Midwest Deer & Wild Turkey Study Group

2006 Meeting Proceedings

August 20-23, 2006

Camp Ransburg, Boy Scouts of America
Bloomington, Indiana

2006 Midwest Deer and Wild Turkey Study Group Proceedings

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Past Meeting Locations
Midwest Deer and Turkey Study Group

Year	State	Location	Dates
1977	Missouri	Fountain Grove Wildlife Area	Jan. 17-19
1978	Wisconsin	Wyalusing State Park	Jan. 16-17
1979	Iowa	Rathburn Fish Hatchery	Jan. 15-18
1980	Minnesota	Whitewater State Park	Jan. 21-24
1981	Indiana	Harrison-Crawford State Park	Jan. 19-22
1982	Ohio	Lake Hope State Park	Jan. 18-21
1983	Nebraska	Louisville 4-H Camp	Jan. 17-21
1984	Kansas	Camp Aldrich	Jan. 16-19
1985	South Dakota	Black Hills	May 7-10
1986	North Dakota	Camp-of-the-Cross	Jan. 20-23
1987	Michigan	Kellog Biological Station	Jan. 27-29
1988	Illinois	Touch of Nature	Feb.1-4
1989	Missouri	YMCA Camp of the Ozarks	Jan. 23-26
1990	Wisconsin	Bethel Horizons Prairie Center	Jan. 15-18
1991	Iowa	Conservation Education Center	Jan. 14-17
1992	Minnesota	Whitewater State Park	Jan. 13-16
1993	Indiana	Harrison-Crawford State Park	Jan. 11-14
1994	Ohio	Canter's Cave 4-H Park	Jan .30 - Feb. 2
1995	Nebraska	Mahoney State Park	Jan. 15-18
1996	Kansas	Camp Pecusa	Jan. 14-16
1997	South Dakota	Camp NeSoDak	Aug.24-27
1998	North Dakota	Camp Grafton	Aug. 9-12
1999	Ontario	Blue Springs Scout Reserve	Aug.15-18
2000	Michigan	Thunder Bay Resort	Aug. 20-23
2001	Illinois	Dixon Springs Ag. Station	Aug. 19-22
2002	Missouri	Conception Abbey	Aug.18-21
2003	Wisconsin	Bethel Horizons Prairie Center	Aug. 24-27
2004	Iowa	Conservation Education Center	Aug. 22-25
2005	Minnesota	Eagle Bluff Environmental Learning Center	Aug. 21-24
2006	Indiana	Camp Ransburg, BSA	Aug. 20-23
2007	Ohio	TBA	TBA

30th MIDWEST DEER & WILD TURKEY STUDY GROUP

EXECUTIVE SUMMARY

August 20-23, 2006 @ Ransburg Boy Scout Camp, Lake Monroe, Bloomington, Indiana
Hosted by the Indiana Division of Fish and Wildlife, Indiana Department of Natural Resources

The 30th annual meeting of the Midwest Deer and Turkey Study Group (MDWTSG) met at the Ransburg Boys Scout Camp on the southern shore of Lake Monroe south of Bloomington, IN off of State Road 446 from August 20-22, 2006. The Ransburg Camp provided rustic and extremely reasonable accommodations for the attendees. All member states (12) had at least one representative. The Province of Ontario was not able to send a representative but did send status reports. Besides invited speakers, invited guests included the deer program specialist from Kentucky Fish and Game, a couple regional biologists from the National Wild Turkey Federation, and several emeritus (semi-retired) long time members of the MDWTSG. A series of speakers presented a variety of topics to the combined deer and wild turkey group members that stimulated open and candid discussion from the participants. After the joint presentations, the respective deer and turkey groups broke out into separate groups to discuss and review each respective state's reports on population status, harvests, new regulations, related issues, ongoing research and other topics of interest. The deer group discussions focused around harvest management issues, trophy management issues and CWD disease monitoring. The wild turkey group discussions also focused around spring and fall harvest management strategies/issues, variations and the influence of annual production, ongoing research projects, nuisance complaints, and the continual growth in hunter demand as turkey population growth begin leveling off post restoration.

At the annual business meeting revisions to the original MDWTSG organization guidelines (1977) developed prior to the meeting by an ad-hoc committee were discussed and the revised guidelines were approved by the membership. The approved revised guidelines re-affirmed the original intent of the MDWTSG membership from the 12 Midwestern state wildlife agencies, formally recognized the 1984 inclusion of Ontario Ministry of Natural Resources and the 2004 representative from the Midwest Association of Fish and Wildlife Agencies (MAFWA) to function as a liaison between the Group and the Association. The group also agreed to have the 2007 meeting in Ohio, hosted by the Ohio Division of Wildlife, ODNR. The group agreed to stay with the late summer/early fall meeting dates. An evening social and hog roast has held at a nearby shelter house over looking at Hardin Ridge Campground, Hoosier National Forest, U.S. Forest Service. Tuesday afternoon some of the meeting participants took part in a field trip to view a military combat simulation training while others finished up informal discussions and began meeting clean-up chores.

The Indiana Chapters of the National Wild Turkey Federation through their Super Fund provide the start-up funds for meeting preparations and the Professional Development Endowment Fund of the Indiana Chapter of The Wildlife Society provided funds to cover the expenses of the invited speakers and refreshments. Appreciation is extended to Hoosier National Forest for allowing the use of the shelter house for the Monday evening social. Finally, a special thanks to other members of the Ad-Hoc Committee to review, revise, and update the MWDWTSG Organizational Guidelines (Committee listed after the Presentation Summaries).

Steven E. Backs
Jim Mitchell
Meeting Co-Chairs

Midwest Deer and Wild Turkey Study Group
Membership Directory- 2006

IOWA

Todd Gosselink
Iowa Dept. of Natural Resources
24570 US Hwy 34
Chariton, IA 50049
641-774-2958
todd.gosselink@dnr.state.ia.us

Willie Suchy
Iowa Dept of Natural Resources
24570 US Hwy 34
Chariton, IA 50049
641-774-2958
willie.suchy@dnr.state.ia.us

ILLINOIS

Tom Micetich
Illinois Dept of Natural Resources
700 S. 10th Street
Havana, IL 62644
309-543-3316
tom.micetich@illinois.gov

*Paul Shelton
Illinois Dept of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271
217-782-6384
paul.shelton@illinois.gov

INDIANA

Steve Backs
Indiana Div of Fish & Wildlife
562 DNR Rd
Mitchell, IN 47446
812-849-4586
sbacks@dnr.in.gov

Jim Mitchell
Indiana Div of Fish & Wildlife
553 East Miller Dr
Bloomington, IN 47401
812-334-1137
jmitchell@dnr.in.gov

KANSAS

Lloyd Fox
Kansas Dept of Wildlife & Parks
PO Box 1525
1830 Merchant
Emporia, KS 66801
620-342-0658, ext 207
lloydf@wp.state.ks.us

Jim Pitman
Kansas Dept of Wildlife & Parks
PO Box 1525
1830 Merchant
Emporia, KS 66801
620-342-0658
jimp@wp.state.ks.us

MICHIGAN

Rod Clute
Michigan Dept of Natural Resources
PO Box 30444
530 W Allegan Street
Lansing, MI 48909-7944
517-373-1263
cluterk@michigan.gov

Brent Rudolph
Michigan Dept of Natural Resources
PO Box 30444
530 W Allegan Street
Lansing, MI 48909-7944
517-373-9565
rudolphb@michigan.gov

Al Stewart
Michigan Dept of Natural Resources
PO Box 30444
530 W Allegan Street
Lansing, MI 48909-7944
517-373-1263
stewarac@michigan.gov

* Members unable to attend

MINNESOTA

Sharon Goetz
Minnesota Dept of Natural Resources
35365 800th Ave
Madelia, MN 56062
507-642-8478, ext 224
sharon.goetz@dnr.state.mn.us

Brian Haroldson
Minnesota Dept of Natural Resources
35365 800th Ave
Madelia, MN 56062
507-642-8478, ext 29
brian.haroldson@dnr.state.mn.us

Bill Penning
Minnesota Dept of Natural Resources
500 Lafayette Rd
St Paul, MN 55155-4020
651-259-5230
bill.penning@dnr.state.mn.us

MISSOURI

Jeff Beringer
Missouri Dept of Conservation
1110 S College Ave
Columbia, MO 65201
573-882-9909, ext 3211
jeff.beringer@mdc.mo.gov

Lonnie Hansen
Missouri Dept of Conservation
1110 S College Ave
Columbia, MO 65201
573-882-9909, ext 3220
lonnie.hansen@mdc.mo.gov

NORTH DAKOTA

Roger Johnson
North Dakota Game & Fish Dept
7928 45th St NE
Devils Lake, ND 58301
701-662-3617
rejohnso@nd.gov

* Stan Kohn
North Dakota Game & Fish Dept
100 North Bismarck Expressway
Bismarck, ND 58501
701-328-6339
skohn@state.nd.gov

NEBRASKA

Kit Hams
Nebraska Game & Parks
2200 N 33rd Street
Lincoln, NE 68503
402-471-5442
kit.hams@ngpc.ne.gov

Pat Molini
Nebraska Game & Parks
2200 N33
Lincoln, NE 68503
402-471-5434
pat.molini@ngpc.ne.gov

Bruce Trindle
Nebraska Game & Parks
2201 N 13th
Norfolk, NE 68701-2267
402-370-3374
bruce.trindle@ngpc.ne.gov

OHIO

Susie Prange
Ohio Dept of Natural Resources
360 E. State St.
Athens, OH 45701
740-589-9923
Suzie.Prange@dnr.state.oh.us

*Dave Swanson
Ohio Dept of Natural Resources
360 E. State St.
Athens, OH 45701
740-589-9923
dave.swanson@dnr.state.oh.us

Mike Tonkovich
Ohio Dept of Natural Resources
360 E State Street
Athens, OH 45701
740-589-9920
mike.tonkovich@dnr.state.oh.us

* Members unable to attend

ONTARIO

* Michael Gatt
Ontario Ministry of Natural Resources
P.O.Box 7000
300 Water St.
Peterborough, ON Canada K9J 8M5
705-755-3285
michael.gatt@mnr.gov.on.ca

* Patrick Hubert
Ontario Ministry of Natural Resources
P.O.Box 7000
300 Water St.
Peterborough, ON Canada K9J 8M5
705-755-1932
patrick.hubert@mnr.gov.on.ca

SOUTH DAKOTA

Andy Lindbloom
South Dakota Game Fish & Parks
20641 SD Hwy 1806
Ft Pierre, SD 57532
605-223-7709
andy.lindbloom@state.sd.us

*Ron Schauer
South Dakota Game Fish & Parks
4500 South Oxbow
Sioux Falls, SD 57106
605-362-2700
ron.shauer@state.sd.us

WISCONSIN

Scott Hull
Wisconsin Dept of Natural Resources
101 S. Webster St.
P.O. Box 7921
Madison, WI 53707-7921
608-267-7861
scott.hull@dnr.state.wi.us

Robert Rolley
Wisconsin Dept of Natural Resources
2801 Progress Rd.
Madison, WI 53716-3339
608-221-6341
robert.rolley@dnr.state.wi.us

* Members unable to attend

MIDWEST ASSOCIATION FISH AND WILDLIFE AGENCIES

Dale Garner
Iowa Department of Natural Resources
Wallace State Office Buiilding
502 East 9th Street
Des Moines, IA 50319
515-281-6156
dale.garner@dnr.state.ia.us

SPEAKERS, GUESTS, AND EMERITUS MEMBERS

Mark Bennett
Indiana Div of Fish & Wildlife
562 DNR Rd.
Mitchell, IN 47446
812-849-4586
mbennett@dnr.in.gov

Wayne Bivans
Division of Fish and Wildlife
Widlife Section, Rm 273
402 W. Washington St.
Indianapolis, IN 46204
317-232-4080
wbivans@dnr.in.gov

Tom Hewitt
Indiana Div of Fish & Wildlife
1124 N. Mexico Rd.
Peru, IN 46970
765-473-9324
thewitt@dnr.in.gov

Brandon Houck
Regional Biologist, NWTF
3869 Rd E
Allen, KS 66833
620-443-5906
bhnwtf@hotmail.com

Terry Hyndman
Conservation Law Enforcement, IDNR
4850 South SR 446
Bloomington, IN 47401
812-837-9536
thyndman@dnr.in.gov

** Emeritus/Retired Member

SPEAKERS, GUESTS, AND EMERITUS MEMBERS con't

Gary Langell
Indiana Div of Fish & Wildlife
553 East Miller Dr
Bloomington, IN 47401
812-334-1137
glangell@dnr.in.gov

Mitch Marcus
Indiana Div of Fish & Wildlife
1124 N. Mexico Rd.
Peru, IN 46970
765-473-9324
mmarcus@dnr.in.gov

**Keith McCaffery
Wisconsin Dept of Natural Resources
107 Sutlif Ave.
Rhinelander, WI 54501
715-365-2641
keith.mccaffery@dnr.state.wi.us

Brian McGowan
Purdue Forestry & Natural Resources
P.O. Box 265
1250 N. Franklin Ave., Suite 1
Brookville, IN 47012
765- 647-3538
macgowan@purdue.edu

Mike Mitchener
Kansas Dept of Wildlife & Parks
512 SE 25th Ave.
Pratt, KS 67124
620-672-0796
mikewm@wp.state.ks.us

Dave Neu
Regional Biologist, NWTF
265 Lorrie Way
DePere, WI 54115
920-347-0312
neunwtf@sbcglobal.net

**John Olson
Wildlife Biologist, IDFW - Retired
6565 East St. Road 46
Bloomington, IN 47401
812-332-4012
jolson@insightbb.com

** Emeritus/Retired Member

Linnea Peterhceff
Division of Fish and Wildlife
Widlife Section, Rm 273
402 W. Washington St.
Indianapolis, IN 46204
317-232-4080
lpterhceff@dnr.in.gov

Ron Ronk
Indiana Div of Fish & Wildlife
2411 East SR 54
Sullivan, IN 47882
812-268-5640
rronk@dnr.in.gov

Pat Ruble
Midwest Rep. Wildlife Mang. Institute
93 Central Station Place
Johnstown, Ohio 43031
740-966-0496
patrublewmi@columbus.rr.com

Glen Salmon
Indiana Div of Fish & Wildlife
Widlife Section, Rm 273
402 W. Washington St.
Indianapolis, IN 46204
317-232-4080
gsalmon@dnr.in.gov

Randy Showalter
Regional Biologist, NWTF
8818 N. 400 W.
Roann, IN 46974
219-9827935
rshow@ctlnet.com

**Lowell Tripp
North Dakota Game & Fish Dept- retired
P.O. Box 7
Oakes, ND 58474
701-742-2271
LNKTripp@DRTel.Net

Sam Whiteleather
Indiana Div of Fish & Wildlife
2411 East SR 54
Sullivan, IN 47882
812-268-5640
swhiteleather@dnr.in.gov

SPEAKERS, GUESTS, AND EMERITUS MEMBERS con't

David Yancy
Kentucky Dept. Fish & Wildl. Resour.
#1 Sportsman's Lane
Frankfort, KY 40601
800-858-1549, ext 465
david.yancy@ky.gov

* Member unable to attend
** Emeritus/Retired Member

Organizational Guidelines of the Midwest Deer and Wild Turkey Study Group

Objectives: The Midwest Deer and Wild Turkey Study Group was formed to:

1. Provide a forum for discussion of common management problems concerning the white-tailed deer and the wild turkey in habitats typical of the Midwest region.
2. Provide an opportunity to define common problems and goals and formulate priorities for investigations into these problems, to minimize duplication of efforts among the member agencies.
3. Stimulate peer review and exchange of information among member agencies on survey techniques and results, harvest regulations and results, research projects, and habitat management.
4. Act as a source of detailed information on deer and turkeys in the Midwest for the public and other resource agencies.
5. Formulate long-range guidelines for species management in the Midwest region.

Organization: The Midwest Deer and Wild Turkey Study Group (MDWTSG) shall consist of representatives from Midwest state wildlife agencies and the Ontario Ministry of Natural Resources who, as wildlife biologists, are directly responsible for the management of deer and wild turkeys in Midwest habitats. States invited for the group are Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The Province of Ontario, Canada was incorporated into the Group in 1984. In 2004, the Group approved 1 representative from the Midwest Association of Fish and Wildlife Agencies (MAFWA) to function as a liaison between the Group and the Association.

Officers: The offices of chair and secretary shall be filled by member biologists from the agency selected to host the next meeting. Their term of office shall be from their selections until completion of all responsibilities for their group meeting. Officers will be selected by the host agency with recommendations made by the group. Their responsibilities will include organizing the meeting to be held in their state or province, selecting a meeting site and dates, arranging for lodging and meeting rooms, formulating an informal program, publicity and meeting announcement to member agencies, and publication of a post-meeting Newsletter.

Committee: Committees may be selected to investigate specific problem areas and make recommendations to the entire membership. Assigned committees will perform the important work of the group. The chair(s) will select committees after reviewing requests for committee action submitted by the membership. Possible committees include: research review, information and education, future programs, and position statements.

Meetings: At each group meeting the time and host agency for the next meeting will be decided. Group meetings will be held on an irregular basis as determined by the needs of the membership. Meeting sites will be rotated among member agencies on a volunteer basis. If no volunteer comes forward, the first member agency (proceeding alphabetically) that has not yet hosted a meeting, or the member agency with the longest elapsed time period since it last hosted a meeting will be chosen (if agreeable to that agency). Meetings will generally be of 2-3 days in duration. A general theme shall be selected for each meeting, if possible, with a meeting site chosen to enhance the discussion of the selected topic.

Notice of arrangements for the meeting shall be distributed to member agencies at least 4 months in advance to allow time for securing out-of-state travel authority and preparation of presentations.

Meeting Agenda: The program shall be as informal as possible with plenty of time allotted for discussion. One aspect of the program should be a report from each agency on hunting regulations and harvest: population surveys, new research and management projects, University research, and any other topics that may be of interest to the group. Short field trips may be utilized to point out areas of special interest to the group. Better efficiency and exchange of ideas will be realized by breaking down the group into separate deer and turkey workshops to discuss pertinent research and management programs. The business meeting and certain topics of interest to the entire group will require a combined meeting of the membership.

Attendance: To enhance an atmosphere of total participation and exchange of ideas, the attendance shall be held to 42 persons. The chair will be responsible for limiting the size of the meeting to this number. The Chair shall allocate the 42 seats in a manner that allow the 12 non-host member agencies to send a maximum of 3 individuals apiece, 1 MAFWA representative while the host agency is allowed 5 seats. If pre-meeting registration indicates that some agencies will not send their full allotment, the chair can delegate unfilled seats to the host agency too or to agencies requesting extra attendance. Persons invited by the host agency to participate in the program would not be counted towards the allotment.

Business Meeting: A short business meeting will be scheduled on the meeting agenda. Topics for discussion will include selection of the next host agency, year of the next group meeting, future topic(s) of interest, selection of officers, committee reports, position statements, and any other information pertinent to the operation of the group.

Newsletter: The secretary for the group shall be responsible for sending out a Newsletter immediately following each meeting to the Coordinator and President of the Midwest Association of Fish and Wildlife Agencies, the Director of all member agencies, persons attending the meeting, and any other organization of the agencies making a request. This Newsletter shall contain a summary of information presented in the program, discussion, and items covered at the business meeting including committee reports. Any written reports submitted at the meeting shall be included as well as a list of persons attending the meeting and their addresses. Funds for distribution of the Newsletter and other materials will be furnished by the host agency or obtained through the charge of a small registration fee.

Original (1977) guidelines revised and reaffirmed 8/21/06 at the business meeting of the 2006 (30th) Midwest Deer and Wild Turkey Study Group (MDWTSG), Camp Ransburg, Bloomington, Indiana.

MEETING AGENDA

Sunday August 20, 2006 After 3 pm: Arrival and Registration.

Monday August 21, 2006 : Morning

BREAKFAST 7:15-8 am

8:15 General Group Meeting: Welcomes, Introductions, and Announcements (also Registrations).

Steve Backs and Jim Mitchell, Meeting Co-Chrs, Indiana Division of Fish and Wildlife

Glen Salmon, Director, Indiana Division of Fish and Wildlife

Presentations

- Crop Depredation Studies involving Deer, Raccoons, Wild Turkey and other wildlife – Purdue University ECASE Project by Brian MacGowan, Wildlife Extension Biologist, Purdue University
- Deer Shooting Preserves Investigations and Judicial Outcomes by Cpt. Terry Hyndman, IN Conservation Law Enforcement
- Indiana's New Exotic Mammal Laws by Linnea Petercheff, Operations Staff Specialist, Indiana Div. of Fish & Wildlife

LUNCH 12:00 - 1pm

Monday August 21, 2006 : Afternoon

- Wisconsin Ginseng Damage Report by Dave Neu, Regional Biologist, NWTF
- Random Observations from a Post Wildlife Agency Perspective by Pat Ruble, Midwest Representative, Wildlife Management Institute
- Is lease hunting and trophy management undermining the foundations of the NA Conservation paradigm and the future of our hunting heritage? Open Group discussion led by Keith McCaffery, Wildlife Biologist – Emeritus, Wisconsin DNR, and Mike Mitchener, Wildlife Section Chief, Kansas Wildlife & Parks.
- MWDTG Business meeting 4:00 – 5:00 pm

Monday August 21, 2006: Evening (5 pm to ~10 pm).

- DINNER: Leave for Hog Roast Feed and evening discussions at USFS Harden Ridge Recreation Area Shelter House.

Tuesday August 22, 2006: morning

BREAKFAST 7-7:45 am

- State Status Reports and Individual Group Meetings 8:00 - 11:45

LUNCH 12 noon to 12:45 pm.

Tuesday August 22, 2006: Afternoon 1-6:30 pm

- Optional field trip to Camp Atterbury for combat training demonstration. Or Continuance of individual, small group discussions, or personal time

Tuesday August 22, 2006: Evening

DINNER 7-8 pm.

- 8 pm wrap up of unfinished discussions or status reports

Wednesday August 22, 2006: Morning

BREAKFAST – Tie up loose ends and departure.

Presentation Summaries

Crop Depredation Studies involving Deer, Raccoons, Wild Turkey and other wildlife – Purdue University ECASE Project

Brian MacGowan, Wildlife Extension Biologist, Purdue University

Purdue University has been studying wildlife damage to crops in north central Indiana. They compared results of a mail survey of landowners to field inspections, telemetry studies of animal use of farm fields, and videos of animals causing damage. About 1/3 of landowners reported enjoying deer in their farms, about 1/3 had mixed feelings about deer, and about 1/3 considered deer a nuisance. Raccoons caused more damage to corn than did deer, but deer caused more damage to soybeans than did woodchucks. Little damage by wild turkeys was documented. Forest area was the main predictor of damage. Most landowners over-estimated damage, most fields had less than $100 in observed damage but landowners estimated damage at about $500. The study site was, however, not representative (under representative) of the damage that occurs statewide. Landowners blamed deer for much of the damage done by raccoons. So far 2 extension publications have been produced and copies were given to each attendee: FNR-267 "Identification of Wildlife Crop Depredation" and a DVD-FNR-266 "Wildlife CSI: unraveling the mysteries of wildlife crop damage." Additional information on wildlife crop depredation will be updated to the web sites: www.purdue.edu/cropdamage and www.purdue.edu/wildlife

Deer Shooting Preserves Investigations and Judicial Outcomes

Captain Terry Hyndman, IDNR Conservation Law Enforcement

Indiana's DNR and US Fish and Wildlife Conservation Law Enforcement cooperatively conducted an undercover investigation "Operation Orion"of Russ Bellar's deer shooting preserve near Peru, IN. Mr. Russ Bellar was a game breeder who conducted hunts for specific bucks that had been drugged and placed in a 6 acre killing pen with bait. Two undercover agents booked a hunt for 2 bucks for $24,000. A self-narrated PowerPoint presentation documented the investigation and court case. A DVD presentation included video of drugged deer being propped up for hunters to shoot, hunting over bait, etc. The investigation resulted in 39 federal violations. Bellar pleaded guilty just before case went to the jury and was sentenced to 1 year in federal prison and fined >$500,000.

Indiana's New Exotic Mammal Laws

Linnea Petercheff, Operations Staff Specialist, Indiana Div. of Fish & Wildlife

Indiana recently promulgated a new exotic animal law (administrative rule) that prohibits the taking of white-tailed deer possessed under a game breeder's license and the taking, possessing, and releasing of exotic mammals. Prohibited mammals are identified by 26 family names. The rule prohibits the live possession of wild hogs while still allowing the taking of wild boar for disease control and protection of property from damage. It also allows for humane slaughter. It prohibits the release and requires the reporting of escapes. Copies of the new administrative rule were provided to attendees and is included the proceeding's Appendix.

Wisconsin Ginseng Damage Report

Dave Neu, Regional Biologist, NWTF.

The presentation highlighted problems related to wild turkeys scratching in the various types of mulch used to cultivate commercial ginseng, a highly valuable cash crop. Wild turkeys are attracted to the mulching materials used in seed beds, not the ginseng itself. The scratching of the mulch material exposes the vulnerable ginseng seeds

and growing roots to desiccation and damage. The results of the work are currently in preparation for publication by Werner et al. (in press) in *Human-Wildlife Conflicts*; draft copy included IN Appendix.

Random Observations from a Post Wildlife Agency Perspective

Pat Ruble, Midwest Representative, Wildlife Management Institute.

Pat stressed the importance of sporting industries knowing where the PR dollars are going, to states for land acquisition, research, etc. Given the recent federal registration of a drug for immuno-contraception he felt it was important for states to gain the authority to regulate the use of such drugs. He expressed an interest in working with states in the Midwest on CWD.

Is lease hunting and trophy management undermining the foundations of the NA Conservation paradigm and the future of our hunting heritage?

Open Group discussion led by Keith McCaffery, Wildlife Biologist – Emeritus, Wisconsin DNR, and Mike Mitchener, Wildlife Section Chief, Kansas Wildlife & Parks.

A roundtable discussion was held on the topic of leased hunting land and trophy management. In Wisconsin some large forest industry landowners are pulling out of the Forest Crop Law and leasing their land for hunting. In Kansas about 12% of landowners make money from leasing while about 8% got compensation from hunters in the form of labor on the farm. Kansas has a hunter access program where the state is leasing land. This may be setting a minimum price. Kansas has transferable non-resident permits that are issued to landowners who can sell them for whatever the market will bear. Kansas would like to discontinue these permits and have the state issue them over-the-counter. Kansas thinks leasing helps to keep people on the land and the land from being developed. About 50% of non-resident deer hunters pay for access compared to about 5% of residents. In Illinois there are large leases in the west-central part of the state and the lease holders are restricting access and harvest and are not accountable for deer damage on surrounding farms, ~500,000 acres under lease in Illinois, more land than in public ownership. In Missouri about 3-4% of landowners claim they lease while 18% do not allow deer hunting. Under Minnesota's, Indiana's, and Nebraska's landowner liability protection laws, landowners who lease can be held liable but landowners who grant access for free are not liable. The study group agreed to develop a position statement on leasing that would be forwarded to the Midwest directors.

Organizational Guidelines Review Committee

Steve Backs, Indiana Division of Fish and Wildlife, IDNR
Jim Mitchell, Indiana Division of Fish and Wildlife, IDNR
John Olson, (Retired) Indiana Division of Fish and Wildlife, IDNR
Bruce Trindle, Nebraska Game and Parks
Karl Menzel (Retired), Nebraska Game and Parks
Ketih McCaffery, (Retired), Wisconsin Department of Natural Resources
* Ollie Torgerson, Coordinator, Midwest Assoc. Fish and Wildlife Agencies (MAFWA), WDNR
Dale Garner, MAFWA Liaison to MWDTG, Iowa Department of Natural Resources

* A founding member of the MWDTG who assisted Lee Gladfelter (deceased) in developing the original organizational guidelines for the MWDTG formally accepted by the MWDTG January 18, 1977 at its 1st meeting at Fountain Grove Wildlife Area, MO.

Deer

State/Province

Status Reports

Total 2005 Deer Harvest may have been as high as 192,000 animals -- we have a few issues to be worked out.

ILLINOIS -- Yearly Deer Harvest 1995 - 2005

Year	Yth Permits	Youth Harvest	Youth Success	Archery Harvest	Either-sex Permits	Firearm Harvest	Firearm Success	M-L E/S Permits	Muzzle-Ldr Harvest	M-L Success	Late-Winter Permits	Late-Winter Harvest	Late-Winter Success	Total
1995		N/A		34,404	190,806	105,067	55.06	5,428	846	15.59	12,064	1,829	15.16	142,146
1996		N/A		35,239	193,319	94,853	49.07	6,438	970	15.07	12,062	1,675	13.89	132,737
1997		N/A		36,763	189,092	93,621	49.51	6,192	1,114	17.99	11,946	1,776	14.87	133,274
1998		N/A		36,280	185,412	93,870	50.63	6,043	1,227	20.30	10,816	2,173	20.09	133,550
1999		N/A		41,310	191,047	92,192	48.26	6,190	1,309	21.15	10,606	1,719	16.21	136,530
2000		N/A		42,900	191,760	103,221	53.83	6,550	1,361	20.78	10,990	2,178	19.82	149,660
2001	1,039	298	28.68	47,859	194,312	101,304	52.13	6,210	1,507	24.27	11,713	2,100	17.93	153,068
2002	1,512	308	20.37	51,660	194,712	104,478	53.66	6,189	1,292	20.88	11,526	2,120	18.39	159,858
2003	2,015	383	19.01	57,802	197,178	105,873	53.69	14,448	3,037	21.02	10,632	1,667	15.68	168,762
2004	2,358	612	25.95	63,639	199,905	116,675	58.37	15,708	3,535	22.50	17,903	5,995	33.49	190,456
2005	3,109	1,063	34.19	64,547	208,148	114,387	54.95	19,998	4,535	22.68	17,106	4,994	29.19	189,526

2005 Firearm and Muzzle-loader Seasons open in 99 of 102 Illinois Counties
2005 Archery Deer Season was open in all 102 Illinois Counties
2005 Youth Firearm Deer Season was open in 43 Illinois Counties
Late-Winter (including CWD Season) was open in 55 Illinois Counties in mid-January, 2006
2005 statewide "% Female in harvest" for archery was 47.06; firearm was 44.53

Status Report
To Midwest Deer Study Group
August 2006

2005 Indiana Deer Season Summary

INDIANA DIVISION OF
FISH & WILDLIFE

Prepared by:
Zack Walker, Jim Mitchell
and Lance McNew

Bloomington Field Office
553 E. Miller Dr.
Bloomington, IN 47401

Season Framework and Regulations

General

The 2005 Indiana deer hunting season was comprised of 4 segments: early archery (1 October-27 November), firearms (12-27 November), muzzleloader (3-18 December), and late archery (3 December-1 January). The early archery season extended throughout the firearm season while the late archery season extended through the first Sunday in January.

The statewide archery bag limit was 2 deer. Hunters could take 1 deer on a regular archery license and an additional deer on an extra archery license. Either archery license could be used to take an either-sex deer, but a total of only one (1) antlered deer could be taken by any hunter during all statewide seasons combined using archery, firearm, or muzzleloader licenses. This was the 9th year that the crossbow was legal for hunting under an archery license by non-handicapped hunters. The crossbow was eligible for use only in the late archery season and could be used for deer of either sex.

Archers could harvest deer in designated urban zones that did not count towards any other statewide bag limit. Each extra urban zone deer required a separate additional archery license. The archery season in the urban deer zone opened 2 weeks prior to the opening of the statewide early archery season. Archers were allowed to harvest up to 4 extra urban zone deer (4 antlerless or 3 antlerless and 1 antlered).

The gun bag limit was 1 antlered deer during the firearms season and 1 either-sex deer during the muzzleloader season subject to the total of 1 antlered deer during all combined deer seasons. A single firearms license was required to hunt with any or all shotgun, muzzleloader, or handgun during the firearms season, and a muzzleloader license (separate from the firearms license) was required to hunt during the muzzleloader season.

The resident deer license fee was $24.00 and the nonresident fee was $120.75. Resident landowners and lessees who hunted on land they own or lease and gained agricultural benefit from were exempt from purchasing deer licenses.

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

Bonus Antlerless Permits

An unlimited number of bonus antlerless permits were available at every deer license vendor statewide, and each permit could be used in any county in the state. Permits were available to both resident and non-resident hunters. Each permit was valid for 1 antlerless deer, and hunters were allowed to take up to 4 antlerless deer statewide. Hunters could not exceed individual county bag limits, which ranged from 0 to 4, and were published in the Hunting and Trapping Guide. However, in order to put additional pressure on antlerless deer in 13 counties during 2005, these counties were identified as deer reduction counties and hunters were allowed to take an additional 4 antlerless deer in each of these counties that would not count against the regular antlerless bag limit quotas. An additional change initiated in 2005 was to allow the bonus antlerless permits to be used during all deer hunting seasons rather than excluding their use

during the early archery season as had been the case in prior years. One county (Tipton) had a bonus antlerless bag limit of zero (0).

Number of Deer Harvested

A total of 125,526 deer was legally harvested in Indiana during the 2005 season. This harvest was a 2% increase from the 123,058 deer harvested during 2004. The antlered buck harvest of 52,488 represented a 4% decrease from last year (54,743), and the antlerless harvest of 73,038 was 7% greater than that of 2004 (68,290). Total deer harvest has increased annually since 2000. Approximately 2.2 million deer have been legally harvested during the past 54 deer hunting seasons in Indiana (Fig. 1).

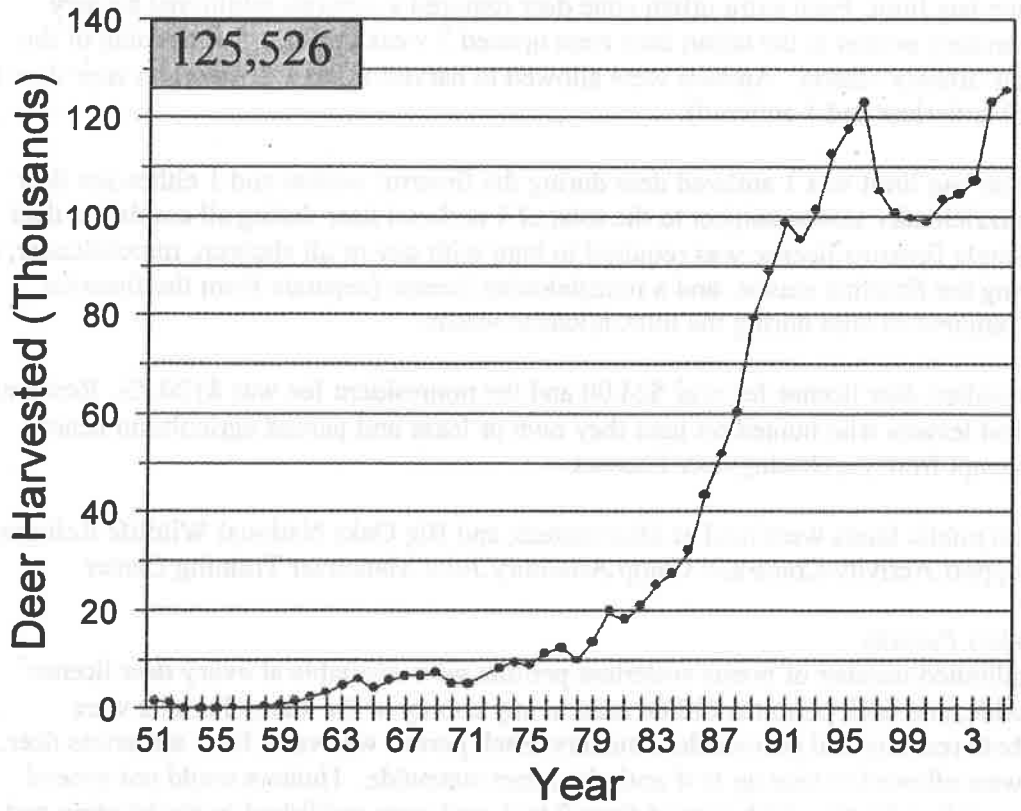


Figure 1. The number of deer harvested in Indiana deer hunting seasons 1951-2005.

The early archery season harvest of 22,844 deer comprised 18.2% of the total harvest and was 11% greater than during 2004 (Table 1). The late archery season harvest of 1,366 deer comprised 1.1% of the total harvest and was 5% less than during 2004. The combined early and late archery season harvest of 24,210 was 10.3% greater than the 21,953 deer harvested during 2004. Antlerless deer comprised 62% of the total archery harvest, which was the same as last year.

The firearm season harvest of 84,664 deer was similar to that of 2004 and comprised 67% of the total harvest (Table 1). Antlerless harvest (44,560) increased 7.5% for this season, and the antlered buck harvest (40,104) decreased 7% from last year (43,107). Antlerless deer comprised ~53% of the firearm season harvest, which was a 4 percentage point increase from 2004.

The muzzleloader season harvest of 16,652 deer comprised 13% of the total harvest and was similar to the 2004 harvest (Table 1). As in past years, a very large percentage (80%) of the muzzleloader season harvest was composed of antlerless deer.

Table 1. Number of deer harvested in each segment of the 2005 Indiana deer-hunting season. Percent change compared to 2004 is shown in parentheses.

	Number of deer harvested		
Season	Antlered	Antlerless	Total
Early Archery (1 Oct.-27 Nov.)	8,845 (10.8)	13,999 (11.8)	22,844 (11.4)
Firearms (12-27 Nov.)	40,104 (-7.0)	44,560 (7.5)	84,664 (0.1)
Muzzleloader (3-18 Dec.)	3,289 (-2.7)	13,363 (1.4)	16,652 (0.6)
Late Archery (3 Dec.-1 Jan.)	250 (-15.5)	1116 (-2.7)	1,366 (-5.3)
Totals	52,488 (-4.2)	73,038 (7.0)	125,526 (2.0)

About 43 % of the total firearm season harvest (29% of the statewide total harvest for all seasons) occurred during opening weekend (Tables 1 and 2).

Table 2. Number of deer harvested on each day of the 2005 Indiana firearm season (includes deer taken by bow, shotgun, pistol, and muzzleloader).

		Antlered		Antlerless		Total	
Date	Day	N	%	N	%	N	%
12November	Sat	15,245	57	11,464	43	26,709	31
13November	Sun	5,654	57	4,321	43	9,975	12
14November	Mon	2,440	51	2,306	49	4,746	6
15November	Tue	643	56	500	44	1,143	1
16November	Wed	1,053	50	1,073	50	2,126	2
17November	Thu	1,573	46	1,820	54	3,393	4
18November	Fri	1,624	44	2,098	56	3,722	4
19November	Sat	3,845	41	5,601	59	9,446	11
20November	Sun	2,176	39	3,455	61	5,632	7
21November	Mon	620	38	993	62	1,613	2
22November	Tue	505	37	862	63	1,367	2
23November	Wed	571	35	1,076	65	1,648	2
24November	Thu	689	35	1,267	65	1,957	2
25November	Fri	1,282	32	2,783	68	4,065	5
26November	Sat	1,592	30	3,669	70	5,260	6
27November	Sun.	865	33	1,759	67	2,622	3
Totals*		40,377		45,047		85,424	

* Totals differ from those in previous table because date of harvest is not known for some registered deer and this table includes deer from both the firearms season and the last 16 days of the early archery season.

Harvest by Type of Hunting Equipment

Five types of equipment were legal for hunting deer during 2005: bow, shotgun, muzzleloader, handgun, and crossbow. The above equipment types accounted for 19, 56, 24, 1, and less than 1% of the total deer harvest respectively (Table 3). Harvest by bow, muzzleloader, and crossbow increased 10, 5, and 3%, respectively, from 2004, while harvest by shotgun and handgun decreased 2 and 1%, respectively.

The total crossbow harvest for the year, including deer taken on handicapped hunter crossbow permits, was 520 animals compared with 507 for 2004. During the late archery season, the crossbow harvest was 93 deer compared with 102 in 2004 and 67 in 2003.

Table 3. Number of deer harvested by type of legal hunting equipment during the 2001-2005. Approximate percent of total harvest shown in parentheses.

Equipment type	2001	2002	2003	2004	2005
Bow*	23,765 (23)	18,911 (18)	20,748 (19)	21,498 (18)	23,692 (19)
Shotgun	59,688 (58)	63,794 (61)	61,674 (58)	71,251 (58)	70,022 (56)
Muzzleloader	17,738 (17)	19,711 (19)	22,724 (21)	28,182 (23)	29,686 (24)
Handgun	1,562 (2)	1,625 (2)	1,425 (1)	1,620 (1)	1,606 (1)
Crossbow					
Handicap	390 (0)	328 (0)	348 (0)	405 (0)	427 (0)
Late archery	20 (0)	59 (0)	67 (0)	102 (0)	93 (0)
Totals	103,163	104,428	106,986	123,058	125,526

* Crossbow harvest is not included in bow harvest. Values within this table do not exactly equal those tallied by season (page 3) due to the fact that multiple equipment types can be used during the firearm season. Muzzleloaders may also be used during both the firearm and muzzleloader season. Additionally, differences arise due to the different methods required to analyze data when either the equipment or the season is unknown.

Harvest by License Status

Licensed resident hunters accounted for 82% of the total deer harvest. Licensed non-resident hunters harvested 2% of the total harvest. Hunters with a regular yearly deer hunting license (resident plus non-resident) took only 42% of the total deer harvest; hunters not paying the full yearly price (i.e. lifetime license holders, youth license holders, landowners / tenants, and military personnel) took 58% 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 16% of the total deer harvest. Of the deer harvested by license-exempt hunters, 98% were taken by landowners/tenants and 2% by military personnel on leave.

Age and Sex of the Harvest

The age and sex structure of the 2005 deer harvest was 42% adult males (antlered bucks), 35% adult females, 10% male fawns (button bucks), and 13% female fawns (Table 4). About 50% of the antlered bucks and 42% of the adult does harvested during 2005 were yearlings (1.5 years old).

Table 4. Sex and age structure of the Indiana deer harvest during 1987-2005, as determined from mandatory check stations.

	Adults		Fawns		
Year	Males (%)	Females (%)	Males (%)	Females (%)	Total (%)
1987	29,530 (57)	11,139 (21)	6,164 (12)	4,945 (10)	51,778 (100)
1988	34,358 (57)	13,170 (22)	7,050 (12)	5,656 (9)	60,234 (100)
1989	40,503 (51)	19,464 (24)	10,737 (14)	8,614 (11)	79,318 (100)
1990	43,080 (48)	23,680 (27)	12,373 (14)	9,630 (11)	88,763 (100)
1991	41,593 (42)	31,211 (32)	14,626 (15)	11,253 (11)	98,683 (100)
1992	43,508 (46)	25,387 (27)	14,262 (15)	12,157 (13)*	95,314 (100)
1993	44,424 (44)	27,704 (27)	14,751 (15)	14,335 (14)*	101,214 (100)
1994	50,812 (45)	32,466 (29)	15,487 (14)	13,651 (12)*	112,416 (100)
1995	47,098 (40)	40,946 (35)	16,398 (14)	13,287 (11)*	117,729 (100)
1996	47,315 (38)	39,913 (32)	17,307 (14)	18,551 (15)*	123,086 (100)
1997	42,537 (41)	35,163 (34)	14,039 (13)	13,198 (12)*	104,937(100)
1998	44,955 (45)	30,711 (31)	12,257 (12)	12,538 (12)*	100,461 (100)
1999	46,371 (46)	30,474 (31)	11,645 (12)	11,129 (11)*	99,618 (100)
2000	44,621 (45)	31,986 (32)	11,072 (11)	11,046 (11)*	98,725 (100)
2001	48,357 (47)	31,806 (31)	11,230 (11)	11,770 (11)*	103,163 (100)
2002	47,177 (45)	35,357 (34)	11,291 (11)	10,603 (10)*	104,428 (100)
2003	49,533 (46)	36,303 (34)	10,262 (10)	10,887 (10)*	106,986 (100)
2004	54,743 (44)	41,749 (34)	12,501 (10)	14,065 (11)*	123,058 (100)
2005	52,488 (42)	44,286 (35)	13,030 (10)	15,722 (13)*	125,526 (100)

*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 does to fawn bucks in the total deer harvest).

Distribution of the Harvest

The number of deer harvested in individual counties ranged from 83 to 3,428 (Table 5). Harvest exceeded 1,000 deer in 62 counties, 2,000 deer in 19 counties, and 3,000 in 3 of those 62 counties. The antlered buck harvest exceeded 1,000 deer in 7 counties vs. 10 in 2004, while the antlerless harvest exceeded 1,000 deer in 25 counties vs. 23 counties in 2004. Antlerless deer comprised at least 50% of the total harvest in 83 of the state's 92 counties in 2005 vs. 75 counties in 2004.

Table 5. Number of deer harvested in each Indiana county during 2005 (after adjustment for unknowns).

	No. Harvested				No. Harvested		
County	Antlered	Antler-less	Total*	County	Antlered	Antler-less	Total*
Adams	256	305	561	Lawrence	750	904	1,653
Allen	691	807	1,498	Madison	222	327	549
Bartholomew	508	581	1,089	Marion	106	100	207
Benton	83	65	148	Marshall	979	1,398	2,376
Blackford	172	196	368	Martin	779	861	1,640
Boone	150	163	313	Miami	544	601	1,144
Brown	791	1,066	1,857	Monroe	570	702	1,272
Carroll	341	502	843	Montgomery	509	598	1,107
Cass	536	751	1,287	Morgan	564	628	1,192
Clark	825	1,145	1,969	Newton	481	550	1,031
Clay	574	822	1,396	Noble	1,062	1,857	2,919
Clinton	176	146	322	Ohio	365	726	1,091
Crawford	688	947	1,634	Orange	794	1,311	2,105
Daviess	589	876	1,465	Owen	725	776	1,501
Dearborn	966	1,825	2,791	Parke	1,197	1,963	3,161
Decatur	254	289	543	Perry	898	1,201	2,098
Dekalb	885	1,230	2,115	Pike	795	1,159	1,954
Delaware	280	429	709	Porter	501	702	1,204
Dubois	668	1,211	1,879	Posey	699	769	1,468
Elkhart	542	801	1,343	Pulaski	621	764	1,385
Fayette	298	330	628	Putnam	922	1,115	2,037
Floyd	218	343	561	Randolph	231	302	533
Fountain	647	861	1,508	Ripley	661	1,001	1,663
Franklin	1,029	1,958	2,988	Rush	169	218	387
Fulton	682	1,012	1,694	SaintJoseph	540	652	1,191
Gibson	696	821	1,517	Scott	416	617	1,033
Grant	306	420	726	Shelby	141	183	325
Greene	954	1,285	2,239	Spencer	669	943	1,612
Hamilton	176	242	418	Starke	564	759	1,324
Hancock	114	202	316	Steuben	1,367	2,061	3,428
Harrison	1,006	1,448	2,454	Sullivan	859	835	1,694
Hendricks	303	230	532	Switzerland	1,038	2,097	3,135
Henry	227	329	556	Tippecanoe	587	597	1,184
Howard	188	221	409	Tipton	65	18	83
Huntington	465	683	1,149	Union	262	264	526
Jackson	804	1,366	2,171	Vanderburg	379	428	806
Jasper	598	704	1,302	Vermillion	434	556	991
Jay	358	726	1,084	Vigo	677	704	1,381
Jefferson	904	1,483	2,387	Wabash	600	783	1,384
Jennings	604	973	1,577	Warren	411	645	1,056
Johnson	302	356	658	Warrick	701	839	1,540
Knox	530	463	993	Washington	979	1,629	2,608
Kosciusko	1,172	1,508	2,680	Wayne	453	498	951
Lagrange	894	1,739	2,632	Wells	242	295	538
Lake	567	536	1,104	White	404	526	931
Laporte	951	1,331	2,282	Whitley	589	847	1,436

* Totals may be off +/- 1 due to rounding during partitioning of harvested deer of unknown sex or county.

Midwest deer and turkey group report: Iowa

The total harvest for the 2005/2006 deer season was 9% higher than the previous year. Nearly 17,000 more deer were killed. Over 2/3rds of the deer killed were antlerless deer and just over 56% of the kill were does. Most of the increase in harvest was due to increased kill during the November and January antlerless seasons. Eighty nine percent of the increased kill (15,056 of 16,939) was does. Doe harvest increased by 15% over 2004/2005. Table 2 provides a more detailed breakdown of the harvest by each season.

Table 1. Results from the 2005/2006 deer season.

Season	Hunters	Does	Button Bucks	Antlered Bucks	Total	Percent Does	Change from 2004	Percent Change
Youth	4,003	1,086	221	908	2,215	49.0%	18	1%
Early Muzz	8,974	2,423	464	2,297	5,184	46.7%	-167	-3%
Nov Antlerless	13,764	6,561	1,709	203	8,473	77.4%	8,473	
Landowner	58,976	22,188	3,441	9,547	35,176	63.1%	3,431	11%
Late Muzz	21,568	7,637	1,365	3,152	12,154	62.8%	-72	-1%
Shotgun 1	77,607	28,020	6,310	23,527	57,857	48.4%	-117	0%
Shotgun 2	53,729	21,069	4,593	12,591	38,253	55.1%	-1,603	-4%
Bow	56,484	13,517	2,492	13,590	29,599	45.7%	2,195	8%
Nonresident	9,032	2,007	221	2,851	5,079	39.5%	1,092	27%
Jan Antlerless	19,874	11,169	1,809	536	13,514	82.6%	3,451	34%
Special Area	4,526	2,065	455	58	2,578	80.1%	575	29%
Depredation	2,432	1,099	270		1,369	80.3%	-337	-20%
Total	330,969	118,841	23,350	69,260	211,451	56.2%	16,939	9%

Figure 1. The estimated number of bucks and does killed, 1985 – 2005.

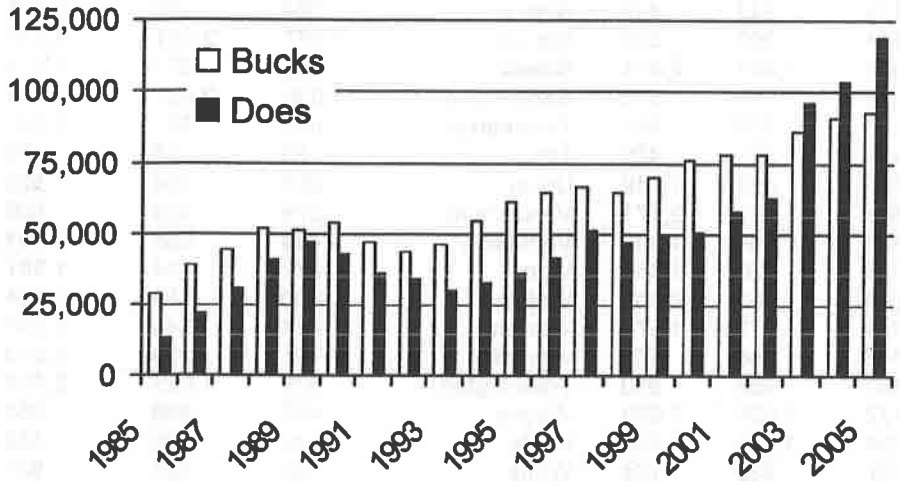


Table 2. A summary of the number of licenses issued, the number of hunters, the number of deer harvested and success rates for the 2005-2006 season.

Season	License Type	Licenses Issued		Number of Hunters		Harvest		Success Rate
REGULAR GUN								
Paid	Season 1	68,981		67,952		48,433		71%
	Antlerless	15,041		9,543		9,424		63%
	Season 2	45,984		44,830		29,394		66%
	Antlerless	13,850		8,117		8,859		64%
	Nonresident	4,954		4,809		3,316		69%
	Total	148,810	(- 2%)	135,251	(-10%)	99,426	(- 1%)	
Landowner	Any sex	43,000		34,679		21,759		63%
	Antlerless	15,248		10,617		6,229		59%
	Total	58,248	(+ 9%)	45,296	(+ 2%)	27,988	(+ 6%)	
GUN SEASON TOTAL		**207,058**	**(+ 1%)**	**180,547**	**(- 7%)**	**127,414**	**(+ 1%)**	**71%**
MUZZLELOADER								
Early	Paid	7,509		7,365		4,054		55%
	Antlerless	2,116		1,512		1,130		75%
	Landowner	4,068		3,304		2,025		61%
	Total	13,693	(+ 4%)	12,181	(+ 6%)	7,209	(+ 6%)	59%
Late	Paid	14,893		14,449		7,231		50%
	Antlerless	10,224		6,499		4,923		76%
	Landowner	5,600		4,058		1,776		44%
	Nonresident	961		932		480		52%
	Total	31,678	(+ 5%)	25,938	(- 5%)	14,410	(+ 4%)	56%
MUZZLELOADER TOTAL		**45,371**	**(+ 5%)**	**38,119**	**(- 2%)**	**21,619**	**(+ 4%)**	**57%**
NOVEMBER ANTLERLESS SEASON								
	Paid	13,828		11,146		7,138		64%
	Landowner	3,017		2,357		1,335		57%
	Total	**16,845**		**13,503**		**8,473**		63%
	Paid	13,828		11,146		7,138		64%
JANUARY ANTLERLESS SEASON								
	Paid	20,438		12,206		9,281		76%
	Landowner	10,658		6,365		4,233		67%
	Total	**31,096**	**(+33%)**	**18,571**	**(+ 5%)**	**13,514**	**(+34%)**	**73%**
HOLIDAY ANTLERLESS		**406**		**402**		**151**		**38%**
YOUTH	Paid	3,686		3,646		2,025		56%
	Landowner	265		219		123		56%
	Disabled	105		94		67		71%
	Total	**4,056**	**(- 7%)**	**3,959**	**(- 8%)**	**2,215**	**(+ 1%)**	**56%**
ARCHERY	Paid	43,193		41,425		19,526		47%
	Antlerless	21,622		13,844		10,073		73%
	Landowner	8,703		6,422		3,387		53%
	Nonresident	2,994		2,889		1,132		39%
ARCHERY TOTAL		**76,512**	**(+ 9%)**	**64,580**	**(- 1%)**	**34,118**	**(+10%)**	**53%**
TOTAL *b*		**391,864**	**(+11%)**	**326,639**	**(NC)**	**211,451**	**(+ 9%)**	

a - the numbers in parentheses are the percent change from 2004-2005, NC = < 0.5%

b - total include licensed hunters and kill from hunts in s pecial deer management zones and depredation licenses

Population surveys

Three techniques are used to monitor deer population trends in Iowa. These are 1) an aerial survey conducted in January - March after the deer seasons are complete, 2) a spotlight survey conducted in April, and 3) a record of the number of deer killed on Iowa's rural highways throughout the year. All of these surveys correlate well with the reported harvest over the last 15 years and appear to provide reliable long-term trend indices. However, none of these surveys can be considered absolutely reliable predictors of annual changes in the population because of high variability in the survey conditions.

Deer populations for the state as a whole appear to have leveled off or declined in the past year after steadily increasing during the previous 3 to 4 years (Fig 1.7). All 3 surveys are still higher than they were during the last time deer numbers peaked in the late 1980's (Table 1.9).

The aerial survey conducted after the 2005 hunting season (Jan-Mar 2006) was down about 18%. Conditions for this survey were marginal in much of the state. Only about 60% of the surveys were actually flown. Aerial counts have declined over the past 2 years but the decline this year may be due as much to the conditions as to actual declines in deer numbers. There has been a lot of variability in counts on individual areas.

The number of deer killed on rural highways decreased by about 5% in 2005. The estimated number of vehicle miles driven stayed about the same so the adjusted roadkill (kill per billion miles) also was 5%. In general the number of roadkills had increased over the past 3 - 4 years before the decline this year.

The number of deer counted per 25 mile route on the spotlight survey decreased by about 3% in 2006. The mean number of deer reported per route is about 60% higher than those recorded in the late 1980's. However part of this increase was due to a change in the placement of the routes in 1994 and 1995. The counts over the past 4 year have increased steadily before this year's decline.

Figure 2. A comparison of statewide deer population indices with simulated deer numbers. The correlation coefficient of the simulated numbers and the population survey are listed.

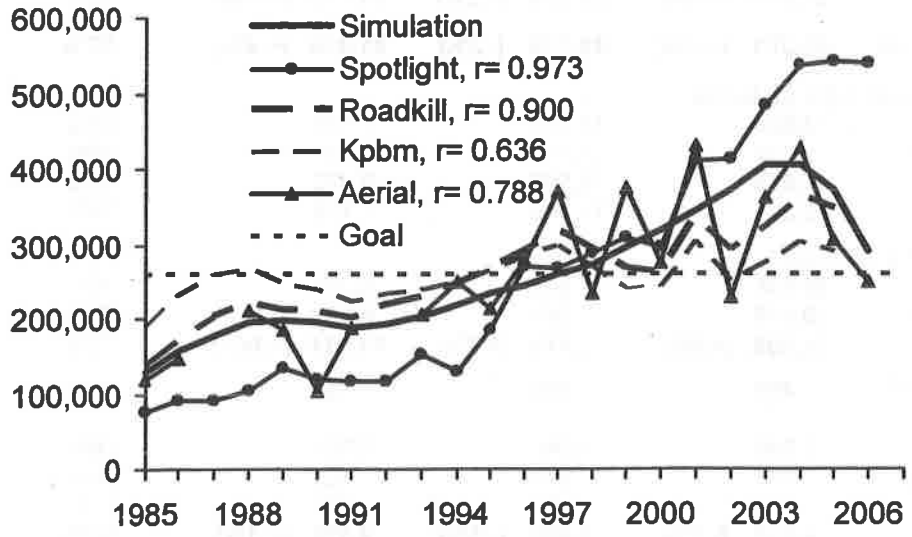


Table 3. The results of the deer population surveys (1976 - present).

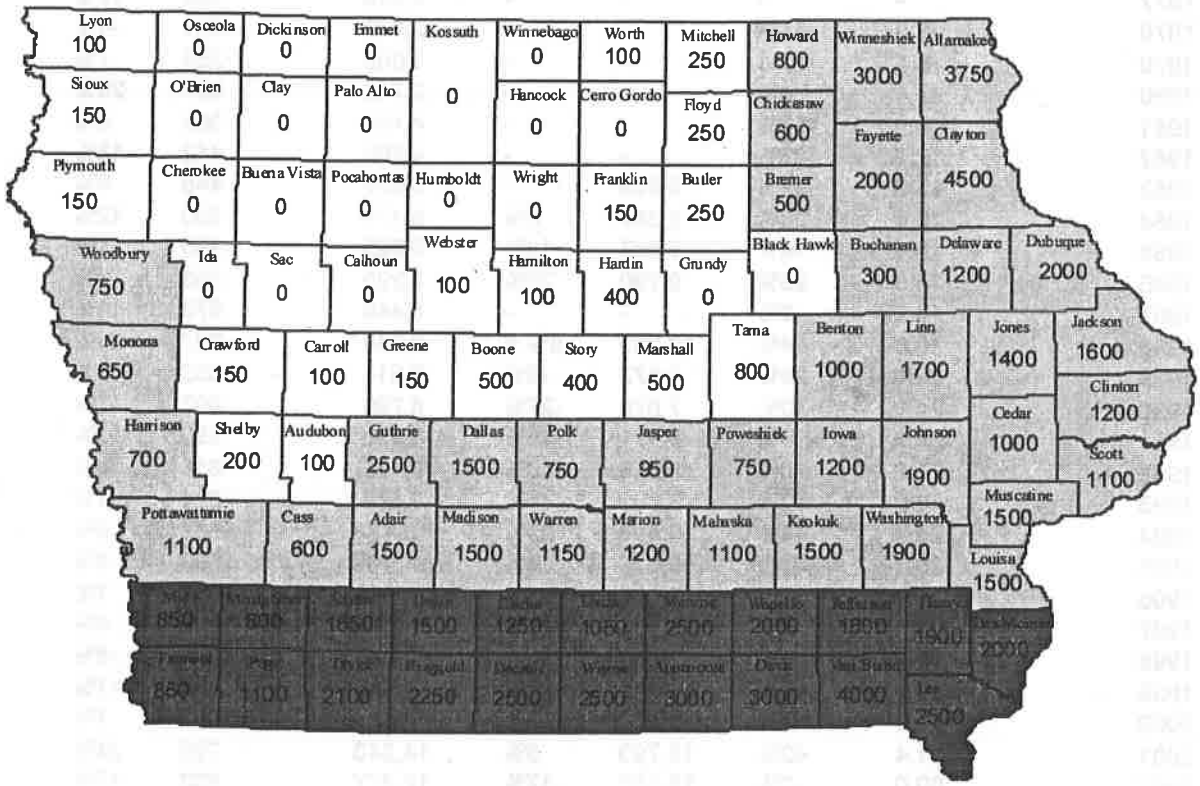
	Spotlight Survey		Aerial Survey			Traffic Kill Per Billion Vehicle Mi.	
Year	Mean Count	Percent Change	Weighted Count *a*	Percent Change	Traffic Kill	Number	Percent Change
1976	-	-	-	-	2,537	225	-1%
1977	-	-	-	-	2,929	252	12%
1978	6.9	-	-	-	2,872	241	-4%
1979	6.8	-1%	-	-	3,005	259	7%
1980	7.1	4%	-	-	3,743	335	29%
1981	5.9	-17%	-	-	4,164	365	9%
1982	12.0	103%	-	-	4,805	412	13%
1983	13.3	11%	5,903	-	5,335	448	9%
1984	16.4	23%	6,387	8%	6,177	500	12%
1985	15.4	-6%	7,607	19%	5,925	495	-1%
1986	18.5	20%	9,790	29%	7,225	593	20%
1987	18.2	-2%	-	-	8,440	678	14%
1988	20.8	14%	10,289	5% *b*	9,248	707	4%
1989	26.8	29%	9,672	-6%	8,914	655	-7%
1990	24.0	-10%	7,070	-27%	8,799	607	-7%
1991	23.0	-4%	9,191	30%	8,428	590	-3%
1992	23.0	0%	8,235	-10%	9,135	616	4%
1993	30.0	30%	8,680	5%	9,576	624	1%
1994	25.8	-14%	10,483	21%	10,438	663	6%
1995	35.3	37%	10,877	4%	11,167	699	5%
1996	51.1	45%	12,051	11%	12,276	748	7%
1997	51.1	0%	13,902	15%	13,148	778	4%
1998	55.9	9%	12,651	-9%	12,427	714	-8%
1999	59.9	7%	14,928	18%	11,366	637	-11%
2000	57.2	-5%	15,375	3%	11,114	642	1%
2001	81.4	42%	15,793	3%	14,243	799	24%
2002	80.0	-2%	13,107	-17%	12,377	662	-17%
2003	92.5	16%	15,676	20%	13,720	726	10%
2004	101.1	9%	18,028	15%	15,361	803	11%
2005	104.9	4%	15,324	-15%	14,364	760	-5%
2006	101.8	-3%	12,565	-18%			

a - adjusted for missing counts

b - change form 1986 to 1988

Antlerless Quotas for the 2006/2007 deer season.

The following map shows the county antlerless quota for the 2006/2007 deer season. The 59 shaded counties will be open during the January antlerless seasons. In the 21 dark shaded counties centerfire rifles will be a legal weapon during the last 7 days of the January antlerless season. The total number of antlerless licenses available for 2006/2007 is 99,850 which is 3,150 less than was available in 2005/2006.



The antlerless quotas were calculated by running simulations for all 20 wildlife management units. The results from the simulations are listed in Table 3. The simulation for each unit was "fit" to deer surveys for that unit. The "fit" of the model to the actual population surveys is measured by the correlation between the model results and the deer population surveys. A "best fit" simulation is obtained by finding a population level that has the highest average correlation with all 3 population indices. The quota for each county is based upon these simulations although the quotas for some counties were adjusted up or down based on county specific data. Additional assumptions used to set the quotas are that 65% of the hunters are successful and 80% of the harvest consists of does.

Table 4. Deer harvest, correlation of the simulation and the deer population surveys and the change in the doe killed needed to get the simulated deer numbers to the department's goal for all 20 wildlife units.

	2005 Harvest		Correlation of simulation with:				
Wildlife Unit	Does	Bucks	Spotlight Survey	Roadkill	Kpbm	Aerial Survey	Change in Doe Kill
Bays Branch	6,136	6,122	0.920	0.796	0.357	0.716	0%
Big Marsh	4,298	3,259	0.905	0.628	0.214	0.647	-20%
Big Sioux	1,826	2,056	0.671	0.289	-0.130	0.876	-10%
Black Hawk	1,919	2,030	0.868	0.784	0.596	0.621	-30%
Coralville	9,063	6,957	0.950	0.913	0.796	0.864	0%
Ingham	1,387	1,380	0.861	0.489	0.273	0.705	-30%
Maquoketa	10,712	7,213	0.923	0.754	0.341	0.545	0%
Missouri River	3,604	4,387	0.804	0.582	-0.041	0.513	0%
Mount Ayr	8,875	5,069	0.959	0.875	0.693	0.752	0%
Odessa	7,024	5,404	0.900	0.842	0.378	0.823	0%
Otter Creek	4,674	4,086	0.892	0.796	0.503	0.601	0%
Rathbun	6,298	4,557	0.927	0.764	0.581	0.690	0%
Red Rock	5,740	5,166	0.892	0.566	0.072	0.537	0%
Rice Lake	3,056	2,533	0.752	0.712	0.504	0.685	-10%
Riverton	5,351	4,127	0.935	0.886	0.759	0.655	0%
Ruthven	2,069	2,283	0.845	0.252	-0.092	0.650	-10%
Saylorville	2,421	2,353	0.953	0.338	-0.271	0.378	0%
Sweet Marsh	12,581	8,823	0.946	0.872	0.718	0.818	0%
Upper Iowa	8,019	5,960	0.928	0.276	-0.529	0.453	0%
Wapello	11,164	8,062	0.915	0.608	0.227	0.667	0%

MIDWEST DEER STUDY GROUP

KANSAS - 2005-2006 STATUS REPORT

Prepared by Lloyd Fox

Deer Population Trends

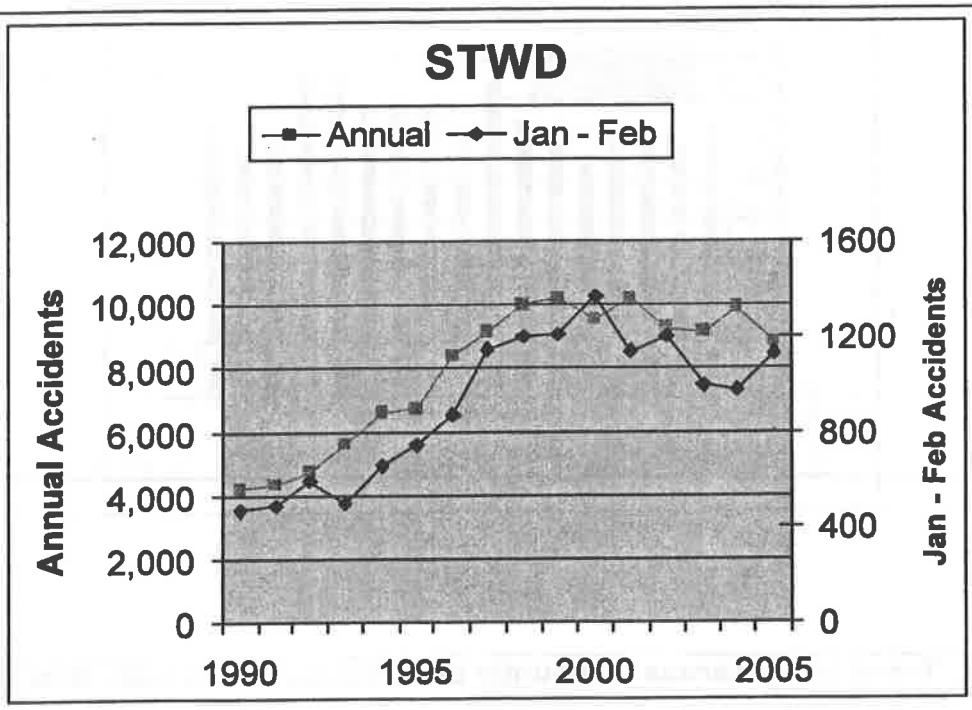
We organize deer management in Kansas around Deer Management Units (DMU). Harvest and human dimensions aspects to deer management are summarized by these units. Historically there were 18 units. An addition suburban unit was developed for the 2003-2004 season. The suburban unit incorporates portion of four previous units in the vicinity of the river and highway corridor from Kansas City to Topeka. The suburban unit is managed to encourage additional harvest, particularly of antlerless white-tailed deer. The holders of permits valid in the adjacent DMUs may also hunt in the suburban unit and take advantage of a pre-rut firearms season and an allowance of three additional bonus game tags not allowed in adjacent units.

Population trend information is collected on a county-by-county basis, which is then converted to an approximate DMU based on the mean of all counties within a DMU. Population trends of deer in Kansas are currently monitored using deer related vehicle accidents adjusted for annual changes in vehicle mileage. County sheriff or state highway patrol officers collect vehicle accident data at the site of each accident. State laws require that an accident report be prepared for each accident that results in an injury or causes more than $500 in property damage (that value was increased to $1,000 on January 2005). Vehicle mileage estimates for each county are obtained from standard surveys conducted at continuous traffic count stations. These data are compiled by the Kansas Department of Transportation (KDOT).

An addition population monitoring technique was initiated during the fall of 2002. We conducted distance sampling surveys using spot lights from pick-up trucks. The results of those surveys continue to be evaluated.

There were 8,819 accidents reported during 2005, a decrease of 11.3% over the number of accidents that occurred in 2004. Graphs for each DMU have been prepared based on deer related vehicle accidents adjusted for traffic volume and compared with deer permits to compare a deer population index to and index to hunting pressure. In recent years we have been unable to obtain vehicle accident and mileage values from the previous year in time to make annual adjustments in permit quotas. As a result we have developed an index based on the accidents that occurred during the first two months of the year. Figure 1 shows the trend in accidents during January and Februa ry compared to the annual accident level for the period from 1990 to 2005.

Figure 1. Trends in the annual deer related vehicle accident level in Kansas compared to the accidents during January and February for the period from 1990 to 2005.



Archery Deer Hunter Observations of Deer

Bowhunters have been surveyed since 1977 to develop an index to certain species of wildlife. White-tailed deer and mule deer were added to that list in 1988. An index consisting of the mean observation per 100 days of effort was developed. The trends in those indices for white-tailed deer and mule deer are presented in figures 2 and 3 respectively.

Figure 2. Trend in the Kansas bowhunter observation rate of white-tailed deer, 1988 to 2004.

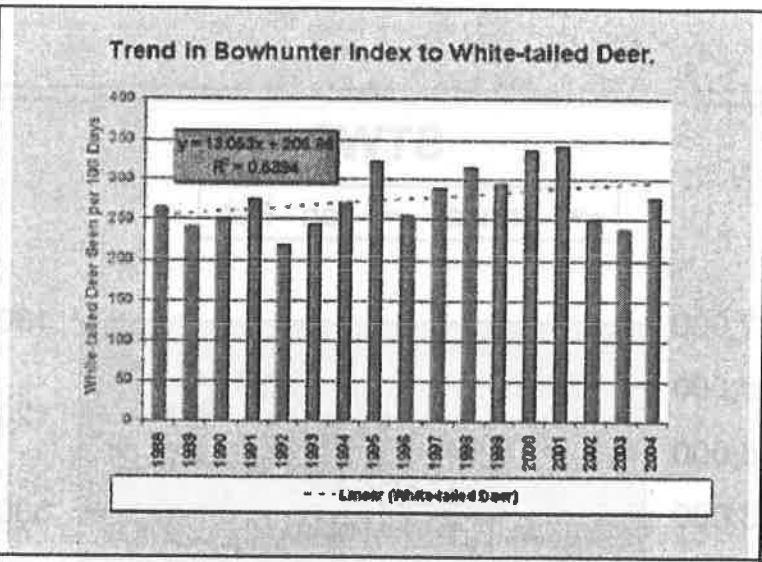
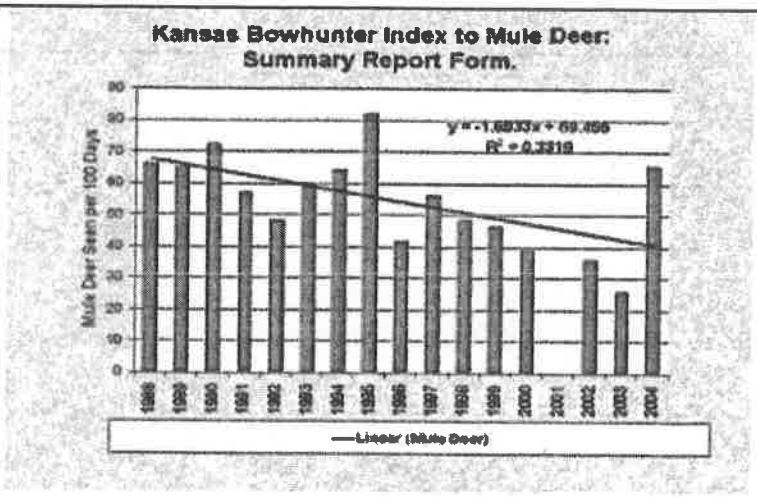


Figure 3. Trend in the Kansas bowhunter observation rate of mule deer, 1988 to 2004.



Hunting Permits and Seasons

Changes in the hunting pressure have been used in an effort to manipulate the growth rate of deer herds in Kansas and minimize conflicts that people have with those animals. At the same time the permit system and season structure has been manipulated to balance to available resource with the demands of hunters to use this resource. Public desires for a deer population with certain health and quality characteristics have been considered in the formulation of seasons and permit systems. Unfortunately the desires and tolerances of people for deer are dynamic parameters, and various groups of people hold conflicting desires and beliefs. Thus the social and political drives to find the optimum deer management systems continue.

Three classes of permits are available for residents. A general resident class cost $31 while the landowner/tenant permit cost $16. There is also an issuance fee of $1.15 for each purchase. There is an additional $5 nonrefundable application fee if the desired permit is limited to a quota and a drawing is used to allocate the permits. Additional bonus game tags that restrict the hunter to a harvest of antlerless white-tailed deer are available for $12.15 per tag.

A general nonresident deer permit that allows the hunter to take an antlered deer is only available through a limited quota drawing. The permit cost $301 and there is a $20 nonrefundable application fee. Nonresidents that own land in Kansas may purchase a nonresident HOL permit for $52.15. The cost of a permit that restricts the nonresident to an antlerless white-tailed deer cost $51 in 2005, while the bonus antlerless white-tailed deer game tags cost a nonresident $22.15.

Most of these classes of permit allow the hunter to hunt anywhere they have permission within a DMU. Some permits such as the white-tailed deer antlerless-only permit allows the hunter to hunt statewide. Landowners with 80 acres of land or tenants actively engaged in the agricultural operation may apply for a hunt-on-your-own-land (HOL) permit. The HOL permit may be purchased by mail or over-the-counter at selected KDWP offices. Unlike the landowner /tenant option for a standard deer permit, the HOL class permit restricts the holder to their property. HOL permits are unlimited in quantity and allow the holder to take one deer of either species and either sex. Each member of the landowner's or tenant's family may obtain one of these permits provided the total property size is 80 acres or more for each permit issued.

Deer permits come in a variety of hunt types. The hunt type may restrict the hunter to a particular species or it may restrict the hunter to specific equipment. The "Any-Deer" and "Antlerless Only" permits are the permits that allow the hunters to take a mule deer. White-tailed either-sex permits and white-tailed antlerless-only permits have been created to increase hunting pressure on white-tailed deer without increasing the legal harvest of mule deer. Most firearm permits are restricted to a single DMU.

Game tag availability is unlimited; however, each hunter may purchase no more than four of these tags. Formerly these tags were limited to people with a deer permit, however, that restriction ended in 2001 and then reinstated for 2005. Game tags allow the hunter to hunt during any season with the equipment that is legal for that season. A game tag is also valid throughout DMU 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 19, however, during the 2005-06 seasons only one of the potential four tags were valid in all of those units and the other three were restricted to units 7, 8, 12, 13, 15, 16, and 19.

HOL, white-tailed deer antlerless-only permits, and game tags are valid during any season, i.e., regular firearm, muzzleloader, archery, or January extended season, with the appropriate equipment for that season.

A permit quota and drawing system remains in place for residents desiring a muzzleloader or firearm permit that would allowed them to take a mule deer. Those permits were classified as "Any-Deer," "Muzzleloader Any-Deer." In the past an "Antlerless Only" permit was authorized in units where additional harvest of antlerless mule deer was desired. Antlerless Only Any-Deer permits have not been authorized in the last two years. Each of those three hunt types allowed the holder to take either a mule deer or a white-tailed deer.

A preference point system for resident hunters unsuccessful in obtaining a permit in the draw was initiated in 2001. That system has been expanded to nonresidents and landowners applying for the transferable / resalable permits. Hunters were allowed to purchase a preference point without applying for a permit during the 2005 drawing.

The white-tailed either sex permit was further changed from a firearm permit to a firearm and muzzleloader permit in 2001. Thus a hunter could use one permit during either the early muzzleloader season (hunter restricted to muzzleloader equipment) and/or the regular 12-day firearm season. During the regular firearm season a hunter with a white-tailed deer either sex firearm permit was allowed to choose any legal firearm, which included muzzleloaders or centerfire rifles. A significant difference occurs between this permit and the Muzzleloader Any-Deer permit which requires the holder to use a muzzleloader during the regular 12-day firearms season.

Every permit and game tag issued since 1998 has allowed the person to take an antlerless white-tailed deer. Since 2000 each Kansas deer hunter has been limited to one permit that allows them to take an antlered deer (i.e., no leftover permits that allowed the bearer to take a second or third antlered deer). White-tailed either sex permits are now authorized in an unlimited number for resident hunters.

Table 1 shows the number of deer permits and tags that were sold in Kansas for the 2005-06 seasons. A total of 150,646 permits and tags were sold for the 2005-06 seasons compared to 155,739 for 2004-05, a 3.3% decrease.

State law limited nonresident firearm permit availability in 2005-06 to no more that 16% of the number authorized for residents or 16% of the number issued to residents the year before if the availability for residents was unlimited. Nonresident archery permits are limited to no more than 21% of the number sold to residents the year before. The limit will continue to increase until 2007 when the range will be 10 – 20% for firearms and 12.5 – 25% for archery. State law does not limit the number of antlerless type permits the department may authorize. State law requires that 50% of the nonresident deer permits shall be available to Kansas landowners who may may apply for them, purchase them at the nonresident price and then resell the permit at whatever price they may obtain.

The history of season dates is presented in Table 2. Shooting hours have traditionally been from ½ hour before sunrise to ½ hour after sunset.

The trend in hunting pressure and estimated harvest since 1994 is shown in Table 3. That table shows the changes in number of limited quota permits issued through drawings and the number of unlimited availability permits.

TABLE 1.
ESTIMATED DEER HUNTING PERMIT SALE KS, 2005.

FIREARM

Permit Type	General Resident	Landowner / Tenant	Landowner / Resalable	Hunt-Own-Land	Non_Res Landowner	General Non_Res	Total
Reg Firearm AD	1,906	534		9,120	1,182		12,742
Reg Firearm AO	0	0					0
Reg Firearm WTES	38,319	14,808					53,127
Muzzleloader	681	160					841
Game Tags *	45,362					4,061	49,423
WTAO Permit **	2,243	1,372					3,615
Special Transferrable HOL				844			844
Non- Resident							
Firearm - Either Sex/Buck Only			2,970			4,334	7,304
Firearm - Antlerless							0
Muzzleloader - Any Deer			97			100	197
Firearm - White-tailed Antlerless						350	350
Total - Firearm	88,511	16,874	3,067	9,964	1,182	8,845	128,443
Total 2004	91066	16888	3003	9478	949	13272	134659
% Change	-2.8	-0.1	2.0	5.1	24.6	-33.4	-4.6

ARCHERY

Permit Type	General Resident	Landowner / Tenant	Landowner / Resalable	Hunt-Own-Land	Non_Res Landowner	General Non_Res	Total
Statewide Archery **	15,352	3,106					18,458
Non- Resident							
Archery - White-tailed Either Sex			1,895			1,850	3,745
Total - Archery	15,352	3,106	1,895			1,850	22,203
Total 2004	14553	3269	1632			1626	21080
% Change	5.5	-5.0	16.1			13.8	5.3

Table 2. History of deer hunting season dates in Kansas.

YEAR	FIREARMS OPEN DATES	NO. DAYS	ARCHERY OPEN DATES	NO. DAYS	MUZZLELOADER OPEN DATES	NO. DAYS	YOUTH AND DISABILITY OPEN DATES	NO. DAYS	EXTENED OPEN DATES	NO. DAYS	YEAR
1965	DEC. 11 - 15	5	OCT. 1 - NOV. 15	46	0	0	0	0	0	0	1965
1966	DEC. 10 - 14	5	OCT. 1 - DEC. 9	70	0	0	0	0	0	0	1966
1967	DEC. 8 - 12	5	OCT. 1 - NOV. 26	57	0	0	0	0	0	0	1967
1968	DEC. 13 - 17	5	OCT. 1 - DEC. 1	62	0	0	0	0	0	0	1968
1969	DEC. 6 - 10	5	OCT. 1 - NOV. 30	61	0	0	0	0	0	0	1969
1970	DEC. 5 - 6	5 - WEST	OCT. 1 - NOV. 30	61	0	0	0	0	0	0	1970
	DEC. 5 - 10	9 - EAST	0	0	0	0	0	0	0	0	
1971	DEC. 4 - 5	5 - WEST	OCT. 16 - NOV. 25, DEC. 11 - DEC. 31	62	0	0	0	0	0	0	1971
	NOV. 27 - DEC. 5	9 - EAST	0	0	0	0	0	0	0	0	
1972	DEC. 2 - 3	5 - WEST	OCT. 1 - NOV. 30	61	0	0	0	0	0	0	1972
	DEC. 2 - 10	9 - EAST	0	0	0	0	0	0	0	0	
1973	DEC. 1 - 9	9	OCT. 1 - NOV. 25, DEC. 16 - DEC. 31	73	0	0	0	0	0	0	1973
1974	DEC. 7 - 15	9	OCT. 1 - NOV. 30, DEC. 21 - DEC. 31	72	0	0	0	0	0	0	1974
1975	DEC. 6 - 14	9	OCT. 1 - NOV. 30, DEC. 20 - DEC. 31	72	0	0	0	0	0	0	1975
1976	DEC. 4 - 12	9	OCT. 1 - NOV. 30, DEC. 18 - DEC. 31	75	0	0	0	0	0	0	1976
1977	DEC. 3 - 11	9	OCT. 1 - NOV. 30, DEC. 17 - DEC. 31	76	0	0	0	0	0	0	1977
1978	DEC. 2 - 10	9	OCT. 1 - NOV. 30, DEC. 16 - DEC. 31	77	0	0	0	0	0	0	1978
1979	DEC. 1 - 9	9	OCT. 1 - NOV. 29, DEC. 12 - DEC. 31	79	0	0	0	0	0	0	1979
1980	DEC. 6 - 14	9	OCT. 1 - DEC. 5, DEC. 17 - DEC. 31	79	0	0	0	0	0	0	1980
1981	DEC. 5 - 13	9	OCT. 1 - DEC. 2, DEC. 16 - DEC. 31	79	0	0	0	0	0	0	1981
1982	DEC. 4 - 12	9	OCT. 1 - DEC. 1, DEC. 15 - DEC. 31	78	0	0	0	0	0	0	1982
1983	DEC. 3 - 11	9	OCT. 1 - NOV. 30, DEC. 12 - DEC. 31	79	0	0	0	0	0	0	1983
1984	DEC. 1 - 9	9	OCT. 1 - NOV. 30, DEC. 10 - DEC. 31	79	0	0	0	0	0	0	1984
1985	DEC. 7 - 15	9	OCT. 1 - DEC. 6, DEC. 16 - DEC. 31	75	0	0	0	0	0	0	1985
1986	DEC. 6 - 14	9	OCT. 1 - DEC. 5, DEC. 15 - DEC. 31	79	0	0	0	0	0	0	1986
1987	DEC. 5 - 13	9	OCT. 1 - DEC. 4, DEC. 14 - DEC. 31	78	DEC. 5 - 13	9	0	0	0	0	1987
1988	NOV. 30 - DEC. 11	12	OCT. 1 - NOV. 29, DEC. 12 - DEC. 31	78	OCT. 15 - 28	14	0	0	JAN. 2 - 10, 1988	9	1988
1989	NOV. 29 - DEC. 10	12	OCT. 1 - NOV. 28, DEC. 11 - DEC. 31	79	SEPT. 30 - OCT. 8	9	0	0	JAN. 2 - 10, 1989	9	1989
1990	NOV. 28 - DEC. 9	12	OCT. 1 - NOV. 27, DEC. 10 - DEC. 31	79	SEPT. 29 - OCT. 7	9	0	0	0	0	1990
1991	DEC. 4 - 15	12	OCT. 1 - DEC. 3, DEC. 16 - DEC. 31	79	SEPT. 28 - OCT. 6	9	0	0	DEC. 16 - 17 and JAN. 1 - 14, 1992	16	1991
1992	DEC. 3 - 13	11	OCT. 1 - DEC. 2, DEC. 14 - DEC. 31	79	SEPT. 26 - OCT. 4	9	0	0	DEC. 14 - 15 and JAN. 1 - 13, 1993	15	1992
1993	DEC. 3 - 12	10	OCT. 1 - NOV. 30, DEC. 13 - DEC. 31	79	SEPT. 25 - OCT. 3	9	0	0	JAN. 1 - 3	3	1993
1994	NOV. 30 - DEC. 11	12	OCT. 1 - NOV. 29, DEC. 12 - DEC. 31	78	SEPT. 24 - OCT. 2	9	0	0	JAN. 1 - 3	3	1994
1995	DEC. 5 - 10	6	OCT. 1 - NOV. 28, DEC. 11 - DEC. 31	78	SEPT. 23 - OCT. 1	9	0	0	JAN. 1 - 3	3	1995
1996	DEC. 4 - 15	12	OCT. 1 - DEC. 3, DEC. 16 - DEC. 31	80	SEPT. 21 - 29	9	0	0	0	0	1996
1997	DEC. 3 - 14	12	OCT. 1 - DEC. 2, DEC. 15 - DEC. 31	79	SEPT. 20 - 28	9	0	0	0	0	1997
1998	DEC. 9 - 13	12	OCT. 1 - DEC. 1, DEC. 14 - DEC. 31	79	SEPT. 19 - 27	9	0	0	JAN. 2 - 10, 1999	9	1998
1999	DEC. 8 - 12	12	OCT. 1 - NOV. 30, DEC. 13 - DEC. 31	80	SEPT. 18 - 26	9	0	0	DEC. 31 - JAN. 9, 2000	11	1999
2000	NOV. 28 - DEC. 10	12	OCT. 1 - NOV. 29, DEC. 11 - 31	79	SEPT. 16 - 24	9	SEPT. 29 - OCT. 1	3	JAN. 1 - 14, 2001	14	2000
2001	NOV. 28 - DEC. 9	12	OCT. 1 - NOV. 27, DEC. 10 - 31	78	SEPT. 15 - 23	9	SEPT. 28 - 30	3	JAN. 1 - 13, 2002	13	2001
2002	DEC. 4 - 15	12	OCT. 1 - DEC. 3, DEC. 16 - 31	77	SEPT. 14 - 22	9	SEPT. 27 - 29	3	JAN. 1 - 12, 2003	12	2002
2003	DEC. 3 - 14	12	OCT. 1 - DEC. 2, DEC. 15 - 31	78	SEPT. 13 - 21	9	SEPT. 26 - 28	3	JAN. 1 - 12, 2004	12	2003
ONLY 16*	Oct. 16 - 28	13	Jan. 2 - 31	58					JAN. 1 - 4, 2005	4	2004
2005	DEC. 1-02	12	OCT. 1 – NOV. 30, DEC. 13 - 31	78	SEPT. 16 - 24	14	SEPT. 25 - 28	12	JAN. 1 - 3, 2006	3	2005
ONLY 16*	Oct. 16 - 28	13	Jan. 2 - 31	58							
2006	NOV. 30 - DEC. 11	12	OCT. 1 – NOV. 29, DEC. 31	91	Sept. 15 - 23	14	SEPT. 24 - 26	12	Jan. 1 – 8, 2007	8	2006
ONLY 16*	Oct. 16 - 28	13	Jan. 2 - 31	58							

* Additional days of hunting apparently to ONLY 16

Table 3. History of deer permit availability and harvest in Kansas, 1994 to 2005.

Availability of
Limited Quota Permit Types

Permit Type	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Difference 2004 vs 2005	Percent Change
Resident														
Any Deer	25,380	26,985	27,850	31,150	37,200	40,000	45,175	4,373	3,270	2,855	2,439	2,440	1	0.0
Buck Only	5,850	6,000	5,250	4,675	0	0	0	0	0	0	0	0	0	
W-T Either Sex	3,000	5,400	6,100	7,000	8,605	11,030	14,420	Uni Sales	Uni Sales	Uni Sales	Uni Sales	Uni Sales		
W-T Buck Only	1,220	670	320	0	0	0	0	0	0	0	0	0	0	
Muzzleloader	3,000	3,350	3,645	3,945	4,755	5,140	5,985	1,186	1,172	1,024	1,049	841	-208	-19.8
Antlerless Only	2,950	4,785	8,835	13,935	9,660	8,760	12,495	1,385	1,223	803	174	0	-174	-100.0
W-T Antlerless Only	300	600	1,750	2,920	5,055	4,330	6,811	Uni Sales	Uni Sales	Uni Sales	Uni Sales	Uni Sales		
Sub-total	42,680	48,880	53,930	64,325	65,275	69,260	84,586	6,944	5,665	4,782	3,662	3,281	-381	-10.4
Nonresident														
Antlered (Firearms)	410	365	451	646	920	1047	3673	5861	4367	4366	6422	7304	882	13.6
Antlered (Muzzle loader)	60	6	43	144	154	157	451	246	204	156	156	157	3	1.5
Antlered (HCL)	287	345	265	318	256	1020	1188	1196	1272	1526	1798	2029	231	14.9
Antlerless (Firearms)	115	45	241	778	945	832	906	360	720	248	1151	380	-771	-66.2
Game Tags Nonresidents						920	4,743	5,827	5,029	4,416	8,359	4,061	-4,662	-52.9
Antlered (Archery)	435	383	451	945	814	568	2877	2577	2606	2991	5250	3745	497	14.9
Antlerless (Archery)	110	45	341	775	271	150	257	6	0	5	9	3		
Sub-total	1,295	1,589	1,868	3,501	3,371	5,440	14,962	15,223	15,229	13,672	21,944	17,563	-3,581	-16.9
Unlimited Resident Permit Types Based on History of Permit Sales														
Rest-Year-Over-Land	12,881	14,454	15,307	16,487	15,521	16,118	19,131	12,558	11,982	8,962	2,719	6,110	391	6.8
W-T Either Sex								45,896	41,582	48,293	46,271	53,127	3,756	7.6
Game Tags Resident	3,110	4,734	4,872	4,634	29,767	30,208	98,784	84,118	79,879	82,275	92,394	85,353	-6,992	-12.1
WT Antlerless Only								1,974	1,928	1,974	2,967	2,914	1,046	46.8
STMU Archery	12,135	10,390	10,429	10,296	17,230	18,180	14,911	17,915	17,346	17,194	12,022	12,450	328	9.5
Unit Archery	5,535	6,742	6,136	6,151	8,083	1,755	1,337	3	6	0	0	0	0	
Sub-total	37,812	46,234	47,814	52,774	68,601	68,255	99,593	171,365	152,814	159,738	156,373	159,952	-1,151	-0.6
Sub-total Nonresidents	45,403	57,111	55,974	160,681	125,882	123,115	161,270	178,200	168,478	163,182	155,454	152,267	-3,553	-2.1
Grand Total	87,983	106,221	97,130	113,000	129,157	192,375	185,861	185,021	175,822	167,182	157,732	155,548	-4,184	-2.6
Percent Nonresidents	7.65	6.39	8.37	8.61	8.21	8.36	7.99	8.55	8.92	8.42	10.30	10.30		

History of deer harvest in Kansas, 1994 to 2005.

Permit Type	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Difference 2004 vs 2005	Percent Change
Deer/Any Firearms (Res)	24,000	27,000	24,000	25,000	28,000	30,000	32,000	29,000	28,000	26,000	27,000	25,000	-2,000	-7.4
Rest-Over-Land (Res + NR)	8,000	8,000	10,000	11,000	10,000	10,000	13,000	7,000	6,000	6,000	6,000	6,000	0	0.0
Game Tags (Res + NR)	1,000	2,000	3,000	3,000	20,000	21,000	44,000	45,000	45,000	46,000	46,000	46,000	0	0.0
Resident Firearms (NR)	300	300	400	500	1,000	1,000	4,000	3,000	3,000	3,000	4,000	4,000	0	0.0
Archery (Res + NR)	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	0	0.0
Grand Total	35,300	39,300	39,400	41,500	61,000	64,000	95,000	86,000	84,000	83,000	85,000	83,000	-2,000	-2.4

Deer Harvest

There were 96,413 people that purchased a deer permit in Kansas during the 2005-06 seasons. They purchased a total of 150,646 permits and bonus game tags. A sample of 3,523 resident bowhunters and 20,400 other deer hunters were surveyed to estimate the harvest. Resident bowhunters are surveyed using a system that includes a list of hunters from 1997. That list is updated annually but contains names of people that did not purchase a permit in 2005.

The basic deer hunter harvest survey is an on-line survey for everybody except the resident bowhunters. Their survey is a paper survey. Hunters are notified after the season to enter their information on-line. A reminder card is sent that includes a return card for people that request a paper survey. The reminder card also has a return for people that did not hunt. Paper surveys are mailed to all people that request one. This year we also included a paper survey to approximately 10,000 people that had not responded to two mailings.

Usable returns were received from 10,943 deer hunters. The estimate of the hunter harvest of deer in Kansas during the 2005-06 seasons was 74,910. That was 2.6% lower than the corresponding estimate made of the harvest last year. Estimates of the 2005-06 harvest have been made by expanding the values obtained from returned report cards and from a sample of hunters surveyed with an on-line technique.

A sample of names and addresses of resident bowhunters were obtained from the 1997 license sales. That file has been used each year since then to collect bowhunter observations of wildlife (a diary system) and to evaluate hunter activity, success and satisfaction. Periodically new names are added to the file and undeliverable addresses have been deleted. A second mailing with a report card and wildlife observation summary card was mailed to people that had not returned their report card at the end of the season.

Table 4 shows the success rates of the permits of the various hunt types and the breakdown of the harvest by species and age sex category. The overall permit success rate was approximately 50%, which is low compared to levels recorded in the early 1990's. Table 5 shows the number of deer taken statewide by permit hunt type. Approximately 51.2% of the white tailed deer that were taken in 2005-06 were antlerless and 43.6% of the harvest was classified by hunters as female deer. The trend since 2000 has been for hunters to purchase fewer antlerless-only tags and harvest few female deer.

Table 4. Success rates, species and sex composition of deer hunters using various permit hunt types in Kansas, 2005 - 2006.

