# *33rd Midwest Deer and Wild Turkey Study Group Proceedings*


***September 13-16, 2009***
***Rock Springs 4-H Center***
***Junction City, Kansas***

# 2009 Midwest Deer and Wild Turkey Study Group Proceedings
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# 33rd Midwest Deer & Wild Turkey Study Group Meeting Proceedings

## Meeting Time and Place

The Kansas Department of Wildlife and Parks (KDWP) hosted the Midwest Deer & Wild Turkey Study (MDWTSG) meeting from September 13-16, 2009. The meeting was held at Rock Springs 4-H camp in near Junction City, Kansas.

## Attendance

A total of 27 people attended the meeting with representatives from 9 member states, the National Wild Turkey Federation (NWTF), and one retired group member. Invited speakers from South Dakota State University, the University of Wisconsin, and the Colorado Division of Wildlife also participated in the meeting.

## Executive Summary

As in past years, this year's meeting started with a general session with presentations for the entire group. Speakers were from the KDWP, University of Wisconsin, South Dakota State University, Missouri Department of Conservation, Colorado Division of Wildlife, Michigan Department of Natural Resources, Kansas State University, Emporia State University, NWTF, and Iowa Department of Natural Resources. Topics included ongoing turkey research in Kansas and South Dakota, marketing turkey hunting in Kansas, deer genetics, hunter compliance, population monitoring, etc. (see agenda).

During the turkey break-out session each state agency representative gave an update on the turkey program within their respective states. The turkey group also heard an updated on NWTF activities from John Burk. The turkey group also had discussion on the following list of topics: illegal release of turkeys, use of rifles, disease transmission to livestock, carcass tags, scale of management, and hunter survey techniques and value. A summary of the state status reports and highlights from these discussions are documented in the meeting minutes from the turkey break-out session.

During the deer break-out session there was an extensive discussion of feeding and baiting issues and their interaction with CWD and TB. That issue was lead by Dale Garner. Bruce Trindle and Robert Rolley gave presentation from their states. Tom Litchfield gave a presentation and led a discussion on QDM and state deer management objectives. Tom Micetich led a discussion on private lands leading for big game hunting. Brent Rudolph led a discussion on human dimensions issues in deer management. Lonnie Hansen led a discussion on sharpshooting and sterilization in urban deer management. Brian Haroldson led a discussion on aerial and ground surveys. Bill Jensen provided an update and led a discussion on lead bullet fragments in venison and its impact on food pantries.

On the final afternoon of the meeting a joint business meeting was held. The group was asked by a representative of the Northeast Deer & Wild Turkey Study Group to discuss the possibility of a joint meeting in the future. The group chose to defer that idea to a later date. The North Dakota Game & Fish Department was selected to host the next meeting during the fall of 2010. The meeting will be held in September of 2010 and will likely be in Devils Lake, ND.

| Last Name | First | Organization | Address | Address 2 | City | State | Zip | Phone | email |
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| Blecka | Kevin | | | | | | | 785-243-6599 | kevin.blecha@gmail.com |
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| Chipault | Marc | Univ of Wisconsin | | | | | | | chipault@wisc.edu |
| Curtis | Craig | Kansas Dept of Wildlife & Parks | 6232 E 29th St. N | | Wichita | KS | 67220 | 316-683-8069 | CraigC@wp.state.ks.us |
| Dunton | Eric | Minnesota Dept of Natural Resources | | | | | | | Eric.Dunton@dnr.state.mn.us |
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| Garner | Dale | Iowa Department of Natural Resources | Wallace State Office Builiding | 502 East 9th Street | Des Moines | IA | 50319 | 515-281-6156 | dale.garner@dnr.state.ia.us |
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| Haroldson | Brian | Minnesota Dept of Natural Resources | 35365 800th Ave | | Madelia | MN | 56062 | 507-642-8478, ext 29 | brian.haroldson@dnr.state.mn.us |
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| Jensen | Bill | North Dakota Game & Fish Dept | 100 N Bismarck Expressway | | Bismarck | ND | 58501 | 701-328-6637 | bjensen@state.nd.us |
| Jensen | K. C. | South Dakota State Univ. | Department of Wildlife and Fisheries Sciences | | Brookings | SD | 57007-1696 | 605-688-6121 | kent.jensen@sdstate.edu |
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| Litchfield | Thomas | Iowa Department of Natural Resources | Chariton Research Station | 24570 US HWY 34 | Chariton | IA | 50049 | 641-774-2958 | Tom.Litchfield@dnr.iowa.gov |
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| Micetich | Tom | Illinois Dept of Natural Resources | 700 S. 10th Street | | Havana | IL | 62644 | 309-543-3316 | tom.micetich@illinois.gov |
| Odle | Brad | Kansas Dept of Wildlife & Parks | PO Box 338 | 1426 Hwy 183 Alt | Hays | KS | 67601 | 785-628-8614 | brado@wp.state.ks.us |
| Peek | Matt | Kansas Dept of Wildlife & Parks | PO Box 1525 | 1830 Merchant | Emporia | KS | 66801 | 620-342-0658, ext 202 | mattp@wp.state.ks.us |
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| Rudolph | Brent | Michigan Dept of Natural Resources | PO Box 30444 | 530 W Allegan Street | Lansing | MI | 48909-7944 | 517-373-9565 | rudolphb@michigan.gov |
| Seirer | Tyson | Emporia State University | | | | | | 785-307-0556 | tysonseirer@hotmail.com |
| Stewart | Al | Michigan Dept of Natural Resources | PO Box 30444 | 530 W Allegan Street | Lansing | MI | 48909-7944 | 517-373-1263 | stewarac@michigan.gov |
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| Whiteaker | Randy | Kansas Dept of Wildlife & Parks | 3598 178th | | Denison | KS | 66419 | 785-246-3449 | RandyW@wp.state.ks.us |
| Wolfe | Roger | Kansas Dept of Wildlife & Parks | 300 SW Wanamaker Rd | | Topeka | KS | 66606 | 785-273-6740 | rogerw@wp.state.ks.us |

## Meeting Locations

| Year | State | Location | Date |
|---|---|---|---|
| 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 Envir. Learning Center | Aug. 21-24 |
| 2006 | Indiana | Camp Ransburg, BSA | Aug. 20-23 |
| 2007 | Ohio | Canter's Cave 4-H Camp | Aug. 19-22 |
| 2008 | Nebraska | Fort Robinson State Park | Sep. 14-17 |
| 2009 | Kansas | Rock Springs 4-H Camp | Sep 13-16 |

# *33rd Midwest Deer & Wild Turkey Study Group Meeting Agenda*

Rock Springs 4-H Camp (Junction City, KS)
September 13-16, 2009

**Sunday, September 13, 2009**

| | |
|---|---|
| Arrival and registration after | 3:00 |
| Dinner & welcome reception | 6:00 |

**Monday, September 14, 2009**

| | |
|---|---|
| Breakfast | 7:30 |
| General Group Meeting | 8:30 – 12:00 |
| Welcome and Introductions | 8:30 – 12:00 |
| Presentations | |
| • Kansas wild turkey research (Marc Chipault) | 8:35 |
| • Wild turkey research in South Dakota (K.C. Jensen) | 9:05 |
| • Marketing spring turkey hunting in Kansas (Jim Pitman) | 9:35 |
| Break | 10:00 – 10:30 |
| • Deer genetics and the potential impacts of selective harvest (Jason Sumners) | 10:30 |
| • Environmental, Social, and Biological Factors Associated With Contact Rates Between Deer on Quivira National Wildlife Refuge (Kevin Blecha) | 11:00 |
| • CSI: Deer Camp: looking to criminological theory to enhance hunter compliance and cooperation. (Brent Rudolph) | 11:30 |
| Lunch | 12:00 – 1:30 |

**Monday, September 14, 2009**

General Group Meeting 1:30 – 3:00

Presentations

- Using GIS to compare land cover along white-tailed deer spotlight survey routes on public and private lands in Kansas (Tyson Seirer) 1:30
- Spotlight trend surveys in Iowa - Out with the old and in with the new? (Tom Litchfield) 2:00
- The use of distance sampling to monitor deer abundance in Kansas (Lloyd Fox) 2:30

Break 3:00 – 3:30

Separate Deer and Turkey Group Meetings 3:30 – 5:00

Dinner 6:00

Trap shooting & tree stand exhibit 7:00

**Tuesday, September 15, 2009**

Breakfast 7:30 - 8:30

- Separate Group Meetings and State Reports 8:30 – 12:00

Break 10:00 – 10:30

- Separate Group Meetings and State Reports 8:30 – 12:00

Lunch 12:00 – 1:00

Business meeting and wrap-up 1:00 – 5:00

- Discuss joint meeting with NE deer & turkey group

Break 3:00 – 3:30

- Business meeting and wrap-up

Dinner 6:00

**Wednesday, September 16, 2009**

Breakfast 7:30

Departure 8:30

# Agency Deer Reports

## Illinois Deer Report
## 2009 Midwest Deer Study Group

Our automated harvest reporting continues to improve. Hunters are now unable to check multiple deer on the same permit number. We are still in the process of cleaning up harvest data, so the figures provided remain "preliminary".

This is the 3rd consecutive year of CWD-positive animal decrease. We had 31 reported during 2008-09; bringing us to 258 confirmed positives. No new counties, but we had an additional positive from an Ogle location after a 3 year absence; and two more positives from a former DeKalb "outlier".

We spent much time providing information to the Joint Deer Population Task Force throughout last year. Six public "open house" meetings around the state in September, 2008, allowed concerned citizens the opportunity to fill out surveys and comment on DTF proposed deer management changes. Web comments remained open throughout the fall months, prior to the DTF report to the legislature in December.

**Changes implemented in 2008-09 included:**
1) Late-Winter "Antlerless Only" Season counties went to 75, plus 5 CWD Season; total 80. (NOTE: There were 72 L-W, plus 7 CWD; 79 total in prior year.) Kane was "new" to CWD; while Ogle, LaSalle and Grundy moved from CWD into the L-W season.

2) Unfilled Youth Season permits were valid during the Late-Winter Season if issued for an open county. (Fixed an oversight from the prior year when this "unfilled" permit type was not specifically listed as being valid during Late-Winter season)

3) Youth permits were available 'on-line' only.

**Changes proposed for 2009-10:**
1) The Late-Winter Season has been extended to 7 days (from 3). The first 4-day segment will be held 31 Dec, 2009 – 3 Jan, 2010; with the final 3 days on the "traditional" mid-January weekend. (A consecutive 9-day season recommendation by the DTF was modified by the Director after hunter input)

2) Archery deer season will continue through the end of the Late-Winter Season, adding three days. Archers must wear blaze orange during all concurrent firearm season dates: Youth, Muzzleloader Only, and Late-Winter seasons. It remains closed in all counties open to firearm deer hunting in November/December; 7-day split season.

3) All Youth, CWD and Late-Winter Firearm Deer Season permits will all be issued over-the-counter; or on-line.

4) Any firearm and/or muzzleloader only permits not issued in lotteries or during the "random daily draw" period, will be made available OTC throughout the firearm deer season.

5) We will continue to operate firearm deer check stations for CWD sampling in Northern Illinois during November and December, *but not during the CWD season*. The high cost per sample removed is the primary reason. Hunters will be encouraged have adult deer sampled for CWD by a cooperating meat locker, or other vendor.

6) The Deer Task Force established DVC accident rate goals for each county. The 7 counties removed from the Late-Winter Deer Season (2009-10) have been below that target for at least 2 years. One new county was added (Mason) due to a major jump in DVC rate, and an historic lack of hunter interest in antlerless permits.

**ILLINOIS -- Yearly Deer Harvest 1995 - 2008**

| Year | Youth Permits | Youth Harvest | Youth Success | Archery Harvest | Either-sex Permits | Firearm Harvest | Firearm Success | M-L E/S Permits | Muzzle Loader 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 | 1,065 | 34.26 | 65,981 | 208,148 | 124,031 | 59.59 | 19,998 | 4,843 | 24.22 | 17,106 | 5,381 | 31.46 | 201,301 |
| 2006 | 3,654 | 1,100 | 30.10 | 64,668 | 209,675 | 114,835 | 54.77 | 20,881 | 5,930 | 28.40 | 12,334 | 9,679 | N/A | 196,212 |
| 2007 | 5,205 | 898 | 17.25 | 64,318 | 212,127 | 117,612 | 55.44 | 24,168 | 4,381 | 18.13 | 10,478 | 12,394 | N/A | 199,603 |
| 2008 | 5,960 | 1,045 | 17.53 | 64,920 | 211,391 | 106,018 | 50.15 | 26,093 | 4,366 | 16.73 | 9,852 | 12,552 | N/A | 188,901 |

2008 Firearm and Muzzle-loader Seasons open in 99 of 102 Illinois Counties
2008 Archery Deer Season was open in all 102 Illinois Counties
2008 Youth Firearm Deer Season was open in 99 Illinois Counties for any deer
Late-Winter (including CWD Season) was open in 75 Illinois Counties in mid-January, 2009; Unfilled firearm permits were allowed for late-winter season this year. 5 additional counties were open to CWD Season which was concurrent with late-winter season and harvest included there.
2008 statewide "62% Antlerless in harvest overall" for archery was 60.6%; firearm was 62.7%
2008 statewide "49.7% Female in harvest overall" for archery was 50.3%; firearm was 49.4%
NOTE: Late-Winter "success" cannot be calculated since we allowed the use of unfilled firearm permits to be utilized during that season (2006-07).

| *ILLINOIS* | COUNTY DEER HARVEST BY SEX FOR EACH HUNTING SEASON -- 2008 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *rev. 09/30/09* | Youth | | | Muzzle | | | L-W/CWD | | | Firearm | | | Archery | | | ALL SEASONS | | |
| **County** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** |
| Adams | 17 | 17 | **34** | 28 | 42 | **70** | 75 | 277 | **352** | 1370 | 1281 | **2651** | 764 | 640 | **1404** | 2254 | 2257 | **4511** |
| Alexander | 0 | 1 | **1** | 14 | 20 | **34** | **0** | **0** | **0** | 339 | 204 | **543** | 112 | 138 | **250** | 465 | 363 | **828** |
| Bond | 2 | 2 | **4** | 12 | 7 | **19** | 21 | 83 | **104** | 458 | 456 | **914** | 220 | 221 | **441** | 713 | 769 | **1482** |
| Boone | 1 | 2 | **3** | 3 | 7 | **10** | 13 | 17 | **30** | 91 | 69 | **160** | 74 | 52 | **126** | 182 | 147 | **329** |
| Brown | 12 | 16 | **28** | 39 | 44 | **83** | 62 | 211 | **273** | 753 | 724 | **1477** | 512 | 478 | **990** | 1378 | 1473 | **2851** |
| Bureau | 9 | 10 | **19** | 38 | 41 | **79** | 52 | 167 | **219** | 827 | 796 | **1623** | 398 | 444 | **842** | 1324 | 1458 | **2782** |
| Calhoun | 4 | 12 | **16** | 35 | 31 | **66** | 59 | 181 | **240** | 721 | 622 | **1343** | 541 | 575 | **1116** | 1360 | 1421 | **2781** |
| Carroll | 7 | 1 | **8** | 22 | 29 | **51** | 27 | 89 | **116** | 570 | 561 | **1131** | 304 | 309 | **613** | 930 | 989 | **1919** |
| Cass | 4 | 6 | **10** | 16 | 13 | **29** | 18 | 67 | **85** | 394 | 363 | **757** | 322 | 250 | **572** | 754 | 699 | **1453** |
| Champaign | 1 | 2 | **3** | 16 | 6 | **22** | 0 | 0 | **0** | 188 | 132 | **320** | 226 | 184 | **410** | 431 | 324 | **755** |
| Christian | 2 | 2 | **4** | 16 | 14 | **30** | 13 | 45 | **58** | 357 | 313 | **670** | 187 | 264 | **451** | 575 | 638 | **1213** |
| Clark | 8 | 7 | **15** | 22 | 32 | **54** | 31 | 138 | **169** | 751 | 553 | **1304** | 385 | 402 | **787** | 1197 | 1132 | **2329** |
| Clay | 9 | 2 | **11** | 20 | 31 | **51** | 35 | 142 | **177** | 768 | 666 | **1434** | 283 | 321 | **604** | 1115 | 1162 | **2277** |
| Clinton | 1 | 3 | **4** | 7 | 12 | **19** | 14 | 56 | **70** | 486 | 390 | **876** | 217 | 209 | **426** | 725 | 670 | **1395** |
| Coles | 2 | 3 | **5** | 11 | 13 | **24** | 10 | 45 | **55** | 413 | 336 | **749** | 311 | 315 | **626** | 747 | 712 | **1459** |
| Cook | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | 130 | 71 | **201** | 130 | 71 | **201** |
| Crawford | 4 | 4 | **8** | 25 | 32 | **57** | 33 | 129 | **162** | 660 | 535 | **1195** | 393 | 406 | **799** | 1115 | 1106 | **2221** |
| Cumberland | 4 | 2 | **6** | 10 | 14 | **24** | 15 | 65 | **80** | 501 | 420 | **921** | 191 | 194 | **385** | 721 | 695 | **1416** |
| DeKalb | 1 | 3 | **4** | 2 | 6 | **8** | 32 | 36 | **68** | 145 | 100 | **245** | 120 | 115 | **235** | 300 | 260 | **560** |
| DeWitt | 2 | 3 | **5** | 9 | 21 | **30** | **0** | **0** | **0** | 259 | 228 | **487** | 174 | 363 | **537** | 444 | 615 | **1059** |
| Douglas | 0 | 1 | **1** | 3 | 3 | **6** | 0 | 0 | **0** | 110 | 95 | **205** | 81 | 62 | **143** | 194 | 161 | **355** |
| DuPage | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | 43 | 35 | **78** | 43 | 35 | **78** |
| Edgar | 5 | 7 | **12** | 18 | 17 | **35** | 12 | 42 | **54** | 453 | 332 | **785** | 227 | 203 | **430** | 715 | 601 | **1316** |
| Edwards | 2 | 2 | **4** | 10 | 6 | **16** | 12 | 56 | **68** | 323 | 192 | **515** | 106 | 108 | **214** | 453 | 364 | **817** |
| Effingham | 4 | 6 | **10** | 19 | 16 | **35** | 20 | 90 | **110** | 606 | 453 | **1059** | 174 | 267 | **441** | 823 | 832 | **1655** |
| Fayette | 12 | 21 | **33** | 26 | 44 | **70** | 46 | 246 | **292** | 1166 | 949 | **2115** | 399 | 431 | **830** | 1649 | 1691 | **3340** |
| Ford | 1 | 0 | **1** | 2 | 5 | **7** | 0 | 0 | **0** | 106 | 56 | **162** | 45 | 29 | **74** | 154 | 90 | **244** |
| Franklin | 4 | 4 | **8** | 15 | 28 | **43** | 24 | 113 | **137** | 729 | 477 | **1206** | 350 | 422 | **772** | 1122 | 1044 | **2166** |
| Fulton | 16 | 15 | **31** | 40 | 53 | **93** | 103 | 325 | **428** | 1406 | 1293 | **2699** | 955 | 865 | **1820** | 2520 | 2551 | **5071** |
| Gallatin | 1 | 2 | **3** | 16 | 33 | **49** | 0 | **0** | **0** | 369 | 255 | **624** | 152 | 154 | **306** | 538 | 444 | **982** |
| Greene | 5 | 2 | **7** | 29 | 31 | **60** | 40 | 150 | **190** | 774 | 711 | **1485** | 429 | 428 | **857** | 1277 | 1322 | **2599** |
| Grundy | 0 | 0 | **0** | 9 | 9 | **18** | 24 | 59 | **83** | 221 | 188 | **409** | 235 | 227 | **462** | 489 | 483 | **972** |
| Hamilton | 3 | 7 | **10** | 15 | 30 | **45** | 19 | 153 | **172** | 783 | 564 | **1347** | 277 | 337 | **614** | 1097 | 1091 | **2188** |

| *ILLINOIS* | COUNTY DEER HARVEST BY SEX FOR EACH HUNTING SEASON -- 2008 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *rev. 09/30/09* | Youth | | | Muzzle | | | L-W/CWD | | | Firearm | | | Archery | | | ALL SEASONS | | |
| **County** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** |
| Hancock | 12 | 12 | **24** | 34 | 51 | **85** | 68 | 269 | **337** | 1162 | 1196 | **2358** | 441 | 416 | **857** | 1717 | 1944 | **3661** |
| Hardin | 9 | 4 | **13** | 11 | 44 | **55** | 0 | **0** | **0** | 603 | 504 | **1107** | 187 | 232 | **419** | 810 | 784 | **1594** |
| Henderson | 2 | 5 | **7** | 6 | 16 | **22** | 13 | 45 | **58** | 338 | 338 | **676** | 136 | 93 | **229** | 495 | 497 | **992** |
| Henry | 4 | 3 | **7** | 21 | 18 | **39** | 24 | 72 | **96** | 476 | 418 | **894** | 286 | 256 | **542** | 811 | 767 | **1578** |
| Iroquois | 3 | 2 | **5** | 20 | 29 | **49** | 0 | 0 | **0** | 436 | 387 | **823** | 220 | 240 | **460** | 679 | 658 | **1337** |
| Jackson | 11 | 9 | **20** | 27 | 37 | **64** | 43 | 192 | **235** | 1304 | 905 | **2209** | 389 | 499 | **888** | 1774 | 1642 | **3416** |
| Jasper | 9 | 8 | **17** | 22 | 33 | **55** | 37 | 127 | **164** | 716 | 575 | **1291** | 291 | 359 | **650** | 1075 | 1102 | **2177** |
| Jefferson | 23 | 18 | **41** | 52 | 85 | **137** | 59 | 319 | **378** | 1349 | 1107 | **2456** | 638 | 821 | **1459** | 2121 | 2350 | **4471** |
| Jersey | 4 | 9 | **13** | 13 | 11 | **24** | 14 | 119 | **133** | 520 | 504 | **1024** | 355 | 341 | **696** | 906 | 984 | **1890** |
| Jo Daviess | 13 | 15 | **28** | 61 | 52 | **113** | 80 | 262 | **342** | 1229 | 1144 | **2373** | 454 | 410 | **864** | 1837 | 1883 | **3720** |
| Johnson | 12 | 7 | **19** | 27 | 41 | **68** | 31 | 132 | **163** | 1092 | 759 | **1851** | 305 | 356 | **661** | 1467 | 1295 | **2762** |
| Kane | 0 | 1 | **1** | 2 | 3 | **5** | 4 | 8 | **12** | 36 | 27 | **63** | 234 | 168 | **402** | 276 | 207 | **483** |
| Kankakee | 0 | 1 | **1** | 7 | 5 | **12** | 0 | **0** | **0** | 129 | 113 | **242** | 165 | 159 | **324** | 301 | 278 | **579** |
| Kendall | 0 | 0 | **0** | 5 | 6 | **11** | **0** | **0** | **0** | 65 | 41 | **106** | 102 | 123 | **225** | 172 | 170 | **342** |
| Knox | 5 | 3 | **8** | 23 | 43 | **66** | 58 | 171 | **229** | 874 | 749 | **1623** | 566 | 488 | **1054** | 1526 | 1454 | **2980** |
| Lake | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | 4 | 5 | **9** | 274 | 170 | **444** | 278 | 175 | **453** |
| LaSalle | 7 | 4 | **11** | 17 | 38 | **55** | 45 | 162 | **207** | 747 | 689 | **1436** | 566 | 605 | **1171** | 1382 | 1498 | **2880** |
| Lawrence | 2 | 0 | **2** | 8 | 13 | **21** | 11 | 57 | **68** | 347 | 262 | **609** | 221 | 201 | **422** | 589 | 533 | **1122** |
| Lee | 4 | 6 | **10** | 9 | 12 | **21** | 17 | 74 | **91** | 367 | 333 | **700** | 250 | 226 | **476** | 647 | 651 | **1298** |
| Livingston | 1 | 4 | **5** | 10 | 14 | **24** | 0 | **0** | **0** | 318 | 279 | **597** | 159 | 154 | **313** | 488 | 451 | **939** |
| Logan | 2 | 1 | **3** | 11 | 10 | **21** | 13 | 22 | **35** | 239 | 220 | **459** | 160 | 118 | **278** | 425 | 371 | **796** |
| Macon | 3 | 5 | **8** | 20 | 17 | **37** | **0** | **0** | **0** | 202 | 139 | **341** | 260 | 288 | **548** | 485 | 449 | **934** |
| Macoupin | 16 | 10 | **26** | 25 | 40 | **65** | 40 | 167 | **207** | 998 | 849 | **1847** | 510 | 516 | **1026** | 1589 | 1582 | **3171** |
| Madison | 9 | 8 | **17** | 19 | 21 | **40** | 18 | 90 | **108** | 484 | 440 | **924** | 512 | 555 | **1067** | 1042 | 1114 | **2156** |
| Marion | 13 | 10 | **23** | 42 | 61 | **103** | 46 | 220 | **266** | 1168 | 869 | **2037** | 585 | 558 | **1143** | 1854 | 1718 | **3572** |
| Marshall | 4 | 3 | **7** | 10 | 17 | **27** | 23 | 55 | **78** | 456 | 380 | **836** | 190 | 194 | **384** | 683 | 649 | **1332** |
| Mason | 1 | 7 | **8** | 22 | 30 | **52** | **0** | **0** | **0** | 381 | 302 | **683** | 219 | 204 | **423** | 623 | 543 | **1166** |
| Massac | 1 | 2 | **3** | 5 | 10 | **15** | 15 | 57 | **72** | 358 | 272 | **630** | 207 | 232 | **439** | 586 | 573 | **1159** |
| McDonough | 2 | 5 | **7** | 18 | 20 | **38** | 34 | 94 | **128** | 608 | 547 | **1155** | 327 | 290 | **617** | 989 | 956 | **1945** |
| McHenry | 1 | 2 | **3** | 7 | 13 | **20** | 21 | 67 | **88** | 204 | 170 | **374** | 312 | 273 | **585** | 545 | 525 | **1070** |
| McLean | 6 | 5 | **11** | 18 | 20 | **38** | 30 | 89 | **119** | 374 | 357 | **731** | 307 | 368 | **675** | 735 | 839 | **1574** |
| Menard | 1 | 1 | **2** | 9 | 15 | **24** | 18 | 44 | **62** | 231 | 200 | **431** | 174 | 196 | **370** | 433 | 456 | **889** |
| Mercer | 4 | 2 | **6** | 14 | 14 | **28** | 30 | 82 | **112** | 501 | 481 | **982** | 231 | 156 | **387** | 780 | 735 | **1515** |
| Monroe | 1 | 4 | **5** | 9 | 16 | **25** | 9 | 71 | **80** | 651 | 453 | **1104** | 141 | 171 | **312** | 811 | 715 | **1526** |

| *ILLINOIS* | COUNTY DEER HARVEST BY SEX FOR EACH HUNTING SEASON -- 2008 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *rev. 09/30/09* | Youth | | | Muzzle | | | L-W/CWD | | | Firearm | | | Archery | | | ALL SEASONS | | |
| **County** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** |
| Montgomery | 13 | 7 | **20** | 17 | 15 | **32** | 24 | 106 | **130** | 683 | 548 | **1231** | 341 | 371 | **712** | 1078 | 1047 | **2125** |
| Morgan | 5 | 2 | **7** | 18 | 25 | **43** | 37 | 91 | **128** | 520 | 487 | **1007** | 336 | 311 | **647** | 916 | 916 | **1832** |
| Moultrie | 2 | 0 | **2** | 10 | 22 | **32** | 0 | 0 | **0** | 180 | 159 | **339** | 154 | 150 | **304** | 346 | 331 | **677** |
| Ogle | 7 | 7 | **14** | 19 | 27 | **46** | 48 | 95 | **143** | 579 | 605 | **1184** | 377 | 353 | **730** | 1030 | 1087 | **2117** |
| Peoria | 12 | 11 | **23** | 23 | 34 | **57** | 80 | 216 | **296** | 795 | 858 | **1653** | 639 | 685 | **1324** | 1549 | 1804 | **3353** |
| Perry | 10 | 6 | **16** | 17 | 20 | **37** | 36 | 202 | **238** | 791 | 595 | **1386** | 335 | 307 | **642** | 1189 | 1130 | **2319** |
| Piatt | 1 | 1 | **2** | 1 | 6 | **7** | 0 | **0** | **0** | 115 | 91 | **206** | 109 | 117 | **226** | 226 | 215 | **441** |
| Pike | 26 | 29 | **55** | 126 | 131 | **257** | 155 | 483 | **638** | 1800 | 1556 | **3356** | 1880 | 1874 | **3754** | 3987 | 4073 | **8060** |
| Pope | 3 | 4 | **7** | 19 | 29 | **48** | **0** | **0** | **0** | 1074 | 767 | **1841** | 440 | 503 | **943** | 1536 | 1303 | **2839** |
| Pulaski | 1 | 0 | **1** | 16 | 21 | **37** | 0 | 0 | **0** | 457 | 362 | **819** | 94 | 172 | **266** | 568 | 555 | **1123** |
| Putnam | 0 | 1 | **1** | 20 | 17 | **37** | 30 | 64 | **94** | 280 | 258 | **538** | 152 | 178 | **330** | 482 | 518 | **1000** |
| Randolph | 23 | 17 | **40** | 21 | 51 | **72** | 46 | 263 | **309** | 1393 | 1101 | **2494** | 470 | 471 | **941** | 1953 | 1903 | **3856** |
| Richland | 1 | 7 | **8** | 10 | 15 | **25** | 21 | 73 | **94** | 470 | 413 | **883** | 222 | 219 | **441** | 724 | 727 | **1451** |
| Rock Island | 5 | 3 | **8** | 21 | 17 | **38** | 42 | 115 | **157** | 485 | 500 | **985** | 300 | 302 | **602** | 853 | 937 | **1790** |
| Saline | 2 | 3 | **5** | 14 | 30 | **44** | 14 | 93 | **107** | 620 | 416 | **1036** | 251 | 282 | **533** | 901 | 824 | **1725** |
| Sangamon | 10 | 4 | **14** | 19 | 27 | **46** | 22 | 98 | **120** | 503 | 384 | **887** | 418 | 423 | **841** | 972 | 936 | **1908** |
| Schuyler | 14 | 2 | **16** | 39 | 56 | **95** | 55 | 206 | **261** | 921 | 862 | **1783** | 510 | 447 | **957** | 1539 | 1573 | **3112** |
| Scott | 3 | 2 | **5** | 6 | 14 | **20** | 20 | 70 | **90** | 307 | 271 | **578** | 140 | 120 | **260** | 476 | 477 | **953** |
| Shelby | 4 | 6 | **10** | 21 | 50 | **71** | 25 | 109 | **134** | 764 | 672 | **1436** | 331 | 415 | **746** | 1145 | 1252 | **2397** |
| St. Clair | 2 | 10 | **12** | 9 | 12 | **21** | 13 | 77 | **90** | 554 | 434 | **988** | 358 | 347 | **705** | 936 | 880 | **1816** |
| Stark | 3 | 2 | **5** | 12 | 5 | **17** | 9 | 35 | **44** | 199 | 162 | **361** | 73 | 80 | **153** | 296 | 284 | **580** |
| Stephenson | 5 | 2 | **7** | 21 | 23 | **44** | 39 | 94 | **133** | 577 | 511 | **1088** | 266 | 199 | **465** | 908 | 829 | **1737** |
| Tazewell | 4 | 6 | **10** | 9 | 11 | **20** | 29 | 87 | **116** | 396 | 369 | **765** | 399 | 381 | **780** | 837 | 854 | **1691** |
| Union | 3 | 4 | **7** | 35 | 45 | **80** | 27 | 152 | **179** | 1098 | 800 | **1898** | 342 | 457 | **799** | 1505 | 1458 | **2963** |
| Vermilion | 8 | 3 | **11** | 25 | 25 | **50** | 25 | 110 | **135** | 569 | 398 | **967** | 554 | 506 | **1060** | 1181 | 1042 | **2223** |
| Wabash | 0 | 1 | **1** | 5 | 7 | **12** | 7 | 28 | **35** | 190 | 122 | **312** | 147 | 116 | **263** | 349 | 274 | **623** |
| Warren | 1 | 0 | **1** | 10 | 16 | **26** | 14 | 46 | **60** | 415 | 325 | **740** | 155 | 110 | **265** | 595 | 497 | **1092** |
| Washington | 1 | 2 | **3** | 12 | 16 | **28** | 15 | 94 | **109** | 678 | 505 | **1183** | 247 | 248 | **495** | 953 | 865 | **1818** |
| Wayne | 5 | 6 | **11** | 28 | 53 | **81** | 70 | 273 | **343** | 1095 | 894 | **1989** | 450 | 507 | **957** | 1648 | 1733 | **3381** |
| White | 5 | 9 | **14** | 33 | 36 | **69** | 32 | 196 | **228** | 617 | 424 | **1041** | 328 | 369 | **697** | 1015 | 1034 | **2049** |
| Whiteside | 5 | 5 | **10** | 9 | 25 | **34** | 38 | 67 | **105** | 407 | 425 | **832** | 267 | 256 | **523** | 726 | 778 | **1504** |
| Will | 3 | 0 | **3** | 11 | 11 | **22** | 0 | **0** | **0** | 228 | 189 | **417** | 490 | 426 | **916** | 732 | 626 | **1358** |
| Williamson | 6 | 9 | **15** | 16 | 28 | **44** | 31 | 123 | **154** | 1003 | 791 | **1794** | 361 | 464 | **825** | 1417 | 1415 | **2832** |

| *ILLINOIS* | COUNTY DEER HARVEST BY SEX FOR EACH HUNTING SEASON -- 2008 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *rev. 09/30/09* | **Youth** | | | **Muzzle** | | | **L-W/CWD** | | | **Firearm** | | | **Archery** | | | **ALL SEASONS** | | |
| **County** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** | **M** | **F** | **Total** |
| Winnebago | 1 | 0 | **1** | 11 | 18 | **29** | 32 | 49 | **81** | 283 | 226 | **509** | 239 | 179 | **418** | 566 | 472 | **1038** |
| Woodford | 6 | 5 | **11** | 17 | 32 | **49** | 32 | 109 | **141** | 545 | 555 | **1100** | 346 | 388 | **734** | 946 | 1089 | **2035** |
| Unknown | | | | | | | | | | | | | | | | | | |
| **Totals** | 528 | 517 | **1045** | 1851 | 2515 | **4366** | 2679 | 9873 | **12552** | 57655 | 48363 | **106018** | 32232 | 32688 | **64920** | 94945 | 93956 | **188901** |
| | 0.51 | 0.49 | | 0.42 | 0.58 | | 0.21 | 0.79 | | 0.54 | 0.46 | | 0.50 | 0.50 | | 0.50 | 0.50 | |
| **Totals 2007** | 417 | 481 | **898** | 2023 | 2364 | **4387** | 2758 | 9657 | **12415** | 69074 | 48681 | **117755** | 32616 | 31531 | **64147** | 106888 | 92714 | **199602** |
| Totals 2006 | 229 | 871 | **1100** | 2634 | 3339 | **5973** | 2090 | 7563 | **9653** | 68849 | 45894 | **114743** | 32021 | 32758 | **64779** | 105823 | 90425 | **196248** |
| **Totals 2005** | 242 | 823 | **1065** | 1987 | 2892 | **4879** | 1304 | 4076 | **5380** | 70844 | 52947 | **123792** | 34787 | 31308 | **66094** | 109164 | 92046 | **201210** |
| Totals 2004 | | | **612** | | | **3535** | | | **5995** | | | 116675 | | | **63639** | | | **190456** |
| **Totals 2003** | | | **383** | | | **3037** | | | **1667** | | | **105873** | | | **57802** | | | **168762** |
| Totals 2002 | | | **308** | | | **1292** | | | **2120** | | | 104478 | | | **51660** | | | **159858** |
| **Totals 2001** | | | **298** | | | **1507** | | | **2099** | | | **101304** | | | **47858** | | | **153066** |

# 2008 Indiana Deer Season Summary

INDIANA DIVISION OF FISH & WILDLIFE

INDIANA DEPARTMENT OF NATURAL RESOURCES

Prepared by: Chad M. Stewart

## General

The 2008 Indiana deer hunting season was comprised of four seasons: Early Archery (Oct. 1 to Nov. 30), Firearms (Nov. 15 to Nov. 30), Muzzleloader (Dec. 6-21), and Late Archery (Dec. 6 to Jan. 4). Additionally, there was a youth-only season Sept. 27-28 that was open to youth age 15 or younger who was accompanied by an adult at least 18 years old. The youth could take one additional antlerless deer during this special season.

The statewide archery bag limit was two deer. Hunters could take one deer per license for a total of either two antlerless deer or one antlered and one antlerless deer. A hunter could take only one antlered deer during all statewide seasons combined using archery, firearm, or muzzleloader licenses. This was the 12th year the crossbow was legal for hunting by non-handicapped hunters under an archery license. The crossbow was eligible for use only during 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 extra archery license. The archery season in the urban deer zone opened two weeks prior to the opening of the early archery season (Sept. 15 to Nov. 30), and continued again into January (Dec. 6 to Jan. 4). Archers were allowed to harvest either four antlerless deer or three antlerless and one antlered deer during this period. Any deer harvested during this period were in addition to all other bag limits.

The bag limit during firearms season was one antlered deer, and the bag limit for the muzzleloader season was one either sex deer (maximum of one antlered deer harvested per hunter). A single firearms license was required to hunt with any or all shotgun, muzzleloader, rifle, 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 and the nonresident fee was $150. When an agricultural advantage could be gained, resident landowners who hunted on land they own were exempt from purchasing deer licenses, as were lessees.

Special public hunts were held at Muscatatuck and Big Oaks National Wildlife Refuges, 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. County bag limits ranged from A to 8 (Figure 1). Permits were available to both resident and non-resident hunters.

Each permit was valid for one antlerless deer, and hunters were allowed to take as many bonus antlerless deer as desired, as long as the county antlerless bag limits were observed.

Bonus antlerless permits cost $24 and $150 for the first permit for residents and nonresidents, respectively. The second and each additional permit was $15 for residents and $24 for nonresidents. Bonus antlerless permits could be used during all deer hunting seasons except for "A"-designated counties, where the license could only be used during the last four days of the firearms season (Nov. 27 to Nov. 30) plus the late archery and muzzleloader seasons.


Figure 1. Antlerless deer bag limits in 2008.

### Number of Deer Harvested

A total of 129,748 deer were legally harvested in Indiana during the 2008 season (Figure 2).

This harvest was 4% higher than the 124,427 deer harvested during the 2007 season. The antlered deer harvest of 50,845 represented a nearly 3% increase from the 49,375 harvested last year. The antlerless harvest of 78,903 was 5% more than the 75,052 harvested in 2007. In 2008, the harvest for total deer and antlerless deer ranks as the highest reported kill for each category in history. The antlered harvest ranks third all-time.

Approximately 2.59 million deer have been legally harvested during the past 57 deer hunting seasons in Indiana.

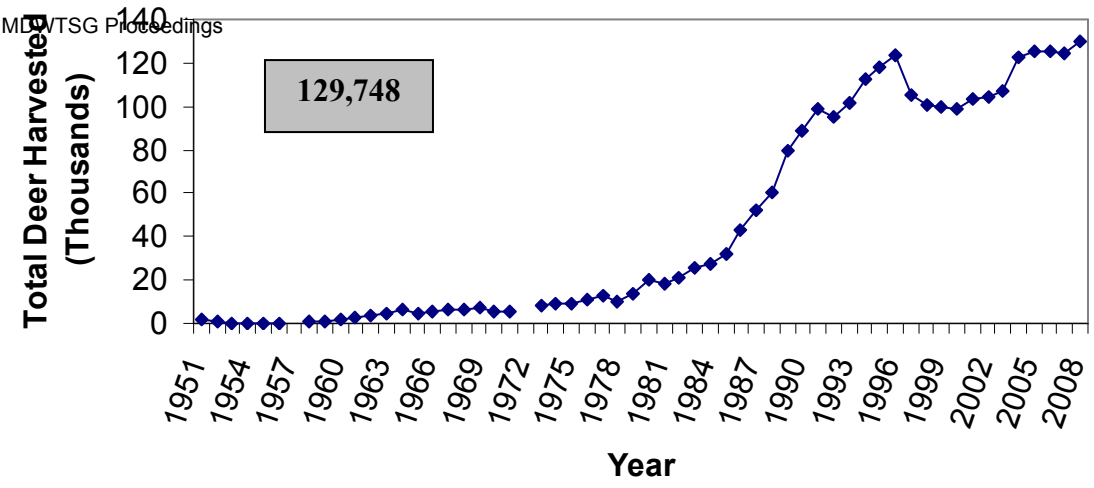



Figure 2. The number of deer harvested in Indiana deer hunting seasons 1951-2008.

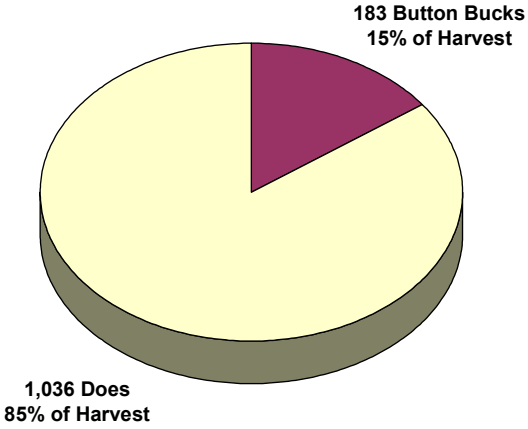
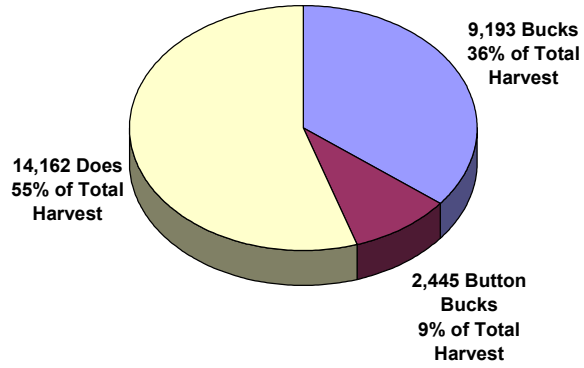


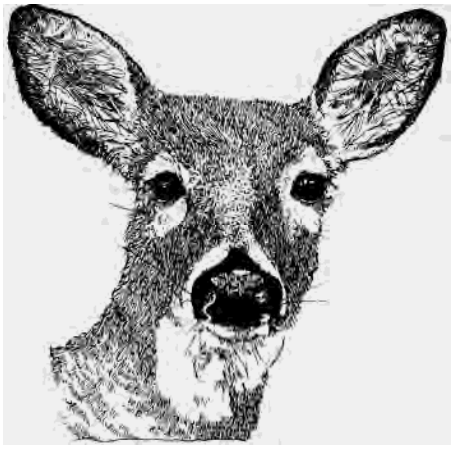

Figure 3. 2008 Youth Season harvest composition.

The hunting season began with urban deer zones (Sept. 15) followed by a youth only weekend (Sept. 27-28). This season was created in 2006 and allowed youths 15 years and younger to harvest one antlerless deer. A total of 1,219 deer were harvested in 2008 during this season, up 2% from the 1,194 from 2007. This season resulted in 1% of the total harvest (Table 1). Only 15% of the harvest was comprised of button bucks (Figure 3).

The early archery season harvest (including the early Urban Deer Zones) of 25,800 deer comprised 20% of the total harvest and was 3% more than the 25,084 harvested in 2007 (Table 1). The late archery season comprised 1% of the total harvest, similar to the 2007 season. The combined archery seasons yielded 26,921 deer, an increase of 1% from the 26,643 harvested in 2007. Antlerless deer comprised 65% of the total archery harvest, an increase from the 62.5% from 2007. Antlerless harvest in early archery season was 64%, while in late archery it was 81% (Figure 4). Does made up 55% of the total harvest in early archery season and nearly 70% of the harvest in late archery season.

A.



B.

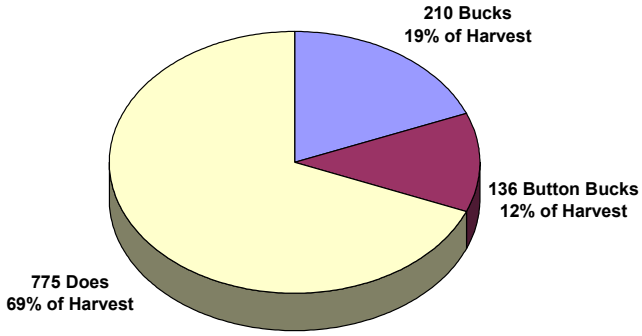



Figure 4. A. Early Archery harvest and B. Late Archery harvest composition in 2008

**Table 1. Number of deer harvested in each segment of the 2008 Indiana deer hunting season. Percent of total harvest in parentheses (totals may not be exactly 100 due to rounding).**

| Season | Number of deer harvested | | |
|---|---|---|---|
| | Antlered | Antlerless | Total |
| Youth season* (27-28 Sept) | 0 | 1,219 (2) | 1,219 (1) |
| Early Archery** (1 Oct - 30 Nov) | 9,193 (18) | 16,607 (21) | 25,800 (20) |
| Firearms (15-30 Nov ) | 38,324 (75) | 48,130 (61) | 86,454 (67) |
| Muzzleloader (6-21 Dec) | 3,107 (6) | 12,047 (15) | 15,154 (12) |
| Late Archery (6 Dec - 4 Jan) | 210 (1) | 911 (1) | 1,121 (1) |
| Totals | 50,834 | 78,914 | 129,748 |

*Antlerless deer season only

**Includes the early Urban Deer Zone Starting on 15 September

The firearms season harvest of 86,454 deer was an increase of over 7% from the 80,662 deer harvested in 2007 and comprised 67% of the total harvest (Table 1). The antlerless harvest (48,130) and antlered harvest (38,324) for this season both eclipsed the 2007 harvest numbers for antlerless (44,524) and antlered (36,138) deer. Antlered deer made up over half of the total harvest on the opening weekend, while antlerless deer outnumbered antlered deer during the remaining 14 days of the season (Table 2). Due to a winter storm during the opening weekend of firearms season, only 36% of the total firearm season harvest occurred during opening weekend (Nov. 15-16), down from 48% in 2007. Opening weekend contributed to 24% of the statewide total harvest for all seasons, which is 8 percentage points lower than opening weekend harvest from 2007. Antlerless deer comprised 56% (82% of which were does) of the firearm season harvest (Figure 5).

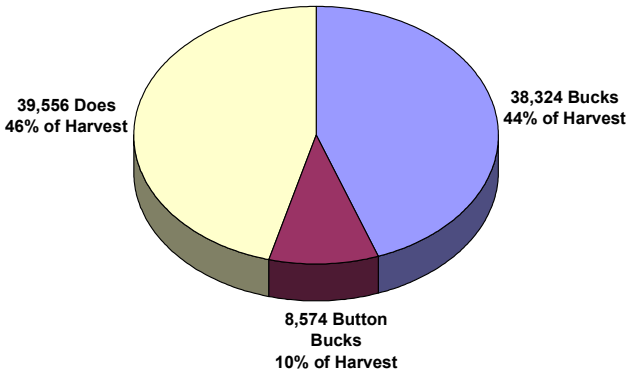



Figure 5. 2008 Firearms season harvest composition

**Table 2. Number of deer harvested on each day of the 2008 Indiana firearm season (includes deer taken by bow, shotgun, pistol, rifle, and muzzleloader.**

| | | Antlered | | Antlerless | | Total | |
|---|---|---|---|---|---|---|---|
| Date | Day | N | Daily % | N | Daily % | N | Total % |
| 15 November | Sat | 10,261 | 59 | 7,157 | 41 | 17,418 | 20 |
| 16 November | Sun | 7,429 | 54 | 6,317 | 46 | 13,746 | 16 |
| 17 November | Mon | 2,409 | 49 | 2,536 | 51 | 4,945 | 6 |
| 18 November | Tue | 2,013 | 46 | 2,353 | 54 | 4,366 | 5 |
| 19 November | Wed | 1,477 | 44 | 1,894 | 56 | 3,371 | 4 |
| 20 November | Thu | 1,237 | 43 | 1,644 | 57 | 2,881 | 3 |
| 21 November | Fri | 1,409 | 42 | 1,914 | 58 | 3,323 | 4 |
| 22 November | Sat | 3,198 | 38 | 5,119 | 62 | 8,317 | 10 |
| 23 November | Sun | 2,190 | 36 | 3,866 | 64 | 6,056 | 7 |
| 24 November | Mon | 483 | 36 | 864 | 64 | 1,347 | 2 |
| 25 November | Tue | 508 | 31 | 1,148 | 69 | 1,656 | 2 |
| 26 November | Wed | 783 | 34 | 1,543 | 66 | 2,326 | 3 |
| 27 November | Thu | 1,227 | 32 | 2,576 | 68 | 3,803 | 4 |
| 28 November | Fri | 1,423 | 32 | 3,070 | 68 | 4,493 | 5 |
| 29 November | Sat | 1,578 | 29 | 3,924 | 71 | 5,502 | 6 |
| 30 November | Sun | 904 | 29 | 2,207 | 71 | 3,111 | 4 |
| Totals* | | 38,529 | | 48,132 | | 86,661 | 100 |

*** 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.**

The muzzleloader season harvest of 15,154 comprised 12% of the total harvest, similar to last year (Table 1). This year's muzzleloader harvest was nearly 5% lower than the 2007 muzzleloader harvest (15,928). As in years past, a large percentage of the deer harvested during the muzzleloader season were antlerless (80%) (Figure 6).

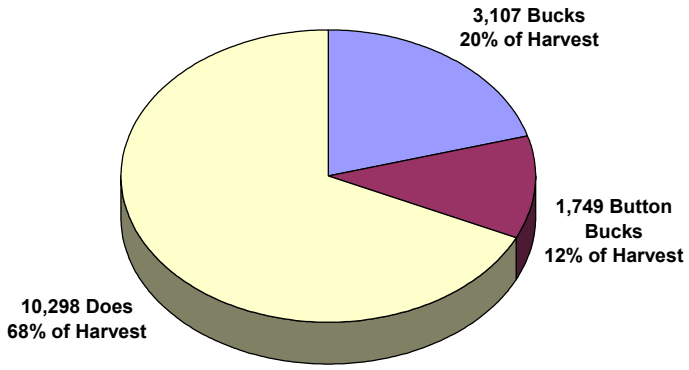



Figure 6. 2008 Muzzleloader season harvest composition

## Harvest by Equipment Type

Six types of equipment were legal for hunting deer during 2008: bows, shotguns, muzzleloaders, handguns, crossbows, and rifles. Rifle cartridges were restricted to .357 diameter or larger bullet, and case length must be between 1.16 and 1.625 inches. These types of equipment accounted for 20%, 53%, 23%, 2%, 1%, and 1% of the total deer harvest, respectively (Figure 7).

Shotgun harvest increased 2 percentage points from 2007. Harvest by muzzleloader and bow decreased 2 and 1 percentage points from 2007 (Table 3). Only 4% of the harvest is made up of the remaining three equipment choices.

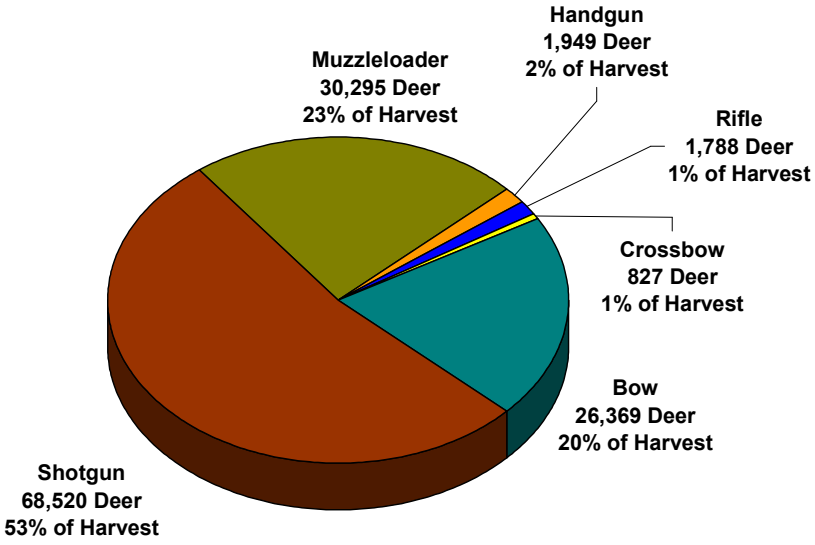



Figure 7. 2008 harvest by equipment type in Indiana

The total crossbow harvest for the year, including deer taken on disabled hunter crossbow permits, was 827 animals compared with the 763 harvested in 2007. During the late archery season, the crossbow harvest was 159 deer, compared with 154 in 2007 and 30 in 2006 (Table 3). Harvest with rifles increased this year by 49% compared to 2007, the initial year they could be used. However, as there are no check boxes for rifles on the current deer check harvest forms, real results may be higher than reported.

**Table 3. Number of deer harvested by type of legal hunting equipment during the 2003-2008 seasons. Approximate percent of total harvest shown in parentheses.**

| Equipment type | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Bow* | 20,748 (19) | 21,498 (18) | 23,692 (19) | 26,723 (21) | 26,187 (21) | 26,369 (20) |
| Shotgun | 61,674 (58) | 71,251 (58) | 70,022 (56) | 66,304 (53) | 63,919 (51) | 68,520 (53) |
| Muzzleloader | 22,724 (21) | 28,182 (23) | 29,686 (24) | 30,247 (24) | 30,740 (25) | 30,295 (23) |
| Handgun | 1,425 (1) | 1,620 (1) | 1,606 (1) | 1,386 (1) | 1,615 (1) | 1,949 (2) |
| Rifle | x | x | x | x | 1,203 (1) | 1,788 (1) |
| Crossbow | | | | | | |
| Disabled | 348 (0) | 405(0) | 427(0) | 591 (0) | 609 (0) | 668 (1) |
| Late archery | 67 (0) | 102 (0) | 93 (0) | 130 (0) | 154 (0) | 159 (0) |
| Totals | 106,986 | 123,058 | 125,526 | 124,562 | 124,427 | 129,748 |

*** 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 (lifetime, resident, and youth license holders) accounted for over 81% of the total deer harvest (Table 4). Licensed nonresident hunters harvested nearly 2% of the total harvest. Hunters with a regular yearly deer hunting license (resident plus non-resident) took only 43% 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 nearly 57% 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 almost 17% of the total deer harvest. Of the deer harvested by license-exempt hunters, nearly 99% were taken by landowners/tenants while only 1% by military personnel on leave.

**Table 4. Harvest distribution of deer by license type during 2008 hunting season.**

| License Status | Deer Harvested | Percent of Harvest |
|---|---|---|
| Resident | 53,931 | 41.57 |
| Lifetime | 39,648 | 30.56 |
| Land Owner | 21,678 | 16.71 |
| Youth | 11,804 | 9.10 |
| Nonresident | 2,468 | 1.90 |
| Military | 219 | 0.17 |
| Total | 129,748 | 100.0 |

## Harvest Age and Sex Structure

The age and sex structure of the 2008 deer harvest was 39% adult males (antlered bucks), 36% adult females, 11% male fawns (button bucks), and 15% female fawns (Table 5). These percentages are nearly identical to the harvest in 2007. About 40% of the antlered bucks and 38% of the adult does harvested during 2008 were yearlings (1.5 years old).

**Table 5. Sex and age structure of the Indiana deer harvest during 1987-2008, 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 |
| 1988 | 34,358(57) | 13,170 (22) | 7,050 (12) | 5,656 (10) | 60,234 |
| 1989 | 40,503 (51) | 19,464 (24) | 10,737 (14) | 8,614 (11) | 79,318 |
| 1990 | 43,080 (48) | 23,680 (27) | 12,373 (14) | 9,630 (11) | 88,763 |
| 1991 | 41,593 (42) | 31,211 (32) | 14,626 (15) | 11,253 (11) | 98,683 |
| 1992 | 43,508 (46) | 25,387 (27) | 14,262 (15) | 12,157 (13)* | 95,314 |
| 1993 | 44,424 (44) | 27,704 (27) | 14,751 (15) | 14,335 (14)* | 101,214 |
| 1994 | 50,812 (45) | 32,466 (29) | 15,487 (14) | 13,651 (12)* | 112,416 |
| 1995 | 47,098 (40) | 40,946 (35) | 16,398 (14) | 13,287 (11)* | 117,729 |
| 1996 | 47,315 (38) | 39,913 (32) | 17,307 (14) | 18,551 (15)* | 123,086 |
| 1997 | 42,537 (41) | 35,163 (34) | 14,039 (13) | 13,198 (12)* | 104,937 |
| 1998 | 44,955 (45) | 30,711 (31) | 12,257 (12) | 12,538 (12)* | 100,461 |
| 1999 | 46,371 (46) | 30,474 (31) | 11,645 (12) | 11,129 (11)* | 99,618 |
| 2000 | 44,621 (45) | 31,986 (32) | 11,072 (11) | 11,046 (11)* | 98,725 |
| 2001 | 48,357 (47) | 31,806 (31) | 11,230 (11) | 11,770 (11)* | 103,163 |
| 2002 | 47,177 (45) | 35,357 (34) | 11,291 (11) | 10,603 (10)* | 104,428 |
| 2003 | 49,533 (46) | 36,303 (34) | 10,262 (10) | 10,887 (10)* | 106,986 |
| 2004 | 54,743 (44) | 41,749 (34) | 12,501 (10) | 14,065 (11)* | 123,058 |
| 2005 | 52,488 (42) | 44,286 (35) | 13,030 (10) | 15,722 (13)* | 125,526 |
| 2006 | 49,097 (39) | 45,257 (36) | 13,688 (11) | 17,339 (14)* | 125,381 |
| 2007 | 49,375 (40) | 44,514 (36) | 13,313 (11) | 17,225 (14)* | 124,427 |
| 2008 | 50,845 (39) | 46,666 (36) | 13,083 (11) | 19,154 (15)* | 129,748 |

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

## Distribution of the Harvest

The number of deer harvested in individual counties ranged from 130 in Tipton County to 3,672 in Steuben County (Table 6). Harvest exceeded 1,000 deer in 61 counties; 2,000 deer in 16 counties; and 3,000 deer in four counties. The antlered buck harvest exceeded 1,000 in five counties (similar to 2007), while the antlerless harvest exceeded 1,000 deer in 29 counties compared with 25 in 2007. Antlerless deer comprised at least 50% of the total harvest in 88 of the state's 92 counties in 2007 compared with 87 counties in 2006. The counties with the highest harvests were Steuben, Kosciusko, Noble, Marshall, Switzerland, Franklin, Parke, LaGrange, Harrison, and Dearborn. The counties with the lowest harvests were Tipton, Benton, Hancock, Marion, Blackford, Rush, Clinton, Shelby, Boone, and Henry.

**Table 6. Number of deer harvested in each Indiana county during 2008 (after adjustment for unknowns).**

| | Number Harvested | | | | Number Harvested | | |
|---|---|---|---|---|---|---|---|
| County | Antlered | Antlerless | Total | County | Antlered | Antlerless | Total |
| Adams | 207 | 312 | 519 | Lawrence | 779 | 1,127 | 1,905 |
| Allen | 725 | 996 | 1,721 | Madison | 231 | 382 | 613 |
| Bartholomew | 540 | 761 | 1,301 | Marion | 155 | 136 | 290 |
| Benton | 82 | 55 | 137 | Marshall | 1,100 | 1,924 | 3,024 |
| Blackford | 136 | 171 | 308 | Martin | 532 | 1,055 | 1,587 |
| Boone | 201 | 218 | 419 | Miami | 608 | 797 | 1,405 |
| Brown | 732 | 1,164 | 1,895 | Monroe | 597 | 801 | 1,398 |
| Carroll | 432 | 500 | 931 | Montgomery | 325 | 498 | 823 |
| Cass | 626 | 886 | 1,511 | Morgan | 498 | 678 | 1,176 |
| Clark | 660 | 1,034 | 1,694 | Newton | 543 | 615 | 1,158 |
| Clay | 428 | 573 | 1,001 | Noble | 1,050 | 2,180 | 3,229 |
| Clinton | 158 | 192 | 349 | Ohio | 310 | 708 | 1,018 |
| Crawford | 720 | 1,047 | 1,767 | Orange | 770 | 1,164 | 1,934 |
| Daviess | 434 | 727 | 1,161 | Owen | 734 | 950 | 1,684 |
| Dearborn | 851 | 1,717 | 2,568 | Parke | 1,036 | 1,769 | 2,804 |
| Decatur | 297 | 366 | 663 | Perry | 716 | 1,095 | 1,811 |
| De Kalb | 934 | 1,502 | 2,437 | Pike | 616 | 843 | 1,459 |
| Delaware | 316 | 439 | 756 | Porter | 581 | 810 | 1,391 |
| Dubois | 643 | 1,120 | 1,763 | Posey | 648 | 932 | 1,580 |
| Elkhart | 584 | 962 | 1,546 | Pulaski | 693 | 894 | 1,588 |
| Fayette | 287 | 425 | 712 | Putnam | 791 | 1,037 | 1,828 |
| Floyd | 244 | 377 | 621 | Randolph | 245 | 270 | 515 |
| Fountain | 552 | 890 | 1,442 | Ripley | 723 | 955 | 1,678 |
| Franklin | 948 | 1,905 | 2,852 | Rush | 160 | 151 | 312 |
| Fulton | 734 | 1,321 | 2,055 | St. Joseph | 592 | 858 | 1,450 |
| Gibson | 628 | 959 | 1,588 | Scott | 378 | 609 | 987 |
| Grant | 321 | 471 | 791 | Shelby | 160 | 218 | 378 |
| Greene | 947 | 1,206 | 2,153 | Spencer | 558 | 816 | 1,374 |
| Hamilton | 227 | 273 | 500 | Starke | 700 | 1,026 | 1,727 |
| Hancock | 121 | 158 | 278 | Steuben | 1,214 | 2,458 | 3,672 |
| Harrison | 973 | 1,728 | 2,701 | Sullivan | 745 | 904 | 1,648 |
| Hendricks | 292 | 358 | 650 | Switzerland | 917 | 2,038 | 2,955 |
| Henry | 202 | 289 | 491 | Tippecanoe | 521 | 646 | 1,167 |
| Howard | 173 | 322 | 496 | Tipton | 68 | 62 | 130 |
| Huntington | 500 | 725 | 1,226 | Union | 226 | 295 | 521 |
| Jackson | 798 | 1,190 | 1,988 | Vanderburgh | 300 | 475 | 775 |
| Jasper | 645 | 986 | 1,631 | Vermillion | 536 | 671 | 1,207 |
| Jay | 302 | 604 | 906 | Vigo | 640 | 821 | 1,462 |
| Jefferson | 791 | 1,385 | 2,176 | Wabash | 727 | 1,025 | 1,752 |
| Jennings | 766 | 1,108 | 1,874 | Warren | 533 | 751 | 1,284 |
| Johnson | 248 | 379 | 628 | Warrick | 666 | 860 | 1,526 |
| Knox | 459 | 478 | 936 | Washington | 911 | 1,606 | 2,517 |
| Kosciusko | 1,177 | 2,185 | 3,362 | Wayne | 385 | 516 | 901 |
| Lagrange | 799 | 1,935 | 2,733 | Wells | 245 | 296 | 540 |
| Lake | 555 | 633 | 1,188 | White | 474 | 755 | 1,229 |
| La Porte | 974 | 1,553 | 2,527 | Whitley | 540 | 844 | 1,384 |

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

## Disease Monitoring

Results from the Division of Fish and Wildlife's Chronic Wasting Disease (CWD) sampling have been completed, and tests failed to detect CWD in 862 deer during the 2008 year.

Since 2002, Division of Fish and Wildlife employees have been collecting CWD samples from hunter harvested deer during the opening weekend of the firearms season. Beginning in 2007, these efforts were supplemented with the addition of collecting road-killed samples throughout the year, which is continued today. CWD has not been detected in over 10,000 deer during this monitoring period.

CWD is one of a group of diseases called Transmissible Spongiform Encephalopathies (TSE's). Other examples of TSE's include scrapie in sheep and Creutzfeldt-Jakob disease in humans. The agents of CWD are called prions which are abnormal, protease-resistant forms of cellular proteins normally synthesized in the central nervous system and lymphoid tissues. Prions that cause CWD are highly resistant to heat or disinfectant, and can be transferred to other deer through direct or indirect contact. No study has ever proven that CWD is transmissible to humans.

Additionally, fewer reports were received this year than the previous two for cases of Epizootic Hemorrhagic Disease (EHD). Overall deer loss is believed to be much less than the previous two years. A map of the counties reporting and testing positive for EHD can be seen in Figure 8.

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

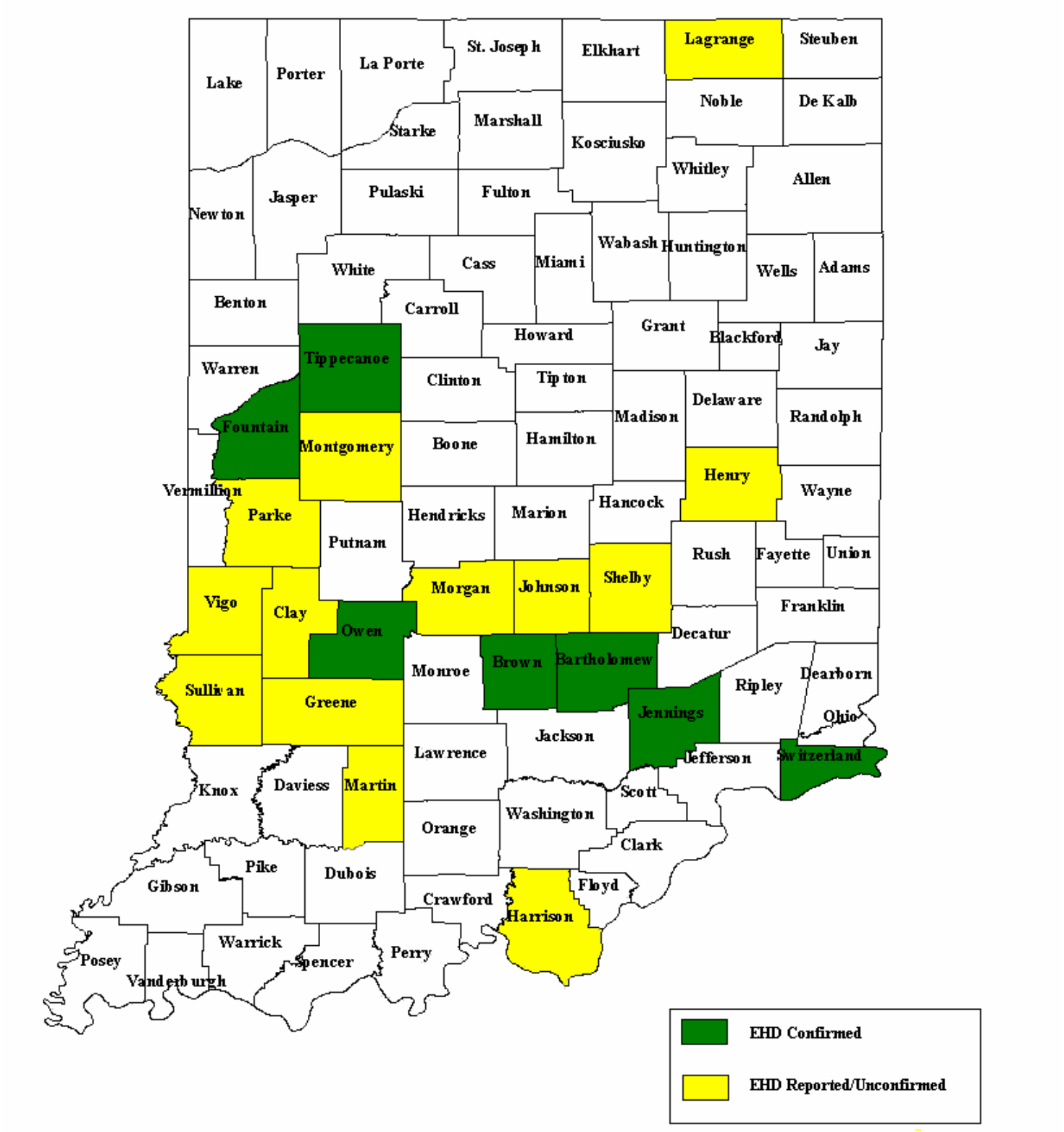



Figure 8. 2008 Status of Epizootic Hemorrhagic Disease in Indiana

**Iowa Status Report Summary**

**Licenses Issued:** Total: 406,169 Res: 382,268 Nonres: 15,228 Youth: 8,673

**Reported Harvest:** Total: 142,194 Antlered Buck: 51,710 Antlerless: 90,484

**Age of Bucks:** UNK

**% Antlerless in Total Harvest:** 64%

**Hunter Numbers:** Res: 171,503 Nonres: 9,147 Youth Season: 8,183 (figure included in the resident statistic)

**Minimum Age:** None. Twelve years old with Hunter Safety to hunt without direct supervision

**Fees:** Res: $27.00 Nonres: $323.00

**Season Dates:**
Archery: 10/1- 12/5 & 12/22 – 1/10
Muzzleloader: 10/11 – 10/19 & 12/22 – 1/10
Shotgun: 12/6 – 12/10 & 12/13 – 12/21
Youth/Disabled: 9/20 – 10/5
Nov. Antlerless: 11/28 – 11/30
Jan. Antlerless: 1/11 – 1/25
Nonres. Hol. Antlerless: 12/24 – 1/02

**Disease Issues:** No probable cases of EHD reported. Two instances of almost complete loss of guard hairs, cause not determined. Number of “escaped” captive cervids seemed to increase during 2008.

**Population Trend:**
Statewide: Deer herd declining
20 WMUs:
10 WMUs: Populations at or near goals
9 WMUs: Populations declining
1 WMU: Population growth stabilized but greater harvest needed to initiate a population decline

## Midwest Deer and Turkey Group Report: Iowa 2008/09 Season

### Reported Kill for the 2008/2009 Deer Season

There were just over 17,000 more deer licenses issued (16,401 more antlerless licenses and 605 more either-sex licenses) for the 2008/2009 deer season compared to 2007. Antlerless licenses made up about 43% of the deer licenses issued during the 2008/09 deer season. The number of paid licenses increased by 12,518 while the number of landowner/tenant licenses increased by 4,488.

The total reported harvest for 2008/09 was 3% lower than the previous year (4,020 fewer deer). The majority of this decrease was due to fewer antlered bucks and buck fawns in the reported harvest. Antlerless deer (not including shed-antlered bucks) represented 64% of the harvest and 53% of the total harvest was comprised of does (Table 1). The proportions represented a 1% and 2% increase for antlerless deer and does respectively, when compared to the 2007 season. Please see Table 1.1 at the end of this document for a more complete license and harvest breakdown.

**Table 1. License sales and the number of deer reported killed during the 2008/09 deer season.**

| | | Reported Kill | | | | Success | Percent |
|---|---|---|---|---|---|---|---|
| **Season** | **Licenses** | **Antlered[a]** | **Does** | **Buttons** | **Total** | **Rate[b]** | **Does** |
| Youth/Disabled | 8,839 | 1,731 | 1,329 | 345 | 3,405 | 39% | 39% |
| Early Muzzleloader | 12,498 | 1,991 | 2,047 | 384 | 4,342 | 35% | 47% |
| Archery | 84,718 | 10,831 | 9,219 | 1,769 | 21,819 | 26% | 42% |
| November Antlerless | 12,562 | 20 | 3,000 | 838 | 3,858 | 31% | 78% |
| Gun 1 (Paid) | 85,629 | 18,172 | 18,987 | 4,342 | 41,501 | 48% | 46% |
| Gun 2 (Paid) | 65,013 | 7,778 | 11,486 | 2,565 | 21,829 | 34% | 53% |
| Gun 1 & 2 (LO/T) | 42,186 | 4,237 | 7,056 | 1,469 | 12,762 | 30% | 55% |
| Late Muzzleloader | 36,611 | 3,196 | 5,847 | 1,211 | 10,254 | 28% | 57% |
| January Antlerless | 29,655 | 862 | 7,810 | 1,472 | 10,144 | 34% | 77% |
| Nonresident | 15,228 | 2,818 | 2,787 | 370 | 5,975 | 39% | 47% |
| Depredation & special hunts | 13,230 | 154 | 5,190 | 961 | 6,305 | 48% | 82% |
| | **406,169** | **51,710** | **74,758** | **15,726** | **142,194** | **35%** | **53%** |

[a]Includes reported shed-antlered bucks
[b]Licenses reported successfully filled

This hunting season represented the third year in a change of methodology in collecting harvest information in Iowa. Hunters were required to report their harvest by calling in the information, reporting it online at the Department's web site, or by reporting the harvest through the ELSI system at a license dealer. Since 2006, the reported harvest figures have represented the known minimum harvest for each season.

In 2005 and prior years, a total harvest estimate was calculated and reported based on a postseason postcard survey, this survey was felt to overestimate the actual harvest. Since 2006, reported harvest statistics have been based on the known minimum harvest figures obtained through the harvest reporting system.

Caution should be used when comparing the reported harvest and license success rates for this year to the harvest estimates and hunter success rates from years prior to 2006 since the techniques used to record/estimate the harvest are very different.

Information (registration numbers, age and sex, county of kill, etc.) was collected from about 3,150 deer checked in the field and at lockers during CWD surveillance and hunter contacts to determine what proportion of successful hunters reported their deer. Examination of this data indicated that 91.5% of the harvested deer that were encountered in the field were reported. This was an increase of 0.4% in the reporting rate observed during the 2007 seasons.

There is likely a bias in the above rate since all of these situations require the hunter to take the deer to a locker or have contact with a DNR official or someone in an official capacity. People in these situations may be more likely to report their deer than would someone who hadn't talked with a DNR official or someone who doesn't take their deer to a locker. Recent deer hunter surveys indicate that about 1/3 of Iowa's deer hunters completely process their deer themselves. However, gathering data from these individuals is problematic since there is no way to gather the data without someone from, or working with, the DNR contacting them.

In final analyses, making some allowance for the potential bias, it was estimated that about 86% of the deer harvested in 2008/09 were properly reported. This represents an estimated total harvest of about 165,000 deer which is 2.5% lower than in 2007.

Figure 1 compares the harvest reporting system (a known minimum harvest level) with the post-season postcard survey harvest estimates conducted prior to the 2006 hunting season. The figure displays what past harvests might have looked like using the calculated relationship between the two systems (the "actual" harvest levels).

Utilizing the reporting information, an estimate of the number of antlered bucks, does, and button bucks killed in 2008 can be made. In Figure 2, estimates from 1985-2005 have been constructed on the assumption that the relationship between the reported harvest and the post-season mail survey were consistent through time and that 90% of the harvest was reported (2006 compliance data). Harvest estimates from 2006-2008 were calculated from annual harvest reporting rates as described previously. The 2008 estimate is based on an estimated 86% reporting rate as discussed earlier.

**Figure 1. A comparison of the post-season harvest estimates from 1985-2005 (the top line) with the reported harvests from 2006-08 (the bottom line). The dotted line would be the "actual" harvest based on annual reporting compliance estimates (2006-08) and on 2006 reporting rates (90%) for the years prior to 2006 (the first year of mandatory reporting).**

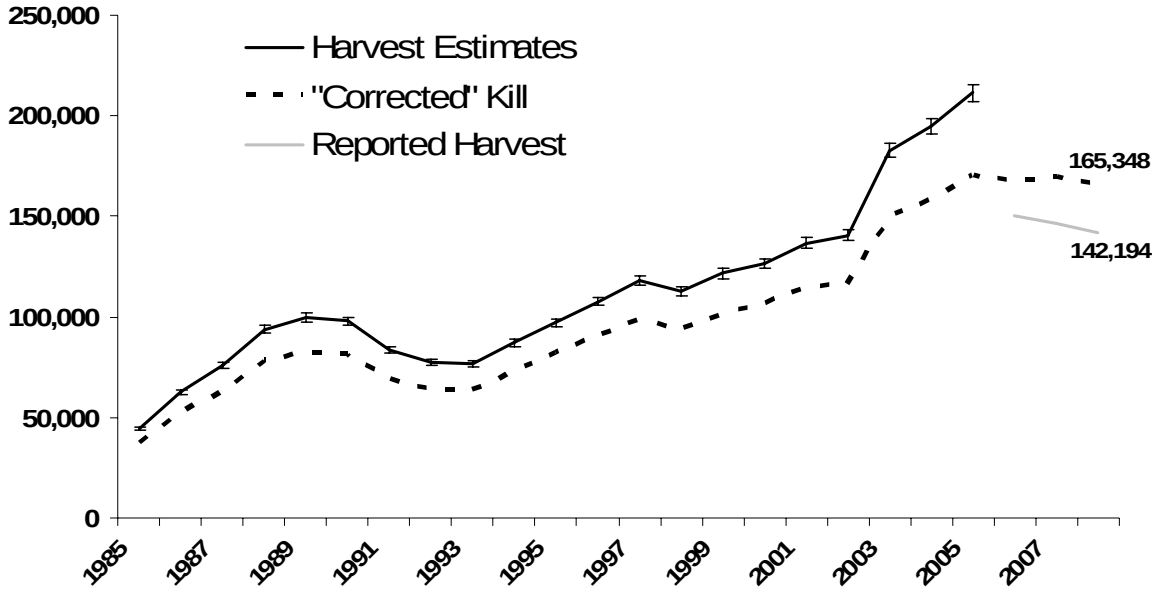
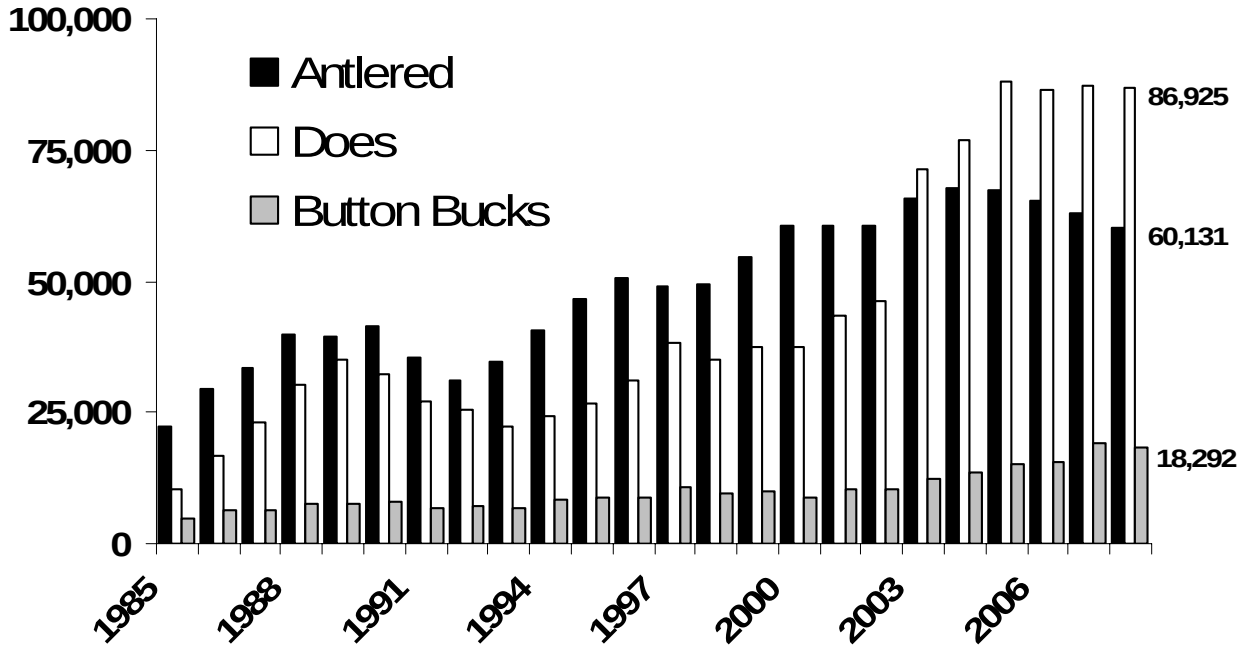
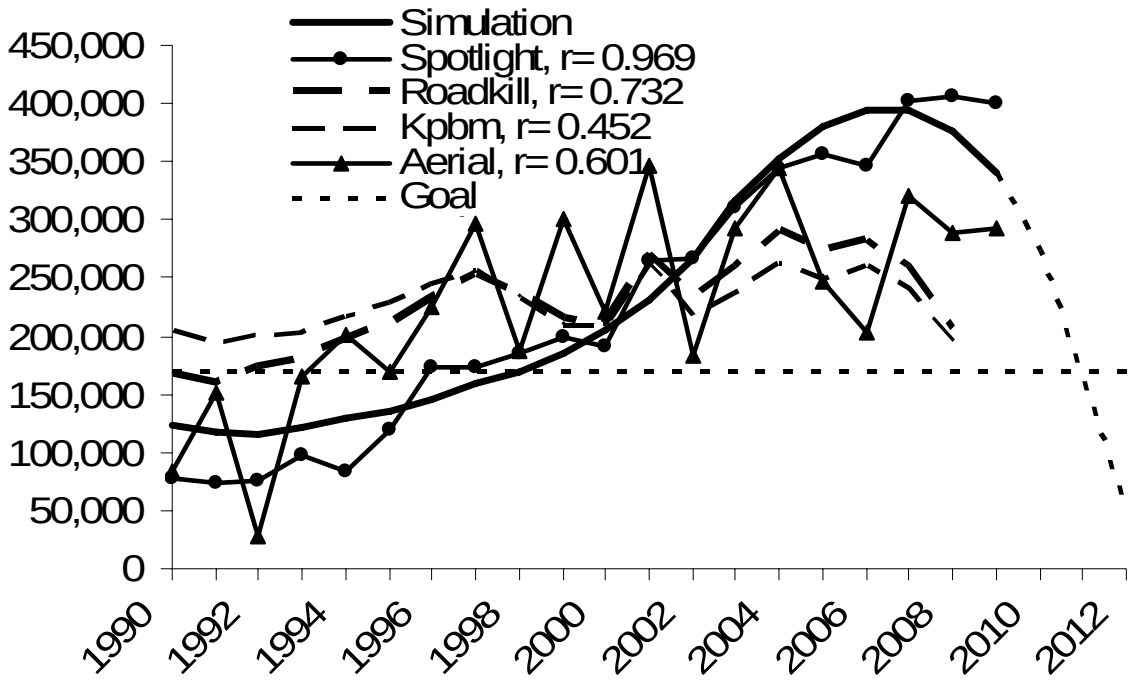



**Figure 2. An estimate of the number of antlered bucks, does, and button bucks killed in 2008 if 86% of the actual harvest were reported. The estimates from 1985 - 2005 assume the relationship between the reported harvest and the post-season mail survey would have been consistent in the past and were constructed using the 90% reporting rate estimate that was calculated for the 2006 hunting season (the first year of mandatory reporting).**



If the harvest data from Figure 2 is used in the population model, the resulting "best fit" simulation indicates a declining deer population statewide (Figure 3). The model indicates about a 10% decline in the population as a result of the 2008/09 harvests. The model has a very strong correlation with the spotlight survey and good correlation with the aerial survey and roadkill index.

**Figure 3. A comparison of the results from the statewide population simulation with deer population trend surveys. This simulation uses the 2008 harvest from the reporting system and a reporting rate of 86%.**




The simulation can be used to estimate the level of harvest needed in 2009 to reach the department's goal for the deer population. The goal is a deer population at the level it was in the mid to late 1990s when the public's acceptance of deer numbers was more evenly balanced. On a statewide basis, no changes were needed in 2009 in order for the simulated numbers to move towards the Department's goal (Figure 4).

Simulations were also run for each Wildlife Management Unit (WMU) to determine the county antlerless quotas (Table 2). The "best fit" models indicated that the doe harvest needed to increase in 1 WMU to immediately move deer populations towards the Department's goals (the simulation predicted the decline would begin in 2 years without the increase). Two additional WMUs were also modeled for increased doe harvests to accelerate the rate at which deer populations in those WMUs moved towards the established goals. One WMU was modeled for a decrease in the doe harvest to help stabilize the herd near population objectives.

**Figure 4. The result of the statewide population simulation with no increase in doe harvest.**

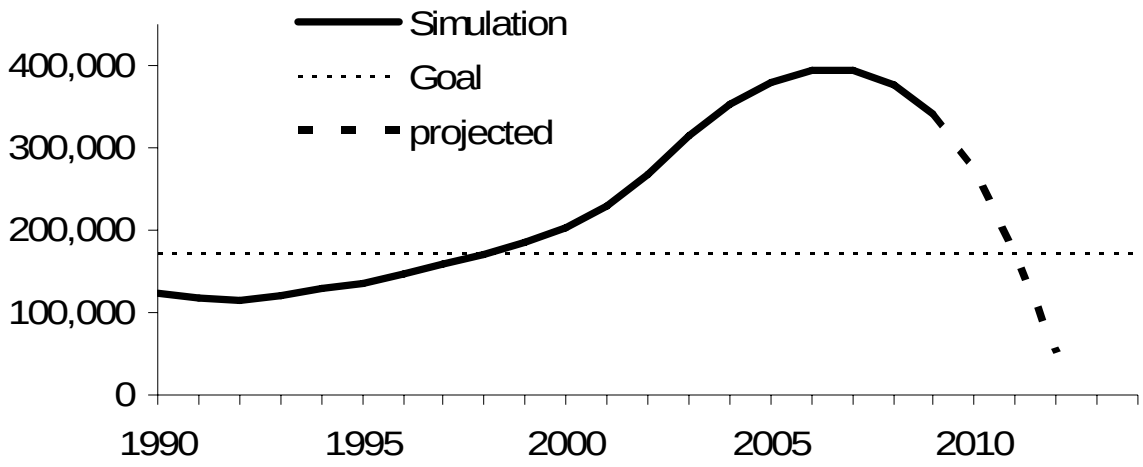



**Table 2. Deer harvest, correlation of the simulation with the deer population trend surveys, and the change in the doe kill needed to move the simulated deer numbers towards the department's goal for all 20 wildlife units.**

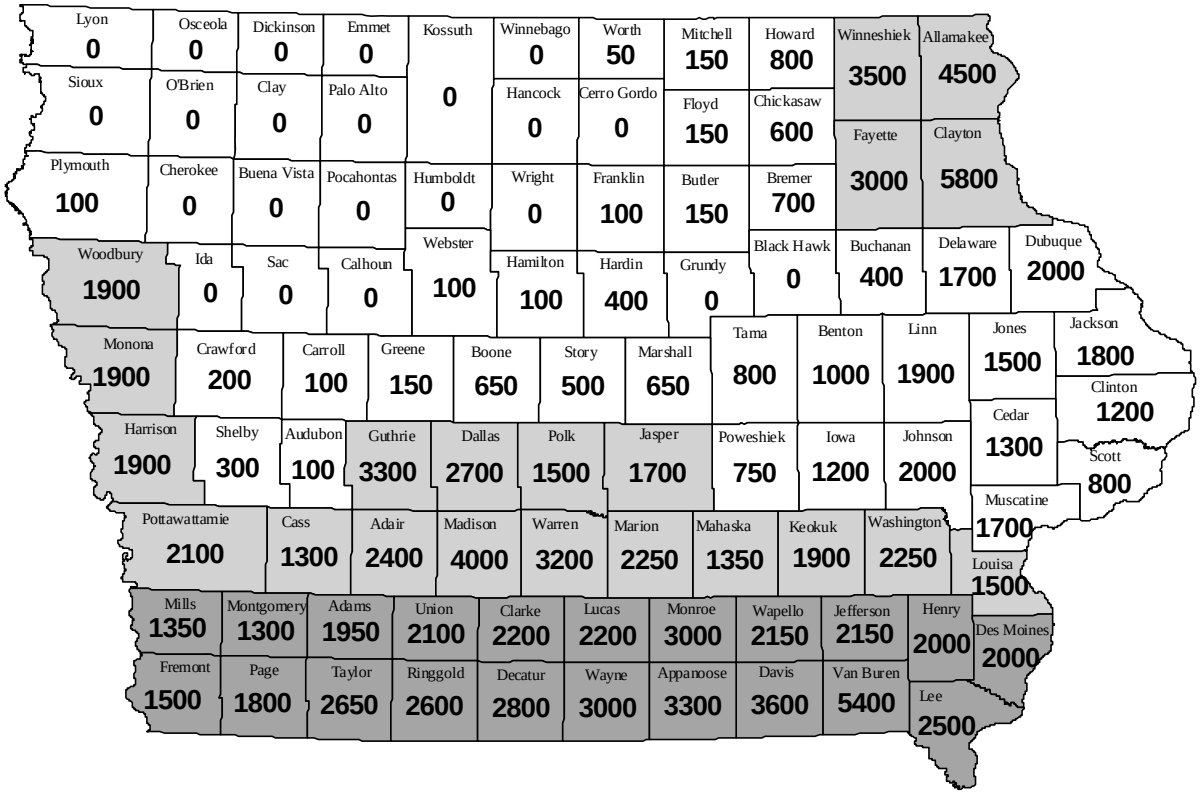
| | | | Correlation of simulation with: | | | | |
|---|---|---|---|---|---|---|---|
| | 2008 Harvest | | Spotlight | Aerial | | | Change |
| Wildlife Unit | Does | Bucks | Survey | Survey | Roadkill | Kpbm | in Doe Kill |
| Bays Branch | 5,313 | 5,104 | 0.960 | 0.264 | 0.577 | 0.365 | +25% |
| Big Marsh | 1,807 | 2,242 | 0.779 | 0.123 | -0.118 | -0.400 | -10% |
| Big Sioux | 819 | 985 | 0.258 | 0.611 | -0.106 | -0.329 | 0% |
| Black Hawk | 750 | 1,180 | 0.309 | -0.009 | 0.478 | 0.154 | 0% |
| Coralville | 6,645 | 5,481 | 0.759 | 0.852 | 0.335 | 0.075 | 0% |
| Ingham | 640 | 859 | 0.208 | 0.512 | 0.047 | 0.007 | 0% |
| Maquoketa | 7,160 | 6,055 | 0.520 | 0.191 | 0.683 | 0.536 | 0% |
| Missouri River | 2,912 | 3,309 | 0.788 | 0.470 | 0.470 | 0.310 | +10%[a] |
| Mt. Ayr | 7,534 | 5,892 | 0.908 | 0.405 | 0.913 | 0.911 | 0% |
| Odessa | 5,112 | 4,564 | 0.622 | 0.653 | 0.515 | 0.242 | 0% |
| Otter Creek | 3,589 | 3,566 | 0.391 | -0.089 | 0.156 | -0.115 | 0% |
| Rathbun | 6,392 | 5,271 | 0.780 | 0.433 | 0.929 | 0.932 | 0% |
| Red Rock | 4,993 | 4,851 | 0.878 | 0.217 | 0.792 | 0.654 | +25%[a] |
| Rice Lake | 1,512 | 1,650 | 0.256 | -0.495 | 0.152 | -0.225 | 0% |
| Riverton | 4,275 | 4,078 | 0.954 | 0.000 | 0.820 | 0.774 | 0% |
| Ruthven | 1,013 | 1,441 | 0.056 | 0.260 | -0.153 | -0.259 | 0% |
| Saylorville | 1,630 | 1,747 | 0.908 | 0.170 | -0.708 | -0.865 | 0% |
| Sweet Marsh | 9,455 | 7,662 | 0.898 | 0.704 | 0.327 | 0.039 | 0% |
| Upper Iowa | 5,515 | 4,951 | 0.784 | 0.316 | -0.321 | -0.543 | 0% |
| Wapello | 9,859 | 7,523 | 0.932 | 0.601 | 0.266 | 0.041 | 0% |

[a]WMU increases in doe harvest modeled to accelerate the rate at which populations will reach desired goals

## Antlerless Quotas for the 2009/2010 Deer Season

The following map (Figure 5) shows the county antlerless quota for the 2009/10 deer season. The 42 shaded counties (light and dark shaded) will be open during the November and January antlerless seasons (if licenses are still available on 14 Nov. and 15 Dec. respectively). In the 21 dark shaded counties, centerfire rifles will be a legal weapon during the entire January Antlerless season. The total number of antlerless licenses available for 2009/10 is 131,600 which are 7,650 more licenses than were available in 2008/09. Over 6,600 of the licenses were added to counties that sold out in 2008/09.

