number of permits purchased decline from 2014 by three percent (1529). Hunters registered 11,734 turkeys (Table 3 and 5), which was the third highest harvest recorded and above the 5-year average (10,990) (Figure 3). Success rates by license type are found in Table 6. The winter of 2014-15 was mild compared to the previous two winters,

and likely was not a significant mortality factor beyond normal winter mortality. Spring weather began very favorably, and the A season harvest was near a record. However wet and sometimes cold weather hampered several of the other seasons, likely depressing effort and harvest.

Table 1. Permits available and issued, applicants, registered harvest, and hunter success rates for fall wild turkey seasons 1990 – 2014, Minnesota.

Year	Permits available	Applicants	Permits issued	Registered harvest	Hunter success (%)[a]
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
2013	Unlimited	N/A	8,193	1,078	13
2014	Unlimited	N/A	8,339	1,137	14

[a] Success rates not adjusted for non-participation.

Table 2. Permits issued, registered harvest, and hunter success during the 2015 Minnesota spring wild turkey season.

Permit Area	Regular Permits Issued[a]	Total Registered Harvest[b]	Regular Gun Harvest[c]	Regular Gun Success Rates
501	8124	3004	2480	30.5%
502	725	228	185	25.5%
503	3323	1432	1072	32.3%
504	797	322	243	30.5%
505	2665	1001	972	36.5%
506	1053	388	266	25.3%
507	7235	2960	2143	29.6%
508	3476	1220	879	25.3%
509	246	141	81	32.9%
510	2382	966	660	27.7%
511	134	38	27	20.1%
512	31	12	8	25.8%

[a] Permits issued for the Camp Ripley disabled veterans hunt, archery, and youth permits were not included.
[b] Total harvest for all license types. Twenty-two turkeys were registered without a permit area designation.
[c] All lottery, military, and surplus permit harvest, excluding youth and archery licenses.

Table 3. Permits available, permits issued, registered harvest, and relative success rates from 1978 – 2015 for all spring wild turkey hunting seasons in Minnesota.

Year	Permits			Registered harvest	Success (%)[a]
	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[b]	33,976	28,320	83.4	9,412	33
2008[b]	37,992	31,942	84.1	10,994	34
2009[b]	42,328	36,193	85.5	12,210	34
2010[b]	55,982	46,548[c]	83.0	13,467	29
2011[b]	Unlimited	43,521[c]	N/A	10,055	23
2012[b]	Unlimited	38,906[c]	N/A	11,325	29
2013[b]	Unlimited	34,281[c]	N/A	10,390	30
2014[b]	Unlimited	43,305[c]	N/A	11,447	25
2015[b]	Unlimited	41,623[c]	N/A	11,734	28

[a] Success rates not adjusted for non-participation
[b] Youth hunt data included
[c] Permits issued to archery hunters were not included. There were 2,462, 3,911, 4,550, 4,899, and 5052 permits issued to archers in 2011, 2012, 2013, 2014, and 2015 respectively.

Table 4. Permits available and issued by license type (resident and non-resident) and time period for the spring 2015 wild turkey season, Minnesota.

Time period	Permits available	Permits issued			
		General lottery[a]	Surplus	Youth[b]	Archery[c]
A 4/15-19	5,936	5,230	8	X	
B 4/20-24	5,936	3,383	1,834	X	
C 4/25-29	5,936	4,457	782	X	
D 4/30-5/4	Unlimited	7	8,209	X	X
E 5/5-9	Unlimited	4	2,082	X	X
F 5/10-14	Unlimited	1	923	X	X
G5/15-21	Unlimited	3	2,172	X	X
H 5/22-28	Unlimited	0	1,248	X	X
Total[a]	Unlimited	13,085	17,205	11,333	5,052

[a] includes landowner licenses.
[b] Youth permits were valid for all time periods.
[c] Archery permits were valid for time periods D-H.

Table 5 Total harvest by time-period, spring 2015 wild turkey season, Minnesota.

Time period	Total Harvest	Percent Harvest
A	3055	26.0
B	1961	16.7
C	1888	16.1
D	2491	21.2
E	811	6.9
F	327	2.8
G	732	6.2
H	469	4.0
Total	11,734	100

Table 6. 2015 Total permits issued, harvest and success rate by type of permit.

	Total Permits Sold	Harvest	Success Rate[a]
Lottery	13,085	4,579	35
Surplus	17,205	4,251	25
Youth	11,333	2,326	21
Archery	5,052	578	11
Total	46,675	11,734	25

[a] Success rates not adjusted for non-participation.

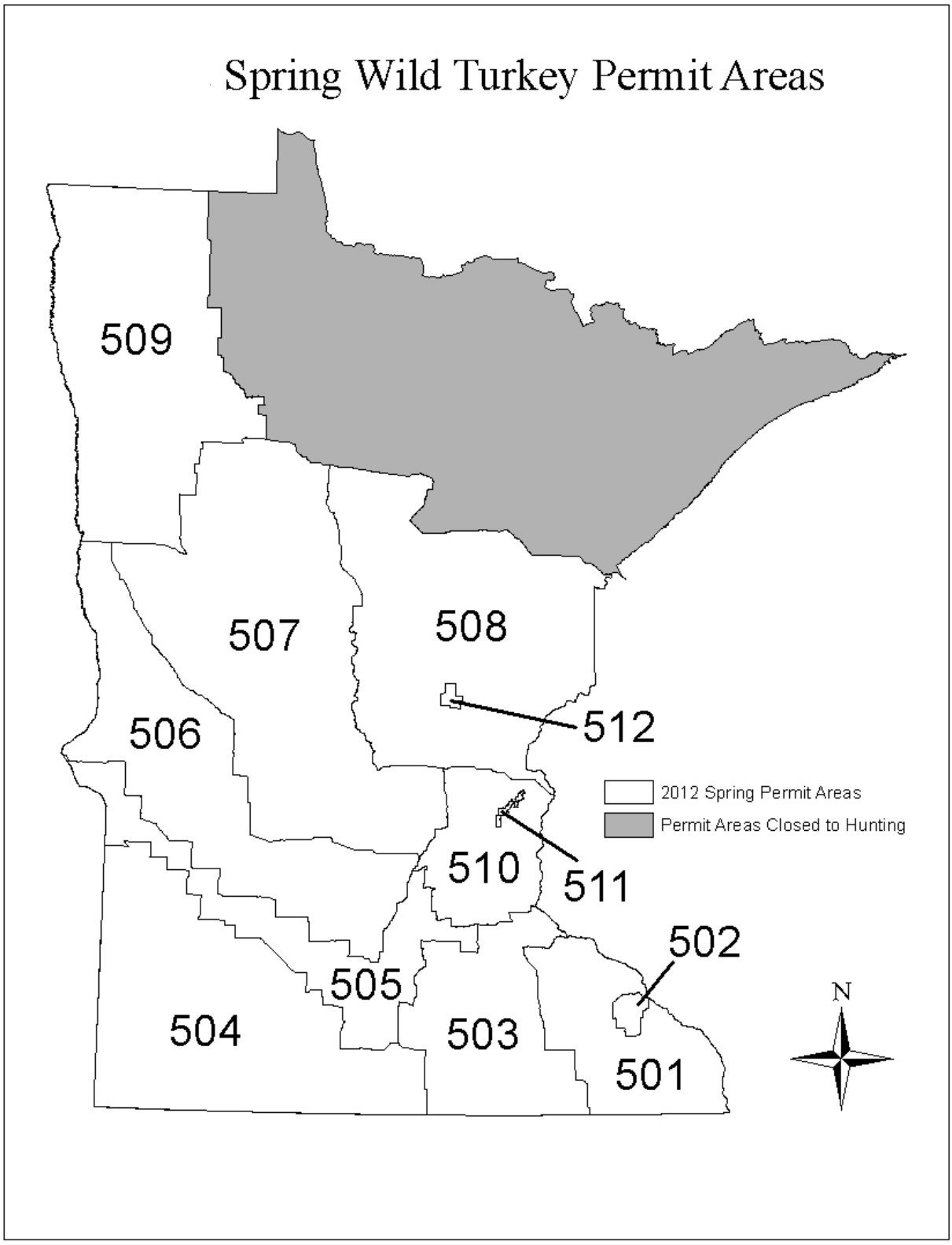


Figure 1. Permit areas open for hunting during the 2015 spring turkey hunting season, Minnesota.

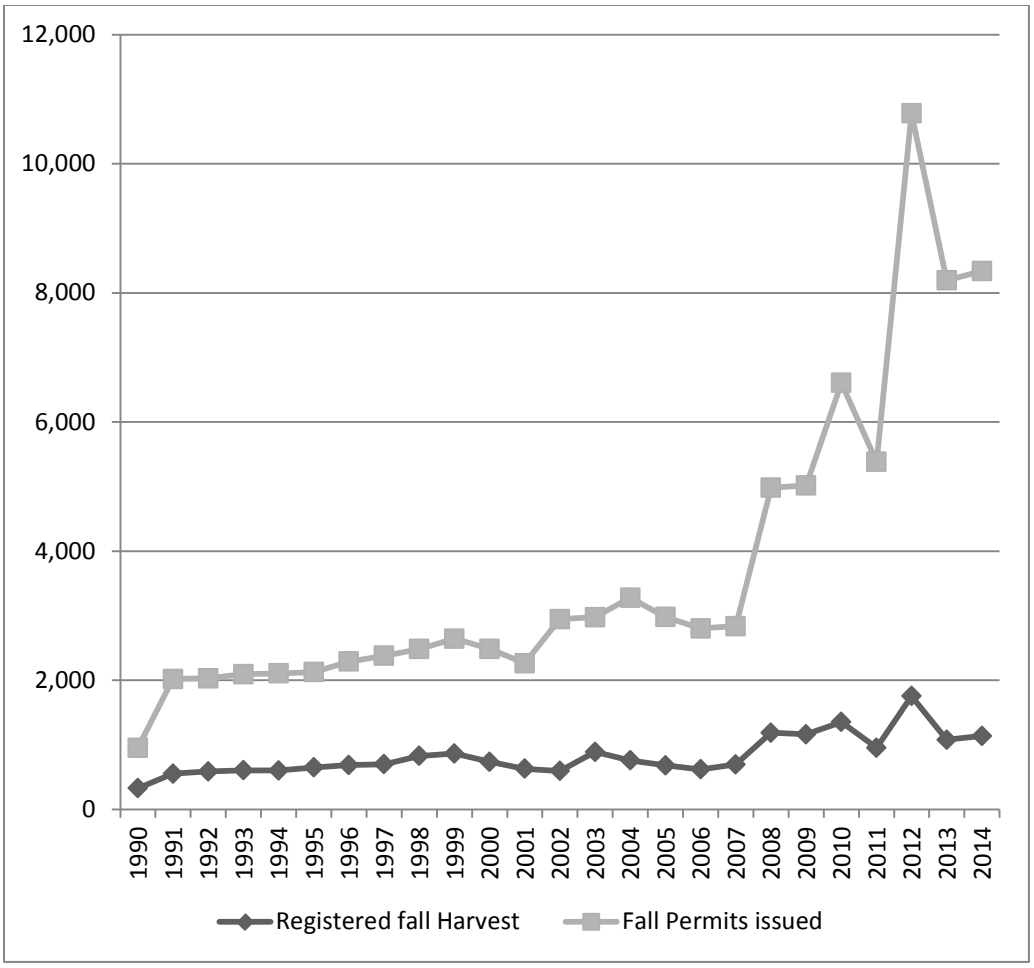


Figure 2. Permits issued and registered harvest for fall wild turkey seasons, 1990-2014, Minnesota.

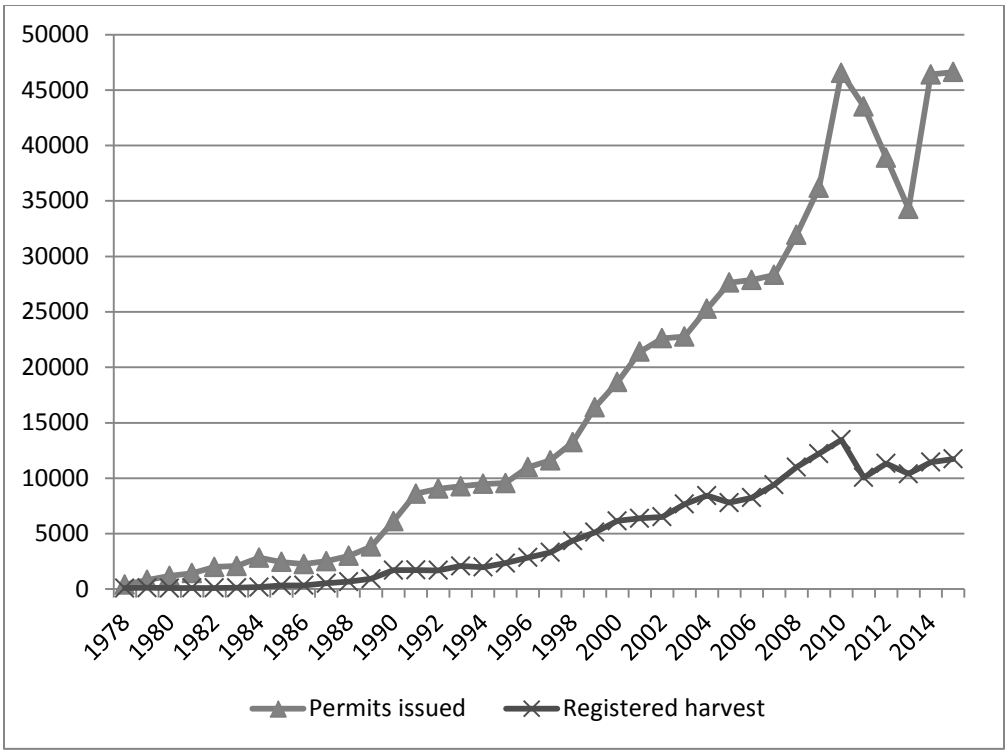


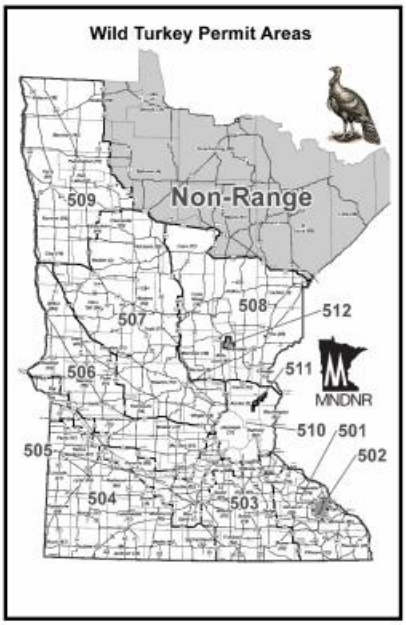
Figure 3. Permits issued and registered harvest for spring wild turkey seasons, 1978-2015, Minnesota.

For questions please contact Steve Merchant at **Steve.merchant@state.mn.us**

June 8, 2015

MINNESOTA SPRING WILD TURKEY HUNTING

A study of hunters' opinions and activities



Final Report

A cooperative study conducted by:

Minnesota Cooperative Fish and Wildlife Research Unit
Minnesota Department of Natural Resources

Available at:
http://files.dnr.state.mn.us/recreation/hunting/turkey/2015-survey.pdf

MISSOURI WILD TURKEY POPULATION STATUS REPORT – 2015

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POPULATION STATUS

After reaching peak abundance in the early 2000s, Missouri's wild turkey (hereafter, turkey) population declined by approximately 25% at the statewide scale. From 2000–2010, the poult-to-hen ratio (PHR) from the Conservation Department's (MDC) brood survey exhibited a 7% annual declining trend (Figure 1). Although the PHR since 2010 has remained well-below most historical index values (Figure 1), mean PHR from the past 4 years (1.6) is 45% greater than the index value from 2007–2010. Greater production has resulted in an increasing 5-year trend in turkey numbers (3% annual growth) at the statewide scale based on spring harvest as an index to abundance. Turkey numbers in most counties have been stable or increasing during the past 5 years with most areas of growth occurring in northcentral and southwestern regions, in addition to portions of the northern Ozarks (Figure 2). Turkey numbers are declining in 9 counties, most of which are located in portions of northwestern and southeastern Missouri (Figure 2).

Although numbers are stable or increasing in most Missouri counties, turkey abundance throughout most of the state remains well-below numbers that existed 10–15 years ago. Spring harvest data at the statewide scale indicate current turkey numbers are approximately 20% less than the population peak that occurred in the early 2000s. In northern Missouri (Northwest and Northeast turkey productivity regions (Figure 3)), regional turkey numbers reached a peak in the early-to-mid 2000s before declining by approximately 40–50% following several years of poor production. Although numbers in the Northeast region have been increasing the last 5 years (+8% annual growth), turkey abundance in the region remains approximately 35% less than the population peak. The 5-year trend in the Northwest region indicates a stable population with turkey abundance remaining approximately 40% below peak numbers that occurred during the mid-2000s.

Turkey abundance in the West Prairie region has been stable the past 5 years, as it has in the Lindley Breaks and Union Breaks regions along the Missouri and Mississippi Rivers (Figure 3). Turkey abundance in these regions ranges between 15–20% below the population peak that occurred in the early-to-mid 2000s. The 5-year turkey abundance trend has also been stable in the Mississippi Lowlands region of southeastern Missouri (Figure 3). Unlike other regions, turkey numbers in the Mississippi Lowlands increased during the 2000s, likely influenced by regional turkey translocations that occurred during the winter of 2006–2007.

During the early 2000s, turkey numbers in the Ozarks of southern Missouri experienced the same peak in abundance as northern populations; however, the population decline that followed was not of the same magnitude, with regional numbers declining by approximately 25–30%.

Regional PHRs have indicated increased production since 2010, and turkey abundance during the past 5 years has been increasing in the Ozarks East, Ozarks West, and Ozark Border regions (Figure 3), where the annual growth rate has been 6%.

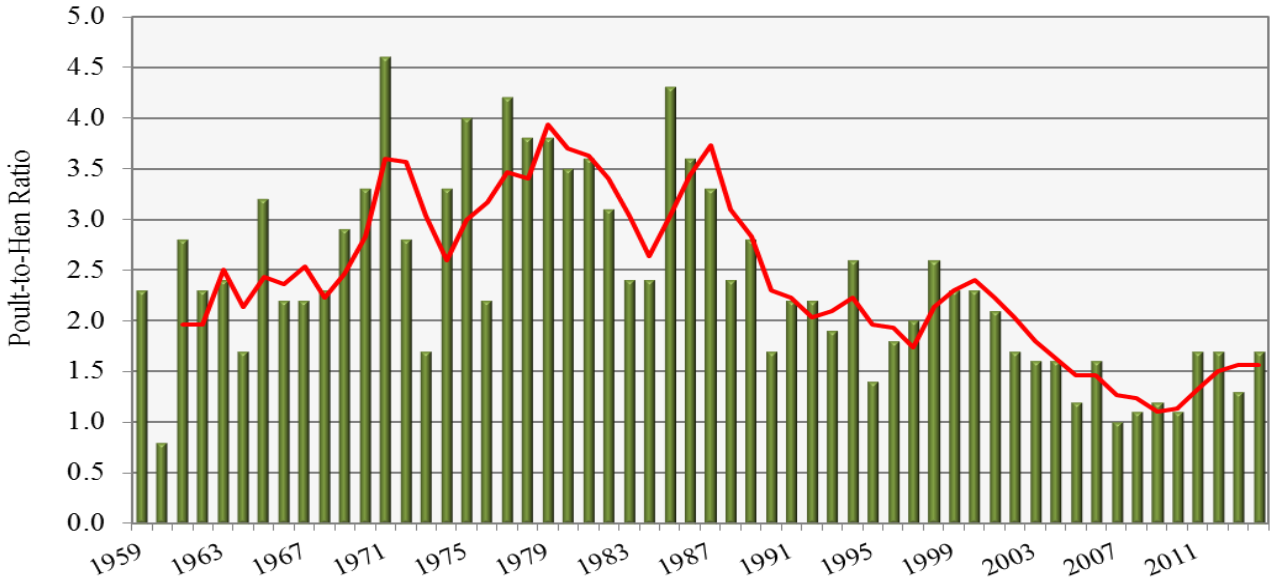


Figure 1. Missouri statewide poult-to-hen ratios derived from the Missouri Department of Conservation's wild turkey brood survey conducted in June, July, and August, 1959–2014. Trendline (red) displays 3-year moving average. Observations of >2 hens per brood are not included in poult-to-hen ratio calculations.