Percent of the Harvest In Species and Sex Category

			White-tailed Deer					Mule Deer				
STATE	Permit Type	Permit Success Rate	Antlered Buck	Male Fawn	Adult doe	Female Fawn	Buck With Sheds	Antlered Buck	Male Fawn	Adult doe	Female Fawn	Buck With Sheds
KS	Any Deer	65.5%	37.11%	1.11%	6.78%	0.37%	0.25%	46.36%	0.74%	6.78%	0.37%	0.12%
KS	W-T Either Sex	53.9%	66.83%	3.69%	26.85%	1.38%	1.01%	0.20%	0.00%	0.00%	0.00%	0.04%
KS	Muzzleloader	53.1%	32.51%	0.99%	8.87%	0.49%	0.00%	46.80%	0.49%	9.36%	0.49%	0.00%
KS	W-T Antlerless Only	51.9%	0.79%	14.68%	76.98%	6.75%	0.79%	0.00%	0.00%	0.00%	0.00%	0.00%
KS	Est. Game Tags	47.6%	0.48%	13.11%	76.89%	7.72%	1.80%	0.00%	0.00%	0.00%	0.00%	0.00%
KS	HOL	46.8%	60.82%	1.63%	18.78%	1.22%	1.22%	13.06%	0.00%	2.86%	0.41%	0.00%
KS	STWD Archery	51.4%	80.70%	1.89%	12.77%	0.87%	0.58%	2.61%	0.00%	0.29%	0.00%	0.29%
NR	W-T Either Sex	55.9%	94.74%	0.13%	4.08%	0.39%	0.66%	0.00%	0.00%	0.00%	0.00%	0.00%
NR	Muzzleloader	59.4%	41.82%	0.00%	0.00%	0.00%	1.82%	56.36%	0.00%	0.00%	0.00%	0.00%
NR	W-T Antlerless Only	48.0%	2.56%	12.82%	76.92%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NR	Est. Game Tags	37.3%	0.73%	14.60%	79.56%	2.55%	2.55%	0.00%	0.00%	0.00%	0.00%	0.00%
NR	HOL	58.6%	72.69%	2.31%	11.57%	0.93%	0.00%	11.11%	0.00%	1.39%	0.00%	0.00%
NR	STWD Archery	45.0%	94.32%	0.63%	5.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
STWD	KS Sub-Total	52.3%	41.66%	6.16%	38.38%	3.20%	1.07%	8.02%	0.11%	1.27%	0.08%	0.06%
STWD	NR Sub-Total	49.4%	69.61%	3.56%	21.39%	1.34%	0.54%	3.31%	0.00%	0.25%	0.00%	0.00%

Table 5. Number of deer harvested by permit hunt type in Kansas, 2005 - 2006.

		White-tailed Deer					Mule Deer							
STATE	STWD Permit Type	Antlered Buck	Male Fawn	Adult doe	Female Fawn	Buck With Sheds	Antlered Buck	Male Fawn	Adult doe	Female Fawn	Buck With Sheds	Total WT Deer Harvested	Total Mule Deer Harvested	Grand For Permit Type
KS	Any Deer	556	15	100	3	3	764	10	105	5	2	677	886	1,563
KS	W-T Either Sex	18,190	1,163	8,194	294	324	23	0	0	0	3	28,165	26	28,191
KS	Muzzleloader	135	4	35	1	0	208	2	41	2	0	175	253	428
KS	W-T Antlerless Only	20	249	1,297	119	18	0	0	0	0	0	1,703	0	1,703
KS	Est. Game Tags	82	2,695	16,037	1,619	391	0	0	0	0	0	20,824	0	20,824
KS	HOL	2,648	67	837	60	56	425	0	96	29	0	3,668	550	4,218
KS	STWD Archery	7,689	182	1,276	88	40	162	0	16	0	16	9,275	194	9,469
NR	W-T Either Sex	3,717	7	179	15	27	0	0	0	0	0	3,945	0	3,945
NR	Muzzleloader	50	0	0	0	1	59	0	0	0	0	51	59	110
NR	W-T Antlerless Only	1	15	98	1	0	0	0	0	0	0	115	0	115
NR	Est. Game Tags	8	207	1,248	32	35	0	0	0	0	0	1,530	0	1,530
NR	HOL	875	23	126	6	0	86	0	10	0	0	1,030	96	1,126
NR	STWD Archery	1,604	9	75	0	0	0	0	0	0	0	1,688	0	1,688
STWD	KS Sub-Total	29,320	4,375	27,776	2,184	832	1,582	12	258	36	21	64,487	1,909	66,396
STWD	NR Sub-Total	6,255	261	1,726	54	63	145	0	10	0	0	8,359	155	8,514
STWD	Grand Total	35,575	4,636	29,502	2,238	895	1,727	12	268	36	21	72,846	2,064	74,910

Legislative and Social Issues

The House of Representative committee on Wildlife, Parks and Tourism requested KDWP to review all statutes dealing with deer management and determine if they could be simplified and improved. A ten member task force of KDWP personnel has been active since the end of the 2005 legislative session to design a comprehensive deer management program. Particular emphasis has been given to an attempt to eliminate transferable permits. Currently 50% of all nonresident deer permits are drawn by Kansas landowners who are then allowed to resell those permits. The permits are frequently sold to the highest bidder. Current demand for deer permits by nonresidents is near or even below the level of permit availability in some eastern units. Therefore one proposal is to allow nonresidents to purchase deer permits on demand and to eliminate the transferable system.

Other items under consideration include:

1. A permit valid during any season with the equipment allowed during that season (archery, muzzleloader and firearm permit)
2. Allowing white-tailed either sex permit holders to select a permit for either the eastern or western region (two units for buck permit rather than current 18 units)
3. Consolidating 9 western units into 2 units where either species permits could be used.
4. Changing the dates of the muzzleloader season to include the first week in October and run that season concurrent with the archery season.

Public opinion surveys have been initiated to determine likes and dislikes of various groups of deer hunters, landowners, nonresidents, etc. The survey was designed to be analyzed with the potential for conflict index. Public meetings are being conducted around the state.

Chronic Wasting Disease Management

Deer and elk (n = 2,300) were collected from hunters, taxidermists, locker plants, and picked up after highway accidents. These included young-of the-year and specimens that were not tested for CWD due to decomposition or destruction of sample tissues by the hunter. Retropharyngeal lymph nodes (RPLN) from 2,026 of those animals were sent to the Veterinary Diagnostic Laboratory at Kansas State University. The age, sex and species breakdown of the sample is presented in Table 6. ELIAS screening was completed on white-tailed deer and mule deer. Immunohistochemical (IHC) staining procedures were completed on elk and two sika deer. The distribution of the samples collected during the 2005-06 season is shown in Figure 4.

An adult white-tailed doe (approximately 3 ½ years old) was killed by a hunter in Cheyenne County and later determined to be positive for CWD. Tissues were sent to NVSL and the results were confirmed. A small scale (n = 52) collection of deer near the kill site was initiated after the hunting season. CWD was not detected from any of those animals. This area of the state has a relatively low density of deer. Hunters during the firearms season harvested only 54 deer in the whole county last year.

Table 6. Age, sex and species of animals tested for CWD in Kansas, 2005.

		SPECIES		
SEX	**AGE**	**White-tailed Deer**	**Mule Deer**	**Elk**
Male	Unk	12	1	1
	0.5	8	2	0
	1.5	267	33	0
	2.5	428	59	1
	>3.5	402	76	2
	Total	1117	171	4
Female	Unk	3	1	
	0.5	10	1	
	1.5	199	11	
	2.5	257	14	
	>3.5	191	17	
	Total	660	44	
Unknown	Unk	2	0	6
	0.5	0	0	
	1.5	3	0	
	2.5	4	0	
	>3.5	1	0	
	Total	10	0	
	Grand Total	1787	215	10
Unknown species and / or age, n = 14				

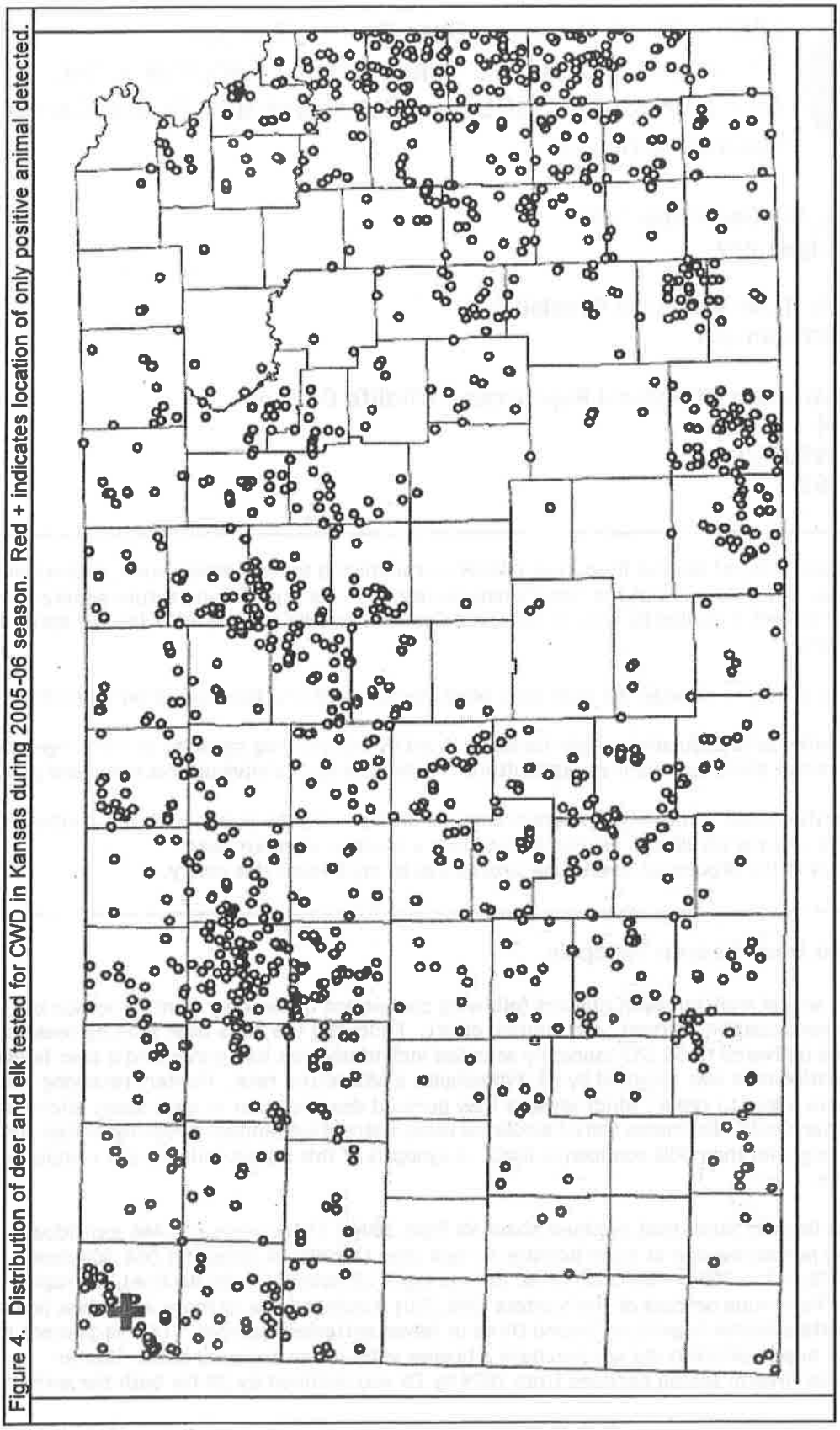


Figure 4. Distribution of deer and elk tested for CWD in Kansas during 2005-06 season. Red + indicates location of only positive animal detected.

2005 - 2006 Michigan Deer Status Report
30th Midwest Deer and Turkey Study Group Meeting
20 - 23 August, 2006 · Ransburg Boy Scout Camp
Bloomington, IN

Rodney Clute, Big Game Specialist
cluterk@michigan.gov

Brent Rudolph, Deer Research Specialist
rudolphb@michigan.gov

Michigan Department of Natural Resources - Wildlife Division
PO Box 30444
Lansing, MI 48909-7944
(517) 373-1263

The Michigan Department of Natural Resources (MDNR) is committed to the conservation, protection, management, use, and enjoyment of the State's natural resources for current and future generations. MDNR deer management is guided by Natural Resource Commission (NRC) Policy 2007 (issued April 14, 1994), which states:

The Department's goal is to manage the deer herd using management practices based on scientific research to:
1. Maintain a healthy deer population within limits dictated by the carrying capacity of the range and by its effect on native plant communities, agricultural, horticultural, and silvicultural crops and public safety.
2. Maintain an active public information program designed to acquaint the public with the methods of deer management and the conditions needed to maintain a healthy, vigorous herd.
The Department is in the process of developing procedures to implement this policy.

2005 Michigan Deer Season Synopsis

Michigan uses an annual mail survey of hunters following completion of the deer hunting season to estimate hunter participation, harvest, and hunting effort. Following the 2005 deer hunting seasons, a questionnaire was delivered to 50,053 randomly selected individuals that had purchased a deer hunting license. The questionnaire was returned by 33,396 people, a 68% return rate. Hunters receiving the questionnaire were asked to report which seasons they pursued deer, number of days spent afield, and number of deer harvested. Estimates were calculated using a stratified random sampling design and are presented along with their 95% confidence limit. A synopsis of this report follows, the complete report is available.

Deer hunters and licenses purchased declined about 6% from 2004. There were 712,466 individuals (755,930 in 2004) purchasing one or more licenses to hunt deer in 2005. A total of 1,566,504 deer harvest tags (1,706,367 in 2004) were sold for all license types combined (an 8% decline), averaging 2.2 tags per hunter. Forty-nine percent of the hunters (346,520) purchased one or more antlerless licenses with 98% of antlerless license buyers purchased three or fewer antlerless licenses. Twelve percent of antlerless license buyers (40,063) did not purchase a license valid for an antlered deer. Hunter participation in the firearm season declined from 2004 by 7% and declined by 3% for both the archery

and muzzleloader seasons. Participation in the youth seasons was similar to 2004 and the number of people hunting during the late antlerless season increased by 33%.

About 94% of the people buying a license in 2005 actually spent time hunting deer, unchanged since 2002. Most hunters (~611,000) pursued deer during the regular firearm season; an estimated 308,000 hunters participated in the archery seasons, and 202,000 hunters in the muzzleloader seasons.

An estimated 417,000 deer were harvested in 2005, a decrease of nearly 9% from the number taken in 2004. The 2005 Michigan deer hunting season was the forth year in a row that harvest estimates indicate a greater number of deer (both antlered and antlerless) were harvested in the Southern Lower Peninsula than in the rest of the state (the traditional deer hunting area) combined.

Michigan has had an e-license system for 11 years. During those 11 years the number of unique deer hunters each year ranged from 764,938 in 1995 to 873,689 in 1998 down to 712,466 in 2005; yet 2,063,019 unique individuals purchased a deer hunting license in those 11 years. Of the 712,466 individuals that purchased a license in 2004 only 231,409 individuals had purchased a deer hunting license each of those 11 years. For the 2005 season 76,262 people purchased a deer license that had not purchased a previous deer license in Michigan. Only 75% of deer hunters purchasing a license in 2004 purchased a deer license in 2005. Since 2000 between 22% and 25% of Michigan's deer hunters did not hunt deer the previous year.

Disease Surveillance in Michigan Deer

Chronic Wasting Disease Surveillance

The MDNR Chronic Wasting Disease (CWD) Surveillance Plan is targeted surveillance of deer or elk showing general symptoms of CWD. Suspect animals will be accepted from anywhere in the state under targeted surveillance. Since 2002, approximately 20,000 deer and 500 elk have been tested for CWD, with all samples testing negative. The MDNR is not accepting any hunter harvested deer or elk to be tested for CWD. With ongoing bovine TB testing, many of the deer and elk accepted to be tested for TB are expected be tested for CWD.

Bovine Tuberculosis Surveillance

The MDNR Bovine Tuberculosis (TB) Surveillance Plan established a goal of actively collecting samples from as many deer harvested in a region encompassing 7 counties within the northeastern portion of Michigan's Lower Peninsula, and required mandatory submission of samples from all hunter-harvested elk. The overall prevalence rate, within the 7 county TB eradication zone, remained below 2% for the third consecutive year. To date, samples have been collected from greater than 147,000 free-ranging deer (525 positive), 1,500 free-ranging elk (4 positive), 21 free-ranging moose (no positives) and 1,500 carnivores (42 positive) for TB surveillance. Michigan is no longer testing carnivore species for TB.

Cumulative analysis suggests that reductions in deer densities (brought about through increased harvests of antlerless deer) and artificial food supplementation (brought about through bans on all feeding and baiting in those counties of greatest concern) has prevented further spread and increases in prevalence that model predictions indicated would occur in the absence of intervention. Current models suggest that maintaining these conditions will prevent expansion of infection and increasing prevalence, but additional time or increased intervention may be required to reduce prevalence in the core area of infection.

In 2004 the USDA granted Michigan split state status for bovine TB in cattle. The Upper Peninsula and all but 14 counties in the northern porting of the Lower Peninsula are considered bovine TB free. Only cattle producers in these 14 counties must have their cattle tested for bovine TB before they may move or sale their cattle.

Regulation Issues

Legislation changing age requirements to purchase a hunting license

The Michigan House of Representatives introduced legislation that would lower the age to purchase a hunting license from 12 years old to 10 years old. Included was the restriction that to firearm hunt for bear, deer and elk the age was reduced from 14 to 12, however, they are restricted to hunting only on private land. On July 7 Governor Granholm signed the legislation in law. The Wildlife Conservation Order (the rules and regulations governing hunting in MI) was changed on August 10 to be consistence with statute. Youths 10 & 11 may now archery deer hunt in Michigan. During the youth firearm deer season (Sept 23 & 24) and the regular firearm season (Nov 15-30) youths 10 & 11 may archery hunt on any land, youths 12 & 13 may archery hunt on any land or firearm hunt on private land only, youths 14, 15, &, 16 may archery or firearm hunt on any land.

The Michigan Senate introduced legislation that created an apprentice hunting license. On July 7 Governor Granholm signed the legislation in law. Any person that has not successfully completed a hunter safety course may purchase a hunting license and hunt with a mentor, 21 years or older, that has the same hunting license. An apprentice may purchase a hunting license for 2 years. A hunter safety course is required to purchase a license the third year. This is seen as a way to allow those with a casual interest in hunting, to participate in hunting prior to committing to completing a hunter safety course.

Changes to antlerless deer license regulations

Michigan has had increasing liberal antlerless deer license regulations over the last 10 years. These include: going from a limit of one per season to limiting hunters to purchasing one a day with no season limit; reducing the acreage requirement required to purchase a private land antlerless license from 40 acres to 10, to 5 to eliminating the requirement; eliminating the requirement of providing the telephone number and property tax number of the landowner to purchase a private land antlerless license; pricing the fee for an antlerless license ($3.50-1997, $6.00-2000, $7.00-2001, $10.00-2005) below that of a firearm or archery license($15.00); and expanding the season antlerless licenses are valid from the 16 day firearm season to include all 95 days deer season is open.

All these regulation changes were designed to encourage hunters to harvest antlerless deer. The goal was to reduce the deer herd in Michigan. These regulation changes, along with other factors (habitat & weather) have reduced the deer herd in the Upper Peninsula (UP) and the Northern Lower Peninsula (NLP). In most locations in the UP & NLP the estimated deer population for 2006 is at or near goal.

This year the Natural Resources Commission has reversed some of the previous regulations. For 2006, to purchase a private land antlerless license hunters will be required to provide the telephone number for the landowner granting permission to hunt. In the UP & NLP that landowner must have 40 or more contiguous acres. A limit of three private land antlerless licenses has been established, of which no more than two may be form the UP or NLP. The seven county bovine Tuberculosis area is exempt from the 40 acre rule and the limit on private land antlerless licenses.

Mandatory Quality Deer Management Proposals

With increased hunter interest in Quality Deer Management (QDM), the Wildlife Division, at the request of the Natural Resources Commission (NRC), formed a QDM working group in July 1998 to recommend a process by which stakeholder groups could propose mandatory QDM guidelines for harvest regulations at the level of an individual DMU. A survey of hunters and landowners in the proposed area is taken to

determine the level of support for QDM regulations. The process states that 66% approval (calculated by dividing the number of respondents that support the proposal by the number surveys returned) of both landowners and hunters in the affected area is required for the proposal to be presented to the NRC. Initial restrictions will stay in place for 5 years, with a second survey to measure hunter and landowner support for continuing the regulations conducted in the fifth year.

Michigan currently has QDM regulations in place for 5 deer management units (DMU). These regulations are strictly antler point restrictions. Three DMUs require 2 or more antler points on at least one antler or a "no spike" rule. These three were established prior to the Process being adopted. Two DMUs require 3 or more antler points on at least one antler. These were established after the Process was adopted.

Through December 2005, eleven proposals have been presented to the DNR. Following the Process, three proposals were submitted to the NRC for implementation. All three were adopted by the NRC for a 5 year period.

Surveys to evaluate support to continue QDM regulations following 5 years of those regulations have been conducted on six DMUs. The 3 DMUs with a "no spike" regulation all showed support to continue the regulations. One of the DMUs with 3 or more antler points on at least one antler regulations showed support to continue those regulations. Two DMUs (one which was established prior to the Process being adopted) did not showed support to continue those regulations and those regulations were discontinued.

At the April 2006 NRC meeting the NRC established a 2 year moratorium on any new QDM proposals.

Research Update

Southern Michigan Deer Research

A project initiated in cooperation with Michigan State University in the fall of 2000 was the first to assess movement patterns and population dynamics of deer in southern Michigan (Pusateri 2003). The study area was an agro-forested region (47% rowcrops, 25% upland deciduous forest) almost entirely in private ownership. Annual survival probabilities for fawns and winter-captured deer (approximately 8 months of age or older) were high (roughly 0.75), with the exception that survival probability of 30 deer collared in the second winter capture season was significantly lower, only 0.40. It was hypothesized that the variation in deer survival rates was likely due to differences in hunting intensity or attitudes of hunters towards antlerless deer harvest, but no parameters regarding these factors were available.

The relationship between deer mortality and hunting attitudes and intensity is the subject of a second phase of southern Michigan deer research which began in fall of 2003 (see http://www.fw.msu.edu/deer/ for more information). The new study site consists of similar landscape-level cover types and composition, but encompasses (1) a large complex (> 30,000 acres) of state land, including the greatest amount of contiguous forest cover in the southern Lower Peninsula, (2) actively farmed private land, with scattered woodlots, and (3) private land with low-level residential development. The more diverse land use and ownership pattern of the new study site will allow the assessment of (1) wildlife stakeholder acceptance capacity (WSAC), defined as the aggregated stakeholder (i.e. hunters, farmers, other private landowners) acceptance of deer population levels and their associated impacts, and (2) the influence of varying levels of hunting access and intensity on deer survivorship and movement patterns.

To address WSAC, a component of this project was devised to study causal links between wildlife-related experiences, impacts incurred by stakeholders, and acceptance capacity for deer (Lischka 2006). Impacts were defined as those interactions with wildlife that were recognized by stakeholders

and deemed to be important. Acceptance capacity was measured as the desire for future change in the deer population (from "decrease greatly" through "increase greatly"). Although we expected stakeholder characteristics (such as area of current and childhood residence, interest in reading about or photographing wildlife, participation in hunting or farming, etc.) to affect values toward wildlife and therefore acceptance capacity, the weighted effect of impacts perceived by respondents was a better predictor of variation in acceptance capacity than the full suite of stakeholder characteristics.

The research examining movement and survival of deer at the new study site is still underway (Hiller 2006). All capture seasons, including three each in the winter and spring (fawn neonate), have been completed. A total of 34 fawns were captured and radiocollared, and 69 winter captures resulted in 42 radiocollared females. We intended to evaluate the use of GPS/VHF collars for examining fine-scale temporal and spatial movements associated with hunting seasons, but we were only able to deploy 2 of 6 collars that were available (neck size of all other deer that were captured after the collars were available was not large enough). Monitoring of marked animals is continuing, and data entry and analysis are being initiated.

Research Regarding Deer-Vehicle Collisions in Southeast Michigan

A pair of research projects was recently completed in conjunction with Michigan State University to examine both human dimensions and environmental factors associated with the occurrence of deer-vehicle collisions (DVCs) in Oakland, Washtenaw, and Monroe Counties in southeast Michigan. These contiguous counties vary in intensity of development, human and deer densities, and patterns of vehicle traffic, and are predominantly urban, suburban, and rural, respectively.

To better understand where, when, and how to direct education and information programs and to assess drivers' knowledge, awareness, and attitudes regarding DVCs, we used Office of Highway Safety Planning crash data and a self-administered mail survey to identify DVC and driver characteristics (Marcoux 2005). Driver's believed DVCs to be a serious problem in their area, were at a particular risk of being involved in DVCs between 6pm-6am, and had insufficient knowledge about avoiding a DVC. Middle-aged drivers, particularly males, were at greater risk of DVC involvement. Reporting rates to insurance providers or police agencies were less than 50%.

Research to better understand environmental factors affecting the frequency and rate of DVCs involved selecting a random sample of 450 DVC and 450 non-DVC points along roadways within each study county (Sudharsan 2005). Information regarding road class, number of lanes, traffic volume, speed limit, habitat suitability, and dominant landcover was associated with each point. The order of importance of factors associated with DVCs (highest to lowest) was habitat suitability index, traffic volume, and speed. Relative risk for all 3 counties was higher on rural roads than urban roads, and on roads with traffic volume > 120 vehicles/hr than those with < 120 vehicles/hr. High speed roads with > 2 lanes had the highest relative risk in Monroe County (the most rural), whereas medium speed roads with > 2 lanes had the highest relative risk in Washtenaw (suburban) and Oakland (urban) counties.

Quantifying Hunter-Induced Selection on Deer in the Saginaw Bay Management Unit

We are collaborating with Michigan State University to initiate a project intending to quantify hunter preferences for white-tailed deer, hunters' degree of selective harvest and the potential for this selectivity to result in evolutionary changes in deer characteristics important to Michigan hunters. The project proposal is separated into two sections corresponding to the two main objectives of the study: (1) to measure hunter preferences and selectivity of deer harvest using a questionnaire, and (2) to quantify the morphological characteristics of deer harvested by a subset of hunters completing this questionnaire. Protocols have been developed for coordinating collection of several additional morphological measurements at select check stations during the 2006 deer season, and the questionnaire (which will be distributed at those select check stations as well as by mail to a larger random sample of deer hunters in the region) is currently being developed.

Michigan State University, Department of Fisheries and Wildlife Project Cooperators

Elizabeth Ball, MS Candidate
Jordan Pusateri Burroughs, Wildlife Outreach Specialist
Dr. Rique Campa, Professor
Timothy Hiller, Doctoral Candidate
Stacy Lischka, MS
Alix Marcoux, MS
Dr. Andrew McAdam, Assistant Professor
Dr. Shawn Riley, Assistant Professor
Krishnan Sudharsan, MS
Dr. Scott Winterstein, Professor

Recent Publications

Burroughs, J. P., H. R. Campa III, S. R. Winterstein, B. A. Rudolph, and W. E. Moritz. 2006. Cause-specific mortality and survival of white-tailed deer fawns in southwestern lower Michigan. Journal of Wildlife Management 70:743-751.

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Midwest Deer and Turkey Study Group Meeting
Missouri 2005-2006 Report

Lonnie Hansen and Jeff Beringer

Lonnie Hansen
Resource Scientist
1110 S. College Avenue
Columbia Mo 65201
573-882-9909 x 3220
lonnie.hansen@mdc.mo.gov

2005 DEER SEASON

For the first time, all harvested deer were telechecked in 2005. Successful hunters called a toll-free number to report their deer. We used an automated voice recognition system where the caller responded verbally to a series of questions about the deer taken (permit number, deer type, county where taken, and number of points if a buck). The system automatically recorded time and date. Conservation agents had almost immediate access to information on deer checked and took advantage of this to make some good cases (purchased permit after taking deer, antler point violations etc.). Prior to implementation, around ½ of agents were opposed to the change; after 2005, most have been converted to advocates.

Firearms - The 2005 firearms deer season included the following portions:

1. For 11 counties, a 4-day urban portion October 7-10;
2. A 2-day youth-only portion October 29-30;
3. An 11-day main firearms portion November 12-22;
4. A 9-day December muzzleloading firearms portion November 25-December 4;
5. For 74 counties, a December 10-18 antlerless-only portion.

Shooting hours were ½ hour before sunrise to ½ hour after sunset (CST). Permits that allowed any sex or age of deer to be taken (any-deer permits) were valid for use anywhere in Missouri. Firearms antlerless permits were not county specific but could be used only in specified counties. All permits were available over-the-counter. There was a season limit of one antlered deer. Permits went on sale 1 July and sales continued throughout the firearms season. Landowner any-deer and antlerless permits were available free-of-charge in every county and could be obtained at all permit vendors. Ownership of a minimum of 5 acres was necessary to receive a landowner any-deer permit. Owners of at least 75 acres also received antlerless permits.

A total of 459,161 individuals possessed firearms deer hunting permits in 2005. Deer harvest during the 2005 firearms season totaled 248,689, a 10% decrease from 2004 (Table 1). Of this total 119,752 were does, a 12% decrease from that in 2004; 39,329 were button bucks, a 4% decrease; and 89,567 were antlered bucks, a 7% decrease. Harvest by any-deer permittees included 29,358 does, 11,770 button bucks and 88,579 antlered bucks. Harvest by firearms

antlerless permittees included 90,675 does and 27,627 button bucks. Deer taken on firearms landowner permits totaled 69,505, 28% of the firearms harvest. One of the largest acorn crops in recent history along with reduced hunting activity may account for the decline in harvest. Because of high buck activity associated with breeding behavior, which is less affected by acorn abundance, buck harvests did not decline as much as antlerless harvests. Around 40% of firearms permittees took at least 1 deer during the firearms season (number of deer taken by individuals ranged from 1 to 41).

Archery - Archers in 2005 could take 2 deer of either sex with the exception that only 1 buck could be taken prior to the November portion of the firearms season (October 1 - November 11). Archers hunting in 100 of the 114 counties could take unlimited antlerless deer on antlerless archery permits which cost $7.00 each. Archers took 36,594 deer during 2005, including 17,722 does, 4,939 button bucks and 13,933 antlered bucks. This is a decrease of 3% from the 2004 harvest (Table 1). Sale of archery permits decreased by 4% to 90,905 but landowner archery permittees increased by 3% (Table 1). A total of 155,288 individuals possessed archery permits in 2005, a 1% decrease from that in 2004. Around 18% of archery permittees took at least 1 deer; only 338 individuals took 2 antlered bucks.

Managed Deer Hunts – Overall, in 2005 5,950 hunters harvested 2,257 deer during 91 hunts on 48 areas (MDC land, DNR State Parks, county parks, and federal refuges). Participants were determined by random drawing. The purpose of the managed hunts is to provide a unique hunting experience while, at the same time, controlling local deer population problems. Most of the managed hunts occur on areas where control of hunter numbers and method of take is desired. Thirteen of the 2005 hunts were archery only, 20 were archery and crossbow only, 24 were muzzleloading firearms only, 4 were historic weapons only (muzzleloading firearms, archery, or crossbow), 2 were shotgun only and 15 were modern weapons only. We held 7 youth-only hunts and 6 disabled hunts.

Deer Population Status - Based on deer-vehicle accidents, harvests, population modeling results, and hunter observation reports, deer populations are stable to decreasing in northern Missouri and stable to increasing in southern Missouri. Largest increases are occurring within and adjacent to sprawling urban areas. This is also where we have the most human-deer conflicts.

Deer harvest liberalizations in recent years have resulted in considerably higher doe harvests and stable buck harvests in Missouri. Unfortunately, these harvests are not evenly distributed across the landscape. Although successful at increasing doe harvests, the liberalizations have created more deer "cold" spots and have not solved many of the "hot" spots. These results are reflected in hunter attitude surveys. Surveys from 1991, 2001, 2003, 2004, and 2005 indicate that about the same number of hunters felt there were "too many" deer but those stating there were "about the right number" are decreasing and stating there are "too few" are increasing.

Urban sprawl is a major contributor to the deer "overabundance" problem; however, other factors are involved. Latest surveys indicate that 18% of landowners do not allow deer hunting. Also, a low but increasing proportion of landowners leases property for deer hunting (0.4 % in 1981, 2.6% in 2005) and more land is being purchased for hunting. The goal of most landowners/lessees who are primarily interested in deer hunting is to have high deer numbers; harvest may be low on some of these properties as a result. Hunter access and education will be key issues in managing deer in

the future. Only by working with private landowners, encouraging responsible deer management, will we be successful at managing deer.

2006 DEER SEASON

Availability of permits – All permits except nonresident landowners are available over-the-counter. Firearms antlerless permits ($7 each) are good for any county open for their use. A person may use an unlimited number of firearms antlerless permits in 81 counties, 1 antlerless permit in 19 counties, and none in 14 counties. These permits are also available to nonresidents ($7 each). A person may also purchase an any-deer permit good statewide. Archer's hunting permits are good for 2 deer and 2 turkeys statewide. Archery antlerless permits ($7) may be purchased in unlimited quantities and can be used in 100 of the 114 counties.

Landowner permits/farm tags – All landowners (minimum 5 acres) are required to obtain permits either through the POS system or by mail to hunt deer. Previously, landowners had the option of hunting without a permit and making their own transportation tag which had to be affixed to the deer when taken. Landowners with >75 acres will be issued additional archery and firearms antlerless permits. All landowner permits are free-of-charge.

Antler point restrictions pilot – 2006 will be the third year of antler restrictions in 29 counties. To qualify for harvest, an antlered deer must have at least 4 points on at least 1 side.

Archery deer and turkey – The archery season will be similar to 2005, opening September 15 and continuing until January 15 exclusive of the November portion of the firearms season.

RESEARCH PROJECTS

CWD Testing – We completed random sampling of all counties in 2004 (21,732 tested, no positives). We currently are doing targeted surveillance, testing only deer that are sick. Total sampled during each of the last couple of years has been fewer than 50.

Antler Point Restrictions (preliminary results after 2 years) - A rule requiring antlered deer to have a minimum of 4 points on at least one side was implemented in 29 counties for the 2004 deer seasons. The rule applied to the archery season and all but the youth portion of the firearms season. Objectives of the restriction included the following:

Biological objectives

1. In 2004, increase doe harvest by 15-20%; reduce antlered harvest by 30%.
2. By 2008, increase the number of 2.5 year old bucks by 20%.
3. By 2008, increase the percentage of antlered deer that are 2.5+ years old from 45% to 55%.
4. By 2008, increase the percentage of the fall population that is male from 40% to 45%.

Social objectives

1. By 2006, increase the percentage of hunters who rate deer management as good or excellent by 5 percentage points (from 66% to 71%).
2. By 2006, increase the percentage of hunters who favor management for older bucks by 10 percentage points (from 48% to 58%).

3. By 2006, increase the percentage of landowners who are satisfied with deer management in Missouri by 10 percentage points (from 46% to 56%).

Because deer densities and harvest regulations differ in northern and central Missouri, a different response to the antler point restriction could occur. Therefore, we analyzed data from the north (north pilot) and central (central pilot) counties with antler point restrictions separately. For comparison, we also designated counties adjacent to the pilot counties as north control and central control. To evaluate the impact of the 4-point restriction, we compared harvest changes in the control and pilot counties in 2003 (prior to the regulation change) and 2004-2005. Thus, we had a pre-treatment and post-treatment comparison as well as a pilot and control comparison.

The antler restriction reduced harvest of antlered deer in both the north and central pilots in 2004. The reduction consisted mostly of 1 ½ year old bucks because the majority of this age class (70%) did not qualify as legal deer under the antler restriction. Harvest of 2 ½+ year old bucks did not change in 2004. In 2005 harvest of 1 ½ year old bucks remained low but the harvest of 2 ½+ year old bucks increased in both pilots. Thus far the antler restriction appears to be working as expected. Projections of population response to these changes indicate that we are on target to achieve objectives related to buck age distribution established before the start of the project.

Although doe harvest increased in the north pilot (+8%) in 2004, the increase was similar to that in the north control (+9%) so there was no apparent effect of the antler restriction. In contrast, doe harvest in the central pilot increased (+31%) in 2004 considerably more than in the central control (+11%). There did not appear to be much effect of the antler restriction on doe harvest in 2005 with doe harvest decreasing in both pilots and controls (although the decrease was greater in the central pilot than in the central control). The abundance of acorns in 2005 may have had more effect on doe harvest than the antler restriction. The antler restriction has thus far not had much impact negatively or positively in the north. A large initial jump in doe harvest in the central pilot followed by a decrease prevents any conclusions about the antler restriction on doe harvest in central Missouri. Additional years of assessment will be necessary before we can determine long-term impacts.

The effect of the antler restriction on landowner and hunter attitudes toward deer and deer management are not clear. In general there is good acceptance of the regulation in both groups although there appeared to be a slight decline in landowner satisfaction with deer management in both pilots the first year of the restriction. Landowner attitudes toward deer and deer management seemed to be more affected by geographic location than the antler restriction.

Hunter attitudes toward deer abundance also appeared to be more associated with location than with the antler restriction with hunters less likely to feel there were too few deer in northern counties than central counties. There did not appear to be an effect of the antler restriction on hunter satisfaction with the season in the central pilot and control. However, more hunters in the north pilot compared to the north control reported only a fair season and fewer a good or excellent season in 2004 than in 2003. The opposite occurred in 2005 with hunters in the north pilot reporting a better season than in the north control. This is not unexpected because harvest opportunities were more restricted in 2004 resulting in fewer antlered deer available for harvest; a less successful hunt might be expected. In 2005 more adult bucks were available in the pilot so satisfaction might be expected to improve relative to that on the control. It is not clear at this time

why we did not see a similar relationship in the central pilot and control.

There was no clear effect of the antler restriction on hunter satisfaction with deer management in either year. There was a tendency for hunter satisfaction to decline everywhere in 2005, probably a result of abundant acorns and their effect on deer sightability and harvest. Both hunters and landowners were generally in favor of the antler restriction, hunters more so than landowners and both slightly more so in the control groups than the pilot groups.

There are still unanswered biological questions that require additional years of assessment. For example, what proportion of the bucks protected as 1 ½ year olds eventually appear in the harvest? Once this is established, we will be able to weigh the costs of reduced overall buck harvest with the benefits of increased harvest of older-aged bucks. The potential negative impact of the antler restriction on overall deer populations in the central pilot where first-year doe harvests increased substantially also needs to be determined. Just as important is an apparent lack of impact on doe harvest of the antler restriction in the north pilot. Landowner and hunter attitude changes in response to the antler restriction also require additional assessment. The impact of the antler restriction on attitudes toward deer and deer management, if any, may not appear for years after implementation of the regulation.

Public lands deer management evaluation - Deer management on MDC-managed areas presents a dilemma. MDC's strategic plan emphasizes "inviting the public to use our areas" and "offering diverse opportunities as long as they are compatible with resource protection and management". In addition, the plan calls for "implementation of clear, concise and simple regulations to ensure public understanding". However, as overall deer populations have increased, deer hunting seasons have been liberalized to include archery and firearms antlerless permits (in unlimited numbers in many units in 2003) and an antlerless-only portion of the firearms season. As a result, in units with liberal antlerless harvest opportunities, more does are being taken on public areas than the population can sustain; deer populations often are depressed and much of the deer hunting public is simply not satisfied with hunting areas with few deer. This situation may be exacerbated by the new deer regulations designed to increase harvest of antlerless deer. Currently, on most public areas, we have no measure of deer populations, hunting activities, success rates or hunter satisfaction. Answering these questions will enable managers to set deer population goals that are compatible with user interests and expectations.

Objectives:

1. Determine the impact of 6 deer hunting regulations on hunter densities, distribution and harvest rates for selected areas in each Missouri management region.
2. Determine the impact of 6 deer hunting regulations on hunter perceptions of deer populations and satisfaction with the hunting experience for selected areas in each Missouri management region.
3. Measure deer densities on selected public areas with 6 different deer hunting regulations.

We chose representative areas for each of 6 regulations (excluding managed hunt areas) in

northern and southern Missouri, totaling 20 areas. Areas will be monitored over an 8-year period. Car counts and hunter interviews will be conducted in 2005, 2006 and 2011. Car counts are conducted on randomly selected dates within strategic portions of the archery and firearms deer season. On these same dates all hunters in randomly selected parking lots are interviewed to determine hunting activity and success. Following the deer season, we send a follow-up questionnaire to all individuals who were interviewed during the hunting season. This questionnaire seeks additional information on participation and satisfaction. Winter deer densities are being measured once on each study area using a helicopter when snow conditions are appropriate.

It may take several years for deer populations to respond to regulations and for hunters to find some of the areas with new regulations so we don't expect immediate results. Thus far, in general, results indicate more deer sightings, greater satisfaction with the hunt, and higher deer densities on areas with more restrictive regulations.

Trail camera census - We are evaluating the impact of deer hunting regulations on selected conservation areas. This involves most importantly deer censuses and measures of hunter use and satisfaction. The problem is that the only method currently available to census deer accurately is by helicopter over snow. Unfortunately, lack of snow limits the opportunities for these censuses. Developing alternative census methods would greatly facilitate our ability to evaluation deer regulations on conservation areas. The use of trail cameras to census and determine other characteristics of deer populations on the study areas presents such a potential alternative that would not be dependent on snow cover.

Objectives:

1. Determine the most efficient protocol for collecting deer demographic information on conservation areas using trail cameras;
2. Measure costs and effort associated with the use of trail cameras to collect deer demographic information on conservation areas;
3. Determine the type of information (census, population structure, mortality) that can be collected with the use of trail cameras on conservation areas.
4. Compare census estimates obtained with trail cameras to those obtained with a helicopter over snow.

Our plan is to assess the use of trail cameras to measure deer demographics on Atlanta, Davisdale, and Indian Hills Conservation areas. We will use a density of one digital camera per 160 acres and photograph deer from 8/15 – 10/15/2007 and from 12/15/2007 -1/15/2008. Cameras will be systematically placed across the area in association with a winter wheat/clover food plot that will serve as an attractant to deer. Cameras will be orientated in a north direction to avoid the sun's glare. Each camera will be checked at 2 week intervals and photographs will be uploaded to a laptop computer and placed in a descriptive file with time and location data. We will attempt to identify individual deer using a commercial software package which compares body, facial, and antler characteristics to distinguish individuals. Because the utility of the commercial software is unknown we will also be prepared to visually identify individuals by antler and facial characteristics. Identifiable deer will be considered marked and we will use a mark/recapture program to obtain a population estimate. If we have snow during the 2nd photo collection period, we will conduct a deer count with a helicopter to provide a second population estimate for

comparison to the trail camera estimate.

Real time animal-mounted video data collection - In this research project, we propose to push the technology of wildlife monitoring to the next level: bring the video sensing capability to wireless sensor networks and collect the important visual information for wildlife behavior analysis and interaction modeling. We will address important issues on energy minimization and performance optimization in video sensing over mobile wireless sensor networks and explore the advantages of video sensor information in wildlife research.

Our first design goal is *long-lived* and *unobtrusive* wildlife video monitoring. We would like to collect the animals' activity information under various environmental settings for 6 months. The long observation period is often necessary for wildlife behavior study. Unobtrusive observation is essential for studying natural phenomena. To this end, the sensing devices attached to the animals should be light-weight such that the impact on animals' health and the disturbance to their natural behaviors are minimized. A generally accepted rule is that the weight of attached devices (including battery) should be less than 5% of the animal's body weight. Then, given current battery and video sensing technology, continuous video sensing can last at most 1 day. In contrast, our objective is to have video sensing work for 180 days (6 months): i.e., we need to increase the current life time of video sensing by a factor of 180, which poses a great challenge to our video sensing system design.

Our second design goal is real-time video streaming and remote control of sensing systems. Real-time remote control of sensing systems is also very important for wildlife research. For example, a wildlife researcher may identify an animal's certain behavior pattern that takes place at 11am every day. However, the orientation of the camera mounted on the animal depends on the animal's orientation, and the camera may not have a suitable focal length to capture sharp images of objects of interest; hence, without controllability of the camera, it is likely that the video captured may never provide the complete environmental information desired by the researcher. With real-time remote control of the camera, a researcher is able to zoom out/in, tilt up/down, or pan left/right the camera to get a better view of the environment or more desirable information.

Table 1. Deer Season Summary

Season/Portion	Antlered Deer			Button Bucks			Does			Total		
	2004	2005	% Diff.	2004	2005	% Diff.	2004	2005	% Diff.	2004	2005	% Diff.
Archery	12,975	13,933	7	5,384	4,939	-8	19,128	17,722	-7	37,646	36,594	-3
Urban	0	0	0	419	354	-16	1,641	1,495	-9	2,077	1,863	-10
Youth - Only	7,741	6,100	-21	1,937	1,352	-30	4,096	3,072	-25	13,830	10,524	-24
November	85,855	80,798	-6	32,260	31,288	-3	103,736	92,057	-11	222,884	204,143	-8
Muzzleloader	2,774	2,669	-4	2,075	1,687	-19	7,055	5,791	-18	11,960	10,147	-15
Antlerless - Only	0	0	0	4,651	4,648	0	19,604	17,337	-12	24,476	22,012	-10
Managed Hunts	408	473	16	436	467	7	1,269	1,313	3	2,113	2,253	6
Total Firearms	96,370	89,567	-7	41,342	39,329	-4	136,132	119,752	-12	275,227	248,689	-10
Total	109,753	103,973	-5	47,162	44,735	-5	156,529	138,787	-11	314,986	287,536	-9

Permit Type	Number of Permits			Number of Deer Harvested		
	2004	2005	% Diff.	2004	2005	% Diff.
Youth Deer and Turkey Hunting	28,944	30,483	5	11,202	10,463	-7
Permittee Archery	94,473	90,905	-4	18,565	18,585	0
Landowner Archery	68,802	71,161	3	4,173	4,729	13
Permittee Archery Antlerless	30,914	30,615	-1	9,588	9,160	-4
Landowner Archery Antlerless	123,344	124,528	1	4,134	4,119	0
Permittee Firearms	315,828	302,095	-4	93,045	82,855	-11
Landowner Firearms	156,163	157,071	1	39,096	36,389	-7
Permittee Firearms Antlerless	249,606	229,811	-7	95,129	86,488	-9
Landowner Firearms Antlerless	170,067	170,768	0	33,548	33,116	-1
Resident Firearms	892,361	860,613	-4	271,663	237,733	-12
Nonresident Firearms	27,606	29,615	7	12,297	11,578	-6
Resident Archery	313,221	309,981	-1	34,903	34,425	-1
Nonresident Archery	5,756	7,228	26	1,557	2,168	39
Permittee Archery & Firearms	720,318	683,477	-5	227,529	207,551	-9
Landowner Archery & Firearms	518,626	523,528	1	80,951	78,353	-3

Table 2. Effect of the antler point restriction on the estimated number of bucks taken in the 1 ½ and 2 ½+ year old age classes

Regulation	Estimated Harvest of 1 ½ Year Old Bucks				
	2003	2004	2005	% Change 2003-2004	% Change 2004-2005
North Pilot	11,246	3,386	3,585	-66	+6
Central Pilot	3,586	1,256	897	-65	-29
Total - Pilot	15,109	5,120	4,483	-66	-12
North Control	5,851	6,402	5,236	+9	-18
Central Control	5,111	5,670	6,094	+11	+7
Total – Control	11,092	12,094	10,364	+9	-14
	Estimated Harvest of 2½+ Year Old Bucks				
	2003	2004	2005	% Change 2003-2004	% Change 2004-2005
North Pilot	13,201	13,597	16,336	+6	+20
Central Pilot	3,445	3,574	4,086	+4	+14
Total - Pilot	16,369	17,142	20,422	+5	+19
North Control	7,152	7,825	8,543	+9	+9
Central Control	5,999	6,394	5,405	+7	-15
Total – Control	13,021	14,197	14,914	+9	+5

Table 3. Satisfaction of landowner respondents with MDC management of deer.

	Year of Survey	Percentage of Respondents			
		Satisfied	Not Satisfied	No Opinion	N
North Pilot	2003	41	39	20	829
	2004	39	37	24	676
Change	2005	43	33	23	685
	2003-2004	-2	-1	+4	-
	2004-2005	+4	-4	-1	-
North Control	2003	40	35	25	387
	2004	44	35	21	364
	2005	46	27	26	355
Change	2003-2004	+4	0	-4	-
	2004-2005	+2	-8	+5	-
Central Pilot	2003	58	18	24	338
	2004	57	21	22	250
	2005	60	18	22	260
Change	2003-2004	-1	+3	-2	-
	2004-2005	+3	-3	0	-
Central Control	2003	52	26	21	472
	2004	55	21	24	463
	2005	51	22	27	370
Change	2003-2004	+3	-5	+3	-
	2004-2005	-4	+1	+3	-

Table 4. Satisfaction of firearms deer hunters with the deer season.

	Year of Survey	Percentage of Respondents				
		Excellent	Good	Fair	Poor	N
North Pilot	2003	21	43	22	14	119
	2004	18	39	29	13	671
	2005	18	41	27	15	1033
Change	2003-2004	-3	-4	+7	-1	-
	2004-2005	0	+2	-2	+2	-
North Control	2003	16	41	30	13	372
	2004	23	41	25	10	328
	2005	19	39	25	17	1041
Change	2003-2004	+7	0	-5	-3	-
	2004-2005	-4	-2	0	+7	-
Central Pilot	2003	9	35	36	19	350
	2004	14	41	26	18	421
	2005	8	30	33	29	622
Change	2003-2004	+5	+6	-10	-1	-
	2004-2005	-6	-11	+7	+11	-
Central Control	2003	17	38	30	15	549
	2004	20	41	27	11	736
	2005	11	33	30	26	832
Change	2003-2004	+3	+3	-3	-4	-
	2004-2005	-9	-8	+3	+15	-

Minnesota Deer Status Report

2006 Midwest Deer & Turkey Study Group
Brian Haroldson, Marrett Grund, & Lou Cornicelli

Season Framework

Firearm: The firearm season begins on the Saturday nearest 6 November. In general, hunters select 1 of 6 zone/time options and 1 of 4 primary license types. In areas where the deer population exceeds goal, antlerless-only bonus permits are also available. Seasons are generally short (2-4 days) in agricultural zones (southern and western Minnesota) dominated by private land, and longer (9-16 days) in forested zones (northern and eastern Minnesota) with abundant public land. In agricultural zones, hunters are restricted to shotguns with a single slug, whereas rifles and shotguns are authorized in forested areas. Muzzleloaders and handguns are allowed statewide during any of the firearm season options. During 1972-2002, the regular firearm license ($27 resident, $136 non-resident) was a bucks-only license. Hunters interested in pursuing antlerless deer were required to apply for either-sex permits through a lottery drawing in 1 of 128 deer management units (DMU) or 1 of 30 special hunt areas (e.g., state parks or other refuge areas where hunting is normally prohibited and where hunter numbers must be limited to control harvest or for public safety). Unsuccessful applicants in the drawing were restricted to hunting for legal bucks (=3 inch antler) only. Even in undersubscribed DMUs, where the number of available permits exceeded the number of applicants, hunters were required to apply for permits through the lottery. Beginning in 2003, the procedure for allocating either-sex permits was modified to eliminate the need for firearm hunters, in many areas of the state, to apply for a permit to take deer of either sex. Under the current system, the 128 DMUs are divided into 3 categories: lottery; managed; and intensive. The traditional lottery system for either-sex permits remains in place only in lottery DMUs, where the bag limit is 1 deer (legal buck or antlerless deer by permit). Firearm hunters who hunt in managed or intensive DMUs may now tag a deer of either sex using their regular license, and no longer need to apply for either-sex permits. In addition, hunters in managed DMUs may purchase 1 bonus permit ($14 resident, $68.50 non-resident) to take a second, antlerless-only deer. Hunters in intensive DMUs may purchase up to 4 bonus permits to tag up to 4 additional antlerless deer. Bonus permits are issued over-the-counter. In general, bag limits are 1, 2, and 5 deer in lottery, managed, and intensive DMUs, respectively. Additional license types available to firearm hunters include youth, multi-zone buck, and all-season licenses. Youth hunters ($14 resident only) may take a deer of either sex, statewide, without a permit. Multi-zone buck licenses ($53 resident, $271 non-resident) allow firearm hunters to hunt during multiple zone/time options and tag 1 legal buck. An all-season license ($79 resident only) allows hunters to hunt during any open archery, muzzleloader, or firearm season, and tag 1 buck and 2 antlerless deer. In managed and intensive DMUs, youth, multi-zone buck, and all-season hunters may also purchase bonus permits for taking additional antlerless deer.

Muzzleloader: The 16-day muzzleloader season begins the Saturday after Thanksgiving and hunters may take 1 deer of either sex, statewide. In managed and intensive DMUs, muzzleloader hunters may purchase bonus permits for taking additional antlerless deer. Hunters may not hunt during both the firearm season and the muzzleloader season unless they purchase an all-season license. Smooth-bored and rifled muzzleloaders must be at least .45 caliber and .40 caliber,

respectively. Scopes, smokeless powder, and breech-loading weapons are not legal during this season. There are no restrictions on ignition systems, bullet types, etc.

Archery: The statewide archery season runs from the Saturday nearest 16 September through 31 December. Archers ($27 resident, =$136 non-resident, $14 resident youth) may take 1 deer of either sex, statewide. In managed and intensive DMUs, archers may purchase bonus permits for taking additional antlerless deer. Archers may continue to hunt and take deer of either sex during the firearm season. Crossbows are not allowed, except by permit for disabled hunters.

Shooting hours for all deer seasons are 30 minutes before sunrise to 30 minutes after sunset. Registration is mandatory within 24 hours of season closure. Most registration stations are private businesses that provide the service for free or a small fee. Party hunting is allowed whereby members of the same hunting party may tag deer taken by other party members who are in the field and hunting together at the same time. Use of bait is prohibited.

Population Trends

Since 1997, mild winters have allowed deer numbers in northern and east-central portions of the state to remain at high levels. Deer numbers in the southeast also continue a slow, steady rise. In the intensively cultivated area of southwestern Minnesota, however, deer populations are generally stable. Statewide, deer numbers generally meet or exceed population goals in all DMUs. The 2006 pre-fawn population estimate is 926,000 deer, up 9% from last year.

2005 Season Summary

Statewide, hunters recorded the third highest kill during 2005, eclipsed only during 2003 and 2004. Although firearms kill decreased 6%, archery (+15%) and muzzleloader (+62%) kill was at record level, primarily through utilization of the all-season deer license. In addition, 5,700 hunters participated in the 2-day early antlerless season and killed 1,600 deer. Overall, firearm, muzzleloader, and archery hunters registered 255,736 deer (Table 1). Antlerless deer comprised 56% of the firearm harvest, up from 54% in 2004. Although total firearm license sales were stable statewide, the all-season license continues to increase in popularity (+30%; Table 1). Under the lottery/managed/intensive DMU system, a majority of firearm deer hunters were able to tag deer of either sex on their regular license, bypassing the lottery drawing. During 2005, DMUs were partitioned into 40 lottery, 39 managed, and 49 intensive units (Figure 1). A complete harvest breakdown by weapon type is presented in Table 1.

2006 Season Outlook

The winter of 2005-06 was relatively mild throughout much of Minnesota, except for areas along the Canadian border where conditions were moderate. Warm temperatures in early April rapidly melted deep snow in this area, reducing levels of winter mortality. Final winter severity index (WSI) values (measured by the number of days with ambient temperatures of 0°F and days with =15 inches of snow cover) ranged from 15-157 (103-157 at northern Minnesota stations; WSI readings between 100 and 180 are considered moderate). Based on WSI values, Minnesota winters have been mild during 8 of the last 9 years. Despite high deer kill by hunters during the last 3 years, deer numbers in Minnesota remain at high levels, particularly in the north and east. The pre-hunt deer population is estimated at 1.36 million, up 10% from last year. For 2006, DMUs are partitioned into 38 lottery, 41 managed, and 49 intensive units (Figure 1).

2006 Regulation Changes

Zone Boundary Realignment: To increase hunter opportunity, zone boundaries for firearm hunters have changed in the transitional area between the forest and farmland regions in central Minnesota. Zone 2 (9-day season) boundaries continue to expand, incorporating DMUs formerly found in zone 4 (2-4 day season).

Early Antlerless Season: The 2-day October antlerless season will again be available for firearm hunters in select intensive DMUs in northwest and east-central Minnesota. To participate, hunters must purchase an early-season antlerless permit ($7.50 [formerly $14]; maximum of 2 permits/hunter) and a firearm license valid for the respective zone (Regular Firearm, Multi-Zone Buck, All-Season). Bag limit is 2 deer.

Antler Restrictions: Antler point restrictions will continue in 3 state parks during the 2006 deer hunting season to evaluate the effectiveness of non-traditional regulations at increasing the kill of antlerless deer. A 3-point rule will be utilized in 2 northern parks and a 4-point rule in 1 southern park.

Earn-A-Buck Restrictions: Earn-a-buck restrictions will be implemented in 6 state parks during the 2006 deer hunting season. Hunters will be required to tag an antlerless deer before taking a legal buck, although both animals can be registered at the same time. Restrictions in 4 of the 6 parks are part of an ongoing research project to evaluate the effectiveness of non-traditional regulations at increasing the kill of antlerless deer.

Metro Deer Zone: In 2005, a metro firearm zone was created to maximize hunter opportunity in DMUs encompassing the Minneapolis/St. Paul metro areas. Season length in this zone is 23 days, beginning on the Saturday nearest 6 November. A firearm license valid for any zone/time option can be used within this zone. Beginning in 2006, the bag limit was changed from 5 deer to no limit.

Electronic Registration: Electronic registration of deer will expand during the 2006 deer season to incorporate additional registration stations. During 2005, 72% of approximately 1,000 deer registration stations were on-line, registering 80% of all hunter-killed deer. Registration agents keypunch harvest data (age, sex, kill date, etc.) using the point-of-sale license terminals rather than hand write information onto paper forms.

Carcass Import Restrictions: Restrictions remain in place banning the import of whole cervid (deer, elk, moose, caribou) carcasses from counties where CWD occurs in wild cervid populations.

Research Activities

Alternative Harvest Strategies: In Minnesota, white-tailed deer populations exceed management goals in many deer management units. A conventional approach of increasing the bag limit within the established hunting season framework has failed to reduce deer densities. Alternative harvest strategies that emphasize harvesting antlerless deer during the hunting season may increase both the number and proportion of adult females in the overall harvest. We are currently testing the effectiveness of antler point restrictions, earn-a-buck regulations, and early

antlerless seasons to increase the harvest of antlerless deer and reduce overall population levels. Beginning in 2005, antler point restrictions and earn-a-buck regulations will be implemented in 3 and 4 state parks, respectively. A 2-day October antlerless season for firearm hunters will be offered in 8 intensive DMUs in northwest and east-central Minnesota. Plans are to implement test regulations for 5 years. In addition, we will measure hunter and landowner attitudes towards these and other non-traditional regulations. The primary benefit of the study is to determine how hunters and hunting can be used to manage overabundant deer at local and broad landscape levels.

Distance Sampling: We are currently investigating the use of distance sampling during roadside spotlight surveys to estimate deer density in agricultural DMUs. Our intent is to provide alternative field techniques for estimating deer population size when, and where, aerial surveys are inappropriate. During spring 2006, surveys were completed in 8 DMUs.

Aerial Deer Surveys: We are currently utilizing quadrate-based aerial deer surveys to estimate deer density in select DMUs. Survey purpose is to evaluate the impact of non-traditional harvest regulations (early-antlerless season, antler restrictions, earn-a-buck restrictions) on deer population levels, to recalibrate population models, and to evaluate population goals. During 2006, surveys were completed in 9 DMUs.

Deer-Vehicle Collisions: Annually, the number of deer-vehicle collisions is recorded in collaboration with law enforcement and highway department staff. Evaluation of the utility of the data as a trend indicatory of deer abundance is underway.

Deer Harvest Data Analysis: Wildlife staff have collected several years of sex-age-kill (SAK) data and antler measurement data at select deer registration station throughout Minnesota's farmland. SAK data will be used to evaluate registration bias, estimate deer abundance, calculate herd vital statistics, and monitor trends in age structure for male and female deer. Antler data will be used to evaluate potential QDM harvest regulations.

Current Deer Management Issues

Population Goals: To reach consensus on appropriate deer population goals, Minnesota is using a stakeholder roundtable process similar to procedures used in New York and Wisconsin. DMU boundaries are currently being evaluated and revised to conform more closely to landscapes that have been delineated and classified for land management planning purposes. Public roundtable meetings were completed in the forest region during 2005-2006 and subsequent meetings are planned in the farmland region during 2006-2007.

Quality Deer Management: Various stakeholder groups are requesting the DNR consider implementing hunting regulations to restrict buck harvest and allow animals to "graduate" into future age classes. Bills introduced by the 2004 and 2005 Minnesota Legislature (the bills ultimately failed to pass into law) would have mandated antler point restrictions in five northwestern counties and in 4 DMUs in west-central Minnesota, respectively. Subsequent hunter surveys in the northwest and west-central regions indicated the majority of survey respondents opposed the antler restriction regulations.

Chronic Wasting Disease: During March 2006, CWD was confirmed in a captive, 10-year-old female white-tailed deer in Lac Qui Parle County, in southwest Minnesota. This is Minnesota's third case of CWD. The captive herd has since been depopulated, with no additional positives found. Although CWD was not detected in targeted surveillance of wild deer in the surrounding DMUs during 2003, approximately 400 hunter-killed deer will be sampled near the captive facility during the 2006 season. To date, CWD has not been detected in Minnesota's wild deer herd. In August 2002, the first confirmed case of CWD was found in a captive, 5-year-old male elk that died on an Aitkin County cervid farm. This animal had previously resided at captive facilities in Stearns and Benton counties. All 3 herds were subsequently quarantined, depopulated, and submitted for testing, resulting in Minnesota's second CWD-positive captive elk, a 3-year-old female from the Stearns County herd, in January 2003. No positive results were detected in wild white-tailed deer sampled by Minnesota DNR staff in the immediate area around the Aitkin farm during August 2002 or in hunter-killed deer collected during the 2002 deer hunting season in the DMU surrounding the farm. In addition, no positives were detected from hunter-killed deer in 3 DMUs surrounding or adjacent to the Stearns and Benton County captive facilities. During the 2002-2004 deer seasons, approximately 4,500 brain stems and 23,000 medial retropharyngeal lymph nodes from hunter-killed deer (>1 year-old) were tested for CWD. These tests supplement year-round testing of suspect cervids that are found sick or displaying symptoms consistent with the disease. No CWD-positive samples have been found in any brain stem or lymph node samples collected from hunter-killed or "suspect" deer. To encourage participation, hunters providing tissue samples during 2003 and 2004 received a DNR cooperator patch and were entered into several prize drawings sponsored by various corporations and conservation groups. Similar to past years, the testing system is designed to detect CWD with 95% confidence at a 1% infection rate. Future monitoring for CWD will be limited to year-round testing of "suspect" cervids.

Bovine-Tuberculosis: In July 2005, bovine tuberculosis (TB) was confirmed in 5 beef cattle herds in northwest Minnesota. These were the first positive herds in Minnesota since the state was declared TB free in 1976. To date, all cattle from these 5 herds have been depopulated and 4 of 5 operations have been removed from quarantine following cleaning and disinfection. During the fall of 2005 and spring of 2006, DNR tested 574 wild white-tailed deer (hunter-killed and landowner-killed by permit) taken on or near the infected farms. Two animals tested positive for the disease. The TB strains from the infected deer and cattle herds are similar and consistent with bovine TB found in cattle throughout the southwest US and Mexico. To date, the source of the Minnesota infection has not been identified. To assess the prevalence of TB in free-ranging deer, DNR will be conducting targeted surveillance (1000 hunter-killed deer) within the bovine TB surveillance zone during the next 3-5 years, and through a one-time, statewide, sampling effort (4000 samples) during the 2006 deer season. In addition, recreational feeding of deer will be banned in the 4 counties that encompass the intensive bovine TB surveillance zone. Baiting deer has been illegal in Minnesota since 1991.

Table 1. Statewide deer license sales, harvest, and success rates in Minnesota, 1993-2005.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	% Change (2004-05)
FIREARM														
Resident License	426,215	427,343	419,965	389,745	369,190	378,320	395,745	400,814	401,005	368,587	340,919	311,128	301,905	-3
Non-Resident License	8,498	9,190	9,339	8,535	7,830	8,852	9,970	10,595	10,972	10,823	11,334	12,004	12,527	4
Mgmt/Intensive Harvest Permits	18,140	19,308	22,603	27,148	32,229	20,884	23,785	34,802	59,013	105,419	194,201	183,347	184,574	1
Multi-Zone Buck License	16,881	24,590	29,902	38,806	42,803	44,739	43,903	42,669	41,921	35,701	33,094	32,783	27,678	-16
Resident Youth License (no tag)	–	--	1,835	2,964	3,844	3,445	2,038	3,215	4,011	2,748	–	--	–	
Resident Youth License	–	--	–	–	--	–	--	–	–	--	34,463	51,331	50,506	-2
All Season Buck License	–	--	–	–	--	–	--	2,384	3,986	--	–	--	–	
All Season Deer License	–	--	–	–	--	–	--	–	–	21,888	30,998	46,345	60,301	30
Free Landowner License	–	--	–	–	--	–	--	1,671	2,604	3,462	3,956	3,961	3,959	0
Total License Sales[1]	469,734	480,431	483,644	467,198	455,896	456,240	475,441	496,150	523,512	548,628	648,965	640,899	641,450	0
Either-sex Permits Offered	236,055	199,950	201,525	154,195	150,195	140,280	177,380	232,595	284,210	363,765	31,625	30,760	28,830	-6
Either-sex Permits Issued	194,888	164,418	162,761	116,650	105,481	108,016	135,852	180,490	196,603	192,907	25,386	24,111	25,656	6
Either-sex Permit Applications	262,402	260,086	257,653	174,329	142,260	151,148	214,597	237,571	225,341	202,086	30,253	28,454	31,403	10
Adult Male Harvest	79,498	85,661	89,001	71,316	65,156	82,928	92,584	102,861	98,645	100,083	110,440	105,994	95,612	-10
Antlerless Harvest	108,747	92,752	109,192	68,233	62,407	60,492	71,681	88,492	98,095	100,038	148,857	124,530	121,247	-3
Total Harvest[2]	188,245	178,413	198,193	139,549	127,563	143,420	164,265	191,353	196,740	200,121	259,297	230,524	216,859	-6
Success Rate (%)[1,2]	40.1	37.1	41.0	29.9	28.0	31.4	34.6	38.6	37.6	36.5	40.0	36.0	33.8	-6
ARCHERY														
Resident License	69,434	71,409	70,056	67,058	63,499	63,826	66,226	68,918	69,573	57,372	55,608	50,974	50,709	-1
Non-Resident License	1,128	1,156	1,171	1,098	980	1,029	1,073	1,271	1,288	1,261	1,428	1,144	1,206	5
Mgmt/Intensive Harvest Permits	14,907	13,121	15,387	15,632	17,478	15,846	16,945	20,393	22,141	17,742	0	0	0	0
Resident Youth License	–	--	–	–	--	–	--	–	–	--	3,731	7,261	7,491	3
Free Landowner License								29	35	62	83	92	104	13
Total License Sales[3]	85,469	85,686	86,614	83,788	81,957	80,701	84,244	90,611	93,037	76,437	60,850	59,471	59,510	0
Total Harvest[4]	13,695	13,723	14,342	14,348	13,247	12,450	13,579	16,251	16,300	16,192	20,870	20,754	23,812	15
Success Rate (%)[3,4]	16.0	16.0	16.6	17.1	16.2	15.4	16.1	17.9	17.5	21.2	34.3	34.9	40.0	15
MUZZLELOADER														
Total License Sales[3]	2,608	5,200	7,329	8,291	9,503	9,765	11,411	11,972	13,043	11,764	9,888	10,122	9,330	-8
Total Harvest[5]	1,118	1,799	2,471	3,375	3,183	3,183	2,972	4,548	4,780	5,737	9,254	9,326	15,065	62
Success Rate (%)[3,5]	42.9	34.6	33.7	40.7	33.5	32.6	26.0	38.0	36.6	48.8	93.6	92.1	161.5	75
TOTAL HARVEST	203,058	193,935	215,006	157,272	143,993	159,053	180,816	212,152	217,820	222,050	289,421	260,604	255,736	-2

[1] Includes firearm, archery, and muzzleloader license sales from the All Season Deer License.
[2] Includes firearm harvest data from the All Season Deer License.
[3] Excludes firearm, archery, and muzzleloader license sales from the All Season Deer License.
[4] Includes archery harvest data from the All Season Deer License.
[5] Includes muzzleloader harvest data from the All Season Deer License.

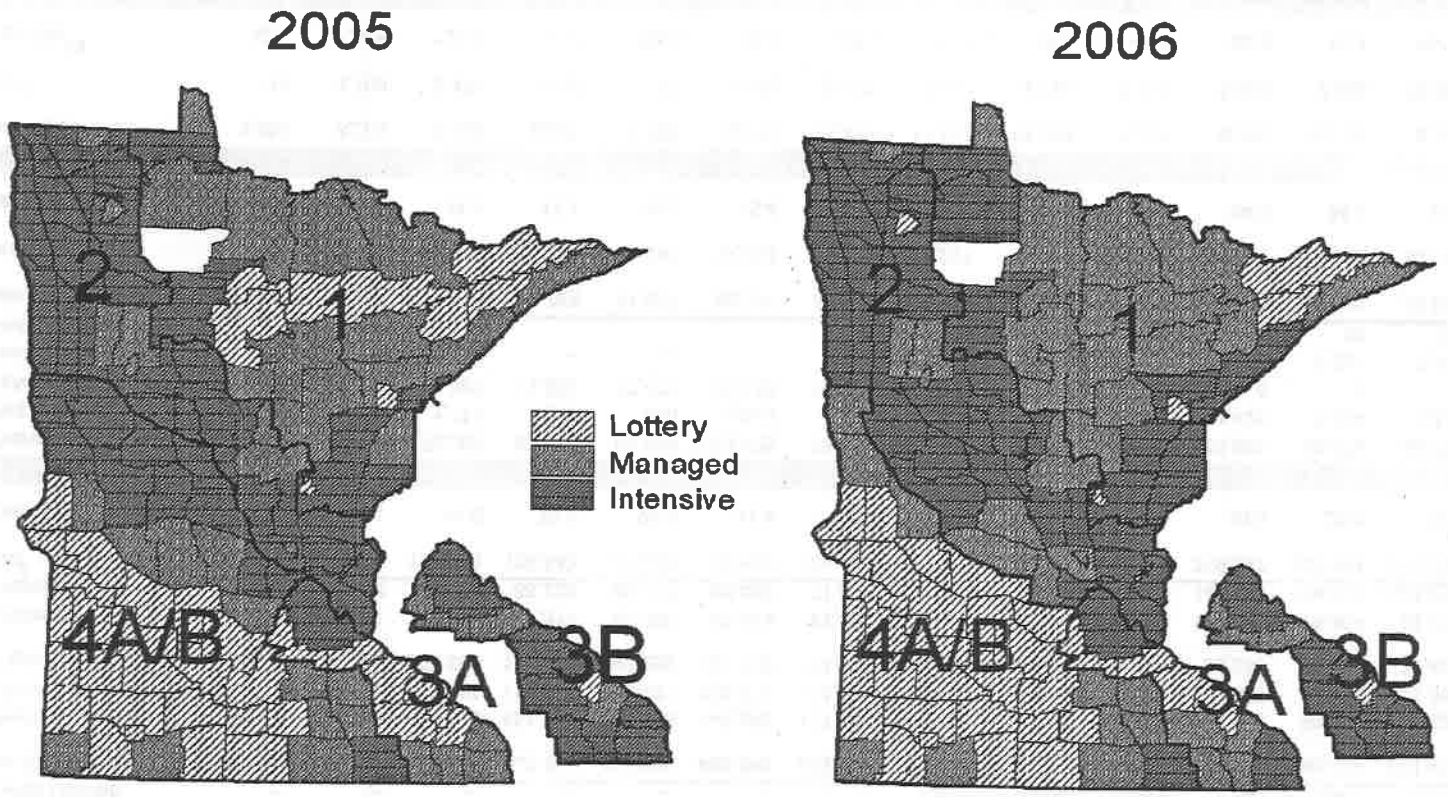


Figure 1. Classification of Minnesota's deer management units and firearm season zones, 2005-06.

NEBRASKA STATUS REPORT

MIDWEST DEER AND TURKEY GROUP

Bloomington, Indiana, August 20-23, 2006

Submitted by the State of Nebraska
Nebraska Game and Parks Commission - Wildlife Division
Research, Analysis and Inventory Section
Supervisors: Mace A. Hack and J. Scott Taylor

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.

Acknowledgments

This document represents work done on behalf of the Wildlife Division of the Nebraska Game and Parks Commission. Data collection for many statewide or regional surveys and projects was coordinated by the Wildlife Division's Management Section, whereas most survey and project design, data entry, analysis, and summarization was performed by the Division's Research, Analysis, and Inventory Section. Project work was also supported by the Wildlife Division's Habitat Partners, Disease, and Administrative Sections, as well as by staff in the Law Enforcement, Fisheries, Realty, and Administration Divisions.

Deer Surveys and Inventories

General Objectives: To gather data relating to the demographic characteristics and distribution of big game species populations in Nebraska that will inform the development of management strategies for each species.

Project Leaders: Kit Hams, Big Game Program Manager, Lincoln
Bruce Trindle, Big Game Research Specialist, Lincoln

Job A1: Inventories of Deer (B. Trindle)

Project: Winter Mule Deer Survey

Objectives: The purpose of the Winter Mule Deer Survey is to obtain sex and age classifications of mule deer on their wintering grounds.

Activity: Personnel from wildlife management and law enforcement classify mule deer as buck, doe or fawns on wintering grounds from December 1 to February 15, trying to avoid duplicate observations. Wintering concentrations of mule deer are selected for classification by field personnel for the quality of viewing and the number of animals on the ground. GPS locations were provided for some of the counted grounds.

Significant Deviations: Personnel were asked to provide GPS locations for the different wintering concentrations.

Results: Observers classified 1,233 mule deer for a statewide buck:doe ratio of 0.18 and fawn:doe ratio of 0.76 in the winter of 2005 – 2006. Below Table 1 presents results by district. Table 2. (2004 – 2005) is provided for comparison.

Table 1: Sex and Age Classification by District - 2006

District	Bucks	Does	Fawns	Total	Buck:Doe	Fawn:Doe	Prop/Fawns
1	42	254	191	487	0.17	0.75	0.43
2	8	73	62	143	0.10	0.84	0.46
4	64	308	231	603	0.21	0.75	0.43
State	114	635	484	1233	0.18	0.76	0.43

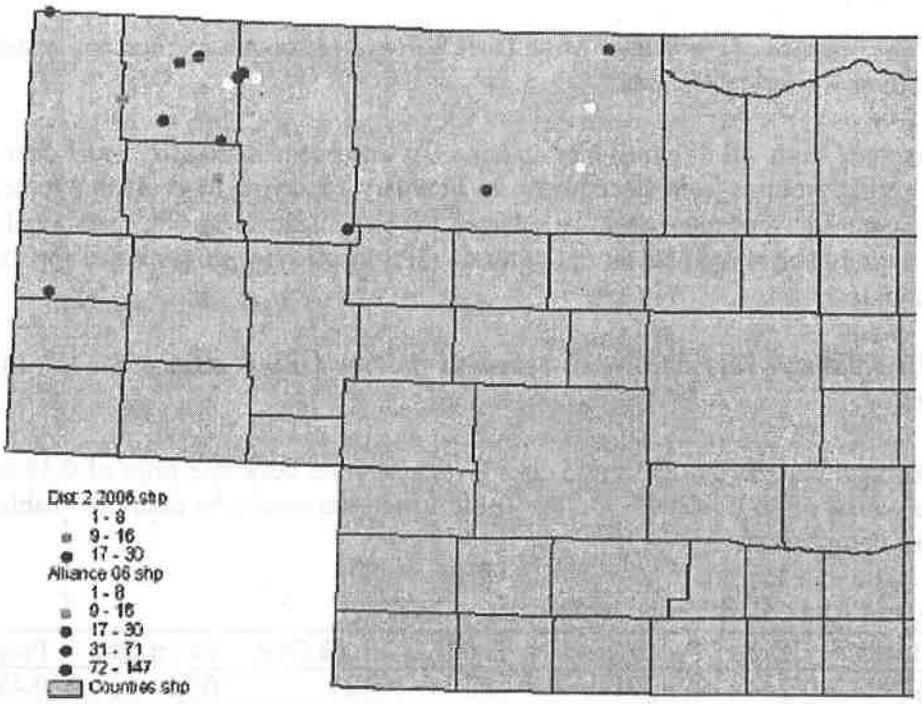
Table 2: Sex and Age Classification by District - 2005

District	Bucks	Does	Fawns	Total	Buck:Doe	Fawn:Doe	Prop/Fawns
1	55	289	225	569	0.19	0.78	0.44
2	10	55	31	96	0.18	0.56	0.36
4	63	352	304	719	0.18	0.86	0.46
State	128	696	560	1384	0.18	0.80	0.44

Discussion: This is the second year for this format. The number of observations recorded indicates that this survey may provide a quality estimate of production for our western mule deer populations. Observers felt strongly that they were able to correctly classify the age and sex of a high percentage deer on the wintering grounds. Both the buck:doe and fawn:doe ratios appear reasonable for a wintering mule deer population given the concern for the prolonged western.

Locations of observed herds have been plotted using ARCVIEW (Figure 1.).

Figure 1. Observed herd locations 2005 - 2006



Recommendations: This survey should be run again this year. Observers should GPS all locations of the grounds where counts were made to produce reference maps and allow for analysis of selected groupings of observations.

Project: Deer-Vehicle Accident Survey

Objectives: Record motor vehicle accidents involving deer.

Activity: The Highway Safety – Traffic Engineering Division of the Nebraska Department of Roads records motor vehicle accidents involving deer that are investigated by law enforcement personnel. A

summary report is provided each year.

Significant Deviations: None

Results: The Highway Safety – Traffic Engineering Division of the Nebraska Department of Roads is still summarizing their investigations for 2005 and should have them by the end of June.

Table 1. Recorded deer vehicle accidents, 2001 – 2005

YEAR	*Accidents*
2001	3,653
2002	3,924
2003	3,951
2004	3,691
2005	

Discussion: The data summary from NDOR has not yet been received.

Recommendations: This survey should be compiled again next year because the standardized approach allows it to be compared from year to year and can be considered to be useful as a reliable deer population index.

Job A2: Collection and Analysis of Deer Harvest Data (K.Hams)

Objectives: To estimate hunting success, the distribution of kill, and the sex and age composition of the deer harvest.

Activity: We establish and maintain check stations during deer season to check, seal and record biological data on all harvested deer. Successful hunters are required to check harvested deer at one of approximately 120 designated check stations distributed statewide where these data are gathered. Check stations are staffed primarily by private businesses with NGPC staff and other trained professionals running check stations during peak periods, e.g. first and last weekend of the firearm season. In 2005, approximately 125 Commission personnel aged nearly 18,400 deer and collected tissue samples from more than 7,400 deer for chronic wasting disease (CWD) testing (see Job P1). Data are compiled and summarized by February 1 so they are available for creating well-informed season recommendations for the following year.

Significant Deviations: None

Results: The 2005 deer season allowed 123 days of hunting from September 15 – January 15 Archery season was September 15 - December 31; Muzzleloader season was December 1-31; Firearm season was November 12-20; Late antlerless season was January 1-15.
Total deer permit sales increased to 118,369 permits (3% increase) as archery and firearm permit sales increased and muzzleloader decreased. This is the highest number of permits ever issued.

Total mule deer harvest increased by 824 to 11,144 animals. This is the 4th highest MD harvest on record. Mule deer harvest has ranged from 9,155 to 11,602 for the past 22 years.

Total harvest of adult bucks was 38,062 compared to 36,083 last year. Most hunters are highly selective of adult bucks as shown by the fact that 77% of rifle hunters, 79% of archers and 70% of youth and 56% of muzzleloaders permit holders who were successful took bucks on statewide either sex deer permits.

18,235 bonus antlerless tags were authorized and 19,385 Season Choice antlerless permits were issued in 2005. Total antlerless harvest in 2005 was 22,754 deer, of which 55% were taken on antlerless only tags.

November Firearm Season - Results of the November firearm season (Table 1) are shown for the 18 firearm deer management units (Figure 1). Harvest by SCA permit holders is not included in the November total although approximately 40% of SCA harvest occurs in November. Total harvest during November firearm season for the past five years (Table 2).

Table 1. 2005 November firearm season, permits, harvest, and success.

Units		Permits Issued		% Esex Permits	Adult Buck Harvest		Antlerless Harvest		Total Kill	% Success by Permit Type		% Yearling Bucks in Harvest	
		Regular	Landowner		MD	WT	MD	WT		Buck	ALL	MD	WT
Blue NW		2500	916	100	1	1547	1	445	2013	–	59	–	40
Blue SE		3500	1569	100	0	2263	0	463	2803	–	55	–	51
Buffalo		2000	639	100	435	771	142	182	1583	–	60	48	43
Buffalo WT		1500	0	100	0	559	0	169	755	–	50		38
Calamus E	*	1400	184	40	56	525	1	90	690		43	–	56
Calamus W		1770	139	40	368	453	83	71	1019		52	43	37
Elkhorn		3300	1621	100	9	2128	0	592	2769		56	–	57
Frenchman		3000	630	40	1180	665	197	68	2174		60	39	31
French. WT		500	0	100	2	168	0	85	261	–	52	–	
Keya Paha	*	2249	209	30	232	743	3	91	1144		47	41	32
Loup East	*	2600	725	50	72	1193	2	294	1598		48	–	57
Loup West		1900	225	50	452	426	123	103	1135		53	50	48
Missouri	*	3200	777	70	85	1602	3	375	2092		53	–	55
Pine Ridge	b	3000	167	100	724	565	610	418	2463	–	78	36	31
Plains	b	1500	102	100	595	216	511	122	1534	–	96	33	26
Platte		2400	308	20	772	571	92	47	1549		57	43	41
Platte WT		400	0	100	6	139	0	63	223	–	56	–	43
Republican	*	1500	1013	100	141	1193	8	244	1621	–	65	–	37
Repub. WT		1500	0	100	1	754	0	178	945	–	63	–	39
Sandhills		2400	148	100	855	440	153	80	1623	–	64	24	17
Upper Platte		1200	95	100	388	150	134	56	760	–	59	32	
Wahoo		4500	1234	100	2	2587	0	631	3274	–	57	–	49
Stwd. Buck		5012	0	0	514	1848	1	9	2465	49	49	32	40
Stwd Youth		4121	0	100	366	1192	128	443	2179	–	53	50	51
TOTALS		56952	10701	–	7256	22698	2192	5319	38672		57	38	44

* antlerless mule deer prohibited

b Bonus antlerless tag included with each permit

Figure 1. 2005 Firearm Deer Management Units

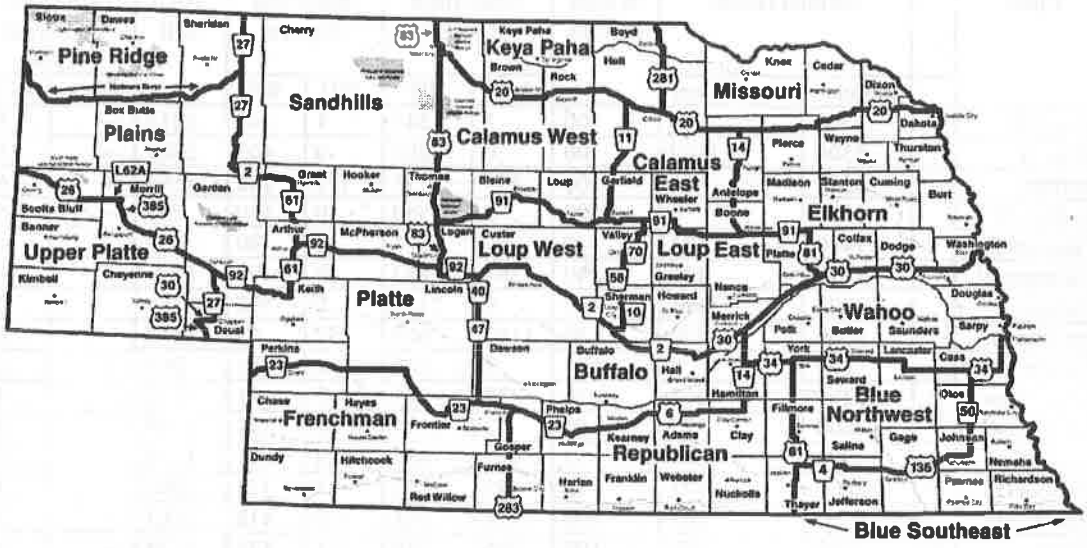


Table 2. November firearm deer season, 2001-2005.

Year	November Firearm Season		
	Permits	Harvest	Success
2001	73,320	39,420	54%
2002	65,679	35,565	54%
2003	65,526	34,344	52%
2004	67,008	37,540	56%
2005	67,673	38,899	57%

* includes unknown species

Archery Season – 4,283 deer taken on 14,633 permits with a 29% success rate. Season dates are unchanged from previous years. Permit sales increased 1% and harvest increased 1% from the 2004 season. 79% of the harvest is adult bucks, 96% of the harvest is whitetail deer. Results of the archery season for the past five years is in Table 3.

Table 3. Harvest and success for archery seasons 2001-2005.

Year	Permits	Adult Male		Antlerless		Total Harvest*	Percent Success
		MD	WT	MD	WT		
2001	15,082	121	2,911	63	1028	4,141	27
2002	13,951	120	2,855	60	831	3,875	28
2003	14,074	110	2,959	51	815	3,959	28
2004	14,447	119	3,291	37	772	4,236	29
2005	14,633	104	3,282	46	843	4,283	29

*includes unknown species

Muzzleloader Season – 4,769 deer were taken on 16,119 permits. 2005 MZ success was 30%. Permit sales decreased 3% and harvest increased slightly from the 2004 season. Results of the muzzleloader season for the past seven years are in Table 4. 56% of the harvest is adult bucks and 83% of the harvest is whitetail deer.

Table 4. Harvest and success for muzzleloader season 2000-2005.

Year	Permits	Adult Male		Antlerless		Total Harvest*	Percent Success
		MD	WT	MD	WT		
2000	17,798	431	1,933	503	2,282	5,821	33
2001	18,083	568	2,154	681	2,064	5,503	31
2002	15,408	431	1,494	443	1,439	3,811	25
2003	15,948	421	1,730	474	1,737	4,391	28
2004	16,540	494	1,978	478	1,783	4,728	29
2005	16,119	474	2,200	351	1,696	4,769	30

* includes unknown species

Statewide Youth Season - 2005 was the second year for the statewide youth permit. 4,141 permits were issued and 2,377 deer were harvested. Success was 57%. 70% of the harvest was adult buck. 78% of the harvest was whitetail. 3% of the harvest was by archers, 7% by muzzleloaders, and 90% by November firearm hunters. The 57% success rate by youth hunters was nearly as high as success by adult hunters during the November firearm season (58%). (See Table 1 and Table 5 for more details.)

The objective of this permit was to provide youth and mentors with many options to create a quality youth deer hunting experience in multiple seasons with the one permit. Based on increase participation and high success by youth hunters, it appears that the objectives were met. Youth permit sales are projected to remain under 5,000.

Table 4. Harvest and success for youth deer season, 2004-2005.

Year	Permits	Adult Male		Antlerless		Total Harvest*	Percent Success
		MD	WT	MD	WT		
2004	3,046	247	855	123	429	1,654	54
2005	4,141	366	1,192	128	443	2,377	57

* includes unknown species

Season Choice Area Antlerless Season – SCA seasons were first used in 2000. Hunters are allowed to take antlerless deer during archery, muzzleloader, November firearm and January late season (123 days). The season was extended 6 days and eleven SCA units (Figure 2) were open in 2005. Unit boundaries, permit quotas, bag limit and season length are designed to allow maximum hunter opportunity to harvest antlerless deer in areas where herd reduction is desired. 12,314 antlerless deer were harvested during the 11 SCA seasons on 19,385 permits (Table 5a). SCA harvest for the past five years is shown in Table 5b.

Figure 2. 2005 Season Choice Area Map.

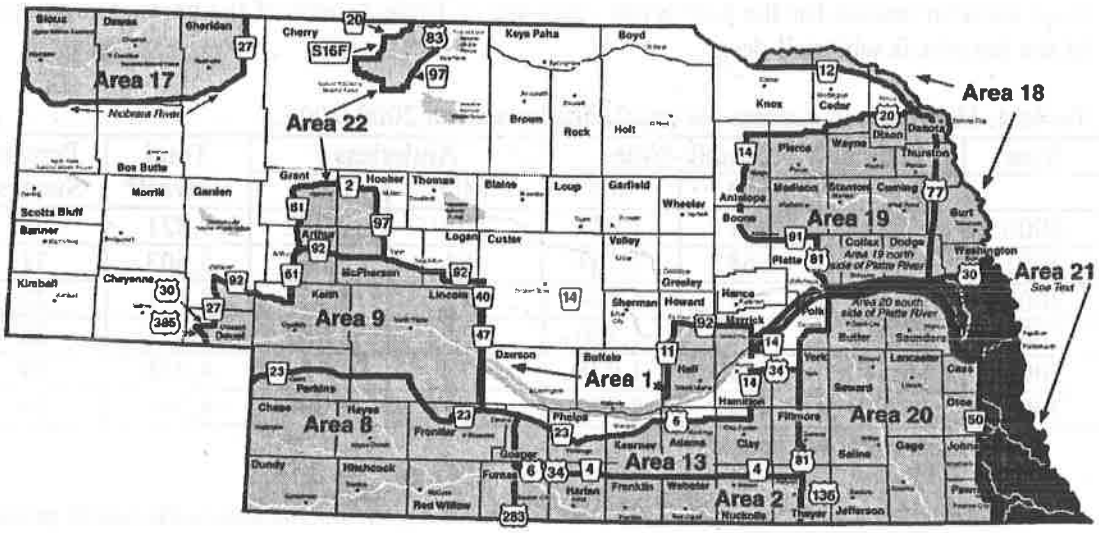


Table 5a. Harvest and success for Season Choice Antlerless seasons, 2005.

Unit	Permits			Harvest	% Success
	Authorized	Sold	% Either Sex		
SCA 1	2,500	1,482	AO[2,4]	1,087	73
SCA 2	1,500	1,254	AO[2,3]	636	51
SCA 8	500	504	AO[1,2,3]	260	52
SCA 9	400	409	AO[1,2,3]	203	50
SCA 13	250	259	AO[1,2,3]	127	49
SCA 17	500	170	AO[2,4]	163	96
SCA 18	2,000	2,035	AO[1,2,4]	1,607	79
SCA 19	1,200	1,225	AO[1,2]	595	49
SCA 20	4,500	4,607	AO[1,2]	2,099	46
SCA 21	8,000	7,275	AO[2,4]	5,428	75
SCA 22	200	165	AO[2,4]	113	68
Total	21,550	19,385		12,314	63

[1]Excesses of permits sold over number authorized are limited landowner permits
[2]Antlerless deer only (no antlers or both antlers less than 6 inches in length)
[3]Antlerless mule deer prohibited
[4]One bonus antlerless deer

Table 5b. Season Choice Area antlerless, 2001-2005.

Year	SCA Antlerless Season		
	Permits	Harvest	Success
2001	17,090	9,903	47%
2002	17,572	10,115	47%
2003	16,900	10,130	60%
2004	16,639	9,547	51%
2005	19,385	12,314	63%

Special Seasons - Special seasons were established in refuge areas to reduce deer. These were antlerless only hunts except for DeSoto December muzzleloader which is a highly sought permit for bucks on DeSoto Bend National Wildlife Refuge (Table 6).

Table 6. Harvest and Success for Special Seasons, 2005.

Unit	Permits			Harvest	% Success
	Authorized	Sold	% Either Sex		
DeSoto October Early	140	140	AO[2,4]	172	123*
DeSoto October Late	140	140	AO[2,4]	134	96*
DeSoto December MZ Esex	100	100	100[4]	81	74*
Boyer Chute Oct. Early	40	40	AO[2,4]	36	90*
Boyer Chute Oct. Late	40	40	AO[2,4]	23	58*
Clear Creek WMA WT	75	50	AO[2,4]	42	84*

* Bonus tags elevate success
[2]Antlerless deer only (no antlers or both antlers less than 6 inches in length)
[4]One bonus antlerless deer

Mule Deer and Whitetail Deer Harvest - Mule deer harvest has been stable the past 20 years, ranging from 9,155 to 11,602. Whitetail harvest has tripled during the past 20 years (Table 7).

Table 7. Whitetail and Mule Deer Harvest, All Seasons, 1980-2005.

Year	Total Permits*	All Seasons Harvest		
		Mule Deer	Whitetail	All**
1980	36,184	6,584	11,578	18,252
1985	61,913	10,174	25,250	35,500
1990	70,736	9,920	25,512	35,201
1995	83,739	10,960	34,160	45,180
2000	112,933	10,095	49,714	60,148
2001	123,956	10,544	48,815	59,455
2002	112,894	9,225	44,390	53,624
2003	112,563	9,155	44,132	53,314
2004	114,925	10,321	45,919	56,311
2005	118,369	11,144	49,672	60,816

* Does not include bonus tags

** Includes unknown species

Age of harvested bucks continues to shift to older animals in most units as evidenced in the change in number of age 2 and older (2+) whitetail bucks harvested statewide (56% age 2+ whitetail bucks in 2005 vs. 48% age 2+ WT bucks in 2004). Mule deer harvest also shifted to older bucks in 2005 (62% 2+ MD bucks in 2005 vs. 52% 2+ MD bucks in 2004). This trend towards older bucks has been ongoing for 20 years and is indicative of the improving quality of the deer herd (Table 8).

Table 8. Age of whitetail and mule deer bucks, 1987-2005.

	Whitetail Bucks					*Mule Deer Bucks*				
	1987	1992	1997	2002	2005	1987	1992	1997	2002	2005
% Age 2 or older	32	33	45	52	56	27	36	46	59	62

Discussion: Hunter success and harvest was higher than expected. EHD losses in 2005 were commonly reported in eastern Nebraska and a reduction in success and harvest was expected in eastern deer management units. Harvest and hunter success improved in many central and western units and remained stable in eastern units. The overall result was a record harvest. Whitetail and mule deer populations are stabile or slightly increasing in most units.

More than 2,000 SCA antlerless permits remained unsold at the close of the 2005 season. A decrease in the price of nonresident antlerless permits from $176 to $55 for the 2006 season is likely to cause an increase in permit sales and deer harvest among nonresidents. Liberal antlerless quotas should limit growth in most WT herds.

CWD data are in a separate report. However, it should be noted that CWD positive deer were not found in any new locations in eastern or central counties. Age of harvested bucks continues to shift to older

animals in most units as evidenced in the change in number of age 2 and older (2+) whitetail bucks harvested statewide (56% age 2+ whitetail bucks in 2005 vs. 48% age 2+ WT bucks in 2004). Mule deer harvest also shifted to older bucks in 2005 (62% 2+ MD bucks in 2005 vs. 52% 2+ MD bucks in 2004). This trend towards older bucks has been ongoing for 20 years and is indicative of the improving quality of the deer herd (Table 8).

Table 9. Deer harvest history (1945-2006).