**Figure 5. 2009/10 resident antlerless-only license quotas by county and distribution of November and January antlerless-only seasons. All counties will be either-sex during all seasons in 2009/10.**




The increases in quotas in the Bays Branch (+2,000), Missouri River (+1,850), and Red Rock (+1,950) WMUs are based upon the results of the simulations and surveys. Based upon the reported harvest in 2008, the doe kill needs to increase by 10-25% in these 3 WMUs. The Big Marsh WMU was modeled for a 10% decrease in the doe harvest in order to help stabilize populations in this area and resulted in a decrease to the county quotas in two counties within the WMU (-150).

The changes in the other counties are based more on the population trend survey results and recommendations from wildlife and law enforcement personnel. Although the simulations suggest the current level of harvest should be enough to decrease deer numbers in these counties, increases to the quotas were made in order to strengthen the declines. Antlerless quota reductions were

made in 3 additional counties in response to low depredation complaints, hunter and employee concerns over declining deer numbers, and survey trends (Figure 6).

**Figure 6. The change from the 2008 antlerless quotas.**

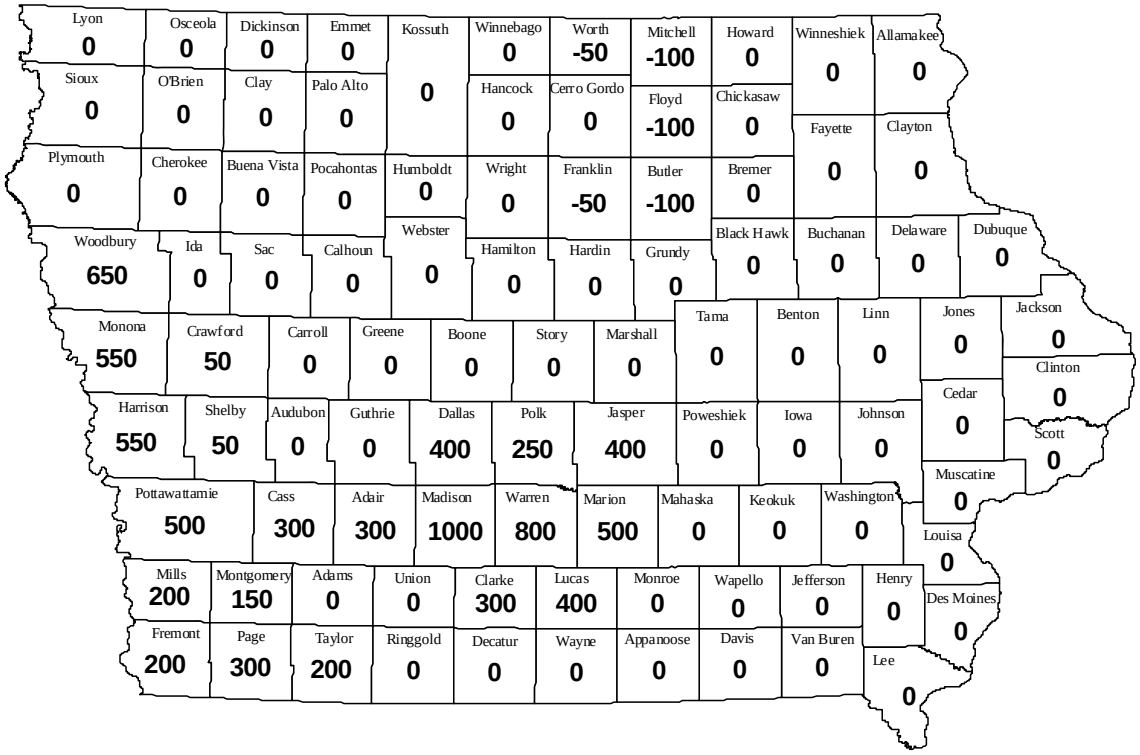


Table 1.1 A summary of the number of licenses issued, the number of deer harvested, and success rates for the 2008-2009 season.

| Season | | License Type | Licenses Issued | | Number of Hunters [c] | Harvest [d] | | Success Rate [e] |
|---|---|---|---|---|---|---|---|---|
| REGULAR GUN | | | | | | | | |
| Season 1 | Paid | Either-sex | 63,397 | (-3%)[a] | 63,397 | 29,124 | (-4%) | 46% |
| | | Antlerless | 22,232 | (+14%) | 13,370 | 12,377 | (+18%) | 56% |
| Season 2 | | Either-sex | 46,620 | (+1%) | 46,620 | 13,833 | (-23%) | 30% |
| | | Antlerless | 18,393 | (+10%) | 10,728 | 7,996 | (-4%) | 43% |
| | Nonresident | Both | 8,786 | (+10%) | 5,782 | 3,878 | (+6%) | 44% |
| | | **Total** | 159,428 | (+3%) | 139,897 | 67,208 | (-5%) | 42% |
| Season 1 & 2 | Landowner | Either-sex | 25,011 | (-3%) | 25,011 | 6,866 | (-13%) | 27% |
| | | Antlerless | 17,175 | (+9%) | 14,332 | 5,896 | (-1%) | 34% |
| | | **Total** | 42,186 | (+2%) | 39,343 | 12,762 | (-8%) | 30% |
| **GUN SEASON TOTAL** | | | **201,614** | **(+2%)** | **179,240** | **79,970** | **(-6%)** | **40%** |
| MUZZLELOADER | | | | | | | | |
| Early | Paid | Either-sex | 7,500 | (NC) | 7,500 | 2,621 | (-5%) | 35% |
| | | Antlerless | 1,813 | (+1%) | 1,371 | 843 | (+4%) | 46% |
| | Landowner | Both | 3,185 | (-3%) | 3,092 | 878 | (-3%) | 28% |
| | | **Total** | 12,498 | (-1%) | 11,963 | 4,342 | (-3%) | 35% |
| Late | Paid | Either-sex | 18,364 | (+3%) | 18,364 | 4,604 | (-6%) | 25% |
| | | Antlerless | 13,286 | (+9%) | 9,058 | 4,499 | (+1%) | 34% |
| | Landowner | Both | 4,961 | (+3%) | 4,728 | 1,151 | (-1%) | 23% |
| | Nonresident | Both | 1,778 | (-6%) | 889 | 666 | (+3%) | 37% |
| | | **Total** | 38,389 | (+5%) | 33,039 | 10,920 | (-2%) | 28% |
| **MUZZLELOADER TOTAL** | | | **50,887** | **(+3%)** | **45,002** | **15,262** | **(-2%)** | **30%** |
| NOVEMBER ANTLERLESS SEASON | | | | | | | | |
| | Paid | Antlerless | 11,192 | (+9%) | 8,949 | 3,492 | (-16%) | 31% |
| | Landowner | Antlerless | 1,370 | (+3%) | 1,291 | 366 | (-7%) | 27% |
| | | **Total** | **12,562** | **(+9%)** | **10,240** | **3,858** | **(-15%)** | **31%** |
| JANUARY ANTLERLESS SEASON | | | | | | | | |
| | Paid | Antlerless | 21,221 | (+12%) | 13,042 | 8,593 | (+14%) | 40% |
| | Landowner | Antlerless | 8,434 | (+7%) | 7,875 | 1,551 | (+5%) | 18% |
| | | **Total** | **29,655** | **(+10%)** | **20,917** | **10,144** | **(+12%)** | **34%** |
| YOUTH | Paid | Both | 8,392 | (+6%) | 8,034 | 3,259 | (-4%) | 39% |
| | Landowner | Both | 196 | (+1%) | 177 | 59 | (-2%) | 30% |
| | Disabled | Both | 251 | (+43%) | 185 | 87 | (+43%) | 35% |
| | | **Total** | **8,839** | **(+7%)** | **8,396** | **3,405** | **(-3%)** | **39%** |
| ARCHERY | Paid | Either-sex | 49,953 | (+3%) | 49,953 | 11,105 | (-6%) | 22% |
| | | Antlerless | 26,850 | (+9%) | 16,889 | 8,411 | (+2%) | 31% |
| | Landowner | Both | 7,812 | (+11%) | 6,030 | 2,277 | (+7%) | 29% |
| | Nonresident | Both | 4,200 | (-20%) | 2,100 | 1,281 | (-12%) | 31% |
| | | **Total** | **88,815** | **(+4%)** | **74,972** | **23,074** | **(-3%)** | **26%** |
| **TOTAL** [b] | | | **406,169** | **(+4%)** | **344,327** | **142,194** | **(-3%)** | |

[a] - the numbers in parentheses are the percent change from 2007-2008, NC = < 0.5%

[b] - total include licenses and kill from hunts in special deer management zones and depredation licenses

[c] - number of individuals with licenses, not comparable with previous years estimates

[d] - reported kill, not comparable to previous estimates previous to 2006 hunting season

[e] - licenses reported successfully filled, not comparable to estimates previous to 2006 hunting season

# MIDWEST DEER STUDY GROUP

## KANSAS - 2008-2009 STATUS REPORT
**Prepared by Lloyd Fox**

## Deer Population Trends

The Kansas Department of Wildlife and Parks (KDWP) manages deer at the level of Deer Management Units (DMU), see Figure 1. Population trends, 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 portions 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 permits 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 $1,000. Vehicle mileage estimates for each county are obtained from standard surveys compiled by the Kansas Department of Transportation (KDOT).

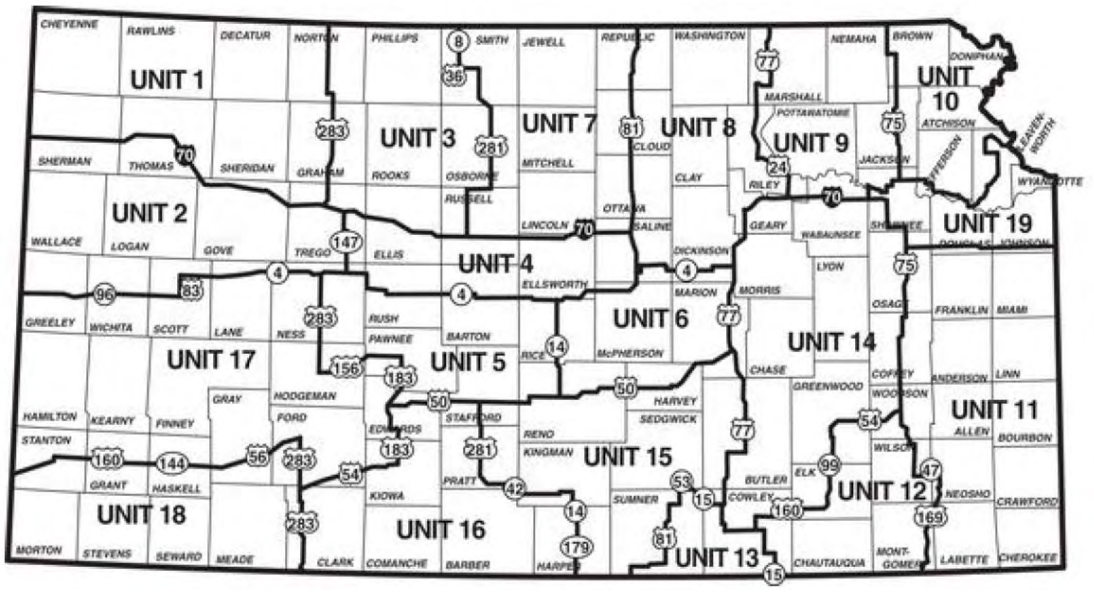



Figure 1. Deer management units in Kansas.

An additional 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 9,371 accidents reported during 2008, a decrease of 0.5% over the number of accidents that occurred in 2007. Graphs for each DMU have been prepared based on deer related vehicle accidents adjusted for traffic volume and compared with deer permits, an index to hunting pressure. Figure 2 shows the trend in annual accidents per billion miles of vehicle travel compared to the various permits issued during the period from 1991 to 2008. A substantial increase in deer hunting pressure has been placed on the antlerless component of the white-tailed deer population since 1997. Prior to that time the deer population index increased through time. Since that time the deer population index has stabilized or declined in most deer management units in Kansas.

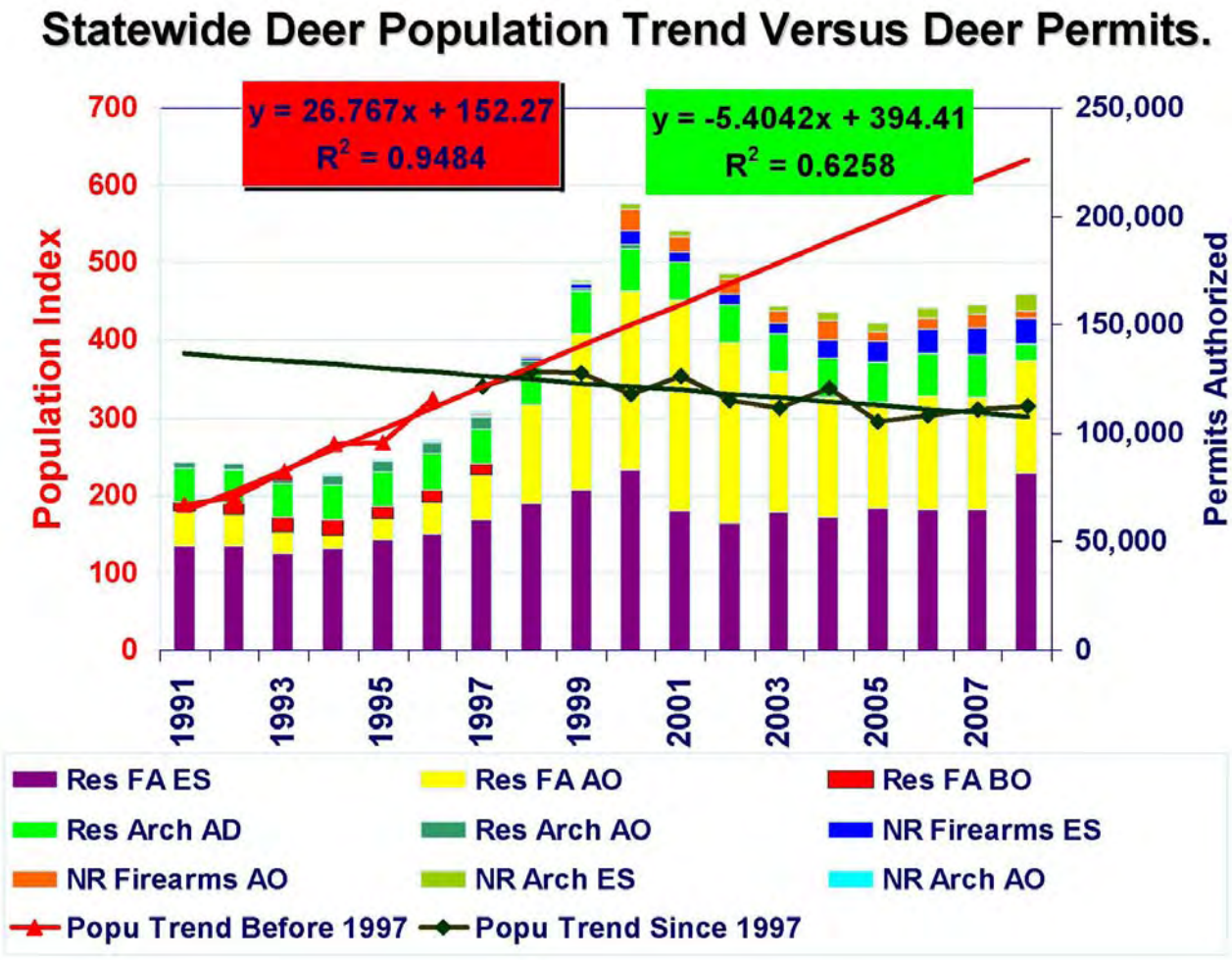



Figure 2. Trends in the annual deer related vehicle accident level in Kansas compared to the various permit types for the period from 1990 to 2008.

## Deer Harvest

Table 1 shows a total of 163,974 permits sold for the 2008-09 seasons compared to 160,010 for the 2007-08 seasons, a 2.5% increase. 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.

Prior to the 2008-09 seasons, State law limited nonresident firearm permit availability to no more that 20% of the number authorized for residents or 20% of the number issued to residents the year before if the availability for residents was unlimited. Nonresident archery permits were limited to no more than 25% of the number sold to residents the year before. State law does not limit the number of antlerless type permits the department may authorize. State law had required 50% of the nonresident deer permits be made available to Kansas landowners who could purchase them at the nonresident price and then resell the permit at whatever price they could obtain.

Substantial changes occurred in the procedure for hunters to obtain permits for the 2008-09 seasons. The transferable permit system was eliminated. Quotas for nonresident permits were established at a level above the average demand level for permits in most units. The system was also changed from one with separate quotas by equipment type to a system with a quota for each DMU. The hunter was restricted to one class of equipment (i.e., firearms, muzzleloader or archery) and the season dates when that class of equipment was open. However, if a hunter drew a permit they could designate which equipment type they wanted to use. This procedure eliminated the problem of excess permits available for one type of equipment while hunters were being denied an opportunity to hunt with the equipment they wanted to use. The issue was primarily one of too few archery permits available for nonresidents in units with excess firearms permits.

DMUs in Kansas are bounded by state and federal highways. Those major highways frequently passed through the middle of major towns with accommodations for nonresident hunters. Hunters frequently commented that they had access to property on both sides of the road but their permit was only valid on one side. During the 2008-09 drawing process, nonresident deer hunters were allowed 4 choices on their application for a DMU they wished to hunt. If they were successful in drawing a permit for that unit they also got to designate one additional adjacent DMU where they could hunt. Thus allowing a hunter to select any area of the state and be able to hunt on either side of one portion of the boundary. The system also allowed hunters to hunt in the unit they wanted the most even though all the permits in the quota for that unit had been drawn. The nonresident hunter could apply for a permit in the adjacent unit and then designate the filled unit as their additional unit.

Successful nonresidents with an archery or muzzleloader permit for western units were allowed to draw for a mule deer stamp during the 2008-09 seasons. This was the first time a general nonresident could pursue a mule deer with a bow. Table 1 shows that 164 nonresident muzzleloader hunters and 122 nonresident archers obtained a mule

deer stamp and expanded their white-tailed deer permit to include the additional species. Approximately 80 mule deer and 92 white-tailed deer were taken on those permits with the mule deer stamp.

Resident deer permits were also changed during the 2008-09 seasons. The most dramatic change was the creation of a permit that allowed the hunter to pursue either sex of white-tailed deer in any DMU and to use their permit during any season with the equipment authorized for that season (i.e., a statewide any season permit) or WTESAS permit. The biggest shift in hunter activity this caused was a decline from 20,175 Kansas residents in 2007 that purchased an archery only permit that allowed them to hunt statewide and pursue both species and either sex to only 7,493 residents that purchased that same permit type in 2008. Many hunters decided to purchasing a permit limited to white-tailed deer but allowing the hunter to use the other classes of equipment. The new WTESAS permit did not offer the hunter any additional days in the field as all archery only permits were valid during the early muzzleloader season and the regular firearms season. The archery only permit continues to convert to a firearm permit during the extended antlerless only white-tailed deer season, as do the muzzleloader only permits. Because of these permit characteristics it is extremely difficult to classify the Kansas deer hunter into a single equipment category based on the permit they buy.

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.

There were 108,780 people that purchased a deer permit in Kansas during the 2008-09 seasons. They purchased a total of 163,974 permits, a 2.5% increase from the number of permits issued in 2007-08. A sample of 3,611 resident bowhunters and 26,839 other deer hunters were surveyed to estimate the harvest. Resident bowhunters were surveyed using a system that included names of hunters from previous years. That list may contain names of 538 people that did not purchase a permit in 2008.

## TABLE 1.
## ESTIMATED DEER HUNTING PERMIT SALE KS, 2008.

**FIREARM**

| Permit Type | General Resident | Landowner / Tenant | Youth | Non Res Tenant | Hunt-Own-Land | Non_Res Leftover | General Non_Res | Total |
|---|---|---|---|---|---|---|---|---|
| Reg Firearm AD | 1,880 | 504 | 201 | 177 | 5,774 | | 1,281 | 9,817 |
| Reg Firearm AO | 94 | | 6 | | | | 20 | 120 |
| Reg Firearm WTES | 48,127 | 18,103 | 5,688 | 156 | | | | 72,074 |
| Muzzleloader | 759 | 145 | 57 | 1 | | | | 962 |
| Game Tags * | | | | | | | | 0 |
| WTAO Permit ** | 49,105 | | 2,453 | | | | 3,516 | 55,074 |
| Special Transferrable HOL | | | | | 1,302 | | | 1,302 |
| Non- Resident | | | | | | | | |
| Firearm - White-tailed Either Sex | | | | | | 1,250 | 6,303 | 7,553 |
| Muzzleloader - White-tailed Either Sex | | | | | | 272 | 1,455 | 1,727 |
| Muzzleloader - Either Species / Either Sex | | | | | | | 164 | 164 |
| Firearm - White-tailed Antlerless | | | | | | | | 0 |
| Mule Deer Stamp | | | | | | | | |
| Total - Firearm | 99,965 | 18,752 | 8,405 | 334 | 7,076 | 1,522 | 12,739 | 148,793 |
| Total 2007 | 90547 | 17485 | 2716 | | 9247 | 1596 | 13360 | 134951 |
| % Change | 10.4 | 7.2 | 209.5 | | -23.5 | -4.6 | -4.6 | 10.3 |

**ARCHERY**

| Permit Type | General Resident | Landowner / Tenant | Youth | Non Res Tenant | Hunt-Own-Land | Non_Res Leftover | General Non_Res | Total |
|---|---|---|---|---|---|---|---|---|
| Statewide Archery ** | 5,978 | 1,280 | 222 | 13 | | | | 7,493 |
| Non- Resident | | | | | | | | |
| Archery - White-tailed Either Sex | | | | | | 1,094 | 6,472 | 7,566 |
| Archery - Either Species / Either Sex | | | | | | | 122 | 122 |
| Total - Archery | 5,978 | 1,280 | 222 | 13 | | 1,094 | 6,594 | 15,181 |
| Total 2007 | 16741 | 3434 | 2280 | | | | 2604 | 25059 |
| % Change | -64.3 | -62.7 | -90.3 | | | | 153.2 | -39.4 |

**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. 8 - 10 | 5 | OCT. 1 - NOV. 30 | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 1969 |
| 1970 | DEC. 5 - 9 | 5 - WEST | OCT. 1 - NOV. 30 | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 1970 |
| | DEC. 5 - 13 | 9 - EAST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 1971 | DEC. 4 - 8 | 5 - WEST | OCT. 16 - NOV.26, 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 - 6 | 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. 15 - 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 | 73 | 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. 28, DEC. 12 - DEC. 31 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| 1980 | DEC. 6 - 14 | 9 | OCT. 1 - DEC.3, 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 | 79 | 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 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 1985 |
| 1986 | DEC. 6 - 14 | 9 | OCT. 1 - DEC. 5, DEC. 15 - DEC. 31 | 79 | DEC. 6 - 14 | 9 | 0 | 0 | 0 | 0 | 1986 |
| 1987 | DEC. 5 - 13 | 9 | OCT. 1 - DEC. 4, DEC. 14 - DEC. 31 | 79 | DEC. 5 - 13 | 9 | 0 | 0 | JAN. 2 - 10, 1988 | 9 | 1987 |
| 1988 | NOV. 30 - DEC. 11 | 12 | OCT. 1 - NOV. 29, DEC. 12 - DEC- 31 | 79 | Nov 30 - Dec 11 | 12 | 0 | 0 | JAN. 2 - 10, 1989 | 9 | 1988 |
| 1989 | NOV. 29 - DEC. 10 | 12 | OCT. 1 - NOV. 28, DEC. 11 - DEC. 31 | 79 | SEPT. 22 - 30 | 9 | 0 | 0 | 0 | 0 | 1989 |
| 1990 | NOV. 28 - DEC. 9 | 12 | OCT. 1 - NOV. 27, DEC. 10 - DEC. 31 | 79 | SEPT. 22 - 30 | 9 | 0 | 0 | 1st seg Jan. 1 - 14, 2nd seg Jan 22 - Feb 4 | 28 | 1990 |
| 1991 | DEC. 4 - 15 | 12 | OCT. 1 - DEC. 3, DEC. 16 - DEC. 31 | 79 | SEPT. 21 - 29 | 9 | 0 | 0 | 1st seg Jan. 1 - 13, 2nd seg Jan 21 - Feb 3 | 28 | 1991 |
| 1992 | DEC. 2 - 13 | 12 | OCT. 1 - DEC. 1, DEC. 14 - DEC. 31 | 79 | SEPT. 19 - 27 | 9 | 0 | 0 | Jan. 13 - 26 | 14 | 1992 |
| 1993 | DEC. 1 - 12 | 12 | OCT. 1 - NOV. 30, DEC. 13 - DEC. 31 | 79 | SEPT. 18 - 26 | 9 | 0 | 0 | Jan 11 - 24 | 14 | 1993 |
| 1994 | NOV. 30 -DEC. 11 | 12 | OCT. 1 - NOV. 29, DEC. 12 - DEC- 31 | 79 | SEPT. 17 - 25 | 9 | 0 | 0 | 0 | 0 | 1994 |
| 1995 | DEC. 1 - 10 | 12 | OCT. 1 - NOV. 28, DEC. 11 - DEC. 31 | 79 | SEPT. 16 - 24 | 9 | 0 | 0 | 0 | 0 | 1995 |
| 1996 | DEC. 4 - 15 | 12 | OCT. 1 - DEC. 3, DEC. 16 - DEC. 31 | 79 | 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. 2 - 13 | 12 | OCT. 1 - DEC. 1, DEC. 14 - DEC. 31 | 79 | SEPT. 19 - 27 | 9 | 0 | 0 | JAN. 9 - 10, 1999 | 2 | 1998 |
| 1999 | DEC. 1 - 12 | 12 | OCT. 1 - NOV. 30, DEC. 13 - DEC. 30 | 78 | SEPT. 18 - 30 | 13 | 0 | 0 | DEC. 31 - JAN. 9, 2000 | 10 | 1999 |
| 2000 | NOV. 29 - DEC. 10 | 12 | OCT. 1 - NOV. 28, DEC. 11 - 31 | 79 | SEPT. 16 - 29 | 14 | SEPT. 30 - OCT. 1 | 2 | JAN. 1 - 14, 2001 | 14 | 2000 |
| 2001 | NOV. 28 - DEC. 9 | 12 | OCT. 1 - NOV. 27, DEC. 10 - 31 | 79 | SEPT. 15 - 28 | 14 | SEPT. 29 - 30 | 2 | JAN. 1 - 13, 2002 | 13 | 2001 |
| 2002 | DEC. 4 - 15 | 12 | OCT. 1 - DEC. 3, DEC. 16 - 31 | 79 | SEPT. 14 - 27 | 14 | SEPT. 28 - 29 | 2 | JAN. 1 - 12, 2003 | 12 | 2002 |
| 2003 | DEC. 3 - 14 | 12 | OCT. 1 - DEC. 2, DEC. 15 -31 | 79 | SEPT. 13 - 26 | 14 | SEPT. 27 -28 | 2 | JAN 1 - 4, 2004 | 4 | 2003 |
| DMU 19 * | Oct. 18 - 26 | 9 | Jan. 5 - 31 | 26 | | | | | | | |
| 2004 | DEC. 1 -12 | 12 | OCT. 1 - NOV. 30, DEC. 13 - 31 | 79 | SEPT 11 - 24 | 14 | SEPT. 25 - 26 | 2 | JAN 1 -2, 2005 | 2 | 2004 |
| DMU 19 * | Oct. 16 -- 24 | 9 | Jan. 3 - 31 | 28 | | | | | | | |
| 2005 | NOV. 30 - DEC. 11 | 12 | Oct. 1 - Dec. 31 | 91 | Sept 10. - 23 | 14 | SEPT. 24 - 25 | 2 | Jan 1 -- 8, 2006 | 8 | 2005 |
| DMU 19 * | Oct. 15 - 23 | 9 | Jan. 9 - 31 | 23 | | | | | | | |
| 2006 | NOV. 29 - DEC. 10 | 12 | Oct. 1 - Dec. 31 | 91 | Sept 9. - 22 | 14 | SEPT. 23 - 24 | 2 | Jan 1 -- 7, 2007 | 7 | 2006 |
| DMU 19 * | Oct. 14 - 22 | 9 | Jan. 8 - 31 | 23 | | | | | | | |
| 2007 | NOV. 28 - DEC. 9 | 12 | Oct. 1 - Dec. 31 | 91 | Sept 15. - 28 | 14 | SEPT. 29 - 30 | 2 | Jan 1 -- 6, 2008 | 6 | 2007 |
| DMU19 | Oct. 13 - 21 | 9 | Jan. 7 - 31 | 24 | | | | | | | |
| 2008 | Dec 3 - 14 | 12 | Sept. 22 - Dec. 31 | 100 | Sept 22. - Oct 5 | 14 | SEPT. 13 - 21 | 9 | Jan 1 -- 4, 2009 | 4 | 2008 |
| DMU19 | Oct. 11 - 19 | 9 | Jan. 5 - 31 | 26 | | | | | | | |
| 2009 | Dec 2 - 13 | 12 | Sept. 21 - Dec. 31 | 101 | Sept 21. - Oct 4 | 14 | SEPT. 12 - 20 | 9 | Jan 1 -- 10, 2009 | 10 | 2009 |
| DMU19 | Oct. 10 - 18 | 9 | Jan. 11 - 31 | 21 | | | | | Jan 1 -- 17, 2009 (DMU 7, 8, &15) | 17 | |

* Additional days of hunting opportunity in DMU 18

## Table 3. History of deer permit availability and harvest in Kansas, 1994 to 2008.

| Permit Type | 1994* | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | Difference 2007 vs 2008 | Percent Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RESIDENT** | | | | | | | | | | | | | | | | | |
| Limited Quota | | | | | | | | | | | | | | | | | |
| Any Deer | 25,380 | 26,995 | 27,850 | 31,150 | 37,200 | 40,000 | 45,175 | 4,373 | 3,270 | 2,855 | 2,439 | 2,440 | 2,453 | 2,477 | 2,585 | 108 | 4.4 |
| Buck Only | 5,850 | 5,000 | 5,250 | 4,675 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| W-T Either Sex | 3,900 | 5,480 | 6,180 | 7,800 | 8,605 | 11,030 | 14,420 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| W-T Buck Only | 1,220 | 670 | 320 | 0 | 0 | 0 | 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 | 778 | 756 | 0 | -756 | -100.0 |
| Antlerless Only | 2,950 | 4,785 | 8,835 | 13,835 | 9,660 | 8,760 | 12,405 | 1,385 | 1,223 | 903 | 174 | 0 | 0 | 0 | 0 | 0 | |
| W-T Antlerless Only | 300 | 600 | 1,750 | 2,920 | 5,055 | 4,330 | 6,611 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sub-total | 42,600 | 46,880 | 53,830 | 64,325 | 65,275 | 69,260 | 84,596 | 6,944 | 5,665 | 4,782 | 3,662 | 3,281 | 3,231 | 3,233 | 2,585 | -646 | -20.0 |
| Unlimited Availability Permit Sales | | | | | | | | | | | | | | | | | |
| Hunt-Your-Own-Land | 13,881 | 14,654 | 15,507 | 16,407 | 16,521 | 16,119 | 16,151 | 12,658 | 11,983 | 8,962 | 8,719 | 9,120 | 8,440 | 8,312 | 5,951 | -2,361 | -28.4 |
| W-T Either Sex | | | | | | | | 45,395 | 41,662 | 49,293 | 49,371 | 53,127 | 53,161 | 53,412 | 72,074 | 18,662 | 34.9 |
| Muzzleloader | | | | | | | | | | | | | | | 962 | 962 | |
| Game Tags Residents) | 3,119 | 4,734 | 4,872 | 4,634 | 29,707 | 49,200 | 58,764 | 94,116 | 79,870 | 62,275 | 52,354 | 45,362 | 47,642 | 46,939 | 0 | -46,939 | -100.0 |
| WT Antlerless Only | | | | | | | | 1,874 | 1,959 | 1,074 | 2,567 | 3,615 | 4,407 | 4,346 | 51,558 | 47,212 | 1086.3 |
| STWD Archery | 16,156 | 16,106 | 16,429 | 16,299 | 17,330 | 19,180 | 19,831 | 17,315 | 17,340 | 17,134 | 17,822 | 18,458 | 19,497 | 20,175 | 7,493 | -12,682 | -62.9 |
| Unit Archery | 4,656 | 4,742 | 5,106 | 5,434 | 3,093 | 1,756 | 1,837 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sub-total | 37,812 | 40,236 | 41,914 | 42,774 | 66,651 | 86,255 | 96,583 | 171,358 | 152,814 | 138,738 | 130,833 | 129,682 | 133,147 | 133,184 | 138,038 | 4,854 | 3.6 |
| Sub-total Residents | 80,412 | 87,116 | 95,744 | 107,099 | 131,926 | 155,515 | 181,179 | 178,302 | 158,479 | 143,520 | 134,495 | 132,963 | 136,378 | 136,417 | 140,623 | 4,206 | 3.1 |
| **NON_RESIDENT** | | | | | | | | | | | | | | | | | |
| Antlered (Firearms) | 415 | 385 | 451 | 645 | 986 | 1587 | 3678 | 3965 | 4347 | 4086 | 6432 | 7304 | 8694 | 9725 | 7553 | -2,172 | -22.3 |
| Either Species ES (MZ) | 18 | 0 | 43 | 141 | 154 | 237 | 461 | 240 | 244 | 159 | 194 | 197 | 221 | 241 | 164 | -77 | -32.0 |
| White-tailed ES (MZ) | | | | | | | | | | | | | | | 1727 | | |
| Antlered (HOL) | 207 | 245 | 268 | 520 | 700 | 1026 | 1190 | 1166 | 1372 | 1570 | 1706 | 2026 | 2258 | 2531 | 2583 | 52 | 2.1 |
| Antlerless (Firearms) | 115 | 45 | 241 | 775 | 646 | 632 | 906 | 900 | 728 | 840 | 1101 | 350 | 411 | 421 | 3536 | 3,115 | 739.9 |
| Game Tags Nonresidents) | | | | | | 938 | 4,743 | 5,977 | 5,929 | 4,416 | 8,553 | 4,061 | 4,990 | 5,689 | 0 | -5,689 | -100.0 |
| WT ES (Archery) | 415 | 385 | 451 | 645 | 814 | 866 | 2877 | 2977 | 2600 | 2601 | 3258 | 3745 | 4248 | 4884 | 7566 | 2,682 | 54.9 |
| ES ES (Archery) | | | | | | | | | | | | | | | 122 | | |
| Antlerless (Archery) | 115 | 45 | 241 | 775 | 271 | 154 | 207 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sub-total | 1,285 | 1,105 | 1,695 | 3,501 | 3,571 | 5,440 | 14,062 | 15,225 | 15,220 | 13,672 | 21,244 | 17,683 | 20,822 | 23,491 | 23,251 | -240 | -1.0 |
| Percent of Permits to NR | 1.6 | 1.3 | 1.7 | 3.2 | 2.6 | 3.4 | 7.2 | 7.9 | 8.8 | 8.7 | 13.6 | 11.7 | 13.2 | 14.7 | 14.2 | | |
| **GRAND TOTAL** | **81,697** | **88,221** | **97,439** | **110,600** | **135,497** | **160,955** | **195,241** | **193,527** | **173,699** | **157,192** | **155,739** | **150,646** | **157,200** | **159,908** | **163,874** | 3,966 | 2.5 |

## History of deer harvest in Kansas, 1994 to 2008.

| Permit Type | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | Difference 2007 vs 2008 | Percent Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regular Fireams (Res) | **25,500** | **27,700** | **31,200** | **39,600** | **40,700** | **44,700** | **38,548** | **27,493** | **22,561** | **24,313** | **28,655** | **31,885** | **33,912** | **31,172** | **41,845** | 10,673 | 34.2 |
| Hunt-Own-Land (Res + NR) | **8,400** | **8,900** | **8,800** | **10,400** | **10,900** | **12,000** | **11,732** | **7,114** | **5,370** | **4,754** | **5,650** | **5,344** | **5,571** | **5,002** | **4,739** | -263 | -5.3 |
| Game Tags (Res + NR) | **1,800** | **2,500** | **3,100** | **2,800** | **20,300** | **31,000** | **44,216** | **56,164** | **43,002** | **30,372** | **29,328** | **22,354** | **22,427** | **20,422** | **21,134** | 712 | 3.5 |
| Regular Fireams (NR) | **340** | **290** | **450** | **640** | **1,200** | **1,600** | **4,776** | **2,768** | **2,832** | **2,672** | **3,867** | **4,170** | **5,596** | **5,501** | **4,872** | -629 | -11.4 |
| Archery (Res + NR) | **7,800** | **7,200** | **8,500** | **9,700** | **8,000** | **12,000** | **11,887** | **8,045** | **9,147** | **9,172** | **9,435** | **11,157** | **11,685** | **11,584** | **7,900** | -3,684 | -31.8 |
| **Grand Total** | **43,840** | **46,590** | **52,050** | **63,140** | **81,100** | **101,300** | **111,159** | **101,584** | **82,912** | **71,283** | **76,935** | **74,910** | **79,191** | **73,681** | **80,490** | 6,809 | 9.2 |

* First year of non-resident deer hunting in Kansas.

The basic deer hunter harvest survey is an on-line survey. The resident bowhunters were issued a paper survey before the season along with a daily diary to record their observations of deer and selected other species. Firearms and non-resident hunters are notified after the season to enter their information on-line. A reminder card was sent that included a paper survey.

Usable returns were received from 9,901 deer hunters. The estimate of the hunter harvest of deer in Kansas during the 2008-09 seasons was 80,490. That was 7.0% above the previous 5-year average and 9.2% above the corresponding estimate made of the harvest in 2007-08.

Table 4 shows the success rates of the various permit hunt types and the breakdown of the harvest by species and age sex category. The overall permit success rate was approximately 48%, which is lower than the levels recorded in the early 1990's. Table 5 shows the number of deer taken statewide by permit hunt type. Approximately 45.0% of the white tailed deer and 16.1% of the mule deer that were taken in 2008-09 were antlerless with 39.6% of the white-tailed deer and 14.7% of the mule deer in the harvest were classified by hunters as female deer. The trend since 2000 has been for hunters to purchase fewer antlerless-only tags and harvest fewer female deer.

# Table 4. Success rates of Kansas deer hunters using various permit hunt types, and the composition of their harvest by species and age/sex class during the 2008 - 2009 seasons.

| | | | Percent of the Harvest in Species and Sex Category | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | White-tailed Deer | | | | | Mule Deer | | | | |
| Residency | STWD 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 | Either Species, Either Sex | 68.6% | 39.4% | 0.8% | 5.5% | 0.5% | 0.3% | 46.4% | 0.3% | 6.0% | 0.4% | 0.5% |
| KS | White-tailed Either Sex | 54.7% | 70.2% | 2.6% | 25.1% | 0.9% | 1.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% |
| KS | Muzzleloader | 66.5% | 27.7% | 0.5% | 10.5% | 0.5% | 0.5% | 53.2% | 0.5% | 6.8% | 0.0% | 0.0% |
| KS | Antlerless Only, White-tailed | 71.1% | 0.0% | 7.4% | 22.2% | 0.0% | 0.0% | 0.0% | 3.7% | 63.0% | 3.7% | 0.0% |
| KS | W-T Antlerless Only | 38.4% | 0.2% | 11.1% | 81.1% | 6.1% | 1.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| KS | Hunt-Own-Land | 55.7% | 51.4% | 0.9% | 22.5% | 3.6% | 0.0% | 18.0% | 0.0% | 3.6% | 0.0% | 0.0% |
| KS | STWD Archery | 56.3% | 77.4% | 0.9% | 11.3% | 0.5% | 0.5% | 9.0% | 0.0% | 0.0% | 0.0% | 0.5% |
| NR | White-tailed Either Sex | 54.4% | 93.7% | 0.0% | 6.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| NR | Muzzleloader Either Species | 70.1% | 38.3% | 0.0% | 0.0% | 0.0% | 0.0% | 59.6% | 0.0% | 2.1% | 0.0% | 0.0% |
| NR | Muzzleloader White-tailed | 37.8% | 94.3% | 1.1% | 3.4% | 0.0% | 1.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| NR | Antlerless Only, Either Species | 66.7% | 0.0% | 0.0% | 25.0% | 0.0% | 0.0% | 0.0% | 0.0% | 75.0% | 0.0% | 0.0% |
| NR | Antlerless Only, White-tailed | 35.1% | 0.0% | 11.8% | 83.3% | 5.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| NR | Hunt-Own-Land | 55.4% | 65.4% | 1.1% | 18.6% | 0.0% | 0.5% | 11.2% | 0.5% | 2.7% | 0.0% | 0.0% |
| NR | Archery Either Species | 47.6% | 82.8% | 0.0% | 0.0% | 0.0% | 0.0% | 17.2% | 0.0% | 0.0% | 0.0% | 0.0% |
| NR | Archery White-tailed | 48.0% | 94.4% | 0.0% | 5.3% | 0.2% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| STWD | KS Sub-Total | 49.2% | 48.5% | 4.8% | 39.5% | 2.5% | 1.0% | 3.1% | 0.0% | 0.5% | 0.0% | 0.0% |
| STWD | NR Sub-Total | 48.3% | 48.9% | 1.5% | 13.9% | 0.6% | 0.2% | 2.1% | 0.1% | 0.4% | 0.0% | 0.0% |

Note: Percent composition by species, age and sex class is based on sample survey values, not expansion estimates (FLOOR function) of the harvest.

**Table 5. Number of deer harvested by permit hunt type in Kansas, 2008 - 2009.**

| | | White-tailed Deer | | | | | Mule Deer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Residency | 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 | Percent Of WT Harvest That Was Antlerless | Percent Of MD Harvest That Was Antlerless | Grand Total For Permit Type |
| KS | Either Species, Either Sex | 698 | 13 | 97 | 8 | 4 | 823 | 4 | 106 | 6 | 8 | 820 | 947 | 14.88% | 13.09% | 1,767 |
| KS | W-T Either Sex | 27,693 | 1,034 | 9,894 | 355 | 404 | 16 | 0 | 48 | 0 | 0 | 39,380 | 64 | 29.68% | 75.00% | 39,444 |
| KS | Muzzleloader, (ESES) | 177 | 2 | 66 | 2 | 2 | 340 | 2 | 43 | 0 | 0 | 249 | 385 | 28.92% | 11.69% | 634 |
| KS | Antlerless Only, Either Speci | 0 | 5 | 15 | 0 | 0 | 0 | 2 | 44 | 2 | 0 | 20 | 48 | 100.00% | 100.00% | 68 |
| KS | | | | | | | | | | | | | | | | |
| KS | W-T Antlerless Only | 47 | 2,206 | 16,072 | 1,213 | 283 | 0 | 0 | 0 | 0 | 0 | 19,821 | 0 | 99.76% | | 19,821 |
| KS | HOL (ESES) | 1,702 | 29 | 746 | 119 | 0 | 597 | 0 | 119 | 0 | 0 | 2,596 | 716 | 34.44% | 16.62% | 3,312 |
| KS | STWD Archery (ESES) | 3,262 | 39 | 477 | 19 | 19 | 377 | 0 | 0 | 0 | 19 | 3,816 | 396 | 14.52% | 4.80% | 4,212 |
| NR | W-T Either Sex | 3,851 | 0 | 244 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 4,107 | 0 | 6.23% | | 4,107 |
| NR | Muzzleloader Either Species | 44 | 0 | 0 | 0 | 0 | 68 | 0 | 2 | 0 | 0 | 44 | 70 | 0.00% | 2.86% | 114 |
| | Muzzleloader WT | 615 | 7 | 22 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 651 | 0 | 5.53% | | 651 |
| NR | Antlerless Only, (ESES) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 3 | 10 | 100.00% | 100.00% | 13 |
| NR | W-T Antlerless Only | 0 | 145 | 1,026 | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 1,232 | 0 | 100.00% | | 1,232 |
| NR | HOL (ESES) | 935 | 15 | 266 | 0 | 7 | 159 | 7 | 38 | 0 | 0 | 1,223 | 204 | 23.55% | 22.06% | 1,427 |
| NR | Archery (ESES) | 48 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 48 | 10 | 0.00% | 0.00% | 58 |
| | Archery WT | 3,426 | 0 | 192 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 3,630 | 0 | 5.62% | | 3,630 |
| STWD | KS Sub-Total | 33,579 | 3,328 | 27,367 | 1,716 | 712 | 2,153 | 8 | 360 | 8 | 27 | 66,702 | 2,556 | 49.66% | 15.77% | 69,258 |
| STWD | NR Sub-Total | 5,493 | 167 | 1,561 | 67 | 20 | 237 | 7 | 50 | 0 | 0 | 10,938 | 294 | 16.59% | 19.39% | 11,232 |
| STWD | Grand Total | 39,072 | 3,495 | 28,928 | 1,783 | 732 | 2,390 | 15 | 410 | 8 | 27 | 77,640 | 2,850 | 45.00% | 16.14% | 80,490 |
| STWD | Percent of harvest by NR | 14.06% | 4.78% | 5.40% | 3.76% | 2.73% | 9.92% | 46.67% | 12.20% | 0.00% | 0.00% | 14.09% | 10.32% | | | 13.95% |

## Legislative and Social Issues

Extensive changes in the deer regulations were initiated for the 2008-09 deer hunting seasons. The 2009 legislative session had relatively few deer issues. However, deer related vehicle accidents continue to shape the concerns of legislators. Of the 65,858 vehicle accidents in Kansas, 9,371 involved an accident with a deer during 2008. The relative contribution of accidents involving deer has steadily increased through the years from only 2.1% in 1980 to 14.2%, the highest ever, in 2008. The severity of those accidents is also increasing through time. A particular problem appears to involve the severity of deer related accidents with motorcycles. Nine of the eleven deer related accident fatalities in 2007 and 2008 involved motorcycles. Since 1990 motorcycle accidents have only contributed 0.34% of the total vehicle accidents in Kansas but those accidents caused 53.9% of all fatal deer related vehicle accidents.

Legislators requested longer seasons for hunters to take antlerless deer. An additional DMU was added to the special extended season and the length of the season was increased to three weeks. In much of the rest of the state the extended season limited to antlerless only white-tailed deer was increased from 4 days to 10 days. It appears that the controlling factor on the harvest of antlerless deer is access to private property. The recent trend has been for people (frequently nonresidents) to lease deer hunting locations. Feeding and baiting are used to hold deer on those properties while access to the areas to take antlerless deer is restricted or prohibited. If this trend continues the problem can only get worse.

A controversy is developing in the Kansas City area where localized populations of deer reach densities near 200 deer per square mile on and around a 3 ½ square mile county park complex. Visible browse lines occur and damage to landscape ornamentals, gardens and property are increasing. Some residents demand action to lower the herd density while others demand that the deer not be harmed. Vocal groups from other states have entered the media and Internet discussion. This topic reached the Kansas legislature during the spring 2009 session. Park administrators have requested a permit to allow county law enforcement officer to use sharp shooting tactics to remove deer from the park.

A recap of the changes in 2008 follows. New classes of deer permits developed, with many permits allowed hunters to hunt statewide or in multiple deer management units whereas in the past those permits had been restricted to a single unit. Additional equipment was authorized for deer hunting. Changes were made in the season structure.

Residents of Kansas were allowed to purchase a white-tailed deer either sex permit that allows the hunter to use that permit statewide and during any season with the equipment authorized for that season.

Game tags and transferable permits were eliminated from the list of options people could purchase. The concept of the game tag (a reduced fee option that restricted the

hunter to antlerless white-tailed deer on private property) as being distinct from deer permits was confusing for many deer hunters even though they had been used since 1989. Much of the confusion was due to misunderstanding between carcass tags designed to be placed on the deer, and permits which allowed a person to hunt deer. The game tag had been created to allow a hunter to take a second or more deer in areas where additional hunting pressure was desired. Originally game tags were called the Unit 12A Game Tag and they were restricted to a specific part of one unit. As the years passed these tags become used throughout most of the state and even on open public hunting area.

Previously all permits were priced at the same level even though some permits restricted hunters to only antlerless deer and other permits allowed the hunter to take either sex, or even either species of deer and either sex. Changes in laws and regulation were made to allow hunters to purchase a reduced price permit that was restricted to antlerless white-tailed deer.

Transferable permits were developed in the state legislature. The concept was initially developed to allow landowners to transfer their hunt-on-your-own-land permit to a relative. At the time they were initiated deer hunting opportunities were limited and restricted to residents and obtained through a random drawing system. It was common for residents of Kansas to be unable to obtain a permit that would allow them to hunt with a firearm for an antlered deer each year. The transferable HOL permit allowed the family of landowners to be assured of access to some antlered deer permits each year. Later the concept was expanded as a means of allowing landowners to benefit directly in the resale of some types of permits, especially to non-residents. Opportunities to hunt deer in Kansas increased as years passed and it ceased to be necessary to prohibit any resident from obtaining an antlered deer permit each year. Throughout much of the state there were sufficient non-resident permits available to satisfy non-resident demands for permits. The transferable deer permit system was confusing and resulted in people transferring certain types of permits that were not designated as transferable, leading to violations. Changes in laws and regulations increased the opportunities for non-residents to obtain deer permits and the legislature eliminated the transferable permit system.

Equipment that may be used to hunt deer remains a controversial subject. People are quick to establish a line in the sand where they believe other people should not go, and other people are equally quick to argue that prohibitions on certain types of equipment diminishes their opportunities. In some cases people argue that restrictions on some equipment results in a form of discrimination, for example, the early muzzleloader season in Kansas had initially been restricted to hunters using “iron” sights. The argument was that by denying hunters the opportunity to use a telescope they were being discriminated against because of their age or poor eye sight.

A review of equipment was conducted during 2007-08 and additional equipment was authorized. Telescopes were authorized for all types of deer hunting weapons. The definition of a broadhead point was changed. The term, “all metal cutting edges” was

eliminated thus allowing knapped points to be used. Crossbows were authorized for hunting during a firearms season.

The muzzleloader season has typically been open in September. Muzzleloader hunters argued that the season was during a time when high temperatures and discomforts from insects and vegetation reduced the quality of their hunting experience. It was also argued by the public that physically challenged people and young hunters should be allowed first opportunities each year to hunt deer. Those comments were addressed by establishing the season for youth and physically challenged people as nine days (including two weekends) before any other deer season. The muzzlerloader season was then initiated following that season and beginning at the same time as the archery season.

The hunting regulations in 2008-09 allowed deer hunters their greatest flexibility to use a variety of equipment and conduct activities in a variety of season. We cannot use the permit type to classify hunters to an equipment category. A firearms permit allowed the hunter to use muzzleloaders or archery equipment. As in previous years, all unfilled permits converted to a firearm permit during the extended season for antlerless white-tailed deer. Table 6 shows the harvest by equipment by hunters with the various permit types.

**Table 6. Equipment used to harvest deer by people with various permit hunt types in Kansas, 2008 - 2009.**

| | | | Percent of Harvest | | | Number of Deer Killed | | | |
|---|---|---|---|---|---|---|---|---|---|
| Residency | STWD Permit Type | Permit Success Rate | Archery | Muzzleloasder | Firearms | Archery | Muzzleloasder | Firearms | Total Deer Harvested |
| KS | Any Deer | 68.6% | 0.25% | 0.50% | 99.25% | 4 | 8 | 1,759 | 1,771 |
| KS | W-T Either Sex | 54.7% | 23.65% | 2.36% | 73.99% | 9,328 | 929 | 29,188 | 39,445 |
| KS | Muzzleloader | 66.5% | 0.45% | 95.05% | 4.50% | 2 | 607 | 28 | 637 |
| KS | Antlerless Only | 71.1% | 0.00% | 7.41% | 92.59% | 0 | 5 | 65 | 70 |
| KS | W-T Antlerless Only | 38.4% | 20.65% | 3.81% | 75.54% | 4,093 | 755 | 14,973 | 19,821 |
| KS | HOL | 55.7% | 13.39% | 1.79% | 84.82% | 444 | 59 | 2,812 | 3,315 |
| KS | STWD Archery | 56.3% | 0.00% | 94.88% | 5.12% | 0 | 4,001 | 215 | 4,216 |
| NR | W-T Either Sex | 54.4% | 0.15% | 0.44% | 99.41% | 6 | 18 | 4,083 | 4,107 |
| NR | Muzzleloader ES | 70.1% | 0.00% | 100.00% | 0.00% | 0 | 115 | 0 | 115 |
| NR | Muzzleloader WT | 37.8% | 0.00% | 98.86% | 1.14% | 0 | 644 | 7 | 651 |
| NR | Antlerless Only | 66.7% | 25.00% | 50.00% | 25.00% | 3 | 6 | 3 | 12 |
| NR | W-T Antlerless Only | 35.1% | 30.04% | 8.97% | 60.99% | 370 | 110 | 751 | 1,231 |
| NR | HOL | 55.4% | 18.32% | 3.66% | 78.01% | 262 | 52 | 1,115 | 1,429 |
| NR | Archery ES | 47.6% | 0.00% | 100.00% | 0.00% | 0 | 58 | 0 | 58 |
| NR | Archery WT | 48.0% | 99.84% | 0.00% | 0.16% | 3,624 | 0 | 5 | 3,629 |
| STWD | KS Sub-Total | | 20.0% | 9.2% | 70.8% | 13,871 | 6,364 | 49,040 | 69,275 |
| STWD | NR Sub-Total | | 5.7% | 8.9% | 53.1% | 641 | 1,003 | 5,959 | 11,232 |
| | | | | | | 14,512 | 7,367 | 54,999 | 80,507 |

## Chronic Wasting Disease Management

CWD was detected in ten wild white-tailed deer in northwestern Kansas (all in DMU 1) through hunter harvest surveillance during the 2008 hunting season. Other CWD positive animals that have been detected in Kansas include a privately owned elk in captivity in Harper County in 2001, an adult white-tailed doe killed in 2005 by a hunter in Cheyenne County and 3 white-tailed bucks killed by hunters in Decatur County in 2007. The history of CWD monitoring in Kansas is shown in Figure 3.

Retropharyngeal lymph nodes (RPLN) were submitted to the Veterinary Diagnostic Laboratory at Kansas State University from 2,688 free ranging deer and elk during 2008-09. ELIAS screening was completed and confirmation IHC tests were conducted at the National Veterinary Services Laboratories in Ames, IA. Financial assistance for CWD surveillance was provided by the USDA APHIS VS.

The collection of included 2,264 white-tailed deer, 361 mule deer, 19 elk, and 44 unspecified cervids, see Figure 4. Continued efforts to annually collect CWD samples have taken a toll on hunter cooperation and enthusiasm among some KDWP department staff. KDWP continues to shift from department operated collections to contracts with taxidermists, locker plant operators, students, and concerned sportsmen to assist the department's effort to collect samples from hunters and picked up specimens from deer and elk killed in highway accidents. A breakdown of the source of samples collected during the 2008-09 season is shown in Figure 5.

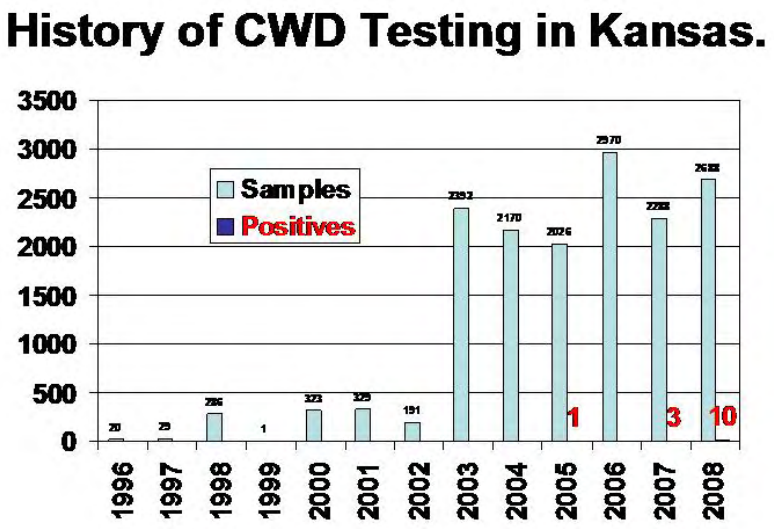



Figure 3. Number of deer and elk tested and the number confirmed as positive for Chronic Wasting Disease per year since 1996 in Kansas.

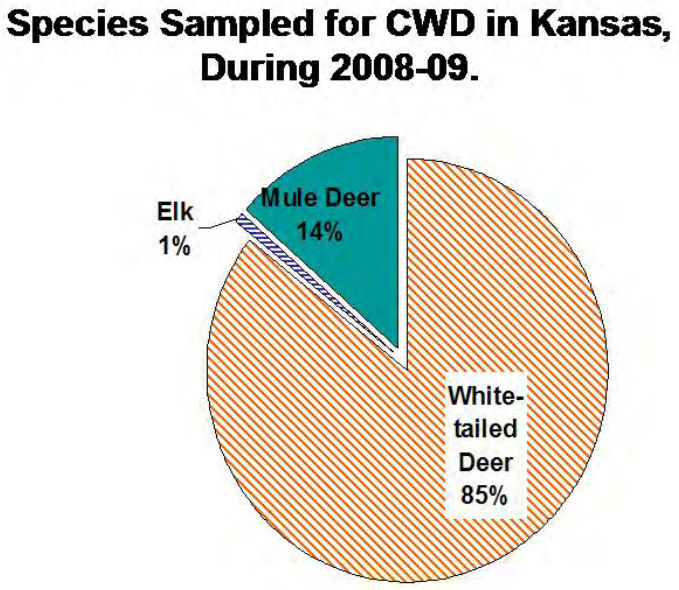



Figure 4. Breakdown of species tested for Chronic Wasting Disease during the 2008-09 monitoring period in Kansas.

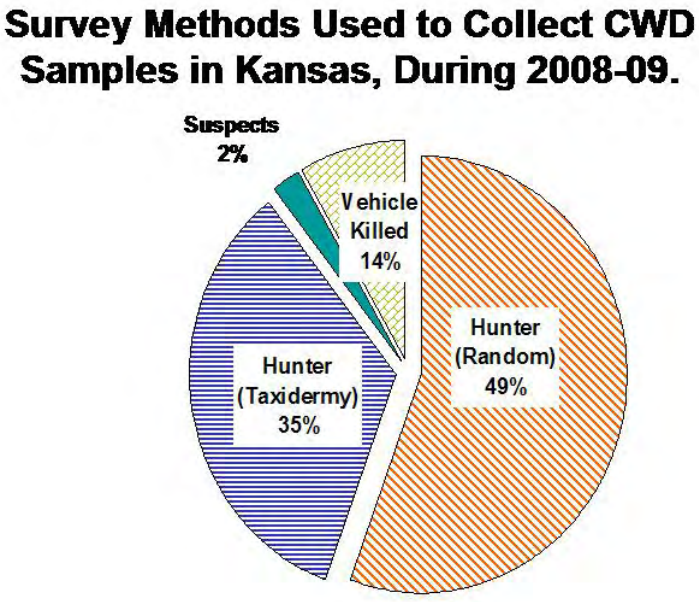



Figure 5. Source of animals tested for Chronic Wasting Disease during the 2008-09 monitoring period in Kansas.

## ANNUAL PERFORMANCE REPORT

**State:** Kentucky **Project No.:**

**Project Type:** Management and Surveys

**Project Title:** Statewide Deer Management

**Project Objective:** To maintain a healthy deer herd, at numbers in balance with biological and social constraints, with a balanced age structure and sex ratio, that provides for recreational hunting and the long-term benefit of the species.

**Accomplishments:**

Annual Deer Harvest

The 2008 white-tailed deer harvest increased from the 2007 harvest of 113,436 to 120,610. Harvest by archers accounted for 13% of the total harvest (Table 1); this percentage has ranged from 9% - 13% over the last decade. Of the total statewide harvest, 50% were female (Table 2), however the archery, crossbow, and muzzleloader harvests were >60% female. Hunters still appear to have a limit on the number of deer they are willing (or able) to harvest. Of successful hunters, 76% harvested only 1 deer, 18% harvested 2 deer, and 6% harvested 3 or more deer (Table 3).

The 2008 statewide average for percentage of yearling bucks in the harvest declined for the first time in 3 years. At 40%, this is the lowest the percentage of yearling bucks has ever been (Figure 1). The shift in hunter mentality to include increased antlerless harvest and avoidance of harvesting young bucks, combined with Kentucky's 1 buck bag limit, has increased the number of mature bucks and aided in balancing the sex and age structure of the herd. Although the mid-western portion of the state has traditionally yielded the greatest number of Boone and Crockett records, high-scoring bucks have been harvested across the state (Table 4).

The statewide harvest increase was reflected in the by-county harvest estimates (Appendix 1). Of the 120 counties, 92 (77%) recorded harvest numbers greater than or equal to their 2007 estimates. Antlerless harvest is a more favorable proportion of the overall harvest; in 2007 the antlerless harvest was 50% and in 2008 it was 50% again (Figure 2). The number of male fawns in the overall harvest has remained nearly the same over the past 3 years, varying from 5% to 6%, but clearly hunters are trying to focus antlerless harvest on the female segment of the herd (Table 5).

The overall number of deer harvested during staffed quota hunts was similar to past years (Table 6). However, the percentage of antlerless harvest is the highest it has ever been at 65%.

The number of deer permits sold decreased in 2008, however the number of deer killed increased in 2008 compared to 2007 (Figure 3). Since 2002, the harvest and sales have been correlated, indicating that the number of deer harvested is determined at least in part by the number of permits sold. Given that the number of hunters has been stable to slightly decreasing, and the number of deer taken per hunter is 2 or fewer per season, harvests are expected to continue to be approximately 110,000 to 122,000 each season.

Obtaining Standing Crop Estimates

Age structure data (Figures 4, 5) are collected and summarized on a regional basis, however each county is treated as a unit in preparing models of deer herds with the Downing Population Reconstruction Model (DPR) and the Wisconsin Sex-Age-Kill Model (SAK). The DPR model estimates the number of adult bucks in the population through age structure of the antlered male harvest and reconstructing the harvest data to estimate mortality rates. Traditionally, this estimate of adult buck population is then extrapolated to include females and fawns through the SAK model which relies on sex and age ratios in the harvest. However, as the percentage of females in the harvest usually is nearly the same as or exceeds that of males, we have begun reconstructing both the male and female populations using the DPR model. An additional factor in estimating the total deer population is correcting the telecheck harvest for non-compliance. Prior work by our Law Enforcement Division has estimated non-compliance with check-in requirements to be about 35%. Thus, a historical estimate of 35% non-compliance is used to adjust harvest estimates used in the models. A new estimate of non-compliance has been researched and reported, and will be used in the 2008 post-season population estimation model.

After increasing rapidly for 5 years, the estimated statewide deer population began to level off in 2003 – 2004 and then decreased from 2004 to 2008 (Figure 6). The pre-fawning estimate going into the spring of 2009 was 806,736. Assuming a fawn crop of approximately 290,000, the 2009 pre-hunt population estimate remains just over 1 million.

Estimating Reproductive Output and Conception Dates (fall 2006-spring 2008)

Conception and parturition data from each of the 5 administrative regions are collected on a 2-year cycle. Statewide, the majority of 0.5 year old females were not pregnant (Table 7) and the mean number of fawns in utero per adult female was 1.2 (compared to 1.1 for the 2004-2006 period). The fetal sex ratio ranged from 3.0 males per 1 female in the Bluegrass Region of the state to a low of 1.3 males per 1 female in the Northeast region with a mean of 1.9 males per female statewide. Mean conception dates differed by region and ranged from October 15 to December 26 with a statewide mean of November 22. The range of conception dates for the 2006-2008 reporting period was larger than that seen for the 2004-2006 period (November 14 – December 4).

## Disease Surveillance

*Chronic Wasting Disease (CWD)*

During the 2008-2009 Kentucky deer season, 2,006 hunter-harvested white-tailed deer (Table 8) were sampled and tested for CWD; 1,920 were tested the previous season. The CWD biologist continued to coordinate field collection of deer heads with regional staff. Each region was allocated $3,000 to aid in deer head collection. Target sample sizes for every county were determined based upon estimates of deer density and last year's sample sizes.

At processing facilities and check stations, deer heads were tagged with numbered metal ear tags, corresponding to hunter contact information and county of kill. Samples were removed within 3 days of collection by disarticulating the skulls and removing the obex portion of the brainstem and half of a retropharyngeal lymph node (RLN). Tissues were preserved in individual vials of 10% buffered formalin and transported to the Southeastern Cooperative Wildlife Disease Study at the University of Georgia (SCWDS), Athens. All 2,006 samples tested this season were negative for CWD.

In addition to the testing of hunter-harvested deer, 119 "target" cervids were tested for CWD (Table 9). All of these samples were also negative. These animals were either observed exhibiting symptoms of disease or were held in captive cervid facilities.

*Hemorrhagic Disease (HD)*

No suspected cases of HD in free-ranging deer were reported to KDFWR in 2008.

## Deer/Vehicle Collisions

From January 1 through December 31, 2008, 2,958 deer/vehicle collisions were reported to the Kentucky State Police (2,917 were reported in 2007). Fatal collisions decreased to 2, but accidents that resulted in human injury increased to 180 (Table 10). In an effort to reduce accident levels, counties with historically high numbers of deer/vehicle collisions are typically assigned more liberal antlerless bag limits. As can be expected, the fall and early winter months from October to January are when the majority of the deer vehicle collisions occur.

## Other Activities

Members of the KDFWR's deer project staff attended the 32nd Annual Southeast Deer Study Group meeting in Roanoke, VA in February, 2009. Staff also attended the Southeastern Deer Coordinators' meeting in Arkansas and the 3rd International Chronic Wasting Disease Symposium in Park City, Utah in July 2009. These meetings provided Kentucky's deer managers useful insight and collaboration with which to better manage the Commonwealth's deer herd.

On March 6, 2009, the Kentucky Fish and Wildlife Commission finalized its regulation recommendations for the 2009-2010 deer season. The Commission recommends all hunting, fishing, and boating regulations for

adoption by the General Assembly, and approves all KDFWR expenditures. The 2009-2010 season recommendations were largely unchanged from those of the 2008-2009 season for Zones 1 -3. However, Zone 4 counties went back to a full week of doe harvest during late muzzleloader.

## 2009-2010 Proposed Deer Season Framework

Deer Archery: Opens 1st Saturday in September and closes the 3rd Monday in January (No Change).

Deer Crossbow: October 1 through 3rd full weekend in October and 2nd Saturday in November through December 31 (No Change).

Deer Youth Weekends: 2nd Saturday October for 2 days (No Change) and the Saturday after Christmas for 2 days (Free Weekend, No Change)

Deer Muzzleloader: 3rd Saturday in October for 2 days (No Change) and the 2nd Saturday in December for 9 days (No Change).

Deer Modern Firearm: Opens 2nd weekend in November for 10 consecutive days in Zone 3 & 4 counties and 16 days in Zone 1 & 2 counties (No Change).

2009-2010 Deer Season Dates and Bag Limits
Dates reflect calendar shifts only

Zone 1
Archery – either sex (Sept. 5 - Jan. 18)
Crossbow – either sex (Oct. 1 - Oct. 18 and Nov. 14 - Dec. 31)
Early Youth Weekend – either sex (Oct. 10 - 11)
Early Muzzleloader – either sex (Oct. 17 - 18)
Modern Firearms – either sex (Nov. 14 - 29)
Late Muzzleloader – either sex (Dec. 12 - 20)
Late Youth Weekend – either sex (Dec. 26 - 27)

Bag Limit — No Change
1 antlered deer (statewide license)
Unlimited antlerless deer (statewide license & bonus tags).
All deer can be taken with any weapon.

Zone 2
Archery – either sex (Sept. 5 - Jan. 18)
Crossbow – either sex (Oct. 1 - Oct. 18 and Nov. 14 - Dec. 31)
Early Youth Weekend – either sex (Oct. 10 - 11)
Early Muzzleloader – either sex (Oct. 17 - 18)

Modern Firearms – either sex (Nov. 14 - 29)
Late Muzzleloader – either sex (Dec. 12 - 20)
Late Youth Weekend – either sex (Dec. 26 - 27)

Bag Limit — No Change
4 deer total
1 antlered deer (statewide license)
Up to 4 antlerless deer (statewide license & bonus tags).
All deer can be taken with any weapon.

Zone 3
Archery – either sex (Sept. 5 - Jan. 18)
Crossbow – either sex (Oct. 1 - Oct. 18 and Nov. 14 - Dec. 31)
Early Youth Weekend – either sex (Oct. 10 - 11)
Early Muzzleloader – either sex (Oct. 17 - 18)
Modern Firearms – either sex (Nov. 14 - 23)
Late Muzzleloader – either sex (Dec. 12 - 20)
Late Youth Weekend – either sex (Dec. 26 - 27)

Bag Limit — No Change
4 deer total
1 antlered deer (statewide license)
Up to 4 antlerless deer (statewide license & bonus tags).
Only 2 deer may be taken with a firearm
2 additional antlerless deer may be taken with archery

Zone 4
Archery – either sex (Sept. 5 - Jan. 18)
Crossbow – either sex (Oct. 1 - Oct. 18 and Nov. 14 - Dec. 31)
Early Youth Weekend – either sex (Oct. 10 - 11)
Early Muzzleloader – antlered only (Oct. 17 - 18)
Modern Firearms – antlered only (Nov. 14 - 23)
Late Muzzleloader – either sex (Dec. 12 – 20)
Late Youth Weekend – either sex (Dec. 26 - 27)

Bag Limit — No Change
4 deer total
1 antlered deer (statewide license)
Up to 4 antlerless deer (statewide license & bonus tags).
Only 2 deer may be taken with a firearm (antlerless deer may not be taken during the modern firearms season or October muzzleloader season).
2 additional antlerless deer may be taken with archery

**Total Cost:**

**Significant Deviation:** None

**Recommendations**:

Data presented here suggest that Kentucky's deer herd may be stabilizing statewide, although more years of data will be needed to determine if a trend exists. Efforts to collect relevant data for model outputs should continue. Educational efforts have resulted in decreased harvest of bucks less than 1.5 years old, but hunters should be continually encouraged to harvest additional antlerless deer to keep populations in check. KDFWR continues to work with Kentucky Hunters for the Hungry to provide an outlet for meat donation. Achieving proper deer harvest levels will depend upon adequate levels of hunter participation, which should be fostered with hunter recruitment and retention.

Table 1. Statewide total deer harvest trends by weapon and sex, 1976-2008.

| | Firearms* | | | | Archery** | | | | Grand Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Males | Females | Total | % of Grand Total | Males | Females | Total | % of Grand Total | Total | Change |
| 1976 | 3,042 | 434 | 3,476 | 100% | | | | | 3,476 | |
| 1977 | 5,257 | 425 | 5,682 | 100% | | | | | 5,682 | 63% |
| 1978 | 5,633 | 379 | 6,012 | 93% | 265 | 156 | 421 | | 6,433 | 13% |
| 1979 | 6,864 | 578 | 7,442 | 92% | 426 | 194 | 620 | 8% | 8,062 | 25% |
| 1980 | 7,323 | 665 | 7,988 | 82% | 1,004 | 710 | 1,714 | 18% | 9,702 | 20% |
| 1981 | 12,079 | 1,055 | 13,134 | 88% | 1,145 | 704 | 1,849 | 12% | 14,983 | 54% |
| 1982 | 13,908 | 1,896 | 15,804 | 88% | 1,308 | 857 | 2,165 | 12% | 17,969 | 20% |
| 1983 | 14,383 | 1,644 | 16,027 | 86% | 1,607 | 1,098 | 2,705 | 14% | 18,732 | 4% |
| 1984 | 17,174 | 3,170 | 20,344 | 88% | 1,650 | 1,018 | 2,668 | 12% | 23,012 | 23% |
| 1985 | 21,551 | 4,473 | 26,024 | 87% | 2,724 | 1,327 | 4,051 | 13% | 30,075 | 31% |
| 1986 | 27,773 | 6,884 | 34,657 | 88% | 3,144 | 1,719 | 4,863 | 12% | 39,520 | 31% |
| 1987 | 37,790 | 16,582 | 54,372 | 90% | 3,831 | 2,169 | 6,000 | 10% | 60,372 | 53% |
| 1988 | 38,528 | 19,025 | 57,553 | 90% | 4,444 | 2,263 | 6,707 | 10% | 64,260 | 6% |
| 1989 | 39,564 | 23,103 | 62,667 | 89% | 4,887 | 2,595 | 7,482 | 11% | 70,149 | 9% |
| 1990 | 42,863 | 23,288 | 66,151 | 89% | 4,798 | 2,969 | 7,767 | 11% | 73,918 | 5% |
| 1991 | 48,881 | 36,037 | 84,918 | 91% | 3,979 | 4,037 | 8,016 | 9% | 92,934 | 26% |
| 1992 | 45,108 | 28,556 | 73,664 | 90% | 4,243 | 4,031 | 8,274 | 10% | 81,938 | -12% |
| 1993 | 41,809 | 19,738 | 61,547 | 89% | 4,148 | 3,829 | 7,977 | 11% | 69,524 | -15% |
| 1994 | 47,310 | 22,387 | 69,697 | 88% | 4,427 | 4,665 | 9,092 | 12% | 78,789 | 13% |
| 1995 | 47,854 | 25,336 | 73,190 | 89% | 4,591 | 4,359 | 8,950 | 11% | 82,140 | 4% |
| 1996 | 48,538 | 25,161 | 73,699 | 90% | 3,760 | 4,696 | 8,456 | 10% | 82,155 | 0% |
| 1997 | 51,820 | 28,996 | 80,816 | 92% | 3,350 | 3,776 | 7,126 | 8% | 87,942 | 7% |
| 1998 | 52,125 | 42,174 | 94,299 | 91% | 4,115 | 5,656 | 9,771 | 9% | 104,070 | 18% |
| 1999 | 45,040 | 38,267 | 83,307 | 87% | 4,396 | 7,524 | 11,920 | 13% | 95,227 | -8% |
| 2000 | 48,212 | 45,572 | 93,784 | 88% | 4,175 | 8,303 | 12,478 | 12% | 106,262 | 12% |
| 2001 | 48,747 | 41,233 | 89,980 | 88% | 4,263 | 8,463 | 12,726 | 12% | 102,706 | -3% |
| 2002 | 53,972 | 48,157 | 102,129 | 90% | 3,837 | 7,686 | 11,523 | 10% | 113,652 | 11% |
| 2003 | 54,745 | 49,282 | 104,027 | 90% | 3,943 | 7,487 | 11,430 | 10% | 115,457 | 2% |
| 2004 | 55,518 | 55,083 | 110,601 | 89% | 4,754 | 9,247 | 14,001 | 11% | 124,602 | 8% |
| 2005 | 49,670 | 50,558 | 100,228 | 89% | 4,322 | 7,864 | 12,186 | 11% | 112,414 | 10% |
| 2006 | 57,630 | 49,055 | 106,685 | 87% | 5,537 | 9,850 | 15,387 | 13% | 122,072 | 9% |
| 2007 | 51,368 | 46,780 | 98,148 | 87% | 5,343 | 9,945 | 15,288 | 13% | 113,436 | -7% |
| 2008 | 55,733 | 49,375 | 105,108 | 87% | 5,431 | 10,071 | 15,502 | 13% | 120,610 | 6% |

* Includes muzzleloader and modern firearms.

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

Table 2. 2008 Statewide deer harvest by weapon type.

| Weapon Type | Female | Male | Total | % Female |
|---|---|---|---|---|
| Archery | 9,041 | 4,899 | 13,940 | 65% |
| Crossbow | 904 | 443 | 1,347 | 67% |
| Modern firearm | 38,402 | 46,498 | 84,900 | 45% |
| Muzzle-loader | 8,378 | 4,871 | 13,249 | 63% |
| **Total** | **56,725** | **56,711** | **113,436** | **50%** |

Table 3. 2008 deer hunter success rates.

| Successful Hunters | # Deer Killed | % of Successful Hunters |
|---|---|---|
| 67,634 | 1 | 76% |
| 15,523 | 2 | 18% |
| 3,700 | 3 | 4% |
| 2,182 | 4+ | 2% |
| **Total successful hunters** | 89,039 | |

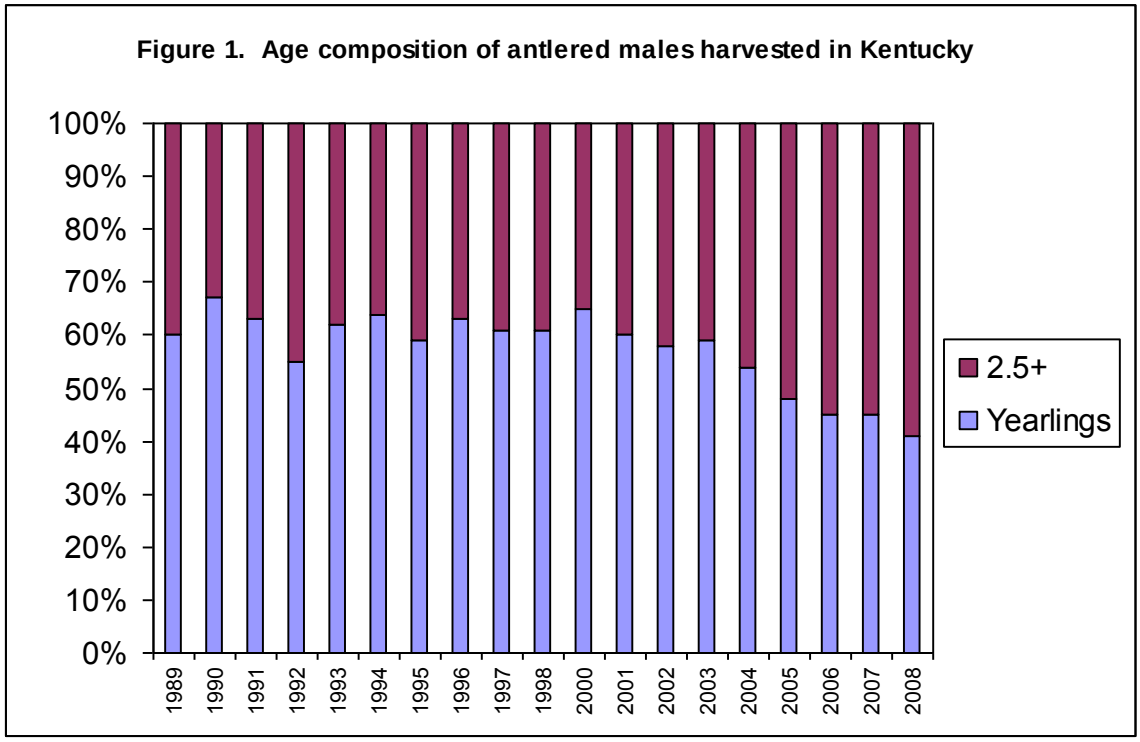


Table 4. Boone & Crockett all-time and 3-year award program entries from Kentucky for the 2008-2009 hunting season.

**Non-typical**

| Score | Name | County | Equipment |
|---|---|---|---|
| 249 6/8 | Robert J. Taylor | Butler | Gun |
| 221 2/8 | Rick Weatherford | Ft Campbell | Found |
| 200 | Edward Barnett | Rockcastle | Gun |
| 192 7/8 | Mike LeClair | Oldham | Bow |
| 191 3/8 | Terry Baldwin | Logan | Muzzleloader |
| 190 5/8 | Roger Long | Hopkins | Gun |
| 189 7/8 | Jason Abell | Larue | Gun |
| 186 6/8 | Blake Munger | Calloway | Gun |
| 185 3/8 | Jacob Tyles | Russell | Gun |
| 185 1/8 | Randy Bradley | Grayson | Bow |
| 185 | Devin Allen Chastain | Todd | Gun |

**Typical**

| Score | Name | County | Equipment |
|---|---|---|---|
| 171 5/8 | Jim Whisman | Robertson | Muzzleloader |
| 170 4/8 | Adam Eversole | Clay | Crossbow |
| 170 1/8 | Dustin Evans | Bell | Gun |
| 170 1/8 | Richard L. Richardson | Clinton | Bow |
| 168 7/8 | Tanner McCalister | Pulaski | Gun |
| 168 4/8 | Kevin Rice | Clay | Bow |
| 167 6/8 | Emuel Sanford | Todd | Gun |
| 165 7/8 | Robert Sturgeon | Meca;fe | Gun |
| 165 6/8 | Blake Jefferies | Madison | Muzzleloader |
| 164 7/8 | Joe Miller | Hart | Bow |
| 162 4/8 | Jack McEldowny | Lewis | Gun |

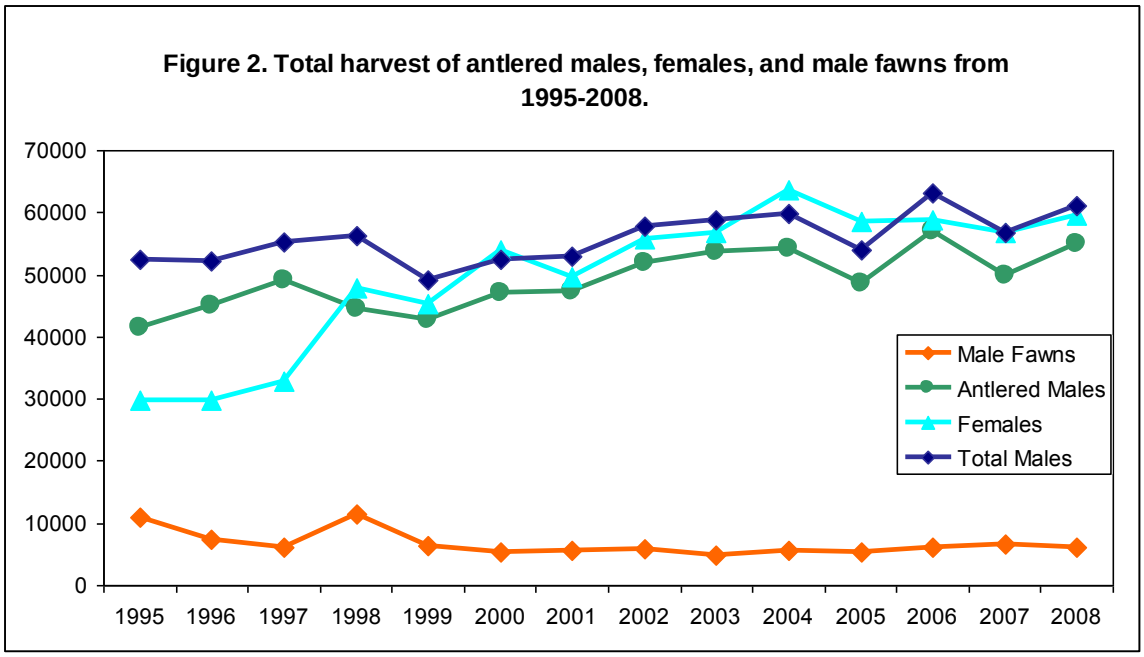



Table 5. Females, males, total harvest, and percentage of total harvest for females in the 2008-2009 deer season.

| County | Male Total | Female Total | Total Harvest | Percent Females |
|---|---|---|---|---|
| Adair | 509 | 445 | 954 | 47% |
| Allen | 656 | 574 | 1230 | 47% |
| Anderson | 869 | 1205 | 2074 | 58% |
| Ballard | 425 | 385 | 810 | 48% |
| Barren | 461 | 393 | 854 | 46% |
| Bath | 318 | 204 | 522 | 39% |
| Bell | 330 | 118 | 448 | 26% |
| Boone | 902 | 1017 | 1919 | 53% |
| Bourbon | 118 | 83 | 201 | 41% |
| Boyd | 537 | 408 | 945 | 43% |
| Boyle | 130 | 133 | 263 | 51% |
| Bracken | 771 | 896 | 1667 | 54% |
| Breathitt | 321 | 111 | 432 | 26% |
| Breckinridge | 858 | 874 | 1732 | 50% |
| Bullitt | 504 | 535 | 1039 | 51% |
| Butler | 582 | 582 | 1164 | 50% |
| Caldwell | 578 | 563 | 1141 | 49% |
| Calloway | 675 | 721 | 1396 | 52% |
| Campbell | 501 | 584 | 1085 | 54% |
| Carlisle | 333 | 338 | 671 | 50% |
| Carroll | 501 | 527 | 1028 | 51% |
| Carter | 822 | 767 | 1589 | 48% |

| | | | | |
|---|---|---|---|---|
| Casey | 387 | 340 | 727 | 47% |
| Christian | 1185 | 1308 | 2493 | 52% |
| Clark | 227 | 186 | 413 | 45% |
| Clay | 454 | 131 | 585 | 22% |
| Clinton | 188 | 135 | 323 | 42% |
| Crittenden | 1174 | 1533 | 2707 | 57% |
| Cumberland | 381 | 353 | 734 | 48% |
| Daviess | 442 | 371 | 813 | 46% |
| Edmonson | 270 | 203 | 473 | 43% |
| Elliott | 239 | 190 | 429 | 44% |
| Estill | 326 | 260 | 586 | 44% |
| Fayette | 105 | 98 | 203 | 48% |
| Fleming | 419 | 299 | 718 | 42% |
| Floyd | 371 | 118 | 489 | 24% |
| Franklin | 812 | 1024 | 1836 | 56% |
| Fulton | 300 | 315 | 615 | 51% |
| Gallatin | 389 | 520 | 909 | 57% |
| Garrard | 248 | 163 | 411 | 40% |
| Grant | 1039 | 1137 | 2176 | 52% |
| Graves | 1237 | 1403 | 2640 | 53% |
| Grayson | 646 | 558 | 1204 | 46% |
| Green | 592 | 515 | 1107 | 47% |
| Greenup | 675 | 614 | 1289 | 48% |
| Hancock | 300 | 315 | 615 | 51% |
| Hardin | 918 | 1019 | 1937 | 53% |
| Harlan | 258 | 89 | 347 | 26% |
| Harrison | 723 | 729 | 1452 | 50% |
| Hart | 851 | 1019 | 1870 | 54% |
| Henderson | 672 | 676 | 1348 | 50% |
| Henry | 892 | 1049 | 1941 | 54% |
| Hickman | 368 | 432 | 800 | 54% |
| Hopkins | 979 | 891 | 1870 | 48% |
| Jackson | 348 | 97 | 445 | 22% |
| Jefferson | 423 | 479 | 902 | 53% |
| Jessamine | 177 | 180 | 357 | 50% |
| Johnson | 388 | 349 | 737 | 47% |
| Kenton | 393 | 423 | 816 | 52% |
| Knott | 456 | 183 | 639 | 29% |
| Knox | 474 | 371 | 845 | 44% |
| Larue | 410 | 381 | 791 | 48% |
| Laurel | 394 | 452 | 846 | 53% |
| Lawrence | 844 | 822 | 1666 | 49% |
| Lee | 265 | 219 | 484 | 45% |
| Leslie | 219 | 63 | 282 | 22% |
| Letcher | 326 | 123 | 449 | 27% |
| Lewis | 713 | 707 | 1420 | 50% |
| Lincoln | 358 | 336 | 694 | 48% |
| Livingston | 840 | 945 | 1785 | 53% |
| Logan | 725 | 747 | 1472 | 51% |
| Lyon | 300 | 322 | 622 | 52% |

| | | | | |
|---|---|---|---|---|
| Madison | 417 | 405 | 822 | 49% |
| Magoffin | 328 | 113 | 441 | 26% |
| Marion | 402 | 419 | 821 | 51% |
| Marshall | 296 | 291 | 587 | 50% |
| Martin | 286 | 90 | 376 | 24% |
| Mason | 434 | 476 | 910 | 52% |
| McCracken | 452 | 492 | 944 | 52% |
| McCreary | 150 | 21 | 171 | 12% |
| McLean | 483 | 482 | 965 | 50% |
| Meade | 412 | 428 | 840 | 51% |
| Menifee | 243 | 172 | 415 | 41% |
| Mercer | 403 | 380 | 783 | 49% |
| Metcalfe | 411 | 403 | 814 | 50% |
| Monroe | 414 | 317 | 731 | 43% |
| Montgomery | 200 | 155 | 355 | 44% |
| Morgan | 554 | 550 | 1104 | 50% |
| Muhlenberg | 699 | 667 | 1366 | 49% |
| Nelson | 777 | 912 | 1689 | 54% |
| Nicholas | 321 | 301 | 622 | 48% |
| Ohio | 851 | 828 | 1679 | 49% |
| Oldham | 521 | 687 | 1208 | 57% |
| Owen | 1722 | 2188 | 3910 | 56% |
| Owsley | 171 | 35 | 206 | 17% |
| Pendleton | 1171 | 1416 | 2587 | 55% |
| Perry | 241 | 99 | 340 | 29% |
| Pike | 525 | 145 | 670 | 22% |
| Powell | 227 | 218 | 445 | 49% |
| Pulaski | 677 | 309 | 986 | 31% |
| Robertson | 344 | 346 | 690 | 50% |
| Rockcastle | 282 | 68 | 350 | 19% |
| Rowan | 377 | 318 | 695 | 46% |
| Russell | 172 | 175 | 347 | 50% |
| Scott | 872 | 909 | 1781 | 51% |
| Shelby | 1041 | 1230 | 2271 | 54% |
| Simpson | 149 | 120 | 269 | 45% |
| Spencer | 637 | 876 | 1513 | 58% |
| Taylor | 365 | 348 | 713 | 49% |
| Todd | 603 | 621 | 1224 | 51% |
| Trigg | 574 | 665 | 1239 | 54% |
| Trimble | 416 | 405 | 821 | 49% |
| Union | 422 | 352 | 774 | 45% |
| Warren | 413 | 444 | 857 | 52% |
| Washington | 648 | 869 | 1517 | 57% |
| Wayne | 471 | 159 | 630 | 25% |
| Webster | 805 | 1009 | 1814 | 56% |
| Whitley | 498 | 382 | 880 | 43% |
| Wolfe | 178 | 180 | 358 | 50% |
| Woodford | 288 | 316 | 604 | 52% |
| Totals | 61,164 | 59,446 | 120,610 | 49% |

Table 6. Deer harvested in staffed special area deer hunts - 2008.

| Location | Antlered | Antlerless | Total |
|---|---|---|---|
| Ballard WMA | 20 | 17 | 37 |
| Beaver Creek WMA | 6 | 11 | 17 |
| Bluegrass Army Depot | 76 | 138 | 214 |
| Clay WMA | 19 | 37 | 56 |
| Fishtrap Lake WMA | 30 | 14 | 44 |
| Grayson Lake WMA | 12 | 13 | 25 |
| Green River WMA | 13 | 47 | 60 |
| Greenbo Lake State Park | 8 | 15 | 23 |
| Kleber WMA | 32 | 47 | 79 |
| Lake Barkley State Park | 3 | 10 | 13 |
| Mill Creek WMA | 16 | 16 | 32 |
| Paintsville Lake WMA | 3 | 30 | 33 |
| Pennyrile State Forest WMA | 17 | 10 | 27 |
| Taylorsville Lake State Park | 6 | 15 | 21 |
| Taylorsville Lake WMA | 58 | 105 | 163 |
| West Kentucky WMA | 12 | 45 | 57 |
| WHFRTC | 12 | 50 | 62 |
| Zilpo-Twin Knobs Campgrounds | 1 | 7 | 8 |
| Total | 344 | 627 | 971 |

**Figure 3. Number of deer permits sold and number of deer harvested in Kentucky, 1976-2008.**

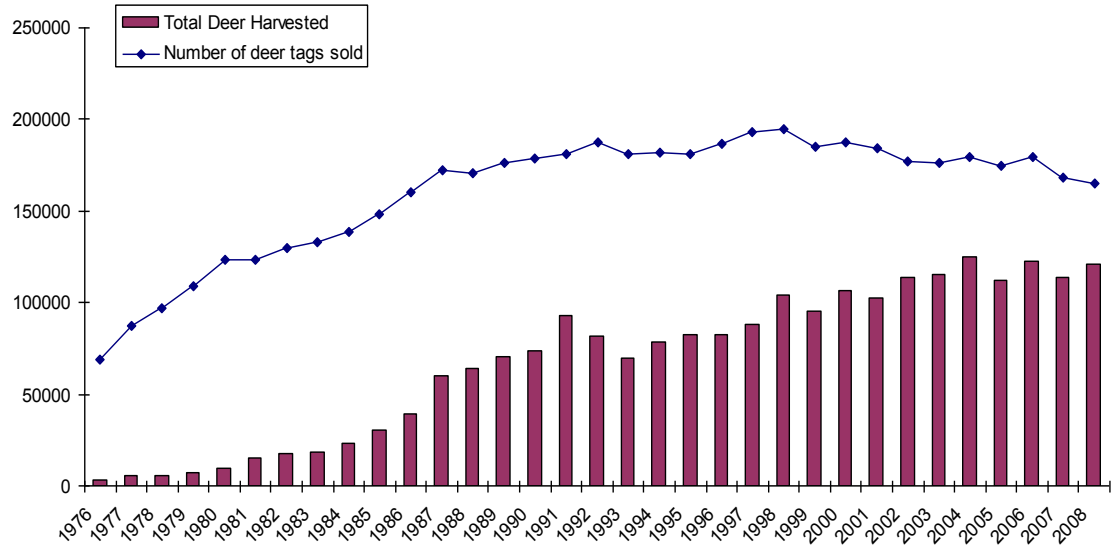


Figure 4. Female age structure from Kentucky's physiographic regions for 2008.