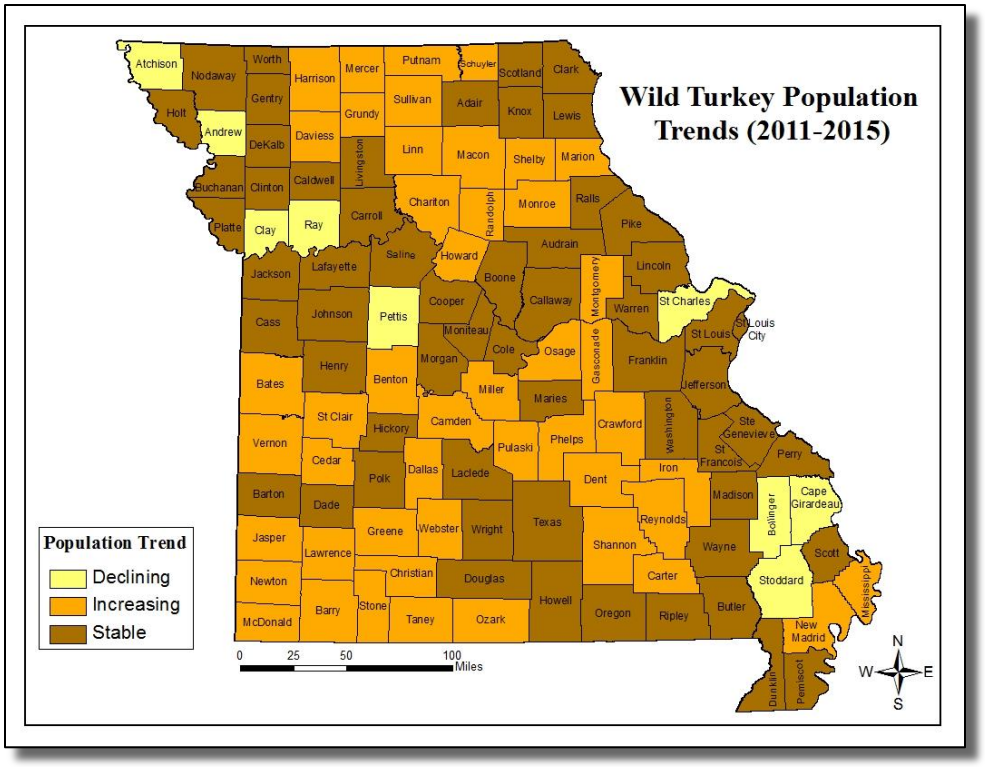


Figure 2. Five year (2011–2015) county-level wild turkey population trends in Missouri based on spring harvest as an index to population abundance.

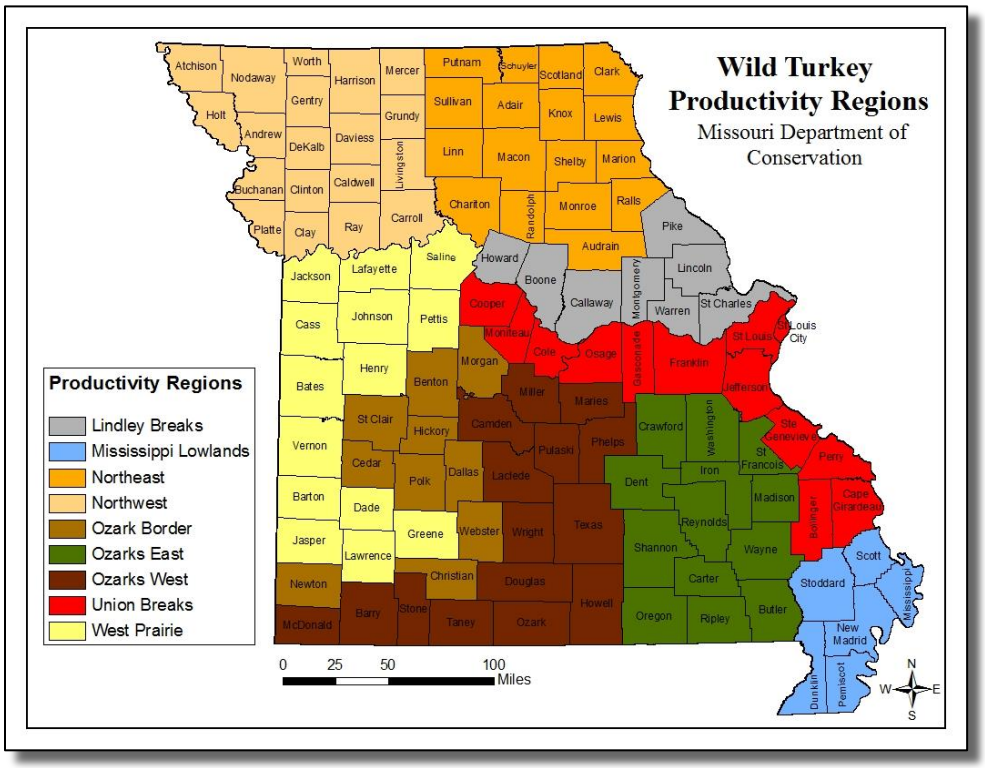


Figure 3. Turkey productivity regions in Missouri. Regions consist of counties grouped by similar land cover composition.

REPRODUCTION

The MDC has been conducting a turkey brood survey annually since 1959. During the survey, Department staff and citizen volunteers record observations of hens, poults, and gobblers during June, July, and August. Turkey sightings are recorded on observation cards, which the MDC mails to participants at the beginning of each survey month. Turkey observations are recorded at the county-level and analyzed by turkey productivity region (Figure 3), which are counties grouped by similar land cover composition.

In 2014, MDC staff and citizen volunteers recorded observations of over 69,000 turkeys during the 3-month survey, including over 4,500 broods (Table 1). At the statewide scale, 45% of hens were observed with a brood (Table 2). The percentage of hens observed with a brood ranged from 38% in the Ozarks West region to 51% in the Lindley Breaks region. Statewide, the average brood size was 4.4 poults (Table 2). Average regional brood size ranged from 4.3 poults in the Lindley Breaks, Mississippi Lowlands, and West Prairie to 4.9 poults in the Ozark Border.

The 2014 statewide PHR of 1.7 was 31% greater than the 2013 ratio, and 21% and 26% greater than the 5 and 10-year statewide averages, respectively (Table 3). Observations of >2 hens per brood are not included in poult-to-hen ratio calculations. The 2014 statewide PHR was the same as the 20-year average. Among turkey productivity regions, PHRs ranged from 1.3 in the Ozarks West region to 2.0 in the Northeast region (Table 3). Prior to 2011, Missouri's turkey population had experienced 4 consecutive years of poor production. The average PHR during this period was 1.1. In contrast, the average PHR from 2011–2014 was 1.6, a 45% increase. Although turkey production in recent years has not reached the levels observed during the late 1990s and early 2000s, PHRs have displayed an increasing trend during the last several years (Figure 1).

Table 1. Wild turkey observations by turkey productivity region (Figure 3). Data were obtained during Missouri's wild turkey brood survey conducted in June, July, and August, 2014.

Productivity Region	Hens w/ Broods	Hens w/o Broods	Total Hens	Poults	Broods	Gobblers
Lindley Breaks	968	944	1,912	4,129	520	1,026
Mississippi Lowlands	87	111	198	370	47	114
Northeast	952	1,126	2,078	4,599	564	1,544
Northwest	609	717	1,326	2,812	351	1,143
Ozark Border	1,162	1,476	2,638	5,659	612	1,867
Ozarks East	691	924	1,615	3,172	397	818
Ozarks West	1,059	1,723	2,782	4,748	528	1,701
Union Breaks	1,845	2,095	3,940	8,273	990	2,221
West Prairie	934	1,342	2,276	4,048	464	2,146
Statewide[a]	**8,696**	**10,514**	**19,210**	**37,924**	**4,531**	**12,633**

[a]Statewide totals include observations where region was not recorded on survey form.

Table 2. Wild turkey brood survey data by turkey productivity region (Figure 3). Data were obtained from Missouri's brood survey conducted in June, July, and August, 2014.

Productivity Region	% Hens w/ Poults	Average Brood Size	Poult-to-Hen Ratio	Gobbler-to-Hen Ratio
Lindley Breaks	51%	4.3	1.8	0.54
Mississippi Lowlands	44%	4.3	1.5	0.58
Northeast	46%	4.8	2.0	0.74
Northwest	46%	4.6	1.9	0.86
Ozark Border	44%	4.9	1.8	0.71
Ozarks East	43%	4.6	1.8	0.51
Ozarks West	38%	4.5	1.3	0.61
Union Breaks	47%	4.5	1.7	0.56
West Prairie	41%	4.3	1.4	0.94
Statewide[a]	**45%**	**4.4**	**1.7**	**0.66**

[a]Statewide totals include observations where region was not recorded on the survey

Table 3. Index (poult-to-hen ratio[a]) of Missouri turkey production listed by turkey productivity region (Figure 3). Data were obtained from the 2014 wild turkey brood survey and are compared to previous years. For each interval value, the % change indicates how the 2014 index compares to the previous year or the average for periodic intervals.

Productivity Region	2014 Index[a]	1-year (2013) Change	5-year (2009–2013) Change	10-year (2004–2013) Change	20-year (1994–2013) Change
Lindley Breaks	1.8	+50%	+18%	+28%	-3%
Mississippi Lowlands	1.5	+150%	-11%	-18%	-28%
Northeast	2.0	+43%	+45%	+54%	+22%
Northwest	1.9	+90%	+51%	+46%	+4%
Ozark Border	1.8	+80%	+48%	+49%	+10%
Ozarks East	1.8	+6%	-1%	+4%	-8%
Ozarks West	1.3	-13%	-6%	-2%	-20%
Union Breaks	1.7	+42%	+27%	+25%	+4%
West Prairie	1.4	+40%	+15%	+25%	-16%
Statewide[b]	**1.7**	**+31%**	**+21%**	**+26%**	**Same as Avg.**

[a]Observations of >2 hens per brood are not included in poult-to-hen ratio calculations.
[b]Statewide totals include observations where region was not recorded on the survey.

HARVEST

2014 Spring Turkey Season

During the 2014 youth spring turkey season, which occurred April 12–13, hunters harvested 4,329 turkeys. This harvest total represented a 10% increase from the 2013 youth season harvest and was 14% greater than the previous 5-year average. The 2014 youth season harvest was the greatest since the season was initiated in 2001. Hunters harvested 43,274 turkeys during the 21-day regular spring turkey season, which occurred April 21–May 11.

Juvenile male turkeys represented 16% of the regular season harvest (Figure 4), which was 24% less than the previous 5-year average. The total 2014 spring harvest, including both the youth and regular seasons, was 47,603 (Figure 5). This harvest total represented a 3% increase from the 2013 harvest, and was 6% greater than the previous 5-year average. Counties with the highest total spring harvest in 2014 were Franklin, Texas, and Laclede, where 1,028, 1,010, and 828 turkeys were harvested, respectively (Figure 6).

Spring turkey hunting in Missouri is a popular activity with typically more than 500,000 days spent afield annually. Total permit sales for the 2014 spring season (110,363; excluding no-cost landowner permits) declined by 3% from the 2013 spring permit sales total. Spring turkey permit sales during 2014 remain 15% below the permit sales record set in 2003 (Figure 5). Spring turkey permit sales in 2014 included 103,514 (94%) resident permits and 7,122 (6%) non-resident permits. An additional 43,138 no-cost permits were distributed to resident landowners. Total number of spring turkey hunters in Missouri in 2014 was 148,911. Total number of hunters does not equal the permit sales total because some hunters purchase a permit in addition to receiving a no-cost landowner permit.

Spring turkey harvest in Missouri during 2014 was 21% below the record harvest of over 60,000 birds in 2004 (Figure 5). Spring turkey hunter success has stabilized since 2007 after declining during the early to mid-2000s (Figure 7). The success rate for permit-buyers during the 2014 spring season was 70 turkeys harvested per 1,000 hunting trips, which is slightly below the previous 5-year average of 71 turkeys per 1,000 trips.

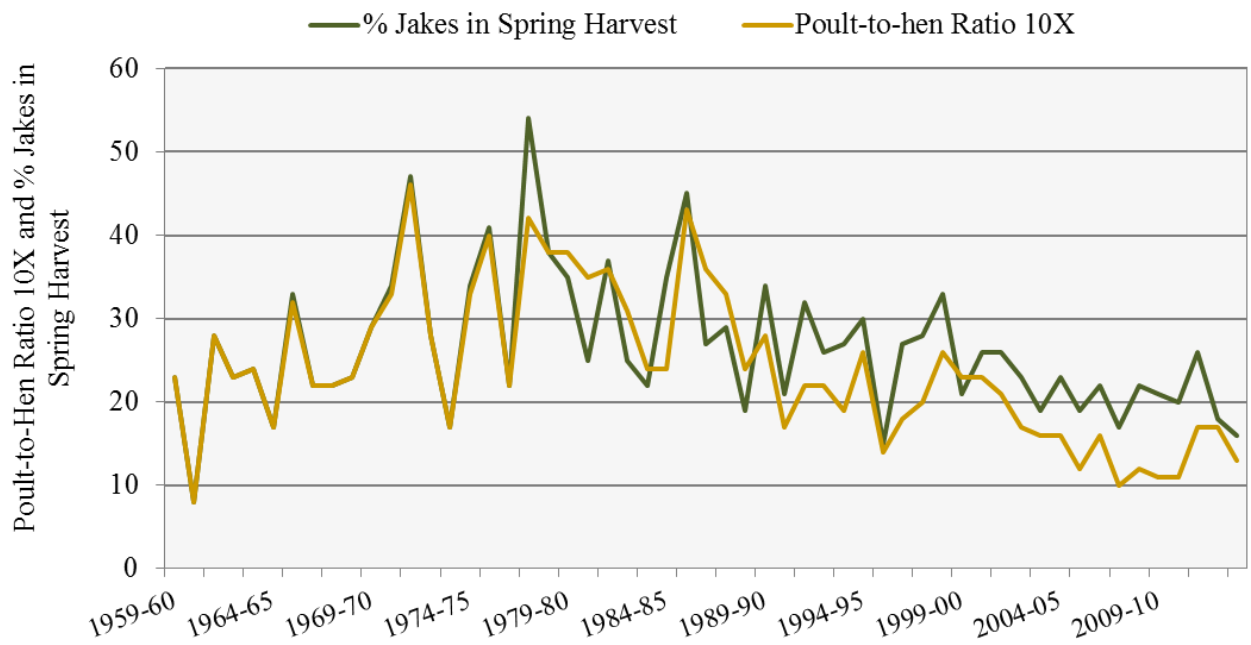


Figure 4. Missouri's statewide poult-to-hen ratio multiplied by 10, compared with the percentage of jakes in the following year's regular season spring harvest, 1959–2014.

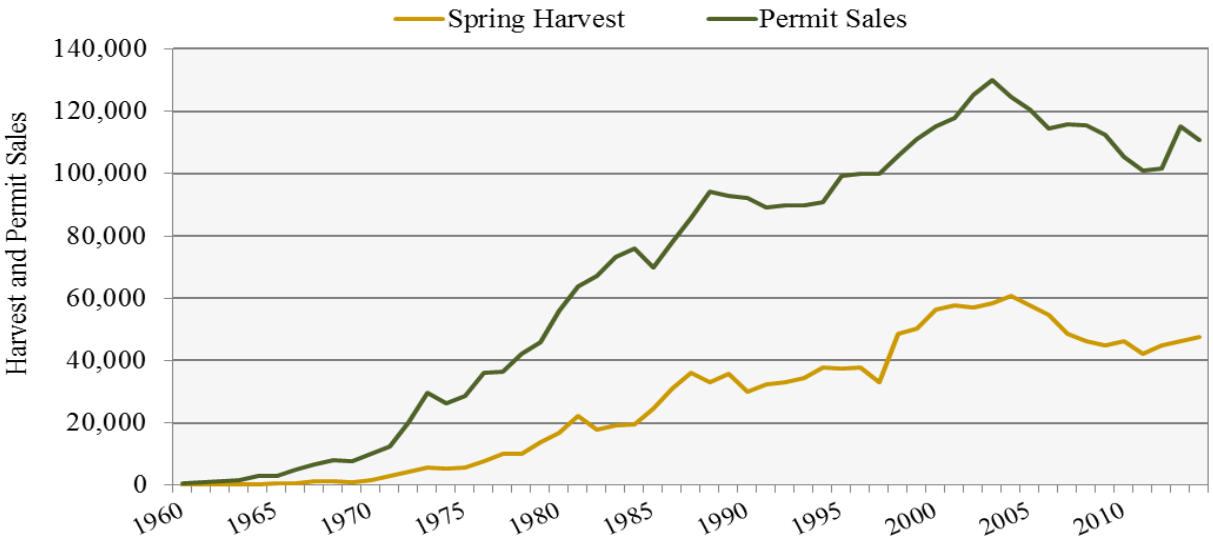


Figure 5. Number of wild turkeys harvested during the spring season (youth and regular season) in Missouri, and the number of turkey hunting permits sold for the spring season, 1960–2014. Permit sales do not include no-cost landowner permits.

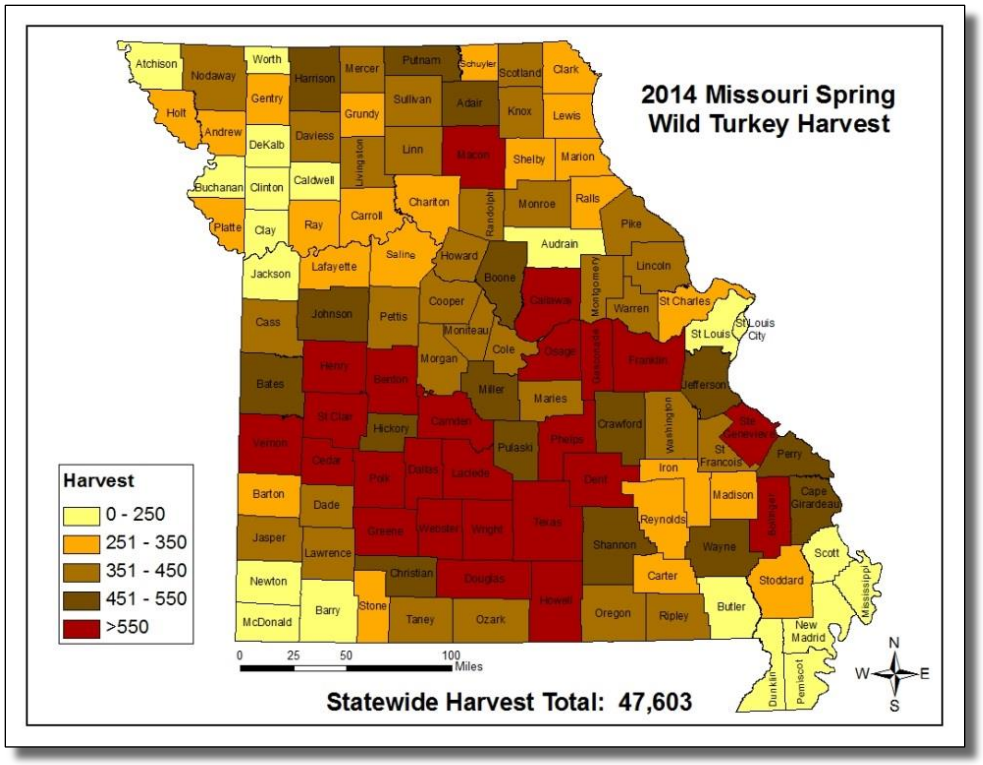


Figure 6. Total (youth and regular season) spring wild turkey harvest in Missouri, 2014.

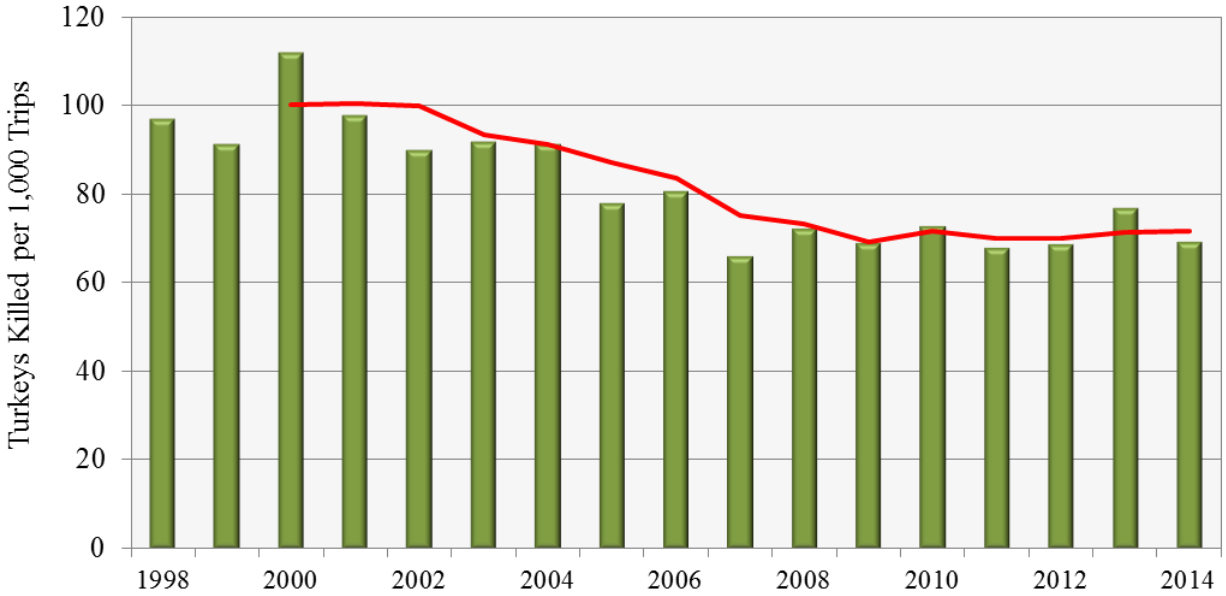


Figure 7. Statewide spring turkey hunter success in Missouri. Data are the number of turkeys harvested per 1,000 hunting trips, 1998–2014. Trendline (red) displays moving 3-year average.