Nebraska Deer Permit History - (1945 - 2006)										
	FIREARM including late season			ARCHERY			MUZZLELOADER			Total
YEAR	Permits	Harvest	Success	Permits	Harvest	Success	Permits	Harvest	Success	PERMITS
1945	500	361	72%							500
1949	1,500	910	61%							1,500
1950	1,000	680	68%							1,000
1951	1,200	712	59%							1,200
1952	2,500	1,921	77%							2,500
1953	5,300	4,083	77%							5,300
1954	4,000	2,754	69%	0	0	0				4,000
1955	5,597	4,300	77%	173	7	4%				5,770
1956	8,200	6,561	80%	275	28	10%				8,475
1957	12,174	8,450	69%	655	80	12%				12,829
1958	9,580	5,789	60%	1,136	221	19%				10,716
1959	11,044	6,322	57%	1,426	223	16%				12,470
1960	12,596	5,399	43%	1,239	221	18%				13,835
1961	11,993	5,445	45%	1,360	331	24%				13,353
1962	13,460	8,853	66%	1,524	316	21%				14,984
1963	15,412	10,586	69%	1,691	413	24%				17,103
1964	18,086	13,248	73%	2,256	596	26%				20,342
1965	23,196	16,979	73%	2,618	532	20%				25,814
1966	24,770	17,073	69%	2,946	617	21%				27,716
1967	24,279	13,670	56%	3,305	817	25%				27,584
1968	23,680	11,884	50%	3,579	580	16%				27,259
1969	30,484	13,515	44%	4,122	761	18%				34,606
1970	31,316	14,687	47%	4,804	907	19%				36,120
1971	30,495	13,399	44%	5,258	920	17%				35,753
1972	24,446	11,873	49%	5,890	931	16%				30,336
1973	24,215	14,606	60%	8,761	1,311	15%				32,976
1974	25,237	15,982	63%	8,976	1,506	17%				34,213
1975	27,673	16,134	58%	9,103	1,523	17%				36,776
1976	26,827	14,160	53%	8,820	1,183	13%				35,647
1977	24,583	10,688	43%	7,239	1,033	14%				31,822
1978	23,658	12,996	47%	7,258	1,282	18%				30,916
1979	24,791	16,239	52%	8,089	1,414	17%				32,880
1980	26,441	16,239	61%	9,743	2,013	21%				36,184
1981	28,626	18,051	63%	11,530	2,425	21%				40,156
1982	31,411	20,570	65%	11,041	2,437	22%				42,452
1983	34,984	24,838	71%	12,276	3,209	26%				47,260
1984	43,760	30,624	70%	12,414	2,882	23%				56,174
1985	49,232	32,514	66%	12,681	2,986	24%				61,913
1986	49,202	33,166	67%	12,022	2,605	22%				61,224
1987	52,689	33,771	64%	12,158	3,147	26%				64,847

1988	54,705	34,545	63%	12,746	3,248	25%				67,451
1989	55,298	34,213	62%	12,701	3,117	25%	2,461	822	33%	70,477
1990	55,074	31,170	57%	12,464	2,961	24%	3,167	1,070	34%	70,736
1991	53,955	29,368	54%	13,210	3,211	24%	3,752	1,404	37%	70,917
1992	53,560	28,989	54%	13,828	3,481	25%	4,744	1,761	37%	72,132
1993	55,667	30,767	56%	13,798	3,581	26%	5,998	2,282	38%	75,463
1994	56,752	33,849	60%	15,104	4,153	27%	7,045	3,065	44%	78,901
1995	59,671	37,601	63%	15,685	4,151	28%	8,383	3,128	37%	83,739
1996	60,991	37,493	61%	15,905	4,472	28%	9,349	3,585	38%	86,245
1997	72,044	50,463	*70%	14,759	4,153	28%	11,292	4,106	36%	98,095
1998	71,946	45,002	63%	14,866	4,102	27%	13,070	4,235	32%	99,882
1999	76,958	42,924	56%	16,137	4,504	28%	15,047	4,797	32%	108,146
2000	79,466	49,840	*63%	15,729	4,550	29%	17,798	5,758	32%	112,933
2001	90,641	49,811	*55%	15,182	4,141	27%	18,083	5,516	31%	123,956
2002	83,535	45,938	*55%	13,951	3,875	28%	15,408	3,811	25%	112,894
2003	82,541	44,964	*54%	14,074	3,959	28%	15,948	4,391	28%	112,563
2004	83,938	47,374	*56%	14,447	4,236	29%	16,540	4,728	29%	114,925
2005	87,617	51,748	*59%	14,633	4,283	29%	16,119	4,771	30%	118,369

* bonus tags inflate success

Wildlife Mortality and Disease Investigations

Job P1: Wildlife Mortality, Disease and Parasite Investigations

General Objectives: To monitor and document the presence of diseases, parasites, and other anomalies that occur in wildlife populations and to initiate necessary steps to reduce their impacts on populations. Separate projects were conducted for (1) chronic wasting disease, (2) epizootic hemorrhagic disease, and (3) general disease surveillance.

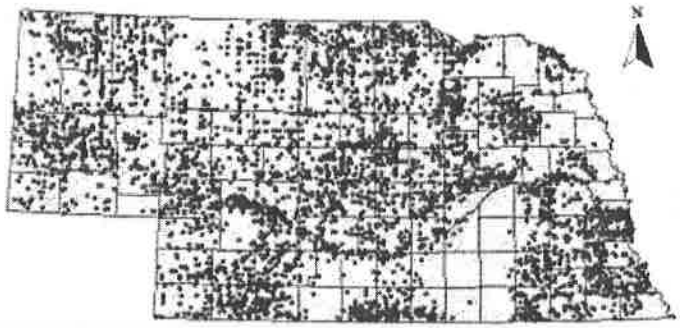
Project Leaders: Bruce Trindle, Big Game Research Specialist, Lincoln
Dave Oates, Forensics and Disease Program Manager, Lincoln

Project: **Chronic wasting disease summary, 2005-2006 season**

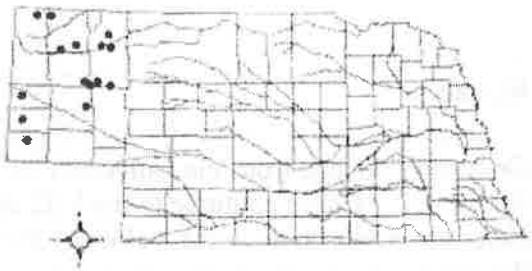
Hunting season:

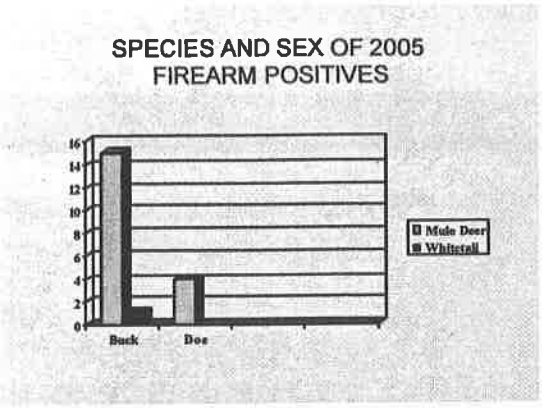
Biologists working deer check stations were instructed on the removal of retropharyngeal lymph nodes. A total of 7,404 samples was collected.

2005 Harvest Sample Distribution



Samples were screened with the ELISA test and confirmed using IHC. A total of 16 new positives was confirmed. Fifteen were from the November firearm season and 1 from the muzzleloading deer season.

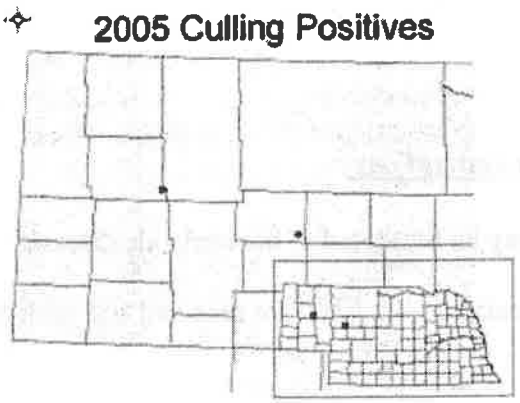




Culling and targeted surveillance:

During January and February, 2005 District I and IV Management staff harvested 58 deer east of Alliance, 47 from Cherry County, 49 from Arthur County and 67 from Hall County as part of a culling operation in response to the new confirmed firearm positives in those areas. A total of 2 female mule deer tested positive of the deer collected.

On 2/25/05 a female mule deer, showing clinical signs, was collected at the same site east of Alliance and tested positive.



Surveillance History - Positives:

	Hunting		*Culling*		*Total*
	Mule Deer	White-tail	Mule Deer	White-tail	
2000	1				1
2001	2		1		3
2002	6	6	1	10	23
2003	13	5			18
2004	22	7	4		33
2005	15	1	3		19
Total	59	19	9	10	97

Research:

Graduate students, from the University of Nebraska – Lincoln continue to track 52 deer along the North Platte River Valley by Bridgeport. Research is producing home range and movements of deer by species and sex, CWD sampling data-bases and proposed surveillance schemes, and dispersal models capable of predicting the possible spread of CWD.

The Alliance CWD Deer Project continues to track 6 radio collared deer by fixed wing airplane. A radio collared buck (W78), taken during the muzzleloader deer season, tested positive for CWD.

Conclusion:

The apparent decline in positives and restricted geographical distribution compared to the 2004 season are more likely a result of sampling than a significant decrease in the spread of the disease. Therefore, a continued sampling effort designed to further document any expansion of the endemic area is recommended for the 2006 season.

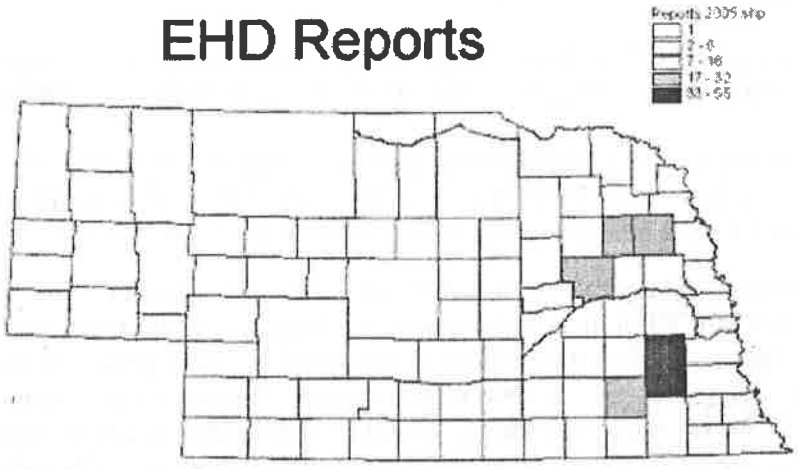
Project: **Epizootic Hemorrhagic Disease (EHD) Investigations**

Objectives: Record reported deer mortalities that may be attributed to hemorrhagic disease.

Activity 1: Reports of dead deer with symptoms associated with EHD are received and recorded by District Wildlife Managers.

Significant Deviations: None

Results: A total of 331 reported deer mortalities believed to be attributed to EHD was received in 2005.



Discussion: Reported mortality in 2005 was more than the 16 reported for 2004. The disease outbreak in 2005 may be attributed to a low prevalence of antibody protection in the deer of eastern Nebraska as well as an increased prevalence of the biting midge vector.

Recommendations: This activity should continue with an increased effort to obtain and record all suspected mortalities.

Activity 2: Blood serum samples were collected at firearm deer check stations as part of study conducted in association with the Midwest Association of Fish and Wildlife Agencies Fish and Wildlife Health Committee. This was the third year for collections to detect the presence of hemorrhagic antibodies in deer on a regional basis. Fresh blood was dipped from the body cavity of deer presented at check stations and the serum separated. The location of each sample was recorded as miles north/south or east/west from a town. Serum samples were sent to the Southeast Cooperative Wildlife Disease Study for analysis.

Significant Deviations: None

Results: A total of 476 samples was submitted for analysis. Results from these samples are still pending.

Discussion: Waiting for analysis of samples.

Recommendations: Waiting for analysis of samples.

Project: **General Disease Testing and Surveillance**

Objectives: To monitor and document the presence of diseases, parasites, and other anomalies that occur in wildlife populations and to initiate necessary steps to reduce their impacts on populations.

Activities and Results: Two papers were published from previous research, "A Survey of Infectious Diseases and Parasites in Wild Turkeys from Nebraska" and "Prevalence of Agglutinating Antibodies to Toxoplasma gondii in Adult and Fetal Mule Deer (Odocoileus hemionus) From Nebraska."

Several instances of disease and parasite occurrences were investigated and monitored. Of the six deer checked for West Nile Virus, all of them tested positive. A sample of wild ring-necked pheasants was also examined this year. The total number of species of pheasant parasites was less than ten. The predominant species was a nematode, *heterakus gallinarum*. Non-native pheasants appear to have less than half of the total number of parasite species found in prairie grouse, which were sampled earlier. Predominant parasite species in both pheasants and grouse were nematodes, whereas predominant species in previous samples of wild turkeys were tapeworms. Unlike turkeys, which had nearly 100% prevalence of internal parasites, parasites were found in approximately half of the grouse and were even less prevalent in pheasants.

West Nile Virus (WNV) collection was continued again this year. We assisted in collecting crows, blue jays, magpies, and raptors for WNV analysis. Of the 676 birds tested, 148 tested positive, and of the 61 species tested 16 species were positive. Ninety-nine out of 181 blue- jays and crows tested positive. One hundred and eight raptors were tested with 29 positives. This year great horned owls were only 3 positives out of 25 birds, the highest rate of positives was for American kestrels (7/12) and red-tailed hawks (11/29). Other species testing positive were Cooper's hawk (4/12), eastern screech owl (2/16), prairie falcon (1/1), and sharp-shinned hawk (1/2). We have also examined coyotes, fox squirrels and several deer that had antibodies to WNV. Local squirrels populations may have been affected, but otherwise it did not seem to affect wild populations of game birds and mammals. We will monitor for WNV again next year.

Several opportunistic samples were also examined for disease. A dead trumpeter swan was found to have had a congested liver, but no salmonella, other bacteria, or WNV was found. Two dead quail tested negative for WNV. Several dead geese were turned in for examination, and they were determined to have died from a lightning strike. Three raccoons were examined for rabies, which was not present; one had canine distemper and another had *Salmonella newport* and *Rhodococcus* spp. A road-killed mountain lion was picked up near the Gretna exit on Interstate 80 and examined. It was $\geq$ 2-year-old male and was found to have been hit by another vehicle a month or so earlier.

Significant deviations: None

Recommendations: This project should be continued

2006 STATUS REPORT ON DEER MANAGEMENT IN NORTH DAKOTA

by
Bill Jensen and Roger Johnson
North Dakota Game and Fish Department
100 North Bismarck Expressway
Bismarck, ND 58501
701-328-6637
bjensen@state.nd.us

2005 Regular Deer-Gun Season Structure - Regulations for the 2005 regular deer-gun season were applied to all 38 hunting units within the state (Figure 1). Deer licenses are initially issued through a lottery except for landowner gratis licenses. In 1993, a weighted priority lottery system was instituted. The priority system is similar to South Dakota's in which unsuccessful applicants have their name entered more times in the drawing the longer they have been unsuccessful. The licenses are issued for specific deer types (antlered or antlerless white-tailed deer, antlered or antlerless mule deer, and antlered or antlerless any deer). The gratis landowner licenses allow any deer to be taken, but are restrictive in that the holders may only hunt on their own land. A total of 141,701 licenses were issued of the 145,600 licenses made available for the 2005 regular deer-gun season (Table 1). The distribution of these deer licenses was as follows: 14,323 gratis landowners, 122,476 residents, and 4,902 non-resident lottery licenses.

The deer-gun season throughout the state was 16½ days in length (November 4 to 20), except for the split season areas. In 2004, the split season (early and late) was again offered in two units near high population centers (i.e., 2B near Fargo along the eastern edge of the state and 3C along the Missouri River south of Bismarck) (Figure 1). The deer gun season started at noon CST November 4, 2004 for all full season units including the early season in split season units. In split season areas, the early season lasted 6½ days. The late season started November 11 and ran for 10 days. This type of split season format allowed for both the early and late seasons to be held within the 16½ day season framework. The daily hunting hours are from one-half hour before sunrise to one-half hour after sunset.

2005 Deer-Gun Season Harvest - Based upon harvest survey questionnaires it is estimated that 92.9% of the licensees actively attempted to hunt and harvest a deer. This resulted in the harvest of 91,272 white-tailed deer, and 8,322 mule deer. The overall success rate for licensees that actually hunted was 75.7%. A breakdown of the harvest, by species of deer and hunting unit, is provided in Table 2.

2005 Muzzleloading Long Gun Season Structure - The muzzleloader season was first mandated by the state legislature for the 1987 season. This season was modified during the 1996-97 state legislature. The change allowed for 2% of the white-tailed deer gun permits to be allocated for muzzleloader season, of which up to one-half may be antlered licenses. In 2005, there were 1,379 antlered and 1,377 antlerless white-tailed deer licenses issued. The season opened noon CST November 25, 2005, and ran from one-half hour before sunrise to one-half hour after sunset each day thereafter through December 11, 2005. Licenses are valid for all of North Dakota. The licenses were issued by lottery. A priority system is in place for the drawing of these licenses. Legal weapons were long guns of .45

caliber or larger, and handguns .50 caliber or larger, loaded through the muzzle, with flint or percussion ignition, firing black powder or black powder substitutes. Smokeless powders are not legal. In-line type percussion locks were legalized in 1994, but telescopic sights remain illegal.

2005 Muzzleloading Long Gun Harvest - All 2,756 muzzleloader licensees were sent a questionnaire, of which an estimated 2,447 actually hunted during the season (88.8%). The projected harvest of white-tailed deer was 1,193 deer (669 antlered and 524 antlerless) for an overall success rate of 48.8% (Table 3).

2005 Archery Season Structure - Archery deer licenses are issued over the counter through license vendors and county auditors with no restrictions on species or sex. The 2005 archery deer season started at noon, September 2, 2005 and continued from one-half hour before sunrise to one-half hour after sunset each day until January 8, 2006. The deer-bow season is open during the entire deer-gun season with the restriction that all bow hunters must wear blaze orange during the deer gun season. Any deer was legal, with no unit restrictions for residents. Nonresidents are restricted in the number of mule deer licenses available to 15% of the previous season's regular-gun mule deer licenses.

2005Archery Harvest - In total, 16,906 archery licenses were sold in 2005. After the season, 3,026 questionnaires were sent to resident and nonresident license holders from the 2005 season. Expanding the sample results projected that 15,487 of the hunters who bought a licenses and actually went hunting (91.6%). These deer-bow hunters had an overall success rate of 37.9%, with a total harvest of 5,866 deer (5,414 white-tailed deer and 452 mule deer) (Table 3).

2005 Youth Deer Gun Season - An experimental youth deer gun season was initiated in 1994. The season is a one time opportunity for youths 14 and 15 years of age at the time of the application deadline. All regular deer gun season regulations and weapon restrictions applied. This includes a half price ($10.00) license for all youths under sixteen. In addition, each youth licensee must be accompanied by at least one unarmed parent, guardian, or adult authorized by their parent or guardian. In 2005, an unlimited number of any white-tailed deer and antlerless mule deer permits were available and a limited number of antlered mule deer permits (i.e., 10% of the total antlered mule deer licenses available, or 340 licenses in 2005). The nine and one-half day season ran from noon September 16 and closed September 25, with the option that youth license holders can also hunt during the regular deer-gun season if they are unsuccessful in the youth season.

2005 Youth Deer Gun Season Harvest - After the youth season, questionnaires were sent to all 2,057 licensees. An estimated 1,648 teenagers participated in the youth season (80.1%). They experienced an overall success rate of 44.4%, with a total harvesting 732 deer (473 white-tailed deer and 259 mule deer) (Table 3).

2005 Special Herd Reduction Deer Bow Season - There are three areas in North Dakota open for special herd reduction seasons. These areas include within the city limits of Bismarck, USDA-ARS Research facility in Mandan, and Grahams Island State Park near Devils Lake. These areas each have

special regulations to fit their individual needs.

In the city of Bismarck, the chief of police issued antlerless white-tailed deer permits for portions of the city as the need arises. The season ran from September 2, 2005 through January 31, 2006. These special hunt permits are above the allotted number of permits allowed by the state during regular deer-gun season. All the information and paperwork for these hunts are handled by the entity in charge; therefore, it requires a minimum effort by the Game & Fish Department. The harvest from these special hunts has been minimal in recent years, 50-75 animals, but it does help to disperse the deer, and reduce deer depredation conflicts.

2005-2006 Population Trend - White-tailed deer are distributed throughout North Dakota. Population densities vary by region and are influenced by land use patterns, human population densities, habitat types, and climate. In 1958, big game biologists divided the state into 41 subunits with permanent boundaries that most nearly coincide with identified environmental influences. These management subunits boundaries also coincide with hunting unit boundaries. To provide comparative annual population trend data, permanent aerial winter survey areas have been established within each of the 41 subunits, thus permitting unit specific deer management. Since 1999, population trend data has also been collected on deer sighted per hour of effort by hunters. Additionally, information on deer-vehicle collisions has been compiled on a county-by-county basis across the state. Regular population indices mentioned above, have been used to monitor white-tailed deer population trends. Population trends and indices for white-tailed deer are summarized in Table 4 and Figures 2 and 3. Available data suggests increasing white-tailed deer numbers in a band running diagonal from the southwest to the northeastern corner of the state.

The main range of mule deer in North Dakota is the region of the state southwest of the Missouri River. The unitized system of management for white-tailed deer is also the basis for mule deer management. The Badlands region is considered the primary mule deer range and permanent deer population study areas have been established since 1954. Population trend and demographic data for mule deer is obtained from aerial survey areas each spring and fall, respectively. Population trend data for mule deer is also obtained from hunter observations 1999. Population index data for mule deer is summarized in Table 5 and Figure 4. Available data suggests increasing mule deer numbers throughout the badlands and that portion of the state south and west of the Missouri River. Demographic information, based upon hunter observations and aerial surveys, are summarized for white-tailed and mule deer in Tables 6 and 7, respectively.

Miscellaneous Big Game Supplementary Reports and Research Projects:
A summary of recent supplementary reports and research project are as follows:

Smith, Jason. 2005. Population Ecology of White-tailed Deer in the Drift Prairie-Coteau of North Dakota. M.S. Thesis, University of North Dakota, Grand Forks. 95pp.

Ermer, J., et al. 2005. A Review of Wildlife Baiting and Feeding Practices Pertaining to North Dakota with Special Emphasis on Big Game (Job No. C-I-1; Supplemental Report No. A-160A). 94pp.

Jensen, W. 2005. Summary of Liquidation or Replacement Costs for Big Game and Other Wildlife Species Native to North Dakota. Supplemental Report No. C-I; A-164A. 17pp.

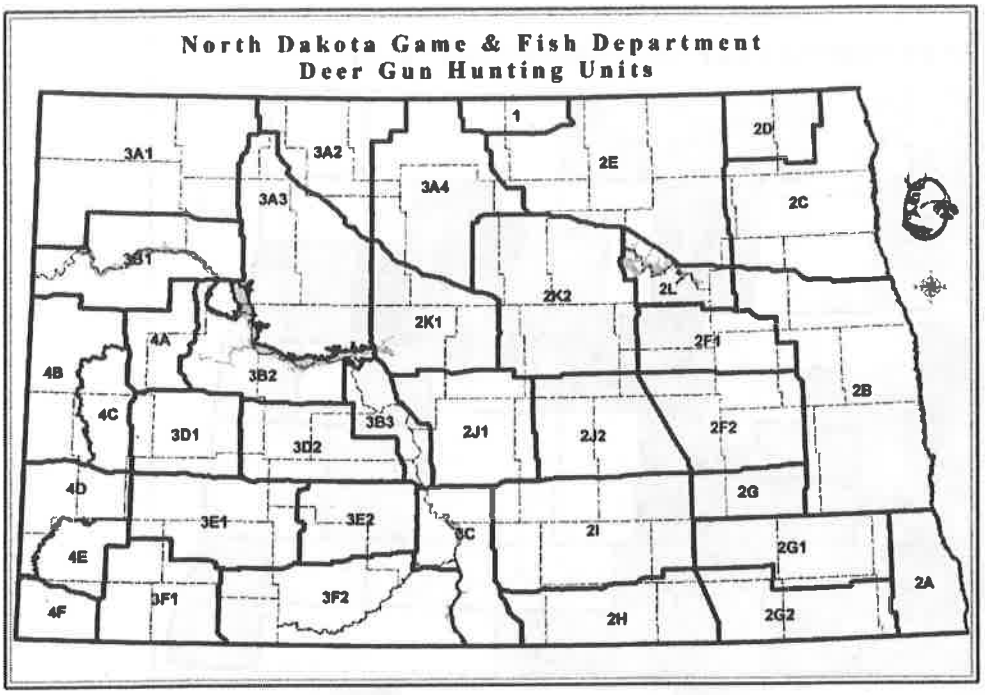


Figure 1. Distribution of deer hunting units in North Dakota.

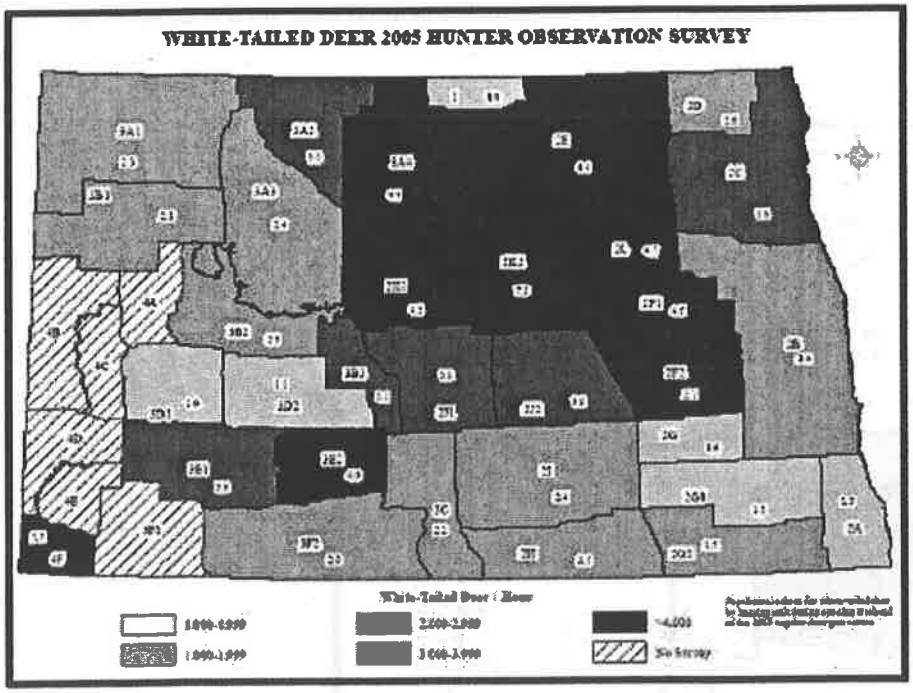


Figure 2. Distribution of white-tailed deer in November 2004 based upon deer hunter observations (deer sighted per hour of effort).

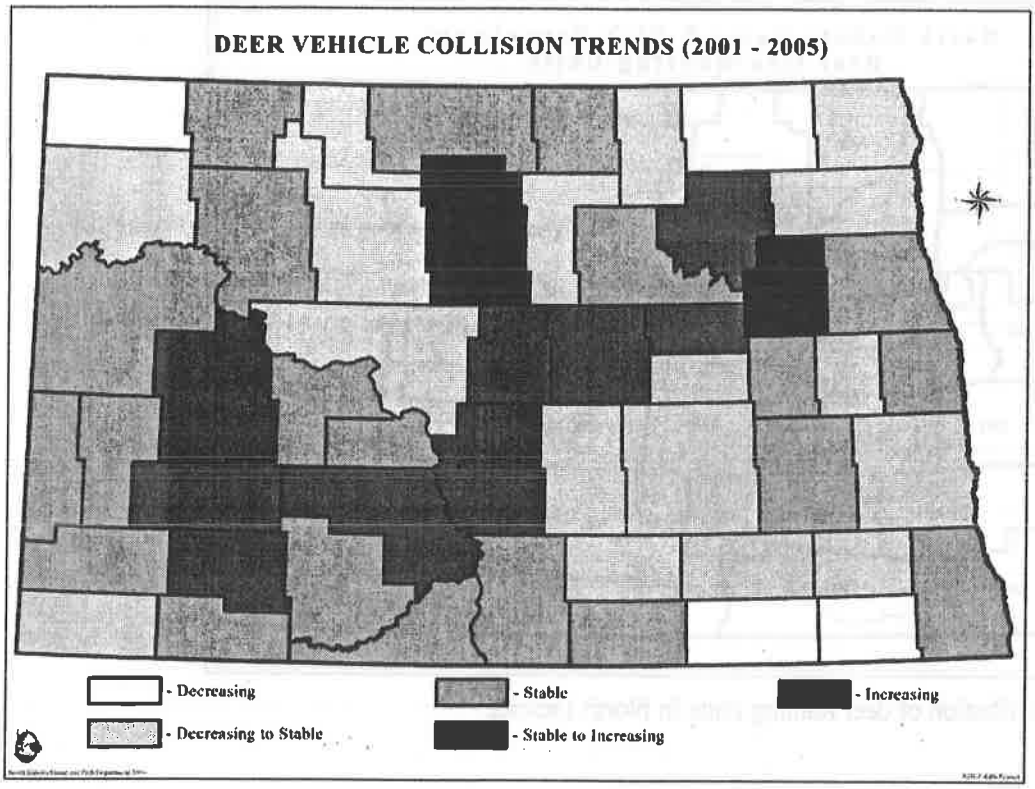


Figure 3. Distribution of recent (2002-2004) deer-vehicle collision trend data, on a county-by-county basis for North Dakota

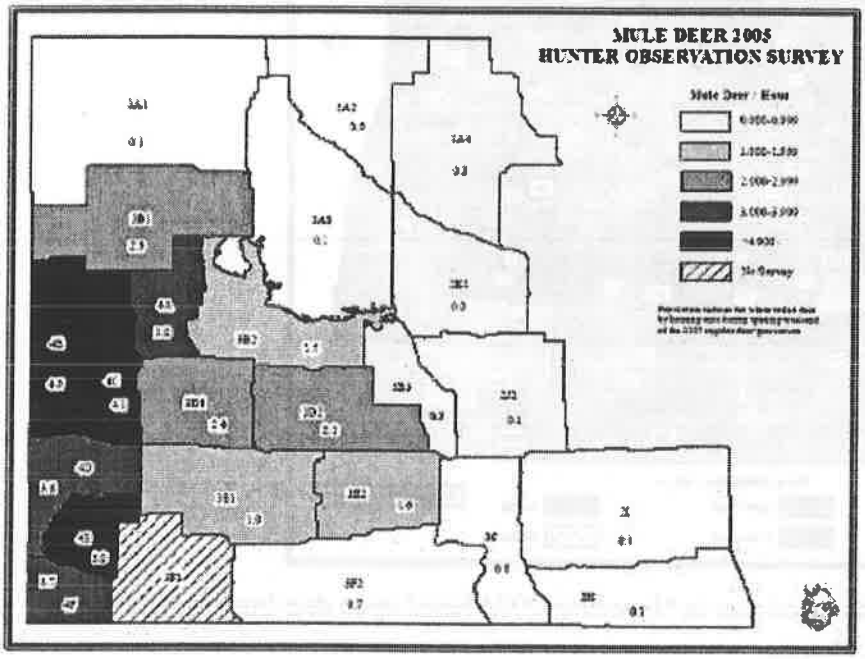


Figure 4. Distribution of mule deer in November 2004, based upon deer hunter observations (deer sighted per hour of effort).

Table 1. License numbers for hunting units, by license type, for the 2005 regular deer-gun season.

MGMT AREA UNIT	HUNTING UNIT	ANY DEER Antlered	ANY DEER Antlerless	WT DEER Antlered	WT DEER Antlerless	MULE DEER Antlered	MULE DEER Antlered
TURTLE MTS	I	1,000	1,500				
RED RIVER	2A	750	1,000				
	2B Early	2,300	3,500				
	2B	2,300	3,500				
	2C	2,800	6,500				
PEMBINA HILLS	2D	1,600	2,500				
SHEYENNE	2F1	2,200	5,500				
	2F2	2,200	4,000				
	2G	950	2,000				
	2G1	2,300	3,500				
	2G2	1,950	3,100				
COTEAU	2E	2,500	5,000				
	2H	1,100	2,000				
	2I	1,700	3,000				
	2J1	700	1,500				
	2J2	2,000	4,500				
	2K1	1,000	2,000				
	2K2	2,400	6,500				
	3A1	1,800	2,000				
	3A3	1,600	2,800				
DEVILS LAKE	2L	800	1,500				
SOURIS	3A2	1,600	2,800				
	3A4	2,300	4,200				
MISSOURI	3B1			800	2,500	500	700
	3B2			250	500	200	200
	3B3	150	150	1,100	1,800		
	3C Early	50	50	450	600		
	3C Late	50	50	450	600		
SLOPE	3D1	250	250	200	200		
	3D2	300	500	250	500		
	3E1	250	600	450	800		
	3E2	300	800	500	1,000		
	3F1	150	400	700	1,200		
	3F2	200	500	650	800		
BADLANDS	4A			200	350	450	600
	4B			100	100	650	700
	4C			100	100	500	700
	4D			200	200	550	600
	4E			200	200	350	450
	4F			300	300	200	350
	TOTALS	41,550	77,700	6900	11,750	3,400	4,300
	TOTAL LICENSES =		145,600				

Table 2. Summary of 2005 white-tailed deer and mule deer harvest data and buck:doe:fawn ratios, by hunting unit, for all regular deer-gun license holders.

Hunting Unit	White-tailed Deer				Mule Deer			
	Antlered	Antlerless	Total	Ratios (B/D/F)	Antlered	Antlerless	Total	Ratios (B/D/F)
1	599	665	1264	1.13/1/0.26				
2A	462	572	1034	1.48/1/0.83				
2B	3301	4702	8003	1.14/1/0.62				
2C	2104	4694	6798	0.58/1/0.28				
2D	985	1508	2493	1.00/1/0.53				
2F1	1780	2122	4902	0.91/1/0.60				
2F2	1901	2979	4880	0.94/1/0.47				
2G	733	1361	2094	0.75/1/0.40				
2G1	1360	2386	3746	0.77/1/0.36				
2G2	1256	2062	3318	0.83/1/0.37				
2E	1918	3574	5492	0.68/1/0.27				
2H	813	1476	2289	0.80/1/0.46				
2I	1347	2059	3406	1.10/1/0.68				
2J1	621	1017	1638	0.87/1/0.42				
2J2	1507	2549	4056	0.90/1/0.52				
2K1	773	1488	2261	0.73/1/0.40				
2K2	2109	5438	7547	0.54/1/0.40				
3A1	1014	1171	2185	1.16/1/0.34				
3A3	1019	1826	2845	0.67/1/0.20				
2L	577	995	1572	0.91/1/0.57				
3A2	981	2015	2996	0.68/1/0.39				
3A4	1533	3021	4554	0.75/1/0.47				
3B1	519	1021	1540	0.74/1/0.46	394	482	879	1.06/1/0.30
3B2	152	263	415	0.90/1/0.56	157	132	289	1.76/1/0.48
3B3	798	1279	2077	1.31/1/0.39	64	68	132	0.84/1/0.35
3C	631	811	1442	1.07/1/0.37	88	29	117	3.67/1/0.20
3D1	173	246	319	1.88/1/0.59	185	133	318	1.73/1/0.24
3D2	248	404	652	0.94/1/0.52	178	269	447	0.81/1/0.23
3E1	402	606	1008	0.98/1/0.48	209	307	516	0.93/1/0.36
3E2	430	800	1230	0.94/1/0.46	174	271	445	0.86/1/0.59
3F1	479	409	888	2.09/1/0.79	125	193	318	0.74/1/0.14
3F2	486	494	980	0.61/1/0.22	127	254	381	1.58/1/0.61
4A	137	213	350	0.95/1/0.48	320	441	761	0.98/1/0.35
4B	69	56	125	1.77/1/0.44	484	494	978	1.21/1/0.23
4C	59	50	109	1.44/1/0.22	394	530	924	0.91/1/0.22
4D	101	127	228	1.29/1/0.63	437	471	908	1.25/1/0.35
4E	107	90	197	1.94/1/0.64	240	329	569	0.88/1/0.20
4F	190	149	339	2.16/1/0.69	143	158	343	0.90/1/0.27
Total	**33674**	**57598**	**91272**	**0.84/1/0.43**	**3719**	**4603**	**8322**	**1.03/1/0.28**

Table 3. Summary of 2005 Youth Deer Season (N=1,648), muzzleloader (N=2,447), and archery season (N=16,906) harvest data and buck:doe:fawn ratios, by license type for those license holders that hunted.

Lic. Type	White-tailed Deer				Mule Deer			
	Antlered	Antlerless	Total	Ratios (B/D/F)	Antlered	Antlerless	Total	Ratios (B/D/F)
Youth Season	365	108	473	6.76/1/0.47	237	22	259	16.93/1/0.57
Muzzle-Loader	647	524	1193	1.77/1/0.49				
Archery	3813	1601	5414	3.26/1/0.27	394	58	452	10.94/1/0.61
Total	4825	2233	7080		631	80	711	

Table 4. Summary of white-tailed deer population indices for2005-2006 (i.e., 2006 winter aerial survey[Deer/ Sq. Mi.], 2005 deer-vehicle collisions, and 2005 white-tailed deer observed by hunters per hour of effort during the first Saturday and Sunday of the 2004 regular deer season).

Hunting Unit	2006 Winter Aerial Survey (Sample Size)	2005 Deer-Vehicle Collisions (MD & WTD)	2005 Hunter Obs. WTD/Hr. ± s.d. (Sample Size)
Turtle Mountains 1	[5.4] (504) Stable to Increasing	Decreasing	1.82 ± 1.891 (35) Increasing (Snow)
Red River All Units			2.60 ± 3.017 (191) Stable
2A	[4.6] (705) Decreasing	Stable	1.48 ± 1.937 (60) Stable
2B	[10.6] (2455) Decreasing	Stable to Decreasing	2.45 ± 2.496 (54) Increasing (Trace Snow)
2C	[12.2] (4902) Stable to Increasing	Stable to Increasing	3.58 ± 3.675 (77) Stable (Snow)
Pembina Hills 2D	[15.2] (4391) Stable to Increasing	Decreasing	2.64 ± 3.147 (47) Dec. (T. Snow)
Sheyenne-James River All Units	NA	Stable to Increasing	2.93 ± 5.489 (323)
2F1	[4.8] (2098)	Stable to Increasing	4.54 ± 4.028 (61) Increase (Snow)
2F2	NA	Stable to Increasing	4.66 ± 10.672 (66) Increase (Trace Snow)
2G	[8.7] (425)	Stable to Increasing	1.62 ± 1.108 (65) Stable to Decrease
2G1	[9.0] (2104) Decreasing	Decreasing	1.52 ± 1.321 (71) Stable

Table 4. Continued

Hunting Unit	2006 Winter Aerial Survey (Sample Size)	2005 Deer-Vehicle Collisions (MD & WTD)	2005 Hunter Obs. WTD/Hr. ± s.d. (Sample Size)
2G2	[8.2] (1584) Stable	Decreasing	2.46 ± 2.918 (60) Stable to Increase
Devils Lake 2L	[14.3] (244)	Stable to Increasing	4.73 ± 6.217 (49) Increase (Snow)
Coteau Hills All Units	NA		3.73 ± 3.795 (548)
2E	[4.5] (5405)	Stable	4.36 ± 4.301 (46) Increase (Snow)
2H	NA	Stable	2.54 ± 1.381 (56) Increase
2I	NA	Stable to Decreasing	2.41 ± 2.066 (58) Stable to Increase
2J1	NA	Stable	3.76 ± 2.992 (59) Increase (Trace Snow)
2J2	NA	Stable to Decreasing	3.00 ± 2.730 (60) Increase (T. Snow)
Coteau Hills 2K1	NA	Stable to Decreasing	4.18 ± 3.306 (72) Increase (Snow)
2K2	NA	Stable to Increasing	7.86 ± 6.278 (72) Increase (Snow)
3A1	NA	Stable	2.26 ± 2.031 (62) Increase (Snow)
3A3	NA	Stable to Decreasing	2.41 ± 1.757 (63) Increase (Snow)
Souris Des Lacs All Units	NA	Stable	3.74 ± 3.889 (112)
3A2	NA	Stable to Decreasing	3.01 ± 2.146 (54) Increase (Snow)
3A4	NA	Stable to Increasing	4.43 ± 4.134 (58) Increase (Snow)
Missouri River All Units			2.69 ± 2.745 (186)
3B1	NA		2.79 ± 2.664 (43) Stable (Snow)
3B2	NA	Stable to Increasing	2.31 ± 2.846 (14) Increase (Snow)
3B3	NA		3.10 ± 3.155 (69) Decrease (Snow)

Table 4. Continued

Hunting Unit	2006 Winter Aerial Survey (Sample Size)	2005 Deer-Vehicle Collisions (MD & WTD)	2005 Hunter Obs. WTD/Hr. ± s.d. (Sample Size)
Slope All Units	NA	Stable to Increasing	3.38 ± 3.929 (126)
3C	NA	Stable	2.24 ± 2.205 (60) Increase
3D1	NA	Stable	NA (Small Sample)
3D2	NA	Stable to Increasing	1.56 ± 1.033 (17) Decrease (Snow)
3E1	NA	Stable to Increasing	3.61 ± 2.900 (54) Increase (T.Snow)
3E2	NA	Stable to Increasing	4.02 ± 5.456 (47) Stable
3F1	NA	Stable	NA (No Sample)
3F2	NA	Stable to Increasing	NA (No Sample)
Badlands All Units	NA	Stable to Increasing	4.25 ± 4.205 (38)
4A	NA	NA	5.88 ± 6.423 (2)*** (Snow)
4B	NA	Stable	NA (No Sample)
4C	NA	Stable to Decreasing	NA (No Sample)
4D	NA	NA	2.29 ± 1.919 (8)***
4E	NA	Decreasing	2.40 ± 1.943 (7)***
4F	NA	Decreasing	5.46 ± 4.865 (21) Stable

***** Small Sample**

Table 5. Summary of mule deer population indices for 2005-2006 (i.e., 2006 spring aerial survey, 2005 Deer-vehicle collisions, and 2005 mule deer observed by hunters per hour of effort during the first Saturday and Sunday of the 2005 regular deer season).

Hunting Unit	2006 Spring Aerial Survey (Sample Size)	2005 Deer-Vehicle Collisions (MD & WTD)	2005 Hunter Obs. MD/Hr. ± s.d. (Sample Size)
Missouri River All Units	NA	Stable	1.04 ± 1.533 (242) All Hunters
3B1	NA	NA	1.81 ± 1.555 (97) Decrease (Snow) All Hunters
3B2	NA	Stable to Increasing	1.51 ± 2.766 (16) (Snow) All Hunters
3B3	NA	NA	0.31 ± 0.828 (69) Stable (Trace Snow) All Hunters
3C	NA	Stable	0.55 ± 1.148 (60) Stable All Hunters
Slope All Units	NA	Stable to Increasing	2.84 ± 3.524 (175) All Hunters
3D1	NA	Stable	1.88 ± 1.529 (23) (Snow) All Hunters
3D2	NA	Stable to Increasing	1.35 + 1.207 (47) Decreasing (Snow) All Hunters
3E1	NA	Stable to Increasing	3.61 + 2.900 (54) Increasing (T. Snow) All Hunters
3E2	NA	Stable to Increasing	3.97 ± 5.410 (48) Increasing All Hunters
3F1	NA	Stable	NA (No Sample)
3F2	NA	Stable to Increasing	1.97 ± 0.556 (3)*** All Hunters

Table 5. Continued

Hunting Unit	2006 Spring Aerial Survey (Sample Size)	2005 Deer-Vehicle Collisions (MD & WTD)	2005 Hunter Obs. MD/Hr. ± s.d. (Sample Size)
Badlands All Units	8.8 (2,567) Decreasing	Stable to Increasing	4.34 ± 4.084 (235) Increase MD Hunters
4A	19.1 (524) Increasing	NA	3.81 ± 3.855 (44) Decrease (Snow) MD Hunters
4B	7.0 (380) Stable to Decreasing	Stable	4.93 ± 4.307 (45) Inc. (Snow) MD Hunters
4C	7.5 (218) Increasing	Stable to Decreasing	4.10 ± 4.352 (50) Stable to Increasing (Snow) MD Hunters
4D	9.6 (850) Decreasing	NA	3.82 ± 2.937 (38) Increase MD Hunters
4E	8.2 (334) Decreasing	Decreasing	4.97 ± 4.636 (51) Stable MD Hunters
4F	6.8 (261) Stable	Decreasing	NA Small Sample

Table 6. Summary of white-tailed deer buck:doe:fawn ratios based upon observations by white-tailed deer hunters during the first Saturday and Sunday of the 2005 regular deer season.

Hunting Unit	2005 Hunter Obs. Buck:Doe:Fawn (Sample Size)
Turtle Mountains 1	0.31:1:1.09 (97-310-337)
Red River All Units	0.42:1:0.64 (1235-2965-1903)
2A	0.43:1:0.59 (246-574-339)
2B	0.37:1:0.52 (307:832:431)
2C	0.44:1:0.73 (682-1559-1133)
Pembina Hills 2D	0.23:1:0.52 (261-1118-583)
Sheyenne-James River All Units	0.41:1:0.77 (2266-5588-4326)
2F1	0.49:1:0.0.78 (679-1383-1072)
2F2	0.32:1:0.89 (606-1887-1688)
2G	0.44:1:0.57 (309-701-397)
2G1	0.38:1:0.44 (281-742-327)
2G2	0.45:1:0.96 (391-875-842)
Devils Lake 2L	0.32:1:0.95 (409-1265-1204)
Coteau Hills All Units	0.38:1:0.66 (4721-12392-8129)
2E	0.37:1:0.79 (466-1257-994)
2H	0.48:1:0.61 (424-886-544)
2I	0.40:1:0.52 (342-859-449)
2J1	0.42:1:0.54 (526-1253-680)
2J2	0.37:1:0.0.72 (437-1166-845)
2J1 & 2J2	0.40:1:0.63 (963-2419-1525)

Table 6 Continued

Hunting Unit	2004 Hunter Obs. Buck:Doe:Fawn (Sample Size)
Coteau Hills 2K1	0.37:1:0.45 (662-1784-804)
2K2	0.41:1:0.91 (1257-3063-2800)
2K1 & 2K2	0.40:1:0.74 (1919-4847-3604)
3A1	0.25:1:0.40 (272-1110-445)
3A3	0.33:1:0.56 (335-1014-568)
Souris Des Lacs All Units	0.27:1:0.63 (807-2936-1846)
3A2	0.30:1:0.57 (343-1161-665)
3A4	0.26:1:0.67 (464-1775-1181)
Missouri River All Units	0.38:1:0.54 (1377-3649-1983)
3B1	0.28:1:0.59 (348-1255-744)
3B2	0.43:1:0.52 (81-187-98) ***
3B3	0.41:1:0.51 (530-1296-659)
3C	0.46:1:0.53 (418-911-482)
Slope All Units	0.27:1:0.57 (884-3233-1852)
3D1	NA (No Sample)
3D2	0.23:1:0.42 (65-288-120)
3E1	0.27:1:0.66 (351-1306-858)
3E2	0.24:1:0.51 (270-1140-577)
3F1	NA (No Sample)
3F2	0.20:1:0.78 (10-49-38) ***

Table 6. Continued

Hunting Unit	2005 Hunter Obs. Buck:Doe:Fawn (Sample Size)
Badlands All Units (All Hunters)	0.25:1:0.54 (548-2153-1161)
4A (All Hunters)	0.22:1:0.73 (68-316-231)
4B (All Hunters)	0.21:1:0.59 (32-153-91) ***
4C (All Hunters)	0.26:1:0.57 (26-99-56) ***
4D (All Hunters)	0.32:1:0.70 (79-246-173)
4E (All Hunters)	0.28:1:0.57 (135-489-278)
4F (All Hunters)	0.24:1:0.39 (208-850-332)
Statewide (All Hunter Observations)	**0.35:1:0.65 (12608-35626-23335)**

*** (Small Sample Size)

Table 7. Summary of mule deer buck:doe:fawn ratios based upon fall 2005 aerial survey and observations by hunters during the first Saturday and Sunday of the 2005 regular deer season.

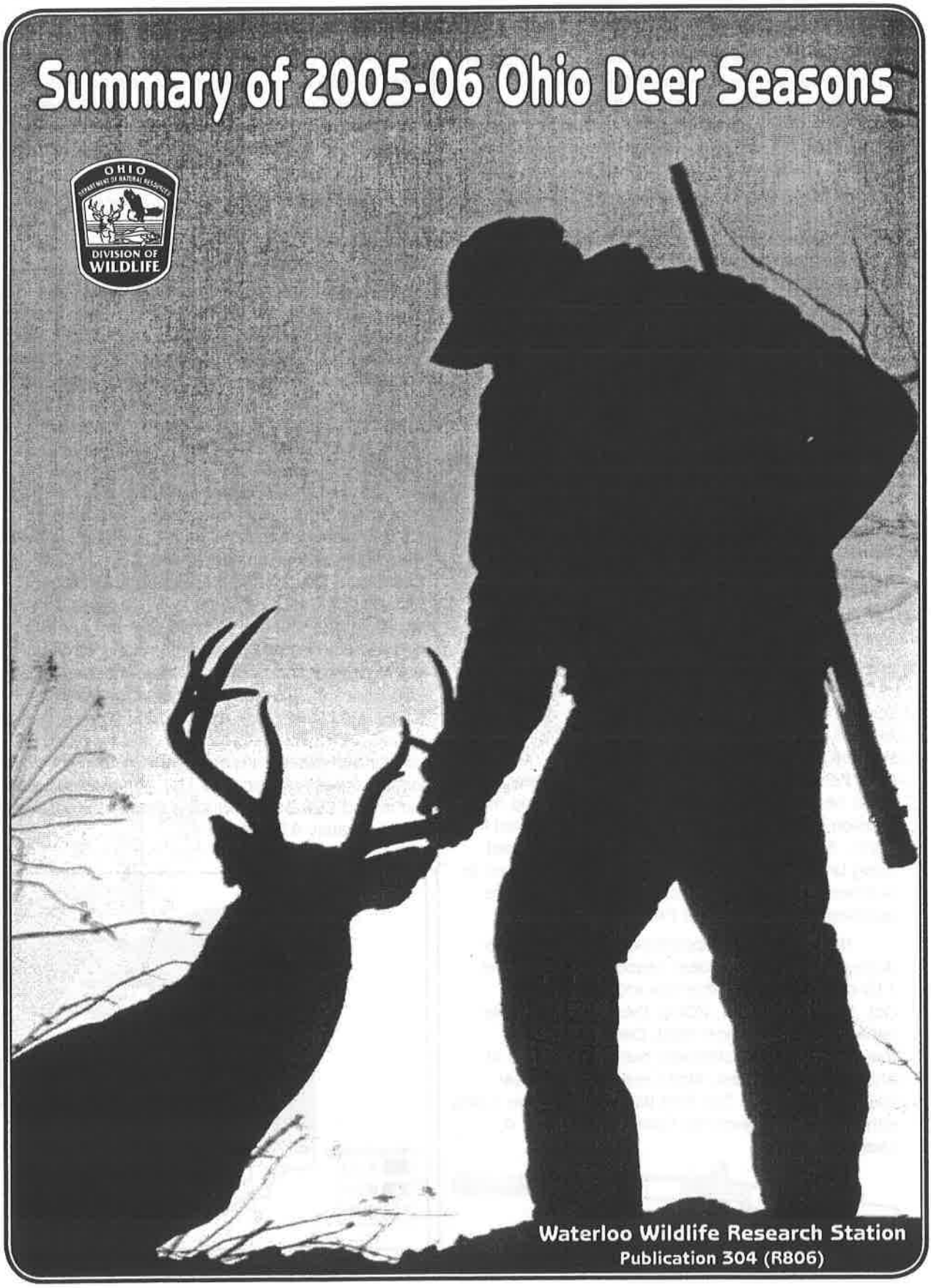
Hunting Unit	Fall 2005 Aerial Survey Buck:Doe:Fawn (Sample Size)	2005 Hunter Obs. Buck:Doe:Fawn (Sample Size)
Missouri River All Units	NA	0.25:1:0.38 (542-2184-819) (All Hunters)
3B1	NA	0.24:1:0.43 (348-1477-632)
3B2	NA	0.45:1:0.60 (58-129-78)***
3B3	NA	0.27:1:0.15 (24-72-40)***
3C	NA	0.21:1:0.22 (72-343-76)
Slope All Units	NA	0.31:1:0.49 (583-1853-905) (All Hunters)
3D1	NA	NA
3D2	NA	0.39:1:0.53 (236-610-324)
3E1	NA	0.25:1:0.57 (106-426-242)
3E2	NA	0.30:1:0.47 (134-449-209)
3F1	NA	NA
3F2	NA	0.10:1:0.1.35 (2-20-27) ***

*** (Small Sample Size)

Table 7. Continued.

Hunting Unit	Fall 2005 Aerial Survey Buck:Doe:Fawn (Sample Size)	2005 Hunter Obs. Buck:Doe:Fawn (Sample Size)
Badlands All Units	0.42:1:0.93 (390-938-875)	0.29:1:0.55 (2151-7429-4063) (MD Hunters)
4A	0.42:1:1.05 (72-171-199)	0.30:1:0.58 (314-1050-612)
4B	0.59:1:0.92 (65-111-102)	0.30:1:0.60 (371-1254-752)
4C	0.21:1:0.94 (21-100-94)	0.29:1:0.58 (451-1563-907)
4D	0.39:1:0.79 (108-278-221)	0.31:1:0.59 (378-1235-723)
4E	0.51:1:0.95 (80-158-150)	0.26:1:0.48 (467-1807-875)
4F	0.37:1:1.08 (44-120-129)	0.33:1:0.37 (170-520-194)
Statewide (All Hunter Obs.)	NA	0.29:1:0.50 (3378-11805-5906) (All Hunters)

*** (Small Sample Size)


Summary of 2005-06 Ohio Deer Seasons
OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
Waterloo Wildlife Research Station
Publication 304 (R806)

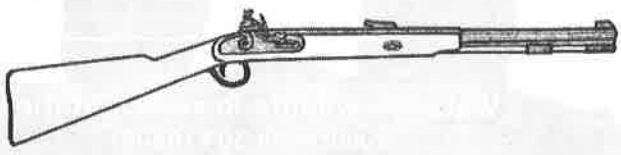
Our Management Strategy

The goal of Ohio's deer management program is to provide a deer population that maximizes recreational opportunity including viewing, photographing, and hunting deer while minimizing conflicts with agriculture, motor travel, and other areas of human endeavor. This has been the goal of our deer program for over 40 years. Public surveys indicate strong support for this approach. Farmer attitude survey data are used to establish and update target population goals for most counties. We believe these targets represent a reasonable compromise between those interests with opposing opinions on appropriate deer population levels. Furthermore, although these targets are based on social values, the resulting populations have never exceeded the biological carrying capacity of the habitat. Deer herd condition data collected annually and through periodic studies confirm this. Our deer management goal ensures that Ohio's deer herd is maintained at a level that is acceptable to most, and biologically sound. Maintaining the deer population at or near target is accomplished through harvest management.

Seasons, Permits, and Bag Limits

A valid hunting license (resident = $19, nonresident = $125) and Special Deer Permit ($24) are required (landowners are exempt) to hunt deer in Ohio. Hunters could harvest up to 3 deer using Special Deer Permits provided that they did not exceed the bag limit in any Deer Zone (Fig. 1). Hunters were allowed only 1 antlered deer. The Urban Deer Permit ($15), valid for an antlerless deer only, could be used in urban deer zones and during most Division of Wildlife (DOW) special and controlled hunts. A maximum of 4 deer could be harvested using Urban Deer Permits. Hunters were required to purchase at least one Special Deer Permit before purchasing an Urban Deer Permit.

Hunters had the opportunity to harvest deer during any of Ohio's 4 deer seasons including the 110-day, statewide either-sex archery season, Oct. 1, 2005-Jan. 31, 2006, the 4-day statewide either-sex muzzleloader hunt, Dec. 27-30, and the 6-day early muzzleloader hunt, Oct. 24-29 at Shawnee State Forest, Wolf Creek Wildlife Area/ Wildcat Hollow, and Salt Fork Wildlife Area. The 7-day, either-sex gun season ran from Nov. 28-Dec. 4, statewide.



Harvest Summary

A total of 209,513 deer was harvested this year, a 3.2% decrease from last season (Table 1). Coshocton County led the state in total harvest. A complete harvest summary by county and season and for the top 5 counties is presented in Tables 2 and 3, respectively.

Hunters harvested 116,517 deer during the statewide gun season, 5.3% less than last year. Coshocton, Muskingum, Guernsey, Tuscarawas and Knox counties led the state in total gun harvest. Archers reported harvesting 60,090 deer this year, just 526 fewer deer than last season (Table 1). Once again, the vertical bow harvest (26,432) set a record, making the 2005-06 season the 6th consecutive record season. Licking County led the state in both the vertical bow and crossbow harvest (Table 3). Coshocton, Tuscarawas, Guernsey, and Holmes rounded out the top 5 counties in crossbow harvest, while Coshocton, Knox, Holmes, and Muskingum completed the list of top 5 counties in vertical bow harvest. There were 23,289 deer harvested during the 4-day statewide muzzleloader season, December 27-30 (Table 1). Coshocton County had the highest muzzleloader harvest followed by Jefferson, Tuscarawas, Knox, and Belmont counties (Table 3). Young hunters harvested a record 8,641 deer, nearly 25% more than last year and 62% more than the inaugural 2003 season. Tuscarawas, Coshocton, Holmes, Knox, and Muskingum reported the highest harvest during the 2-day youth season. Statewide and county summaries are presented in Tables 1 and 2. Hunters purchased 515,181 deer permits and harvested 209,513 deer for a permit success rate of approximately 41% (Table 4).

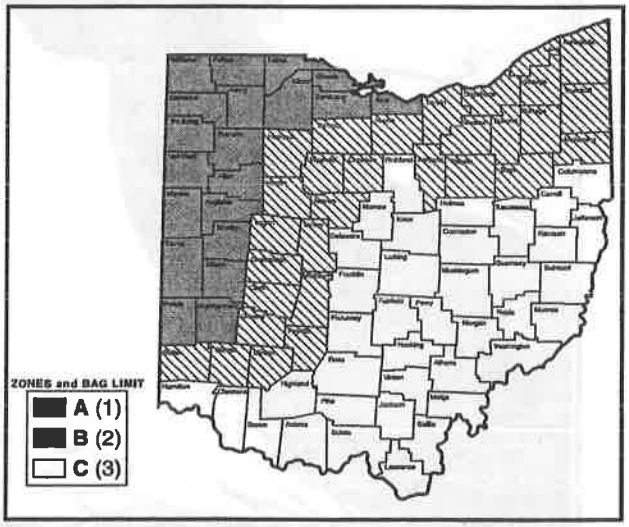


Figure 1. Ohio's 2005-06 deer zones.

Table 1. Ohio's 2005-06 antlered and antlerless deer harvest by season and percent change from the previous year.

Season/hunt	Antlered	Antlerless	Total	% Change
Gun	42,561	73,956	116,517	-5.3
Crossbow	17,445	16,213	33,658	-5.8
Vertical Bow	12,718	13,714	26,432	6.2
Archery	30,163	29,927	60,090	-0.9
Salt Fork[1]	26	81	107	-0.9
Wildcat Hollow[1]	27	55	82	5.1
Shawnee[1]	8	19	27	12.5
Statewide Muzzleloader[2]	6,037	17,252	23,289	-6.0
Muzzleloader	6,098	17,407	23,505	-5.9
Statewide Youth	4,111	4,530	8,641	24.4
NASA/Plumbrook	123	275	398	-26.6
Ravenna Hunt	105	257	362	14.9
Season Total	**83,161**	**126,352**	**209,513**	**-3.2**

[1]Special muzzleloader season only Oct. 24-29, 2005.
[2]Statewide either-sex muzzleloader season Dec. 27-30, 2005.

Beginning this year, the early muzzleloader deer hunt at Salt Fork, Shawnee, and Wildcat Hollow was by permit only. Hunters interested in participating were required to submit a controlled hunt application from June 1 - July 31, 2005. The format of the hunt changed from a bucks-only hunt to a combination of either-sex and antlerless-only permits. Approximately 10% of applicants received an either-sex permit. The permit system was designed to capture information on both participation and harvest to help determine a socially and biologically acceptable way to manage deer on these 3 areas. In addition, permits allow the DOW to distribute harvest pressure among both the antlered and antlerless segments of these populations while providing more harvest opportunity for participants.

A total of 3,657 hunters applied and received a permit for the Shawnee (545), Salt Fork (2,209), and Wildcat Hollow (903) hunts. Based on a follow up survey of approximately 900 hunters, 71% of applicants actually hunted at least once during the 6-day season. Nearly 15% of all hunters were successful, for a total season harvest of 216 deer, nearly 22% more than last year. Eighty-one percent of those surveyed indicated that they will likely participate in future hunts. A complete summary by hunt is presented in Table 2.

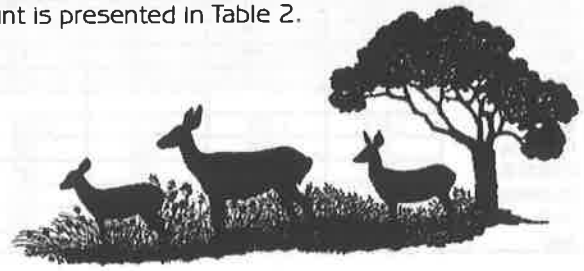


Table 2. Ohio's 2005-06 antlered and antlerless deer harvest by county and season.

County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Adams				
Gun	759	695	1,180	1,091
Crossbow	380	236	250	188
Vertical Bow	205	268	175	255
Muzzleloader	206	109	345	251
Youth	66	65	51	52
Total	1,619	1,374	2,001	1,837
Allen				
Gun	190	146	225	209
Crossbow	124	76	37	33
Vertical Bow	190	69	24	27
Muzzleloader	21	27	52	56
Youth	22	27	21	25
Total	547	345	359	350
Ashland				
Gun	448	590	803	1,004
Crossbow	310	270	277	214
Vertical Bow	186	141	160	164
Muzzleloader	102	90	356	246
Youth	61	69	50	80
Total	1,107	1,160	1,646	1,708
Ashtabula				
Gun	858	792	1,587	1,674
Crossbow	462	374	428	366
Vertical Bow	265	271	277	291
Muzzleloader	115	135	526	414
Youth	44	62	61	101
Total	1,744	1,634	2,879	2,846
Athens				
Gun	1,165	1,017	2,254	1,762
Crossbow	256	277	293	261
Vertical Bow	264	304	279	300
Muzzleloader	157	134	586	466
Youth	78	59	66	74
Total	1,920	1,791	3,478	2,863
Auglaize				
Gun	145	143	215	209
Crossbow	32	61	18	19
Vertical Bow	20	49	12	26
Muzzleloader	21	17	45	37
Youth	15	25	25	23
Total	233	295	315	314
Belmont				
Gun	1,270	1,200	1,998	1,845
Crossbow	363	310	258	248
Vertical Bow	194	199	160	169
Muzzleloader	178	192	680	559
Youth	93	111	67	83
Total	2,098	2,012	3,163	2,904
Brown				
Gun	626	619	886	922
Crossbow	254	219	165	227
Vertical Bow	181	224	168	278
Muzzleloader	127	111	260	298
Youth	44	75	55	61
Total	1,232	1,248	1,534	1,786
Butler				
Gun	203	187	354	241
Crossbow	123	153	121	149
Vertical Bow	112	171	117	180
Muzzleloader	48	52	104	124
Youth	20	31	23	18
Total	506	594	719	712
Carroll				
Gun	837	927	1,414	1,862
Crossbow	355	389	227	291
Vertical Bow	211	168	155	200
Muzzleloader	119	103	388	361
Youth	47	67	77	108
Total	1,569	1,654	2,261	2,822

Table 2. Continued

County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Champaign				
Gun	295	276	558	475
Crossbow	122	142	132	130
Vertical Bow	104	132	113	131
Muzzleloader	5	48	22	133
Youth	32	44	37	30
Total	558	642	862	899
Clark				
Gun	165	132	257	188
Crossbow	60	113	77	88
Vertical Bow	68	93	57	91
Muzzleloader	15	25	78	46
Youth	3	18	7	14
Total	311	381	476	427
Clermont				
Gun	428	417	723	707
Crossbow	190	318	229	352
Vertical Bow	167	291	182	392
Muzzleloader	97	68	252	203
Youth	33	51	16	29
Total	915	1,145	1,402	1,683
Clinton				
Gun	225	198	322	259
Crossbow	137	93	88	56
Vertical Bow	219	76	96	75
Muzzleloader	42	37	107	69
Youth	26	20	23	17
Total	649	424	636	476
Columbiana				
Gun	750	758	1,146	1,435
Crossbow	327	399	218	310
Vertical Bow	170	194	106	184
Muzzleloader	99	110	376	317
Youth	66	63	62	104
Total	1,412	1,524	1,908	2,350
Coshocton				
Gun	1,603	1,533	3,102	2,974
Crossbow	529	581	605	564
Vertical Bow	345	419	460	460
Muzzleloader	199	236	729	671
Youth	116	142	111	166
Total	2,792	2,911	5,007	4,835
Crawford				
Gun	241	247	441	448
Crossbow	86	84	71	72
Vertical Bow	52	54	35	46
Muzzleloader	23	27	87	70
Youth	20	15	22	30
Total	422	427	656	666
Cuyahoga				
Gun	11	8	18	
Crossbow	93	91	193	147
Vertical Bow	41	39	106	105
Muzzleloader	4	2	16	14
Youth	0	0	0	0
Total	149	140	333	266
Darke				
Gun	121	133	222	219
Crossbow	43	58	25	27
Vertical Bow	51	41	19	23
Muzzleloader	17	11	46	46
Youth	27	21	19	20
Total	259	264	331	335
Defiance				
Gun	368	297	647	374
Crossbow	83	65	99	40
Vertical Bow	79	101	98	33
Muzzleloader	49	28	111	69
Youth	22	26	35	29
Total	601	517	990	545

Table 2. Continued

County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Delaware				
Gun	287	319	551	492
Crossbow	203	184	229	258
Vertical Bow	156	157	212	267
Muzzleloader	2	50	3	123
Youth	24	26	30	33
Total	672	736	1,025	1,173
Erie				
Gun	114	70	229	127
Crossbow	121	97	75	72
Vertical Bow	46	45	37	34
Muzzleloader	15	11	48	23
Youth	17	5	15	12
Total	313	351	404	543
Fairfield				
Gun	561	528	1,123	1,005
Crossbow	247	234	229	211
Vertical Bow	197	201	237	204
Muzzleloader	2	72	40	206
Youth	52	42	47	75
Total	1,059	1,077	1,676	1,701
Fayette				
Gun	96	94	151	108
Crossbow	44	33	19	21
Vertical Bow	27	31	15	12
Muzzleloader	3	19	2	17
Youth	12	10	6	14
Total	182	187	193	172
Franklin				
Gun	106	89	173	218
Crossbow	114	123	196	166
Vertical Bow	67	85	124	161
Muzzleloader	0	14	5	49
Youth	4	5	8	7
Total	291	316	506	601
Fulton				
Gun	168	195	170	176
Crossbow	39	61	18	33
Vertical Bow	55	61	13	18
Muzzleloader	24	31	28	20
Youth	15	23	8	12
Total	301	371	237	259
Gallia				
Gun	1,039	1,021	1,786	1,684
Crossbow	178	181	161	145
Vertical Bow	165	174	133	148
Muzzleloader	159	113	387	355
Youth	55	76	52	68
Total	1,596	1,565	2,519	2,400
Geauga				
Gun	265	250	396	516
Crossbow	311	278	361	368
Vertical Bow	162	199	253	276
Muzzleloader	51	45	186	181
Youth	16	22	13	25
Total	805	794	1,209	1,366
Greene				
Gun	181	151	303	254
Crossbow	103	112	95	102
Vertical Bow	81	102	95	123
Muzzleloader	33	20	82	75
Youth	8	19	6	13
Total	406	404	581	567
Guernsey				
Gun	1,467	1,351	2,737	2,595
Crossbow	712	507	662	398
Vertical Bow	394	271	387	281
Muzzleloader	161	158	621	516
Youth	100	118	128	129
Total	2,942	2,428	4,535	3,996

Table 2. Continued

County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Hamilton				
Gun	150	112	309	217
Crossbow	120	206	198	340
Vertical Bow	110	203	234	425
Muzzleloader	39	27	138	99
Youth	15	10	8	12
Total	434	558	887	1,093
Hancock				
Gun	254	277	268	458
Crossbow	208	122	55	94
Vertical Bow	242	99	42	129
Muzzleloader	19	31	58	99
Youth	41	31	22	39
Total	764	560	445	819
Hardin				
Gun	292	260	485	422
Crossbow	83	74	67	44
Vertical Bow	66	70	55	59
Muzzleloader	28	34	46	84
Youth	33	50	19	36
Total	502	488	672	645
Harrison				
Gun	1,069	1,210	1,858	2,089
Crossbow	417	381	398	372
Vertical Bow	199	198	248	289
Muzzleloader	157	151	764	512
Youth	60	86	63	126
Total	1,902	2,026	3,331	3,388
Henry				
Gun	174	142	164	176
Crossbow	163	30	37	15
Vertical Bow	59	38	17	
Muzzleloader	61	15	50	36
Youth	25	34	5	15
Total	482	259	273	242
Highland				
Gun	564	558	893	967
Crossbow	205	192	147	195
Vertical Bow	148	162	120	182
Muzzleloader	67	81	178	225
Youth	49	52	52	55
Total	1,033	1,045	1,390	1,624
Hocking				
Gun	955	946	1,922	1,653
Crossbow	317	266	280	241
Vertical Bow	247	261	269	250
Muzzleloader	100	110	413	320
Youth	73	62	70	76
Total	1,692	1,645	2,954	2,540
Holmes				
Gun	859	911	1,636	1,719
Crossbow	445	451	530	421
Vertical Bow	285	286	493	488
Muzzleloader	118	118	523	440
Youth	74	105	81	169
Total	1,781	1,871	3,263	3,237
Huron				
Gun	417	458	867	881
Crossbow	184	207	143	134
Vertical Bow	111	96	97	92
Muzzleloader	53	53	202	154
Youth	35	51	53	67
Total	800	865	1,362	1,328
Jackson				
Gun	863	730	1,712	1,433
Crossbow	301	255	298	242
Vertical Bow	202	229	295	286
Muzzleloader	113	140	421	297
Youth	54	71	75	66
Total	1,533	1,425	2,801	2,324

Table 2. Continued

County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Jefferson				
Gun	1,454	1,233	2,206	1,975
Crossbow	389	362	348	302
Vertical Bow	222	220	214	185
Muzzleloader	163	205	780	629
Youth	87	127	76	111
Total	2,315	2,147	3,624	3,202
Knox				
Gun	1,170	1,155	2,384	2,399
Crossbow	470	383	544	448
Vertical Bow	340	348	490	480
Muzzleloader	86	179	205	574
Youth	107	133	122	139
Total	2,173	2,198	3,745	4,040
Lake				
Gun	80	67	178	164
Crossbow	162	121	231	196
Vertical Bow	63	44	112	107
Muzzleloader	38	8	90	37
Youth	3	5	7	10
Total	346	245	618	514
Lawrence				
Gun	773	675	1,054	937
Crossbow	186	185	85	115
Vertical Bow	183	206	135	164
Muzzleloader	101	110	254	227
Youth	35	68	34	49
Total	1,278	1,244	1,562	1,492
Licking				
Gun	1,198	1,174	2,189	1,950
Crossbow	603	633	628	590
Vertical Bow	425	468	498	496
Muzzleloader	16	174	56	453
Youth	92	119	106	111
Total	2,334	2,568	3,477	3,600
Logan				
Gun	383	372	874	678
Crossbow	110	108	130	128
Vertical Bow	128	138	145	193
Muzzleloader	4	54	22	197
Youth	38	44	59	75
Total	663	716	1,230	1,271
Lorain				
Gun	251	289	445	574
Crossbow	313	319	379	325
Vertical Bow	101	116	124	126
Muzzleloader	47	32	155	118
Youth	21	23	32	41
Total	733	779	1,135	1,184
Lucas				
Gun	40	56	161	124
Crossbow	84	81	191	144
Vertical Bow	52	58	132	120
Muzzleloader	21	5	71	22
Youth	3	4	5	11
Total	200	204	560	421
Madison				
Gun	140	129	200	135
Crossbow	54	57	45	32
Vertical Bow	49	61	37	31
Muzzleloader	1	12	1	40
Youth	15	20	11	7
Total	259	279	294	245
Mahoning				
Gun	214	219	433	409
Crossbow	186	179	226	171
Vertical Bow	87	93	100	81
Muzzleloader	54	29	185	92
Youth	9	20	18	23
Total	550	540	962	776

Table 2. Continued

County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Marion				
Gun	211	168	266	253
Crossbow	58	55	63	51
Vertical Bow	40	51	36	45
Muzzleloader	4	18	10	50
Youth	18	15	14	23
Total	331	307	389	422
Medina				
Gun	220	229	328	416
Crossbow	266	274	251	203
Vertical Bow	88	78	64	110
Muzzleloader	45	32	100	107
Youth	12	27	18	23
Total	631	640	761	859
Meigs				
Gun	1,048	895	1,939	1,577
Crossbow	272	279	207	248
Vertical Bow	213	203	149	166
Muzzleloader	176	187	516	499
Youth	75	81	78	71
Total	1,784	1,645	2,889	2,561
Mercer				
Gun	140	116	190	177
Crossbow	11	29	5	30
Vertical Bow	17	40	11	29
Muzzleloader	19	19	35	27
Youth	8	15	19	28
Total	195	219	260	291
Miami				
Gun	111	114	154	123
Crossbow	101	75	40	44
Vertical Bow	84	62	36	44
Muzzleloader	22	19	28	44
Youth	8	9	7	13
Total	326	279	265	268
Monroe				
Gun	1,055	993	2,026	1,839
Crossbow	371	249	371	254
Vertical Bow	158	114	202	153
Muzzleloader	152	155	547	470
Youth	76	81	96	82
Total	1,812	1,592	3,242	2,798
Montgomery				
Gun	65	59	97	77
Crossbow	36	71	51	62
Vertical Bow	24	47	45	60
Muzzleloader	16	9	37	43
Youth	4	9	2	6
Total	145	195	232	248
Morgan				
Gun	988	876	1,847	1,637
Crossbow	204	175	165	163
Vertical Bow	168	168	139	175
Muzzleloader	101	118	434	334
Youth	69	65	68	65
Total	1,581	1,420	2,653	2,418
Morrow				
Gun	433	410	607	657
Crossbow	180	189	133	165
Vertical Bow	117	107	67	128
Muzzleloader	10	43	24	111
Youth	28	36	33	41
Total	768	785	864	1,102
Muskingum				
Gun	1,633	1,538	2,893	2,774
Crossbow	492	429	408	331
Vertical Bow	367	390	317	342
Muzzleloader	191	173	609	549
Youth	131	108	106	155
Total	2,814	2,639	4,333	4,154

Table 2. Continued

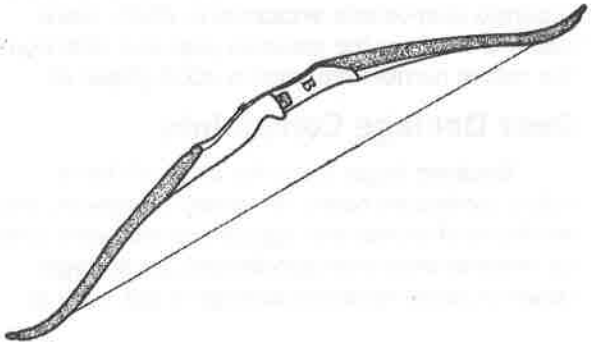
County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Noble				
Gun	1,059	917	1,705	1,567
Crossbow	236	240	204	219
Vertical Bow	147	154	160	149
Muzzleloader	114	114	358	311
Youth	71	71	84	90
Total	1,627	1,496	2,511	2,336
Ottawa				
Gun	56	64	80	83
Crossbow	45	45	34	22
Vertical Bow	24	29	15	
Muzzleloader	14	7	32	12
Youth	8	6	9	12
Total	147	151	170	129
Paulding				
Gun	143	175	224	212
Crossbow	25	40	22	24
Vertical Bow	45	51	9	9
Muzzleloader	20	23	57	51
Youth	10	22	17	19
Total	243	311	329	315
Perry				
Gun	979	1,001	2,010	1,780
Crossbow	249	258	257	212
Vertical Bow	183	181	204	197
Muzzleloader	123	122	464	368
Youth	72	96	92	82
Total	1,633	1,669	3,027	2,639
Pickaway				
Gun	251	271	325	368
Crossbow	96	90	69	99
Vertical Bow	54	72	46	54
Muzzleloader	7	26	3	68
Youth	24	29	19	27
Total	432	488	462	616
Pike				
Gun	595	474	1,094	740
Crossbow	168	160	162	140
Vertical Bow	136	123	133	88
Muzzleloader	69	68	230	162
Youth	41	37	24	28
Total	1,009	862	1,643	1,158
Portage				
Gun	253	271	420	555
Crossbow	320	348	374	360
Vertical Bow	124	120	181	169
Muzzleloader	79	46	213	115
Youth	18	25	30	35
Total	794	915	1,218	1,491
Preble				
Gun	141	132	191	147
Crossbow	42	74	31	48
Vertical Bow	32	80	14	34
Muzzleloader	26	34	57	70
Youth	11	21	4	23
Total	252	341	297	322
Putnam				
Gun	128	130	143	169
Crossbow	67	52	33	25
Vertical Bow	96	54	31	24
Muzzleloader	19	11	37	25
Youth	26	33	25	38
Total	336	280	269	281
Richland				
Gun	618	704	1,110	1,264
Crossbow	465	360	328	377
Vertical Bow	209	190	199	258
Muzzleloader	95	93	254	256
Youth	60	66	56	91
Total	1,447	1,413	1,947	2,246

Table 2. Continued

County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Ross				
Gun	906	710	1,560	1,251
Crossbow	323	244	281	216
Vertical Bow	223	250	205	195
Muzzleloader	107	114	333	288
Youth	94	97	56	80
Total	1,653	1,415	2,435	2,030
Sandusky				
Gun	122	118	201	183
Crossbow	76	87	68	53
Vertical Bow	63	64	32	26
Muzzleloader	22	21	64	46
Youth	15	11	13	20
Total	298	301	378	328
Scioto				
Gun	655	454	1,032	771
Crossbow	187	197	128	137
Vertical Bow	136	179	136	139
Muzzleloader	84	62	237	138
Youth	31	41	37	48
Total	1,114	940	1,570	1,252
Seneca				
Gun	381	358	714	733
Crossbow	167	203	132	156
Vertical Bow	107	109	81	80
Muzzleloader	40	30	148	125
Youth	43	42	39	59
Total	738	742	1,114	1,153
Shelby				
Gun	154	141	240	244
Crossbow	53	62	40	38
Vertical Bow	52	45	26	21
Muzzleloader	14	18	54	79
Youth	25	27	27	45
Total	298	293	387	427
Stark				
Gun	270	284	424	498
Crossbow	210	244	189	228
Vertical Bow	107	101	71	72
Muzzleloader	72	33	162	124
Youth	23	30	23	39
Total	682	692	869	961
Summit				
Gun	91	77	134	94
Crossbow	328	237	459	375
Vertical Bow	115	107	189	195
Muzzleloader	33	25	123	51
Youth	2	6	4	8
Total	569	452	909	723
Trumbull				
Gun	504	511	1,030	1,058
Crossbow	398	302	501	372
Vertical Bow	215	182	319	267
Muzzleloader	120	51	416	209
Youth	37	50	47	65
Total	1,274	1,096	2,313	1,971
Tuscarawas				
Gun	1,384	1,338	2,637	2,491
Crossbow	497	455	515	512
Vertical Bow	289	267	350	392
Muzzleloader	157	198	704	556
Youth	111	143	116	173
Total	2,438	2,401	4,322	4,124
Union				
Gun	229	215	377	333
Crossbow	74	76	64	56
Vertical Bow	59	74	54	69
Muzzleloader	1	35	4	55
Youth	18	26	23	20
Total	381	426	522	533

Table 2. Continued

County/season	Antlered		Antlerless	
	2004	2005	2004	2005
Van Wert				
Gun	66	120	87	121
Crossbow	41	42	16	28
Vertical Bow	14	20	5	16
Muzzleloader	13	11	46	44
Youth	8	16	1	29
Total	142	209	155	238
Vinton				
Gun	726	668	1,513	1,204
Crossbow	180	175	156	144
Vertical Bow	165	210	147	157
Muzzleloader	65	76	298	220
Youth	40	50	55	42
Total	1,176	1,179	2,169	1,767
Warren				
Gun	222	194	356	256
Crossbow	91	175	107	173
Vertical Bow	80	154	100	179
Muzzleloader	47	41	141	123
Youth	15	15	12	14
Total	455	579	716	745
Washington				
Gun	1,318	1,188	2,206	2,008
Crossbow	306	243	176	194
Vertical Bow	317	195	149	193
Muzzleloader	219	198	598	515
Youth	89	117	81	95
Total	2,249	1,941	3,210	3,005
Wayne				
Gun	270	379	355	614
Crossbow	172	200	82	145
Vertical Bow	110	140	48	134
Muzzleloader	44	41	117	123
Youth	22	47	29	51
Total	618	807	631	1,067
Williams				
Gun	497	421	813	485
Crossbow	143	125	108	46
Vertical Bow	159	130	147	51
Muzzleloader	41	36	100	60
Youth	32	36	43	38
Total	872	748	1,211	680
Wood				
Gun	168	169	188	178
Crossbow	80	70	45	50
Vertical Bow	79	84	33	34
Muzzleloader	29	24	36	40
Youth	12	19	8	16
Total	368	366	310	318
Wyandot				
Gun	334	323	600	575
Crossbow	101	85	106	108
Vertical Bow	81	69	95	107
Muzzleloader	39	43	130	114
Youth	42	34	34	46
Total	597	554	965	950



Age, Sex, and Condition Data

Each year during the gun season, DOW personnel age approximately 5-7% of the harvest. Typically, this amounts to between 6,000-8,000 deer. A total of 6,117 deer was examined at check stations in 22 counties this year. The distribution of those check stations is presented in Figure 3. A total of 38% of aged deer were antlered bucks; yearlings (1.5-year-olds) accounted for 56% of the antlered bucks. Antler measurements from yearling bucks provide a snapshot of the relative condition of the deer herd. Because young bucks are still growing quite rapidly, much of the animal's energy intake is devoted to body growth; antler development is secondary. Body growth will take precedence when deer are faced with dietary deficiencies. Antler development will be compromised and declines in beam diameter and number of points can be expected. However, when adequate nutrition is available, body size and antler development will improve. By annually monitoring yearling antler development and changes in herd size, we are better able to understand the relationship between deer abundance and herd condition. Yearling buck antler beam data for 1973, 2005, and the average for the past 5 years are presented in Figure 4.

The age data collected each year are used to estimate adult buck harvest mortality, the adult sex ratio, and fawns per adult doe in the harvest, which is a relative measure of reproduction and survival (Table 5). By extrapolating this sample to harvest data from the entire state, we can estimate changes in herd size and generate population estimates for the upcoming season. The average age of all deer in this year's harvest sample and for the last 5 years, is presented in Figure 5.

Deer-vehicle Accidents

Because they represent a significant cost to the public, the DOW has monitored deer-vehicle accident trends since the 1940s. Moreover, deer-vehicle accident trends should reflect fluctuations in deer populations if changes in traffic volume are considered and accident reporting rates do not vary over time. Statewide, there was a total of 27,366 reported deer-vehicle accidents in 2005, down nearly 8.5% from the previous year and 14% from the record number reported in 2003 (Table 6).

Deer Damage Complaints

Because target levels for most of Ohio's rural counties are based on farmer tolerances, the likelihood of widespread agricultural problems should be minimal when deer populations are at target. However, some localized damage is still likely to occur and in these instances, producers may be eligible for a Deer Damage Control permit. In 2005, a total of 1,892 crop damage complaints was received by the DOW, a decrease of 15% from last year (Table 7). A total of 9,731 deer was killed on damage permits this year, an increase of 2% over last year.

Beginning in 1997, the DOW began issuing damage permits that were valid only during deer season. The goal was to reduce abuse and hunter dissatisfaction, while still effectively addressing bona fide damage problems. Where hunting was ineffective (damage occurring outside the hunting

Table 3. Ohio's 2005-06 antlered and antlerless deer harvest by season for the top 5 harvest counties.

Season/county	Antlered		Antlerless	
	2004	2005	2004	2005
Gun				
Coshocton	1,603	1,533	3,102	2,974
Muskingum	1,633	1,538	2,893	2,774
Guernsey	1,467	1,351	2,737	2,595
Tuscarawas	1,384	1,338	2,637	2,491
Knox	1,454	1,155	2,206	2,399
Crossbow				
Licking	712	633	662	590
Coshocton	603	581	628	564
Tuscarawas	529	455	605	512
Guernsey	470	507	544	398
Holmes	497	451	515	421
Vertical Bow				
Licking	425	468	498	496
Coshocton	340	419	490	460
Knox	345	348	460	480
Holmes	394	286	387	488
Muskingum	285	390	493	342
Muzzleloader				
Coshocton	163	236	780	671
Jefferson	199	205	729	629
Tuscarawas	157	198	764	556
Knox	157	179	704	574
Belmont	178	192	680	559
Youth				
Tuscarawas	131	143	106	173
Coshocton	107	142	122	166
Holmes	100	105	128	169
Knox	111	133	116	139
Muskingum	116	108	111	155
Total				
Coshocton	2,792	2,911	5,007	4,835
Muskingum	2,942	2,639	4,535	4,154
Tuscarawas	2,814	2,401	4,333	4,124
Guernsey	2,438	2,428	4,322	3,996
Knox	2,315	2,198	3,624	4,040

season or deer simply were not available for harvest during legal shooting hours), the traditional out-of-season permit would be issued. A total of 3,961 deer was harvested on in-season damage permits this year, accounting for 41% of all deer taken on damage permits (Table 7). A total of 5,770 deer was killed on out-of-season permits, an increase of 8% over last year.

Figure 3. Distribution of deer aging stations for the 2005-06 deer season.

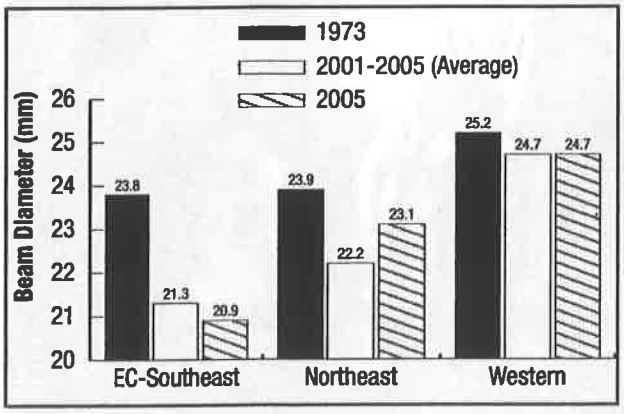


Figure 4. Average yearling beam diameter from gun season harvest samples for select years.

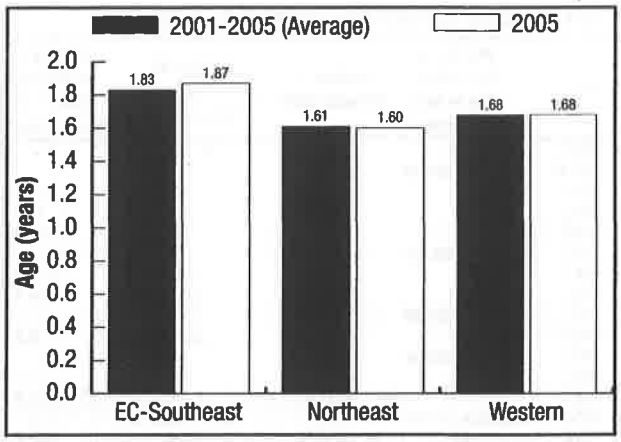


Figure 5. Average age of all deer sampled by region for gun season harvest samples, 2001-2005.

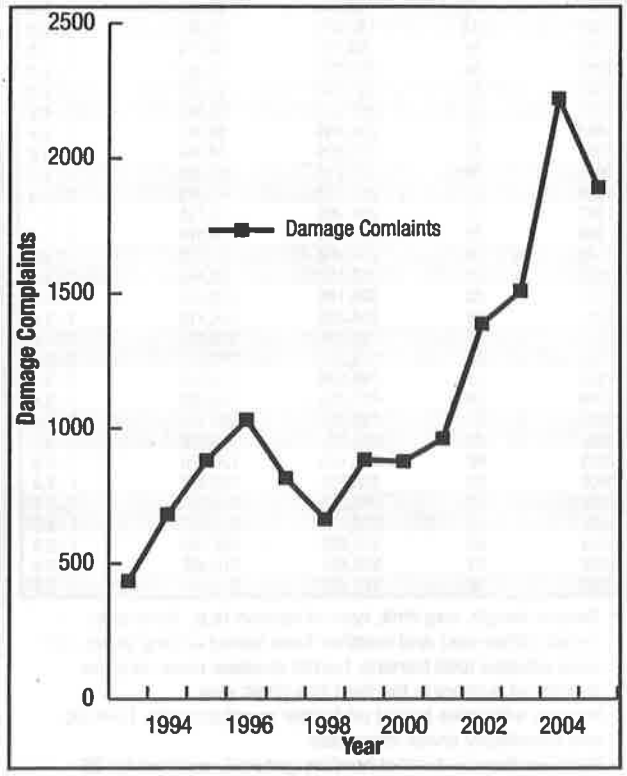


Figure 6. Statewide trends in deer damage complaints, 1993-2005.

Table 4. Deer harvest and permit data, 1900-2005.[a]

Year	Number of Open Counties in Gun Season	Number of Permits Sold	Number of Deer Harvested[b]	Deer Harvested per Number of Permits Sold[c]
1900	88	?	?	?
1901-42	Season closed			
1943	3	8,500	168	1 : 50.6
1944	3	9,200	117	1 : 78.6
1945	3	7,700	62	1 : 124.2
1946	Season closed			
1947	8	9,669	1,000	1 : 9.7
1948	13	23,044	1,600	1 : 14.4
1949	Season closed			
1950	19	22,728	3,500	1 : 6.5
1951	Season closed			
1952	27	14,081	450	1 : 31.3
1953	40	30,033	4,000	1 : 7.5
1954	Season closed			
1955	42	36,419	4,200	1 : 8.7
1956	88	48,263	3,911	1 : 12.3
1957	88	46,466	4,784	1 : 9.7
1958	88	42,777	4,415	1 : 9.7
1959	88	38,414	2,960	1 : 13.0
1960	88	27,430	2,584	1 : 10.6
1961	Season closed			
1962	88	23,049	2,114	1 : 10.9
1963	88	33,298	2,074	1 : 16.1
1964	88	32,400	1,326	1 : 24.4
1965	36	12,808	406	1 : 31.5
1966	48	24,079	1,073	1 : 22.4
1967	50	28,892	1,437	1 : 20.1
1968	50	35,322	1,396	1 : 25.3
1969	56	45,078	2,105	1 : 21.4
1970	51	54,807	2,387	1 : 23.0
1971	63	74,758	3,831	1 : 19.5
1972	63	88,919	5,074	1 : 17.5
1973	59	107,933	7,594	1 : 14.2
1974	65	106,867	10,747	1 : 9.9
1975	68	125,807	14,972	1 : 8.4
1976	68	138,946	23,431	1 : 5.9
1977	73	155,445	22,319	1 : 7.0
1978	74	175,314	22,967	1 : 7.6
1979	88	193,764	34,874	1 : 5.6
1980	88	216,055	40,499	1 : 5.3
1981	88	231,948	47,634	1 : 4.9
1982	88	257,504	52,885	1 : 4.9
1983	88	264,493	59,812	1 : 4.4
1984	88	273,205	66,860	1 : 4.0
1985	88	277,714	64,263	1 : 4.3
1986	88	290,293	67,628	1 : 4.3
1987	88	297,205	79,355	1 : 3.7
1988	88	373,435	100,674	1 : 3.7
1989	88	284,909	91,236	1 : 3.1
1990	88	295,127	98,468	1 : 3.0
1991	88	338,186	119,215	1 : 2.9
1992	88	359,250	126,113	1 : 2.8
1993	88	385,068	138,752	1 : 2.8
1994	88	425,797	170,527	1 : 2.5
1995	88	496,890	179,543	1 : 2.8
1996	88	475,288	158,000	1 : 3.0
1997	88	439,814	153,159	1 : 2.9
1998	88	365,875	118,270	1 : 3.1
1999	88	361,125	126,770	1 : 2.8
2000	88	438,744	150,432	1 : 2.9
2001	88	469,055	165,124	1 : 2.8
2002	88	507,723	204,652	1 : 2.5
2003	88	515,928	197,790	1 : 2.6
2004	88	520,458	216,443	1 : 2.4
2005	88	515,181	209,513	1 : 2.5

[a] Season length, bag limit, type of season (e.g., buck-only versus either-sex) and weather have varied among years and have affected total harvest, hunter success rates, and the number of hunters in the field in a given year.

[b] Harvest estimates based on hunter questionnaires 1946-60 and mandatory check thereafter.

[c] Because license-exempt hunters generally account for 25-30% of the total harvest, the permit success rate for license buyers is somewhat lower than shown.

Table 5. Estimated harvest rate of antlered deer, preseason adult (1.5 years old and older) sex ratio, and fawns per adult doe in the gun season harvest sample. Estimates are based on 6,117 deer sampled during the 2005 gun season.

Variable	Region		
	EC-Southeast	Northeast	Western
Buck harvest rate[1]			
5-year average[2]	0.53	0.55	0.54
2005	0.52	0.53	0.52
Adult sex ratio			
5-year average	1.6[3]	1.55	1.51
2005	1.56	1.51	1.5
Fawn/adult doe			
5-year average	0.94	0.95	.97
2005	0.88	0.95	1.04

[1]The proportion of antlered deer alive at the start of the gun season that will be harvested.

[2]Average based on data from 2001-2005 seasons.

[3]For example, for every 100 adult bucks alive at the start of the fall hunting season, there will be approximately 160 adult does.

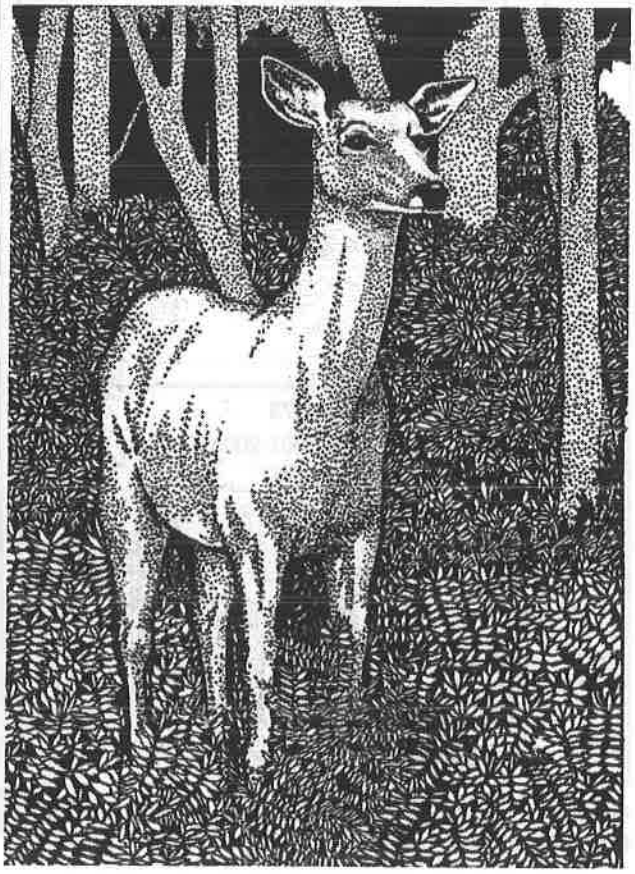


Table 6. Number of reported deer-vehicle accidents as compiled by the Ohio Department of Public Safety, 2001-2005.