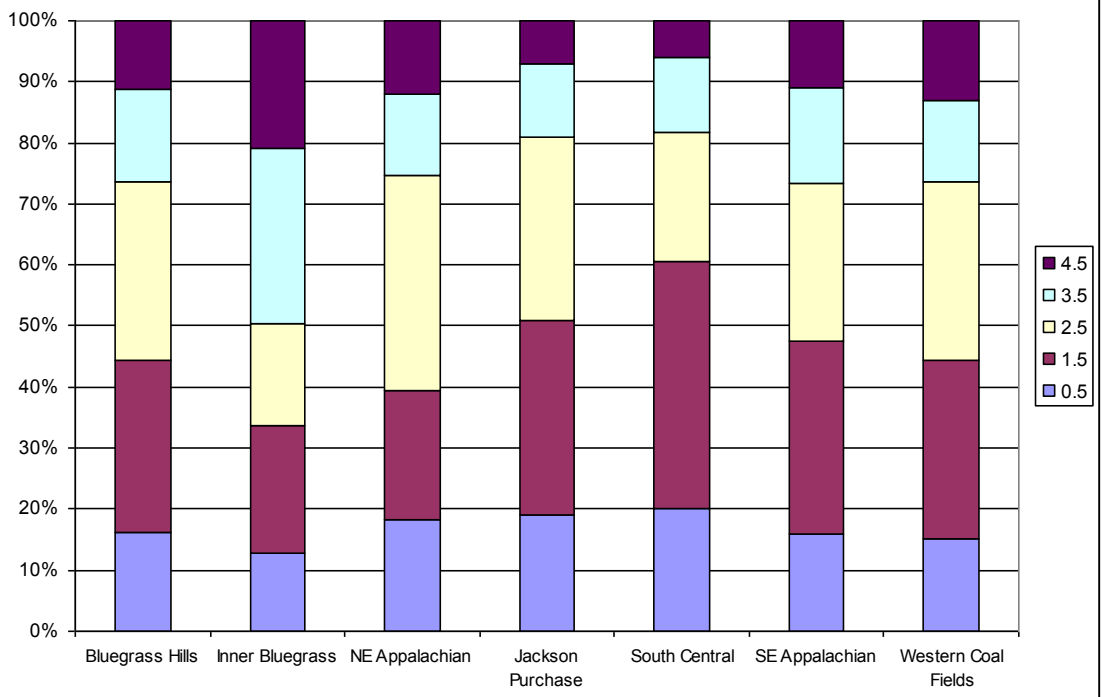
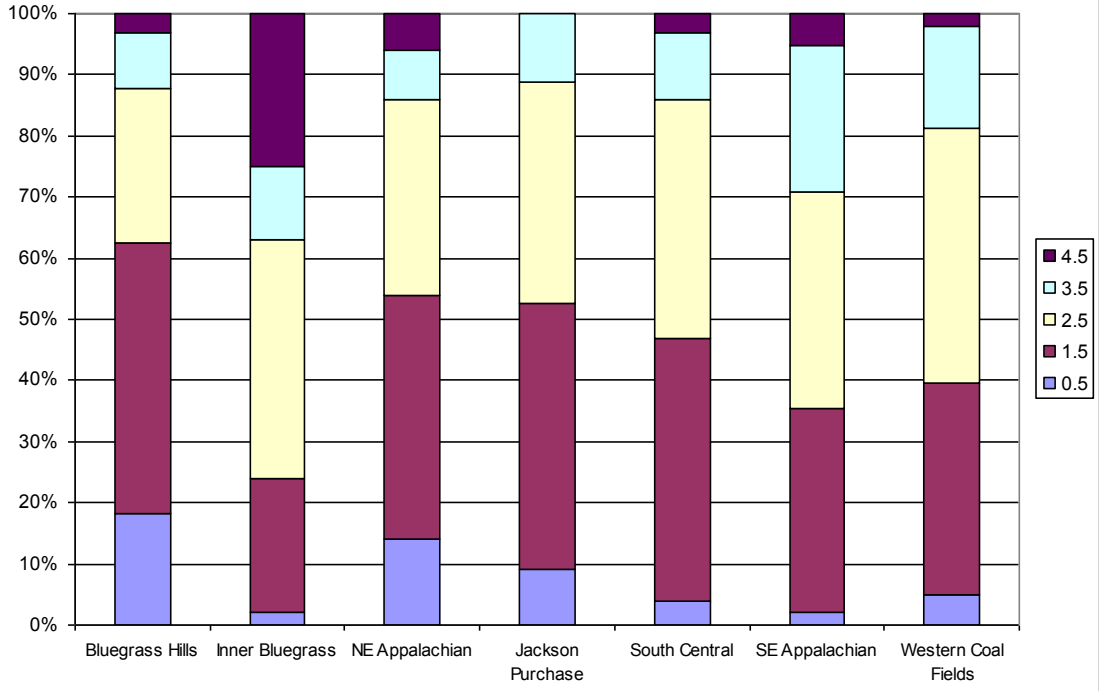



Figure 5. Male age structure from Kentucky's physiographic regions for 2008.



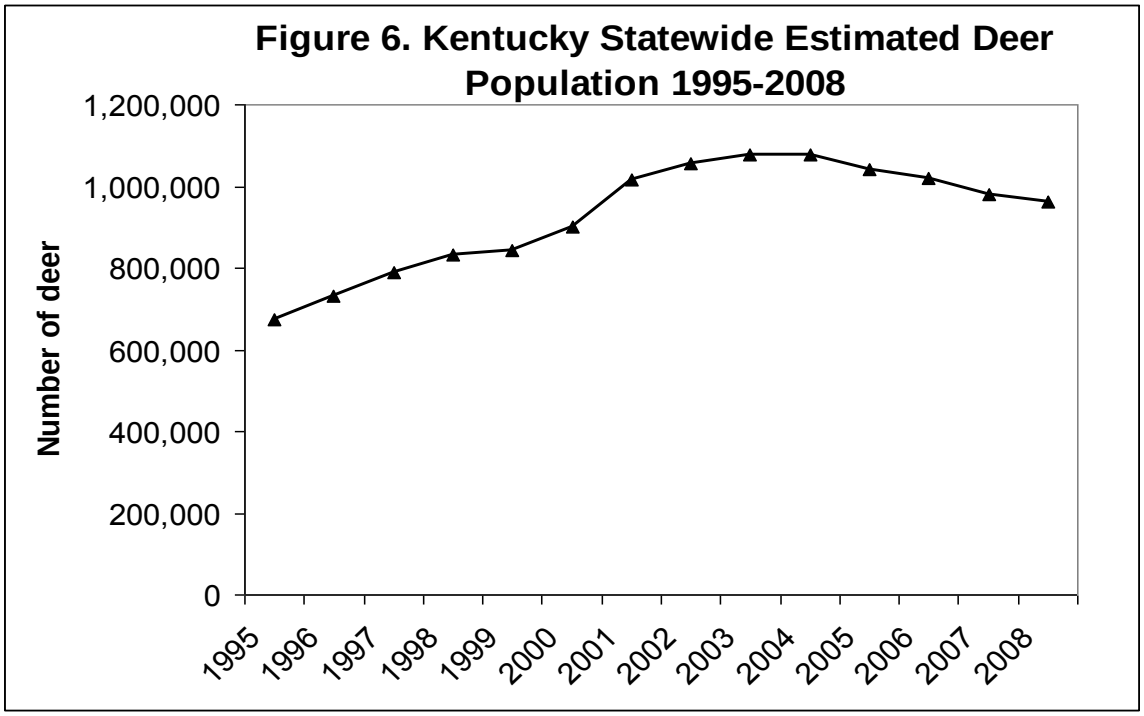



Table 7. Reproductive indices from does collected in Kentucky from Fall 2006- Spring 2008.

| Region | Doe Age | # of Does | Percent Adult Does Pregnant* | # of Fetuses | Fawns (in utero) per Adult Doe* | Fetal Sex Ratio Male:Female | Range in Conception Dates (# of days) | Mean Conception Date |
|---|---|---|---|---|---|---|---|---|
| **Purchase** | 0.5 | 0 | - | - | - | | | |
| | 1.5 | 0 | - | - | - | | | |
| | 2.5 | 3 | 100% | 5 | 1.7 | | | |
| | 3.5+ | 4 | 100% | 8 | 2.0 | | | |
| | Total | 7 | 100% | 13 | 1.9 | 1.6 M: 1 F | 20 Oct. - 13 Dec. (13) | 16 November |
| **Green River** | 0.5 | 0 | - | - | - | | | |
| | 1.5 | 1 | 100% | 1 | 1.0 | | | |
| | 2.5 | 1 | 100% | 2 | 2.0 | | | |
| | 3.5+ | 1 | 100% | 2 | 2.0 | | | |
| | Total | 3 | 100% | 5 | 1.7 | 2.0 M: 1 F | 10 Nov. - 26 Dec. (3) | 3 November |
| **Bluegrass** | 0.5 | 0 | - | - | - | | | |
| | 1.5 | 0 | - | - | - | | | |
| | 2.5 | 0 | - | - | - | | | |
| | 3.5+ | 2 | 100% | 4 | 2.0 | | | |
| | Total | 2 | 100% | 4 | 1.7 | 3.0 M: 1 F | 6 Nov. - 17 Nov. (4) | 11 November |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Northeast** | 0.5 | 2 | - | 0 | 0.0 | | | |
| | 1.5 | 8 | 83% | 9 | 1.1 | | | |
| | 2.5 | 16 | 94% | 25 | 1.5 | | | |
| | 3.5+ | 12 | 100% | 22 | 1.4 | | | |
| | Total | 38 | 95% | 68 | 1.2 | 1.3 M: 1 F | 15 Oct. - 22 Dec. (60) | 19 November |
| **Southeast** | 0.5 | 0 | - | 0 | - | | | |
| | 1.5 | 0 | 0% | 0 | 0.0 | | | |
| | 2.5 | 1 | 100% | 2 | 2.0 | | | |
| | 3.5+ | 3 | 100% | 6 | 2.0 | | | |
| | Total | 4 | 100% | 9 | 1.1 | Unknown | 14 Nov. - 24 Nov. (8) | 19 November |
| **Statewide** | 0.5 | 2 | - | 0 | - | | | |
| | 1.5 | 9 | 94% | 10 | 1.1 | | | |
| | 2.5 | 21 | 99% | 34 | 1.6 | | | |
| | 3.5+ | 22 | 100% | 42 | 1.9 | | | |
| | Total | 54 | 98% | 86 | 1.2 | 1.9 M: 1 F | 15 Oct. - 26 Dec. (88) | 22 November |

* Excludes doe fawns

Table 8. Chronic Wasting Disease (CWD) sample collection by region during the Kentucky deer season, 2008-2009.

| Wildlife Region | # of sampled deer |
|---|---|
| Bluegrass | 505 |
| Green River | 329 |
| Northeast | 424 |
| Purchase | 314 |
| Southeast | 434 |
| Total | 2,006 |

Table 9. Chronic wasting disease (CWD) target animals collected and submitted, January 1 – December 31, 2008. No other cervid species were submitted. All tested negative for CWD.

| Species | Captive | Free-ranging | Total |
|---|---|---|---|
| Elk | 2 | 18 | 20 |
| White-tailed Deer | 76 | 23 | 99 |
| Total | 78 | 41 | 119 |

Table 10. The number of deer-vehicle collisions by month over the last 5 years as reported by the Kentucky State Police.

| Month | 2004 | 2005 | 2006 | 2007 | 2008 | Total | Average |
|---|---|---|---|---|---|---|---|
| January | 180 | 243 | 195 | 224 | 198 | 1,040 | 208 |
| February | 173 | 190 | 146 | 143 | 149 | 801 | 160 |
| March | 162 | 167 | 186 | 159 | 186 | 860 | 172 |
| April | 183 | 144 | 170 | 176 | 184 | 857 | 171 |
| May | 184 | 193 | 220 | 178 | 220 | 995 | 199 |
| June | 188 | 201 | 212 | 210 | 226 | 1,037 | 207 |
| July | 154 | 133 | 145 | 171 | 164 | 767 | 153 |
| August | 119 | 95 | 108 | 157 | 108 | 587 | 117 |
| September | 186 | 111 | 145 | 246 | 148 | 836 | 167 |
| October | 393 | 401 | 370 | 348 | 428 | 1,940 | 388 |
| November | 825 | 713 | 692 | 650 | 684 | 3,564 | 713 |
| December | 320 | 252 | 339 | 255 | 263 | 1,429 | 286 |
| Total per year | 3067 | 2843 | 2928 | 2917 | 2958 | | |
| Injury Collisions | 213 | 215 | 180 | 160 | 180 | 948 | 190 |
| Fatal Collisions | 3 | 1 | 1 | 3 | 2 | 10 | 2 |

Appendix 1. Total harvest by county, 1976-2008.

| County | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adair | 30 | 26 | 33 | 40 | 72 | 96 | 83 | 88 | 107 | 178 | 339 | 539 | 964 | 638 | 848 |
| Allen | 32 | 52 | 49 | 55 | 84 | 166 | 175 | 177 | 164 | 417 | 612 | 1,105 | 1,067 | 981 | 957 |
| Anderson | 18 | 32 | 43 | 57 | 70 | 150 | 147 | 198 | 358 | 379 | 531 | 727 | 1,059 | 1,276 | 851 |
| Ballard | 124 | 259 | 337 | 296 | 146 | 168 | 202 | 235 | 335 | 408 | 490 | 693 | 714 | 508 | 688 |
| Barren | 56 | 44 | 61 | 68 | 87 | 95 | 74 | 119 | 118 | 153 | 220 | 328 | 577 | 413 | 457 |
| Bath | 34 | 59 | 45 | 47 | 64 | 80 | 79 | 72 | 106 | 141 | 139 | 188 | 394 | 393 | 609 |
| Bell | 3 | 7 | 2 | 3 | 8 | 9 | 7 | 9 | 7 | 10 | 17 | 24 | 37 | 59 | 114 |
| Boone | 30 | 46 | 75 | 69 | 117 | 151 | 198 | 250 | 377 | 503 | 641 | 1,101 | 1,096 | 1,174 | 1,404 |
| Bourbon | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 5 | 8 | 4 | 10 | 17 | 12 |
| Boyd | 26 | 27 | 33 | 36 | 56 | 81 | 84 | 60 | 106 | 164 | 172 | 331 | 459 | 534 | 602 |
| Boyle | 3 | 22 | 21 | 29 | 49 | 76 | 69 | 97 | 56 | 85 | 115 | 172 | 268 | 251 | 270 |
| Bracken | 18 | 36 | 56 | 66 | 77 | 157 | 155 | 220 | 324 | 369 | 652 | 776 | 1,028 | 1,000 | 1,030 |
| Breathitt | 10 | 32 | 12 | 15 | 15 | 21 | 19 | 16 | 17 | 38 | 33 | 40 | 57 | 81 | 80 |
| Breckinridge | 97 | 143 | 161 | 178 | 229 | 347 | 491 | 436 | 437 | 801 | 1,002 | 1,823 | 1,942 | 1,886 | 1,862 |
| Bullitt | 11 | 39 | 49 | 79 | 102 | 222 | 274 | 374 | 198 | 147 | 184 | 303 | 418 | 553 | 543 |
| Butler | 61 | 151 | 165 | 197 | 370 | 417 | 626 | 676 | 680 | 740 | 1,056 | 1,620 | 1,486 | 1,378 | 1,271 |
| Caldwell | 17 | 65 | 77 | 111 | 137 | 273 | 335 | 301 | 354 | 509 | 730 | 1,161 | 1,199 | 1,151 | 1,229 |
| Calloway | 12 | 34 | 42 | 41 | 61 | 73 | 140 | 133 | 168 | 202 | 230 | 395 | 380 | 652 | 790 |
| Campbell | 5 | 13 | 11 | 10 | 27 | 52 | 60 | 64 | 79 | 83 | 96 | 187 | 254 | 245 | 328 |
| Carlisle | 17 | 40 | 31 | 48 | 71 | 147 | 122 | 164 | 213 | 256 | 326 | 513 | 542 | 483 | 429 |
| Carroll | 18 | 35 | 62 | 61 | 120 | 218 | 227 | 291 | 226 | 358 | 409 | 929 | 607 | 733 | 854 |
| Carter | 17 | 36 | 35 | 53 | 82 | 117 | 129 | 81 | 138 | 204 | 245 | 436 | 586 | 664 | 724 |
| Casey | 25 | 60 | 80 | 101 | 145 | 202 | 219 | 265 | 469 | 428 | 414 | 804 | 735 | 926 | 1,123 |
| Christian | 111 | 185 | 247 | 271 | 471 | 639 | 833 | 926 | 1,011 | 1,165 | 1,679 | 2,698 | 2,357 | 2,004 | 2,010 |
| Clark | 0 | 0 | 0 | 17 | 25 | 19 | 32 | 28 | 47 | 49 | 50 | 99 | 154 | 145 | 200 |
| Clay | 0 | 0 | 0 | 27 | 26 | 31 | 34 | 23 | 17 | 0 | 0 | 0 | 104 | 116 | 97 |
| Clinton | 7 | 13 | 5 | 13 | 11 | 15 | 8 | 12 | 14 | 27 | 33 | 57 | 38 | 50 | 127 |
| Crittenden | 122 | 164 | 228 | 242 | 272 | 317 | 464 | 491 | 422 | 584 | 1,059 | 1,826 | 1,869 | 1,842 | 2,347 |
| Cumberland | 13 | 29 | 41 | 43 | 43 | 64 | 86 | 78 | 90 | 151 | 204 | 294 | 385 | 433 | 493 |
| Daviess | 10 | 24 | 9 | 20 | 30 | 42 | 62 | 63 | 100 | 158 | 247 | 254 | 507 | 670 | 461 |

| County | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Edmonson | 38 | 63 | 163 | 200 | 89 | 100 | 192 | 315 | 202 | 105 | 127 | 158 | 150 | 252 | 176 |
| Elliott | 9 | 28 | 28 | 23 | 29 | 57 | 62 | 53 | 77 | 97 | 171 | 234 | 316 | 344 | 374 |
| Estill | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| Fayette | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 4 | 4 | 9 | 8 |
| Fleming | 13 | 27 | 24 | 27 | 16 | 30 | 43 | 45 | 44 | 64 | 64 | 82 | 89 | 165 | 168 |
| Floyd | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 13 | 0 | 22 | 16 | 53 | 39 | 113 | 152 |
| Franklin | 40 | 92 | 123 | 129 | 159 | 275 | 566 | 337 | 515 | 794 | 700 | 865 | 946 | 1,133 | 990 |
| Fulton | 10 | 26 | 21 | 27 | 37 | 55 | 63 | 55 | 52 | 94 | 128 | 158 | 215 | 322 | 299 |
| Gallatin | 152 | 190 | 94 | 106 | 273 | 429 | 290 | 324 | 241 | 375 | 395 | 795 | 656 | 672 | 777 |
| Garrard | 1 | 0 | 1 | 1 | 4 | 1 | 0 | 7 | 4 | 5 | 11 | 13 | 20 | 37 | 53 |
| Grant | 32 | 56 | 46 | 64 | 85 | 156 | 154 | 192 | 238 | 318 | 421 | 670 | 795 | 1,036 | 969 |
| Graves | 81 | 109 | 138 | 170 | 300 | 308 | 238 | 310 | 337 | 427 | 604 | 1,075 | 1,119 | 932 | 1,091 |
| Grayson | 28 | 39 | 55 | 52 | 68 | 125 | 164 | 119 | 175 | 289 | 365 | 458 | 643 | 856 | 981 |
| Green | 4 | 21 | 13 | 28 | 49 | 69 | 76 | 74 | 95 | 146 | 234 | 403 | 535 | 649 | 667 |
| Greenup | 16 | 14 | 13 | 28 | 52 | 82 | 71 | 58 | 74 | 136 | 144 | 262 | 374 | 414 | 593 |
| Hancock | 36 | 63 | 64 | 49 | 84 | 144 | 212 | 244 | 323 | 419 | 698 | 869 | 991 | 875 | 946 |
| Hardin | 12 | 32 | 33 | 37 | 129 | 197 | 219 | 118 | 250 | 320 | 397 | 600 | 701 | 1,014 | 1,085 |
| Harlan | 0 | 0 | 0 | 29 | 26 | 39 | 40 | 30 | 28 | 45 | 45 | 55 | 68 | 119 | 63 |
| Harrison | 14 | 31 | 27 | 44 | 50 | 103 | 153 | 131 | 160 | 281 | 318 | 465 | 534 | 681 | 635 |
| Hart | 18 | 40 | 91 | 95 | 38 | 90 | 53 | 118 | 95 | 70 | 98 | 106 | 98 | 277 | 268 |
| Henderson | 14 | 45 | 53 | 68 | 148 | 256 | 197 | 267 | 294 | 485 | 676 | 1,025 | 1,174 | 916 | 984 |
| Henry | 36 | 81 | 101 | 107 | 188 | 528 | 505 | 316 | 506 | 813 | 1,327 | 1,150 | 1,350 | 1,539 | 1,498 |
| Hickman | 27 | 33 | 33 | 48 | 60 | 91 | 99 | 122 | 138 | 150 | 246 | 499 | 550 | 486 | 420 |
| Hopkins | 68 | 156 | 156 | 178 | 251 | 413 | 656 | 758 | 822 | 1,131 | 1,604 | 2,332 | 2,088 | 2,110 | 2,093 |
| Jackson | 0 | 0 | 0 | 42 | 56 | 64 | 64 | 46 | 41 | 71 | 60 | 98 | 144 | 131 | 142 |
| Jefferson | 1 | 0 | 0 | 1 | 6 | 16 | 27 | 24 | 50 | 56 | 116 | 219 | 317 | 379 | 397 |
| Jessamine | 2 | 5 | 2 | 1 | 7 | 6 | 6 | 8 | 3 | 5 | 16 | 13 | 21 | 40 | 36 |
| Johnson | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 10 | 5 | 13 | 11 | 27 | 29 | 79 | 110 |
| Kenton | 0 | 1 | 3 | 0 | 7 | 13 | 23 | 21 | 14 | 24 | 47 | 96 | 135 | 198 | 275 |
| Knott | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 55 | 55 | 78 | 57 | 110 | 119 |
| Knox | 12 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Larue | 38 | 40 | 41 | 40 | 97 | 114 | 148 | 190 | 202 | 295 | 358 | 480 | 685 | 771 | 760 |

| County | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Laurel | 14 | 21 | 13 | 9 | 28 | 27 | 38 | 39 | 30 | 63 | 57 | 79 | 135 | 136 | 113 |
| Lawrence | 90 | 121 | 90 | 134 | 156 | 226 | 193 | 130 | 178 | 365 | 322 | 638 | 877 | 1,114 | 1,324 |
| Lee | 25 | 29 | 29 | 17 | 17 | 21 | 44 | 18 | 14 | 31 | 22 | 36 | 31 | 56 | 79 |
| Leslie | 0 | 0 | 0 | 22 | 42 | 36 | 28 | 20 | 19 | 33 | 39 | 53 | 60 | 121 | 46 |
| Letcher | 8 | 4 | 3 | 1 | 5 | 11 | 7 | 6 | 0 | 14 | 0 | 0 | 0 | 0 | 48 |
| Lewis | 23 | 39 | 42 | 67 | 64 | 109 | 78 | 50 | 52 | 52 | 72 | 83 | 66 | 122 | 212 |
| Lincoln | 3 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 52 | 46 | 49 | 69 | 71 | 152 | 142 |
| Livingston | 234 | 295 | 235 | 266 | 124 | 156 | 187 | 384 | 457 | 687 | 743 | 1,137 | 1,185 | 1,071 | 1,394 |
| Logan | 83 | 147 | 161 | 210 | 371 | 425 | 531 | 617 | 674 | 845 | 1,142 | 1,869 | 1,525 | 1,494 | 1,898 |
| Lyon | 2 | 12 | 5 | 12 | 19 | 21 | 25 | 36 | 36 | 47 | 99 | 100 | 292 | 310 | 271 |
| Madison | 0 | 4 | 2 | 1 | 10 | 14 | 4 | 12 | 19 | 30 | 30 | 33 | 41 | 113 | 214 |
| Magoffin | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 8 | 9 | 12 | 18 | 0 | 0 |
| Marion | 31 | 86 | 89 | 135 | 157 | 355 | 237 | 287 | 495 | 429 | 370 | 900 | 901 | 1,251 | 1,030 |
| Marshall | 10 | 10 | 8 | 9 | 20 | 32 | 25 | 17 | 39 | 49 | 59 | 138 | 181 | 200 | 205 |
| Martin | 4 | 0 | 0 | 0 | 0 | 0 | 38 | 14 | 16 | 11 | 16 | 34 | 47 | 88 | 110 |
| Mason | 14 | 24 | 18 | 28 | 47 | 90 | 107 | 116 | 113 | 140 | 172 | 205 | 144 | 328 | 433 |
| McCracken | 64 | 61 | 71 | 109 | 87 | 119 | 137 | 129 | 129 | 198 | 181 | 269 | 611 | 471 | 311 |
| McCreary | 21 | 45 | 55 | 60 | 45 | 88 | 135 | 100 | 87 | 152 | 126 | 181 | 187 | 286 | 233 |
| McLean | 15 | 42 | 36 | 55 | 73 | 88 | 137 | 147 | 204 | 410 | 549 | 700 | 854 | 646 | 557 |
| Meade | 12 | 43 | 56 | 68 | 74 | 130 | 127 | 175 | 168 | 258 | 306 | 360 | 623 | 715 | 797 |
| Menifee | 31 | 70 | 35 | 42 | 22 | 54 | 78 | 70 | 81 | 93 | 115 | 150 | 178 | 325 | 441 |
| Mercer | 8 | 9 | 5 | 8 | 22 | 49 | 63 | 83 | 89 | 106 | 122 | 230 | 266 | 421 | 439 |
| Metcalfe | 5 | 13 | 16 | 16 | 49 | 47 | 51 | 56 | 72 | 101 | 184 | 311 | 378 | 564 | 445 |
| Monroe | 22 | 42 | 39 | 48 | 32 | 80 | 75 | 67 | 75 | 92 | 123 | 142 | 160 | 307 | 346 |
| Montgomery | 0 | 2 | 0 | 0 | 4 | 5 | 6 | 9 | 7 | 11 | 8 | 16 | 18 | 32 | 61 |
| Morgan | 15 | 22 | 23 | 27 | 37 | 58 | 78 | 70 | 87 | 114 | 126 | 183 | 269 | 303 | 379 |
| Muhlenberg | 68 | 123 | 119 | 164 | 211 | 372 | 505 | 642 | 783 | 875 | 1,515 | 2,129 | 1,193 | 1,370 | 1,478 |
| Nelson | 61 | 69 | 84 | 128 | 158 | 254 | 307 | 366 | 388 | 514 | 663 | 1,091 | 1,140 | 1,475 | 1,472 |
| Nicholas | 3 | 23 | 17 | 15 | 20 | 31 | 37 | 34 | 51 | 59 | 85 | 164 | 167 | 271 | 313 |
| Ohio | 80 | 164 | 190 | 237 | 456 | 545 | 696 | 822 | 866 | 1,031 | 1,915 | 3,697 | 2,241 | 2,039 | 1,733 |
| Oldham | 29 | 48 | 37 | 50 | 87 | 191 | 219 | 224 | 324 | 333 | 374 | 627 | 674 | 690 | 848 |
| Owen | 366 | 427 | 201 | 193 | 321 | 584 | 1,013 | 619 | 1,208 | 1,645 | 1,171 | 1,597 | 1,909 | 2,294 | 2,060 |

| County | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Owsley | 0 | 0 | 0 | 33 | 27 | 43 | 33 | 24 | 33 | 33 | 24 | 30 | 35 | 51 | 53 |
| Pendleton | 31 | 89 | 67 | 75 | 143 | 187 | 228 | 273 | 511 | 523 | 805 | 968 | 1,065 | 1,267 | 1,170 |
| Perry | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 9 | 0 | 10 | 0 | 0 | 0 | 0 | 50 |
| Pike | 23 | 14 | 11 | 7 | 14 | 28 | 10 | 13 | 14 | 21 | 23 | 37 | 28 | 56 | 64 |
| Powell | 0 | 0 | 0 | 0 | 37 | 21 | 21 | 24 | 19 | 22 | 21 | 35 | 34 | 45 | 73 |
| Pulaski | 23 | 42 | 43 | 60 | 72 | 97 | 77 | 76 | 122 | 170 | 174 | 252 | 313 | 475 | 516 |
| Robertson | 15 | 35 | 45 | 38 | 44 | 91 | 51 | 107 | 219 | 195 | 338 | 332 | 463 | 462 | 480 |
| Rockcastle | 10 | 14 | 17 | 18 | 17 | 31 | 27 | 27 | 22 | 31 | 37 | 37 | 36 | 49 | 70 |
| Rowan | 24 | 55 | 39 | 40 | 34 | 64 | 58 | 59 | 72 | 119 | 136 | 159 | 275 | 330 | 467 |
| Russell | 17 | 25 | 32 | 34 | 51 | 71 | 83 | 53 | 68 | 118 | 144 | 293 | 125 | 274 | 264 |
| Scott | 48 | 79 | 84 | 99 | 143 | 175 | 219 | 273 | 494 | 422 | 481 | 670 | 811 | 940 | 829 |
| Shelby | 24 | 45 | 56 | 77 | 76 | 190 | 326 | 243 | 407 | 429 | 566 | 732 | 954 | 882 | 1,261 |
| Simpson | 3 | 2 | 4 | 1 | 3 | 4 | 2 | 8 | 23 | 28 | 50 | 69 | 70 | 127 | 139 |
| Spencer | 11 | 26 | 34 | 40 | 58 | 109 | 120 | 126 | 183 | 311 | 363 | 534 | 698 | 532 | 770 |
| Taylor | 19 | 36 | 41 | 47 | 60 | 86 | 107 | 93 | 107 | 130 | 221 | 450 | 454 | 810 | 706 |
| Todd | 41 | 99 | 96 | 130 | 203 | 312 | 377 | 451 | 489 | 608 | 817 | 1,453 | 1,042 | 1,121 | 1,146 |
| Trigg | 2 | 31 | 21 | 23 | 30 | 64 | 81 | 82 | 110 | 118 | 194 | 232 | 449 | 438 | 491 |
| Trimble | 6 | 16 | 21 | 27 | 58 | 125 | 149 | 203 | 272 | 326 | 473 | 615 | 544 | 644 | 688 |
| Union | 24 | 33 | 36 | 44 | 64 | 110 | 127 | 122 | 159 | 214 | 346 | 537 | 804 | 704 | 807 |
| Warren | 12 | 30 | 45 | 57 | 79 | 121 | 146 | 117 | 134 | 249 | 294 | 358 | 560 | 697 | 481 |
| Washington | 25 | 33 | 41 | 52 | 82 | 147 | 158 | 215 | 376 | 408 | 574 | 662 | 827 | 1,078 | 761 |
| Wayne | 24 | 52 | 64 | 66 | 67 | 93 | 111 | 119 | 87 | 158 | 156 | 210 | 226 | 325 | 302 |
| Webster | 54 | 50 | 81 | 105 | 144 | 223 | 245 | 300 | 435 | 585 | 925 | 1,369 | 1,546 | 1,572 | 2,232 |
| Whitley | 18 | 25 | 20 | 28 | 35 | 64 | 45 | 36 | 37 | 83 | 66 | 110 | 91 | 154 | 221 |
| Wolfe | 0 | 0 | 0 | 0 | 18 | 23 | 21 | 11 | 7 | 28 | 23 | 46 | 33 | 70 | 125 |
| Woodford | 6 | 10 | 7 | 9 | 11 | 22 | 31 | 53 | 70 | 75 | 119 | 180 | 199 | 366 | 383 |
| Totals | 3,431 | 5,717 | 5,925 | 7,131 | 9,703 | 14,929 | 17,970 | 18,732 | 23,012 | 30,075 | 39,520 | 60,372 | 64,260 | 70,149 | 73,920 |

| County | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adair | 1,437 | 1,321 | 1,226 | 838 | 1,058 | 1,154 | 1,213 | 1,385 | 1,006 | 1,178 | 1,069 | 1,185 | 1,120 |
| Allen | 1,219 | 1,111 | 927 | 653 | 806 | 908 | 1,143 | 1,569 | 1,174 | 1,024 | 873 | 924 | 1,073 |
| Anderson | 1,163 | 979 | 722 | 1,077 | 807 | 660 | 1,018 | 1,020 | 1,641 | 1,795 | 1,916 | 2,108 | 1,768 |
| Ballard | 779 | 619 | 537 | 697 | 660 | 539 | 739 | 586 | 589 | 548 | 568 | 652 | 653 |
| Barren | 581 | 582 | 689 | 631 | 753 | 987 | 953 | 1,190 | 943 | 918 | 708 | 819 | 834 |
| Bath | 375 | 547 | 494 | 460 | 454 | 568 | 898 | 558 | 680 | 594 | 592 | 561 | 444 |
| Bell | 97 | 102 | 135 | 276 | 172 | 142 | 156 | 178 | 391 | 431 | 443 | 516 | 525 |
| Boone | 1,556 | 1,328 | 1,060 | 1,627 | 1,304 | 1,424 | 1,191 | 1,513 | 1,415 | 1,317 | 1,429 | 1,517 | 1,657 |
| Bourbon | 22 | 36 | 46 | 56 | 65 | 98 | 134 | 143 | 129 | 235 | 196 | 174 | 187 |
| Boyd | 1,519 | 859 | 961 | 1,060 | 1,286 | 1,126 | 1,278 | 1,075 | 1,363 | 1,378 | 1,325 | 1,190 | 1,089 |
| Boyle | 785 | 499 | 329 | 277 | 302 | 220 | 250 | 233 | 297 | 383 | 356 | 346 | 330 |
| Bracken | 742 | 1,067 | 767 | 1,078 | 904 | 917 | 855 | 944 | 997 | 1,112 | 1,146 | 1,473 | 1,359 |
| Breathitt | 66 | 123 | 157 | 137 | 175 | 288 | 261 | 184 | 560 | 373 | 447 | 434 | 340 |
| Breckinridge | 2,125 | 1,756 | 1,133 | 1,436 | 1,464 | 1,294 | 1,381 | 1,581 | 1,027 | 1,698 | 1,393 | 1,732 | 1,956 |
| Bullitt | 530 | 552 | 480 | 604 | 501 | 578 | 594 | 622 | 541 | 916 | 958 | 1,142 | 971 |
| Butler | 1,400 | 1,428 | 986 | 1,243 | 1,518 | 1,425 | 1,325 | 1,755 | 1,209 | 1,099 | 933 | 1,144 | 1,414 |
| Caldwell | 1,470 | 1,120 | 692 | 1,001 | 1,059 | 1,105 | 1,274 | 1,444 | 1,083 | 1,221 | 985 | 1,311 | 1,176 |
| Calloway | 918 | 587 | 497 | 564 | 602 | 545 | 625 | 721 | 830 | 1,026 | 898 | 1,127 | 1,124 |
| Campbell | 352 | 400 | 449 | 479 | 424 | 423 | 439 | 561 | 757 | 677 | 711 | 886 | 859 |
| Carlisle | 506 | 405 | 431 | 345 | 433 | 415 | 522 | 645 | 512 | 554 | 513 | 633 | 544 |
| Carroll | 838 | 830 | 641 | 761 | 735 | 719 | 662 | 831 | 844 | 907 | 888 | 960 | 1,006 |
| Carter | 2,204 | 1,488 | 1,374 | 1,524 | 1,863 | 1,358 | 1,830 | 1,936 | 1,682 | 1,902 | 1,875 | 1,697 | 1,614 |
| Casey | 1,252 | 1,095 | 935 | 925 | 1,034 | 773 | 1,180 | 1,078 | 858 | 1,012 | 942 | 1,100 | 1,084 |
| Christian | 2,241 | 1,948 | 1,548 | 1,729 | 1,727 | 1,864 | 1,846 | 2,163 | 1,815 | 2,027 | 1,929 | 2,245 | 2,303 |
| Clark | 225 | 250 | 255 | 309 | 303 | 310 | 268 | 426 | 407 | 463 | 415 | 458 | 461 |
| Clay | 130 | 191 | 165 | 200 | 191 | 193 | 222 | 396 | 368 | 405 | 453 | 618 | 626 |
| Clinton | 153 | 183 | 239 | 174 | 298 | 331 | 380 | 378 | 388 | 434 | 356 | 450 | 328 |
| Crittenden | 2,581 | 2,484 | 2,357 | 1,826 | 1,857 | 2,065 | 2,261 | 2,728 | 2,201 | 2,597 | 2,268 | 2,671 | 2,565 |
| Cumberland | 658 | 722 | 868 | 752 | 957 | 1,049 | 1,121 | 1,002 | 730 | 889 | 796 | 922 | 970 |
| Daviess | 656 | 477 | 601 | 681 | 599 | 577 | 593 | 545 | 488 | 626 | 618 | 730 | 690 |

| County | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Edmonson | 258 | 210 | 242 | 293 | 231 | 303 | 274 | 377 | 251 | 362 | 261 | 411 | 388 |
| Elliott | 1,356 | 689 | 526 | 740 | 710 | 864 | 902 | 1,006 | 781 | 811 | 789 | 679 | 792 |
| Estill | 1 | 0 | 84 | 91 | 98 | 108 | 75 | 147 | 245 | 236 | 307 | 328 | 367 |
| Fayette | 14 | 19 | 16 | 29 | 62 | 71 | 76 | 115 | 151 | 178 | 151 | 180 | 146 |
| Fleming | 129 | 225 | 227 | 312 | 357 | 485 | 448 | 599 | 506 | 592 | 573 | 561 | 629 |
| Floyd | 134 | 264 | 160 | 199 | 184 | 259 | 306 | 307 | 356 | 254 | 348 | 428 | 468 |
| Franklin | 1,474 | 1,047 | 1,036 | 841 | 706 | 629 | 657 | 1,028 | 1,282 | 1,325 | 1,398 | 1,580 | 1,497 |
| Fulton | 317 | 327 | 254 | 307 | 329 | 326 | 294 | 490 | 461 | 526 | 481 | 583 | 524 |
| Gallatin | 911 | 835 | 575 | 767 | 607 | 713 | 547 | 718 | 682 | 791 | 860 | 844 | 897 |
| Garrard | 66 | 87 | 107 | 124 | 149 | 130 | 210 | 358 | 360 | 434 | 331 | 375 | 412 |
| Grant | 1,133 | 978 | 812 | 775 | 748 | 646 | 989 | 1,339 | 1,308 | 1,646 | 1,611 | 1,712 | 1,766 |
| Graves | 1,405 | 1,090 | 947 | 908 | 1,077 | 1,011 | 1,018 | 1,353 | 1,312 | 1,647 | 1,571 | 1,901 | 1,848 |
| Grayson | 1,507 | 1,230 | 937 | 1,255 | 1,192 | 1,124 | 1,080 | 1,340 | 1,152 | 1,047 | 907 | 1,238 | 1,317 |
| Green | 602 | 559 | 767 | 706 | 765 | 779 | 661 | 880 | 878 | 1,048 | 1,092 | 1,327 | 1,172 |
| Greenup | 790 | 993 | 922 | 1,018 | 1,298 | 1,172 | 1,442 | 1,704 | 1,464 | 1,457 | 1,434 | 1,485 | 1,436 |
| Hancock | 1,025 | 951 | 866 | 696 | 692 | 559 | 514 | 718 | 438 | 416 | 352 | 400 | 585 |
| Hardin | 1,281 | 1,262 | 1,179 | 1,417 | 1,575 | 1,463 | 1,488 | 2,270 | 1,693 | 1,840 | 1,684 | 1,876 | 1,689 |
| Harlan | 135 | 135 | 134 | 195 | 156 | 144 | 134 | 159 | 280 | 285 | 295 | 415 | 382 |
| Harrison | 934 | 698 | 581 | 612 | 507 | 577 | 582 | 736 | 671 | 765 | 767 | 1,104 | 1,122 |
| Hart | 364 | 527 | 494 | 574 | 540 | 633 | 782 | 954 | 698 | 1,040 | 937 | 1,172 | 1,146 |
| Henderson | 1,070 | 1,069 | 899 | 917 | 850 | 852 | 942 | 1,029 | 1,057 | 1,124 | 1,090 | 1,266 | 1,217 |
| Henry | 2,107 | 1,346 | 994 | 909 | 989 | 1,107 | 1,180 | 1,412 | 1,628 | 1,830 | 1,937 | 2,099 | 2,123 |
| Hickman | 543 | 527 | 548 | 402 | 518 | 427 | 473 | 778 | 703 | 812 | 692 | 757 | 675 |
| Hopkins | 2,215 | 2,145 | 1,237 | 1,779 | 1,950 | 1,820 | 1,898 | 2,196 | 1,725 | 1,688 | 1,613 | 1,948 | 1,886 |
| Jackson | 209 | 208 | 209 | 383 | 353 | 363 | 352 | 367 | 565 | 845 | 802 | 977 | 962 |
| Jefferson | 640 | 608 | 712 | 758 | 706 | 627 | 632 | 750 | 718 | 785 | 757 | 877 | 846 |
| Jessamine | 75 | 53 | 33 | 106 | 146 | 183 | 226 | 331 | 294 | 342 | 296 | 336 | 301 |
| Johnson | 155 | 184 | 163 | 234 | 300 | 431 | 408 | 521 | 608 | 489 | 570 | 496 | 629 |
| Kenton | 339 | 321 | 231 | 382 | 270 | 252 | 279 | 398 | 630 | 602 | 569 | 554 | 603 |
| Knott | 140 | 149 | 168 | 185 | 183 | 298 | 258 | 361 | 397 | 355 | 374 | 535 | 588 |
| Knox | 218 | 149 | 139 | 179 | 224 | 197 | 251 | 408 | 302 | 491 | 524 | 1,078 | 915 |

| County | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Larue | 788 | 657 | 569 | 525 | 510 | 504 | 673 | 723 | 718 | 855 | 852 | 989 | 869 |
| Laurel | 187 | 158 | 180 | 341 | 304 | 307 | 336 | 393 | 547 | 765 | 758 | 438 | 893 |
| Lawrence | 3,697 | 1,857 | 1,609 | 2,470 | 3,013 | 2,284 | 2,987 | 3,255 | 2,082 | 2,368 | 2,184 | 1,638 | 1,896 |
| Lee | 81 | 85 | 53 | 92 | 67 | 103 | 146 | 150 | 149 | 182 | 204 | 264 | 453 |
| Leslie | 68 | 59 | 37 | 121 | 0 | 0 | 0 | 219 | 115 | 195 | 240 | 307 | 333 |
| Letcher | 61 | 81 | 91 | 112 | 102 | 102 | 99 | 206 | 163 | 279 | 383 | 443 | 440 |
| Lewis | 278 | 338 | 356 | 460 | 375 | 498 | 437 | 753 | 842 | 994 | 1,077 | 1,161 | 1,243 |
| Lincoln | 217 | 236 | 187 | 242 | 308 | 310 | 273 | 491 | 479 | 621 | 578 | 602 | 623 |
| Livingston | 1,354 | 1,165 | 1,069 | 871 | 647 | 970 | 1,135 | 988 | 1,073 | 1,162 | 1,178 | 1,403 | 1,467 |
| Logan | 1,917 | 1,728 | 1,228 | 1,304 | 1,709 | 1,916 | 1,643 | 1,821 | 1,384 | 1,110 | 968 | 1,014 | 1,206 |
| Lyon | 301 | 287 | 225 | 294 | 268 | 308 | 299 | 269 | 362 | 397 | 361 | 454 | 497 |
| Madison | 457 | 279 | 221 | 236 | 284 | 291 | 261 | 403 | 438 | 526 | 530 | 546 | 604 |
| Magoffin | 0 | 0 | 173 | 192 | 187 | 193 | 266 | 329 | 256 | 234 | 334 | 414 | 446 |
| Marion | 1,207 | 1,280 | 905 | 917 | 824 | 899 | 1,145 | 1,359 | 999 | 1,343 | 1,174 | 1,192 | 1,032 |
| Marshall | 248 | 169 | 170 | 202 | 242 | 268 | 337 | 346 | 392 | 492 | 424 | 594 | 655 |
| Martin | 160 | 233 | 261 | 332 | 305 | 365 | 603 | 402 | 459 | 392 | 447 | 338 | 386 |
| Mason | 586 | 560 | 403 | 417 | 470 | 436 | 481 | 679 | 646 | 755 | 759 | 764 | 863 |
| McCracken | 475 | 412 | 265 | 268 | 287 | 293 | 242 | 253 | 342 | 430 | 413 | 519 | 468 |
| McCreary | 182 | 264 | 301 | 290 | 256 | 290 | 188 | 205 | 203 | 420 | 325 | 354 | 420 |
| McLean | 780 | 508 | 709 | 632 | 653 | 706 | 751 | 877 | 774 | 654 | 662 | 746 | 714 |
| Meade | 975 | 791 | 637 | 746 | 644 | 720 | 691 | 664 | 727 | 952 | 937 | 969 | 976 |
| Menifee | 510 | 432 | 344 | 420 | 376 | 543 | 685 | 618 | 742 | 623 | 623 | 560 | 595 |
| Mercer | 375 | 452 | 372 | 345 | 332 | 316 | 328 | 482 | 655 | 617 | 695 | 754 | 729 |
| Metcalfe | 427 | 457 | 561 | 750 | 852 | 858 | 1,042 | 940 | 730 | 742 | 687 | 786 | 825 |
| Monroe | 397 | 472 | 519 | 471 | 570 | 545 | 576 | 652 | 465 | 538 | 548 | 717 | 641 |
| Montgomery | 58 | 81 | 84 | 110 | 111 | 213 | 193 | 323 | 325 | 364 | 379 | 357 | 335 |
| Morgan | 444 | 664 | 524 | 741 | 1,098 | 1,397 | 1,466 | 1,716 | 1,130 | 1,068 | 1,113 | 1,132 | 1,071 |
| Muhlenberg | 1,894 | 1,877 | 1,116 | 1,810 | 1,929 | 1,749 | 1,605 | 1,908 | 1,494 | 1,391 | 1,167 | 1,324 | 1,480 |
| Nelson | 1,569 | 1,567 | 974 | 1,163 | 974 | 985 | 1,300 | 1,441 | 1,038 | 1,608 | 1,744 | 1,859 | 1,617 |
| Nicholas | 414 | 280 | 216 | 323 | 323 | 320 | 300 | 453 | 457 | 699 | 603 | 542 | 554 |
| Ohio | 2,773 | 2,817 | 2,245 | 2,591 | 3,408 | 2,551 | 2,478 | 2,993 | 2,127 | 1,969 | 1,926 | 2,260 | 2,392 |
| Oldham | 1,075 | 894 | 931 | 962 | 748 | 787 | 776 | 1,088 | 1,076 | 1,057 | 1,081 | 1,158 | 1,232 |

| County | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Owen | 2,118 | 1,851 | 1,830 | 1,613 | 1,658 | 1,438 | 2,442 | 2,810 | 2,813 | 3,098 | 3,266 | 3,860 | 3,797 |
| Owsley | 64 | 67 | 60 | 104 | 85 | 98 | 85 | 110 | 149 | 348 | 148 | 197 | 211 |
| Pendleton | 1,199 | 1,210 | 1,094 | 994 | 1,012 | 1,061 | 1,096 | 1,247 | 1,335 | 1,709 | 1,857 | 2,086 | 2,114 |
| Perry | 74 | 67 | 59 | 62 | 64 | 112 | 0 | 0 | 209 | 214 | 247 | 362 | 353 |
| Pike | 106 | 0 | 0 | 0 | 433 | 368 | 232 | 213 | 348 | 526 | 600 | 595 | 760 |
| Powell | 90 | 106 | 93 | 107 | 116 | 185 | 177 | 265 | 214 | 351 | 310 | 207 | 291 |
| Pulaski | 477 | 532 | 557 | 621 | 776 | 945 | 915 | 982 | 808 | 1,103 | 1,041 | 680 | 848 |
| Robertson | 328 | 317 | 473 | 482 | 445 | 405 | 402 | 487 | 500 | 466 | 505 | 628 | 589 |
| Rockcastle | 85 | 88 | 91 | 108 | 131 | 121 | 117 | 140 | 194 | 205 | 193 | 281 | 371 |
| Rowan | 397 | 611 | 485 | 616 | 882 | 1,157 | 1,136 | 1,190 | 707 | 871 | 892 | 766 | 714 |
| Russell | 316 | 304 | 205 | 520 | 510 | 556 | 656 | 602 | 380 | 452 | 422 | 427 | 476 |
| Scott | 996 | 850 | 536 | 1,042 | 594 | 480 | 455 | 803 | 809 | 1,148 | 1,188 | 1,263 | 1,259 |
| Shelby | 1,648 | 1,365 | 1,023 | 1,378 | 1,161 | 1,090 | 1,328 | 1,634 | 1,812 | 2,057 | 1,956 | 2,323 | 2,116 |
| Simpson | 146 | 135 | 204 | 197 | 268 | 257 | 278 | 300 | 265 | 295 | 225 | 231 | 269 |
| Spencer | 696 | 637 | 622 | 674 | 676 | 714 | 792 | 952 | 1,221 | 1,277 | 1,377 | 1,591 | 1,544 |
| Taylor | 742 | 630 | 528 | 390 | 456 | 493 | 383 | 610 | 544 | 661 | 635 | 880 | 736 |
| Todd | 1,484 | 1,371 | 1,025 | 1,426 | 1,545 | 1,633 | 1,576 | 1,684 | 1,278 | 1,148 | 951 | 1,089 | 1,382 |
| Trigg | 678 | 589 | 374 | 589 | 624 | 585 | 449 | 629 | 700 | 823 | 706 | 949 | 1,030 |
| Trimble | 779 | 696 | 559 | 712 | 708 | 761 | 694 | 749 | 793 | 883 | 838 | 920 | 976 |
| Union | 1,005 | 750 | 520 | 558 | 583 | 536 | 593 | 720 | 594 | 765 | 686 | 785 | 873 |
| Warren | 603 | 675 | 541 | 531 | 498 | 557 | 360 | 707 | 711 | 799 | 721 | 784 | 882 |
| Washington | 1,247 | 914 | 517 | 719 | 766 | 618 | 929 | 899 | 1,170 | 1,330 | 1,268 | 1,362 | 1,306 |
| Wayne | 299 | 344 | 376 | 565 | 633 | 622 | 361 | 666 | 486 | 728 | 645 | 445 | 560 |
| Webster | 2,447 | 1,851 | 1,439 | 1,329 | 1,552 | 1,650 | 1,616 | 2,140 | 1,527 | 1,261 | 1,274 | 1,502 | 1,633 |
| Whitley | 260 | 282 | 306 | 345 | 355 | 374 | 388 | 531 | 761 | 1,120 | 1,019 | 579 | 1,042 |
| Wolfe | 191 | 159 | 122 | 176 | 241 | 299 | 292 | 516 | 352 | 466 | 491 | 473 | 476 |
| Woodford | 416 | 423 | 450 | 533 | 409 | 405 | 455 | 546 | 637 | 554 | 519 | 542 | 496 |
| Totals | 92,973 | 81,938 | 69,524 | 78,654 | 82,140 | 82,155 | 87,939 | 104,070 | 95,227 | 106,262 | 102,706 | 113,652 | 115,457 |

| | | | | | | Average change per period | | |
|---|---|---|---|---|---|---|---|---|
| **County** | **2004** | **2005** | **2006** | **2007** | **2008** | **10-yr** | **3-yr** | **1-yr** |
| Adair | 1,124 | 941 | 1001 | 952 | 954 | -0.02 | 0.00 | 0.00 |
| Allen | 1,346 | 1,114 | 1371 | 1025 | 1230 | 0.01 | 0.03 | 0.20 |
| Anderson | 2,078 | 1,910 | 1827 | 1782 | 2074 | 0.10 | 0.03 | 0.16 |
| Ballard | 696 | 626 | 668 | 688 | 810 | 0.01 | 0.10 | 0.18 |
| Barren | 918 | 897 | 1029 | 767 | 854 | -0.01 | -0.02 | 0.11 |
| Bath | 463 | 441 | 436 | 526 | 522 | -0.07 | 0.06 | -0.01 |
| Bell | 574 | 481 | 541 | 426 | 448 | 0.16 | -0.02 | 0.05 |
| Boone | 1,672 | 1,660 | 1798 | 1952 | 1919 | 0.05 | 0.05 | -0.02 |
| Bourbon | 205 | 205 | 173 | 205 | 201 | 0.05 | -0.01 | -0.02 |
| Boyd | 1,088 | 924 | 949 | 905 | 945 | -0.03 | 0.01 | 0.04 |
| Boyle | 359 | 289 | 314 | 288 | 263 | 0.01 | -0.03 | -0.09 |
| Bracken | 1,544 | 1,417 | 1450 | 1602 | 1667 | 0.09 | 0.06 | 0.04 |
| Breathitt | 500 | 477 | 437 | 461 | 432 | 0.09 | -0.03 | -0.06 |
| Breckinridge | 2,159 | 1,924 | 2086 | 1718 | 1732 | 0.02 | -0.03 | 0.01 |
| Bullitt | 1,136 | 897 | 1022 | 1040 | 1039 | 0.07 | 0.05 | 0.00 |
| Butler | 1,506 | 1,293 | 1502 | 1089 | 1164 | -0.01 | -0.03 | 0.07 |
| Caldwell | 1,236 | 1,109 | 1274 | 1157 | 1141 | -0.01 | 0.01 | -0.01 |
| Calloway | 1,254 | 1,081 | 1261 | 1232 | 1396 | 0.11 | 0.10 | 0.13 |
| Campbell | 834 | 835 | 984 | 1079 | 1085 | 0.12 | 0.10 | 0.01 |
| Carlisle | 552 | 469 | 515 | 626 | 671 | 0.02 | 0.14 | 0.07 |
| Carroll | 905 | 953 | 980 | 1004 | 1028 | 0.04 | 0.03 | 0.02 |
| Carter | 1,515 | 1,360 | 1427 | 1329 | 1589 | -0.01 | 0.06 | 0.20 |
| Casey | 1,102 | 962 | 984 | 847 | 727 | -0.04 | -0.08 | -0.14 |
| Christian | 2,596 | 2,370 | 2799 | 2113 | 2493 | 0.03 | 0.02 | 0.18 |
| Clark | 477 | 478 | 445 | 455 | 413 | 0.03 | -0.05 | -0.09 |
| Clay | 741 | 627 | 644 | 671 | 585 | 0.09 | -0.02 | -0.13 |
| Clinton | 373 | 346 | 370 | 296 | 323 | -0.02 | -0.02 | 0.09 |
| Crittenden | 3,032 | 2,593 | 3085 | 2927 | 2707 | 0.02 | 0.01 | -0.08 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cumberland | 991 | 908 | 970 | 845 | 734 | -0.04 | -0.06 | -0.13 |
| Daviess | 790 | 837 | 828 | 666 | 813 | 0.04 | -0.01 | 0.22 |
| Edmonson | 521 | 325 | 548 | 388 | 473 | 0.05 | 0.15 | 0.22 |
| Elliott | 641 | 461 | 521 | 418 | 429 | -0.05 | -0.02 | 0.03 |
| Estill | 579 | 476 | 527 | 549 | 586 | 0.35 | 0.08 | 0.07 |
| Fayette | 171 | 161 | 186 | 175 | 203 | 0.11 | 0.09 | 0.16 |
| Fleming | 674 | 600 | 687 | 697 | 718 | 0.05 | 0.07 | 0.03 |
| Floyd | 423 | 473 | 424 | 482 | 489 | 0.06 | 0.01 | 0.01 |
| Franklin | 1,707 | 1,546 | 1540 | 1599 | 1836 | 0.11 | 0.06 | 0.15 |
| Fulton | 524 | 502 | 562 | 546 | 615 | 0.07 | 0.08 | 0.13 |
| Gallatin | 899 | 869 | 915 | 855 | 909 | 0.05 | 0.02 | 0.06 |
| Garrard | 492 | 491 | 484 | 436 | 411 | 0.06 | -0.05 | -0.06 |
| Grant | 2,121 | 1,801 | 1957 | 2158 | 2176 | 0.09 | 0.07 | 0.01 |
| Graves | 2,091 | 1,866 | 2237 | 2158 | 2640 | 0.12 | 0.14 | 0.22 |
| Grayson | 1,487 | 1,308 | 1738 | 1359 | 1204 | 0.01 | -0.03 | -0.11 |
| Green | 1,299 | 1,056 | 1225 | 941 | 1107 | 0.05 | 0.02 | 0.18 |
| Greenup | 1,295 | 1,074 | 1220 | 1166 | 1289 | -0.01 | 0.07 | 0.11 |
| Hancock | 618 | 611 | 744 | 582 | 615 | 0.01 | 0.00 | 0.06 |
| Hardin | 1,999 | 1,645 | 1876 | 1781 | 1937 | 0.02 | 0.06 | 0.09 |
| Harlan | 393 | 342 | 358 | 395 | 347 | 0.13 | 0.00 | -0.12 |
| Harrison | 1,221 | 1,155 | 1198 | 1370 | 1452 | 0.12 | 0.09 | 0.06 |
| Hart | 1,339 | 1,232 | 1721 | 1464 | 1870 | 0.11 | 0.17 | 0.28 |
| Henderson | 1,251 | 1,264 | 1386 | 1195 | 1348 | 0.04 | 0.02 | 0.13 |
| Henry | 2,331 | 2,042 | 1992 | 1919 | 1941 | 0.05 | -0.02 | 0.01 |
| Hickman | 746 | 641 | 693 | 699 | 800 | 0.04 | 0.08 | 0.14 |
| Hopkins | 2,258 | 1,965 | 2386 | 1803 | 1870 | 0.00 | -0.02 | 0.04 |
| Jackson | 874 | 805 | 687 | 404 | 445 | 0.03 | -0.15 | 0.10 |
| Jefferson | 917 | 940 | 939 | 867 | 902 | 0.04 | -0.01 | 0.04 |
| Jessamine | 354 | 286 | 291 | 305 | 357 | 0.04 | 0.08 | 0.17 |
| Johnson | 563 | 584 | 550 | 546 | 737 | 0.06 | 0.09 | 0.35 |
| Kenton | 722 | 651 | 654 | 807 | 816 | 0.13 | 0.08 | 0.01 |
| Knott | 582 | 686 | 612 | 764 | 639 | 0.11 | -0.02 | -0.16 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Knox | 922 | 802 | 871 | 888 | 845 | 0.15 | 0.02 | -0.05 |
| Larue | 929 | 717 | 824 | 763 | 791 | 0.02 | 0.03 | 0.04 |
| Laurel | 824 | 762 | 760 | 795 | 846 | 0.13 | 0.04 | 0.06 |
| Lawrence | 1,908 | 1,561 | 1597 | 1426 | 1666 | -0.04 | 0.02 | 0.17 |
| Lee | 431 | 411 | 394 | 416 | 484 | 0.23 | 0.06 | 0.16 |
| Leslie | 302 | 275 | 272 | 304 | 282 | 0.13 | 0.01 | -0.07 |
| Letcher | 374 | 390 | 398 | 531 | 449 | 0.17 | 0.05 | -0.15 |
| Lewis | 1,215 | 1,127 | 1303 | 1173 | 1420 | 0.13 | 0.09 | 0.21 |
| Lincoln | 639 | 649 | 590 | 705 | 694 | 0.09 | 0.02 | -0.02 |
| Livingston | 1,840 | 1,529 | 1858 | 1787 | 1785 | 0.07 | 0.06 | 0.00 |
| Logan | 1,459 | 1,433 | 1681 | 1294 | 1472 | -0.01 | 0.01 | 0.14 |
| Lyon | 570 | 451 | 599 | 559 | 622 | 0.12 | 0.13 | 0.11 |
| Madison | 563 | 568 | 662 | 602 | 822 | 0.14 | 0.15 | 0.37 |
| Magoffin | 379 | 342 | 435 | 394 | 441 | 0.05 | 0.10 | 0.12 |
| Marion | 1,238 | 855 | 937 | 883 | 821 | -0.02 | -0.01 | -0.07 |
| Marshall | 700 | 607 | 592 | 782 | 587 | 0.07 | -0.01 | -0.25 |
| Martin | 333 | 366 | 362 | 76 | 376 | -0.06 | 0.01 | 3.95 |
| Mason | 878 | 893 | 1021 | 898 | 910 | 0.06 | 0.01 | 0.01 |
| McCracken | 630 | 635 | 743 | 681 | 944 | 0.28 | 0.16 | 0.39 |
| McCreary | 534 | 308 | 281 | 353 | 171 | -0.01 | -0.15 | -0.52 |
| McLean | 883 | 848 | 800 | 644 | 965 | 0.02 | 0.05 | 0.50 |
| Meade | 846 | 774 | 872 | 828 | 840 | 0.02 | 0.03 | 0.01 |
| Menifee | 485 | 346 | 404 | 379 | 415 | -0.04 | 0.07 | 0.09 |
| Mercer | 700 | 853 | 870 | 769 | 783 | 0.09 | -0.03 | 0.02 |
| Metcalfe | 807 | 839 | 912 | 777 | 814 | -0.02 | -0.01 | 0.05 |
| Monroe | 832 | 734 | 934 | 696 | 731 | 0.02 | 0.00 | 0.05 |
| Montgomery | 315 | 319 | 295 | 322 | 355 | 0.05 | 0.04 | 0.10 |
| Morgan | 1,140 | 948 | 957 | 989 | 1104 | -0.02 | 0.05 | 0.12 |
| Muhlenberg | 1,635 | 1,522 | 1767 | 1147 | 1366 | -0.01 | -0.03 | 0.19 |
| Nelson | 1,706 | 1,481 | 1576 | 1701 | 1689 | 0.03 | 0.05 | -0.01 |
| Nicholas | 569 | 531 | 571 | 625 | 622 | 0.07 | 0.06 | 0.00 |
| Ohio | 2,529 | 2,362 | 2311 | 1611 | 1679 | -0.03 | -0.10 | 0.04 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Oldham | 1,268 | 1,137 | 1166 | 1078 | 1208 | 0.04 | 0.02 | 0.12 |
| Owen | 3,997 | 3,403 | 3302 | 3581 | 3910 | 0.05 | 0.05 | 0.09 |
| Owsley | 226 | 180 | 196 | 209 | 206 | 0.11 | 0.05 | -0.01 |
| Pendleton | 2,275 | 2,114 | 2333 | 2532 | 2587 | 0.12 | 0.07 | 0.02 |
| Perry | 414 | 374 | 408 | 357 | 340 | #DIV/0! | -0.03 | -0.05 |
| Pike | 682 | 716 | 699 | 637 | 670 | 0.21 | -0.02 | 0.05 |
| Powell | 417 | 349 | 356 | 342 | 445 | 0.10 | 0.09 | 0.30 |
| Pulaski | 1,006 | 893 | 1009 | 983 | 986 | 0.01 | 0.03 | 0.00 |
| Robertson | 708 | 571 | 556 | 643 | 690 | 0.06 | 0.07 | 0.07 |
| Rockcastle | 667 | 602 | 511 | 325 | 350 | 0.17 | -0.14 | 0.08 |
| Rowan | 595 | 492 | 653 | 546 | 695 | -0.04 | 0.14 | 0.27 |
| Russell | 475 | 370 | 453 | 351 | 347 | -0.05 | -0.02 | -0.01 |
| Scott | 1,251 | 1,368 | 1239 | 1614 | 1781 | 0.17 | 0.10 | 0.10 |
| Shelby | 2,476 | 2,392 | 2415 | 2180 | 2271 | 0.06 | -0.02 | 0.04 |
| Simpson | 301 | 306 | 359 | 221 | 269 | 0.00 | -0.04 | 0.22 |
| Spencer | 1,737 | 1,562 | 1556 | 1484 | 1513 | 0.08 | -0.01 | 0.02 |
| Taylor | 854 | 659 | 737 | 682 | 713 | 0.05 | 0.03 | 0.05 |
| Todd | 1,349 | 1,240 | 1417 | 1193 | 1224 | -0.02 | 0.00 | 0.03 |
| Trigg | 1,314 | 1,112 | 1436 | 1271 | 1239 | 0.13 | 0.04 | -0.03 |
| Trimble | 1,111 | 941 | 856 | 733 | 821 | 0.02 | -0.04 | 0.12 |
| Union | 845 | 802 | 1000 | 886 | 774 | 0.03 | -0.01 | -0.13 |
| Warren | 1,012 | 799 | 1044 | 792 | 857 | 0.07 | 0.02 | 0.08 |
| Washington | 1,321 | 1,358 | 1485 | 1410 | 1517 | 0.07 | 0.04 | 0.08 |
| Wayne | 692 | 560 | 708 | 548 | 630 | 0.04 | 0.04 | 0.15 |
| Webster | 1,714 | 1,712 | 2000 | 1779 | 1814 | 0.01 | 0.02 | 0.02 |
| Whitley | 1,071 | 1,030 | 958 | 858 | 880 | 0.09 | -0.05 | 0.03 |
| Wolfe | 422 | 389 | 358 | 344 | 358 | 0.01 | -0.03 | 0.04 |
| Woodford | 554 | 511 | 546 | 558 | 604 | 0.03 | 0.06 | 0.08 |
| | | | | | | | | |
| **Totals** | **124,727** | **112,462** | **122,233** | **113,436** | **120,610** | **0.02** | **0.024** | **0.06** |

# 2008 – 2009 MICHIGAN DEER STATUS REPORT
# 33RD MIDWEST DEER AND WILD TURKEY STUDY GROUP MEETING
# 13 – 16 SEPTEMBER, 2009 · JUNCTION CITY, KS

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## 2008 Michigan Deer Seasons and Licenses

During 2008, white-tailed deer (*Odocoileus virginianus*) in Michigan could be harvested primarily during the following hunting seasons: youth, archery, regular firearm, muzzleloader, early antlerless, late antlerless, and special hunts for disabled hunters. In order to harvest a deer, hunters had to possess a hunting license (firearm, archery, combination, or antlerless license). A harvest tag was issued as part of the hunting license. Hunters could purchase a maximum of two licenses for taking an antlered deer (either one combination license or both a firearm and an archery license). Archery and firearm licenses included one harvest tag, while the combination license had two harvest tags. A firearm license allowed a person to take one deer with at least one antler three inches or longer. An archery license allowed an individual to take one deer of either sex. A person with a combination license could take two deer of either sex during the archery season, two antlered deer during the firearm season, or one deer during each season. If two antlered deer were taken, regardless of type of license, one needed to have at least one antler with four or more points (qualifying points must be at least one inch).

New antler point restrictions were adopted in 2008 for the taking of antlered deer (bucks) in the UP. Under this new regulation, the regular buck tag of a combination deer license could only be used to tag a buck with at least three antler points on one side. The restricted tag could only be placed on a buck with a minimum of four points on one side. Hunters who chose not to purchase the combination tag were restricted to one buck only (without any new antler point restrictions) in the UP, all seasons combined, even if they purchased both archery and firearms licenses.

Antlerless licenses could be purchased in addition to archery, firearm, or combination licenses. Antlerless deer licenses allowed hunters to take deer without antlers or with antlers shorter than three inches during any season with equipment appropriate for the season. Use of each antlerless license was restricted to a single deer management unit (DMU) designated at the time of purchase. Antlerless licenses were available for most of the state, except in nine DMUs in the UP and four DMUs in the Lower Peninsula (LP). Antlerless licenses were issued specifically for either public or private lands. Public land antlerless licenses were not available in all DMUs that had

private land licenses. The number of licenses available in DMUs open to antlerless deer hunting was established by the NRC.

A private land antlerless deer hunting license was valid for taking antlerless deer only from privately-owned lands within the DMU specified on the license with permission of the landowner. A private land license was not valid on land enrolled in the Commercial Forest Act program (Commercial Forest Lands). Antlerless licenses for DMUs where demand was expected to exceed supply were allocated using a random drawing. In DMUs where supply of licenses was expected to exceed demand, antlerless licenses could be purchased directly from a license vendor on a first-come, first-served basis. To purchase a private land antlerless license, hunters had to provide the contact phone number of the private landowner granting permission to deer hunt in the DMU. Hunters were limited to a maximum of five private land antlerless deer licenses, of which no more than two could be for the UP and the Northern LP, excluding the area in the northeast LP where management focuses on eradication of bovine tuberculosis from the deer herd. Hunters could purchase one private land antlerless deer license each day, up to the season limit of five.

A public land antlerless deer hunting license allowed an individual to hunt for antlerless deer on publicly-owned lands (including state, federal, and county lands) open to hunting and Commercial Forest Lands within the DMU for which it was issued. A public land license was invalid on any privately-owned lands except Commercial Forest Lands. Antlerless licenses for use on public lands were allocated among people that applied for these licenses using a random drawing. In select DMUs, licenses available after the drawing was completed were made available on a first-come, first-served basis. Hunters could purchase one left-over antlerless license for public lands per day until the license quota had been met. Hunters could not purchase both a public land and private land antlerless license on the same day.

Deer Management Assistance (DMA) permits were special antlerless permits issued to landowners where the number of antlerless licenses was insufficient to meet the objective of specific landowners (e.g., controlling disease, crop damage, or deer abundance). These permits allowed hunters to take one antlerless deer per permit during any deer season on the land where issued or adjacent private lands with the landowner's permission. To use these permits, the hunter also must have purchased a valid deer hunting license for the season in which they were hunting and abide by all other hunting regulations.

Managed Deer Hunt permits were antlerless permits that could be used during special seasons on some public lands (e.g., state parks, state wildlife areas, and some federal land). These permits were issued by special random drawings. To use these permits, the hunter also must have purchased a valid deer hunting license and abide by all other hunting regulations.

The youth firearm season was held during September 27-28 on public and private lands statewide. Youths 10-16 years of age could take one deer of either sex using a

firearm license or combination license. Only an antlerless deer could be taken with an antlerless license or DMA permit. Youths participating during this season had to be accompanied by an adult at least 18 years old. Youths 10 and 11 years of age were restricted to archery-only equipment. Youths 12 and 13 years of age could use archery equipment or firearms, but firearm hunting was restricted to only private land. Youth hunters could take no more than one deer during the season.

The archery season occurred statewide on public and private lands. This season was divided into an early and late season (October 1 through November 14 and December 1, 2008, through January 1, 2009). Archery licenses, antlerless licenses, combination licenses, and DMA permits could be used to take deer during the archery seasons using archery equipment.

Deer could also be taken during the special disabled firearm hunt October 16-19, 2008. Hunters could take deer on private lands or public lands requiring an access permit. Only hunters that were issued a permit to hunt from a standing vehicle; veterans with 100% disability as defined by the United States Department of Veterans Affairs, and legally blind people could participate in this season. A veteran with 100% disability also could take a deer during the youth firearm season (September 27-28).

The statewide regular firearm season occurred November 15-30. The muzzleloader season was held December 5-14 in the Upper Peninsula (UP), December 12-21 in the northern LP, and December 5-21 in the southern LP. Hunters were allowed to take deer on both public and private lands with firearm and combination deer hunting licenses during the regular firearm and muzzleloader seasons. Antlerless licenses (including DMA permits) also could be used during the firearm seasons.

The early antlerless firearm season occurred from September 18-22. The late antlerless firearm season occurred from December 22, 2008, through January 1, 2009. Hunters pursuing deer during these seasons had to have purchased an antlerless license and possess an unused antlerless harvest tag (including DMA permits) and were limited to hunting on private land. The area open to hunting during the early antlerless season was limited to all or portions of 47 counties in the LP. The area open to hunting during the late antlerless season was limited to 35 counties in the LP.

**Mail Survey and Harvest Results**

Michigan uses an annual mail survey of hunters following completion of the deer hunting season to estimate hunter participation, harvest, and hunting effort. The Wildlife Division also provided all hunters the option to report information about their deer hunting activity voluntarily via the internet. This option was advertised through a statewide news release and on the DNR web site, and an email message was sent to all license buyers that had provided an email address to the DNR (76,452 licensees). Questions were added to the 2008 harvest survey questionnaire to also investigate hunter satisfaction with the 2008 hunting season and deer numbers, to gauge support for the antler point restrictions that were enacted in the UP, and to investigate whether these restrictions had influenced deer hunting activity (hunting effort,

harvest, and satisfaction) in the UP. Following the 2008 deer hunting seasons, a questionnaire was sent to 51,122 randomly selected individuals who had purchased a hunting license (firearm, archery, antlerless, or combination deer hunting licenses) and had not already voluntarily reported harvest information via the internet. Hunters receiving the questionnaire were asked to report seasons in which they pursued deer, number of days spent afield, and number of deer harvested. Hunters were instructed not to report hunting effort and harvest associated with DMA permits because landowners obtaining these permits already were required to report the number of deer harvested to the DNR.

In 2008, 733,998 people purchased a license to hunt deer in Michigan. The number of people buying a license in 2008 increased 1% from 2007. The number of 2008 deer harvest tags sold for all license types combined increased nearly 7% from 2007 (Table 1). License buyers were issued an average of 2.2 harvest tags. About 49% of the license buyers purchased at least one antlerless license. The number of hunting licenses sold increased by nearly 4%, while the number of harvest tags issued increased 7% between 2007 and 2008. The increase in harvest tags issued was greater than the increase in license sales because combination licenses included two harvest tags.

The antlerless license quota on private lands was increased 8% from 547,300 in 2007 to 572,200 licenses in 2008. The quota for public land antlerless licenses increased about 16% from 56,900 to 65,900 between 2007 and 2008. The number of antlerless licenses sold increased 19% between 2007 and 2008.

About 94.5% of the people buying a license in 2008 actually spent time hunting deer. Most hunters (642,317) pursued deer during the regular firearm season. Statewide, the number of people hunting deer during all seasons combined increased nearly 2%. About 45% of the days hunters spent pursuing deer throughout the state occurred in the regular firearm season and 42% occurred during the archery season. Nearly 13% of the hunting effort occurred in the other hunting seasons (muzzleloader, early antlerless, late antlerless, youth, and disabled hunter seasons). Statewide, hunters devoted an average of 14.4 days afield hunting deer during all seasons combined. Hunting effort statewide was nearly unchanged between 2007 and 2008.

Nearly 490,000 deer were harvested in 2008, nearly unchanged from the number taken in 2007 (Table 2). Statewide, the harvest of antlerless deer increased 12%, but harvest of antlered deer decreased 7% from last year. About 61% of the deer harvested (sexes combined) in 2008 were taken during the regular firearm season. Nearly 53% of the antlerless deer and 69% of the antlered bucks were harvested in the regular firearm season. Hunters took 22% of the harvested deer (sexes combined) during archery season. During the archery season, hunters took 20% of the antlerless deer and 24% of the antlered bucks harvested.

Statewide, 47% of the deer hunters harvested at least one deer (all deer seasons and sexes combined) in 2008. About 25% of the hunters took an antlerless deer, and 32%

took an antlered buck. About 16% of deer hunters harvested two or more deer. Hunters were most successful in taking a deer during the regular firearm season; 38% of the hunters in this season took a deer. Nearly 26% of the hunters took an antlered buck and 17% harvested an antlerless deer during the regular firearm season. Among the major seasons, hunter success was lowest in the muzzleloader season (21% successful).

Deer hunters were asked to report how satisfied they were with (1) number of deer seen, (2) number of antlered deer [bucks] seen, (3) number of deer taken, and (4) their overall hunting experience. Statewide, less than 50% of hunters were satisfied with numbers of deer seen, bucks seen, deer taken, and their overall hunting experience in 2008. Highest levels of satisfaction were reported among hunters in the southern LP.

Statewide, about 50% of hunters supported the antler point restrictions on buck harvest implemented for the UP, however, most (75-83%) hunters in Michigan reported they were not impacted by the antler point restrictions.

About 56% of the hunters that preferred to hunt in the UP supported the antler point restrictions. Among hunters preferring to hunt in the UP, 73% reported no change in their hunting effort as a result of these restrictions. About 10% of UP hunters reported their overall harvest of deer increased because of the restrictions, but 35% reported their harvest of deer decreased. Similarly, 5% of UP hunters reported their harvest of antlerless deer increased, but 11% reported their harvest of antlerless deer decreased because of the restrictions. Nearly 51% of UP hunters reported the restrictions did not affect their overall satisfaction with their deer hunting experience. In contrast, 10% of UP hunters reported improved overall satisfaction while 35% reported decreased satisfaction.

## Recent and Emerging Issues

### *Chronic Wasting Disease*

On August 25, 2008, the National Veterinary Services Laboratory in Ames, Iowa confirmed Chronic Wasting Disease (CWD) in a captive white-tailed deer from a privately-owned facility in Kent County. A number of responses were taken per the Michigan Surveillance and Response Plan For Chronic Wasting Disease of Free-Ranging and Privately Owned/Captive Cervids which had been adopted on August 26, 2002. Intensified CWD surveillance was implemented, resulting in 9,151 free-ranging deer tested for CWD in 2008 statewide, including 1,523 from the CWD Surveillance Zone (a nine township area surrounding the infected captive facility). All were negative. Since 1998, over 31,000 wild white-tailed deer have been tested statewide, and all have been negative. Regulations required the entire carcass of all hunter-harvested deer from within the CWD Surveillance Zone, either intact or without the deboned meat, to be presented within 72 hours of harvest at the Department deer check station established within the CWD Surveillance Zone. The head with a portion of the neck was required to be submitted for CWD testing. The hunter could retain the

antlers. Hunters could not remove the carcass or parts of the carcass from the CWD Surveillance Zone, except for deboned meat, antlers, antlers attached to a skull cap cleaned of all brain and muscle tissue, hides and finished taxidermist mounts. Cooled storage facilities were provided so that hunters could elect to surrender entire carcasses which could be removed after a negative CWD test result was confirmed.

Quarantines were placed on 554 Privately Owned Cervid facilities immediately upon confirmation of the state's first case of CWD. One year later, 64 facilities have since been decommissioned, 220 facilities remain under quarantine, and 270 have been released.

The use of bait to aid in deer hunting was banned throughout the LP. Baiting had previously been regulated in various forms since 1998. A ban had remained in place for 6 seasons in 7 northeast Michigan counties that have been the focus of bovine tuberculosis eradication efforts.

***Expanded Crossbow Hunting Opportunities***

New crossbow regulations recently approved by the NRC are designed to expand hunting opportunities, retain existing hunters and recruit new hunters, and offer a way for some hunters to continue hunting when facing physical limitations.

Under the new regulations, crossbows may be used beginning in the 2009 hunting seasons:

- by anyone 50 years of age or older during the Oct. 1 Nov. 14 bow hunting deer season statewide
- by any hunter age 12 and older during any hunting season in Zone 3 of southern Michigan, including the bow hunting season
- during any season in which a firearm may be used, for both big and small game statewide

Under the new regulations, 10 and 11 year old hunters may not use a crossbow. Youth hunters must be at least 12 to use a crossbow. The crossbow changes do not affect hunters with disabilities who are currently hunting under the authority of a DNR issued crossbow permit. Included in the regulations are limits on the velocity of the crossbow. Crossbows used for hunting are restricted to no more than 350 feet per second. Crossbow hunters are required by state law to wear hunter orange while hunting. The DNR will pursue legislative changes to modify the hunter orange law for crossbow hunters.

The regulations have a three year sunset. A crossbow stamp will be required in addition to hunting licenses for those using crossbows. Stamps are free and available at all license retailers. The stamp will help in monitoring and surveying crossbow hunters over the next three years, at which point the impact of the regulations will be evaluated by the DNR and NRC. Data will be collected that analyzes impact on the resource and the crossbow's potential to recruit or retain hunters.

Table 1. Michigan deer licenses purchased and harvest tags issued, 2006-2008.

| Licenses or Harvest Tags | Number Purchased or Issued 2006 | 2007 | 2008 | Change Between 2007 and 2008 (%) |
|---|---|---|---|---|
| Firearm Licenses | | | | |
| Resident | 247,950 | 231,339 | 249,345 | 7.8 |
| Non-resident | 12,462 | 12,335 | 13,299 | 7.8 |
| Senior | 33,402 | 32,733 | 35,243 | 7.7 |
| Military | 693 | 833 | 822 | -1.3 |
| Subtotal | 294,507 | 277,240 | 298,709 | 7.7 |
| Archery Licenses | | | | |
| Resident | 44,882 | 38,832 | 35,564 | -8.4 |
| Non-resident | 2,899 | 2,895 | 2,579 | -10.9 |
| Junior | 5,374 | 4,583 | 4,098 | -10.6 |
| Senior | 3,493 | 3,443 | 3,379 | -1.9 |
| Military | 252 | 226 | 208 | -8.0 |
| Subtotal | 56,900 | 49,979 | 45,828 | -8.3 |
| Combination Licenses[a] | | | | |
| Resident | 301,160 | 303,547 | 285,698 | -5.9 |
| Non-resident | 1,815 | 1,886 | 1,889 | 0.2 |
| Junior | 49,475 | 51,290 | 49,092 | -4.3 |
| Senior | 32,717 | 36,358 | 36,043 | -0.9 |
| Military | 794 | 1,129 | 1,484 | 31.4 |
| Subtotal | 385,961 | 394,210 | 374,206 | -5.1 |
| Antlerless Licenses | | | | |
| Resident | 409,026 | 409,584 | 487,987 | 19.1 |
| Non-resident | 3,113 | 3,013 | 3,204 | 6.3 |
| Junior | 5,217 | 4,678 | 5,799 | 24.0 |
| Military | 523 | 851 | 1,408 | 65.5 |
| Deer Management Assistance | 7,099 | 9,512 | 12,213 | 28.4 |
| Managed Deer Hunt | 1,185 | 974 | 604 | -38.0 |
| Subtotal | 426,163 | 428,612 | 511,215 | 19.3 |
| Total Licenses Sold | 1,163,531 | 1,150,041 | 1,229,958 | 6.9 |
| Harvest Tags Issued | | | | |
| Firearm | 294,507 | 277,240 | 298,709 | 7.7 |
| Archery | 56,900 | 49,979 | 45,828 | -8.3 |
| Combination | 771,922 | 788,420 | 748,412 | -5.1 |
| Antlerless | 426,163 | 428,612 | 511,215 | 19.3 |
| Total Harvest Tags | 1,549,492 | 1,544,251 | 1,604,164 | 3.9 |

[a]Combination licenses included two harvest tags. Other license types had one harvest tag.

Table 2. Deer harvested in Michigan, 2006-2008.

| Season or permit | Type of deer | 2006 | 2007 | 2008 | Change from 2007 to 2008 (%) |
|---|---|---|---|---|---|
| Season | | | | | |
| Archery | Antlerless | 49,839 | 52,666 | 46,423 | -11.9 |
| | Antlered bucks | 75,195 | 73,531 | 60,016 | -18.4 |
| | Sexes combined | 125,035 | 126,197 | 106,439 | -15.7 |
| Regular firearm | Antlerless | 92,483 | 101,413 | 122,160 | 20.5 |
| | Antlered bucks | 169,049 | 171,410 | 169,665 | -1.0 |
| | Sexes combined | 261,532 | 272,823 | 291,825 | 7.0 |
| Muzzleloader | Antlerless | 29,726 | 32,094 | 31,049 | -3.3 |
| | Antlered bucks | 14,722 | 15,080 | 13,085 | -13.2 |
| | Sexes combined | 44,448 | 47,174 | 44,134 | -6.4 |
| Early antlerless | Antlerless | NA | NA | 12,871 | NA |
| Late antlerless | Antlerless | 10,122 | 19,503 | 16,453 | -15.6 |
| Youth | Antlerless | 2,793 | 3,490 | 3,007 | -13.9 |
| | Antlered bucks | 6,745 | 7,408 | 5,584 | -24.6 |
| | Sexes combined | 9,537 | 10,898 | 8,590 | -21.2 |
| Disabled hunts | Antlerless | NA | NA | 142 | NA |
| | Antlered bucks | NA | NA | 184 | NA |
| | Sexes combined | NA | NA | 326 | NA |
| Special permits[a] | Antlerless | 5,295 | 7,389 | 9,468 | 28.1 |
| Grand Total | Antlerless | 190,257 | 216,555 | 241,573 | 11.6 |
| | Antlered bucks | 265,711 | 267,429 | 248,350 | -7.1 |
| | Sexes combined | 455,969 | 483,984 | 489,922 | 1.2 |

[a]Includes deer harvested with DMA permits. These permits could be used during any deer hunting season.
*P<0.005.

# Minnesota Deer Status Report

## 2009 Midwest Deer & Wild Turkey Study Group – Junction City, KS

**Brian Haroldson**

### Season Framework

*Firearm*: Hunters must select between 2 season options: (1) The statewide firearm season begins on the Saturday nearest 6 November and runs for 16 days in forested regions with abundant public land [100-level deer management units (DMUs) in northeast Minnesota], and 9 days in agricultural regions dominated by private land [200/300-level DMUs in southern and western Minnesota]; (2) The 9-day, late-season in southeast Minnesota (300 level DMUs) begins 2 weeks after the statewide opener. In agricultural regions, hunters are restricted to shotguns with a single slug, whereas rifles and shotguns are authorized in forested areas. Muzzleloaders, handguns, and crossbows are allowed statewide during either season. Annually, 1 of 3 harvest strategies (lottery, managed, intensive) is implemented within each DMU (n=127), based upon estimated deer density in relation to population goal. In general, deer populations are below goal in lottery DMUs, exceed goal by <20% in managed DMUs, and exceed goal by >20% in intensive DMUs. Bag limits are 1, 2, and 5 deer in each DMU category, respectively. A regular firearm license ($27 resident, $141 non-resident) is valid for bucks-only or deer of either sex, depending upon the DMU harvest strategy. In lottery DMUs, hunters interested in pursuing antlerless deer are required to apply for either-sex permits (available at no charge) through a lottery drawing. Unsuccessful applicants in the drawing are restricted to legal bucks (≥3 inch antler) only. Firearm hunters who hunt in managed or intensive DMUs may tag a deer of either sex using their regular license. In addition, hunters in managed DMUs may purchase 1 bonus permit ($14 resident, $69.50 non-resident) to take a second, antlerless-only deer. Hunters in intensive DMUs may purchase up to 4 bonus permits and tag up to 4 additional antlerless deer. Bonus permits are issued over-the-counter. Youth hunters (ages 12-17; $14 resident or non-resident) may take a deer of either sex, statewide, without a permit. In select intensive DMUs where deer populations have not decreased following several years of intensive harvest, a 2-day October antlerless season is offered. To participate, hunters must purchase an early-season antlerless permit ($8.50 resident, $34.75 non-resident) and a firearm or muzzleloader license. Bag limit is 2 deer, which does not count against the statewide bag limit. The bovine TB DMU in northwest Minnesota is open to hunting during the archery, early-antlerless, statewide firearm, and muzzleloader seasons. Hunters must possess a valid license for the appropriate season/weapon. In addition, an unlimited number of disease management antlerless permits ($2.50) are available. Bag limit is 1 buck plus unlimited antlerless deer.