2014 Fall Turkey Season

The 2014 fall firearms turkey harvest total of 5,691 represented a 4% decrease in harvest from the 2013 season, and was 20% below the previous 5-year average (Figure 8). The majority of harvest occurred in southern Missouri (Figure 9). The top 3 counties in harvest were Greene, Franklin, and St. Clair where 165, 163, and 160 turkeys were harvested, respectively.

Fall firearms turkey permit sales decreased by 5% in 2014. Of the 14,117 permits sold, 13,877 (98%) were purchased by Missouri residents and 240 (2%) by non-residents; an additional 60,177 no-cost permits were distributed to resident landowners. 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).

Although the novelty of the fall firearms turkey season may have worn off for some of Missouri's hunters, increasing popularity of the archery deer and turkey season is likely to be partially responsible for the declining interest in fall firearms turkey hunting. Additionally, declining turkey numbers during the mid-to-late 2000s are likely to have reduced hunter participation in season as well.

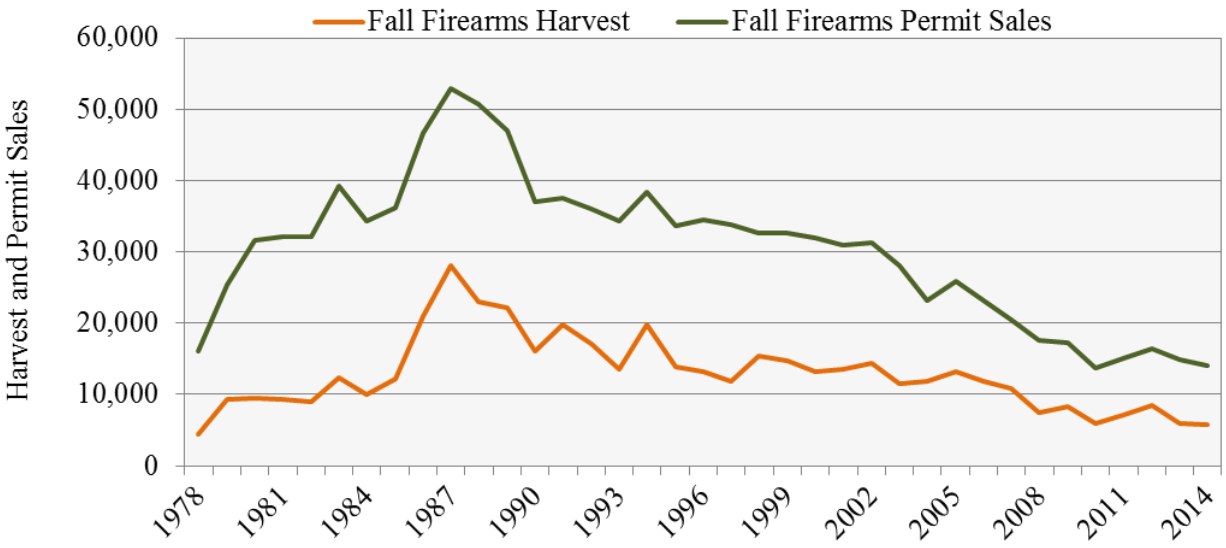


Figure 8. Number of wild turkeys harvested during the fall firearms turkey season in Missouri, and the number of fall firearms permits sold, 1978–2014. Permit sales do not include no-cost landowner permits.

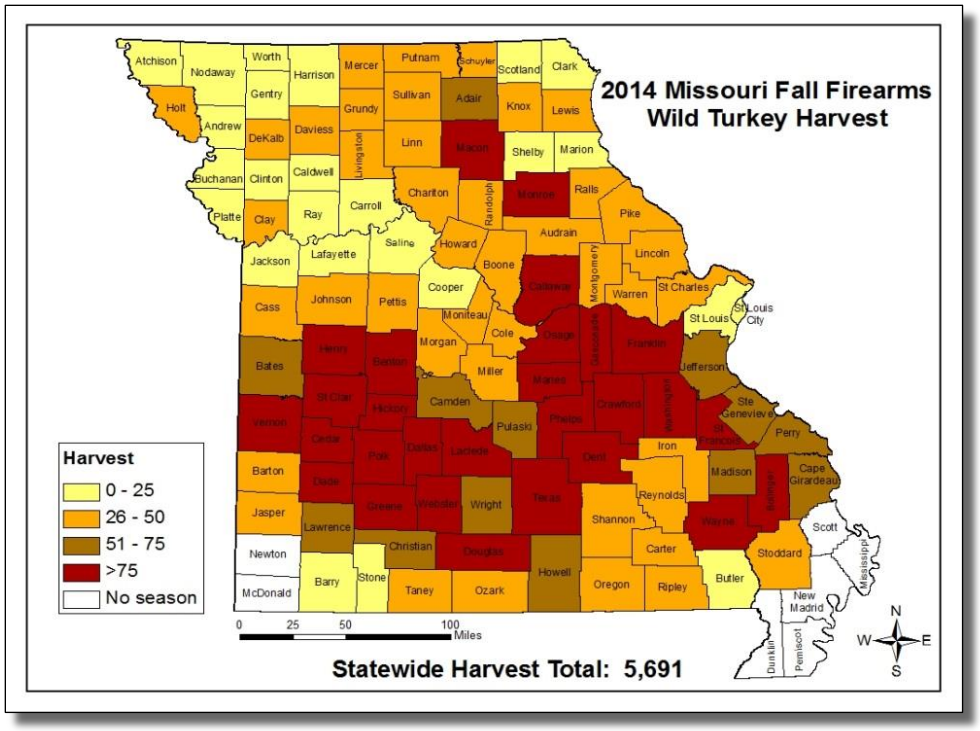


Figure 9. Missouri fall firearms wild turkey harvest, 2014.

Hunters harvested 2,587 turkeys during the 2014 fall archery deer and turkey season (Figures 10, 11). The 2014 archery turkey harvest total represented a 1% increase from the 2013 season, and was 8% lower than the previous 5-year average. Unlike the fall firearms turkey harvest, which has shown a declining trend since the late 1980s (Figure 8), the fall archery harvest increased until the mid-2000s. Since 2005, archery turkey harvests have fluctuated substantially on an annual basis, while showing a general trend towards stabilization (Figure 11).

Although archery permit sales were relatively stable from the mid-1990s to the mid-2000s, sales have since shown an increasing trend (Figure 12). In 2014, 115,945 permits were sold; the second highest number since the season's inception. Of the archery permits sold in 2014, 107,052 (92%) were purchased by Missouri residents and 8,893 (8%) by non-residents. An additional 86,051 no-cost landowner permits were distributed.

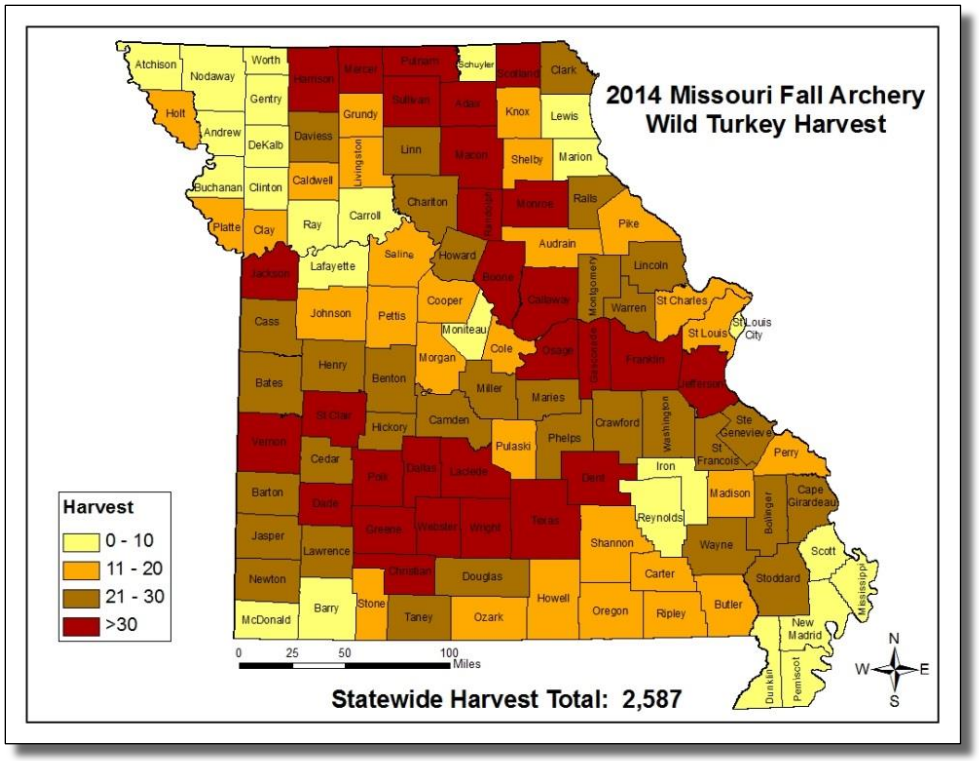


Figure 10. Missouri fall archery wild turkey harvest during the 2014 season.

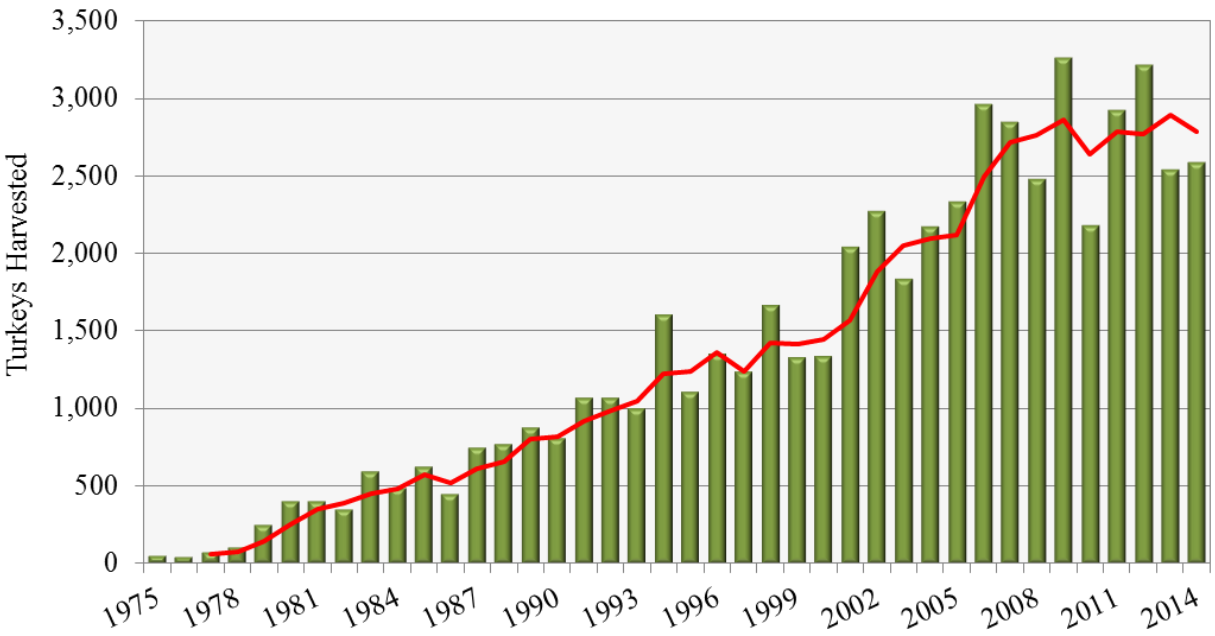


Figure 11. Missouri fall archery wild turkey harvest, 1975–2014. Trendline (red) displays 3-year moving average.

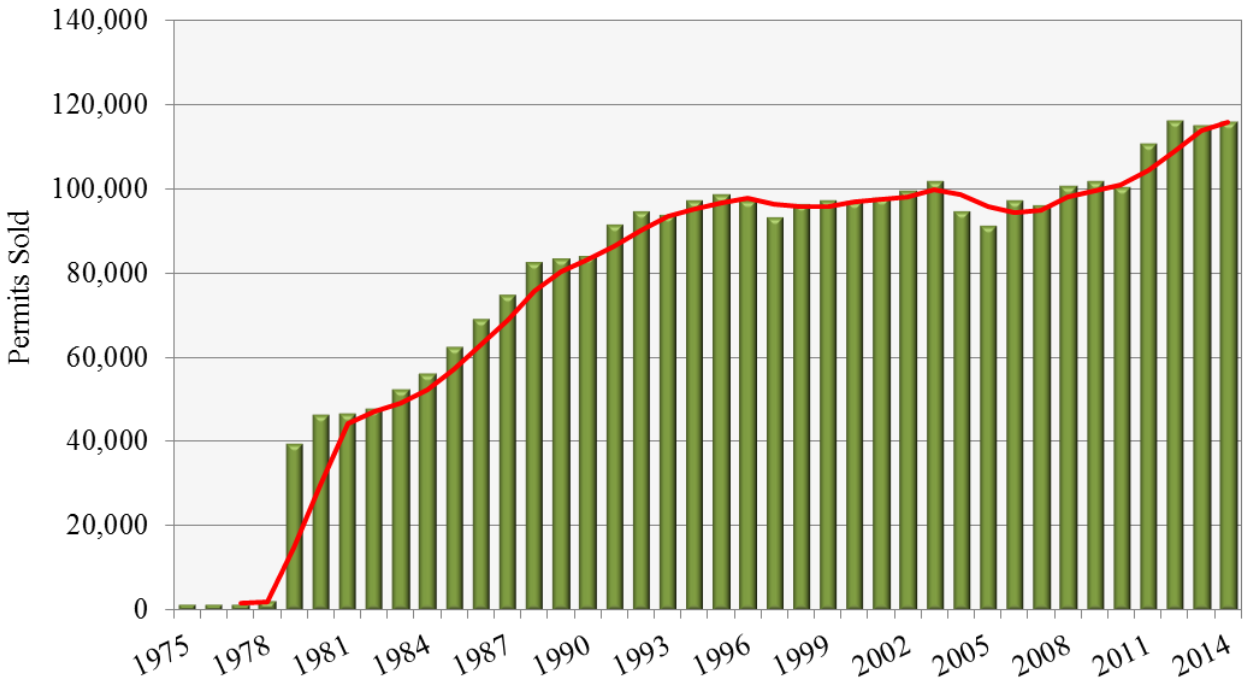


Figure 12. Missouri archery deer and turkey permit sales, 1975–2014. Permit sales do not include no-cost landowner permits. Prior to 1979, hunters purchased archery deer and turkey permits separately. Trendline (red) displays 3-year moving average.

HUNTING INCIDENTS

There were 2 fatal and 6 non-fatal hunting incidents during the 2014 spring turkey season (Figure 13). Number of spring turkey hunting incidents in Missouri has declined dramatically since the late 1980s, when more than 30 incidents occurred annually for every 100,000 permits sold. During the last 5 hunting seasons, the average number of incidents per 100,000 permits sold is 5.

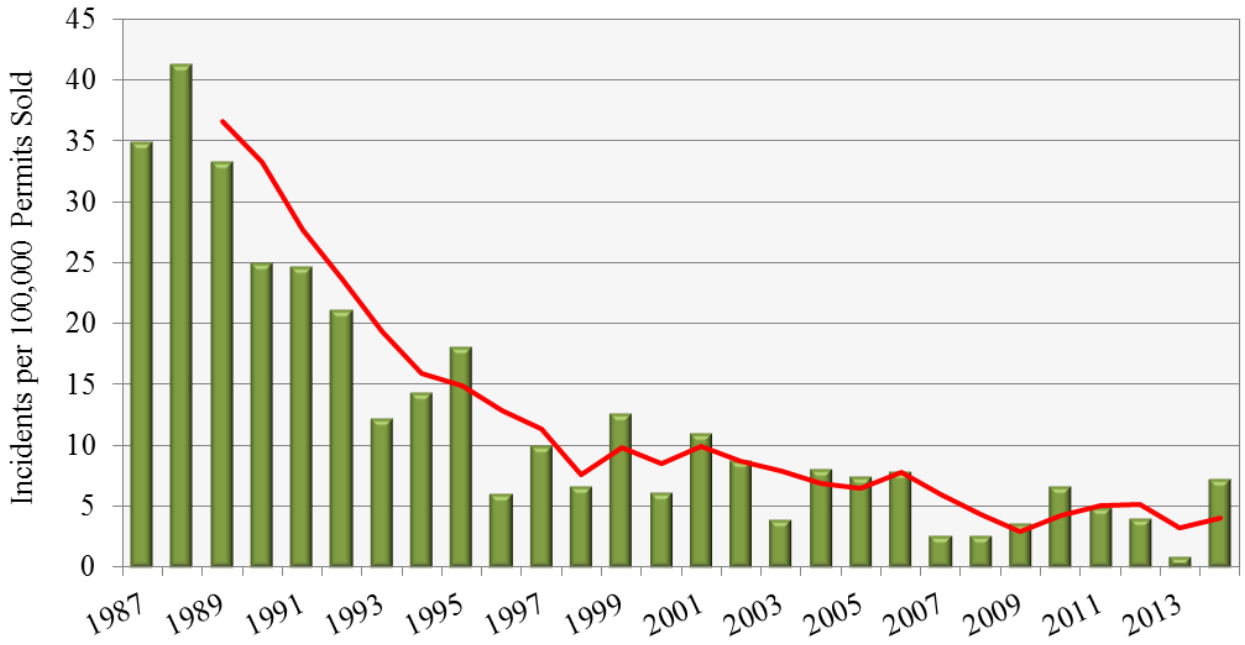


Figure 13. Number of hunting incidents during the spring turkey season in Missouri per 100,000 permits sold, 1987–2014. Trendline (red) displays three-year moving average.

REGULATION/LEGISLATION CHANGES

Other than changes to some conservation area and managed turkey hunts, no turkey hunting regulation changes occurred in 2014.

RESEARCH

Using Statistical Population Reconstruction (SPR) to Estimate Demographics in Wild Turkey Populations

This research project concluded in 2015. Objectives of the project were to:

1. Develop SPR model that will estimate regional turkey abundance, natural survival, harvest probabilities, population growth rates (λ), and the relationship between harvest and the proportion of adult males in the population.

2. Continue development of user-friendly software for future analysis of age-at-harvest data of turkeys and other game species in Missouri.

3. Compare advantages and disadvantages of SPR versus current turkey population model.

Publications

Gast, C. M., J. R. Skalski, J. L. Isabelle, and M. V. Clawson. 2013. Random effects models and multistage estimation procedures for statistical population reconstruction of small game populations. PLoS ONE 8:e65244.

Clawson, M. V., J. R. Skalski, J. L. Isabelle, and J. J. Millspaugh. 2015. Trends in male wild turkey abundance and harvest following restoration efforts in the southeast region of Missouri, 1960–2010. Wildlife Society Bulletin 39:116–128.

Regional Turkey Population Monitoring for a Coordinated Harvest Management Strategy

In 2013, the MDC began a 7-year research project in partnership with the University of Missouri, University of Washington, and the National Wild Turkey Federation. The project involves 5 years of field-work capturing, marking, and radio-tracking turkeys in 4 northern Missouri counties. Field data will be used to develop SPR models, which will become the primary method the MDC's Wild Turkey Management Program will use to estimate turkey abundance, survival rates, harvest rates, recruitment, and population growth rate.

Research objectives include:

1. Developing a regional turkey SPR model, which in addition to estimates of natural survival and harvest rates, would provide abundance and population growth rate.

2. Continue development a user-friendly SPR modeling software program for future analysis of age-at-harvest and auxiliary data for turkeys and other harvested species in Missouri.