County	Year				
	2001	2002	2003	2004	2005
Adams	307	323	332	287	251
Allen	406	404	405	376	377
Ashland	374	432	488	473	442
Ashtabula	492	554	583	464	376
Athens	487	413	388	280	230
Auglaize	257	238	266	259	238
Belmont	204	160	185	149	126
Brown	350	382	359	351	301
Butler	467	484	498	483	507
Carroll	253	245	279	214	90
Champaign	131	79	56	98	120
Clark	303	265	218	191	185
Clermont	565	561	541	537	442
Clinton	297	295	290	290	283
Columbiana	392	381	447	372	334
Coshocton	537	612	577	455	282
Crawford	254	238	286	268	290
Cuyahoga	509	476	525	485	478
Darke	261	224	272	267	261
Defiance	311	335	354	378	298
Delaware	640	547	577	560	568
Erie	252	219	318	268	302
Fairfield	591	493	505	485	387
Fayette	165	195	223	195	138
Franklin	543	489	511	515	533
Fulton	206	181	190	234	219
Gallia	380	361	261	206	232
Geauga	380	425	443	374	405
Greene	494	493	445	391	366
Guernsey	475	475	435	410	336
Hamilton	703	731	791	714	759
Hancock	303	373	500	460	456
Hardin	224	199	275	262	223
Harrison	243	220	219	191	146
Henry	172	170	186	201	185
Highland	433	399	394	376	311
Hocking	193	146	127	112	94
Holmes	411	392	383	416	374
Huron	265	320	359	302	292
Jackson	405	376	318	305	253
Jefferson	269	270	253	238	237
Knox	699	632	612	576	590
Lake	361	345	341	308	283
Lawrence	234	202	135	101	111

Table 6. Continued

County	Year				
	2001	2002	2003	2004	2005
Licking	379	338	324	364	345
Logan	548	561	449	612	493
Lorain	431	419	517	540	485
Lucas	257	239	266	310	291
Madison	201	149	147	121	114
Mahoning	446	443	516	476	440
Marion	280	296	308	297	277
Medina	411	389	426	400	401
Meigs	258	204	207	220	171
Mercer	185	179	177	182	168
Miami	306	327	390	342	343
Monroe	54	32	36	26	27
Montgomery	411	415	395	325	364
Morgan	185	186	191	204	127
Morrow	343	318	319	308	340
Muskingum	757	637	703	718	559
Noble	226	228	213	186	180
Ottawa	166	167	151	154	182
Paulding	164	159	181	177	139
Perry	317	279	243	218	151
Pickaway	297	302	336	283	285
Pike	221	146	119	162	110
Portage	447	494	500	461	440
Preble	213	214	214	158	172
Putnam	145	121	130	183	147
Richland	707	699	753	670	683
Ross	621	518	555	518	444
Sandusky	269	256	320	299	304
Scioto	324	252	206	238	201
Seneca	337	308	381	399	335
Shelby	332	339	373	393	315
Stark	526	519	591	455	473
Summit	716	674	642	618	624
Trumbull	459	477	482	506	394
Tuscarawas	491	502	591	529	508
Union	372	332	364	333	293
VanWert	122	118	194	158	173
Vinton	240	229	233	155	94
Warren	456	425	482	478	407
Washington	359	312	336	275	286
Wayne	493	434	506	440	340
Williams	389	378	453	472	432
Wood	311	294	337	357	336
Wyandot	216	244	322	277	262
Statewide	**31,586**	**30,306**	**31,729**	**29,874**	**27,366**

Table 7. Number of damage complaints, permits issued, and deer taken, 2000-2005.

County	Year					
	2000	2001	2002	2003	2004	2005
Adams						
In-Season						
Permits Issued	13	13	29	38	59	69
Deer Harvested	27	56	92	137	321	219
Out-of-Season						
Permits Issued	4	0	2	6	4	3
Deer Killed	13	0	0	7	10	10
Complaints	15	13	37	46	65	74
Allen						
In-Season						
Permits Issued	1	4	1	0	0	3
Deer Harvested	0	2	0	0	0	1
Out-of-Season						
Permits Issued	3	2	2	1	0	0
Deer Killed	2	0	0	0	0	0
Complaints	3	6	5	2	2	3
Ashland						
In-Season						
Permits Issued	4	2	11	20	19	4
Deer Harvested	12	17	23	56	59	37
Out-of-Season						
Permits Issued	7	6	7	9	15	15
Deer Killed	20	32	51	57	124	127
Complaints	10	9	17	22	34	29
Ashtabula						
In-Season						
Permits Issued	4	12	12	8	18	11
Deer Harvested	12	22	23	29	27	22
Out-of-Season						
Permits Issued	4	3	7	8	17	12
Deer Killed	10	11	51	28	72	56
Complaints	8	19	16	16	35	32
Athens						
In-Season						
Permits Issued	20	23	28	34	44	29
Deer Harvested	91	138	149	200	296	259
Out-of-Season						
Permits Issued	25	20	29	28	25	36
Deer Killed	133	147	187	140	157	65
Complaints	40	35	47	53	70	70
Auglaize						
In-Season						
Permits Issued	0	1	0	1	2	1
Deer Harvested	0	1	0	2	3	3
Out-of-Season						
Permits Issued	0	0	0	0	1	0
Deer Killed	0	0	0	0	0	0
Complaints	0	1	0	1	4	1
Belmont						
In-Season						
Permits Issued	10	17	22	29	32	11
Deer Harvested	17	33	61	82	121	95
Out-of-Season						
Permits Issued	9	7	17	20	22	8
Deer Killed	30	25	34	69	110	85
Complaints	15	23	31	37	55	33
Brown						
In-Season						
Permits Issued	7	7	23	23	31	36
Deer Harvested	17	20	77	102	125	133
Out-of-Season						
Permits Issued	4	3	5	2	11	22
Deer Killed	12	17	30	6	41	139
Complaints	10	10	27	30	55	69
Butler						
In-Season						
Permits Issued	0	2	1	11	24	6
Deer Harvested	0	5	2	8	8	8
Out-of-Season						
Permits Issued	11	16	9	14	22	17
Deer Killed	32	37	26	5	17	25
Complaints	11	18	10	19	46	27
Carroll						
In-Season						
Permits Issued	1	4	14	16	22	2
Deer Harvested	0	14	42	51	83	80
Out-of-Season						
Permits Issued	3	3	10	12	19	1
Deer Killed	17	12	88	72	157	149
Complaints	4	5	20	20	42	18
Champaign						
In-Season						
Permits Issued	2	2	2	3	3	4
Deer Harvested	6	10	5	16	12	13
Out-of-Season						
Permits Issued	4	1	2	2	2	1
Deer Killed	5	0	1	1	1	1
Complaints	7	4	6	7	7	5
Clark						
In-Season						
Permits Issued	3	3	5	10	6	6
Deer Harvested	9	12	6	20	22	11
Out-of-Season						
Permits Issued	3	3	11	8	5	4
Deer Killed	15	8	8	11	20	28
Complaints	6	6	15	14	13	12
Clermont						
In-Season						
Permits Issued	4	0	5	6	5	6
Deer Harvested	17	0	5	25	14	25
Out-of-Season						
Permits Issued	11	10	11	18	18	23
Deer Killed	51	43	46	64	80	123
Complaints	13	10	16	23	24	31
Clinton						
In-Season						
Permits Issued	5	5	19	11	6	8
Deer Harvested	16	8	13	15	19	18
Out-of-Season						
Permits Issued	2	3	11	2	1	3
Deer Killed	0	0	3	0	12	11
Complaints	8	10	29	12	8	14
Columbiana						
In-Season						
Permits Issued	0	0	10	9	7	1
Deer Harvested	0	0	11	31	41	25
Out-of-Season						
Permits Issued	2	4	9	9	13	9
Deer Killed	3	6	16	32	47	56
Complaints	2	4	15	15	20	14
Coshocton						
In-Season						
Permits Issued	18	22	29	59	50	44
Deer Harvested	89	103	149	407	420	501
Out-of-Season						
Permits Issued	16	15	26	21	29	13
Deer Killed	80	61	232	228	276	400
Complaints	33	33	46	61	79	22
Crawford						
In-Season						
Permits Issued	0	3	2	7	3	7
Deer Harvested	0	4	0	10	18	18
Out-of-Season						
Permits Issued	2	2	2	2	0	1
Deer Killed	3	1	4	2	0	1
Complaints	2	6	2	8	3	8

Table 7. Continued

County	Year					
	2000	2001	2002	2003	2004	2005
Cuyahoga						
In-Season						
Permits Issued	9	4	2	16	7	0
Deer Harvested	16	2	0	1	9	0
Out-of-Season						
Permits Issued	32	35	26	1	25	25
Deer Killed	119	59	37	30	85	38
Complaints	42	46	39	25	32	25
Darke						
In-Season						
Permits Issued	0	0	0	0	0	0
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	1	1	1	1	0	0
Deer Killed	4	6	1	1	0	0
Complaints	1	1	1	1	0	0
Defiance						
In-Season						
Permits Issued	1	0	0	1	0	0
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	1	0	0	1	1	0
Deer Killed	0	0	0	2	0	0
Complaints	1	0	0	2	1	0
Delaware						
In-Season						
Permits Issued	5	5	1	6	16	5
Deer Harvested	7	18	0	20	15	31
Out-of-Season						
Permits Issued	0	0	10	14	15	4
Deer Killed	0	0	4	31	32	29
Complaints	5	5	14	23	32	24
Erie						
In-Season						
Permits Issued	1	1	3	3	5	4
Deer Harvested	3	0	1	2	15	2
Out-of-Season						
Permits Issued	4	3	2	2	5	5
Deer Killed	9	11	5	7	12	11
Complaints	6	3	4	5	10	9
Fairfield						
In-Season						
Permits Issued	13	23	18	20	24	5
Deer Harvested	39	52	49	70	56	33
Out-of-Season						
Permits Issued	27	25	37	42	60	46
Deer Killed	98	91	133	173	306	243
Complaints	31	36	43	51	87	62
Fayette						
In-Season						
Permits Issued	0	0	0	0	0	0
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	0	0	0	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	0	0	0	0	0	0
Franklin						
In-Season						
Permits Issued	7	5	3	1	2	1
Deer Harvested	3	0	2	2	0	7
Out-of-Season						
Permits Issued	13	14	15	17	20	18
Deer Killed	27	52	27	45	49	63
Complaints	15	16	16	20	20	20
Fulton						
In-Season						
Permits Issued	1	1	1	2	2	1
Deer Harvested	2	2	1	4	5	0
Out-of-Season						
Permits Issued	1	0	0	0	0	0
Deer Killed	1	0	0	0	0	0
Complaints	2	1	1	2	2	1

Table 7. Continued

County	Year					
	2000	2001	2002	2003	2004	2005
Gallia						
In-Season						
Permits Issued	0	1	1	3	3	2
Deer Harvested	0	1	1	15	3	3
Out-of-Season						
Permits Issued	8	4	5	1	1	3
Deer Killed	3	9	26	4	4	6
Complaints	10	7	6	5	4	6
Geauga						
In-Season						
Permits Issued	0	1	5	2	2	3
Deer Harvested	0	2	3	5	5	2
Out-of-Season						
Permits Issued	9	9	3	14	11	18
Deer Killed	40	29	22	55	44	56
Complaints	10	10	8	17	13	21
Greene						
In-Season						
Permits Issued	8	8	14	11	17	10
Deer Harvested	12	17	31	37	31	21
Out-of-Season						
Permits Issued	4	10	9	7	12	11
Deer Killed	13	21	12	16	34	37
Complaints	12	17	23	18	29	26
Guernsey						
In-Season						
Permits Issued	4	8	25	31	43	18
Deer Harvested	28	39	70	90	174	167
Out-of-Season						
Permits Issued	8	11	19	15	32	17
Deer Killed	30	52	72	59	137	155
Complaints	11	17	35	34	75	59
Hamilton						
In-Season						
Permits Issued	0	0	0	0	0	0
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	32	20	22	29	24	28
Deer Killed	83	52	61	47	51	78
Complaints	34	20	23	31	25	28
Hancock						
In-Season						
Permits Issued	5	6	9	7	10	8
Deer Harvested	3	5	9	14	45	10
Out-of-Season						
Permits Issued	2	6	6	6	4	4
Deer Killed	8	10	8	14	26	31
Complaints	6	8	11	11	17	8
Hardin						
In-Season						
Permits Issued	0	0	0	2	0	0
Deer Harvested	0	0	0	2	0	0
Out-of-Season						
Permits Issued	0	0	0	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	1	0	0	2	1	0
Harrison						
In-Season						
Permits Issued	5	6	14	9	3	4
Deer Harvested	10	26	26	49	32	14
Out-of-Season						
Permits Issued	4	5	13	7	14	14
Deer Killed	22	26	46	68	118	218
Complaints	7	10	22	12	19	23
Henry						
In-Season						
Permits Issued	0	0	0	0	2	2
Deer Harvested	0	0	0	0	7	0
Out-of-Season						
Permits Issued	0	0	1	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	0	1	1	0	2	2

Table 7. Continued

County	Year					
	2000	2001	2002	2003	2004	2005
Highland						
In-Season						
Permits Issued	5	11	30	26	38	0
Deer Harvested	7	7	45	56	60	0
Out-of-Season						
Permits Issued	4	15	29	20	33	22
Deer Killed	13	42	87	91	124	95
Complaints	8	24	49	31	78	22
Hocking						
In-Season						
Permits Issued	3	6	16	22	30	14
Deer Harvested	44	45	76	82	130	140
Out-of-Season						
Permits Issued	12	11	19	16	23	4
Deer Killed	140	172	187	110	248	259
Complaints	13	12	20	25	54	59
Holmes						
In-Season						
Permits Issued	2	10	14	5	21	5
Deer Harvested	12	47	80	147	157	100
Out-of-Season						
Permits Issued	1	4	5	17	10	23
Deer Killed	1	6	29	48	73	194
Complaints	3	14	18	20	38	33
Huron						
In-Season						
Permits Issued	1	2	1	2	3	5
Deer Harvested	0	0	4	7	4	10
Out-of-Season						
Permits Issued	2	1	1	6	4	5
Deer Killed	0	2	1	6	2	10
Complaints	3	2	2	8	7	10
Jackson						
In-Season						
Permits Issued	6	14	8	17	12	14
Deer Harvested	23	47	31	90	83	47
Out-of-Season						
Permits Issued	7	14	16	19	14	11
Deer Killed	29	36	27	47	41	6
Complaints	12	20	19	25	26	30
Jefferson						
In-Season						
Permits Issued	13	16	42	30	25	10
Deer Harvested	64	52	140	108	118	97
Out-of-Season						
Permits Issued	8	15	41	22	26	17
Deer Killed	47	99	143	136	153	166
Complaints	24	22	69	35	52	41
Knox						
In-Season						
Permits Issued	40	50	9	35	60	51
Deer Harvested	121	232	13	147	195	300
Out-of-Season						
Permits Issued	30	39	65	59	94	65
Deer Killed	223	326	397	623	811	720
Complaints	48	67	72	81	132	138
Lake						
In-Season						
Permits Issued	1	1	1	4	3	1
Deer Harvested	0	7	0	11	6	1
Out-of-Season						
Permits Issued	22	23	20	27	36	24
Deer Killed	37	42	35	70	73	66
Complaints	24	24	22	32	41	25
Lawrence						
In-Season						
Permits Issued	9	11	11	17	12	11
Deer Harvested	11	15	35	36	48	45
Out-of-Season						
Permits Issued	15	20	14	11	9	9
Deer Killed	15	46	33	19	32	65
Complaints	19	25	24	19	21	27

Table 7. Continued

County	Year					
	2000	2001	2002	2003	2004	2005
Licking						
In-Season						
Permits Issued	1	3	2	4	2	1
Deer Harvested	13	22	11	11	10	5
Out-of-Season						
Permits Issued	22	15	27	32	48	41
Deer Killed	40	51	88	159	36	172
Complaints	23	16	30	36	50	42
Logan						
In-Season						
Permits Issued	0	0	0	1	7	5
Deer Harvested	0	0	0	1	10	9
Out-of-Season						
Permits Issued	3	5	8	6	8	5
Deer Killed	6	13	33	17	36	41
Complaints	3	5	8	13	12	11
Lorain						
In-Season						
Permits Issued	2	1	2	1	0	0
Deer Harvested	3	1	1	1	0	0
Out-of-Season						
Permits Issued	6	6	12	7	14	13
Deer Killed	20	20	14	6	20	33
Complaints	8	8	15	11	14	13
Lucas						
In-Season						
Permits Issued	0	2	0	4	0	0
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	3	5	4	0	3	2
Deer Killed	5	3	4	0	5	4
Complaints	3	6	4	8	7	2
Madison						
In-Season						
Permits Issued	0	0	0	0	0	0
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	0	0	0	1	0	1
Deer Killed	0	0	0	0	0	0
Complaints	0	0	0	1	0	1
Mahoning						
In-Season						
Permits Issued	0	0	0	0	1	4
Deer Harvested	0	0	0	0	1	2
Out-of-Season						
Permits Issued	1	2	2	4	7	4
Deer Killed	2	8	2	5	13	9
Complaints	1	2	4	5	10	8
Marion						
In-Season						
Permits Issued	0	0	1	1	0	0
Deer Harvested	0	0	0	1	0	0
Out-of-Season						
Permits Issued	0	0	0	1	1	1
Deer Killed	0	0	0	1	1	1
Complaints	0	0	1	1	1	1
Medina						
In-Season						
Permits Issued	4	5	8	13	13	2
Deer Harvested	0	2	6	7	11	9
Out-of-Season						
Permits Issued	10	9	10	13	11	2
Deer Killed	25	25	26	38	35	26
Complaints	10	11	17	18	29	12
Meigs						
In-Season						
Permits Issued	9	12	19	17	15	18
Deer Harvested	24	47	63	87	74	84
Out-of-Season						
Permits Issued	11	4	11	8	11	2
Deer Killed	34	12	38	6	40	12
Complaints	17	15	24	21	27	22

Table 7. Continued

County	Year					
	2000	2001	2002	2003	2004	2005
Mercer						
In-Season						
Permits Issued	0	0	0	0	0	0
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	0	0	0	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	0	0	0	1	0	0
Miami						
In-Season						
Permits Issued	1	0	1	0	0	1
Deer Harvested	0	0	4	0	0	2
Out-of-Season						
Permits Issued	0	0	0	0	0	1
Deer Killed	0	0	0	0	0	0
Complaints	1	0	1	0	0	2
Monroe						
In-Season						
Permits Issued	4	6	8	11	22	21
Deer Harvested	12	17	32	54	112	148
Out-of-Season						
Permits Issued	7	15	12	11	13	15
Deer Killed	12	18	35	28	36	70
Complaints	11	18	17	23	37	39
Montgomery						
In-Season						
Permits Issued	7	6	9	10	3	4
Deer Harvested	4	17	4	0	3	8
Out-of-Season						
Permits Issued	7	15	6	11	1	7
Deer Killed	3	18	0	0	0	58
Complaints	11	12	19	19	5	13
Morgan						
In-Season						
Permits Issued	1	9	18	25	32	3
Deer Harvested	10	30	70	92	96	111
Out-of-Season						
Permits Issued	14	8	7	15	28	5
Deer Killed	51	43	46	68	184	176
Complaints	16	12	20	26	61	30
Morrow						
In-Season						
Permits Issued	0	0	0	3	4	1
Deer Harvested	0	0	0	8	2	2
Out-of-Season						
Permits Issued	0	0	2	1	1	2
Deer Killed	0	0	3	0	1	9
Complaints	0	0	2	5	5	5
Muskingum						
In-Season						
Permits Issued	11	11	13	26	32	14
Deer Harvested	16	36	38	122	202	135
Out-of-Season						
Permits Issued	22	21	35	29	43	39
Deer Killed	74	60	148	177	271	347
Complaints	33	24	48	41	78	76
Noble						
In-Season						
Permits Issued	3	2	5	6	9	3
Deer Harvested	13	15	27	12	19	40
Out-of-Season						
Permits Issued	7	5	12	5	10	6
Deer Killed	14	24	50	15	24	16
Complaints	7	6	13	10	19	14
Ottawa						
In-Season						
Permits Issued	0	0	0	2	4	4
Deer Harvested	0	0	0	4	4	6
Out-of-Season						
Permits Issued	0	0	1	1	0	1
Deer Killed	0	0	2	4	0	0
Complaints	0	0	1	3	4	5

Table 7. Continued

County	Year					
	2000	2001	2002	2003	2004	2005
Paulding						
In-Season						
Permits Issued	0	0	2	0	1	1
Deer Harvested	0	0	2	0	1	2
Out-of-Season						
Permits Issued	0	0	0	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	0	0	2	0	1	1
Perry						
In-Season						
Permits Issued	4	3	9	6	19	14
Deer Harvested	5	10	31	52	96	79
Out-of-Season						
Permits Issued	2	6	8	10	3	9
Deer Killed	6	14	19	29	13	65
Complaints	6	8	16	15	22	24
Pickaway						
In-Season						
Permits Issued	10	8	8	13	8	0
Deer Harvested	8	2	9	7	8	0
Out-of-Season						
Permits Issued	9	7	13	5	14	6
Deer Killed	21	7	29	10	24	22
Complaints	10	9	14	15	22	11
Pike						
In-Season						
Permits Issued	5	7	10	13	16	10
Deer Harvested	14	14	30	31	42	51
Out-of-Season						
Permits Issued	6	6	4	9	12	0
Deer Killed	7	7	4	26	15	42
Complaints	11	8	12	15	29	20
Portage						
In-Season						
Permits Issued	2	2	6	7	4	0
Deer Harvested	0	1	2	5	11	0
Out-of-Season						
Permits Issued	5	6	9	3	8	9
Deer Killed	29	14	13	43	42	24
Complaints	6	6	12	13	12	10
Preble						
In-Season						
Permits Issued	2	4	2	6	5	7
Deer Harvested	5	4	4	4	11	10
Out-of-Season						
Permits Issued	2	0	0	2	2	0
Deer Killed	10	0	0	10	10	0
Complaints	4	4	2	7	7	7
Putnam						
In-Season						
Permits Issued	0	0	0	0	0	1
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	0	0	1	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	0	0	1	0	0	1
Richland						
In-Season						
Permits Issued	3	4	5	8	12	5
Deer Harvested	3	20	16	12	16	1
Out-of-Season						
Permits Issued	13	9	18	21	15	21
Deer Killed	62	80	79	119	77	68
Complaints	15	12	20	24	27	30
Ross						
In-Season						
Permits Issued	19	19	26	18	25	2
Deer Harvested	64	63	115	122	129	89
Out-of-Season						
Permits Issued	20	11	19	21	23	13
Deer Killed	141	103	185	127	131	115
Complaints	24	22	34	37	48	23

Table 7. Continued

County	Year					
	2000	2001	2002	2003	2004	2005
Sandusky						
In-Season						
Permits Issued	0	0	0	4	9	11
Deer Harvested	0	0	0	19	44	13
Out-of-Season						
Permits Issued	0	0	0	0	1	1
Deer Killed	0	0	0	0	0	0
Complaints	0	0	1	5	10	13
Scioto						
In-Season						
Permits Issued	3	4	8	12	15	12
Deer Harvested	13	12	49	37	61	52
Out-of-Season						
Permits Issued	5	5	10	9	13	10
Deer Killed	23	29	53	49	79	56
Complaints	8	10	12	13	28	30
Seneca						
In-Season						
Permits Issued	4	6	5	14	13	15
Deer Harvested	8	21	22	45	31	56
Out-of-Season						
Permits Issued	2	2	2	2	4	1
Deer Killed	6	6	7	2	17	23
Complaints	6	8	7	18	17	22
Shelby						
In-Season						
Permits Issued	0	0	0	0	0	0
Deer Harvested	0	0	0	0	0	0
Out-of-Season						
Permits Issued	0	0	0	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	0	0	0	0	0	0
Stark						
In-Season						
Permits Issued	2	3	1	4	2	1
Deer Harvested	7	10	0	9	12	2
Out-of-Season						
Permits Issued	6	5	6	10	9	9
Deer Killed	9	8	5	14	16	10
Complaints	10	8	7	17	13	10
Summit						
In-Season						
Permits Issued	1	3	4	0	0	0
Deer Harvested	4	10	5	0	0	0
Out-of-Season						
Permits Issued	12	5	17	16	17	19
Deer Killed	104	8	58	68	91	87
Complaints	19	22	20	20	20	19
Trumbull						
In-Season						
Permits Issued	0	3	6	6	8	0
Deer Harvested	0	3	6	9	14	0
Out-of-Season						
Permits Issued	2	4	5	6	11	9
Deer Killed	9	12	13	17	35	46
Complaints	2	5	10	10	19	12
Tuscarawas						
In-Season						
Permits Issued	9	7	19	25	25	10
Deer Harvested	28	27	78	120	135	137
Out-of-Season						
Permits Issued	1	2	12	13	19	3
Deer Killed	1	3	18	52	95	119
Complaints	9	7	25	27	45	32
Union						
In-Season						
Permits Issued	4	8	4	6	4	4
Deer Harvested	4	3	3	1	4	12
Out-of-Season						
Permits Issued	4	5	8	6	6	1
Deer Killed	6	15	18	21	16	13
Complaints	7	10	12	9	11	12

Table 7. Continued

County	Year					
	2000	2001	2002	2003	2004	2005
Van Wert						
In-Season						
Permits Issued	0	0	0	1	3	4
Deer Harvested	0	0	0	3	3	1
Out-of-Season						
Permits Issued	0	0	0	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	1	0	0	1	4	5
Vinton						
In-Season						
Permits Issued	2	5	3	2	0	4
Deer Harvested	16	13	22	29	0	20
Out-of-Season						
Permits Issued	6	4	3	4	4	4
Deer Killed	17	0	0	4	31	19
Complaints	7	5	4	5	4	9
Warren						
In-Season						
Permits Issued	11	15	17	9	10	10
Deer Harvested	26	21	18	12	6	9
Out-of-Season						
Permits Issued	19	16	19	13	18	12
Deer Killed	82	48	81	35	60	83
Complaints	30	31	33	22	29	26
Washington						
In-Season						
Permits Issued	8	11	16	25	32	19
Deer Harvested	29	61	67	71	153	241
Out-of-Season						
Permits Issued	10	10	16	21	35	22
Deer Killed	31	35	79	69	112	138
Complaints	18	19	23	36	71	63
Wayne						
In-Season						
Permits Issued	0	0	0	3	7	5
Deer Harvested	0	0	0	3	11	11
Out-of-Season						
Permits Issued	2	2	6	7	6	15
Deer Killed	3	1	6	13	8	31
Complaints	2	2	6	12	16	20
Williams						
In-Season						
Permits Issued	3	2	10	17	9	28
Deer Harvested	11	16	19	45	28	62
Out-of-Season						
Permits Issued	0	8	3	2	3	2
Deer Killed	0	2	12	7	10	9
Complaints	3	8	10	17	19	31
Wood						
In-Season						
Permits Issued	0	0	0	2	0	3
Deer Harvested	0	0	0	2	0	5
Out-of-Season						
Permits Issued	3	3	0	1	1	1
Deer Killed	0	2	0	2	5	4
Complaints	3	3	0	3	1	4
Wyandot						
In-Season						
Permits Issued	0	1	1	5	7	11
Deer Harvested	0	9	10	23	33	49
Out-of-Season						
Permits Issued	0	0	0	0	0	0
Deer Killed	0	0	0	0	0	0
Complaints	0	3	2	6	7	11
STATEWIDE						
In-Season						
Permits Issued	366	481	689	887	1,049	676
Deer Harvested	1,058	1,551	2,047	3,252	4,221	3,961
Out-of-Season						
Permits Issued	599	613	865	842	1,100	849
Deer Killed	2,241	2,347	3,288	3,674	5,337	5,770
Complaints	879	965	1,390	1,510	2,221	1,892

ONTARIO

BACKGROUND

Prior to the 1980's, a number of different deer management techniques were used in Ontario, with season manipulation being the foundation of deer management. Currently, there are three types of resident deer hunting opportunities in Ontario:

- Selective Harvest System - Antlerless Deer Validation Tag (non-residents restricted to antlered only)
- Controlled Deer Hunt Validation Tag (non-residents restricted)
- Additional Game Seals (1st come, 1st serve)

Deer in Ontario are now managed within the context of a broader ecosystem approach to resource management. The goal of deer population management in Ontario is to maintain populations at appropriate levels for providing recreational opportunities while considering ecosystem health and human-deer conflicts.

HARVEST TRENDS

Annual deer harvest estimates are derived from three sources: postcard surveys, controlled hunt mandatory reports, and additional seal reports. In 2005, there were 199,400 licenses sold and approximately 100,000 deer harvested in the province (Figure 1).

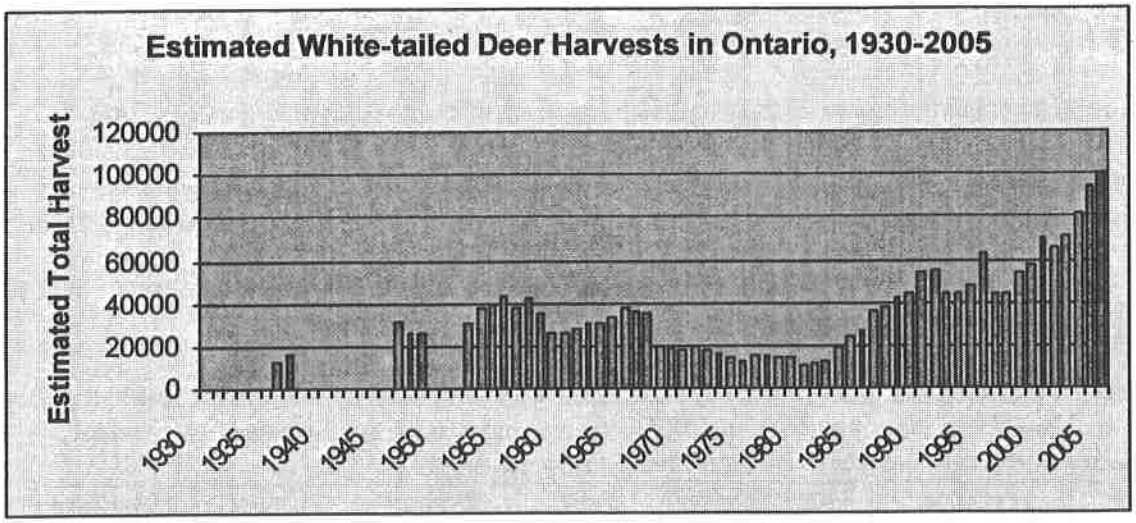


Figure 1. Estimated number of white-tailed deer harvested in Ontario from 1930 to 2005.

The estimated number of deer harvested per km^2 in 2004 was greatest in the regions of Guelph in southwestern Ontario, Ottawa in southeastern Ontario and Manitoulin Island within Georgian Bay, Lake Huron (Figure 2).

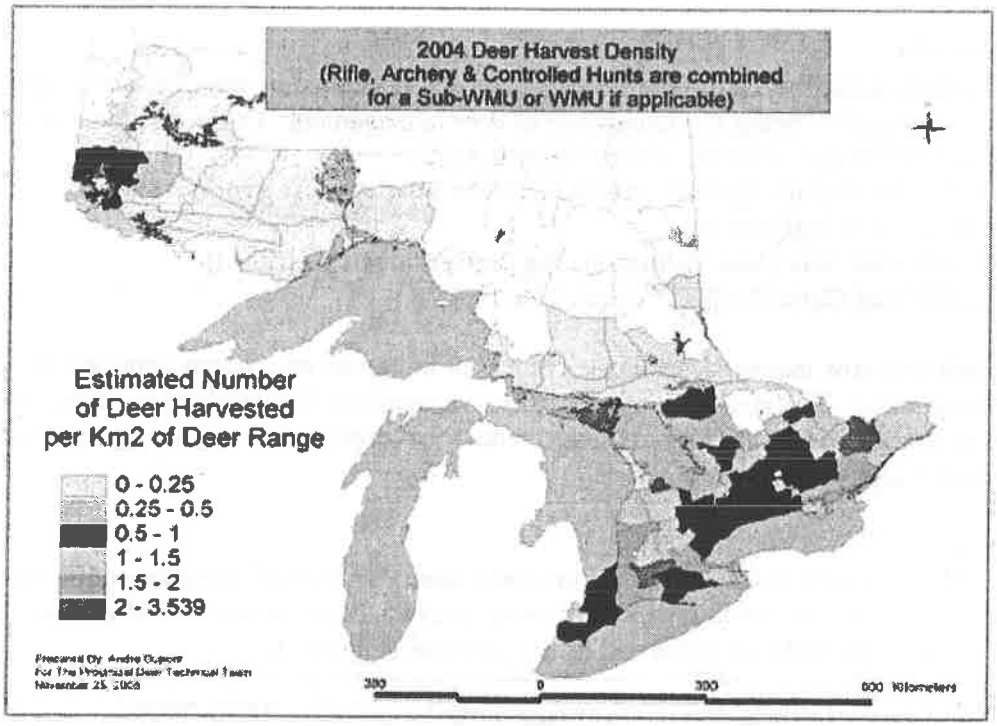


Figure 2. Estimated number of deer harvested per km^2 of deer range in Ontario in 2004.

Postcard Survey: The postcard survey is sent on an annual basis to a random selection of hunters who have purchased deer licences in that given year. Deer hunter effort and harvest information is collected and summarized. Trends in harvest estimates indicate that harvest has increased since 1999 (Table 1). The postcard survey does not report on controlled hunt or additional seal hunt information.

Table 1. Estimated number of deer harvested based on the postcard surveys for resident and non-resident hunters in Ontario (note 2005 data are underestimates because non-resident harvest information has yet to be incorporated into the results).

Year	Postcard Survey Total Antlerless Harvest	Postcard Survey Total Antlered Harvest	Total Harvest	# Hunters	# Hunter Days	# Deer Seen
1999	21,039	26,572	47,611	155,261	1,004,381	827,563
2000	22,532	36,316	58,849	161,833	1,048,849	973,553
2001*	23,216	30,332	53,548	156,240	1,047,109	1,012,278
2002	25,663	38,729	64,393	183,271	1,207,280	1,238,726
2003	26,810	34,299	61,108	171,176	1,215,901	1,488,938
2004	27,474	38,045	65,519	179,173	1,280,087	1,518,279
2005**	27,098	36,443	63,541	172,836	1,276,539	1,444,238

*Non-applicant data was not analyzed in 2001

**Non-resident data not yet available for 2005

Controlled Hunt Mandatory Reports: Those hunters that are issued controlled hunt validation tags are required by law to submit hunt summary reports. The report collects basic hunter effort and harvest information. Trends in projected estimates indicate that number of deer harvested has increased from 1999 to 2004, but decreased in 2005 (Table 2).

Table 2. Number of Controlled Deer Hunt Validation Tags Allocated and Issued and Projected Harvest in Ontario from 1999 to 2005.

Year	Quota	Applicants*	Successful Applicants**	Projected Harvest
1999	27,595	30,462		9,335
2000	28,040	24,984	25,407	10,901
2001	28,970	30,210	26,392	11,194
2002	29,155	29,083	26,718	12,785
2003	30,815	27,423	27,844	13,522
2004	34,974	31,227	29,862	18393
2005	33,941	31,799	30,909	16,221

*Number of 1st choice applicants, as published in the Annual Hunting Regulation Summary.
**Successful Applicants includes 1st and 2nd choice applicants.

Additional Seal Reports: The additional seal report collects hunter effort and harvest data related to the activities of deer hunters purchasing an additional game seal. The report is voluntary which has resulted in low return rates to government offices. The projected results indicate that harvest with additional seals has increased steadily since 2000 (Figure 4).

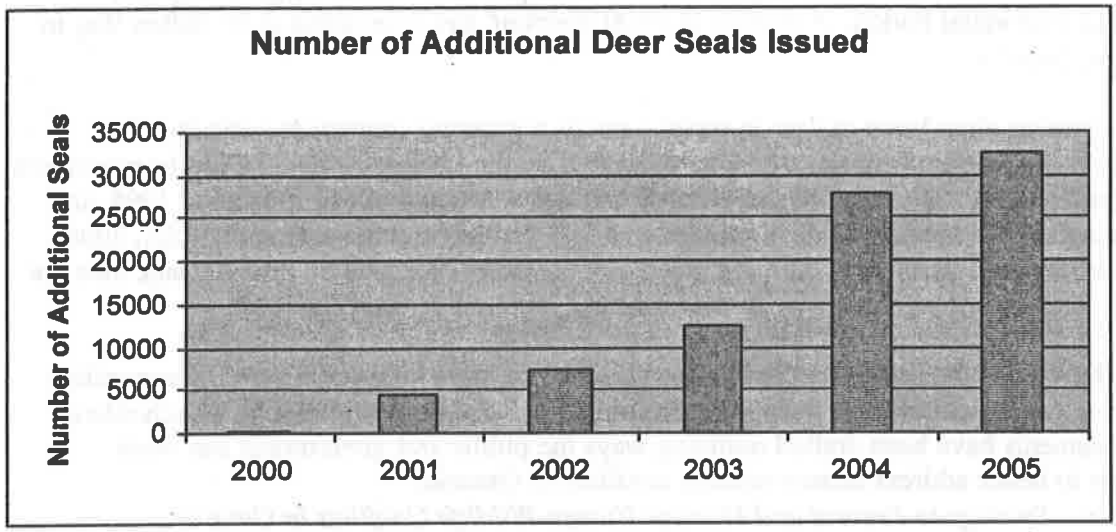


Figure 3. Number of Additional Seals Issued in Ontario from 2000 to 2005.

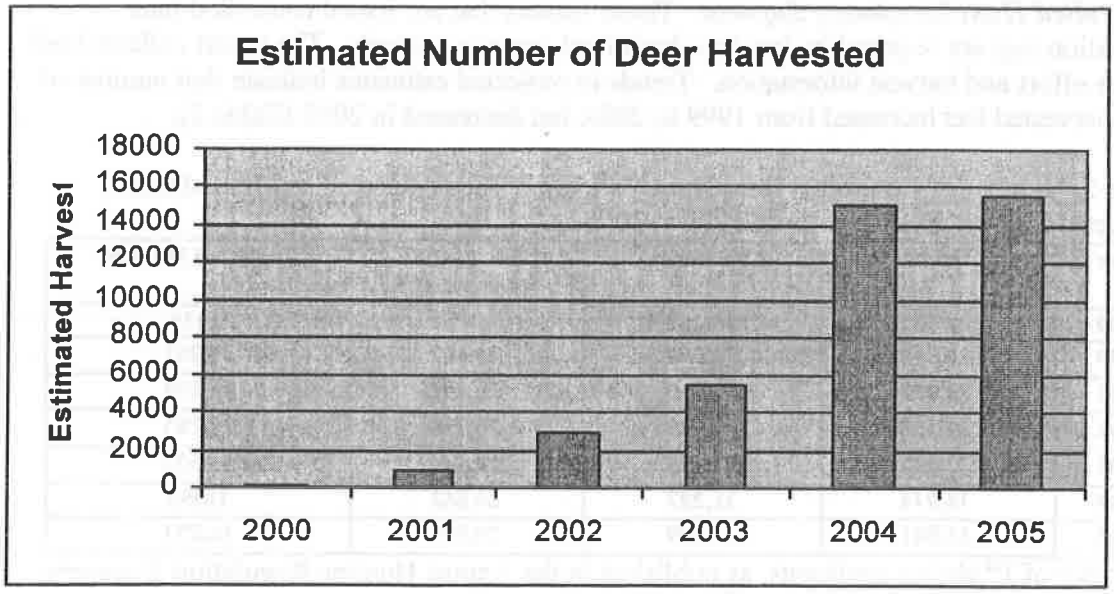


Figure 4. Estimated Number of Deer Harvested with Additional Deer Seals in Ontario from 2000 to 2005.

HUMAN-DEER CONFLICTS

Many agricultural regions in southern Ontario have between 4-10 deer/km^2 of deer habitat, while shield units south of Lake Nipissing have densities between 1-5 deer/km^2. Densities over 25-30 deer/km^2 have been experienced in some provincial parks (e.g., Pinery and Rondeau Provincial Parks). A density of >100 deer/km^2 has been noted at the Sifton Bog in London, Ontario.

The increasing abundance of deer in recent years is a growing concern to agricultural producers in southern Ontario. A report submitted by the Ontario Soil and Crop Improvement Association (OSCIA) estimated that wildlife damage amounted to $41 million in 1998, and the annual cost of abating wildlife damage was $7.5 million and increasing (OSCIA, 2000). Some agricultural areas in Ontario are much more directly impacted by deer damage than are others; human-deer conflicts vary at the landscape, community and site level.

The Ministry of Natural Resources has been leading an inter-ministerial steering committee including the agriculture and transportation ministries. Together with public stakeholders, two documents have been drafted outlining ways the public and government can work together to better address human-wildlife conflicts in Ontario:

- *Strategy to Prevent and Manage Human-Wildlife Conflicts in Ontario*
- *Strategy to Prevent and Manage Human-Deer Conflicts in Southern Ontario*

The two draft strategies identify the need for government and key stakeholders to explore opportunities to better address potentially significant economic impacts and public safety issues resulting from human-wildlife interaction. The Ministry is consulting more broadly on the two draft strategies via the *Environmental Registry* in the near future.

The primary purpose of the strategies is to establish provincial leadership roles and responsibility for action, promote community-based solutions, and increase public understanding and awareness about human-wildlife and human-deer conflicts in Ontario; while also ensuring public safety, reducing adverse economic impacts, and conserving biodiversity.

DEER REMVOAL AUTHORIZATIONS (DRA)

The *Fish and Wildlife Conservation Act* (*FWCA*) allows for the harassment or killing of wildlife if a person believes on reasonable grounds that wildlife is damaging or is about to damage the person's property (Section 31(1) *FWCA*). The *Act* and regulations specify a number of restrictions in place to control this activity. The *FWCA* allows for the harassment and killing of white-tailed deer with specific authorization from the Minister (Section 31(3)). The authorization recognizes their provincial value, and encourages landowners to consider alternate control mechanisms.

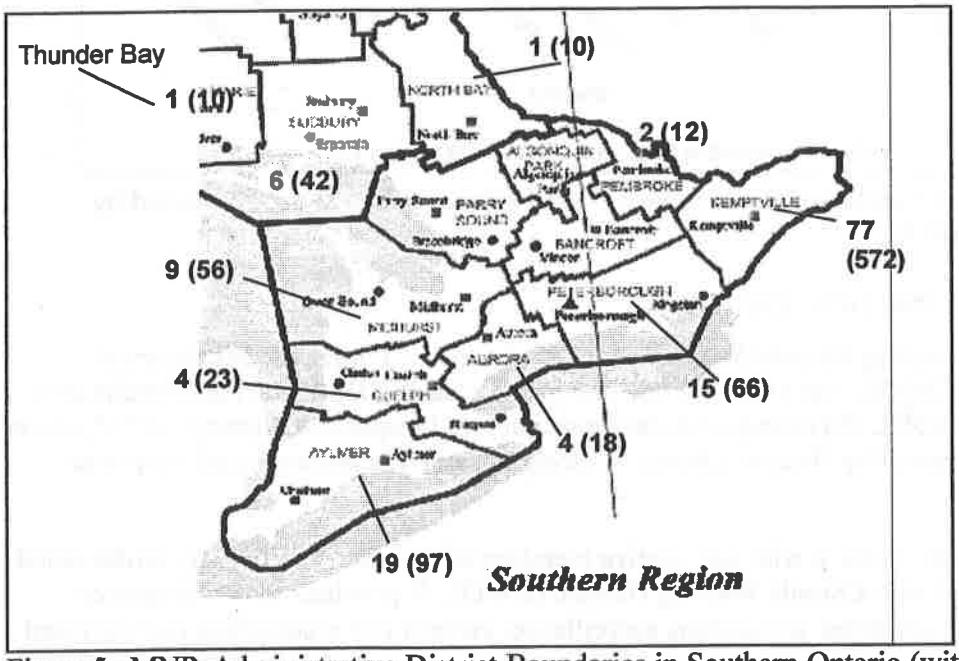


Figure 5. MNR Administrative District Boundaries in Southern Ontario (with the exception of Thunder Bay located in northwestern Ontario) Showing Number of DRAs and Seals (inside parentheses) Issued in 2005.

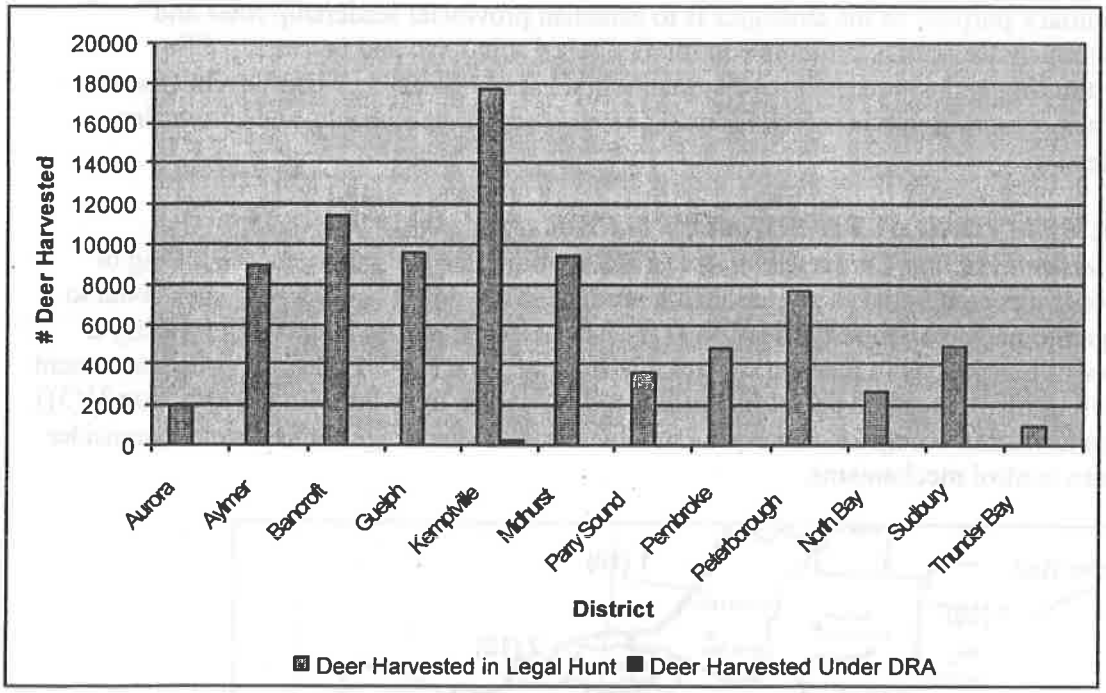


Figure 6. Estimated Number of Deer Harvested via Hunting versus Those Harvested by Landowners with DRAs.

CHRONIC WASTING DISEASE (CWD)

Ontario Chronic Wasting Disease Surveillance and Response Plan: The Ministries of Natural Resources (MNR), Agriculture, Food and Rural Affairs (OMAFRA) and Health and Long Term Care (MOHLTC) (along with the Canadian Food Inspection Agency - CFIA) have collaboratively prepared the Ontario Chronic Wasting Disease Surveillance and Response Plan.

The Plan identifies the risks to wild and captive members of the deer family (e.g., white-tailed deer, elk) associated with Chronic Wasting Disease (CWD). It provides for multi-agency coordination in five key areas: prevention, surveillance, control and eradication, recovery and communications.

The entire Plan can be downloaded at www.mnr.gov.on.ca/mnr/Ebr/CWD/plan.pdf or contact the Ministry of Natural Resources, Wildlife Section at (705) 755-1940 or by mail at 300 Water Street, Peterborough, Ontario K9J 8M5.

Testing Results to Date and Monitoring 2006: Monitoring for CWD has occurred since 2002 in Ontario. To date, over 2400 samples from white-tailed deer in Southern Ontario have tested negative for CWD. Approximate 75 elk tested negative for CWD since 2002.

The MNR monitoring program for Chronic Wasting Disease (CWD) in free-ranging deer populations will be conducted in 2006 in parts of the Dryden, Fort Frances, Kenora, Aurora, Midhurst, Peterborough and Bancroft Districts. Although there are no known cases of

Chronic Wasting Disease to date in free-ranging deer or elk in Ontario, sampling continues to monitor the health of wildlife populations, and ensures readiness if the disease is found.

Locations for sampling are chosen annually, based upon known and recurring factors such as deer populations, density of deer and elk farms in the area, habitat and land use, winter feeding of deer, and elk reintroductions. Most of the sampling in 2006 will be conducted during the November firearms hunt, in Wildlife Management Units 5, 6, 7A, 7B, 8, 9, 10, 11A (northwestern Ontario), 60A, 60B, 71, 72A, 72B, 73, 74A, 74B, 75, 78A, 82A, 82B, 83A, 83B, 83C and 84 (southern Ontario).

Regulations: New regulations for Ontario came into effect on November 4, 2005, preventing the possession of any part of the antlers, head, brain, eyes, tonsils, hide, hooves, lymph nodes, spleen, mammary glands, entrails, internal organs or spinal column of a cervid that has been harvested outside Ontario. The prohibition does not apply to finished taxidermy mounts, tanned skin, canine teeth with no tissue attached. Antlers or antlers with skull cap attached may be legally possessed as long as there is no tissue or skin attached to them and they are separate from the remainder of the skull. It is also legal to possess a hide or skin of the head of a cervid including that part of the hide commonly referred to as the "cape" only if: all other tissue is removed; it is kept in an air-tight container and is delivered to a tanner or taxidermist within five days of coming into Ontario. If all or portion of the hide or skin of the head identified above is disposed of, it must be done at a waste disposal site authorized under the Environmental Protection Act such as a municipal landfill. None of these rules above apply to cervid parts if they are transported through Ontario to another jurisdiction in an air-tight container. If transporting cervid parts in an air-tight container, it must be labeled to show the species of cervid, the place where it was acquired and the name and address of the person who owns the parts in the container. If you have transported a cervid into Ontario that was harvested in another jurisdiction, but later find out that it has tested positive for CWD, one must immediately notify a MNR Office and provide information as requested.

Michael H. Gatt, M.Sc.
Senior Regional Wildlife Biologist
Southern Regional Office
Ministry of Natural Resources
P.O. Box 7000, 4th Floor, South Tower
300 Water Street
Peterborough, ON, Canada, K9J 8M5
Tel: 705-755-3285
Fax: 705-755-3292
E-mail: michael.gatt@mnr.gov.on.ca

South Dakota

2005

DEER HARVEST PROJECTIONS

Statewide Combined Deer Harvest

There were 85,352 resident deer licenses (plus unlimited licenses) available in 2005 and 99,125 were issued, a decrease in sales of 328 from 2004. For nonresidents there were 3,097 licenses (plus unlimited licenses) available and 7,101 were issued, an increase in sales of 696 from 2004. Statewide, there were a total of 106,226 licenses sold that represented a total of 159,070 tags an increase in 12,014 tags from 2004.

Random samplings were taken for each season unless the number of licensees was low enough that all were sampled to satisfy the statistical analysis. In most cases, the majority of units within seasons did not meet the 85% unit response rate goals.

The projected statewide deer harvest was 87,077. This projection included 31,907 whitetail bucks, 38,652 whitetail does, 8,966 mule bucks and 7,552 mule does. Over 12,000 more tags were sold in 2005 compared with 2004. A combination of this increase and an estimated harvest success increase from 2004 appears to account for the increase in overall harvest of approximately 13,000 deer. Whitetail buck and doe harvest increased by over 5,000 deer each accounting for most of the increase. After declining from 51% in 2004 the overall statewide harvest success increased to 56% in 2005.

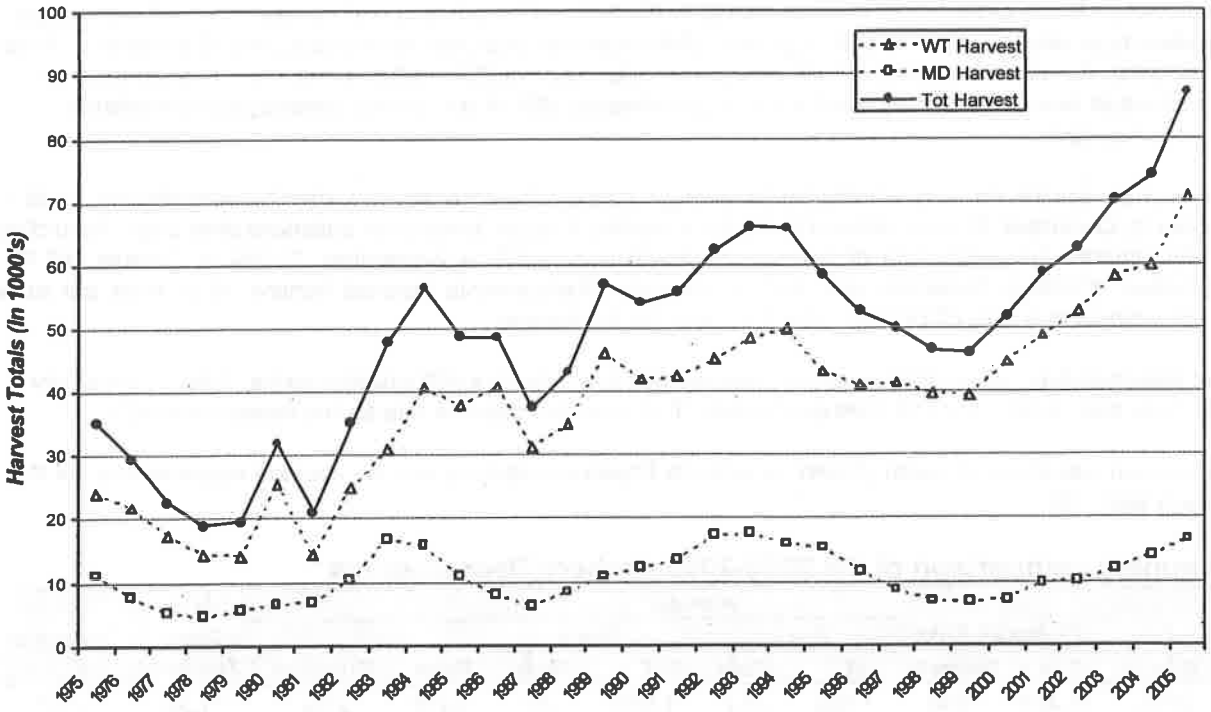
Respondents reported hunting an average of 5.67 days per hunter, which projects to a statewide total of 602,482 recreation days in 2004. The average number of days hunted increased by 0.14 per hunter, and coupled with increased license sales resulted in an increase of approximately 15,000 total days of recreation over 2004. Hunter satisfaction values (1=very satisfied to 7=very dissatisfied) were very similar across all seasons and ranged from 2.35 for West River Special Buck to 2.99 for East River Deer.

2005 Statewide Deer Harvest Projection Summary

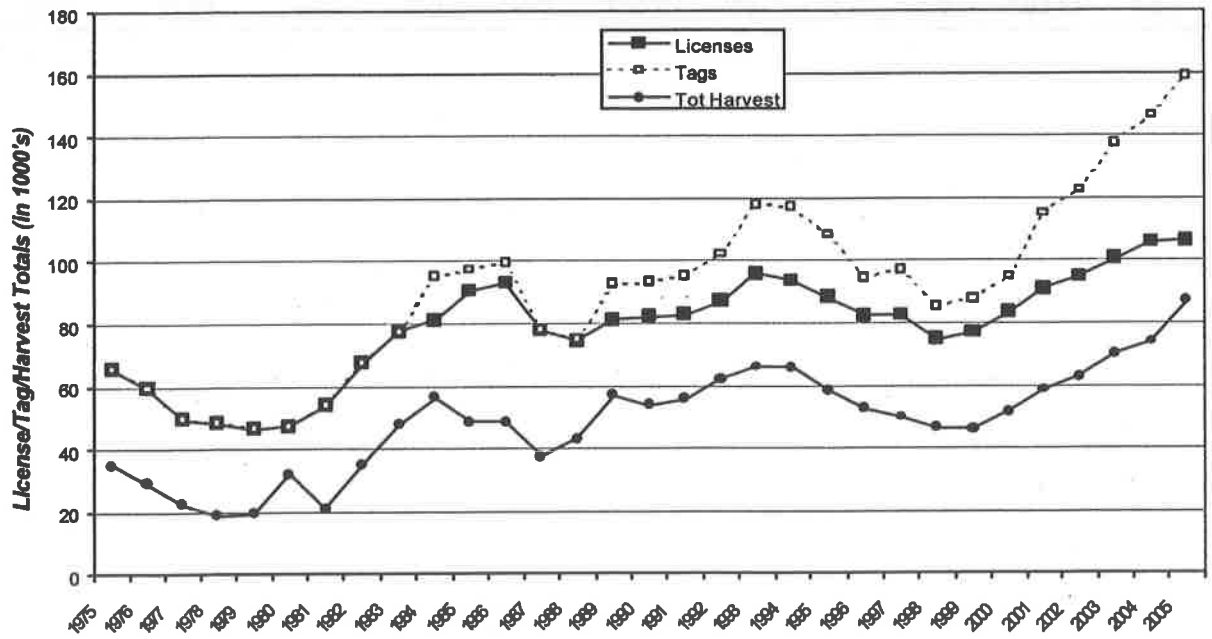
Last revised: 1 June 06

SOUTH DAKOTA Harvest Statistic	Season	General Archery	Youth Antlerless	Muzzleloader	West River	West River Special Buck Unit	East River	East River Special Buck Unit	Sand Lake NWR	Lacreek NWR	Waubay NWR	Black Hills	Custer State Park	Grand Totals
Licenses/Tags									Refuges					
Resident Licenses														
Available		Unlimited	Unlimited	Unlimited	25,760	400	47,840	400	500	40	65	7,200	50	82,255
Sold/Issued		17,597	3,381	4,052	21,353	398	44,181	401	388	40	67	7,217	50	99,125
Nonresident Licenses														
Available		Unlimited	Unlimited	Unlimited	2,062	400	leftovers	N/A	47	6	6	576	N/A	3,097
Sold/Issued		1,920	144	171	2,512	400	1,316	N/A	32	5	4	597	N/A	7,101
Total Licenses														
Available		Unlimited	Unlimited	Unlimited	27,822	800	47,840	400	547	46	71	7,776	50	85,352
Sold/Issued		19,517	3,525	4,223	23,865	798	45,497	401	420	45	71	7,814	50	106,226
Total Tags														
Available		Unlimited	Unlimited	Unlimited	54,712	800	73,815	400	767	46	71	7,776	50	138,437
Sold/Issued		22,454	3,525	6,355	43,596	798	73,424	401	537	45	71	7,814	50	159,070
Hunting Recreation														
Average Days Hunted		13.21	3.67	5.51	3.55	3.68	4.06	4.82	2.71	2.93	2.00	4.12	1.60	5.67
Total Days Hunted		257,820	12,937	23,269	84,721	2,937	184,718	1,933	1,138	132	142	32,194	80	602,021
Mean Satisfaction Score		2.65	2.58	2.47	2.94	2.35	2.99	2.72	2.70	2.48	2.95	2.50	UNK	
Harvest														
White-tailed Deer														
Bucks		4,800	455	413	7,161	166	16,364	207	73	10	27	2,219	12	31,907
Does		3,967	1,668	1,756	6,268	2	23,550	9	75	8	8	1,324	17	38,652
Total		8,767	2,123	2,169	13,429	168	39,914	216	148	18	35	3,543	29	70,559
Mule Deer														
Bucks		566	46	54	6,637	437	514	14	0	0	0	696	2	8,966
Does		346	309	273	6,102	3	510	0	0	0	0	8	1	7,552
Total		912	355	327	12,739	440	1,024	14	0	0	0	704	3	16,518
Total Deer Harvest														
Bucks		5,366	501	467	13,798	603	16,878	221	73	10	27	2,915	14	40,873
Does		4,313	1,977	2,029	12,370	5	24,060	9	75	8	8	1,332	18	46,204
Total		9,679	2,478	2,496	26,168	608	40,938	230	148	18	35	4,247	32	87,077
Success		43%	70%	39%	60%	76%	56%	57%	28%	40%	49%	54%	64%	55%

South Dakota's Combined Deer Harvest 1975-2005



South Dakota Combined Deer Licensing 1975-2005



ARCHERY DEER

There were 19,517 archery deer licenses issued in 2004 (17,597 resident, 1,920 nonresident). All were single any-deer tags, single antlerless-deer tags, or double-antlerless deer tags for the Statewide, East River or West River units. A random sampling of 22% of licensees was taken (4,207 residents and nonresidents) and the overall return rate for the survey was 80.7%. Approximately 28% of responding hunters used the Internet response system.

The archery season ran from September 24 through January 31. Licensed any-deer hunters who did not fill their license by December 31 were allowed to continue hunting through January for antlerless deer only. According to hunter reports, the distribution of harvest by month was: 6.3% in September, 33.9% in October, 42.7% in November, 13.3% in December and 3.8% in January. Respondents reported hunting 13.21 days per hunter, which projects to a total of 257,820 recreation days for the season.

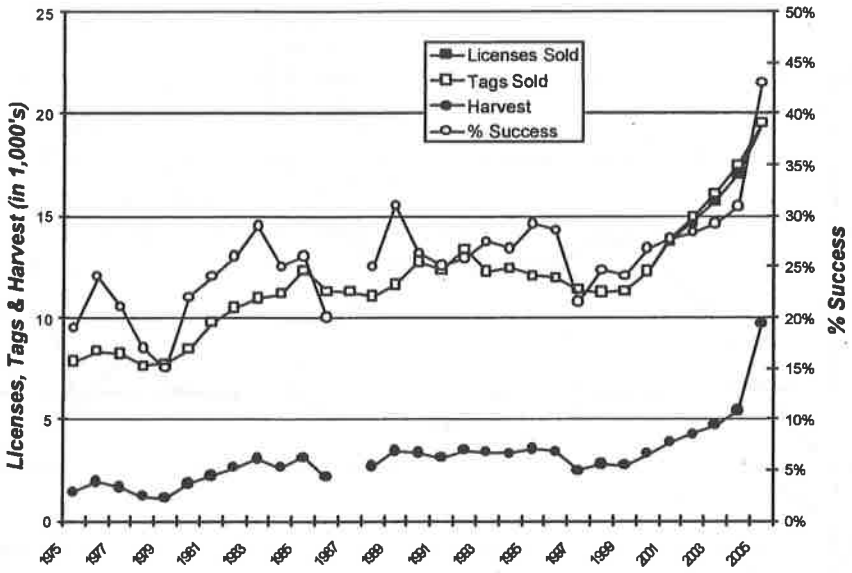
The projected deer harvest for the archery season was 9,679 deer (4,800 whitetail bucks, 3,967 whitetail does, 566 mule deer bucks, and 346 mule deer does). The projected success rate for the season was 43%.

Satisfaction was also measured (1=very satisfied to 7=very dissatisfied) and the average response rate for this season was 2.65.

Summary comparison of the 2000-2005 Archery Deer seasons

	Licenses Sold		Harvest						Avg	
			Bucks		Does				Days	Average
YEAR	Res	Nonres	WT	Mule	WT	Mule	Total	Success	Hunted	Satisfctn
2000	11,403	840	1,894	204	1,068	112	3,278	27%	11.29	2.67
2001	12,666	1,074	2,297	314	1,121	98	3,830	28%	12.49	2.83
2002	13,532	1,160	2,431	262	1,428	103	4,224	28%	12.43	2.70
2003	14,270	1,440	2,557	287	1,726	120	4,692	29%	11.85	2.57
2004	15,377	1,642	3,097	322	1,836	141	5,396	31%	12.84	2.75
2005	17,597	1,920	4,800	566	3,967	346	9,679	43%	13.21	2.65

Archery Deer 1975-2005



YOUTH DEER

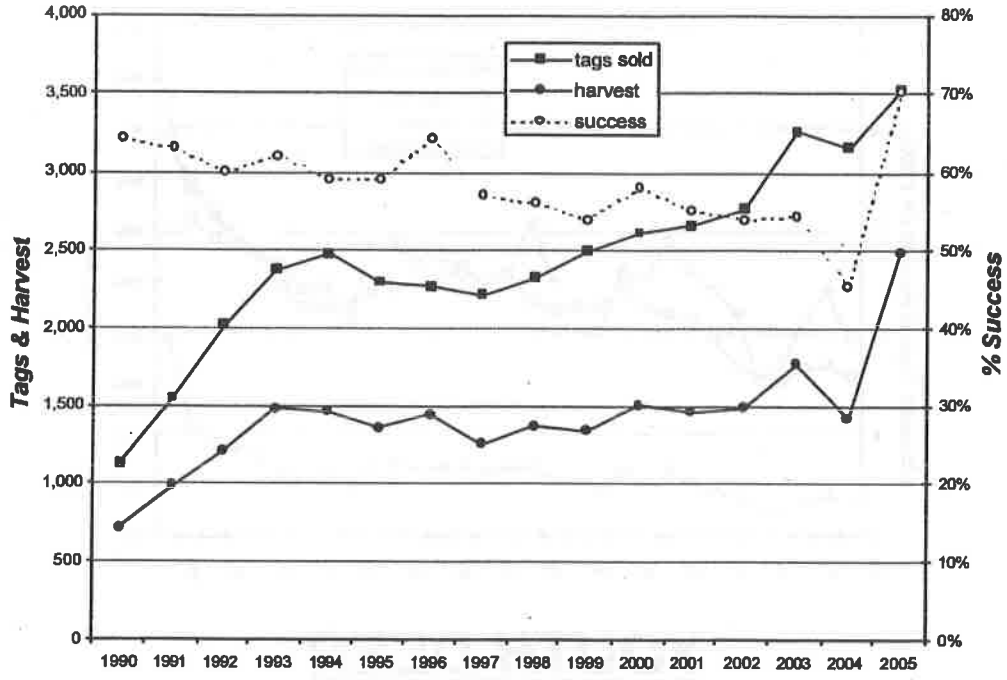
There were 3,525 single-tag antlerless licenses issued for the 2005 Youth Deer hunting season (3,381 resident, 144 nonresident). Approximately 39% of license holders were sampled and 1,084 responses (78%) were received. Approximately 22% of responding hunters used the Internet to do so. The Youth season ran from September 10-18 and reopened from December 10-31, a total of 31 days. Respondents reported hunting an average of 3.67 days each, which projected to 12,937 recreation days for the season. License holders were asked if they hunted in September, December or both. Of those responding, 23% indicated they hunted in September only, 52% in December only, and 26% hunted during both months.

Projections for the season estimated that a total of 455 whitetail bucks, 1,668 whitetail does, 46 mule deer bucks, and 309 mule deer does were harvested. The total deer harvest for the Youth Deer season was 2,478, and the overall success rate was 70%. The overall satisfaction rating for those responding (1 being very satisfied and 7 very dissatisfied) was 2.58.

Comparison of the 1997 - 2005 Youth Deer hunting seasons.

		Harvest						Avg	
	Licenses	Bucks		Does				Days	Average
YEAR	Sold	WT	Mule	WT	Mule	Total	Success	Hunted	Satisfctn
1997	2,210	167	37	811	237	1,252	57%	NA	2.60
1998	2,321	217	20	860	185	1,371	56%	4.13	2.84
1999	2,490	224	26	862	227	1,339	54%	4.04	2.80
2000	2,609	288	11	1,026	180	1,505	58%	3.42	2.64
2001	2,662	251	25	974	211	1,461	55%	3.76	2.61
2002	2,767	198	16	1,031	245	1,490	54%	3.96	2.52
2003	3,256	264	30	1,234	243	1,771	54%	4.05	2.52
2004	3,119	195	25	998	210	1,428	45%	4.13	2.64
2005	3,525	455	46	1,668	309	2,478	70%	3.67	2.58

Youth Deer 1990-2005



MUZZLELOADER DEER

There were 4,123 antlerless deer licenses (4,052 resident, 171 nonresident) issued for the 2005 Muzzleloader Deer season that represented a total of 6,355 tags (6,094 resident, 261 nonresident). A survey sample of 2,301 licensees (54%) was taken and the overall response rate was 82.6%. Approximately 30% of responding hunters used the Internet response system.

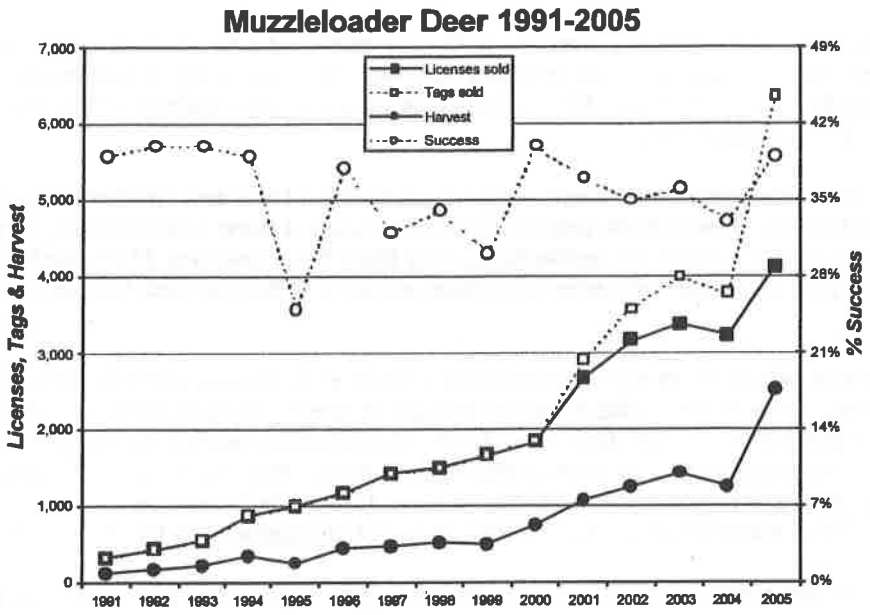
The Muzzleloader season was open from December 10, 2005 through January 31, 2006, a total of 54 days. This was the first year that "any deer" licenses were issued for the muzzleloader season. Hunters for this season averaged hunting 5.5 days, for a projected total of 22,718 recreation days for the entire season. The estimated harvest for the Muzzleloader season was 2,496 deer (413 whitetail bucks, 1,756 whitetail does, 54 mule deer bucks, and 273 mule deer does). The overall success rate for the muzzleloader season increased from 33% to 39% and average satisfaction increased to 2.47 (1 = very satisfied, 7 = very dissatisfied). Approximately 41% of the reported deer harvest took place in December and 59% in January.

The estimated harvest for the Black Hills area included 7 adult whitetail bucks, 39 fawn whitetail bucks, 325 whitetail does, 1 adult mule deer buck, 15 mule deer buck fawns, and 84 mule deer does for a total of 471 deer.

Summary comparison of the 1997-2005 Muzzleloader Deer seasons

	Licenses Sold		Harvest						Avg Days	Average
			Bucks		Does					
YEAR	Res	Nonres	WT	Mule	WT	Mule	Total	Success	Hunted	Satisfctn
1997	1,405	NA	98	31	207	114	450	32%	3.87	3.19
1998	1,485	NA	66	11	329	95	501	34%	4.19	3.19
1999	1,652	NA	99	19	275	97	490	30%	4.04	3.37
2000	1,824	NA	150	13	467	99	729	40%	2.83	2.96
2001	2,644	24	168	32	686	177	1,063	37%	4.98	2.71

2002	3,118	31	194	13	828	209	1,244	35%	5.29	2.67
2003	3,307	59	184	23	974	249	1,430	36%	5.18	2.75
2004	3,142	80	141	21	901	181	1,244	33%	5.10	2.78
2005	4,052	171	413	54	1,756	273	2,496	39%	5.51	2.47



WEST RIVER FIREARM DEER

There were 25,026 regular licenses issued for the 2005 West River Firearm Deer season (25,026 regular, 798 Special Buck and 928 Landowner Own Land Only) for a total of 44,394 total tags.

Beginning November 28th, all unused and unsold tags for "any deer" and "any whitetail" converted to their respective antlerless tags. The season was extended from Nov. 28 – Dec. 4 for all unfilled and unsold antlerless deer tags and again from Jan. 1-8, 2006. All antlerless tags were also valid during the Firearm Antelope season (October 1-14) in their respective units.

A random sample of 10,976 hunters was taken from the regular West River and Landowner Own Land Only licensees, and 795 from the Special Buck season (all were sampled, 3 were undeliverable). The overall response rates for the seasons were 81.2% for the regular/landowner West River Deer and 87.8% for Special Buck. Of all responding hunters, 21% of regular/landowner West River and 25% of Special Buck hunters responded over the Internet.

The West River season was open 16 days from November 12-27 in most units, and from November 5-27 in Dewey and Ziebach counties. Units 50A in Mellette County and 30A in Gregory County were open from Nov. 5-8 and 21-27, while units 50B and 30B were open from Nov. 12-27. Respondents reported hunting an average of 3.55 days in the regular West River season, 3.68 days in the Special Buck. Hunters reported harvesting approximately 25% of their deer during the extended Nov/December or January time periods, and 7% during the Firearm Antelope season. These averages projected to a total of 95,074 recreation days for all West River deer seasons.

The West River projected deer harvest was 26,168 for the regular season and 608 for the Special Buck season. Success rates were 60% for the regular season and 76% for Special Buck.

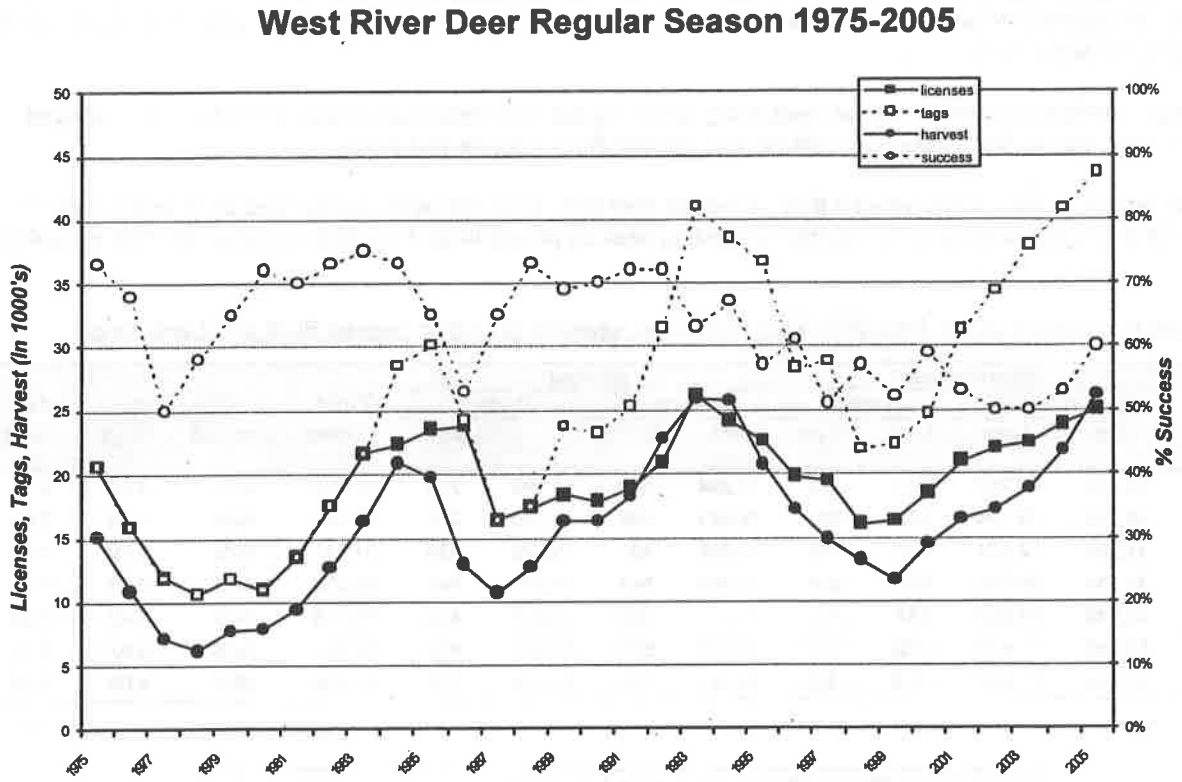
The mean satisfaction score for those responding to the regular West River season was 2.94 (1 being very satisfied and 7 very dissatisfied). Hunters were asked if they harvested their deer on public land, private land, or walk-in areas. Of those responding, 70.6% harvested deer on private land, 18.1% on public land, and 11.3% on walk-in areas.

Summary comparison of the 1999-2005 West River Deer seasons (including Special Buck and Landowner)

	Licenses Sold				Harvest							
	Resident		Nonres		Bucks		Does		Total		Avg	Avg
YEAR	Lics	Tags	Lics	Tags	WT	Mule	WT	Mule	Harvest	Success	Days	Satis
1999	15,803	20,826	1,573	2,554	5,304	3,494	2,685	901	12,384	53%	3.23	3.22
2000	17,826	23,441	1,891	2,451	6,567	4,178	3,450	1,078	15,273	59%	2.91	2.84
2001	20,133	29,525	2,264	3,248	6,588	4,962	3,586	2,145	17,281	53%	3.29	3.01
2002	20,844	32,278	2,463	3,658	6,686	5,109	3,893	2,455	18,143	50%	3.42	2.97
2003	21,601	35,570	2,705	4,367	5,599	5,326	5,188	3,438	19,551	49%	3.49	2.83
2004	22,608	37,845	2,913	4,795	6,266	6,186	5,395	5,134	22,981	52%	3.49	2.90
2005	23,626	39,413	3,126	4,981	7,327	7,074	6,270	6,105	26,776*	60%	3.55	2.94

2005 West River Deer harvest by date

	Total	October 1-14	Nov 1-27	Nov 28-Dec 4	January 1-8
Reports	6,766	484	4,617	1,253	412
Percent of total		7%	68%	19%	6%
Projected	26,614	1,863	18,098	5,057	1,597



EAST RIVER FIREARM DEER

There were 48,965 licenses issued for the 2005 East River Firearm Deer season (45,497 regular, 400 Special Buck and 3,068 Landowner Own Land Only) that represented 73,824 total tags. Approximately 111 fewer licenses were issued for the regular season, special buck and landowner licenses than in 2004, however an increase in the proportion of double-tag to single-tag licenses resulted in an increase in sales of 224 tags.

A random sampling of 20,668 hunters was taken for the regular and Landowner Own Land Only licensees (45% of license holders) and all 400 Special Buck hunters were sampled. The response rate was 81.4% for the regular season and 89.5% for Special Buck.

The East River season ran November 19 to December 4 (16 days) in the north and west units. In the southeastern units the season ran November 26 to December 4 (9 days) for type 01, 02, 08, 11, and 18 licenses, and from November 26 to December 11 (16 days) for type 03, 09, 13, and 19 antlerless-only licenses. Beginning December 6, all unused and unsold tags for "any deer", "any whitetail" and "any mule deer" converted to their respective antlerless tags. The season was extended from Dec. 5-11 for all unfilled and unsold antlerless deer tags, and again from Jan. 1-8.

Respondents reported hunting 4.06 days per hunter for the regular season and Landowner Own Land Only licenses and 4.8 days for Special Buck, giving a projected total of 199,908 recreation days for the entire East River season.

The East River projected deer harvest was 40,938 for the regular season and 230 for the Special Buck season. Success rates were 60% for the regular season and 76% for Special Buck. Success for the regular East River season single tags and 1st tags was 63% and success for 2nd tags of 2-tag licenses was 42%. White-tailed doe

harvest increased approximately 2.5% and total deer harvest increased about 9% from 37,961 in 2004 to 41,438 in 2005. An increase in whitetail buck harvest appeared to account for the majority of the difference (bucks could be antlered or antlerless).

The mean satisfaction score for those responding to the regular East River survey was 2.99 (1 = "very satisfied" and 7 = "very dissatisfied"). Mean satisfaction for Special Buck hunters was 2.72.

Regular season hunters were asked if they harvested their deer on public land, private land or on public walk-in areas. Of those responding, 84% reported harvesting deer on private land, 10% on public land and 6% on walk-in areas.

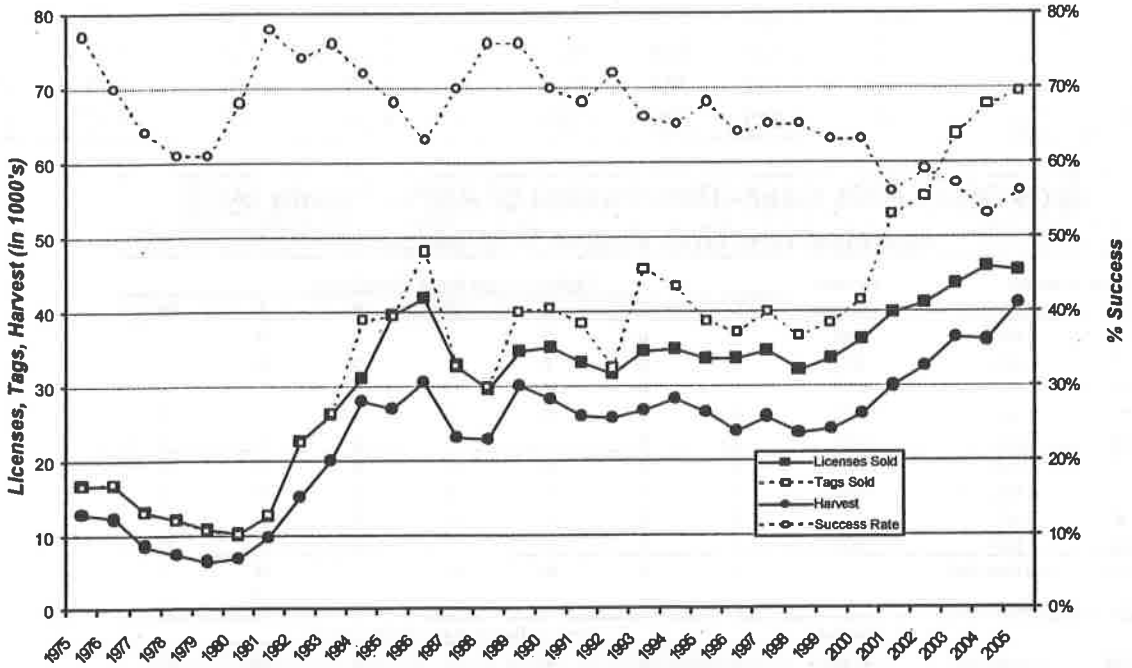
Summary comparison of the 1999-2005 East River Deer seasons (including Special Buck and Landowner)

	Licenses Sold				Harvest							
	Resident		Nonres		Bucks		Does		Total		Avg	Avg
YEAR	Lics	Tags	Lics	Tags	WT	Mule	WT	Mule	Harvest	Success	Days	Satis
1999	35,373	40,287	213	326	13,294	547	11,196	269	25,306	62%	3.54	3.14
2000	38,129	43,744	238	383	14,641	505	12,170	231	27,547	62%	3.05	3.01
2001	41,550	54,651	452	819	14,835	465	15,276	439	31,015	56%	3.79	3.17
2002	42,714	56,826	503	889	15,365	543	17,489	441	33,838	59%	3.93	2.99
2003	45,846	65,567	837	1,581	15,251	488	21,911	476	38,126	57%	4.40	2.86
2004	47,942	71,443	1,134	2,157	13,953	519	22,991	498	37,961	52%	4.42	3.10
2005	47,649	71,362	1,316	2,462	16,841	528	23,559	510	41,438	56%	4.06	2.99

2005 East River Deer harvest by date

	Total	Nov 19-Dec 4	Dec 5-11	January 1-8
Reports	14,754	9,393	3,450	1,911
Percent of total		64%	23%	13%
Projected	41,035	26,262	9,438	5,335

East River Deer Regular Season 1975-2005



BLACK HILLS DEER

There were 7,814 single tag licenses issued for the 2005 Black Hills Deer season (7,217 resident, 597 nonresident).

A random sample of 2,081 hunters was taken (28% of license holders) and there were 1,762 responses for an 84.7% return rate. Approximately 24% of responding hunters used the Internet to submit their responses.

The traditional Black Hills Buck season ran the usual month of November, a total of 30 days. The special antlerless whitetail season also ran the entire month of November, an increase from the 10-day season in 2004. Those responding reported hunting an average of 4.12 days that projected to 32,194 recreation days for the season. Of those responding, 8.9% stated they did not hunt at all during the season.

The mean satisfaction score for all combined units was 2.50. The satisfaction scale ranged from 1 = "very satisfied" to 7 = "very dissatisfied".

The harvest projection for the Black Hills Deer season was 4,247 deer (2,219 whitetail bucks, 1,324 whitetail does, 696 mule deer bucks, 8 mule deer does). The overall season harvest success rate was 54%.

Harvest summaries for the 1997-2005 Black Hills Deer seasons.

	Licenses Sold		Harvest						Avg	
			Bucks		Does				Days	Avg
YEAR	Resident	Nonres	WT	Mule	WT	Mule	Total	Success	Hunted	Satis
1997	10,780	1,044	2,376	699	1,339	197	4,611	39%	4.76	3.26
1998	7,673	612	2,169	564	1,043	132	3,908	47%	4.24	3.28

1999	7,271	578	2,032	620	744	140	3,536	45%	4.54	3.21
2000	7,350	571	2,603	500	782	84	3,969	50%	3.89	2.77
2001	6,211	496	2,419	859	313	71	3,662	55%	4.14	2.80
2002	5,980	474	2,365	618	346	40	3,369	52%	4.59	2.75
2003	5,965	473	2,427	694	402	53	3,576	56%	4.01	2.58
2004	6,810	536	2,802	783	946	58	4,589	62%	4.14	2.54
2005	7,217	597	2,219	696	1,324	8	4,247	54%	4.12	2.50

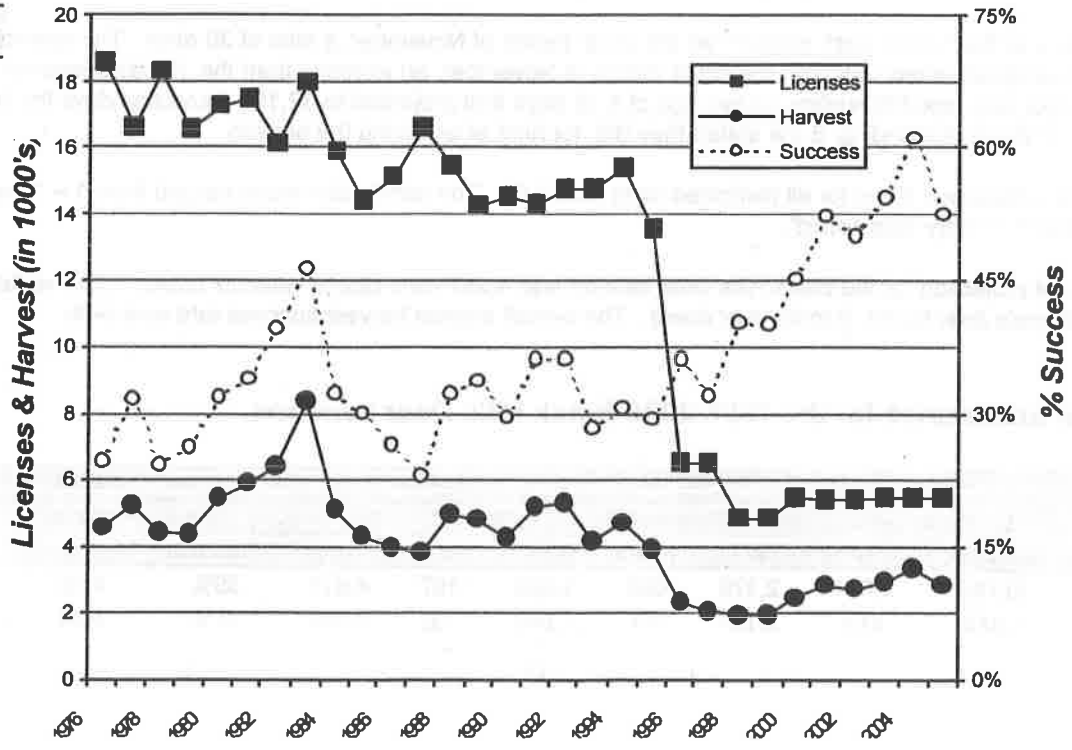
2005 Black Hills Deer - Distribution of Antler Points by Species and Unit Where Harvested

Last Revised: 19 Apr 06

	Total	License Unit	Harvest Location	Highest Single Antler Point Count 0	1	2	3	4	5	6+
MULE DEER	16	BH1	UNK	0	0	3	7	6	0	0
	33	BH1	BD1	0	0	8	10	8	6	1
	59	BH1	BD2	0	0	26	19	9	5	0
	12	BH1	BD3	0	0	4	7	1	0	0
	26	BH1	BD4	0	0	11	8	2	4	1
	0	BD1	BD1	0	0	0	0	0	0	0
	0	BD2	BD2	0	0	0	0	0	0	0
	0	BD3	BD3	0	0	0	0	0	0	0
	0	BD4	BD4	0	0	0	0	0	0	0
	146	Total Mule BH1		0	0	52	51	26	15	2
	0	Total Mule Other Units		0	0	0	0	0	0	0

	Total	License Unit	Harvest Location	Highest Single Antler Point Count 0	1	2	3	4	5	6+
WHITETAIL	42	BH1	UNK	0	0	4	5	23	7	3
	74	BH1	BD1	0	0	1	6	40	18	9
	184	BH1	BD2	0	0	9	21	114	34	6
	98	BH1	BD3	0	0	1	12	51	27	7
	60	BH1	BD4	0	0	2	8	35	13	2
	1	BD1	BD1	1	0	0	0	0	0	0
	1	BD2	BD2	1	0	0	0	0	0	0
	3	BD3	BD3	3	0	0	0	0	0	0
	2									
	458									
	7									
	604									
	7									

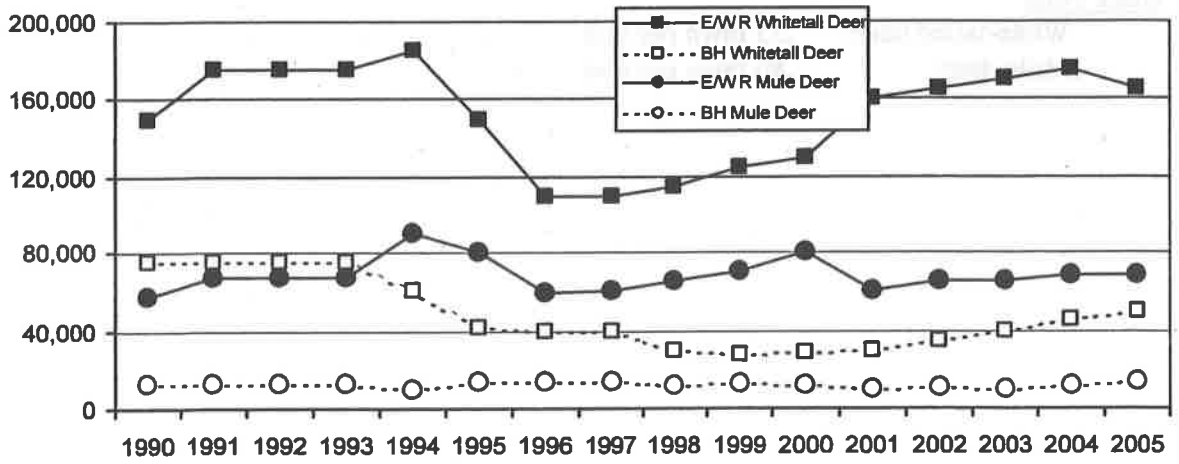
Black Hills Buck Deer 1976-2005



2005 WORKING POPULATION ESTIMATES

Source	Species	Geographic Area	Pop[n] Estimate
	White-tailed Deer		
Ted Benzon		East River & West River Prairie	165,000
		Black Hills Proper	50,000
	Mule Deer		
Ted Benzon		East River & West River Prairie	68,000
		Black Hills Proper	14,000

1990-2005 South Dakota Deer Population Estimates



South Dakota Deer Incisor Age Data

For 2005 Major Rifle Seasons.
Sample size over 24,000 incisors (approx. 36% of harvest).

Age determined by incisor wear and classified into fawn, yearling, and adult age classes by sex and species.

West River Prairie Unit			
White-tailed deer bucks:	11% fawns	24% yearling	64% adults
White-tailed deer does:	26% fawns	21% yearling	53% adults
Mule deer bucks:	7% fawns	22% yearling	71% adults
Mule deer does:	15% fawns	23% yearling	62% adults
East River Prairie Unit			
White-tailed deer bucks:	17% fawns	33% yearling	50% adults
White-tailed deer does:	25% fawns	31% yearling	44% adults
Black Hills Unit			
White-tailed deer bucks:	3% fawns	7% yearling	90% adults
White-tailed deer does:	13% fawns	14% yearling	73% adults
Mule deer bucks:		20% yearling	80% adults

2005 Recruitment Rates of Deer Fawn Age Class

Fawn:doe ratios determined by fall classification ground surveys.

West River Prairie	
White-tailed deer:	.88 fawn per doe
Mule deer:	.95 fawn per doe
East River Prairie	
White-tailed deer:	1.36 fawn per doe
Black Hills	
White-tailed deer:	.55 fawn per doe
Mule deer:	.80 fawn per doe

WISCONSIN DEER STATUS REPORT, 2006

Midwest Deer & Turkey Group – Bloomington, Indiana
Robert E. Rolley and Keith Warnke

POPULATION GOALS

In the Northern and Central Forest regions (Fig. 1) population goals are set relative to carrying capacity. In the three farmland regions, goals have primarily been set relative to human tolerance for deer. Overwinter goals range by unit from 10 to 30 deer/mi^2 of deer habitat. Normal recruitment should produce fall populations of over 1,000,000 when the population is at goal and an annual gun and bow harvest of about 300,000.

A public review of population goals in 2003-04 resulted in recommendations to increase goals in 7 management units and decrease the goal in 1 unit. These recommendations were approved by the Natural Resources Board in December 2004. The net effect of these changes was to increase the statewide overwinter population goal to 706,300.

POPULATION TRENDS

Deer populations in the Northern Forest, Eastern Farmland, and Western Farmland regions increased substantially during the 1980's (Figure 1). Aggressive harvests during the late 1980's and early 1990's, combined with very poor recruitment in the Northern and Central Forest regions in 1992, reduced populations to near goal in the North and below goal in the Central Forest. Deer populations in all regions grew rapidly following the conservative harvests in 1993 reaching a record statewide posthunt population in excess of 1,120,000 in 1995. Liberal harvests in the farmland regions together with over-winter losses associated with the severe winters of 1995-96 and 1996-97 reduced populations from the 1995 peak in all regions. The near-record mild winter of 1997-98 and relatively conservative antlerless harvests in 1998 allowed population growth in all regions. Substantial antlerless harvests across much of the state in 2000, together with the moderately severe winter of 2000-01 in the Northern Forest, set the stage for population declines in all regions in 2001. The lower harvests in 2002 led to population increased in all regions in 2003. Aggressive antlerless harvests and below average recruitment in 2004 contributed to population declines in most regions. Lower antlerless harvests in 2005 resulted in population increases in most regions.