*Muzzleloader*: The 16-day muzzleloader season begins the Saturday after Thanksgiving. Hunters ($27 resident, $141 non-resident, $14 youth) may take 1 deer of either sex in managed or intensive DMUs, and may purchase bonus permits for taking additional antlerless deer in these areas. In lottery DMUs, hunters interested in pursuing antlerless deer are required to apply for antlerless permits through a lottery drawing. Unsuccessful applicants in the drawing are restricted to legal bucks (≥3 inch antler) only. Smooth-bored and rifled muzzleloaders must be at least .45 caliber and .40 caliber, respectively. Scopes 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, $141 non-resident, $14 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 and muzzleloader seasons. Crossbows are not allowed, except by permit for disabled hunters.

*General*: For all deer seasons, resident youth hunters (ages 10-11) under direct supervision of a licensed parent or guardian may hunt without a firearm safety certificate, but must obtain a free license prior to hunting. Shooting hours for all 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 (excluding youth hunters) who are in the field and hunting together at the same time. Use of bait is prohibited. Regardless of area or season hunted, only 1 legal buck is allowed per calendar year

**Population Trends**

Mild winters during 10 of the last 12 years have allowed deer numbers in northern and east-central portions of the state to increase and remain at high levels. Moderate to severe winters during 2008 and 2009 have decreased deer numbers along the Canadian border, but other DMUs in the northeast remain above goal. Despite high deer kill by hunters during recent years, deer numbers also remain above goal in DMUs along the agricultural/forest transition line in northwest, north-central, east-central and southeast Minnesota. Populations may be declining, however, in DMUs where early antlerless seasons have been implemented for multiple years. In the intensively cultivated areas in southwest and west-central Minnesota, deer populations are generally stable to decreasing but remain below goal. The statewide pre-fawn population estimate ($n$=746,000 deer) declined 11% between 2008 and 2009. Population goals were recently revised in all DMUs using a round-table approach of citizen teams. In west-central and southwest Minnesota, teams recommended increasing deer population by 25-50%. Population goals in forested and mixed forest/agriculture DMUs generally decreased 10-25% or remained stable.

**2008 Season Summary**

In 2008, hunters registered 221,823 deer (Table 1), down 15% from 2007. Firearm, muzzleloader, and archery kill decreased 15%, 21% and 6%, respectively. A reduction in firearm harvest was expected due to inclement weather during the opening weekend of the firearm season. Change in muzzleloader harvest is likely due to new regulations that require these hunters to apply for antlerless permits in lottery DMUs. Despite this reduction, harvest levels have exceeded 220,000 animals for 7 consecutive years. Antlerless deer comprised 55% of the firearm harvest, ranging from 54-59% since 2003. Total firearm license sales increased 6%. However, muzzleloader and archery license sales jumped dramatically due to the elimination of the all-season license (Table 1). During 2008, DMUs were partitioned into 49 lottery areas, 32 managed areas, and 46 intensive areas (including 30 intensive DMUs with an early antlerless season). A complete harvest breakdown by weapon type is presented in Table 1.

**2009 Season Outlook**

Based upon the winter severity index (WSI; measured by the number of days with ambient temperatures of <0°F and days with ≥15 inches of snow cover), the winter of 2008-09 was considered moderate to severe throughout most of northern Minnesota. Cold temperatures and deep snow from late-December through mid-April combined to produce these ratings. As a result, deer numbers declined approximately 15-20% in northern Minnesota and most DMUs in this area will be designated as lottery areas in 2009. Throughout the remainder of the state, winter severity was considered mild. Deer numbers remain above goal in most DMUs along the agricultural/forest transition line. Management strategy will continue as either managed or intensive, with an early antlerless season offered in 20 DMUs. In contrast, deer populations remain below goal throughout most agricultural DMUs. Most of these units will be designated as lottery during 2009. However, in 11 units, only youth hunters will be eligible for antlerless permits during 2009. Other hunters (firearm, muzzleloader, archery, disabled) will be restricted to bucks-only hunting. Statewide, the pre-hunt deer population is estimated at 1.1 million, a decrease of 10% from last year. For 2009, DMUs will be partitioned into 11 youth-only lottery units, 52 lottery units, 36 managed units, and 28 intensive units (including 20 intensive DMUs with early antlerless hunts).

**2009 Regulation Changes**

*Youth-Only Lottery DMUs*: To further restrict antlerless harvest in lottery DMUs, 11 youth-only lottery units have been established for the 2009 deer hunting season. In these units, youth hunters under age 18 may apply for a limited number of either-sex permits valid during the firearm season through a lottery drawing. All adult hunters (firearm, muzzleloader, archery) and disabled permit holders are restricted to legal bucks only. Youth hunters who do not apply or are unsuccessful in the drawing are also restricted to legal bucks.

*Military Deer License*: Residents discharged from active military service may receive a free either-sex deer hunting license. This license is valid statewide, including lottery and youth-only lottery DMUs.

*Muzzleloader Either-Sex Permits*: Due to the increased popularity of muzzleloader deer hunting in recent years, antlerless harvest goals in many lottery DMUs were being exceeded. To maintain harvest goals, muzzleloader hunters interested in pursuing antlerless deer in lottery DMUs are now required to apply for either-sex permits (available at no charge) through a lottery drawing. Unsuccessful applicants in the drawing are restricted to legal bucks only. Previously, muzzleloader hunters could take 1 deer of either sex, statewide.

*Zone 3 Season Changes*: For 2009, the Minnesota Legislature modified the season structure within the 300-level DMUs (338-339, 341-349) in southeast Minnesota. Specifically, the legislation extends the statewide season in these units by 2 days compared to last year. During these last 2 days, a hunter may not take an antlered deer unless the deer has at least 4 points on one side, or unless the hunter has already taken an antlerless deer. Essentially, the law creates a modified earn-a-buck/antler point restriction regulation, whereby a hunter must tag an antlerless deer earlier in the season if they want to tag any antlered buck during the last 2 days of the season. If the hunter does not tag an antlerless deer during the first 7 days, he/she is restricted to bucks with at least one 4-point antler during the last 2 days. In addition, part hunting for bucks is

banned during the final 2 days of the season, whereby hunters cannot shoot and tag bucks for each other.

*Early Antlerless Season*: The 2-day October antlerless season for firearm hunters has been modified to include 20 intensive DMUs (formerly 30). This reduction was in response to changes in deer populations. To participate, hunters must purchase an early-season antlerless permit and a firearm or muzzleloader license. Bag limit is 2 deer. Last year, 31,000 licensed hunters registered 5,400 deer in 30 DMUs.

**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 were implemented in 3 and 4 state parks, respectively. A 2-day October antlerless season for firearm hunters is offered in select intensive DMUs in northwest, east-central, and southeast Minnesota. Plans are to implement test regulations for 5 years. In addition, we are measuring 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 2009, surveys were completed in 1 DMU.

*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 and to recalibrate population models. During 2009, surveys were completed in 4 DMUs.

**Current Deer Management Issues**

*Lead Fragmentation in Deer Carcasses*: The discovery of lead fragments in hunter-killed deer in 2008 prompted a study by Minnesota DNR (MDNR) to examine bullet fragmentation and deposition patterns in deer and domestic sheep carcasses. Ammunition tested included: 1) rapid expansion lead bullets (n=2), controlled expansion lead bullets (n=2), and copper bullets (n=1) fired from a .308 Winchester rifle; 2) lead slugs (n=1) fired from a 12-gauge shotgun; and 3) lead bullets (n=2) fired from a .50 caliber muzzleloader rifle. Rapid expansion bullets had the highest fragmentation rates (mean # fragments/carcass=141 and 86) and greatest dispersion of fragments (mean maximum distance from wound channel=11 in). The controlled expansion bullets with an exposed lead core had fragmentation rates (mean=82) and deposition patterns (mean=9 in)

similar to the rapid expansion bullets. However, the controlled expansion bullets with a copper case surrounding the lead core resisted fragmentation (mean=9) and, although deposition patterns were similar to other bullets (mean=7 in), no lead was detected in these fragments. The copper bullets had the lowest fragmentation rate (mean=2) and dispersion (mean<1 in) of all bullets tested and, of course, did not deposit any lead in the muscle tissue. Lead fragmentation (mean=28) and dispersion (mean=5 in) from shotgun slugs was less than bullets fired from centerfire rifles. Finally, muzzleloader bullets (245-grain, 300-grain) left an average of 3 and 34 fragments, respectively, at a mean maximum distance of 1 and 6 in, respectively from the wound channel. Because only 30% of lead fragments were within 2 inches of the exit hole, routine trimming likely will not remove all lead contamination. However, hunters can manage their risk of lead exposure by selecting an appropriate bullet design.

*Venison Donation Program*: The venison donation program, established in 2007, will continue during the 2009 season. The MN Dept of Agriculture (MDA), which regulates meat processors, administers the program through an interagency agreement with MDNR. Processors receive $70/animal and coordinate directly with interested food charities. Funding to support the program comes from deer license fees ($5/nonresident license; $1/resident and nonresident bonus permit; voluntary donations [$1, $3, or $5] from resident hunters solicited at time of license purchase). There is no cost to the hunter to donate a deer. To participate in the program, hunters and processors must adhere to specific standards designed to prevent food-borne illness. Processors may reject deer carcasses in poor condition or with multiple wound channels.

*Bovine-Tuberculosis*: Since July 2005, bovine tuberculosis (TB) has been confirmed in 12 beef cattle herds in northwest Minnesota. To date, all infected herds have been depopulated and the Board of Animal Health (BAH) has continued to test cattle herds in the area. The TB strain is consistent with bovine TB found in cattle in the southwestern U.S. and Mexico. In fall 2008, Minnesota was granted a Split-State Status for bovine TB that resulted in a lessening of testing requirements for cattle in the majority of the state ("Modified Accredited Advanced" status level), with a small area in the northwest remaining more restrictive ("Modified Accredited" status). Also in 2008, the Minnesota Legislature allocated funds to buy out cattle herds located in the 600-$mi^2$ Bovine TB Management Zone (~15 mi radius around infected cattle farms), spending $3 million to remove 6,200 cattle from 46 farms. This buy-out resulted in the discovery of the $12^{th}$ infected herd. The remaining cattle farms (n=27) in the Bovine TB Management Zone were required to erect deer-exclusion fencing to protect stored forage and winter feeding areas, costing an additional $690,000 in state funds. MDNR has conducted surveillance for the disease in hunter-killed deer within the Bovine TB Management Zone each fall since 2005. In 2007, MDNR created a special Bovine TB DMU that encompasses the 164-$mi^2$ Core Area (~2 mi radius around infected deer/cattle farms) of the TB Management Zone, and has used special hunts, permits, and extended seasons to allow hunters to help manage the disease in deer. MDNR also conducted targeted removal operations (i.e., aerial and ground sharpshooting) in the Core Area during winters 2007-2009. In 2008, a 934-$mi^2$ Landowner/Tenant Shooting Zone was established to allow landowners and tenants to take deer without license or permit, provided deer are submitted for testing. Further, a recreational feeding ban, covering 4,000-$mi^2$ in northwest Minnesota, was instituted in November 2006 to help reduce the risk of deer to deer transmission of the disease. Baiting deer has been illegal in Minnesota since 1991. To date, 25 of 6,206 deer (3,828 from hunters; 2,163 from sharpshooters;

215 from landowners) sampled in the TB Management Zone have tested positive for the disease. All infected deer were adults and were taken within 5 miles of a cluster of 4 bovine TB-infected cattle operations. Prevalence of the disease is decreasing, remains low (<0.2%), and is confined to a small geographic area. MDNR will continue to conduct hunter-killed surveillance for the next 5 years to monitor infection in the local deer population and consider continuation of sharpshooting deer in key locations to address concerns of deer becoming a potential disease reservoir.

*Chronic Wasting Disease*: In 2008 and early 2009, MDNR sampled 1,440 hunter-killed deer for CWD. The majority of samples (66%) were collected in northwest Minnesota in conjunction with surveillance efforts for bovine tuberculosis. Remaining samples (34%) were collected along the Minnesota-Wisconsin border. In addition, samples were submitted from 56 deer through targeted surveillance, which included sick animals, escaped captive cervids, and roadkills. All samples were negative for CWD. MDNR plans to conduct hunter-killed surveillance in southeast MN during the 2009 deer season in response to a recently detected CWD-positive captive elk facility in Olmsted county and the continued risk of disease spread from CWD-infected wild deer from Wisconsin.

Table 1. Statewide deer license sales, harvest, and success rates in Minnesota, 1996-2008.

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | % Change (2007-08) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FIREARM** | | | | | | | | | | | | | | |
| Resident License | 389,745 | 369,190 | 378,320 | 395,745 | 400,814 | 401,005 | 368,587 | 340,919 | 311,128 | 301,905 | 302,537 | 299,943 | 381,362 | 27 |
| Non-Resident License | 8,535 | 7,830 | 8,852 | 9,970 | 10,595 | 10,972 | 10,823 | 11,334 | 12,004 | 12,527 | 13,212 | 12,552 | 11,883 | -5 |
| Mgmt/Intensive Harvest Permit | 27,148 | 32,229 | 20,884 | 23,785 | 34,802 | 59,013 | 105,419 | 194,201 | 183,347 | 177,764 | 159,468 | 146,120 | 190,165 | 30 |
| Multi-Zone Buck License | 38,806 | 42,803 | 44,739 | 43,903 | 42,669 | 41,921 | 35,701 | 33,094 | 32,783 | 27,678 | 16,098 | 15,180 | -- | |
| Youth License (no tag) | 2,964 | 3,844 | 3,445 | 2,038 | 3,215 | 4,011 | 2,748 | -- | -- | -- | -- | -- | -- | |
| Youth License | -- | -- | -- | -- | -- | -- | -- | 34,463 | 51,331 | 50,506 | 49,581 | 49,196 | 51,358 | 4 |
| All Season Buck License | -- | -- | -- | -- | 2,384 | 3,986 | -- | -- | -- | -- | -- | -- | -- | |
| All Season Deer License | -- | -- | -- | -- | -- | -- | 21,888 | 30,998 | 46,345 | 60,301 | 77,476 | 76,398 | -- | |
| Early Antlerless Season Permit | -- | -- | -- | -- | -- | -- | -- | -- | -- | 6,810 | 7,715 | 28,246 | 30,974 | 10 |
| Disease Management Permit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2,193 | 1,499 | -32 |
| Free Landowner License | -- | -- | -- | -- | 1,671 | 2,604 | 3,462 | 3,956 | 3,961 | 3,959 | 3,953 | 3,973 | 3,918 | -1 |
| Total License Sales[a] | 467,198 | 455,896 | 456,240 | 475,441 | 496,150 | 523,512 | 548,628 | 648,965 | 640,899 | 641,450 | 630,040 | 633,801 | 671,159 | 6 |
| Either-sex Permits Offered | 154,195 | 150,195 | 140,280 | 177,380 | 232,595 | 284,210 | 363,765 | 31,625 | 30,760 | 28,830 | 19,125 | 18,830 | 32,325 | 72 |
| Either-sex Permits Issued | 116,650 | 105,481 | 108,016 | 135,852 | 180,490 | 196,603 | 192,907 | 25,386 | 24,111 | 23,552 | 16,764 | 15,454 | 27,396 | 77 |
| Either-sex Permit Applications | 174,329 | 142,260 | 151,148 | 214,597 | 237,571 | 225,341 | 202,086 | 30,253 | 28,454 | 26,694 | 21,680 | 32,777 | 47,682 | 45 |
| Adult Male Harvest | 71,316 | 65,156 | 82,928 | 92,584 | 102,861 | 98,645 | 100,083 | 110,440 | 105,994 | 95,612 | 95,715 | 97,573 | 85,674 | -12 |
| Antlerless Harvest | 68,233 | 62,407 | 60,492 | 71,681 | 88,492 | 98,095 | 100,038 | 148,857 | 124,530 | 121,247 | 136,035 | 126,370 | 103,722 | -18 |
| Total Harvest[2] | 139,549 | 127,563 | 143,420 | 164,265 | 191,353 | 196,740 | 200,121 | 259,297 | 230,524 | 216,859 | 231,750 | 223,943 | 189,396 | -15 |
| Success Rate (%)[a,b] | 29.9 | 28.0 | 31.4 | 34.6 | 38.6 | 37.6 | 36.5 | 40.0 | 36.0 | 33.8 | 36.8 | 35.3 | 28.2 | -20 |
| **ARCHERY** | | | | | | | | | | | | | | |
| Resident License | 67,058 | 63,499 | 63,826 | 66,226 | 68,918 | 69,573 | 57,372 | 55,608 | 50,974 | 50,709 | 50,052 | 53,577 | 88,923 | 66 |
| Non-Resident License | 1,098 | 980 | 1,029 | 1,073 | 1,271 | 1,288 | 1,261 | 1,428 | 1,144 | 1,206 | 1,284 | 1,509 | 1,614 | 7 |
| Mgmt/Intensive Harvest Permit | 15,632 | 17,478 | 15,846 | 16,945 | 20,393 | 22,141 | 17,742 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Youth License | -- | -- | -- | -- | -- | -- | -- | 3,731 | 7,261 | 7,491 | 7,672 | 7,643 | 9,006 | 18 |
| Free Landowner License | -- | -- | -- | -- | 29 | 35 | 62 | 83 | 92 | 104 | 116 | 152 | 147 | -3 |
| Total License Sales[c] | 83,788 | 81,957 | 80,701 | 84,244 | 90,611 | 93,037 | 76,437 | 60,850 | 59,471 | 59,510 | 59,124 | 62,881 | 99,690 | 59 |
| Total Harvest[d] | 14,348 | 13,247 | 12,450 | 13,579 | 16,251 | 16,300 | 16,192 | 20,870 | 20,754 | 23,812 | 25,375 | 24,167 | 22,689 | -6 |
| Success Rate (%)[c,d] | 17.1 | 16.2 | 15.4 | 16.1 | 17.9 | 17.5 | 21.2 | 34.3 | 34.9 | 40.0 | 42.9 | 38.4 | 22.8 | -41 |
| **MUZZLELOADER** | | | | | | | | | | | | | | |
| Total License Sales[c] | 8,291 | 9,503 | 9,765 | 11,411 | 11,972 | 13,043 | 11,764 | 10,044 | 10,122 | 9,567 | 9,293 | 11,365 | 66,447 | 485 |
| Total Harvest[5] | 3,375 | 3,183 | 3,183 | 2,972 | 4,548 | 4,780 | 5,737 | 9,254 | 9,326 | 15,065 | 13,653 | 12,324 | 9,738 | -21 |
| Success Rate (%)[c,e] | 40.7 | 33.5 | 32.6 | 26.0 | 38.0 | 36.6 | 48.8 | 92.1 | 92.1 | 157.5 | 146.9 | 108.4 | 14.7 | -86 |
| **TOTAL HARVEST** | 157,272 | 143,993 | 159,053 | 180,816 | 212,152 | 217,820 | 222,050 | 289,421 | 260,604 | 255,736 | 270,778 | 260,434 | 221,823 | -15 |

[a] Includes firearm, archery, and muzzleloader license sales from the All Season Deer License.
[b] Includes firearm harvest data from the All Season Deer License.
[c] Excludes firearm, archery, and muzzleloader license sales from the All Season Deer License.
[d] Includes archery harvest data from the All Season Deer License.
[e] Includes muzzleloader harvest data from the All Season Deer License.

# Midwest Deer and Turkey Study Group Meeting
## Missouri 2008-2009 Report


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### 2008 DEER SEASON

All harvested deer were telechecked in 2008. 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 cases (purchased permit after taking deer, antler point violations etc.).

**Firearms deer season included the following portions:**

1. For 9 counties, a 4-day urban portion October 3-6, antlerless deer only;
2. A 2-day youth-only portion November 1-2;
3. An 11-day main firearms portion November 15-25;
4. A 9-day December muzzleloading firearms portion November 28-December 7;
5. For 73 counties, a December 13-21 antlerless-only portion.
6. A 2-day late youth-only portion January 3-4.

**Archery season included two segments:**

1. September 15-November 14;
2. November 26-January 15.

**Managed deer hunts** – Overall, 6,117 hunters harvested 1,942 deer during 91 hunts on 45 public areas.

**Permits sold:**

| Total | Resident | Nonresident | Youth |
|---|---|---|---|
| 739,481 | 654,273 | 46,175 | 39,033 |

**Harvest:**

| Total | Antlered bucks | Antlerless |
|---|---|---|
| 282,119 | 99,957 | 182,162 |

**Age of antlered bucks - % yearlings:**
Antler restriction counties: 16%
Other counties: 49%

**Percent antlerless kill:** 65%

**Hunter numbers:**

| Total | Firearms | Archers |
|---|---|---|
| 503,777 | 486,752 | 169,787 |

**Minimum age:** None for archery; 6 for firearms

**Permit fees:** All archery and firearms antlerless permits are $7.

| Resident firearm | Resident archery | Nonresident archery | Nonresident firearm |
|---|---|---|---|
| $17 | $19 | $150 | $175 |

**Deer Population Status -** Based on deer-vehicle accidents, harvests, population modeling results, and hunter observation reports, rural deer populations are generally stable, although there were some parts of Missouri, especially central, western and southwestern portions, where deer numbers seem to be down. Urban deer continue to be an increasing problem.

Deer harvest liberalizations in recent years have resulted in 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, 2003-2008 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. A 2008 production landowner survey indicated that 22% of landowners did 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 (10% of production landowners primary use of land is hunting/fishing). 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.

**CWD Testing –** We completed random sampling of all counties in 2004 (21,732 tested, no positives). We conducted targeted surveillance of sick deer in 2005 and 2006. In 2007 we implemented modified targeted sampling by recruiting taxidermists to collect samples from adult bucks. We divided Missouri into 3 sections with the northern section sampled in 2007. Approximately 1,230 samples were taken; none were positive. In 2008 taxidermists in central Missouri collected 1,195 samples with no positives. The southern part of the state will be done in 2009.

**Antler Point Restriction** - An experimental rule requiring antlered deer to have a minimum of 4 points on at least one side (APR) was implemented in 29 counties in 2004. The rule applied to the archery season and all portions of the firearms season but the youth portion. Primary objectives were to shift harvest from bucks to does and to improve hunter and landowner satisfaction with deer management in Missouri. The APR was to be maintained for 3-5 years and then evaluated. The 2007 season was the fourth and last year of the experiment.

Because deer densities and harvest regulations differed in northern and central Missouri, a different response to the APR could occur. Therefore, we analyzed data from the north (north pilot) and central (central pilot) counties with APRs separately. The APR reduced harvest of antlered deer in both the north and central pilot (ranged from 35% in 2004 to 14% in 2007 in the north pilot counties and from 37% to 19% in the central pilot counties. The reduction consisted mostly of yearling bucks (mean reduction = 69%) because the majority of this age class (69%) did not qualify as legal deer under the APR. Harvest of adult bucks was slightly lower in 2004, but increased in all of the following years. The change in adult buck harvest that could be attributed to the APR was 16% and 32% in the north and central pilots, respectively.

Total harvest reduction in the north APR counties ranged from 14% in 2004 to 8% in 2007 and in the central APR counties from 3% to no change. If the APR is continued, the reduction of total harvest as a result of the restriction would probably level out at 5-10% in the north pilot counties and no effect in central pilot counties. There was a small negative effect of the APR on doe harvest in the north pilot. In contrast, doe harvest in the central pilot increased an average of 13% over the 4-year study period.

The APR was popular with hunters, produced more bucks in older age classes, and in some counties resulted in increased doe harvest. As a result, the APR was expanded to include 65 counties in 2008. This significant change in nearly one third of our counties resulted in an overall 2% increase in doe harvest and 21% reduction in antlered buck harvest.

**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 in Missouri limits the opportunities for these censuses. Developing alternative census methods would greatly facilitate our ability to evaluate 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.

We assessed the use of trail cameras to measure deer demographics on three conservation areas. We used a density of one digital camera per 160 acres and photographed deer from 8/20– 8/30 at baited sites. Cameras were orientated in a north or south direction to avoid the sun's glare. Each camera was checked after 5 days and then picked up on the 10$^{th}$ day. Photographs were uploaded to a laptop computer and placed in a descriptive file with time and location data. We attempted to identify individual bucks by antler and facial characteristics. Identifiable deer were considered marked and we used a mark/recapture program to obtain a population estimate.

This methodology is being further tested. Last winter we marked 64 deer with radio transmitters on a 2,252-acre study area. Estimates from a mark and recapture study using trail cameras will be compared to estimates derived from the technique developed for public land.

**Potential use of trail camera information generated by general public –** Thousands of Missourians are using trail cameras to survey deer presence/activity which could be a valuable source of deer demographic information. We recruited deer hunters who use trail cameras to serve as test subjects in an effort to determine their ability to identify characteristics of deer in photos. We developed a web-based program in which cooperators viewed and interpreted photographs that we provided. They were asked to count points on antlered bucks and differentiate antlerless from antlered deer, fawns from adults and yearling bucks from adult bucks. The percentage of correct answers by participants varied: gender 82%, antler points 79%, age 67%. Participants who viewed an informative website prior to taking the survey had a significant increase in their accuracy for some categories.

**Youth recruitment** – We continue to have a youth portion of the firearms season. For 2008 it was expanded and now includes two days in early November and two days in early January. Youth permit prices are discounted. We have considerable interest in these opportunities with over 50,000 participants annually.

**Hunter recruitment initiatives** – We now have an apprentice program which allows hunters age 16 and older who are not hunter-education certified to hunt deer and turkey. To do this they must first purchase an Apprentice Hunter Authorization permit ($10) which can be obtained for a maximum of two years. They can then buy a firearm deer or turkey permit. However, they must hunt in the presence of a properly licensed hunter 21 years old or older who is hunter-education certified. This is intended to allow older persons to try hunting deer or turkey to see if they like it before fulfilling the hunter education requirements.

**Share the Harvest program in Missouri** – Deer donation program administered by MDC and the Conservation Federation of Missouri. A hunter can donate a whole deer with part (usually about ½ but in some counties all) of the processing cost paid by the Conservation Federation (through donated dollars – MDC contribution, $160,000) with supplementation from local donors. In 2008 there were 4,690 deer donated. In some counties where a local MDC employee pushes the program and there is no cost to the hunter, it probably has some impact on antlerless

harvest. In a deer hunter mail survey we asked if they would shoot more deer if they could donate the meat free of charge. Of the respondents, 45% said they would take more deer, suggesting that the Share the Harvest program could potentially increase antlerless harvest.

**Urban deer solutions** – We still struggle. In one community where we have conducted several studies, lethal control has not been an option with the public; increasing problems they are experiencing with deer may change that. They requested and we approved a deer sterilization/sharp shooting program. This would entail sterilizing 100 does followed by sharpshooting 100 (untreated) does. The process will be done by White Buffalo and is planned for the coming winter. Cost will be

**Private lands program –** Due to the limitations of county level regulations there are deer hot spots where too few deer are being harvested and cold spots where deer are overexploited. Additionally, with increasing leasing and purchasing of land for hunting and potential future decreases in the number of hunters, there is a concern that doe harvest will decline and so will our ability to manage deer numbers. In order to remain proactive and flexible as the deer management landscape changes we are proposing to develop a private lands deer management program with the ultimate goal of managing deer populations on a much smaller scale than is currently possible with county level regulations. We are teaming with University of Missouri Extension Service, local QDMA branches, and Whitetails Unlimited to develop a series of deer management workshops along with education and outreach "How To" guides and materials for landowners and hunters, and promoting the formation of wildlife management cooperatives.

This initiative is also intended to complement other management programs and use deer management as a conduit to reach landowners that are not currently participating in habitat management programs focused on improving habitats for quail and other species. The belief is that we are missing many big landowner/cooperators by not marketing to those who are enthusiastic about deer and deer management and not interested in quail management. Since private land deer management currently is not a high priority we are missing opportunities to promote habitat management strategies that benefit all wildlife, not just deer.

| Season/Portion | Antlered Deer | | | Button Bucks | | | Does | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2007 | 2008 | % Diff. | 2007 | 2008 | % Diff. | 2007 | 2008 | % Diff. | 2007 | 2008 | % Diff. |
| Archery | 14,263 | 16,060 | 13 | 4,928 | 5,308 | 8 | 20,196 | 21,434 | 6 | 39,387 | 42,802 | 9 |
| Urban | 4 | 3 | -25 | 126 | 118 | -6 | 432 | 556 | 29 | 562 | 677 | 20 |
| Early Youth | 6,289 | 6,442 | 2 | 1,533 | 1,295 | -16 | 4,573 | 2,802 | -39 | 12,445 | 10,539 | -15 |
| November | 95,255 | 73,868 | -22 | 28,622 | 28,630 | 0 | 89,509 | 96,224 | 8 | 213,386 | 198,722 | -7 |
| Muzzleloader | 4,196 | 2,704 | -36 | 2,017 | 1,526 | -24 | 7,156 | 6,050 | -15 | 13,369 | 10,280 | -23 |
| Antlerless - Only | 26 | 34 | -31 | 3,679 | 2,816 | -23 | 15,509 | 12,387 | -20 | 19,214 | 15,237 | -21 |
| Managed Hunts | 491 | 489 | 0 | 517 | 328 | -37 | 1,544 | 1,247 | -19 | 2,552 | 2,064 | -19 |
| Late Youth | NA | 357 | NA | NA | 316 | NA | NA | 1,125 | NA | NA | 1,798 | NA |
| Total Firearms | 105,770 | 83,408 | -21 | 36,027 | 34,701 | -4 | 117,179 | 119,144 | 2 | 258,976 | 237,253 | -8 |
| **Total** | **120,524** | **99,957** | **-17** | **41,472** | **40,337** | **-3** | **138,919** | **141,825** | **2** | **300,915** | **282,119** | **-6** |

| Permit Type | Number of Permits | | | Number of Deer Harvested | | |
|---|---|---|---|---|---|---|
| | 2007 | 2008 | % Diff. | 2007 | 2008 | % Diff. |
| Youth Deer and Turkey Hunting | 34,957 | 39,033 | 12 | 12,641 | 11,342 | -10 |
| Permittee Archery | 95,817 | 100,448 | 5 | 19,059 | 20,090 | 5 |
| Landowner Archery | 74,419 | 78,586 | 6 | 5,541 | 5,877 | 6 |
| Permittee Archery Antlerless | 36,154 | 40,015 | 11 | 10,671 | 11,808 | 11 |
| Landowner Archery Antlerless | 113,047 | 119,683 | 6 | 4,360 | 4,733 | 9 |
| Permittee Firearms | 308,953 | 314,145 | 2 | 89,402 | 73,695 | -18 |
| Landowner Firearms | 167,728 | 173,701 | 4 | 44,285 | 35,851 | -19 |
| Permittee Firearms Antlerless | 233,465 | 244,083 | 5 | 83,297 | 84,914 | 2 |
| Landowner Firearms Antlerless | 147,099 | 152,491 | 4 | 28,776 | 31,203 | 8 |
| Resident Firearms | 862,177 | 887,984 | 3 | 244,967 | 223,836 | -9 |
| Nonresident Firearms | 33,703 | 35,469 | 5 | 13,435 | 13,169 | -2 |
| Resident Archery | 309,484 | 328,026 | 6 | 36,671 | 39,403 | 7 |
| Nonresident Archery | 9,953 | 10,706 | 8 | 2,965 | 3,105 | 5 |
| Permittee Archery & Firearms | 714,249 | 724,656 | 1 | 215,075 | 201,849 | -6 |
| Landowner Archery & Firearms | 502,293 | 524,461 | 4 | 82,962 | 77,664 | -6 |

| | Archery | Firearms[1] | Total[1, 2] |
|---|---|---|---|
| **Resident permittees[2]** | 93,403 | 330,361 | 423,764 |
| **Nonresident permittees[2]** | 7,045 | 16,865 | 23,910 |
| **Landowners[2]** | 78,586 | 173,701 | 252,287 |
| **Total individuals[3]** | 169,787 | 486,752 | 503,777 |
| **Age distribution of hunters** | | | |
| **<=10** | 1,225 (1%) | 18,481 (3%) | 19,706 (3%) |
| **15-40** | 8,350 (5%) | 45,575 (9%) | 53,925 (8%) |
| **16-40** | 77,632 (46%) | 188,067 (39%) | 265,699 (41%) |
| **41 -55** | 82,579 (48%) | 234,623 (48%) | 317,202 (48%) |
| **Antlerless permit sales** | | | |
| **1** | 20,331 | 143,886 | 164,217 |
| **2** | 5,826 | 29,540 | 35,336 |
| **3** | 1,248 | 6,915 | 8,163 |
| **4+** | 876 | 4,352 | 5,228 |
| **Number of deer taken** | | | |
| **1** | 25,094 | 137,891 | 140,305 |
| **2** | 5,289 | 32,148 | 38,777 |
| **3** | 1,289 | 6,891 | 10,639 |
| **4+** | 646 | 2,942 | 6,098 |
| **Number of antlered deer taken** | | | |
| **1** | 15,202 | 82,577 | 89,937 |
| **2** | 398 | 335 | 4,417 |
| **3** | 6 | 0 | 167 |
| **Percentage taking:** | | | |
| **At least 1 deer** | 19.0 | 37.0 | 38.9 |
| **1 deer** | 14.8 | 28.3 | 27.9 |
| **2 deer** | 3.1 | 6.6 | 7.7 |
| **3+ deer** | 1.1 | 2.0 | 3.3 |
| **Percentage taking:** | | | |
| **1 antlered buck** | 9.0 | 17.0 | 17.9 |
| **2 antlered bucks** | 0.2 | 0.0 | 0.0 |
| **3+ antlered bucks** | 0.0 | 0.0 | 0.03 |
| | | | |
| **Percentage of deer taken by nonresidents** | 7.0 | 5.4 | 5.6 |
| **Percentage of deer taken by landowners** | 24.8 | 28.3 | 27.7 |

[1]Includes Youth Deer and Turkey Hunting Permits
[2]Number of any-deer permits issued
[3]Number of individuals, including nonresidents, possessing a permit, not number of permits issued

# NEBRASKA STATUS REPORT

# MIDWEST DEER AND WILD TURKEY GROUP

## Rock Spring 4H Camp (Junction City, KS), Nebraska
## Sept. 13 – 16, 2009

Submitted by the State of Nebraska
Nebraska Game and Parks Commission - Wildlife Division
Research, Analysis and Inventory Section
Big Game Program Manager: Kit Hams

***Collection and Analysis of Deer Harvest Data - 2008***

*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.*

**2008 Deer Harvest**

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

*Activity:* Establish 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 2008, approximately 100 Commission personnel aged 17,500 deer and collected tissue samples from more than 5,000 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 2008 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 15-23; and late antlerless season was January 1-15.

Total deer permit sales to 96,000 deer hunter increased to 131,392 permits, which is a 2% increase and the highest number of permits ever issued. Total deer harvest was 80,467, a 17% increase of the previous year and also a record harvest.

Total mule deer harvest was the highest on record, 11,787 animals. Mule deer harvest has ranged from 9,155 to 11,787 for the past 24 years. Mule deer buck harvest also set a new record (9,115). Mule deer antlerless harvest was the lowest in 25 years (2,373), reflecting NGPC goals to increase mule deer populations.

Record harvests also occurred with whitetail bucks (36,235) and whitetail antlerless (32,397).The total whitetail harvest (68,632) exceeded last year's record by 20%.

Total harvest of adult bucks was the highest on record, 45,350 compared to 43,139 last year. Most hunters are highly selective of adult bucks so NGPC used bonus "free" antlerless whitetail tags to increase antlerless harvest. Approximately 87,000 antlerless bonus tags were issued in 2008. Total antlerless harvest was 35,118.

*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 is shown in Table 2.

Table 1. 2008 November firearm season, permits, harvest, and success.

| Units | | Permits Issued | % Either-Sex Permits | Adult Buck Harvest | | Antlerless Harvest | | Total Kill | % Success | % Age 1 Bucks | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | MD | WT | MD | WT | | ALL | MD | WT |
| Blue NW | b | 2700 | 100 | 2 | 1335 | 0 | 1043 | 2388 | 88% | | 38% |
| Blue SE | b | 3900 | 100 | 2 | 1954 | 0 | 1268 | 3237 | 83% | | 26% |
| Buffalo | | 2000 | 100 | 384 | 668 | 53 | 121 | 1230 | 62% | 48% | 39% |
| Buffalo WT | | 1492 | 100 | 4 | 598 | 1 | 157 | 761 | 51% | | 39% |
| Calamus E | * | 1462 | 80 | 69 | 626 | 0 | 123 | 819 | 56% | 44% | 52% |
| Calamus W | | 1800 | 100 | 411 | 546 | 128 | 88 | 1175 | 65% | 29% | 31% |
| Elkhorn | b | 3629 | 100 | 4 | 1757 | 6 | 1277 | 3047 | 84% | | 48% |
| Frenchman | * | 2000 | 100 | 681 | 482 | 3 | 79 | 1247 | 62% | 42% | 29% |
| French. WT | | 1066 | 100 | 3 | 427 | 2 | 104 | 537 | 50% | | 29% |
| Keya Paha | * | 2252 | 100 | 281 | 985 | 1 | 139 | 1414 | 63% | 24% | 30% |
| Loup East | * | 2800 | 80 | 62 | 1190 | 1 | 317 | 1571 | 56% | 59% | 44% |
| Loup West | | 1900 | 100 | 473 | 557 | 125 | 108 | 1266 | 67% | 41% | 44% |
| Missouri | * | 3200 | 100 | 102 | 1505 | 4 | 304 | 1918 | 60% | | 35% |
| Pine Ridge | | 3000 | 100 | 735 | 824 | 159 | 155 | 1920 | 64% | 18% | 16% |
| Plains | | 1500 | 100 | 607 | 269 | 119 | 34 | 1042 | 69% | 19% | 26% |
| Platte | * | 1600 | 100 | 488 | 424 | 2 | 68 | 987 | 62% | 39% | 31% |
| Platte WT | | 857 | 100 | 2 | 330 | 2 | 80 | 414 | 48% | | 31% |
| Republican | * | 500 | 100 | 14 | 213 | 0 | 69 | 296 | 59% | 24% | 24% |
| Repub. WT | | 2512 | 100 | 4 | 1177 | 0 | 303 | 1485 | 59% | | 24% |
| Sandhills | | 2400 | 100 | 1071 | 581 | 99 | 50 | 1805 | 75% | 13% | 18% |
| Upper Platte | | 1200 | 100 | 414 | 204 | 148 | 47 | 820 | 68% | 34% | 37% |
| Wahoo | b | 4500 | 100 | 1 | 2153 | 0 | 1605 | 3774 | 84% | | 40% |
| Statewide Buck | | 9291 | 0 | 851 | 3405 | 3 | 20 | 4289 | 48% | 20% | 26% |
| Youth | b | 6854 | 100 | 742 | 2564 | 188 | 2144 | 5654 | 58% | 34% | 43% |
| Landowner | b | 11525 | 100 | 758 | 3987 | 358 | 2501 | 7637 | 66% | 32% | 35% |
| TOTALS | | 75940 | -- | 8165 | 28761 | 1402 | 12204 | 50733 | 67% | 28% | 34% |

* Antlerless mule deer prohibited

b Bonus antlerless tag included with each permit

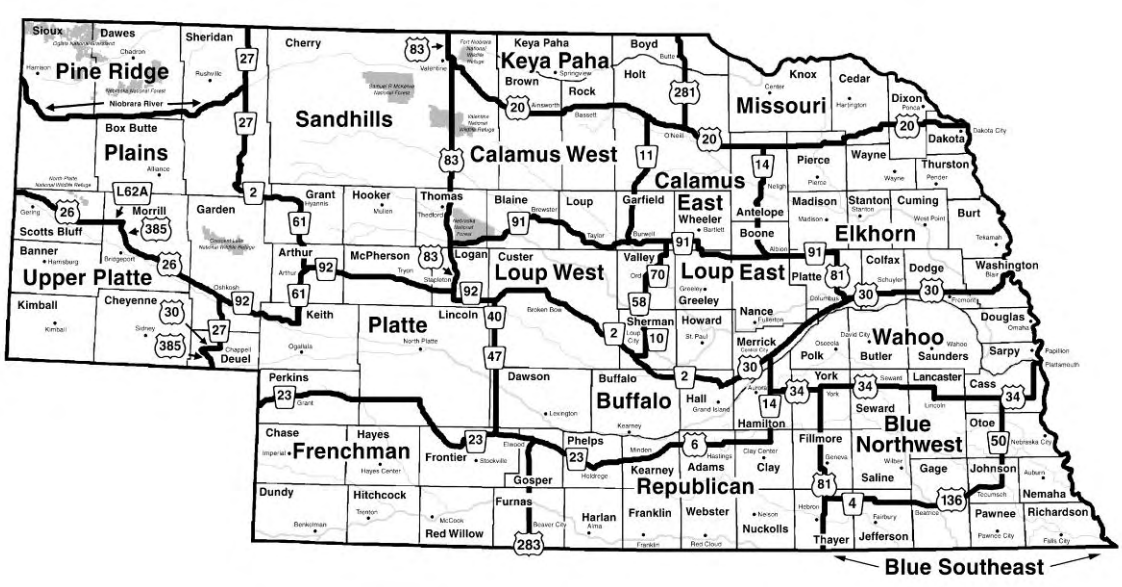
Table 2. November firearm deer season, 2003-2008.

| Year | November Firearm Season | | |
|---|---|---|---|
| | Permits | Harvest* | % Success |
| 2003 | 65,526 | 34,344 | 52 |
| 2004 | 67,008 | 37,540 | 56 |
| 2005 | 67,673 | 38,899 | 57 |
| 2006 | 70,498 | 43,081 | 61 |
| 2007 | 73,169 | 42,710 | 58 |
| 2008 | 75,40 | 50,733 | 67** |

* includes unknown species.

** bonus tags inflate success

Figure 1. 2008 Firearm Deer Management Units




*Archery Season* – A total of 7,440 deer was taken on 16,350 permits for a 46% success rate. A large increase in antlerless kill and success occurred due to the addition of bonus antlerless whitetail tags on all permits. Permit sales increased 2% and harvest increased 16% from the 2007 season. 59% of the harvest was adult bucks and 97% of the harvest was whitetail deer. Results for the past five years is in Table 3.

Table 3. Harvest and success for archery seasons 2004-2008.

| Year | Permits | Adult Male | | Antlerless | | Total Harvest* | Percent Success | % Antlerless |
|---|---|---|---|---|---|---|---|---|
| | | MD | WT | MD | WT | | | |
| 2004 | 14,447 | 119 | 3,291 | 37 | 772 | 4,236 | 29 | 19% |
| 2005 | 14,633 | 104 | 3,282 | 46 | 843 | 4,283 | 29 | 21% |
| 2006 | 15,606 | 174 | 3,634 | 35 | 750 | 4,596 | 29 | 17% |
| 2007 | 16,067 | 172 | 3,783 | 49 | 808 | 4,858 | 30 | 18% |
| 2008 | 16,350 | 187 | 4,165 | 50 | 3,008 | 7,440 | 46 | 41% |

*includes unknown species.

*Muzzleloader Season* – A total of 6,946 deer was taken on 15,199 permits, for a success rate of 46%. A large increase in antlerless kill and success occurred due to the addition of bonus antlerless whitetail tags on all permits. Permit sales decreased 5% and harvest increased by 1,993 deer. Results of the muzzleloader season for the past five years are in Table 4. 40% of the harvest was adult bucks and 84% of the harvest was whitetail deer.

Table 4. Harvest and success for muzzleloader season 2004-2008.

| Year | Permits | Adult Male | | Antlerless | | Total Harvest* | Percent Success | % Antlerless |
|---|---|---|---|---|---|---|---|---|
| | | MD | WT | MD | WT | | | |
| 2004 | 16,540 | 494 | 1,978 | 478 | 1,783 | 4,728 | 29 | 48% |
| 2005 | 16,119 | 474 | 2,200 | 351 | 1,696 | 4,769 | 30 | 43% |
| 2006 | 16,293 | 559 | 1,923 | 336 | 1,335 | 4,164 | 26 | 40% |
| 2007 | 16,077 | 653 | 2,210 | 431 | 1,632 | 4,953 | 31 | 42% |
| 2008 | 15,199 | 690 | 2,266 | 420 | 3,555 | 6,946 | 46 | 60% |

* includes unknown species.

*Statewide Youth Season* – This was the fifth year for the statewide youth permit. The minimum age for deer hunting was reduced from 12 to age 10 in 2008. Participation by youth hunters increased 35%. Bonus antlerless whitetail tags were included on all permits resulting in large increases in participation, success and antlerless kill. 6,854 permits were issued and 5,654 deer were harvested. Success was 82%. 59% of the harvest was adult bucks, and 83% of the harvest was whitetail. Harvest details can be found in Table 1 and Table 5.

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 increased participation and high success by youth hunters, it appears that the objectives were met. Youth permit sales appear to have stabilized, but the addition of bonus antlerless tags for 2008 and will likely increase sales in 2008.

Table 5. Harvest and success for youth deer season, 2004-2008.

| Year | Permits | Adult Male | | Antlerless | | Total Harvest* | Percent Success | % Antlerless |
|---|---|---|---|---|---|---|---|---|
| | | MD | WT | MD | WT | | | |
| 2004 | 3,046 | 247 | 855 | 123 | 429 | 1,654 | 54 | 33% |
| 2005 | 4,141 | 366 | 1,192 | 128 | 443 | 2,377 | 57 | 24% |
| 2006 | 5,003 | 495 | 1,779 | 140 | 560 | 2,977 | 60 | 24% |
| 2007 | 5,092 | 464 | 1,814 | 136 | 524 | 2,945 | 58 | 22% |
| 2008 | 6,854 | 742 | 2,564 | 188 | 2,144 | 5,654 | 82 | 41% |

* 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). Twenty SCA units were open in 2008, compared to 16 in 2007. 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. A total of 14,738 antlerless deer were harvested in the 20 SCAs on 23,405 permits (Table 6). SCA harvest for the past five years is shown in Table 7.

Table 6. Harvest and success for Season Choice Area antlerless seasons, 2008.

| Unit | Permits | | | Harvest | % Success |
|---|---|---|---|---|---|
| | Authorized | Sold | Bag Limit[1] | | |
| SCA1 MID PLATTE AO | 2000 | 1247 | 2aowt | 851 | 68% |
| SCA2 REPUB S WT AO | 2000 | 1595 | 2aowt | 1464 | 92% |
| SCA8 FRENCHMAN WT AO | 600 | 600 | 2aowt | 454 | 76% |
| SCA9 W PLATTE WT AO | 600 | 600 | 2aowt | 420 | 70% |
| SCA11 Keya Paha | 300 | 300 | 2aowt | 204 | 68% |
| SCA12 Missouri | 700 | 700 | 1aowt | 286 | 41% |
| SCA13 REPUB WT AO | 250 | 250 | 1aowt | 103 | 41% |
| SCA17 Pine Ridge | 700 | 700 | ao,aowt | 605 | 86% |
| SCA18 MO RIVER N AO | 2500 | 2151 | 2ao | 1461 | 68% |
| SCA19 ELKHORN W AO | 1400 | 1400 | 2ao | 831 | 59% |
| SCA20 BL/WAHOO W AO | 5500 | 5500 | 2ao | 3242 | 59% |
| SCA21 MO/PT RIVER AO | 8000 | 6048 | 2ao | 3485 | 58% |
| SCA22 SHILLS AO | 400 | 400 | 2ao | 425 | 106% |
| SCA23 Plains | 300 | 300 | 2ao | 275 | 92% |
| SCA24 Upper Platte | 300 | 300 | 1ao | 128 | 43% |
| SCA25 Buffalo | 400 | 400 | 1aowt | 851 | 68% |
| SCA3 Cal East | 200 | 150 | 1aowt | 52 | 35% |
| SCA4 Cal West | 200 | 112 | 1aowt | 48 | 43% |
| SCA5 Loup East | 400 | 400 | 1aowt | 175 | 44% |
| SCA6 Loup West | 200 | 193 | 1aowt | 78 | 40% |
| Total | 27,025 | 23,405 | | 14,738 | 63% |

[1]AO = antlerless deer only, AOWT = antlerless only whitetail deer

Table 7. Season Choice Area antlerless deer harvest, 2004-2008.

| | SCA Antlerless Season | | |
|---|---|---|---|
| Year | Permits | Harvest | Success |
| 2004 | 16,639 | 9,547 | 51% |
| 2005 | 19,385 | 12,314 | 63% |
| 2006 | 20,973 | 13,081 | 62% |
| 2007 | 23,515 | 15,617 | 66% |
| 2008 | 23,405 | 14,738 | 63% |

*Special Seasons* - Special seasons were established in refuge areas to reduce deer numbers. These were antlerless-only hunts except for DeSoto December muzzleloader which is for bucks on DeSoto Bend National Wildlife Refuge (Table 8).

Table 8. Harvest and Success for Special Seasons, 2008.

| Unit | Permits | | | Harvest | % Success |
|---|---|---|---|---|---|
| | Authorized | Sold | % Either Sex[1] | | |
| Boyer Chute Early | 60 | 60 | 2AOWT | 36 | 60* |
| Boyer Chute Late | 60 | 58 | 2AOWT | 34 | 59* |
| DeSoto October Early | 140 | 140 | 2AOWT | 109 | 78* |
| DeSoto October Late | 140 | 140 | 2AOWT | 64 | 46* |
| DeSoto December MZ Esex | 100 | 100 | 1Esex,1AO | 47 | 47* |
| Clear Creek WMA WT | 75 | 59 | 2AOWT | 28 | 47* |

* Bonus tags elevate success.
[1]AO = antlerless deer only, WT = whitetail deer, Esex = Either sex

*Mule Deer and White-tailed Deer Harvest* - Mule deer harvest has increased the past 4 years to a new high of 11,787. Harvest the past 20 years has remained relatively stable, ranging from 9,155 to 11,787. Whitetail harvest has nearly tripled during the past 20 years (Table 9).

Table 9. White-tailed and Mule Deer Harvest, All Seasons, 1980-2008.

| 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 |
| 2006 | 123,860 | 11,610 | 53,322 | 65,091 |
| 2007 | 128,283 | 10,931 | 57,121 | 68,489 |
| 2008 | 131,392 | 11,787 | 68,632 | 80,467 |

* Does not include bonus tags
** Includes unknown species

Age of harvested bucks has shifted to older animals in most units as evidenced in the increasing percentage of age 2 and older (2+) whitetail bucks harvested statewide (66%). Mule deer harvest has also shifted to older bucks statewide (74% 2+ MD bucks in 2008). 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. Percentage of older white-tail and mule deer bucks in the harvest, 1987-2007.

| % Harvested Bucks ≥ 2 Years Old | *White-tail Bucks* | | | | | *Mule Deer Bucks* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1987 | 1992 | 1997 | 2002 | 2007 | 1987 | 1992 | 1997 | 2002 | 2007 |
| | 32 | 33 | 45 | 52 | 64 | 27 | 36 | 46 | 59 | 76 |

*Discussion:* Many records were set during the 2008 deer season as record numbers of whitetail permits were issued to reduce populations. NGPC will need to be more aggressive in eastern units to successfully control whitetail herds. Mule deer herds are at record levels and will be managed to allow further increases. The age of harvested bucks is the best we have seen in the past 40 years. Collection of harvest data is becoming more difficult as small towns get smaller and there are fewer businesses to operate deer check stations. NGPC will need to purse other options such as Telephone and Internet check stations. Nonresident permits sales increased 7% to 12,022 which was 746 above last year's record.

*Recommendations:* Establish alternate check stations (telephone and internet).

# 2009 STATUS REPORT ON DEER MANAGEMENT IN NORTH DAKOTA

**by**
**Bill Jensen and Roger Johnson**
**North Dakota Game and Fish Department**
**(September 1, 2009)**

**2008 Regular Deer-Gun Season Structure** - Regulations for the 2008 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 142,975 licenses were issued of the 149,400 licenses made available for the 2008 regular deer-gun season (Table 1a). The distribution of these deer licenses was as follows: 14,875 gratis landowners, 120,544 residents, and 7,556 non-resident lottery licenses.

The deer-gun season throughout the state was 16½ days in length (November 7 to 23). The deer gun season started at noon, CST, November 7, 2008 for all units. The daily hunting hours are from one-half hour before sunrise to one-half hour after sunset. In 2008, North Dakota held an early deer season for antlerless license holder in two selected units where deer numbers are way above goals. The early season was for one week from September 26 to October 2, 2008 in the north east corner of the state.

**2008 Deer-Gun Season Harvest** - Based upon harvest survey questionnaires it is estimated that 91% of the licensees actively attempted to hunt and harvest a deer. This resulted in the harvest of 82,730 white-tailed deer and 8,810 mule deer. The overall success rate for licensees that actually hunted was 70.5%. A breakdown of the harvest, by species of deer and hunting unit, is provided in Table 2a. Through a questionnaire survey, the early September season had 23% of eligible hunter taking advantage of the opportunity and they experienced 45% success.

**2008 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 2008, there were 1,411 antlered and 1,406 antlerless white-tailed deer licenses issued. The season opened at noon, CST, November 28, 2008 and ran from one-half hour before sunrise to one-half hour after sunset each day thereafter through December 14, 2008. Licenses are valid for all of North Dakota. The licenses were issued by lottery. A priority system is in place for the drawing of these licenses. Legal weapons were long guns of .45 caliber or larger, and handguns .50 caliber or larger, loaded through the muzzle, with flint or percussion ignition, firing black powder or black powder substitutes. Smokeless powders are not legal. In-line type percussion locks

were legalized in 1994, but telescopic sights remain illegal. No magnification (1x) scopes are legal.

**2008 Muzzleloading Long Gun Harvest** - All 2,817 muzzleloader licensee's were sent a questionnaire, of which an estimated 2,351 actually hunted during the season (83%). The projected harvest of white-tailed deer was 972 deer (574 antlered and 398 antlerless) for an overall success rate of 41% (Table 3a).

**2008Archery Season Structure** - Archery deer licenses are issued over the counter through license vendors and county auditors with no restrictions on species or sex. The 2008 archery deer season started at noon, CTS, August 29, 2008 and continued from one-half hour before sunrise to one-half hour after sunset each day until January 4, 2009. 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.

**2008Archery Harvest** - In total, 20,769 archery licenses were sold in 2008. After the season, 4028 questionnaires were sent to resident and nonresident license holders from the 2007 season. Expanding the sample results projected that 18,644 of the hunters who bought a license actually went hunting (90%). These deer-bow hunters had an overall success rate of 38.5%, with a total harvest of 7,171 deer (6,346 white-tailed deer and 825 mule deer) (Table 3a).

**2008 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 2008, 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 345 licenses in 2008. The nine and one-half day season ran from noon, CTS, September 12 and closed September 21, with the option that youth license holders can also hunt during the regular deer-gun season if they are unsuccessful in the youth season.

**2008 Youth Deer Gun Season Harvest** - After the youth season, questionnaires were sent to all 1923 licensees. An estimated 1,540 teenagers participated in the youth season (80%). They experienced an overall success rate of 48%, with a total harvest of 734 deer (523 white-tailed deer and 211 mule deer) (Table 3a).

**2008 Special Herd Reduction Deer Bow Season** - There are four areas in North Dakota open for special herd reduction seasons. These areas include: within the city limits of Bismarck; Fargo; USDA-ARS Research facility in Mandan; and Graham's Island State Park near Devils Lake. These areas each have special regulations to fit their individual needs.

In the city of Bismarck, the chief of police issued antlerless white-tailed deer permits for portions of the city as the need arises. The season ran from August 29, 2008 through January 31, 2009. 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.

**2008-2009 Population Trend** - White-tailed deer are distributed throughout North Dakota. Population densities vary by region and are influenced by land use patterns, human population densities, habitat types, and climate. In 1958, big game biologists divided the state into 41 subunits with permanent boundaries that most nearly coincide with identified environmental influences. These management subunit's boundaries also coincide with hunting unit boundaries. To provide comparative annual population trend data, permanent aerial winter survey areas have been established within each of the 41 subunits, thus permitting unit specific deer management. Since 1999, population trend data has also been collected on deer sighted per hour of effort by hunters. Additionally, information on deer-vehicle collisions has been compiled on a county-by-county basis across the state. Regular population indices mentioned above, have been used to monitor white-tailed deer population trends. Population trends and indices for white-tailed deer are summarized in Table 4a. Available data suggests 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. Population index data for mule deer is summarized in Table 5a. 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 6a and 7a, respectively.

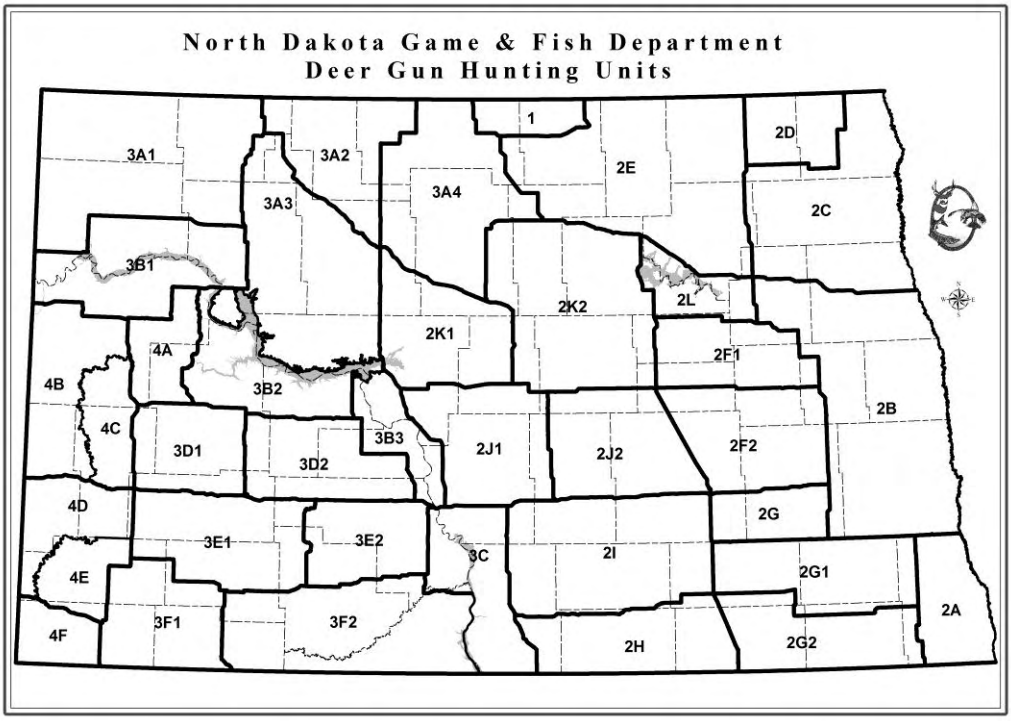



Figure 1. Distribution of deer hunting units in North Dakota.

# Appendix A

## Summary of 2008-2009 Mule Deer and White-tailed Deer Harvest, Census, and Demographic Data

1. A total of 142,975 licenses were issued of the 149,400 licenses made available for the regular deer-gun season (Table 1a).

2. The overall hunter success for the 2008 regular gun season was 70.5 percent.

3. Deer-gun hunters harvested an estimated 82,730 white-tailed deer and 8,810 mule deer during the 2008 season (Table 2a).

4. Youth deer hunters in 2008 had a success rate of 47.7 percent during the youth season, and harvested 523 white-tailed deer and 211 mule deer during the youth deer season (Table 3a). During the regular deer-gun season an additional 493 white-tailed deer, and 119 mule deer harvested by youth hunters.

5. Muzzleloader hunters in 2008 had a success rate of 41.3 percent, and harvested 972 white-tailed deer (Table 3a).

6. Archery hunters in 2008 had a success rate of 38.5 percent, and harvested 6346 white-tailed deer and 825 mule deer (Table 3a).

7. Population indices for white-tailed deer suggest a stable to increasing population in a band from southwestern corner of the state to the northeastern corner, with decreasing deer numbers in the northwestern and southeastern portion of the state (Table 4a) (See Figures 1 and 2).

8. Population indices for mule deer suggest a stable to increasing population in the badlands and stable to increasing numbers in the Slope and Missouri River Major Management areas (Table 5a) (Figure 3).

9. Based on 2189 useable questionnaires from the 2008 Hunter Observation Survey (n=77,130 white-tailed deer classified), overall white-tailed deer population demographics suggest that about 17 percent of the population were antlered deer prior to, or on the opening weekend of the deer-gun season (Table 6a).

10. Based on fall aerial surveys (n=2,208 mule deer classified), and Hunter Observation Survey results (n=24,770 mule deer classified), overall mule deer population demographics suggest that between 16 and 27 percent of the population were antlered deer prior to, or on the opening weekend of the deer-gun season (Table 7a).

11. In 2008 information on the number of elk and moose observed during the opening weekend of the deer was added to the hunter observation questionnaire. Maps summarizing the results of the data set for elk and moose are given in Figures 4 and 5.

## Table 1a. License numbers for hunting units by license type for the 2008 regular gun season.

| MGMT UNIT | HUNTING UNIT | Any Deer Antlered | Any Deer Antlerless | WT Deer Antlered | WT Deer Antlerless | Mule Deer Antlered | Mule Deer Antlerless |
|---|---|---|---|---|---|---|---|
| TURTLE MTS | I | 1,000 | 1,500 | | | | |
| | | | | | | | |
| RED RIVER | 2A | 500 | 300 | | | | |
| | 2B | 4,600 | 5,500 | | | | |
| | 2C | 3,500 | 9,000 | | | | |
| | | | | | | | |
| PEMBINA HILLS | 2D | 1,600 | 3,000 | | | | |
| | | | | | | | |
| SHEYENNE | 2F1 | 2,600 | 4,500 | | | | |
| | 2F2 | 2,200 | 4,500 | | | | |
| | 2G | 1,000 | 1,300 | | | | |
| | 2G1 | 2,400 | 2,800 | | | | |
| | 2G2 | 1,650 | 2,100 | | | | |
| | | | | | | | |
| COTEAU | 2E | 2,600 | 6,000 | | | | |
| | 2H | 1,100 | 2,500 | | | | |
| | 2I | 1,800 | 3,500 | | | | |
| | 2J1 | 800 | 1,800 | | | | |
| | 2J2 | 2,000 | 4,200 | | | | |
| | 2K1 | 1,000 | 2,500 | | | | |
| | 2K2 | 3,200 | 8,000 | | | | |
| | 3A1 | 1,800 | 1,800 | | | | |
| | 3A3 | 1,200 | 2,000 | | | | |
| | | | | | | | |
| DEVILS LAKE | 2L | 800 | 1,500 | | | | |
| | | | | | | | |
| SOURIS | 3A2 | 1,300 | 2,400 | | | | |
| | 3A4 | 2,300 | 4,800 | | | | |
| | | | | | | | |
| MISSOURI | 3B1 | | | 600 | 1,000 | 500 | 800 |
| | 3B2 | | | 200 | 300 | 250 | 300 |
| | 3B3 | 150 | 200 | 1,200 | 2,000 | | |
| | 3C | 100 | 100 | 900 | 1,400 | | |
| | | | | | | | |
| SLOPE | 3D1 | 300 | 450 | 200 | 200 | | |
| | 3D2 | 400 | 700 | 250 | 500 | | |
| | 3E1 | 350 | 1,000 | 500 | 1,000 | | |
| | 3E2 | 350 | 1,000 | 500 | 1,000 | | |
| | 3F1 | 200 | 600 | 700 | 900 | | |
| | 3F2 | 200 | 700 | 650 | 800 | | |
| | | | | | | | |
| BADLANDS | 4A | | | 200 | 400 | 450 | 800 |
| | 4B | | | 150 | 150 | 650 | 900 |
| | 4C | | | 100 | 100 | 500 | 800 |
| | 4D | | | 200 | 200 | 550 | 600 |
| | 4E | | | 250 | 250 | 350 | 500 |
| | 4F | | | 300 | 350 | 200 | 450 |
| | | | | | | | |
| | TOTALS | 43,000 | 80,250 | 6,900 | 10,650 | 3,450 | 5,150 |

TOTAL LICENSES = 149,400

**Table 2a. Summary of 2008 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** | 455 | 668 | 1113 | 0.79/1/0.18 | | | | |
| **2A** | 270 | 120 | 390 | 3.91/1/0.74 | | | | |
| **2B** | 1755 | 2900 | 4655 | 1.02/1/0.68 | | | | |
| **2C** | 1812 | 5008 | 6820 | 0.49/1/0.36 | | | | |
| **2D** | 778 | 1315 | 2093 | 0.79/1/0.33 | | | | |
| **2F1** | 1669 | 2559 | 4228 | 0.98/1/0.50 | | | | |
| **2F2** | 1345 | 2780 | 4125 | 0.67/1/0.39 | | | | |
| **2G** | 588 | 684 | 1272 | 1.20/1/0.39 | | | | |
| **2G1** | 1090 | 1387 | 2477 | 1.12/1/0.43 | | | | |
| **2G2** | 1068 | 1340 | 2408 | 1.13/1/0.42 | | | | |
| **2E** | 1550 | 3942 | 5492 | 0.61/1/0.56 | | | | |
| **2H** | 666 | 1398 | 2064 | 0.64/1/0.34 | | | | |
| **2I** | 1324 | 1996 | 3320 | 0.93/1/0.40 | | | | |
| **2J1** | 668 | 1075 | 1743 | 0.89/1/0.43 | | | | |
| **2J2** | 1178 | 2389 | 3567 | 0.71/1/0.44 | | | | |
| **2K1** | 853 | 1487 | 2340 | 0.79/1/0.37 | | | | |
| **2K2** | 2501 | 4840 | 7341 | 0.77/1/0.48 | | | | |
| **3A1** | 1188 | 1037 | 2225 | 1.57/1/0.37 | | | | |
| **3A3** | 922 | 1026 | 1948 | 1.19/1/0.33 | | | | |
| **2L** | 496 | 986 | 1482 | 0.64/1/0.28 | | | | |
| **3A2** | 911 | 1798 | 2709 | 0.67/1/0.32 | | | | |
| **3A4** | 1504 | 2429 | 4933 | 0.66/1/0.52 | | | | |
| **3B1** | 497 | 587 | 1084 | 1.08/1/0.27 | 299 | 483 | 782 | 0.80/1/1.26 |
| **3B2** | 177 | 197 | 374 | 1.19/1/0.32 | 187 | 182 | 368 | 1.47/1/0.68 |
| **3B3** | 820 | 1419 | 2239 | 0.81/1/0.40 | 78 | 62 | 140 | 1.39/1/0.11 |
| **3C** | 726 | 971 | 1697 | 1.02/1/0.36 | 73 | 22 | 95 | 4.05/1/0.22 |
| **3D1** | 213 | 298 | 511 | 1.03/1/0.45 | 167 | 143 | 310 | 1.45/1/0.24 |
| **3D2** | 274 | 551 | 825 | 0.50/1/0.52 | 228 | 361 | 589 | 0.81/1/0.28 |
| **3E1** | 517 | 1013 | 1530 | 0.73/1/0.42 | 190 | 378 | 568 | 0.60/1/0.18 |
| **3E2** | 495 | 1134 | 1629 | 0.66/1/0.51 | 202 | 354 | 556 | 0.82/1/0.43 |
| **3F1** | 551 | 484 | 1035 | 1.49/1/0.31 | 137 | 195 | 332 | 0.88/1/0.25 |
| **3F2** | 485 | 703 | 1188 | 1.10/1/0.59 | 207 | 238 | 445 | 1.27/1/0.46 |
| **4A** | 139 | 285 | 424 | 0.66/1/0.36 | 352 | 579 | 931 | 0.73/1/0.19 |
| **4B** | 127 | 104 | 231 | 2.31/1/0.89 | 443 | 586 | 1029 | 1.00/1/0.32 |
| **4C** | 80 | 64 | 144 | 2.00/1/0.60 | 339 | 633 | 972 | 0.76/1/0.42 |
| **4D** | 155 | 128 | 283 | 2.15/1/0.78 | 333 | 415 | 748 | 0.92/1/0.15 |
| **4E** | 177 | 202 | 379 | 1.29/1/0.47 | 208 | 331 | 539 | 0.89/1/0.42 |
| **4F** | 222 | 190 | 412 | 1.88/1/0.61 | 144 | 262 | 406 | 0.69/1/0.25 |
| **Total** | **30236** | **52494** | **82730** | **0.83/1/0.43** | **3538** | **5223** | **8810** | **0.89/1/0.29** |

**Table 3a. Summary of 2008 Youth Deer Season (N=1910 licenses issued), muzzleloader (N=2,817 licenses issued), and archery season (N=20,769 licenses issued) harvest data and buck:doe:fawn ratios, by license type for those license holders that hunted.**

| License Type | White-tailed Deer | | | | Mule Deer | | | |
|---|---|---|---|---|---|---|---|---|
| | Antlered | Antlerless | Total | Ratios (B/D/F) | Antlered | Antlerless | Total | Ratios (B/D/F) |
| **Youth Season** | 421 | 102 | 523 | 7.94/1/0.92 (421/53/49) | 206 | 5 | 211 | 51.50/1/0.25 (206/4/1) |
| **Muzzle-Loader** | 574 | 398 | 972 | 1.92/1/0.33 (574/298/100) | | | | |
| **Archery** | 4779 | 1567 | 6346 | 3.89/1/0.28 (4779/1228/339) | 686 | 139 | 825 | 6.12/1/0.24 (686/112/27) |
| **Total** | **5774** | **2067** | **7841** | **3.86/1/0.34 (5774/1579/488)** | **892** | **144** | **1036** | **7.96/1/0.24 (892/116/28)** |

**Table 4a. Summary of white-tailed deer population indices for2008-2009 (i.e., 2009 winter aerial survey[Deer/ Sq. Mi.], 2008 deer-vehicle collisions, and 2008 white-tailed deer observed by hunters per hour of effort during the first Saturday and Sunday of the 2008 regular deer season (number of useable surveys).**

| Hunting Unit | 2009 Winter Aerial Survey (Sample Size) | 2008 Deer-Vehicle Collisions (MD & WTD) | 2008 Hunter Obs. WTD/Hr. ± s.d. (Sample Size) |
|---|---|---|---|
| **Turtle Mountains 1** | 7.7 (714/93.0) | Decreasing | 1.80 ± 1.696 (28) Stable |
| **Red River All Units** | 10.1 (7793/773.0) | Stable to Decreasing | NA |
| **2A** | 7.8 (1104/141.4) | Stable | 1.20 ± 1.471 (57) Stable to Decrease |
| **2B** | 11.1 (2572/231.1) | Stable to Decreasing | 1.88± 3.179 (62) Stable to Decrease |
| **2C** | 10.3 (4117/400.5) | Stable to Decreasing | 2.83 ± 3.022 (64) Decrease |
| **Pembina Hills 2D** | 15.9 (4600/289.4) | Stable to Decreasing | 1.53 ± 1.658 (44) Stable to Decrease |
| **Sheyenne-James River All Units** | 8.8 (7858/886.1) | Stable to Decreasing | NA |
| **2F1** | 7.3 (1572/213.9) | Stable to Decreasing | 2.60 ± 1.719 (52) Stable |
| **2F2** | 13.7 (2266/164.9) | Stable to Decreasing | 3.02 ± 3.404 (50) Stable to Increase |
| **2G** | 8.0 (811/101.5) | Stable to Decreasing | 2.01 ± 2.010 (53) Stable |
| **2G1** | 7.3 (1603/218.5) | NA | 1.45 ± 1.409 (53) Decreasing |
| **2G2** | 8.6 (1606/187.3) | Stable | 2.27 ± 2.079 (52) Stable |
| **Devils Lake 2L** | 17.1 (617/36.1) | NA | 4.18 ± 3.365 (39) Stable |
| **Coteau Hills All Units** | 3.5 (12900/3685.7) | Stable to Decreasing | NA |
| **2E** | 13.2 (346/26.2) | Decreasing | 3.08 ± 2.006 (47) Increasing |
| **2H** | 4.8 (1006/209.2) | Stable to Increasing | 2.16 ± 1.545 (55) Stable to Decrease |
| **2I** | 3.1 (4570/1480) | Stable to Decreasing | 2.50 ± 2.129 (52) Stable to Increase |
| **2J1** | NA | Stable | 4.94 ± 3.233 (61) Increasing |
| **2J2** | 8.0 (776/97.2) | Stable to Decreasing | 3.82 ± 3.044 (51) Increasing |

## Table 4a. (Continued)

| Hunting Unit | 2009 Winter Aerial Survey (Sample Size) | 2008 Deer-Vehicle Collisions (MD & WTD) | 2008 Hunter Obs. WTD/Hr. ± s.d. (Sample Size) |
|---|---|---|---|
| **Coteau Hills 2K1** | 5.0 (564/111.7) | Stable to Increasing | 4.32 ± 3.656 (44) Increasing |
| **2K2** | 5.2 (976/187.0) | Stable to Decreasing | 4.35 ± 4.109 (42) Stable |
| **3A1** | 1.6 (2083/1260) | Decreasing | 4.52 ± 3.182 (39) Increasing |
| **3A3** | 8.2 (2579/314.4) | Stable | 3.01 ± 1.876 (50) Stable |
| **Souris Des Lacs All Units** | 11.3 (5661/502.9) | Stable to Decreasing | NA |
| **3A2** | 18.0 1874/104.1) | Stable | 3.35 ± 2.471 (50) Increasing |
| **3A4** | 9.5 (3787/398.8) | Stable to Decreasing | 2.93 ± 3.719 (31) Stable to Increase |
| **Missouri River All Units** | NA | Stable to Increasing | NA |
| **3B1** | NA | NA | 3.20 ± 3.426 (33) Increasing |
| **3B2** | NA | Stable to Increasing | NA (Small Sample) |
| **3B3** | NA | NA | 5.96 ± 9.431 (56) Increasing |
| **3C** | NA | Increasing | 3.30 ± 2.640 (43) Increasing |
| **Slope All Units** | 3.9 (13761/3532) | Stable to Increasing | NA |
| **3D1** | 2.5 (1412/576) | Stable to Increasing | NA (Small Sample) |
| **3D2** | 3.8 (2210/576) | Stable to Increasing | 4.65±8.071 (23) |
| **3E1** | 3.8 (2262/588) | Stable to Increasing | 23.606 ± 38.085 (47) Increasing |
| **3E2** | 4.6 (2650/576) | Stable to Increasing | 4.94 ± 4.609 (39) Increasing |
| **3F1** | 4.9 (2738/560) | Stable to Increasing | 13.35±12.285 (35) |
| **3F2** | 3.8 (2489/656) | Stable | 8.98±15.291 (47) |

## Table 4a. (Continued)

| Hunting Unit | 2009 Winter Aerial Survey (Sample Size) | 2008 Deer-Vehicle Collisions (MD & WTD) | 2008 Hunter Obs. Deer/Hr. ± s.d. (Sample Size) |
|---|---|---|---|
| **Badlands All Units** | NA | Stable to Increasing | NA |
| **4A** | 11.2 WT & 3.6 MD (1030WT & 334 MD/92.1) | NA | 3.25 ± 4.493 (46) Increasing (Mule Deer Hunter Observations) |
| **4B** | NA | Stable | 1.16 ± 1.832 (39) Increasing (Mule Deer Hunter Observations) |
| **4C** | NA | Stable to Increasing | 0.50 ± 0.957 (35)*** Stable (Mule Deer Hunter Observations) |
| **4D** | NA | NA | 1.22 ± 1.876 (39) Stable to Increasing (Mule Deer Hunter Observations) |
| **4E** | NA | Stable | 5.69 ± 12.175 (35)*** Stable to Increasing (Mule Deer Hunter Observations) |
| **4F** | NA | Stable to Increasing | 19.12 ± 25.568 (22)*** Increasing (ALL Deer Hunter Observations) |

***** Small Sample**

**Table 5a. Summary of mule deer population indices for 2008-2009 (i.e., 2009 winter/spring aerial survey, 2008 Deer-vehicle collisions, and 2008 mule deer observed by hunters per hour of effort during the first Saturday and Sunday of the 2008 regular deer season(number of useable surveys).**

| Hunting Unit | 2009 Winter(*) or Spring Aerial Survey (Sample Size) | 2008 Deer-Vehicle Collisions (MD & WTD) | 2008 Hunter Obs. MD/Hr. ± s.d. (Sample Size) |
|---|---|---|---|
| **Missouri River All Units** | NA | Stable to Increasing | NA |
| **3B1** | NA | NA | 1.67 ± 2.928 (33) Decreasing All Hunters |
| **3B2** | NA | Stable to Increasing | NA (Small Sample) |
| **3B3** | NA | NA | 0.45 ± 0.982 (56) Stable to Decrease ALL Hunters |
| **3C** | NA | Increasing | 0.99 ± 2.389 (43) Stable to Decrease All Hunters |
| **Slope All Units** | 1.4 (4800/3532) | Stable to Increasing | NA |
| **3D1** | 1.4 (827/576) | Stable to Increasing | NA (Small Sample) |
| **3D2** | 2.5 (1425/576) | Stable to Increasing | 3.45+4.436 (23)*** |
| **3E1** | 0.6 (381/588) | Stable to Increasing | 5.37 + 8.545 (36) Increasing All Hunters |
| **3E2** | 1.3 (747/576) | Stable to Increasing | 1.86 ± 2.169 (39) Stable to Increase All Hunters |
| **3F1** | 0.8 (442/560) | Stable to Increasing | 3.41+4.359 (35) All Hunters |
| **3F2** | 1.5 (978/656) | Stable | 5.45+7.716 (47) All Hunters |

## Table 5a. (Continued)

| Hunting Unit | 2009 Spring Aerial Survey (Sample Size) | 2008 Deer-Vehicle Collisions (MD & WTD) | 2008 Hunter Obs. MD/Hr. ± s.d. (Sample Size) |
|---|---|---|---|
| **Badlands All Units** | 9.1 (2649) Stable to Decreasing | Stable to Increasing | NA |
| **4A** | 17.7 (486) Stable to Increasing | NA | 6.11 ± 5.333 (46) Increasing MD Hunters |
| **4B** | 8.3 (451) Stable to Decreasing | Stable | 6.15 ± 6.740 (39) Increasing MD Hunters |
| **4C** | 10.8 (275) Increasing | Stable to Increasing | 3.64 ± 2.783 (50) Increasing MD Hunters |
| **4D** | 8.5 (754) Decreasing | NA | 4.65 ± 3.373 (35) Decreasing MD Hunters |
| **4E** | 7.6 (432) Increasing | Stable | 7.85 ± 12.612 (35) Increase MD Hunters |
| **4F** | 6.5 (251) Decreasing | Stable to Increasing | 6.40 ± 3.555 (5)*** Stable MD Hunters |

***** Small Sample**

**Table 6a. Summary of white-tailed deer buck:doe:fawn ratios based upon observations by white-tailed deer hunters during the first Saturday and Sunday of the 2008 regular deer season.**

| Hunting Unit | 2008 Hunter Obs. Buck:Doe:Fawn (Sample Size) |
|---|---|
| **Turtle Mountains 1** | 0.40:1:0.65 (88-222-144) |
| **Red River All Units** | 0.35:1:0.55 (727-2104-1162) |
| **2A** | 0.29:1:0.55 (110-379-207) |
| **2B** | 0.35:1:0.46 (253-723-332) |
| **2C** | 0.36:1:0.62 (364-1002-623) |
| **Pembina Hills 2D** | 0.32:1:0.38 (165-515-197) |
| **Sheyenne-James River All Units** | 0.42:1:0.53 (1405-3350-1773) |
| **2F1** | 0.42:1:0.48 (353-842-403) |
| **2F2** | 0.43:1:0.56 (398-931-523) |
| **2G** | 0.42:1:0.50 (242-575-285) |
| **2G1** | 0.42:1:0.65 (169-398-259) |
| **2G2** | 0.40:1:0.50 (243-604-303) |
| **Devils Lake 2L** | 0.30:1:0.91 (223-738-672) |
| **Coteau Hills All Units** | 0.39:1:0.52 (4095-10423-5425) |
| **2E** | 0.35:1:0.63 (303-859-538) |
| **2H** | 0.45:1:0.42 (361-796-335) |
| **2I** | 0.40:1:0.41 (342-854-349) |
| **2J1** | 0.39:1:0.45 (809-2054-926) |
| **2J2** | 0.39:1:0.51 (444-1152-589) |
| **2J1 & 2J2** | 0.39:1:0.47 (1253-3206-1515) |

**Table 6a (Continued).**

| Hunting Unit | 2008 Hunter Obs. Buck:Doe:Fawn (Sample Size) |
|---|---|
| **Coteau Hills 2K1** | 0.44:1:0.56 (503-1149-639) |
| **2K2** | 0.32:1:0.47 (467-1469-694) |
| **2K1 & 2K2** | 0.37:1:0.51 (970-2618-1333) |
| **3A1** | 0.39:1:0.71 (447-1156-817) |
| **3A3** | 0.45:1:0.58 (419-934-538) |
| **Souris Des Lacs All Units** | 0.37:1:0.76 (616-1676-1280) |
| **3A2** | 0.36:1:0.50 (430-1200-598) |
| **3A4** | 0.39:1:0.74 (186-476-354) |
| **Missouri River All Units** | 0.32:1:0.49 (985-3124-1529) |
| **3B1** | 0.26:1:0.35 (207-806-285) |
| **3B2** | 0.21:1:0.67 (5-24-16)*** |
| **3B3** | 0.34:1:0.44 (497-1472-650) |
| **3C** | 0.34:1:0.70 (276-822-578) |
| **Slope All Units** | 0.29:1:0.57 (3741-12902-7317) |
| **3D1** | 0.50:1:0.00 (30-60-0)*** |
| **3D2** | 0.23:1:0.79 (147-646-511) |
| **3E1** | 0.28:1:0.45 (1281-4637-2088) |
| **3E2** | 0.42:1:0.73 (413-979-717) |
| **3F1** | 0.25:1:0.53 (800-3227-1712) |
| **3F2** | 0.32:1:0.68 (1070-3353-2289) |

**Table 6a. (Continued).**

| Hunting Unit | 2008 Hunter Obs. Buck:Doe:Fawn (Sample Size) |
|---|---|
| **Badlands All Units (All Hunters)** | 0.22:1:0.40 (1423-6498-2611) |
| **4A (All Hunters)** | 0.22:1:0.61 (242-1109-681) |
| **4B (All Hunters)** | 0.35:1:0.58 (111-321-185) |
| **4C (All Hunters)** | 0.18:1:0.52 (25-140-73) *** |
| **4D (All Hunters)** | 0.26:1:0.49 (141-541-265) |
| **4E (All Hunters)** | 0.21:1:0.34 (551-2602-895) |
| **4F (All Hunters)** | 0.20:1:0.29 (353-1785-512) |
| **Statewide (All Hunter Observations)** | **0.32:1:0.53 (13468-41552-22110)** |

***** Small Sample**

**Table 7a. Summary of mule deer buck:doe:fawn ratios based upon fall 2008 aerial survey and observations by hunters during the first Saturday and Sunday of the 2008 regular deer season.**

| Hunting Unit | Fall 2008 Aerial Survey Buck:Doe:Fawn (Sample Size) | 2008 Hunter Obs. Buck:Doe:Fawn (Sample Size) |
|---|---|---|
| **Missouri River All Units** | NA | 0.35:1:0.49 (310-889-434) (All Hunters) |
| **3B1** | NA | 0.37:1:0.46 (162-435-202) |
| **3B2** | NA | 0.53:1:0.33 (32-60-20)*** |
| **3B3** | NA | 0.24:1:0.33 (28-115-38)*** |
| **3C** | NA | 0.32:1:0.62 (88-279-174) |
| **Slope All Units** | NA | 0.26:1:0.45 (1356-5237-2368) (All Hunters) |
| **3D1** | NA | NA (No Sample) |
| **3D2** | NA | 0.24:1:0.42 (135-565-236) |
| **3E1** | NA | 0.28:1:0.36 (356-1285-464) |
| **3E2** | NA | 0.37:1:0.40 (160-433-174) |
| **3F** | NA | 0.26:1:0.41 (205-780-319) |
| **3F2** | NA | 0.23:1:0.54 (500-2174-1175) |

***** Small Sample**

**Table 7a. (Continued).**

| Hunting Unit | Fall 2008 Aerial Survey Buck:Doe:Fawn (Sample Size) | 2008 Hunter Obs. Buck:Doe:Fawn (Sample Size) |
|---|---|---|
| **Badlands All Units** | 0.42:1:0.88 (391-925-810) | 0.29:1:0.49 (2287-7991-3898) |
| **4A** | 0.37:1:0.88 (51-137-121) | 0.29:1:0.63 (499-1712-1079) |
| **4B** | 0.38:1:0.77 (27-71-55) | 0.28:1:0.47 (469-1653-783) |
| **4C** | 0.35:1:0.78 (38-109-85) | 0.27:1:0.50 (311-1157-575) |
| **4D** | 0.44:1:0.83 (148-339-280) | 0.33:1:0.40 (438-1313-523) |
| **4E** | 0.44:1:1.01 (86-195-198) | 0.26:1:0.50 (457-1762-883) |
| **4F** | 0.55:1:0.96 (41-74-71) | 0.29:1:0.14 (113-394-55)*** |
| **Statewide** | NA | **0.28:1:0.47 (3953-14117-6700) (All Hunters)** |

***** Small Sample**

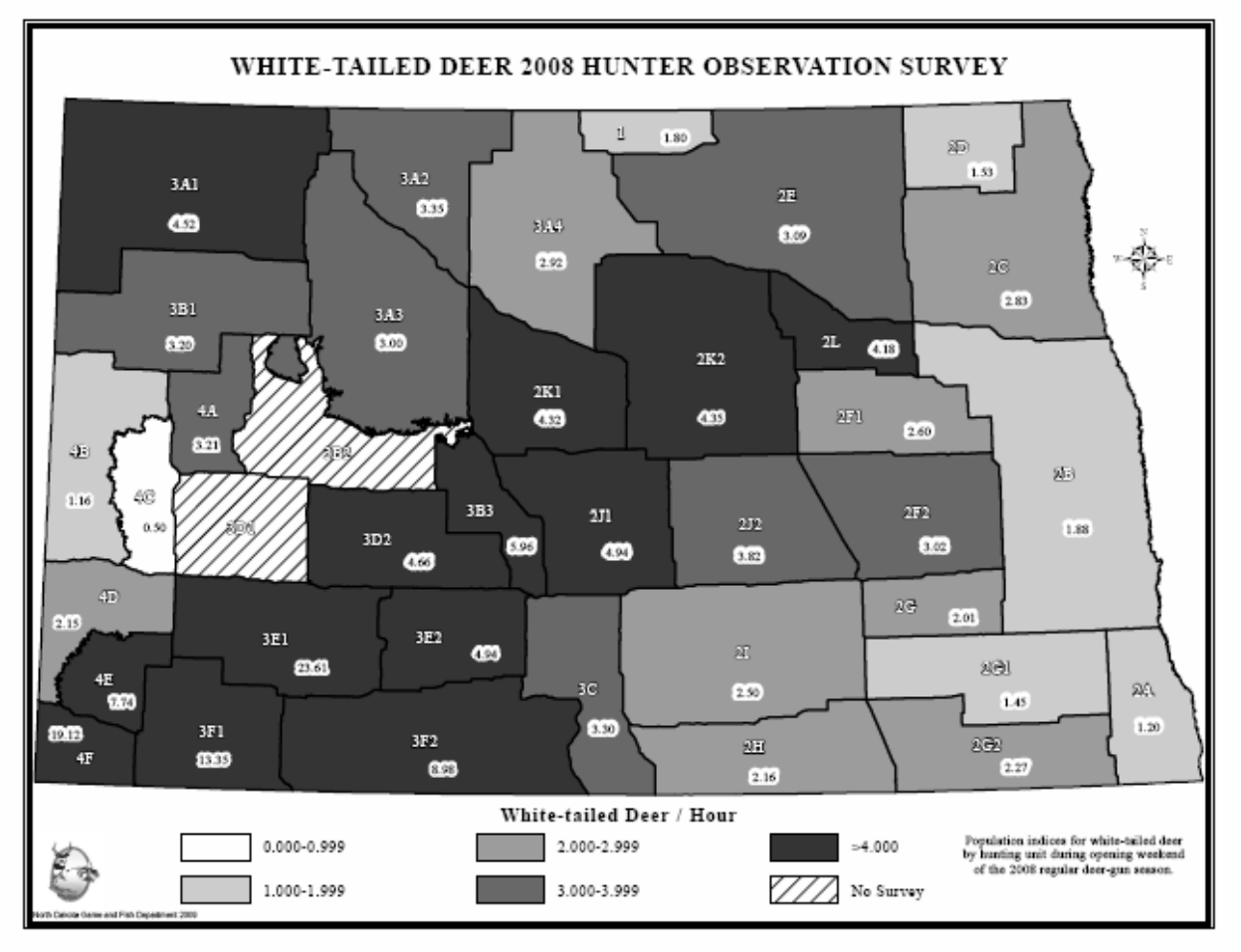



Figure 1. Map of North Dakota illustrating the use of observation rates by hunters (white-tailed deer sighted/hour of effort spent hunting) as a population index for each deer-hunting unit. Hunter observations were made during the first Saturday and Sunday of the regular 2008 deer-gun season. Year-to-year changes in hunter observation rates have been monitored statewide for white-tailed deer population trends since 2004.