3. Estimating sex and age class-specific seasonal and annual survival rates and cause-specific mortality rates, for turkeys in northern Missouri.

4. Estimating age class-specific harvest rates for male turkeys in northern Missouri during the spring hunting season.

5. Estimating sex and age-specific harvest rates for turkeys in northern Missouri during the fall hunting season.

6. Estimating reproductive parameters for female turkeys in northern Missouri.

EMERGING OR EVOLVING ISSUES

The MDC is currently in the process of evaluating the appropriateness of permitting all-day hunting (until sunset) during all or a portion of the regular spring turkey season. Half-day spring turkey hunting (current shooting hours end at 1 PM (CDT)) has been in place since the state's first modern turkey season held in 1960. Increasing support of hunters to extend shooting hours

during the regular season and a desire of the MDC to provide more opportunity to its stakeholders has prompted the evaluation.

RELEVANT LINKS

- 2014 Missouri Wild Turkey Harvest and Population Status Report (http://mdc.mo.gov/node/31058)
- 2014 Missouri Wild Turkey Brood Survey Results (http://mdc.mo.gov/sites/default/files/resources/2014/09/2014turkeybroodsurvey.pdf)

Wild Turkey Status Report

Midwest Deer & Wild Turkey Study Group

Lake Denton WI, 8-11 September 2015

Dr. Jeffrey J. Lusk

Population Assessment

The 2015 April Rural Mail Carrier Survey was conducted 6-9 April 2015. We received 465 cards by 24 April 2015, of which 442 cards contained complete information necessary for processing. The results below (Tables 1, Figure 1) are based on the complete cards. Rural Carriers made observations while traveling 193,688 miles or rural roads in 88 of Nebraska's 93 counties. Although indices for wild turkey were higher than in April 2014 statewide and in most regions, they were not significantly higher. The 2015 July Rural Mail Carrier Survey was conducted 6-9 July 2015. We received 445 cards by 17 July 2015, of which 421 cards contained complete information needed for analysis (Tables 2, Figure 2). Rural carriers made observations while traveling 179,745 miles of rural roads in 89 of Nebraska's 93 counties. All regional turkey indices except for the Central were higher in 2015 compared to 2014, but none significantly higher. The statewide index, however, was significantly higher than in 2014.

Table 1. Wild turkey indices from the 2015 April Rural Mail Carrier Survey by management region (Figure 9). All carrier means are weighted by miles traveled per carrier.

	Mean Wild Turkeys per	Percent Difference from:		
	100 miles & 90%		Mean	Mean
Region	Confidence Limits	2014	2010-2014	2005-2014
Central	6.42 (4.90-7.94)	69	-30	-18
Northeast	2.73 (1.99-3.46)	-25	-6	1
Panhandle	1.51 (0.64-2.39)	42	-27	-7
Sandhills	8.74 (6.09-11.4)	50	-20	-18
Southeast	3.18 (2.53-3.83)	8	-8	-9
Southwest	12.6 (6.70-18.6)	68	-1	15
Statewide	5.32 (4.38-6.26)	30	-9	2

Table 2. Wild turkey indices from the 2015 July Rural Mail Carrier Survey by management region (Figure 9). All carrier means are weighted by miles traveled per carrier.

	Mean turkeys per	Percent Difference from:		
	100 miles & 90%		Mean	Mean
Region	Confidence Limits	2014	2010-2014	2005-2014
Central	1.32 (0.90-1.74)	-10	-40	-29
Northeast	0.99 (0.50-1.48)	11	3	14
Panhandle	0.46 (0.00-0.92)	12	-34	-20
Sandhills	2.03 (1.08-2.98)	45	-44	-43
Southeast	1.38 (1.07-1.68)	53	16	12
Southwest	4.02 (2.31-5.74)	101	20	44
Statewide	1.69 (1.39-1.99)	51	-2	9

Figure 1. Statewide and regional time series (2000-2015) of wild turkey abundance from the April Rural Mail Carrier Survey.

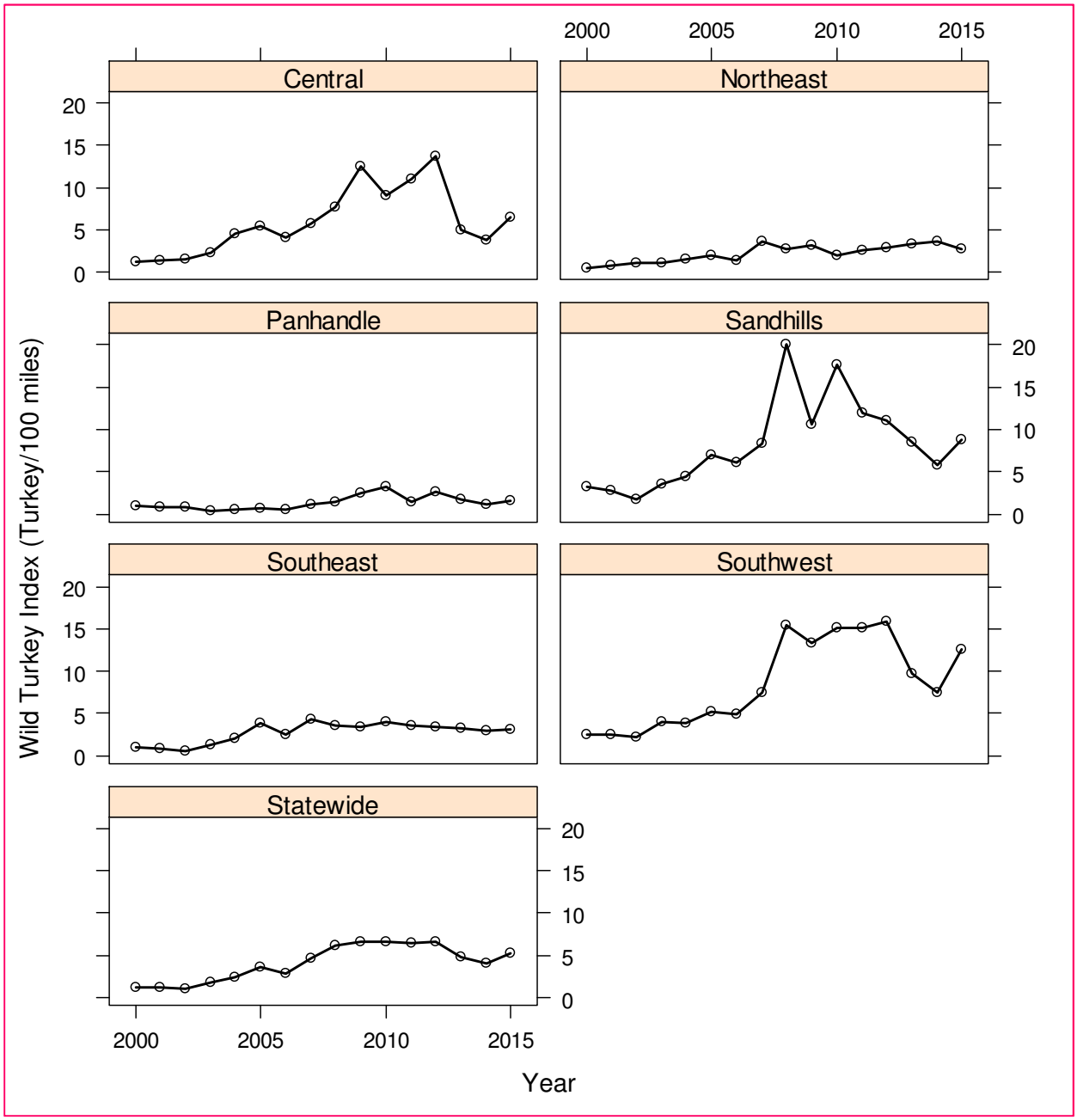
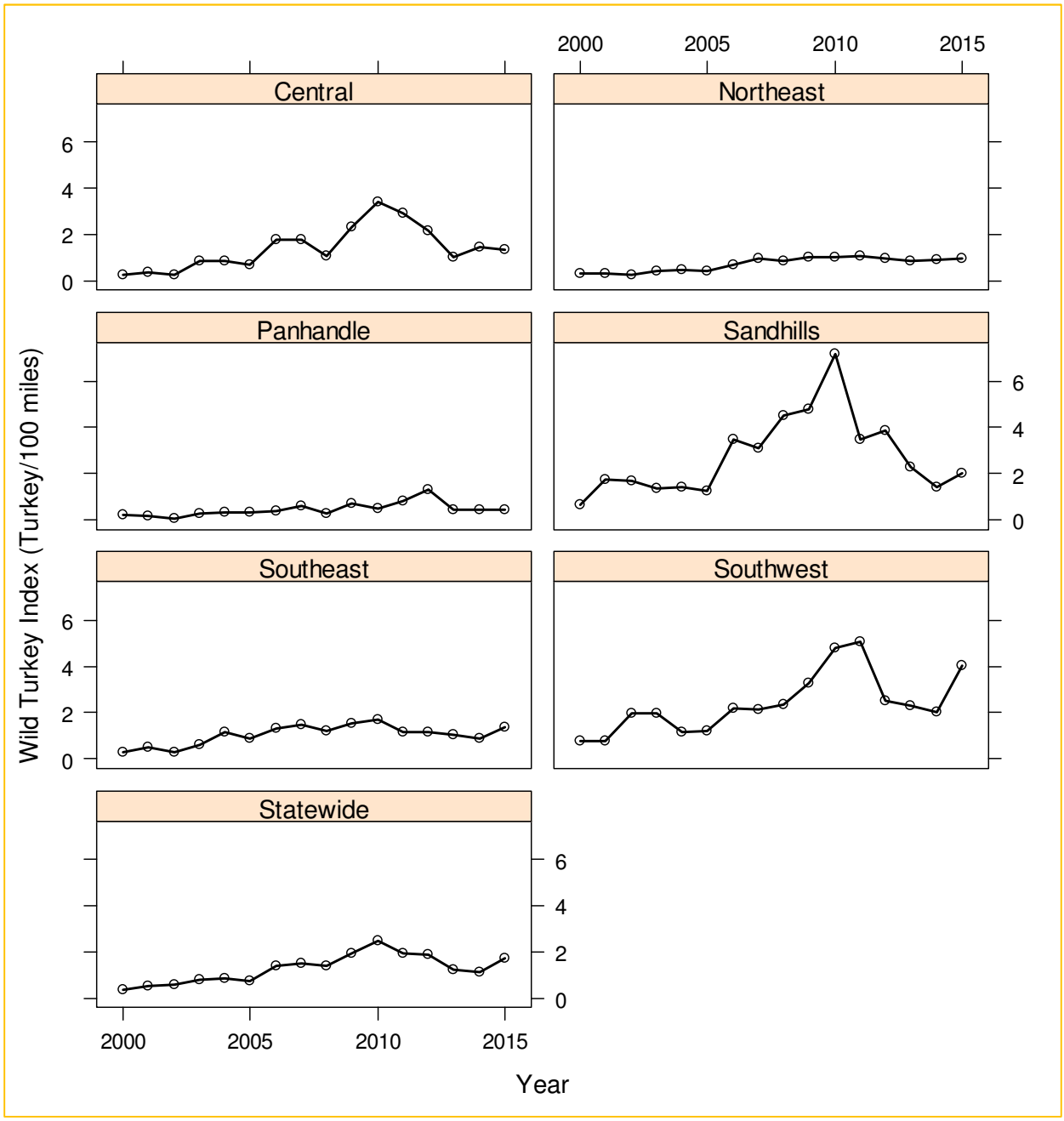


Figure 2. Statewide and regional time series (2000-2015) of wild turkey abundance indices from the July Rural Mail Carrier Survey.



Harvest Assessment

Fall 2014

The fall turkey hunter survey is conducted each year at the end of the fall season. The season closed on 31 January 2015. The objective of the survey is to obtain information on the fall turkey harvest and success. Information on age and sex composition of the harvest is also obtained and is reported elsewhere. This year's survey was available to hunters from 7-22 April 2015.

Methods. This year's survey was composed and administered in-house using Snap survey development software and Snap webhosting service. An initial invitation to participate in the survey for the fall 2014 season was sent to 5,909 (61.1% of permits sold) unique permit buyers, but only 5,520 were deliverable. The invitation was emailed on 7 April 2015, and a follow-up reminder was emailed to non-respondents on 14 April 2015. The survey was open to respondents until the close of business on 22 April 2015. At the end of the survey period, 1,297 responses were received across both mailings. These responses represented 1,601 individual permits for the fall 2014 season. The raw response rate was, therefore, 23.5%, and the permit response rates was 29.0%. Each survey respondent represented 6.36 fall 2014 permit buyers.

Results. Permit sales for the fall 2014 season (*n* = 10,175) were 6.1% lower compared to fall 2013 sales (*n* = 10,836; Figure 3). Of permits sold, 2,114 were $5.00 youth permits (20.8%) and 8,061 were regular permits (79.2%). Youth fall permit sales were 4.3% lower in 2014 compared to the 2,208 sold in 2013, whereas regular 2014 fall permit sales were down 6.6% from the 8,628 sold in 2013. Estimated total fall 2014 turkey harvest was 7,003 turkeys (Table 3, Figure 4), with youth harvesting 1,852 turkeys and regular permit holders harvested 5,151 turkeys. Overall harvest was 3.8% higher for the fall 2014 season compared to fall 2013. Overall success during the fall 2014 season was 67.7%, with 87.6% success for youth permit holders, and 63.9% success for regular permit holders (Figure 5). Table 4 summarizes the 2014 season results.

TABLE 3. Fall turkey season harvest and success, 2007-2014.

		Year							
Type		2007	2008	2009*	2010	2011	2012	2013	2014
Shotgun	Permits	10,784	9,855	12,738	12,241	11,482	12,449	10,836	10,175
	Harvest	8,857	8,236	10,853	10,356	8,405	8,362	6,748	7,003
	% Success	82	84	85.2	84.6	73.2	68.4	63.6	67.7
Archery	Permits	1,499	1,480						
	Harvest	572	539						
	% Success	38	36						

* After 2009, permits were valid for both archery and shotgun seasons with appropriate weapons, so results are reported in aggregate.

FIGURE 3. Fall turkey season permit sales, 1962-2014.

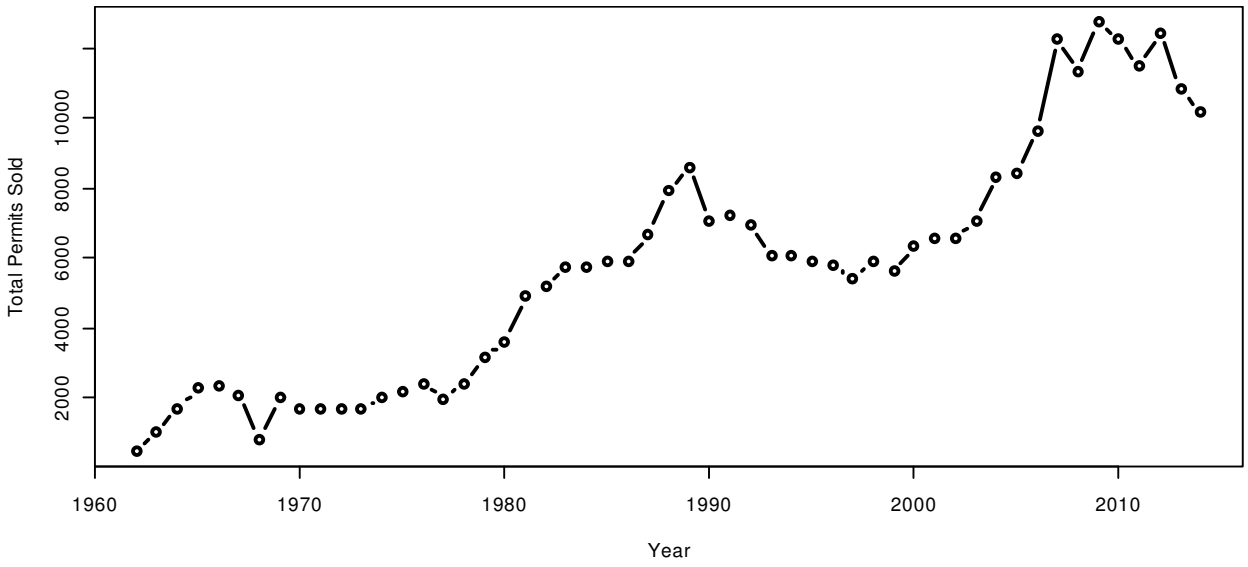


FIGURE 4. Fall turkey season harvest estimates, 1962-2014.

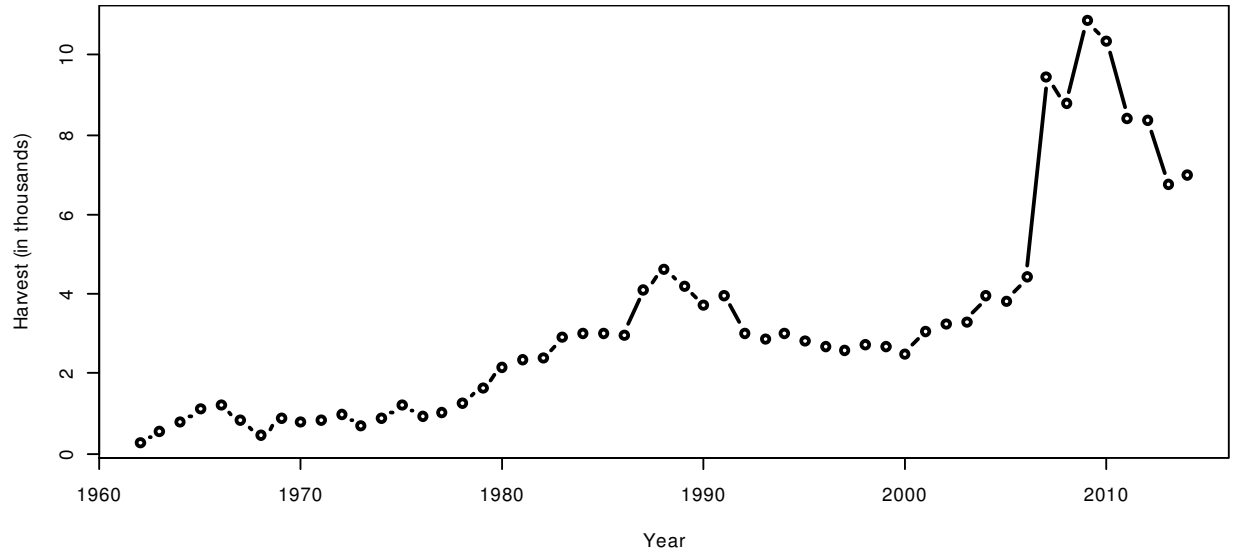
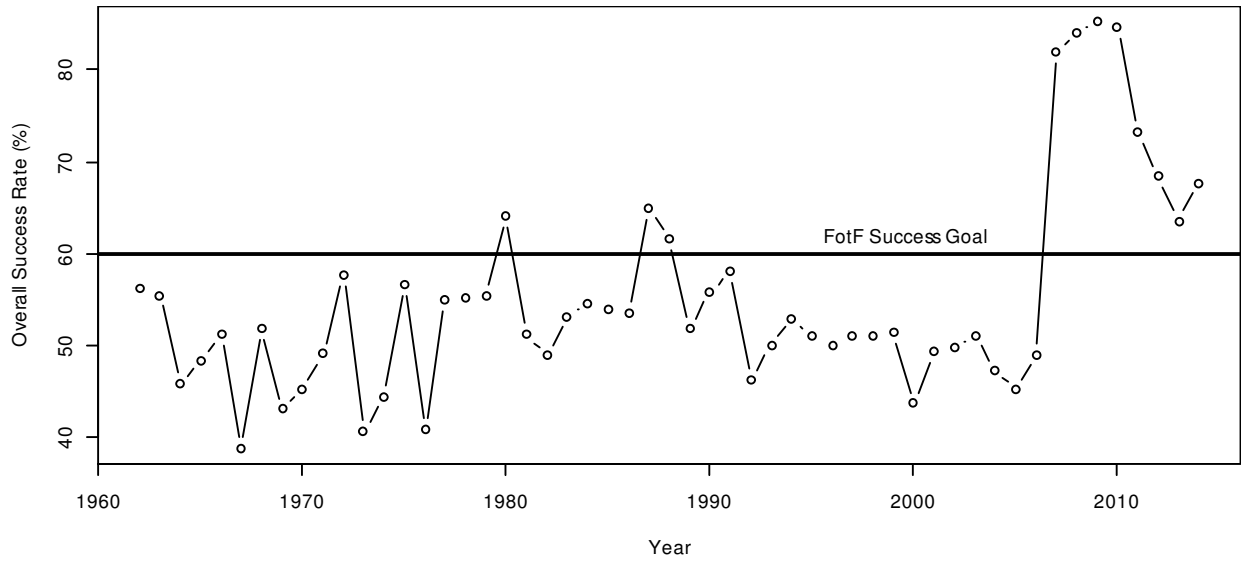


TABLE 4. Summary of fall 2014 turkey hunter survey responses and estimated harvest.