HARVEST TRENDS

During the 1960s and early 1970s, the combined gun and archery harvest fluctuated from a low of about 40,000 to a high of about 136,000 and averaged about 90,000 (Figure 2). Total harvest increased steadily during the late 1970s and 1980s, peaking at over 400,000 in 1991. Harvest declined sharply to about 270,000 in 1993. Harvest rebounded to another record of over 470,000 in 1995, and then declined to approximately 360,000 in 1997. Total harvest increased during the next 3 years, setting an all-time record of 618,374 in 2000. Total harvest decreased in 2001 and 2002 but then increased in 2003 and 2004. Total harvest in 2005 was the 6th highest on record. During the last 10 years, total harvest averaged over 460,000, with about 40% of the harvest composed of antlered bucks and about 60% antlerless deer.

HUNTING SEASON SUMMARY - 2005

The 2004 posthunt population was estimated to be about 1.0 million, about 6% lower than in 2003. The winter of 2004-05 was rated as mild. Observations of fawns and does in summer 2005 indicated that recruitment was near the long-term average in most regions. The estimated statewide fall 2005 population was approximately 1.6 million.

The 2005 archery season was held during September 17 – November 17 and November 28 – January 3. In most management units, archers were allowed to harvest one deer of either sex during the season. Archers were allowed to harvest additional antlerless deer using

Hunter's Choice, free Zone T, and bonus antlerless permits: All archers received one free antlerless tag valid in Zone-T units with the purchase of their license. In CWD units, archers could harvest deer of either sex during September 17-October 26. From October 27 through November 17 archers in CWD Zones were required to have killed an antlerless deer before they could harvest a buck. Archers killed approximately 78,500 deer (35,900 antlered, 41,200 antlerless, and 1,400 unknown). Most deer (87%) were killed in the early part of the archery season.

A 4-day antlerless-only gun hunt was held beginning in late October in 45 deer management units (Zone-T) where deer populations have been chronically over goal. The gun season in the CWD affected units also opened in late October with most hunters required to harvest an antlerless deer before harvesting a buck. A 1-day antlerless only youth hunt (ages 12-15) was held on October 29 in units that were not included in Zone T or CWD zones. Over 36,000 deer (approximately 31,000 antlerless, 4,000 antlered, and 1,000 unknown) were killed during these early gun seasons.

Sales of gun deer licenses in 2005 were 1% lower than in 2004. The opening weekend of the November 2005 firearm season had snow cover and mild temperatures throughout much of the state. In some parts of the north, wet snow on brush inhibited hunter visibility and movements. Thanksgivings Day was cold with high winds. Rain and freezing drizzle on the final Sunday likely reduced hunter pressure. Approximately 90% of corn crop had been harvested by opening weekend, near the 5 year average. Because of the widespread snow cover many considered hunting conditions to be above average. Approximately 325,600 deer (138,500 antlered, 183,900 antlerless, and 3,200 unknown) were killed during the 9-day November gun season. The 10-day muzzleloader-only season (November 28-December 7) resulted in a harvest of about 8,500 deer (2,400 antlered, 6,000 antlerless, and 100 unknown).

A 4-day antlerless gun season was held December 8-11 in 39 of the 45 Zone-T units. Hunting conditions during this season were good with some snow cover in most of the state. Gun hunting continued throughout the month of December in the CWD units. More than 17,000 deer (2,700 antlered, 13,800 antlerless, and 500 unknown) were harvested during the December gun hunts.

In all seasons, gun hunters registered 387,310 deer. This was 6% lower than the gun harvest in 2004 and was the 7th highest on record. The gun season antlered harvest of 147,622 was the 5th highest while the antlerless harvest of 234,611 was the 6th highest. The combined bow and gun season harvest of 183,557 bucks was the 6th highest on record. The Chippewa tribes harvested 852 antlered bucks and 1,305 antlerless deer in the ceded territories outside of reservations.

A statewide harvest quota of 365,475 antlerless deer was established for the 2005 season. Each hunter received 1 free Zone T Bonus Antlerless Permit with the purchase of his or her regular gun and bow license. The Zone T permits were valid during any season in the 45 units where the special October and December gun hunts were held. In addition, hunters could purchase additional bonus antlerless-only licenses in these 45 units. More than 362,000 antlerless permits were available in the management units that were not included in Zone T. In all, more than 870,000 antlerless permits were issued. Antlerless permit holders harvested 191,434 antlerless deer for an overall success rate of 22%.

Over 15,000 deer were checked for sex and age from 62 deer management units during the 2005 gun deer season. In the Northern Forest, the percentages of harvested bucks that were yearlings was higher than in 2004 but were 10-12% lower than the 10-year average. The percentage of yearlings among does was 5-9% below average in the Northern Forest. Yearling buck and doe percents in the Central Forest were 24% and 33%, respectively, below average, suggesting reduced recruitment associated with widespread flooding in spring 2004. The flooding may also have affected recruitment in the Eastern Farmland region where yearling doe percents were 25% below average.

Antler development of yearling bucks was above normal in the Northern Forest (63% of

yearlings had forked antlers compared to a 31-year average of 57%, Figure 3). In the Central Forest, 53% of yearlings had forked antlers, which was 10% lower than the long-term average. Above average antler development in the Northern Forest regions is consistent with the mild winter of 2004-05 and the near average fawn:doe ratios observed during summer 2005. Antler development in the farmland regions was similar to the long-term average; 87% of yearlings had forked antlers.

WINTER 2005-06

The winter of 2005-06 was rated as mild with an average winter severity index (WSI) of 36 for northern Wisconsin. Four of the last 5 winters have rated mild. On average, snow depths greater than or equal to 18 inches were recorded on 13 days in 2005-06 and minimum temperatures less than or equal to 0°F occurred on 23 days. Recruitment in the Northern Forest is expected to be near or above normal in 2006 and the statewide fall 2006 population is predicted to be about 1.5-1.7 million.

2006 DEER SEASON DEVELOPMENT

In response to public requests for simplification of deer seasons and tagging procedures the department formed a committee in 2004 to review deer hunting regulations. Also in March 2005 the Natural Resources Board (NRB) directed the department to develop an emergency rule proposal that would move the October hunt earlier in the month. In addition, the Conservation Congress Executive Council proposed sweeping changes to deer seasons that would severely curtail herd control tools. This proposal received broad support from attendees at the April 2005 spring hearings. As a result of the convergence of these forces the Department held a series of meetings with a wide range of stakeholder and conservation groups in spring and summer 2005 to develop a new deer hunting season framework. The rule proposal that was developed expanded hunting opportunity, decreased confusion over tagging restrictions, increased the flexibility of herd control tools, and tested a new herd control format.

Ten public hearings were held in October 2005. Support for the rule proposal was widespread amongst most user groups, but relatively few people attended the hearings. The majority of people who voiced their opposition to the rule order were snowmobilers who objected to the proposed 4-day statewide antlerless hunt in December. The rule proposal was passed unanimously by the NRB in December, 2005.

On January 23, 2006, the Senate Natural Resources and Transportation Committee and the Assembly Natural Resources Committee held a joint public hearing on the 2006 deer season rule package. Hunters and hunting groups nearly unanimously supported the package and turned out in good numbers at the hearing. Many snowmobile club members testified that gun deer hunting in December would ruin their sport in Wisconsin. After an entire day of testimony, the Senate Committee voted unanimously to request modifications of the rule. They requested that the December antlerless gun hunt in northern Wisconsin be conducted one week earlier (in the middle of the either-sex muzzleloader season), that the hunt be limited to herd control units, and that there be a 2-year sunset placed on that hunt. The Assembly committee concurred 2 days later.

On January 25, the NRB was briefed on the situation and a stakeholder conference call was held. The consensus was to agree to minor changes in the rule. On January 31, the NRB agreed to change the December hunt in northern Wisconsin to a Herd Control Unit only hunt but did not change the dates of the hunt. On February 8, the Assembly Committee on Natural Resources rejected the NRB's compromise and again requested the Department of Natural Resources consider the same modifications to the rule which the Board had already declined to incorporate. On February 10, the NRB, finding the legislative request unreasonable, declined to make any further modifications or take any further action on the proposed rule. Consequently, the Assembly and Senate Natural Resources Committees formally objected to portions of the rule on February 15, 2006.

The committees' objection suspended the deer season rule until the Joint Committee for Review of Administrative Rules (JCRAR) could review and act upon their actions. As a result of the suspension, the NRB decided to forego implementation of the new rules for 2006, opting to roll out whatever package finally passed in 2007.

In early March, the Chair of the Assembly Committee introduced legislation that would have dramatically restructured deer seasons and removed most herd control tools from agency discretion and placed seasons and requirements in state law. Hunters reacted vehemently and attended the legislative hearing to publicly show their anger with legislative interference with deer seasons. The bill was defeated in the Assembly as was one that would have issued a second deer tag to landowners who allowed snowmobile trails on their land.

The JCRAR held a hearing on April 18 and heard testimony from many hunters and fewer snowmobile enthusiasts. After an entire day of testimony, the committee proposed that the DNR modify the deer season rule to limit the December gun hunt north of HWY 8 to 2006 as an initial trial, but to conduct the hunt in all units – not just Herd Control Units. That would be the only change to the original package the DNR had proposed – a one year sunset. On April 21, the DNR held another conference call with stakeholders who strongly supported accepting this recommendation. The NRB adopted the change in April 26 and ordered it promulgated immediately after final JCRAR review. The NRB further directed that the rule be implemented for the 2006 hunting season. A press release was issued on May 9 announcing that the 2006 deer season was finally set. However, because licenses went on sale in mid-March some 50,000+ hunters had already purchased their archery license. The newly implemented rule required that the DNR mail them an additional antlerless deer carcass tag at a projected cost of $38,000-53,000.

2006 DEER SEASON

Wisconsin deer hunting seasons will look markedly different this fall under a trial season approved by the state Natural Resources Board on April 26. The antlerless-only October gun deer hunt has been eliminated and replaced with a statewide four-day antlerless-only gun hunt in the second week of December.

Outside of the Chronic Wasting Disease (CWD) zones and Metro Units, there are three types of season structures: regular, herd control (formerly Zone-T), and earn-a-buck (EAB) (Figure 4). Season dates for all three structures are:

- Bow - Sept. 16 - Nov. 16, 2006 and Nov. 27, 2006 - Jan. 7, 2007
- Youth Deer Hunt - Oct. 7 & 8, 2006
- Gun - Nov. 18 - Nov. 26, 2006
- Muzzleloader - Nov. 27 - Dec. 6, 2006
- Herd Control Hunt - Dec. 7 - Dec. 10, 2006 (antlerless-only)

Regular units have deer populations at or near goal. Harvest limits in Regular units are 1 antlered buck (>3" antler) with a gun license and 1 deer of either sex plus 1 antlerless deer with an archery license. A limited number of unit-specific antlerless deer tags are available in Regular units, which allow a hunter to harvest an antlerless deer. Unit-specific antlerless tags will be sold for $12 on a first come, first serve basis beginning at noon on Saturday, August 26. Unused gun buck and antlerless deer tags are valid during the Muzzleloader season. Only antlerless deer may be harvested during the December Herd Control Hunt. Twenty-four units are designated as Regular units in 2006.

Additional harvest of antlerless deer is necessary in Herd Control units to reduce the deer population and move it toward goal. In addition to the harvest limits for Regular Units, one free antlerless deer tag that is valid in Herd Control or EAB units is issued with each gun and archery license. Additionally, and unlimited number of Herd Control Antlerless Deer Carcass Tags can be purchased for $2.00 for use during any open season in Herd Control or EAB units. Fifty-three units are designated as Herd Control units in 2006.

The Earn-A-Buck (EAB) season structure is recommended if a DMU has had at least

two years of consecutive HERD CONTROL seasons, which failed to reduce the population to near goal and if another non-EAB season is not likely to do so. The season limits are the same as in Herd Control units except that hunters are required to first tag an antlerless deer before being allowed to tag an antlered deer. For the first time in 2006, hunters may have pre-qualified to harvest a buck by registering an antlerless deer during 2005 in a unit that is now an EAB unit. Twenty-one units are designated as EAB units in 2006.

2006 YOUTH HUNT

There will be a 2-day statewide either-sex gun deer hunt October 7 & 8 for youth ages 12-15 who posses a Hunter Education certificate. Each youth must be accompanied by an adult. The participating youth is required to have a gun license and must possess a valid carcass tag for the type of deer harvested. The gun buck tag is only valid for an antlered buck. The free antlerless deer tag which comes with each deer license is only valid in Herd Control and EAB units. Youths in Regular units must purchase a unit-specific antlerless tag if they wish to harvest an antlerless deer. Gun buck tags are not valid for either sex deer for first time hunter education graduates. Adults accompanying youth during the two day youth hunt are not allowed to hunt deer with a firearm during the 2-day youth gun deer hunt. Youth hunting in EAB units must tag an antlerless deer prior to being authorized to harvest a buck with their Gun Buck Deer Carcass Tag. In non-CWD units, each youth may only harvest or tag one buck and shall use their Gun Buck Deer Carcass Tag for that purpose.

INDEPENDENT REVIEW OF DEER POPULATION ESTIMATION

In response to public complaints after the 2004 deer season, the Natural Resources Board directed the department to undertake an independent scientific review of the procedures used to estimate deer population size in the state. A review steering committee was formed with representatives from the Wisconsin Conservation Congress, and other key stakeholders. The steering committee met twice during summer 2005 to define the scope of the review, prepare the proposal and assist in the selection of the reviewers.

In September 2005, panel members (Mark Boyce, Duane Diefenbach, Lonnie Hansen, Joshua Millspaugh, John Skalski, and Kent Kammermeyer by telephone) participated in an all day meeting with DNR personnel, Conservation Congress representatives, and other interested parties to discuss the SAK and its application in Wisconsin. The DNR provided an extensive overview of the SAK model as applied in Wisconsin; an overview of deer harvest management in Wisconsin; and a discussion of data collection techniques. The panel also heard from the Conservation Congress and other interested parties. The Conservation Congress identified several key issues of interest to them. Panel members asked questions and outlined the general approach they would use to complete the audit. An initial coordination plan was outlined.

Based on discussions at the September meeting and conversations with the Conservation Congress, the SAK panel members identified the following tasks: (1) evaluate the impact of stationary/stable assumption for pre- and post-hunt population estimates; (2) evaluate issues of precision at the local (DMU) level including an evaluation of the uncertainty and precision of the estimates; (3) evaluate key assumptions of the SAK model and their influence on population estimates; (4) investigate the possibility of adding auxiliary information in the SAK model; (5) evaluate issues identified by the Conservation Congress and other interested parties; (6) evaluate adjustments made in the model by DNR personnel; and (7) complete a literature review to investigate the availability of alternative monitoring and evaluation techniques.

Numerous requests for information from panel members have been fulfilled by the DNR. The review panel expects to present their findings to the NRB in January 2007.

CHRONIC WASTING DISEASE MANAGEMENT

The CWD eradication zone (DEZ) in southwestern Wisconsin was approximately 1,300

mi^2 in 2005. A second (300 mi^2) eradication zone was in southeastern Wisconsin adjacent to the Illinois outbreak. The eradication zones were surrounded by a herd reduction zone (HRZ) that extends out to approximately 40 miles from the eradication zone. Deer population reduction strategies for 2005 utilized extended hunting seasons with liberal bag limits for both the eradication zone and the surrounding herd reduction zone. In addition, agency sharpshooters removed deer in high prevalence areas with landowner permission. Deer hunting seasons within the eradication zone included an archery season during September 17-January 3 and gun seasons during October 27-November 13 and November 19-January 3. Unlimited either-sex regulations were in effect during September 17- October 26 and November 19-January 3. Unlimited earn-a-buck regulations were in effect during October 27-November 13. Landowners within the eradication zone were issued free permits with 1 free buck tag. Landowner permits authorized harvest through March 31. The deer season in the surrounding herd reduction zone was similar to the disease eradication zone except that the early gun season was only during October 27-October 30.

More than 12,100 deer (60% antlerless) were removed from the eradication zones in 2005-06. Approximately 52,000 deer (60% antlerless) were harvested in the herd reduction zone.

Whitetails Unlimited, in partnership with the DNR, again offered a reward program in 2005 for hunters and landowners that harvested a CWD positive. The Focus on Positives program paid $400 for each CWD positive deer, split evenly between the landowner and the hunter.

Agency sharp-shooting activities in southern Wisconsin during winter 2005-06 were concentrated in high prevalence areas in the southwest DEZ, refuge areas in the southeast DEZ, and targeted areas in the HRZ. Approximately 700 deer were shot and 45 deer were trapped and euthanized. Shooter success rates were 0.69 and 0.88 deer killed/trip in the southeastern and southwestern DEZs, respectively. Twenty-eight positive deer were removed.

Disease surveillance activities in 2005 focused on (1) the DEZs, (2) the herd reduction zone, (3) outstate counties in the Northeast Region, and (4) selected areas of higher risk in proximity to infected cervid farms. Nearly 25,000 deer were tested in 2005-06, 181 tested positive. To date, more than 100,000 deer have been tested with a total of 652 free-ranging deer testing positive for CWD, 632 within the DEZs and 20 in the Herd Reduction Zone (Figure 5).

Analysis of the sex and age-specific prevalence within the core, high-prevalence area of the southwest DEZ shows that relatively few fawns are infected (>0.4%). Prevalence increases with age and the rate of increase is faster in males than in females. Only 2-3% of yearling females and males from the core area have tested positive for CWD. This increased to 5% of females and 11% of males for deer 3 years old. Seventeen percent of adult bucks that are four years old and older have been positive for CWD. Prevalence among adult does and bucks during 2002-2005 has not changed significantly among years. The geographic distribution of positives within the southwest DEZ was also similar between years.

A helicopter quadrat survey in Deer Management Unit 70A within the southwest DEZ estimated a 2005-06 late winter deer density of 34 $\pm$ 5 deer/mi^2 of deer range, compared to 34 $\pm$ 4 in 2004 and 30 $\pm$ 4 in 2005. These estimates assume 80% observability of deer in deciduous woodlands with suitable snow cover. The 95% confidence intervals of these estimates overlapped. In the 121 quadrats in the southwest DEZ that were flown in both 2005 and 2006, the number of deer counted did not differ significantly between years (mean difference = 2.4 deer, $t = 1.47$, $P = 0.14$). Helicopter quadrat survey in the southeast DEZ yielded an estimate of 15 $\pm$ 4 deer/mi^2 of deer range.

Over 3,500 miles of fixed-wing transect surveys were flown in the HRZ in 2005-06. The mean number of deer seen/mile were 1.4, 2.0, 1.3, and 1.6 during 2003-2006, but comparisons are complicated by changes in the boundaries of the Herd Reduction Zone each year.

As of January 2006 there were 726 licensed cervid farms in Wisconsin with more than 20,000 animals. About 75% of licensed farms were enrolled in the CWD monitoring program. There were 42 hunting preserves with more than 6,000 animals. During 2002-2005 more than 13,600 captive cervids were tested for CWD. To date, 94 farm-raised white-tailed deer and 1 elk have tested positive for CWD on 7 farms; 82 of the positive white-tailed deer were on one farm in Portage County. The Portage County farm was depopulated in January 2006. Nearly 80% of the 77 deer on the farm at that time tested positive. At the time of the depopulation, it was reported that a fence on the property had been cut, potentially allowing captive deer to escape or wild deer to enter the farm. Late winter surveillance efforts surrounding the Portage County farm resulted in 36 deer being sampled with no deer testing positive. One positive farm remains in litigation. Ten farms remain under quarantine because they are located within the CWD eradication zone.

Because of perceived erosion of public support for long-restrictive gun hunting seasons in the CWD zones, hunting season frameworks for 2006 were revised and approved by the Natural Resources Board in late April. The archery season will be September 16 - January 7 in both the DEZs and HRZ. The early gun season will be October 19-22 in the HRZ and October 14-22 in the DEZs. The late gun season will be November 18 - December 10 in both the DEZs and the HRZ. As in the rest of the state a youth gun hunt will occur October 7-8. An unlimited number of either-sex permits will be available in both zones.

Management of CWD is costing approximately $5 million annually with approximately $1 million from USDA grants and $4 million in redirected DNR funds. Carcass disposal continues to be a significant cost because of reluctance of landfills to accept untested carcasses. As a result the Department has resorted to incinerating and chemically digesting carcasses, heads, butcher waste, and road kill deer from the DEZ. Approximately 299,000 pounds of waste were chemically digested and 78,000 pounds were incinerated in 2005-06. However, a bill was approved by the legislature and signed by the Governor that gives the DNR authority to enter into indemnification agreements with landfills that accept carcasses from the DEZs.

The DNR has developed a food pantry program for DEZ deer as an incentive for hunters to shoot more deer than they can use themselves. Participating meat processors process DEZ carcasses, hold those carcasses until test results are returned, finish processing those deer that tested negative, and dispose of carcasses from lots that included a CWD positive deer. Lots containing negative carcasses are ground and distributed to cooperating food pantries. Over 1,700 carcasses were donated to the DEZ food pantry program in 2005.

The Legislative Audit Bureau is conducting a second audit of the state's CWD management program. The report is expected this fall or early winter.

WILDLIFE DAMAGE ABATEMENT AND CLAIMS PROGRAM

Wisconsin has had a wildlife damage program since 1931. The current Wildlife Damage Abatement and Claims Program (WDACP) was created in 1983 by the legislature, in response to concerns from the agricultural community and with input from farmers, hunters, landowners, and wildlife damage specialists. Each county administers the WDACP to provide local control and minimize costs. The DNR only manages the program. The WDACP emphasizes wildlife damage prevention, but also offers partial compensation for damage caused by wild deer, bears, turkeys, and geese. Currently 70 of the 72 counties in Wisconsin participate in the WDACP. The WDACP is funded by a $1 surcharge on hunting licenses, and a $12 resident and $20 nonresident bonus deer permit fee. Bonus permit revenues can only be spent for WDACP expenses (administration, damage prevention, and damage compensation).

Tentatively, the WDACP will pay 557 wildlife damage claims for damage that occurred during 2005, reflecting $1,784,513 in appraised losses, with $1,312,866 eligible for payment.

Wildlife damage claims were filed in 63 of the 70 counties enrolled in the program in 2005. Deer damage represented 89% of appraised losses statewide. The WDACP built 23, 8-ft, high tensile, woven wire fences, which collectively measured 29.7 miles in length. The most commonly used abatement measure was deer damage shooting permits. In 2005, we issued a total of 793 deer shooting permits across the state under which 6,252 deer were removed. This includes 631 deer that were harvested under 73 permits issued for urban, airport, and nuisance situations. An abatement method used for the first time in 2000 was a venison donation program. In 2005, 58 of 70 counties chose to participate in the donation program. In those counties, hunters donated 7,207 deer amounting to nearly 325,000 pounds of venison. The cost of the venison donation program in 2005 was approximately $361,000.

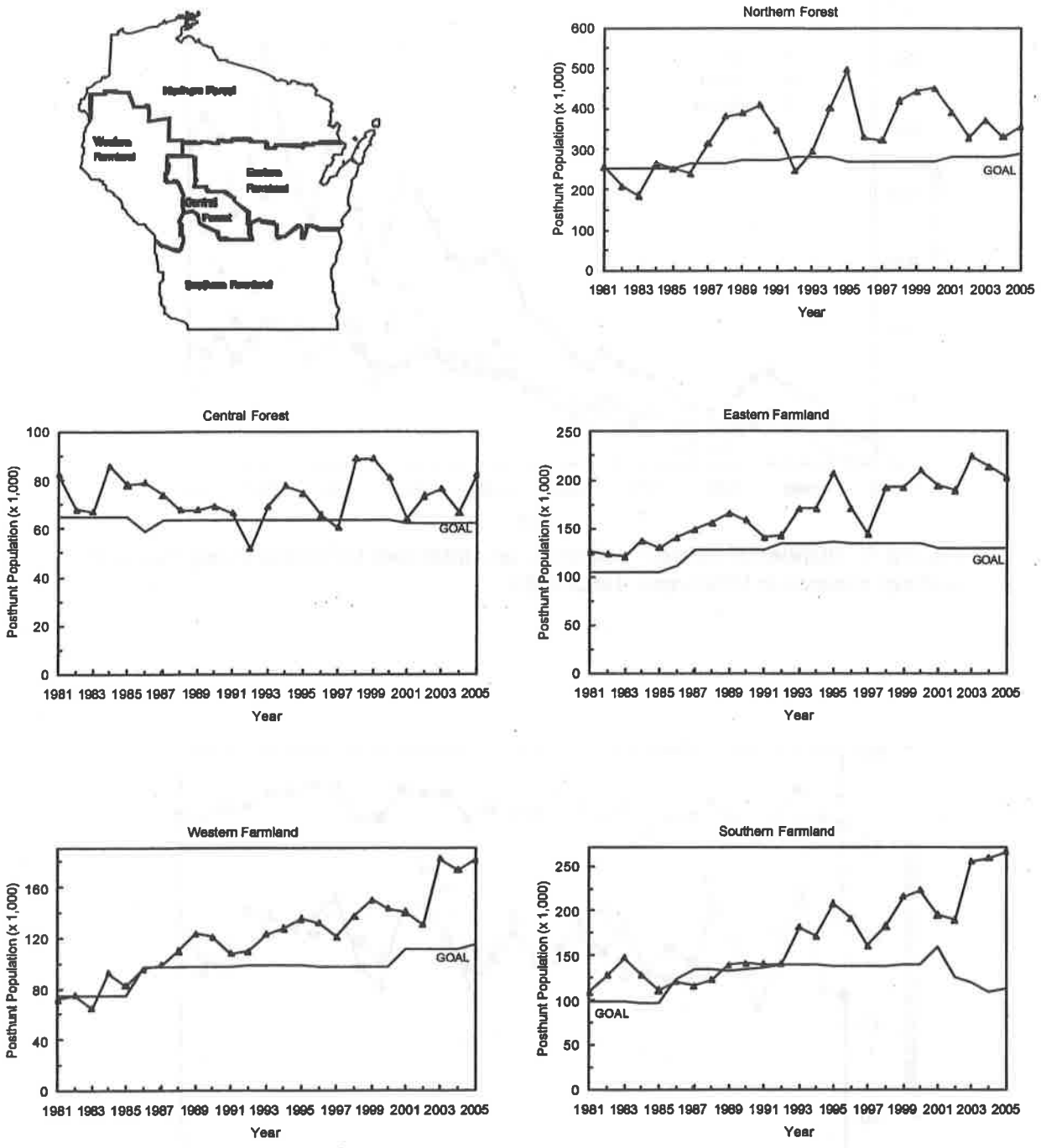


Figure 1. *Regional white-tailed deer population trends in Wisconsin, 1981-2005.*

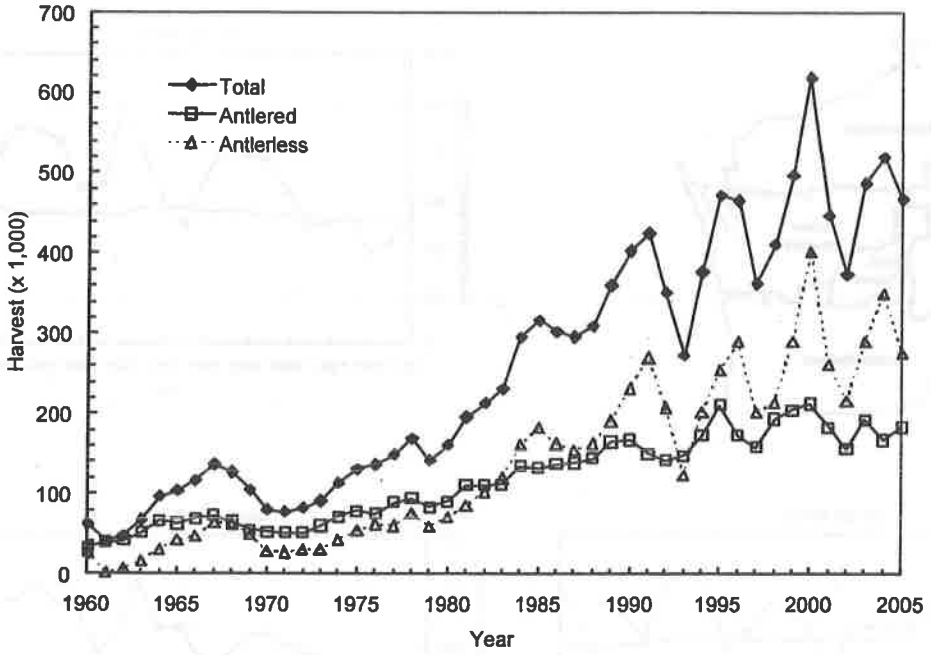


Figure 2. *Number of antlered, antlerless, and total deer harvested during gun and archery seasons in Wisconsin, 1960-2005.*

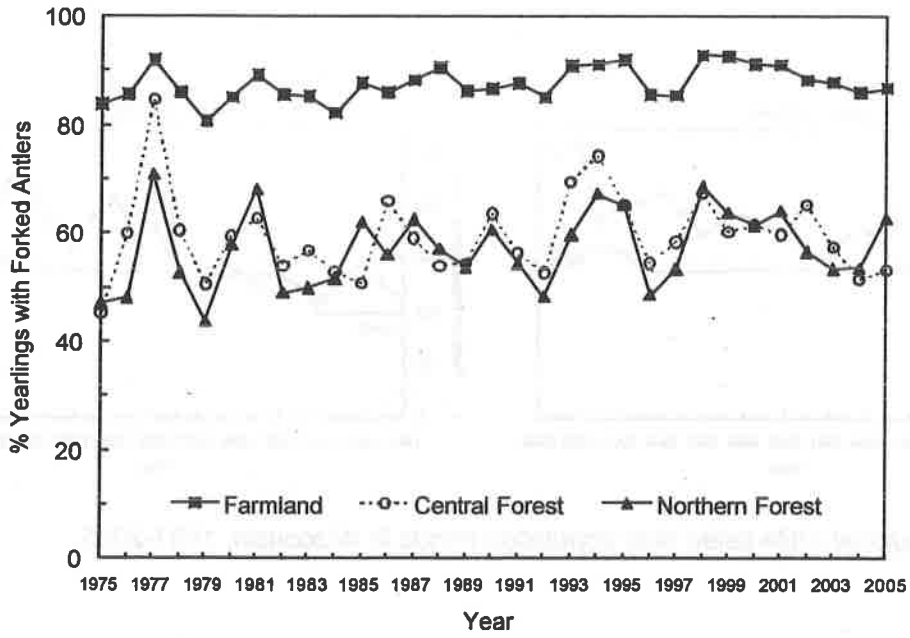


Figure 3. *Yearling antler development in the principle deer habitat regions, 1976-2005.*

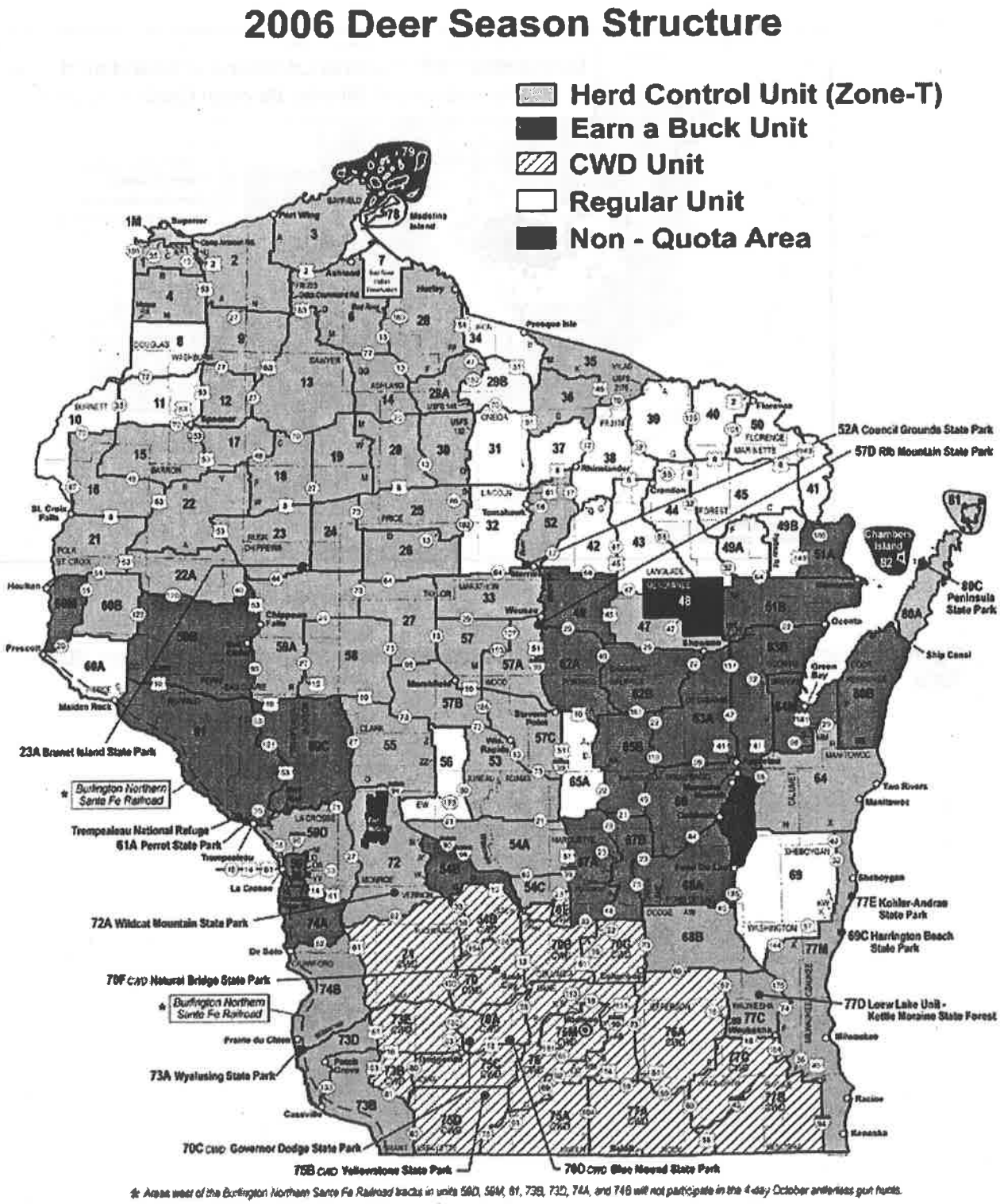


Figure 4. *Deer season frameworks in Wisconsin, 2006.*

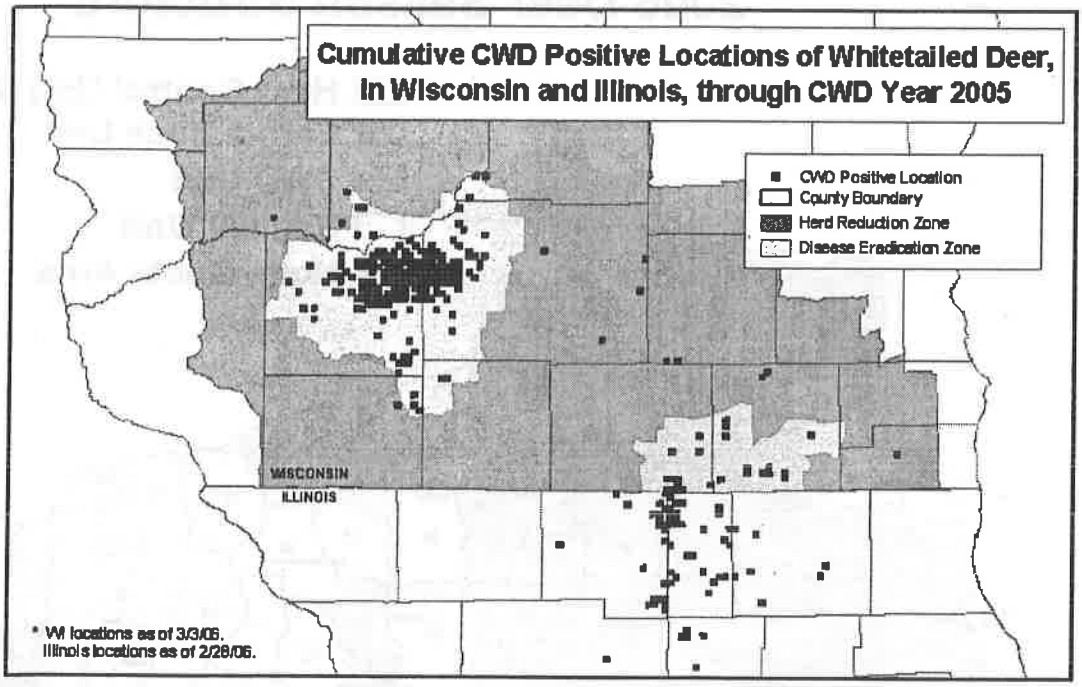


Figure 5. *Distribution of CWD positive deer in southern Wisconsin and northern Illinois, 2002-2006.*

I. Update Item: Elk and Deer Season Summary

A. 2005-2006 Elk Season Summary

Ninety-five (99) elk were harvested in the restoration zone this season (52 bulls, 47 cows). An additional 4 cows and 1 bull were harvested outside the zone. Hunter success for those who drew permits was 97% overall. Refer to page 15 for more detail.

Two new state record elk were harvested this year; a typical gross scoring 330 0/8 and netting 319 6/8 Boone and Crockett points, and a non-typical gross scoring 327 5/8 and netting 320 2/8.

B. 2005-2006 Deer Season Summary

Statewide, 112,419 deer were checked during the '05-'06 season. This decrease from last year's record of 124,752 was likely related to unfavorable weather patterns during the modern firearms and early muzzleloader seasons (unseasonably warm). For the second year in a row (3rd time on record), females comprised more than 50% of the harvest (52.0% in '05-'06 and 51.6% in '04-'05). Refer to page 17 for more detail on statewide statistics.

II. Update - CWD Surveillance Summary

A total of 2,510 white-tailed deer and 17 elk samples were collected during the 2005-06 harvest. Samples have been sent to the Southeastern Cooperative Wildlife Disease Study (SCWDS) at the University of Georgia Vet School for testing. Results will be available this spring.

Elk Harvest 2005 - 2006

Bull Hunt - 52 bulls harvested

Limited Entry Areas

- Begley – 8 of 8 hunters harvested bulls
- Starfire – 8 of 8 hunters harvested bulls
  2 commission tag hunters harvested bulls

At-Large

- 32 of 34 hunters harvested bulls
- Counties and number of bulls harvested
  - Bell 3
  - Breathitt 1
  - Floyd 1
  - Knott 10
  - Knox 1
  - Leslie 1
  - Martin 4
  - Perry 5
  - Pike 6

Landowner Acquisition Tags

- Ataya Hardwoods
  - Leslie County - 2 bulls harvested

Cow Hunt – 47 cows harvested

Limited Entry Areas

- Starfire – 10 of 10 hunters harvested cows
- Begley - 9 of 10 hunters harvested cows

At-Large

- 28 of 30 hunters harvested cows
- Counties and number cows harvested
  - Bell 1
  - Breathitt 1
  - Floyd 4
  - Harlan 1
  - Johnson 1
  - Knott 4
  - Martin 3
  - Perry 6
  - Pike 5

Elk harvested out-of-zone – 5 elk harvested

- 5 hunters have harvested elk
  - Estill 2 (1 bull and 1 cow)
  - Laurel 1 cow
  - Pulaski 1 cow
  - Powell 1 cow

Law Enforcement

Bull hunt

- Cow harvested out of season by bull hunter (one shot killed bull and cow)
- Bull illegally harvested with firearm during archery season
- Hunter orange violation (camouflage hunter orange hat)

Cow hunt

- Bull harvested out of season by cow hunter (spike bull mistaken for cow)
- Cow hunter killed four cows

2005 – 2006 Statewide Deer Harvest

Statewide Deer Harvest by Weapon Type

Weapon Type	Female	Male	Total	% Female
Archery	7472	4130	11602	64.4%
Crossbow	392	192	584	67.1%
Modern firearm	39831	44459	84290	47.3%
Muzzle-loader	10727	5211	15938	67.3%

Statewide Male and Female Harvest by Zone

Zone	Female	Male	Total	% Female
1	27582	21909	49491	55.7%
2	21218	19691	40909	51.9%
3	7369	7465	14834	49.7%
4	2253	4927	7180	31.4%

Harvest by Commission District

Commission district	Female	Male	Total	% Female 2005-06	% change
1	8,510	7,035	15,545	54.7%	0.3%
2	9,548	8,552	18,100	52.8%	0.7%
3	5,301	4,320	9,621	55.1%	-1.0%
4	7,886	7,103	14,989	52.6%	1.5%
5	10,282	8,127	18,409	55.9%	0.8%
6	6,300	5,640	11,940	52.8%	1.5%
7	2,588	4,143	6,731	38.4%	-3.4%
8	5,020	5,044	10,064	49.9%	-0.2%
9	2,987	4,028	7,015	42.6%	0.4%

Harvest by Wildlife Region

Wildlife Region	Female	Male	Total	% Female
Bluegrass	20,692.00	16,649.00	37,341.00	55.4%
Green River	14,646.00	13,375.00	28,021.00	52.3%
Northeast	7,547.00	7,919.00	15,466.00	48.8%
Purchase	8,511.00	7,038.00	15,549.00	54.7%
Southeast	7,037.00	9,024.00	16,061.00	43.8%

Number Hunters Harvesting 1 or More Deer

Successful hunters	# deer killed	% of successful hunters
63439	1	76.0%
14772	2	17.7%
3399	3	4.1%
1910	4+	2.3%
Total successful hunters 83,523		

Harvest by Tag Type

Tag	Female	Male	Total
5 dollar senior disabled	3,506	2,657	6,163
deer control	1,806	153	1,959
land owner	9,476	10,740	20,216
statewide license	43,608	40,417	84,025

Comparison of Harvest during special seasons

Season	2002	2003	2004	2005
Early youth firearms	4,960	2,748	3,519	3,517
Early muzzleloader	7,671	7,610	8,934	6,748
Free youth weekend	-	1,175	894	766
Late muzzleloader	-	8,789	10,737	10,038

Wild Turkey

State/Province

Status Reports

ILLINOIS – Wild Turkey Broods and Hen Observations, 1995 - 2005

Year	# Hens With/Without Broods	# Poults	Poults/Hen Index
1995	1,155	2,917	2.53
1996	1,217	2,545	2.09
1997	1,424	3,832	2.69
1998	1,609	5,304	3.3
1999	1,551	4,643	2.99
2000	1,598	5,547	3.47
2001	1,653	5,923	3.58
2002	984	3,035	3.08
2003	1,276	2,886	2.26
2004	1,590	4,219	2.65
10yr Mean	1,406	4,085	2.91
2005	1,389	3,251	2.34

Broods were reported from 61 of 102 Illinois Counties in 2005

Yearly Turkey Harvest 1995 - 2006

Year	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			16,140

2005 Fall Archery and 2006 Spring Turkey Seasons were open in 96 of 102 Illinois Counties
2005 Fall Gun Turkey Season was open in 45 of 102 Illinois Counties
2006 Spring Turkey Permits issued = 70,251; including 20,348 Landowner and 49,903 Paid

INDIANA WILD TURKEY STATUS REPORT

August, 2006.

Steven E. Backs, Wildlife Research Biologist
Forest Wildlife Hdqts., 562 DNR Rd., Mitchell, IN 47446
TX: 812-849-4586 (Fax 849-6013) Email: sbacks@dnr.IN.gov

PRODUCTION AND POPULATION SURVEYS

Summer Brood Survey

Wild turkey brood *(Meleagris gallopavo silvestris)* production in 2005 was 2.3 poults:hen; a significant decrease from the 4.4 poults:hen recorded in 2004 **(Figure 1)** and significantly less than the average 3.3 poults:hen of the previous 5 years (2000-2004). The proportion of hens observed with poults was 74%, slightly less than the 77% observed the previous 5 years. Reasons for the below normal brood production in 2005 are uncertain. The general decreasing trend in the annual summer production of wild turkeys **(Figure 2)** is indicative of a population whose growth rate is beginning to level off to "maintenance" or stable population level. Reasons for the lower production index in 2005 are not known. Data gleaned from the "Indiana Crop & Weather Reports" (Indiana Agricultural Statistics, USDA) did not indicate any unfavorable climatic abnormalities that could have reduced chick survival during the critical early brood period of June. One can only speculate on the "ecological welfare factors" that may have come into play in a compensation role related to extremely good production in 2004 (17-yr Cicada Brood "X" hatch). Regional summaries were not possible due to the sample size and inconsistencies in the data reporting.

Roadside Gobbling Counts

Roadside gobbler counts are conducted in April prior to the spring turkey season to determine the relative population trends of wild turkeys. The counts are made in conjunction with roadside trend routes for ruffed grouse; 15 predetermined listening stops along 10-20 miles of rural roadways. In 2006, 10 traditional areas were surveyed in portions of 14 counties in southern Indiana. The mean number of wild turkeys heard along 10 roadside counts during 4-20 April 2006 was 1.45 gobblers heard per stop, a 61% increase compared to the gobbling index of 0.90 in 2005. The long-term trends show a steady increase since 1987, especially the last 5 years **(Figure 3)**. The substantial 61% increase in the gobbling index in 2006 primarily reflects the high number of vocal 2-yr-old gobblers resulting from the record high 2004 summer brood production more so than general turkey population growth.

RESEARCH

Invertebrate Abundance in Forest Openings

Invertebrate biomass and vegetative cover were examined on forest openings under different vegetative management regimes and mature forest sites during the early summer brood period for eastern wild turkeys. Invertebrate biomass and vegetative cover were examined on forest openings under different vegetative management regimes and mature forest sites during the early summer brood period for eastern wild turkeys. Data were collected in south-central Indiana during a 6-week period from late-May to early July, 1992-94. Forest opening (OP) treatments examined were the traditional opening maintenance (primarily mowing) conducted by the Forest Wildlife Project (FW), traditional FW opening management with grass-legume plantings (FWGL), munitions storage bunkers on a military base (Bunkers), warm season grasses and forbs mowed and/or burned (WSMB), and native forbs and grasses maintained by burning (NFGB). Mature forest (MF) sites were located in forest stands > 50 yr. Three

sites of Special Interest (SI) also examined were a hayfield (Hay), a dry-ridge barren (Barren), and a yellow tulip poplar (*Liriodenron tuliperfera*) plantation (Tulip). Results were published in a Final Federal Pittman-Robertson Aid Report W-26-R-36; Job 46-G-5.

Shooting Hours Study

Final results were presented and to be published in the 9th National Wild Turkey Symposium held in Lansing Michigan in December 2005.

"Comparisons between half-day and all-day spring turkey hunting in Indiana." S.E. Backs *(in press)*.

Abstract: Wildlife managers have debated whether "half-day" versus "all-day" hunting influences the probability of harvesting an adult or a juvenile wild turkey (Meleagris gallopavo) gobbler. Daily and hourly harvest distributions of adult gobblers were compared between 4 years of half-day hunting (1996–1999; 23,356 harvest events) and 2 years of all-day hunting in Indiana (2003 and 2004; 21,061 harvest events). The distributions of the total harvest across the 19-day season were the same for both half-day and all-day seasons. During all-day seasons, 70% of the total harvest occurred before 1000 hr, 79% by noon, 8% between 1200-1600 hr, with 13% after 1600 hr. Adults made up a slightly greater proportion (>2% points on average; e.g., 75% versus 77%) of the harvest for the all-day seasons. Our data suggest the influence of all-day hunting on adult gobbler mortality is relatively minor on a statewide basis with a 1-bird bag limit and the small differences in the proportion of the harvest that was adults may be related to factors other than extended shooting hours. Differential adult mortality may be of greater management concern under more liberal spring harvest strategies.

Crop Depredation Study – Purdue University ECASE Project.

The Purdue ECASE Project wrapped up its field work with several students finishing up their thesis work and Brain MacGowan, Wildlife Extension Specialist, putting the findings into public I & E materials. Two extension products completed include FNR-267 "Identification of Wildlife Crop Depredation" and a DVD-FNR-266 "Wildlife CSI: unraveling the mysteries of wildlife crop damage." Additional information on wildlife crop depredation will be updated to the web sites: www.purdue.edu/cropdamage & www.purdue.edu/wildlife

Lee A. Humberg, principal field technician, completed his MS thesis "Wild turkey ecology in an agriculturally dominated landscape of northern Indiana.' In May 2006. The thesis is broken into 3 chapters: 1) "Home range attributes of eastern wild turkeys in northcentral Indiana." 2) "Survival and cause-specific mortality of wild turkeys in northcentral Indiana." and 3) " Crop depredation by wildlife by wildlife in northcentral Indiana" that was in part published in the 9th National Wild Turkey Symposium .

Other Crop or Nuisance Issues

Complaints about wild turkeys appeared to drop off this past year either due to I & E efforts or folks are seeing fewer birds relative to the sudden population boom following the summer of 2004 high production. Crop depredation complaints were generally either perceived or originated from sources with a prior history of crop depredation from other animal sources. Nuisance complaints are still increasing. Most nuisance complaints involve cars/residences, often linked to birds of questionable origin (imprinted wild or pen-reared) and/or feeding situations (e.g., suburban bird feeders or illegal baiting).

HARVESTS

2006 Spring Season Results

The 37th wild turkey hunt was held 26 April to 14 May 2006 with harvest data collected at 320 check stations throughout the turkey range. Hunters harvested 13,193 wild turkeys in 79 of the 88 counties open to hunting during the 19-day season. The 2006 harvest was a new high and an 18% increase over the 11,159-bird harvest of 2005. Approximately 61% of the harvest occurred during the first 5 days of the season with 32% occurring on weekends. Approximately 70% of the harvest occurred by 1000 hrs and 79% by noon with 15% occurring after 1500 hrs (3 pm) to sunset. Unlicensed landowners/active military personnel accounted for 19% of the harvest, more than twice the proportion in previous years. Based on spur measurements taken at check stations, juvenile gobblers (1 yr-old birds commonly referred to as "jakes") made up 14% of the 2006 harvest; 2 yr-olds (67%); 3 yr-olds (19%) (**Figure 4**). The average weights of jakes were down from previous years, below the mean 15.5 lbs for the second year in a row. The proportion of jakes (14%) in the harvest was considerably lower than the 25% mean of the previous 10 years and the lowest jake proportion in over 25 years. Adults ($\geq$ 2 yrs) made up 86% of the harvest with the proportion of 2-yr-old gobblers (67%), the highest in 37 years of Indiana spring wild turkey hunting.

The southern regions of the state support the majority of the harvest and there were regional differences in the proportion of adults:juveniles in the harvest (**Figure 5**). Counties with high kills (>400 birds harvested) were Switzerland (562), Dearborn (489), Perry (470), Jefferson (461), Parke (444), Orange (440), and Harrison (431) (**Figure 5**). Reasons for the 18% harvest increase include the high brood production during 2004 summer, the continued increases in both the turkey population and turkey hunter numbers. The abnormally low juvenile and high adult proportions in the age structure of the harvest reflect the contrasting record high and low brood production during the respective 2004 and 2005 summers. The number of hunters afield was estimated at around 51,000 with an estimated hunter success of 26% **(Table 1).**

Regulation Changes for 2007 Spring Turkey Season:

The hunting range will be expanded to include 91 of 92 counties (exception Henry County) in the spring hunting season. A new "youth only" hunting season will probably occur pending approval by Indiana Natural Resources Commission NRC:

"The special youth season for hunting wild turkeys under this subsection is two (2) consecutive days beginning on the Saturday immediately before the start of the spring turkey season in subsection (a). As used in this subsection, "youth" means an individual who is less than sixteen (16) years of age on the date of the hunt. A youth who hunts a wild turkey under this section must be accompanied by an adult who is at least eighteen (18) years of age. An adult accompanying a youth hunter must not possess a firearm, bow and arrow, or crossbow while in the field. The seasonal limit for hunting turkeys under this subsection is one (1) bearded or male wild turkey. A youth hunter who takes a turkey under this subsection must not take another turkey during the spring turkey season in the same year."

Also up for review are changes regarding the definition of farmland/landowner that may influence our license exemption for hunting:

Emerging or Reincarnated Issues (as expressed by hunters)

Some hunters wanting spring season to open earlier when gobblers are starting to display the first week of March ("the gobbler pre-rut"). Desire for a multiple bird bag in spring, a special archery only season prior to the regular season, and some concerned that the hen:gobbler ratio is out of balance and need to hens in spring.

2005 Fall Season Results

The first modern day fall wild turkey hunting season in Indiana was held from October 1-23, 2005. The archery-only portion of the season occurred from October 1-18 in 60 counties. The combined firearms and archery season occurred from October 19-23. Firearm hunting was limited to 26 counties in the south-central and southeast regions of the state. Hunters harvested 716 wild turkeys in 53 of the 60 counties open hunting (**Figure 7**) during the first modern day fall wild turkey hunting season with the majority of birds taken by firearms hunters and either lifetime or license exempt hunter (**Tables 2 & 3**). The 18-day archery-only season accounted for 18.9% of the harvest with 81.1% of the harvest occurring the last 5 days of the combined firearms and archery season. All of the counties harvesting at least 30 birds were open to both archery and firearms hunting. The proportion of the fall to the spring harvest did not exceed 15% for any county open to fall hunting and the overall fall to spring harvest proportion was 6.4%. Weekends accounted for almost 50% of the total harvest with nearly 40% during one weekend of firearms season.

The determination of the sex and age of harvested wild turkeys was done by hunters and check station operators using a combination of spur and fall plumage characteristics (wing and breast feathers) as depicted in illustrations provided in the "2005-2006 Indiana Hunting and Trapping Guide". Juvenile birds made up 27% of the harvest while adults composed 73% for a juvenile to adult ration of 1:3 (**Table 4**). The high adult proportion was probably related to the low brood production in 2005 and the high production in 2004. Brood production in Indiana during the summer of 2005 was below average (lowest recorded in 13 years) and was in notable contrast to the above average brood production during the summer of 2004 (highest recorded in 13 years). The wide extremes in brood production during the 2004 and 2005 summers probably resulted in much higher proportion of adults available for harvest. Hunter selection for larger birds, when given the opportunity, may help explain the high proportion of adult males in the harvest. Finally, the interpretation of the fall sex and age criteria by hunters and check station operators was undetermined factor related to errors in sex and age determination.

The first fall season is probably not indicative of what is to be expected over time. Besides the novelty of this first season and the general inexperience of Indiana hunters with fall turkey hunting, there were several environmental events that influenced the harvest. Record warm temperatures influenced bird activity and reduced their normal food demands. The first killing frost in southern Indiana was at least 3 weeks later than normal and several hunters complained about the nuisance of mosquitoes during the firearms portion of the season. Wild turkey movements were also influenced by one of the heaviest mast crops (hard and soft) witness in at least 25 years. Besides the abundant mast foods, there were still many unharvested agricultural crop fields. Fall turkey hunting experience and errors in sex and age determinations should both improve over time.

Regulation Changes for 2006 Fall Turkey Season:

The recommendation was to expand the archery hunting range to all or portions of 13 new counties with no changes to the counties open to firearms hunting (**Figure 8**). The season structure remains the same with 1 bird bag of either sex. Archery only hunt dates are 1-22 October with the combined archery/firearm season 18-22 October.

Figure 1 Wild Turkey Brood Production

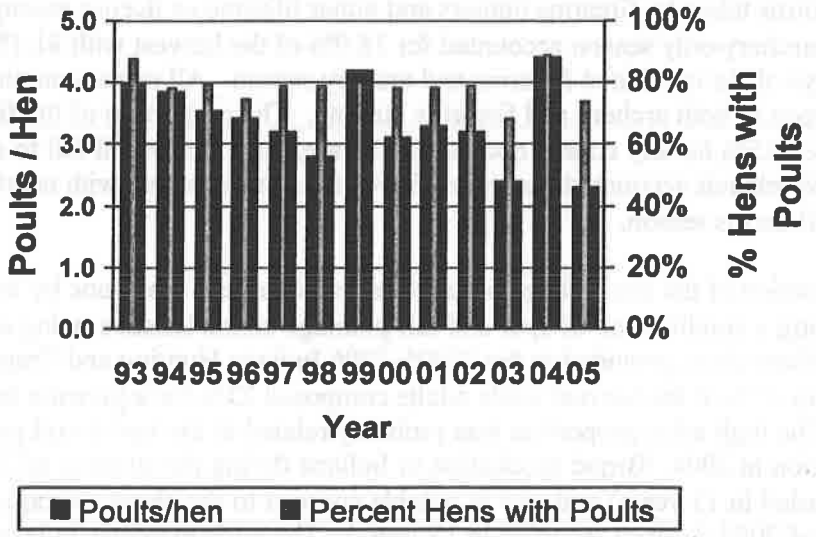


Figure 2 Wild Turkey Production - Indiana

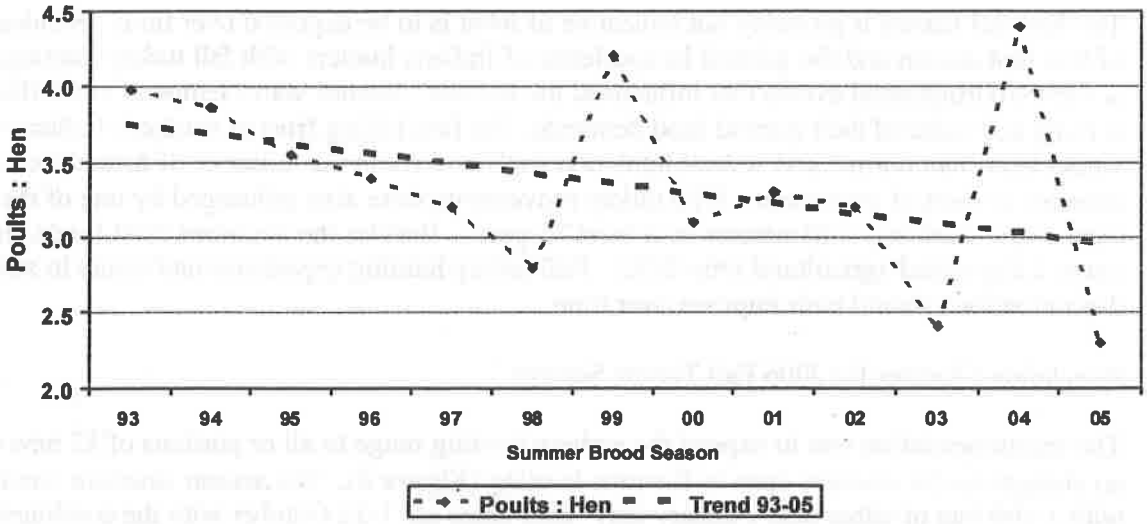


Figure 3. Roadside Gobbling Indices

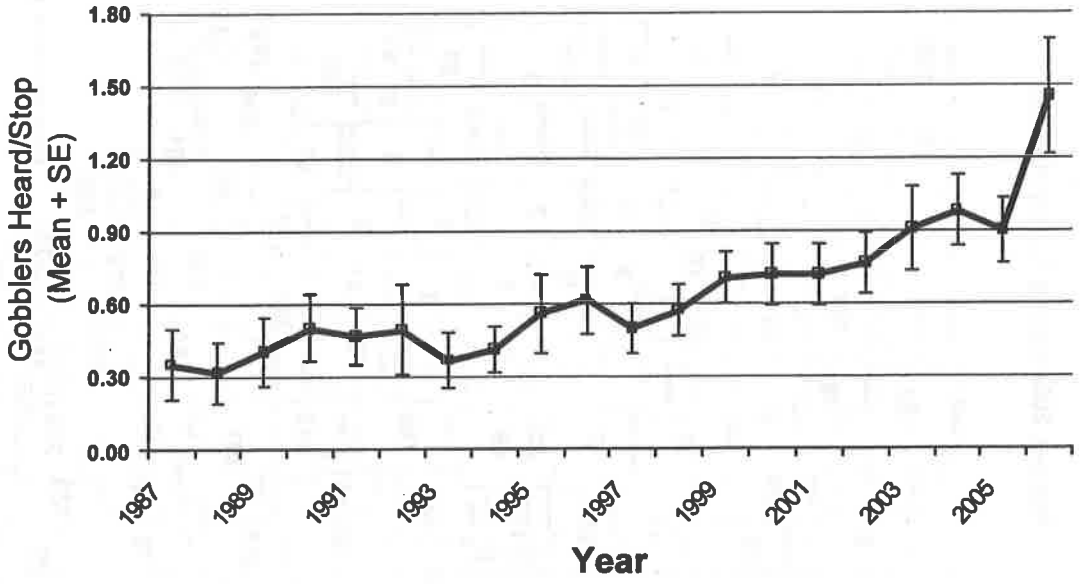


Fig. 4 Age Structure of Spring Harvests, Indiana

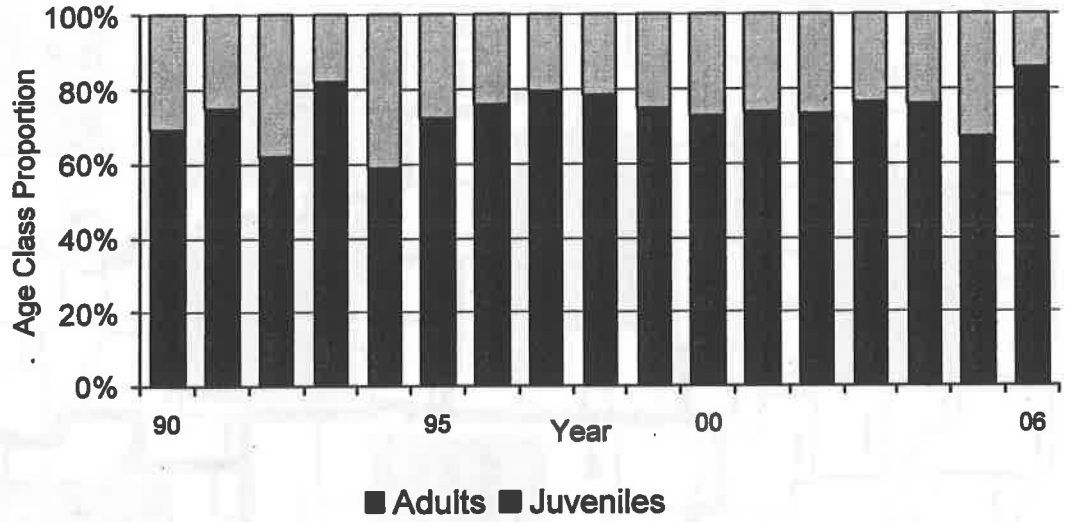


Fig. 5 2006 Spring Wild Turkey Harvest by Regions

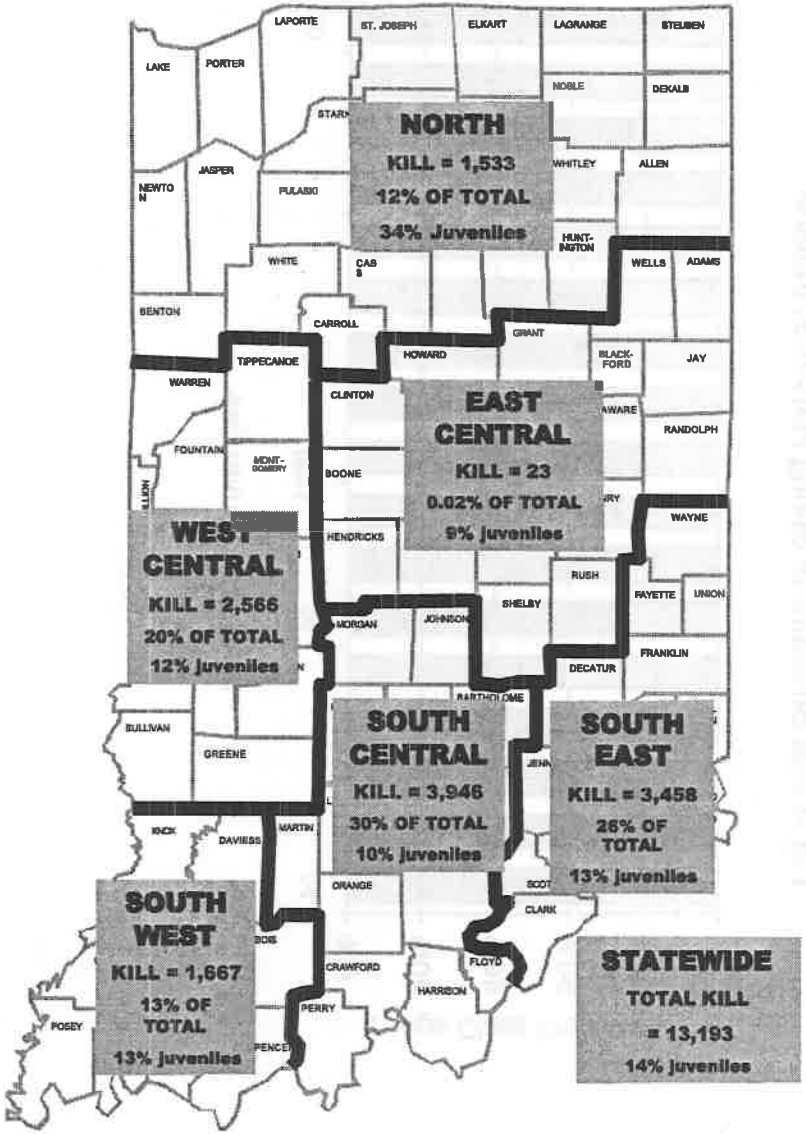


Figure 6. 2006 Spring Turkey Harvest

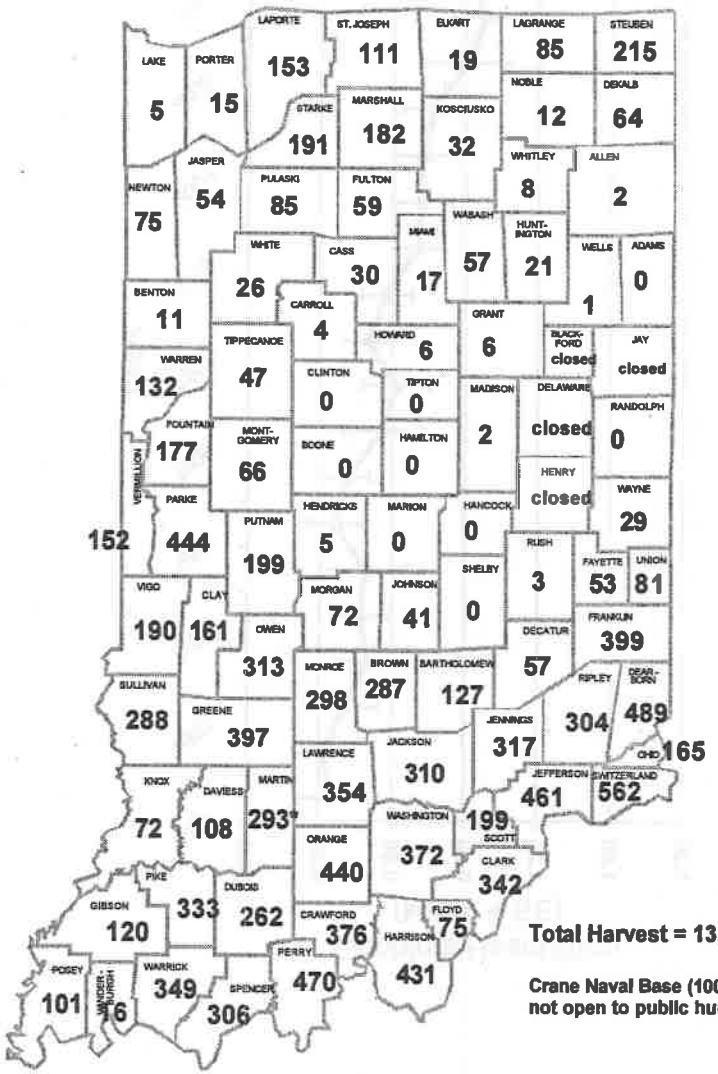


Table 1. Summary of Indiana's wild turkey hunting seasons, 1970 to 2006.

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				

* Since 1987 totals include lifetime licenses and since 1988 youth licenses sold from Jan-May.

** No. of hunters includes those permit holders who hunted >= 1 day and since 1986 has been adjusted for non-licensed landowners or military hunters.

Bold italics = *preliminary estimates based on projecting previous years' trends or means while also accounting for potential effects of regulation changes.*

Table 2. Fall wild turkey harvest by season and weapon used - Indiana, 2005.

Season	Archery Only		Both Firearm & Archery		Weapon Totals	
Dates	*1-18 October 2005*		19-23 October 2005			
	No.	%	No.	%	No.	%
Bow	124	92%	50	9%	174	24%
X-Bow	11	8%	6	1%	17	2%
Shotgun	---	---	524	90%	524	73%
Muzzleloader SG	---	---	1	0%	1	0%
Season Totals	135	*18.9%* [a]	581	*81.1%* [a]	716	100%

[a] Represents proportion of total harvest (716) taken during the archery-only or the combined firearms and archery portions of the fall season.

Table 3. Fall wild turkey harvest by permit type - Indiana, 2005.

Type of Permit	No.	%	No. Sold by Season End Date
Resident Fall Turkey	156	22%	2,225
Non-Resident Fall Turkey	2	0%	20
Comprehensive Lifetime	446	62%	43,028 [a]
Comprehensive Youth	35	5%	19,195
Landowner/active military	77	11%	Unknown & Exempt
Total Harvest	716		

[a] Comprehensive lifetime hunt and comprehensive hunt & fish as of July 2005. Value represents the number of lifetime license holders who could potentially hunt.

Table 4. Age and sex structure of the fall wild turkey harvest - Indiana, 2005.

	Juvenile [a]		Adult [b]		Total	
	No.	% [c]	No.	% [c]	No.	% [c]
Male	82	11.5%	285	39.8%	367	51.3%
Female	108	15.1%	241	33.7%	349	48.7%
Total	190	26.5%	526	73.5%	716	
					Juvenile : Adult	1 : 3

[a] Juvenile were birds estimated to be < 6 months old.

[b] Adults were birds estimated to be >= 14 months old.

[c] Percents are of the total harvest of 716 birds.

Fig 7. 2005 Fall Turkey Harvest Results

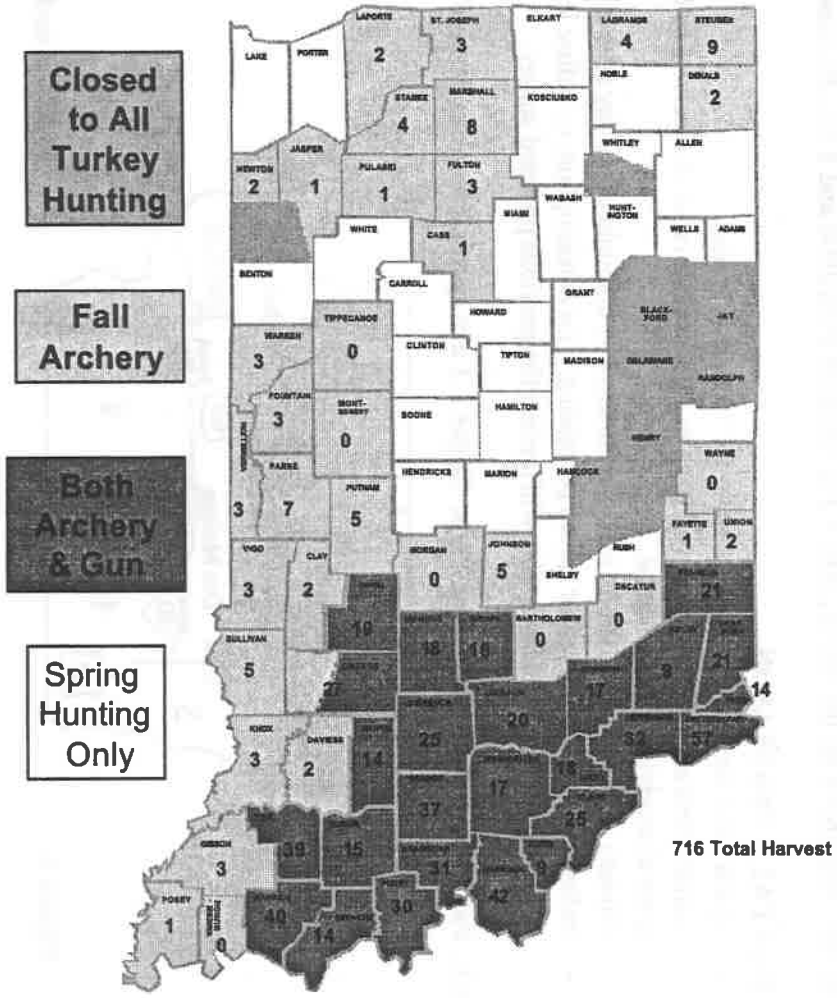
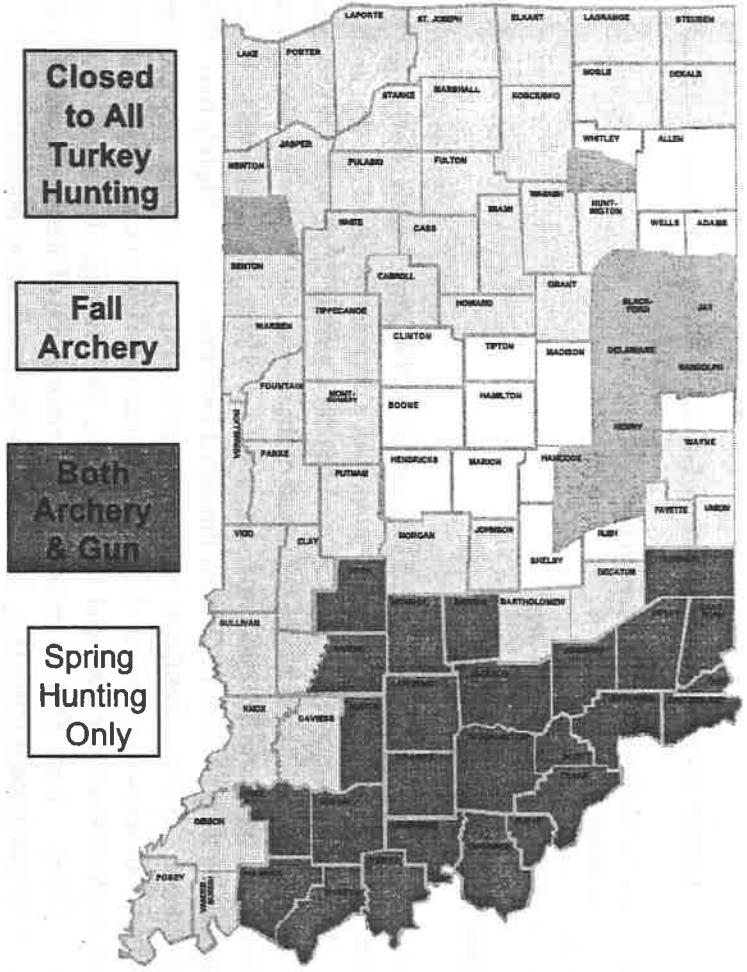


Fig 8. 2006 Fall Turkey Hunting Range



IOWA WILD TURKEY STATUS REPORT

Midwest Deer and Turkey Study Group Meeting – August 21-23, 2006

Todd E. Gosselink, Ph.D., Forest Wildlife Research Biologist
IA DNR Chariton Research Station,
24570 US HWY 34, Chariton, IA 50049
todd.gosselink@dnr.state.ia.us, 641-774-2958

FALL 2005 HARVEST SURVEY

In 2005, a new zone (zone 9, Fig. 1) was added in NW Iowa, which allowed fall hunting in the entire state. Zones 1, 3, 5, 7, 8, 9 filled the quota, with a decrease in issued licenses in all other zones (Fig. 1). The two largest quota zones (Zones 4 and 6) did not fill (Fig. 1), with 1,409 licenses still available in zone 4, and 1,316 in zone 6 at the end of the season. All quotas remained the same as 2004. Total license issue (paid and free combined) decreased 1,499 from the 2004 level to 11,722 (Fig. 2) for the 54-day season that ran from 10 October through 2 December 2005. Slightly over 10% of fall turkey hunters purchased 2 licenses. Similar to the previous year, 47% of the shotgun licenses were issued free to landowners. An additional 1,541 archery-only licenses were issued for a season that ran from 1 October through 2 December, 2005 and 19 December, 2005 through 10 January, 2006, which was a decrease of 8 licenses from 2004. A record number (since 1989) of licensees hunted in fall of 2005, with 10,593 shotgun hunters active (Fig. 2). This 18% increase in active hunters (with a 13% decrease in license sales) was likely due to the regulation change of allowing dogs to be used while fall hunting (pheasant hunters also hunted turkeys). Hunter success rates (Fig. 5) in 2005 (39.6%) increased from fall of 2004 (37.1%). Nonresidents were not permitted to hunt fall turkeys in Iowa this year. Survey response rates were 63% for the fall of 2005, a 1% decrease from 2004 and a 5% decrease from 2003.

NEW FOR FALL 2006 SEASON

- Quotas and zones will remain the same for 2006 in all zones.
- Landowners and tenants (LOT) will have to register be in order to receive free LOT licenses prior to receiving the free license.
- Hunters will have to register all harvested turkeys by midnight of the day after it is killed, or before taking it to a locker, or before processing it for consumption, or before leaving the state, whichever occurs first. This will replace the previous postcard survey.

Figure 1. Fall turkey hunting zones in Iowa. Zones 1-3 are special zones in State Forests.

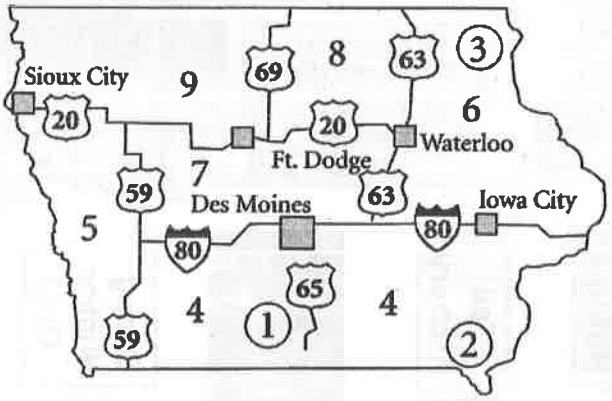
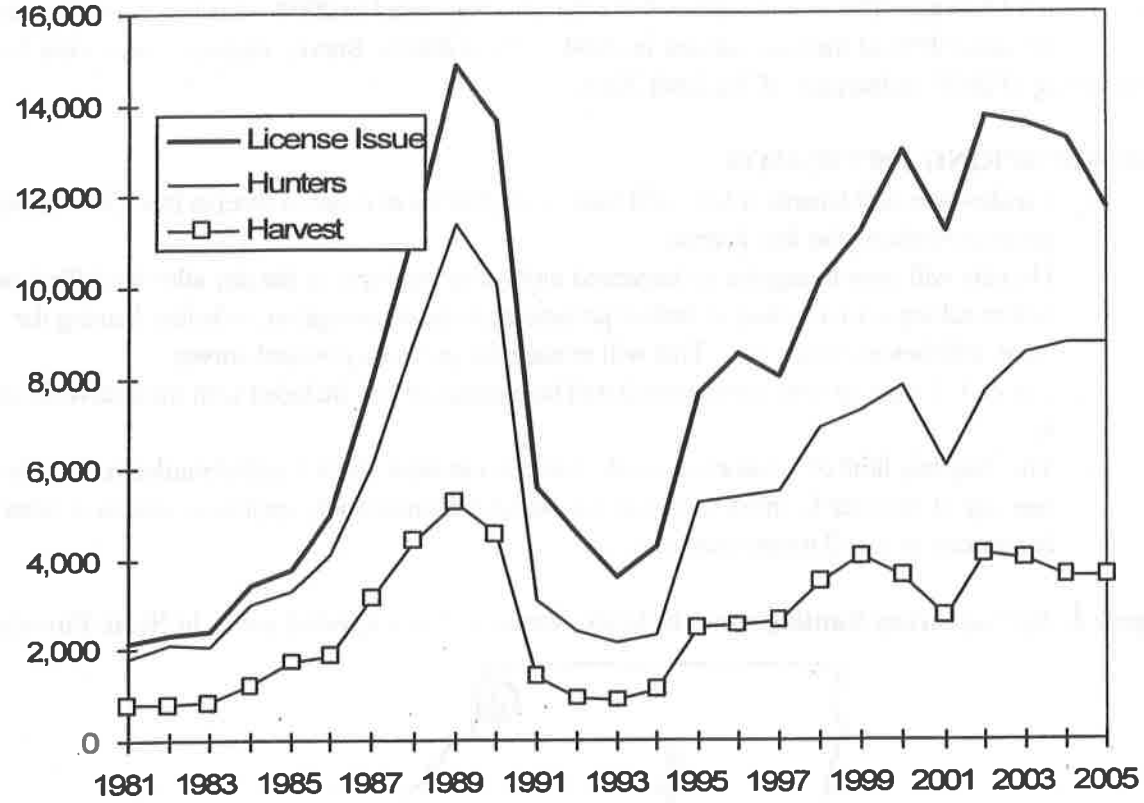


Figure 2. Iowa fall turkey hunting

statewide estimates, 1981-2005.



SPRING 2006 HARVEST SURVEY

Turkey hunter numbers and turkey harvest have remained similar during the last 7 years, with a slight decrease in the number of turkeys harvested during the last 2 years (Fig. 4). This was the eighteenth year the entire state was open to spring turkey hunting (Fig. 3). The 38-day season (7 April through 14 May, 2006) was partitioned into 5 separate seasons: 3 day youth, 4, 5, 7, and 19-days in length, respectively. The 5-season format, with an unlimited license quota for all the periods, resulted in 52,450 resident shotgun licenses issued, a decrease of 333 from 2005, and a 1,405 decrease from 2004. An additional 4,192 archery-only licenses were issued, which was an increase of 3,385 from 2005. This was likely due to regulation changes allowing turkey hunters to purchase 2 licenses for bow only (previously, the second license had to be a bow/gun combination). Success rates in 2005 dropped to 43.8% from 47.5% in 2005 (Fig. 5). The number of active hunters was very similar to the last 3 years in 2006 with 48,054 (Fig. 4).

This was the seventeenth spring that non-residents were allowed to hunt turkeys in Iowa. Nonresidents purchased a record 2,245 of the 2,298 licenses available. All licenses sold in zones 4 and 5 for all seasons (Fig. 1 – nonresident zones same as fall resident zones, with fall zone 8 and 9 combined for zone 8 spring nonresident, and zones 1-3 do not apply for nonresidents). Nonresident survey data for 2006 is currently unavailable. In 2005, ninety-nine percent of the non-resident hunters that were issued a license actually hunted and they harvested an estimated 1,187 wild turkeys. Non-residents success rates remained higher than residents in harvesting a spring gobbler (56.01% versus 47.5%, respectively).

Non-resident turkey hunting license was $100.50, with the second gun season closed to non-residents.

Spur data for 2006 is currently unavailable. In 2005, known jakes (spurs < ½") harvested were 11% of the total harvest. This is a decrease of 3% for jakes harvested in 2004. Birds harvested with spurs ½" – ¾" were 29% of the total harvest in 2004 (31% in 2004). Survey response rates were 58 % for the spring of 2005, a decrease of 2% from 2004.

NEW FOR SPRING 2007 SEASON

- Landowners and tenants (LOT) will have to register be in order to receive free LOT licenses prior to receiving the free license.
- Hunters will have to register all harvested turkeys by midnight of the day after it is killed, or before taking it to a locker, or before processing it for consumption, or before leaving the state, whichever occurs first. This will replace the previous postcard survey.
- Zones 1-3 (special state forest zones) will be eliminated and included with the statewide zone 4.
- The daily bag limit of 1 was eliminated – hunters can now shoot 2 male/bearded turkeys in one day (1 bird per license), provided they have 2 licenses (only applies to season 4, when a hunter can posses 2 turkey licenses).

Figure 3. Spring turkey hunting zones in Iowa. Zones 1-3 are special zones in State Forests.

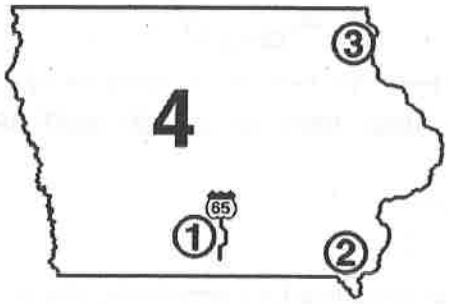


Figure 4. Iowa spring turkey hunting statewide estimates, 1974-2006.

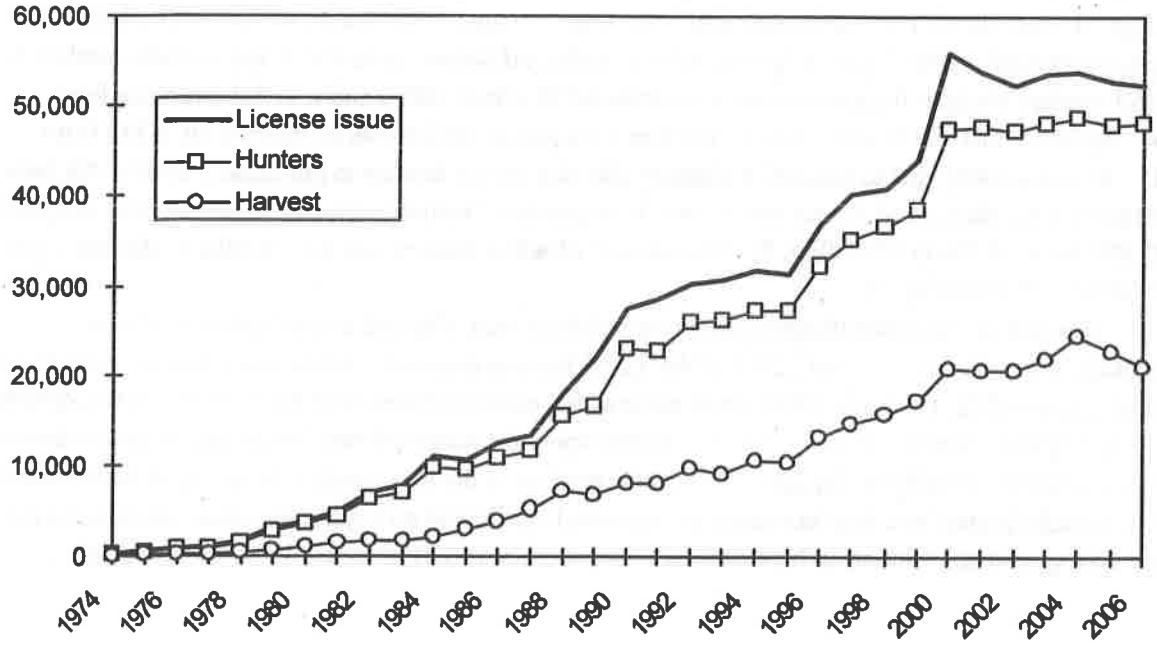
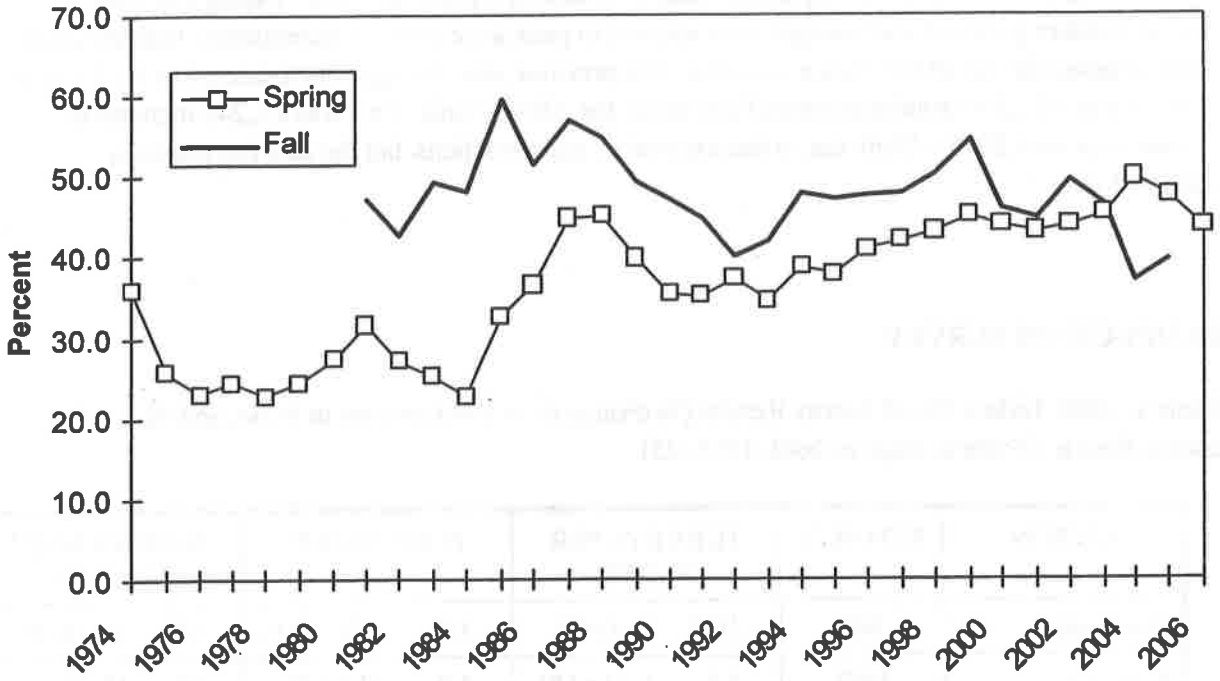


Figure 5. Iowa turkey harvest statewide success rates, 1974-2006.



YOUTH TURKEY HUNTING

Iowa's second youth spring turkey season has held in April 7-9, 2006. During the 3 day season, resident youth 15 and younger were allowed to participate with an accompanied licensed adult (adult licensed for one of the regular seasons). The previous year, the age was restricted to 12-15 year olds. A total of 2,549 youth purchased licenses for the 2006 season. This was a 1,242 increase in license sales over 2005 – likely due to the removal of age restrictions, but the data has not been complied yet.

PRODUCTION SURVEY

Table 1. 2005 Turkey Brood Survey Results (% change from previous year in *italic*, and % change from a 10-year average in **bold**, 1996-05).

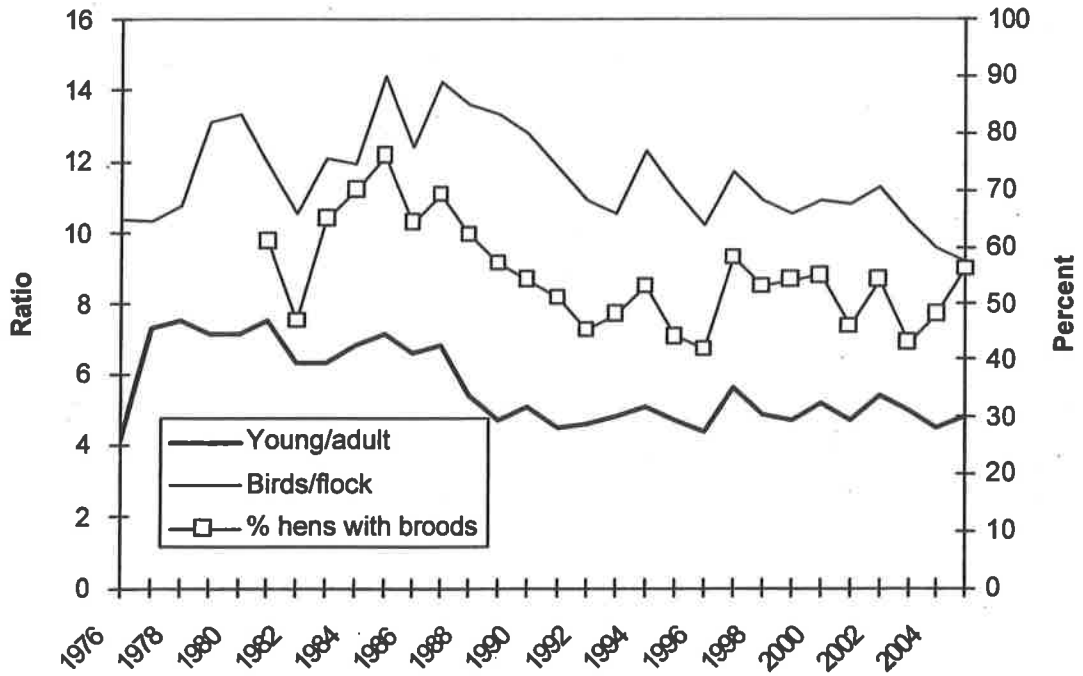
REGION	REPORTS	TURKEYS PER FLOCK	POULTS PER HEN	% HENS WITH BROOD
Northeast	647	10.0 (*+15*+7)	4.9 (*+14*,**+15**)	55 (*+16*, **0**)
Southern	1457	8.3 (*-11*,**+18**)	4.9 (*+4*,**+4**)	50 (*0*, **0**)
Central	316	8.1 (*0*,**+14**)	4.5 (+18,**+3**)	58 (*+19*,**+19**)
Western	627	11.9 (*-17*,**+4**)	5.0 (*0*,**-1**)	62 (*+11*,**+22**)
East Central	823	8.6 (*-1*,**+20**)	4.7 (*+9*,**+4**)	58 (*+24*,**+22**)
Northwest	144	11.2 (*-3*,**+7**)	4.7 (*-6*,**+2**)	72 (*+18*,**+15**)
North Central	447	8.8 (*+6*,**+2**)	4.8 (*+14*,**-8**)	57 (*+14*,**+12**)
STATEWIDE	4564	9.2 (*-4*,**+13**)	4.8 (*+7*,**+2**)	56 (*+14*,**+10**)

Iowa's 2005 summer wild turkey brood survey showed that more hens with broods were observed throughout the state when compared to the last year's average. From the previous year, percent hens with broods increased in all regions of the state except southern Iowa, which did not change. East Central Iowa had the most increase in percent hens with broods from 2004. The number of poults/hen also increased statewide from the previous year, and increased in all regions of the state except Northwest Iowa, which was slightly down. Turkeys seen per flock were slightly lower statewide from 2004, but was 13% above the 10-year average for the entire state. The number of poults observed with hens was the highest in Western Iowa, and highest percent of hens observed with poults was in Northwest Iowa.

This year's brood survey indicated a well above average year for turkey reproduction (Fig. 6). Several observations of early hatches were reported this year (larger poults observed in late spring). Late spring presented very good weather for hatches (dry and warm), with most of Iowa rains occurring

after most turkey hatches were complete. Even with a slight decrease statewide of flock size from 2004, flock size was still 13% above the 10-year average. Turkey numbers in Iowa are doing very well, and this year's recruitment will bolster turkey numbers throughout the state. In 2006, the weather conditions were dry and warm for the season, so an excellent hatch is expected for 2006.

Figure 6. Iowa turkey brood survey statewide results, 1976-2005.



HUNTING ACCIDENTS

Fall 2004:

No fall turkey hunting accidents were reported in 2005.