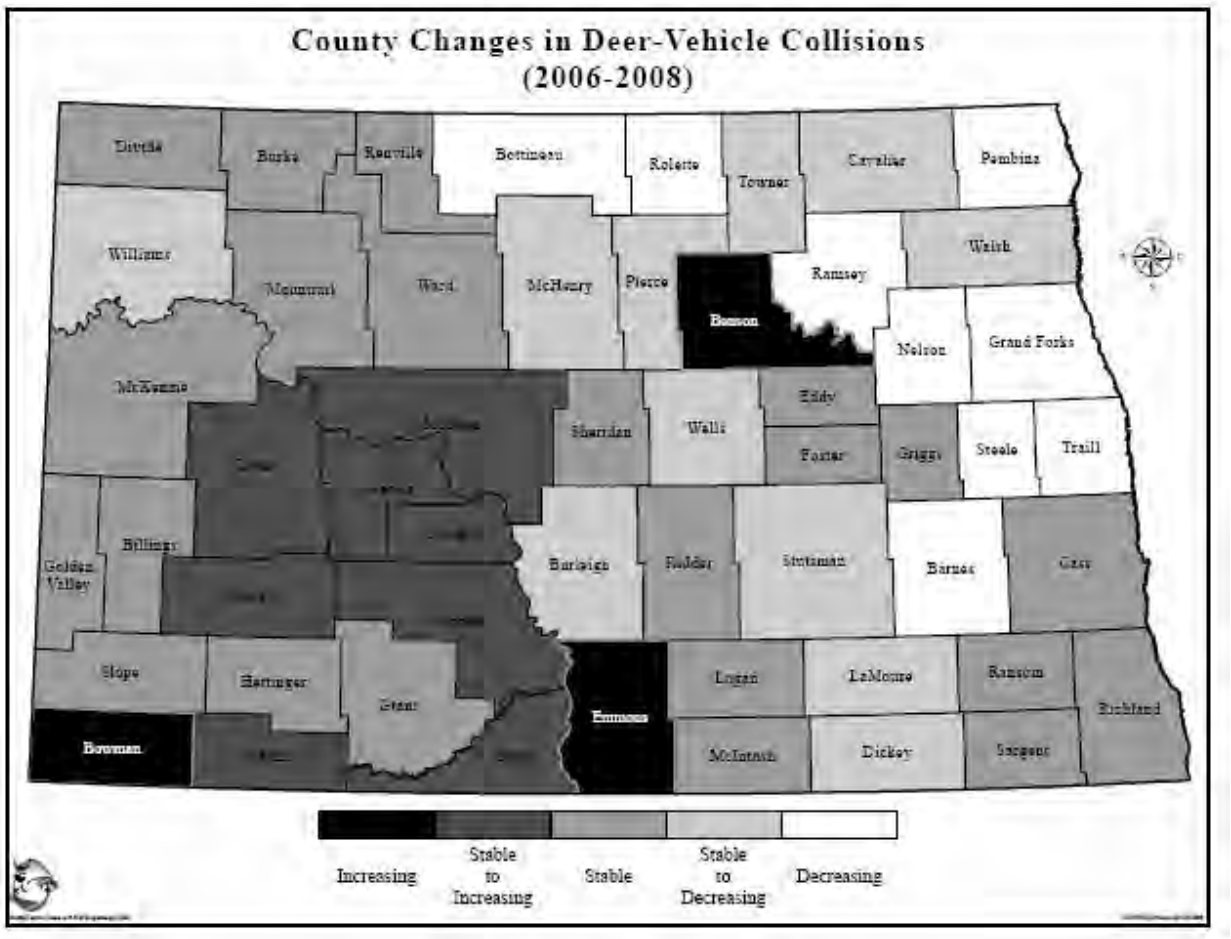



Figure 2. Map of North Dakota illustrating the use of trends in Deer-Vehicle Collisions (DVC) as a population index for each county. Year-to-year changes in DVC rates have been monitored statewide for deer population trends since 2001.

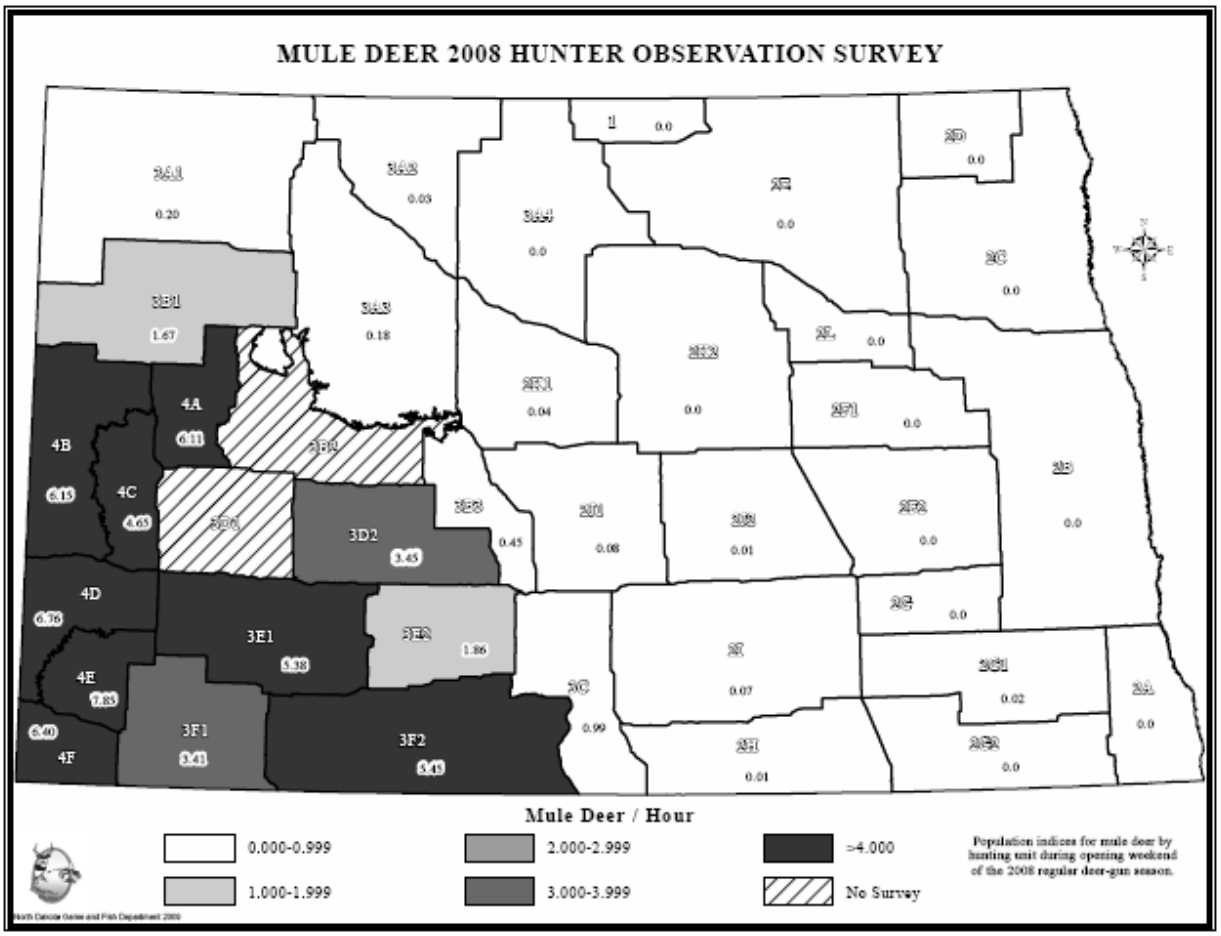



Figure 3. Map of North Dakota illustrating the use of observation rates by hunters (mule deer sighted/hour of effort spent hunting) as a population index for each deer-hunting unit. Hunter observations were made during the first Saturday and Sunday of the regular 2008 deer-gun season. Year-to- year changes in hunter observation rates have been monitored for mule deer population trends in the Badlands units (4A – 4F) since 1998, and statewide since 2004.

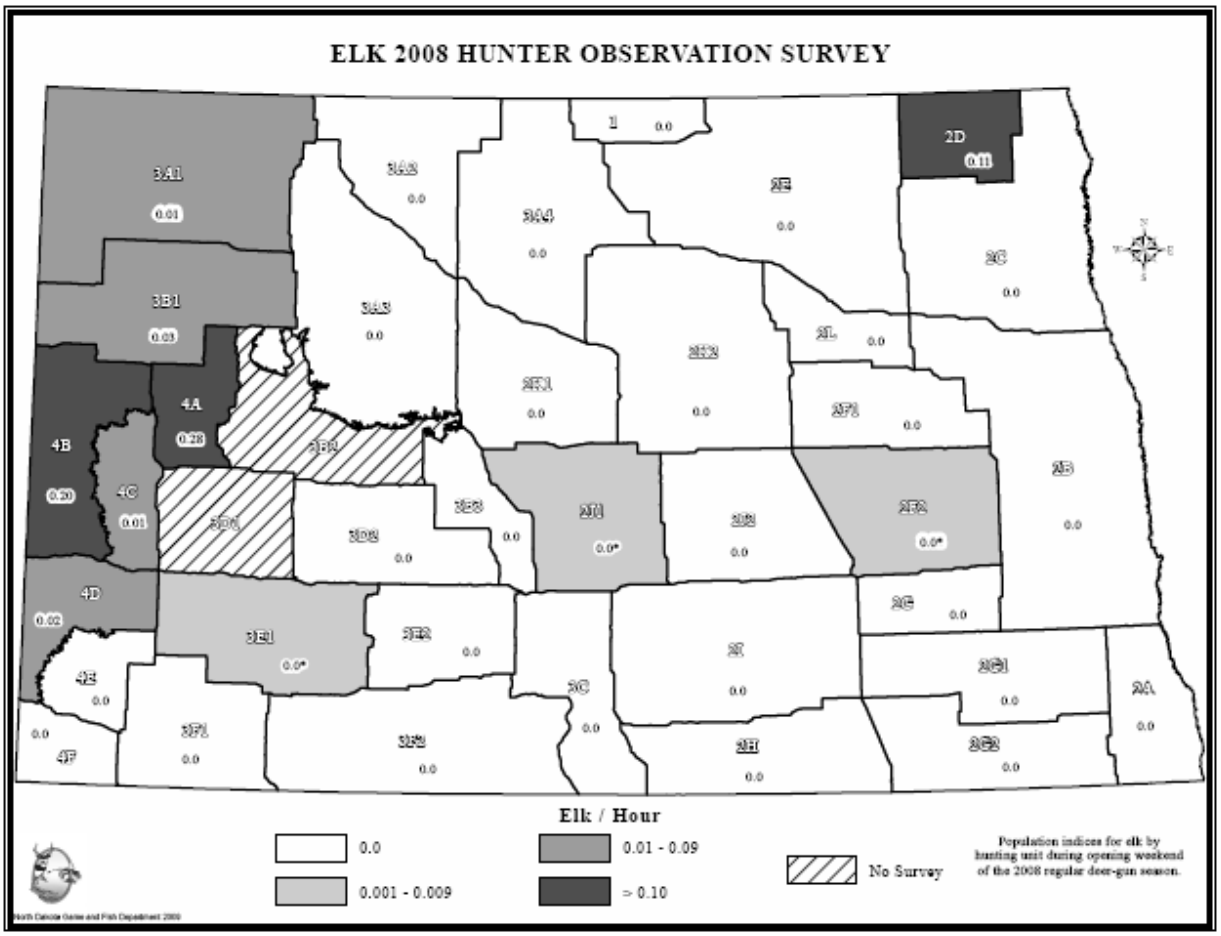



Figure 4. Map of North Dakota illustrating the use of observation rates by hunters (elk sighted/hour of effort spent hunting) as a population index for each deer-hunting unit. Hunter observations were made during the first Saturday and Sunday of the regular 2008 deer-gun season. Year-to-year changes in hunter observation rates have been monitored statewide for elk population trends since 2007.

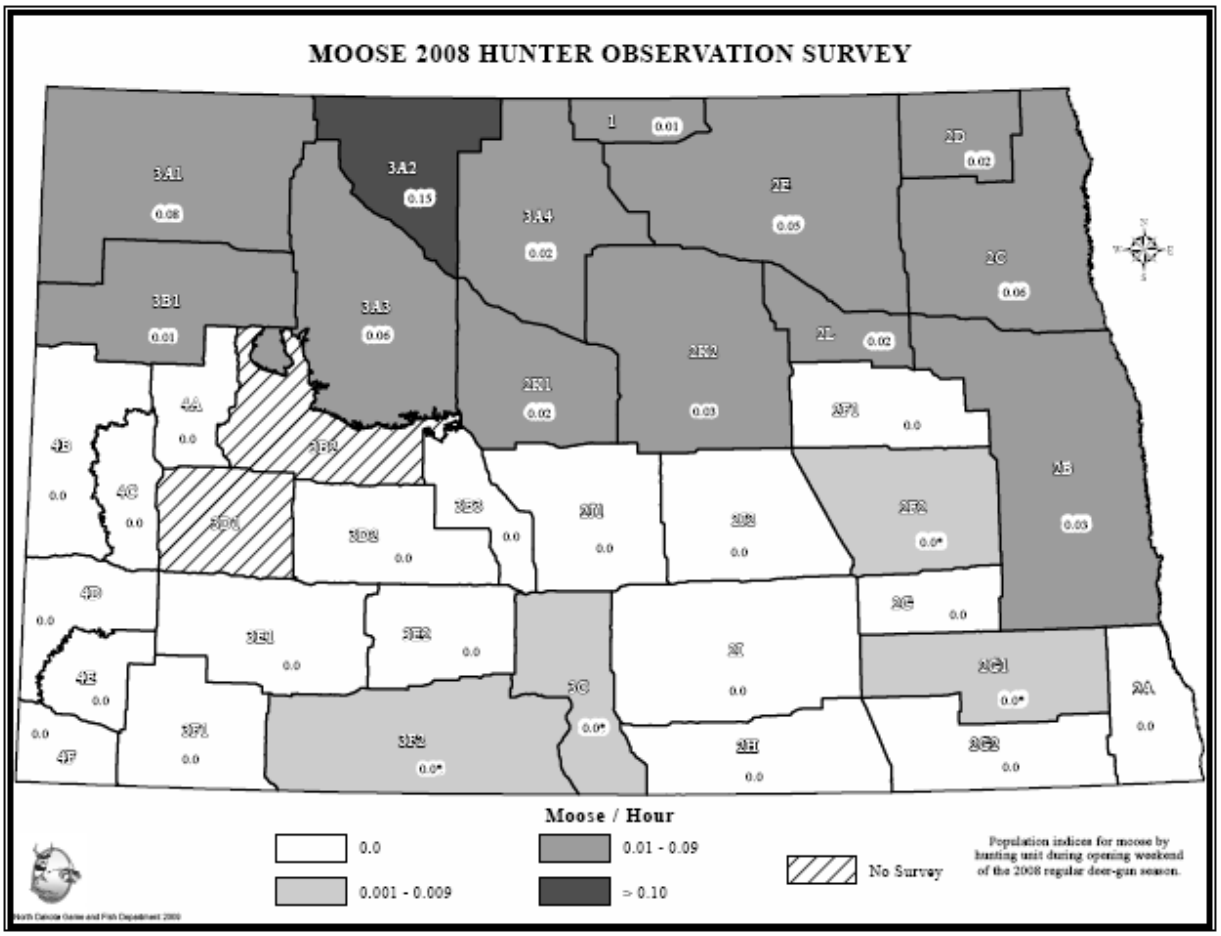



Figure 5. Map of North Dakota illustrating the use of observation rates by hunters (moose sighted/hour of effort spent hunting) as a population index for each deer-hunting unit. Hunter observations were made during the first Saturday and Sunday of the regular 2008 deer-gun season. Year-to-year changes in hunter observation rates have been monitored statewide for moose population trends since 2007.


# Summary of 2008-09 Ohio Deer Seasons

Publication 304 (R609)

# Table of Contents



Ted Strickland, Governor • Sean D. Logan, Director
David M. Graham, Chief

# Mission Statement

***We are dedicated to conserving and improving the fish and wildlife resources and their habitats, and promoting their use and appreciation by the people so that these resources continue to enhance the quality of life for all Ohioans.***

## OUR MANAGEMENT STRATEGY

The goal of Ohio's deer program is to provide a deer population that maximizes recreational opportunity including viewing, photographing, and hunting while minimizing conflicts with agriculture, motor travel, and other areas of human endeavor. This has been our goal for over 40 years. Farmer attitude surveys are used to establish and update population goals for most counties. We believe these goals represent a reasonable compromise between interests with opposing opinions on appropriate deer population levels. Furthermore,

although these goals 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 goal is accomplished through harvest management.

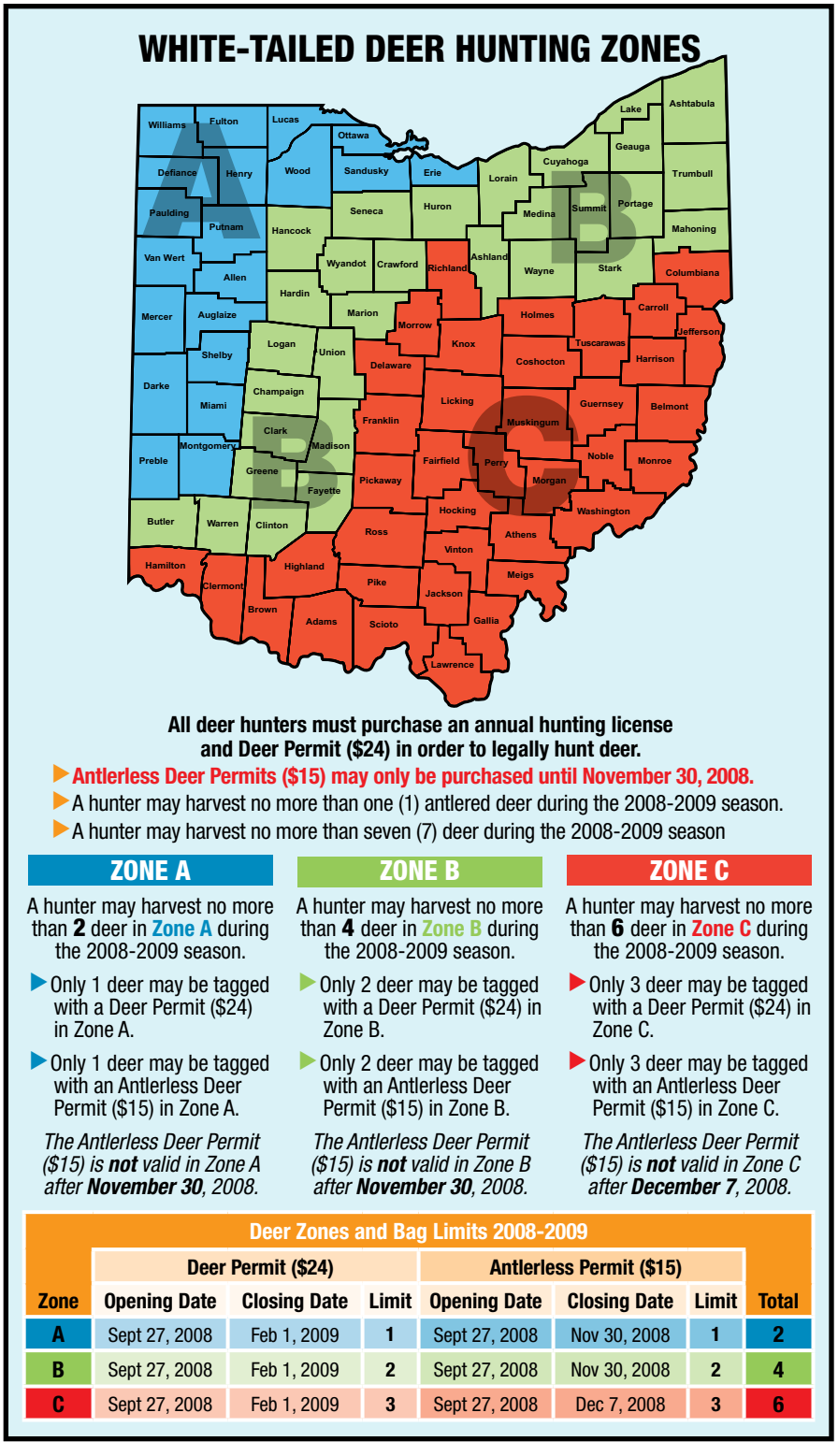
## SEASONS, PERMITS, AND BAG LIMITS

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.

Hunters had the opportunity to harvest deer during any of Ohio's 5 seasons including: archery Sep. 27, 2008-Feb. 1, 2009, early muzzleloader Oct. 20-25, gun Dec. 1-7, bonus gun Dec. 20-21, and muzzleloader Dec. 27-30. Young (17 and under) hunters had the opportunity to participate in the statewide youth season Nov. 22-23. All seasons were either-sex and with the exception of the early muzzleloader season, all seasons were statewide. The early muzzleloader season was restricted to Shawnee State Forest, Wolf Creek Wildlife Area/ Wildcat Hollow, and Salt Fork Wildlife Area. This year, hunters were not required to apply for a permit to hunt the early muzzleloader season.

*We extended the valid dates of the antlerless permits through gun season, but only in Zone C*

The $15 antlerless permit was available once again this year. Permits were good for an antlerless deer and were valid statewide during the first 9 weeks of the archery season. In an effort to put additional pressure on the antlerless segment of the herd in Zone C, we extended the valid dates of the antlerless permits through gun season, but only in Zone C. Permits had to be purchased before gun season started. Antlerless permits could also be used in any of the 5 Urban Deer units and during many Division of Wildlife special and controlled hunts, including the early muzzleloader season. A maximum of 4 deer could be harvested using $15 antlerless permits. Hunters were required to purchase at least 1 Special Deer Permit ($24) before purchasing an antlerless permit.




**Deer Zones and Bag Limits 2008-2009**

| | Deer Permit ($24) | | | Antlerless Permit ($15) | | | |
|---|---|---|---|---|---|---|---|
| Zone | Opening Date | Closing Date | Limit | Opening Date | Closing Date | Limit | Total |
| A | Sept 27, 2008 | Feb 1, 2009 | 1 | Sept 27, 2008 | Nov 30, 2008 | 1 | 2 |
| B | Sept 27, 2008 | Feb 1, 2009 | 2 | Sept 27, 2008 | Nov 30, 2008 | 2 | 4 |
| C | Sept 27, 2008 | Feb 1, 2009 | 3 | Sept 27, 2008 | Dec 7, 2008 | 3 | 6 |

*Figure 1. Ohio's 2008-09 deer zones and permit structure as presented in the Ohio Hunting and Trapping Regulation, Publication 85.*

## HARVEST

A total of 252,017 deer was harvested this year, an 8% increase from last season (Table 1). Coshocton County led the state in total harvest with 9,564 deer. Figure 2 is a map of total harvest by county with the top 5 counties highlighted. A harvest summary by season for the top 5 counties is presented in Table 2. A complete harvest summary by county and season is available in Appendix A on page 12.

Hunters harvested 117,487 deer during the traditional statewide gun season, 14% more than last year. Coshocton, Tuscarawas, Guernsey, Muskingum, and Harrison counties led the state in total gun harvest. Archers reported harvesting 85,856 deer this year, 9% more than last season (Table 1). This year's vertical bow harvest of 39,376 deer represents a 8.3% increase over last season. For the 9th consecutive year, vertical bow hunters have set harvest records. Licking County archers once again led the state with 1,702 deer harvested with a vertical bow. Coshocton, Tuscarawas, Knox, and Holmes counties completed the list of top 5 harvest counties. Crossbow hunters also set a record this year by harvesting 46,480 deer, nearly 10% more than last year. Licking County led the state with 1,552 deer. Coshocton,

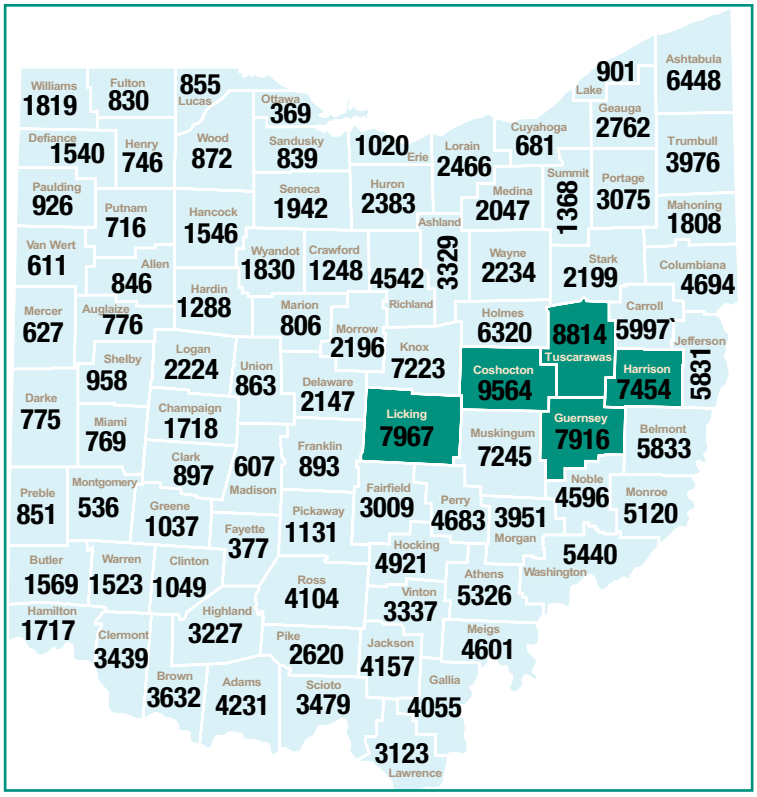



*Figure 2. Ohio's 2008-09 deer harvest by county with the top 5 counties highlighted.*

Table 1. Ohio's 2008-09 white-tailed deer harvest by season and percent change from previous year.

| Season/hunt | Antlered | Antlerless | Total | % Change |
|---|---|---|---|---|
| Early Gun[1] | 39,863 | 77,624 | 117,487 | 13.9 |
| Bonus Gun | 4,652 | 12,092 | 16,744 | -7.2 |
| Total Gun | 44,515 | 89,716 | 134,231 | 10.8 |
| Crossbow | 20,058 | 26,422 | 46,480 | 9.9 |
| Vertical Bow | 15,094 | 24,282 | 39,376 | 8.3 |
| Total Archery | 35,152 | 50,704 | 85,856 | 9.2 |
| Salt Fork[2] | 119 | 196 | 315 | 128.3 |
| Wildcat Hollow[2] | 61 | 100 | 161 | 64.3 |
| Shawnee[2] | 43 | 47 | 90 | 136.8 |
| Statewide Muzzleloader[3] | 5,504 | 15,462 | 20,966 | -4.9 |
| Total Muzzleloader | 5,727 | 15,805 | 21,532 | -3.6 |
| Statewide Youth | 4,362 | 5,337 | 9,699 | -3.6 |
| NASA/Plumbrook | 119 | 219 | 338 | 46.3 |
| Ravenna Hunt | 87 | 274 | 361 | -12.2 |
| Season Total | 89,962 | 162,055 | 252,017 | 8.2 |

[1]Traditional gun season for deer of either sex, Dec. 1-7, 2008.
[2]Special early muzzleloader season Oct. 20-25, 2008.
[3]Statewide either-sex muzzleloader season Dec. 27-30, 2008.

***Top spots for youth hunters were Tuscarawas, Guernsey, Muskingum, Coshocton, and Licking counties.***

Tuscarawas, Ashtabula, and Holmes rounded out the top 5 harvest counties for crossbow. There were 20,966 deer harvested during the 4-day statewide muzzleloader season, December 27-30 (Table 1). This year's harvest was off by just under 5% from last year. This is the fourth consecutive year that the harvest has dropped. Some hunters may be opting for the 2-day mid-December firearms season during which muzzleloaders would be legal as well. Coshocton County had the highest muzzleloader harvest

Table 2. Ohio's 2008-09 antlered and antlerless deer harvest by season for the top 5 total harvest counties.

| SEASON | COUNTY | ANTLERED | | ANTLERLESS | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| BONUS GUN | Coshocton | 179 | 188 | 496 | 509 |
| | Tuscarawas | 210 | 155 | 501 | 504 |
| | Harrison | 201 | 162 | 404 | 457 |
| | Guernsey | 162 | 149 | 479 | 403 |
| | Licking | 193 | 133 | 367 | 386 |
| GUN | Coshocton | 1,316 | 1,545 | 2,588 | 3,383 |
| | Tuscarawas | 1,136 | 1,305 | 2,373 | 3,153 |
| | Guernsey | 1,176 | 1,322 | 2,283 | 2,741 |
| | Muskingum | 1,147 | 1,334 | 2,294 | 2,647 |
| | Harrison | 1,080 | 1,240 | 1,948 | 2,642 |
| CROSSBOW | Licking | 702 | 658 | 965 | 894 |
| | Coshocton | 583 | 577 | 829 | 887 |
| | Tuscarawas | 525 | 606 | 798 | 826 |
| | Ashtabula | 457 | 522 | 649 | 822 |
| | Holmes | 465 | 465 | 693 | 795 |
| VERTICAL BOW | Licking | 541 | 602 | 958 | 1,100 |
| | Coshocton | 451 | 534 | 798 | 849 |
| | Tuscarawas | 363 | 407 | 702 | 797 |
| | Knox | 353 | 396 | 743 | 740 |
| | Holmes | 295 | 302 | 666 | 756 |
| MUZZLELOADER | Coshocton | 203 | 185 | 648 | 596 |
| | Tuscarawas | 182 | 169 | 524 | 546 |
| | Harrison | 179 | 175 | 526 | 524 |
| | Belmont | 189 | 167 | 497 | 476 |
| | Licking | 202 | 155 | 533 | 486 |
| YOUTH | Tuscarawas | 169 | 153 | 168 | 193 |
| | Guernsey | 150 | 134 | 152 | 190 |
| | Muskingum | 150 | 135 | 133 | 179 |
| | Coshocton | 177 | 112 | 149 | 199 |
| | Licking | 149 | 141 | 130 | 168 |
| TOTAL | Coshocton | 2,909 | 3,141 | 5,508 | 6,423 |
| | Tuscarawas | 2,585 | 2,795 | 5,066 | 6,019 |
| | Licking | 2,758 | 2,745 | 4,765 | 5,222 |
| | Guernsey | 2,546 | 2,644 | 4,529 | 4,957 |
| | Harrison | 2,327 | 2,520 | 4,007 | 4,934 |

followed by Tuscarawas, Harrison, Belmont, and Licking counties (Table 2). Young hunters harvested 9,699 deer, 3.6% fewer than last season. Top spots for youth hunters were Tuscarawas, Guernsey, Muskingum, Coshocton, and Licking counties. The Division of Wildlife issued 611,442 deer permits in license year 2008-09 (Appendix B on page 16), 5.7% more than last year. Senior (free and reduced) and regular antlerless permits were largely responsible for the jump in sales, increasing 112% and 45%, respectively (Fig. 3).

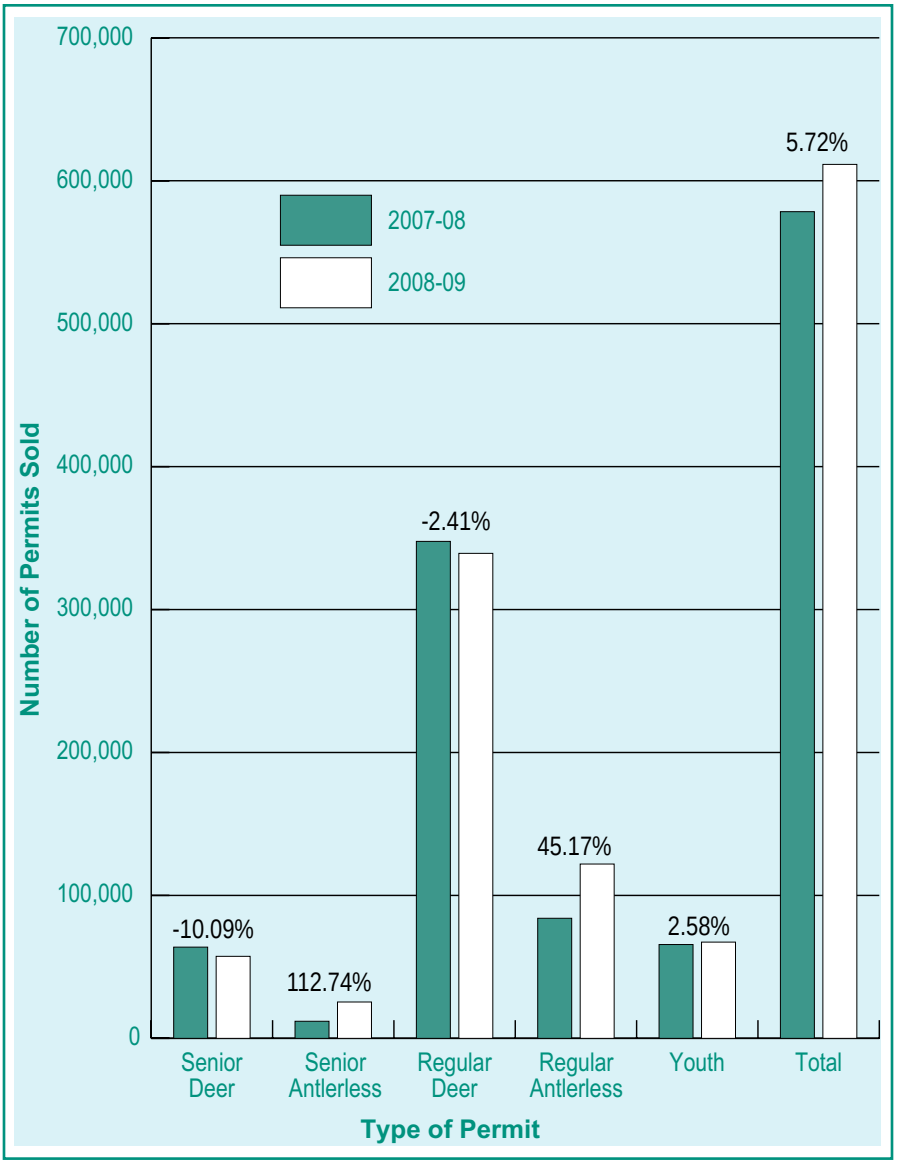



*Figure 3. Deer permit sales for 2007-08, 2008-09, and percent change.*

## AGE, SEX, AND CONDITION DATA

Each year during the gun season, Division of Wildlife personnel age approximately 5-7% of the harvest. Typically, this amounts to 6,000-8,000 deer. This year 5,938 deer were aged in 21 counties (Fig. 4). These data are used to generate an estimate of adult buck mortality, adult sex ratio, and fawns per adult doe in the harvest, a relative composite measure of reproduction and survival (Table 3). In turn, these data are used to generate population estimates for the upcoming season. The average age of this year's harvest sample, the last 5 years, and 1977 are presented in Figure 5.

*These data provide a snapshot of the relative condition of the deer herd.*

Table 3. Estimated annual mortality 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 5,938 deer sampled during the 2008-09 gun season.

| | Region | | |
|---|---|---|---|
| Variable | EC-Southeast | Northeast | Western |
| Adult buck mortality rate[1] | | | |
| 2004-08 average | 0.50 | 0.52 | 0.58 |
| 2008 | 0.46 | 0.55 | 0.56 |
| Adult sex ratio (F:M) | | | |
| 2004-08 average | 1.51 | 1.48 | 1.51 |
| 2008 | 1.40[2] | 1.50 | 1.46 |
| Fawns/adult doe | | | |
| 2004-08 average | 0.86 | 1.10 | 1.02 |
| 2008 | 0.77 | 0.91 | 1.01 |

[1]The proportion of antlered deer that die each year from all causes.
[2]For example, for every 100 adult bucks alive at the start of the fall hunting season, there will be approximately 140 adult does.

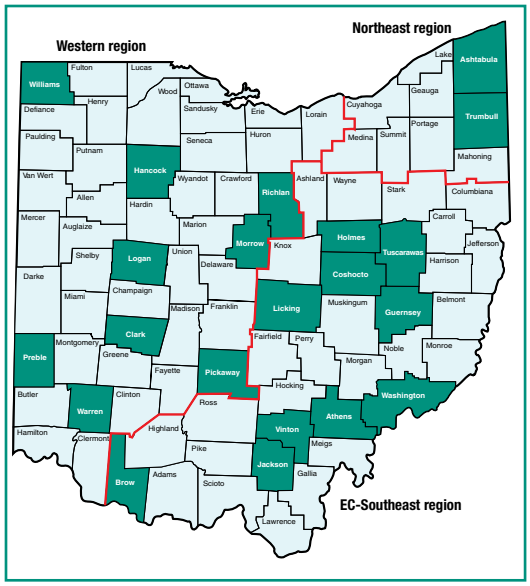



*Figure 4. Distribution of the deer aging stations for the 2008-09 deer season.*



In addition to the age data, biologists also collect antler measurements from yearling (1.5 years old) bucks. These data provide a snapshot of the relative condition of the deer herd. When yearling bucks are faced with dietary deficiencies, antler development will be compromised and declines in beam diameter and number of points can be expected. By monitoring yearling antler development and herd size, we are better able to understand the relationship between deer abundance and herd condition. Average yearling antler beam for the 1977-78 and 2008-09 seasons is presented in Figure 6.

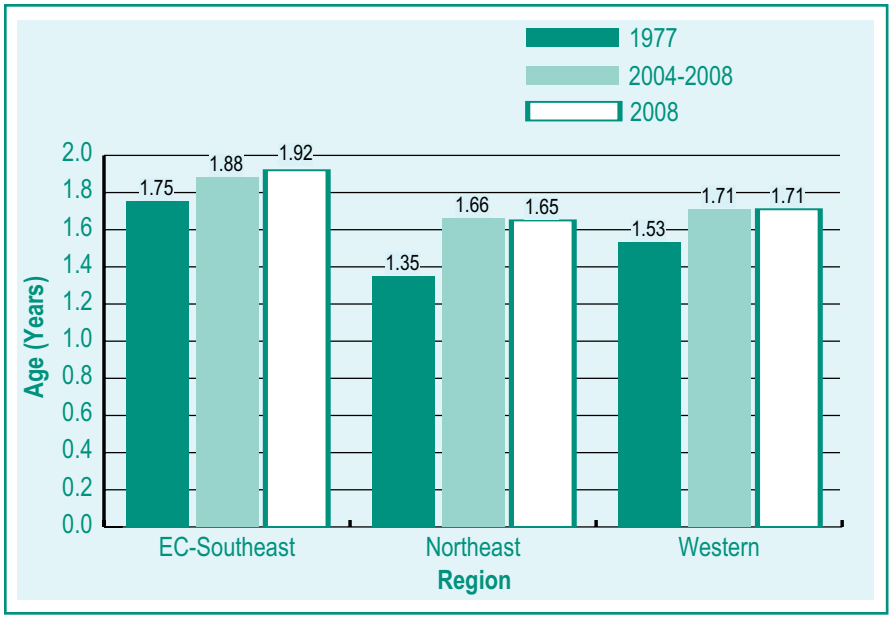



*Figure 5. Mean age of all deer sampled by region for gun season harvest samples, 2004-08. Annual means are based on sample sizes that generally ranged from 5-7% of the total gun harvest.*

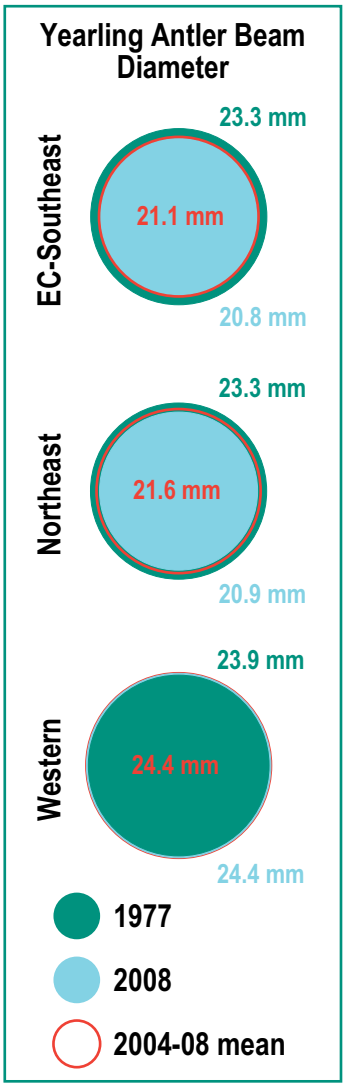



*Figure 6. Mean yearling beam diameter from gun season harvest samples, 1977-78 and 2008-09.*

## DEER-VEHICLE ACCIDENTS

Because of the secretiveness and mobility of the white-tailed deer, hunter harvest and reported deer-vehicle accidents have been used in place of actual counts to monitor deer populations. These 2 indices, or measures of relative abundance, have historically been highly correlated with one another; in other words, as the buck harvest increased, so did the number of accidents reported, and vice versa. In fact, both the number of reported accidents and the total annual buck harvest increased 7% annually from 1977 to 2003 (Fig. 7). Because annual harvest can be affected by many factors including weather, farming practices, and hunter participation, the number of reported deer-vehicle accidents has served as a valuable independent measure of herd size. However, more recent data suggest that the number of reported accidents may no longer track changes in the size of the deer herd. From 2003-2008, the number of reported accidents dropped an average of 5% per year. During the same time period, buck harvest has been generally trending upward, although with more variability (Fig. 8). The same upward trend is apparent in both the number of deer carcasses removed from state highways each year by the Ohio Department of Transportation (ODOT) as well as the projected number of industry-wide insurance claims involving deer in Ohio. These projections are based on State Farm's market share within Ohio.


Most (3 of 4) indices used to track trends in deer abundance on a statewide scale suggest that the number of reported deer-car crashes no longer tracks changes in the size of Ohio's deer population. This change is most likely related to changes in reporting rates over time. Since most insurance companies no longer require an accident report, motorists may be less inclined to complete them except in the case of personal injury. Thus, we have chosen to discontinue use of reported deer-vehicle accident data as a metric to track Ohio deer population trends and will no longer publish such data in this report.

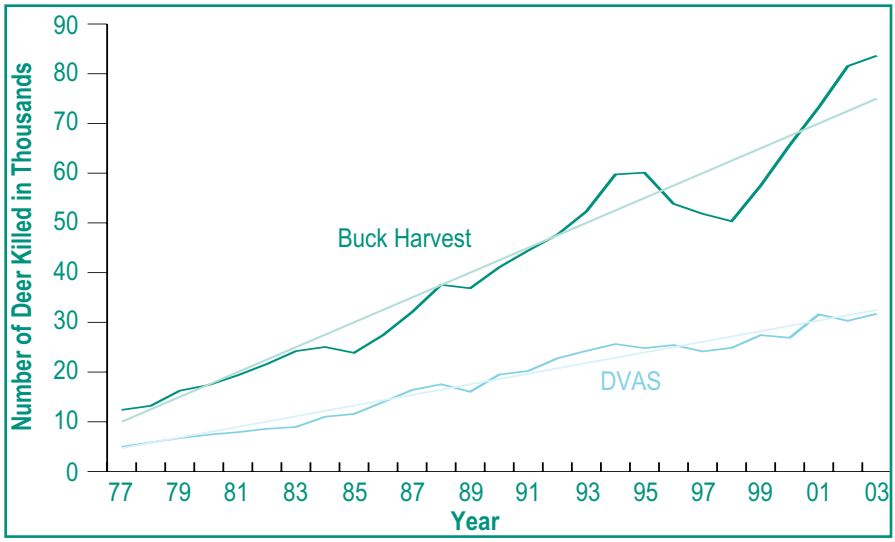



*Figure 7. Statewide trends in reported hunter-harvested white-tailed deer bucks and deer vehicle accidents (DVAS), 1977-2003.*

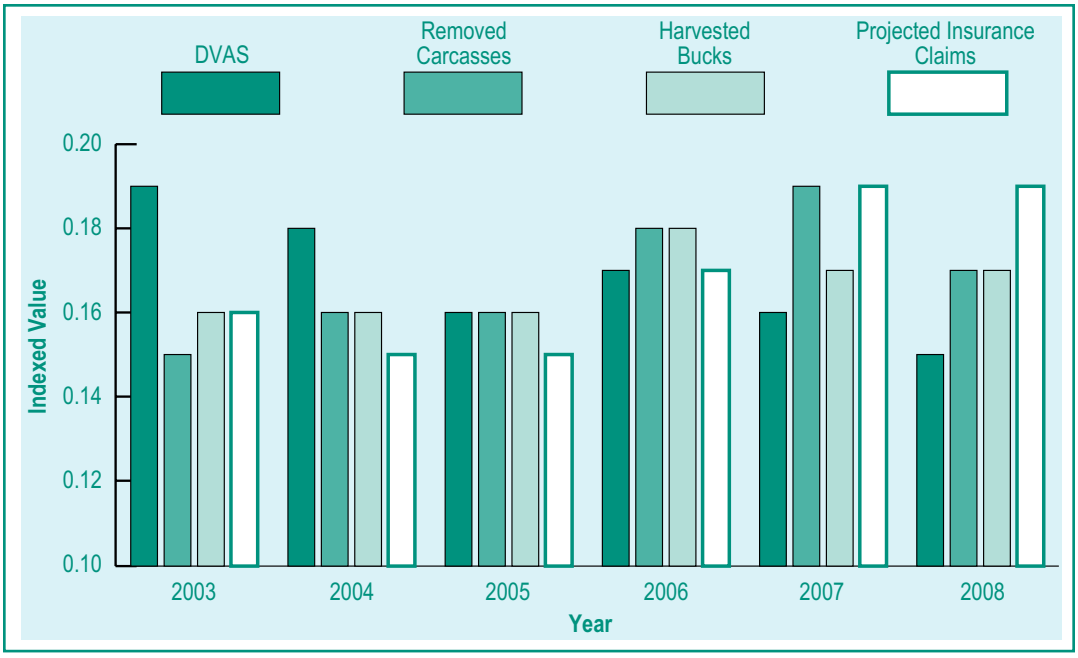



*Figure 8. Statewide trends in reported hunter-harvested white-tailed deer bucks, deer vehicle accidents (DVAS), deer carcasses removed from state highways, and projected insurance claims involving deer based on State Farm insurance data, 2003-08.*

## DEER DAMAGE COMPLAINTS

Because population goals 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 goal. However, some localized damage is still likely to occur. In situations where deer need to be killed to reduce property damage, landowners/lessees may be issued Deer Damage Control Permits (DDCP) at the time the damage is occurring. These permits allow landowners/lessees and their agents to kill deer during the dates and under the conditions specified on the permit. For most agricultural problems, these permits will only be valid for the period of January 1 until the start of the archery season. Under limited crop damage circumstances permits may be extended until the start of the youth gun season. In specific circumstances permits may be valid year-round to control damage at orchards, nurseries, inside municipalities, and for safety purposes at airports. Regardless of the situation, DDCPs expire no later than December 31 of the year in which the permit is issued. Except in the case of rub damage to trees, permit holders are strongly encouraged to kill antlerless deer. Permit holders must surrender all antlers to the Division of Wildlife. In 2008, a total of 1,732 crop damage complaints was received by the Division of Wildlife (Fig. 9 and Appendix C on page 17). Although well below the record 2,221 complaints received in 2004, the number of complaints received this year was up 3.2% from last year (Fig. 9). A total of 7,685 deer was killed on damage permits this year, 11.8% fewer than last season.

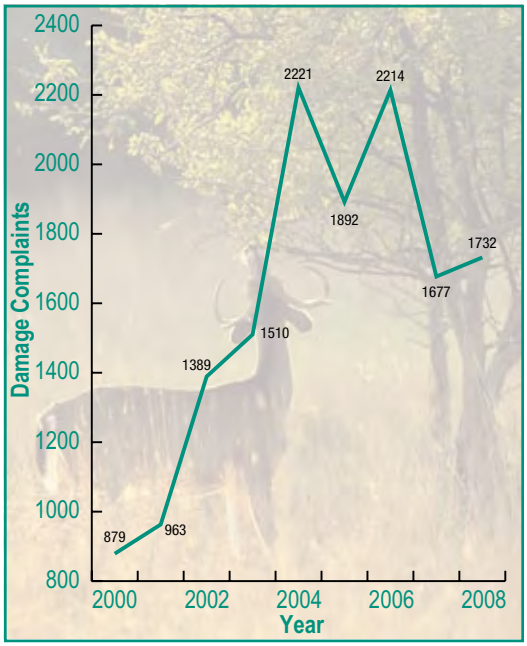



*Figure 9. Statewide trends in deer damage complaints, 2000-2008.*

## SEASON SUMMARY

Once again, our goal was to continue to shift harvest pressure to the antlerless segment of the population. In spite of progress in 2007, work remained, particularly in our southeast Zone C counties. Therefore, the decision was made to allow hunters to use unfilled $15 antlerless permits during gun season, in Zone C only. The permits had to be purchased before the start of the gun season. Elsewhere in the state, antlerless permits would expire with the start of the gun season, just as they did last year.

Through gun season, hunters harvested 121,748 antlerless deer, a 16% increase over last year (Fig. 10). Most of the additional 17,157 antlerless deer harvested this year were taken in gun season, with Zone C hunters accounting for the majority (93%) of the additional deer. The gun season harvest in Zone C was up 23% over last year (Fig. 11). Although gun hunters took more deer this year in both Zones A and B, the increases were insignificant relative to Zone C; Zones A and B gun harvests were up a modest 6% and 5%, respectively (Fig. 11). Archers took 23% and 21% more antlerless deer in Zones A and B, respectively, this year in the 9 weeks prior to the gun season. The archery harvest in Zone C was up only 8% (Fig. 11).

On the surface, the move to expand opportunity through the gun season seemed to be a logical solution to underharvest in Zone C. Success takes time, and with more time, logic would predict a larger harvest. Unfortunately, more time also means more time to defer harvest and apparently many of our hunters opted to do just that. The total antlerless harvest through gun season in Zone C was only slightly (18% vs. 14%) ahead of Zone A where regulations remained unchanged from last season (Fig. 11). To a large degree, this is due to the fact that many hunters opted to wait until gun season to try and fill their antlerless tag. The disproportionately large and small increases in the gun and archery harvests, respectively, in Zone C relative to the rest of the state confirm this. Permit sales point to this as well. Although the intent of the regulation was to provide archers with an opportunity to use unfilled antlerless permits, many hunters waited until nearly gun season to buy their antlerless permits. Hunters purchased 17,236 permits the week before gun season, with nearly 40% of these sales occurring on Sunday, the last day to

*Unfortunately, more time also means more time to defer harvest and apparently many of our hunters opted to do just that.*

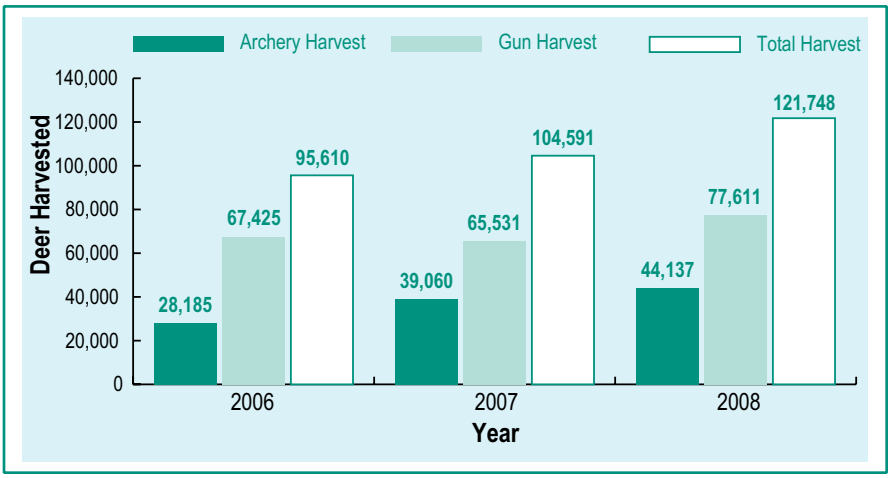



*Figure 10. Antlerless deer harvest from opening day of archery season through gun season, 2006-2008.*

buy the permit. What's more, the modest harvest increase in Zone C relative to the rest of the state came with considerable risk. By deferring their harvest, many hunters in effect traded 9 weeks of archery opportunity for 3 1/2 days of gun hunting. Had the opening day of gun season been a repeat of 2007 when the harvest dropped 51%, it is very likely that the total antlerless harvest would have been down rather than up this year.

Many have questioned the logic of restricting the valid dates of the antlerless permit. "Hunters need time to kill deer, yet you're limiting them to less than half the archery season and only 1 of 3 firearms seasons." Contrary to popular opinion, more is not better, at least not in the case of hunting opportunities when deer populations are at historic highs and interest in antlers has never been greater. Both of these can be distractions from the most important job at hand - harvesting sufficient numbers of antlerless deer to keep the herd in balance with its habitat. For that reason, we will continue to look for ways to strike a balance between demanding antlerless harvest objectives and hunting opportunity. Like the $15 antlerless permit, this may mean somewhat nontraditional approaches to managing the harvest. Our success will depend on the willingness of Ohio deer hunters to adapt. If the past is any indication of the future, Ohio's deer program will remain a model for the rest of the country.

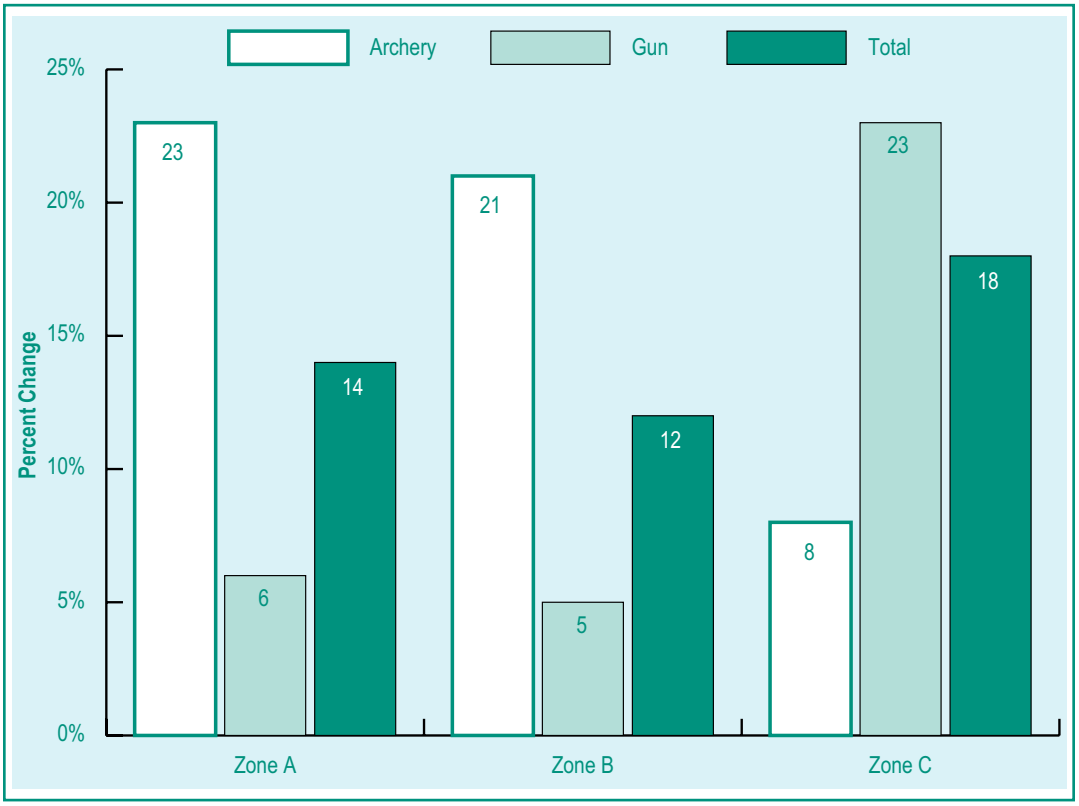



*Figure 11. Change in antlerless gun and archery harvest (1st 9 weeks of season) in 2008, by deer zone compared to 2007 harvest data.*

**Appendix A. Ohio's 2008-09 antlered and antlerless deer harvest by county and season.**

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| Adams | Bonus Gun | 85 | 78 | 136 | 221 |
| | Gun | 666 | 673 | 1125 | 1264 |
| | Crossbow | 250 | 282 | 318 | 366 |
| | Vertical Bow | 311 | 308 | 472 | 485 |
| | Muzzleloader | 142 | 107 | 266 | 271 |
| | Youth | 117 | 74 | 79 | 88 |
| | Total | 1572 | 1529 | 2399 | 2702 |
| Allen | Bonus Gun | 16 | 23 | 41 | 30 |
| | Gun | 148 | 143 | 180 | 155 |
| | Crossbow | 84 | 91 | 98 | 101 |
| | Vertical Bow | 67 | 72 | 108 | 117 |
| | Muzzleloader | 23 | 17 | 46 | 51 |
| | Youth | 26 | 21 | 18 | 25 |
| | Total | 364 | 367 | 491 | 479 |
| Ashland | Bonus Gun | 77 | 68 | 242 | 182 |
| | Gun | 497 | 458 | 930 | 886 |
| | Crossbow | 317 | 318 | 397 | 383 |
| | Vertical Bow | 185 | 201 | 277 | 341 |
| | Muzzleloader | 71 | 80 | 211 | 252 |
| | Youth | 76 | 76 | 74 | 84 |
| | Total | 1223 | 1201 | 2131 | 2128 |
| Ashtabula | Bonus Gun | 136 | 121 | 371 | 349 |
| | Gun | 758 | 933 | 1552 | 2233 |
| | Crossbow | 457 | 522 | 649 | 822 |
| | Vertical Bow | 250 | 307 | 507 | 611 |
| | Muzzleloader | 94 | 95 | 297 | 261 |
| | Youth | 65 | 66 | 87 | 128 |
| | Total | 1760 | 2044 | 3463 | 4404 |
| Athens | Bonus Gun | 109 | 90 | 257 | 217 |
| | Gun | 876 | 1042 | 1516 | 1894 |
| | Crossbow | 278 | 309 | 279 | 323 |
| | Vertical Bow | 371 | 368 | 444 | 425 |
| | Muzzleloader | 138 | 129 | 402 | 365 |
| | Youth | 102 | 65 | 86 | 99 |
| | Total | 1874 | 2003 | 2984 | 3323 |
| Auglaize | Bonus Gun | 17 | 10 | 41 | 26 |
| | Gun | 158 | 113 | 180 | 195 |
| | Crossbow | 60 | 73 | 86 | 106 |
| | Vertical Bow | 69 | 67 | 79 | 94 |
| | Muzzleloader | 13 | 18 | 43 | 25 |
| | Youth | 36 | 19 | 24 | 30 |
| | Total | 353 | 300 | 453 | 476 |
| Belmont | Bonus Gun | 160 | 146 | 339 | 366 |
| | Gun | 1038 | 1148 | 1434 | 1994 |
| | Crossbow | 315 | 380 | 293 | 392 |
| | Vertical Bow | 188 | 242 | 285 | 307 |
| | Muzzleloader | 189 | 167 | 497 | 476 |
| | Youth | 141 | 108 | 76 | 107 |
| | Total | 2031 | 2191 | 2924 | 3642 |
| Brown | Bonus Gun | 64 | 71 | 182 | 193 |
| | Gun | 536 | 521 | 881 | 1117 |
| | Crossbow | 214 | 211 | 259 | 341 |
| | Vertical Bow | 263 | 264 | 440 | 396 |
| | Muzzleloader | 126 | 89 | 268 | 290 |
| | Youth | 103 | 68 | 73 | 71 |
| | Total | 1306 | 1224 | 2103 | 2408 |
| Butler | Bonus Gun | 44 | 28 | 59 | 78 |
| | Gun | 185 | 145 | 266 | 252 |
| | Crossbow | 171 | 167 | 221 | 246 |
| | Vertical Bow | 162 | 163 | 229 | 282 |
| | Muzzleloader | 56 | 39 | 118 | 104 |
| | Youth | 47 | 30 | 17 | 35 |
| | Total | 665 | 572 | 910 | 997 |
| Carroll | Bonus Gun | 147 | 124 | 386 | 392 |
| | Gun | 785 | 949 | 1564 | 2191 |
| | Crossbow | 362 | 403 | 476 | 567 |
| | Vertical Bow | 196 | 200 | 334 | 438 |
| | Muzzleloader | 138 | 129 | 338 | 388 |
| | Youth | 111 | 101 | 80 | 115 |
| | Total | 1739 | 1906 | 3178 | 4091 |

**Appendix A. Continued**

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| Champaign | Bonus Gun | 36 | 22 | 87 | 65 |
| | Gun | 268 | 252 | 496 | 395 |
| | Crossbow | 115 | 128 | 181 | 218 |
| | Vertical Bow | 134 | 119 | 223 | 287 |
| | Muzzleloader | 39 | 33 | 103 | 111 |
| | Youth | 63 | 34 | 38 | 54 |
| | Total | 655 | 588 | 1128 | 1130 |
| Clark | Bonus Gun | 18 | 19 | 45 | 31 |
| | Gun | 128 | 101 | 160 | 172 |
| | Crossbow | 113 | 114 | 126 | 123 |
| | Vertical Bow | 87 | 85 | 127 | 157 |
| | Muzzleloader | 33 | 24 | 45 | 41 |
| | Youth | 21 | 13 | 17 | 17 |
| | Total | 400 | 356 | 520 | 541 |
| Clermont | Bonus Gun | 57 | 60 | 135 | 162 |
| | Gun | 404 | 391 | 650 | 722 |
| | Crossbow | 356 | 366 | 479 | 455 |
| | Vertical Bow | 345 | 336 | 560 | 557 |
| | Muzzleloader | 75 | 69 | 230 | 213 |
| | Youth | 63 | 60 | 49 | 48 |
| | Total | 1300 | 1282 | 2103 | 2157 |
| Clinton | Bonus Gun | 21 | 26 | 45 | 37 |
| | Gun | 175 | 154 | 242 | 208 |
| | Crossbow | 88 | 107 | 108 | 128 |
| | Vertical Bow | 85 | 87 | 108 | 145 |
| | Muzzleloader | 29 | 24 | 76 | 77 |
| | Youth | 31 | 31 | 25 | 25 |
| | Total | 429 | 429 | 604 | 620 |
| Columbiana | Bonus Gun | 133 | 125 | 370 | 269 |
| | Gun | 722 | 749 | 1173 | 1608 |
| | Crossbow | 397 | 433 | 430 | 508 |
| | Vertical Bow | 192 | 172 | 267 | 289 |
| | Muzzleloader | 101 | 93 | 308 | 276 |
| | Youth | 95 | 92 | 105 | 80 |
| | Total | 1640 | 1664 | 2653 | 3030 |
| Coshocton | Bonus Gun | 179 | 188 | 496 | 509 |
| | Gun | 1316 | 1545 | 2588 | 3383 |
| | Crossbow | 583 | 577 | 829 | 887 |
| | Vertical Bow | 451 | 534 | 798 | 849 |
| | Muzzleloader | 203 | 185 | 648 | 596 |
| | Youth | 177 | 112 | 149 | 199 |
| | Total | 2909 | 3141 | 5508 | 6423 |
| Crawford | Bonus Gun | 22 | 14 | 77 | 52 |
| | Gun | 227 | 245 | 365 | 397 |
| | Crossbow | 69 | 100 | 112 | 114 |
| | Vertical Bow | 50 | 74 | 96 | 113 |
| | Muzzleloader | 19 | 20 | 56 | 61 |
| | Youth | 38 | 18 | 30 | 40 |
| | Total | 425 | 471 | 736 | 777 |
| Cuyahoga | Bonus Gun | 2 | 2 | 2 | |
| | Gun | 9 | 14 | 17 | 19 |
| | Crossbow | 129 | 149 | 298 | 273 |
| | Vertical Bow | 42 | 52 | 134 | 152 |
| | Muzzleloader | 7 | 6 | 11 | 12 |
| | Youth | 1 | | 1 | 2 |
| | Total | 190 | 223 | 463 | 458 |
| Darke | Bonus Gun | 27 | 12 | 39 | 42 |
| | Gun | 133 | 101 | 172 | 177 |
| | Crossbow | 83 | 74 | 73 | 102 |
| | Vertical Bow | 59 | 66 | 82 | 92 |
| | Muzzleloader | 14 | 17 | 54 | 34 |
| | Youth | 18 | 25 | 33 | 33 |
| | Total | 334 | 295 | 453 | 480 |
| Defiance | Bonus Gun | 10 | 26 | 10 | 57 |
| | Gun | 311 | 339 | 309 | 407 |
| | Crossbow | 80 | 96 | 83 | 150 |
| | Vertical Bow | 104 | 129 | 127 | 155 |
| | Muzzleloader | 37 | 34 | 73 | 76 |
| | Youth | 28 | 27 | 28 | 44 |
| | Total | 570 | 651 | 630 | 889 |

**Appendix A. Continued**

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| Delaware | Bonus Gun | 37 | 37 | 127 | 89 |
| | Gun | 274 | 274 | 450 | 517 |
| | Crossbow | 214 | 236 | 285 | 321 |
| | Vertical Bow | 178 | 168 | 279 | 306 |
| | Muzzleloader | 49 | 24 | 141 | 122 |
| | Youth | 40 | 23 | 35 | 30 |
| | Total | 792 | 762 | 1317 | 1385 |
| Erie | Bonus Gun | 19 | 11 | 18 | 32 |
| | Gun | 73 | 76 | 106 | 103 |
| | Crossbow | 139 | 133 | 130 | 131 |
| | Vertical Bow | 61 | 50 | 64 | 85 |
| | Muzzleloader | 25 | 11 | 26 | 36 |
| | Youth | 10 | 7 | 9 | 9 |
| | Total | 327 | 288 | 353 | 396 |
| Fairfield | Bonus Gun | 71 | 59 | 180 | 118 |
| | Gun | 469 | 467 | 886 | 899 |
| | Crossbow | 253 | 240 | 311 | 299 |
| | Vertical Bow | 221 | 213 | 321 | 338 |
| | Muzzleloader | 71 | 64 | 211 | 178 |
| | Youth | 71 | 58 | 65 | 76 |
| | Total | 1156 | 1101 | 1974 | 1908 |
| Fayette | Bonus Gun | 8 | 9 | 14 | 16 |
| | Gun | 88 | 83 | 101 | 81 |
| | Crossbow | 34 | 31 | 25 | 38 |
| | Vertical Bow | 30 | 37 | 23 | 34 |
| | Muzzleloader | 12 | 9 | 17 | 18 |
| | Youth | 27 | 11 | 9 | 10 |
| | Total | 199 | 180 | 189 | 197 |
| Franklin | Bonus Gun | 12 | 12 | 35 | 25 |
| | Gun | 83 | 72 | 169 | 136 |
| | Crossbow | 106 | 122 | 173 | 156 |
| | Vertical Bow | 105 | 123 | 164 | 178 |
| | Muzzleloader | 12 | 17 | 40 | 34 |
| | Youth | 7 | 16 | 6 | 2 |
| | Total | 325 | 362 | 587 | 531 |
| Fulton | Bonus Gun | 26 | 27 | 24 | 41 |
| | Gun | 204 | 192 | 142 | 194 |
| | Crossbow | 62 | 56 | 62 | 66 |
| | Vertical Bow | 56 | 54 | 77 | 109 |
| | Muzzleloader | 14 | 16 | 24 | 30 |
| | Youth | 18 | 26 | 22 | 19 |
| | Total | 380 | 371 | 351 | 459 |
| Gallia | Bonus Gun | 78 | 75 | 152 | 197 |
| | Gun | 813 | 828 | 1414 | 1549 |
| | Crossbow | 180 | 197 | 233 | 202 |
| | Vertical Bow | 183 | 216 | 277 | 285 |
| | Muzzleloader | 110 | 85 | 334 | 293 |
| | Youth | 100 | 59 | 89 | 69 |
| | Total | 1464 | 1460 | 2499 | 2595 |
| Geauga | Bonus Gun | 41 | 30 | 127 | 122 |
| | Gun | 247 | 340 | 483 | 679 |
| | Crossbow | 327 | 350 | 486 | 425 |
| | Vertical Bow | 185 | 207 | 410 | 431 |
| | Muzzleloader | 38 | 29 | 137 | 95 |
| | Youth | 26 | 25 | 26 | 29 |
| | Total | 864 | 981 | 1669 | 1781 |
| Greene | Bonus Gun | 14 | 8 | 49 | 53 |
| | Gun | 158 | 123 | 218 | 179 |
| | Crossbow | 143 | 122 | 137 | 133 |
| | Vertical Bow | 125 | 133 | 182 | 178 |
| | Muzzleloader | 32 | 24 | 66 | 66 |
| | Youth | 19 | 10 | 10 | 8 |
| | Total | 491 | 420 | 662 | 617 |
| Guernsey | Bonus Gun | 162 | 149 | 479 | 403 |
| | Gun | 1176 | 1322 | 2283 | 2741 |
| | Crossbow | 521 | 554 | 603 | 653 |
| | Vertical Bow | 354 | 334 | 489 | 522 |
| | Muzzleloader | 183 | 151 | 523 | 448 |
| | Youth | 150 | 134 | 152 | 190 |
| | Total | 2561 | 2763 | 4651 | 5153 |

**Appendix A. Continued**

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| Hamilton | Bonus Gun | 19 | 12 | 55 | 36 |
| | Gun | 98 | 80 | 177 | 199 |
| | Crossbow | 192 | 217 | 363 | 317 |
| | Vertical Bow | 227 | 232 | 527 | 489 |
| | Muzzleloader | 37 | 20 | 96 | 91 |
| | Youth | 16 | 13 | 12 | 11 |
| | Total | 589 | 574 | 1230 | 1143 |
| Hancock | Bonus Gun | 37 | 16 | 74 | 59 |
| | Gun | 298 | 241 | 473 | 447 |
| | Crossbow | 133 | 147 | 126 | 150 |
| | Vertical Bow | 104 | 110 | 153 | 192 |
| | Muzzleloader | 26 | 36 | 84 | 80 |
| | Youth | 45 | 32 | 45 | 36 |
| | Total | 643 | 582 | 955 | 964 |
| Hardin | Bonus Gun | 33 | 26 | 63 | 64 |
| | Gun | 257 | 236 | 510 | 387 |
| | Crossbow | 74 | 65 | 102 | 98 |
| | Vertical Bow | 63 | 63 | 125 | 167 |
| | Muzzleloader | 36 | 44 | 75 | 80 |
| | Youth | 44 | 27 | 56 | 31 |
| | Total | 507 | 461 | 931 | 827 |
| Harrison | Bonus Gun | 201 | 162 | 404 | 457 |
| | Gun | 1080 | 1240 | 1948 | 2642 |
| | Crossbow | 464 | 509 | 580 | 671 |
| | Vertical Bow | 259 | 297 | 454 | 477 |
| | Muzzleloader | 179 | 175 | 526 | 524 |
| | Youth | 144 | 137 | 95 | 163 |
| | Total | 2327 | 2520 | 4007 | 4934 |
| Henry | Bonus Gun | 12 | 7 | 22 | 23 |
| | Gun | 160 | 172 | 152 | 199 |
| | Crossbow | 45 | 47 | 36 | 74 |
| | Vertical Bow | 51 | 50 | 51 | 64 |
| | Muzzleloader | 10 | 14 | 28 | 37 |
| | Youth | 24 | 27 | 9 | 32 |
| | Total | 302 | 317 | 298 | 429 |
| Highland | Bonus Gun | 70 | 69 | 157 | 157 |
| | Gun | 472 | 490 | 910 | 1062 |
| | Crossbow | 189 | 188 | 233 | 315 |
| | Vertical Bow | 220 | 201 | 292 | 327 |
| | Muzzleloader | 90 | 76 | 248 | 215 |
| | Youth | 101 | 66 | 65 | 61 |
| | Total | 1142 | 1090 | 1905 | 2137 |
| Hocking | Bonus Gun | 98 | 74 | 270 | 213 |
| | Gun | 722 | 870 | 1414 | 1780 |
| | Crossbow | 366 | 344 | 410 | 375 |
| | Vertical Bow | 329 | 313 | 396 | 410 |
| | Muzzleloader | 133 | 82 | 356 | 299 |
| | Youth | 102 | 67 | 90 | 94 |
| | Total | 1750 | 1750 | 2936 | 3171 |
| Holmes | Bonus Gun | 108 | 103 | 315 | 292 |
| | Gun | 778 | 795 | 1654 | 2017 |
| | Crossbow | 465 | 465 | 693 | 795 |
| | Vertical Bow | 295 | 302 | 666 | 756 |
| | Muzzleloader | 120 | 116 | 422 | 386 |
| | Youth | 136 | 126 | 150 | 167 |
| | Total | 1902 | 1907 | 3900 | 4413 |
| Huron | Bonus Gun | 52 | 45 | 146 | 131 |
| | Gun | 395 | 360 | 687 | 721 |
| | Crossbow | 164 | 203 | 225 | 281 |
| | Vertical Bow | 98 | 131 | 155 | 202 |
| | Muzzleloader | 58 | 39 | 134 | 141 |
| | Youth | 44 | 49 | 59 | 80 |
| | Total | 811 | 827 | 1406 | 1556 |
| Jackson | Bonus Gun | 70 | 59 | 139 | 180 |
| | Gun | 593 | 722 | 1172 | 1359 |
| | Crossbow | 248 | 300 | 291 | 365 |
| | Vertical Bow | 236 | 257 | 351 | 370 |
| | Muzzleloader | 96 | 111 | 277 | 285 |
| | Youth | 87 | 65 | 94 | 84 |
| | Total | 1330 | 1514 | 2324 | 2643 |

## Appendix A. Continued

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| Jefferson | Bonus Gun | 173 | 167 | 416 | 337 |
| | Gun | 1119 | 1076 | 1532 | 1963 |
| | Crossbow | 354 | 395 | 378 | 416 |
| | Vertical Bow | 296 | 287 | 321 | 371 |
| | Muzzleloader | 188 | 154 | 472 | 414 |
| | Youth | 127 | 124 | 85 | 127 |
| | Total | 2257 | 2203 | 3204 | 3628 |
| Knox | Bonus Gun | 157 | 118 | 428 | 347 |
| | Gun | 1011 | 1063 | 2041 | 2548 |
| | Crossbow | 405 | 390 | 627 | 719 |
| | Vertical Bow | 353 | 396 | 743 | 740 |
| | Muzzleloader | 151 | 119 | 465 | 479 |
| | Youth | 144 | 126 | 161 | 178 |
| | Total | 2221 | 2212 | 4465 | 5011 |
| Lake | Bonus Gun | 8 | 5 | 39 | 26 |
| | Gun | 72 | 61 | 130 | 192 |
| | Crossbow | 159 | 142 | 206 | 228 |
| | Vertical Bow | 65 | 65 | 124 | 128 |
| | Muzzleloader | 6 | 10 | 36 | 37 |
| | Youth | 10 | 4 | 7 | 3 |
| | Total | 320 | 287 | 542 | 614 |
| Lawrence | Bonus Gun | 63 | 56 | 115 | 149 |
| | Gun | 665 | 582 | 864 | 1042 |
| | Crossbow | 164 | 184 | 180 | 204 |
| | Vertical Bow | 238 | 209 | 242 | 262 |
| | Muzzleloader | 98 | 103 | 175 | 191 |
| | Youth | 97 | 82 | 68 | 59 |
| | Total | 1325 | 1216 | 1644 | 1907 |
| Licking | Bonus Gun | 193 | 133 | 367 | 386 |
| | Gun | 971 | 1056 | 1812 | 2188 |
| | Crossbow | 702 | 658 | 965 | 894 |
| | Vertical Bow | 541 | 602 | 958 | 1100 |
| | Muzzleloader | 202 | 155 | 533 | 486 |
| | Youth | 149 | 141 | 130 | 168 |
| | Total | 2758 | 2745 | 4765 | 5222 |
| Logan | Bonus Gun | 37 | 28 | 109 | 109 |
| | Gun | 360 | 309 | 700 | 605 |
| | Crossbow | 103 | 152 | 190 | 238 |
| | Vertical Bow | 132 | 172 | 266 | 320 |
| | Muzzleloader | 55 | 47 | 178 | 136 |
| | Youth | 63 | 49 | 44 | 59 |
| | Total | 750 | 757 | 1487 | 1467 |
| Lorain | Bonus Gun | 43 | 47 | 141 | 119 |
| | Gun | 266 | 257 | 528 | 506 |
| | Crossbow | 336 | 376 | 484 | 554 |
| | Vertical Bow | 121 | 120 | 210 | 216 |
| | Muzzleloader | 50 | 42 | 127 | 131 |
| | Youth | 51 | 34 | 37 | 64 |
| | Total | 867 | 876 | 1527 | 1590 |
| Lucas | Bonus Gun | 13 | 10 | 37 | 28 |
| | Gun | 58 | 46 | 142 | 139 |
| | Crossbow | 84 | 121 | 147 | 215 |
| | Vertical Bow | 63 | 78 | 118 | 161 |
| | Muzzleloader | 6 | 11 | 28 | 36 |
| | Youth | 6 | 6 | 12 | 4 |
| | Total | 230 | 272 | 484 | 583 |
| Madison | Bonus Gun | 16 | 16 | 23 | 42 |
| | Gun | 109 | 109 | 104 | 126 |
| | Crossbow | 52 | 51 | 31 | 53 |
| | Vertical Bow | 39 | 63 | 48 | 67 |
| | Muzzleloader | 20 | 19 | 33 | 23 |
| | Youth | 24 | 17 | 11 | 21 |
| | Total | 260 | 275 | 250 | 332 |
| Mahoning | Bonus Gun | 32 | 39 | 94 | 88 |
| | Gun | 192 | 210 | 400 | 389 |
| | Crossbow | 250 | 256 | 277 | 358 |
| | Vertical Bow | 118 | 133 | 151 | 170 |
| | Muzzleloader | 41 | 39 | 124 | 81 |
| | Youth | 31 | 17 | 31 | 28 |
| | Total | 664 | 694 | 1077 | 1114 |

## Appendix A. Continued

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| Marion | Bonus Gun | 19 | 18 | 35 | 41 |
| | Gun | 177 | 161 | 258 | 197 |
| | Crossbow | 76 | 68 | 80 | 92 |
| | Vertical Bow | 58 | 55 | 67 | 73 |
| | Muzzleloader | 15 | 24 | 53 | 47 |
| | Youth | 23 | 14 | 20 | 16 |
| | Total | 368 | 340 | 513 | 466 |
| Medina | Bonus Gun | 45 | 28 | 98 | 89 |
| | Gun | 233 | 222 | 400 | 441 |
| | Crossbow | 315 | 331 | 311 | 416 |
| | Vertical Bow | 109 | 102 | 161 | 195 |
| | Muzzleloader | 37 | 46 | 100 | 115 |
| | Youth | 27 | 24 | 28 | 38 |
| | Total | 766 | 753 | 1098 | 1294 |
| Meigs | Bonus Gun | 77 | 88 | 213 | 208 |
| | Gun | 771 | 856 | 1560 | 1659 |
| | Crossbow | 232 | 262 | 287 | 288 |
| | Vertical Bow | 246 | 259 | 293 | 318 |
| | Muzzleloader | 150 | 145 | 433 | 362 |
| | Youth | 126 | 84 | 94 | 72 |
| | Total | 1602 | 1694 | 2880 | 2907 |
| Mercer | Bonus Gun | 16 | 11 | 27 | 17 |
| | Gun | 130 | 110 | 182 | 142 |
| | Crossbow | 44 | 40 | 60 | 85 |
| | Vertical Bow | 49 | 34 | 84 | 92 |
| | Muzzleloader | 11 | 10 | 25 | 28 |
| | Youth | 28 | 28 | 31 | 30 |
| | Total | 278 | 233 | 409 | 394 |
| Miami | Bonus Gun | 15 | 16 | 34 | 31 |
| | Gun | 104 | 96 | 110 | 138 |
| | Crossbow | 97 | 92 | 95 | 123 |
| | Vertical Bow | 77 | 91 | 102 | 107 |
| | Muzzleloader | 15 | 19 | 39 | 29 |
| | Youth | 11 | 11 | 8 | 16 |
| | Total | 319 | 325 | 388 | 444 |
| Monroe | Bonus Gun | 90 | 89 | 241 | 232 |
| | Gun | 827 | 1077 | 1479 | 1918 |
| | Crossbow | 236 | 293 | 261 | 368 |
| | Vertical Bow | 130 | 133 | 213 | 218 |
| | Muzzleloader | 155 | 167 | 358 | 434 |
| | Youth | 109 | 100 | 79 | 91 |
| | Total | 1547 | 1859 | 2631 | 3261 |
| Montgomery | Bonus Gun | 8 | 8 | 17 | 11 |
| | Gun | 46 | 28 | 73 | 78 |
| | Crossbow | 86 | 81 | 95 | 107 |
| | Vertical Bow | 75 | 58 | 96 | 112 |
| | Muzzleloader | 19 | 13 | 20 | 25 |
| | Youth | 9 | 7 | 7 | 8 |
| | Total | 243 | 195 | 308 | 341 |
| Morgan | Bonus Gun | 80 | 64 | 218 | 173 |
| | Gun | 700 | 771 | 1419 | 1514 |
| | Crossbow | 163 | 180 | 203 | 204 |
| | Vertical Bow | 196 | 193 | 300 | 246 |
| | Muzzleloader | 112 | 111 | 265 | 268 |
| | Youth | 65 | 62 | 63 | 71 |
| | Total | 1327 | 1414 | 2526 | 2537 |
| Morrow | Bonus Gun | 41 | 58 | 122 | 111 |
| | Gun | 356 | 348 | 585 | 703 |
| | Crossbow | 204 | 198 | 199 | 246 |
| | Vertical Bow | 111 | 112 | 184 | 180 |
| | Muzzleloader | 56 | 37 | 144 | 120 |
| | Youth | 49 | 42 | 47 | 40 |
| | Total | 817 | 795 | 1281 | 1401 |
| Muskingum | Bonus Gun | 157 | 135 | 410 | 328 |
| | Gun | 1147 | 1334 | 2294 | 2647 |
| | Crossbow | 419 | 453 | 493 | 461 |
| | Vertical Bow | 431 | 482 | 558 | 502 |
| | Muzzleloader | 155 | 155 | 509 | 434 |
| | Youth | 150 | 135 | 133 | 179 |
| | Total | 2460 | 2694 | 4397 | 4551 |

**Appendix A. Continued**

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| Noble | Bonus Gun | 86 | 101 | 270 | 205 |
| | Gun | 797 | 955 | 1505 | 1688 |
| | Crossbow | 231 | 250 | 299 | 334 |
| | Vertical Bow | 173 | 180 | 247 | 278 |
| | Muzzleloader | 100 | 124 | 332 | 294 |
| | Youth | 80 | 104 | 72 | 83 |
| | Total | 1467 | 1714 | 2725 | 2882 |
| Ottawa | Bonus Gun | 14 | 14 | 21 | 15 |
| | Gun | 59 | 42 | 89 | 51 |
| | Crossbow | 62 | 60 | 50 | 60 |
| | Vertical Bow | 25 | 36 | 38 | 35 |
| | Muzzleloader | 10 | 7 | 33 | 26 |
| | Youth | 13 | 13 | 13 | 10 |
| | Total | 183 | 172 | 244 | 197 |
| Paulding | Bonus Gun | 19 | 8 | 43 | 35 |
| | Gun | 163 | 195 | 211 | 217 |
| | Crossbow | 50 | 65 | 54 | 104 |
| | Vertical Bow | 47 | 76 | 85 | 104 |
| | Muzzleloader | 16 | 20 | 30 | 52 |
| | Youth | 26 | 18 | 25 | 32 |
| | Total | 321 | 382 | 448 | 544 |
| Perry | Bonus Gun | 124 | 81 | 309 | 274 |
| | Gun | 728 | 779 | 1484 | 1788 |
| | Crossbow | 227 | 264 | 304 | 325 |
| | Vertical Bow | 210 | 196 | 299 | 292 |
| | Muzzleloader | 106 | 101 | 318 | 305 |
| | Youth | 119 | 96 | 87 | 116 |
| | Total | 1523 | 1545 | 2821 | 3138 |
| Pickaway | Bonus Gun | 21 | 21 | 68 | 48 |
| | Gun | 259 | 176 | 360 | 375 |
| | Crossbow | 112 | 103 | 103 | 93 |
| | Vertical Bow | 74 | 85 | 78 | 112 |
| | Muzzleloader | 19 | 27 | 80 | 45 |
| | Youth | 43 | 23 | 21 | 23 |
| | Total | 528 | 435 | 710 | 696 |
| Pike | Bonus Gun | 49 | 51 | 73 | 132 |
| | Gun | 425 | 507 | 665 | 870 |
| | Crossbow | 144 | 185 | 180 | 209 |
| | Vertical Bow | 162 | 162 | 176 | 182 |
| | Muzzleloader | 89 | 59 | 155 | 173 |
| | Youth | 71 | 45 | 49 | 45 |
| | Total | 940 | 1009 | 1298 | 1611 |
| Portage | Bonus Gun | 57 | 52 | 123 | 112 |
| | Gun | 264 | 311 | 462 | 596 |
| | Crossbow | 375 | 416 | 497 | 592 |
| | Vertical Bow | 142 | 165 | 257 | 272 |
| | Muzzleloader | 42 | 33 | 134 | 110 |
| | Youth | 31 | 26 | 31 | 29 |
| | Total | 911 | 1003 | 1504 | 1711 |
| Preble | Bonus Gun | 12 | 17 | 27 | 34 |
| | Gun | 136 | 106 | 118 | 129 |
| | Crossbow | 88 | 119 | 101 | 132 |
| | Vertical Bow | 85 | 90 | 104 | 107 |
| | Muzzleloader | 33 | 26 | 42 | 59 |
| | Youth | 24 | 15 | 14 | 17 |
| | Total | 378 | 373 | 406 | 478 |
| Putnam | Bonus Gun | 18 | 9 | 35 | 15 |
| | Gun | 145 | 113 | 154 | 169 |
| | Crossbow | 59 | 61 | 82 | 88 |
| | Vertical Bow | 54 | 58 | 77 | 91 |
| | Muzzleloader | 12 | 14 | 32 | 25 |
| | Youth | 29 | 31 | 25 | 42 |
| | Total | 317 | 286 | 405 | 430 |
| Richland | Bonus Gun | 75 | 64 | 210 | 199 |
| | Gun | 554 | 560 | 1109 | 1468 |
| | Crossbow | 410 | 437 | 595 | 607 |
| | Vertical Bow | 250 | 228 | 421 | 472 |
| | Muzzleloader | 69 | 79 | 269 | 242 |
| | Youth | 80 | 73 | 87 | 113 |
| | Total | 1438 | 1441 | 2691 | 3101 |

**Appendix A. Continued**

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| Ross | Bonus Gun | 97 | 81 | 193 | 196 |
| | Gun | 710 | 700 | 1025 | 1319 |
| | Crossbow | 313 | 327 | 253 | 311 |
| | Vertical Bow | 265 | 264 | 305 | 337 |
| | Muzzleloader | 107 | 126 | 297 | 287 |
| | Youth | 132 | 84 | 88 | 72 |
| | Total | 1624 | 1582 | 2161 | 2522 |
| Sandusky | Bonus Gun | 19 | 17 | 39 | 46 |
| | Gun | 110 | 119 | 159 | 166 |
| | Crossbow | 97 | 103 | 94 | 137 |
| | Vertical Bow | 57 | 54 | 66 | 88 |
| | Muzzleloader | 8 | 26 | 32 | 55 |
| | Youth | 15 | 17 | 17 | 11 |
| | Total | 306 | 336 | 407 | 503 |
| Scioto | Bonus Gun | 66 | 82 | 133 | 157 |
| | Gun | 464 | 553 | 871 | 1059 |
| | Crossbow | 206 | 223 | 215 | 296 |
| | Vertical Bow | 217 | 231 | 292 | 340 |
| | Muzzleloader | 76 | 91 | 232 | 240 |
| | Youth | 77 | 64 | 66 | 67 |
| | Total | 1116 | 1280 | 1833 | 2199 |
| Seneca | Bonus Gun | 37 | 38 | 120 | 88 |
| | Gun | 359 | 331 | 622 | 584 |
| | Crossbow | 180 | 183 | 167 | 212 |
| | Vertical Bow | 86 | 97 | 150 | 174 |
| | Muzzleloader | 44 | 40 | 119 | 100 |
| | Youth | 47 | 35 | 54 | 60 |
| | Total | 753 | 724 | 1232 | 1218 |
| Shelby | Bonus Gun | 22 | 25 | 40 | 41 |
| | Gun | 189 | 145 | 219 | 213 |
| | Crossbow | 89 | 82 | 115 | 139 |
| | Vertical Bow | 72 | 64 | 112 | 114 |
| | Muzzleloader | 18 | 14 | 56 | 49 |
| | Youth | 30 | 29 | 42 | 43 |
| | Total | 420 | 359 | 584 | 599 |
| Stark | Bonus Gun | 51 | 42 | 137 | 118 |
| | Gun | 287 | 296 | 499 | 455 |
| | Crossbow | 281 | 295 | 278 | 368 |
| | Vertical Bow | 134 | 136 | 165 | 216 |
| | Muzzleloader | 48 | 41 | 127 | 141 |
| | Youth | 41 | 38 | 41 | 53 |
| | Total | 842 | 848 | 1247 | 1351 |
| Summit | Bonus Gun | 18 | 15 | 37 | 24 |
| | Gun | 63 | 81 | 141 | 97 |
| | Crossbow | 320 | 322 | 383 | 454 |
| | Vertical Bow | 112 | 105 | 176 | 201 |
| | Muzzleloader | 16 | 16 | 46 | 38 |
| | Youth | 7 | 5 | 4 | 8 |
| | Total | 536 | 544 | 787 | 822 |
| Trumbull | Bonus Gun | 79 | 68 | 217 | 239 |
| | Gun | 449 | 458 | 876 | 1051 |
| | Crossbow | 425 | 442 | 594 | 689 |
| | Vertical Bow | 203 | 223 | 391 | 455 |
| | Muzzleloader | 62 | 58 | 177 | 176 |
| | Youth | 49 | 49 | 63 | 68 |
| | Total | 1267 | 1298 | 2318 | 2678 |
| Tuscarawas | Bonus Gun | 210 | 155 | 501 | 504 |
| | Gun | 1136 | 1305 | 2373 | 3153 |
| | Crossbow | 525 | 606 | 798 | 826 |
| | Vertical Bow | 363 | 407 | 702 | 797 |
| | Muzzleloader | 182 | 169 | 524 | 546 |
| | Youth | 169 | 153 | 168 | 193 |
| | Total | 2585 | 2795 | 5066 | 6019 |
| Union | Bonus Gun | 26 | 7 | 38 | 33 |
| | Gun | 173 | 147 | 238 | 217 |
| | Crossbow | 97 | 83 | 69 | 99 |
| | Vertical Bow | 61 | 69 | 80 | 111 |
| | Muzzleloader | 29 | 18 | 52 | 34 |
| | Youth | 20 | 20 | 18 | 25 |
| | Total | 406 | 344 | 495 | 519 |

## Appendix A. Continued

| County/season | | Antlered | | Antlerless | |
|---|---|---|---|---|---|
| | | 2007 | 2008 | 2007 | 2008 |
| VanWert | Bonus Gun | 10 | 8 | 24 | 26 |
| | Gun | 120 | 125 | 108 | 118 |
| | Crossbow | 46 | 59 | 60 | 73 |
| | Vertical Bow | 28 | 30 | 43 | 57 |
| | Muzzleloader | 14 | 21 | 31 | 43 |
| | Youth | 33 | 23 | 19 | 28 |
| | Total | 251 | 266 | 285 | 345 |
| Vinton | Bonus Gun | 60 | 48 | 131 | 97 |
| | Gun | 565 | 700 | 958 | 1246 |
| | Crossbow | 217 | 152 | 179 | 198 |
| | Vertical Bow | 244 | 267 | 220 | 274 |
| | Muzzleloader | 106 | 62 | 213 | 171 |
| | Youth | 73 | 48 | 59 | 74 |
| | Total | 1265 | 1277 | 1760 | 2060 |
| Warren | Bonus Gun | 23 | 22 | 68 | 57 |
| | Gun | 193 | 170 | 262 | 245 |
| | Crossbow | 188 | 205 | 207 | 235 |
| | Vertical Bow | 171 | 157 | 236 | 264 |
| | Muzzleloader | 35 | 41 | 96 | 88 |
| | Youth | 28 | 23 | 21 | 16 |
| | Total | 638 | 618 | 890 | 905 |
| Washington | Bonus Gun | 93 | 99 | 238 | 253 |
| | Gun | 952 | 1101 | 1604 | 1970 |
| | Crossbow | 222 | 300 | 267 | 315 |
| | Vertical Bow | 206 | 240 | 270 | 310 |
| | Muzzleloader | 131 | 186 | 395 | 431 |
| | Youth | 146 | 106 | 126 | 129 |
| | Total | 1750 | 2032 | 2900 | 3408 |
| Wayne | Bonus Gun | 60 | 47 | 134 | 119 |
| | Gun | 319 | 307 | 528 | 558 |
| | Crossbow | 224 | 231 | 233 | 307 |
| | Vertical Bow | 135 | 135 | 182 | 237 |
| | Muzzleloader | 37 | 62 | 103 | 160 |
| | Youth | 55 | 25 | 44 | 46 |
| | Total | 830 | 807 | 1224 | 1427 |
| Williams | Bonus Gun | 49 | 43 | 53 | 62 |
| | Gun | 369 | 360 | 368 | 394 |
| | Crossbow | 133 | 147 | 175 | 178 |
| | Vertical Bow | 146 | 178 | 181 | 246 |
| | Muzzleloader | 46 | 41 | 61 | 79 |
| | Youth | 55 | 35 | 33 | 56 |
| | Total | 798 | 804 | 871 | 1015 |
| Wood | Bonus Gun | 21 | 19 | 28 | 20 |
| | Gun | 175 | 146 | 161 | 166 |
| | Crossbow | 96 | 92 | 77 | 129 |
| | Vertical Bow | 89 | 95 | 113 | 118 |
| | Muzzleloader | 32 | 24 | 42 | 31 |
| | Youth | 28 | 12 | 18 | 20 |
| | Total | 441 | 388 | 439 | 484 |
| Wyandot | Bonus Gun | 25 | 41 | 93 | 85 |
| | Gun | 335 | 304 | 613 | 567 |
| | Crossbow | 109 | 97 | 148 | 173 |
| | Vertical Bow | 82 | 85 | 157 | 208 |
| | Muzzleloader | 35 | 34 | 113 | 148 |
| | Youth | 43 | 27 | 40 | 61 |
| | Total | 629 | 588 | 1164 | 1242 |

## Appendix B. Deer harvest and permit data, 1900-2008.[a]

| Year | Number of Open Counties in Gun Season | Number of Permits Sold | Number of Deer Harvested[c] |
|---|---|---|---|
| 1900 | 88 | ? | ? |
| 1901-42 | Season closed | | |
| 1943 | 3 | 8,500 | 168 |
| 1944 | 3 | 9,200 | 117 |
| 1945 | 3 | 7,700 | 62 |
| 1946 | Season closed | | |
| 1947 | 8 | 9,669 | 1,000 |
| 1948 | 13 | 23,044 | 1,600 |
| 1949 | Season closed | | |
| 1950 | 19 | 22,728 | 3,500 |
| 1951 | Season closed | | |
| 1952 | 27 | 14,081 | 450 |
| 1953 | 40 | 30,033 | 4,000 |
| 1954 | Season closed | | |
| 1955 | 42 | 36,419 | 4,200 |
| 1956 | 88 | 48,263 | 3,911 |
| 1957 | 88 | 46,466 | 4,784 |
| 1958 | 88 | 42,777 | 4,415 |
| 1959 | 88 | 38,414 | 2,960 |
| 1960 | 88 | 27,430 | 2,584 |
| 1961 | Season closed | | |
| 1962 | 88 | 23,049 | 2,114 |
| 1963 | 88 | 33,298 | 2,074 |
| 1964 | 88 | 32,400 | 1,326 |
| 1965 | 36 | 12,808 | 406 |
| 1966 | 48 | 24,079 | 1,073 |
| 1967 | 50 | 28,892 | 1,437 |
| 1968 | 50 | 35,322 | 1,396 |
| 1969 | 56 | 45,078 | 2,105 |
| 1970 | 51 | 54,807 | 2,387 |
| 1971 | 63 | 74,758 | 3,831 |
| 1972 | 63 | 88,919 | 5,074 |
| 1973 | 59 | 107,933 | 7,594 |
| 1974 | 65 | 106,867 | 10,747 |
| 1975 | 68 | 125,807 | 14,972 |
| 1976 | 68 | 138,946 | 23,431 |
| 1977 | 73 | 155,445 | 22,319 |
| 1978 | 74 | 175,314 | 22,967 |
| 1979 | 88 | 193,764 | 34,874 |
| 1980 | 88 | 216,055 | 40,499 |
| 1981 | 88 | 231,948 | 47,634 |
| 1982 | 88 | 257,504 | 52,885 |
| 1983 | 88 | 264,493 | 59,812 |
| 1984 | 88 | 273,205 | 66,860 |
| 1985 | 88 | 277,714 | 64,263 |
| 1986 | 88 | 290,293 | 67,626 |
| 1987 | 88 | 297,205 | 79,355 |
| 1988 | 88 | 373,435 | 100,674 |
| 1989 | 88 | 284,909 | 91,236 |
| 1990 | 88 | 295,127 | 98,468 |
| 1991 | 88 | 338,186 | 119,215 |
| 1992 | 88 | 359,250 | 126,113 |
| 1993 | 88 | 385,068 | 138,752 |
| 1994 | 88 | 425,797 | 170,527 |
| 1995 | 88 | 496,890 | 179,543 |
| 1996 | 88 | 475,288 | 158,000 |
| 1997 | 88 | 439,814 | 153,159 |
| 1998 | 88 | 365,875 | 118,270 |
| 1999 | 88 | 361,125 | 126,770 |
| 2000 | 88 | 438,744 | 150,432 |
| 2001 | 88 | 469,055 | 165,124 |
| 2002 | 88 | 507,723 | 204,652 |
| 2003 | 88 | 515,928 | 197,790 |
| 2004 | 88 | 520,458 | 216,443 |
| 2005 | 88 | 515,181 | 209,513 |
| 2006 | 88 | 543,614 | 237,316 |
| 2007 | 88 | 578,366 | 232,854 |
| 2008 | 88 | 611,442 | 252,017 |

[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 1946-61 and mandatory check thereafter.