Permit Type	Permits Sold	Survey Permits	Reported Harvest	Success Rate	Estimated Harvest
$5.00 Youth	2,114	259	227	87.6%	1,852
Regular	8,061	1,342	857	63.9%	5,151
Total	10,175	1,601	1,084	67.7%	7,003

FIGURE 5. Fall turkey hunter success rate, 1962-2014. Horizontal line represents the success rate goal established in the Focus on the Future strategic plan. Note that in 2007, fall permits included a bonus tag, allowing the harvest of a second turkey.



Spring 2015

The spring turkey hunter survey is conducted each year at the end of the spring season. The season closed on 31 May 2015. The objective of the survey is to obtain information on the spring turkey harvest and success. Information on age and sex composition of the harvest is also obtained and is reported elsewhere. This year's survey was available to hunters from 22 June 2015 until 6 July 2015.

Methods. This year's survey was composed and administered in-house using Snap Survey development software (Snap v11) and Snap Webhosting service. An initial invitation to participate in the survey for the spring 2015 season was sent to 16,901 (62.0% of unique permit buyers) permit buyers, but 888 were bounced back as undeliverable, giving an effective sample size of 16,013 permitted hunters. Initial invitations were emailed on 22 June 2015, and a reminder email was sent to all non-responding hunters on 29 June 2015. The survey was closed on 6 July 2015. At the end of the survey period, responses had been received from 4,126 spring turkey hunters, representing 6,164 individual permits for the spring 2015 season. The raw response rate was, therefore, 25.8% and the permit response rate was 38.5%. Each survey respondent represented 5.5 spring 2015 permit buyers.

Results. Permit sales for the spring 2015 season (n = 34,140) were 0.84% lower than spring 2014 sales (n = 34,430; Figure 6). Of permits sold, 5,416 (15.9%) were $5.00 youth permits and 28,724 were statewide regular permits. Youth $5.00 permits sales ($n$ = 5,416) were 2.9% lower than in 2014 (n = 5,576), and statewide regular permit sales (n = 28,724) were 0.5% lower than in 2014 (n = 28,854). Of all permit buyers, 80.0% bought only one permit, 14.8% bought two permits, and 5.2% bought three permits. Estimated total turkey harvest for the spring 2015 season was 19,994 turkeys. Of these, 2,616 were harvested on $5.00 youth permits and 17,378 were harvested on regular statewide permits (Table 5, Figure 7). Overall, harvest was 5.5% higher during the spring 2015 season compared to spring 2014. Success during the spring 2015 season was 59.0%, with youth success lower at 48.3% and regular permit holders' success higher at 60.5% (Figure 8). Table 6 summarizes the 2015 spring season results.

TABLE 5. Spring turkey season harvest and success, 2009-2015.

		Year						
Type	Statistic	2009	2010*	2011	2012	2013	2014	2015
Archery	Permits	7637						
	Harvest	3,688						
	Success	48%						
Shotgun/	Permits	24,880	30,693	30,344	29,541	30,760	28,854	28,724
Regular	Harvest	17,009	21,270	20,237	18,884	19,040	16,707	17,378
	Success	68%	69.3%	66.7%	65.9%	61.9%	57.9%	60.5%
Youth	Permits	2,776	6,210	6,385	5,979	6,144	5,576	5,416
	Harvest	1,485	2,912	3,065	2,535	2,402	2,253	2,616
	Success	53%	46.9%	48.0%	42.4%	39.1%	40.4%	48.3%

*Special archery permits were not required after 2009. Archery harvest occurred with a statewide permit during the archery season. Totals under Shotgun/Regular are for both archery and shotgun harvest for 2010 and subsequent years.

FIGURE 6. Spring turkey permit sales, 1964-2015.

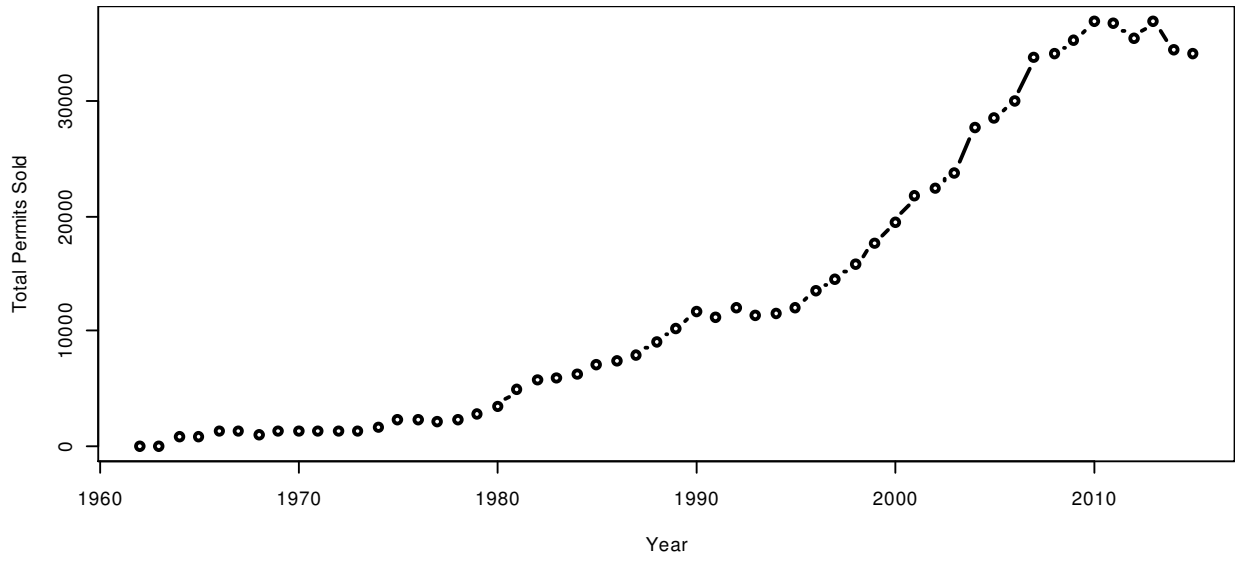


TABLE 6. Summary of spring 2015 turkey hunter survey responses and estimated harvest.

Permit Type	Permits Sold	Survey Permits	Reported Harvest	Success Rate	Estimated Harvest
Youth	5,416	780	377	48.3%	2,616
Regular	28,724	5,384	3,259	60.5%	17,378
Total	34,140	6,164	3,634	59.0%	19,994

FIGURE 7. Spring turkey harvest, 1964-2015.

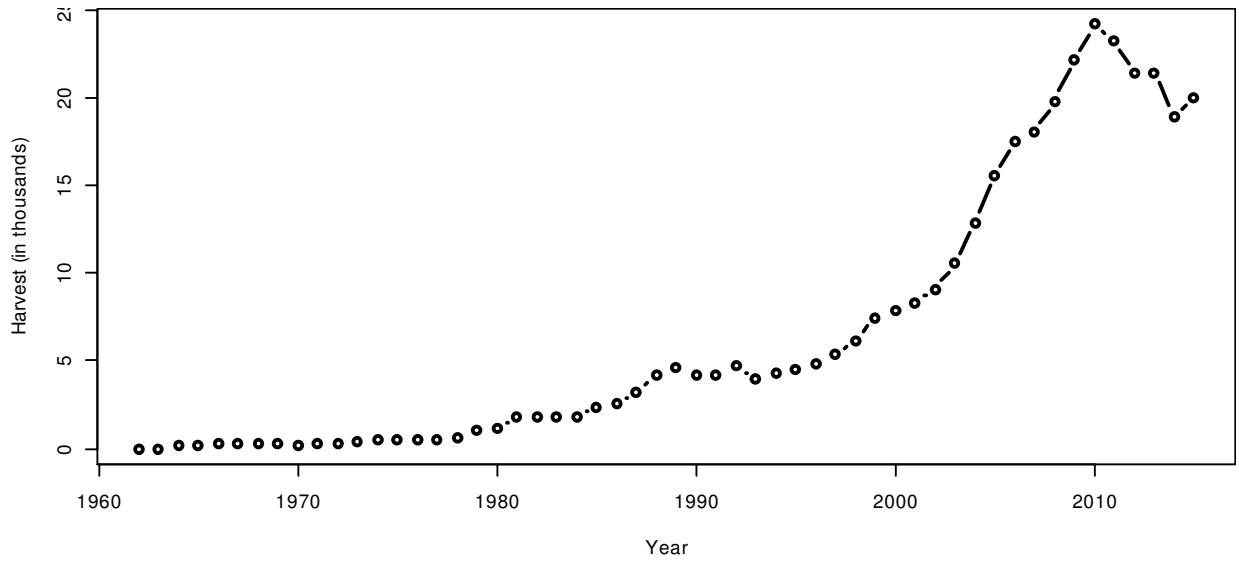


FIGURE 8. Spring turkey hunter success rate, 1964-2015. The horizontal line represents the success-rate goal established in the Focus on the Future plan (50% success).

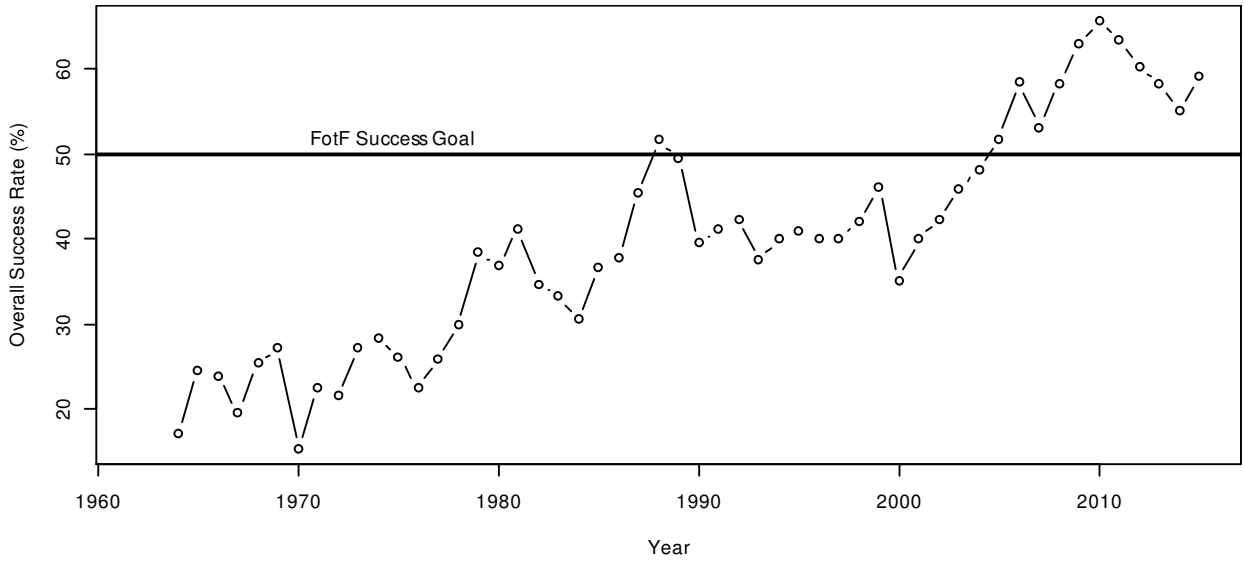
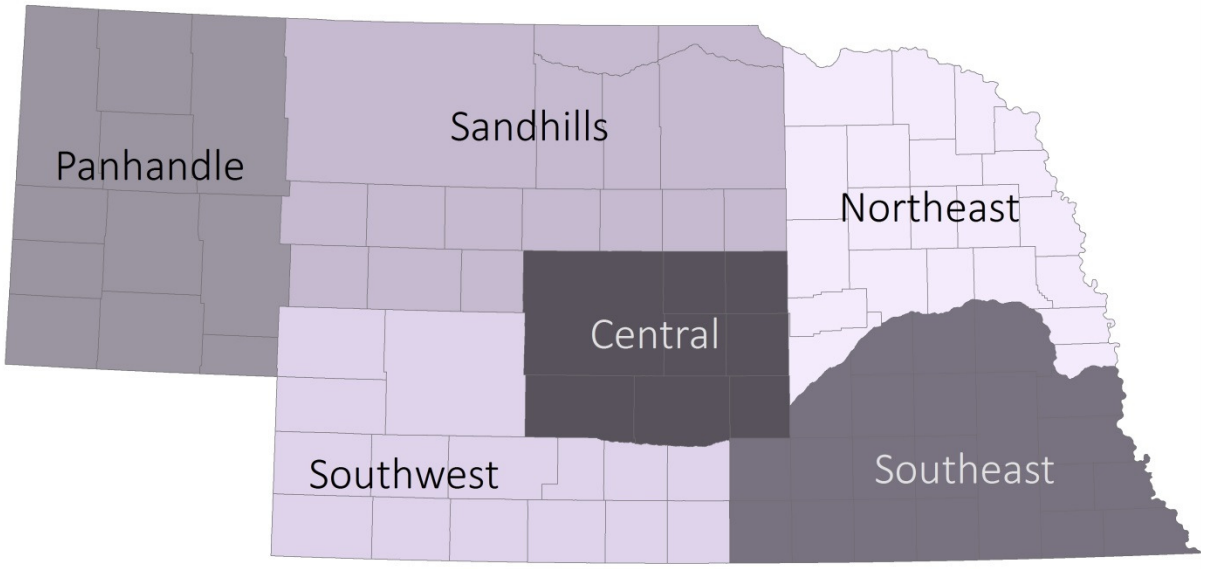


Figure 9. Management regions.



MIDWEST DEER/TURKEY WORKSHOP

Perlstein Resort & Conference Center
Lake Delton WI
Potosi, MO
September 8 - 11, 2015

NORTH DAKOTA WILD TURKEY REPORT

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

POPULATION ESTIMATES, 2015

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 wintering on their land (Figure 3). 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). We also have our field staff collect incidental turkey brood data (Figure 1) from June 1 to September 1.

Final results of the 2015 statewide brood survey are not available yet, but as of mid-August, the survey is showing total number of turkeys observed (+70%) and number of broods (+50%) to be up from 2014 and up over the last five years (Table 1). The number of poults per adult hen is presently down 33% but average brood size is up slightly from 2014. Age ratio is standing at 1.04 poults per adult.

Our 2015-2016 winter landowner survey of turkeys showed numbers to be about the same as in 2014. 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 four of five 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, 2014

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 2014, 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 six 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 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 2014, the season was held from October 11, 2014 through January 4, 2015. There were 3,805 permits available and 4,066 were issued (254 gratis and 3,812 general permits). This was a decrease of 215 permits available (-5.6 percent) over 2013.

From the wild turkey questionnaire, it was determined that 2,786 license holders (68.5 percent) hunted during the fall. Hunters harvested 1,108 wild turkeys for a success of 39.8 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 – 2014. 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 202 harvested birds, 36.7 percent of the 2013 fall harvest were females; 63.3 percent males, and 40 percent were juveniles; 60 percent adults.

SPRING HUNTING SEASON, 2015

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 2015, 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 five 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. As in the fall season, we provide only a one time period for hunting wild turkeys in the spring. You choose your weapon from shotguns, muzzle loading rifles, handguns and bow/arrows.

This spring, the season opened April 11 and closed May 17 (36 days). Only one bearded or male wild could be harvested. A total of 6,407 applications (down 3 percent from 2014) were received for the 5,815 permits that were available. Of the 5,906 permits actually issued, 312 went to landowners, 216 to youth, and 5,378 to regular turkey hunters.

Data from the spring hunter harvest questionnaire showed that 4,604 of the license holders (78%) hunted. Hunters harvested 1,983 wild gobblers (up 2 percent from 2014) for a hunter success of 43 percent (Table 3, Figure 6).

FALL HUNTING SEASON, 2015

For the 2015 fall hunting season, there are 3,655 permits available, 150 less than during the fall 2014 season. The same two hunting units, one in the northwest and one in the southwest, will closed this fall due to low turkey numbers. The season will open on October 10 and close on January 3, 2016 (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.

TRAP/TRANSPLANT PROGRAM

During the 2014-2015 wild turkey trapping period, 64 wild turkeys were trapped at two locations. One location was in the eastern part of the state and the other one in the south-central. The trapped turkeys were released on wildlife management areas in the vicinity of the trapping. Of the total birds trapped and released, the age ratio was 25A:39J and the sex ratio was 18M:46F. 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 is going to cause us more problems in the future.

NO PRESENT RESEARCH

Fig. 1

Incidental Turkey Brood Report

Return these forms to:

North Dakota Game and Fish Department
100 North Bismarck Expressway
Bismarck, ND 58501

Instructions: Please record brood sightings of wild turkeys from June through August. If your count is incomplete put a "+" after the count number. Do not use this form to record broods (coveys) that are recorded on any other census route. Record age of young turkeys by size (1/4, 1/2, etc.)

- -

County____________________ Date______________

Location ____________________________________

Turkey Hunting Unit ___________________________

No. of adults __________(females _____ males _____)

No. of young __________ Age of young _____________

Observer ____________________________________

SFN 6515

Fig. 2

UPLAND GAME ROADSIDE COUNT
NORTH DAKOTA GAME AND FISH DEPARTMENT
WILDLIFE DIVISION SFN 6430 (REV 11/98)

District No.	Route No.
Starting Point	Date
Observer	

	Time	Mileage	Temp.	Dew	Neb.	Wind
Start						
Finish						

Odometer Reading	Species	Adults			Immatures	
		M	F	UNK	No.	Age

Doves	Jack Rabbits	Cottontails	Tree Sqrls (by species)	Other

Fig. 3

2014-2015 Wild Turkey Landowner Questionnaire

1. How many wild turkeys wintered on your land during the winter of 2014-2015? _____

2. Description of land on which these birds spent most of the winter
Twp. ___ Rge. ____ Sec. ____

3. Is this flock likely to be reported by one of your neighbors as wintering on his land? Yes _____ No _____
If yes, name of person _____

Thank you for your cooperation. Please complete and drop in any mail box, postage is paid.