Spring 2005:

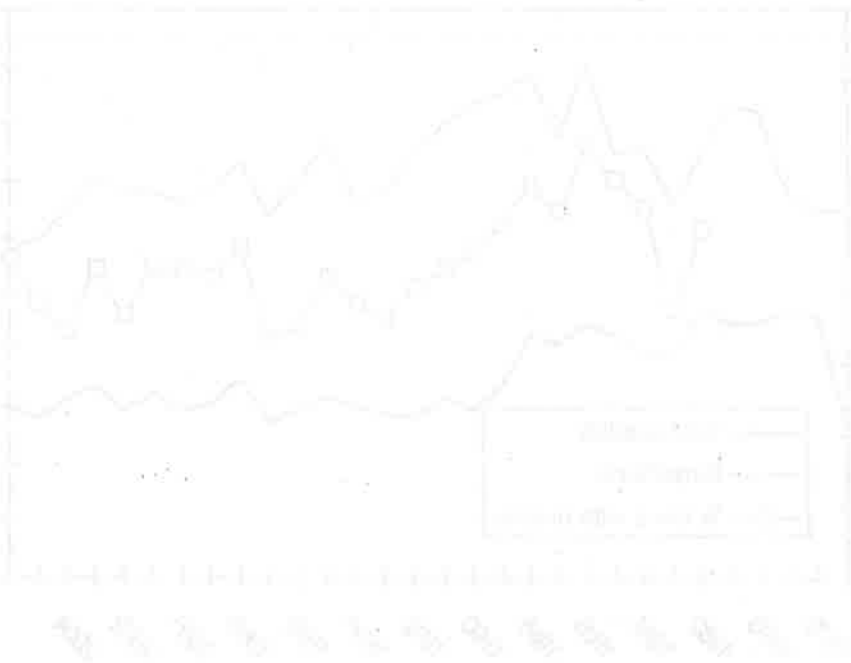
No spring turkey hunting accidents were reported in 2006.

RESTORTATION

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

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.



KANSAS WILD TURKEY UPDATE

MIDWEST DEER & TURKEY STUDY GROUP

BLOOMINGTON, INDIANA, 20-23 AUGUST, 2006

Jim Pitman, Small Game Coordinator
Kansas Department of Wildlife & Parks
1830 Merchant, PO Box 1525
Emporia, Kansas 66801-1525
Phone: 620-342-0658
E-mail: jimp@wp.state.ks.us

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). Because the long-term trend is strongly correlated across the 4 seasonal survey periods only the results from the spring (April) survey are presented. In approximately 1998, growth of the Kansas turkey population began to rapidly accelerate in each of the 6 management regions (Figure 2). The rate of population growth has been much slower in the 2 westernmost management regions likely due to less suitable habitat and prolonged drought. In recent years, the Kansas turkey population in the eastern 2/3 of the state appears to be stabilizing after several years of increase. The index to turkey abundance in the 2 westernmost units continues to show gradual increases.

The only available data from which we can measure productivity also comes from the RMCS. Since 1987, during the summer survey period, the carriers have been asked not only to record the number of turkeys observed but to differentiate between adults and young. Thus, a ratio of young:adult is used to index productivity. This index indicated that production was 49.6% below average statewide during 2005. The declines were apparent statewide except for far northwestern Kansas where above average production was observed (Figure 3). Employees of the Kansas Department of Wildlife and Parks (KDWP) also record observations of pheasant, bobwhite, and turkey broods from the 3rd week of July through the 4th week of August while conducting their normal daily activities. In the past, these data have only been summarized for pheasants and bobwhites and indices to turkey productivity were not calculated. Starting this year the historical turkey production indices will be calculated and updated annually. At the time of this report, those data were not yet available.

Harvest and Current 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. At the current time, there are more than 76,000 permits (~60,000 spring and 16,000 fall) issued and hunters annually harvest > 40,000 birds (~34,000 spring and 6,000 fall; Table 1). The percentage of hunters harvesting at least one bird was 66% and 52% for spring and fall 2005, respectively. Non-residents now annually purchase >14,000 Kansas turkey permits (~11,500 spring and 2,500 fall).

Kansas offers some of the most liberal seasons and bag limits in the country. The fall 2005 turkey season was open for a record 103 days across 3 segments (Table 1). Hunters pursuing turkeys in Unit 2 (Figure 4) were 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 2006 spring turkey season was also the longest season on record at 53 days, which included a 3 day pre-season youth/disability only hunt. Turkey permits can be purchased over-the-counter for Units 1, 2, and 3. Only 200 permits are available for Unit 4 (southwest KS) and must be acquired through a pre-season drawing. A second additional game tag can be purchased for use only in Unit 2 or 3.

Potential Regulation Changes

The department will be recommending an early archery-only season beginning April 1 that would run through the regular spring season opener. Because the turkey population continues to grow throughout much of central and northcentral Kansas, we will also be recommending a change in unit boundaries to provide additional spring hunting opportunity in those areas of the state (Figure 4). At this time, the KDWP is not considering any changes in permit allocation or regular season dates for the spring turkey season. The KDWP commission will be voting on the recommended changes during the fall commission meeting. If changes to the spring unit boundaries are excepted, we will also be recommending that the fall boundaries be changes to correspond.

Walk-In-Hunting Areas

In addition to publicly owned properties, Kansas turkey hunters have access to private lands leased for public hunting through the department's walk-in hunting area (WIHA) program. During the fall of 2005, approximately 1.3 million acres was enrolled; some of which provided fall turkey hunting opportunities. These parcels were open to public access from either 1 September – 31 January or 1 November – 31 January and leased for an average of $1.25/acre. The spring turkey WIHA program is still expanding in the state and this past spring >136,000 acres of land was open to public hunting. Landowners enrolled in the spring WIHA program received an average of $0.75/acre and allowed access to their property from 1 April – 31 May. This past year the NWTF made a monetary contribution to the spring WIHA program, which allowed for an additional 4,000 acres to be enrolled.

Translocation Efforts

For the most part, turkey stocking efforts have been completed in Kansas and during the winter of 2005-2006 the KDWP did not trap any turkeys for translocation. However, department

employees have recently identified 11 sites in western Kansas for stocking efforts. The KDWP will attempt to capture ~500 turkeys this coming winter in central and northcentral Kansas. Captured birds will be banded and translocated to the 11 sites according to the department's established priority rankings.

Recent Research

A study conducted by personnel at Purdue University characterized the distribution of turkey subspecies across the state using microsatellite genotype data. Samples from Kansas birds were compared to known source populations of Rio Grande, Merriam, and Eastern wild turkeys. A total of 314 turkeys from Kansas and 403 turkeys from reference populations were used to categorize the Kansas sample. In general, eastern Kansas is primarily inhabited by Eastern wild turkeys, whereas western Kansas is largely composed of Rio Grande wild turkeys (Figure 5). The study also delineated a zone of hybridization were these 2 subspecies meet in eastern Kansas. Birds in extreme southwestern Kansas along the Cimarron River were generally classified as Rio Grande x Merriam hybrids; likely the result of immigrant Merriam's turkeys mating with translocated Rio Grande turkeys. Another interesting finding of this study was an uncharacteristically high number of Eastern wild turkeys in central Kansas surrounded by Rio Grande birds. This occurrence is likely the result of a prior translocation(s) of Eastern wild turkeys into the area. The results from this study are scheduled to appear in a recent issue of the Journal of Wildlife Management.

Additionally, a study conducted by personnel at Texas Tech University was also recently completed. This research was conducted on populations of turkeys in Kansas and north Texas. The Kansas population inhabited the Cimarron National Grasslands in southwest Kansas and was studied from 2000-2004. The interesting results specific to Kansas were that the population was estimated at <400 birds in 2000 and declined during the course of the study. Initiation rates of nests by females in the population were low (47%) and 25-47% of the located nests successfully hatched at least 1 poult. During 2000-2001, survival of radiomarked poults was 0.11 and 0.38 to 16 days post-hatch, respectively. Most of the poult mortality occurred within the first 8-9 days post-hatch. Annual survival of non-poult male and female turkeys ranged from 0.37 to 0.57 during this 4-year study. Most of the results from this study were collected during years of below average rainfall as southwest Kansas was and still is experiencing a long-term drought.

Table 1. Spring and fall Kansas wild turkey season dates, permits issued, total harvest, and hunter success for the 5 most recent years, 2002-2006.

	Spring				Fall			
Year	Season Dates	Permits Issued	Total Harvest	Success[a] (%)	Season Dates	Permits Issued	Total Harvest	Success (%)
2002	Apr. 10-May 19	49,562	29,868	67	Seg. 1: Oct. 1-Dec. 3 Seg. 2: Dec. 16-31	14,342	5,468	56
2003	Early: Apr. 4-6[b] Regular: Apr. 9-May 18	53,138	32,945	62	Seg. 1: Oct. 1-Dec. 2 Seg. 2: Dec. 15-31	14,466	4,199	44
2004	Early: Apr. 8-10 Regular: Apr. 13-May 31	54,820	31,023	58	Seg. 1: Oct. 1-Nov. 30 Seg 2: Dec. 13-31	15,176	5,505	45
2005	Early: Apr. 8-10 Regular: Apr. 13-May 31	56,887	34,814	66	Seg. 1: Oct. 1-Nov. 29 Seg. 2: Dec. 12-31 Seg. 3: Jan. 9-31 (06)	16,024	6,367	52
2006	Early: Apr. 7-9 Regular: Apr. 12-May 31	60,708	34,040	66	Seg. 1: Oct. 1-Nov. 28 Seg. 2: Dec. 11-31 Seg. 3: Jan. 8-31 (07)	NA[c]	NA	NA

[a] Success was the percentage of active hunters harvesting = 1 bird.

[b] The special early season is reserved for disabled hunters and youth = 16.

[c] NA = not available.

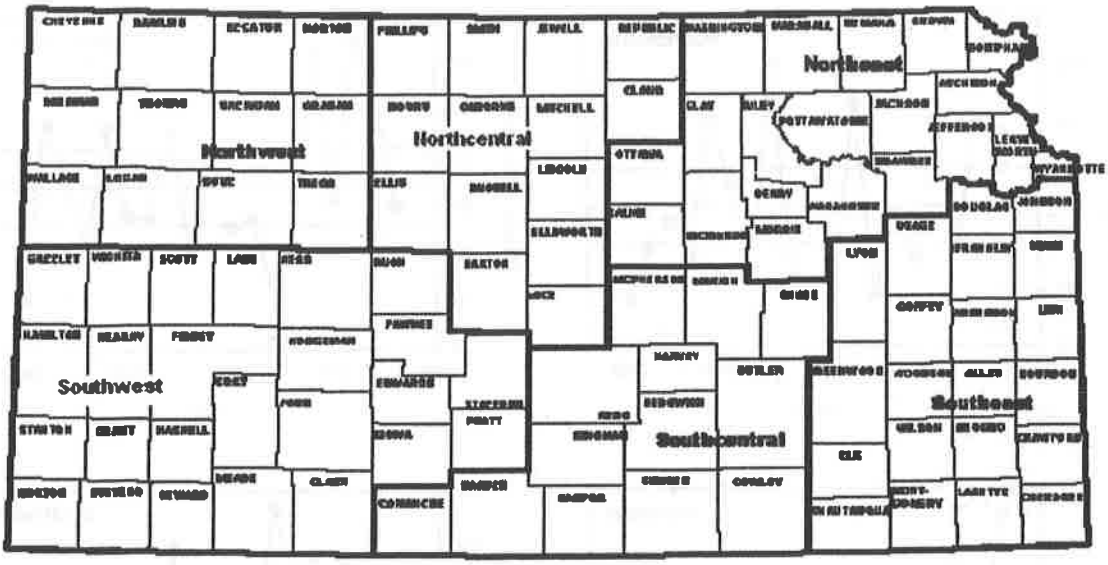


Figure 1. The 6 wild turkey management regions of Kansas, 2005-2006.

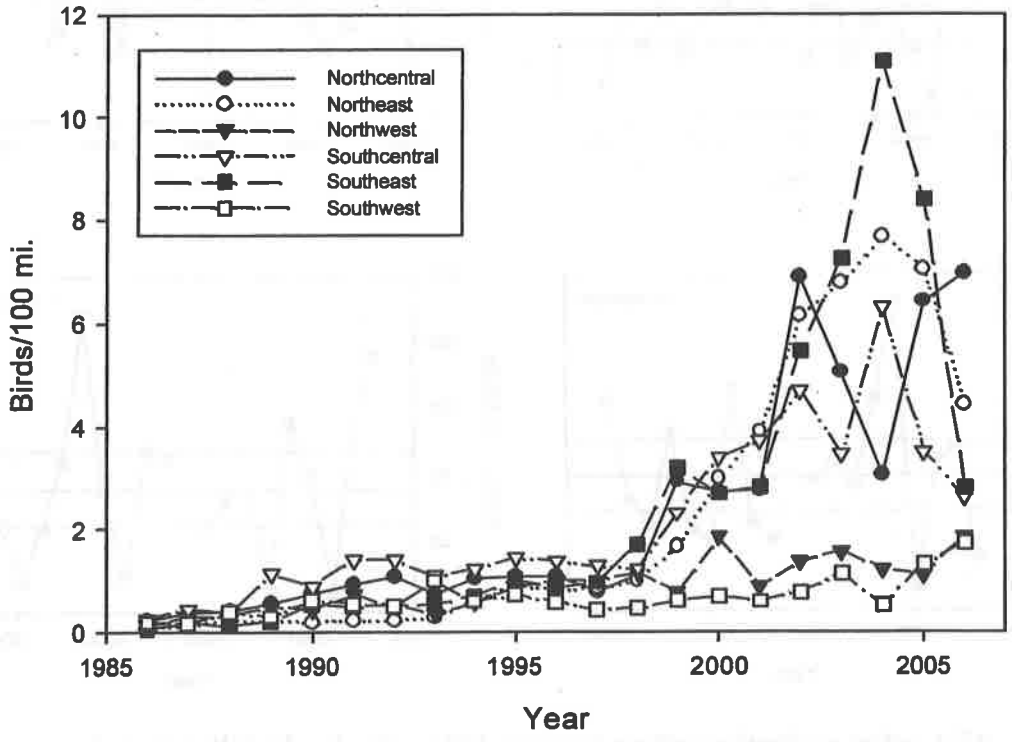


Figure 2. The spring rural mail carrier index (birds/100 mi. traveled) to wild turkey populations in the 6 Kansas management regions.

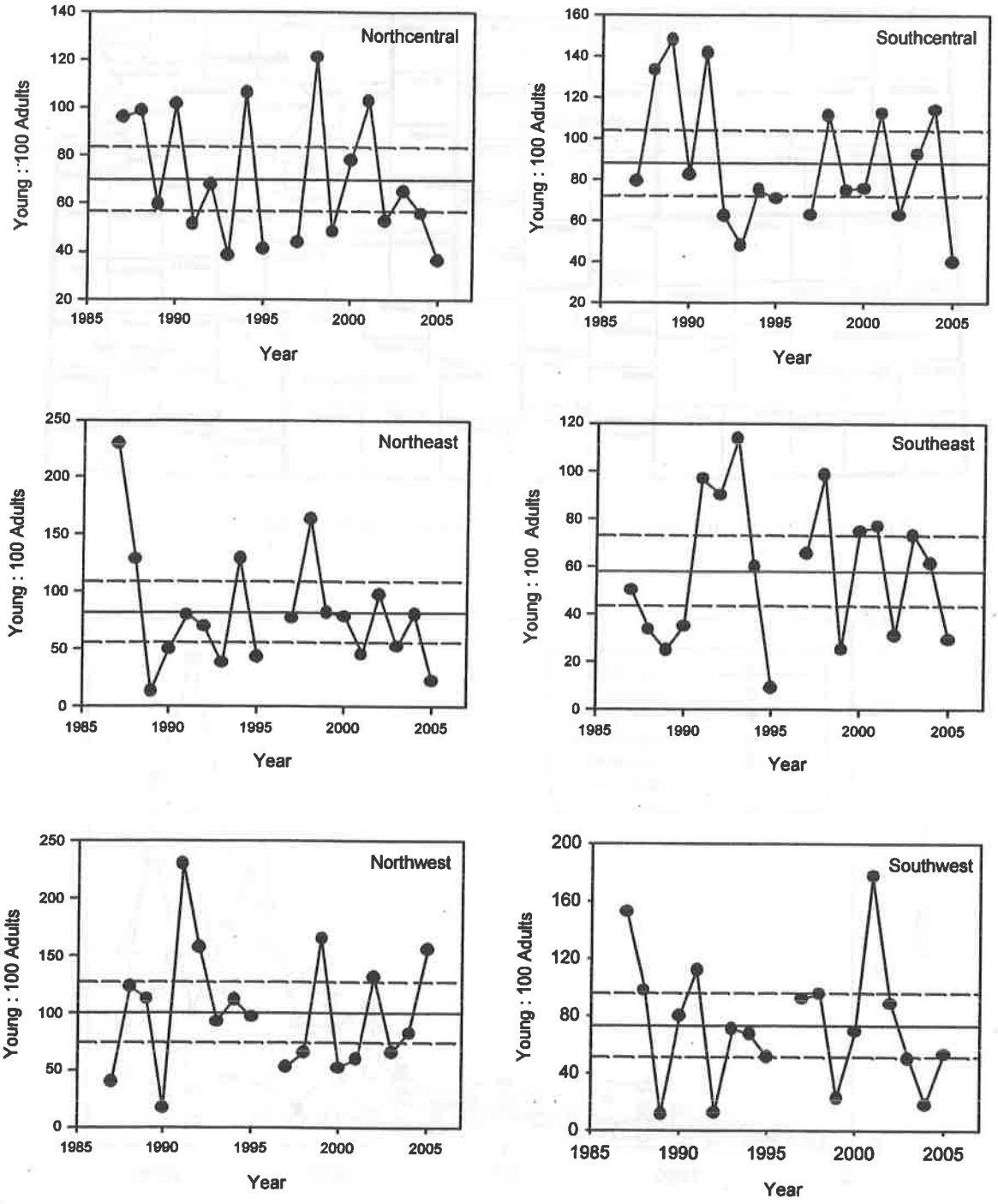


Figure 3. Wild turkey production indices (young : 100 adults) for the 6 Kansas turkey management regions, 1986-2005. The long-term mean production index is depicted as a solid line and the accompanying 95% confidence intervals are shown as dashed lines.

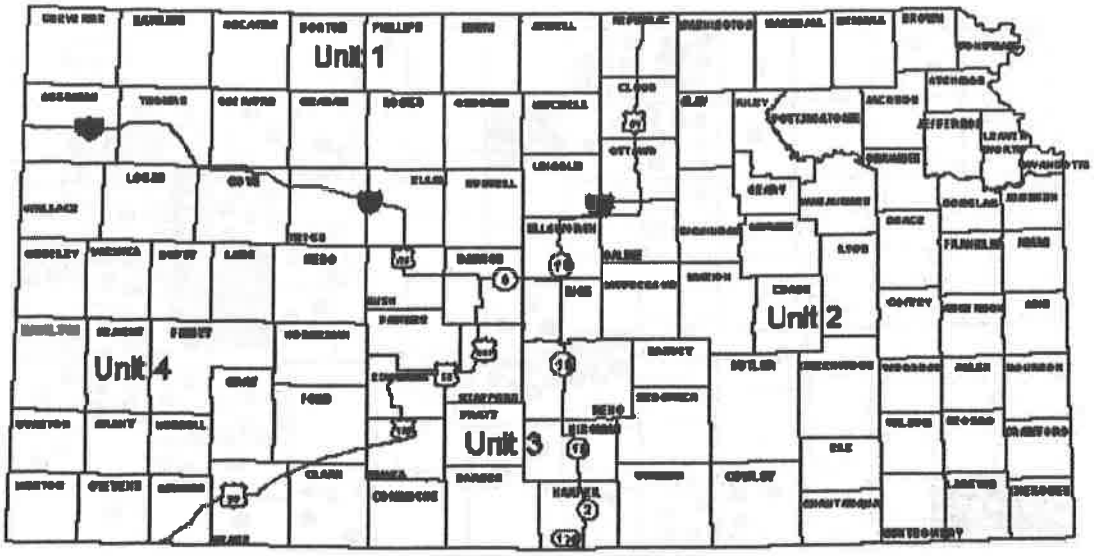


Figure 4. Wild turkey hunting units in Kansas, 2005-2006. A spring turkey permit could be purchased over-the-counter for Units 1, 2, & 3. Two hundred spring permits were issued for Unit 4 through a pre-season drawing. An additional spring game tag could be purchased and was valid only in Units 2 & 3. A fall turkey permit could be purchased over-the-counter for Units 1, 2, & 3. Up to 3 additional fall turkey game tags could be purchased and were valid only in Unit 2. There was no fall turkey hunting allowed in Unit 4.

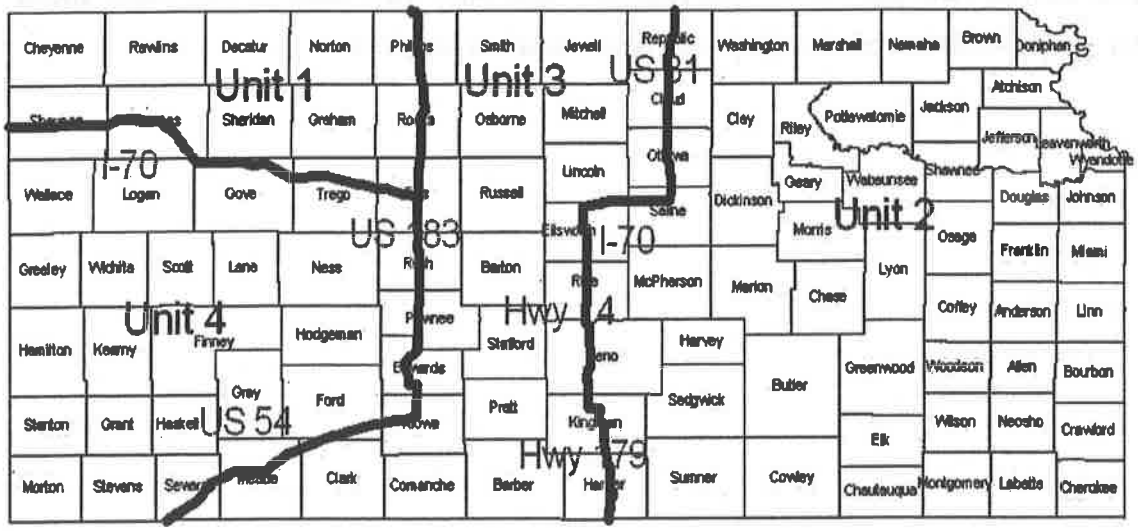


Figure 5. New wild turkey hunting units that will be recommended to the Kansas Wildlife and Parks Commission for the spring 2007 season.

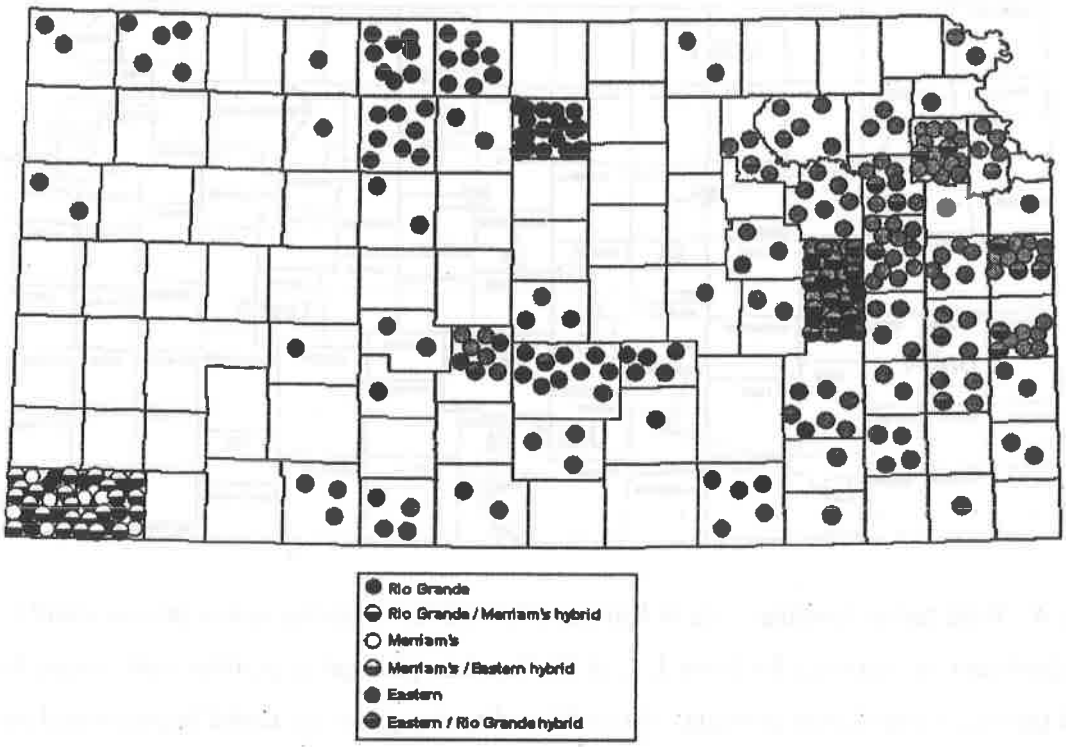


Figure 6. Characterization of 314 Kansas wild turkeys into subspecies. Individual birds were classified by comparing their allele frequencies with that of known source populations of Eastern, Merriam, and Rio Grande wild turkeys. Those birds that shared <75% of their alleles with a 'pure' population of any subspecies were classified as hybrids.

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2005 MICHIGAN FALL TURKEY HUNTER SURVEY

Brian J. Frawley

ABSTRACT

A survey of turkey hunters was conducted following the 2005 fall hunting season to determine turkey harvest and hunter participation. During the 2005 fall hunt, an estimated 17,100 hunters harvested about 4,700 turkeys. Harvest decreased 4% between 2004 and 2005 largely because hunter success declined. About 28% of hunters successfully harvested a turkey in 2005, compared to 30% in 2004. About 59% of the hunters rated their hunting experience as excellent, very good, or good.

INTRODUCTION

Fall wild turkey (*Meleagris gallopavo*) hunting seasons were implemented in Michigan to maintain turkey populations at levels matching biological and social carrying capacities. In 2005, 14 management units totaling 31,935 square miles were open for fall turkey hunting during October 3-November 14 (Figure 1). Compared to last fall, hunting was permitted in five additional counties (Lenawee, Mecosta, Newaygo, Oceana, and Washtenaw) but eliminated in six counties (Alcona, Arenac, Clare, Gladwin, Iosco, and Presque Isle).

People interested in obtaining a hunting license for the fall season could enter into a random license drawing conducted by the Department of Natural Resources. Applicants could choose one hunt area. Any licenses available after the drawing was completed were made available on a first-come, first-serve basis to applicants that were unsuccessful in the drawing. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses were made available to nonapplicants. Leftover licenses were available for eleven management units (G, GB, GC, HA, HB, L, M, N, O, Q, and W; Table 1). Licenses for units GC, HA, HB, Q, T, and WA were valid on private lands only, while licenses for units G, GB, J, L, M, N, O, and W were valid on

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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 their license.

The Wildlife Division has the authority and responsibility to protect and manage the wildlife resources of the State of Michigan. Harvest surveys are one of the primary management tools used by the Wildlife Division to accomplish its statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are among the primary objectives of these surveys.

METHODS

The Wildlife Division provided hunters the option to voluntarily report information about their turkey hunting activity via the Internet. This option was advertised in the hunting regulation booklet. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, number of days spent afield, and whether they harvested a turkey. Successful hunters also were asked to report where their turkeys were taken (public or private land) and beard length of the harvested bird. Birds with a beard <4 inches long were classified as juveniles (<1 year old), while birds with longer beards were adults (≥1 year old). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2005 fall turkey hunting season, a questionnaire was sent to 4,483 randomly selected people that had purchased a turkey hunting license (resident turkey, senior resident turkey, and nonresident turkey 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). Hunters were stratified based on the management unit where their license was valid (14 management units). Hunters that had voluntarily reported information about their hunting activity via the Internet before the mail survey sample was selected were treated as a separate stratum.

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 confidence limit 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 that 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 that 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-November 2005, and up to two follow-up questionnaires were mailed to nonrespondents. Although 4,483 people were sent the questionnaire, 34 surveys were undeliverable resulting in an adjusted sample size of 4,449. Questionnaires were returned by 3,736 people, yielding an 84% adjusted response rate. In addition, 101 people voluntarily reported information about their hunting activity via the Internet.

RESULTS

In 2005, the Wildlife Division offered 52,900 licenses for sale, and hunters purchased 21,343 licenses for the fall turkey hunting season (Table 1). Licensees included 14,682 people that were successful in the drawing for a license and 318 applicants that were unsuccessful in the drawing. In addition to the applicants, 6,343 people that had not entered into the drawing purchased a license.

The number of licenses sold in 2005 increased 6% from 2004. In 2005, about 17,093 hunters spent 103,404 days afield pursuing turkeys ($\bar{x}$ = 6.0 days/hunter) and harvested 4,722 birds (Table 2). The number of people pursuing turkeys increased 5% from last year. This increase probably occurred because more licenses were available for sale (i.e., license quota increased 30%). About 95% of the hunters that went afield were men (16,175 ± 171), and 5% of the hunters were women (917 ± 171). The average age of the license buyers was 46 years (Figure 2). About 5% of the license buyers were younger than 17 years old (1,122).

Hunter success was 28% in 2005, compared to 30% success in 2004. However, hunter success is not directly comparable between years because the area and number of management units open to hunting changed between 2004 and 2005. The area of nine management units was the same in both 2004 and 2005 (G, GB, M, N, O, Q, T, W, and WA). Hunter success in these units was 34 ± 2% in 2004 and 30 ± 2% in 2005. Thus, hunter success appeared to be similar or slightly less between 2004 and 2005.

Harvest decreased 4% between 2004 and 2005 (Figure 3). Harvest decreased primarily because hunter success declined statewide. Counties with hunters taking 200 or more turkeys included Delta, Montcalm, Allegan, Barry, Calhoun (Table 3).

About 93% of turkey hunters hunted solely on private land, 5% hunted on public land only, and 3% hunted on both private and public lands (Table 4). Of the 4,722 turkeys harvested in 2005, 95% of these birds were taken on private land (4,476), while about 5% of the harvest (244) was taken on public land (Tables 5 and 6). Additionally, a few birds (2) were harvested from land of unknown ownership. About 53% of the harvested

birds had a beard (2,526 ± 245). Most of these bearded birds (80%) were adults (2,015 ± 224); 18% were juvenile birds (485 ± 110).

Of the 17,093 turkey hunters in 2005, nearly 59 ± 2% rated their hunting experience as either excellent (2,216 ± 241), very good (3,178 ± 281), or good (4,663 ± 329) (Table 7). About 21 ± 2% of the hunters rated their experience as fair (3,630 ± 296 hunters), while 18 ± 2% of the hunters rated their experience as poor (3,018 ± 276 hunters). Additionally, about 2% of the hunters (387 ± 106 hunters) failed to rate their hunting experience.

Changes in hunter satisfaction generally parallel changes in hunter success (Figure 4). Between 2004 and 2005, hunter success decreased from 30% to 28%, however, satisfaction was unchanged.

Acknowledgements

I thank all the turkey hunters that provided information. Jaclyn Mapes, Theresa Riebow and Becky Walker completed data entry. Marshall Strong prepared the Turkey Management Unit Figure. Michael Bailey, Valerie Frawley, Jennifer Kleitch, William Moritz, Cheryl Nelson-Fliearman, Pat Lederle, and Al Stewart reviewed a previous version of this report.

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Figure 1. Management units open for fall turkey hunting in Michigan, 2005.

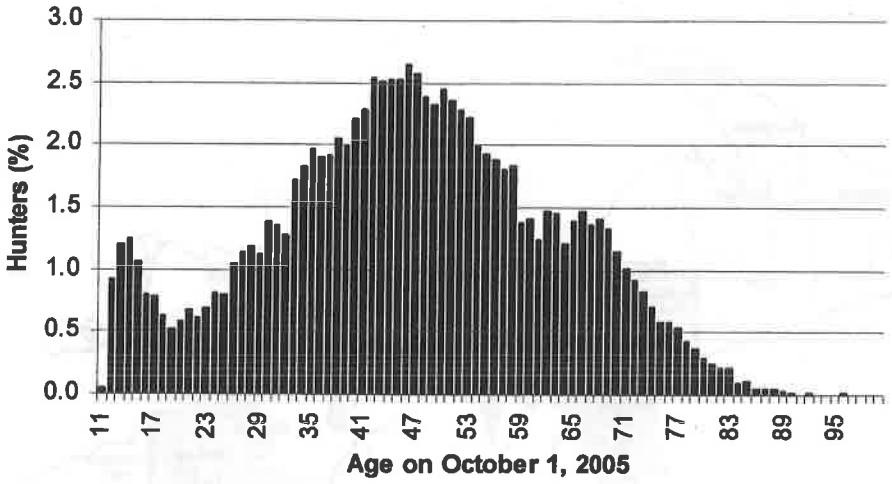

Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2005 fall hunting season ($\bar{x}$ = 46 years). Licenses were purchased by 21,343 people.

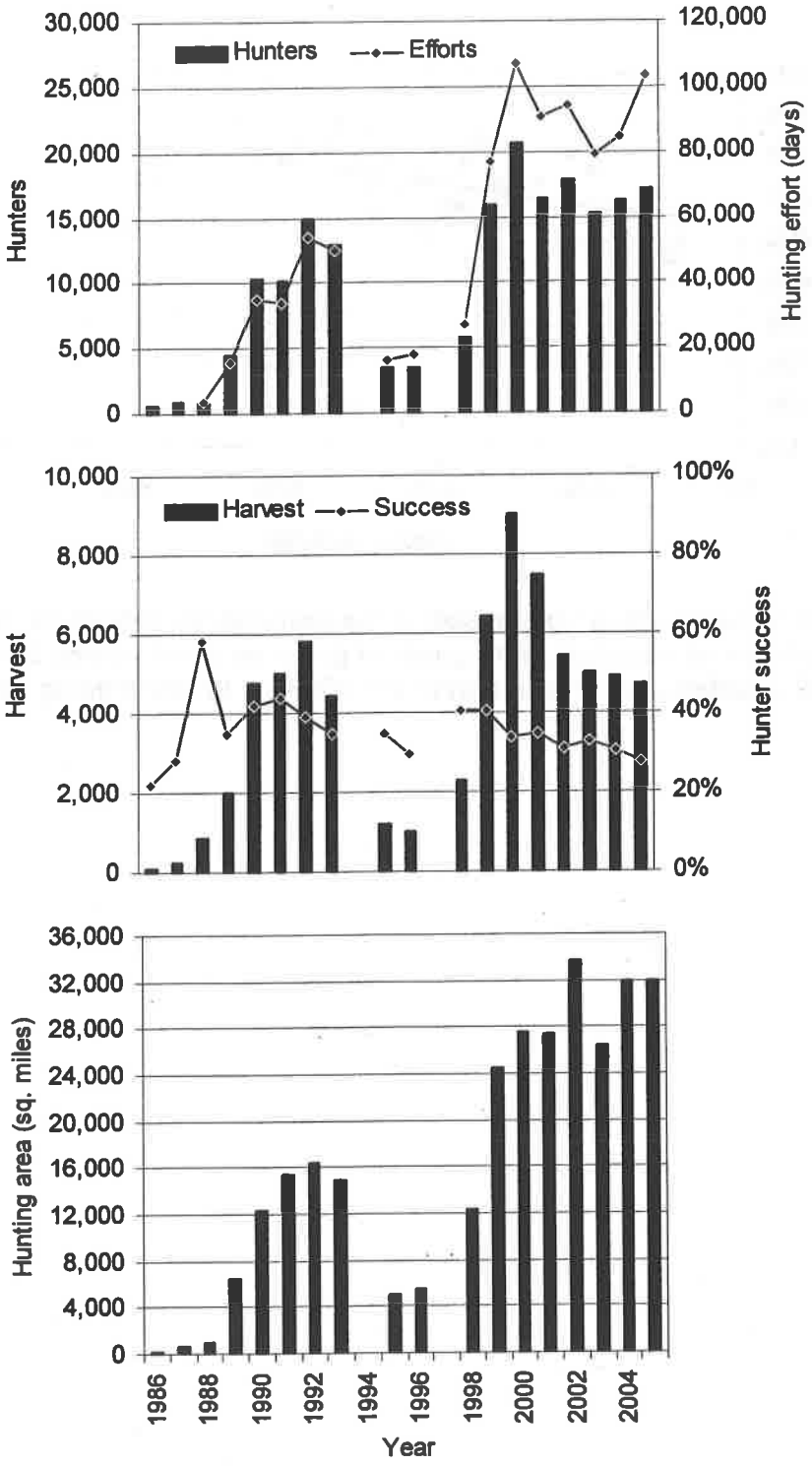

Figure 3. Number of hunters, harvest, hunting efforts, hunting success, and hunting area during the fall turkey hunting season, 1986-2005. Turkeys were not hunted during the fall in 1994 and 1997.

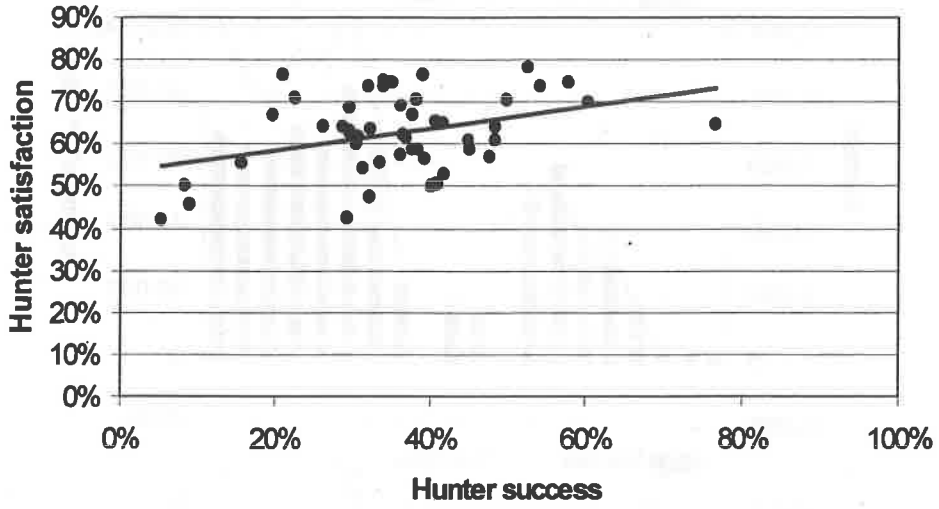

Figure 4. Hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) associated with hunter success for each of 49 counties in Michigan during the 2005 fall turkey hunting season.

Table 1. Number of hunting licenses available and people applying for licenses during the 2005 Michigan fall turkey hunting season.

Management unit	Licenses available (quota)	Number of eligible applicants	Number of applicants successful in drawing	Number of licenses purchased by successful applicants	Number of licenses remaining after drawing	Number of leftover licenses purchased by unsuccessful applicants	Number of leftover licenses purchased by people not in the drawing	Licenses sold
G	6,400	2,926	2,525	1,661	3,875	128	1,220	3,009
GB	4,250	1,758	1,640	1,020	2,610	34	646	1,700
GC[a]	4,000	3,399	3,399	2,172	601	26	517	2,715
HA[a]	1,200	1,092	1,092	710	108	6	91	807
HB[a]	700	502	502	315	198	3	168	486
J	2,000	2,292	2,001	1,128	0	0	0	1,128
L	21,000	4,587	4,573	3,160	16,427	9	2,667	5,836
M	1,400	333	333	219	1,067	3	166	388
N	550	369	369	269	181	2	109	380
O	2,500	657	657	451	1,843	6	276	733
Q[a]	3,000	2,841	2,841	1,726	159	75	71	1,872
T[a]	1,000	1,946	1,000	651	0	0	0	651
W	4,200	1,305	1,292	790	2,908	26	412	1,228
WA[a]	700	848	700	410	0	0	0	410
Statewide	52,900	24,855	22,924	14,682	29,977	318	6,343	21,343

[a]Licenses were valid on private lands only.

Table 2. Number of hunters, harvest, hunting success, and hunting efforts during the 2005 Michigan fall turkey hunting season.

Management unit	Hunters		Harvest		Hunting success		Hunting efforts (days)		Days per hunter ($\bar{x}$)	
	Total	95% CL	Total	95% CL	%	95% CL	Total	95% CL	Mean	95% CL
G	2,402	121	640	123	27	5	14,891	1,605	6.2	0.6
GB	1,332	71	412	73	31	5	7,996	927	6.0	0.6
GC[a]	2,180	109	433	99	20	4	15,241	1,679	7.0	0.7
HA[a]	682	28	225	35	33	5	3,747	423	5.5	0.6
HB[a]	422	17	115	22	27	5	2,318	275	5.5	0.6
J	906	44	312	49	34	5	4,978	696	5.5	0.7
L	4,598	243	1,124	232	24	5	28,739	3,325	6.2	0.6
M	308	17	110	19	36	6	1,848	239	6.0	0.7
N	318	14	130	18	41	5	1,614	170	5.1	0.5
O	616	28	284	37	46	6	3,191	384	5.2	0.6
Q[a]	1,452	79	346	73	24	5	8,338	950	5.7	0.6
T[a]	564	22	135	26	24	5	3,541	356	6.3	0.6
W	960	52	329	55	34	5	4,957	613	5.2	0.6
WA[a]	354	14	128	18	36	5	2,007	224	5.7	0.6
Statewide[b]	17,093	323	4,722	316	28	2	103,404	4,443	6.0	0.2

[a]Licenses were valid on private lands only.
[b]Column totals may not equal statewide totals because of rounding errors.

Table 3. Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2005 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	30	15	127	76	12	10	40	25	50	25
Allegan	590	178	3,221	1,130	206	108	35	15	75	14
Antrim	239	45	935	235	99	31	41	10	65	10
Barry	605	181	3,035	1,230	204	108	34	15	75	14
Bay	34	11	157	69	26	10	76	14	65.	16
Berrien	184	104	785	536	17	32	9	16	45	29
Branch	318	135	1,789	1,005	101	77	32	20	74	19
Calhoun	687	191	4,358	1,542	202	108	29	13	64	14
Cass	422	153	2,486	1,178	88	71	21	15	76	16
Charlevoix	58	24	260	144	31	18	54	21	74	19
Cheboygan	172	40	915	321	50	23	29	11	43	12
Clinton	242	82	1,459	643	91	51	38	17	67	17
Delta	371	38	1,967	357	223	35	60	7	70	7
Dickinson	299	18	1,815	239	110	19	37	6	61	6
Eaton	322	93	1,854	697	63	43	20	12	67	14
Emmet	103	32	638	323	34	19	33	15	56	16
Genesee	182	56	783	302	57	32	31	15	54	16
Gratiot	260	85	1,383	578	116	58	45	17	59	17
Hillsdale	199	71	1,551	766	59	40	30	17	63	18
Huron	111	24	746	205	29	13	26	11	64	11
Ingham	166	66	1,039	549	50	37	30	19	60	20

[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 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2005 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
Ionia	348	96	2,290	806	100	54	29	13	64	14
Isabella	328	55	1,443	338	163	42	50	10	71	9
Jackson	374	94	2,004	627	135	59	36	13	69	13
Kalamazoo	338	138	1,906	1,139	53	55	16	15	56	21
Kent	351	69	2,072	624	107	41	30	10	62	11
Lapeer	347	73	1,928	564	132	47	38	11	71	11
Lenawee	157	64	1,153	627	8	15	5	9	42	21
Livingston	249	79	1,417	523	84	47	34	16	74	15
Macomb	72	36	431	281	6	11	8	14	50	26
Marquette	82	24	344	128	43	18	52	15	78	13
Mecosta	317	24	1,678	252	115	22	36	6	63	6
Menominee	313	15	1,590	170	130	18	42	5	53	5
Midland	323	55	1,511	370	153	41	47	10	57	10
Montcalm	483	111	2,754	820	215	78	45	12	61	12
Muskegon	329	68	2,199	625	190	54	58	11	75	10
Newaygo	354	39	1,718	310	143	30	40	7	65	7
Oakland	174	55	1,088	449	67	35	38	16	59	16
Oceana	138	29	866	274	67	21	48	12	61	11
Otsego	226	44	1,288	417	92	30	41	11	51	11
Ottawa	281	64	1,391	421	109	42	39	12	76	11
Saginaw	190	20	1,096	198	92	16	48	7	64	7

[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 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2005 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
St. Clair	246	64	1,383	462	79	38	32	13	64	13
St. Joseph	235	116	1,191	794	84	71	36	24	57	25
Sanilac	148	27	921	240	56	18	38	10	59	10
Shiawassee	170	66	1,410	718	38	30	22	16	71	18
Tuscola	161	28	910	226	48	17	30	9	69	9
Van Buren	384	147	2,822	1,457	150	94	39	19	57	20
Washtenaw	158	64	950	633	50	37	32	19	48	21
Unknown	4,689	324	30,348	3,328	142	59	3	1	44	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.

Table 4. Number and proportion of hunters hunting on private and public lands during the fall 2005 Michigan turkey hunting season.

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
G	2,366	37	99	1	36	37	1	1	0	0	0	0	0	0	0	0
GB	1,281	33	96	2	23	22	2	1	28	25	2	2	0	0	0	0
GC[a]	2,180	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
HA[a]	682	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
HB[a]	422	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
J	550	54	61	5	234	48	26	5	118	37	13	4	4	7	<1	1
L	4,194	168	91	3	271	139	6	3	134	100	3	2	0	0	0	0
M	156	21	51	6	99	20	32	6	50	16	16	4	2	4	1	1
N	251	16	79	4	38	12	12	4	30	11	9	3	0	0	0	0
O	440	34	71	5	88	26	14	4	81	26	13	4	6	7	1	1
Q[a]	1,452	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
T[a]	564	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
W	929	22	97	2	27	20	3	2	4	8	0	1	0	0	0	0
WA[a]	354	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Statewide[b]	15,820	189	93	1	816	158	5	1	445	114	3	1	12	11	0	0

[a]Licenses were valid on private lands only.
[b]Number of hunters may not equal statewide totals because of rounding errors.

Table 5. Statewide turkey harvest during the 2005 Michigan fall turkey hunting season, summarized by land ownership type and turkey sex and age.

Land ownership	Harvest	
Turkey sex and age	Total	95% CL
Private lands		
Males	2,405	242
Juveniles	432	108
Adults	1,955	221
Unknown	17	13
Females	2,069	223
Unknown sex	2	3
Subtotal – Private lands[a]	4,476	312
Public lands		
Males	119	43
Juveniles	51	20
Adults	60	37
Unknown	9	11
Females	125	53
Unknown sex	0	0
Subtotal – Public lands[a]	244	68
Unknown lands	2	3
Grand total[a]	4,722	316

[a]Column totals may not equal subtotals and grand total because of rounding errors.

Table 6. Number of turkeys harvested on private and public lands during the 2005 Michigan fall turkey hunting season.

Management unit	Private lands		Public lands		Unknown ownership	
	Total	95% CL	Total	95% CL	Total	95% CL
G	631	122	9	16	0	0
GB	406	73	7	10	0	0
GC[a]	433	99	0	0	0	0
HA[a]	225	35	0	0	0	0
HB[a]	115	22	0	0	0	0
J	265	47	47	22	0	0
L	1,070	228	54	55	0	0
M	63	15	45	13	2	3
N	112	17	18	8	0	0
O	232	35	52	19	0	0
Q[a]	346	73	0	0	0	0
T[a]	135	26	0	0	0	0
W	316	54	13	13	0	0
WA[a]	128	18	0	0	0	0
Statewide[b]	4,476	312	244	68	2	3

[a]Licenses were valid on private lands only.
[b]Column totals may not equal statewide total because of rounding errors.

Table 7. How hunters rated their hunting experience during the 2005 Michigan fall turkey hunting season.

Management unit	Satisfaction level (% of hunters)					
	Excellent	Very good	Good	Fair	Poor	No answer
G	16	16	26	21	18	3
GB	11	25	26	19	15	4
GC[a]	12	19	25	23	19	2
HA[a]	14	19	27	24	15	1
HB[a]	13	16	30	20	18	3
J	13	17	26	21	22	1
L	13	19	29	20	17	2
M	8	17	35	21	16	3
N	10	15	27	23	22	3
O	11	26	30	16	15	3
Q[a]	13	16	29	21	19	3
T[a]	12	23	27	20	16	2
W	16	17	24	24	19	0
WA[a]	12	13	30	27	15	3
Statewide	13	19	27	21	18	2

[a]Licenses were valid on private lands only.

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2005 MICHIGAN SPRING TURKEY HUNTER SURVEY

Brian J. Frawley

ABSTRACT

A survey of turkey hunters was conducted following the 2005 spring hunting season to determine turkey harvest and hunter participation. In 2005, nearly 90,300 hunters harvested about 35,500 turkeys. Statewide, 39% of hunters harvested a turkey. The 2005 turkey harvest was 5% lower than the 2004 harvest. The number of hunters declined by 2% between 2004 and 2005, although their hunting effort was similar. Nearly 64% of the hunters rated their hunting experience as excellent, very good, or good in 2005. About 88% of the hunters reported they experienced no or only minor interference from other hunters.

INTRODUCTION

Michigan's spring turkey (*Meleagris gallopavo*) hunting season was based on an area and quota system. This system was set up primarily to distribute hunters across geographic areas (management units) and time (hunt periods). The goal of this system has been to provide hunting opportunities while maintaining acceptable levels of hunter satisfaction (Luukkonen 1998).

In 2005, 78% of the state (44,540 square miles) was open for wild turkey hunting from April 19 through May 31 (Figure 1). The area open for turkey hunting was the same as in 2004. The hunting area was divided into 28 management units (Figure 1). Hunting licenses were available for three types of hunts on these management units: (1) licenses for quota hunts on a specific management unit, (2) licenses for a quota hunt on private lands in southern Michigan (Hunt 301), and (3) licenses for an unlimited quota (i.e., no quota) hunt that included all units (Hunt 234).

A licensed hunter was allowed to take one bearded turkey. The Wildlife Division used a lottery system (random selection process) to distribute hunting licenses among

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applicants. 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. Applicants unsuccessful in the two drawings could purchase an unclaimed license (i.e., leftover licenses) on a first-come, first-served basis, or choose to purchase a license for the unlimited quota hunt period (Hunt 234).

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 (7-23 days). Most quota hunts began before May 5 and lasted for 7 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 18-May 1) 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 only on private lands in any management unit in the southern Michigan Unit ZZ and on enclosed military lands on Fort Custer (public land) (Figure 1). Hunt 234 started later than most quota hunts but lasted for 30 days (May 2-31). An unlimited number of licenses were available for Hunt 234. Hunters could purchase a hunting license for Hunt 234 during the application period (January 1-February 1) and forego the drawing for this license (i.e., lottery) or purchase a license as a leftover license after the lottery. Alternatively, hunters could apply for and obtain a license for Hunt 234 through the lottery process.

The Wildlife Division has 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 hunters the option to voluntarily report 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, 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 6 inches were classified as juveniles (1 year old), while birds with longer beards were adults (2 years old or greater). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2005 spring turkey hunting season, a questionnaire was sent to 23,459 randomly selected people that had purchased a turkey hunting license (resident turkey,

senior resident turkey, and nonresident turkey 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 31 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (28 management units). Hunters who purchased a license that could be used in multiple management units (hunts 234 and 301) were treated as separate strata (strata 29 and 30). Moreover, people that had voluntarily reported information about their hunting activity via the Internet were treated as a separate stratum (thirty-first stratum). A 95% confidence limit (CL) was calculated for each estimate. This confidence limit 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.

Questionnaires were mailed initially during mid-June 2005, and up to two follow-up questionnaires were mailed to nonrespondents. Although 23,459 people were sent the questionnaire, 249 surveys were undeliverable resulting in an adjusted sample size of 23,210. Questionnaires were returned by 17,337 people, yielding a 75% adjusted response rate. In addition, 5,611 people voluntarily reported information about their hunting activity via the Internet.

Results and Discussion

In 2005, 133,035 people applied for the quota hunts or purchased a license for Hunt 234 during the January 1-February 1 application period. Licenses were purchased by 108,640 people, a decrease of 2% from 2004. Most of the people buying a license were men (93%), and the average age of the license buyers was 43 years (Figure 2). Nearly 8% (8,747) of the license buyers were younger than 17 years old.

About 83% (±1%) of license buyers hunted turkeys (90,287 hunters). Most of these hunters were men (84,576 ± 666), although nearly 5% (±1%) of the hunters were women (5,711 ± 354). Hunter numbers (Table 1) decreased by 2% from 2004. Counties listed in descending order with more than 2,000 hunters afield included Kent, Newaygo, Montcalm, Allegan, Tuscola, Barry, Lapeer, Jackson, Saginaw, and Calhoun (Table 2).

Hunters spent an estimated 416,553 days afield pursuing turkeys (4.6 ± 0.1 days/hunter), nearly unchanged from 2004, and harvested approximately 35,547 birds (Figure 3). Counties listed in descending order with hunters taking more than 1,000 turkeys included Kent, Montcalm, Newaygo, and Allegan (Table 2). Hunter success was 39% in 2005, compared to 41% hunter success in 2004.

About 22% (±1%) of the harvested birds were juvenile males (7,877 ± 412); 76% (±1%) were adult males (27,092 ± 679), and about 1% were bearded females (414 ± 95). Additionally, the age of a small number of harvested birds (<1%) was unknown (163 ± 56) 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 4-7). For turkeys that the harvest date was known, 36% of these birds were taken during the first seven days (April 18-24). Daily hunter success generally was more than 8% during April and during the first few days of May. Daily hunter success was about 5-7% for the remainder of May. Hunting effort and harvest generally was greater on the weekends than weekdays, especially on Saturdays.

About 78% of turkey hunters hunted solely on private land; 15% hunted on public land only; and 7% hunted on both private and public lands (Table 3). Of the 35,547 turkeys harvested in 2005, 88 ± 1% were taken on private land (31,305 ± 693 birds). About 12 ± 1% of the harvest (4,215 ± 362 birds) were taken on public land.

Hunter satisfaction is one measure used to assess the turkey management program in Michigan. Of the estimated 90,287 people hunting turkeys in 2005, 64 ± 1% of the hunters rated their hunting experience as either excellent (15,831 ± 535 hunters), very good (17,801 ± 585), or good (24,102 ± 665) (Table 4). Nearly 20 ± 1% of the hunters rated their experience as fair (17,723 ± 609 hunters). Only 14 ± 1% of the hunters rated their experience as poor (13,044 ± 526 hunters). About 2% of the hunters (1,784 ± 213 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 2005, 66 ± 1% of the hunters reported no hunter interference; 22 ± 1% reported minor interference; 8 ± 1% reported some irritation caused by hunter interference; and 2 ± 1% reported hunter interference was a major problem (Table 5).

Although interference can affect hunter satisfaction, hunter satisfaction was more closely associated with hunter success (Figures 8 and 9). Hunter success decreased from 41 to 39% between 2004 and 2005, and hunter satisfaction also decreased slightly from 65 to 64%. Hunter success was high in all hunt periods, although hunters pursuing turkeys during the earliest hunt period were more successful and more satisfied than people hunting during later periods (Table 6).

Compared to 2004, only the northern Lower Peninsula experienced a significant decline in the number of people hunting turkey, hunting effort, and turkeys harvested (Table 7). Although the Upper Peninsula also experienced declines, these declines were not significant. Hunter success and hunter satisfaction changed little in all regions between 2004 and 2005 (Table 8).

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Table 1. Number of hunters, hunting efforts, harvest, and hunter success during the spring 2005 Michigan turkey hunting season.

Management unit	Licenses available (quota)	Number of applicants[a]	Number of applicants successful in drawing[b]	Number of licensees[c]	Hunters		Hunting efforts (days)		Harvest		Hunter success	
					Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL
Hunt periods with quotas												
A	2,500	2,168	2,216	1,661	1,480	62	5,911	636	497	87	34	6
AA	1,400	1,124	1,074	773	704	26	2,609	227	166	37	24	5
B	4,000	2,237	2,302	1,717	1,453	76	5,508	533	391	86	27	6
E	1,700	3,605	1,700	1,258	1,097	51	3,591	300	318	63	29	6
F	1,600	1,927	1,600	1,173	1,048	44	3,561	284	266	58	25	5
H	1,500	2,396	1,500	1,116	1,008	39	3,452	251	265	54	26	5
J	4,000	3,708	3,578	2,732	2,424	104	7,690	671	919	149	38	6
K	8,500	16,376	8,500	6,708	6,053	233	19,451	1,812	2,673	373	44	6
L	2,000	2,334	1,667	1,420	1,269	53	5,291	489	440	78	35	6
M	1,850	745	751	549	496	22	1,673	141	193	34	39	7
MA	700	283	287	216	192	9	664	65	80	14	42	7
N	2,200	1,118	1,126	912	824	32	2,673	219	383	52	46	6
O	2,800	1,187	1,191	912	837	31	2,767	245	390	54	47	6
P	480	1,689	480	349	326	12	1,523	236	118	22	36	7
Q	1,200	1,904	1,056	860	744	36	3,165	391	225	45	30	6
QB	500	630	400	340	295	15	1,115	120	82	19	28	6
QD	40	85	40	25	23	1	98	5	8	1	36	4
R	400	783	385	292	251	14	974	126	84	17	34	7
RA	40	191	40	22	21	1	70	8	8	2	37	11
T	1,700	2,649	1,479	1,246	1,038	58	4,098	500	195	53	19	5

[a]Number of eligible applicants selecting the management unit as their first choice to hunt.
[b]Number of successful applicants was sometimes larger than quota because of system processing errors.
[c]If a licensee purchased more than one license, only the latest purchase is included in the summary of licenses purchased.

Table 1 (continued). Number of hunters, hunting efforts, harvest, and hunter success during the spring 2005 Michigan turkey hunting season.

Management unit	Licenses available (quota)	Number of applicants[a]	Number of applicants successful in drawing[b]	Number of licensees[c]	Hunters		Hunting efforts (days)		Harvest		Hunter success	
					Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL
Hunt periods with quotas												
U	1,200	1,455	977	823	765	28	2,783	257	300	52	39	7
UA	1,100	1,629	846	689	625	26	2,253	244	254	41	41	6
UB	200	320	189	137	115	8	425	63	55	10	47	8
V	3,200	3,234	3,060	2,289	2,001	90	6,786	537	409	99	20	5
W	1,200	1,094	984	774	703	29	2,321	263	300	48	43	7
X	1,760	3,463	1,696	1,294	1,128	55	4,182	502	376	72	33	6
Z	500	814	440	361	339	11	1,286	109	134	20	39	6
ZA	600	864	542	483	451	14	1,842	186	139	25	31	6
Subtotal	48,870	60,012	40,106	31,131	27,712	325	97,761	2,521	9,667	480	35	2
Hunt period 301 with quota (Management Unit ZZ; April 19-May 2, 2005)												
L	NA	NA	NA	NA	1,690	124	6,905	643	791	86	47	4
P	NA	NA	NA	NA	3,646	175	15,298	960	1,877	129	51	3
Q	NA	NA	NA	NA	1,613	121	6,566	632	807	86	50	4
QB	NA	NA	NA	NA	252	49	895	212	119	33	47	10
QD	NA	NA	NA	NA	46	21	213	136	22	14	47	22
R	NA	NA	NA	NA	1,240	107	4,987	530	587	74	47	4
RA	NA	NA	NA	NA	794	86	3,397	481	427	63	54	6
T	NA	NA	NA	NA	2,391	146	9,910	776	1,113	101	46	3
U	NA	NA	NA	NA	1,123	103	4,265	511	649	78	58	5
UA	NA	NA	NA	NA	638	79	2,427	374	343	57	54	6

[a]Number of eligible applicants selecting the management unit as their first choice to hunt.
[b]Number of successful applicants was sometimes larger than quota because of system processing errors.
[c]If a licensee purchased more than one license, only the latest purchase is included in the summary of licenses purchased.

Table 1 (continued). Number of hunters, hunting efforts, harvest, and hunter success during the spring 2005 Michigan turkey hunting season.

Management unit	Licenses available (quota)	Number of applicants[a]	Number of applicants successful in drawing[b]	Number of licensees[c]	Hunters		Hunting efforts (days)		Harvest		Hunter success	
					Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL
Hunt period 301 with quota (Management Unit ZZ; April 19-May 2, 2005)												
UB	NA	NA	NA	NA	663	79	2,433	365	309	54	47	6
W	NA	NA	NA	NA	1,294	109	5,301	575	685	79	53	4
X	NA	NA	NA	NA	3,158	164	13,603	910	1,404	112	44	3
Z	NA	NA	NA	NA	1,853	128	7,210	623	830	88	45	4
ZA	NA	NA	NA	NA	1,010	98	4,169	515	540	72	54	5
Unknown	NA	NA	NA	NA	865	94	4,425	489	372	54	32	5
Subtotal	65,000	26,894	27,971	23,698	21,624	139	92,004	1,571	10,875	240	50	1
Unlimited quota hunt period (Hunt 234; May 3-31, 2005)												
A	NA	NA	NA	NA	554	114	3,221	904	145	58	26	9
AA	NA	NA	NA	NA	276	81	1,249	488	41	31	15	10
B	NA	NA	NA	NA	261	77	1,237	529	53	33	20	12
E	NA	NA	NA	NA	1,776	203	8,271	1,367	463	104	26	5
F	NA	NA	NA	NA	803	137	3,848	871	189	65	24	7
H	NA	NA	NA	NA	843	140	3,222	633	126	53	15	6
J	NA	NA	NA	NA	1,609	192	8,186	1,394	517	109	32	6
K	NA	NA	NA	NA	8,253	410	41,183	2,830	2,536	238	31	2
L	NA	NA	NA	NA	2,173	225	11,332	1,582	853	141	39	5
M	NA	NA	NA	NA	349	91	1,541	501	60	36	17	10
MA	NA	NA	NA	NA	149	59	654	319	50	33	33	19
N	NA	NA	NA	NA	430	100	1,894	605	190	65	44	12

[a]Number of eligible applicants selecting the management unit as their first choice to hunt.
[b]Number of successful applicants was sometimes larger than quota because of system processing errors.
[c]If a licensee purchased more than one license, only the latest purchase is included in the summary of licenses purchased.

Table 1 (continued). Number of hunters, hunting efforts, harvest, and hunter success during the spring 2005 Michigan turkey hunting season.

Management unit	Licenses available (quota)	Number of applicants[a]	Number of applicants successful in drawing[b]	Number of licensees[c]	Hunters		Hunting efforts (days)		Harvest		Hunter success	
					Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL
Unlimited quota hunt period (Hunt 234; May 3-31, 2005)												
O	NA	NA	NA	NA	473	105	2,132	662	169	62	36	11
P	NA	NA	NA	NA	3,955	298	22,920	2,368	1,605	192	41	4
PB	NA	NA	NA	NA	1,996	216	10,603	1,602	770	135	39	5
Q	NA	NA	NA	NA	348	91	2,352	852	106	49	31	12
QD	NA	NA	NA	NA	71	41	530	442	33	27	46	29
R	NA	NA	NA	NA	1,610	194	8,910	1,450	584	117	36	6
RA	NA	NA	NA	NA	940	150	5,422	1,210	412	99	44	8
T	NA	NA	NA	NA	2,688	249	13,521	1,599	881	144	33	4
U	NA	NA	NA	NA	1,658	198	8,423	1,392	657	124	40	6
UA	NA	NA	NA	NA	1,484	187	7,704	1,271	630	121	42	6
UB	NA	NA	NA	NA	679	127	3,345	882	187	67	28	8
V	NA	NA	NA	NA	860	143	4,102	1,034	141	56	16	6
W	NA	NA	NA	NA	1,503	188	7,662	1,299	668	125	44	6
X	NA	NA	NA	NA	3,020	262	15,202	1,836	1,179	165	39	4
Z	NA	NA	NA	NA	2,115	221	10,266	1,473	836	140	40	5
ZA	NA	NA	NA	NA	1,277	173	6,763	1,226	580	117	45	7
Unknown	NA	NA	NA	NA	1,916	214	11,094	1,571	343	79	13	4
Subtotal	NA	2,069	3,790	53,811[e]	40,951	490	226,789	5,595	15,005	507	37	1
Statewide[d]	113,870	88,975	71,867	108,640[e]	90,287	604	416,553	6,334	35,547	738	39	1

[a]Number of eligible applicants selecting the management unit as their first choice to hunt.
[b]Number of successful applicants was sometimes larger than quota because of system processing errors.
[c]If a licensee purchased more than one license, only the latest purchase is included in the summary of licenses purchased.
[d]Column totals may not equal statewide totals because of rounding errors. Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunt.
[e]44,060 hunters purchased a hunting license for Hunt 234 without going through the lottery process.

Table 2. Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunt interference during the 2005 Michigan spring 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	1,805	175	7,591	1,057	440	97	24	5	42	6	89	4
Alger	46	25	194	123	16	14	35	26	78	22	100	0
Allegan	2,849	212	12,852	1,331	1,175	139	41	4	74	4	85	3
Alpena	1,220	146	5,432	960	453	96	37	7	59	7	89	4
Antrim	1,179	180	4,666	1,009	376	101	32	7	50	8	86	6
Arenac	717	123	3,479	847	240	69	33	8	61	9	91	5
Baraga[d]	0	0	0	0	0	0		0		0		0
Barry	2,351	193	10,557	1,247	918	124	39	4	71	4	86	3
Bay	404	85	2,143	673	136	49	34	10	60	10	87	7
Benzie	460	143	1,635	610	165	103	34	16	67	14	94	5
Berrien	776	116	3,849	843	289	68	37	7	66	7	87	5
Branch	912	124	4,241	817	357	73	39	7	72	6	88	4
Calhoun	2,075	184	9,886	1,298	869	117	42	4	74	4	90	3
Cass	1,004	124	4,832	800	410	77	41	6	73	6	85	5
Charlevoix	608	129	1,908	501	255	88	42	11	77	9	98	4
Cheboygan	923	158	3,739	871	303	96	33	9	45	9	86	6
Chippewa[d]	0	0	0	0	0	0		0		0		0
Clare	1,116	147	4,597	935	320	81	29	6	49	7	90	4
Clinton	1,776	168	8,292	1,081	717	105	40	5	68	5	86	3
Crawford	943	117	3,374	529	214	58	23	6	49	7	88	5
Delta	1,135	115	4,282	688	470	80	41	6	66	6	94	3

[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.

[d]Not open for turkey hunting.

Table 2 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunt interference during the 2005 Michigan spring 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	811	94	3,117	521	253	49	31	6	53	7	89	4
Eaton	1,618	166	8,113	1,251	795	114	49	5	78	4	92	3
Emmet	655	136	1,992	498	288	96	44	11	69	10	85	8
Genesee	1,086	140	5,316	972	452	88	42	6	73	6	91	4
Gladwin	1,041	138	3,600	670	220	64	21	6	48	7	92	4
Gogebic[d]	0	0	0	0	0	0		0		0		0
Gd. Traverse	806	179	3,626	923	256	112	32	11	49	11	88	7
Gratiot	1,407	147	5,890	887	593	92	42	5	68	5	90	3
Hillsdale	1,480	156	6,643	1,058	590	98	40	5	74	5	86	4
Houghton[d]	0	0	0	0	0	0		0		0		0
Huron	1,399	153	6,156	902	483	87	35	5	67	5	91	3
Ingham	1,303	147	6,333	1,032	482	89	37	5	67	5	90	3
Ionia	1,875	173	8,313	1,121	761	109	41	5	70	4	88	3
Iosco	1,452	143	5,007	644	355	80	24	5	53	6	88	4
Iron	372	78	1,441	382	130	36	35	9	52	11	90	6
Isabella	1,640	166	6,772	968	773	107	47	5	63	5	92	3
Jackson	2,304	189	9,588	1,065	840	112	36	4	71	4	86	3
Kalamazoo	1,242	143	5,537	973	583	93	47	6	80	5	89	4
Kalkaska	1,043	223	3,820	936	276	114	27	10	52	11	88	6
Kent	3,175	224	12,956	1,296	1,344	143	42	4	72	3	87	2
Keweenaw[d]	0	0	0	0	0	0		0		0		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.
[d]Not open for turkey hunting.

Table 2 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunt interference during the 2005 Michigan spring 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	1,923	306	7,048	1,254	430	164	22	7	47	8	79	8
Lapeer	2,329	193	10,647	1,273	993	126	43	4	72	4	87	3
Leelanau	383	125	1,178	471	145	83	38	16	62	16	92	7
Lenawee	722	108	3,084	675	261	65	36	7	76	6	87	5
Livingston	1,242	144	4,918	770	535	94	43	6	78	5	87	4
Luce[d]	0	0	0	0	0	0		0		0		0
Mackinac[d]	0	0	0	0	0	0		0		0		0
Macomb	252	68	1,059	422	93	40	37	13	80	11	84	10
Manistee	1,078	229	4,052	965	413	163	38	11	52	11	85	8
Marquette	141	45	341	127	57	29	41	16	51	16	81	13
Mason	1,184	249	4,465	1,020	333	152	28	11	60	10	86	8
Mecosta	1,878	277	7,723	1,395	768	181	41	7	70	7	91	4
Menominee	1,262	108	4,595	655	574	83	45	6	56	6	88	4
Midland	1,627	154	6,843	933	759	108	47	5	67	5	91	3
Missaukee	1,055	224	3,921	1,027	347	152	33	11	56	11	91	6
Monroe	120	43	781	458	52	29	44	18	75	16	81	15
Montcalm	2,920	215	12,421	1,338	1,268	141	43	4	71	4	91	2
Montmorency	1,164	109	4,531	619	282	64	24	5	44	6	90	3
Muskegon	1,870	174	7,945	1,022	824	113	44	5	69	5	85	3
Newaygo	2,965	324	13,173	1,775	1,191	211	40	6	66	5	88	4
Oakland	694	94	3,347	798	212	50	31	6	67	7	89	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.
[d]Not open for turkey hunting.

Table 2 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunt interference during the 2005 Michigan spring 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	1,199	196	4,813	1,005	455	129	38	8	66	8	86	6
Ogemaw	1,325	161	5,065	994	283	84	21	6	47	7	89	5
Ontonagon[d]	0	0	0	0	0	0		0		0		0
Osceola	1,161	229	4,486	957	379	124	33	9	59	10	91	6
Oscoda	1,450	176	5,544	921	225	76	16	5	39	7	88	4
Otsego	821	148	2,810	613	193	72	24	8	42	9	89	6
Ottawa	1,444	150	6,039	935	531	85	37	5	75	5	89	3
Presque Isle	944	118	4,215	793	264	71	28	7	52	8	91	4
Roscommon	1,085	133	3,564	518	187	55	17	5	49	7	91	4
Saginaw	2,138	190	10,178	1,206	913	120	43	4	69	4	88	3
St. Clair	1,511	146	6,865	985	573	90	38	5	69	5	84	4
St. Joseph	828	118	4,146	803	420	83	51	7	70	7	90	4
Sanilac	1,955	184	8,196	999	768	115	39	5	68	4	89	3
Schoolcraft[d]	0	0	0	0	0	0		0		0		0
Shiawassee	1,181	140	5,659	1,013	456	86	39	6	71	5	89	4
Tuscola	2,558	196	11,478	1,221	850	113	33	4	65	4	85	3
Van Buren	1,796	180	8,494	1,177	753	110	42	5	70	5	91	3
Washtenaw	731	110	2,948	632	251	62	34	7	67	7	84	6
Wayne	15	16	30	42	7	9	50	54	50	54	50	54
Wexford	1,518	280	5,148	1,059	626	198	41	10	62	9	87	7
Unknown	2,888	258	13,034	1,589	275	71	9	2	48	5	81	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.
[d]Not open for turkey hunting.

Table 3. Estimated number and proportion of hunters hunting on private and public lands during the spring 2005 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																
A	1,130	90	76	5	204	62	14	4	146	54	10	4	0	0	0	0
AA	293	44	42	6	290	43	41	6	105	31	15	4	16	13	2	2
B	1,180	96	81	5	216	69	15	5	50	35	3	2	8	14	1	1
E	744	73	68	6	268	60	24	5	86	38	8	3	0	0	0	0
F	435	67	41	6	435	67	41	6	178	50	17	5	0	0	0	0
H	283	56	28	5	616	64	61	6	110	38	11	4	0	0	0	0
J	1,282	158	53	6	807	144	33	6	335	105	14	4	0	0	0	0
K	3,265	382	54	6	1,709	330	28	5	1,002	272	17	4	77	85	1	1
L	320	72	25	6	832	84	66	6	103	43	8	3	13	17	1	1
M	226	35	45	7	184	33	37	7	79	26	16	5	7	8	1	2
MA	118	14	62	7	36	11	19	6	32	10	16	5	6	5	3	3
N	619	49	75	5	114	34	14	4	91	32	11	4	0	0	0	0
O	562	54	67	6	157	41	19	5	118	37	14	4	0	0	0	0
P	181	23	55	7	101	21	31	6	45	16	14	5	0	0	0	0
Q	352	52	47	7	298	49	40	6	76	30	10	4	18	16	2	2
QB	96	20	33	7	169	23	57	7	27	12	9	4	3	4	1	1
QD	9	1	41	4	11	1	50	4	2	1	9	3	0	0	0	0
R	114	19	46	7	100	18	40	7	34	12	14	5	2	4	1	1
RA	18	2	89	6	2	1	11	6	0	0	0	0	0	0	0	0
T	422	72	41	7	500	74	48	7	116	44	11	4	0	0	0	0

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

Table 3 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2005 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																
U	393	54	51	7	304	52	40	7	69	30	9	4	0	0	0	0
UA	348	43	56	6	211	39	34	6	61	25	10	4	4	7	1	1
UB	86	10	75	7	25	8	22	7	4	3	3	3	0	0	0	0
V	863	128	43	6	869	127	43	6	250	83	13	4	19	25	1	1
W	526	46	75	6	126	36	18	5	48	24	7	3	4	7	1	1
X	457	77	40	7	576	79	51	7	89	40	8	4	7	12	1	1
Z	162	21	48	6	131	20	38	6	47	15	14	4	0	0	0	0
ZA	116	24	26	5	260	28	58	6	60	19	13	4	14	10	3	2
Subtotal	14,600	504	53	2	9,551	450	34	2	3,363	340	12	1	198	96	1	0
Hunt period 301 with quota (Management Unit ZZ; April 19-May 2, 2005)																
L	1,690	124	100	0	0	0	0	0	0	0	0	0	0	0	0	0
P	3,646	175	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Q	1,613	121	100	0	0	0	0	0	0	0	0	0	0	0	0	0
QB	252	49	100	0	0	0	0	0	0	0	0	0	0	0	0	0
QD	46	21	100	0	0	0	0	0	0	0	0	0	0	0	0	0
R	1,240	107	100	0	0	0	0	0	0	0	0	0	0	0	0	0
RA	794	86	100	0	0	0	0	0	0	0	0	0	0	0	0	0
T	2,391	146	100	0	0	0	0	0	0	0	0	0	0	0	0	0
U	1,123	103	100	0	0	0	0	0	0	0	0	0	0	0	0	0
UA	638	79	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 3 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2005 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 period 301 with quota (Management Unit ZZ; April 19-May 2, 2005)																
UB	663	79	100	0	0	0	0	0	0	0	0	0	0	0	0	0
W	1,294	109	100	0	0	0	0	0	0	0	0	0	0	0	0	0
X	3,158	164	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Z	1,853	128	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZA	1,010	98	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	865	94	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	21,620	140	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unlimited quota hunt period (Hunt 234; May 3-31, 2005)																
A	458	104	83	8	57	36	10	6	39	31	7	5	0	0	0	0
AA	134	56	49	15	126	55	46	15	16	19	6	7	0	0	0	0
B	213	70	82	12	32	27	12	10	16	19	6	7	0	0	0	0
E	1,293	174	73	5	358	92	20	5	125	55	7	3	0	0	0	0
F	420	99	52	9	307	85	38	8	76	43	9	5	0	0	0	0
H	198	68	24	7	556	114	66	8	81	43	10	5	7	14	1	2
J	935	148	58	6	388	94	24	5	286	83	18	5	0	0	0	0
K	5,174	335	63	3	1,800	203	22	2	1,241	171	15	2	30	27	0	0
L[b]	2,173	225	100	0	0	0	0	0	0	0	0	0	0	0	0	0
M	229	75	66	12	95	47	27	12	18	19	5	5	7	14	2	4
MA	109	51	73	18	39	31	26	18	1	0	1	0	0	0	0	0
N	318	86	74	10	64	39	15	8	48	33	11	7	0	0	0	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 the southern Michigan zone (Figure 1).

Table 3 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2005 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 (Hunt 234; May 3-31, 2005)																
O	314	86	66	11	102	49	22	9	56	36	12	7	0	0	0	0
P[b]	3,955	298	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Q[b]	1,996	216	100	0	0	0	0	0	0	0	0	0	0	0	0	0
QB[b]	348	91	100	0	0	0	0	0	0	0	0	0	0	0	0	0
QD[b]	71	41	100	0	0	0	0	0	0	0	0	0	0	0	0	0
R[b]	1,610	194	100	0	0	0	0	0	0	0	0	0	0	0	0	0
RA[b]	940	150	100	0	0	0	0	0	0	0	0	0	0	0	0	0
T[b]	2,688	249	100	0	0	0	0	0	0	0	0	0	0	0	0	0
U	1,606	195	97	2	22	24	1	1	22	24	1	1	7	14	0	1
UA	1,248	171	84	5	121	55	8	4	85	45	6	3	30	27	2	2
UB[b]	679	127	100	0	0	0	0	0	0	0	0	0	0	0	0	0
V	360	92	42	8	377	95	44	8	108	51	13	6	7	14	1	2
W[b]	1,503	188	100	0	0	0	0	0	0	0	0	0	0	0	0	0
X[b]	3,020	262	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Z[b]	2,115	221	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZA[b]	1,277	173	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	1,475	189	77	5	255	79	13	4	97	49	5	3	82	45	4	2
Subtotal	33,972	551	83	1	3,876	292	9	1	2,931	257	7	1	172	65	0	0
Statewide[c]	70,196	760	78	1	13,428	536	15	1	6,293	426	7	0	370	116	0	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 the southern Michigan zone (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 hunt.

Table 4. How hunters rated their hunting experience during the spring 2005 Michigan turkey hunting season.

Manage-ment unit	Satisfaction level (% of hunters)[a]					
	Excellent	Very good	Good	Fair	Poor	No answer
Hunt periods with quotas						
A	13	15	30	17	24	0
AA	9	14	20	22	33	2
B	12	11	19	26	29	2
E	12	14	26	24	23	1
F	11	13	31	21	23	2
H	11	14	27	22	24	2
J	14	21	21	18	25	1
K	17	20	26	23	12	2
L	16	24	35	17	8	1
M	12	15	26	25	20	2
MA	14	17	28	20	21	0
N	12	14	27	23	21	3
O	18	24	27	16	13	2
P	22	24	22	14	16	2
Q	17	17	33	17	15	2
QB	25	19	26	20	6	4
QD	36	5	27	14	14	5
R	19	19	26	28	6	1
RA	13	24	13	25	25	0
T	9	20	30	23	16	2
U	20	21	27	21	10	1
UA	25	19	27	14	12	4
UB	25	17	35	14	9	0
V	10	11	21	26	29	3
W	18	18	25	23	15	2
X	23	20	23	20	13	2
Z	23	21	28	15	11	1
ZA	16	25	22	22	14	2
Mean[b]	15	18	26	21	18	2

[a]Row totals may not equal 100% because of rounding errors.
[b]Mean satisfaction levels for hunt periods with quotas.

Table 4 (continued). How hunters rated their hunting experience during the spring 2005 Michigan turkey hunting season.

Management unit	Satisfaction level (% of hunters)[a]					
	Excellent	Very good	Good	Fair	Poor	No answer
Hunt period 301 with quota (Management Unit ZZ; April 19-May 2, 2005)						
L	22	24	29	16	6	2
P	25	23	28	15	8	1
Q	26	23	28	15	8	1
QB	33	20	23	14	9	1
QD	33	26	16	24	0	0
R	23	24	27	18	8	0
RA	26	25	26	18	4	1
T	20	21	27	19	11	2
U	27	24	26	16	6	0
UA	22	28	29	11	8	2
UB	22	29	32	12	4	1
W	26	21	24	16	12	1
X	25	25	26	15	8	1
Z	25	25	25	14	8	2
ZA	24	24	27	18	6	1
Unknown	16	22	28	19	13	2
Mean[b]	24	24	27	16	8	1

[a]Row totals may not equal 100% because of rounding errors.
[b]Mean satisfaction levels for Hunt 301.

Table 4 (continued). How hunters rated their hunting experience during the spring 2005 Michigan turkey hunting season.

Management unit	Satisfaction level (% of hunters)[a]					
	Excellent	Very good	Good	Fair	Poor	No answer
Unlimited quota hunt period (Hunt 234; May 6-31, 2005)						
A	8	10	26	24	32	0
AA	3	19	17	20	40	0
B	8	14	25	33	21	0
E	12	12	27	27	21	1
F	15	13	21	27	24	0
H	7	13	25	25	26	4
J	12	16	25	25	19	3
K	12	16	28	22	20	2
L	18	21	28	17	13	3
M	12	14	30	22	20	2
MA	16	17	21	20	21	5
N	19	16	29	16	20	0
O	9	18	29	22	18	3
P	18	23	28	17	10	3
Q	18	21	31	16	12	3
QB	13	15	33	22	13	4
QD	24	34	21	21	0	0
R	15	24	27	20	12	2
RA	25	21	33	16	2	2
T	14	23	31	19	12	2
U	22	21	25	17	11	4
UA	20	19	23	26	11	2
UB	14	22	31	17	10	6
V	9	10	25	25	29	2
W	17	19	24	22	16	2
X	21	21	28	19	7	3
Z	20	24	25	21	8	2
ZA	22	17	30	17	13	2
Unknown	10	15	24	26	21	4
Mean[b]	16	19	27	21	15	3
Statewide[c]	18	20	27	20	14	2

[a]Row totals may not equal 100% because of rounding errors.
[b]Mean satisfaction levels for Hunt 234.
[c]Satewide mean satisfaction levels (all hunts and periods).

Table 5. Estimated amount of hunter interference experienced by turkey hunters during the spring 2005 Michigan turkey hunting season.

Management unit	Interference level (% of hunters)[a] None	Minor	Some irritation	Major problem	No answer
Hunt periods with quotas					
A	69	22	8	1	0
AA	65	21	10	3	1
B	70	19	6	4	1
E	70	22	6	1	1
F	66	20	10	2	2
H	68	20	9	1	2
J	61	26	9	2	2
K	62	24	8	4	1
L	54	30	10	3	2
M	54	30	14	0	3
MA	64	24	9	2	1
N	65	22	9	1	3
O	64	26	7	1	2
P	66	26	6	3	0
Q	56	22	16	4	2
QB	63	25	9	1	3
QD	64	23	14	0	0
R	61	25	10	2	2
RA	68	19	13	0	0
T	59	24	14	3	1
U	67	18	12	1	1
UA	61	20	16	1	3
UB	63	31	6	0	0
V	71	17	7	2	3
W	68	25	5	1	1
X	64	18	11	4	2
Z	67	18	11	1	1
ZA	51	32	13	3	2
Mean[b]	64	23	9	2	2

[a]Row totals may not equal 100% because of rounding errors.
[b]Mean interference levels for hunt periods with quotas.

Table 5 (continued). Estimated amount of hunter interference experienced by turkey hunters during the spring 2005 Michigan turkey hunting season.

Management unit	Interference level (% of hunters)[a] None	Minor	Some irritation	Major problem	No answer
Hunt period 301 with quota (Management Unit ZZ; April 19-May 2, 2005)					
L	64	22	10	3	1
P	68	23	7	1	1
Q	67	21	9	2	1
QB	69	20	6	4	0
QD	84	8	0	8	0
R	70	17	11	2	0
RA	68	22	9	0	1
T	62	25	9	2	1
U	72	17	10	1	0
UA	55	30	11	3	1
UB	67	23	9	0	1
W	71	18	8	2	1
X	66	22	9	3	1
Z	65	23	8	3	1
ZA	72	19	7	1	1
Unknown	64	20	9	5	2
Mean[b]	67	22	9	2	1

[a]Row totals may not equal 100% because of rounding errors.
[b]Mean interference levels for Hunt 301.

Table 5 (continued). Estimated amount of hunter interference experienced by turkey hunters during the spring 2005 Michigan turkey hunting season.

Management unit	Interference level (% of hunters)[a] None	Minor	Some irritation	Major problem	No answer
Unlimited quota hunt period (Hunt 234; May 6-31, 2005)					
A	70	17	11	3	0
AA	72	20	3	5	0
B	69	25	6	0	0
E	70	22	5	2	2
F	72	19	7	2	0
H	68	22	6	0	4
J	64	24	8	2	2
K	63	26	8	2	1
L	63	24	9	1	3
M	80	16	0	2	2
MA	79	11	5	0	5
N	73	18	4	5	0
O	74	21	0	2	3
P	70	19	8	1	3
Q	67	21	8	2	2
QB	69	24	0	4	2
QD	54	24	1	21	0
R	63	24	9	2	2
RA	79	15	4	0	2
T	67	22	9	1	1
U	73	19	5	2	1
UA	61	28	8	2	1
UB	50	36	9	1	3
V	69	21	6	2	3
W	75	19	4	0	2
X	68	21	7	1	3
Z	69	20	7	2	1
ZA	74	18	6	1	1
Unknown	66	16	7	4	5
Mean[b]	68	21	7	2	2
Statewide[c]	66	22	8	2	2

[a]Row totals may not equal 100% because of rounding errors.
[b]Mean interference levels for Hunt 234.
[c]Statewide mean interference levels (all hunts and periods).

Table 6. Estimated number of hunting efforts, hunters, hunting success, noninterfered hunters, and hunter rating of the 2005 spring turkey hunting season, by hunt periods.

	Hunt periods beginning									
	April 18		April 25		May 2		May 9		All periods[a]	
Variable	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Hunting efforts (days)	138,698	2,530	35,079	2,307	232,363	5,625	10,413	1,107	416,553	6,334
Number of hunters	35,976	510	9,956	481	42,386	507	1,969	146	90,287	604
Successful hunters (n)	16,344	461	3,163	353	15,314	510	724	95	35,547	738
Successful hunters (%)	45	1	32	3	36	1	37	4	39	1
Noninterfered hunters (n)[b]	31,636	520	8,646	470	37,687	549	1,682	138	79,652	717
Noninterfered hunters (%)[b]	88	1	87	2	89	1	85	3	88	1
Favorable rating (n)[c]	24,619	502	5,668	423	26,064	577	1,384	127	57,735	795
Favorable rating (%)[c]	68	1	57	3	61	1	70	4	64	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 7. Comparison of the estimated number of hunters, hunting effort, and harvest between 2004 and 2005 in Michigan spring turkey hunting season, summarized by regions.

	Hunters (No.)[b]					Hunting efforts (days)					Harvest (No.)				
	2004		2005			2004		2005			2004		2005		
Region[a]	Total	95% CL	Total	95% CL	Change (%)	Total	95% CL	Total	95% CL	Change (%)	Total	95% CL	Total	95% CL	Change (%)
UP	3,912	185	3,635	192	-7	15,100	1,029	13,969	1,172	-7	1,604	140	1,502	132	-6
NLP	35,188	614	32,674	618	-7	149,503	4,567	136,203	4,452	-9	12,327	574	10,685	546	-13
SLP	52,624	601	52,905	611	1	247,110	5,093	253,348	5,306	3	23,311	522	23,085	521	-1
Unknown	1,869	210	2,888	258		8,208	1,193	13,034	1,589		280	85	275	71	
Total	92,005	594	90,287	604	-2	419,920	6,203	416,553	6,334	-1	37,522	756	35,547	738	-5

[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.

Table 8. Comparison of estimated hunter success, hunter satisfaction, and hunt interference between 2004 and 2005 Michigan spring turkey hunting season, summarized by regions.

	Hunter success					Hunter satisfaction[b]					Noninterfered hunters[c]				
	2004		2005		Differ-	2004		2005		Differ-	2004		2005		Differ-
Region[a]	%	95% CL	%	95% CL	ence (%)	%	95% CL	%	95% CL	ence (%)	%	95% CL	%	95% CL	ence (%)
UP	41	3	41	3	<1	57	3	59	3	2	90	2	90	2	<1
NLP	35	2	33	2	-2	59	2	55	2	-4	89	1	89	1	<1
SLP	44	1	44	1	-1	71	1	71	1	<1	88	1	88	1	<1
Total	41	1	39	1	-1	65	1	64	1	-1	88	1	88	1	<1

[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.

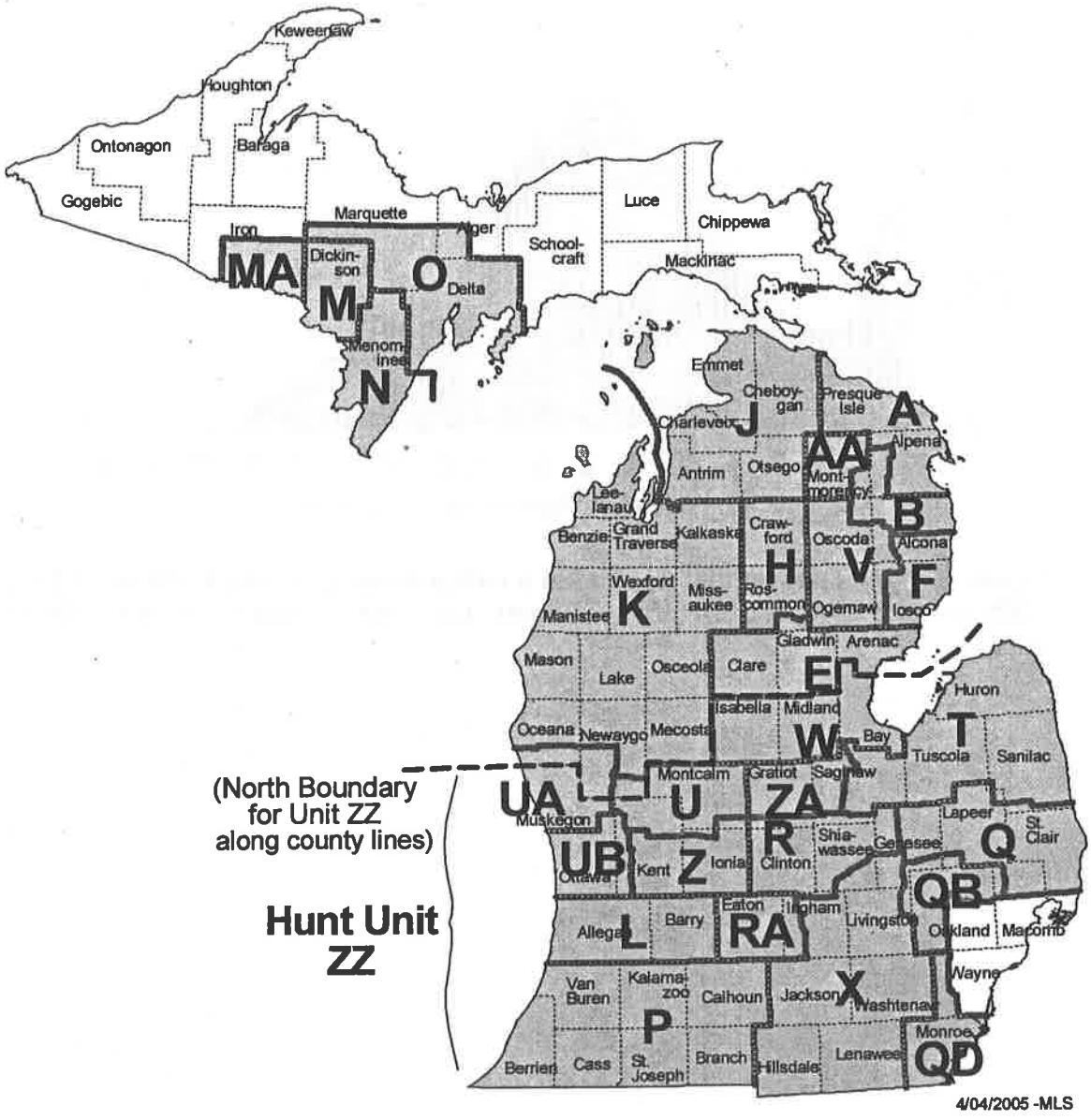


Figure 1. Management units in Michigan open to spring turkey hunting in 2005.

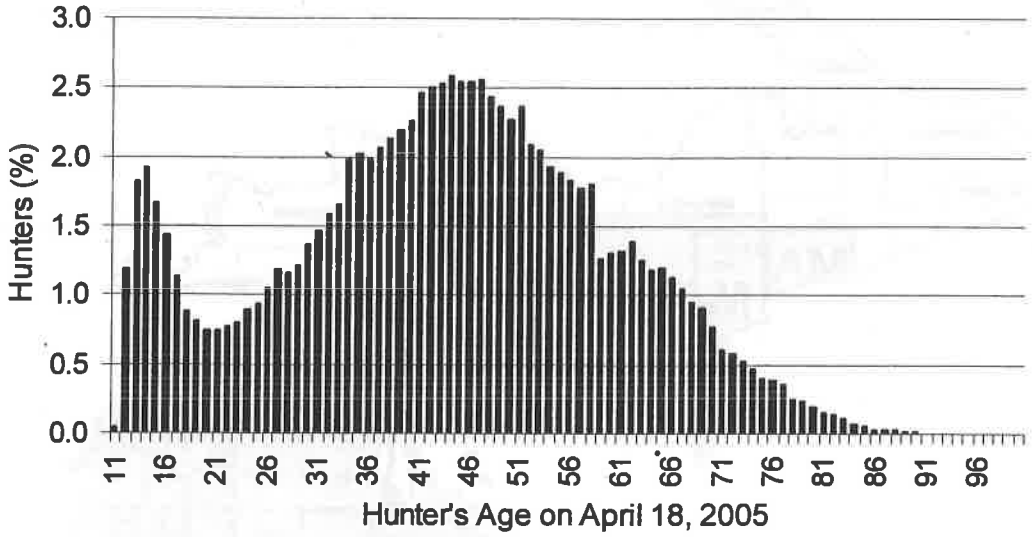


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2005 spring hunting season ($\bar{x}$ = 43 years). Licenses were purchased by 108,640 people.