[c] License-exempt hunters generally account for 25-30% of the total harvest.

**Appendix C. Number of deer damage complaints, permits issued, and deer killed, 2004-2008.**

| County | Data | Year | | | | |
|---|---|---|---|---|---|---|
| | | 2004 | 2005 | 2006 | 2007 | 2008 |
| Adams | Complaints | 65 | 74 | 113 | 24 | 29 |
| | Out of Season Permits | 4 | 5 | 27 | 24 | 29 |
| | Deer Killed | 10 | 10 | 54 | 136 | 27 |
| Allen | Complaints | 2 | 3 | 2 | 1 | 6 |
| | Out of Season Permits | 0 | 0 | 0 | 1 | 4 |
| | Deer Killed | 0 | 0 | 0 | 4 | 7 |
| Ashland | Complaints | 34 | 29 | 23 | 38 | 35 |
| | Out of Season Permits | 15 | 25 | 16 | 37 | 35 |
| | Deer Killed | 124 | 127 | 86 | 207 | 230 |
| Ashtabula | Complaints | 35 | 32 | 30 | 28 | 25 |
| | Out of Season Permits | 17 | 21 | 16 | 28 | 25 |
| | Deer Killed | 72 | 56 | 38 | 80 | 99 |
| Athens | Complaints | 70 | 70 | 61 | 16 | 30 |
| | Out of Season Permits | 25 | 41 | 17 | 16 | 29 |
| | Deer Killed | 157 | 65 | 65 | 72 | 105 |
| Auglaize | Complaints | 4 | 1 | 1 | 0 | 0 |
| | Out of Season Permits | 1 | 0 | 0 | 0 | 0 |
| | Deer Killed | 0 | 0 | 0 | 0 | 0 |
| Belmont | Complaints | 55 | 33 | 45 | 34 | 26 |
| | Out of Season Permits | 22 | 22 | 25 | 33 | 26 |
| | Deer Killed | 110 | 85 | 106 | 121 | 94 |
| Brown | Complaints | 55 | 69 | 108 | 47 | 38 |
| | Out of Season Permits | 11 | 33 | 64 | 39 | 33 |
| | Deer Killed | 41 | 139 | 178 | 144 | 107 |
| Butler | Complaints | 46 | 27 | 32 | 22 | 29 |
| | Out of Season Permits | 22 | 21 | 25 | 22 | 28 |
| | Deer Killed | 17 | 25 | 17 | 58 | 55 |
| Carroll | Complaints | 42 | 18 | 47 | 29 | 36 |
| | Out of Season Permits | 19 | 16 | 21 | 29 | 35 |
| | Deer Killed | 157 | 149 | 88 | 203 | 305 |
| Champaign | Complaints | 7 | 5 | 5 | 2 | 3 |
| | Out of Season Permits | 2 | 1 | 1 | 0 | 2 |
| | Deer Killed | 1 | 1 | 0 | 0 | 4 |
| Clark | Complaints | 13 | 12 | 9 | 3 | 6 |
| | Out of Season Permits | 5 | 6 | 3 | 3 | 6 |
| | Deer Killed | 20 | 28 | 32 | 23 | 32 |
| Clermont | Complaints | 24 | 31 | 27 | 25 | 33 |
| | Out of Season Permits | 18 | 23 | 21 | 25 | 33 |
| | Deer Killed | 80 | 123 | 113 | 178 | 137 |
| Clinton | Complaints | 8 | 14 | 7 | 5 | 5 |
| | Out of Season Permits | 1 | 6 | 2 | 5 | 5 |
| | Deer Killed | 12 | 11 | 0 | 7 | 11 |
| Columbiana | Complaints | 20 | 14 | 21 | 17 | 28 |
| | Out of Season Permits | 13 | 13 | 12 | 17 | 28 |
| | Deer Killed | 47 | 56 | 64 | 71 | 81 |
| Coshocton | Complaints | 79 | 22 | 70 | 48 | 45 |
| | Out of Season Permits | 29 | 45 | 32 | 48 | 45 |
| | Deer Killed | 276 | 400 | 415 | 625 | 517 |
| Crawford | Complaints | 3 | 8 | 11 | 5 | 2 |
| | Out of Season Permits | 0 | 1 | 2 | 3 | 1 |
| | Deer Killed | 0 | 1 | 2 | 0 | 0 |
| Cuyahoga | Complaints | 32 | 25 | 23 | 14 | 21 |
| | Out of Season Permits | 25 | 25 | 18 | 14 | 20 |
| | Deer Killed | 85 | 38 | 30 | 24 | 46 |
| Darke | Complaints | 0 | 0 | 1 | 0 | 1 |
| | Out of Season Permits | 0 | 0 | 1 | 0 | 1 |
| | Deer Killed | 0 | 0 | 7 | 0 | 5 |
| Defiance | Complaints | 1 | 0 | 5 | 2 | 10 |
| | Out of Season Permits | 1 | 0 | 2 | 2 | 6 |
| | Deer Killed | 0 | 0 | 3 | 6 | 15 |
| Delaware | Complaints | 32 | 24 | 23 | 31 | 24 |
| | Out of Season Permits | 15 | 19 | 17 | 26 | 22 |
| | Deer Killed | 32 | 29 | 30 | 47 | 43 |
| Erie | Complaints | 10 | 9 | 29 | 10 | 18 |
| | Out of Season Permits | 5 | 5 | 21 | 10 | 16 |
| | Deer Killed | 12 | 11 | 17 | 13 | 36 |
| Fairfield | Complaints | 87 | 62 | 60 | 58 | 36 |
| | Out of Season Permits | 60 | 57 | 52 | 55 | 35 |
| | Deer Killed | 306 | 243 | 199 | 199 | 184 |
| Fayette | Complaints | 0 | 0 | 3 | 0 | 0 |
| | Out of Season Permits | 0 | 0 | 0 | 0 | 0 |
| | Deer Killed | 0 | 0 | 0 | 0 | 0 |
| Franklin | Complaints | 20 | 20 | 24 | 19 | 23 |
| | Out of Season Permits | 20 | 19 | 22 | 19 | 22 |
| | Deer Killed | 49 | 63 | 67 | 78 | 89 |

**Appendix C. Continued**

| County | Data | Year | | | | |
|---|---|---|---|---|---|---|
| | | 2004 | 2005 | 2006 | 2007 | 2008 |
| Fulton | Complaints | 2 | 1 | 2 | 0 | 1 |
| | Out of Season Permits | 0 | 0 | 0 | 0 | 1 |
| | Deer Killed | 0 | 0 | 0 | 0 | 2 |
| Gallia | Complaints | 4 | 6 | 4 | 9 | 5 |
| | Out of Season Permits | 1 | 4 | 3 | 7 | 4 |
| | Deer Killed | 4 | 6 | 6 | 6 | 16 |
| Geauga | Complaints | 13 | 21 | 21 | 20 | 19 |
| | Out of Season Permits | 11 | 18 | 17 | 20 | 18 |
| | Deer Killed | 44 | 56 | 58 | 62 | 33 |
| Greene | Complaints | 29 | 26 | 21 | 14 | 14 |
| | Out of Season Permits | 12 | 11 | 12 | 14 | 14 |
| | Deer Killed | 34 | 37 | 18 | 41 | 47 |
| Guernsey | Complaints | 75 | 59 | 68 | 57 | 53 |
| | Out of Season Permits | 32 | 41 | 36 | 55 | 53 |
| | Deer Killed | 137 | 155 | 195 | 196 | 241 |
| Hamilton | Complaints | 25 | 28 | 38 | 30 | 40 |
| | Out of Season Permits | 24 | 28 | 38 | 30 | 40 |
| | Deer Killed | 51 | 78 | 365 | 689 | 159 |
| Hancock | Complaints | 17 | 8 | 14 | 6 | 9 |
| | Out of Season Permits | 4 | 4 | 6 | 4 | 8 |
| | Deer Killed | 26 | 31 | 18 | 12 | 28 |
| Hardin | Complaints | 1 | 0 | 2 | 3 | 1 |
| | Out of Season Permits | 0 | 0 | 0 | 1 | 1 |
| | Deer Killed | 0 | 0 | 0 | 4 | 5 |
| Harrison | Complaints | 19 | 23 | 23 | 18 | 33 |
| | Out of Season Permits | 14 | 19 | 19 | 18 | 32 |
| | Deer Killed | 118 | 218 | 166 | 127 | 227 |
| Henry | Complaints | 2 | 2 | 7 | 3 | 3 |
| | Out of Season Permits | 0 | 0 | 2 | 1 | 2 |
| | Deer Killed | 0 | 0 | 0 | 1 | 0 |
| Highland | Complaints | 78 | 22 | 30 | 31 | 36 |
| | Out of Season Permits | 33 | 22 | 25 | 31 | 36 |
| | Deer Killed | 124 | 95 | 105 | 175 | 195 |
| Hocking | Complaints | 54 | 59 | 47 | 44 | 38 |
| | Out of Season Permits | 23 | 45 | 30 | 43 | 38 |
| | Deer Killed | 248 | 259 | 207 | 466 | 315 |
| Holmes | Complaints | 38 | 33 | 32 | 25 | 19 |
| | Out of Season Permits | 10 | 28 | 18 | 23 | 19 |
| | Deer Killed | 73 | 194 | 158 | 155 | 113 |
| Huron | Complaints | 7 | 10 | 9 | 3 | 2 |
| | Out of Season Permits | 4 | 5 | 4 | 3 | 1 |
| | Deer Killed | 2 | 10 | 1 | 1 | 1 |
| Jackson | Complaints | 26 | 30 | 25 | 21 | 17 |
| | Out of Season Permits | 14 | 16 | 15 | 20 | 17 |
| | Deer Killed | 41 | 6 | 35 | 30 | 46 |
| Jefferson | Complaints | 52 | 41 | 38 | 25 | 30 |
| | Out of Season Permits | 26 | 31 | 25 | 25 | 29 |
| | Deer Killed | 153 | 166 | 140 | 139 | 260 |
| Knox | Complaints | 132 | 138 | 147 | 141 | 157 |
| | Out of Season Permits | 94 | 87 | 97 | 141 | 151 |
| | Deer Killed | 811 | 720 | 882 | 1038 | 1002 |
| Lake | Complaints | 41 | 25 | 20 | 27 | 21 |
| | Out of Season Permits | 36 | 24 | 19 | 27 | 21 |
| | Deer Killed | 73 | 66 | 42 | 81 | 94 |
| Lawrence | Complaints | 21 | 27 | 31 | 26 | 22 |
| | Out of Season Permits | 9 | 16 | 19 | 26 | 22 |
| | Deer Killed | 32 | 65 | 57 | 100 | 20 |
| Licking | Complaints | 50 | 42 | 37 | 75 | 91 |
| | Out of Season Permits | 48 | 41 | 34 | 75 | 91 |
| | Deer Killed | 36 | 172 | 187 | 438 | 244 |
| Logan | Complaints | 12 | 11 | 14 | 17 | 33 |
| | Out of Season Permits | 8 | 6 | 10 | 17 | 31 |
| | Deer Killed | 36 | 41 | 43 | 85 | 77 |
| Lorain | Complaints | 14 | 13 | 14 | 20 | 30 |
| | Out of Season Permits | 14 | 13 | 14 | 20 | 29 |
| | Deer Killed | 20 | 33 | 20 | 45 | 79 |
| Lucas | Complaints | 7 | 2 | 10 | 6 | 8 |
| | Out of Season Permits | 3 | 2 | 7 | 2 | 5 |
| | Deer Killed | 5 | 4 | 23 | 8 | 22 |
| Madison | Complaints | 0 | 1 | 0 | 1 | 0 |
| | Out of Season Permits | 0 | 1 | 0 | 1 | 0 |
| | Deer Killed | 0 | 0 | 0 | 5 | 0 |
| Mahoning | Complaints | 10 | 8 | 5 | 7 | 6 |
| | Out of Season Permits | 7 | 4 | 2 | 5 | 4 |
| | Deer Killed | 13 | 9 | 3 | 15 | 15 |

## Appendix C. Continued

| County | Data | Year | | | | |
|---|---|---|---|---|---|---|
| | | 2004 | 2005 | 2006 | 2007 | 2008 |
| Marion | Complaints | 1 | 1 | 3 | 1 | 5 |
| | Out of Season Permits | 1 | 1 | 2 | 1 | 5 |
| | Deer Killed | 1 | 1 | 1 | 2 | 7 |
| Medina | Complaints | 29 | 12 | 15 | 12 | 9 |
| | Out of Season Permits | 11 | 10 | 8 | 8 | 4 |
| | Deer Killed | 35 | 26 | 20 | 33 | 21 |
| Meigs | Complaints | 27 | 22 | 23 | 20 | 12 |
| | Out of Season Permits | 11 | 4 | 16 | 15 | 11 |
| | Deer Killed | 40 | 12 | 45 | 67 | 36 |
| Mercer | Complaints | 0 | 0 | 0 | 0 | 1 |
| | Out of Season Permits | 0 | 0 | 0 | 0 | 1 |
| | Deer Killed | 0 | 0 | 0 | 0 | 0 |
| Miami | Complaints | 0 | 2 | 1 | 2 | 7 |
| | Out of Season Permits | 0 | 1 | 1 | 1 | 5 |
| | Deer Killed | 0 | 0 | 0 | 0 | 1 |
| Monroe | Complaints | 37 | 39 | 54 | 50 | 26 |
| | Out of Season Permits | 13 | 28 | 32 | 48 | 26 |
| | Deer Killed | 36 | 70 | 55 | 70 | 77 |
| Montgomery | Complaints | 5 | 13 | 8 | 3 | 3 |
| | Out of Season Permits | 1 | 9 | 0 | 3 | 2 |
| | Deer Killed | 169 | 58 | 0 | 54 | 0 |
| Morgan | Complaints | 61 | 30 | 25 | 28 | 27 |
| | Out of Season Permits | 28 | 27 | 22 | 26 | 26 |
| | Deer Killed | 184 | 176 | 188 | 236 | 178 |
| Morrow | Complaints | 5 | 5 | 2 | 5 | 3 |
| | Out of Season Permits | 1 | 4 | 1 | 5 | 3 |
| | Deer Killed | 1 | 9 | 0 | 7 | 5 |
| Muskingum | Complaints | 78 | 76 | 65 | 67 | 57 |
| | Out of Season Permits | 43 | 62 | 50 | 65 | 50 |
| | Deer Killed | 271 | 347 | 296 | 378 | 297 |
| Noble | Complaints | 19 | 14 | 14 | 18 | 22 |
| | Out of Season Permits | 10 | 11 | 8 | 18 | 21 |
| | Deer Killed | 24 | 16 | 7 | 91 | 74 |
| Ottawa | Complaints | 4 | 5 | 11 | 3 | 5 |
| | Out of Season Permits | 0 | 1 | 7 | 1 | 5 |
| | Deer Killed | 0 | 0 | 0 | 3 | 3 |
| Paulding | Complaints | 1 | 1 | 9 | 5 | 5 |
| | Out of Season Permits | 0 | 1 | 3 | 4 | 5 |
| | Deer Killed | 0 | 0 | 4 | 7 | 5 |
| Perry | Complaints | 22 | 24 | 39 | 18 | 15 |
| | Out of Season Permits | 3 | 10 | 13 | 18 | 14 |
| | Deer Killed | 13 | 65 | 55 | 44 | 30 |
| Pickaway | Complaints | 22 | 11 | 9 | 5 | 22 |
| | Out of Season Permits | 14 | 11 | 9 | 5 | 20 |
| | Deer Killed | 24 | 22 | 12 | 5 | 47 |
| Pike | Complaints | 29 | 20 | 16 | 10 | 7 |
| | Out of Season Permits | 12 | 10 | 7 | 9 | 7 |
| | Deer Killed | 15 | 42 | 14 | 10 | 16 |
| Portage | Complaints | 12 | 10 | 7 | 18 | 15 |
| | Out of Season Permits | 8 | 10 | 7 | 18 | 15 |
| | Deer Killed | 42 | 24 | 35 | 95 | 70 |
| Preble | Complaints | 7 | 7 | 10 | 4 | 3 |
| | Out of Season Permits | 2 | 0 | 0 | 4 | 3 |
| | Deer Killed | 10 | 0 | 0 | 27 | 5 |
| Putnam | Complaints | 0 | 1 | 0 | 0 | 2 |
| | Out of Season Permits | 0 | 0 | 0 | 0 | 2 |
| | Deer Killed | 0 | 0 | 0 | 0 | 8 |
| Richland | Complaints | 27 | 30 | 26 | 31 | 28 |
| | Out of Season Permits | 15 | 25 | 22 | 24 | 26 |
| | Deer Killed | 77 | 68 | 107 | 132 | 122 |

## Appendix C. Continued

| County | Data | Year | | | | |
|---|---|---|---|---|---|---|
| | | 2004 | 2005 | 2006 | 2007 | 2008 |
| Ross | Complaints | 48 | 23 | 42 | 25 | 23 |
| | Out of Season Permits | 23 | 21 | 18 | 24 | 22 |
| | Deer Killed | 131 | 115 | 128 | 183 | 152 |
| Sandusky | Complaints | 10 | 13 | 24 | 5 | 13 |
| | Out of Season Permits | 1 | 2 | 7 | 3 | 12 |
| | Deer Killed | 0 | 0 | 0 | 6 | 4 |
| Scioto | Complaints | 28 | 30 | 44 | 22 | 18 |
| | Out of Season Permits | 13 | 18 | 33 | 21 | 17 |
| | Deer Killed | 79 | 56 | 88 | 144 | 125 |
| Seneca | Complaints | 17 | 22 | 32 | 7 | 13 |
| | Out of Season Permits | 4 | 7 | 8 | 5 | 12 |
| | Deer Killed | 17 | 23 | 16 | 11 | 34 |
| Shelby | Complaints | 0 | 0 | 0 | 0 | 0 |
| | Out of Season Permits | 0 | 0 | 0 | 0 | 0 |
| | Deer Killed | 0 | 0 | 0 | 0 | 0 |
| Stark | Complaints | 13 | 10 | 11 | 13 | 13 |
| | Out of Season Permits | 9 | 9 | 8 | 12 | 12 |
| | Deer Killed | 16 | 10 | 34 | 24 | 33 |
| Summit | Complaints | 20 | 19 | 19 | 20 | 25 |
| | Out of Season Permits | 17 | 19 | 18 | 17 | 22 |
| | Deer Killed | 91 | 87 | 96 | 71 | 80 |
| Trumbull | Complaints | 19 | 12 | 10 | 14 | 17 |
| | Out of Season Permits | 11 | 12 | 9 | 14 | 14 |
| | Deer Killed | 35 | 46 | 25 | 37 | 39 |
| Tuscarawas | Complaints | 45 | 32 | 45 | 49 | 32 |
| | Out of Season Permits | 19 | 22 | 24 | 48 | 32 |
| | Deer Killed | 95 | 119 | 184 | 389 | 365 |
| Union | Complaints | 11 | 12 | 6 | 4 | 3 |
| | Out of Season Permits | 6 | 8 | 5 | 4 | 3 |
| | Deer Killed | 16 | 13 | 10 | 13 | 17 |
| VanWert | Complaints | 4 | 5 | 6 | 2 | 6 |
| | Out of Season Permits | 0 | 1 | 0 | 1 | 6 |
| | Deer Killed | 0 | 0 | 0 | 0 | 7 |
| Vinton | Complaints | 4 | 9 | 9 | 5 | 5 |
| | Out of Season Permits | 4 | 5 | 5 | 5 | 5 |
| | Deer Killed | 31 | 19 | 24 | 27 | 5 |
| Warren | Complaints | 29 | 26 | 29 | 15 | 12 |
| | Out of Season Permits | 18 | 16 | 21 | 15 | 12 |
| | Deer Killed | 60 | 83 | 75 | 58 | 41 |
| Washington | Complaints | 71 | 63 | 71 | 56 | 33 |
| | Out of Season Permits | 35 | 44 | 43 | 54 | 33 |
| | Deer Killed | 112 | 138 | 132 | 185 | 112 |
| Wayne | Complaints | 16 | 20 | 23 | 19 | 23 |
| | Out of Season Permits | 6 | 15 | 15 | 18 | 22 |
| | Deer Killed | 8 | 31 | 28 | 70 | 106 |
| Williams | Complaints | 19 | 31 | 48 | 9 | 17 |
| | Out of Season Permits | 3 | 3 | 8 | 8 | 17 |
| | Deer Killed | 10 | 9 | 18 | 26 | 74 |
| Wood | Complaints | 1 | 4 | 2 | 1 | 2 |
| | Out of Season Permits | 1 | 1 | 1 | 1 | 0 |
| | Deer Killed | 5 | 4 | 2 | 3 | 0 |
| Wyandot | Complaints | 7 | 11 | 17 | 4 | 6 |
| | Out of Season Permits | 0 | 0 | 0 | 3 | 5 |
| | Deer Killed | 0 | 0 | 0 | 0 | 19 |
| **Total Complaints** | | 2,221 | 1,903 | 2,214 | 1,677 | 1,732 |
| **Total Out of Season Permits** | | 1,100 | 1,298 | 1,300 | 1,591 | 1,650 |
| **Total Deer Killed** | | 5,337 | 5,770 | 6,039 | 8,723 | 7,685 |

# WISCONSIN DEER STATUS REPORT, 2009

Midwest Deer & Wild Turkey Study Group
Rock Springs 4-H Camp, Junction City, Kansas
Robert E. Rolley

## POPULATION GOALS

In the Northern and Central Forest regions 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 for a statewide overwinter population goal of approximately 740,000. 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.

## POPULATION TRENDS

Overwinter deer populations in Wisconsin fluctuated around 500,000 during the 1960s and 1970s (Figure 1). During the 1980 and 1990s, the population generally increased with occasional short-term declines due to poor recruitment following severe winters and/or intensive antlerless harvests. Most of the statewide increase in deer populations over the past 40 years was due to population growth in the farmland regions of the state. Higher antlerless harvest rates in recent years may be stabilizing or reducing populations in portions of the state but the exact effects of these high antlerless harvests are difficult to interpret because of recent changes to inputs used in population models and greater use of aerial surveys for population estimation in the southern part of the state. These changes in estimation methods are suggesting that prior estimates may have been biased low.

## 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 fluctuated considerably during the 1990s around an overall increasing trend. An all-time record harvest of 618,374 was set in 2000. After a marked decrease in total harvest in 2001 and 2002, harvest during the past 6 years has averaged about 490,000 deer, with about 35% of the harvest composed of antlered bucks and about 65% antlerless deer. Archery harvest has contributed an average of about 20% of the total during the past 5 years.

## HUNTING SEASON SUMMARY - 2008

The 2007 posthunt population was estimated to be about 1.2 million. The winter of 2007-08 was rated as moderate for the Northern Forest Region. Observations of fawns and does in summer 2008 indicated that recruitment was 19-24% below the long-term average in the Northern and Central Forest regions and 9-17% below average in the farmland regions. The estimated statewide fall 2008 population was approximately 1.5 million.

The 2008 archery season was held during September 13 – November 20 and December 1 – January 4. In most management units, archers were allowed to harvest one antlered and one antlerless deer during the season. Archers were allowed to harvest additional antlerless deer using a free herd control/earn-a-buck antlerless permits or purchased antlerless deer permits. More than 261,900 people purchased licenses in 2008 authorizing them to hunt deer with a bow. Archers killed nearly 99,300 deer (34,700 antlered, 63,800 antlerless, and 800 unknown). This was the 4$^{th}$ highest archery harvest on record. Approximately 90% of the archery harvest occurred in the early part of the archery season.

A 2-day either-sex gun hunt was held statewide on October 11-12 for youths aged 12-15

who had completed hunter education. Youth were required to be accompanied by an adult. Approximately 4,200 deer were harvested during this season.

A 4-day antlerless gun hunt was held October 16-19 in CWD, earn-a-buck, and herd control units outside of the Central Forest. The archery season remained open during these 4 days but archers were limited to antlerless deer and were required to wear blaze orange. Approximately 36,300 deer were killed with a gun in the 4-day October antlerless gun season.

Sales of 642,400 gun deer licenses in 2008 were 0.2% higher than in 2007 but were 7% below the 2001 pre-CWD level. The opening day of the firearm season was November 22, the second latest possible under the current season structure. Rutting activity typically declines by this late in November. Opening morning was bitterly cold with below zero temperatures in the north and single digit temperatures in the south. Sunday was windy across the state. Cold and windy weather on opening weekend may have reduced deer activity. Only small areas in the northcentral part of the state had snow cover for the opening weekend. Snow fell across the southern 2/3s of the state on Tuesday and persisted on the ground until the 2nd weekend improving sighting and tracking conditions. Corn harvest was behind the 5-year average, with 83% of the harvest complete by mid-November. Approximately 285,200 deer (98,300 antlered, 185,700 antlerless, and 1,200 unknown) were killed during the 9-day November gun season. The 10-day muzzleloader-only season (December 1-10) resulted in a harvest of about 8,500 deer (2,800 antlered, 5,660 antlerless, and 40 unknown).

A 4-day antlerless gun season was held December 11-14 statewide and in the CWD units an either-sex gun season as held December 24-January 4. Hunting conditions during these December seasons were fair with statewide snow cover and average to below average temperatures. There were areas of significant snow cover in the southern 1/3rd of the state which may have hindered movement for some hunters. Approximately 18,300 deer (1,200 antlered, 16,900 antlerless, and 200 unknown) were harvested during the December gun hunts.

In all seasons, gun hunters registered 352,601 deer. This was 12% lower than the gun harvest in 2007 and was the 11th highest on record. The gun season antlered harvest of 103,845 was the 25th highest while the antlerless harvest of 246,607 was the 6th highest. The combined bow and gun season harvest was 138,507 bucks and 310,366 antlerless deer. The Chippewa tribes harvested 695 antlered bucks and 900 antlerless deer in the ceded territories outside of reservations.

In total, more than 669,800 people purchased a deer hunting license (either gun, archery, or both). Of these, approximately 327,900 hunters (49%) killed and registered at least 1 deer in 2008.

A harvest quota of 519,100 antlerless deer in non-CWD units was established for the 2008 gun season. Each hunter received 1 free antlerless permit valid in herd control/earn-a-buck units with the purchase of his or her regular gun and bow license. In addition, hunters could purchase an unlimited number of antlerless-only licenses in these units. More than 62,700 antlerless permits were available in regular management units.

Approximately 26,900 deer were checked for sex and age at 99 registration stations during the 2008 gun deer season. In the Northern Forest, the percentage of harvested bucks that were yearlings (53%) was near the 5-year average (52%). The percentage of yearlings among does (25%) was below the 5-year (28%) and long-term (27%) averages in the Northern Forest. Likewise, in the Central Forest the percentage of yearlings among harvested bucks (52%) was near the 5-year average and the percentage of yearling does (26%) was below the 5-year average. The farmland regions continued to show below average percentages of yearlings among bucks (50-54%) suggesting increased survival of bucks. Yearling doe percents (32-34%) were slightly below average in the farmland regions.

Antler development of yearling bucks was slightly below normal in the Northern Forest (53% of yearlings had forked antlers compared to a 34-year average of 57%, Figure 3). The percentage of yearling bucks with forked antlers in the Central Forest in 2008 was 12% higher

than the long-term average. Antler development in the farmland regions was near the long-term average; 87% of yearlings had forked antlers.

One fatal and 8 non-fatal hunting accidents were reported during the 9-day November gun season. Three non-fatal accidents occurred during the archery, muzzleloader, and supplemental gun seasons in 2008.

**WINTER 2008-09**

The average winter severity index (WSI) for the 31 recording stations with complete records was 60.5 (moderate) compared to a 30-year average of 61. On average, snow depths greater than or equal to 18 inches were recorded on 8 days in 2008-09 and minimum temperatures less than or equal to 0°F occurred on 52 days. Severe conditions (WSI > 80) were reported from 2 stations in northcentral Wisconsin. Recruitment of fawns and yearlings are expected to be near normal throughout most of the Northern Forest in 2009.

**LEGISLATIVE HEARINGS AND EARN-A-BUCK SUSPENSION**

Public concerns about the decline in deer harvests began being voiced as soon as the November gun season closed. The Wisconsin Hunters Rights Coalition petitioned the Natural Resources Board in December to enact an emergency rule to suspend the December antlerless-only gun season. While the Board decided that this request was not warranted, public complaints continued to build over the winter. These concerns prompted the chairs of the Assembly's Fish and Wildlife Committee and the Senate's Transportation, Tourism, Forestry and Natural Resources Committee to hold 3 informational hearings in March and April, 2 in northern Wisconsin and 1 in Madison. Several hundred people attended the Madison hearing, filling the committee's hearing room and 2 overflow rooms. Many of the hunters who were bussed in from across the state were dressed in camouflage and blaze orange. More than 40 people testified. DNR Secretary Frank stated that the agency heard loud and clear the disappointment and frustration of many hunters with the 2008 season and attributed much of the decline in harvest to effects of the winter of 2007-08. Much of the testimony centered on the accuracy of deer population estimates, hunter displeasure with earn-a-buck (EAB) regulations, and the impact of predators. In a letter to the Department after the hearing the two committee chairs recommended that EAB regulations be suspended.

In addition to the legislative hearings, the Department conducted over 40 public meetings around the state in March and for the first time posted an online survey on the DNR's web site. At its April meeting the Natural Resources Board voted to indefinitely suspend the use of EAB, outside of the CWD Management Zone, and formed a Special Study Committee to develop effective and hunter/landowner acceptable alternatives to EAB. The committee was comprised of representative from 11 stakeholder organizations. During the summer, the committee held 3 Saturday meetings, several conference calls, communicated via their web site, and conducted several web based surveys. The committee report was presented to the Board at their August meeting. The report concluded that the committee was unable in the time allowed to completely finalize a complete detailed package of season components and incentives but recommended a 16 day firearm season to provide additional hunting opportunity. The committee concluded that adding days to the regular firearm season was the most likely means of increasing antlerless harvest. Starting with the recommendations from this special committee, the Department is recommending the board authorize public hearings on a deer season framework that includes a statewide 16-day November gun season; a continuous archery season from mid-September through mid or late January; a 5-day season in mid-October that combines a youth either-sex season, a statewide antlerless-only muzzleloader season, and an antlerless-only gun season in Herd Control units; a 4-day December firearm season in the southern 2/3s of the state; and a 10-day holiday gun hunt starting December 26th in Herd Control units. If approved this season framework would start in 2010.

## 2009 DEER SEASON

Outside of the CWD zones and Metro Units, there are two types of season structures in 2009: regular (R) and herd control (HC) (Figure 4). Season dates vary among these two structures:

- Bow - Sept. 12 - Nov. 19 and Nov. 30 - Jan. 3 (R, HC)
- Youth Deer Hunt - Oct. 10-11 (R, HC)
- October Antlerless-only Gun Hunt – Oct. 15-18 (HC only)
- Gun - Nov. 21 - Nov. 29 (R, HC)
- Muzzleloader - Nov. 30 - Dec. 10 (R, HC)
- Antlerless-only Hunt - Dec. 10 - Dec. 13 (R, HC)

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 buck 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 additional antlerless deer. Unit-specific antlerless tags will be sold for $12 on a first come, first serve basis beginning at noon on Saturday, August 22 in even-numbered deer management units and at noon on Sunday the 23rd in odd-numbered units. Unused gun buck and antlerless deer tags are valid during the Muzzleloader season. Only antlerless deer may be harvested during the December gun hunt. Sixty of 120 units are designated as Regular units in 2009.

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 units is issued with each gun and archery license. Additionally, an unlimited number of Herd Control Antlerless Deer Carcass Tags can be purchased for $2.00 for use during any open season in Herd Control units. A 4-day antlerless-only gun season occurs in mid-October in these units. Forty-one units are designated as Herd Control units in 2008.

## DEER MANAGEMENT UNIT REVIEW

Deer management unit (DMU) boundaries and population goals are defined in administrative code and code specifies that the department will review and seek public comment regarding the need to modify goals and boundaries every 3 years. A stakeholder advisory panel was assembled in summer 2008 to advise the department on goal and boundary changes. The panel was composed of representatives from 13 organizations and was professionally facilitated. The panel had 3 Saturday meetings in winter and spring 2009, held several conference calls, communicated via a web site, and conducted a web based survey that received over 7,400 responses to help inform their recommendations. At the same time, the Department held more than 40 public meetings across the state to collect input. The Department proposed a concept for aggregating many of the current 130+ DMUs into 43 to improve precision of annual deer population estimates based on recommendations from the scientific review panel that reviewed the agencies deer population estimates. The stakeholder panel recommended not changing deer management unit boundaries at this time, but conducting a 3 year study to assess the effects of unit consolidation on the precision of deer population estimates. Based on input from the stakeholder panel and the public meetings, the Department proposed to raise population goals in 13 units and reduce goals in 3 units. The net effect of the proposed goal changes amounts to a 1% increase in the statewide overwinter goal. Based on comments at public hearings conducted during summer 2009 the Department proposes to reduce goals in only 2 units. If approved by the Natural Resources Board this fall the goal changes would be effective in time for planning the 2010 deer season.

## CHRONIC WASTING DISEASE MANAGEMENT

The CWD eradication zones and herd reduction zones were consolidated into one CWD Management Zone in 2008. Deer population reduction strategies for 2008 utilized extended hunting seasons with liberal bag limits. Deer hunting seasons within the management zone included an archery season during September 13-January 4; gun seasons during October 11-12 (youth only), October 16-19, November 22-30, December 11-14, and December 24-January 4; and a muzzleloader season December 1-10. Unlimited earn-a-buck regulations were used for all season segments except for the October 16-19 and December 11-14 gun hunts which were antlerless only. Free landowner permits were not issued in 2008 due to significant fiscal impacts of applying them throughout the much larger management zone. Nearly 66,700 deer (72% antlerless) were removed from the CWD management zone in 2008-09. Due to budget limitations, agency sharp-shooting activities were not conducted in winter 2008-09.

Disease surveillance activities in 2008 were primarily focused in and around 2 monitoring areas associated with the eastern and western disease clusters. An additional focus area was associated with a cluster near a state park to the north of the main western disease cluster. Additional samples were collected opportunistically throughout the remained of the CWD Management Zone. Sampling in Northern Region counties that was initiated in 2007 was completed in 2008. Sampling in areas of higher risk in proximity to infected cervid farms continued. Approximately 6,200 deer from the CWD Management Zone were tested in 2008-09, 181 tested positive. None of the nearly 8,200 deer tested from Northern Region in 2007 and 2008 tested positive. To date, more than 152,000 deer have been tested with a total of 1,175 free-ranging deer testing positive for CWD (Figure 5). Prevalence estimates for adult bucks (2.5 years and older) in the western monitoring area increased from 10 percent in 2007 to 15.5 percent in 2008. Likewise, the prevalence for yearling bucks increased from 3 percent in 2007 to 6 percent in 2008.

Work on a comprehensive CWD management plan continued during the past year. A draft plan was released for comment in November 2008. The goal of plan is to minimize the area of Wisconsin where CWD occurs and the number of infected deer in the state. Key objectives of the plan are to 1) prevent new introductions of CWD, 2) respond to new disease foci, 3) control the distribution and intensity of CWD, 4) increase public recognition and understanding of CWD risks, 5) address the needs of our customers, and 6) enhance the scientific information about CWD. Briefings on the plan were given to numerous conservation organizations, sister agencies, tribes, and partners during November and December. Written comments were provided by a variety of organizations and agencies. The Conservation Congress, an elected advisory body to the Department and Natural Resources Board, thoroughly reviewed the plan. Based on a floor vote at their annual statewide convention, the Conservation Congress agreed to support the majority of the plan but objected to the use of sharpshooters and landowner permits. In response to the variety of comments received, a revised plan was presented to the Natural Resources Board in August. The revisions changed the plan length from 10 years to 5 years, changed the proposed 5-year review of season structure to a 3-year review, added language recognizing the value of deer to tribal culture and the need to consult with the tribes regarding disease management actions in the ceded territories, and stated that sharpshooting plans would be developed in collaboration with local citizens and the Conservation congress and be approved by the Natural Resources Board. The Board rejected the management plan due to concerns that it lacked tools necessary to control the intensity and distribution of CWD. The Board is assembling a special review committee of outside experts to review the plan and make recommendations that would increase the likelihood of controlling the disease.

## 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 $2 surcharge on all 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).

The WDACP paid 448 wildlife damage claims for damage that occurred during 2008, reflecting $2,193,197 in appraised losses, with $1,698,726 eligible for payment. Wildlife damage claims were filed in 63 of the 70 counties enrolled in the program in 2008. Deer damage represented 85% of appraised losses statewide. The WDACP built 5, 8-ft, high tensile, woven wire fences, which collectively measured 3.8 miles in length. The most commonly used abatement measure was deer damage shooting permits. In 2008, we issued a 720 Agricultural Damage Deer shooting Permits under which 5,274 deer were removed. In addition, 62 Nuisance Deer Shooting Permits were issued for urban, airport, and nuisance situations, resulting in the removal of 637 deer. An abatement method used for the first time in 2000 was a venison donation program. In 2008, 55 of 70 counties chose to participate in the donation program. In those counties, hunters donated 6,267 deer amounting to nearly 282,000 pounds of venison. The cost of the venison donation program in 2008 was approximately $324,000, 96% for venison processing and 4% for advertising and administration.

## SURVEY OF LANDOWNERS ON DEER MANAGEMENT

The Department conducted a survey of private landowners in Fall 2008 to better understand who they are, why they own land, their attitudes toward deer, their desires for the number of deer on their land and the level of harvest, and their interest in increasing hunter access to their land. The sampling frame was designed to include all owners of 10 acres or more whether or not they were active agricultural producers. Eight hundred fifty landowners were mailed a 12 page survey, 55% returned the questionnaire. Farmers comprised 56% of the respondents, 44% were non-farmers. Preliminary analyses found that most (90%) landowners allowed deer hunting on their land, 64% described themselves as a deer hunter. A majority of landowners (60%) enjoy having deer on their land, 25% enjoy deer but worry about the damage they do or problems hunters cause, and 9% consider deer a nuisance. About half of landowners are satisfied with the number of deer on their land whether they are farmers or non-farmers, but farmers are more likely to feel that there were too many deer on their land while non-farmers were more likely to believe that there were too few. Approximately 40% of landowners wanted no change in the number of deer on their land. A majority of landowners (77%) believe that the number of hunters on their land is “about right” and few showed any interest in programs to increase hunter access, but a third showed interest in increasing the number of deer harvested from their land. Many (68%) indicated that including information from landowners into deer population estimates and goals would improve their opinion of the DNR’s deer management program.

## DNR CREDIBILITY WITH DEER HUNTERS

Dr. Robert Holsman at University of Wisconsin-Stevens Point conducted a study in 2008 to probe the contentious relationship between deer hunters and deer managers in Wisconsin. Results were based on 5 regional focus groups and a statewide, random, mail questionnaire administered in the summer of 2008. Most hunters lacked faith in DNR-generated deer

population estimates for the DMU in which they hunt, about 2/3s of deer hunters thought the DNR was overestimating the number of deer in their DMU in 2007. Forty-two percent thought the DNR significantly overestimated the deer population where they hunt. This was true whether hunters had been successful the previous year or not. A majority of deer hunters believed that deer populations were lower in their DMU than five years ago, most thought that deer population peaks occurred between 10 and 15 years ago. Finally, most hunters do not support current deer population goals for their DMU, 57% favored increasing deer populations in their DMU.

Incorporating landowner and hunter observations into the deer population estimation process would have the greatest effect on increasing the agency credibility with deer hunters. However, the primary divide between deer hunters and the DNR is really over the need to reduce deer populations to the current goals rather than a lack of understanding or agreement pertaining to the science of population estimation. While most hunters think biological carrying capacity should guide deer management, the vast majority of hunters do not perceive problems that are typically associated with overabundant deer populations where they hunt. Consequently, the DNR will continue to run up against hunter opposition and dissatisfaction unless they can more effectively “sell the need” for deer reduction. Addressing this information and outreach need likely cannot be achieved without a substantial investment of resources. To be effective, communication most certainly will need to provide local scale examples of deer “problems” and should focus on negative impacts to wildlife habitat over other ecological benefits such as tree regeneration or plant diversity.

The survey results indicate that perceived value similarity between respondents and the DNR is strong predictor of the attitudes on many key question considered in the study. The more strongly an individual agreed that the DNR shares their values for deer management, the more likely they were to believe the Sex-Age-Kill procedure, to accept the need for deer reduction, and to believe the agency can be trusted to do what is best for the deer herd. Although the percentage of hunters who thought deer managers shared their values was less than 50%, slightly more agreed than disagreed with this notion. People who own recreational hunting land held attitudes that were most in opposition to DNR goals and policies.

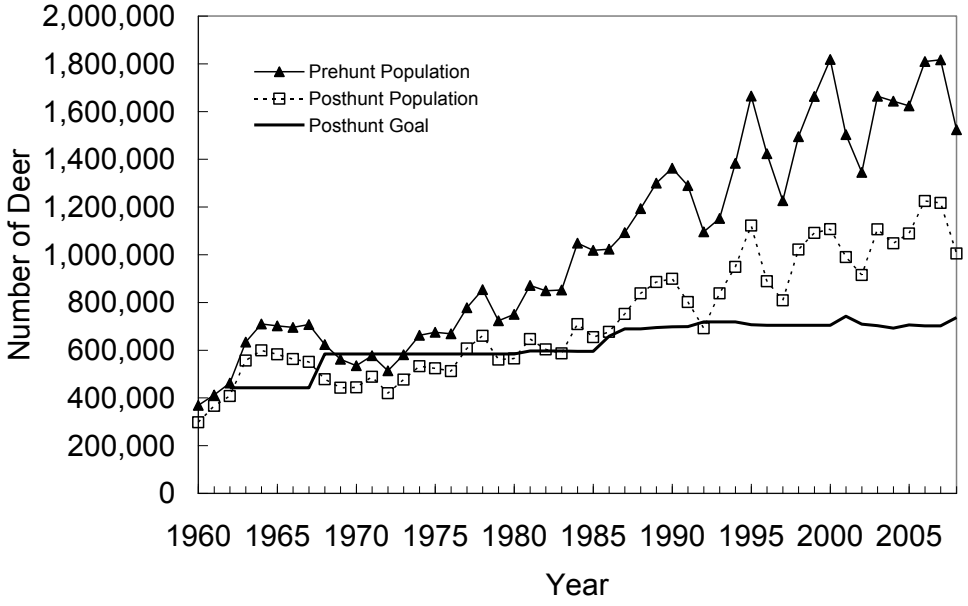



**Figure 1.** *White-tailed deer population estimates in Wisconsin, 1960-2008.*

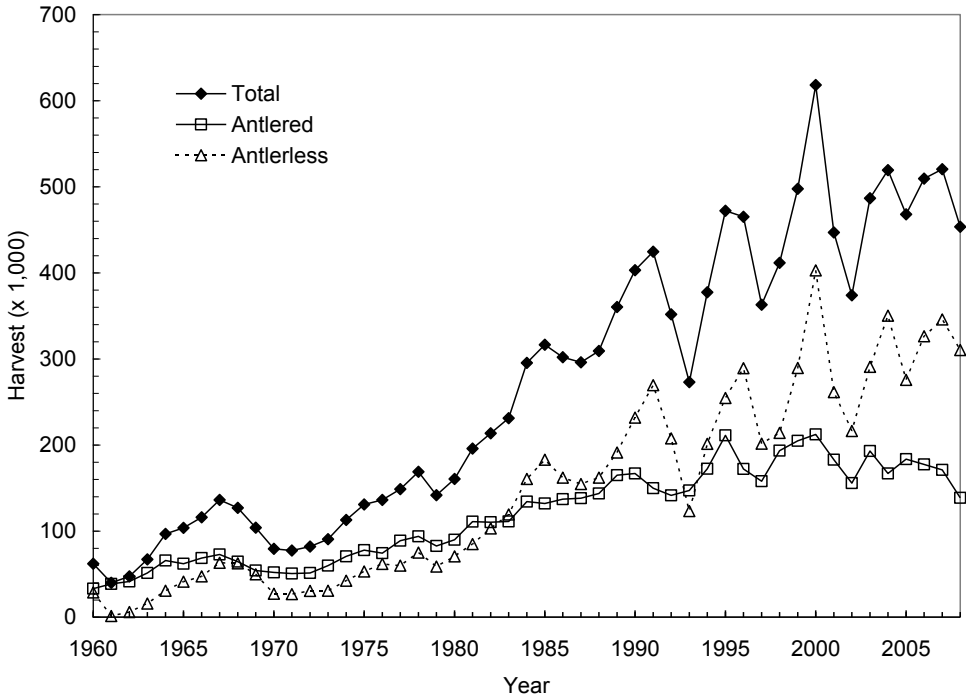



**Figure 2**. *Number of antlered, antlerless, and total deer harvested during gun and archery seasons in Wisconsin, 1960-2008*.

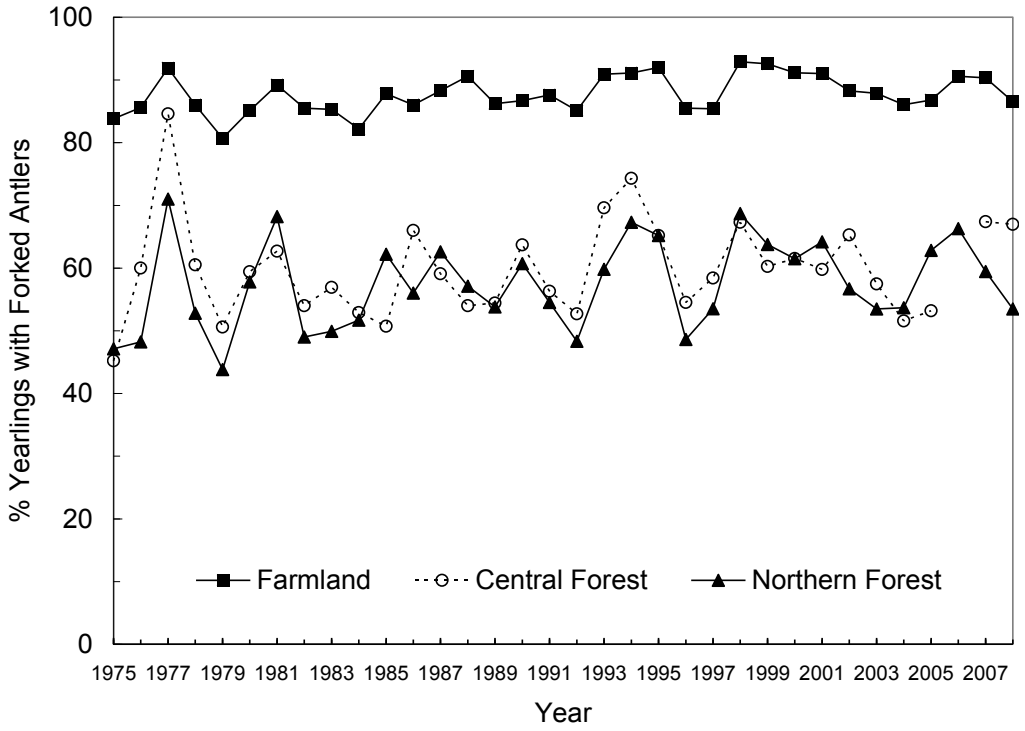



**Figure 3**. *Yearling antler development in the principle deer habitat regions, 1976-2008.*

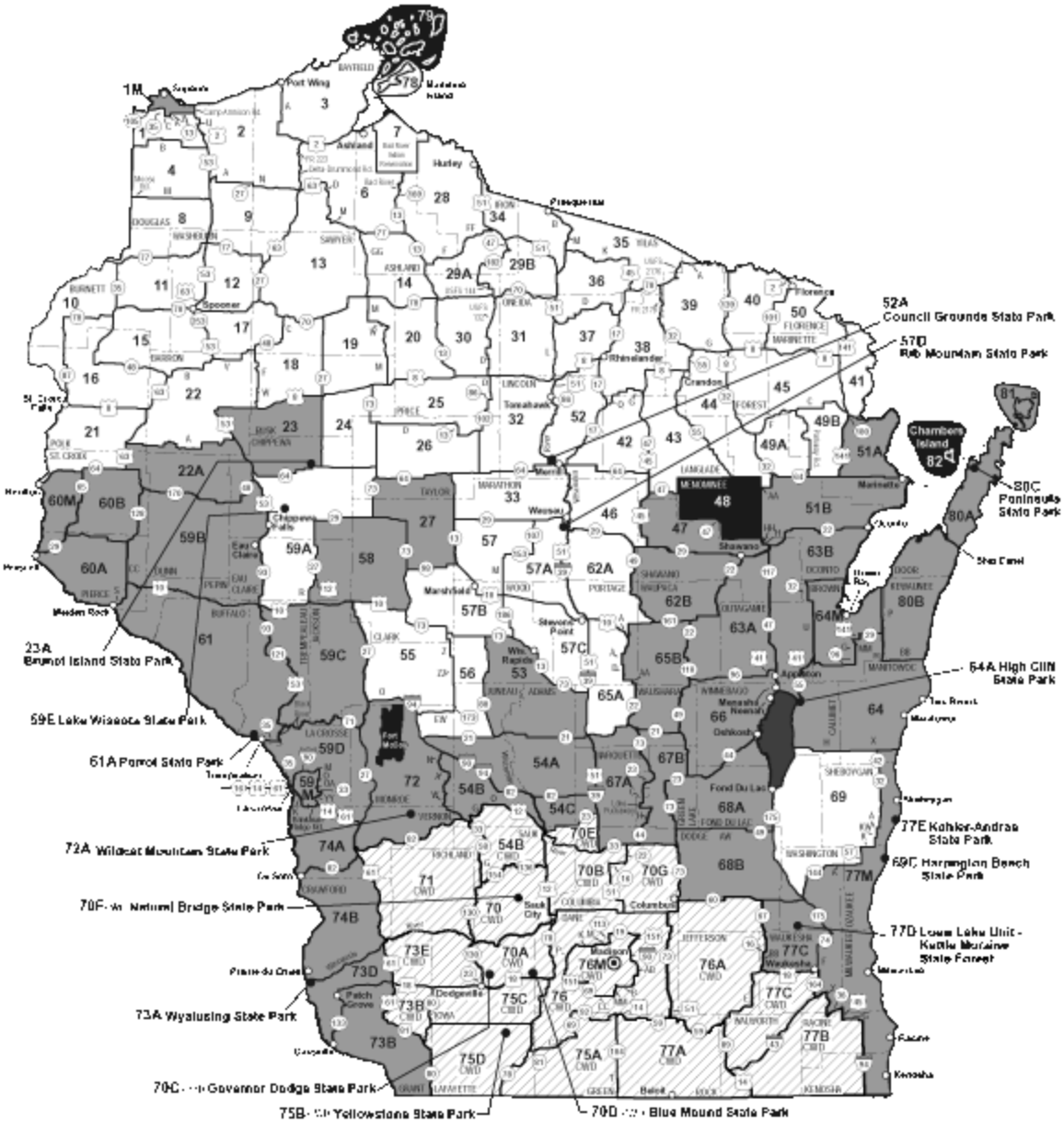



**Figure 4**. *Deer season frameworks in Wisconsin, 2009.*

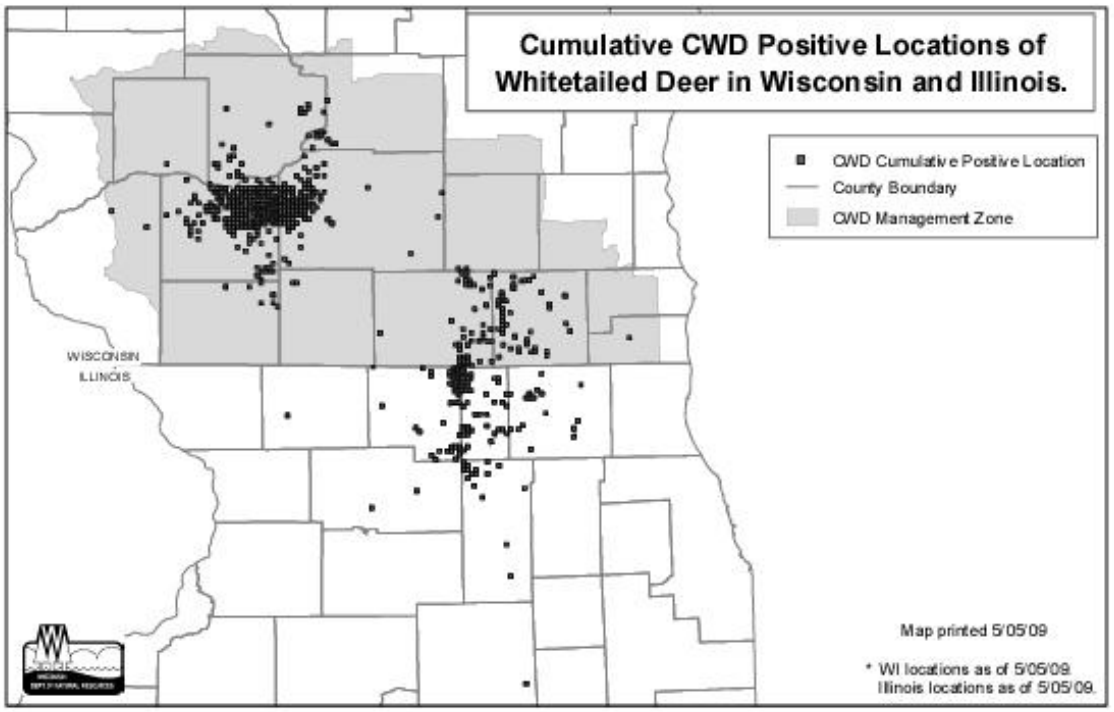



**Figure 5**. *Distribution of CWD positive deer in southern Wisconsin and northern Illinois, 2002-2009.*

# Agency Turkey Reports

# The status of wild turkeys in Colorado

September 2009

Colorado is home to Merriam's and Rio Grande wild turkeys. Merriam's are considered native to Colorado, and occupy the mountainous regions of Colorado west of Interstate 25 and the pinyon-juniper canyon country of southeastern Colorado. Merriam's wild turkey range extends north along the front-range of the Rocky Mountains, west along the I-70 corridor, into northwest Colorado along the White River and in southwest Colorado.

Rio Grande wild turkeys were introduced into Colorado, and primarily occupy the cottonwood riparian systems of the eastern plains region, in addition to the Rio Grande River in the San Luis Valley. Distribution is segregated in most cases (Figure 1), although in a few areas, Rio Grande and Merriam's occupy the same habitat. Large portions of the state do not provide suitable habitat for wild turkeys, and while the locations of small, pioneering birds are frequently reported in previously un-inhabited areas, several of which have established new populations.

From 2000 to 2004, populations of Merriam's were significantly reduced due to drought related mortality on poults. Merriam's populations have recovered quickly and managers believe that the statewide population is at or above a historical high. Rio Grande populations were also reduced by drought impacts, but to a lesser degree than Merriam's. There is little doubt that Rio Grande turkey populations are higher than at any point in the past.

## Hunting Opportunity and Harvest

Colorado offers both fall and spring turkey seasons, with both limited drawing only and unlimited, over-the-counter (OTC) permits. Average license sales for fall seasons total approximately 3,600 with an average success rate of 20%. Spring turkey hunting is much more popular than fall turkey seasons, with total license sales reaching 13,000 in 2008. Spring turkey hunting provides approximately 55,000 days of hunting recreation. Approximately 15% of the limited license holders in a given year also purchase an OTC permit.

OTC permits are responsible for roughly 85% of Colorado's spring harvest, while limited permits are generally restricted to areas that cannot tolerate unlimited hunting pressure, and in areas in which the turkey population has recently been established. In effect, limited permit areas provide "quality" hunting areas, with high success rates, as opposed to maximized opportunity. Annual harvest estimates are summarized in Figure 2.

Spring turkey hunters are annually surveyed via an automated telephone system/internet system. Harvest estimates are provided on a statewide level, at the county level for OTC permits and at the game management unit (GMU) level for Limited permits. Each harvest estimate includes an estimate of standard area and the 95% confidence interval. Data is collected for hunt participation, harvest, maturity of bird, wounding loss, total days hunted, portion of week hunted (weekends vs. weekdays vs.

both), crowding and satisfaction. Data fields are similar for fall turkey hunting surveys, although fall turkey hunters are surveyed bi-annually. Harvest reports are available to hunters at the agency website.

Trap and Transplant

Colorado has an active turkey trap and transplant program, although this program has continually evolved over the last two decades. Approximately 250 turkeys are transplanted annually, with high prioritization given to release sites that offer public hunting opportunity. Nearly 50% of trap sites are associated with some type of agricultural damage or urban conflict. Colorado's current trap and transplant policy calls for disease testing 25% of any flock trapped for transplant, for four pathogens, including *Mycloplasma gallisepticum* (MG)*, Mycoplasma synoviae* (MS)*, Mycoplasma meleagridis* (MM)*,* and *Salmonella pullorum* (SP). Flocks that test positive for any of these at any level are not used for transplant stock.

State law requires that all birds coming from out of state are also tested for these diseases. Considering that in-state sources of birds often outnumber suitable release sites, Colorado discourages out of state sources for wild turkeys. State law also prohibits the release of pen raised turkeys into the wild, although such releases are believed to occur, often in areas that does not or will not support turkeys regardless of origin.

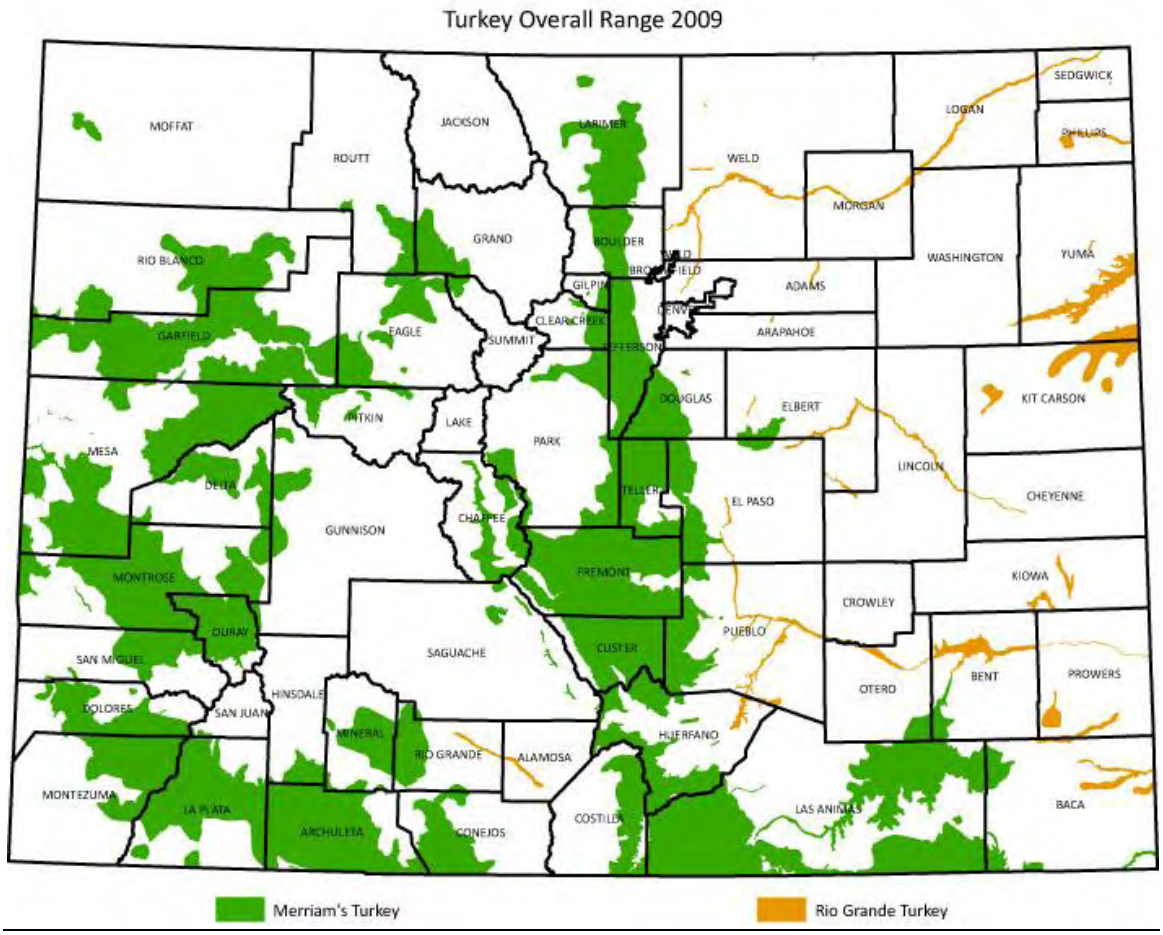
Hunter Programs

1) Licenses
    a. Hunters under the age of 18 can purchase youth licenses at a reduced cost. Youth hunters are not required to comply with Habitat Stamp Requirements. No specific seasons exist for youth hunters.
    b. Mobility impaired hunters are eligible for a special pool of licenses in 4 specific GMUs in NE Colorado. There are also specific access permits for mobility impaired hunters on Spanish Peaks State Wildlife Area.
    c. Private Land Only licenses in some limited units.
    d. OTC licenses with caps will be used in some areas in 2010.
    e. CDOW is exploring a longer fall season on the eastern plains.
2) Access
    a. Walk-In Access – This initiative has been discontinued for turkeys in Colorado. Many landowners were hesitant to allow unlimited access to their property during the spring turkey season.
    b. State Wildlife Areas and State Trust Lands
3) Education
    a. Hunt Seminars – three or 4 annually, targeted at new/beginning hunters. Attendance of approximately 100 for each event. Curriculum includes safety, biology, hunting tactics, areas to hunt, etc.

## Research

CDOW is 2/3 of way through a population dynamics/estimation study on the South Platte River in northeast Colorado. 2009/10 will be the final year of this study.

Figure 1. Colorado Turkey Distribution



# ILLINOIS WILD TURKEY STATUS REPORT

## 33nd Midwest Deer and Wild Turkey Study Group Meeting

## Rock Springs 4-H Camp, Junction City, Kansas
## September 13-16, 2009

Submitted by: Tom Micetich, Deer Project Manager

**ILLINOIS -- Wild Turkey Broods and Hen Observations, 1998 - 2008**

| Year | # Hens With/Without Broods | # Poults | Poults/Hen Index |
|---|---|---|---|
| 1998 | 1,609 | 5,304 | 3.30 |
| 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 |
| 2005 | 1,389 | 3,251 | 2.34 |
| 2006 | 1,746 | 4,834 | 2.77 |
| 2007 | 2,631 | 6,051 | 2.30 |
| 10yr Mean | 1,603 | 4,569 | 2.85 |
| 2008 | 2,109 | 4,387 | 2.08 |

Broods were reported from 84 of 102 Illinois Counties in 2008
*Cooperator list expanded (2007) random 3% LO spring turkey permit holders

**Yearly Turkey Harvest 1995 - 2009**

| 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 | 1,197 | 717 | 18,054 |
| 2007 | 570 | 14,197 | 1,161 | 754 | 16,682 |
| 2008 | 635 | 15,159 | 878 | 731 | 17,403 |
| 2009 | 617 | 15,487 | 756 | | 16,860 |

2008 Fall Archery and 2009 Spring Turkey Seasons were open in 96 of 102 Illinois Counties

2008 Fall Gun Turkey Season was open in 45 of 102 Illinois Counties; 4005 of 7434 quota,

plus 6054 landowners (21 NR) - total issued = 10,059

2008 Spring Turkey Permits issued = 72,902; including 21,308 Resident Landowner,

584 NR Landowner and 51,010 Paid

2008 Spring Youth Turkey Permits issued = 2942 of 5195 quota

2009 Spring Turkey Permit information unavailable at this time.

# INDIANA WILD TURKEY STATUS REPORT

## 33nd Midwest Deer and Wild Turkey Study Group Meeting

## Rock Springs 4-H Camp, Junction City, Kansas
## September 13-16, 2009

Steven E. Backs, Wildlife Research Biologist
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***Executive Summary:*** *Summer brood production has below normal due to inclement climatic conditions since the record high during the 2004 "cicada year". Spring harvests levels have remained above 11,000 despite the low production. The low proportion of jakes (19%) in the 2009 spring harvest raises some concerns that perhaps poor production since 2004 is catching up with the overall population structure, despite the "buffering effects" of a 1-bird bag limit. Fall harvests and hunter interest have remained low due to the very conservative season structure. A 4-year assessment of fall harvest parameters indicates the fall hunting opportunities can be increased. Wild turkey nuisance complaints associated with human development are increasing while crop depredation complaints have diminished or are non-existent. Complete results of all turkey population and harvest surveys can be found at* http://www.in.gov/dnr/fishwild/3352.htm *Summaries and highlights presented below.*

## PRODUCTION AND POPULATION SURVEYS

### Summer Brood Survey

District wildlife biologists and conservation officers record observations of wild turkey hens and poults during normal duty hours in July and August. The wild turkey summer brood Production Index (PI) is the total poults/total adult hens (poults:hen ratio) compiled from July and August into one combined index. The statewide mean of 2.6 poults:hen (PI) observed was identical to the 2.6 PI of the 2 prior summers (2006, 2007) and not different than the 2.9 PI of the previous 5 years of 200-20076 ($P > 0.05$) . The proportion of hens observed with poults was 80%, similar to the 82% in 2007.

Brood production has been below average since the record high production in 2004 (17-Yr cicada hatch). The general decreasing trend (1993-2008) in the annual summer production of wild turkeys is indicative of a statewide population whose growth rate is beginning to level off to "maintenance" or stable population levels. Prospects for turkey production during the summer of 2009 are not good due to a high frequency of rain events, above normal precipitation, flooding, and below normal temperatures through August.

### Roadside Gobbling Counts

Gobbler counts are conducted annually during late March to April to determine the relative population trends of wild turkeys in the areas surveyed. In 2008, 10 traditional areas were surveyed in portions of 14 counties. Roadside gobbler trend routes were conducted in conjunction with roadside trend routes

for ruffed grouse. Each route has 15 predetermined listening stops along 10-20 miles of rural roadways. The mean number of wild turkeys heard along 10 roadside counts during March 30 through 17 April 2009 was 0.79 gobblers heard per stop, a 5% increase compared to the gobbling index of 0..75 in 2008. The long-term trends show an increase since 1987 except for the slightly depressed trend since the 2006 peak. The 5% increase in the gobbling index in 2009 was not significantly different ($P > 0.05$) from the previous 5-yr mean (2004-2008).

## HARVESTS

### 2008 Fall Season Results

The 4th modern-day fall wild turkey hunting season in Indiana was held from October 1-19, 2008. The archery-only portion of the season occurred from October 1-14 in 74 counties. The combined shotgun and archery portion occurred from October 15-19. Shotgun hunting was limited to 34 counties primarily in the southern portion of the state. Hunters harvested 610 wild turkeys in 57 of the 74 counties during the fall wild turkey season. The 2008 fall harvest was 4% more than the 585 birds taken during the 2007 fall turkey season but 15% less than the 716 birds taken during the first fall season in 2005. The 14-day archery-only season accounted for 22% of the harvest with 78% of the harvest occurring the last 5 days of the combined shotgun and archery season. Weekends accounted for 44% of the total harvest with 38% during the one weekend of the combined archery and shotgun portions. Juvenile birds made up 25.5% of the harvest while adults composed 74.5% for a juvenile to adult ratio of 1:3. The high adult proportion was probably related to a combination of hunter selectivity and below average brood production in 2008. The proportion of the fall to spring harvest by county ranged from 0% to 11% and the statewide fall to spring harvest proportion was 5% due to the conservative season structure and relatively low hunter interest.

### Fall Season Assessment (2005-2008; 4 years)

A very conservative fall season was implemented in 2005 after 11 years of controversy and unsuccessful attempts to implement one. The conservative harvest strategy was adopted using criteria pertaining to percent forest cover, restoration status, spring harvest history/levels, and individual county proximity to other counties meeting the criteria. Additional restrictions were regulations limiting the bag limit to one bird either sex, and season length, and equipment used (archery or shotgun). One objective of implementing a conservative harvest approach was to conduct a 3-5 year assessment of fall harvests, potential impacts on subsequent spring harvests, hunter participation, and relative hunter success under Indiana's permit structure while monitoring trends in wild turkey population indices.

Harvests results for the 2005 to 2008 fall turkey seasons were summarized by hunting equipment used, portion of the season (archery/firearms), day of the season, permit type, sex and age structure, and individual county harvests. Fall hunting participation by permit type, portion of season hunted, and hunter success were estimated for the 2006 fall season through the 2007 spring turkey hunter questionnaire. A summation of the 2005-2008 harvests with 4-season mean values is presented in Table 1; Figures 2-4.

As expected, fall harvests were relatively low and hunter participation declined after the initial implementation, with a slight increase related to expansion of the fall hunting range in 2008 (e.g., resident fall permit trends). The proportion of the fall to spring harvest was consistently around 5% statewide, 10x's lower than the theoretical maximum 50% ratio based on harvest/population simulation modeling studies conducted by other states. The individual county fall:spring harvest proportions ranged as high as

18% but this generally occurred in archery only counties where spring harvests were low (< 10 birds) and the fall harvest was equally low (< 1 bird).

The majority (77%) of the fall harvest occurred during the combined archery/firearm portion of the season with 38% occurring on the last weekend of the combined archery/firearm portion. Shotgun hunters accounted for 67% of the total harvest with 33% taken by archers. The sex and age structure was skewed strongly towards adults of both sexes (75%) and gobblers (44%) which is not normally expected based on results of other states, except when summer production is low. Coincidental to the implementation of fall hunting in Indiana, summer production levels dropped from record high production in 2004 to a record low in 2005 and have remained below average since 2005. Another suspected factor in the skewed harvest structure was hunter selection for larger adult and/or male birds. Despite the low production during 2005-2008, spring harvests continued to remain high and spring hunter success remained at 21-22% (Table 2).

Based on 2007 turkey hunter questionnaire, approximately 15,000 hunters participated in the 2006 fall turkey season; 68% hunting during the archery only portion (14-19 days) and 57% hunting the 5-day combined archery/shotgun portion. Lifetime licensees accounted for 58% of the fall turkey hunters, resident fall turkey licensees 22%, youth 10%, exempt landowner/military 9%, and non-residents < 0.5%. The estimated archery hunter success was 1.7% and falls in line with the general ≤ 3% reported by other states. The estimated shotgun hunter success was 5.6% which is lower than the 15-20% reported by other states, but was likely influenced by the short 5-day firearm's portion and general lack of Indiana hunter experience with fall hunting techniques.

## 2009 Spring Season Results

The 40th wild turkey hunt was held 22 April to 10 May 2009 with harvest data collected at 342 check stations throughout the turkey range. Hunters harvested 12,993 wild turkeys in 88 of the 92 counties. The 2009 harvest was the second highest harvest, exceeding the 2008 harvest by 789 birds (+6% increase). Estimated hunter success was around 22%. The majority of the birds were harvested in the early part of the season and the early morning hours. A total of 978 birds was taken during the youth-only weekend prior to the regular season (7.5% of the total statewide harvest). Juvenile and adult weights were up slightly compared to the mean weights of previous years. The proportion of juvenile turkeys in the harvest was 19% with 51% 2-yr-olds, and 30% ≥ 3 yr-olds. The south-central and southeastern regions supported 51% of the harvest followed by northern Indiana at 20%. The total number of hunters in the field over the 19-day season was estimated at around 59,000 with an estimated hunter success of 22% (Table 2).

## 2007 Wild Turkey Hunter Questionnaire Survey

A pre-addressed, return postage-paid questionnaire was sent immediately following the regular spring turkey season in 2007 to a stratified, random sample of license holders (5 license types; 5,000 questionnaires; 7.3% of the potential licensed hunters). The 10-question survey requested information from both successful and unsuccessful turkey hunters not obtainable from check stations. A hunter questionnaire was conducted following the 2007 spring wild turkey season. The overall estimated success rate for 53,402 hunters was 20.9%, 25% less than estimated 27.9% success in 2002. Non-resident turkey hunters had the highest success (30.2%) but accounted for only 2% of the total harvest. Lifetime license holders had a combined mean success of 23.9% and accounted for 51% of the harvest.

Total hunter effort increased 38% with a mean 23.6 hunter efforts/bird harvested in 2007, a 31% increase over 2002. The mean effort (trips)/hunter/season remained at 5. Overall in 2007, approximately 1 bird was harvested for every 3 $mi^2$ of hunting range and 1.62 birds/$mi^2$ of forest cover. Hunter density

estimates increased, although slightly less than the 41% increase in hunters. The average daily hunter density was 0.43 hunters/mi$^2$ of hunting range and 2.04 hunters/mi$^2$ forestland; roughly a 35% increase over 2002. Hunter effort and density estimates in 2007 increased substantially more than the birds harvested/mi$^2$. Private lands continue to support more of the total hunter effort (75%) while public lands were used proportionally more than their availability (≥ 5 times).

Most hunters hunt in their county of residence or adjacent counties, but counties with high annual harvests attract a wider hunter interest. Overall, most hunters thought turkey populations in their primary county hunted were either stable (47%) or increasing (31%) with 12% indicating a decline. Differences in hunter satisfaction were apparent between successful and unsuccessful hunters, with unsuccessful hunters less satisfied. Overall, 76% of 2007 hunters responded that their spring hunt was satisfactory compared to 83% in the 2002 season when the estimated hunter success was higher.

**Regulation Changes for Turkey Seasons:**

There are no turkey season regulation changes for the 2009 fall and spring 2010 seasons. We did conduct an extensive examination of automated check-in (telephone and on-line) for harvested deer and turkeys, including the submission of cost estimates from several outside, national vendors. The budget-cost analysis indicated the implementation of automated systems would exceed current costs significantly and was unacceptable to an administration already dealing with budget issues related to the national economic downturn.

We have proposed to expand both the hunting range and the days of opportunity for both archery and gun hunters for the 2010 fall season. The proposal is still under internal review but we hope to expand the fall gun season in the south to 12 days and implement a 5-day gun season in 7 northern counties (3 yr evaluation). This will allow fall gun hunting for turkeys in 50 of 92 counties. Archery hunting opportunities are proposed to go statewide with a second late archery season to coincide with the late archery/muzzleloader seasons for deer (blaze orange requirement for late archery as for late deer archery hunters). The bag limit will remain at 1 bird hunter per fall.

**Crop or Nuisance Issues**

Crop depredation complaints in row crops continue to diminish each year to almost nothing some years. The exception on the agricultural front is an occasional complaint about wild turkeys in the growing vineyard industry. So far, most vineyard complaints are related to poor vineyard husbandry, high black rot years, other financial issues related to the wine market, and perhaps deer.

Nuisance complaints are still increasing. Most nuisance complaints involve “backyard” situations, wildlife feeding, cars/residences, and often linked to birds of questionable origin (imprinted wild or pen-reared). One notable source may be attempts by some turkey hunters in northern Indiana to introduce Rio-Grande and Merriam’s bloodlines (from pen-reared or illegally obtained eggs) so that “they can more easily pursue their “Grand Slam” with less out-of-state travel during these tight economic times and higher gasoline prices”. Trophy mentality has arrived, “CERVIDIFICATION”! We should have seen it coming with the pre-turkey rut inquires from hunters.

**Other Chronic or Evolving Issues**

Hunter complaints about wanting the spring turkey season dates set earlier is persistent and increasingly distracting to accomplishing other project tasks. It was quite ironic to still received complaints after the 2009 season when it appeared that the breeding chronology of wild turkeys was at least 2 weeks late this year, with reports of intensive gobbling activity and gobbler displaying to small groups of hens through

Memorial Day weekend. An experienced field technician heard more gobblers than doves on his Mourning dove route in late May in the same area he lives and hunts turkeys. We had similar reports from other natural resource professionals.

The apparent release of non-endemic subspecies for "trophy desires" by some of our turkey hunters raises a lot of serious issues. I would have thought it was some kind of joke if I had not personally spoken with a couple folks of this mind-set within the last year. We also had 2 instances where successful hunters inquired about "shooting the first Merriam's in Indiana" this past spring.

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

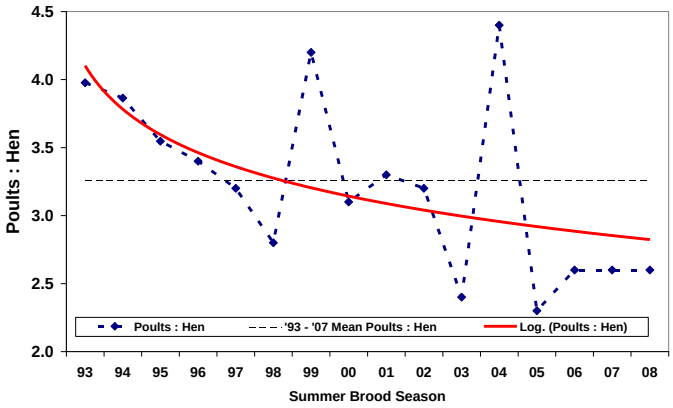

**Table 1. Indiana Fall Wild Turkey Season Summary 2005 to 2008**

| | YEAR | | | | |
|---|---|---|---|---|---|
| | **2005** | **2006** | **2007** | **2008 *** | **Means** |
| **Harvests** | | | | | |
| Annual Harvest | 716 | 646 | 585 | 610 | **639** |
| Statewide Fall/Spring Ratio in % | 6% | 5% | 5% | 5% | **5%** |
| County F:S Ratios (range of values) | 0-15% | 0-17% | 0-18% | 0-11% | **0-18%** |
| *(Note: high side related to low kill spring counties with archery only hunting, e.g., 1 fall/6 spring)* | | | | | |
| **Chronology of Harvest** | | | | | |
| Archery Only | 19% | 26% | 26% | 22% | **23%** |
| Combined Archery/Gun | 81% | 74% | 74% | 78% | **77%** |
| All Weekends | 50% | 50% | 46% | 44% | **47%** |
| Last Weekend (Bow/Gun) | 40% | 37% | 36% | 38% | **38%** |
| **Weapon Harvest** | | | | | |
| Archery | 24% | 36% | 35% | 28% | **31%** |
| Crossbow | 2% | 2% | 2% | 4% | 3% |
| Shotgun (includes muzzleloader SG's) | 73% | 62% | 64% | 67% | **67%** |
| **Age Structure** | | | | | |
| Juvenile:Adult | 1:3 | 1:4 | 1:3 | 1:3 | **1:3+** |
| % Adults both Sex | 79% | 74% | 73% | 75% | **75%** |
| Adult Gobblers % | 40% | 32% | 31% | 28% | **33%** |
| Juvenile Gobblers % | 12% | 9% | 18% | 8% | 12% |
| Gobblers % | 51% | 40% | 49% | 36% | 44% |
| Adult Hens % | 34% | 48% | 42% | 47% | 43% |
| Juvenile Hens % | 15% | 12% | 9% | 17% | 13% |
| Hens % | 49% | 60% | 51% | 64% | 56% |
| **Harvest by Permit** | | | | | |
| Resident Fall | 22.0% | 23.0% | 22.0% | 23.0% | **23%** |
| No. Resident Fall Licenses Sold | 2,225 | 1,682 | 1,557 | 1,689 | **1,788** |
| Non-Resident Fall | 0% | 0% | 1% | 1% | 1% |
| NR Licenses Sold | 20 | 2 | 8 | 13 | 11 |
| Comp. Lifetime | 62.0% | 53.0% | 49.0% | 48.0% | **53%** |
| Potential Lifetimers | 43,028 | 43,028 | 43,028 | 43,028 | 43,028 |
| Youth | 5% | 7% | 9% | 12% | **8%** |
| Youth Lic. Sold | 19,195 | 22,947 | 23,674 | 37,192 | 25,752 |
| Landowner | 11.0% | 10.0% | 9.0% | 12.0% | **11%** |
| Total No Additional Annual permit | 78.0% | 70.0% | 67.0% | 72.0% | **72%** |
| **Est. Hunter Participation & Success** | (2006 fall participation estimated from 2007 Spring Hntr ?'re.) | | | | |
| No. Hunters during Archery Only | | 10,168 | | | |
| No. Hunters Hunting Bow/Gun Portion | | 8,523 | | | |
| Estimated Archery Success | | **1.7%** | | | |
| Estimated Firearm Success | | **5.6%** | | | |

* Gun range expanded to west central Indiana in 2008.

**Fig. 2. Fall Harvests**

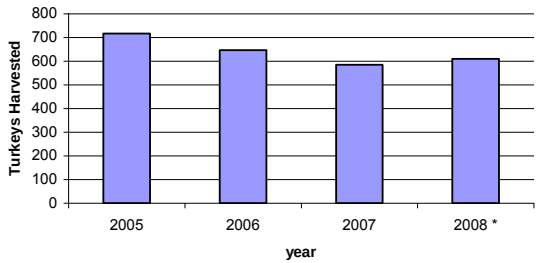


**Fig 3. Resident Fall WT Licenses Sold**

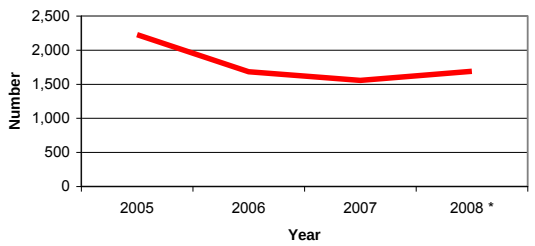


**Fig. 4. Harvest by Permit Type**

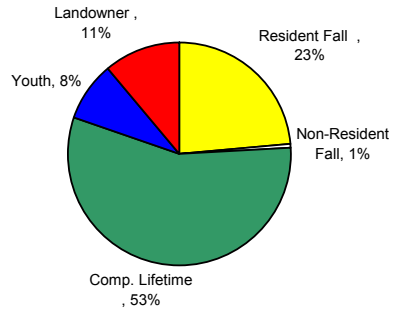

Table 2. Indiana's spring wild turkey hunting seasons, 1970 to 2009.