SFN 6467

Table 1. Brood data for wild turkeys in North Dakota, 2009 - 2015.*

PARAMETER	YEAR							% Change
	2009	2010	2011	2012	2013	2014	2015	2014 - 2015
Number of routes driven	267	266	374	379	376	386	**236**	-38.9%
Number of miles driven	5,313	5,249	9,012	9,043	9,416	9,781	**5930**	-39.4%
Number of hours driven	396.5	407.2	617.0	615	638	638	**405**	-36.5%
Number of adult birds observed	82	99	124	251	164	208	**226**	8.7%
Number of juvenile birds observed	114	126	68	192	162	238	**235**	-1.3%
Number of broods observed	15	17	13	27	24	37	**36**	-2.7%
Number of birds observed per 100 miles driven	3.7	4.3	2.1	5.0	3.6	4.6	**7.8**	69.6%
Number of broods observed per 100 miles driven	0.3	0.3	0.1	0.3	0.3	0.4	**0.6**	50.0%
Number of juveniles per adult hen	3.1	3.2	1.2	1.2	1.9	2.5	**1.7**	-32.0%
Number of birds observed per hour driven	0.49	0.55	0.31	0.72	0.51	0.70	**1.14**	62.9%
Number of broods observed per hour driven	0.04	0.04	0.02	0.04	0.04	0.06	**0.09**	50.0%
Age ratio (juvenile/adult)	1.39	1.27	0.55	0.76	0.99	1.14	**1.04**	-8.8%
Average Brood Size	7.60	7.41	5.23	7.11	6.75	6.43	**6.53**	1.6%

*
Preliminary Numbers

Fig. 4

North Dakota Game and Fish Department
Turkey Hunting Units

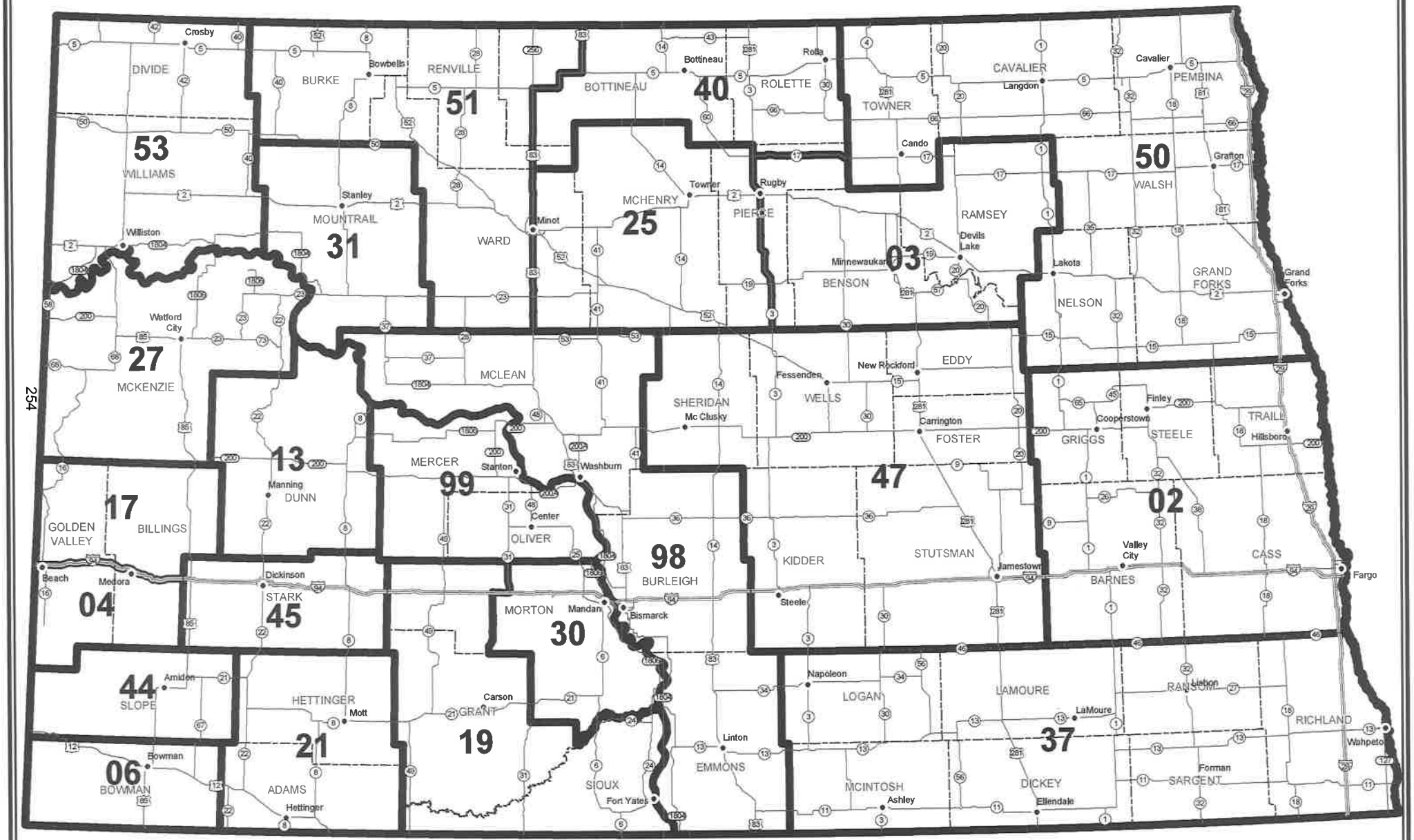


Table 2. Fall harvest statistics for wild turkeys in North Dakota, 1958 - 2014.

Year	Number of applicants	Number of permits available	Number of permits issued *	Number of hunters	Number of birds bagged	Percent success	Average days hunted
1958			376	376	88	23.4	
1959	No Season		--	--	--	--	
1960	No Season		--	--	--	--	
1961			309	246	174	70.7	
1962			426	392	241	61.5	
1963			306	298	171	57.4	
1964			404	386	198	51.3	
1965			350	290	109	37.6	
1966	No Season		--	--	--	--	
1967			200	183	103	56.3	
1968			200	178	97	54.5	
1969			197	186	117	62.9	
1970			197	180	131	72.8	
1971			201	185	134	72.4	
1972			227	205	129	62.9	
1973			203	195	151	77.4	
1974			307	285	213	74.7	
1975			359	308	186	60.4	
1976			500	466	653	140.1	
1977			650	513	411	80.1	
1978			844	737	540	73.3	
1979	2,834	975	961	881	583	66.2	
1980	2,611	1,155	1,135	1,029	736	71.5	
1981	4,969	1,530	1,514	1,310	976	74.5	
1982	3,258	1,530	1,501	1,361	975	71.6	
1983	3,057	1,660	1,678	1,488	1,181	79.4	
1984	3,143	1,710	1,707	1,521	1,197	78.7	
1985	3,902	1,960	1,946	1,631	1,269	77.8	
1986	3,800	2,235	2,126	1,861	1,324	71.1	
1987	3,393	2,455	2,417	2,177	1,668	76.6	
1988	6,918	5,930	5,938	5,098	3,607	70.8	
1989	5,890	5,810	5,760	4,818	3,233	67.1	
1990	6,921	4,765	4,735	3,845	2,556	66.5	
1991	7,305	4,580	4,593	3,683	2,236	60.7	
1992	6,402	3,585	3,605	2,938	1,830	62.3	
1993	6,030	3,585	3,546	2,735	1,331	48.7	
1994	4,330	3,585	3,154	2,578	1,484	57.6	
1995	3,862	3,195	3,212	2,608	1,619	62.1	
1996	4,348	3,230	3,241	2,595	1,946	75.0	
1997	4,717	3,250	3,273	2,695	1,835	68.1	
1998	5,218	3,855	3,860	3,141	2,114	67.3	
1999	4,977	4,620	4,620	3,941	2,750	69.8	
2000	7,665	6,000	6,000	4,690	3,029	64.6	2.9
2001	8,119	6,510	6,622	5,224	3,083	59.0	2.9
2002	8,399	6,610	6,752	5,234	3,157	60.3	3.1
2003	8,048	9,095	8,896	6,886	4,410	64.0	2.8
2004	10,070	10,980	11,224	8,064	3,773	46.8	3.4
2005 [1]	9,334	9,230	9,331	6,722	3,191	47.5	3.3
2006	8,319	7,925	8,066	5,982	3,194	53.4	3.1
2007	8,138	8,025	6,961	5,743	2,696	46.9	3.0
2008	8,767	8,700	8,215	5,539	2,632	47.5	3.2
2009	7,126	6,805	6,804	4,274	1,851	43.3	3.1
2010	5,930	5,755	5,901	3,702	1,551	41.9	3.1
2011	4,692	4,630	4,708	3,145	1,259	40.0	3.5
2012	4,516	4,145	4,190	2,652	1,212	45.7	3.2
2013	4,401	4,020	4,066	2,583	1,012	39.2	3.7
2014	**4,221**	**3,805**	**3,825**	**2,786**	**1,108**	**39.8**	**3.8**
TOTAL	205,630	167,435	172,339	132,769	77,454		
AVG:	5,411	4,406	3,077	2,371	1,383	58.3%	

* Includes lottery permits (10,504) plus gratis permits (720) in 2004.

[1] First year nonresidents were allowed to apply for fall turkey AFTER the first drawing for residents.

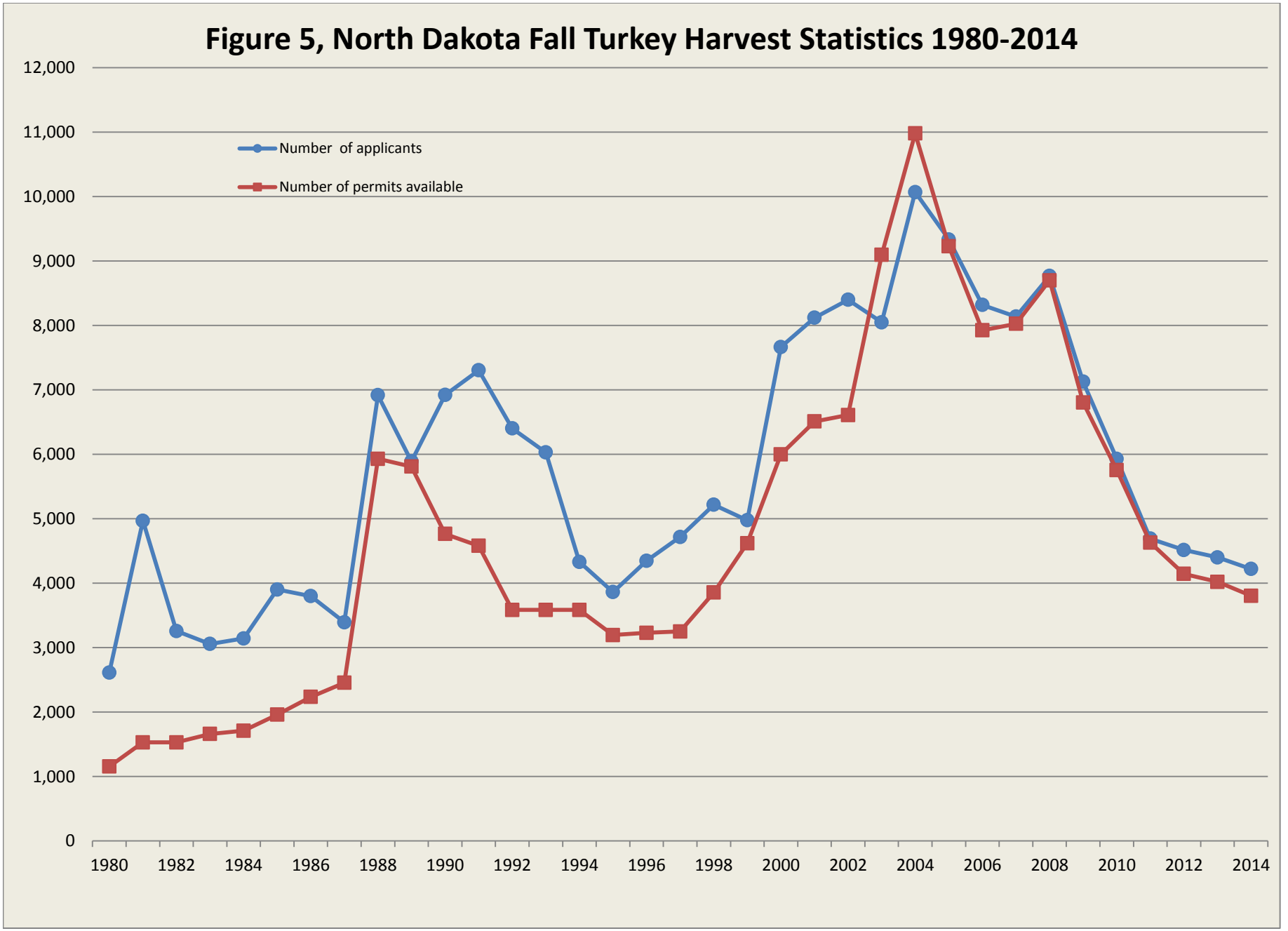


Figure 5, North Dakota Fall Turkey Harvest Statistics 1980-2014
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Number of applicants
Number of permits available
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014

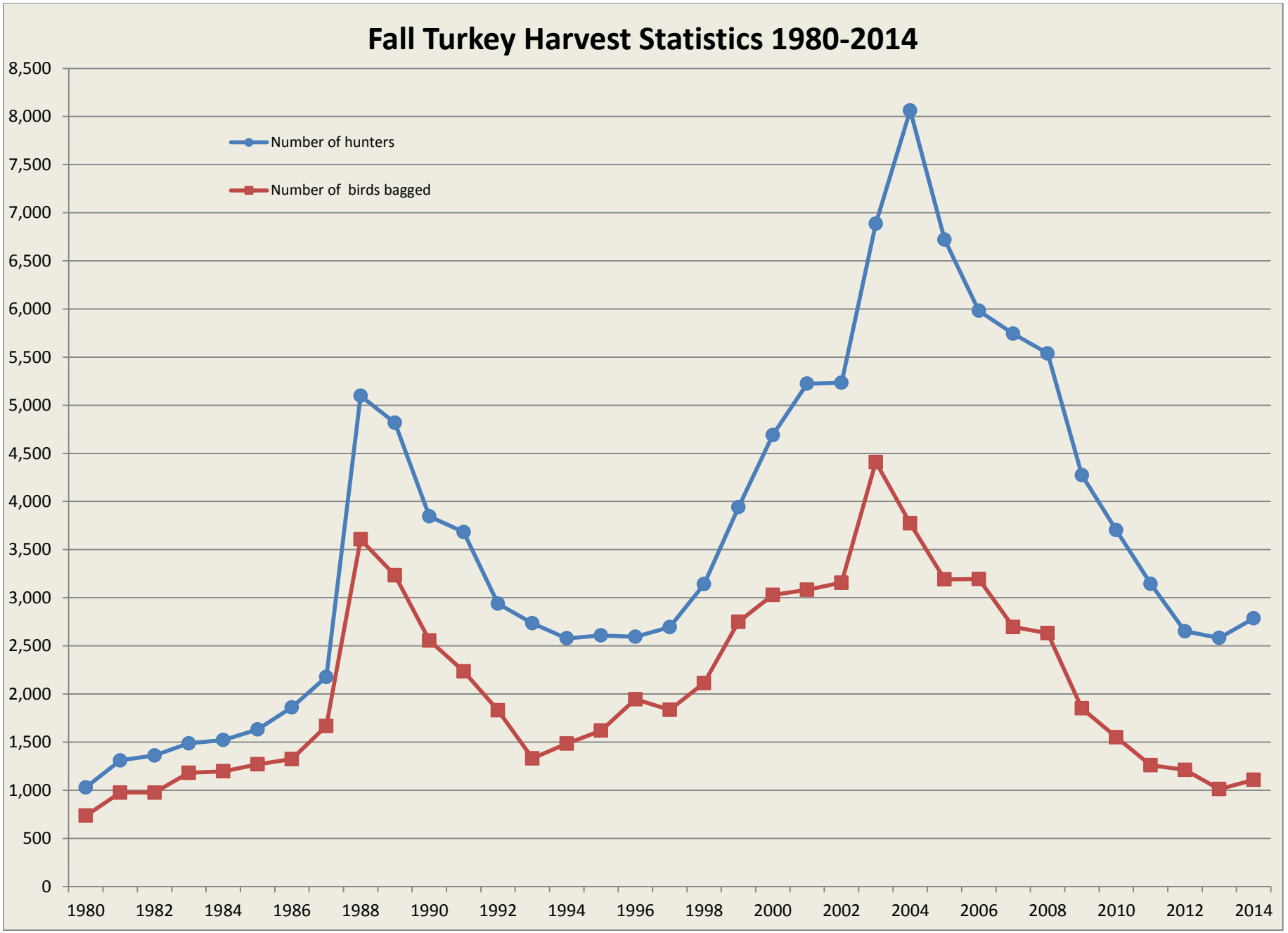

Fall Turkey Harvest Statistics 1980-2014
Number of hunters
Number of birds bagged
8,500
8,000
7,500
7,000
6,500
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014

TABLE 3. North Dakota Spring Wild Turkey Hunting Seasons, 1976 - 2015.

Year	Number of Applicants	Number of Permits Available	Number of Permits Issued	Number of Hunters	Number of Birds Bagged	Percent Success
1976			30	22	9	40.9%
No Spring Wild Turkey Hunting Seasons 1977 through 1981						
1982	1,660	72	70	57	18	31.6%
1983	470	160	160	146	61	41.8%
1984	1,033	270	258	231	94	40.7%
1985	1,691	285	283	257	130	50.6%
1986	1,548	325	325	290	155	53.4%
1987	2,065	455	455	387	232	59.9%
1988	2,032	600	600	527	331	62.8%
1989	2,561	845	843	753	502	66.7%
1990	5,151	1,175	1,188	998	547	54.8%
1991	5,783	1,485	1,490	1,319	658	49.9%
1992	6,345	1,705	1,717	1,533	746	48.7%
1993	5,442	1,795	1,807	1,605	696	43.4%
1994	4,153	1,500	1,500	1,328	555	41.8%
1995	4,157	1,315	1,322	1,174	581	49.5%
1996	4,399	1,435	1,445	1,277	641	50.2%
1997	4,245	1,520	1,528	1,272	669	52.6%
1998	5,208	1,695	1,695	1,484	924	62.3%
1999	6,583	2,055	2,060	1,835	1,173	63.9%
2000	7,720	2,505	2,534	2,266	1,421	62.7%
2001	8,207	2,925	2,925	2,556	1,449	56.7%
2002	9,370	3,310	3,310	2,888	1,679	58.1%
2003	8,662	3,710	3,709	3,282	1,896	57.8%
2005	8,537	6,165	6,213	5,359	2,391	44.6%
2006	8,629	6,425	6,405	5,318	2,430	45.7%
2007	8,138	6,935	6,961	5,743	2,696	46.9%
2008	7,966	7,300	6,506	5,997	2,859	47.7%
2009	7,655	7,136	7,138	5,476	2,051	37.5%
2010	6,832	6,641	6,645	5,388	2,323	43.1%
2011	7,077	6,720	6,672	4,783	1,698	35.5%
2012	5,784	5,795	5,872	4,586	2,115	46.1%
2013	7,015	5,930	6,053	4,534	1,905	42.0%
2014	6,613	5,881	6,003	4,598	1,947	42.3%
2015	**6,407**	**5,815**	**5,906**	**4,604**	**1,983**	**43.1%**
Total Avg.	***5,428***	***3,087***	***3,080***	***2,542***	***1,199***	***47.2%***