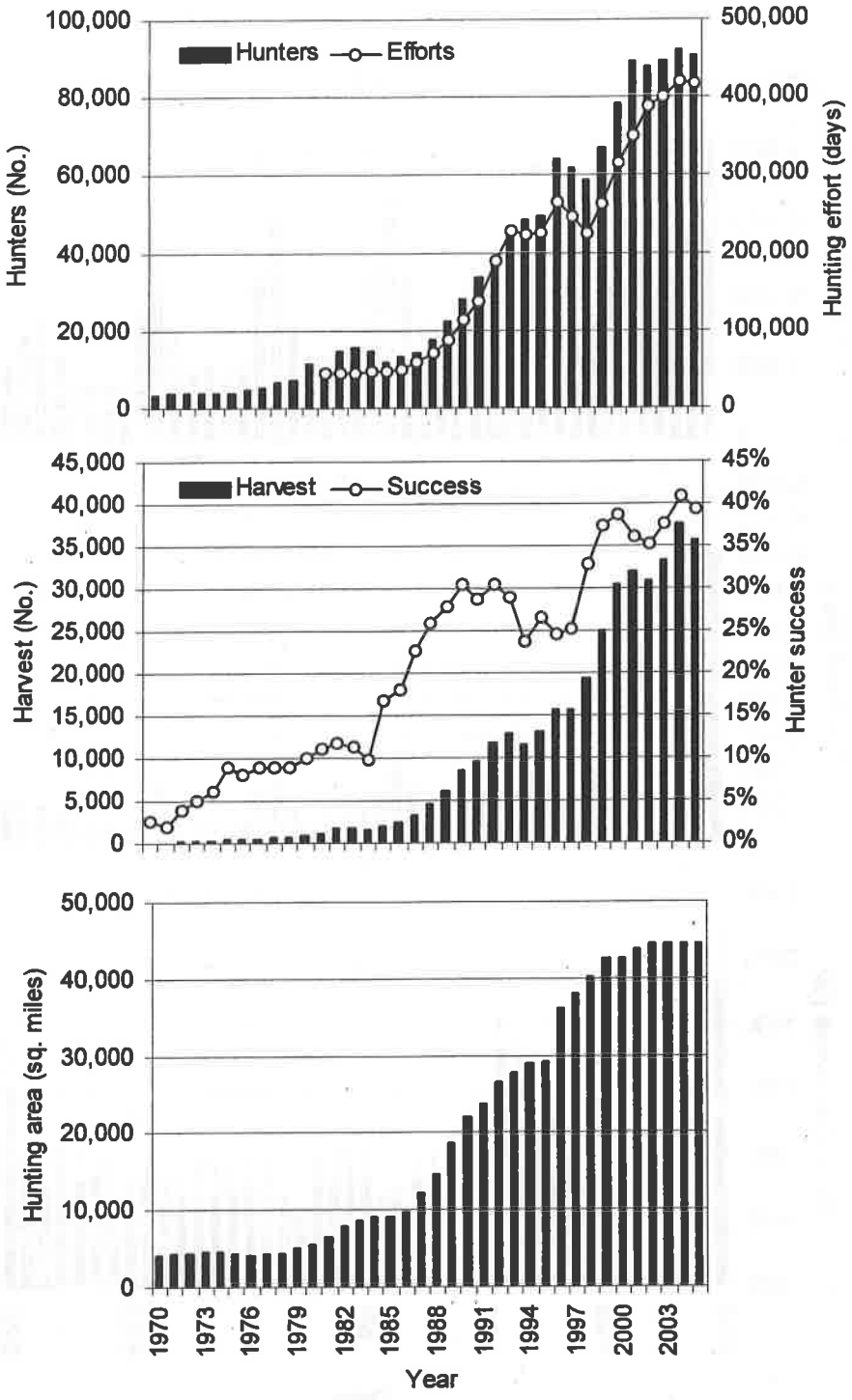


Figure 3. Estimated number of hunters, harvest, hunting efforts, and hunting success during the spring turkey hunting season, 1970-2005. Estimates of hunting effort generally were not available before 1981.

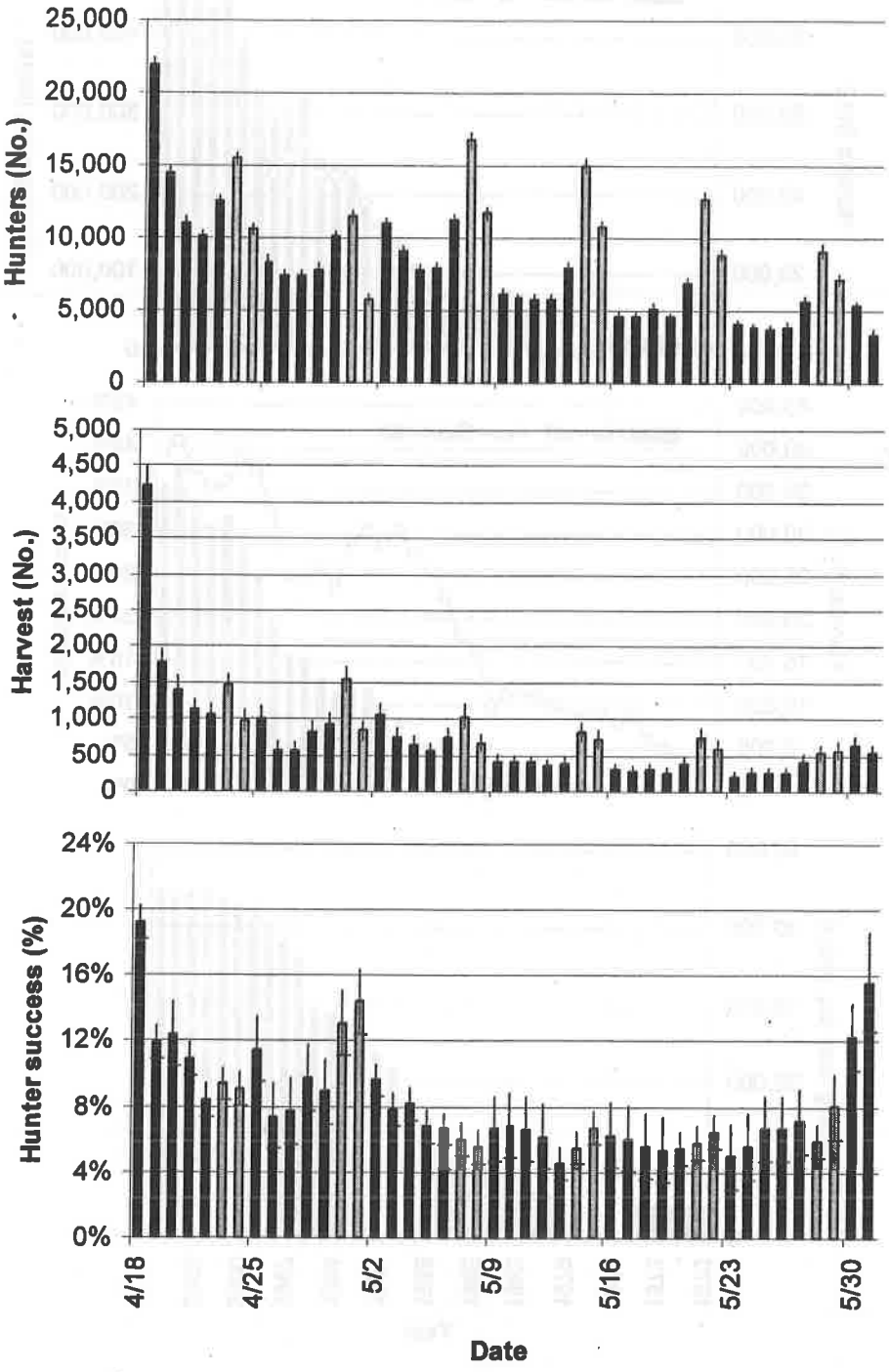


Figure 4. Estimated number of hunters, harvest, and hunter success by date during the 2005 spring turkey hunting season (includes all hunts). An additional 1,503 ± 196 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

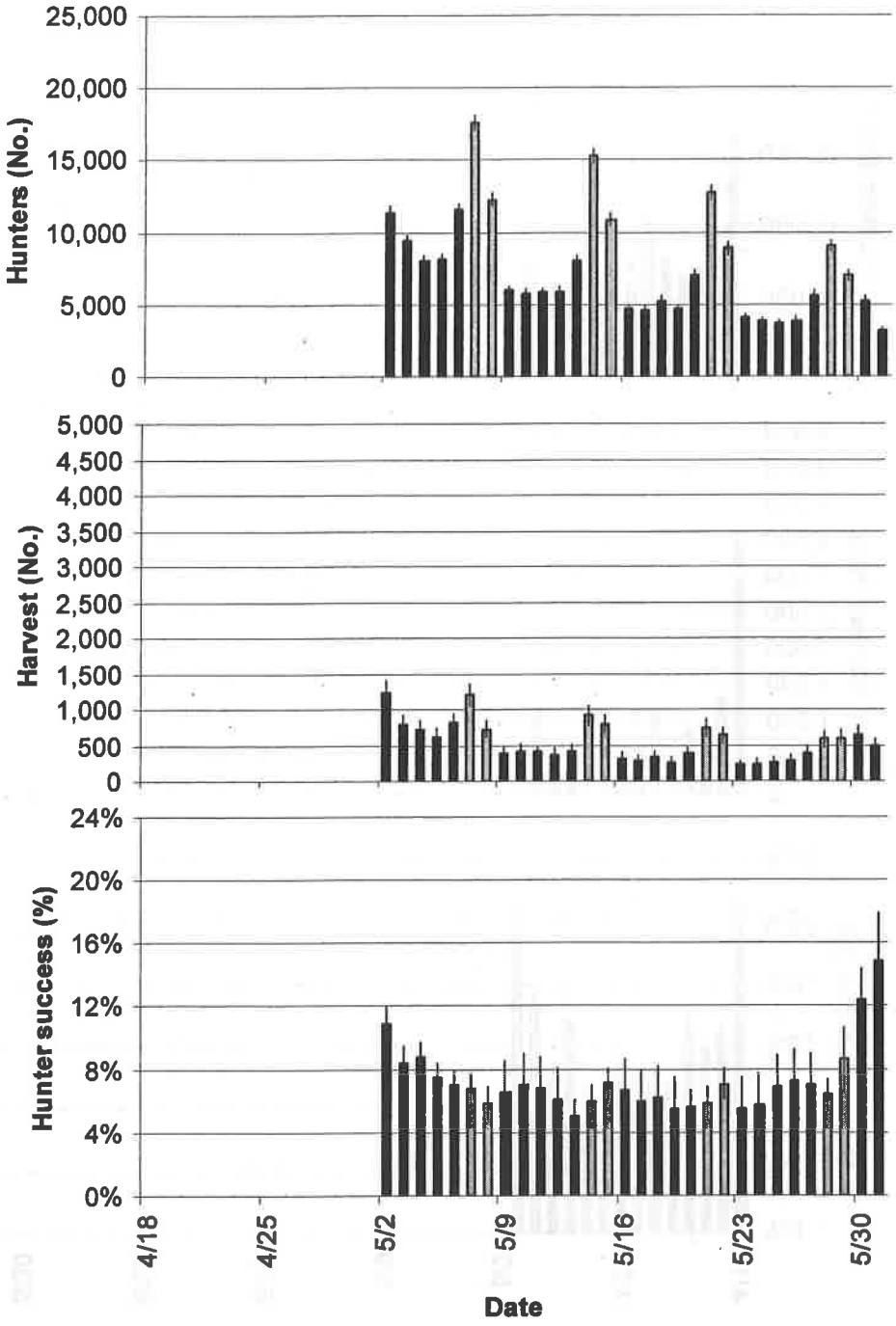


Figure 5. Estimated number of hunters, harvest, and hunter success by date during Hunt 234 of the 2005 spring turkey hunting season (May 2-31). An additional 654 ± 130 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

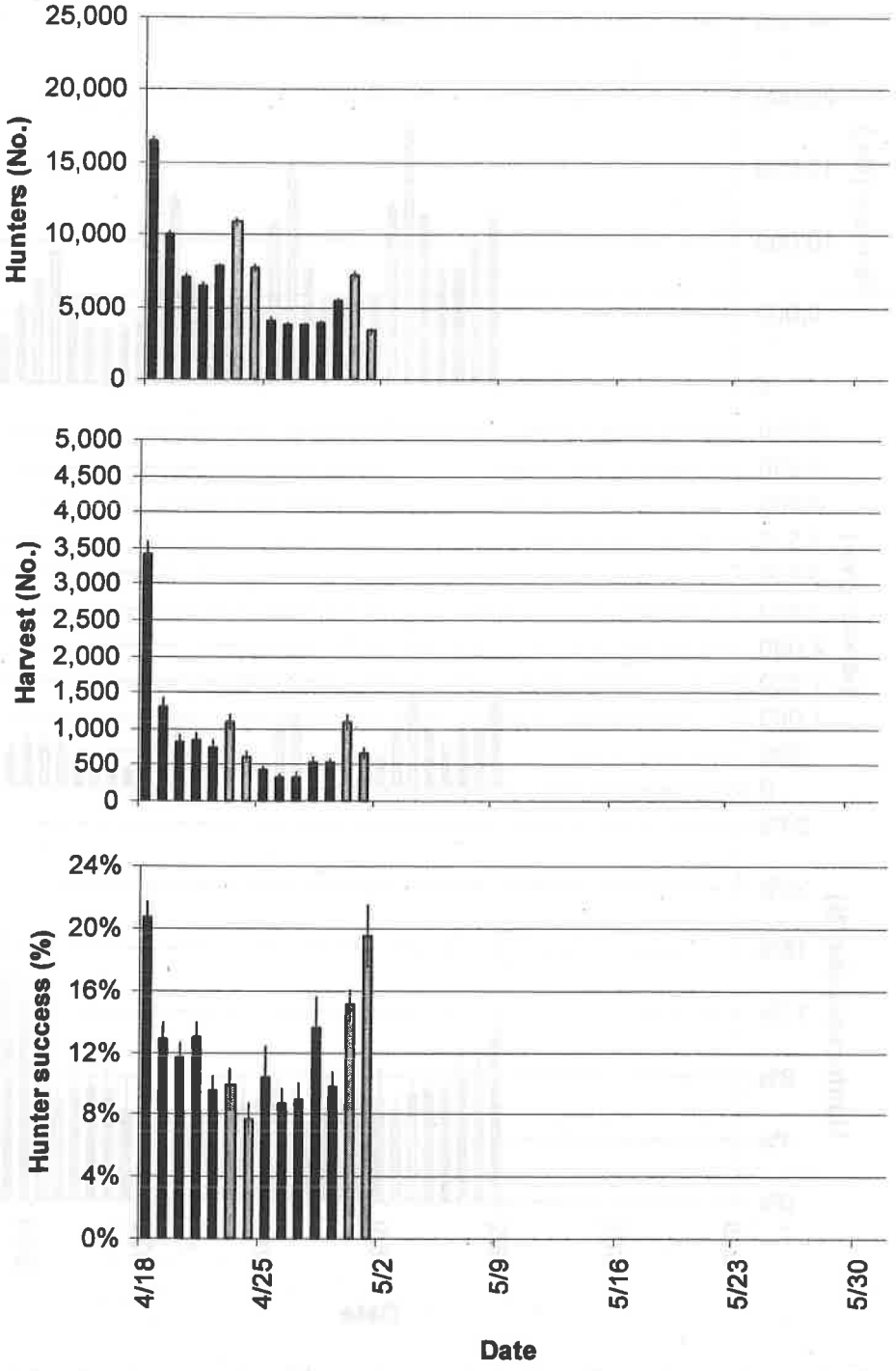


Figure 6. Estimated number of hunters, harvest, and hunter success by date during Hunt 301 of the 2005 spring turkey hunting season (April 18-May 1). An additional 516 ± 75 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

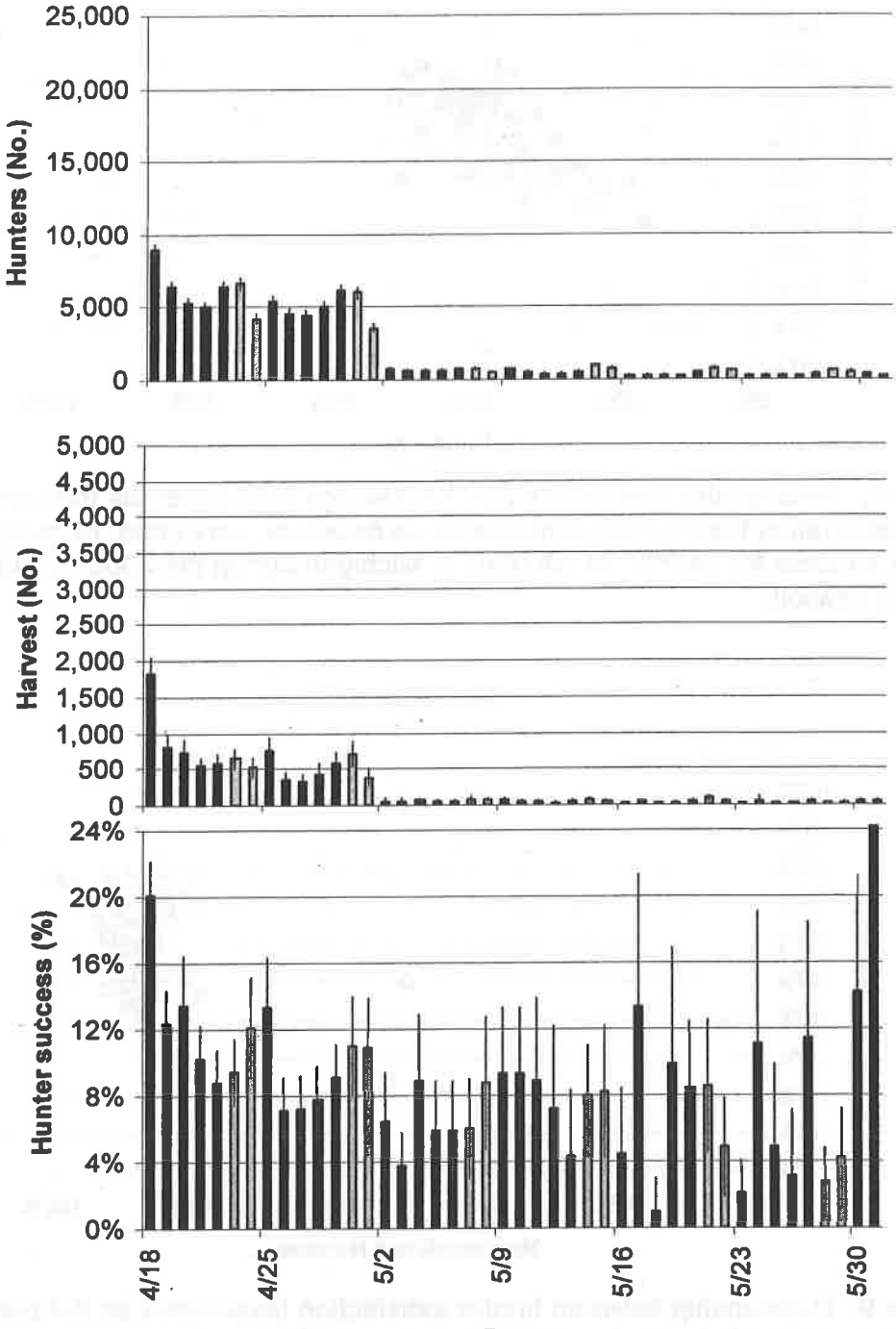


Figure 7. Estimated number of hunters, harvest, and hunter success by date during all hunts except hunts 234 and 301 of the 2005 spring turkey hunting season. An additional 359 ± 127 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

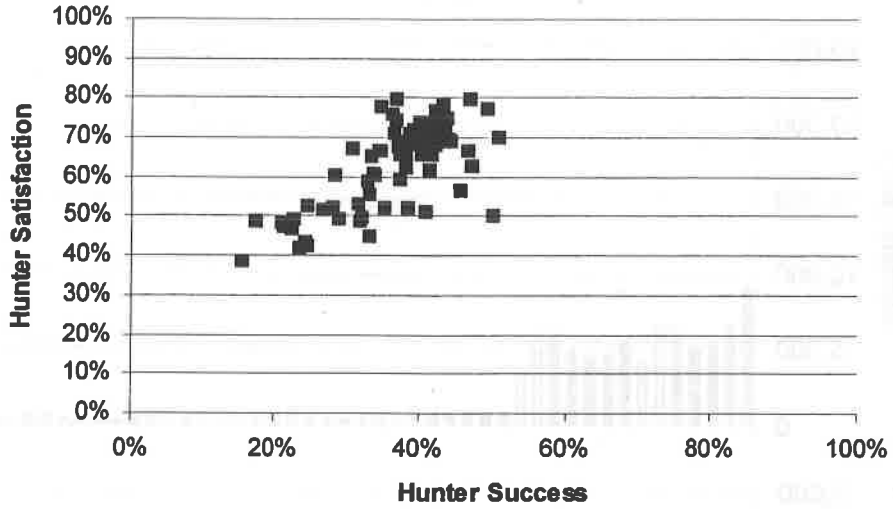


Figure 8. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter success for each of 74 counties in Michigan during the 2005 spring turkey hunting season.

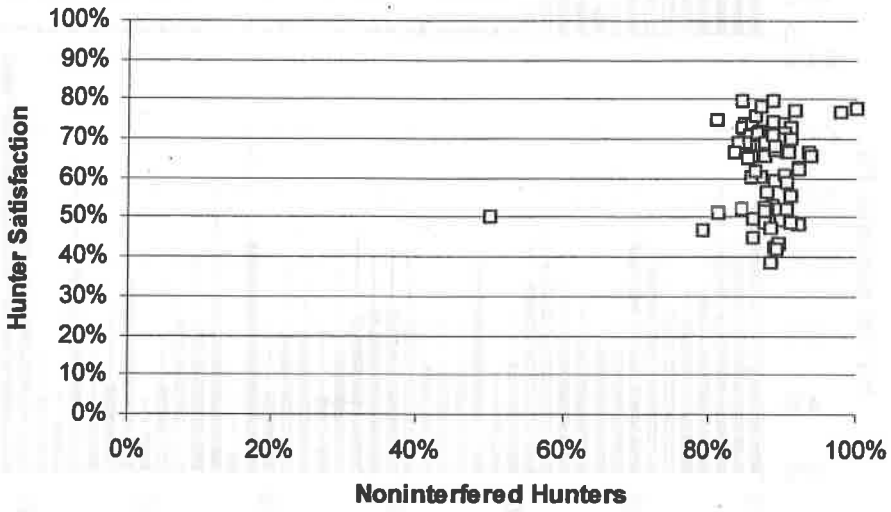


Figure 9. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter interference for each of 74 counties in Michigan during the 2005 spring turkey hunting season. Noninterfered hunters were the proportion of hunters that indicated that they experienced no or only minor interference from other hunters.

Minnesota Wild Turkey Status Report

2006 Midwest Deer and Turkey Study Group

Sharon Goetz
Wildlife Research Biologist
Farmland Wildlife Populations and Research Group
35365 800th Ave., Madelia, MN 56062
507-642-8478, ext. 224; sharon.goetz@dnr.state.mn.us

2005 FALL TURKEY SEASON

Minnesota's 16th annual either-sex fall turkey season took place from 12 October through 23 October (2, 5-day periods). There were 4,410 permits available in the 24 permit areas open to fall hunting, with a total of 4,542 applicants. Available permits increased by 30 permits from 2004 (4,380).

A total of 681 wild turkeys were registered for a success rate of 25% (Table 1). Harvest was down from 2004 (758) and from the 5-year average of 721. Females comprised 65% of reported harvest. Fifty percent of the harvest occurred during Season A (October 12-16), and 50% during Season B (October 19-23).

No hunting accidents were reported. There have been 2 non-fatal accidents reported in 16 fall seasons.

2006 SPRING TURKEY SEASON

Spring turkey hunting opportunities are now available in approximately half of Minnesota (Figure 1). The 29th annual spring gobbler season took place from 12 April through 25 May (6 5-day time periods and 2 7-day time periods). An archery permit was offered for the 2nd year during the last 2 times periods in any permit area with at least 50 permits per time period. This was the first spring season in which children less than 12 years of age could hunt wild turkeys if accompanied by an adult parent or guardian.

A total of 45,704 applications were received for the 32,624 available permits. There were 27,876 total regular permits and 2,801 archery permits issued. A total of 8,241 turkeys were registered in spring 2006 compared to 7,800 in 2005 (Table 1). There were 826 under age 12 applicants, 356 purchasers, and 71 turkeys harvested.

Juveniles made up 29% of the harvest. Overall hunter success was 29.6%, slightly higher than last year (28.2%) and slightly lower than the 5-year average of 31.1%. Hunters in the first 2 time periods had the highest success rates (39.3% and 39.1%, respectively), with lower success rates in subsequent time periods, following the 5-year trend.

No new turkey hunting accidents were reported during spring 2006. Twelve spring hunting accidents have been reported since 1978, none of which has been fatal.

2006 FALL TURKEY SEASON

The 2006 either-sex fall turkey season will take place from October 18-22 and October 25-29. A total of 4,290 permits are available in 32 permit areas.

2007 SPRING TURKEY SEASON

Permit levels will increase to over 34,000 for 2007. No new permit areas are opening. Permit levels in established permit areas are at the same levels or have slight increases from the spring 2006 season. The ability to choose a second choice permit area in one of the last 3 time periods and the archery permit will again be options.

TRAP AND TRANSPLANT PROGRAM

Trapping efforts this winter resulted in the successful capture of 119 wild turkeys in Minnesota. Six release sites were stocked, including the research study areas. Since 1976, over 4,600 turkeys have been trapped and released at more than 200 sites (Figure 2).

WILD TURKEY ACTION PLAN

We have revised the wild turkey action plan to address the northern extent of release efforts and the end of the trap and transplant program. The action plan includes both a 6-year management plan and a long-term strategic vision for the Minnesota wild turkey program. The action plan should receive final approval in 2006.

RESEARCH

Winter Survival Study

C. M. Kassube. 2005. Annual survival of wild turkey hens transplanted north of their ancestral range. Thesis, Saint Cloud State University, Saint Cloud, MN, USA.

Abstract: Wildlife managers have succeeded in establishing wild turkey populations north of the ancestral range. Little information is available on the survival of transplanted hens to guide management of these northern populations. In 2003 – 2005, I monitored survival of 109 radio-tagged hens in east-central Minnesota during two winters. I tested two hypotheses: 1) supplemental food increases winter survival of transplanted wild turkey hens; and 2) annual survivorship is similar between treatments because of increased predator abundance on supplemental food areas. Research was conducted during two mild winters. Winter survival of wild turkey hens was significantly higher on supplemental food study areas (95 – 100 %) than on control study areas (59 – 75 %). Summer survival was higher on control study areas than on supplemental food study areas making annual survival similar (35 and 33 % in 2004 and 44 and 51 % in 2005 respectively). Mammalian predation was the dominant cause of known mortalities. Relative predator abundance was higher on control study areas than on supplemental food study areas. Supplemental food study areas had more forest patches than the control study areas.

However, the mean forest patch size (ha) was greater on the control study areas. Supplemental food will not contribute to a population increase if hens that have higher survival during winter do not reproduce before being killed.

Turkey Hunter/Landowner Survey

A cooperative study conducted by Minnesota State University-Mankato (MSU) and MDNR, has been investigating relationships between hunter density, hunter interference, access to land for hunting, landowner concerns, and hunt quality. It has been determined that hunter interference at current levels (0-26%) was not a factor in determining hunt quality. MDNR should be able to increase hunting permits without reducing hunt quality. Still, wildlife managers in southeastern Minnesota have expressed concern that increasing hunter densities could negatively impact landowner tolerance of turkey hunters. Hunter and landowner surveys conducted in spring 2005 and 2006 will investigate hunter density in relation to hunter interference and landowner tolerance at varying hunter densities. Preliminary findings indicate that hunter densities in Minnesota have not reached a level to impact interference rates or landowner attitudes. The final report will be completed in December 2006.

Archery Survey

Legislation passed in 2004 allows resident and nonresident hunters to purchase an archery spring turkey license starting in the spring of 2005. The license is valid for the last 2 time periods (G and H) for any permit area with 50 or more permits per time period. There were 28 permit areas with at least 50 permits per time period for the spring 2006 season. For a second year a sample of the 2,801 hunters who purchased archery permits are currently being surveyed for the 2006 spring season to determine archer hunting location, and impact on hunter density and interference rates. Results of the 2005 survey indicate that archery hunters are well dispersed among the eligible permit areas and with the current number of purchasers do not seem to be impacting interference rates.

Northwest Research

Continued stakeholder interest in expanding wild turkey populations farther north in Minnesota has lead to concern by northern wildlife managers regarding the potential impact wild turkeys could have on stored hay or silage during winter months. Currently a research project is being conducted to monitor winter and annual survival, wild turkey habitat use, including the use of agricultural habitats to meet food and cover needs, and landowner perception and concern regarding use of agricultural lands by transplanted, radio-marked wild turkeys. In winter 2006 59 females and 19 males were released. Fourteen of the 59 hens were censored due to mortality <7 days post release. Sixteen hens remained alive at the end of March. In winter 2007 additional releases of radio-marked hens will be made to restore sample size. As currently planned, the project will end December 2007.

Table 1. Spring and fall wild turkey applications, permits, and harvest in Minnesota, 1978-2006.

Year	Spring Applications	Spring Permits Available	Spring Permits Issued	% of Available Issued	Spring Harvest	% Spring Hunter Success[a]	Fall Applications	Fall Permits Available	Fall Harvest
1978	10,740	420	411	97.9	94	22.9	-	-	-
1979	11,116	840	827	98.5	116	14.0	-	-	-
1980	9,613	1,200	1,191	99.3	98	8.2	-	-	-
1981	8,398	1,500	1,437	95.8	113	7.9	-	-	-
1982	7,223	2,000	1,992	99.6	106	5.3	-	-	-
1983	8,153	2,100	2,079	99.0	116	5.6	-	-	-
1984	7,123	3,000	2,837	94.6	178	6.3	-	-	-
1985	5,662	2,750	2,449	89.1	323	13.2	-	-	-
1986	5,715	2,500	2,251	90.0	333	14.8	-	-	-
1987	6,361	2,700	2,520	93.3	520	20.6	-	-	-
1988	8,402	3,000	2,994	99.8	674	22.5	-	-	-
1989	13,007	4,000	3,821	95.5	930	24.3	-	-	-
1990	14,326	6,600	6,126	92.8	1,709	27.9	4,522	1,000	326
1991	15,918	9,170	8,607	93.9	1,724	20.0	2,990	2,200	552
1992	16,401	9,310	9,051	97.2	1,691	18.7	2,782	2,200	588
1993	17,800	9,625	9,265	96.3	2,082	22.5	3,186	2,400	605
1994	19,853	9,940	9,479	95.4	1,975	20.8	3,124	2,500	601
1995	21,345	9,975	9,550	95.7	2,339	24.5	3,685	2,500	648
1996	23,757	12,131	10,983	90.5	2,841	25.9	4,453	2,500	685
1997	25,958	12,530	11,610	92.7	3,302	28.4	4,574	2,580	698
1998	29,727	14,035	13,229	94.3	4,361	33.0	4,526	2,710	828
1999	39,957	18,360	16,387	89.3	5,132	31.3	5,354	2,890	865
2000	42,022	20,160	18,661	92.6	6,154	33.0	5,263	3,090	735
2001	41,048	22,936	21,404	93.3	6,383	29.8	4,501	2,870	629
2002	42,415	24,136	22,607	93.7	6,516	28.8	5,180	3,790	594
2003	44,415	25,016	22,770	91.0	7,666	33.7	5,264	3,870	889
2004	48,059	27,600	25,261	91.5	8,434	33.4	5,878	4,380	758
2005	49,181	31,748	27,638	87.1	7,800	28.2	4,542	4,410	681
2006	45,704	32,624	27,876	85.4	8,241	29.6			

[a] Success rate not adjusted for non-participants.

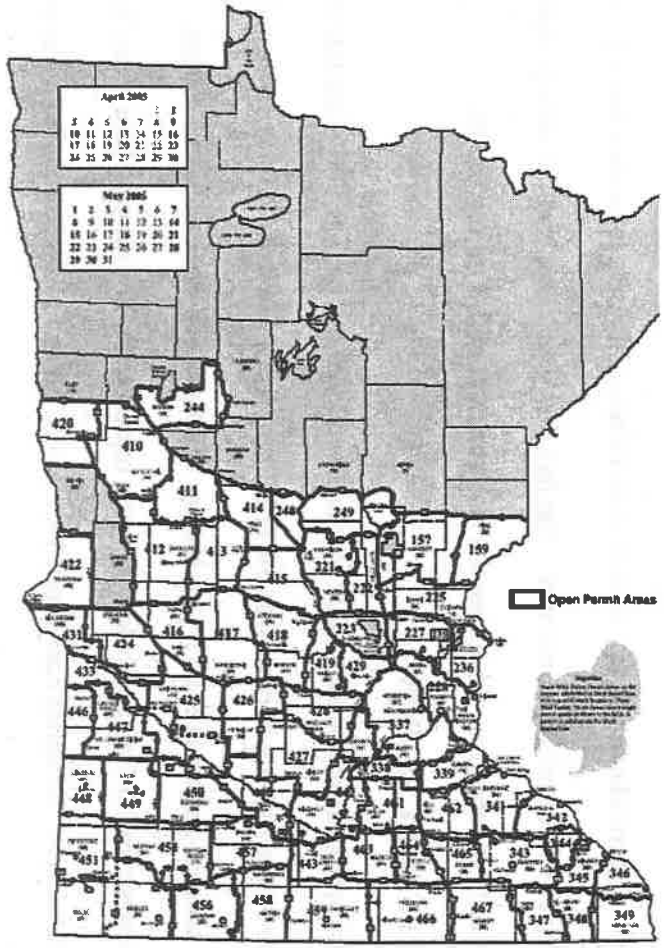


Figure 1. Wild turkey permit areas in Minnesota open to spring hunting in 2006.

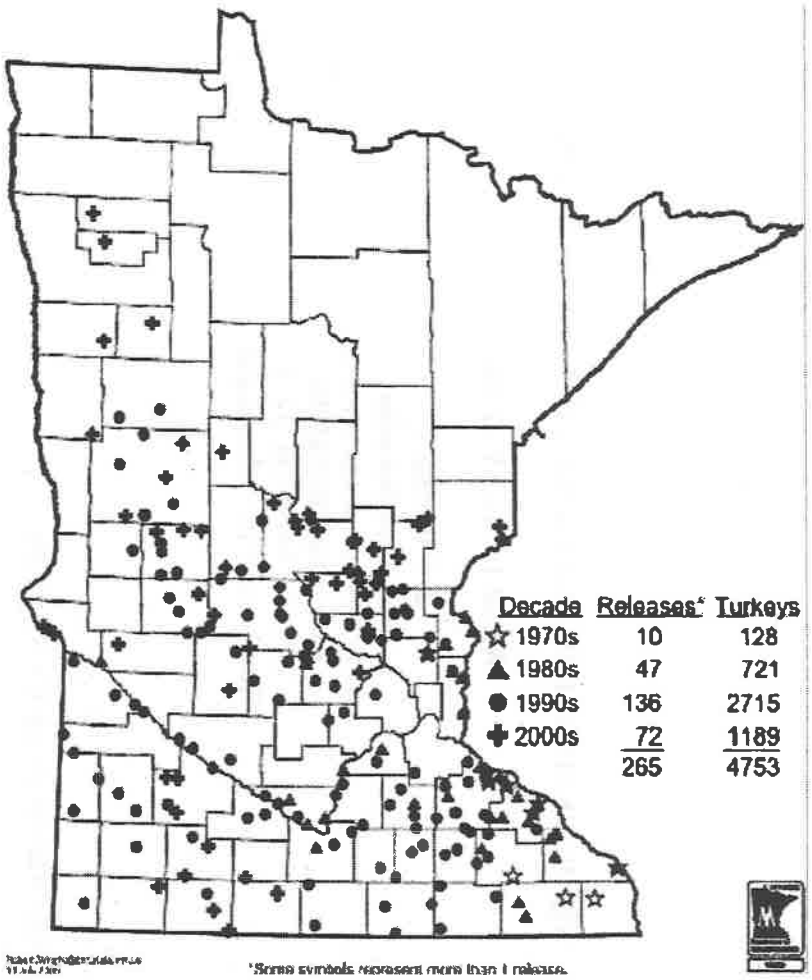


Figure 2. Wild turkey release sites in Minnesota from 1976-2006.

WILDLIFE HARVEST AND POPULATION STATUS REPORT

WILD TURKEY - 2006

Jeff Beringer
Resource Scientist
1110 South College Avenue
Columbia, MO 65201
573-882-9909 Ext. 3211
jeff.beringer@mdc.mo.gov

2006 FALL FIREARMS TURKEY SEASON

The fall 2006 harvest was 11,927 birds with approximately 50% of the harvest composed of juveniles (Table 1). This harvest was a 10.4% decrease compared to last year. Permit sales to residents were 23,141, a 10% decrease from last year. Nonresident permit sales were similar to last year. Historically, participation in the fall turkey season was tied to summer poult production; e.g., when production is up, permit sales increase. Permit sales may have decreased slightly as a result of free landowner permits. The fact that youth deer and fall turkey seasons overlapped probably reduced harvest during the last weekend of fall turkey season.

2006 SPRING TURKEY SEASON

The 2006 spring turkey season again topped the 50,000 mark. The 2006 (including the 2-day youth season) spring harvest was 54,712 birds, down 5% from 2005's harvest (Table 2) but still the seventh-largest in the 47-year history of Missouri's modern turkey season. Unfavorable weather for hunting and below-average reproduction for the past four years held down this year's harvest. Juveniles comprised 19% of the harvest reflecting the below average

hatch in 2005. Spring was early, again, and by the 3rd week green-up was complete statewide. Gobblers were with hens during the early part of the season, and many hunters reported difficult hunting conditions during the 3rd week. Total permit sales for spring turkey hunting were 114,529. Overall 159,662 permits were distributed including 44,630 landowner permits. Previously we did not require landowners to purchase or obtain a permit and therefore landowner numbers were unknown. During spring of 2006 about 10% of landowners also purchased a statewide spring turkey permit. Therefore our estimated number of turkey hunters (including landowners) is 155,000 (Table 2). The number of nonresident turkey hunting permits issued was 10,158, a slight increase from 9,614 in 2005.

Top harvest counties in 2006 were Texas, where hunters bagged 946 turkeys, Franklin with 902 and Macon with 873. Regional totals were: Northeast, 8,436; Central, 7,577; Northeast, 7,308; Southwest, 6,504; Kansas City, 6,336; Ozark, 6,120; Southeast, 4,771; and St. Louis, 3,966.

2006 BROOD SURVEY

The 2006 statewide poult to hen ratio was 1.6 poults per hen (Figure 1) which was lower than the 47-year average of 2.4 poults per hen and 15% below the previous 10-year average of 1.9 poults per hen (Figure 2). We did receive reports of large and plentiful broods from individual cooperators but region wide estimates were not as robust. A poult to hen ration of 1.6 should maintain a stable population and these lower reproductive numbers are normal for a population that is no longer expanding.

Variation among turkey production regions was evident in the 2006 poult to hen ratios (Figure 1) with better production in the eastern Ozarks likely resulting from the abundance of

mast during 2005.

POPULATION STATUS

Since 1983, volunteer archers have recorded the number of wild turkeys, deer, and furbearers seen while bowhunting during October and November. On a statewide basis, the number of wild turkey sightings per 1,000 hours of bowhunting in 2005 was 480. This number is slightly below the previous 15-year average (511) and may reflect lower populations. The bumper mast crop during fall of 2005 likely reduced turkey use of open areas and movements and may also have contributed to reduced sightings by archers. Populations are in good shape throughout the state although hunters during the 2005 spring season encountered fewer jakes.

Spring turkey harvest, age structure in the spring harvest, population indices, hunter success, and hunter opinions and attitudes provide the information needed to determine whether spring turkey hunting quality is being impacted. These variables are being monitored closely.

RESTORATION

Restoration has been complete in Missouri since 1979. However, parts of Southwest Missouri have had a history of low turkey densities despite reasonably good habitat. Local staff theorized that poaching and other mortality pressures were such that the depressed turkey population was unable to rebound. We released 360 birds (100 gobblers, 260 hens) at 13 sites during winter 2001-2002 in an attempt to "flood" the area with birds thus enabling them to bring off a hatch that was greater than yearly losses. Local landowners and residents believe the release has been a success. During winter 2004-05 we released <50 birds in the Bootheel Region of Missouri in an attempt to increase local bird populations. Last winter a small number of birds were relocated to the bootheel region.

REGULATION CHANGES

During the 2005 spring season, we evaluated an operational telephone and internet checking system (telecheck) for turkey harvest. For the 2005 spring season, hunters could check turkeys either by telecheck or in-person. This operational test followed a pilot study in which we compared harvest rates and composition between a group of telecheck hunters and a control group. Harvest rates and composition were similar for the 2 groups. Given the success of the pilot study and the operational test, check stations were eliminated for the 2005 fall turkey season and beyond. This past spring all harvested turkeys were checked by telephone or computer with little problems and just a few complaints. Harvest totals by county, region, and statewide were available almost instantaneous ly and this was very useful for responding to requests from the public. One caveat associated with telecheck, though, is the quality of biological data obtained through citizen reporting. We use the distribution of reported spur lengths as an indicator of age distribution among adult gobblers. Telecheck-obtained spur lengths appear to have a significant brag bias – that is, a large proportion of hunters are reporting longer spur lengths than we obtained through in-person checking. During 2006 regional spur length data suggested near or over 80% of harvested adult gobblers had spur lengths greater than 1" suggesting most harvested birds were 3 years or older. Previous regional proportions of birds with spur lengths over 1" were between 50 and 60%.

Our Conservation Commission recently approved an opening day formula change for the spring turkey season. Previously the opening day of spring turkey season was the Monday closest to 21 April. The new opening date formula is the 3rd Monday in April. The formula

change was an attempt to balance hunter desires with the biology of turkey reproduction. The 3rd Monday formula will result in an earlier season opener during 8 years and a similar opening date as the previous formula during 12 of the next 20 years. Youth season will open earlier 7 of the next 20. During 3 of the next 20 years the opening date of the youth season will occur on 31 March in order to avoid conflict with Easter.

Background for spring formula change: This past spring we conducted a series of informational lectures/presentations in Southern Missouri. The intent of the presentations was to explain our turkey management program – including season timing, opening dates and harvest structure. While the presentations were well received the overwhelming theme among south Missouri hunters was that the spring season opening date is too late and results in a poorer quality hunt. Besides feedback from these meetings we have received a significant number of emails, phone calls, and letters requesting that we "move the season to early April."

TABLE 1. Fall firearms turkey season harvest and permit sales, 1986-2006.

Year	Fall Firearms Harvest	% Change From Previous Year	Fall Permit Sales	% Change From Previous Year
2006	11,927	-10	23,141	-10
2005	13,233	+12	25,805	+11[e]
2004	11,824	+3	23,215	-21
2003	11,436	-20	28,108	-10
2002	14,392	+6	31,329	+1.2
2001	13,596	+3	30,949	-3.2
2000	13,230	-9.7	31,968	-2.0
1999	14,651	-4.5	32,606	0.0
1998	15,343	+29.3	32,593	-3.5[d]
1997	11,866	-10.2	33,765	-2.2[c]
1996	13,207	-4.8	34,522	+2.6[c]
1995	13,866	-30.2	33,642	-12.6
1994	19,869	+46.4	38,424	+11.8
1993	13,569	-20.4	34,379	-4.6
1992	17,061	-13.8	36,033	-3.8
1991	19,788	+23.6	37,469	+1.0
1990[b]	16,015	-27.6	37,080	-21.0
1989	22,131	-4.1	46,946	-7.4
1988	23,080	-18.0	50,715	-4.2
1987	28,139	+33.9	52,922	+13.4
1986[a]	21,019	+72.6	46,688	+28.9

[a]Bag limit was increased from 1 to 2 birds.

[b]Permit fee increase.

[c]New permit types in 1996 and 1997 (all conservation and all hunting) that include fall firearms turkey hunting privileges make comparisons with other years less meaningful. Although permit sales went up in 1996 and 1997 when compared with 1995, a higher proportion of permit buyers (those buying the all conservation and all hunting permit types) did not hunt. These permit types were eliminated in 1998.

[d] All conservation and all hunting permit types eliminated.

[e] In 2005 fall turkey regulations were liberalized to allow hunters to take both fall birds on the same day

TABLE 2. Spring turkey season harvest and permit sales, 1985-2006.

Year	Spring Harvest	% Change From Previous Year	Percent Success[b]	Spring Permit Sales	% Change From Previous Year
2006	54,712	-5.2	31	114,529[g]	+32
2005	57,743	-5.2	35	120,215	-3.5
2004	60,744	+3.9	35	124,533	- 4.2
2003	58,421	+2.4	38	130,021	+3.8
2002	57,034	-1.3	39	125,157	+6.3
2001	57,842[e]	+1.7	37	117,736[f]	+2.2
2000[a]	56,841	+13.0	39	115,190[f]	+3.8
1999[a]	50,299	+3.8	37	110,939[f]	+5.1
1998[a]	48,462	+45.9	36	105,518	+5.6
1997	33,216	-12.4	27	99,933	+0.1
1996	37,708	+0.3	30	99,879	+0.5
1995	37,472	-1.2	31	99,412	+8.8
1994	37,721	+9.8	33	90,810	0.0
1993	34,354	+4.0	30	89,899	+0.1
1992	33,035	+2.5	30	89,803	+0.8
1991	32,237	+7.3	29	89,077	-3.3
1990[c]	30,056	-15.6	27	92,093	-0.9
1989	35,618	+7.3	31	92,901	-1.5
1988	33,187	-7.7	29	94,301	+10.0
1987	35,951	+16.1	33	85,723	+9.9
1986	30,965	+25.0	31	77,972	+10.3
1985[d]	24,770	-	25	69,945	-

[a]Three week season, 2 bird bag limit with only 1 the first week and only 1 per day
[b]Percent of permittees who hunted who killed at least 1 bird.
[c]Permit fee increase.
[d]Two week season, 2 bird bag limit, 1 bird per week
[e]Includes 2 day Youth-only spring season
[f]Includes Youth Deer and Turkey hunting permits issued by end of spring turkey season
[g]Beginning 2006 permit totals include landowner permits for resident and nonresidents, we estimate that 10% of landowners also purchase a statewide permit, total permits distributed were 159,529

Lindley Breaks	1.5	Ozarks East	2.2
Mississippi Lowlands	3.1	Ozarks West	1.6
Northeast	1.6	Union Breaks	1.7
Northwest	1.4	West Prairie	1.1
Ozark Border	1.3	Statewide	1.6

Figure 1. Poult:hen ratios for Missouri turkey production regions, 2006.

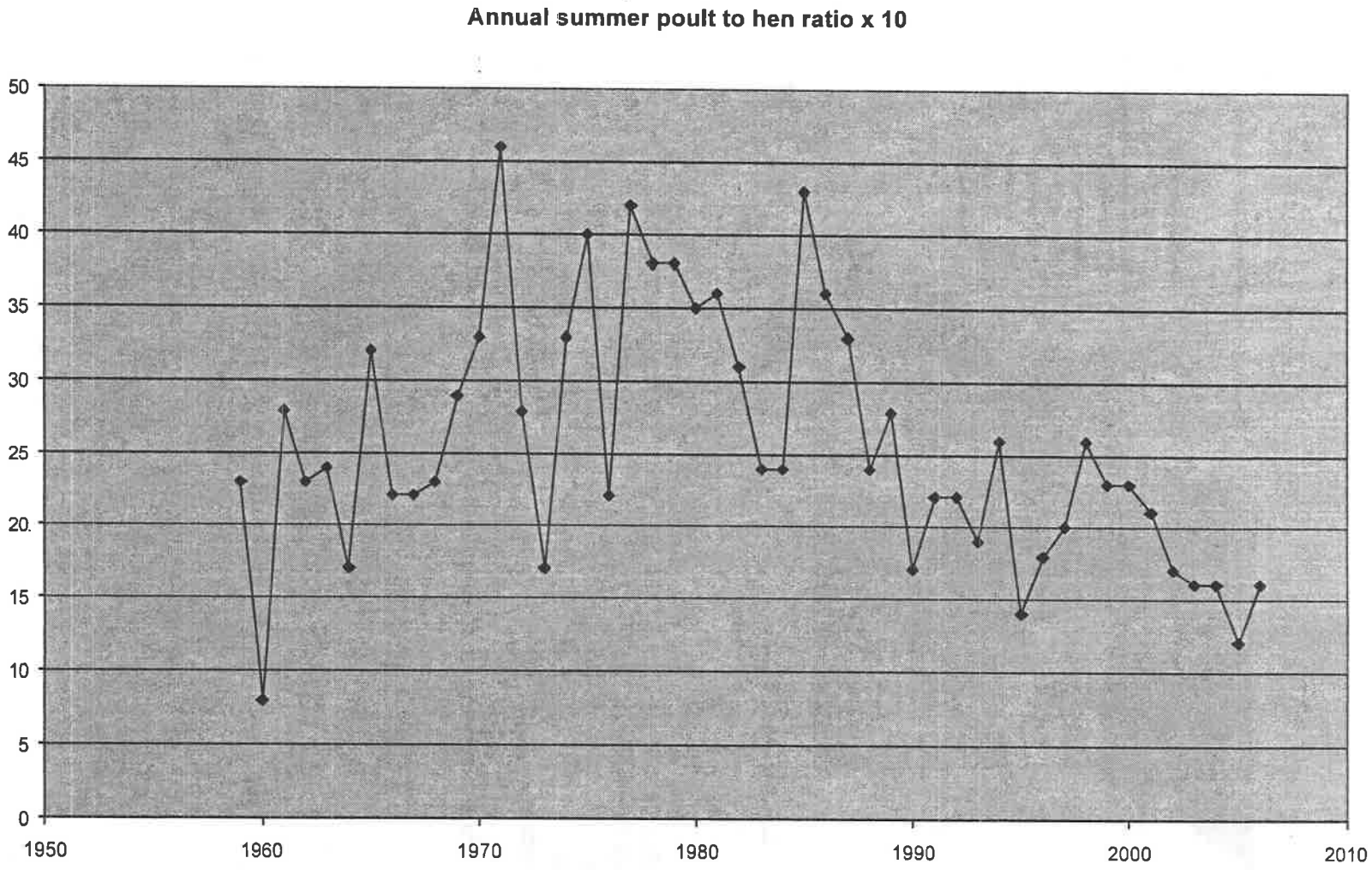


Figure 2. Historical statewide estimates of poult to hen ratios (x10).

NEBRASKA STATUS REPORT

MIDWEST DEER AND TURKEY GROUP

Bloomington, Indiana, August 20-23, 2006

Submitted by the State of Nebraska
Nebraska Game and Parks Commission - Wildlife Division
Research, Analysis and Inventory Section
Supervisors: Mace A. Hack and J. Scott Taylor

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.

Acknowledgments

This document represents work done on behalf of the Wildlife Division of the Nebraska Game and Parks Commission. Data collection for many statewide or regional surveys and projects was coordinated by the Wildlife Division's Management Section, whereas most survey and project design, data entry, analysis, and summarization was performed by the Division's Research, Analysis, and Inventory Section. Project work was also supported by the Wildlife Division's Habitat Partners, Disease, and Administrative Sections, as well as by staff in the Law Enforcement, Fisheries, Realty, and Administration Divisions.

Project: General Disease Testing and Surveillance

Objectives: To monitor and document the presence of diseases, parasites, and other anomalies that occur in wildlife populations and to initiate necessary steps to reduce their impacts on populations.

Activities and Results: Two papers were published from previous research, "A Survey of Infectious Diseases and Parasites in Wild Turkeys from Nebraska" and "Prevalence of Agglutinating Antibodies to Toxoplasma gondii in Adult and Fetal Mule Deer (Odocoileus hemionus) From Nebraska."

Several instances of disease and parasite occurrences were investigated and monitored. Of the six deer checked for West Nile Virus, all of them tested positive. A sample of wild ring-necked pheasants was also examined this year. The total number of species of pheasant parasites was less than ten. The predominant species was a nematode, *heterakus gallinarum*. Non-native pheasants appear to have less than half of the total number of parasite species found in prairie grouse, which were sampled earlier. Predominant parasite species in both pheasants and grouse were nematodes, whereas predominant species in previous samples of wild turkeys were tapeworms. Unlike turkeys, which had nearly 100% prevalence of internal parasites, parasites were found in approximately half of the grouse and were even less prevalent in pheasants.

West Nile Virus (WNV) collection was continued again this year. We assisted in collecting crows, blue jays, magpies, and raptors for WNV analysis. Of the 676 birds tested, 148 tested positive, and of the 61 species tested 16 species were positive. Ninety-nine out of 181 blue- jays and crows tested positive. One hundred and eight raptors were tested with 29 positives. This year great horned owls were only 3 positives out of 25 birds, the highest rate of positives was for American kestrels (7/12) and red-tailed hawks (11/29). Other species testing positive were Cooper's hawk (4/12), eastern screech owl (2/16), prairie falcon (1/1), and sharp-shinned hawk (1/2). We have also examined coyotes, fox squirrels and several deer that had antibodies to WNV. Local squirrels populations may have been affected, but otherwise it did not seem to affect wild populations of game birds and mammals. We will monitor for WNV again next year.

Several opportunistic samples were also examined for disease. A dead trumpeter swan was found to have had a congested liver, but no salmonella, other bacteria, or WNV was found. Two dead quail tested negative for WNV. Several dead geese were turned in for examination, and they were determined to have died from a lightning strike. Three raccoons were examined for rabies, which was not present; one had canine distemper and another had *Salmonella newport* and *Rhodococcus* spp. A road-killed mountain lion was picked up near the Gretna exit on Interstate 80 and examined. It was > 2-year-old male and was found to have been hit by another vehicle a month or so earlier.

Job E1: Wild Turkey Inventories (B. Trindle)

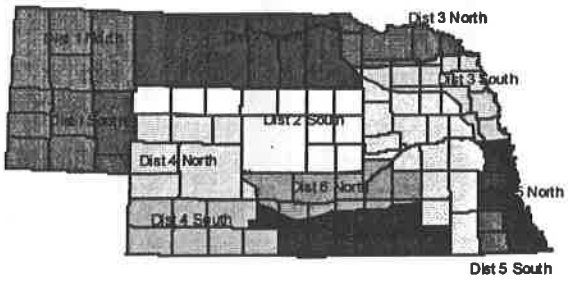
Project: Summer roadside turkey observations.

Objectives: To obtain information on population levels and productivity of wild turkeys across Nebraska.

Activity: Turkey observations were recorded between July 1 and August 31, starting at sunrise and continuing for 3 to 4 hours depending on the amount of habitat to be covered. A north and south region was designated for each Management District. Observers skilled in the identification of turkey sex and age groups were selected to count turkeys within each region. Observations included miles driven, toms, hens and young. Care was taken not to duplicate observations.

Regions:

Turkey Observation Regions

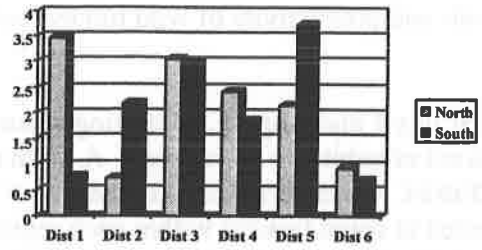


Results: Observers logged 6,100 miles recording 4,607 turkeys statewide in 2005 (Table 1), compared to 6,546 miles and 4,112 turkeys in 2004. The statewide average was 1.71 young/hen and .76 birds/mile compared to 1.84 young per hen and .63 birds/mile in 2004. The highest production observed was in the south unit of District 3 at 3.54 young/hen and the lowest was in the north unit of District 6 at 0.58 young/hen.

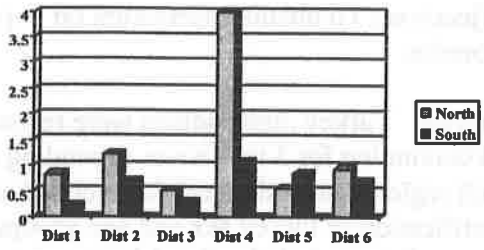
Discussion: Effort and observations were comparable to last year's survey. This is an indication that the survey will be able to provide an estimate of production and relative abundance that can be compared from one year to another for each District. All of the regions, except District 5 North, were able to observe enough hens and young (200 – 300) to detect a 5% change in production next year.

Recommendations: It is recommended that a category for unknown observations be added to better estimate birds per mile within regions.

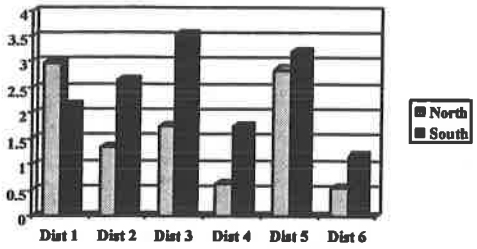
Young/Hen
2004



Birds/Mile
2004



Young/Hen
2005



Birds/Mile
2005

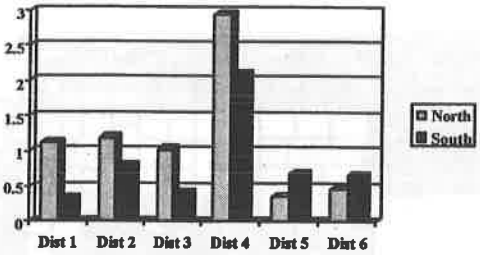


Table 1. Summer roadside turkey observations, 2005.

District	Region	Miles	Toms	Hens	Young	Total	Yng/Hen	Birds/Mile
1	North	378.2	74	87	259	420	2.98	1.11
1	South	681	40	56	120	216	2.14	0.32
2	North	461	41	216	289	546	1.34	1.18
2	South	583	108	96	255	459	2.66	0.79
3	North	768.3	162	226	393	781	1.74	1.02
3	South	1037	72	78	276	426	3.54	0.41
4	North	101.2	30	165	104	299	0.63	2.95
4	South	176	95	100	176	371	1.76	2.11
5	North	265	15	20	57	92	2.85	0.35
5	South	439	72	55	177	304	3.22	0.69
6	North	566.4	58	132	77	267	0.58	0.47
6	South	644.4	103	149	174	426	1.17	0.66
Totals	Statewide	6100.5	870	1380	2357	4607	1.71	0.76

Job E2: Collection and Analysis of Turkey Harvest Data (K. Hams)

This job is designed to obtain information regarding harvest level, distribution, and composition during Nebraska's two turkey hunting seasons: spring and fall.

Project: Spring Turkey Harvest

Objective: To estimate total harvest, hunter success, hunting effort, distribution of kill and the sex/age composition of the spring turkey harvest.

Activity: Within 1 month of the season's close, we send a mail survey to 15% of the spring turkey hunters. Agency staff enter and compile results. If possible, non-response bias is estimated with a 2nd mailing or a telephone survey, and then used to adjust harvest estimates. Season dates for 2005 were March 25 - May 22 for Statewide Archery; April 16 - May 22 for the West; April 16-24 for East Missouri Early; April 25 - May 22 for East Missouri Late.

Significant deviations : None.

Results: The spring 2005 harvest was estimated from 4,295 post card surveys sent to 15% of 28,581 permit buyers; 1,834 cards (42.7%) were returned. One mailing was conducted (Table 1). Non-response bias was estimated from prior years' surveys and applied to the results. Persons who did not respond were considered to be 0.789 as successful as those who did respond. Non-hunters were considered to be 1.709 times greater among non-respondents.

Table 1. Questionnaire mailings, returns, success, and non-hunters.

Unit	Permits	Mailed	Sample	Returns		Successful*		Did not Hunt	
			Rate	No.	%	No.	%	No.	%
Missouri East Early	2,238	365	16%	168	46	93	55	12	6
Missouri East Late	3,834	560	15%	221	40	105	48	15	7
West	15,635	2,350	15%	1,047	45	697	67	24	2
Youth	1,525	230	15%	83	36	51	61	2	2
Total Shotgun	23,232	3,495	15%	1,519	43	946	62	53	3
Archery	5,349	800	15%	315	39	159	51	3	1

*Not adjusted for nonresponse bias.

A total of 28,581 spring turkey permits was issued with an estimated harvest of 14,782 turkeys. Shotgun success was estimated at 54%, with 12,442 turkeys taken by hunters with 23,232 permits. Archery success was estimated at 44%, with 2,340 birds taken by 5,349 archers. Three percent of permit buyers did not hunt. Success of active hunters was 54%.

A youth permit and season was added in 2005, which allowed youth age 12-15 hunt during both the shotgun and archery season and which also allowed shotgun hunting the

week before the regular shotgun season. This season was popular and 1,525 youth permits were issued.
Harvest statistics for the 2004 and 2005 season are provided in Table 2.
Permit sales and harvest are at all time record highs and reflect the continued growth in the statewide turkey population over the past 5 years (Table 3).

Table 2. Turkey permits, hunters, harvest, and success**, 2005 and 2004.

Unit	Permits		Hunters		Harvest		% Success	
	2005	2004	2005	2004	2005	2004	2005	2004
East Missouri E	2,238	2,262	2,017	1,941	1,046	951	47	42
East Missouri L	3,834	4,182	3,463	15,510	1,518	1,575	40	38
West	15,635	16,447	15,136	15,510	9,077	8,495	58	52
Youth	1,525	na	1,472	na	801	na	53	na
Total Shotgun	23,232	22,891	22,088	21,191	12,442	11,021	54	48
Archery	5,349	4,759	5,276	4,605	2,340	1,837	44	39

** Adjustments made for nonresponse bias.

Table 3. Spring Turkey Archery and Shotgun Success**, 2000-2005.

		2000	2001	2002	2003	2004	2005
Archery	Permits	3,662	3,624	3,641	4,100	4,759	5,349
	Harvest	1,162	1,047	1,104	1,483	1,837	2,340
	% Success	32	29	30	36	39	44
Shotgun	Permits	15,768	18,133	18,859	19,678	22,891	23,232
	Harvest	6,650	7,262	7,998	8,627	11,021	12,442
	% Success	42	40	42	46	48	54

Wing feather sample collections ceased after 2004. Hunters were asked on the survey card to if they harvested a juvenile or adult male. Reported ages were 26% juvenile (hatched in 2004) and 74% adult. Results were the same for east and west units. The proportion of juveniles harvested in previous years has ranged from 23% to 44% and is reported in Table 4.

Table 4. Percent juvenile toms, 1996-2005.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
% Juvenile	28	32	33	27	23	45	44	35	28	26

Harvest distribution by county is estimated from county of kill on 566 cards. Fifty percent of the reported harvest occurred in 14 of Nebraska's 93 counties. Harvest for the top counties was as follows: Lincoln 8%, Knox 8%, Dawes 5%, Holt 4%, Custer 4%, Cass 3%, Pawnee 3%, Harlan 3%, Boyd 3%, Keya Paha 3%, Johnson 2%, Jefferson 2%, Antelope 2% and Washington 2%.

Discussion: Spring harvest figures for 2005 concur with population inventory data (e.g. rural mail carrier survey, see below) and indicate that turkey populations in Nebraska are at record high levels. Spring harvest has tripled in size over the past 10 years, yet the turkey population could likely sustain significantly more hunting pressure over most of the state (except Panhandle). Population inventory data suggest a tripling in the statewide populations since just 2000. Non-response data currently in use are several years old and may not be accurate. Hunters frequently provide incorrect feathers for determining the age of hunter-killed birds.

Recommendations: Gather current data on nonresponse bias by hunters who do not return survey cards. Investigate email survey for estimating harvest and increasing sample size. Improve hunter ability to differentiate sex and age of turkeys by providing better information on feather identification. Collect additional county data for better data on distribution of kill.

Project: Fall Turkey Harvest

Objective: To estimate total harvest, hunter success, hunting effort, distribution of kill and the sex/age composition of the fall turkey harvest.

Activity: Within 2 months of the season's close, we send a mail survey to 2000 fall turkey hunters. Agency staff enter and compile results. If possible, non-response bias is estimated with a 2nd mailing or a telephone survey, and then used to adjust harvest estimates.

Significant deviations : None.

Results: 2005 was the second year of a statewide shotgun season. The shotgun season was extended to the end of November (+10 days) in 2005. Statewide archery season ran from October 1 to November 30 and shotgun season from October 23 to November 30. Both seasons were closed during the 9-day November firearm season.

Harvest was estimated from 2,000 post cards surveys sent to 24% of 8,437 permit buyers. A total of 922 cards (46.1%) was returned. One mailing was conducted (Table 1). Non-response data from previous years were used to adjust harvest estimates. Persons who did not respond were considered to be 0.789 as successful as those who did respond. Nonhunters were 1.709 times greater among nonrespondants.

Table 1. Questionnaire mailings, returns, success, and non-hunters.

Unit	Permits	Mailed	Sample Rate	Returns		Successful*		Did not Hunt	
				No.	%	No.	%	No.	%
Total Shotgun	7,415	1,500	20%	686	45	393	57	56	8
Archery	1,022	500	49%	236	47	75	32	26	11
Total	8,437	2000	24%	922	46				

*Not adjusted for nonresponse bias.

A total of 8,437 fall turkey permits was issued and produced an estimated harvest of 3,816 turkeys. Shotgun success was estimated at 48% with 3,565 turkeys on 7,415 permits. Archery success was estimated at 25% with 251 turkeys taken on 1,022 permits (Table 2).

Table 2. Turkey permits, hunters, harvest, and success**, 2005 and 2004.

Unit	Permits		Hunters		Harvest		% Success	
	2005	2004	2005	2004	2005	2004	2005	2004
Shotgun	7,415	7,199	6,577	6,592	3,565	3,691	48	51
Archery	1,022	1,125	867	999	251	255	25	23

** Adjustments made for nonresponse bias.

Total permit sales and harvest increased 1% in 2005 compared to a 17% increase in 2004. Fall permit numbers are approaching the historic highs recorded in 1989 when 8,604 permits were issued. During this same 15-year interval, spring permit sales have more than tripled. Fall harvest and permit sales for 2000-2005 is shown in Table 3.

Table 3. Fall Turkey Archery and Shotgun Success**, 2000-2005.

		2000	2001	2002	2003	2004	2005
Shotgun	Permits	5,442	5,747	5,671	6,030	7,199	7,415
	Harvest	2,380	2,864	3,013	3,076	3,691	3565
	% Success	44	50	53	51	51	48
Archery	Permits	896	824	911	1,041	1,125	1,022
	Harvest	122	203	229	229	255	251
	% Success	14	25	25	22	23	25

The 2005 fall season provided about 28,000 man-days of recreation (Table 4).

Table 4. Average and total days hunted by unit.

	Average Days Hunted				Total Days Hunted		Hunter Days Per Bird	
	Successful		Unsuccessful					
	2005	2004	2005	2004	2005	2004	2005	2004
Shotgun	2.69	2.40	3.41	3.17	22,372	18,056	6.3	4.9
Archery	6.27	5.78	6.36	5.57	5,117	5,616	22.0	22.1

Age and sex of turkeys were determined from information submitted by hunters on the survey cards. Hunters provided data on 434 turkeys. 27% were adult hens, 35% were adult male, 25% were juvenile male and 13% were juvenile female.

Harvest distribution by county is estimated from 458 survey cards. Approximately 39% of the reported harvest occurred in the following 10 counties: Knox 6%, Holt 6%, Lincoln 4%, Custer 4%, Cherry 3%, Dawes 3%, Jefferson 3%, Boyd 3%, Frontier 3% and Harlan 3%.

Discussion: Fall harvest does not reflect turkey population size very well, as there is limited hunter interest in the season. Spring harvest has tripled the past 15 years while fall harvest has declined slightly even though permits are unlimited and statewide. The turkey population in most areas (except the Panhandle) could easily support additional harvest if there was hunter interest. NGPC should continue to search for additional opportunities to increase hunter interest and opportunity in fall turkey hunting at a time when the population can easily support additional harvest.

Non-response data are not current and may not be accurate in light of increasing harvest opportunity and declining response rate. Further, the accuracy of hunters in determining the sex and age of harvested birds is not high, and they often provide incorrect feathers when mailing in samples.

Recommendations: Gather data to measure the current non-response bias, or the relative behavior of hunters who do not return survey cards. Improve hunter ability to differentiate the sex and age of turkeys by providing better information on feather identification.

Table 5. Turkey permit and harvest history, 1962 – 2005.

Permit and Harvest History - Nebraska Turkey

	Spring Shotgun			Spring Archery		Fall Shotgun		Fall Archery	
	Permits	Harvest	Success	Permits	Harvest	Permits	Harvest	Permits	Harvest
1962	--	–	–	–	--	500	281	--	–
1963	--	–	–	–	--	1,000	555	--	–
1964	750	130	17%	–	--	1,704	781	--	–
1965	768	188	24%	–	--	2,261	1,094	--	–
1966	1,239	296	24%	–	--	2,320	1,190	--	–
1967	1,231	243	20%	–	--	2,072	807	--	–
1968	930	236	25%	–	--	824	427	--	–
1969	1,185	323	27%	–	--	1,994	860	--	–
1970	1,189	184	15%	–	--	1,699	770	--	–
1971	1,192	269	23%	–	--	1,700	835	--	–
1972	1,324	286	22%	–	--	1,700	979	--	–
1973	1,335	363	27%	–	--	1,700	692	--	–
1974	1,575	449	29%	–	--	2,000	889	--	–
1975	1,875	490	26%	289	21	2,011	1,138	170	47
1976	1,985	447	23%	332	23	2,113	863	305	61
1977	1,852	482	26%	168	14	1,799	988	164	35
1978	2,096	626	30%	200	19	2,215	1,224	201	47
1979	2,468	947	38%	319	48	2,808	1,556	348	85
1980	2,963	1,094	37%	514	59	3,209	2,056	398	111
1981	4,200	1,729	41%	755	84	4,298	2,199	616	130
1982	4,907	1,701	35%	800	62	4,700	2,296	488	85
1983	5,087	1,693	33%	823	102	5,274	2,805	461	91
1984	5,460	1,672	31%	757	80	5,324	2,905	437	106
1985	6,230	2,287	37%	828	99	5,393	2,908	495	106
1986	6,258	2,364	38%	1,173	164	5,319	2,846	604	118
1987	6,652	3,020	45%	1,270	236	6,015	3,910	663	197
1988	7,590	3,914	52%	1,468	301	7,132	4,398	794	221
1989	8,645	4,271	49%	1,560	323	7,736	4,018	868	180
1990	10,147	4,017	40%	1,447	214	6,455	3,601	614	117
1991	9,678	3,982	41%	1,447	165	6,570	3,815	630	151
1992	10,278	4,345	42%	1,801	353	6,361	2,945	573	83
1993	9,774	3,672	38%	1,563	246	5,518	2,764	550	85
1994	9,815	3,917	40%	1,737	352	5,478	2,911	616	117
1995	9,907	4,053	41%	2,150	460	5,219	2,678	692	127
1996	10,923	4,326	40%	2,516	497	5,176	2,589	607	79
1997	11,969	4,731	40%	2,510	622	4,876	2,485	535	80
1998	13,276	5,563	42%	2,483	597	5,220	2,576	686	148
1999	14,607	6,645	45%	2,998	798	4,905	2,527	709	151
2000	15,768	6,650	42%	3,662	1,162	5,442	2,380	896	122
2001	18,133	7,262	40%	3,624	1,047	5,747	2,864	824	203
2002	18,859	7,998	42%	3,641	1,104	5,671	3,013	911	229
2003	19,678	9,053	46%	4,100	1,483	6,030	3,076	1,041	229
2004	22,891	11,021	48%	4,759	1,837	7,199	3,691	1,125	255
2005	24,120	12,442	54%	5,349	2,340	7,415	3,565	1,022	251

Upland Game Surveys and Inventories

Project Leader: Scott Taylor, Upland Game Program Manager, Lincoln

Job F1: Ring-necked Pheasant Population Surveys (contains turkey data)

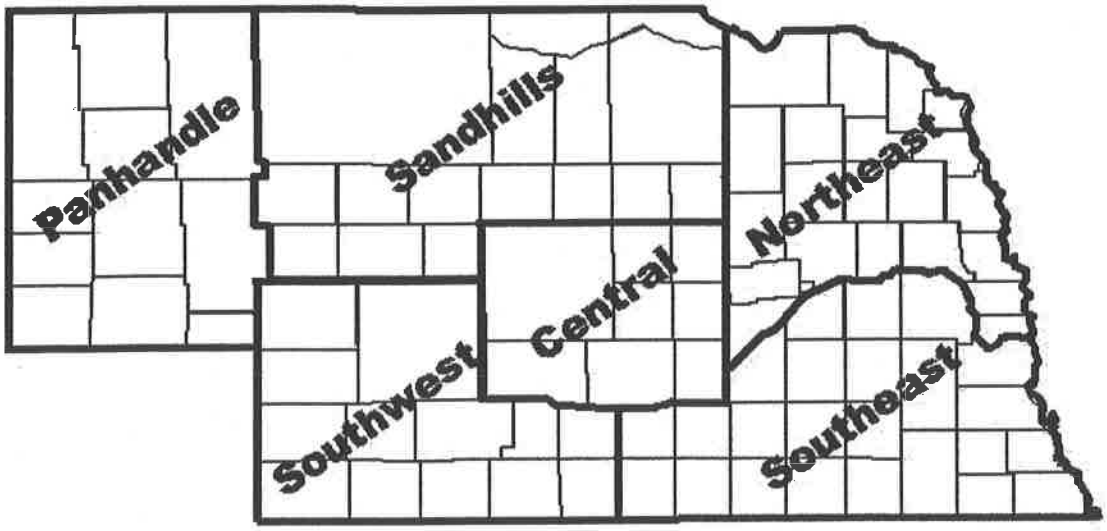
Objectives:

To ascertain the relative abundance and trends of pheasant populations each year at regional and statewide spatial scales.

Activities:

Rural Mail Carrier Survey– All rural mail carriers in Nebraska were requested to record the number of upland game birds and rabbits observed along their daily routes during three four-day periods (April 11-14, July 11-14, and October 3-6, 2005). Carriers were also asked to provide the primary county traveled and the number of miles traveled per day. No observations were recorded on days when it was raining or snowing at the start of the routes. Statewide results were summarized by pheasant survey region (Figure F1-1).

Figure F1-1. Pheasant survey unit boundaries.



August Roadside Survey– Roadside observations of small game species are made along 80-85 standardized 30-mile routes throughout the state during August 1-15. Counts start at sunrise, and observers drive 15-20 mph. If a game bird brood is spotted, observers leave the vehicle and attempt to flush the birds to obtain a complete count. Optimal counting conditions include heavy dew, winds <8 mph, and sunshine. Statewide results were summarized by pheasant survey region (Figure F1-1).

Significant Deviations from Previous Years: None

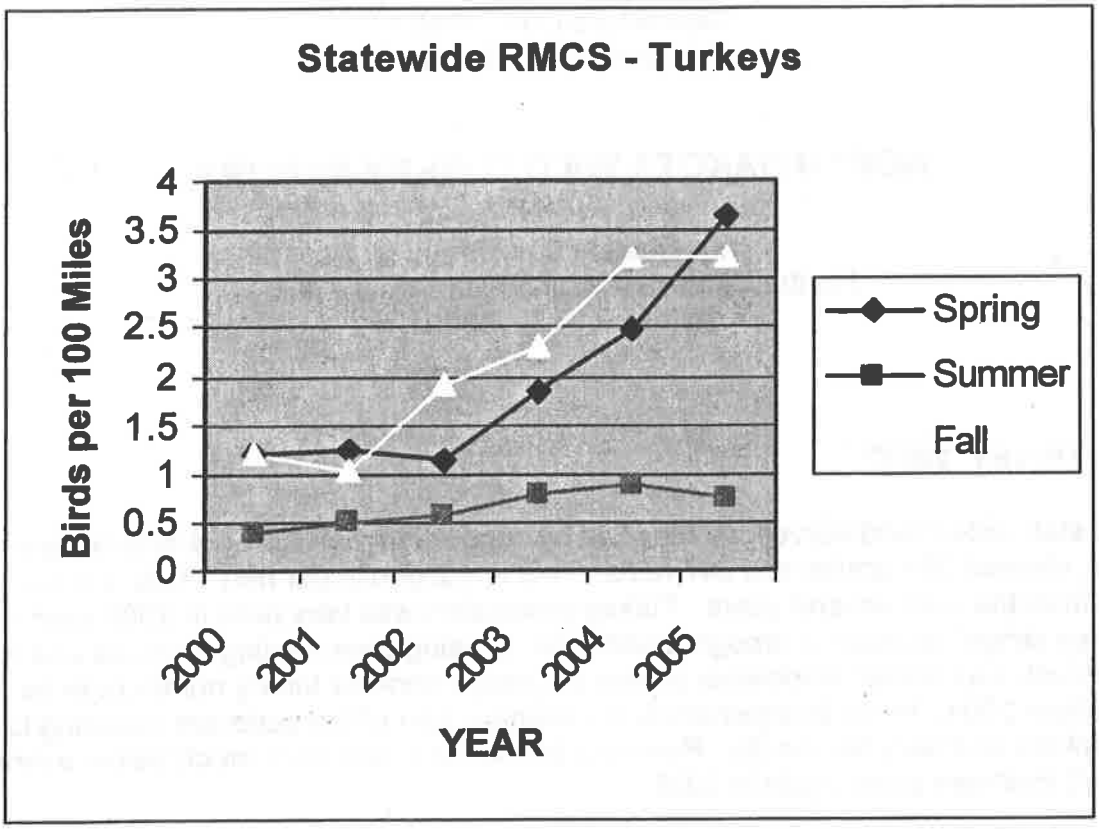
Results:

Rural Mail Carrier Survey-- Statewide pheasant indices were higher than 2004 on the April surveys, but were generally unchanged on the July and October surveys (Tables F1-1 through F1-6). The 2005 indices remain similar to moderately below the long-term averages for each survey.

Table F1-1. Count data from the 2005 April Rural Mail Carrier Survey, by pheasant management region (see Figure 1).

Region	Carriers	Miles	Pheasant	Grouse	Turkey	Rabbit	Jackrab.
Central	64	23,397	377	191	1,282	272	7
Northeast	143	50,427	1,331	44	994	531	9
Panhandle	59	19,410	533	94	135	128	68
Sandhills	43	14,862	239	457	1,045	94	31
Southeast	149	58,093	1,034	57	2,228	644	4
Southwest	55	22,070	772	43	1,154	176	4
Statewide	513	188,259	4,286	898	6,838	1,845	123

Figure 2. Statewide RMCS turkey observations 2000 – 2005 (birds per 100 miles)



MIDWEST DEER/TURKEY STUDY GROUP MEETING

Ransburg Boy Scout Camp
Bloomington, IN 47401
August 20-23, 2006

NORTH DAKOTA WILD TURKEY REPORT

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

BROOD SURVEY, 2005

The 2005 statewide brood survey, as reported by cooperating landowners and department personnel, showed 364 poults and 297 hens. This is 1.2 poults per hen. This is a major decrease from the past several years. Turkey production was very poor in 2005 over much of the turkey range because of drought conditions, causing poor nesting success and poor young survival. Our winter landowner survey of turkeys showed turkey numbers to be down over 30% from 2004. Many landowners in the western part of the state are reporting low turkey numbers and very few poults. Reproduction in 2005 was very much below average and doesn't look very good again in 2006.

FALL HUNTING SEASON, 2005

We provide only one time period for hunting wild turkeys in the fall. During the fall of 2005, the season was held from October 8, 2005 through January 15, 2006. There were 9,230 permits available and 9,331 were issued (594 gratis and 8,737 general permits). This was a decrease of 1,274 permits (12 percent) over 2004.

From the wild turkey questionnaire, it was determined that 6,722 permittees (72 percent) hunted during the fall. Hunters harvested 3,191 wild turkeys for a success of 47.5 percent. 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 617 harvested birds, 45 percent of the 2005 fall harvest was females and 44 percent were juveniles.

SPRING 2006 HUNTING SEASON

During the spring of 2006, the entire state was open for wild turkey hunting. The state is divided into twenty-nine hunting units and these areas include all of North Dakota's 53 counties. The season opened April 8 and closed May 14 (30 days). Only bearded wild turkeys were legal to be harvested. A total of 8,629 applicants (down 3 percent from 2005) were received for the 6,425 permits (up 4 percent from 2005) that were available. This included 397 gratis permits and 6,008 general permits.

Data from the spring hunter questionnaire showed that 5,318 of the permittees hunted (83%) (down 1 percent from 2005). Hunters harvested 2,430 wild gobblers (up 2 percent from 2005) for a hunter success of 45.7 percent.

PLANS FOR THE FALL HUNTING SEASON, 2006

For the 2006 fall hunting season, there are 7,925 permits available, 1,305 less than available during the fall 2005. Two hunting units, one in the northwest and one in the southwest, will be closed this fall due to low turkey numbers. The season will open on October 14, 2006 and close on January 14, 2007 (100 days). This is the same season length as in 2005. Only residents are eligible to apply for the first drawing of licenses. If licenses are left after the first drawing, then both residents and nonresidents can apply for the remaining licenses on a first come basis. This will be the fifth year that the entire state will be open to wild turkey hunting.

TRAP/TRANSPLANT PROGRAM

During the 2005-2006 wild turkey trapping period, only five wild turkeys were trapped at one location in one county in the southeastern part of the state. The trapped turkeys were released at one site in one county. Of the total birds trapped and released, one was an adult hen, two were juvenile males and 2 were juvenile hens. The rocket-net and drop-net and were used in the trapping operation. All birds were Easterns. The last several years has seen a reduction in the number of landowners experiencing depredation problems, probably because of good harvest and mild winters.

FUTURE RESEARCH

There has never been any research work done on turkeys in North Dakota. Turkeys are not native to North Dakota but have been in the state for about 50 years, and they have been hunted during most of this time. We have been working with South Dakota State University to initiate some research work to on turkey ecology and population dynamics in North Dakota, primarily on Easterns. We hope to get some project started in the next year.

30th MIDWEST DEER AND TURKEY STUDY GROUP MEETING
WILD TURKEY MANAGEMENT AND RESEARCH IN OHIO
2005-2006

David A. Swanson
Forest Wildlife Research Project
Ohio Department of Natural Resources, Division of Wildlife
360 East State Street
Athens, Ohio 45701

HARVEST MANAGEMENT

Spring Gobbler Season

Turkey Population Status.--Entering the 2006 spring season, Ohio's wild turkey population was projected to be above that of previous years because of better than average reproductive success during 2005. Population estimates based on the method described by Lewis (1980) and range wide gobbling counts appeared to confirm this projection. Gobbling counts show substantial annual variability, but overall demonstrate increasing turkey abundance (Division of Wildlife 2006).

Hunters and Regulations.--Permits for the 2006 turkey season (24 Apr-21 May) were available over-the-counter at regular license vending outlets. Hunting licenses and turkey permits for those individuals eligible for a free license and permit, primarily because they were 66 years old or older and born on or before 31 December 1937, were issued over-the-counter. Landowners and tenants hunting on land they owned or where they resided were exempt from all license and permit requirements. As in 2005, a basic 1-bird bag limit was in effect. However, landowners, tenants, free license recipients, and those hunters purchasing 2 turkey permits were eligible to harvest an additional turkey. The second turkey could be harvested during all 4 weeks of the 2006 season. The bag limit was 1 bearded bird per day.

Resident and nonresident hunting licenses and permit were the same as in 2005 (resident hunting license = $19.00; nonresident = $125.00: turkey permit = $24.00). For the 2006 season, 52,399 individuals purchased a spring turkey permit, 7,316 individuals purchased a youth spring turkey permit, and 25,533 individuals age 66 and older either purchased a reduced-cost senior permit or were issued a free permit (Table 1). The number of permit holders (85,248) for the 2006 season was up slightly from the 2005 total of 85,053.

As in previous years, legal shooting hours were ½ hour before sunrise until noon. Turkeys could be hunted with a shotgun using shot, longbow, or crossbow. Successful hunters had until 2 p.m. on the day of harvest to register their bird at an official check station for permanent tagging. All 88 counties were open to turkey hunting

Harvest and Hunting Pressure.--The 2006 harvest of 20,023 birds was 1,190 gobblers, or 6.3%, higher than the 2005 total of 18,833 (Table 1). Second turkeys made up 14.4% (2,885 birds) of the total harvest. Youth hunters harvested 1,819 of these gobblers during the statewide youth season held 22 and 23 April. Based on spur length measurements, juveniles comprised 32.4% of the 2006 harvest, lower than the 37.4% recorded in 2005 and the 1985-05 average of 34.8%. Two- and 3-year-old birds comprised 24.4% of the harvest and birds ≥4 years old comprised 43.2%. Ashtabula County,

with a reported harvest of 902 gobblers, topped the list of counties. Rounding out the top 5 counties, which collectively accounted for almost 16% of the 2006 harvest, were Meigs (612 birds), Belmont (602 birds), Tuscarawas (597 birds), and Guernsey (587 birds). Compared to the 20054 spring turkey season, the harvest increased in 59 counties, decreased in 25, and stayed the same in 4. As expected, most of the harvest (53%) occurred during the first week of the season. The balance was divided among the second week (23%), third week (13%), and fourth week (11%).

Five non-fatal hunting incidents were reported in 2006 (Table 2). A 38-year summary of modern-day turkey hunting in Ohio is presented in Table 3.

An estimated 78,489 individuals of the 85,248 who either purchased or received a free permit pursued a turkey during the 2006 season (Swanson and Culbertson 2001). The number of hunters increased slightly from the 78,302 hunters in 2005 (Table 1). More hunters in 2006 resulted in an estimated 550,344 days hunted, up 7.4% from the 512,467 days in 2005. Because landowners and tenants are exempt from license and permit requirements when hunting on their own land or on land where they reside, the estimated number of hunters and the projected number of days afield are considered minimum estimates. Landowners and tenants who hunted on their own land or on land where they resided harvested 4,156 gobblers, 20.8% of the statewide harvest.

Public land in Ohio remains important to both turkeys and the sport of turkey hunting. In 2006, 10.6% of the spring turkey harvest occurred on public land. Public land comprises less than 5% of the land area open to turkey hunting (Ohio Department of Natural Resources 1991).

Fall Either-Sex Season

Hunters and Regulations.--Ohio held its tenth fall either-sex wild turkey season 8-23 October 2005 in 37 counties. Criteria applied to determine county eligibility for fall either-sex wild turkey hunting included a spring turkey harvest ≥200 birds the past 2 years, ≥30% forested, and not isolated but adjacent to 2 or more counties that meet the first 2 criteria.

Fall wild turkey permits (cost = $24.00) were available over-the-counter at regular license vending outlets. Hunting licenses and turkey permits for those individuals eligible for a free license and permit, primarily because they were 66 years old or older, were issued over-the-counter. Landowners and tenants hunting on land they owned or where they resided were exempt from all license and permit requirements.

Legal shooting hours were ½ hour before sunrise to sunset with a 1 bird of either sex bag limit. Turkeys could be hunted with a shotgun using shot, crossbow, or longbow. Successful hunters had until 8 p.m. on the day of harvest to register their bird at an official check station for permanent tagging.

Ohio held its fourth archery only fall wild turkey season in the same 37 counties 24 October to 27 November. Turkeys could be hunted only with a longbow or crossbow. Legal shooting hours were ½ hour before sunrise to ½ hour after sunset. Bag limit and registration requirements were the same as for the regular fall turkey season.

Harvest and Hunting Pressure.-- A total of 1,339 birds, 25.9% less than in 2004, was harvested during the 2005 Ohio fall wild turkey season (Table 5). Two hundred forty-one (18.3%) of the birds were harvested with a bow during the fall archery only wild turkey season. One hundred twenty birds were harvested with a longbow and 121 birds with a crossbow. Ashtabula County, with a reported harvest of 108 birds, topped the list of open counties. Rounding out the top 5 counties, which collectively accounted for more than 25% of the 2005 fall harvest, were Knox (80 birds), Knox (63 birds), Monroe (55 birds), Tuscarawas (55 birds), and Gallia (54 birds) (Table 5).

There were no hunting incidents reported during the 2005, 2004, and 2003 fall turkey seasons

compared to 1 nonfatal incident in 2002, 1 nonfatal incident in 2001, and 2 nonfatal incidents during the 2000 season. During the first 4 fall turkey seasons in Ohio, no hunting incidents were reported (Swanson and Culbertson 2003).

For the 2005 season, 7,704 individuals purchased a fall turkey hunting permit and 20,178 either purchased a resident-reduced cost senior fall turkey permit or were issued a free permit. An estimated 21,682 individuals from the 27,882 who either purchased or received a free permit pursued a turkey during the 2005 fall season. The number of hunters decreased 2.4% from the 22,220 estimated hunters in 2004. Three hundred seventy-six (28.1%) birds were harvested by hunters on land they owned during the 2005 fall wild turkey season.

Juvenile females comprised the bulk of the harvest (357 birds, 26.7%), followed by adult females (327 birds, 24.4%), adult males (268 birds, 20.0%), and juvenile males (169, 12.6%) (Table 5). Two hundred eighteen (16.3%) birds were not classified to age and/or sex. Over half (60.2%) of the turkeys were taken on private land and 7.8% of successful hunters reported using a decoy to help bring their bird within shooting range. The harvest was well distributed throughout the season with peaks on opening day (15.9%) and the second (9.0%) and third Saturday (9.0%). Two hundred forty-five (18.3%) birds were harvested during the 3 Sundays of the regular season.

NWTF TECHNICAL GUIDANCE

The Ohio State Chapter, NWTF, raised approximately $206,000 from fund raising events in 2005. This money was deposited in the NWTF-administered Ohio Super Fund and earmarked for in-state projects to benefit wild turkeys. Written guidelines have been developed cooperatively by the Division of Wildlife and the Ohio State Chapter, NWTF, which designate that 65% of the project expenditures go toward land acquisition and 35% toward management projects. A formal procedure for approval of individual Super Fund Projects and technical guidance provided by the Division help ensure that funds are spent on priority projects. Over $2,426,288 has been spent on projects benefiting wild turkeys from 1986 through 2005 (Table 6). Land acquisition projects presently make up 66.8% of expenditures.

TRAP AND TRANSPLANT

A total of 11 sites had been approved for wild turkey transplanting entering the 2005 – 06 trapping period. Division of Wildlife trapping crews captured and stocked 153 birds, completing 9 of the sites (Table 7). Transplanting efforts were directed toward marginal habitats in western and central Ohio. Watersheds that were 5 –10% forested and fairly well interconnected by brushland-woodland travel corridors were selected as transplant sites. Observation cards and gobbling count surveys will be used to monitor transplant success in these marginal sites.

In 2006, turkeys were present in all 88 counties. Occupied range in 2006 was estimated at 22,500 mi^2 compared to 6,000 mi^2 in 1990.

RESEARCH

Gobbler Banding Study

Work in Missouri and other states indicated that the higher the proportion of the wild turkey gobbler population harvested the lower the proportion of adult gobblers in the population and harvest the

following spring. Hunter surveys in Missouri, Arkansas, and Ohio showed that spring turkey hunters believed that hearing gobblers, seeing turkeys, and calling turkeys contributed as much as or more to the quality of the hunt as harvesting a bird (Swanson and Culbertson 2001). With a projected increase in the number of spring turkey hunters through the year 2010, the Division of Wildlife must address the effects of harvest on wild turkey populations and the quality of spring wild turkey hunting. The primary objective of this project is to estimate the harvest rate of wild turkey gobblers throughout their major occupied range in Ohio.

Crews captured, banded, and released 170 gobblers in 21 counties during the 2006 field season. A total of 43 banded wild turkeys was reported harvested during the 2006 spring season. The overall 2006 spring turkey harvest rate was 25.3% (43 of 170). The harvest rate of adult birds was 30.3% (30 of 99), higher than the 18.3% (13 of 71) harvest rate of juvenile birds. Based on land ownership of the capture site, harvest rates were 18.2% (14 of 77) for public land-trapped birds and 31.2% (29 of 93) for private land-trapped birds. Since 1997, 2,526 gobblers have been captured and banded in 27 counties. Four hundred sixty-nine of the banded birds have been reported harvested during spring hunting seasons for an overall harvest rate of 18.6%.

Wild Turkey Hen Population Dynamics Study

Since 2002, 386 wild turkey hens have been radiotagged. Annual totals are 76 in 2002 (50 adults and 26 juveniles), 77 in 2003 (68 adults and 9 juveniles), 88 in 2004 (71 adults and 17 juveniles), 73 in 2005 (53 adults and 20 juveniles), and 72 in 2006 (54 adults and 18 juveniles). Total number of known deaths to date = 121 (48 avian predation, 51 mammalian predation, 14 illegal kills, 2 legal harvests, and 6 "other"). Reproductive data have been collected from 510 hens (several radiotagged hens live more than 1 nesting season). Nesting rate (percent of hens known to have initiated incubation) averaged 90%, nest success averaged 71%, and poults per hen alive 4-5 weeks after hatching averaged 2.8. Median date of incubation initiation was 1 May 2006, 2 May 2005, 1 May 2004, 2 May 2003, and 29 April 2002. Over the past 4 years, 7% of the radiotagged hens have initiated incubation prior to opening day of the spring turkey season, 45% during the first week, 38% during the second week, 6% during the third week, and 4% during the fourth week.

DISCUSSION AND RECOMMENDATIONS

Spring Gobbler Season

The increase of 6% in the 2006 harvest, coupled with the 7% increase in total hunter effort, indicate that turkey abundance in 2006 was higher than in 2005. Compared to the 2005 spring turkey season, the harvest increased in 59 counties, decreased in 25, and stayed the same in 4. Turkey populations in several southeastern counties have reached carrying capacity. In recent years, with the exception of 1999, productivity has been at or below average in southeastern Ohio, indicative of populations at or near carrying capacity. As turkey populations reach carrying capacity in counties outside of southeastern Ohio, and the influence of annual productivity on turkey abundance becomes more pronounced, turkey hunters should expect spring harvests to level off or decline.

The number of spring turkey hunting incidents was the same in 2006 as in 2005 (Table 2). The hunting incidents should reinforce the continued need for turkey hunter education. Currently, the Division of Wildlife includes a section on turkey hunting in the *Ohio Hunter Safety Education Student*

Handbook which is the manual used in Ohio's hunter education program. This training is required of all first-time hunters in Ohio before a hunting license can be issued. As the popularity of turkey hunting continues to grow, cooperation among individuals, conservation organizations, and the Division of Wildlife will become even more important in preserving safe and ethical turkey hunting in Ohio.

Fall Either-Sex Season

This was Ohio's tenth fall either-sex wild turkey season. The fall hunt was designed to be a conservative season with good control over harvest so the Division could evaluate and expand the hunt as appropriate. The harvest objective, <3% of the spring turkey harvest in each county, was very modest. Research from other Midwestern states indicated that up to 10% of the fall turkey population could be harvested without impacting subsequent growth and expansion. Based on mandatory check station results, 0.8% of the fall turkey population in the 37 counties open to hunting was harvested during the 2005 regular and archery only seasons.

Research

Ten years of spring gobbler harvest rate data have been collected. A total of 2,526 gobblers was banded in 27 counties during 1997 – 2006. Four hundred sixty-nine (18.6%) banded birds were harvested during the subsequent spring season. We recommend that gobblers be captured and banded by the 9 crews for several more years and that a radiotelemetry study be initiated. Radio-tagging of wild turkey hens to obtain information on survival, causes of mortality (e.g., legal harvest, predation, illegal harvest, and wounding), and reproductive parameters began during winter 2001 – 02 and continued through 2005 – 06. Radiotagged hens will be monitored through January 2007 when this study will be concluded.

Acknowledgments. We thank the following: (1) Division of Wildlife personnel who serviced check stations; (2) check station proprietors who generously contributed their time and facilities to check turkeys; and (3) Lisa Smith for editorial comment.

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Table 1. Spring turkey gobbler hunting season statistics for 2006 compared to those from 2005.		
	2005 Season	2006 Season
Number of turkey permits issued		
Paid	59,546	59,715
Free	25,507	25,533
Total	85,053	85,248
Estimated total number of permittees who hunted[1]		
Paid	59,070	59,237
Free	19,232	19,252
Total	78,302	78,489
Total number of wild turkeys harvested	18,833	20,023
Number of hunters who harvested a second gobbler	2,577	2,885
Percent of harvest before 9:00 a.m.	64.6	70.1
Percent juvenile gobblers in harvest	37.4	32.4
[1]Participation rates based on mail survey results in Swanson and Culbertson (2001).		

Table 2. Ohio's spring turkey hunting incident history.