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

* After 1986, totals include lifetime licenses. After 1987, total includes 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

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

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

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

# IOWA WILD TURKEY STATUS REPORT

## Midwest Deer and Turkey Study Group Meeting
## Junction City, KS, September 13-16, 2009

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

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### STATUS REPORT SUMMARY:

| ***Gun/bow combo licenses*** | **Licenses issued** [a] | **Harvest totals** [a] | **Hunter numbers** [a] **(> 1 license/hunter)** | **Success rates (per lic.)** | **Season dates** | **License fees** |
|---|---|---|---|---|---|---|
| Resident<br>Fall 08 | 8,497 (-9%) | 952 (-24%) | 7,797 (-9%) | 11% | 13 Oct - 5 Dec | Hunting fee: $17.50<br>Habitat fee: $11.50 |
| Youth ( < 16)<br>Spring 09 | 2, 845 (+25%) | 691 (+33%) | One license/youth | 24% | 10 Apr - 12 Apr | Turkey lic. fee: $23.00 |
| Resident - Spring 09 | 46,470 (+3%) | 10,166 (+10%) | 35,811 (+0.1%) | 21% | 13 Apr - 16 Apr<br>17 Apr - 21 Apr | Total fees: $52.00 |
| Nonresident Spring 09 | 2,158 (94% sold)<br>(2,298 available) | 884 (- 2%) | One license/ non-res. (-4%) | 41% | 22 Apr - 28 Apr<br>29 Apr – 17 May | Hunting fee: $80.50<br>Habitat fee: $11.50<br>Turkey lic. fee: $100.50<br>Total fees: $192.50 |
| ***Bow only Licenses*** | | | | | | |
| Resident<br>Fall 08 | 1,746 (+1%) | 123 (+15%) | 1,684 (+1%) | 7% | 1 Oct - 5 Dec<br>22 Dec - 10 Jan | Hunting fee: $17.50<br>Habitat fee: $11.50 |
| Resident - Spring 09 | 6,139 (+8%) | 859 (+8%) | 5,644 (+7%) | 14% | 13 Apr - 17 May | Turkey lic. fee: $23.00<br>Total fees: $52.00 |
| ***Totals*** | | | | | | |
| Fall 08 | 10,243 (-5%) | 1,075 (-21%) | 10,462 (-8%) | 11% | | |
| Spring 09 | 54,767 (+1%) | 11,909 (+5%) | 47,645 (-2%) | 21% | | |

[a] parentheses indicates percent change from previous year

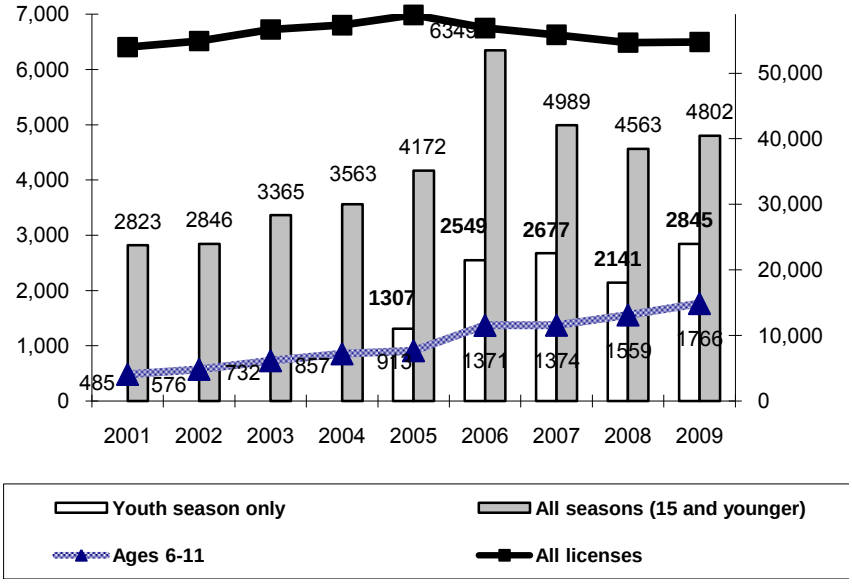
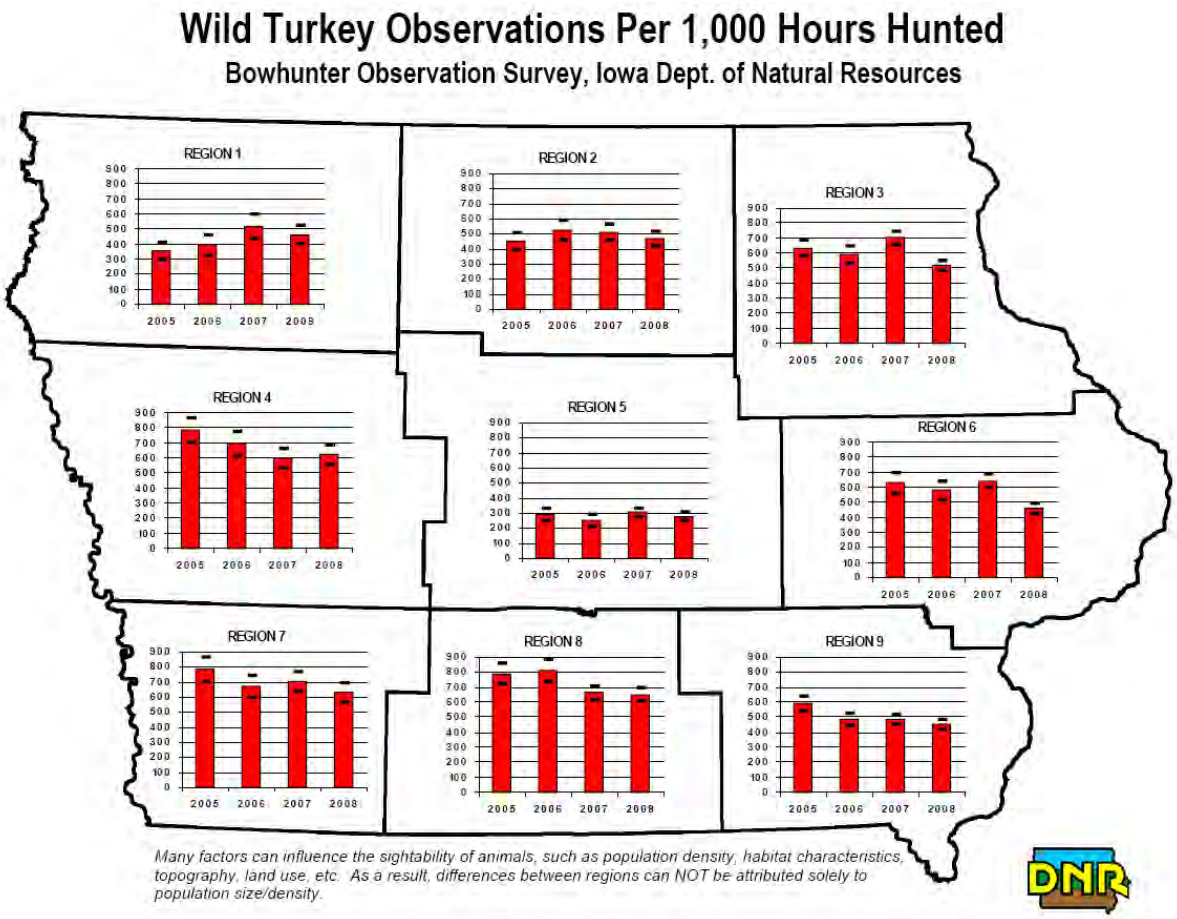



**Figure 1. Iowa spring turkey license issue by age, 2001-2009.**

## YOUTH TURKEY HUNTING

Iowa's 5th youth spring turkey season has held in April 10-12, 2009. During the 3 day season, youth 15 and younger were allowed to participate with an accompanied licensed adult (adult licensed for one of the regular seasons). In 2005, the first year of the youth season, ages were limited to ages 12-15. Starting in 2006, ages 15 and younger could participate in the youth season. A total of 2,845 youth purchased licenses for the season (Fig. 1). Youth season license sales increased (704 more licenses sold) in 2009, which was a record number of youth sales.

Since the inception of ELSI (Electronic Licensing System of Iowa) in 2001, hunter age and gender has been recorded. From 2001-2006, youth spring turkey hunters (age 15 and under) increased each year. Total licenses sold (all ages) also increased from 2001-2005, but decreased in 2006. In 2007 and 2008, youth hunter numbers decreased, but increased in 2009. Similarly, the total number of licenses sold decreased in 2007 and 2008, with a slight increase in 2009 (Fig. 1).


Wild Turkey Observations Per 1,000 Hours Hunted
Bowhunter Observation Survey, Iowa Dept. of Natural Resources
REGION 1
REGION 2
REGION 3
REGION 4
REGION 5
REGION 6
REGION 7
REGION 8
REGION 9
2005 2006 2007 2008
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.
DNR

## BOWHUNTER SURVEY

The Iowa Department of Natural Resources (DNR) conducted the annual Bowhunter Observation Survey during October 1 – December 5, 2008. This was the fifth year of the survey, which was designed jointly with William R. Clark, Professor at Iowa State University. The two primary objectives for this survey are to: 1) determine the value of bowhunter observation data as a supplement to other deer data collected by the DNR; and 2) develop a long-term database of selected furbearer data for monitoring and evaluating population trends. Bowhunters are a logical choice for observational-type surveys because the methods used while bowhunting deer are also ideal for viewing most wildlife species in their natural environment. In addition, bowhunters typically spend a large amount of time in bow stands: more than 40 hours/season is not uncommon. We believe avid bowhunters are the best hunters to select for participation in this survey because they not only hunt often, but they also have the most experience in selecting good stand locations, controlling or masking human scent, using camouflage, identifying animals correctly, and returning surveys.

Participants for the 2008 survey were selected from a list of bowhunters who had purchased a license for each of the 3 years prior to 2008 (i.e., avid bowhunters). Our goal was to select approximately 999 bowhunters in each of Iowa's 9 climate regions. Each climate region contains approximately 11 counties, and approximately 91 bowhunters were selected per county in an effort to evenly distribute observations in each region. Selection of participants consisted of a 3-step process. In each county, participants were first selected from a core group of avid bowhunters who had previously indicated an interest in participating in this survey. If fewer than 91 core group participants existed in a county, additional participants were randomly selected from a separate list of avid bowhunters who were not in the core group. Finally, if the number of "core group" and "randomly selected" participants in a county was less than 91, additional avid hunters were selected from other counties in the region to reach the regional goal of 999 participants. A total statewide sample of 8,991 bowhunters was selected for participation.

Responses were obtained from 2,140 bowhunters who recorded their observations during 31,891 hunting trips, yielding 108,040.5 hours of total observation time (3.39 ± 0.02 hours/trip; mean ± 95% CL). Bowhunters reported a median of 14 trips during the 66-day season. Regionally, the number of bow hunting trips (and hours hunted) ranged from 1,906 (6,154 hours) in northwest Iowa (Region 1) to 5,313 (18,090.5 hours) in northeast Iowa (Region 3). The raw survey response rate was 23.8%. The number of hunters who cooperated with the survey declined 14% in 2008 because bowhunters' interest was not pre-screened prior to the mailing of surveys.

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

Results from 2008 indicated that the total number of deer observed/1,000 hours declined significantly in central Iowa (Region 5) and the eastern third of the state. Declines in total deer observations were also observed in the remaining regions, but these declines were not significantly lower than in 2007. The number of wild turkeys observed/1,000 hours declined significantly in northeast and east-central Iowa, which is likely the result of heavy rainfall and flooding during the nesting and brood-rearing period in 2007. Bobcat observations/1,000 hours remain stationary or slightly increasing in west-central Iowa and across the southern third of the state, and data suggest that the bobcat population is expanding into northwest, central, and east-central Iowa.

## TURKEY BROOD SURVEY

**Table 1. Iowa 2008 turkey brood survey results.**

| REGION | REPORTS | TURKEYS PER FLOCK | YOUNG PER HEN | % HENS WITH BROOD |
|---|---|---|---|---|
| Northeast | 477 | 9.5 (*-7*,**-7**) | 4.5 (*-12*,**-5**) | 55 (*+4*, **+1**) |
| Southern | 952 | 8.7 (*+6*,**-9**) | 4.5 (*0*,**-8**) | 48 (*+36*, **+20**) |
| Central | 259 | 8.4 (*-13*,**-6**) | 4.8 (*+4*,+**7**) | 54 (*-2*,**+4**) |
| Western | 394 | 9.6 (*+3*,**-19**) | 4.3 (*+5*,**-9**) | 54 (*+30*,**+3**) |
| East Central | 600 | 8.0 (*-18*,**-21**) | 4.1 (*-18*,**-17**) | 55 (*+2*,**+16**) |
| Northwest | 155 | 9.3 (*-22*,**-7**) | 4.5 (*-18*,**-14**) | 68 (*+18*,+**5**) |
| North Central | 453 | 7.8 (*-24*,**-14**) | 3.9 (*-17*,**-12**) | 56 (*+2*,**+6**) |
| **STATEWIDE** | 3,289 | 8.7 (*-8*,**-13**) | 4.3 (*-9*,**-11**) | 57 (*+19*,**+14**) |

(% change from previous year in *italic*; % change from 10-year mean in **bold**, 1999-08)

Iowa's 2008 summer wild turkey brood survey showed a decrease in reproduction of turkeys throughout the state compared to last year's average and the 10-year average based on poults observed by hen (Table 1). In 2008, a new survey was developed that asked observers to also record toms seen, distinguishing them from hens. In previous years, observers were only asked to record hens observed. This may have influenced the percent of hens observed with broods (i.e. observers may have recorded toms as turkeys/hens without broods in the past). It is unlikely that all regions increased in the percent of hens observed with broods with the weather conditions of 2008 (extremely wet with severe flooding). Thus, any interpretation on the brood survey should be limited to poults per hen and turkeys per flock this year.

Statewide, the number of young observed per hen was 9% lower than last year (Fig. 2), and 11% lower than the 10-year average. This was the second lowest record of young/hen (4.2 in 1976) and just under the 1996 estimates of 4.4 young/hen. Regionally, central and western Iowa were the only regions that experienced increases in reproduction from the previous year and the 10-year average. Southern Iowa had no change in young/hen from last year, but was 8% below the 10-year average. East central, northwest, and north central Iowa appeared to be the hardest impacted regions of the state with a 12%-18% reduction in the number of young observed with hens (Fig.3). Turkeys per flock were also reduced in these regions by 7%-24%.

The reduced reproduction rates were likely related to the amount of rainfall during the nesting season (April-May), which was 2-8 inches above normal across the state with widespread flooding. The wet weather continued during the June hatch with the second wettest June ever recorded in Iowa.

This year's brood survey indicated below average reproduction across the state, but the turkey populations in Iowa are still good, especially when compared to other regions of the U.S. Hunter harvest success rates remaining similar over the past few years. Southern Iowa has experienced average to below average reproduction over the past several years, with the low flock sizes reported the last 4 years, but this region fortunately did not have the reduction in young/hen as much of the rest of the state did.

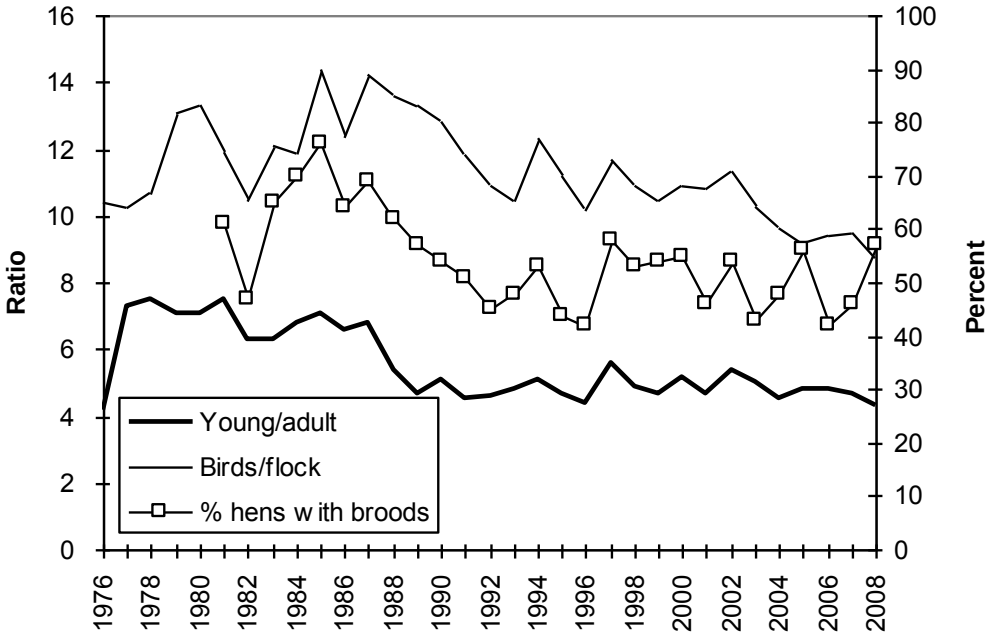



**Figure 2. Iowa turkey brood survey statewide results, 1976-2008.**

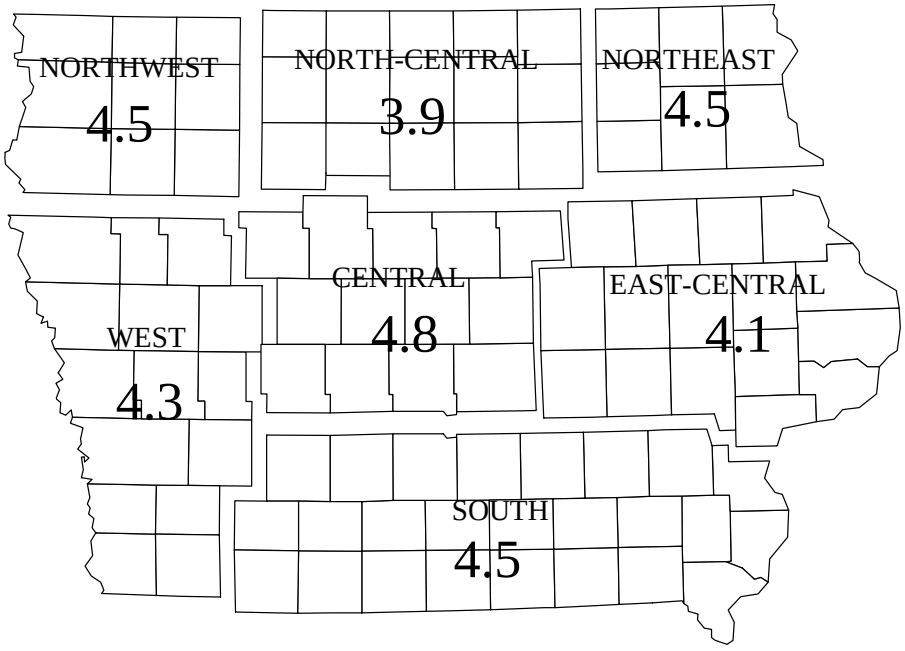



**Figure 3. Average number of poults per successful hen observed in Iowa during 2008 for 7 survey regions**

## FALL 2008 HARVEST SURVEY

Fall hunting was allowed in the entire state in 2008, which was the third consecutive year (Fig. 4). Fall turkey hunter success rates decreased slightly in 2008 from 2007 (Fig. 7), and still well below the 2005 and prior estimates. In fall of 2006, mandatory harvest reporting required successful hunters to report turkey harvested, and many hunters likely did not report turkeys harvested. Prior to this, harvest totals were estimated using a postcard survey after the seasons closed.

In 2008, quotas remained the same as 2005 - 2007. Shotgun/bow license issue (paid and free combined) decreased from the 2007 level to 10,166 for the 54-day season that ran from 13 October through 5 December, 2008 (Fig. 5). Over 38% of the shotgun licenses were issued free to landowners. An additional 1,746 archery-only licenses were issued for a season that ran from 1 October through 5 December, 2008 and 22 December, 2008 through 10 January, 2009. Estimated numbers of active hunters were undeterminable since there was no post card survey after the season (mandatory reporting eliminated the post card survey). Eleven percent of hunters harvested a turkey, which was a large decrease from 2005 (Fig. 5), likely due to the mandatory reporting and low compliance rates, but was similar to the past two years. Hunter success rates varied from 13% in zone 9 to 29% in Zone 8. Archery only licensed hunters reported a harvest of 123 turkeys in 2008, which was slightly lower than the 2007 archery-only license harvest. The 7% success rate for 2008 archery only licenses was similar to the previous year success rates for archery-only hunters. Nonresidents have not been permitted to hunt fall turkeys in Iowa since 1990.

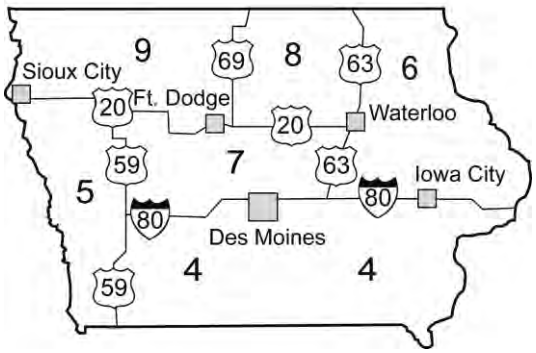



**Figure 4. Fall turkey hunting zones in Iowa, 2008.**

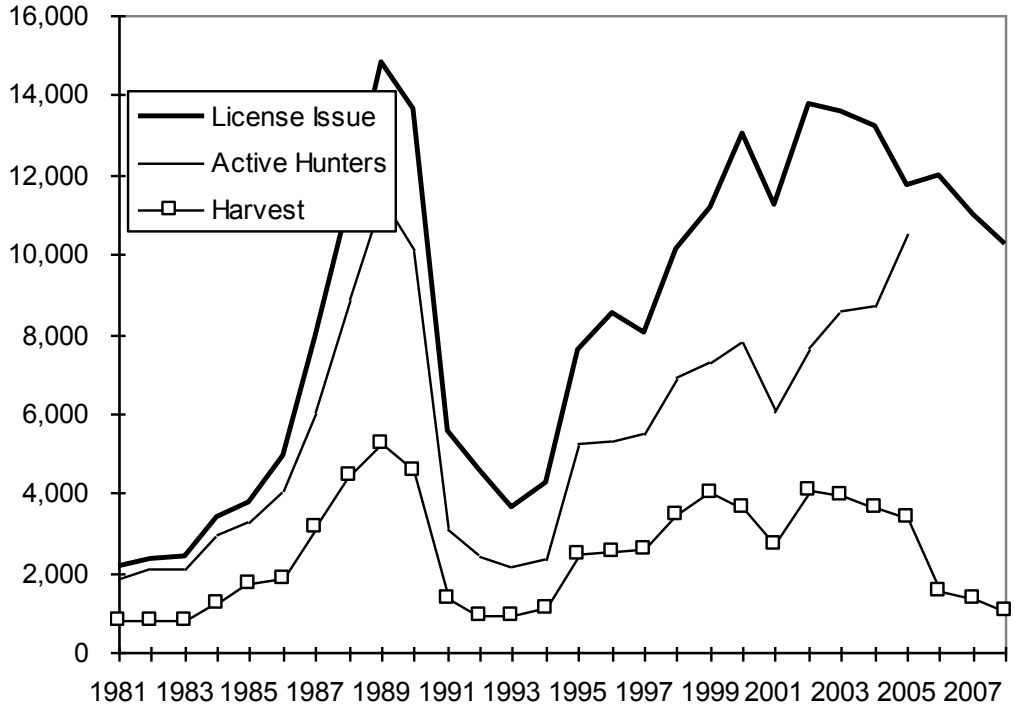



**Figure 5. Iowa fall turkey hunting statewide estimates, 1981-2008**

## SPRING 2009 HARVEST SURVEY

Turkey hunter numbers and turkey harvest have remained similar during the last 9 years, with a slight decrease in the number of licenses sold during the last 4 years (Fig. 6). Iowa's 35th modern spring hunting season recorded an estimated 11,909 turkeys harvested, with 54,767 license sold (Summary Table). This was the thirteenth year the entire state was open to spring turkey hunting. The 38-day season (10 April through 17 May, 2009) was partitioned into 5 separate seasons: a 3-day youth-only season, and 4 regular seasons (4, 5, 7, and 19-day seasons). An increase in the number (2,845) of licenses were sold for the youth-only season with 704 more youth licenses sold (Fig. 1). The 4-season format, with unlimited license quota an unlimited license quota for all the periods, resulted in 46,470 resident shotgun licenses issued. An additional record number (6,139) of archery-only licenses were issued. Archery-only licenses harvested 859 turkeys surveys resulting in a 14% success rate in 2009.

Twenty-one percent of the resident hunters were successful in harvesting a gobbler in 2009. Spring harvest success rates fluctuated around 20-30% during the first 12 years (unweighted average = 25.1 for 1974-85) but success increased each year during 1985-88 (Fig. 7). The success rates from 2002-2006 averaged 46.0%. The decrease in success rates beginning in 2007 and number of turkeys harvested is likely due the change in survey methods. In spring of 2007, mandatory harvest reporting required successful hunters to report turkey harvested.

A follow-up post card survey for spring of 2007 revealed 74% compliance rate, which equated to nearly 4,000 harvested turkeys that were not reported initially during the spring season. The major reasons for the non-reports were attributed to hunters forgetting to report (40%), difficulty in reporting process (29%), and unaware of the requirement (22%).

This was the 20th spring that non-residents were allowed to hunt turkeys in Iowa. Quotas in zone 4 (all seasons), zone 5 (all seasons except season 2), zone 6 (season 4), zone Zone 7 (all seasons except season 4) and Zone 8 (all seasons) were filled in 2009. Non-resident hunters harvested 884 wild turkeys (Tables 2.3). Non-residents were more successful than residents in harvesting a spring gobbler (21% versus 41%, respectively) (Summary table).

In spring of 2009, known jakes (spurs < ½") harvested were 15% of the total harvest. This is an decrease of 2% for jakes harvested in 2008. Birds harvested with spurs ½" – ¾" were 26% of the total harvest in 2009. The majority (59%) of turkeys harvested had spurs > ¾".

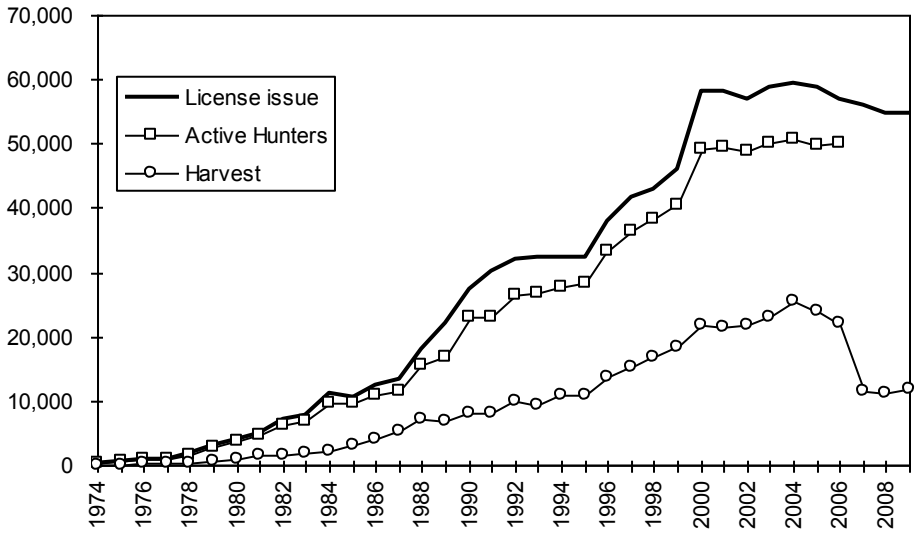



**Figure 6. Iowa spring turkey hunting statewide estimates, 1974-2009. Beginning in 2007, the harvest estimates are based on mandatory harvest reporting instead of mail surveys.**

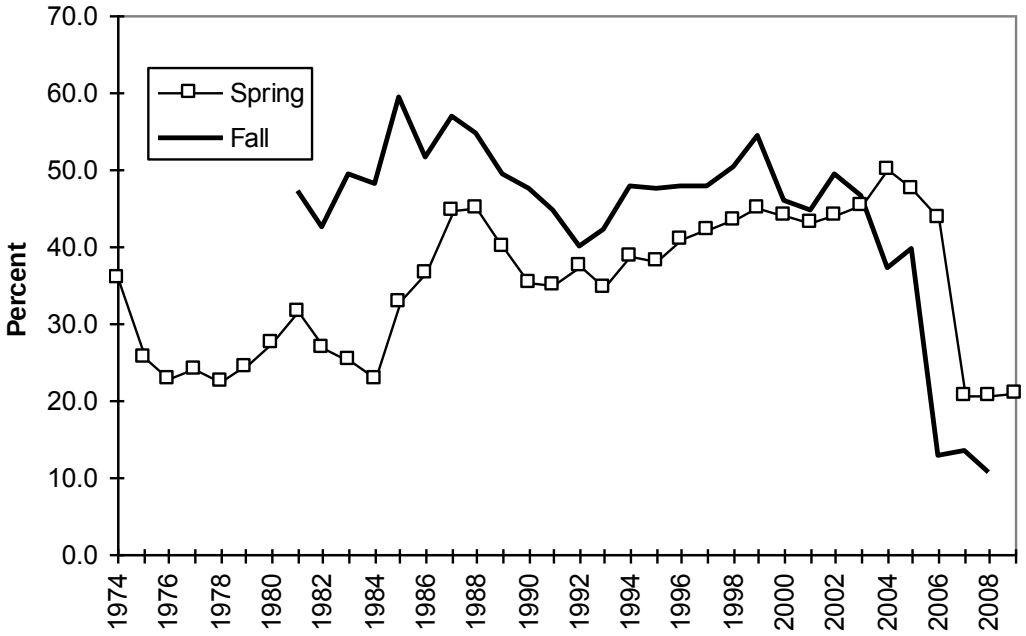



**Figure 7. Iowa turkey harvest statewide success rates, 1974-2008. Beginning in 2007, survey estimates are based on mandatory harvest reporting instead of mail surveys.**

## RESTORTATION

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

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

## ROCK SPRINGS 4-H CAMP (JUNCTION CITY, KS)

## SEPTEMBER 13-16, 2009

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**Population Trends and Productivity**

The rural mail carrier survey (RMCS) has been utilized since 1986 to monitor wild turkey abundance in Kansas. The RMCS is conducted 4 times annually during the 3rd weeks of January, April, July, and the 2nd week of October. During each survey period approximately 400-500 carriers travel 200,000+ miles of Kansas roadway and record observations of wild turkeys and other species. Observations are standardized (obs./100 mi.) to provide an index to the population in the state's 6 turkey management regions (Figure 1). 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 accelerate in each of the 6 management regions (Figure 2). The rate of population growth was much slower in the 2 westernmost management regions likely due to less suitable habitat and frequent drought. In recent years, the Kansas turkey population in the eastern 2/3 of the state has declined. Turkey populations in the central and western portions of the state are either stable or gradually increasing.

The Kansas Department of Wildlife & Parks (KDWP) estimates wild turkey productivity using data collected during the summer RMCS. Since 1987, the carriers have been asked not only to record the number of turkeys observed but to differentiate between young and adults. The department uses the ratio of young:adult as an index to productivity.

The young:adult ratio indicated that statewide production was 33.1% below the long-term average during 2009 and 11.6% lower than the previous year. These results were unexpected because the conditions seemed to be favorable for nesting and brood rearing in 2009. Average or below average production indices have been recorded for 5 consecutive years in the southeast, southcentral, and northeast management units (Figure 3). Production has been poor in these regions primarily due to excessively wet weather over the last few years. The most severe events occurred in 2007 and 2008 when many counties in the eastern ½ of Kansas received >20" of rain during June (most severe in

southeast Kansas). Production in the central and western regions has varied greatly over the last 5 years but below average production was observed in these regions during 2009 too.

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. Turkey was not added to this survey until 2006 so only 3 years of data are currently available. KDWP personnel observed and reported a total of 5,744 turkeys during the 2008 survey period, including 2,976 poults, 465 broods, 1,348 gobblers, and 1,420 hens. Turkey brood size on a statewide scale averaged 6.4 poults in 2008. The mean brood size was >6 in every region except the southeast (Table 1). Data from the 2009 brood survey were not yet available at the time of this report but those indices are generally strongly correlated with the RMCS young:adult ratios.

**Hunters, Harvest, and Regulations**

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

The fall 2008 turkey season was open for a record 107 days across 3 segments (Table 2). 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. No changes were made to Kansas' fall regulations from the previous year.

The 2009 spring turkey season ran 61 days (including the special seasons) and permits could be purchased over-the-counter for Units 1, 2, and 3. Only 325 spring permits were available for Unit 4 (southwest KS) and had to be acquired through a pre-season drawing. A second additional game tag could be purchased for use only in Unit 2 or 3. There was one minor change to the 2009 spring turkey regulations from the previous year. For the first time, hunters were allowed to use crossbows during the regular spring turkey season. Crossbows were still not allowed during the archery-only season.

The KDWP currently sells spring turkey permits to ~44,000 hunters and fall turkey permits to ~11,000 hunters (Table 2). Non-residents account for 26.7% of Kansas' spring hunters and 20.1% of the fall hunters. Kansas turkey hunters purchase approximately 77,000 permits (~63,000 spring and 14,000 fall) annually and harvest nearly 40,000 birds (~34,000 spring and 5,000 fall; Table 2-3). The percentage of hunters harvesting at least one bird was 42% and 61% for fall 2008 and spring 2009, respectively.

**Future Regulation Changes to be Considered**

The KDWP commission will soon be voting on a change to spring permitting that will affect the way Unit 4 permits will be allocated. We are recommending that youth (<16) be allowed to buy permits over-the-counter for every unit in the state. This change would free up 125 of the 325 permits originally allocated for youth in Unit 4. It would also ensure that no youth would be denied a permit which happened to approximately 30 youth who applied for Unit 4 permits in 2009. We are monitoring harvest rates in the Unit via band returns and radio-marked birds and our data indicate that the population can sustain the additional harvest pressure (~100-150 more hunters are estimated).

Our KDWP commission will also be voting on a new spring permit that the department is proposing. We are proposing a value-added permit that would include both the initial spring permit and the second turkey game tag in one privilege. We would offer this permit at a $5 discount for both residents and non-residents if they bought the permit prior to March 16. Currently, only 41.9% of all spring hunters purchase both permits so we are hoping that the discount will increase revenue.

**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 2008, approximately 1.1 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 $1.56/acre. The spring turkey WIHA program is still expanding in the state and this past spring >160,000 acres of land was open to public hunting. Landowners enrolled in the spring WIHA program received an average of $1.34/acre and allowed access to their property from 1 April – 31 May. For the 4$^{th}$ year the state chapter of NWTF made a monetary contribution to the spring WIHA program from the state superfund. Their contribution of $5,000 allowed for the enrollment of an additional 4,500+ acres. Approximately 15% of both fall and spring turkey hunters indicated that they pursued turkeys on WIHA at some point during the past year. This figure approximates the percentage of turkey hunters that utilize publicly owned land in Kansas.

**Translocation Efforts**

For the most part, turkey stocking efforts have been completed in Kansas. However, the department still moves birds regularly to address nuisance complaints. The departmental turkey committee develops a priority list for translocated turkeys each year should birds need to be moved. For the winter of 2008-2009 the field staff identified 4 suitable sites in western Kansas for translocations. The KDWP was able to capture 100 birds (Rio Grande & Hybrid) at 5 trap sites and they were translocated to 2 of the 4 sites on the priority list.

Due to concerns about poor band retention rates on gobblers the KDWP started using locking aluminum bands three years ago on gobblers. We continue to use the standard aluminum butt end bands on females because comparably sized locking bands were not yet available the last time we placed an order. During 2009 a total of 15 bands were recovered and reported to the department. The bands

were from 14 adult gobblers harvested by hunters and one hen that was found dead. Of the 256 males (73 gobblers and 183 jakes) banded over the last 3 years a total of 23 (19 gobblers and 4 jakes) were harvested and reported by hunters during the first season following capture. This equates to minimum apparent harvest rates of 2.2% and 26.0% for jakes and gobblers, respectively. However, most of the banded birds were in hunt Unit 4 where the number of hunters was regulated through a pre-season drawing.

**Research**

Currently, the University of Wisconsin (Dr. Scott Lutz) is in the middle of a 2 year research project in north-central Kansas to primarily assess harvest mortality on 3 public wildlife areas and adjacent private land. The research is being supported by contributions from the NWTF, KDWP, and the University of Wisconsin. Preliminary results from the first year indicated that harvest mortality varied greatly across the 3 study sites. Apparent harvest rates were 61% at Webster wildlife area, 14% at Lovewell wildlife area, and 11% at Cedar Bluff wildlife area. Additionally, none of the radio-marked jakes were harvested by hunters. A secondary objective of the project is to identify reproductive chronology and recruitment rates for hens. Those data were not available to the author at the time of this report.

**Miscellaneous**

During the last year the KDWP wild turkey committee saw the need to draft guidelines for handling nuisance and damage complaints reported to the department. We felt these guidelines were necessary because there was no consistency about how specific types of complaints were being handled across the state. We also felt like such a document would be beneficial for addressing the increasing number of inquiries from legislators about turkey damage to crops, public safety at airports, and general nuisance behavior in urban areas. The resulting document was titled, “Guidelines for handling wild turkey nuisance and damage complaints” (Appendix 1).

Table 1. Regional wild turkey production indices in Kansas derived from the Kansas Department of Wildlife and Parks’ summer brood survey, 2007-2008.

| | Young:Hen | | | Brood Size | | |
|---|---|---|---|---|---|---|
| Region | 2007 | 2008 | % Change | 2007 | 2008 | % Change |
| Northwest | 3.68 | 3.18 | -13 | 7.81 | 6.58 | -16 |
| Southwest | 3.48 | 2.41 | -31 | 6.21 | 6.49 | +4 |
| Northcentral | 2.62 | 2.96 | +13 | 7.13 | 6.36 | -11 |
| Southcentral | 1.96 | 2.06 | +5 | 5.83 | 6.62 | +14 |
| Northeast | 1.89 | 1.87 | -1 | 6.46 | 6.47 | 0 |
| Southeast | 0.53 | 0.88 | +65 | 5.78 | 5.43 | -6 |
| Statewide | 1.80 | 2.10 | +16 | 6.53 | 6.40 | -2 |

Table 2. Kansas wild turkey season dates, total harvest, and hunter success, 2003-2009.

| | Spring | | | Fall | | |
|---|---|---|---|---|---|---|
| Year | Season Dates | Total Harvest | Success[a] (%) | Season Dates | Total Harvest | Success[a] (%) |
| 2003 | Youth/Disabled: Apr. 4-6<br>Regular: Apr. 9–May 18 | 32,945 | 62 | Seg. 1: Oct. 1-Dec. 2<br>Seg. 2: Dec. 15-31 | 4,199 (17%)[b] | 44 |
| 2004 | Youth/Disabled: Apr. 8-10<br>Regular: Apr. 13–May 31 | 31,023 | 58 | Seg. 1: Oct. 1-Nov. 30<br>Seg 2: Dec. 13-31 | 5,308 (37%) | 45 |
| 2005 | Youth/Disabled: Apr. 8-10<br>Regular: Apr. 13–May 31 | 34,727 | 70 | Seg. 1: Oct. 1-Nov. 29<br>Seg. 2: Dec. 12-31<br>Seg. 3: Jan. 9-31 (06) | 6,236 (33%) | 52 |
| 2006 | Youth/Disabled: Apr. 7-9<br>Regular: Apr. 12–May 31 | 34,164 | 66 | Seg. 1: Oct. 1-Nov. 28<br>Seg. 2: Dec. 11-31<br>Seg. 3: Jan. 8-31 (07) | 6,112 (33%) | 53 |
| 2007 | Archery-only: Apr. 1-10<br>Youth/Disabled: Apr. 6-8<br>Regular: Apr. 11– May 31 | 33,913 | 62 | Seg. 1: Oct. 1–Nov. 27<br>Seg. 2: Dec. 10-31<br>Seg. 3: Jan 7-31 (08) | 4,716 (36%) | 42 |
| 2008 | Archery-only: Apr. 1-8<br>Youth/Disabled: Apr. 1-8<br>Regular: Apr. 9– May 31 | 35,040 | 65 | Seg. 1: Oct. 1–Dec. 2<br>Seg. 2: Dec. 15-31<br>Seg. 3: Jan 5-31 (09) | 4,871 (34%) | 42 |
| 2009 | Archery-only: Apr. 1-7<br>Youth/Disabled: Apr. 1-7<br>Regular: Apr. 8– May 31 | 33,350 | 61 | Seg. 1: Oct. 1–Dec. 1<br>Seg. 2: Dec. 14-31<br>Seg. 3: Jan 11-31 (10) | NA | NA |

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

[b] Percentage of harvest composed of females.

Table 3. Number of permits sold for Kansas' spring and fall turkey seasons, 2008-2009.

| Permit[a] | Spring (2009) | Fall (2008-2009) |
|---|---|---|
| Resident ($22.50)[b] | 20,848 | 5,782 |
| Non-resident ($32.50) | 11,753 | 2,152 |
| Landowner/Tenant ($12.50) | 6,989 | 2,107 |
| Resident youth ≤16 ($12.50)[c] | 4,489 | 658 |
| Resident game tags ($12.50) | 11,186 | 2,629 |
| Non-resident game tags ($22.50) | 7,624 | 652 |
| Total | 62,788 | 13,984 |

[a] Turkey hunters must also buy an annual small game license (resident = $20.50, non-resident = $72.50, and non-resident under 16 = $37.50)

[b] The price of all permits includes an agent fee ($1.00) and processing fee ($1.50).

[c] Non-resident youth must purchase a regular price non-resident permit.

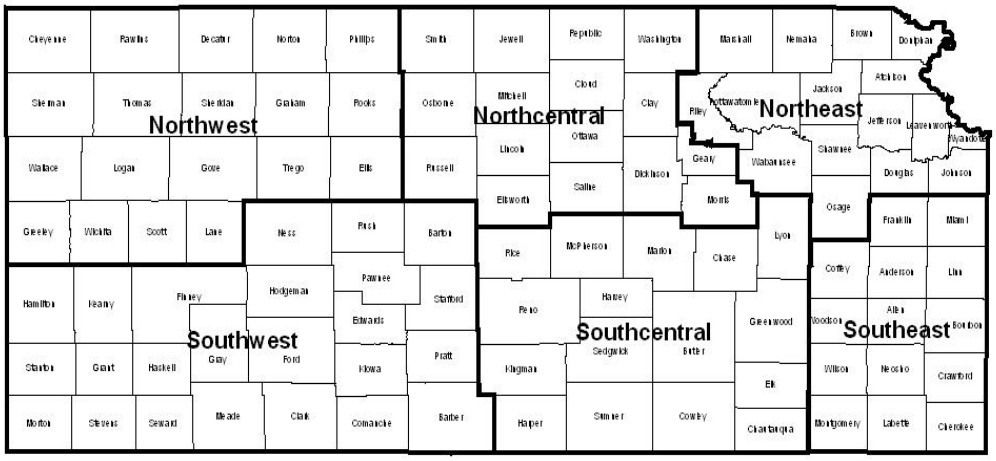


Figure 1. The 6 wild turkey management regions of Kansas, 2008-2009.

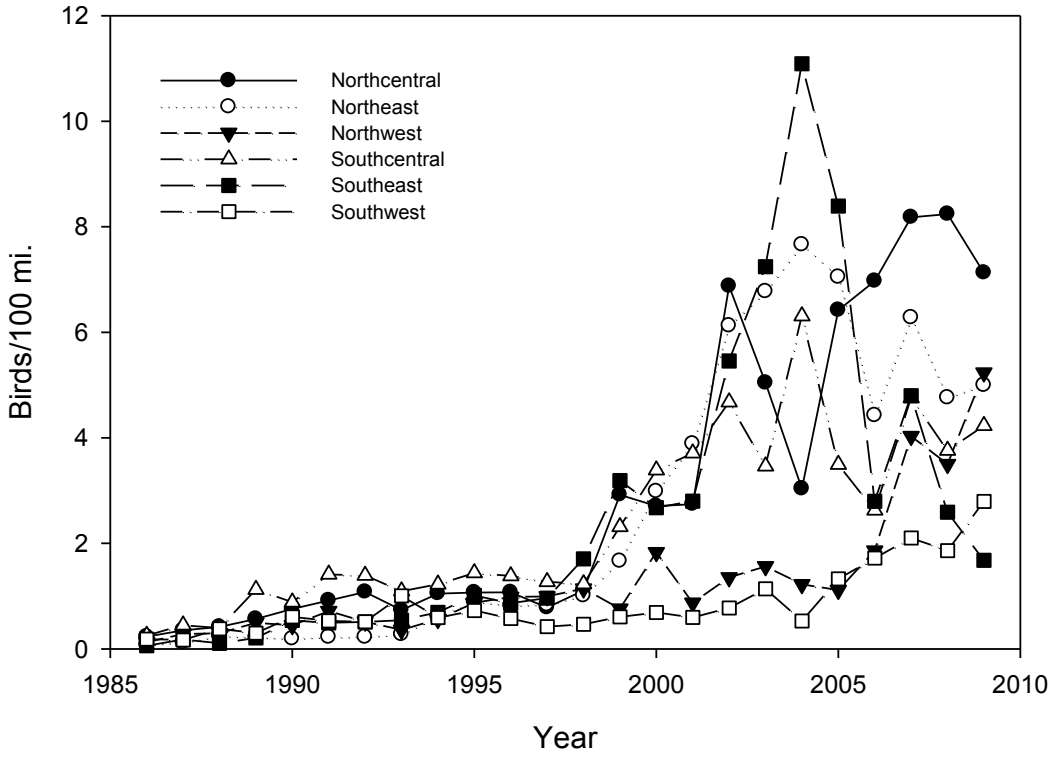


Figure 2. The spring rural mail carrier index (birds/100 mi. traveled) to wild turkey populations in the 6 Kansas management regions, 1986-2009.

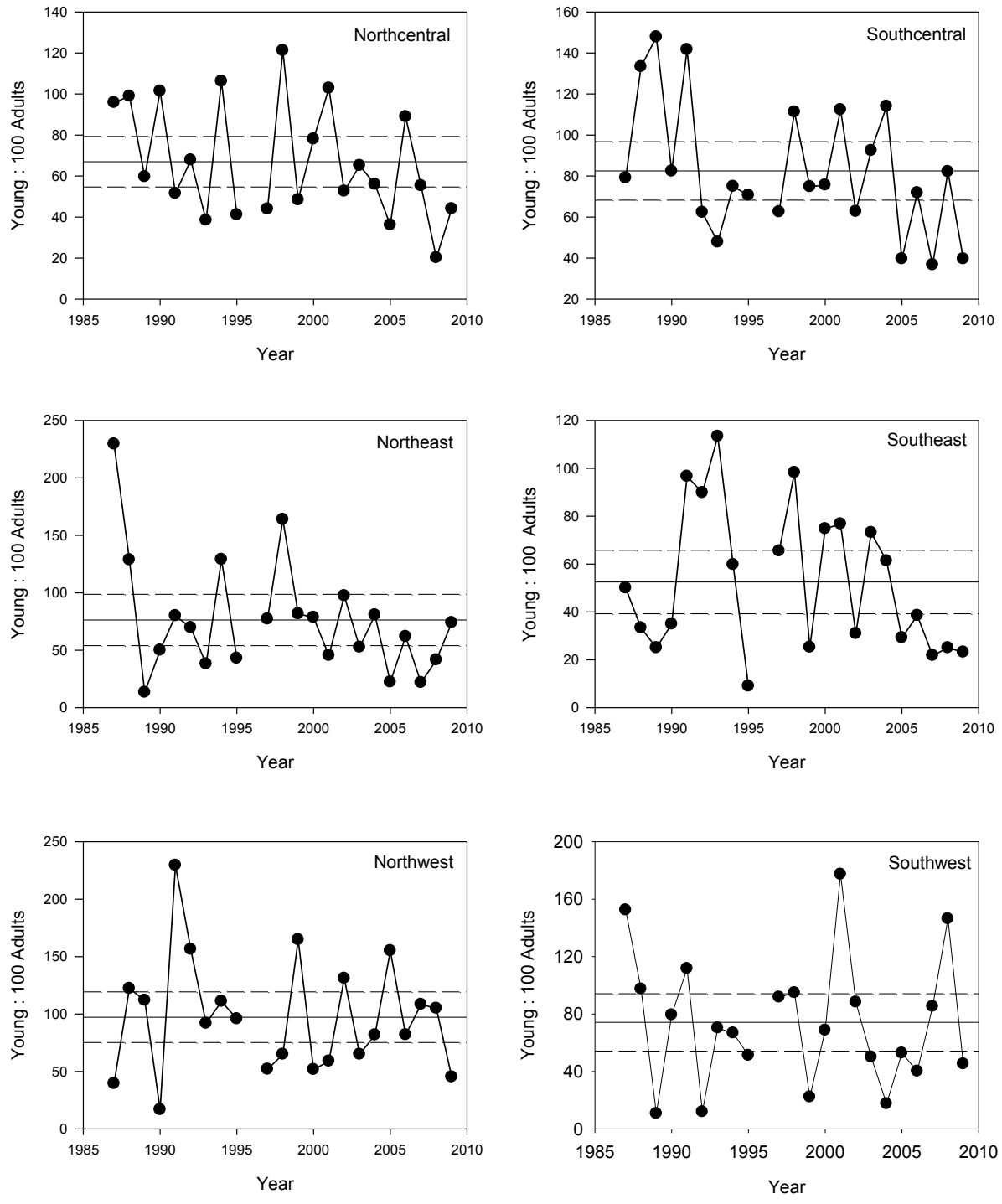


Figure 3. Wild turkey production indices (young : 100 adults) for the 6 Kansas turkey management regions, 1986-2009. The long-term mean production index is depicted as a solid line and the accompanying 95% confidence interval is shown by dashed lines.

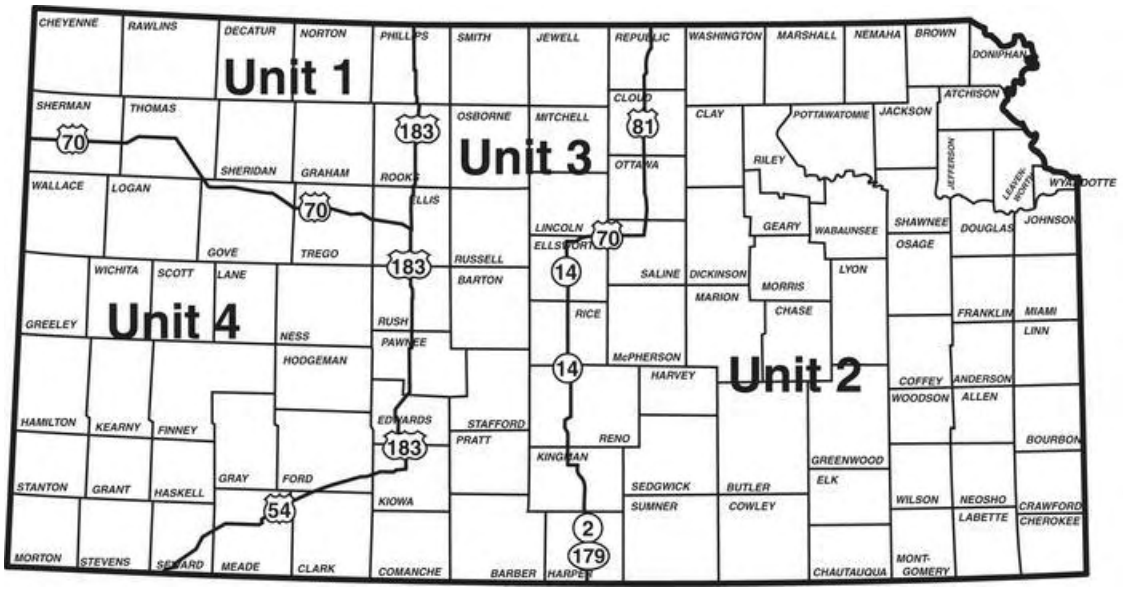


Figure 4. The map depicts the hunting units for Kansas' fall 2008 and spring 2009 turkey seasons. A fall turkey permit could be purchased over-the-counter for Units 1, 2, & 3. Up to 3 additional fall turkey game tags could be purchased and were valid only in Unit 2. There was no fall turkey hunting allowed in Unit 4. A spring turkey permit could be purchased over-the-counter for Units 1, 2, & 3. Three hundred twenty-five spring permits were issued for Unit 4 through a pre-season drawing. An additional spring game tag could be purchased over-the-counter and was valid only in Units 2 & 3.

# Guidelines for Handling Wild Turkey Nuisance and Damage Complaints

## Kansas Department of Wildlife and Parks

## May 2009

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## INTRODUCTION

By the early 1900's the wild turkey was almost extirpated from Kansas due to unregulated harvest by subsistence hunters. Turkeys were virtually non-existent on the Kansas landscape until the early 1960's when a formal re-introduction program was initiated by the former Kansas Fish and Game Commission. The overwhelming success of those re-introduction and trap-transplant efforts increased the Kansas turkey population to levels adequate enough to justify the first spring turkey season in 1974. As the population continued to increase, the first modern fall turkey season was added in 1979. Since that time the turkey population has continued to grow and abundant populations have resulted in frequent reports of nuisance and damage. Some of the reported problems are merely inaccurate perceptions but others are situations that require resolution. It is important that turkey complaints are handled consistently and in a timely fashion across the entire state. Thus, these guidelines were developed to ensure that field personnel of the Kansas Department of Wildlife and Parks (KDWP) all take similar actions when addressing a public complaint about turkeys.

## COMMON WILD TURKEY COMPLAINTS

***Crop damage**:* Damage to agricultural crops is one of the most commonly reported complaints received by KDWP. Several types of turkey damage have been reported in recent years including turkeys trampling or feeding on row crops during every stage of development, feeding on grain in silage pits, and scratching in hay bales. Produce farmers have also reported turkey damage to vegetable crops and vineyard operators have reported damage to grapes. Turkeys can cause damage to silage pits and hay bales but most of the other agricultural damage that is attributed to turkeys is either minimal or simply an erroneous perception. However, all complaints of crop damage by turkeys should be taken seriously and evaluated by the local district biologist for further action.

Several studies have been conducted to identify the degree of crop damage caused by turkeys. None of those studies found turkeys to be a significant source of damage to any un-harvested agricultural or produce crop. There are several wildlife species that cause crop damage and most of them are seldom seen in the act because they feed at night. Turkeys do use agricultural fields extensively throughout the year but numerous diet studies have shown that turkeys are eating waste grain from the previous year's crop, insects or grubs. Turkeys are only active during daylight hours and feed in large flocks at certain times of the year, which makes it easy to understand why they are often implicated for damage.

One study conducted by scientists at Purdue University identified the sources of damage to corn and soybeans using infrared cameras and radio-equipped animals. The results were used to develop a publication illustrating damage caused by several different wildlife species to those crops. The illustrations are useful when trying to identify the animal(s) responsible for damage. A copy of "Identification of wildlife crop depredation (FNR-267)" should be distributed to each person reporting

crop damage to KDWP. The publication can be ordered online (https://secure.agriculture.purdue.edu:443/store/item.asp?itemID=17387&ListType=&subcatID=184&catID=35) for a cost of $4.50/each. At some later date, digital copies will be available for free download.

***Nuisance issues**:* The KDWP also receives turkey complaints that could be categorized as nuisance issues. The definition of nuisance is extremely variable and depends on a landowner's tolerance for turkeys. Some of the common nuisance complaints received by the KDWP include turkeys scratching in landscaping, visiting bird feeders, leaving droppings on lawns, decks, and porches and approaching doors and windows when attracted by their own reflection in the glass. More serious nuisance issues can result from perching or roosting on cars, minor damage to roof materials, traffic hazards, and aggressive behavior toward humans.

***Disease:*** On occasion, the KDWP also gets contacted by producers concerned about potential disease transmission from wild turkeys to livestock or poultry. There are no known diseases that are transmissible from turkeys to livestock but large numbers of birds regularly using a feedlot can cause other nuisance issues (e.g. aggressive behavior, unsightly droppings, etc.). Producers operating domestic poultry facilities also file complaints on occasion about potential transmission of several specific diseases that commonly infect wild turkeys or domestic poultry. The diseases of most concern to producers are avian pox, infectious sinusitis, histomoniasis, and coccidiosis.

Avian pox viruses can infect virtually all orders of birds but several different strains have adapted to specific phylogenetic groups of birds. Very few isolates from wild turkeys have been evaluated for their infectivity in domestic poultry but no transmissions have been documented to date. Infectious sinusitis is a disease that commonly infects domestic chickens and turkeys. Wild turkeys do develop infectious sinusitis but the disease has been documented in wild birds on only 3 occasions. Each of those 3 reports included contact between the wild bird and domestic poultry, which circumstantially suggests that the infections originated from domestic poultry. Histomoniasis (Blackhead disease) is a fairly common parasitic disease that infects both domestic and wild turkeys. Domestic chickens are readily infected with blackhead disease but rarely become sick or die. Transmission of blackhead disease from wild turkeys to domestic poultry has not yet been documented. Another parasitic disease of concern to some producers is coccidiosis which commonly infects domestic turkey poults. While wild turkeys would likely be susceptible to coccidiosis it has not yet been reported in free ranging birds.

***Public safety***: The most serious turkey related issues reported to the KDWP are those that could potentially jeopardize public safety. The most serious issue that has been reported on multiple occasions in Kansas is turkeys regularly feeding on an airport runway. Occasionally, the KDWP also receives reports of turkey(s) exhibiting aggressive behavior toward people. These situations or any other that potentially jeopardized public safety should be dealt with as soon as possible and a site visit is recommended within 24 hours of the report.

## PROCEDURES FOR HANDLING WILD TURKEY COMPLAINTS

The KDWP will respond to all property owners who file a complaint about turkeys causing problems on their property. If the employee receiving the complaint is not a biologist they should notify the district wildlife biologist responsible for the county where the report originated. If the biologist perceives that a threat to public safety possibly exists, they should respond to the complaint themselves. For other issues, the biologist can either respond themselves or request another department employee to respond and provide that person with guidance. The person responding to the complaint should use the below guidelines to determine how to proceed. Once the issue has been resolved, a standardized wild turkey complaint form (Figure 1) should be completed and sent to the small game program coordinator. Information contained on the form will be entered into a database so that the types of damage being reported to the department can be monitored.

***No threat to property or public safety****:* If the district biologist determines that the reported issue poses no threat to property or public safety a visit to the site is not required. At a minimum, the district biologist should supply the individual filing the complaint with educational materials and guidance about how to alleviate the problem. It will be at the discretion of the district biologist about whether a site visit is warranted to resolve the problem. If the birds are not causing any damage or jeopardizing public safety the district biologist should not remove them from the property. If the district biologist believes that the situation requires action they can assist the property owner using other methods (e.g. harassment or exclusion). Recreational hunting should always be promoted to the property owner as an option if the turkey complaint originates from a location where it is legal to discharge firearms.

***Threat to property or public safety****:* When the biologist determines that a possible threat to personal property exists they should schedule a site visit with the property owner. When visiting the site the biologist should evaluate the severity of the damage and discuss the different control options with the property owner. The district biologist will use their discretion to select the best available control option to alleviate the situation. When the complaint involves a real threat to public safety the district biologist should visit the site within 24 hours of receiving the report. These situations require the quickest possible response using any of the approved control options that will resolve the problem.

## APPROVED CONTROL OPTIONS

*Non-lethal methods*:

a. Habitat manipulation – Eliminating the cause of the turkey problem is always the most effective solution to resolve damage or nuisance issues. When the cause is something that can be eliminated or manipulated to resolve the problem this option should always be suggested to the property owner. The district biologist should provide guidance about how to proceed if the property owner is willing to make the recommended changes. Guidance

should include not only what needs to be done but information about sources of funding that might be available to assist with any financial obligations that would be required.

b. Harassment – The use of harassment techniques can be recommended or utilized by the district biologist for any type of turkey complaint. Some of the methods that might be used include placement of mylar tape or balloons around problem areas, adding window blinds on windows to reduce reflectivity, and using large volume water guns or garden hoses to spray problem birds. Allowing dogs to roam inside "invisible fences" around the property is another good harassment method. Subject to local ordinances, the use of pyrotechnics such as shell crackers or propane cannons is another possibility. The effectiveness of harassment is much greater if several methods are used in combination for a long duration.

c. Exclusion – One option to deal with turkey depredation of pit silos or hay bales is exclusion. The most effective exclusion method is placement of protective netting over the grain piles or bales that are being damaged.

d. Trap and Transfer – Using drop-nets, rocket nets, or walk-in-traps are all suitable methods to capture wild turkeys. If trapping is determined by the district biologist to be an appropriate control option the specific type of trap will be selected based on the property location and the number of birds that will be captured. Turkeys should be trapped only when the problem can't be resolved using harassment, recreational hunting, or habitat manipulations. All captured turkeys will be banded and translocated to suitable release sites that have been identified by the KDWP wild turkey committee.

*Lethal methods*:

a. Recreational hunting – In areas where the discharge of a firearm is allowed the district biologist should always promote recreational hunting as an option to the property owner. Hunting not only directly removes birds from the population but birds that are not harvested will develop an aversion to the area if they are pressured enough. Recreational hunting is the cheapest and easiest of all the approved control options.

b. Lethal removal – The lethal removal of turkeys is only warranted when turkeys pose a threat to public safety or no other options are available. Turkeys that have exhibited aggressive behavior toward humans should always be euthanized. The only approved method of lethal removal is to shoot the birds. They cannot be poisoned under any circumstances. If lethal removal is utilized the birds should only be shot by KDWP personnel or entities obtaining written authorization from the Secretary of the KDWP.

## ASSURANCES

If the reported turkey problem can be alleviated with reasonable changes by the property owner it should be explained that the KDWP will only provide direct assistance one time. Examples of causative agents that must be addressed by the property owner include the elimination of wildlife feeding or habitat manipulation that does not have negative financial impacts. The KDWP will not

provide physical assistance with problem turkeys in the future if the property owner makes no attempt to address these issues.

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**Figure 1**. Form used by the Kansas Department of Wildlife and Parks to collect information about wild turkey damage or nuisance complaints reported to the department.

**KDWP Wild Turkey Damage Complaint Form**

Responding KDWP Staff: _____ Date (MM/DD):_____ Year: _____

Owner/tenant: _____ Phone: _____

Property County: _____ PLSS Description: _____

Reported Damage (circle): Crop Livestock Residential Other (provide description)

Type of Crop (if applicable): _____

On-site visit (circle): Yes or No Confirmed damage (circle): Yes or No

Economic loss (circle estimated category): None <$200 $200 - $500 >$500

Suspected species responsible for most damage: _____

Pictures taken (circle): Yes or No

Description of complaint, findings, and resolution: _____

**Please return completed forms to Jim Pitman, Small Game Coordinator, KDWP, PO Box 1525, Emporia, KS 66801.**

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES**
**Wildlife Division Report No. 3500**
**June 2009**

Printed by Authority of: P.A. 451 of 1994
Total Number of Copies Printed: .....25
Cost per Copy:.....$1.12
Total Cost: .....$28.00

Michigan Department of Natural Resources

# 2008 MICHIGAN FALL TURKEY HUNTER SURVEY

Brian J. Frawley

## ABSTRACT

*A survey of turkey hunters was conducted following the 2008 fall hunting season to determine turkey harvest and hunter participation. During the 2008 fall hunt, an estimated 16,300 hunters harvested about 5,000 turkeys. The number of people pursuing turkeys, their hunting effort and harvest did not change significantly from 2007. Hunter success was 31% in 2008 (versus 32% success in 2007). About 62% of the hunters in 2008 rated their hunting experience as excellent, very good, or good (versus 64% satisfaction in 2007).*

## INTRODUCTION

Fall wild turkey (*Meleagris gallopavo*) hunting seasons were implemented in Michigan to help maintain turkey populations at levels matching biological and social carrying capacities. In 2008, 12 management units totaling about 34,976 square miles were open for fall turkey hunting during October 8-November 14 (Figure 1). The area and units open for hunting turkey were the same as in 2007.

A person could purchase only one license for the fall turkey hunting season. 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 (DNR). Applicants could choose one hunt area. Any licenses available after the drawing was completed were made available on a first-come, first-served basis to applicants unsuccessful in the drawing. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses were made available to nonapplicants. Leftover licenses were available for all management units (Table 1). Licenses for units HA, HB, Q, T, and WA were valid on private lands only, while licenses for units G, GB, GC, J, L, M, and W

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





IC2042 (06/11/2009)

were valid on either land ownership types (i.e., public or private land). Hunters were allowed to take one turkey of either sex with the harvest tag issued with their license.

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

## METHODS

The DNR provided hunters the option to voluntarily report information about their turkey hunting activity via the internet. This option was advertised in the hunting regulations booklet, on the DNR website, and in an email message that was sent to licensees that had provided an email address to the DNR (5,195 people). 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 ($\geq$1 year old) (Kelly 1975). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2008 fall turkey hunting season, a questionnaire was sent to 5,064 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 13 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (12 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 thirteenth 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 CL can be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies the true value would be within this interval 95 times out of 100. Unfortunately, there are several other possible sources of error in surveys that are probably more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (nonresponse bias), question wording, and question order. It is very difficult to measure these biases; thus, estimates were not adjusted for these possible biases.

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

Questionnaires were mailed initially during late November 2008, and up to two follow-up questionnaires were mailed to nonrespondents. Although 5,088 people were sent the questionnaire, 37 surveys were undeliverable resulting in an adjusted sample size of 5,051. Questionnaires were returned by 4,022 people, yielding an 80% adjusted response rate. In addition, 907 people voluntarily reported information about their hunting activity via the internet.

## RESULTS

In 2008, the DNR offered 59,050 licenses for sale, and hunters purchased 20,561 licenses for the fall turkey hunting season (Table 1). Licensees included 10,668 people that were successful in the drawing for a license and 211 applicants that were unsuccessful in the drawing. In addition to the applicants, 9,682 people that had not entered into the drawing purchased a license.

The number of licenses sold in 2008 decreased 2% from 2007. In 2008, about 16,330 hunters spent 90,957 days afield pursuing turkeys ($\bar{x}$ = 5.6 days/hunter) and harvested 4,996 birds (Table 2). The number of people pursuing turkeys in 2008 and their hunting effort did not change significantly from 2007. About 95% of the hunters that went afield were men (15,548 ± 271), and 5% of the hunters were women (782 ± 121). The average age of the license buyers was 48 years (Figure 2). About 6% of the license buyers were younger than 17 years old (1,195).

Hunter success was 31% in 2008, which was not significantly different from success in 2007. Furthermore, harvest in 2008 did not change significantly from 2007 (Figure 3). Allegan and Delta counties had 200 or more turkeys taken by hunters in 2008 (Table 3).

About 90% of turkey hunters hunted solely on private land, 6% hunted on public land only, and 3% hunted on both private and public lands (Table 4). Of the 4,996 turkeys harvested in 2008, 94% of these birds were taken on private land (4,706), while about 6% of the harvest (282) was taken on public land (Tables 5 and 6). Additionally, 8 birds were harvested from land of unknown ownership. About 58% of the harvested birds had a beard (2,880 ± 271). Most of these bearded birds (79%) were adults (2,283 ± 188); 20% were juvenile birds (565 ± 96).

Of the 16,330 turkey hunters in 2008, nearly 62 ± 2% rated their hunting experience as either excellent (2,525 ± 200), very good (3,093 ± 222), or good (4,487 ± 257) (Table 7). About 21 ± 1% of the hunters rated their experience as fair (3,355 ± 231 hunters), while 15 ± 1% of the hunters rated their experience as poor (2,459 ± 202 hunters).

Additionally, about 3% of the hunters (410 ± 90 hunters) failed to rate their hunting experience. Changes in hunter satisfaction generally parallel changes in hunter success (Figure 4). Between 2007 and 2008, both hunter success (31% versus 32%) and satisfaction (62% versus 64%) were similar.

## ACKNOWLEDGEMENTS

I thank all the turkey hunters that provided information. Autumn Feldpausch, Theresa Riebow, and Becky Walker completed data entry. Kraig Korroch and Chris Larson developed the internet harvest reporting application. Marshall Strong prepared the figure showing turkey management unit boundaries. Mike Bailey, Pat Lederle, Russ Mason, Cheryl Nelson, Doug Reeves, 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, 2008.

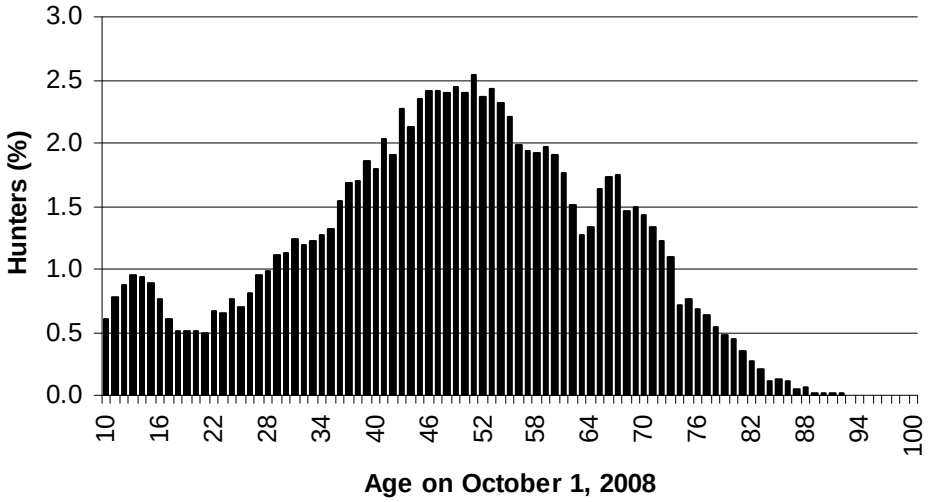


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2008 fall hunting season ($\bar{x}$ = 48 years). Licenses were purchased by 20,561 people.

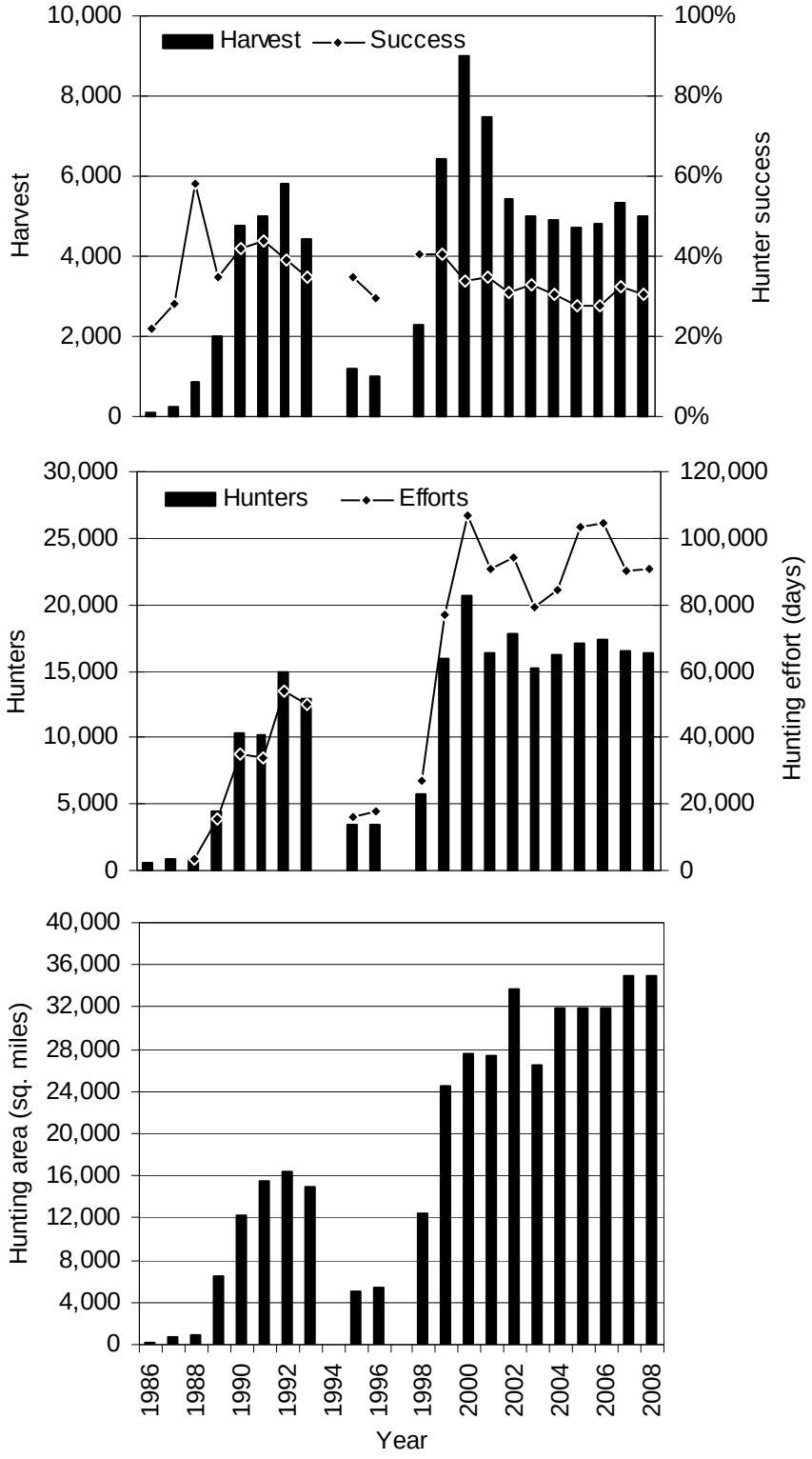


Figure 3. Number of hunters, harvest, hunting efforts, hunting success, and hunting area during the fall turkey hunting season, 1986-2008. Turkeys were not hunted during the fall in 1994 and 1997.

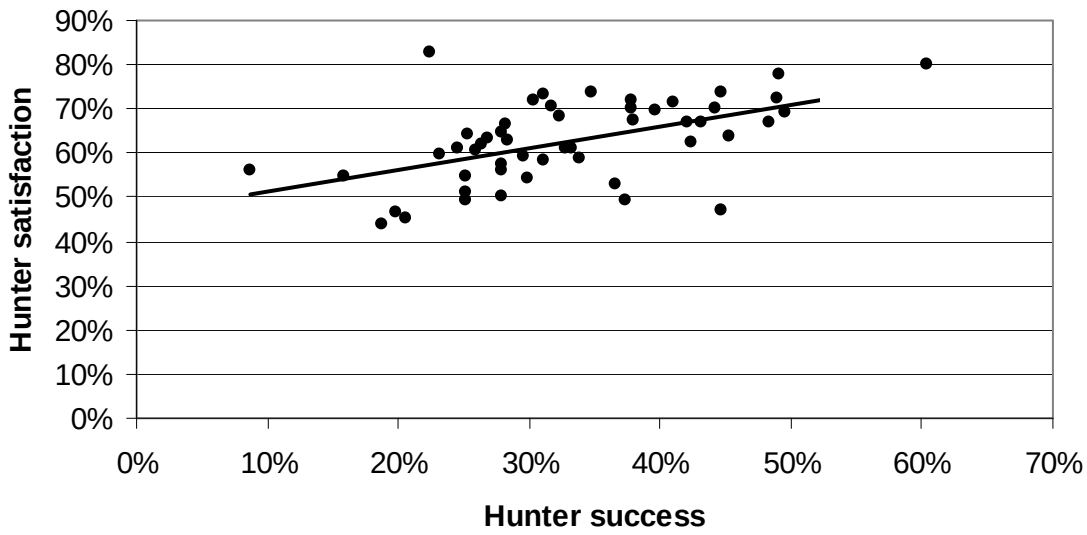


Figure 4. Hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) associated with hunter success for each of 51 counties in Michigan during the 2008 fall turkey hunting season (included only counties with at least 20 hunters).

Table 1. Number of hunting licenses available and people applying for licenses during the 2008 Michigan fall turkey hunting season.

| Manage-ment unit | Licenses available (quota)[a] | Number of eligible applicants | Number of applicants successful in drawing | Number of licenses remaining after drawing | Number of licenses purchased by successful applicants | Number of leftover licenses purchased by unsuccessful applicants | Number of leftover licenses purchased by people not in the drawing | Licenses sold |
|---|---|---|---|---|---|---|---|---|
| G | 7,200 | 1,413 | 1,228 | 5,972 | 838 | 46 | 972 | 1,856 |
| GB | 4,250 | 1,126 | 1,103 | 3,147 | 761 | 12 | 707 | 1,480 |
| GC | 6,200 | 2,843 | 2,324 | 3,876 | 1,578 | 129 | 1,965 | 3,672 |
| HA[b] | 1,100 | 954 | 954 | 146 | 707 | 1 | 129 | 837 |
| HB[b] | 600 | 382 | 382 | 218 | 262 | 0 | 163 | 425 |
| J | 2,000 | 1,328 | 1,328 | 672 | 846 | 6 | 474 | 1,326 |
| L | 21,000 | 2,415 | 2,415 | 18,585 | 1,703 | 8 | 2,556 | 4,267 |
| M | 8,500 | 821 | 821 | 7,679 | 584 | 0 | 1,061 | 1,645 |
| Q[b] | 3,000 | 2,460 | 2,460 | 540 | 1,536 | 3 | 485 | 2,024 |
| T[b] | 2,000 | 1,477 | 1,477 | 523 | 960 | 3 | 469 | 1,432 |
| W | 2,200 | 705 | 705 | 1,495 | 464 | 2 | 388 | 854 |
| WA[b] | 1,000 | 598 | 598 | 402 | 429 | 1 | 313 | 743 |
| Statewide | 59,050 | 16,522 | 15,795 | 43,255 | 10,668 | 211 | 9,682 | 20,561 |

[a]Quotas were assigned by hunts within each management unit.
[b]Licenses were valid on private lands only.

Table 2. Number of hunters, harvest, hunting success, and hunting efforts during the 2008 Michigan fall turkey hunting season.

| Manage-ment 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 | 1,523 | 63 | 431 | 68 | 28 | 4 | 8,926 | 880 | 5.9 | 0.5 |
| GB | 1,191 | 53 | 422 | 59 | 35 | 5 | 5,935 | 631 | 5.0 | 0.5 |
| GC | 2,959 | 131 | 803 | 134 | 27 | 4 | 16,423 | 1,743 | 5.6 | 0.5 |
| HA[a] | 656 | 29 | 234 | 31 | 36 | 4 | 3,370 | 324 | 5.1 | 0.4 |
| HB[a] | 348 | 14 | 108 | 16 | 31 | 4 | 1,854 | 177 | 5.3 | 0.5 |
| J | 1,001 | 52 | 300 | 49 | 30 | 5 | 5,690 | 609 | 5.7 | 0.5 |
| L | 3,293 | 159 | 912 | 153 | 28 | 4 | 19,751 | 2,054 | 6.0 | 0.6 |
| M | 1,297 | 61 | 555 | 70 | 43 | 5 | 7,373 | 707 | 5.7 | 0.5 |
| Q[a] | 1,543 | 74 | 435 | 69 | 28 | 4 | 8,898 | 883 | 5.8 | 0.5 |
| T[a] | 1,214 | 45 | 308 | 49 | 25 | 4 | 6,657 | 654 | 5.5 | 0.5 |
| W | 681 | 30 | 259 | 33 | 38 | 5 | 2,992 | 272 | 4.4 | 0.4 |
| WA[a] | 624 | 23 | 229 | 29 | 37 | 4 | 3,089 | 282 | 4.9 | 0.4 |
| Statewide[b] | 16,330 | 256 | 4,996 | 259 | 31 | 2 | 90,957 | 3,286 | 5.6 | 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 2008 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 | 137 | 41 | 657 | 280 | 32 | 21 | 23 | 13 | 60 | 15 |
| Allegan | 551 | 126 | 3,160 | 982 | 219 | 83 | 40 | 12 | 70 | 11 |
| Antrim | 232 | 45 | 1,408 | 378 | 65 | 25 | 28 | 9 | 66 | 10 |
| Baraga | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Barry | 479 | 117 | 2,147 | 648 | 120 | 61 | 25 | 11 | 51 | 13 |
| Bay | 93 | 21 | 379 | 110 | 42 | 14 | 45 | 12 | 64 | 11 |
| Berrien | 295 | 96 | 2,018 | 920 | 111 | 61 | 38 | 16 | 72 | 15 |
| Branch | 217 | 83 | 1,204 | 600 | 55 | 41 | 25 | 17 | 49 | 20 |
| Calhoun | 333 | 101 | 1,661 | 616 | 95 | 55 | 28 | 14 | 63 | 15 |
| Cass | 186 | 77 | 1,078 | 620 | 42 | 37 | 22 | 18 | 83 | 16 |
| Charlevoix | 137 | 36 | 642 | 269 | 67 | 26 | 49 | 14 | 72 | 12 |
| Cheboygan | 183 | 41 | 1,247 | 379 | 82 | 29 | 45 | 12 | 47 | 12 |
| Clinton | 282 | 58 | 1,691 | 452 | 79 | 32 | 28 | 10 | 65 | 11 |
| Delta | 332 | 59 | 1,560 | 400 | 200 | 48 | 60 | 10 | 80 | 8 |
| Dickinson | 223 | 50 | 1,104 | 329 | 74 | 30 | 33 | 11 | 61 | 12 |
| Eaton | 233 | 54 | 1,125 | 333 | 65 | 30 | 28 | 11 | 58 | 12 |
| Emmet | 130 | 35 | 567 | 204 | 36 | 18 | 28 | 12 | 50 | 14 |
| Genesee | 276 | 58 | 1,606 | 498 | 104 | 37 | 38 | 11 | 70 | 10 |
| Gogebic | 5 | 8 | 9 | 16 | 0 | 0 | 0 | 0 | 100 | 0 |
| Gratiot | 222 | 53 | 1,414 | 457 | 62 | 29 | 28 | 11 | 56 | 13 |
| Hillsdale | 285 | 88 | 1,332 | 620 | 85 | 49 | 30 | 15 | 54 | 16 |

[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 2008 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 |
| Houghton | 5 | 8 | 27 | 47 | 5 | 8 | 100 | 0 | 100 | 0 |
| Huron | 245 | 45 | 1,268 | 364 | 62 | 24 | 25 | 9 | 55 | 10 |
| Ingham | 378 | 100 | 1,577 | 548 | 155 | 65 | 41 | 14 | 71 | 13 |
| Ionia | 258 | 57 | 1,524 | 489 | 41 | 24 | 16 | 9 | 55 | 12 |
| Iron | 224 | 51 | 966 | 273 | 111 | 37 | 50 | 12 | 69 | 11 |
| Isabella | 270 | 34 | 1,275 | 222 | 99 | 23 | 37 | 7 | 53 | 8 |
| Jackson | 615 | 122 | 3,353 | 961 | 165 | 67 | 27 | 10 | 63 | 11 |
| Kalamazoo | 300 | 95 | 1,892 | 818 | 78 | 49 | 26 | 14 | 61 | 16 |
| Kent | 331 | 54 | 1,711 | 431 | 98 | 31 | 30 | 8 | 59 | 9 |
| Lapeer | 426 | 70 | 2,320 | 523 | 132 | 41 | 31 | 8 | 73 | 8 |
| Lenawee | 288 | 89 | 1,340 | 534 | 93 | 52 | 32 | 15 | 68 | 15 |
| Livingston | 391 | 100 | 2,139 | 739 | 103 | 52 | 26 | 12 | 62 | 13 |
| Macomb | 80 | 33 | 412 | 210 | 7 | 9 | 9 | 11 | 56 | 21 |
| Marquette | 99 | 35 | 642 | 292 | 43 | 23 | 43 | 18 | 67 | 17 |
| Mecosta | 348 | 14 | 1,854 | 177 | 108 | 16 | 31 | 4 | 59 | 5 |
| Menominee | 193 | 47 | 961 | 287 | 72 | 30 | 37 | 13 | 49 | 13 |
| Midland | 308 | 35 | 1,192 | 202 | 149 | 27 | 48 | 7 | 67 | 7 |
| Montcalm | 376 | 65 | 2,009 | 532 | 158 | 45 | 42 | 10 | 67 | 9 |
| Muskegon | 316 | 54 | 1,754 | 457 | 141 | 39 | 45 | 10 | 73 | 8 |
| Newaygo | 372 | 35 | 2,077 | 309 | 158 | 27 | 42 | 6 | 62 | 6 |
| Oakland | 173 | 47 | 994 | 324 | 55 | 27 | 32 | 13 | 71 | 13 |

[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 2008 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 |
| Oceana | 194 | 30 | 880 | 166 | 74 | 19 | 38 | 8 | 67 | 8 |
| Ontonagon | 5 | 8 | 18 | 31 | 0 | 0 | 0 | 0 | 100 | 0 |
| Otsego | 242 | 46 | 1,113 | 300 | 50 | 22 | 21 | 8 | 45 | 10 |
| Ottawa | 328 | 55 | 1,433 | 334 | 161 | 41 | 49 | 9 | 78 | 8 |
| Saginaw | 390 | 31 | 1,941 | 268 | 172 | 26 | 44 | 6 | 70 | 5 |
| St. Clair | 393 | 68 | 2,148 | 536 | 119 | 40 | 30 | 9 | 72 | 9 |
| St. Joseph | 267 | 91 | 1,705 | 814 | 53 | 41 | 20 | 14 | 47 | 18 |
| Sanilac | 470 | 57 | 2,809 | 524 | 115 | 32 | 24 | 6 | 61 | 7 |
| Schoolcraft | 73 | 31 | 445 | 234 | 14 | 14 | 19 | 17 | 44 | 21 |
| Shiawassee | 316 | 91 | 2,245 | 895 | 110 | 54 | 35 | 14 | 74 | 13 |
| Tuscola | 401 | 55 | 2,125 | 436 | 131 | 35 | 33 | 8 | 61 | 8 |
| Van Buren | 352 | 102 | 2,114 | 957 | 119 | 61 | 34 | 14 | 59 | 15 |
| Washtenaw | 296 | 88 | 1,683 | 711 | 75 | 44 | 25 | 13 | 64 | 15 |
| Unknown | 2,506 | 208 | 13,001 | 1,584 | 135 | 48 | 5 | 2 | 52 | 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 2008 Michigan turkey hunting season.

| | Private lands only | | | | Public lands only | | | | Both private and public lands | | | | Unknown ownership | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Management unit | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL |
| G | 1,452 | 67 | 95 | 2 | 52 | 26 | 3 | 2 | 5 | 8 | 0 | 1 | 15 | 15 | 1 | 1 |
| GB | 1,105 | 58 | 93 | 3 | 65 | 27 | 5 | 2 | 17 | 14 | 1 | 1 | 4 | 7 | 0 | 1 |
| GC | 2,864 | 137 | 97 | 2 | 76 | 47 | 3 | 2 | 1 | 0 | 0 | 0 | 18 | 23 | 1 | 1 |
| HA[a] | 643 | 30 | 98 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 9 | 2 | 1 |
| HB[a] | 344 | 15 | 99 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | 1 |
| J | 543 | 58 | 54 | 5 | 267 | 47 | 27 | 5 | 183 | 41 | 18 | 4 | 8 | 9 | 1 | 1 |
| L | 2,959 | 174 | 90 | 3 | 221 | 83 | 7 | 2 | 73 | 49 | 2 | 1 | 40 | 37 | 1 | 1 |
| M | 727 | 73 | 56 | 5 | 344 | 60 | 26 | 4 | 218 | 50 | 17 | 4 | 9 | 11 | 1 | 1 |
| Q[a] | 1,538 | 74 | 100 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 9 | 0 | 1 |
| T[a] | 1,203 | 46 | 99 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 1 | 1 |
| W | 655 | 31 | 96 | 2 | 21 | 11 | 3 | 2 | 0 | 0 | 0 | 0 | 5 | 6 | 1 | 1 |
| WA[a] | 622 | 23 | 100 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 1 |
| Statewide[b] | 14,653 | 275 | 90 | 1 | 1,046 | 128 | 6 | 1 | 496 | 83 | 3 | 1 | 135 | 52 | 1 | 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 2008 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 | 2,761 | 204 |
| Juveniles | 513 | 91 |
| Adults | 2,216 | 187 |
| Unknown | 32 | 19 |
| Females | 1,939 | 177 |
| Unknown sex | 5 | 8 |
| Subtotal – Private lands[a] | 4,706 | 254 |
| Public lands | | |
| Males | 119 | 42 |
| Juveniles | 52 | 31 |
| Adults | 67 | 28 |
| Unknown | 0 | 0 |
| Females | 164 | 55 |
| Unknown sex | 0 | 0 |
| Subtotal – Public lands[a] | 282 | 68 |
| Unknown lands | 8 | 10 |
| Grand total[a] | 4,996 | 259 |

[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 2008 Michigan fall turkey hunting season.

| Manage-ment unit | Private lands | | Public lands | | Unknown ownership | |
|---|---|---|---|---|---|---|
| | Total | 95% CL | Total | 95% CL | Total | 95% CL |
| G | 419 | 68 | 12 | 12 | 0 | 0 |
| GB | 417 | 59 | 4 | 7 | 0 | 0 |
| GC | 785 | 133 | 18 | 23 | 0 | 0 |
| HA[a] | 234 | 31 | 0 | 0 | 0 | 0 |
| HB[a] | 108 | 16 | 0 | 0 | 0 | 0 |
| J | 234 | 45 | 62 | 25 | 4 | 7 |
| L | 858 | 149 | 54 | 41 | 0 | 0 |
| M | 418 | 64 | 132 | 40 | 5 | 8 |
| Q[a] | 435 | 69 | 0 | 0 | 0 | 0 |
| T[a] | 308 | 49 | 0 | 0 | 0 | 0 |
| W | 259 | 33 | 0 | 0 | 0 | 0 |
| WA[a] | 229 | 29 | 0 | 0 | 0 | 0 |
| Statewide[b] | 4,706 | 254 | 282 | 68 | 8 | 10 |

[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 2008 Michigan fall turkey hunting season.

| Manage-ment unit | Satisfaction level (% of hunters) | | | | | |
|---|---|---|---|---|---|---|
| | Excellent | Very good | Good | Fair | Poor | No answer |
| G | 13 | 19 | 30 | 22 | 14 | 2 |
| GB | 17 | 23 | 26 | 20 | 12 | 2 |
| GC | 18 | 17 | 28 | 20 | 14 | 2 |
| HA[a] | 17 | 19 | 25 | 16 | 19 | 4 |
| HB[a] | 14 | 17 | 27 | 22 | 14 | 5 |
| J | 11 | 12 | 30 | 19 | 25 | 2 |
| L | 13 | 21 | 26 | 21 | 16 | 3 |
| M | 16 | 20 | 27 | 18 | 15 | 3 |
| Q[a] | 19 | 21 | 30 | 19 | 11 | 1 |
| T[a] | 14 | 20 | 24 | 23 | 17 | 2 |
| W | 17 | 16 | 27 | 27 | 11 | 3 |
| WA[a] | 15 | 17 | 31 | 19 | 15 | 2 |
| Statewide | 15 | 19 | 27 | 21 | 15 | 3 |

[a]Licenses were valid on private lands only.

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES**
**Wildlife Division Report No. 3495**
**November 2008**

Printed by Authority of: P.A. 451 of 1994
Total Number of Copies Printed: .....25
Cost per Copy: .....$1.96
Total Cost: ..... $49.00

Michigan Department of Natural Resources

# 2008 MICHIGAN SPRING TURKEY HUNTER SURVEY

Brian J. Frawley

## ABSTRACT

*A survey of turkey hunters was conducted following the 2008 spring hunting season to determine turkey harvest and hunter participation. In 2008, nearly 96,500 hunters harvested about 42,000 turkeys. Statewide, 43% of hunters harvested a turkey. The 2008 turkey harvest was 7% greater than the 2007 harvest and was the largest harvest in Michigan's history. Although harvest increased, the number of hunters and their hunting effort was nearly unchanged between 2007 and 2008. Nearly 68% of the hunters rated their hunting experience as excellent, very good, or good in 2008. About 89% 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 originally on an area and quota system. This system was set up primarily to distribute hunters across geographic areas (management units) and time (hunt periods). As the turkey population has expanded statewide, license types were created that allowed hunters to hunt in multiple management units. The goal of the current system has been to provide hunting opportunities while maintaining acceptable levels of hunter satisfaction (Luukkonen 1998).