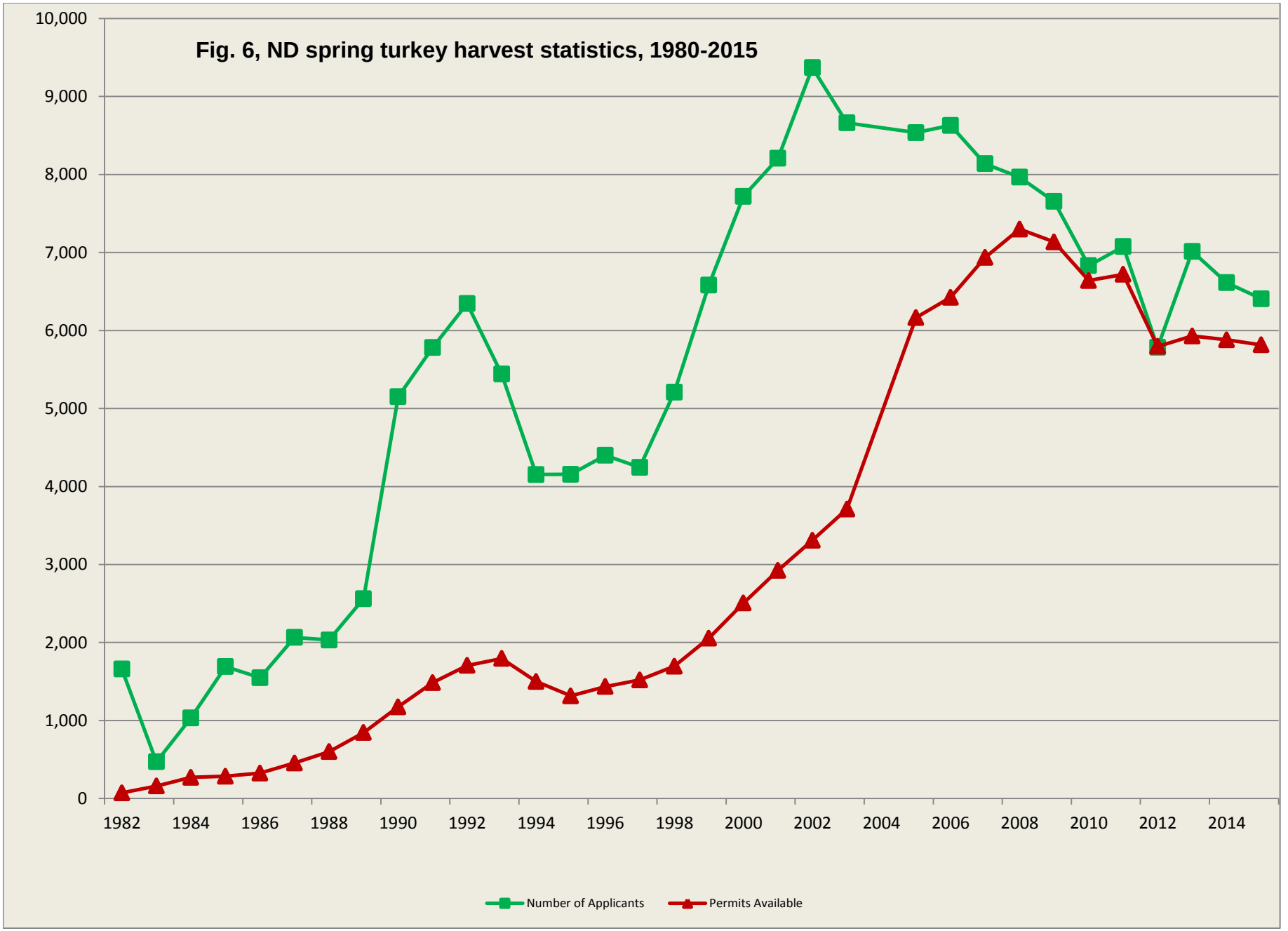
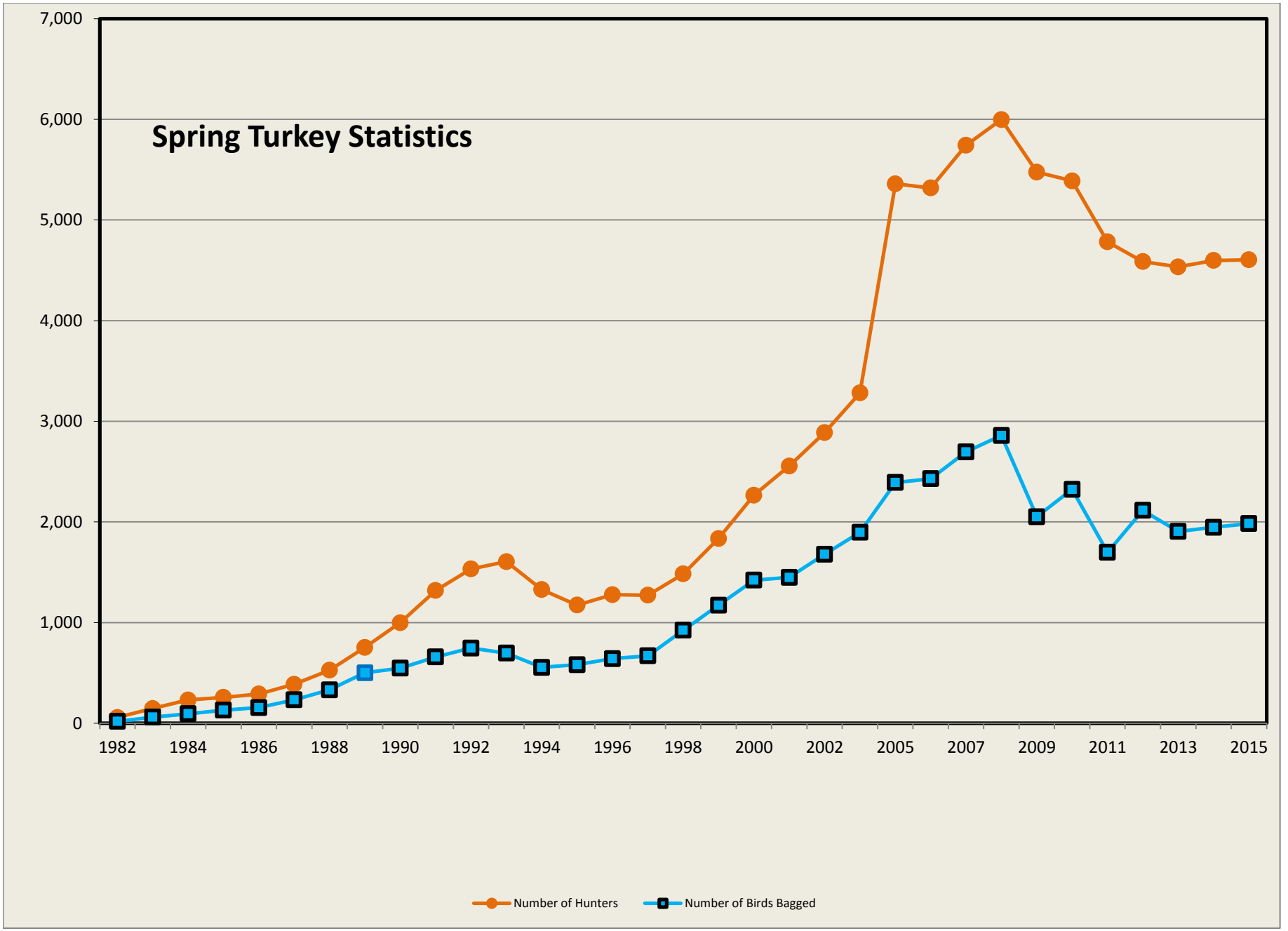


Fig. 6, ND spring turkey harvest statistics, 1980-2015
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
Number of Applicants
Permits Available


Spring Turkey Statistics
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2005
2007
2009
2011
2013
2015
Number of Hunters
Number of Birds Bagged

DIVISION OF WILDLIFE

Ohio Department of Natural Resources

2014-2015 Turkey Report

Olentangy Wildlife Research Station
Delaware, Ohio 43015

2014 Fall Turkey Season

Fall wild turkey hunters harvested 19 percent more turkeys in 2014 than 2013 (Figure 1) despite a 4% decline in permit sales. Youth fall turkey permit sales (*n* = 778) decreased by 9%. Resident and non-resident fall turkey permit sales (*n* = 4,987) decreased 5% from 2013 sales. Resident reduced-cost senior fall turkey permit sales (*n* = 1070) increased by 6% while resident free senior fall turkey permits (*n* = 3580) declined (-15%) for the tenth consecutive year.

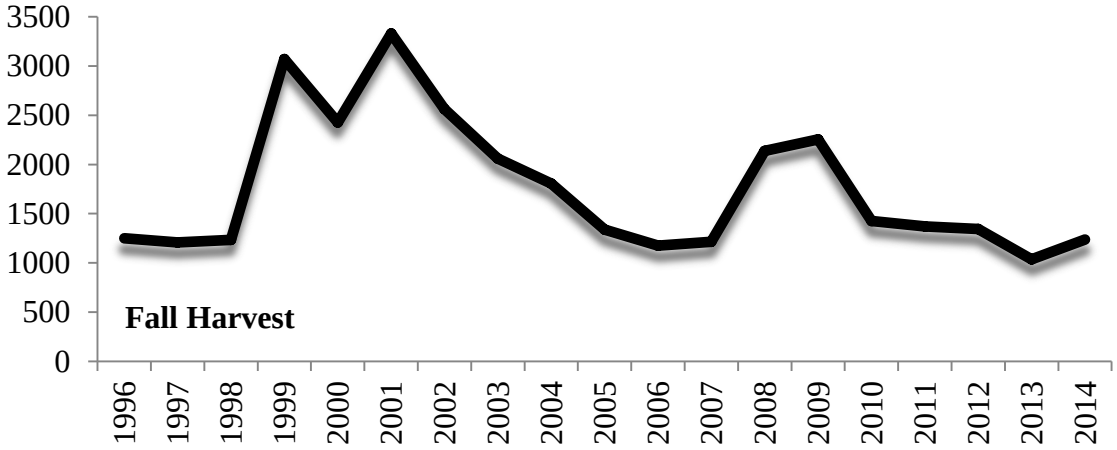


Figure 1. Fall wild turkey harvest, 1996-2014.

Most hunters harvested an adult female (43%, Figure 2) using a shotgun (63% Figure 3). The majority of turkeys were harvested on private land (92%), and 41% of the harvest was checked by landowners.

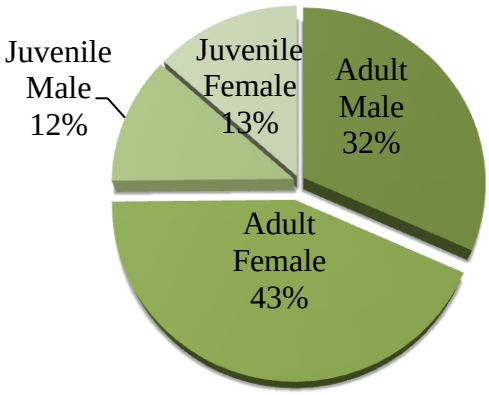


Figure 2. 2014 fall turkey harvest by turkey age and sex

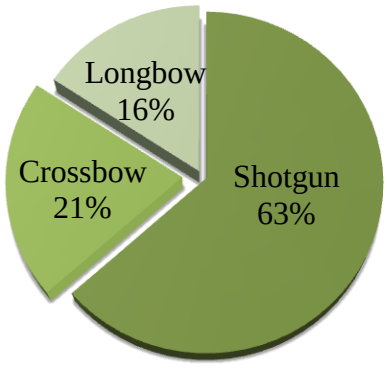


Figure3. 2014 fall turkey harvest by hunting weapon

The first week of the season had the highest number of turkeys harvested (Figure 4). Harvest remained relatively stable for the remaining weeks of the season.

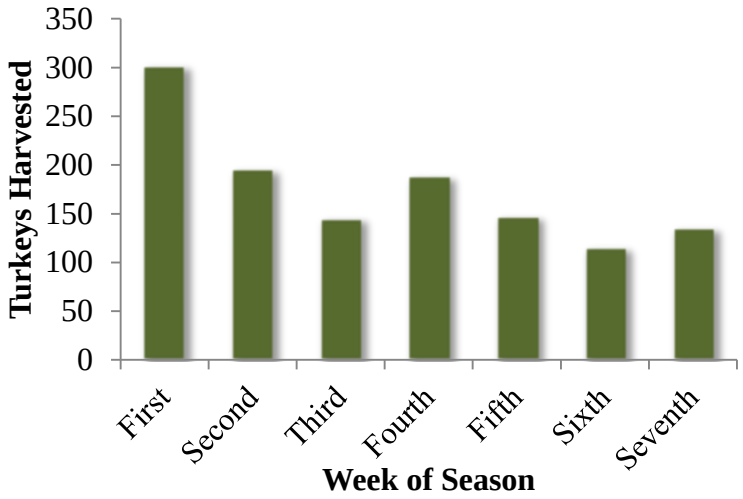


Figure 4. Weekly harvest for the 2014 fall turkey season.

Success rates of resident and non-resident fall turkey permit holders was higher lower in 2014 (11%) than in 2013 (5%) and 2012 (9%). Success rates for youth fall turkey permits (8% vs. 6%) were higher in 2014 than 2013. Success rates for resident reduced cost senior permits (8% vs. 7%), and resident free senior fall turkey permits (1.1% vs. 0.9%) were similar in 2014 and 2013. Note that success rates are likely conservative because participation rates for each permit type are unknown.

2015 Spring Season

Spring wild turkey hunters harvested 6.6 percent more turkeys in 2015 than in 2014 (Fig. 1). Youth harvested 1.589 turkeys during the two-day youth season (April 18 – 19, 2015). An additional16,063 turkeys were harvested during the four-week season open from April 20 through May 17.

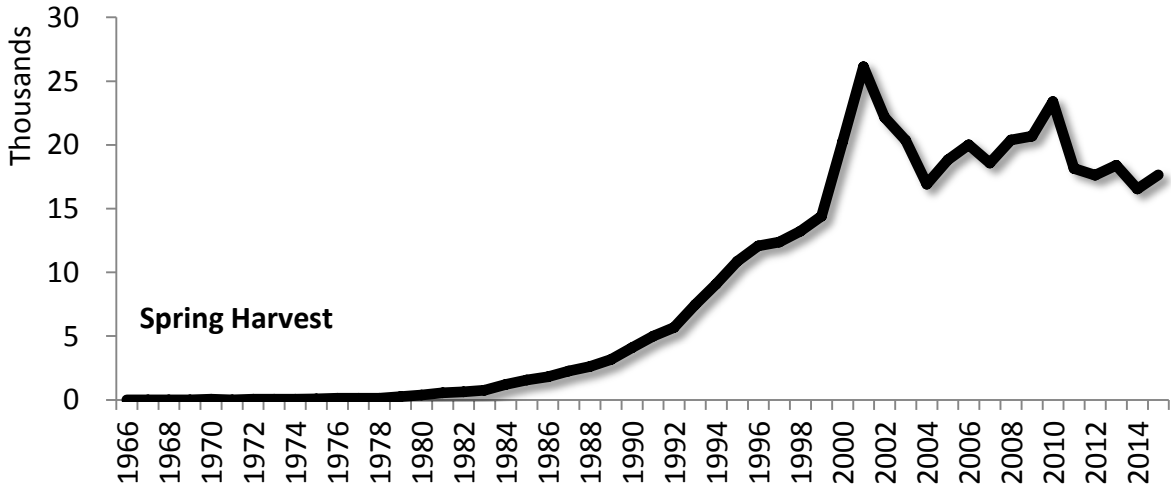


Figure 1. Spring wild turkey harvest, 1966-2015.

Spring turkey permit sales dropped 4.5 percent in 2015 and were 10.9 percent lower than 2013. Resident adult hunters purchased the most spring turkey permits, followed by youth hunters (Fig. 2). Overall permit success rate jumped from 18.8 percent in 2014 to 21 percent in 2015. Nonresident hunters had the highest

success rate (Fig. 3).

The eastern half of the state continues to be the best place to hunt turkeys in Ohio (Fig. 4). Ashtabula County led the state in 2015 harvest, followed by Belmont, Guernsey, Monroe and Muskingum counties. The 2015 harvest increased in most counties, but a few areas, notably northeast Ohio counties, did see a decline in harvest. Cuyahoga County saw the highest percent increase in harvest from 2014, followed by Hancock County (Fig. 5).

Most hunters harvested a turkey on private land (90 percent); 10 percent harvested a turkey on public land. However, the number of turkeys harvested per square mile of public land was three times greater than on private land. Landowners harvested 3,786 gobblers, 21 percent of the total harvest.

Hunters experienced the most success during the first half of the 2015 season, when 73 percent of the spring turkey harvest occurred. The two-day youth season accounted for 9 percent of the total harvest (Fig. 6).

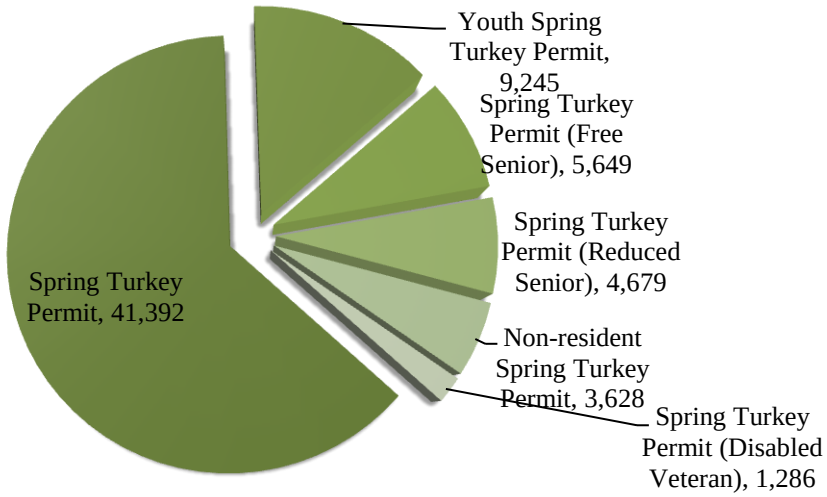


Figure 2. Spring wild turkey permit sales by permit type, 2015.

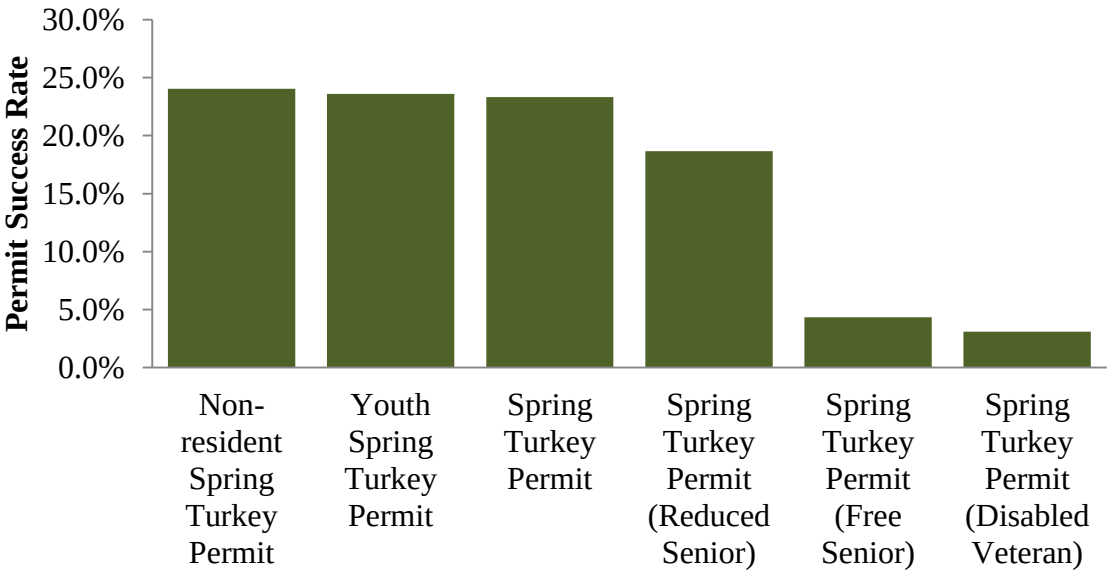


Figure 3. Permit success rate for 2015 spring turkey season

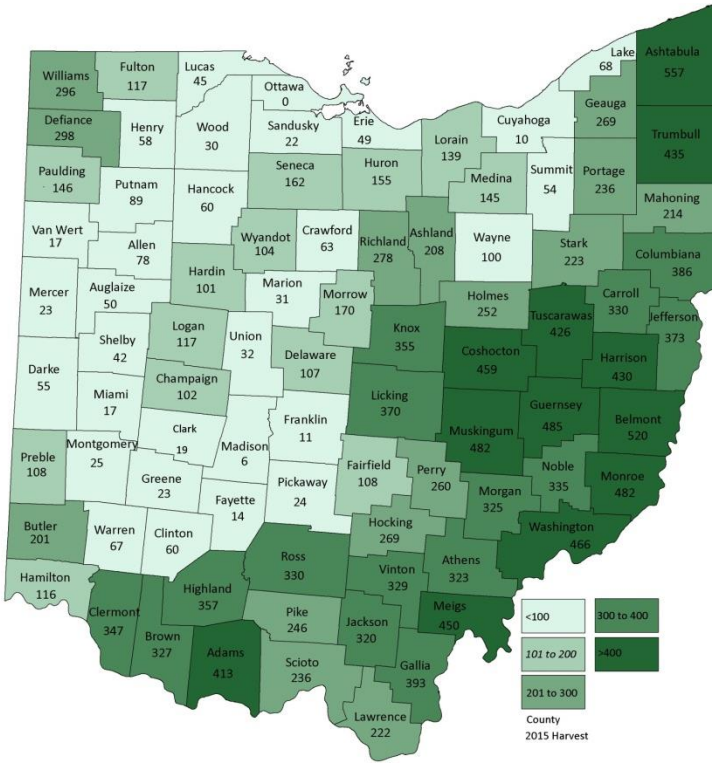


Figure 4. Spring wild turkey harvest by county, 2015.

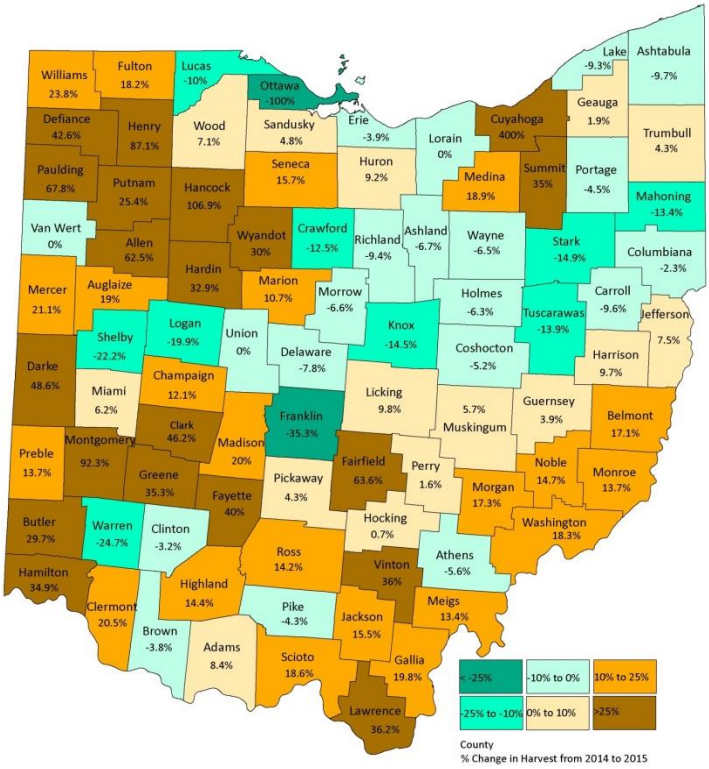


Figure 5. Percent change of spring wild turkey harvest from 2014 to 2015 by county.