Year	Estimated hunters	Number of hunting incidents		Number of incidents per 10,000 hunters
		Fatal	Nonfatal	
1983	4,402	0	0	0
1984	5,824	0	1	1.72
1985	8,849	1	3	4.52
1986	10,209	0	4	3.92
1987	11,521	0	3	2.60
1988	19,492	0	2	1.03
1989	24,740	0	3	1.21
1990	26,739	0	2	0.75
1991	32,431	1	3/4[1]	1.23/1.54
1992	33,906	1	5	1.77
1993	40,854	0	5	1.22
1994	40,459	0	9/10[1]	2.22/2.47
1995	47,568	0	1	0.21
1996	49,541	0	5	1.01
1997	50,712	0	6	1.18
1998	50,238	0	7	1.39
1999	55,912	0	9	1.61
2000	64,225	0	4	0.62
2001	91,827	0	6	0.65
2002	94,774	0	4	0.42
2003	87,387	0	5	0.57
2004	68,975	0	5	0.72

Table 2. Ohio's spring turkey hunting incident history.

2005	78,302	1	5	0.77
2006	78,489	0	5	0.64

[1]In both 1991 and 1994, 1 hunting incident involved 2 victims. Consequently, the data are shown as: no. of incidents/no. of victims.

Table 3. Ohio's spring turkey season dates and harvest success, 1966-2006

Year	Season Dates	Number of Counties Open	Bag Limit	Permit Fee	Permits Sold	Estimated Number of Permittees Who Hunted[1]	Total Harvest[2]	Percent Successful[3]
1966	05/04-05/07	9	1	Free	500	321	12	3.7
1967	05/03-05/06	9	1	Free	898	706	18	2.5
1968	05/08-05/11	9	1	Free	914	765	20	2.6
1969	05/07-05/10	9	1	Free	945	815	37	4.5
1970	04/29-05/02	14	1	Free	909	774	30	3.9
	05/06-05/09				896	732	36	4.9
1971	04/28-05/01	14	1	Free	1,000	797	37	4.6
	05/05-05/08				1,000	790	17	2.2
1972	05/03-05/06	14	1	$5.35	917	824	32	3.9
	05/10-05/13				881	787	25	3.2
1973	05/02-05/05	14	1	$5.35	1,034	897	39	4.3
	05/09-05/12				1,034	884	32	3.6
1974	05/01-05/04	14	1	$10.50	999	900	61	6.8
	05/08-05/11				184	167	10	6.0
1975	04/28-05/03	14	1	$10.50	996	893	75	8.4
	05/05-05/10				267	242	19	7.9
1976	04/26-05/08	14	1	$10.50	1,471	1,296	139	10.7
1977	05/02-05/14	14	1	$10.50	1,751	1,504	137	9.1
1978	05/01-05/13	18	1	$10.50	2,000	1,711	147	8.6
1979	04/30-05/12	18	1	$10.50	2,000	1,714	265	15.5

Table 3. Ohio's spring turkey season dates and harvest success, 1966-2006

Year	Season Dates	Number of Counties Open	Bag Limit	Permit Fee	Permits Sold	Estimated Number of Permittees Who Hunted[1]	Total Harvest[2]	Percent Successful[3]
1980	04/21-05/03	20	1	$10.75	2,097	1,882	387	20.6
1981	04/27-05/09	20	1	$10.75	3,458	2,954	577	19.5
1982	04/26-05/08	20	1	$10.75	4,262	3,636	651	17.9
1983	04/25-05/07	21	1	$10.75	5,141	4,402	764	17.4
1984	04/23-05/12	31	1	$10.75	6,935	5,824	1,233	19.9
1985	04/22-05/11	31	1	$10.75	10,084	8,849	1,583	17.3
1986	04/28-05/17	31	1	$10.75	11,913	10,209	1,816	17.0
1987	04/27-05/16	32	1	$10.75	13,396	11,521	2,268	18.9
1988	04/25-05/14	32	1	$11.00	16,208	19,492	2,629	16.0
1989	04/24-05/13	36	1	$11.00	18,887	24,740	3,171	15.6
1990	04/23-05/12	37	1	$16.00	19,613	26,739	4,096	20.2
1991	04/22-05/11	38	1	$16.00	22,898	32,431	5,009	21.1
1992	04/27-05/16	38	1	$16.00	28,974	33,906	5,678	19.4
1993	04/26-05/15	42	1	$16.00	29,538	40,539	7,470	15.4
			2	$32.00	4,106			12.4
1994	04/25-05/14	44	1	$16.00	29,334	40,459	9,098	16.6
			2	$32.00	5,187			10.7
1995	04/24-05/13	44	1	$20.00	30,496	47,568	10,892	17.0
			2	$40.00	6,015			15.3
1996	04/22-05/11	46	1	$20.00	31,003	49,541	12,098	15.9
			2	$40.00	7,700			15.5

Table 3. Ohio's spring turkey season dates and harvest success, 1966-2006

Year	Season Dates	Number of Counties Open	Bag Limit	Permit Fee	Permits Sold	Estimated Number of Permittees Who Hunted[1]	Total Harvest[2]	Percent Successful[3]
1997	04/28-05/17	47	1 2	$20.00 $40.00	30,511 8,130	50,712	12,393	14.9 14.6
1998	04/27-05/16	50	1 2	$20.00 $40.00	31,037 8,133	50,238	13,251	16.9 16.7
1999	04/26-05/16	57	1 2	$20.00 $40.00	42,363 7,846	55,912	14,419	22.0 27.2
2000	04/24-05/14	88	1 2	$20.00 $40.00	49,982 9,720	64,225	20,276	34.8 30.7
2001	04/23-05/13	88	1 2	$20.00 $40.00	54,841 11,092	91,827	26,156	40.2 39.8
2002	04/22-05/19	88	1 2	$20.00 $40.00	48,821 24,633	94,774	22,190	36.9 14.7
2003	04/28-05/25	88	2	$20.00[4]	94,989	87,387	20,368	23.3
2004	04/26-05/23	88	2	$24.00	74,119	68,975	16,927	24.5
2005	04/18-05/15	88	2	$24.00	85,053	78,302	18,833	24.1
2006	04/24-05/21	88	2	$24.00	85,248	78,489	20,023	25.5

[1]Includes free permit recipients (mainly hunters ≥66 years old).

[2]Total recorded harvest reported by all hunter types (i.e., paid, free, and exempt).

[3]Success rates are for paid permit holders only. Beginning in 1993, success rates are for 1-bird permit holders harvesting 1 bird and 2-bird permit holders harvesting 2 birds.

[4]Beginning in 2003, the special bonus wild turkey permit was eliminated and hunters no longer could be classified as 1-bird or 2-bird permit holders.

Table 4. Fall 2005 either-sex wild turkey harvest in 37 Ohio counties and comparisons with 2003 and 2004.

	Number of turkeys harvested, 2005						Total harvest	
County	Adult male	Adult female	Juvenile male	Juvenile female	Unknown age/sex	Total	2003	2004
Adams	9	7	3	4	7	30	50	56
Ashland	4	5	2	3	1	15	32	32
Ashtabula	18	36	18	23	13	108	126	89
Athens	5	0	5	9	2	21	54	49
Belmont	8	11	1	3	8	31	61	52
Brown	8	11	4	16	5	44	59	45
Carroll	13	8	7	9	2	39	47	62
Clermont	7	15	5	16	3	46	44	51
Columbiana	3	4	2	3	10	22	50	48
Coshocton	12	6	2	21	12	53	80	80
Gallia	11	14	5	17	7	54	61	51
Geauga	4	3	13	6	2	28	57	30
Guernsey	10	8	4	20	4	46	67	70
Harrison	8	11	8	13	5	45	83	61
Highland	2	7	2	1	4	16	33	28
Hocking	6	9	6	11	3	35	50	42
Holmes	1	4	0	2	5	12	61	49
Jackson	5	7	2	6	4	24	61	65
Jefferson	5	7	5	5	1	23	52	43
Knox	7	9	7	16	24	63	93	74
Lawrence	3	3	5	1	0	12	21	14
Licking	6	11	3	6	4	30	60	47
Meigs	15	4	4	7	9	39	61	52
Monroe	6	20	4	13	12	55	37	65
Morgan	5	2	3	9	4	23	51	29
Morrow	5	4	0	2	2	13	--	--
Muskingum	14	12	4	13	9	52	72	52
Noble	9	11	6	7	10	43	56	64
Perry	5	15	3	15	1	39	65	59
Pike	2	3	1	2	2	10	26	41
Richland	11	3	2	8	9	33	62	54
Ross	2	7	5	6	5	25	34	21
Scioto	4	4	2	3	7	20	24	27

Trumbull	7	6	9	18	6	46	66	43
Tuscarawas	6	13	8	18	10	55	74	55
Vinton	13	18	5	15	2	53	80	63
Washington	9	9	4	10	4	36	50	45
Total	268	327	169	357	218	1,339	2,060	1,808

Table 5. Ohio State Chapter, National Wild Turkey Federation Super Fund expenditures, 1986 through 2005. The Division of Wildlife in cooperation with the National Wild Turkey Federation provides technical guidance for the expenditure of project funds raised at Ohio events.

Project Category	Expenditures	Percent of Expenditures
Land acquisition*	$1,620,819	66.8
Management projects		
Habitat	$ 161,933	6.7
Restoration	$ 12,290	0.5
Education	$ 375,446	15.5
Enforcement	$ 12,576	0.5
Research	$ 5,037	0.2
Miscellaneous	$ 238,187	9.8
Grand Total	$2,426,288	100.0

*"Super Fund Guidelines" earmark 65% of expenditures for land acquisition.

Table 7. Wild turkeys stocked in Ohio, 2005-2006.

Release Site	Adult Male	Adult Female	Juvenile Male	Juvenile Female	Total
Union County					
Leesburg Township	6	14	0	1	21
Fairfield County					
Pleasant Township	0	6	0	0	6
Allen County					
Auglaize Township	4	12	1	1	18
Putnam County					
Riley Township	2	15	4	0	21
Paulding County					
Benton Township	1	12	7	3	23
Mercer County					
Liberty Township	2	9	1	6	18
Miami County					
Newberry Township	4	0	0	0	4
Shelby County					
Washington Township	0	16	2	4	22
Auglaize County					
Duchouquet Township	6	12	0	2	20
TOTAL	25	96	15	17	153

2006 ONTARIO WILD TURKEY STATUS REPORT SUMMARY

Ontario Ministry of Natural Resources

Wild turkeys were extirpated from Ontario in the early 1900's. Restoration efforts began in 1984, and by 1987 a total of 274 birds had been transferred to Ontario from New York, New Jersey, Vermont, Michigan, Missouri, and Iowa. Today, the population in Ontario is estimated at over 80,000 birds.

Historically, turkeys were likely limited in distribution to the area south of a line between Severn Sound and Trenton, but are now widely distributed south of the Precambrian shield in Ontario and continue to expand their range northward. While turkey densities in some parts of their historic range appear to be limited by habitat availability and fragmentation, land-use change (primarily the expansion of agriculture well beyond the historic extent) is believed to have significantly enhanced the capability of the landscape to support turkeys in many other areas in the province.

Landscape changes and the ability of turkeys to adapt to a range of habitat conditions led to public requests for the ministry to release birds well beyond the extent of their known historic range. However, other stakeholders argued that releasing turkeys outside their historic range was inappropriate based on potential ecological, social, and/or economic risks. In response, the ministry developed an ecological framework for turkey management that identified the Mixedwood Plain Ecozone as biologically suitable and ecologically appropriate area for turkey releases in the province. Another consideration for evaluating the ecological appropriateness of release areas is the potential impacts to species at risk. Over 4,300 turkeys were released at more than 270 sites in Ontario as part of the restoration program. The turkey program is in transition from restoration to management.

Spring wild turkeys seasons were initiated in Ontario in 1987. Initially hunter numbers were limited over two one-week seasons, but now the season has evolved into a 5 week season with no limit on resident or non-resident hunter numbers. Hunters are currently allowed to purchase up to two licences annually.

The spring 2006 season was held April 25th to May 31st and hunters were allowed to harvest up to 2 bearded birds. Through 2006 successful hunters were required to take the carcass of their bird to a check station. MNR currently conducts a post-season turkey hunter mail survey to estimate non-reporting bias with the check station system and to gather human dimensions data about turkey hunting. The 2006 spring harvest of 10,341 turkeys was another record for Ontario and an increase of 1,063 birds over the 2005 harvest. The rate of increase in harvest is consistent with the increase in licence sales and numbers of new participants having taken the mandatory turkey hunter training course. All-day hunting was implemented prior to the spring 2005 season and MNR continues to monitor the effects.

Other issues currently facing the Provincial program include resolution of real and perceived agriculture damage complaints, and illegal releases of pen-raised turkeys. Many landowners are aware of their rights under Protection of Property provisions in the current legislation and are increasingly taking advantage of their right to harass or shoot birds that are damaging or about to damage their property.

South Dakota

2005

TURKEY HARVEST PROJECTIONS

SPRING PRAIRIE TURKEY

In 2005, license sales totaled 5,663 (4,787 residents and 876 nonresidents) compared to 5,323 in 2004. There were 6,757 licenses available and overall tag sales totaled 7,864.

The survey sample size was 3,353 (59% of all hunters) and the response rate was 88.4%. Approximately 22% of responding hunters used the Internet to do so. The projected overall success rate for hunters was 58% and the projected harvest was 4,540 turkeys.

Spring prairie turkey hunters averaged 2.87 days hunting for a projected total of 16,253 hunting days for the April 9 through May 15 season (37 days). For those reporting, 11.5% said they purchased a license but did not hunt.

Double tag any-turkey licenses were available again this year and have been since 2001. An estimated 319 hens were harvested (7% of the total harvest) compared to 355 in 2004.

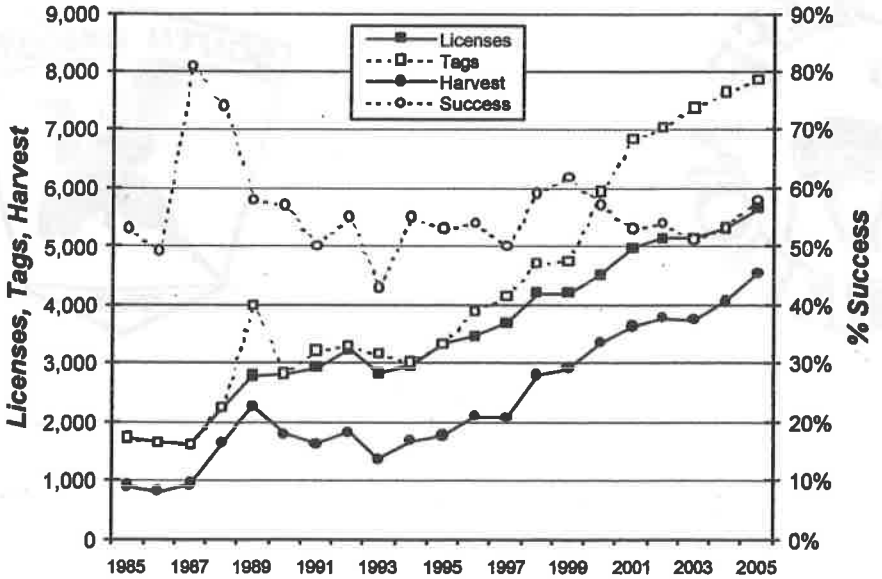
Respondents were asked to gauge their satisfaction of the season (1 being most satisfied, 7 being least satisfied) and the average response was 2.22.

Shotgun was again the equipment of choice for prairie turkey hunting. In 2005, 84% of hunters reported that they used a shotgun, 11% used a rifle, and 5% used something else to hunt with.

Comparison of the 2000-2005 Spring Prairie Turkey Seasons

				Harvest			Avg Days	
Year	Res Lic	NR Lic	Tags	Toms	Hens	Success	Hunted	Satisf
2000	3,969	553	5,927	3,360	-	57%	2.75	2.52
2001	4,357	606	6,831	3,473	147	53%	2.49	2.53
2002	4,470	666	7,028	3,567	199	54%	2.65	2.36
2003	4,451	692	7,370	3,440	304	51%	2.74	2.24
2004	4,502	821	7,627	3,713	355	53%	2.71	2.31
2005	4,787	876	7,864	4,221	319	58%	2.87	2.22

Spring Firearm Prairie Turkey 1985-2005



SPRING BLACK HILLS TURKEY

An unlimited number of licenses were available and 6,397 licenses were issued for the 2005 Spring Black Hills Turkey season (3,754 residents, 2,643 nonresidents), an increase in over 10% from 2004. All licenses consisted of single tags for male turkeys only.

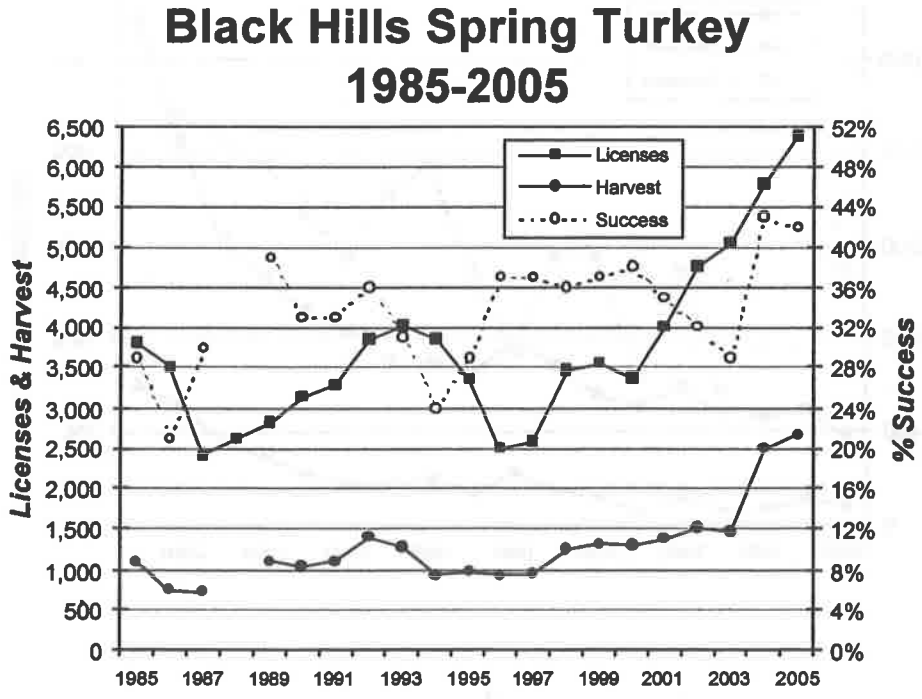
The survey sample size was 1,596 (25% of the total number of licensees) and the response rate was 86.9%. Approximately 25% of responding hunters used the Internet to do so. The projected success rate was 42% and the projected harvest was 2,666 male turkeys. Approximately 20% of hunters who were successful at harvesting a turkey did so on the opening weekend of the season.

The season was open from April 9 through May 15, a total of 37 days. Hunters averaged 3.53 days of hunting for a projected total of 22,582 days of recreation for the season.

Shotgun was again the equipment of choice for hunting. In 2005, 87% of responding hunters reported that they used a shotgun, 9% used a rifle, and 4% used something else to hunt with.

Comparison of the 2000-2005 Spring Black Hills Turkey Seasons

Year	Licenses Issued	Tom Harvest	Avg Days Hunted	Success	Average Satisfaction
2000	3,374	1,288	3.90	38%	-
2001	3,998	1,379	3.78	35%	-
2002	4,761	1,503	3.81	32%	2.48
2003	5,053	1,456	3.49	29%	2.37
2004	5,798	2,494	3.58	43%	2.33
2005	6,397	2,666	3.53	42%	2.34



SPRING ARCHERY TURKEY

There were 1,778 resident and 401 nonresident licenses sold for a total of 2,179 licensed spring archery turkey hunters in 2005, an increase of 32% from 2004.

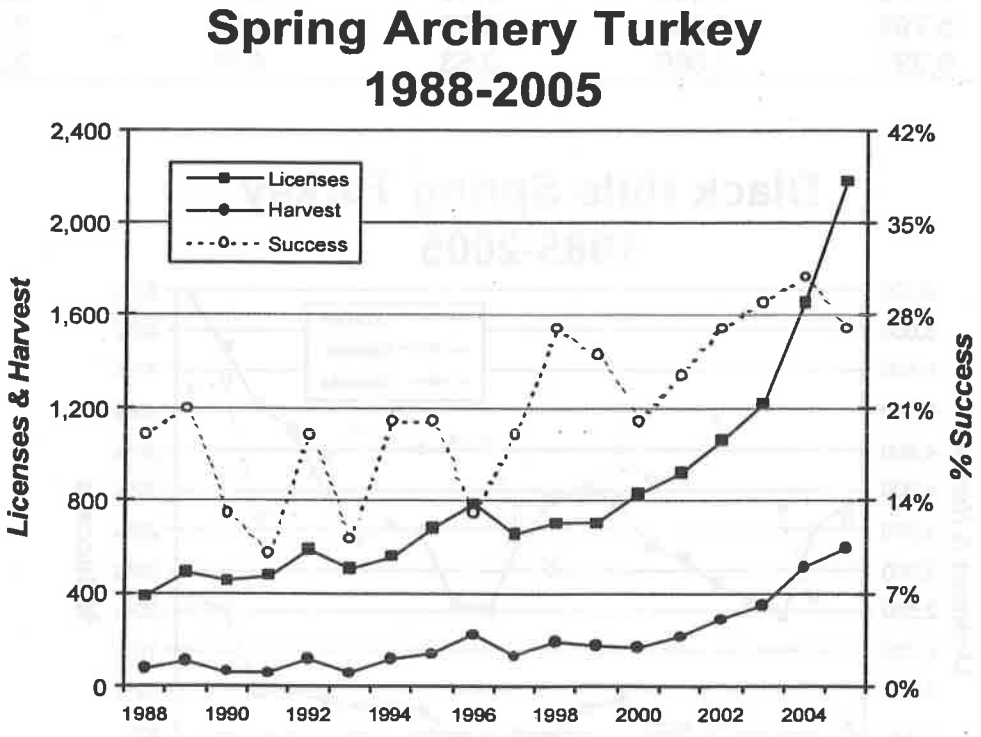
For harvest information, 25% of the license holders were sampled for an overall sample size of 541. The response rate was 85.2%. Approximately 24% of responding hunters used the Internet to do so.

The projected harvest based on survey respondents was 591 male turkeys, an increase of over 15% from 2004, for a success rate of 27%. The season was open from April 9 through May 15, a total of 37 days. The projected total number of days hunted was 9,718, an average of 4.46 days per hunter.

In 2005, approximately 14% of the hunters surveyed harvested their turkey on public land, 83% on private land and 3% on Walk-In-Areas.

Comparison of the 2000-2005 Spring Archery Turkey Seasons

	Licenses Sold				Avg Days	
Year	Resident	Nonresident	Tom Harvest	Success	Hunted	Satisfaction
2000	668	158	168	20%	5.55	2.63
2001	702	213	219	23%	4.37	2.88
2002	825	237	283	27%	4.53	2.53
2003	954	265	347	29%	4.26	2.28
2004	1,330	322	512	31%	4.62	2.39
2005	1,778	401	591	27%	4.46	2.39



FALL PRAIRIE TURKEY

In 2005, 4,105 licenses (3,818 resident, 287 nonresident) were sold for the Fall Prairie Turkey season in South Dakota, which totaled 6,196 tags. All tags were valid for either a tom or a hen. A random sample of 2,122 hunters was taken (52% of total license-holders), and 1,857 responded for an 88% response rate. Approximately 23% of responding hunters used the Internet to do so.

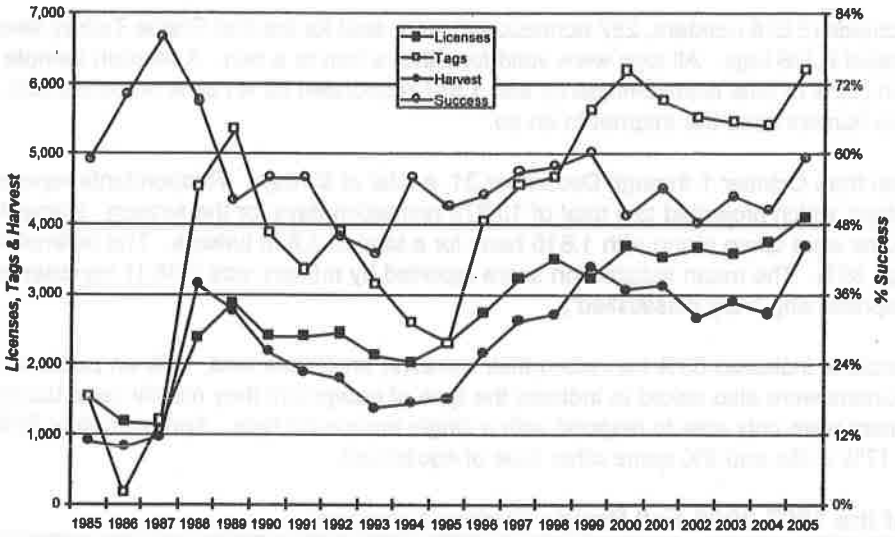
The fall season ran from October 1 through December 31, a total of 92 days. Respondents reported hunting an average of 2.60 days, which projected to a total of 10,673 recreation days for the season. Harvest projections indicated 2,062 toms were taken along with 1,616 hens for a total of 3,678 turkeys. The estimated success rate for the season was 59%. The mean satisfaction score reported by hunters was 2.38 (1 representing "very satisfied" and 7 representing "very dissatisfied").

Successful respondents indicated 83% harvested their turkey(s) on private land, 11% on public land and 6% on walk-in areas. Hunters were also asked to indicate the type of equipment they mostly used during their fall turkey hunt. Hunters were only able to respond with a single equipment type. Approximately 75% reported using a shotgun, 17% a rifle and 8% some other type of equipment.

Comparison of the 1997-2005 Fall Prairie Turkey seasons:

	Licenses	Tags	HARVEST				Avg Days	Average
Year	Sold	Sold	Toms	Hens	Total	%Success	Hunted	Satisfactn
1997	3,212	4,556	1,463	1,156	2,619	57%	2.48	NA
1998	3,499	4,681	1,595	1,120	2,715	58%	2.40	2.48
1999	3,233	5,627	2,006	1,381	3,387	60%	2.49	2.49
2000	3,674	6,184	1,953	1,113	3,066	50%	2.33	2.52
2001	3,524	5,761	1,604	1,512	3,116	54%	2.69	2.41
2002	3,649	5,520	1,545	1,116	2,661	48%	2.77	2.39
2003	3,572	5,458	1,555	1,339	2,894	53%	2.66	2.19
2004	3,734	5,394	1,568	1,150	2,718	50%	3.05	2.32
2005	4,105	6,196	2,062	1,616	3,678	59%	2.60	2.38

Fall Prairie Turkey 1985-2005



FALL BLACK HILLS TURKEY

In 2005 there were 1,395 Fall Black Hills Turkey licenses (1,312 resident, 83 nonresident) sold in South Dakota. All were single tag licenses valid for either a tom or a hen. Of the 698 license-holders that were sampled, 605 responded for an 87% response rate. Approximately 26% of responding hunters used the Internet response system.

The fall season ran from October 1 through October 31, a total of 31 days (16 days in 2004, 9 days in 2003). Respondents reported hunting an average of 2.5 days, which projected to a total of 3,488 recreation days for the season. An estimated 321 toms were harvested along with 399 hens, a total of 720 turkeys. The overall projected success rate for this season was 52%. The mean satisfaction score reported by hunters was 2.0 (1 representing "very satisfied" and 7 representing "very dissatisfied").

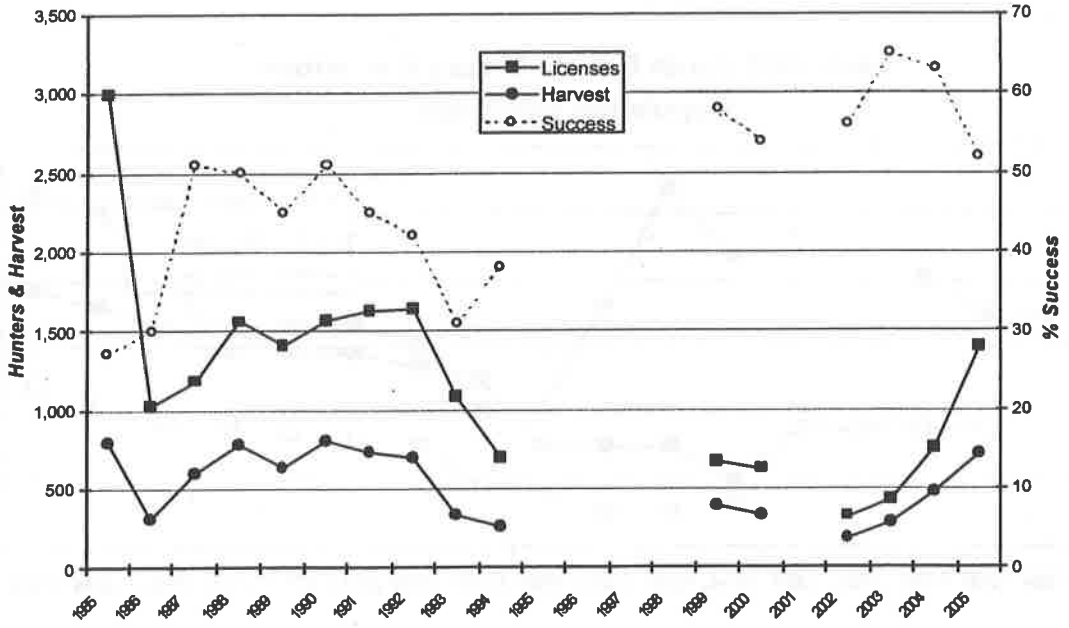
Respondents indicated 86% hunted on public land, 11% on private land and 3% hunted on their own land.

Hunters were also asked to indicate the type of equipment they mostly used during their fall turkey hunt. Hunters were only able to respond with a single equipment type. Approximately 71% reported using a shotgun, 22% a rifle and 7% some other type of equipment.

Comparison of the 1999-2005 Fall Black Hills Turkey seasons:

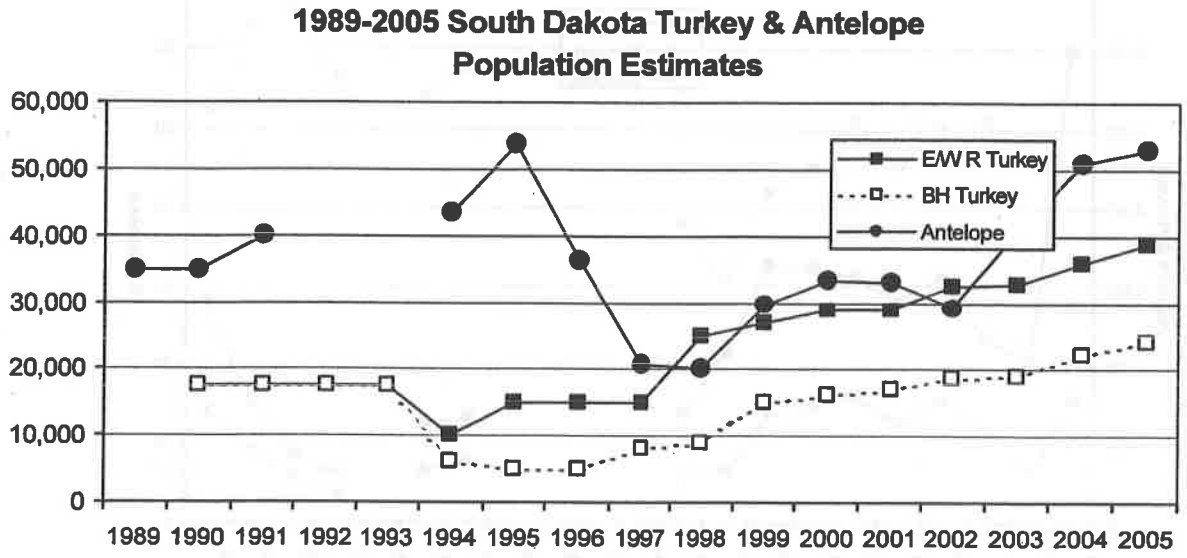
	LICENSES SOLD		HARVEST			Avg Days	Average
YEAR	Resident	Nonresid	Toms	Hens	%Success	Hunted	Satisfaction
1999	645	30	172	222	58%	NA	NA
2000	595	33	123	210	54%	2.21	NA
2001	No Season						
2002	300	25	104	78	56%	2.2	2.1
2003	400	32	114	165	65%	1.8	2.1
2004	708	42	206	270	63%	2.1	2.0
2005	1,312	83	321	399	52%	2.5	2.0

Black Hills Fall Turkey 1985-2005



2005 WORKING POPULATION ESTIMATES

Source	Species	Geographic Area	Pop^{n} Estimate
	Turkey		
Ted Benzon		West River Prairie	39,000
		Black Hills Proper	24,000


1989-2005 South Dakota Turkey & Antelope
Population Estimates
60,000
50,000
40,000
30,000
20,000
10,000
0
1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005
E/W R Turkey
BH Turkey
Antelope

Summary of Black Hills Turkey Brood Observations

Year	Single Hen Observations			Multiple Hen Observations			Combined
	Hens	Young	Ratio of Young/Hen	Hens	Young	Ratio of Young/Hen	Ratio of Young/Hen
1963	11	100	9.1	59	432	7.3	7.3
1964	9	57	6.3	30	244	8.1	7.7
1965	13	94	7.2	71	475	6.7	6.8
1966	20	190	9.5	78	434	5.6	6.4
1967	17	142	8.4	22	143	6.4	7.2
1968	19	139	7.3	99	533	5.4	5.7
1969	15	109	7.3	72	385	5.3	5.7
1970	---------- Total hens 63 and 504 young ----------						8.0
1971	14	98	7.0	155	1126	7.3	7.0
1972	17	121	7.1	125	624	5.0	5.3
1973	15	95	6.3	64	384	6.0	6.1
1974	32	255	8.0	101	470	4.7	5.5
1975	39	257	6.6	117	539	4.6	5.1
1976	12	52	4.3	41	93	2.3	2.7
1977	11	36	3.3	19	108	5.7	4.8
1978	33	198	6.0	56	184	3.3	4.3
1979	10	66	6.6	72	412	5.7	5.8
1980	36	248	7.0	128	687	5.5	5.7
1981	35	206	5.9	131	617	4.7	5.3
1982	21	113	5.4	61	292	4.8	4.9
1983	39	282	7.2	116	537	4.6	5.3
1984	22	90	4.1	58	227	3.9	4.0
1985	25	154	6.2	165	572	3.5	3.8
1986	18	155	5.1	92	404	4.4	5.7
1987	36	256	7.1	152	821	5.4	5.7
1988	70	403	5.8	287	1045	3.6	4.1
1989	60	318	5.3	152	492	3.2	3.8
1990	43	290	6.7	75	351	4.7	5.43
1991	43	241	5.6	119	569	4.8	5.00
1992	27	145	5.4	193	601	3.1	3.39
1993	24	120	5.0	88	223	2.5	3.06
1994	51	271	5.3	136	572	4.2	4.51
1995	35	147	4.2	146	238	1.6	2.13
1996	47	290	6.2	91	373	4.1	4.80
1997	53	290	5.5	116	439	3.8	4.31
1998	31	166	5.4	100	305	3.1	3.60
1999	30	161	5.4	94	261	2.8	3.40
2000	20	123	6.2	102	329	3.2	3.70
2001	35	167	4.8	166	627	3.8	3.95
2002	61	365	6.0	198	987	5.0	5.22
2003	60	284	4.7	301	980	3.3	3.50
2004	39	180	4.6	314	869	2.8	2.97
Avg.			6.1			4.5	5.0
2005	48	142	2.96	369	891	2.41	2.48

Summary of Prairie Turkey Brood Observations

Year	Single Hen Observations			Multiple Hen Observations			Combined
	Hens	Young	Ratio of Young/Hen	Hens	Young	Ratio of Young/Hen	Ratio of Young/Hen
1987	54	335	6.2	379	2063	5.4	5.5
1988	51	271	5.3	417	1078	2.6	2.9
1989	33	153	4.6	220	612	2.8	3.0
1990	45	234	5.2	196	509	2.6	3.1
1991	17	94	5.5	169	451	2.7	2.9
1992	20	124	6.2	136	355	2.6	3.1
1993	17	111	6.5	61	191	3.1	3.9
1994	19	110	5.8	86	351	4.1	4.4
1995	18	104	5.8	52	218	4.2	4.6
1996	22	154	7.0	64	260	4.1	4.8
1997	14	84	6.0	41	168	4.1	4.6
1998	12	67	5.6	32	165	5.2	5.3
1999	5	41	8.2	74	244	3.3	3.6
2000	8	45	5.6	70	366	5.2	5.3
2001	43	247	5.7	299	976	3.3	3.6
2002	7	31	4.4	82	215	2.6	2.8
2003	13	68	5.2	80	319	4.0	4.2
2004	7	41	5.9	103	408	4.0	4.1
Avg.			5.8			3.7	4.0
2005	2	11	5.5	37	83	2.2	2.4

Wisconsin Wild Turkey Status Report

2006 Midwest Deer and Turkey Study Group Meeting

Scott Hull & Andrea Mezera, Bureau of Wildlife Management
Brian Dhuey, Bureau of Integrated Science Services
Wisconsin Department of Natural Resources

2005 Fall Turkey Season

The fall hunting season structure was changed in 2005, with 10 days added to the season. The 2005 fall turkey season ran for 40 days, from 1 October through 9 November. The number of permits available increased from 79,178 in 2004 to 85,678 in 2005. Permitted hunters harvested 10,650 turkeys, down slightly from 2004 (Figure 1). The fall hunter's success rate (percent of permit holders that harvested a turkey) decreased from 13.1% in 2004 to 12.4% in 2005. Only one zone had a success rate of 20% or greater while 14 zones had a success rate of less than 10%. Fall Turkey Hunter surveys show that hunter participation in 2005 was 67%, lower than the average between 1989 and 2004 of 74% of fall permit holders. Hunter success rates are uncorrected for non-active hunters, actual success rates are higher.

The number of adult turkeys harvested (60%) was lower than in 2004 (66%). Females comprised 62% of the harvest while males accounted for 37%. Adult females comprised 35% of the fall harvest, juvenile hens 28%, gobblers 25%, jakes 12%, and unknowns <1%. Adult males comprised a smaller part of the harvest than in 2004 (36% gobblers). The decrease in adult harvest could be due to the increase in turkey brood production in 2005, making more juveniles available for harvest. Registration station attendants confusing jakes as adult hens, or the hunting methods and selectivity of Wisconsin hunters toward adults could also be factors effecting adult to juvenile ratios.

2006 Spring Turkey Season

A total of 201,207 permits were available during the 6-period spring turkey season in 2006 with 160,952 permits issued through the lottery system. An additional 39,917 permits were issued "over-the-counter" for the first time. Aside from a computer glitch at the start of the sale, sportsmen indicated they liked the new method of distributing extra permits.

A total of 46,662 turkeys were harvested in spring 2006 at a success rate of 23% (Table 1). This was the second highest spring harvest on record. Statewide 72% of the harvest birds were adult toms down from 74% in 2005.

2006 Fall & 2007 Spring Turkey Season Outlook

This fall, 90,600 wild turkey permits will be available to hunters. This is a slight increase in permits compared to 2005 when 85,400 permits were given out. The fall 2006 season will take place October 1 through November 9. Bag limit is one turkey of any age or sex per hunting approval notice. Extra permits will be sold over-the-counter beginning in September.

The 2007 spring wild turkey season (Figure 2) consists of 6 time periods that run for 5 days each: A) April 11-15; B) April 18-22; C) April 25-29; D) May 2-6; E) May 9-13; F) May 16-20. A total of 204,105 permits are available in spring 2007 a 2% increase over 2006. The application deadline for the spring 2007 season is December 11, 2006.

Turkey Stamp Accomplishments

A key role in the success of the wild turkey management program can be attributed to hunters through their purchase of the wild turkey stamp which provides vital financial support in providing for future opportunities for turkey management and hunting in Wisconsin. Turkey stamp funds have been providing opportunities for turkey management in Wisconsin since 1995. Sale of the stamp currently brings in over $600,000 annually for developing, managing, conserving, restoring, and maintaining the wild turkey population within the state. Within the current biennium over 110 stamp projects were funded totaling over $1.2 million dollars. The stamp program has been very effective at fostering cooperative relationships with organizations such as the National Wild Turkey Federation, Wings Over Wisconsin, and other conservation organizations. Partnerships with local non-profit organizations are beneficial because they stretch the amount of turkey stamp dollars to allow more projects to be funded; in addition it is beneficial to involve local user groups in actual habitat work.

Proposed Regulation Changes

The DNR Turkey Committee has forwarded a proposal to the DNR Rules Committee that would consolidate the current 46 Turkey Management Zones into 5 or 7 large zones. If passed by the Rules Committee this proposal would be presented to the public at the annual spring Wisconsin Conservation Congress Hearings in 2007. Assuming that the proposal makes it through the various committees and hearings the earliest it could be formally adopted would be in spring 2008.

Research Update

Field Validation of Wild Turkey Landscape Models, Scott Lutz & Matt Lechmaier, Department of Wildlife Ecology, UW-Madison.

During January 2005, fieldwork was initiated to study the relationship between habitat characteristics and turkey survival and abundance in west-central Wisconsin. Abundance indices based on hunter effort were calculated for each Turkey Management Zone (TMZ), and percent forested area contained the most information about variation in abundance between TMZs. We chose four townships with varying amount of forest to begin trapping adult male turkeys. During the first two field seasons, 150 toms were caught using rocket nets in Turkey Management Zones 7 and 39. We marked them with transmitters, measured their spur length, beard, and weighed them before release. We tracked tom movements during the months of April and May using radio telemetry.

Thus far, 97 mortalities have been documented, and 58% of these were adult males harvested during the spring hunting season. Other known causes of mortality include car collisions (4%), depredation from foxes and coyotes (5%), and poaching (3%). Dispersal distance between the winter trap site and tom spring home range varied between 60 meters and 14.5 miles, with greater dispersal distances generally occurring in more heavily-forested landscapes. Spur lengths ranged from 0.29 to 1.27 inches, beard lengths ranged from 3.25 to 12.5 inches, and

toms in Zone 7 were 2.38 lbs heavier than those trapped in Zone 39 (20.696 and 18.312 lbs, respectively). Overall, about 10% of the toms we trapped had multiple beards, and the average spring home range size was about 880 acres.

In addition to collecting survival data, we conducted spring transect surveys in 12 townships. Results suggest that turkey abundance follows a parabolic relationship, reaching a maximum when forested area reaches 50% of the landscape and declining as forested area increases. We have completed two field seasons and will begin our final year of fieldwork in January. This project is being funded by the Turkey Stamp Account, Wisconsin Department of Natural Resources.

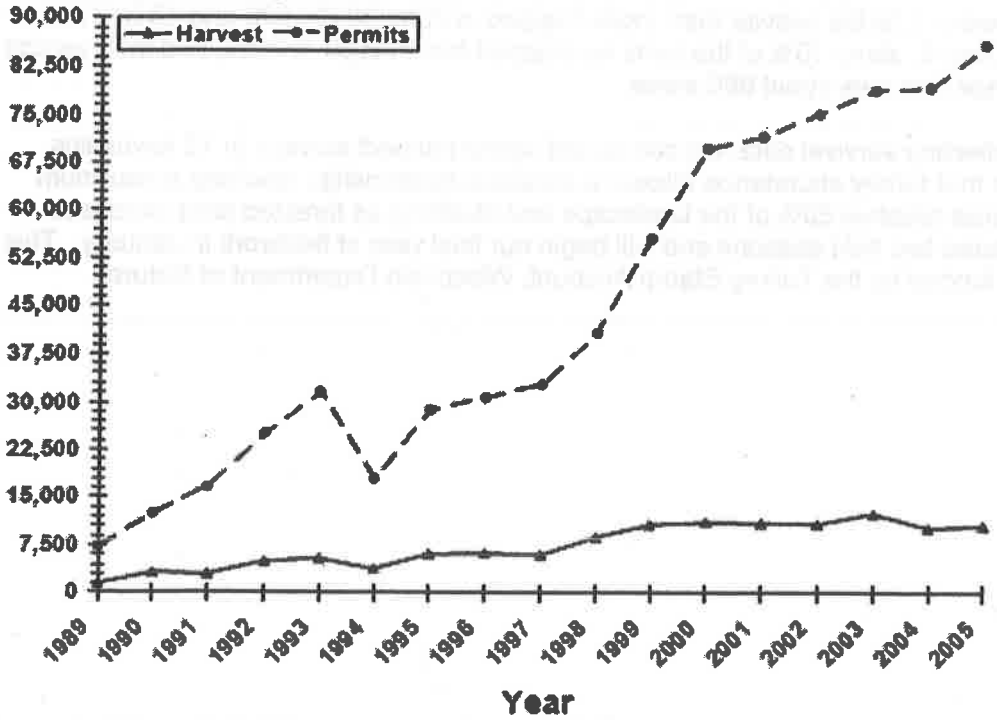


Figure 1. Wisconsin Fall Turkey Harvest Data, 1989-2005

Wisconsin Preliminary 2006 Spring Turkey Harvest and Permit Success Rates.

Success rates are uncorrected for nonparticipation.

	A		B		C		D		E		F		Total	
Zone	Kill	% Success	Kill	% Success	Kill	% Success	Kill	% Success	Kill	% Success	Kill	% Success	Kill	% Success
01	117	23%	137	27%	80	16%	86	17%	73	15%	71	14%	**664**	**19%**
02	262	29%	221	25%	156	17%	151	17%	126	14%	68	10%	**984**	**19%**
03	479	29%	444	27%	309	19%	296	18%	229	14%	241	15%	**1,998**	**20%**
04	242	28%	270	32%	184	22%	183	22%	129	15%	124	14%	**1,132**	**22%**
4A	1	8%	0	0%	4	33%	0	0%	0	0%	0	0%	**5**	**14%**
05	280	28%	210	21%	186	19%	162	16%	132	13%	124	14%	**1,094**	**18%**
5A	5	42%	5	42%	2	17%	0	0%	0	0%	0	0%	**12**	**33%**
5B	0	0%	0	0%	0	0%	1	50%	0	0%	0	0%	**1**	**50%**
06	304	36%	249	30%	173	21%	183	22%	186	22%	156	18%	**1,251**	**25%**
07	368	32%	333	29%	241	21%	265	23%	206	18%	232	20%	**1,645**	**24%**
08	205	29%	156	22%	174	25%	150	21%	121	17%	118	17%	**924**	**22%**
09	124	31%	96	24%	94	24%	59	15%	66	17%	59	15%	**498**	**21%**
10	88	25%	93	27%	59	17%	68	19%	33	9%	32	16%	**373**	**19%**
10A	1	13%	2	25%	0	0%	0	0%	0	0%	0	0%	**3**	**13%**
10B	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	**0**	**0%**
11	194	30%	187	29%	116	18%	138	21%	73	11%	61	15%	**769**	**21%**
11A	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	**0**	**0%**
12	229	31%	238	32%	170	23%	155	21%	132	18%	146	19%	**1,070**	**24%**
12A	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	**0**	**0%**
13	214	36%	197	33%	124	21%	139	23%	130	21%	95	16%	**899**	**25%**
13A	6	50%	1	8%	2	17%	0	0%	0	0%	0	0%	**9**	**25%**
14	155	26%	112	19%	71	12%	80	13%	82	10%	46	8%	**526**	**15%**
15	179	30%	139	23%	140	23%	105	18%	89	15%	79	13%	**731**	**20%**
15A	2	29%	2	40%	0	0%	0	0%	0	0%	0	0%	**4**	**27%**
15B	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	**0**	**0%**
15C	5	29%	4	26%	1	6%	0	0%	0	0%	0	0%	**10**	**20%**
16	158	30%	139	26%	99	19%	102	19%	84	16%	109	21%	**691**	**22%**
17	301	35%	260	31%	200	24%	187	22%	138	16%	161	19%	**1,247**	**24%**
18	337	27%	277	22%	211	17%	189	15%	186	15%	177	14%	**1,377**	**18%**
19	420	40%	342	33%	260	25%	305	29%	187	18%	270	25%	**1,784**	**28%**
20	274	36%	227	29%	189	25%	183	24%	164	21%	176	23%	**1,213**	**26%**
21	457	35%	354	27%	255	20%	248	19%	205	16%	242	18%	**1,761**	**23%**
22	1,252	33%	979	26%	759	20%	727	19%	594	16%	564	15%	**4,875**	**22%**
23	645	32%	468	23%	380	19%	370	19%	262	13%	291	14%	**2,416**	**20%**
24	142	41%	136	39%	110	31%	123	35%	64	18%	75	21%	**650**	**31%**
25	223	37%	193	32%	157	26%	142	24%	109	18%	169	28%	**993**	**28%**
25A	3	100%	0	0%	0	0%	0	0%	0	0%	1	50%	**4**	**24%**
26	180	40%	154	34%	125	28%	120	27%	77	17%	106	24%	**762**	**28%**
27	97	32%	83	28%	70	23%	62	21%	47	16%	61	20%	**420**	**23%**
28	105	35%	76	25%	58	19%	77	26%	22	7%	57	19%	**393**	**22%**
29	46	23%	50	25%	14	7%	32	16%	26	13%	21	10%	**189**	**16%**
30	125	42%	123	41%	83	28%	81	27%	59	20%	73	24%	**544**	**30%**
31	38	19%	32	16%	30	15%	14	7%	16	8%	0	0%	**130**	**11%**
32	52	26%	34	17%	30	15%	26	13%	18	9%	28	14%	**188**	**16%**
33	312	45%	244	35%	239	34%	248	35%	135	19%	188	27%	**1,366**	**33%**
34	398	44%	348	38%	321	35%	294	33%	200	22%	248	27%	**1,807**	**33%**
35	170	43%	161	40%	111	28%	126	32%	81	20%	108	27%	**757**	**32%**
36	241	42%	169	29%	158	27%	139	24%	92	16%	97	17%	**896**	**26%**
37	400	40%	332	33%	280	28%	305	31%	268	27%	266	27%	**1,851**	**31%**
38	220	34%	161	25%	120	18%	104	16%	109	17%	103	16%	**817**	**21%**
39	162	30%	108	20%	68	13%	104	19%	81	15%	82	15%	**605**	**19%**
40	173	35%	173	35%	123	25%	94	19%	103	20%	98	19%	**764**	**25%**
41	188	31%	168	28%	132	22%	103	17%	93	16%	93	15%	**776**	**22%**
42	304	43%	234	33%	178	25%	183	26%	164	23%	145	21%	**1,208**	**29%**
43	256	51%	200	40%	128	26%	146	29%	124	25%	106	21%	**960**	**32%**
44	97	49%	72	36%	48	24%	48	24%	36	18%	27	14%	**328**	**27%**
45	52	26%	41	21%	39	19%	45	22%	33	16%	19	10%	**229**	**19%**
46	9	36%	9	36%	7	28%	8	32%	4	16%	9	36%	**46**	**31%**
PM	29	36%	35	37%	14	13%	18	18%	10	11%	5	15%	**111**	**22%**
Unks	0	0%	2	0%	1	0%	0	0%	0	0%	0	0%	**3**	**0%**
Total	**11,324**	**34%**	**9,478**	**28%**	**7,281**	**22%**	**7,174**	**21%**	**6,578**	**17%**	**6,827**	**18%**	**48,662**	**23%**

Table 1. Wisconsin 2006 Spring Turkey Harvest Data

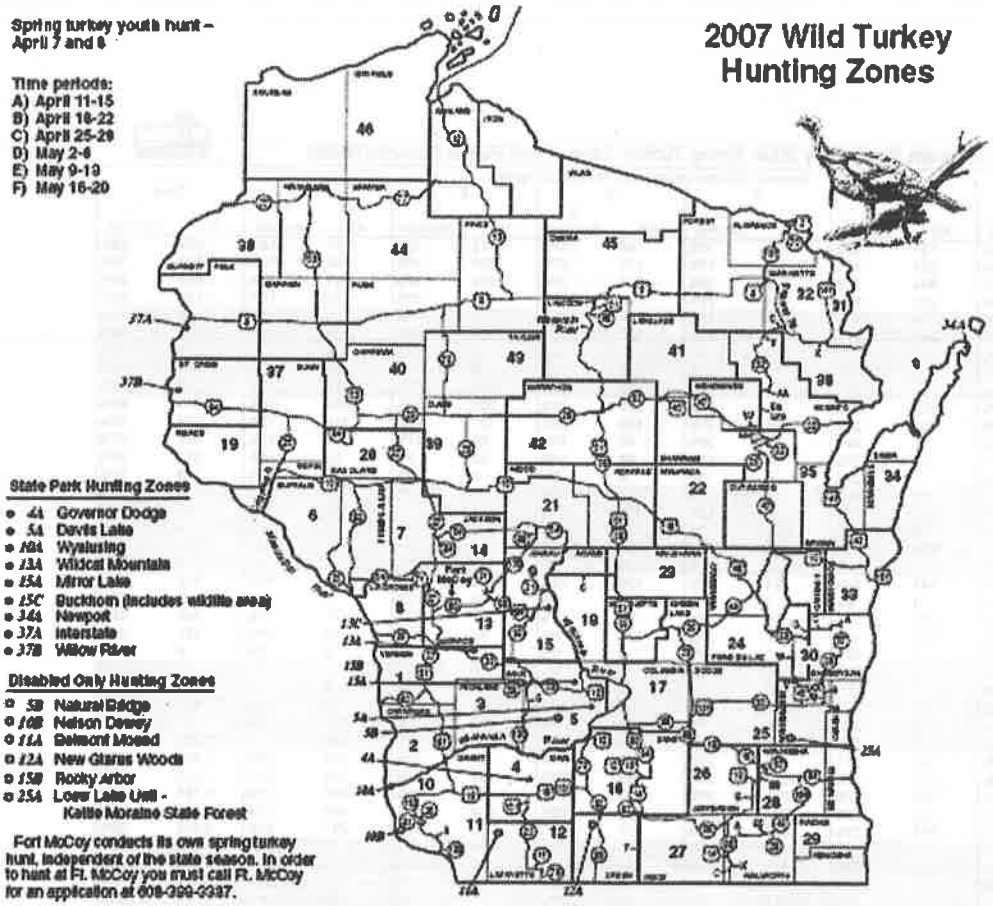


Figure 2. 2007 Spring Turkey Zones.

Appendices

Indiana Exotic Animal Regulations

Wisconsin Ginseng Depredation Paper

TITLE 312 NATURAL RESOURCES COMMISSION
LSA Document #05-261(F)

DIGEST

Amends 312 IAC 9-3-2 and adds 312 IAC 9-3-18.5, concerning the hunting of white-tailed deer possessed under a game breeder license and the taking, possessing, and releasing of exotic mammals, to prohibit the taking and releasing of the exotic mammals described in this rule. Adds 312 IAC 9-10-21 concerning cervidae possession permits. Effective 30 days after filing with the Secretary of State.

312 IAC 9-3-2
312 IAC 9-3-18.5
312 IAC 9-10-21

SECTION 1. 312 IAC 9-3-2, AS AMENDED AT 28 IR 536, SECTION 3, IS AMENDED TO READ AS FOLLOWS:

312 IAC 9-3-2 General requirements for deer; exemptions; tagging; tree blinds; maximum taking of antlered deer in a calendar year
Authority: IC 14-22-2-6
Affected: IC 14-22-11-1; IC 14-22-11-11

Sec. 2. (a) This section and sections 3 through 10 of this rule govern the:
(1) hunting;
(2) transportation; and
(3) disposal;
of deer.
(b) Species of deer other than white-tailed deer (Odocoileus virginianus) are exempted from the following:
(1) This section and
(2) Sections 3 through 9 of this rule.
A person who claims the exemption provided under this subsection must prove the deer is other than a white-tailed deer.
(c) The licenses identified by sections 3 through 8 of this rule are nonexclusive. An individual may apply for one (1) or more of these licenses.
(d) Before September 1, 2007, a person must not take more than one (1) antlered deer during the seasons for an annual deer license.
(e) The use or aid of:
(1) a food product that is transported and placed for consumption;
(2) salt;
(3) mineral blocks;
(4) prepared solid or liquid intended for ingestion (herein called bait);
(5) snares;
(6) dogs; or
(7) other domesticated animals;
to take deer is prohibited. A person must not hunt by the aid of bait or on or over a baited area. An area is considered baited for ten (10) days after the removal of the bait or the baited soil. Hunting an orchard or another area, which may be attractive to deer as the result of normal agricultural activity, is not prohibited. The use of manufactured scents and lures or similar chemical or natural attractants is not prohibited.
(f) The hunting of white-tailed deer possessed under the authority of a game breeder license under 312 IAC 9-10-4 is prohibited.
(g) Except as provided under IC 14-22-11-1 and IC 14-22-11-11, a person must not hunt:
(1) deer unless the person possesses a completed and signed license bearing the person's name; or
(2) with a deer license issued to another person.
(h) A piece of paper must, immediately upon taking a deer, state the following:
(1) The name and address of the person.
(2) The license number (if applicable).
(3) The sex of the deer.
(4) The month and day the deer was taken.

A deer leg must be tagged with the piece of paper before leaving the field. A deer that is in the field is not required to be tagged if the person who takes the deer maintains immediate custody of, and constant visual contact with, the deer carcass.

(i) A person who takes a deer must cause delivery of the deer carcass to an official checking station for registration on the occurrence of the earlier of the following:

(1) Within forty-eight (48) hours of the taking of the deer.

(2) Before the deer is removed from this state.

The person who delivers the deer carcass to an official checking station for registration must provide accurate information for the check station logs.

(j) After the checking station operator records the permanent seal number on the log and collects the piece of paper described in subsection (h), the operator shall give the seal to the person. The person must immediately affix the seal:

(1) between a tendon and bone;

(2) through a section of skin or flesh; or

(3) around a branched antler;

to prevent its removal (without cutting the seal or the body part to which it is affixed). The seal must be maintained until processing of the deer begins.

(k) The checking station operator must do the following:

(1) Accurately and legibly complete all forms provided by the department.

(2) Make those forms available to department personnel upon request.

(l) A person must not erect, place, or hunt from a permanent tree blind on state-owned lands. A tree blind placed on:

(1) state-owned or state-leased lands;

(2) U.S. Forest Service lands;

(3) the Muscatatuck National Wildlife Refuge; or

(4) the Big Oaks National Wildlife Refuge;

must be portable and may be left overnight only between September 1 and January 10. A fastener used in conjunction with a tree blind and a tree or pole climber that penetrates a tree more than one-half (½) inch is prohibited. Each portable tree blind must be legibly marked with the name, address, and telephone number of the owner of the tree blind.

(m) The head of a deer must remain attached to the carcass until the tag is attached and locked at the deer checking station.

(n) The use of infrared sensors to locate or take deer is prohibited. A person must not hunt or to retrieve deer with the aid of an infrared detector.

(o) Notwithstanding subsection (e), dogs may be used only while on a leash to track or trail wounded deer.

(p) Notwithstanding subsection (e):

(1) donkeys;

(2) mules; and

(3) horses;

may be used for transportation to and from a hunt but may not be used while hunting.

(q) The possession of an electronic deer call is prohibited. A person must not hunt deer with the aid of an electronic deer call.

(Natural Resources Commission; 312 IAC 9-3-2; filed May 12, 1997, 10:00 a.m.: 20 IR 2702; filed Dec 26, 2001, 2:40 p.m.: 25 IR 1528; readopted filed Jul 28, 2003, 12:00 p.m.: 27 IR 286; filed Sep 23, 2004, 3:00 p.m.: 28 IR 536; filed May 12, 2006, 10:38 a.m.: 29 IR 3344)

SECTION 2. 312 IAC 9-3-18.5 IS ADDED TO READ AS FOLLOWS:

312 IAC 9-3-18.5 Exotic mammals

Authority: IC 14-22-2-6; IC 14-22-32-6

Affected: IC 14-8-2-278; IC 14-22; IC 15-2.1-24

Sec. 18.5. (a) A person must not take, as defined by IC 14-8-2-278, an exotic mammal that is a species from any of the following families of mammals:

(1) Bradypodidae (tree sloth).

(2) Bovidae (gazelle, bighorn sheep, antelope, and wildebeest), except for domestic cattle (genus Bos, including all dairy and beef animals) and buffalo (Bison bison).

(3) Camelidae (camel and llama).

(4) Canidae (jackal, wild dog, and other exotic foxes).

(5) Cebidae (marmoset).

(6) Cercopithecidae (baboon and monkey).
(7) Cervidae (elk, moose, caribou, and other exotic deer).
(8) Dasypodidae (armadillo).
(9) Elephantidae (elephant).
(10) Equidae (wild horse and zebra), except for domestic horses.
(11) Felidae (mountain lion, lynx, tiger, and other exotic cats).
(12) Giraffidae (giraffe and okapi).
(13) Hippopotamidae (hippopotamus).
(14) Hyaenidae (hyaena).
(15) Macropodidae (kangaroo and wallaby).
(16) Myrmecophagidae (anteater).
(17) Orycteropodidae (aardvark).
(18) Pongidae (chimpanzee, bonobo, and gorilla).
(19) Procaviidae (hyrax).
(20) Protelidae (aardwolf).
(21) Rhinocerotidae (rhinoceros).
(22) Suidae (wild boar and other exotic swine), except for domestic swine.
(23) Tapiridae (tapir).
(24) Tayassuidae (javelina and peccary).
(25) Tragulidae (chevrotain).
(26) Ursidae (bear).
(27) A hybrid or genetically altered mammal of any of these families.

Exempted from this section are the following species of mammals that are not considered to be exotic mammals: white-tailed deer, bobcat, red fox, gray fox, and coyote.

(b) Notwithstanding subsection (a), a person may take an exotic mammal only if the exotic mammal is:
(1) taken by a resident landowner or tenant while causing damage to property that is owned or leased by the landowner or tenant; or
(2) a species from the family:
(A) suidae and:
(i) has been released or escaped from captivity; or
(ii) is a member of a breeding population in the wild; or
(B) bovidae, camelidae, or cervidae and slaughtered in accordance with IC 15-2.1-24.

(c) A person may not possess an exotic mammal that is a species from a family listed in subsection (a) except as otherwise provided by statute or this article.

(d) A person:
(1) may not release an exotic mammal that is a species from a family listed in subsection (a) into the wild in Indiana except as otherwise provided by statute or this article; and
(2) must report the escape of any exotic mammal listed in subsection (a) to a conservation officer within twenty-four (24) hours.

(e) As used in this rule, "exotic mammal" means a species that is:
(1) not native to Indiana; or
(2) extirpated from Indiana and either a:
(A) wild animal; or
(B) feral animal other than a dog or cat.

(Natural Resources Commission; 312 IAC 9-3-18.5; filed May 12, 2006, 10:38 a.m.: 29 IR 3346)

SECTION 3. 312 IAC 9-10-21 IS ADDED TO READ AS FOLLOWS:

312 IAC 9-10-21 Cervidae possession permit
Authority: IC 14-22-2-4; IC 14-22-2-6; IC 14-22-6-1; IC 14-22-32
Affected: IC 4-21.5; IC 14-22

Sec. 21. (a) Except as provided in subsection (b), this section establishes the requirements that a person must satisfy to possess one (1) or more species of exotic mammals from the cervidae family.

(b) Exempted from this section is an accredited zoological park, circus, carnival, or research facility licensed under 9 CFR Chapter 1, Subchapter A.

(c) An application for a cervidae possession permit for one (1) or more of the following species of exotic mammals in the cervidae family (common names are included for public convenience, but the scientific names control) must be made on a departmental form:

(1) Deer (all species, except white-tailed deer, Odocoileus virginianus).
(2) Elk (Cervus canadensis).
(3) Caribou (all species).
(4) Moose (Alces alces).
(5) A hybrid or genetically altered mammal of any of the cervidae family.

(d) Each cage or enclosure will be inspected by a conservation officer before a permit may be issued. An application for a permit under this section must be made within five (5) days after the:
(1) acquisition of an animal within Indiana; or
(2) importation of an animal into Indiana.

(e) The enclosure must have a perimeter fence consisting of at least a single eight (8) foot fence. Each cage or enclosure used to house animals shall be large enough to provide each animal with ample space for exercise and to avoid overcrowding. All chainlink or welded wire edges shall be smoothly secured to prevent injury to the animals and be kept properly repaired. Night quarters and holding pens may not be used as primary housing. The following shall be provided as required for the comfort of the particular species of animal:
(1) Fresh water.
(2) Windbreaks.
(3) Shelters.
(4) Shade.
(5) Bedding.

Each animal shall be handled, housed, and transported in a sanitary and humane manner. An enclosure used to house the animals must be provided with sufficient drainage to prevent standing water from accumulating. Upon a request by a conservation officer, any cage or other enclosure must be made available for inspection.

(f) Each animal possessed under this section must be lawfully acquired. At least one (1) of the following shall be presented for inspection upon the request of a conservation officer:
(1) A receipted invoice.
(2) A bill of lading.
(3) Other satisfactory evidence of lawful acquisition.

Documentation in the form of a copy of a valid cervidae possession permit or valid dated receipt that establishes lawful acquisition or ownership must accompany any transportation of the animals.

(g) A permit holder must report the escape of any mammal possessed under this section to a conservation officer within twenty-four (24) hours. No animals possessed under this section may be released.

(h) A permit holder must comply with all applicable state, local, or other federal laws. An animal possessed under this section may be administered a pharmaceutical product approved by a state or federal agency for the purpose of prevention or treatment of any of the following:
(1) Malnutrition.
(2) Illness.
(3) Disease.
(4) Injury.
(5) Stress.

A licensed veterinarian may administer to an animal an immobilizing agent, tranquilizer, or drug for euthanasia in compliance with all state and federal laws.

(i) A person must not sell a wild animal possessed under this section if the person knows or should know the animal is diseased.

(j) A permit holder must do the following:
(1) Record all transactions by which a wild animal possessed under this section is:
(A) sold;
(B) traded;
(C) loaned;
(D) bartered; or
(E) given;
to another person on a departmental form or computerized record.
(2) Keep a copy of the transaction record on the premises of the permit holder for at least two (2) years after the transaction and provide a copy to a conservation officer upon request.
(3) Issue a valid, dated receipt for all animals sold, traded, bartered, or gifted and include the following information:
(A) The cervidae possession permit number.
(B) The buyer's and seller's name and address.
(C) The number of animals sold.
(D) The species of the animal sold.

(k) A permit expires on December 31 of the year the permit is issued. The permit holder must provide an annual report to the division by February 15. The annual report shall include for each species possessed under this permit the number:

(1) bought;
(2) sold;
(3) born;
(4) traded;
(5) gifted;
(6) of deaths; and
(7) on hand.

(l) A conservation officer may enter the premises of the permit holder at all reasonable hours to inspect those premises and any records relative to the permit. The conservation officer shall immediately notify the permit holder if the inspection reveals that the wild animals are being kept under unsanitary or inhumane conditions. The conservation officer may make a second inspection after ten (10) days, and:

(1) the permit may be suspended or revoked under IC 4-21.5; and
(2) the wild animals may be confiscated if the permit holder fails to comply with a provision of the permit.

(m) A permit may be suspended, denied, or revoked under IC 4-21.5 if the permit holder fails to comply with any of the following:

(1) A provision of a permit issued under this section.
(2) All applicable state, local, or other federal laws.

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Resources, 402 W. Washington Street, Room W273, Indianapolis, Indiana 46204, (317) 233-9382, gmccollam@dnr.in.gov

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Scott J. Werner
United States Department of Agriculture
Animal and Plant Health Inspection Service
Wildlife Services, National Wildlife Research Center
4101 LaPorte Avenue
Fort Collins, CO 80521-2154
970-266-6133; Fax: 970-266-6138; Scott.J.Werner@aphis.usda.gov

Surveyed impacts of wild turkeys to Wisconsin ginseng production

Scott J. Werner, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, National Wildlife Research Center, 4101 LaPorte Avenue, Fort Collins, CO 80521-2154, USA

Stephanie A. Shwiff, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, National Wildlife Research Center, 4101 LaPorte Avenue, Fort Collins, CO 80521-2154, USA

Jason Suckow, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, 732 Lois Drive, Sun Prairie, WI 53590-1100, USA

Robert C. Willging, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, 3654 Nursery Road, Rhinelander, WI 54501-9118, USA

Jim A. Tharman, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, 1110 East 10th Street, Merrill, WI 54452, USA

Daniel L. Hirchert, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, 1201 Storbeck Road, Waupun, WI 53963, USA

Joe Heil, Ginseng Board of Wisconsin, Inc., 7575 Bombardier Court, Suite 300, Wausau, WI 54401, USA

Dave Neu, National Wild Turkey Federation, 265 Lorrie Way, De Pere, WI 54115, USA

Abstract: Recent relocations of wild turkeys (*Meleagris gallopavo*) within Wisconsin have populated the central counties associated with 95% of American ginseng (*Panax quinquefolius*) production. In response to perceived and emerging conflicts, the Ginseng Board of Wisconsin, Inc. conducted a producer survey in March 2006 to determine the extent and timing of wild turkey damage experienced among all Wisconsin ginseng producers, and the methods used to minimize wild turkey damage. We summarized 47 completed surveys (~13% of all Wisconsin producers). Most survey respondents reported that wild turkeys were present (83%) and cause damage (60%) at their ginseng facilities every year (i.e., April – November). Two percent of respondents never had wild turkeys at their facility, and 11% reported no negative impacts of turkeys to their ginseng production. Turkey damage was regarded as "moderate" and "heavy" among 45% and 28% of survey respondents, respectively. The majority of respondents reported that annual losses were $2,000 – $5,000, and they spend <$2,000 annually for turkey damage management. Vertical fencing, scarecrows, mylar ribbons, dogs, windmills, and lethal harassment were thought to provide long term effectiveness by some ginseng producers. Survey results will be used to further identify, investigate, and manage wild turkey impacts to Wisconsin ginseng production.

Key words: human-wildlife conflicts, *Meleagris gallopavo, Panax quinquefolius,* wildlife damage management

Human-Wildlife Conflicts 00(0): 000–000

Through the mid-1800s, wild turkeys (*Meleagris gallopavo*) were common throughout the United States, including Wisconsin (Payer and Craven 1995). Towards the end of the 19th century, however, wild turkeys became extirpated in most states. Wild turkeys were reintroduced in many states, including Wisconsin in the mid-1970s. Between 1976 and 1993, almost 4,000 turkeys were stocked at 164 sites in 49 counties of Wisconsin (Payer and Craven 1995).

In 1983, the abundance of wild turkeys in Wisconsin was sufficient to support a "gobblers only" spring hunting season; 1,200 permits were issued (Craven 1989). By 1989, over 20,000 permits were issued and a fall (hen and gobbler) season was established. In 1989, "the Wisconsin turkey flock was estimated at 50,000 plus over a wide range in the southern half of the state, especially in about a dozen southwestern counties" (Craven 1989). In 1993, more than 130,000 wild turkeys inhabited Wisconsin (Payer and Craven 1995). Approximately 85,400 permits were issued in Wisconsin for the fall 2005 turkey season. Over 200,000 permits were available for Wisconsin turkey hunting in spring 2006 (WDNR 2006).

Recent relocations of wild turkeys within Wisconsin (1991, 1999) have populated the central counties associated with 95% of ginseng production in the United States (NASS 1992). Although impacts of wild turkeys to Wisconsin agriculture were recently reviewed, ginseng damage was not reported (Payer and Craven 1995). American ginseng (*Panax quinquefolius*) is a high value root crop grown under conditions of natural (i.e.,

woods-grown) or simulated forest understories (e.g., litter, shade). The production of ginseng includes seeding 0.1 – 3 ha gardens in the fall, and harvesting mature roots 3 – 4 years later. Gardens are covered with straw before winter and shaded with suspended lathing or shade cloth during summer.

Wild turkeys can damage ginseng by scratching litter or straw within ginseng gardens. Scratching can damage the crown of ginseng roots, thus precluding subsequent growth and marketable production. Scratching and removal of mulch within ginseng gardens can also increase frost heaving of roots during the winter – spring transition, increase wind exposure and desiccation of ginseng in summer, and decrease insulation needed in winter. Some growers believe that wild turkeys also consume ginseng seeds in newly-planted gardens. Indeed, a recent survey regarding wild turkey impacts to agriculture in the United States and Ontario indicated that Wisconsin ginseng producers reported wild turkey damages from 1996 – 1999 (Tefft et al. 2005). Of 22 agricultural crops associated with reported and confirmed damages caused by wild turkeys, ginseng was the only crop with confirmed "heavy" damage (Tefft et al. 2005).

Wild turkeys typically represent 1–2% of overall damage reported to the Wisconsin Department of Natural Resources (WDNR) each year. In 1998, $37,621 of agricultural losses were attributable to wild turkeys in Wisconsin (1 claim in each of 2 counties); $35,200 of these damages were associated with ginseng damage. In 2004, $196,318 of agricultural depredation was associated with wild turkeys in Wisconsin (31 claims in 12 counties); $188,251 of these losses were associated with ginseng damage (WDNR, unpublished data). These losses were appraised (i.e., verified) by county wildlife damage agents or representatives of the United States Department of

Agriculture's Wildlife Services program.

Some complaints associated with wild turkey depredation to agricultural crops are actually caused by species other than wild turkeys (Gabrey et al. 1993, Swanson et al. 2001, Tefft et al. 2005). Ginseng, however, may be particularly vulnerable to wild turkeys (Miller et al. 2000, Tefft et al. 2005). As part of the aforementioned survey regarding wild turkey impacts to agriculture in the United States and Ontario, Wisconsin was the only state that reported >100 annual depredation complaints and >$50,000 annual damage caused by wild turkeys (Tefft et al. 2005).

Methods

The Ginseng Board of Wisconsin, Inc. surveyed producers to investigate impacts of wild turkeys to Wisconsin ginseng production. The survey was developed to determine the extent and timing of damage experienced among all producers, and the methods used to minimize the impacts of wild turkeys to their ginseng production. The Board circulated the survey to ginseng producers at their March 2006 meeting and subsequently mailed the survey to all Wisconsin ginseng producers that did not complete the survey during the March meeting. A total of 365 surveys were distributed.

Survey questions

The survey contained 16 questions regarding wild turkeys and Wisconsin ginseng. All surveyed producers received a cover letter from the Ginseng Board of Wisconsin, Inc.. The cover letter invited producers to complete the survey and explained the confidentiality of the names and locations of survey respondents. Mailed surveys included a stamped return envelope.

Survey questions 1 – 3 asked about the location (i.e., county), number of acres

and gardens, and type of production (i.e., gardens, woods-grown) for each respondent. Question 4 asked if turkeys were present or caused damage on farms (never, some years, every year), and if they perceived their turkey damage as non-existent, light, moderate, or heavy (Tefft et al. 2005). Questions 5 – 6 pertained to months that wild turkeys were present and when damage occurred at ginseng facilities.

We also asked ginseng producers about the factors that might attract wild turkeys to ginseng gardens (Question 7). Factors included root age (i.e., no preference, newly seeded, 1^{st} – 4^{th} year), garden productivity (low – high density, poor – good root growth), straw type (oats, alfalfa, other), woods-ginseng distance (<45 – >185 m), and adjacent habitat (conifers, hardwoods, other). We also asked producers to describe other factors that might attract wild turkeys to their ginseng gardens.

The WDNR has had a wildlife damage program since 1931. The current Wildlife Damage Abatement and Claims Program (WDACP) was created in 1983. This program, funded by Wisconsin hunting license fees, provides up to $15,000 (per claimant) for confirmed agricultural depredation caused by white-tailed deer (*Odocoileus virginianus*), black bears (*Ursus americanus*), Canada geese (*Branta canadensis*), and wild turkeys. We asked producers if they were aware of the WDACP program (Questions 8 – 9), if they received WDACP payments in 1996 – 2006, and what the appraised damage was for their claims (<$2,000, $2,000 – $5,000, $10,000, $25,000, $50,000, >$50,000).

As part of the WDACP, reimbursed producers are required to make their property available for public hunting. We asked ginseng producers about turkey hunting access on their property, the level of interest that they experienced among hunters, and hunter success (Questions 10 – 12). We also asked ginseng producers if they had received an

agricultural damage shooting permit and tags from the WDNR, and if hunting or permitted shooting decreased their realized ginseng damage (Questions 13 – 14).

We asked ginseng producers about the damage management techniques that they used to manage wild turkey impacts at their farm (Question 15). We asked if listed methods were used, if they were effective, and the duration of the effectiveness (i.e., days, weeks, months, long term). We also asked producers to describe other methods used to manage turkey impacts at their farms.

Our last survey question related to average losses and damage management costs experienced by ginseng producers from wild turkeys. We asked survey respondents to indicate if crop damage (i.e., annual losses) and damage management costs at their facility were <$2,000, $2,000 – $5,000, $10,000, $25,000, $50,000, or >$50,000 annually. These estimates enabled us to summarize damage costs and damage management expenditures among Wisconsin ginseng producers.

Survey analyses

We summarized all completed surveys using descriptive statistics (mean, median, range, percent respondents). We tabulated all survey responses using binomial (0, 1) codes. We used correlation coefficients ($r = 0.50$) to determine the linear association between survey responses (Gujarati 1995) associated with the presence of wild turkeys and the occurrence of reported damage at Wisconsin ginseng facilities.

Results

Producer data

Forty seven ginseng producers completed the survey. Not all respondents answered all 16 questions. These respondents represented Dane (1 respondent), Jefferson

(1), Langlade (1), Lincoln (3), Marathon (34), Monroe (1), Polk (1), Taylor (3), Vernon (2), and Waupaca (1) counties of Wisconsin. One respondent indicated that he/she produces ginseng in 2 counties. Survey respondents represented 193 ha of ginseng production in 140 gardens. Median acreage was 2.4 ha per ginseng facility (range = 0.04 – 12.14 ha). On average, survey respondents managed 4 (range = 1 – 11) ginseng gardens. Two respondents indicated that they also produced woods-grown ginseng (total = 2.5 ha).

General experience with wild turkeys

Most survey respondents reported that wild turkeys were present (83%) and cause damage (60%) at their facilities every year (Figure 1). Two percent of respondents never had wild turkeys at their facility, and 11% reported no negative impacts of turkeys to their ginseng production. Wild turkey damage was regarded as "moderate" and "heavy" among 45% and 28% of survey respondents, respectively (Figure 1).

Timing of impacts

Most survey respondents indicated that wild turkeys were present and cause damage at their facilities from April – November (Figure 2). These trends peaked in September. Although >40% of surveyed producers indicated that wild turkeys were present at their facilities from December – March, <20% reported damage from December – February.

We related survey responses regarding when wild turkeys were present and when wild turkey damage occurred at Wisconsin ginseng facilities (Table 1). Whereas wild turkeys likely visit ginseng gardens during several months, we expected a linear relationship between sequential months when turkeys were present. We observed a high

correlation in the presence of turkeys between adjacent months. For example, if turkeys were present in January, they were also present in February ($r = 1.00$), March ($r = 0.79$), and April ($r = 0.52$). Interestingly, we observed a stronger and longer-lived relationship among summer – fall than during winter months. If wild turkeys were present at ginseng facilities in May – July, it was likely that they were also present through November (Table 1). It was also likely that turkey damage occurred in each month when turkeys were present at ginseng facilities. If wild turkeys were present in September, they caused damage from July – September (Table 1).

We also related survey responses regarding wild turkey damage between months (Table 2). We observed a high correlation in turkey damage between adjacent months. For example, if wild turkey damage was reported in January, they were also reported in February ($r = 1.00$) and March ($r = 0.64$). If turkeys reportedly damaged ginseng in June – July, it was also likely that damage occurred through September (Table 2).

Factors that may attract wild turkeys

We asked ginseng producers a series of questions regarding factors that may attract wild turkeys to ginseng gardens. Most respondents (>35%) indicated that wild turkeys have no preference for root age, garden productivity (i.e., density, root growth), straw type, distance from gardens to adjacent woods, or type of adjacent habitat (conifers, hardwoods, other). Interestingly, however, producers believed that wild turkeys were attracted most by newly seeded ginseng (i.e., first fall) and least by fourth-year, or harvestable ginseng. Oat straw was reportedly more attractive to wild turkeys than alfalfa. Other straw types included barley, rye, and wheat.

Wisconsin wildlife damage management program

Twenty three of 44 (52%) survey respondents indicated that they were aware of the WDACP program. Three of these producers received a WDACP payment for confirmed wild turkey damage. Appraised damage associated with these claims was $15,000 – $20,000 in 2003, $2,000 – $10,000 in 2004, and $10,000 – $25,000 in 2004. Three of 39 respondents (8%) received agricultural damage shooting permits to reduce turkey damage at their ginseng facilities.

Turkey hunting access and success

Five of 25 survey respondents (20%) indicated that no hunters accessed their property for turkey hunting. Four respondents (16%) reported that hunters contacted them regarding hunting access but none hunted on their property. Ten respondents hosted an average of 5 turkey hunters (range = 1 – 20) for 10 days (range = 2 – 42). Twelve of 22 respondents (55%) claimed that hunters shot turkeys on their property. Six of 18 surveyed producers (33%) believed that turkey hunting or permitted shooting decreased ginseng damage on their property.

Damage management techniques

We asked ginseng producers to identify and evaluate the damage management techniques that they use to minimize wild turkey damage. Vertical fencing was regarded as the most effective of 11 techniques listed in our survey (Table 3). At least 25% of surveyed producers indicated that visual deterrents (scarecrows, owl decoys, balloons, mylar ribbons) effectively repelled wild turkeys from their facilities. Vertical fencing, scarecrows, mylar ribbons, dogs, and windmills were thought to provide long term effectiveness by some ginseng producers (Table 3). Pyrotechnics were regarded as the least effective management technique.

We also asked ginseng producers to describe other methods that they used for turkey damage management. At least one respondent indicated that they have used pie pans and string fence (effective for days), shade cloth, liquid cayenne seed treatments (effective for weeks), white plastic bags (effective for months), and lethal harassment (long term efficacy) to minimize turkey damage at their production facilities.

Monetary impacts of wild turkeys to Wisconsin ginseng

The majority of respondents indicated that annual losses were $2,000 – $5,000, and expenditures were <$2,000 annually for mitigating turkey damage (Figure 3). One respondent reported that his/her annual losses from wild turkey damage were >$50,000. Twenty-one percent of surveyed producers reported spending $2,000 – $10,000 annually to manage wild turkey damage.

Discussion

Whereas 47 of 365 known ginseng growers completed the survey, our inferences were limited to survey respondents, not all Wisconsin producers or the entire industry. Thus, 39 respondents indicated that wild turkeys were present and 28 respondents indicated that turkeys cause damage at their facilities every year. Similarly, 82% and 64% of survey respondents indicated that wild turkeys were present ($n = 337$) and caused crop damage ($n = 276$) in northeastern Iowa (Gabrey et al. 1993).

We met with representatives of the Ginseng Board of Wisconsin, Inc. prior to the survey. Most growers indicated that their experience with wild turkey damage was in late winter when relatively little snow enabled turkeys to scratch within their gardens. Survey respondents, however, indicated that turkeys were present and cause damage from April – November. Further investigations of wild turkey damage to Wisconsin ginseng

should include seasonal observations relative to snow accumulation, production status (e.g., newly planted, $1^{st} - 4^{th}$ year), and attractiveness (e.g., presence of ginseng seed, waste grains in straw) of particular gardens.

Wild turkeys can scratch and damage several acres of ginseng during a single or few visits. These damages may be particularly apparent for woods-grown ginseng where planted areas are remote from daily activities of growers. Thus, vigilant protection of ginseng is required throughout 3 – 4 years prior to harvest. In contrast to constant visual deterrents (e.g., mylar ribbons, scarecrows), motion-activated hazing systems provide repellent consequences contingent upon the activity of a target subject and thereby minimize habituation (Werner and Clark 2006). However, if producers manage 2.4 ha of ginseng and they can spend $2,000 annually for turkey damage management, cost-effective methods will cost <$833/ha.

As part of the WDACP, the WDNR currently provides polypropylene fencing to ginseng producers who experience turkey damage. Personnel of the United States Department of Agriculture's Wildlife Services program have helped growers install fences. We recommend installation of vertical fences prior to initial visitation of turkeys at ginseng gardens (i.e., when gardens are planted). Whereas survey respondents reported the long-term efficacy of vertical fences, this method may be the most cost effective of all available techniques for managing wild turkey impacts to Wisconsin ginseng production.

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Associate editor:

Figure Legends

Figure 1. General experience of Wisconsin ginseng producers ($N = 46$ survey respondents) with wild turkey impacts to their ginseng production, March 2006.

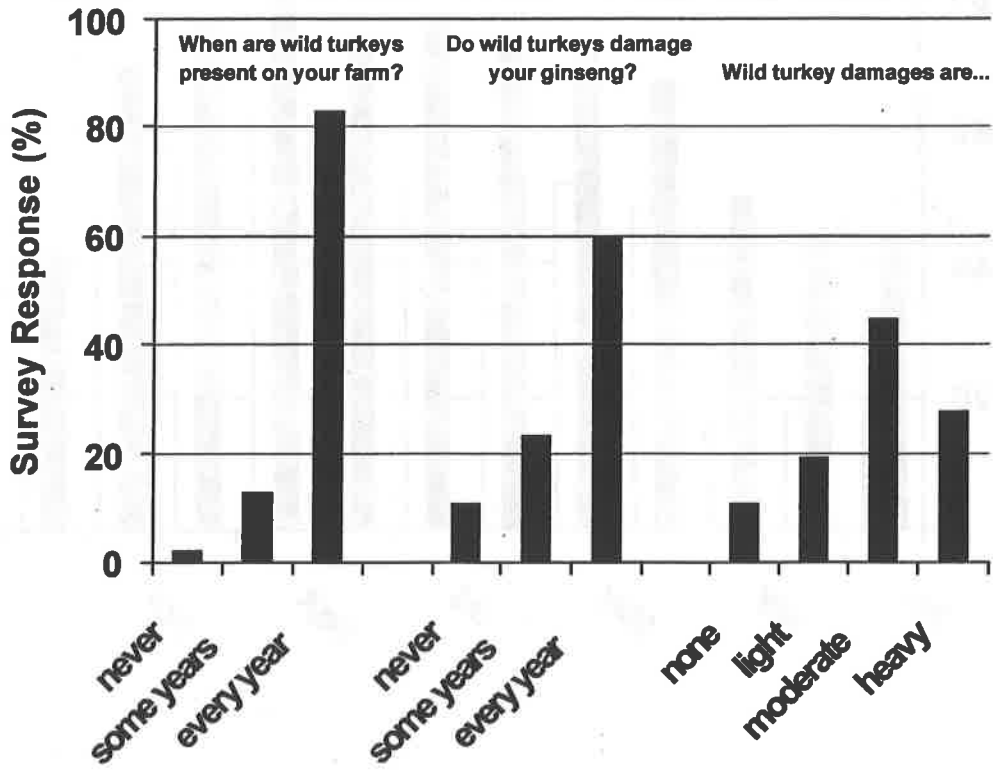

Figure 2. Months associated with presence and reported damage (N = 40 survey respondents) of wild turkeys at Wisconsin ginseng facilities.

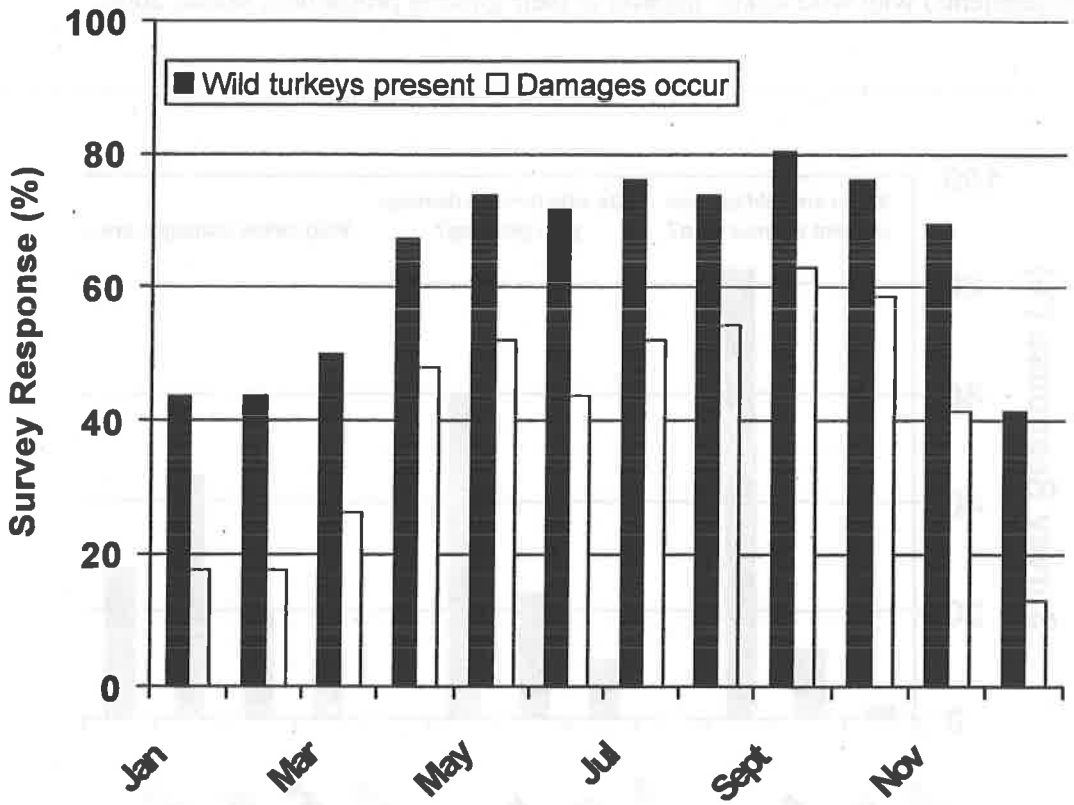

Figure 3. Estimated (N = 33 survey respondents) annual crop damage (i.e., monetary losses) and damage management costs experienced from wild turkeys at Wisconsin ginseng facilities, March 2006.

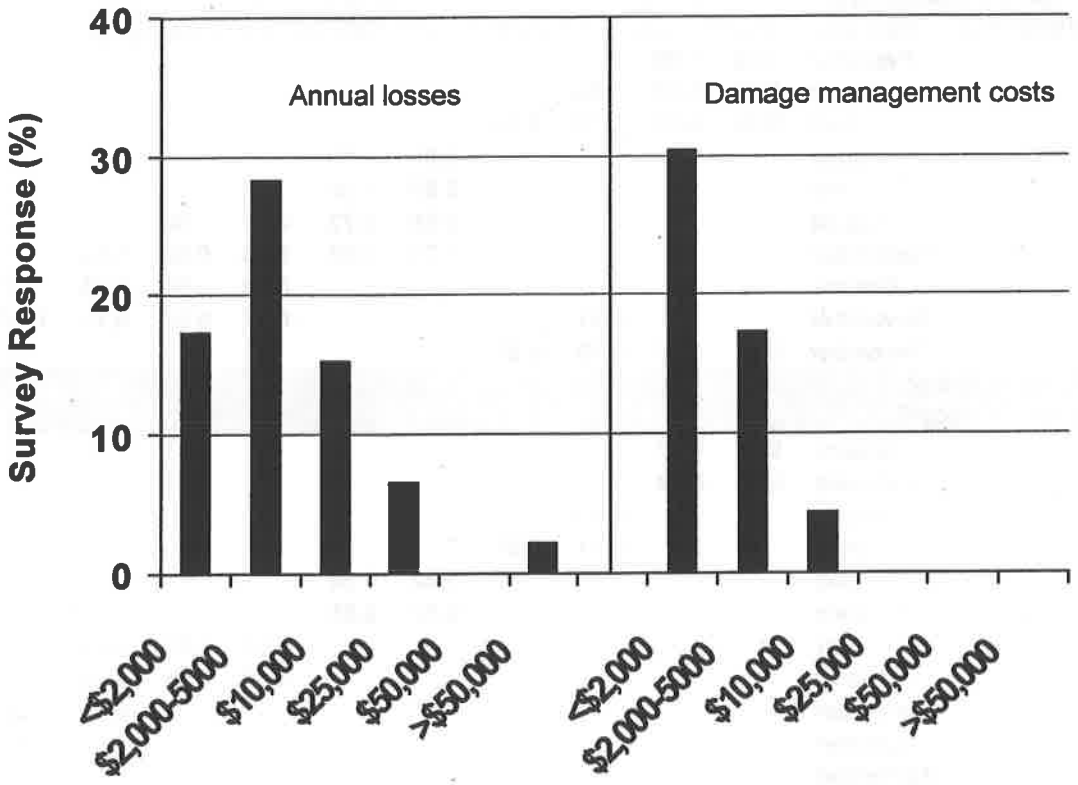

Table 1. Timing of wild turkeys and reported damage at Wisconsin ginseng production facilities, March 2006. Linear relationships between survey questions were based upon correlation coefficients ($r = 0.50$). Relationships of interest appear in bold.

	When are wild turkeys present?										
Survey question	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**
When are wild turkeys present?											
February	**1.00**	1.00									
March	**0.79**	**0.79**	1.00								
April	**0.52**	**0.52**	0.70	1.00							
June					**0.95**	1.00					
July					**0.83**	**0.89**	1.00				
August					**0.66**	**0.73**	**0.83**	1.00			
September					**0.71**	**0.66**	**0.75**	**0.83**	1.00		
October							**0.52**	**0.60**	**0.75**	1.00	
November			0.57				**0.52**	**0.58**	**0.75**	**0.85**	1.00
December	0.87	0.87	0.75	0.58							0.55
When do turkey damages occur?											
January	**0.52**	0.52									
February	0.52	**0.52**									
March			**0.59**								
April			0.61	**0.67**							
May					**0.62**	0.56					
June					0.52	**0.55**					
July							**0.59**	0.62	**0.52**		
August							0.51	**0.65**	**0.54**		
September									**0.64**	0.52	
October										**0.67**	0.60
November											**0.55**

Table 2. Months of reported turkey damage at Wisconsin ginseng production facilities, March 2006. Linear relationships were based upon correlation coefficients ($r = 0.50$). Relationships of interest appear in bold.

	When do turkey damages occur?								
Survey question	**Jan**	**Feb**	**Mar**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**
When do turkey damages occur?									
January	1.00								
February	**1.00**	1.00							
March	**0.64**	**0.64**	1.00						
April			**0.62**						
May				1.00					
June				**0.75**	1.00				
July					**0.75**	1.00			
August					**0.54**	**0.78**	1.00		
September						**0.62**	**0.74**	1.00	
October								**0.73**	1.00
November			0.51						**0.61**
December	0.84	0.84	0.50						

Table 3. Reported efficacy and longevity of effectiveness (% survey respondents) of damage management techniques used by Wisconsin ginseng producers to minimize wild turkey damage, March 2006.

Technique	Respondents (*N*)	Efficacy (%)	Longevity (%)			
			Days	Weeks	Months	Long term
Vertical fencing	23	74	9	4	9	30
Propane cannons	16	19	6	13	0	0
Pyrotechnics	12	0	0	0	0	0
Electronic audio devices	13	8	8	0	0	0
Scarecrows	15	27	7	0	7	20
Owl decoys	12	33	0	8	8	0
Balloons	12	25	0	0	8	0
Mylar ribbons	17	47	12	12	0	12
Dogs	14	21	0	0	0	21
Windmills	12	17	0	0	8	8
Nonlethal dispersal	13	8	8	0	0	0