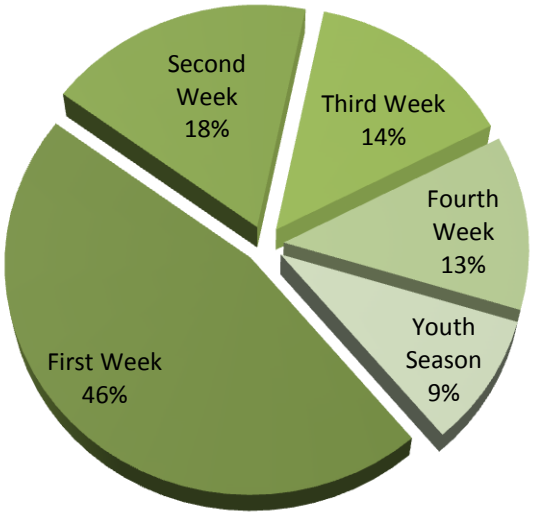


Figure 6. Percent of total spring wild turkey harvest for each week and the youth season, 2015.

Other Research

Snowbelt Hen Study-Twenty-eight hen turkeys were capture and tagged with GPS transmitters in 2014 and 2015. All hens were capture in the three northeastern-most counties in Ohio. This area is considered the core of Ohio's snowbelt. Average snowfall in these counties can exceed 10 feet due to lake effect snow from Lake

Erie. The median first nest initiation dates for the 21 hens that nested was May 1. This is approximately two weeks later than a previous study in southeast Ohio. A northern turkey zone with a spring season start date of the Monday closest to May 1 will likely be proposed in the future. We are currently getting feedback from our hunters on the extent of that zone.

Spring Turkey Hunter Survey- An email survey was sent to 10,000 randomly chosen spring turkey hunters at the end of the season. The survey was designed to collect hunter effort and their opinions on regulations. This was the first year of the survey and analysis is ongoing. Results from the survey will be used to delineate the northern turkey zone discussed above.

Wisconsin Department of Natural Resources
2015 Wild Turkey Status Report

Prepared by Krista McGinley, Wisconsin DNR

WISCONSIN TURKEY SEASON STRUCTURE

Zones: Wisconsin manages and monitors turkeys according to seven specific Turkey Management Zones (TMZs). Zones reflect general similarities in land cover and use, turkey habitat (relative dispersion of open and forested habitats), turkey population size, and climate (Figure 1). Beginning with the 2015 spring season, seventeen state park zones were eliminated, and are now part of the larger zone in which they lie.

Permit allocation: Zone-specific permit levels are determined by the WDNR Turkey Advisory Committee, which includes representation from relevant partner groups. Permit levels are based on recent trends in harvest and permit success rates, local turkey abundance as indexed by habitat availability, brood counts, recent weather, and field observations. Permits are allocated via a drawing system during both the spring and fall seasons. Permits remaining unallocated following the drawing are sold over-the-counter. Landowners and those not drawing a permit in previous year(s) are given preference.

Spring Season: The spring season consists of six consecutive 7-day time periods running from Wednesday through the following Tuesday, with the first season opening statewide on the Wednesday nearest April 13th. Only gobblers or bearded hens may be harvested. Due to a recent rule change, beginning with the 2017 spring season, the first time period will begin on the third Wednesday in April.

Fall Season: The fall season opens concurrent with small game and archery seasons, on the Saturday nearest September 15th, and closes on the Friday prior to the 9-day gun deer season in November. An extended season in TMZs 1-5 reopens on the Monday following the 9-day gun deer season and runs through December 31st. Hunters may harvest turkeys of either sex, one turkey per permit. Due to a recent rule change, beginning in 2016, the statewide fall season will no longer close on the Friday before the 9-day gun deer season or (for TMZs 1-5 only) during the 9-day gun deer season itself.

WISCONSIN TURKEY HARVEST SUMMARY

Spring Season: Wisconsin's wild turkey population expanded quickly from initial releases in 1976 in the southwestern part of the state, with spring seasons opening up less than a decade after initial colonization in the area. 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, and perhaps slight population declines as established turkey populations have begun to stabilize near carrying capacity following the "overshoot" phenomena of exponentially-growing populations. Recent harvests have stabilized at ~40,000 turkeys, with annual variations driven largely by weather conditions during the early time periods. Prolonged snow/cold and/or wet weather during the early time periods reduces hunter effort and subsequent harvest, but impacts on overall harvest are moderated by the availability of over-the-counter permits during later time periods; hunters unsuccessful during early seasons seem more inclined to purchase tags later in the season, and increased harvest later on offsets relatively low early-season harvest due to poor hunting conditions.

Table 1. *Spring turkey harvest in Wisconsin, 1983 – 2015.*

Year	Permits Issued	Harvest	Success Rate
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%
2014	210,496	41,815	19.9%
2015	208,250	40,977	19.7%

Hunters are required to list both zone- and time period-specific preferences when they apply for spring turkey permits in Wisconsin, and hunters show a strong preference for hunting during early time periods. Permits are therefore limited during early time periods in many zones, whereas over-the counter permits are available for later time periods in most zones. Overall, hunter effort and subsequent harvest tends to be higher during early time periods. Harvest and permit success are also higher in southern zones (Spring 2014, figure 2). This reflects both more limited permits in northern zones (e.g., 6 and 7) and less abundant quality habitat with fewer turkeys.

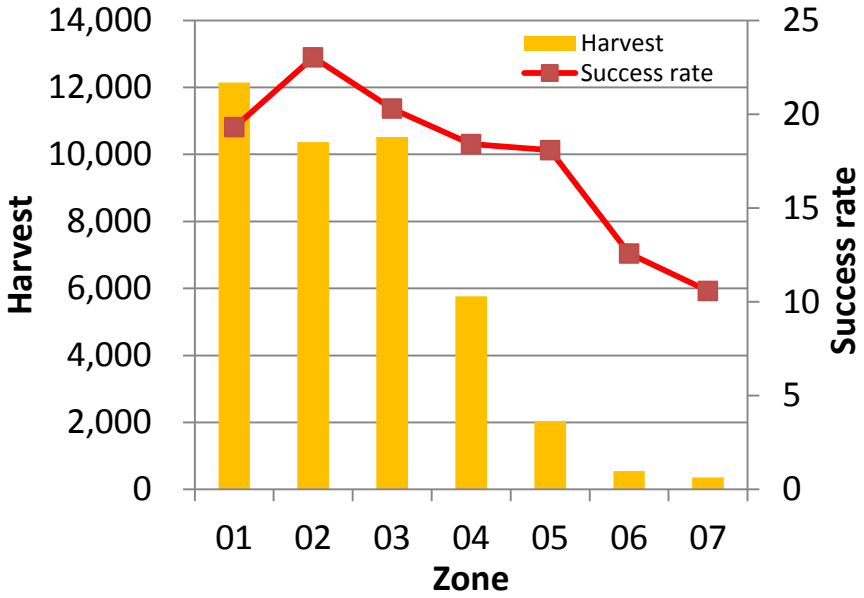


Figure 2. Zone-specific turkey harvest and permit success, 2014.

Fall Season: 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. The number of fall turkey hunting applications increased during both 2013 and 2014, but it is not known if this reflects an increase in dedicated turkey hunters or additional hunters seeking a turkey permit in case they encounter turkeys while pursuing other game.

Table 2. *Fall turkey harvest in Wisconsin, 1989 – 2014*

Year	Permits Issued	Harvest	Success Rate
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%
2014	62,708	4,228	6.7%

SUMMARY OF RECENT TURKEY HUNTING ACCIDENTS/INCIDENTS

Spring 2014: One non-fatal hunting incident in Dane County; shooter failed to identify target and shot at movement 50 yards away, hitting victim. Shooter: 50 y.o. male hunter education graduate. Victim: 46 y.o. male hunter education graduate. The shooter and victim were not members of the same party. The weapon was a 12-gauge semi-automatic shotgun.

Fall 2014: One non-fatal hunting incident; the shooter was in excess of 50 feet away from another hunter. Shooter was lying down along fence line facing east and thought he saw a turkey walking towards him. Shooter shot one time striking victim in upper left chest approximately 113 yards away. Shooter: 11 y.o. male, NOT a hunter education graduate. Victim: 42 y.o. male, NOT a hunter education graduate. The weapon was a .22-caliber semi-automatic rifle. The shooter and victim were members of the same party.

Spring 2015: One non-fatal hunting incident; shooter set up with turkey fan decoy along field edge. Victim was crawling on the ground holding a strutting tom turkey decoy heading towards shooters decoy. Shooter saw turkey decoy through brush and shot once hitting victim in left hand. Shooter: 62 y.o. male, NOT a hunter education graduate. Victim: 28 y.o. male hunter education graduate. The weapon was a 12-gauge semi-automatic shotgun. The shooter and victim were not members of the same party.

RESULTS OF THE 2014 SPRING TURKEY HUNTER QUESTIONNAIRE (SPRING 2015 SURVEY NOT YET SUMMARIZED):

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 (Figure 1). 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 3,122 spring turkey hunter surveys were returned. After duplicates were removed, the resulting response rate was 31%. The proportion of respondents who applied with landowner preference for this spring's turkey hunt permit was 19.3% (Table 1, Question 1). Statewide, 28.2% of the respondents have 0-5 years of spring turkey hunting experience and 31.0% have 16+ years of experience (Table 1, Question 2).

Most spring turkey hunters "Strongly Agree" (28.6%) or "Agree" (52.7%) that the current permit allocation process affords them a fair chance at receiving a permit for the zone and time period in which they prefer to hunt (Table 1, Question 3a). Sixty-six percent (66.3%) of hunters also "Strongly Agree' or "Agree" that having separate, 6-week time periods is important to maintain a quality hunt (Table 1, Question 3b). Hunters prefer the current spring season format (54.8%) (Table 1, Question 3c). Only 10.2% of spring turkey hunters "Disagree" or "Strongly Disagree" that the current 7-zone system allows them sufficient opportunity to hunt different locations (Table 1, Question 3d). Eight-four percent (84.5%) of hunters are "Satisfied, Somewhat, or Very Satisfied" with the current season framework (Table 1, Question 3e).

Statewide, 13.4% of survey respondents participated in the youth turkey hunt as a youth or chaperone; of those, 21.6% reported a turkey being harvested (Table 1, Question 4). All surveyed hunters were asked who introduced them to turkey hunting, 43.9% introduced themselves, while 31.6% were introduced by a friend (Table 1, Question 5).

Statewide, 81.8% of the respondents hunted turkeys this spring. Of those who did not hunt, 47.3% bought a 2014 wild turkey stamp (Table 1, Question 6). The success rate for active hunters who received a harvest permit was 38.8%. This success rate may be high because of response and prestige biases of a mail survey. The spring turkey harvest registration data success rate (19.9%) is uncorrected for nonhunters and is probably a low estimate. Surveyed hunters were asked how difficult it was to find a place to hunt in the spring of 2014, and 90.7% of the respondents said it was "Very Easy" or "Somewhat Easy" (Table 1, Question 7). 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 (Table 1, Question 8). Hunters averaged 3.1 days a field perusing turkeys.

Statewide, the mean # of Gobblers/Jakes seen by hunters was 3.6; the mean # of Gobblers/Jakes heard by hunters was 5.6; the mean # of Hens seen was 5.7, and the mean # of Hens heard was 3.8 (Table 1, Question 9). Slightly more than half (54.6%) of respondents that had a shot at a turkey did not shoot at the first turkey which presented an opportunity; 79.0% reported waiting for a better shot, or for an adult gobbler (Table 1, Question 10).

Of the respondents that harvested a turkey, 29.8% with one tag harvested one turkey; 34.2% with two tags harvested one turkey, and 9.7% harvested two turkeys; 28.7% with three or more tags harvested one turkey, 20.8% harvested two turkeys, and 12.8% harvested three or more turkeys. Surveyed hunters were asked if they hit any turkeys that they were unable to retrieve; 4.7% were unable to find their bird, 87 hunters reported hitting one turkey, and 4 hunters reported hitting 2 or more turkeys (Table 1, Question 12). Ninety-five percent (94.8%) of turkey hunters used a gun "most" while hunting, while a gun was used 97.2% of the time to kill a turkey (Table 1, Question 13).

The percent of time turkey hunters spent on private land varied by TMZ from 56.8% in TMZ 7 to 88.7% in TMZ 4 (Table 1, Question 14). Of the hunters on private land, 30.8% owned the land and 60.9% hunted land owned by a friend or relative. Only 1.5% of hunters on private land hunted land open via a public access program (Table 1, Question 14b). Sixty-nine percent (69.4%) of those that hunted land open to public access saw turkeys and 23.3% harvested a turkey on land open to public access (Table 1, Question 14c).

Eighteen percent (17.9%) of hunters responded to "Other hunters kept me from hunting where I wanted to" with "Definitely Yes", or "Somewhat". Thirteen percent (12.5%) of respondents answered "There was too much competition from other hunters where I hunted" with "Definitely Yes", or "Somewhat". Only 10.2% of the respondents indicated that other hunters interfered with their chance to bag a bird (Table 1, Question 15).

Overall, 47.5% of respondents rated their spring turkey hunting experience as "Very High" or "Fairly High", while 20.3% rated their hunt as "Fairly Low" or "Very Low" (Table 1, Question 16). The most important factors that influenced respondents' perceptions of a quality hunt were "killing a turkey (Tom, Jake or bearded hen)" and "Weather". The least important factor was "seeing turkeys/calling birds in/hearing gobbling" (Table 1, Question 17).

Forty-six percent (45.9%) of respondents feel that turkey numbers in the zones they hunted in the spring decreased relative to the year before (Table 1, Question 18). Most hunters (81.0%) would like to see the number of permits available for the zone(s) they hunted stay the same as opposed to increase or decrease (Table 1, Question 19).

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, hunters ranked their overall satisfaction level at 7.2 (Table 1, Question 20).

Hunters were asked to rank four factors and the influence each factor has on how quickly a turkey population would recover following a period of decline. In general, hunters felt that reducing spring or fall permit levels was "Neither Important or Unimportant" on turkey population recovery. However, 90.8% of hunters felt "A dry spring that allows high production of young" was "Very Important" or "Somewhat Important". Similarly, 93% of hunters felt "A mild winter that allows high survival of all turkeys" was "Very Important" or "Somewhat Important" (Table 1, Question 21).

RESULTS OF THE 2014 FALL TURKEY HUNTER QUESTIONNAIRE:

A sample of fall turkey hunter names and addresses was drawn from the current fall turkey hunter permit file. A survey was mailed to approximately 6,000 fall turkey hunters after the completion of the

fall turkey season. The questionnaire was mailed in proportion to the number of permits distributed in each zone. All questionnaires asked each hunter specific questions about their fall turkey hunting experience (Figure 2). A second mailing was made to 3,000 of the non-respondents. Data from all returned questionnaires were entered into the DNR UNIX production server and summarized using the Statistical Analysis System (SAS).

A total of 3,115 hunter surveys were returned. After duplicates were removed, the resulting response rate was 51.3%.

Approximately 39% of respondents have fewer than 5 years of fall turkey hunting experience; 25% have between 6 and 10 years of experience; 18.1% have between 11 and 15 years of hunting experience, and only 18% have 16 or more years of experience (Table 1, Question 1). These results are very similar to previous years. It would appear that many hunters are still just discovering fall turkey hunting; Wisconsin has had a fall turkey season for 20+ years.

Like as had been done for several fall turkey seasons in the past couple of years, the fall turkey season was extended into the month of December in 2014. Since 2007 the season has opened on the second Saturday in September and went through the 3rd Thursday in November. The season was extended in Turkey Management Zones (TMZ) 1-5 with the fall hunt reopening on 1st of December and going through the 31st of December. This was done to give hunters more opportunity to hunt fall turkeys. This added 31 days to the end of the season in 2014.

In an effort to simplify the fall turkey hunt, hunters were asked their views on eliminating the fall turkey permit drawing and making permits available to all hunters via over-the-counter sales. Most hunters (41.2%) agreed with eliminating the fall turkey permit drawing statewide, even in zones where all permits are allocated prior to the end of the season. If the fall turkey permit drawing were eliminated, a harvest quota or season bag limit within each zone would be needed to protect from over-harvest. Forty-two percent of hunters were in favor of a season bag limit of one turkey, with additional permits sold over-the-counter in zones that could support it (Table 1, Question 2 & 3).

The percent of hunters participating, 60.8%, decreased from last year, 65.3% (Table 1, Question 4). Hunters spent a slightly higher amount of time in the field in 2014, averaging 6.3 days of hunting, vs. 6.1 days in 2013. Hunting pressure was high on the weekends, with 53.9% of days in the field being a Saturday or Sunday (Table 1, Question 5).

Fall hunter success, based on turkey harvest registration data, was 6.7%. This is uncorrected for non-hunters and is probably a low estimate. The overall success rate for active hunting respondents was 14.6%. Of those reporting, 11.9% with one tag killed one turkey; 30.5% with two tags killed one turkey, 8.5% killed two turkeys; for hunters with more than two tags 20.0% killed one turkey, 28.0% killed two turkeys, 12.0% killed 3 turkeys, 0.0% killed four turkeys, and 4.0% killed five or more (Table 1, Question 7). This success rate is biased high because hunters who were successful may have been more likely to return the survey than hunters who were unsuccessful.

Active hunters were asked if they hit any turkeys they were unable to retrieve: 2.8% were unable to find their bird; 41 hunters reported hitting one turkey and 3 hunters reported hitting 2 turkeys (Table 1, Question 8).

Hunters were asked what weapon they used most, and what weapon they used to kill their turkey, fifty-six percent (56.4%) of respondents who hunted said that they used a gun to hunt fall turkeys, while 79.4% said that they used a gun to harvest a fall turkey (Table 1, Question 9).

The most commonly used method to hunt fall turkeys was ambushing from concealment (31.8%) (Table 1, Question 10). Incidental to bow deer hunting was the next most common method (30.9%). Shoot from the roost was the least utilized hunting method (0.5%).

Eighty-one percent of respondents hunted on private land, while 16.3% on public land. Of those who hunted on private land, 38.0% own the land (Table 1, Question 11). The mean number of turkeys seen by hunters while afield hunting was 28.3, an increase from 27.7 in 2013 (Table 1, Question 12).

The percentage of survey respondents who reported the presence of other hunters interfering with their fall turkey hunting was 8.4%. Respondents reported archery deer hunters as the most common cause of interference. The second most common source of interference was hunters hunting small game (Table 1, Question 13).

Despite concerns that hunters in the “new” larger zones would interfere with each other, ten percent (10.8%) responded to “other hunters kept me from hunting where I wanted to” with ‘definitely yes,’ or ‘somewhat.’ Similarly, 7.3% of respondents answered “there was too much competition from other hunters where I hunted” with ‘definitely yes,’ or ‘somewhat.’ Only 6.4% of the respondents indicated that other hunters interfered with their chance to bag a bird (Table 1, Question 14).

The number of hunters who rated their hunting experience as "Fairly High" or "Very High" was 32.2%. This was greater than the hunters who rated their hunt as "Fairly Low" or "Very Low", 24.6% (Table 1, Question 15).

Hunters were asked to rate several factors that influenced their perception of a “quality” fall turkey hunt. The most important factor leading to a “quality” turkey hunt was “seeing turkeys”. The next most important factor was “an opportunity to kill a turkey”. The least important factors were “weather” and “not seeing other hunters” (Table 1, Question 16).

Sixty-five respondents reported knowing of 1 or more turkeys that were tagged but not registered. Forty-two respondents reported knowing of 1 or more turkeys that were neither tagged nor registered. (Table 1, Question 17).

For the 2014 season, the hunting of fall turkey with the aid of dogs was allowed in all counties. Only 1.8% of hunters hunted fall turkey with the aid of dogs (Table 1, Question 18).

Most hunters (72.8 %) would like to see the number of permits available in the zone they hunted remain unchanged, while 23.3% would like to see the number of permits increased. Only 3.9% would like to see permit number decrease (Table 1, Question 19). Most hunters (79.8%) felt the number of turkeys in the zone they hunted decreased or stayed the same from the year before (Table 1, Question 20).

Respondents were asked to rate their overall satisfaction with the Wisconsin Wild Turkey Program. Over 79.5% responded as ‘very satisfied’ or ‘somewhat satisfied’ and 16.3% responded as ‘satisfied.’ Only 4.2% responded as ‘somewhat dissatisfied’ or ‘very dissatisfied’ (Table 1, Question 21).

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 previous Wisconsin Wild Turkey Management Plan, written in 1996, was revised in order to include treatment of contemporary issues related to turkey management in the state. A critical part of the revision process included 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 helped 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. The Wisconsin DNR's Natural Resources Board approved a final copy of the revised management plan in April of 2015. A digital copy of the plan is available on the DNR website at http://dnr.wi.gov/files/PDF/pubs/WM/WM0585.pdf, and 5,000 hard copies have been printed and made available free of charge at all DNR offices in Wisconsin. The plan provides both a set of goals and objectives to clarify our approach to harvest, population, and habitat management and public outreach/engagement for the next decade, but is also produced in a non-technical fashion so as to provide a transparent view of the history of our turkey management program for interested citizens.