In 2008, 80% of the state (48,147 square miles) was open for wild turkey hunting from April 23 through May 31 (Figure 1). The area open for turkey hunting was the same as in 2007. The hunting area was divided into 12 management units (Figure 1). Hunting licenses were available on these management units for three types of hunts: (1) quota [limited licenses available] hunts on both public and private lands in a specific management unit, (2) quota hunt on private lands in southern Michigan [Hunt 301 in Unit ZZ], and (3) a guaranteed hunt (no quota) that included all units [Hunt 234].

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





IC2042-500 (11/05/2008)

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

A limited number of licenses were available for quota hunts, and they were valid only in a certain management unit and only during a limited time period (7-27 days). Most quota hunts began before May 5 and lasted for seven days. A private land management unit (Unit ZZ) was created in 2002 that included all private lands in southern Michigan (Figure 1). Hunters who selected Hunt 301 could hunt the first two weeks of the season (April 21-May 4) anywhere on private lands in Unit ZZ. This unit and hunt period was created to provide additional hunting opportunity and increased flexibility for hunters who had difficulty finding time to hunt during shorter quota hunts.

Licenses for Hunt 234 could be used in any management unit. They were valid on public and private lands, except in Unit ZZ where they were only valid on private lands or on Fort Custer military lands. Hunt 234 started later than most quota hunts but lasted for 27 days (May 5-31). An unlimited number of licenses were available for Hunt 234.

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

## METHODS

The Wildlife Division provided all hunters the option to report voluntarily information about their turkey hunting activity via the Internet. This option was advertised in the hunting regulation booklet and through a statewide news release. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, the days spent afield, whether they harvested a turkey, and whether other hunters caused interference during their hunt (none, minor, some irritation, or major problem). Successful hunters were also asked to report where their turkeys were taken (public or private land), date of harvest, and beard length of the harvested bird. Birds with a beard less than six inches were classified as juveniles (one year old), while birds with longer

beards were adults (two years old or greater; Kelly, 1975). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2008 spring turkey hunting season, a questionnaire was sent to 11,095 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 (12 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 13 and 14). Moreover, people that had voluntarily reported information about their hunting activity via the Internet were treated as a separate stratum (fifteenth stratum).

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

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

Questionnaires were mailed initially during late June 2008, and nonrespondents were mailed up to two follow-up questionnaires. Although 11,095 people were sent the questionnaire, 130 surveys were undeliverable resulting in an adjusted sample size of 10,965. Questionnaires were returned by 7,494 people, yielding a 68% adjusted response rate. In addition, 5,379 people voluntarily reported information about their hunting activity via the Internet before the random sample was selected.

## RESULTS AND DISCUSSION

In 2008, licenses were purchased by 118,015 people, a decrease of 3% from 2007 (Table 1). Most of the people buying a license were men (93%), and the average age of the license buyers was 44 years (Figure 2). Nearly 9% (11,000) of the license buyers were younger than 17 years old.

About 81% (±1%) of license buyers hunted turkeys (96,557 hunters). Most of these hunters were men (90,033 ± 1,100), although nearly 7% (±1%) of the hunters were women (6,524 ± 588). Hunter numbers (Table 2) were nearly unchanged from 2007. Counties listed in descending order with more than 2,000 hunters afield included Kent, Allegan, Newaygo, Jackson, Lapeer, Saginaw, Montcalm, Tuscola, Barry, Sanilac, and St. Clair (Table 3).

Hunters spent an estimated 409,857 days afield pursuing turkeys (4.2 ± 0.1 days/hunter), and harvested approximately 42,002 birds (Figure 3). Counties listed in descending order with hunters taking more than 1,000 turkeys included Allegan, Kent, Lapeer, Montcalm, Newaygo, Barry, Jackson, Calhoun, Tuscola, and Sanilac (Table 3). Hunter effort was nearly unchanged from 2007, but statewide harvest increased significantly by 7%. The number of turkeys harvested in 2008 was the largest harvest in Michigan's history. Hunter success was 43% in 2008, compared to 40% hunter success in 2007.

About 28% (±2%) of the harvested birds were juvenile males (11,596 ± 761); 71% (±2%) were adult males (29,830 ± 1,097), and about 1% were bearded females (432 ± 151). Additionally, the age of a small number of harvested birds (<1%) was unknown (144 ± 91) 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, 44% of these birds were taken during the first seven days (April 21-27). Daily hunter success generally was more than 8% during April 21 through May 5. Daily hunter success was generally below 8% during May 6-23, but generally increased to over 8% during May 24-31. Hunting effort and harvest generally was greater on the weekends than weekdays, especially on Saturdays.

About 81% of turkey hunters hunted solely on private land; 13% hunted on public land only; and 6% hunted on both private and public lands (Table 4). Of the 42,002 turkeys harvested in 2008, 88 ± 1% were taken on private land (36,883 ± 1,163 birds). About 12 ± 1% of the harvest (5,079 ± 517 birds) was taken on public land.

Hunter satisfaction is one measure used to assess the turkey management program in Michigan. Of the estimated 96,557 people hunting turkeys in 2008, 68 ± 1% of the hunters rated their hunting experience as either excellent (20,243 ± 940 hunters), very good (20,834 ± 973), or good (24,785 ± 1,048) (Table 5). Nearly 18 ± 1% of the hunters rated their experience as fair (17,700 ± 923 hunters). Only 11 ± 1% of the hunters rated their experience as poor (10,768 ± 745 hunters). About 2% of the hunters (2,227 ± 350 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 2008, 69 ± 1% of the hunters reported no hunter interference; 20 ± 1% reported minor interference; 8 ± 1% reported some irritation caused by hunter interference; and 2 ± 1% reported hunter interference was a major problem (Table 6).

Although interference can affect hunter satisfaction, hunter satisfaction was more closely associated with hunter success (Figures 8 and 9). Hunter success was greater than 35% in all hunt periods, and hunter success and satisfaction varied little among the hunt periods (Table 7).

Compared to 2007, hunter numbers and hunter effort did not change significantly statewide in 2008. However, harvest, hunter success, and hunter satisfaction increased significantly in the southern Lower Peninsula between 2007 and 2008 (Tables 8-9).

## ACKNOWLEDGEMENTS

I thank all the turkey hunters that provided information. Autumn Feldpausch, Theresa Riebow, and Becky Walker completed data entry. Kraig Korroch and Chris Larson developed the Internet harvest reporting application. Marshall Strong prepared the figure of the turkey management units (Figure 1). Mike Bailey, Russ Mason, Cheryl Nelson, Doug Reeves, and Al Stewart reviewed a draft version of this report.

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Table 1. Number of hunting licenses available and people applying for licenses during the 2008 Michigan spring turkey hunting season.

| Manage-ment unit or hunt period | Licenses available (quota) | Number of eligible applicants[a] | Number of applicants successful in drawing[b] | Number of licenses remaining after drawing | Number of licenses purchased by successful applicants[c] | Number of leftover licenses purchased by unsuccessful applicants[c] | Number of licenses purchased by people not in the drawing[c] | Number of licensees[c] |
|---|---|---|---|---|---|---|---|---|
| A | 5,500 | 4,646 | 4,733 | 767 | 3,490 | 58 | 681 | 4,229 |
| E | 1,700 | 2,716 | 1,700 | 0 | 1,293 | 0 | 0 | 1,293 |
| F | 5,000 | 6,154 | 5,004 | 0 | 3,652 | 0 | 0 | 3,652 |
| J | 4,000 | 2,970 | 2,906 | 1,094 | 2,127 | 60 | 891 | 3,078 |
| K | 8,500 | 13,991 | 8,508 | 0 | 6,693 | 0 | 0 | 6,693 |
| M | 8,000 | 3,221 | 3,245 | 4,755 | 2,559 | 6 | 2,742 | 5,307 |
| ZA | 4,800 | 4,169 | 3,429 | 1,371 | 2,417 | 142 | 1,166 | 3,725 |
| ZB | 1,750 | 1,948 | 1,325 | 425 | 951 | 105 | 282 | 1,338 |
| ZC | 2,000 | 2,570 | 1,561 | 439 | 1,067 | 173 | 240 | 1,480 |
| ZD | 40 | 113 | 40 | 0 | 21 | 0 | 0 | 21 |
| ZE | 2,000 | 3,049 | 1,763 | 237 | 1,277 | 151 | 90 | 1,518 |
| ZF | 5,600 | 3,911 | 3,708 | 1,892 | 2,805 | 59 | 1,735 | 4,599 |
| Hunt 301 | 65,000 | 22,359 | 23,059 | 41,941 | 18,956 | 978 | 18,102 | 38,036 |
| Hunt 234 | NA | 1,140 | 2,283 | NA | 1,785 | 2,888 | 38,373 | 43,046 |
| Statewide | 113,890 | 72,957 | 63,264 | 52,921 | 49,093 | 4,620 | 64,302 | 118,015 |

[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]Licenses sold between January 1 and February 1.

Table 2. Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2008 Michigan turkey hunting season.

| Management unit | Hunters[a] | | Hunting efforts (days)[a] | | Harvest[a] | | Hunter success | | Hunter satisfaction[b] | | Noninterfered hunters[c] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | 95% CL | Total | 95% CL | Total | 95% CL | % | 95% CL | % | 95% CL | % | 95% CL |
| Hunt periods with quotas (General limited quota hunt periods) | | | | | | | | | | | | |
| A | 3,727 | 160 | 14,272 | 1,291 | 1,555 | 234 | 42 | 6 | 53 | 6 | 87 | 4 |
| E | 1,147 | 47 | 3,576 | 279 | 501 | 71 | 44 | 6 | 65 | 6 | 92 | 3 |
| F | 3,242 | 132 | 11,964 | 1,048 | 971 | 180 | 30 | 5 | 53 | 6 | 84 | 4 |
| J | 3,491 | 199 | 12,283 | 1,189 | 1,342 | 248 | 38 | 7 | 61 | 7 | 90 | 4 |
| K | 6,120 | 221 | 20,627 | 1,625 | 2,547 | 371 | 42 | 6 | 64 | 6 | 87 | 4 |
| M | 4,216 | 269 | 21,225 | 3,005 | 1,617 | 301 | 38 | 7 | 66 | 7 | 95 | 3 |
| ZA | 3,115 | 177 | 11,131 | 1,217 | 1,236 | 220 | 40 | 7 | 64 | 7 | 84 | 5 |
| ZB | 1,076 | 65 | 3,834 | 474 | 367 | 70 | 34 | 6 | 68 | 6 | 89 | 4 |
| ZC | 1,253 | 67 | 4,689 | 566 | 456 | 84 | 36 | 6 | 64 | 6 | 86 | 5 |
| ZD | 14 | 3 | 69 | 22 | 0 | 0 | 0 | 0 | 56 | 19 | 78 | 16 |
| ZE | 1,345 | 63 | 5,049 | 536 | 460 | 87 | 34 | 6 | 73 | 6 | 86 | 5 |
| ZF | 3,845 | 220 | 15,765 | 1,986 | 1,891 | 288 | 49 | 7 | 69 | 6 | 85 | 5 |
| Subtotal | 32,591 | 546 | 124,481 | 4,710 | 12,942 | 730 | 40 | 2 | 63 | 2 | 88 | 1 |
| Hunt period 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2008) | | | | | | | | | | | | |
| ZA | 9,028 | 591 | 35,449 | 3,296 | 4,581 | 449 | 51 | 4 | 76 | 3 | 89 | 2 |
| ZB | 3,410 | 397 | 12,098 | 1,788 | 1,626 | 280 | 48 | 6 | 75 | 5 | 86 | 4 |
| ZC | 4,414 | 443 | 15,314 | 1,936 | 2,213 | 321 | 50 | 5 | 72 | 5 | 87 | 4 |
| ZD | 203 | 101 | 591 | 332 | 66 | 56 | 33 | 23 | 92 | 13 | 85 | 18 |
| ZE | 8,717 | 583 | 33,027 | 2,922 | 4,268 | 433 | 49 | 4 | 75 | 3 | 88 | 2 |
| ZF | 7,340 | 548 | 27,212 | 2,790 | 3,690 | 407 | 50 | 4 | 77 | 4 | 89 | 3 |
| Unknown | 280 | 119 | 1,070 | 621 | 35 | 40 | 12 | 13 | 67 | 20 | 68 | 20 |
| Subtotal | 32,614 | 493 | 124,761 | 4,379 | 16,479 | 687 | 51 | 2 | 75 | 2 | 88 | 1 |

[a]Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for hunts 234 and 301. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 2 (continued). Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2008 Michigan turkey hunting season.

| Management unit | Hunters[a] | | Hunting efforts (days)[a] | | Harvest[a] | | Hunter success | | Hunter satisfaction[b] | | Noninterfered hunters[c] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | 95% CL | Total | 95% CL | Total | 95% CL | % | 95% CL | % | 95% CL | % | 95% CL |
| Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2008) | | | | | | | | | | | | |
| A | 817 | 205 | 3,488 | 1,089 | 171 | 93 | 21 | 10 | 49 | 13 | 96 | 5 |
| E | 1,468 | 276 | 7,338 | 1,910 | 539 | 169 | 37 | 9 | 77 | 8 | 92 | 5 |
| F | 2,334 | 343 | 10,668 | 2,093 | 516 | 164 | 22 | 6 | 52 | 8 | 90 | 5 |
| J | 1,420 | 268 | 7,004 | 1,841 | 474 | 156 | 33 | 9 | 66 | 9 | 90 | 6 |
| K | 7,835 | 586 | 38,268 | 4,234 | 2,975 | 382 | 38 | 4 | 60 | 4 | 88 | 3 |
| M | 361 | 135 | 1,330 | 583 | 129 | 78 | 36 | 18 | 69 | 18 | 95 | 8 |
| ZA | 5,638 | 512 | 26,852 | 3,452 | 2,358 | 342 | 42 | 5 | 71 | 4 | 90 | 3 |
| ZB | 1,822 | 308 | 8,883 | 1,917 | 693 | 192 | 38 | 8 | 68 | 8 | 92 | 5 |
| ZC | 2,901 | 380 | 15,703 | 2,939 | 1,108 | 239 | 38 | 7 | 68 | 6 | 89 | 4 |
| ZD | 144 | 89 | 543 | 434 | 33 | 42 | 23 | 26 | 68 | 29 | 89 | 19 |
| ZE | 3,982 | 438 | 18,859 | 2,955 | 1,742 | 294 | 44 | 6 | 76 | 5 | 91 | 3 |
| ZF | 4,268 | 453 | 21,093 | 3,127 | 1,824 | 302 | 43 | 6 | 74 | 5 | 91 | 3 |
| Unknown | 223 | 106 | 585 | 323 | 19 | 30 | 8 | 13 | 32 | 22 | 93 | 13 |
| Subtotal | 31,353 | 683 | 160,614 | 7,003 | 12,581 | 687 | 40 | 2 | 67 | 2 | 90 | 1 |
| Statewide | 96,557 | 1,004 | 409,857 | 9,508 | 42,002 | 1,215 | 43 | 1 | 68 | 1 | 89 | 1 |

[a]Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for hunts 234 and 301. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3. Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2008 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 | 1,706 | 280 | 7,174 | 1,591 | 477 | 152 | 28 | 8 | 49 | 9 | 95 | 4 |
| Alger | 290 | 149 | 1,351 | 839 | 78 | 76 | 27 | 23 | 52 | 26 | 100 | 0 |
| Allegan | 3,021 | 398 | 12,221 | 2,110 | 1,325 | 269 | 44 | 7 | 73 | 6 | 86 | 5 |
| Alpena | 1,280 | 240 | 4,758 | 1,180 | 568 | 168 | 44 | 10 | 62 | 10 | 85 | 7 |
| Antrim | 1,404 | 270 | 4,996 | 1,164 | 396 | 152 | 28 | 9 | 64 | 10 | 89 | 7 |
| Arenac | 559 | 146 | 2,337 | 888 | 200 | 86 | 36 | 13 | 67 | 11 | 92 | 8 |
| Baraga | 23 | 44 | 69 | 132 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 |
| Barry | 2,346 | 356 | 9,213 | 1,834 | 1,131 | 253 | 48 | 8 | 74 | 7 | 88 | 5 |
| Bay | 469 | 157 | 1,730 | 680 | 149 | 87 | 32 | 15 | 58 | 17 | 92 | 9 |
| Benzie | 481 | 183 | 1,269 | 549 | 87 | 85 | 18 | 16 | 58 | 19 | 94 | 10 |
| Berrien | 924 | 227 | 4,177 | 1,331 | 338 | 137 | 37 | 12 | 65 | 12 | 90 | 7 |
| Branch | 1,193 | 247 | 5,185 | 1,455 | 596 | 174 | 50 | 10 | 82 | 8 | 91 | 6 |
| Calhoun | 1,944 | 310 | 7,244 | 1,448 | 1,068 | 231 | 55 | 8 | 78 | 7 | 91 | 5 |
| Cass | 1,451 | 285 | 6,314 | 1,927 | 646 | 193 | 45 | 10 | 76 | 9 | 85 | 7 |
| Charlevoix | 1,046 | 240 | 3,485 | 1,101 | 551 | 180 | 53 | 12 | 72 | 11 | 93 | 6 |
| Cheboygan | 731 | 204 | 3,067 | 1,178 | 181 | 104 | 25 | 13 | 52 | 15 | 87 | 10 |
| Chippewa[d] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Clare | 1,111 | 194 | 3,726 | 951 | 440 | 123 | 40 | 9 | 73 | 8 | 93 | 5 |
| Clinton | 1,858 | 308 | 7,938 | 1,697 | 873 | 211 | 47 | 8 | 77 | 7 | 86 | 6 |
| Crawford | 773 | 184 | 3,526 | 1,124 | 147 | 80 | 19 | 9 | 54 | 12 | 79 | 10 |
| Delta | 1,494 | 298 | 7,219 | 2,473 | 566 | 203 | 38 | 11 | 68 | 11 | 95 | 5 |

[a]Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.
[d]Not open for turkey hunting.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2008 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 | 860 | 243 | 3,396 | 1,147 | 376 | 168 | 44 | 15 | 65 | 15 | 100 | 0 |
| Eaton | 1,708 | 291 | 7,613 | 1,809 | 701 | 183 | 41 | 8 | 76 | 7 | 94 | 4 |
| Emmet | 908 | 225 | 3,030 | 857 | 358 | 147 | 39 | 13 | 57 | 13 | 85 | 9 |
| Genesee | 1,825 | 296 | 7,591 | 1,771 | 805 | 196 | 44 | 8 | 71 | 7 | 85 | 6 |
| Gladwin | 982 | 185 | 4,736 | 1,468 | 389 | 114 | 40 | 9 | 76 | 8 | 92 | 5 |
| Gogebic | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 100 | 0 |
| Gd. Traverse | 798 | 229 | 3,022 | 1,129 | 261 | 134 | 33 | 14 | 61 | 14 | 87 | 10 |
| Gratiot | 1,596 | 286 | 6,163 | 1,503 | 637 | 180 | 40 | 9 | 72 | 8 | 88 | 6 |
| Hillsdale | 1,648 | 281 | 5,831 | 1,350 | 809 | 199 | 49 | 9 | 79 | 7 | 91 | 5 |
| Houghton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Huron | 1,573 | 257 | 6,707 | 1,402 | 652 | 174 | 41 | 8 | 72 | 7 | 89 | 5 |
| Ingham | 1,610 | 278 | 6,644 | 1,644 | 720 | 182 | 45 | 9 | 77 | 7 | 85 | 6 |
| Ionia | 1,733 | 298 | 7,268 | 1,808 | 808 | 204 | 47 | 9 | 77 | 7 | 84 | 7 |
| Iosco | 999 | 210 | 3,408 | 889 | 304 | 118 | 30 | 10 | 50 | 11 | 90 | 7 |
| Iron | 466 | 184 | 2,309 | 1,215 | 165 | 111 | 35 | 20 | 66 | 20 | 86 | 14 |
| Isabella | 1,642 | 290 | 5,761 | 1,369 | 816 | 204 | 50 | 9 | 75 | 8 | 93 | 5 |
| Jackson | 2,792 | 356 | 9,755 | 1,674 | 1,119 | 229 | 40 | 6 | 73 | 6 | 90 | 4 |
| Kalamazoo | 1,769 | 312 | 6,854 | 1,658 | 796 | 206 | 45 | 9 | 73 | 8 | 89 | 6 |
| Kalkaska | 1,069 | 268 | 4,522 | 1,524 | 382 | 160 | 36 | 12 | 61 | 13 | 90 | 7 |
| Kent | 3,085 | 393 | 11,472 | 1,936 | 1,276 | 253 | 41 | 6 | 75 | 6 | 89 | 4 |
| Keweenaw[d] | 0 | 0 | 0 | 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 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2008 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 | 1,311 | 286 | 5,389 | 1,595 | 449 | 175 | 34 | 11 | 63 | 10 | 95 | 4 |
| Lapeer | 2,783 | 356 | 11,460 | 1,949 | 1,188 | 232 | 43 | 6 | 66 | 6 | 90 | 4 |
| Leelanau | 477 | 181 | 2,014 | 906 | 88 | 66 | 18 | 13 | 57 | 19 | 87 | 12 |
| Lenawee | 923 | 209 | 3,360 | 926 | 311 | 120 | 34 | 11 | 81 | 9 | 87 | 8 |
| Livingston | 1,717 | 275 | 6,470 | 1,320 | 696 | 178 | 41 | 8 | 69 | 8 | 89 | 5 |
| Luce[d] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mackinac | 21 | 37 | 61 | 112 | 0 | 0 | 0 | 0 | 5 | 9 | 100 | 0 |
| Macomb | 522 | 158 | 1,867 | 757 | 250 | 112 | 48 | 15 | 72 | 14 | 97 | 5 |
| Manistee | 993 | 253 | 4,031 | 1,395 | 292 | 141 | 29 | 12 | 75 | 11 | 88 | 8 |
| Marquette | 433 | 178 | 1,902 | 896 | 122 | 98 | 28 | 19 | 71 | 19 | 100 | 0 |
| Mason | 857 | 234 | 2,978 | 1,069 | 380 | 162 | 44 | 14 | 59 | 14 | 88 | 9 |
| Mecosta | 1,399 | 296 | 5,062 | 1,353 | 788 | 225 | 56 | 11 | 77 | 9 | 94 | 6 |
| Menominee | 1,074 | 262 | 4,634 | 1,488 | 367 | 155 | 34 | 12 | 60 | 13 | 95 | 6 |
| Midland | 1,474 | 277 | 4,637 | 1,053 | 701 | 192 | 48 | 10 | 72 | 9 | 90 | 6 |
| Missaukee | 715 | 215 | 2,976 | 1,089 | 289 | 135 | 40 | 15 | 41 | 15 | 88 | 11 |
| Monroe | 312 | 125 | 1,051 | 517 | 85 | 64 | 27 | 18 | 79 | 17 | 84 | 15 |
| Montcalm | 2,551 | 358 | 10,231 | 1,942 | 1,151 | 242 | 45 | 7 | 74 | 6 | 88 | 5 |
| Montmorency | 1,316 | 239 | 4,798 | 1,021 | 353 | 134 | 27 | 9 | 45 | 10 | 89 | 6 |
| Muskegon | 1,588 | 292 | 5,504 | 1,392 | 742 | 202 | 47 | 9 | 73 | 8 | 88 | 6 |
| Newaygo | 3,005 | 427 | 11,463 | 2,089 | 1,150 | 273 | 38 | 7 | 62 | 7 | 86 | 5 |
| Oakland | 1,344 | 232 | 5,610 | 1,561 | 611 | 161 | 45 | 9 | 74 | 8 | 85 | 6 |

[a]Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.
[d]Not open for turkey hunting.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2008 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 | 1,154 | 272 | 5,675 | 1,851 | 446 | 172 | 39 | 12 | 63 | 12 | 69 | 11 |
| Ogemaw | 1,041 | 217 | 3,744 | 982 | 341 | 128 | 33 | 10 | 64 | 10 | 87 | 7 |
| Ontonagon | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 100 | 0 |
| Osceola | 1,293 | 286 | 4,825 | 1,389 | 486 | 175 | 38 | 11 | 56 | 11 | 85 | 8 |
| Oscoda | 1,130 | 226 | 4,093 | 1,055 | 262 | 112 | 23 | 9 | 53 | 10 | 93 | 5 |
| Otsego | 921 | 225 | 4,108 | 1,298 | 309 | 137 | 34 | 12 | 59 | 13 | 96 | 5 |
| Ottawa | 1,895 | 320 | 6,771 | 1,403 | 981 | 232 | 52 | 9 | 76 | 7 | 88 | 6 |
| Presque Isle | 935 | 209 | 4,000 | 1,158 | 443 | 151 | 47 | 12 | 56 | 12 | 86 | 9 |
| Roscommon | 1,009 | 208 | 3,831 | 929 | 254 | 106 | 25 | 9 | 48 | 11 | 79 | 9 |
| Saginaw | 2,612 | 365 | 10,302 | 1,813 | 966 | 222 | 37 | 7 | 65 | 7 | 90 | 4 |
| St. Clair | 2,171 | 319 | 8,953 | 1,795 | 923 | 211 | 43 | 7 | 70 | 7 | 85 | 5 |
| St. Joseph | 1,206 | 256 | 5,282 | 1,394 | 499 | 163 | 41 | 11 | 75 | 9 | 91 | 6 |
| Sanilac | 2,303 | 328 | 8,467 | 1,636 | 1,011 | 221 | 44 | 7 | 74 | 6 | 87 | 5 |
| Schoolcraft | 204 | 126 | 1,122 | 874 | 72 | 76 | 35 | 30 | 66 | 30 | 100 | 0 |
| Shiawassee | 1,524 | 279 | 5,955 | 1,522 | 696 | 187 | 46 | 9 | 73 | 8 | 84 | 7 |
| Tuscola | 2,502 | 328 | 9,468 | 1,620 | 1,015 | 212 | 41 | 7 | 71 | 6 | 88 | 4 |
| Van Buren | 1,801 | 313 | 6,925 | 1,620 | 883 | 217 | 49 | 9 | 81 | 7 | 93 | 5 |
| Washtenaw | 1,091 | 212 | 4,183 | 1,034 | 441 | 136 | 40 | 10 | 75 | 9 | 82 | 8 |
| Wayne | 45 | 49 | 134 | 180 | 15 | 28 | 33 | 50 | 98 | 2 | 100 | 0 |
| Wexford | 1,313 | 298 | 5,156 | 1,395 | 421 | 174 | 32 | 11 | 68 | 11 | 86 | 9 |
| Unknown | 2,127 | 345 | 8,284 | 1,796 | 332 | 137 | 16 | 6 | 49 | 8 | 78 | 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.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.
[d]Not open for turkey hunting.

Table 4. Estimated number and proportion of hunters hunting on private and public lands during the spring 2008 Michigan turkey hunting season.[a]

| Management unit | Private land only | | | | Public land only | | | | Both private and public lands | | | | Unknown land | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL |
| Hunt periods with quotas (General limited quota hunt periods) | | | | | | | | | | | | | | | | |
| A | 2,858 | 228 | 77 | 5 | 635 | 171 | 17 | 5 | 202 | 105 | 5 | 3 | 33 | 44 | 1 | 1 |
| E | 830 | 70 | 72 | 5 | 224 | 54 | 20 | 5 | 92 | 38 | 8 | 3 | 0 | 0 | 0 | 0 |
| F | 1,215 | 193 | 37 | 6 | 1,513 | 201 | 47 | 6 | 459 | 138 | 14 | 4 | 55 | 52 | 2 | 2 |
| J | 1,939 | 266 | 56 | 7 | 971 | 223 | 28 | 6 | 541 | 181 | 16 | 5 | 39 | 53 | 1 | 2 |
| K | 3,708 | 382 | 61 | 6 | 1,498 | 315 | 24 | 5 | 888 | 264 | 15 | 4 | 26 | 49 | 0 | 1 |
| M | 2,745 | 330 | 65 | 7 | 929 | 251 | 22 | 6 | 474 | 188 | 11 | 4 | 69 | 76 | 2 | 2 |
| ZA | 1,757 | 235 | 56 | 7 | 982 | 205 | 32 | 6 | 359 | 140 | 12 | 4 | 17 | 33 | 1 | 1 |
| ZB | 468 | 76 | 43 | 7 | 511 | 77 | 48 | 7 | 97 | 42 | 9 | 4 | 0 | 0 | 0 | 0 |
| ZC | 638 | 90 | 51 | 7 | 559 | 88 | 45 | 7 | 55 | 34 | 4 | 3 | 0 | 0 | 0 | 0 |
| ZD | 11 | 3 | 78 | 16 | 3 | 2 | 22 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZE | 571 | 94 | 42 | 7 | 649 | 95 | 48 | 7 | 124 | 53 | 9 | 4 | 0 | 0 | 0 | 0 |
| ZF | 2,302 | 294 | 60 | 7 | 1,245 | 258 | 32 | 6 | 299 | 142 | 8 | 4 | 0 | 0 | 0 | 0 |
| Subtotal | 19,042 | 764 | 58 | 2 | 9,718 | 645 | 30 | 2 | 3,592 | 463 | 11 | 1 | 239 | 129 | 1 | 0 |
| Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2008) | | | | | | | | | | | | | | | | |
| ZA | 9,028 | 591 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZB | 3,410 | 397 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZC | 4,414 | 443 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZD | 203 | 101 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZE | 8,717 | 583 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZF | 7,340 | 548 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 280 | 119 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal | 32,614 | 493 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Table 4 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2008 Michigan turkey hunting season.[a]

| Management unit | Private land only | | | | Public land only | | | | Both private and public lands | | | | Unknown land | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL | Total | 95% CL | % | 95% CL |
| Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2008) | | | | | | | | | | | | | | | | |
| A | 583 | 174 | 71 | 11 | 181 | 98 | 22 | 11 | 23 | 30 | 3 | 4 | 31 | 42 | 4 | 5 |
| E | 1,187 | 249 | 81 | 7 | 124 | 78 | 8 | 5 | 157 | 93 | 11 | 6 | 0 | 0 | 0 | 0 |
| F | 941 | 221 | 40 | 7 | 1,114 | 241 | 48 | 8 | 279 | 122 | 12 | 5 | 0 | 0 | 0 | 0 |
| J | 946 | 221 | 67 | 9 | 307 | 125 | 22 | 8 | 167 | 93 | 12 | 6 | 0 | 0 | 0 | 0 |
| K | 5,332 | 500 | 68 | 4 | 1,682 | 293 | 21 | 3 | 821 | 209 | 10 | 3 | 0 | 0 | 0 | 0 |
| M | 193 | 98 | 53 | 19 | 69 | 59 | 19 | 15 | 99 | 72 | 27 | 17 | 0 | 0 | 0 | 0 |
| ZA[b] | 5,638 | 512 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZB[b] | 1,822 | 308 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZC[b] | 2,901 | 380 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZD[b] | 144 | 89 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZE[b] | 3,982 | 438 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZF[b] | 4,268 | 453 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 150 | 89 | 68 | 22 | 40 | 42 | 18 | 17 | 32 | 42 | 14 | 17 | 0 | 0 | 0 | 0 |
| Subtotal | 26,379 | 744 | 84 | 2 | 2,878 | 377 | 9 | 1 | 2,064 | 324 | 7 | 1 | 31 | 42 | 0 | 0 |
| Statewide[c] | 78,036 | 1,174 | 81 | 1 | 12,596 | 747 | 13 | 1 | 5,656 | 565 | 6 | 1 | 270 | 136 | 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 Management Unit ZZ in southern Michigan (Figure 1).
[c]Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunts.

Table 5. How hunters rated their hunting experience during the spring 2008 Michigan turkey hunting season.

| Manage-ment unit | Satisfaction level (% of hunters)[a] | | | | | |
|---|---|---|---|---|---|---|
| | Excellent | Very good | Good | Fair | Poor | No answer |
| Hunt periods with quotas (General limited quota hunt periods) | | | | | | |
| A | 18 | 17 | 18 | 24 | 18 | 4 |
| E | 21 | 17 | 27 | 19 | 13 | 2 |
| F | 10 | 16 | 27 | 24 | 20 | 3 |
| J | 16 | 17 | 28 | 20 | 16 | 2 |
| K | 19 | 22 | 23 | 22 | 12 | 3 |
| M | 14 | 20 | 33 | 19 | 16 | 0 |
| ZA | 19 | 25 | 20 | 19 | 13 | 4 |
| ZB | 19 | 21 | 28 | 19 | 10 | 3 |
| ZC | 20 | 17 | 27 | 22 | 7 | 6 |
| ZD | 11 | 22 | 22 | 11 | 33 | 0 |
| ZE | 22 | 27 | 24 | 17 | 9 | 1 |
| ZF | 23 | 21 | 25 | 19 | 11 | 1 |
| Mean | 18 | 20 | 25 | 21 | 14 | 2 |
| Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2008) | | | | | | |
| ZA | 27 | 25 | 24 | 14 | 7 | 3 |
| ZB | 24 | 23 | 28 | 15 | 7 | 3 |
| ZC | 29 | 23 | 20 | 20 | 7 | 1 |
| ZD | 16 | 31 | 44 | 8 | 0 | 0 |
| ZE | 27 | 23 | 26 | 16 | 6 | 2 |
| ZF | 27 | 23 | 26 | 16 | 5 | 2 |
| Unknown | 7 | 23 | 37 | 11 | 17 | 5 |
| Mean | 27 | 24 | 25 | 16 | 6 | 2 |

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

Table 5 (continued). How hunters rated their hunting experience during the spring 2008 Michigan turkey hunting season.

| Management unit | Satisfaction level (% of hunters)[a] | | | | | |
|---|---|---|---|---|---|---|
| | Excellent | Very good | Good | Fair | Poor | No answer |
| Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2008) | | | | | | |
| A | 17 | 16 | 16 | 32 | 19 | 0 |
| E | 14 | 21 | 42 | 8 | 12 | 3 |
| F | 10 | 13 | 29 | 27 | 20 | 1 |
| J | 13 | 18 | 34 | 15 | 18 | 1 |
| K | 16 | 19 | 25 | 21 | 16 | 2 |
| M | 15 | 16 | 38 | 9 | 17 | 4 |
| ZA | 20 | 22 | 29 | 16 | 11 | 2 |
| ZB | 18 | 22 | 29 | 21 | 9 | 2 |
| ZC | 17 | 23 | 28 | 15 | 17 | 1 |
| ZD | 12 | 11 | 44 | 22 | 0 | 11 |
| ZE | 22 | 27 | 27 | 15 | 7 | 2 |
| ZF | 24 | 27 | 23 | 16 | 7 | 3 |
| Unknown | 2 | 14 | 15 | 32 | 36 | 0 |
| Mean | 18 | 21 | 27 | 18 | 13 | 2 |
| Statewide[b] | 21 | 22 | 26 | 18 | 11 | 2 |

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

Table 6. Estimated amount of hunter interference experienced by turkey hunters during the spring 2008 Michigan turkey hunting season.

| Manage-ment unit | Interference level (% of hunters)[a] None | Minor | Some irritation | Major problem | No answer |
|---|---|---|---|---|---|
| Hunt periods with quotas (General limited quota hunt periods) | | | | | |
| A | 68 | 18 | 7 | 2 | 5 |
| E | 77 | 14 | 6 | 0 | 2 |
| F | 57 | 27 | 10 | 4 | 2 |
| J | 71 | 19 | 6 | 2 | 2 |
| K | 66 | 22 | 8 | 3 | 1 |
| M | 78 | 17 | 4 | 0 | 1 |
| ZA | 64 | 21 | 9 | 3 | 3 |
| ZB | 67 | 22 | 8 | 1 | 2 |
| ZC | 66 | 20 | 7 | 2 | 6 |
| ZD | 33 | 44 | 22 | 0 | 0 |
| ZE | 59 | 27 | 10 | 2 | 2 |
| ZF | 62 | 23 | 9 | 4 | 2 |
| Mean | 67 | 21 | 8 | 2 | 2 |
| Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2008) | | | | | |
| ZA | 69 | 20 | 8 | 2 | 2 |
| ZB | 69 | 17 | 10 | 1 | 3 |
| ZC | 67 | 20 | 10 | 2 | 1 |
| ZD | 69 | 16 | 15 | 0 | 0 |
| ZE | 67 | 22 | 9 | 1 | 1 |
| ZF | 69 | 20 | 8 | 2 | 1 |
| Unknown | 51 | 16 | 27 | 0 | 5 |
| Mean | 68 | 20 | 9 | 1 | 2 |

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

Table 6 (continued). Estimated amount of hunter interference experienced by turkey hunters during the spring 2008 Michigan turkey hunting season.

| Management unit | Interference level (% of hunters)[a] None | Minor | Some irritation | Major problem | No answer |
|---|---|---|---|---|---|
| Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2008) | | | | | |
| A | 84 | 12 | 4 | 0 | 0 |
| E | 82 | 10 | 5 | 1 | 1 |
| F | 71 | 19 | 9 | 1 | 0 |
| J | 69 | 21 | 6 | 2 | 2 |
| K | 68 | 20 | 9 | 2 | 1 |
| M | 82 | 13 | 5 | 0 | 0 |
| ZA | 70 | 20 | 6 | 1 | 2 |
| ZB | 75 | 18 | 6 | 1 | 1 |
| ZC | 75 | 14 | 9 | 2 | 1 |
| ZD | 78 | 11 | 0 | 0 | 11 |
| ZE | 70 | 21 | 7 | 1 | 2 |
| ZF | 70 | 21 | 7 | 0 | 2 |
| Unknown | 85 | 8 | 7 | 0 | 0 |
| Mean | 72 | 18 | 7 | 1 | 1 |
| Statewide[b] | 69 | 20 | 8 | 2 | 2 |

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

Table 7. Estimated number of hunting efforts, hunters, hunting success, noninterfered hunters, and hunter rating of the 2008 spring turkey hunting season, by hunt periods.

| | Hunt periods beginning | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | April 21 | | April 28 | | May 5 | | May 12 | | All periods[a] | |
| Variable | Estimate | 95% CL | Estimate | 95% CL | Estimate | 95% CL | Estimate | 95% CL | Estimate | 95% CL |
| Hunting efforts (days) | 182,163 | 5,346 | 47,526 | 3,807 | 166,689 | 7,077 | 13,479 | 2,181 | 409,857 | 9,508 |
| Number of hunters | 48,010 | 757 | 12,365 | 634 | 33,215 | 731 | 2,968 | 318 | 96,557 | 1,004 |
| Successful hunters (n) | 22,058 | 850 | 5,422 | 543 | 13,358 | 713 | 1,164 | 243 | 42,002 | 1,215 |
| Successful hunters (%) | 46 | 2 | 44 | 4 | 40 | 2 | 39 | 7 | 43 | 1 |
| Noninterfered hunters (n)[b] | 42,104 | 851 | 11,092 | 624 | 29,793 | 767 | 2,582 | 310 | 85,570 | 1,159 |
| Noninterfered hunters (%)[b] | 88 | 1 | 90 | 2 | 90 | 1 | 87 | 5 | 89 | 1 |
| Favorable rating (n)[c] | 33,219 | 880 | 8,638 | 622 | 22,108 | 792 | 1,897 | 286 | 65,862 | 1,272 |
| Favorable rating (%)[c] | 69 | 2 | 70 | 3 | 67 | 2 | 64 | 7 | 68 | 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 8. Comparison of the estimated number of hunters, hunting effort, and harvest between 2007 and 2008 Michigan spring turkey hunting seasons, summarized by regions.

| | Hunters (No.)[b] | | | | | Hunting efforts (days) | | | | | Harvest (No.) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2007 | | 2008 | | | 2007 | | 2008 | | | 2007 | | 2008 | | |
| Region[a] | Total | 95 % CL | Total | 95% CL | Change (%) | Total | 95% CL | Total | 95% CL | Change (%) | Total | 95% CL | Total | 95% CL | Change (%) |
| UP | 4,953 | 336 | 4,506 | 310 | -9 | 24,128 | 3,066 | 22,064 | 3,062 | -9 | 2,009 | 347 | 1,747 | 311 | -13 |
| NLP | 31,192 | 591 | 30,680 | 814 | -2 | 126,018 | 3,969 | 127,200 | 5,892 | 1 | 10,857 | 566 | 11,492 | 714 | 6 |
| SLP | 59,607 | 694 | 60,374 | 966 | 1 | 256,274 | 5,349 | 252,308 | 7,765 | -2 | 25,915 | 665 | 28,431 | 977 | 10* |
| Unknown | 2,637 | 305 | 2,127 | 345 | | 11,218 | 2,001 | 8,284 | 1,796 | | 387 | 105 | 332 | 137 | |
| Total | 97,074 | 778 | 96,557 | 1,004 | -1 | 417,639 | 6,971 | 409,857 | 9,508 | -2 | 39,168 | 921 | 42,002 | 1,215 | 7* |

[a]Regions included the Upper Peninsula (UP), the northern Lower Peninsula north of Management Unit ZZ (NLP), and Management Unit ZZ in the southern Lower Peninsula (SLP).
[b]Number of hunters did not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunt.
*P<0.005.

Table 9. Comparison of estimated hunter success, hunter satisfaction, and hunt interference between 2007 and 2008 Michigan spring turkey hunting season, summarized by regions.

| | Hunter success | | | | | Hunter satisfaction[b] | | | | | Noninterfered hunters[c] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2007 | | 2008 | | Differ- | 2007 | | 2008 | | Differ- | 2007 | | 2008 | | Differ- |
| Region[a] | % | 95% CL | % | 95% CL | ence (%) | % | 95% CL | % | 95% CL | ence (%) | % | 95% CL | % | 95% CL | ence (%) |
| UP | 41 | 6 | 39 | 6 | -2 | 63 | 6 | 66 | 6 | 4 | 90 | 4 | 96 | 3 | 6 |
| NLP | 35 | 2 | 37 | 2 | 3 | 59 | 2 | 60 | 2 | 1 | 88 | 1 | 89 | 1 | 0 |
| SLP | 43 | 1 | 47 | 1 | 4* | 70 | 1 | 73 | 1 | 3* | 87 | 1 | 89 | 1 | 1 |
| Total | 40 | 1 | 43 | 1 | 3* | 66 | 1 | 68 | 1 | 2* | 88 | 1 | 89 | 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.
*P<0.005.

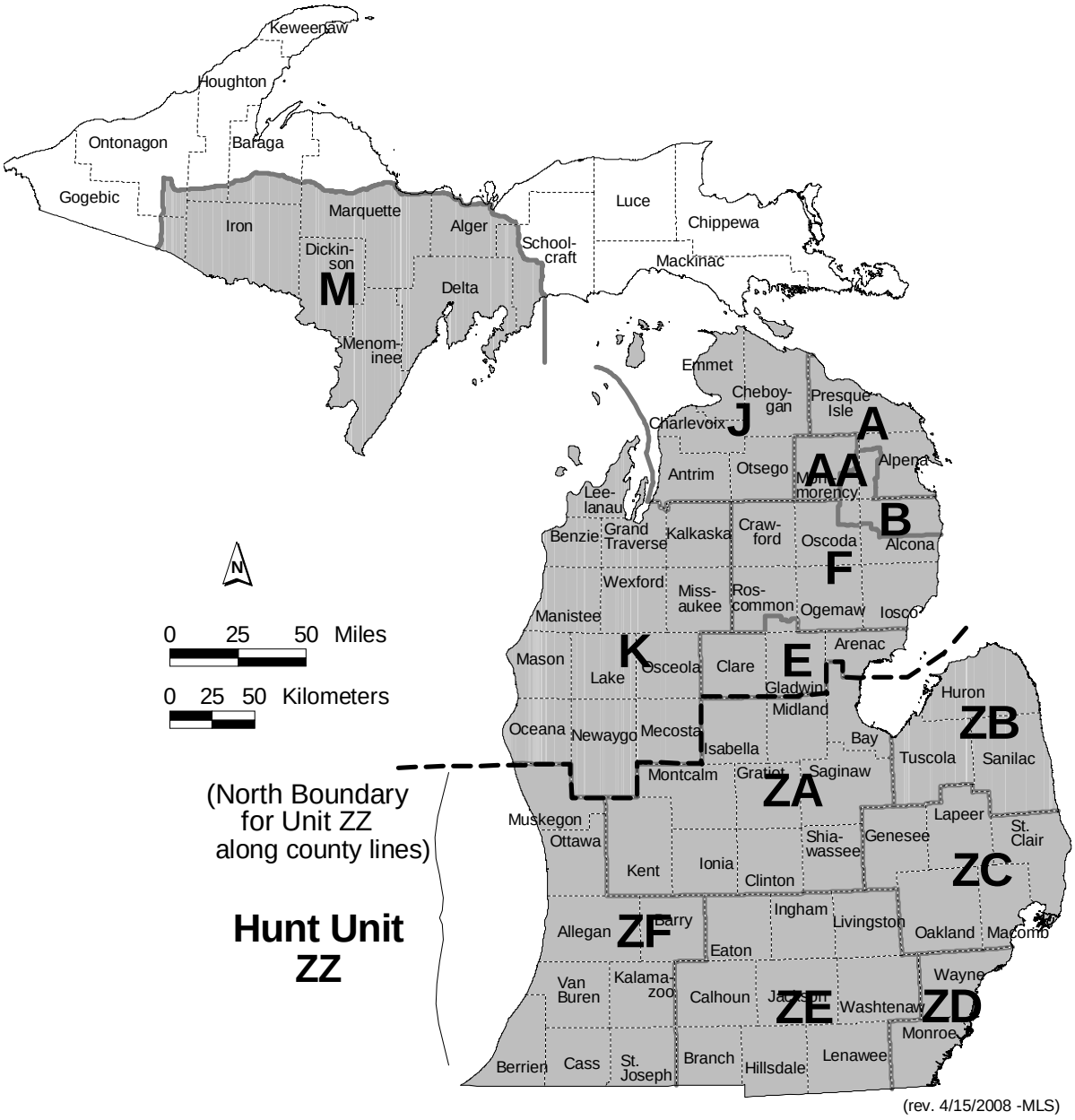


Figure 1. Management units in Michigan open to spring turkey hunting in 2008.

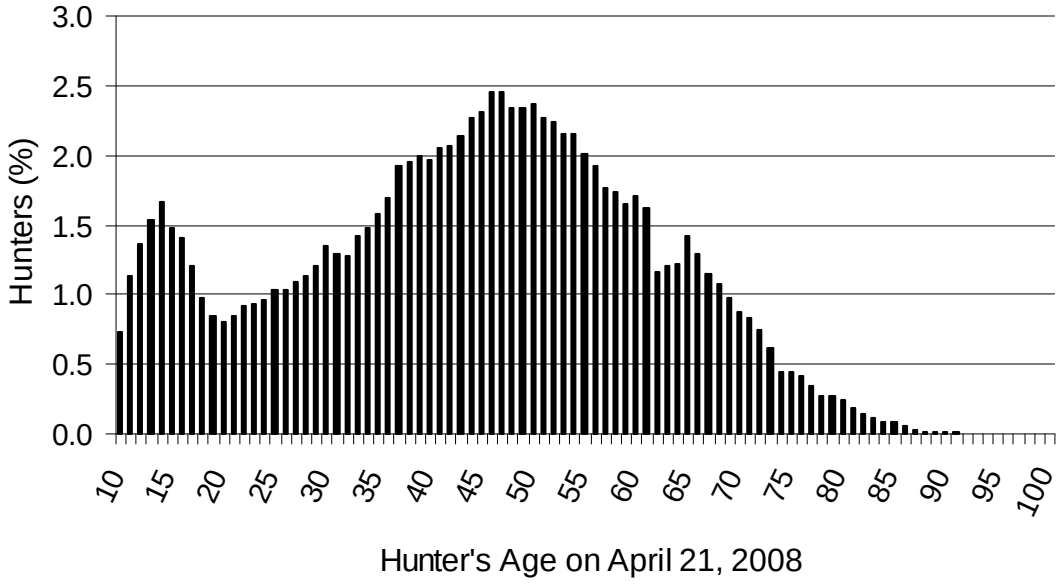


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2008 spring hunting season ($\bar{x}$ = 44 years). Licenses were purchased by 118,015 people.

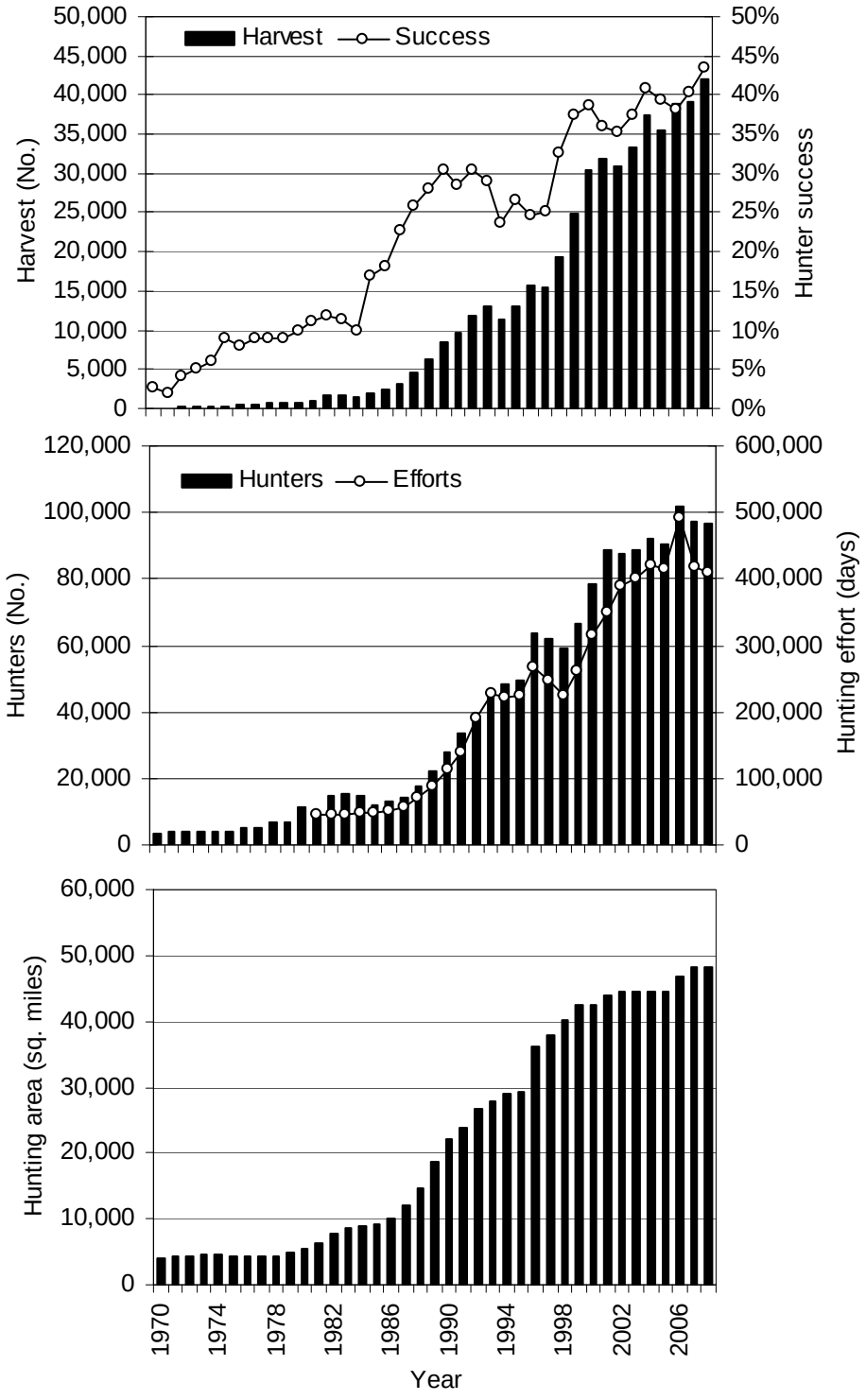


Figure 3. Estimated number of hunters, harvest, hunting efforts, hunter success, and area open to hunting during the Michigan spring turkey hunting season, 1970-2008. Estimates of hunting effort generally were not available before 1981.

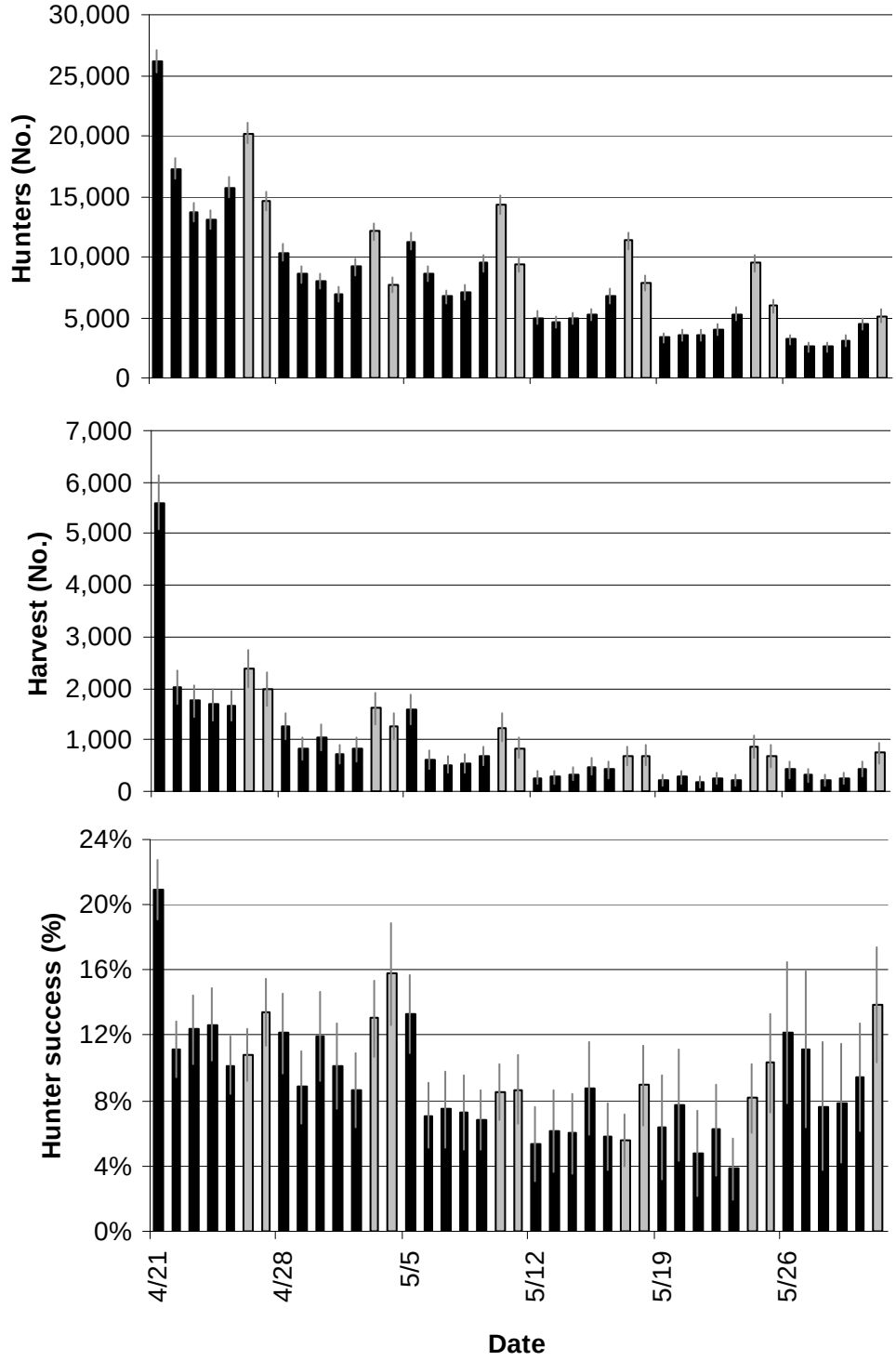


Figure 4. Estimated number of hunters, harvest, and hunter success by date during the 2008 Michigan spring turkey hunting season (includes all hunts). An additional 3,095 ± 411 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

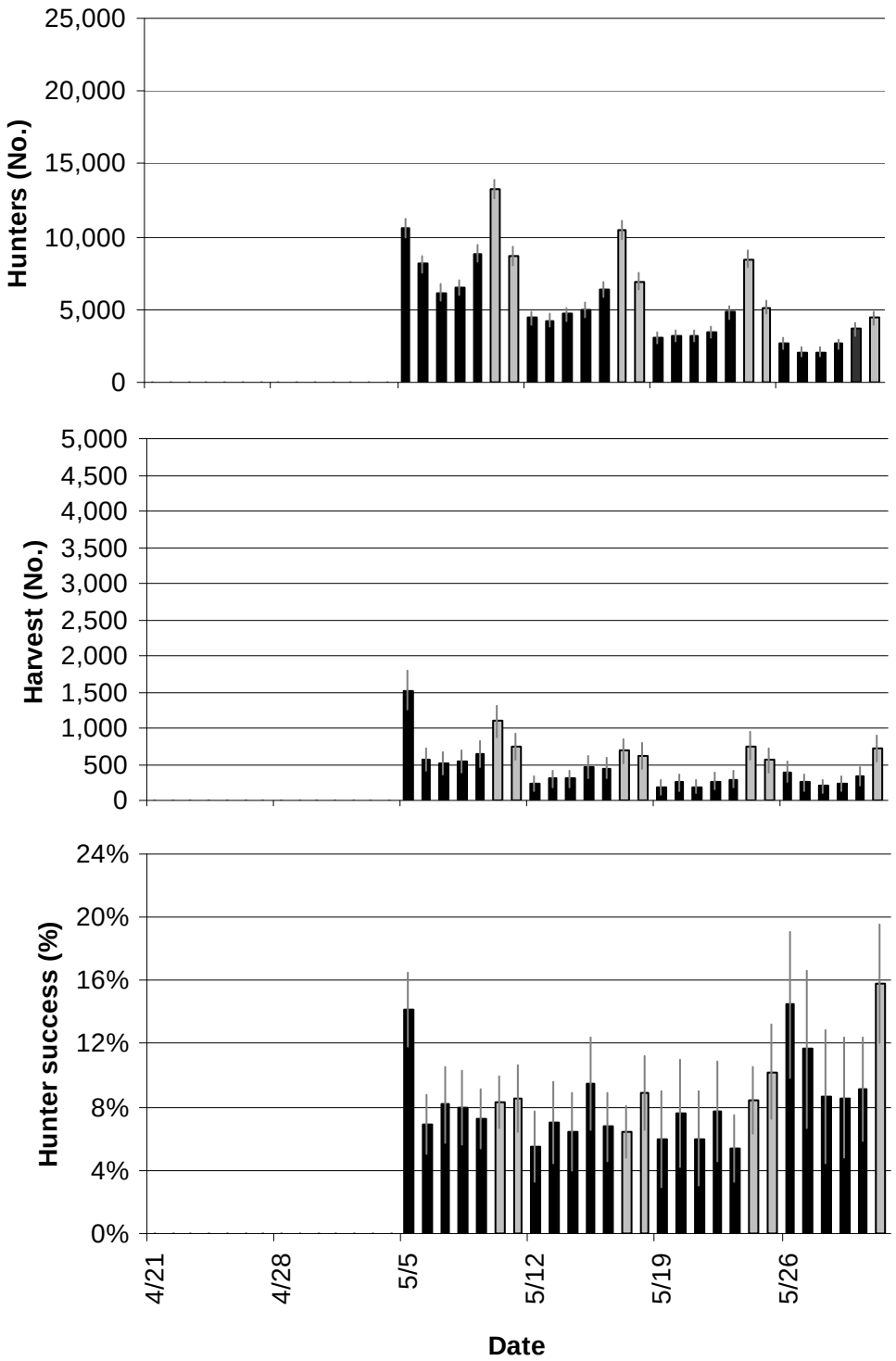


Figure 5. Estimated number of hunters, harvest, and hunter success by date during Hunt 234 of the 2008 Michigan spring turkey hunting season (May 5-31). An additional 1,124 ± 243 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

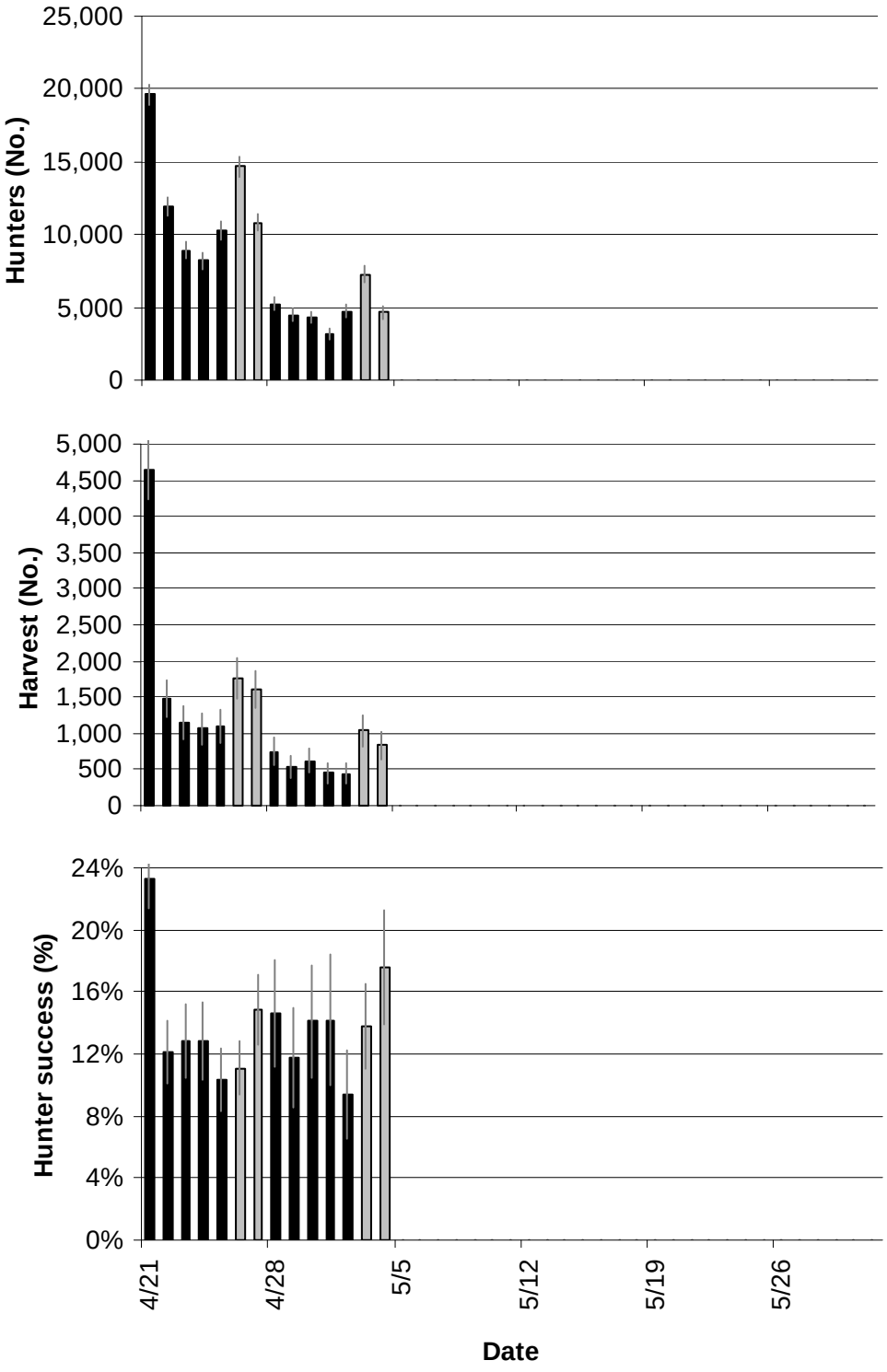


Figure 6. Estimated number of hunters, harvest, and hunter success by date during Hunt 301 of the 2008 Michigan spring turkey hunting season (April 21-May 4). An additional 1,480 ± 268 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

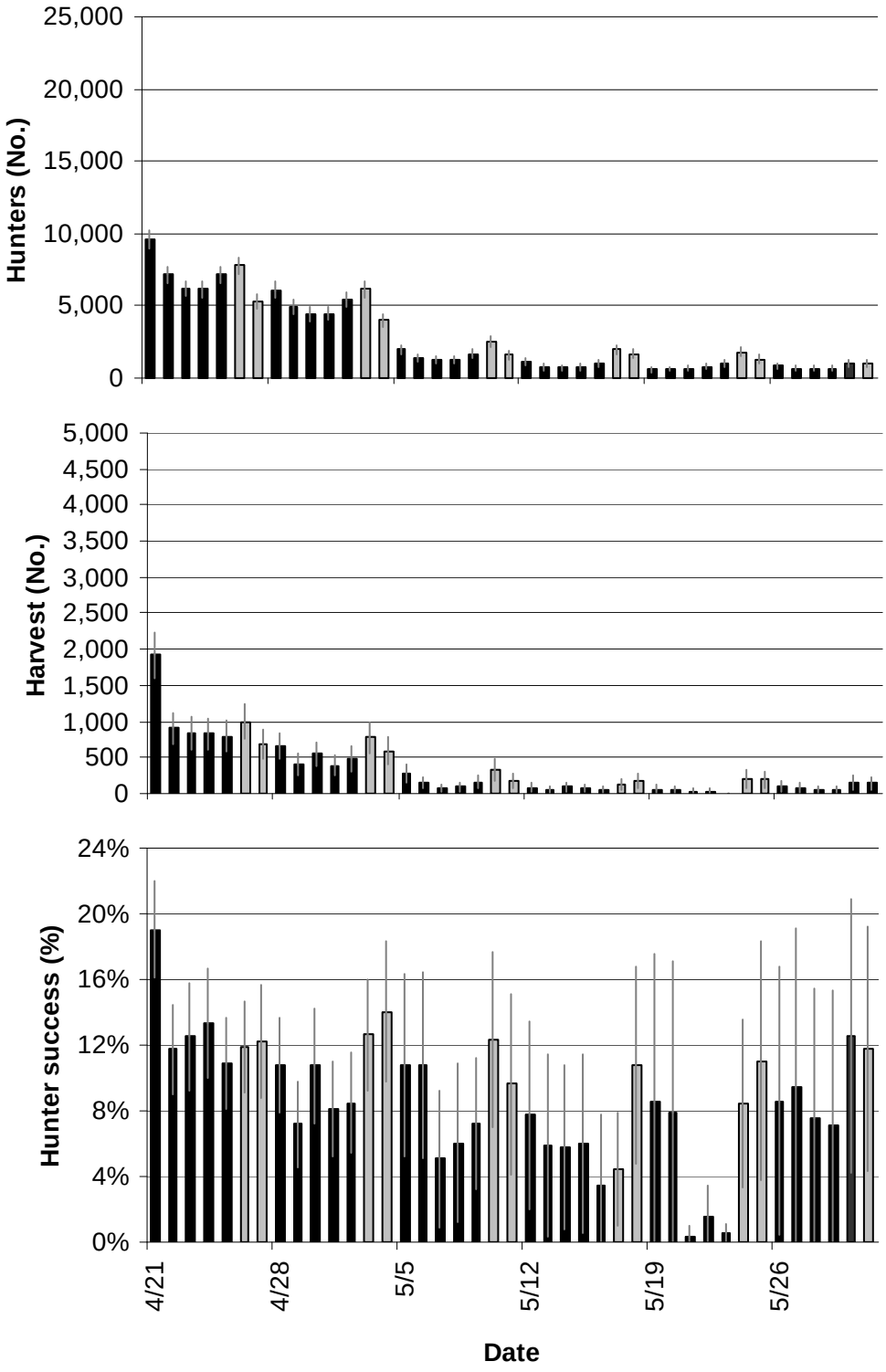


Figure 7. Estimated number of hunters, harvest, and hunter success by date during all hunts except hunts 234 and 301 of the 2008 Michigan spring turkey hunting season. An additional 585 ± 198 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

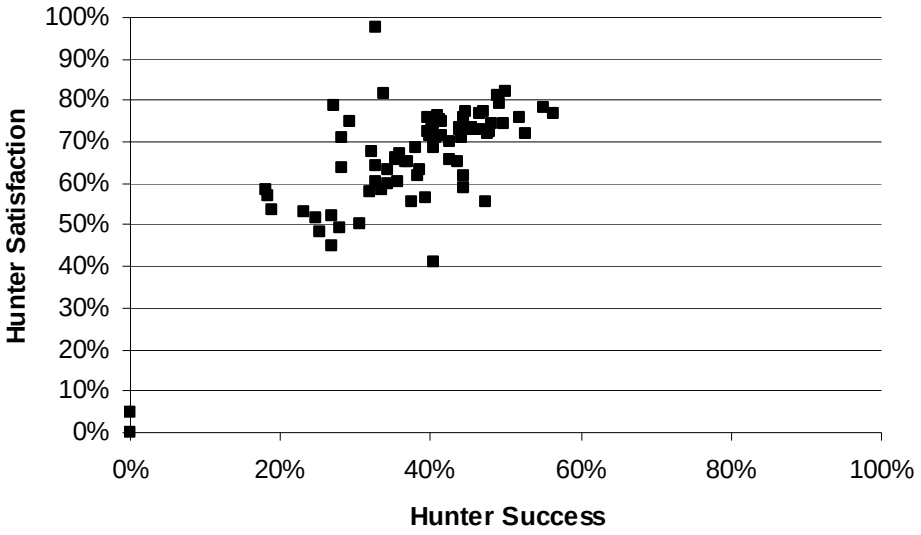


Figure 8. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter success for each of 79 counties in Michigan during the 2008 spring turkey hunting season (included only counties with at least 20 hunters).

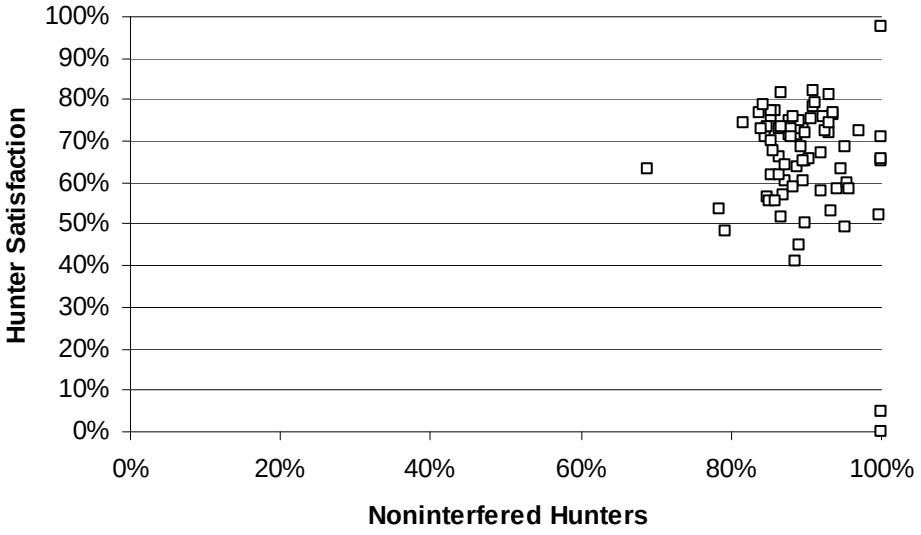


Figure 9. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter interference for each of 79 counties in Michigan during the 2008 spring turkey hunting season (included only counties with at least 20 hunters). 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

## 2009 Midwest Deer and Wild Turkey Study Group

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**2009 Spring Season**

In Minnesota, the demand for spring turkey permits exceeds the supply of permits available. To regulate harvest and distribute hunting pressure, permits are allocated across 76 permit areas (PAs) and 8 time periods using a quota system (Figure 1). Hunters interested in pursuing wild turkeys are required to apply for a permit through a drawing based on a system of preference. Preference is determined by the number of years a valid but unsuccessful application has been submitted since last receiving a permit. Hunters may apply individually or in a group of up to 4 members, and may apply for a second choice permit area and time period. Successful applicants are notified through mail, and unsuccessful applicants are awarded a preference point. The goal of this system is to provide quality turkey hunting opportunities where populations can sustain harvest.

Three types of hunting licenses were available to spring turkey hunters: (1) general lottery permit in which an applicant or a group of up to 4 hunters applied for a specific PA and time period; (2) landowner permit in which up to 20% of permits for each PA and time period were reserved for landowners or tenants who lived on 40 acres or more of land within the PA; and (3) archery permits which could be purchased for the last 2 time periods of any PA with 50 or more permits per period.

During 2009 we received 57,692 applications for 42,328 permits (Table 1, Figure 2). Over 36,000 general lottery and landowner permits were issued to hunters, and almost 4,500 were issued to archers. Hunters registered over 12,000 turkeys, the highest turkey harvest on record and an increase of 11% from 2008 (Table 1, Figure 2). Hunter success averaged 34%, which is above the 5-year average of 32% (Table 1). Hunter success by PA ranged from 15%

(PA 423) to 64% (PA 266). Similar to the 5-year average, hunter success rates were highest during the first 2 time periods, but chances of drawing a permit were generally highest during the last 3-4 time periods.

A mentored youth hunt sponsored by non-profit organizations was held on weekends from mid April through May. During 2009, 294 youth hunters registered 118 turkeys, an increase in turkey harvest of 18% from 2008. Success averaged 40%, which was above the 2008 success rate (37%).

Overall weather conditions for the 2009 spring turkey hunting season were favorable across much of the turkey range in Minnesota. April and May were relatively dry across much of Minnesota, except for the Red River Valley where major flooding occurred in late March and continued through April (Minnesota Climatology Working Group 2009). April temperatures were near average and May temperatures were below historic averages in west-central and northern Minnesota and near average in the remainder of the state (Minnesota Climatology Working Group 2009). Although favorable weather generally contributes to increased harvest, the continued increase in harvest can be partially attributed to the increase in the number of permits available (i.e., 11% increase in the number of permits available and an 11% increase in registered harvest) from 2008 and 3 new permit areas open to hunting. Increased permits and permit areas resulted in more opportunities for hunters to harvest turkeys.

**2010 Spring Season**

In 2010, 77 permit areas (PAs) will be open to spring turkey hunting, an increase of 1 permit area from 2009. Available permits will increase to 44,976, an increase of 2,648 (6%) from the 2009 season.

**2008 Fall Season**

Minnesota's fall turkey hunting season is managed with a quota system similar to the spring turkey hunting season. Permits are allocated across 50 permit areas (PAs; Figure 3) during 2, 5-day time periods in PAs 157-467 and 1, 30-day time period in PA 601 (metropolitan Minneapolis/St. Paul).

Three types of permits were available to hunters: general lottery permits in which applicants or parties of up to 4 hunters applied for specific PA and time period, (2) landowner permits in which up to 20% of permits for each PA and time period were reserved for landowners or tenants who lived on 40 acres or more of land within the PA, and (3) surplus permits were offered in under-subscribed permit areas and time periods to hunters who applied in the lottery, but were unsuccessful. General lottery and landowner permits were made available based on a system of preference, which was determined by the number of years applicants submitted a valid, but unsuccessful application since last receiving a permit. If available, surplus permits could be purchased on a first-come, first-served basis. Permit holders were allowed to harvest 1 turkey of either sex during the fall season.

Fall turkey hunting opportunity was increased significantly during 2008 with the addition of 3,070 available permits (68% increase from 2007) and 18 new permit areas. Almost 5,000 permits were issued in 2008, a 76% increase from 2007 (Table 2, Figure 4). Hunters registered 1,187 turkeys, a 71% increase from 2007 (Table 2, Figure 4). Hunter success averaged 24%, similar to the 5-year average (Table 2). Hunter success varied among PAs from 0% in PA 459 to 47% in PA 440. The majority of permits issued were general lottery (77%), followed by surplus (20%), and landowner permits (3%).

In response to wild turkey range expansion, the number of PAs open to fall turkey hunting was increased from 33 in 2007 to 50 in 2008. In response to an increasing number of urban/nuisance complaints in the metropolitan area, PAs 228 and 337 were consolidated to PA 601, and 1,000 permits were offered during a 30-day season. . The addition of 800 permits in PA 601 plus 18 new PAs accounted for 55% of the additional permits available in 2008 and 45% of the registered harvest. Expanded permit allocation in traditional PAs accounted for the remainder of the increase in the number of hunters and registered harvest.

**2009 Fall Season**

In 2009, 67 PAs will be open to fall turkey hunting an increase of 17 PAs from 2008. Available permits will increase to 9,330 an increase of 1,770 (23%) from the 2008 season**.**

**RESEARCH**

**Wild turkey food habits on the fringe of their range in Minnesota.**

The purpose of this study was to compare diet selection and body condition of eastern wild turkeys in agricultural versus forested areas on the northern fringe of their range in Minnesota. During winter 2009, 7 turkeys were collected in forested habitat and 24 in agricultural habitats. Adult females in forested habitats had 32% less body weight, 72% less total body fat, and were assigned to lower body condition classes than adult females from agricultural habitats. Forested turkeys' diets consisted of a mixture of high energy (acorns) and low energy (grass, smooth rose, leaf litter) food items, while diets of turkeys located in agricultural habitats consisted primarily of high energy (corn) food items. This study will be continued for 1 more field season.

A full report (Dunton et al. 2009) is available online in the Minnesota Department of Natural Resources Summaries of Wildlife Research Findings 2008:

http://www.dnr.state.mn.us/publications/wildlife/research2008.html

**Fall Wild Turkey Population Survey, 2008**

Changes in distribution and abundance of wild turkeys in Minnesota are monitored using a mail survey of white-tailed deer hunters in the state's wild turkey range and potential range. The survey is

scheduled once every 2 years and consists of asking randomly selected deer hunters where they hunted (permit area [PA]), if they saw wild turkeys while hunting, and the approximate location (miles and direction from nearest town) of turkey sightings. The purpose of the survey is to calculate a wild turkey population index based on the proportion of deer hunters observing wild turkeys (HOWT) in 16 turkey management units (TMU) and their subset PAs, describe relative changes (increase, decrease, none) in the HOWT index compared to previous surveys, describe changes in wild turkey distribution, and estimate the average finite rate of population change over the last 4 surveys.

The overall response rate was 44.0%, which was lower than the expected response rate (60%) used in sample-size calculations. The response rate decreased from 30.9% in mailing 1 to 19.2% in mailing 2. The percentage of hunters that reported seeing turkeys was independent of mailing ($\chi^2_2$ = 0.586, $P$ = 0.44), which indicated that non-response bias was negligible (at least at the range-wide scale).

Compared to 2006, the HOWT index increased in 6 TMUs (E, F, H, J, L, and N) and was unchanged (CI included zero) in 10 TMUs (Figure 5). However, the desired level of precision (±7%) was achieved in only 20% of the TMUs with "no change." Thus, conclusions about "no change" at the TMU scale should be viewed cautiously. Ninety-seven PAs (92%) had comparable data for estimating change in HOWT from the 2006 survey. The HOWT index increased in 22 PAs whereas the CIs for the remaining 75 PAs included zero (indicating no meaningful change or the change was undetectable due to poor precision). Most estimates at the PA scale were imprecise, e.g., only 3 PAs achieved the desired level of precision. This lack of precision primarily reflected small sample sizes.

Four TMUs (D, E, G, and M) exhibited a positive annual rate of population change during 1999-2008 (Figure 6). No negative trends were detected, but 11 TMUs had CI's that included $\lambda = 1$ with levels of precision > 0.07. Thus, estimates of $\lambda$ were generally imprecise and conclusions about "no change" at the TMU scale should be interpreted cautiously. Eighty-seven PAs had comparable data for estimating $\lambda$. Based on the 95% CI of $\lambda$, 2% of PAs exhibited a negative rate of change, 31% exhibited positive rates of change, and 67% PAs had CIs that included $\lambda = 1$ (no change). However, most estimates of change were imprecise. Likewise, only 26% of the PAs with "no change" achieved the desired precision. Thus, estimates of "no change" should be viewed cautiously at both the TMU and PA scale. A comparison of the distribution of turkeys sighted by deer hunters during fall 2006 versus 2008 (Figure 7) suggests that wild turkey range continues to expand northward in Minnesota.

Although we were not able to precisely detect changes in population indices, our data suggest that turkey populations increased since 2006 in TMUs E, F, H, J, L, and N (Figure 1). Population trend data based on the 4 most recent surveys (1999 – 2008) indicate a positive population trend (i.e., the 95% confidence interval [$\lambda$] > 1) in TMUs D, E, G, and M (Figure 2). Turkey populations in the northern portions of TMUs E, J, and N were recently established and are believed to be reproducing and expanding northward. In southeastern Minnesota, population indices and finite rates of change are relatively stable ($\lambda = 1$). Turkey populations in these areas are well established, with population indices probably reflecting random fluctuations around a relatively stable long-term mean.

Population indices from this survey are used to predict future population levels, allocate turkey-hunting permits, and provide information to make management decisions (Kimmel 2000). However, estimating HOWT at the PA level is not reliable and increasing sample size to achieve the desired precision is not economically feasible. Options for dealing with uncertainty at the PA scale include managing at a broader scale (e.g., TMU) or using alternative techniques to interpret data (e.g., small-area estimation) at the PA level.

**Trap and Transplant**

Twenty-five turkeys were trapped in Wisconsin by National Wild Turkey Federation Regional Biologist Dave Neu during the 2009 winter and released in Polk County, Minnesota. This release supplemented a 2008 release at the same location. The wild turkey trap and translocation program has been suspended and turkey populations will be monitored for natural expansion using the 2008 and 2010 fall wild turkey population surveys. Over the past 4 decades more than 5,200 turkeys have been trapped and relocated to 292 sites in Minnesota (Figure 8).

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Kimmel, R. O. 2000. Regulating spring wild turkey hunting based on population and hunting quality. National wild Turkey Symposium 8:243-250.

Minnesota Climatology Working Group. 2009. Climate journal. http://climate.umn.edu/ Accessed 30 June 2009.

Table 1. Spring applicants, permits available and issued, and registered harvest from 1978 – 2009 for all spring wild turkey hunting seasons, Minnesota.

| | | Permits | | | | |
|---|---|---|---|---|---|---|
| Year | Applicants | Available | Issued | Issued (%) | Registered harvest | Success (%)[a] |
| 1978 | 10,740 | 420 | 411 | 98 | 94 | 23 |
| 1979 | 11,116 | 840 | 827 | 99 | 116 | 14 |
| 1980 | 9,613 | 1,200 | 1,191 | 99 | 98 | 8 |
| 1981 | 8,398 | 1,500 | 1,437 | 96 | 113 | 8 |
| 1982 | 7,223 | 2,000 | 1,992 | 99 | 106 | 5 |
| 1983 | 8,153 | 2,100 | 2,079 | 99 | 116 | 6 |
| 1984 | 7,123 | 3,000 | 2,837 | 95 | 178 | 6 |
| 1985 | 5,662 | 2,750 | 2,449 | 89 | 323 | 13 |
| 1986 | 5,715 | 2,500 | 2,251 | 90 | 333 | 15 |
| 1987 | 6,361 | 2,700 | 2,520 | 93 | 520 | 21 |
| 1988 | 8,402 | 3,000 | 2,994 | 99 | 674 | 23 |
| 1989 | 13,007 | 4,000 | 3,821 | 96 | 930 | 24 |
| 1990 | 14,326 | 6,600 | 6,126 | 93 | 1,709 | 28 |
| 1991 | 15,918 | 9,170 | 8,607 | 94 | 1,724 | 20 |
| 1992 | 16,401 | 9,310 | 9,051 | 97 | 1,691 | 19 |
| 1993 | 17,800 | 9,625 | 9,265 | 96 | 2,082 | 23 |
| 1994 | 19,853 | 9,940 | 9,479 | 95 | 1,975 | 21 |
| 1995 | 21,345 | 9,975 | 9,550 | 96 | 2,339 | 25 |
| 1996 | 23,757 | 12,131 | 10,983 | 91 | 2,841 | 26 |
| 1997 | 25,958 | 12,530 | 11,610 | 93 | 3,302 | 28 |
| 1998 | 29,727 | 14,035 | 13,229 | 94 | 4,361 | 33 |
| 1999 | 39,957 | 18,360 | 16,387 | 89 | 5,132 | 31 |
| 2000 | 42,022 | 20,160 | 18,661 | 93 | 6,154 | 33 |
| 2001 | 41,048 | 22,936 | 21,404 | 93 | 6,383 | 30 |
| 2002 | 42,415 | 24,136 | 22,607 | 94 | 6,516 | 29 |
| 2003 | 44,415 | 25,016 | 22,770 | 91 | 7,666 | 34 |
| 2004 | 48,059 | 27,600 | 25,261 | 92 | 8,434 | 33 |
| 2005 | 49,181 | 31,748 | 27,638 | 87 | 7,800 | 28 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2006 | 45,704 | 32,624 | 27,876 | 85 | 8,241 | 30 |
| 2007[b] | 52,566 | 33,976 | 28,320 | 83 | 9,412 | 33 |
| 2008[b] | 51,000 | 37,992 | 31,942 | 84 | 10,994 | 34 |
| 2009[b] | 57,692 | 42,328 | 36,193[c] | 85 | 12,210 | 34 |

[a] Success rates not adjusted for non-participation
[b] Youth hunt data included
[c] 4,483 permits were issued to archery hunters and are not included in this figure.

Table 2. Permits available, applicants, permits issued, registered harvest, and hunter success rates for fall turkey hunting seasons 1990 – 2008, Minnesota.

| Year | Permits available | Applicants | Permits issued | Registered harvest | Hunter success (%)[a] |
|---|---|---|---|---|---|
| 1990 | 1000 | 4522 | 951 | 326 | 34 |
| 1991 | 2200 | 2990 | 2020 | 552 | 27 |
| 1992 | 2200 | 2782 | 2028 | 588 | 29 |
| 1993 | 2400 | 3186 | 2094 | 605 | 29 |
| 1994 | 2500 | 3124 | 2106 | 601 | 29 |
| 1995 | 2500 | 3685 | 2125 | 648 | 30 |
| 1996 | 2500 | 4453 | 2289 | 685 | 30 |
| 1997 | 2580 | 4574 | 2378 | 698 | 29 |
| 1998 | 2710 | 4526 | 2483 | 828 | 33 |
| 1999 | 2890 | 5354 | 2644 | 865 | 33 |
| 2000 | 3090 | 5263 | 2484 | 735 | 30 |
| 2001 | 2870 | 4501 | 2262 | 629 | 28 |
| 2002 | 3790 | 5180 | 2945 | 594 | 20 |
| 2003 | 3870 | 5264 | 2977 | 889 | 30 |
| 2004 | 4380 | 5878 | 3277 | 758 | 23 |
| 2005 | 4410 | 4542 | 2978 | 681 | 23 |
| 2006 | 4290 | 4167 | 2802 | 618 | 22 |
| 2007 | 4490 | 4464 | 2837 | 695 | 24 |
| 2008 | 7560 | 5834 | 4981 | 1187 | 24 |

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

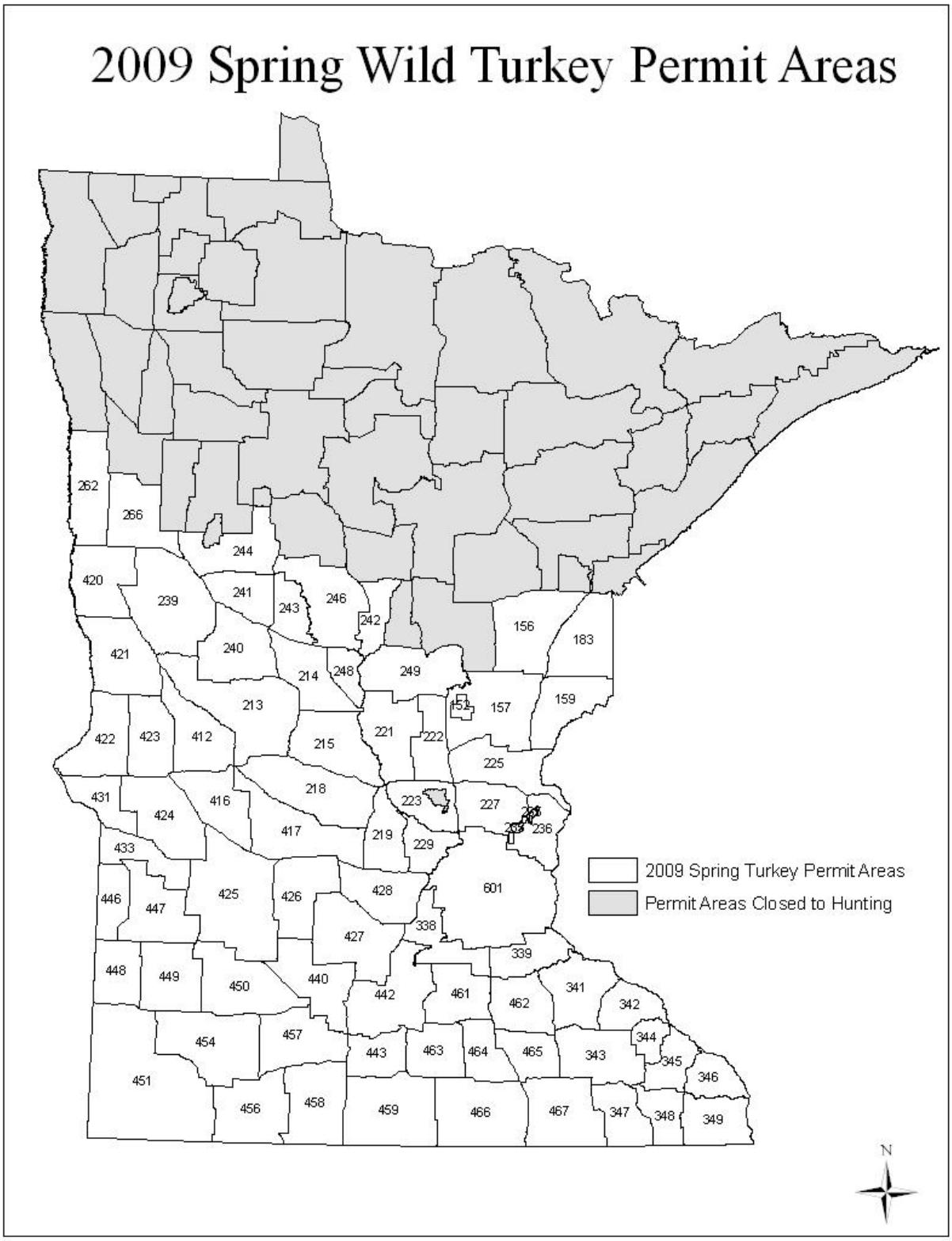



Fig. 1. Permit areas open for hunting during the 2009 spring turkey hunting season, Minnesota.

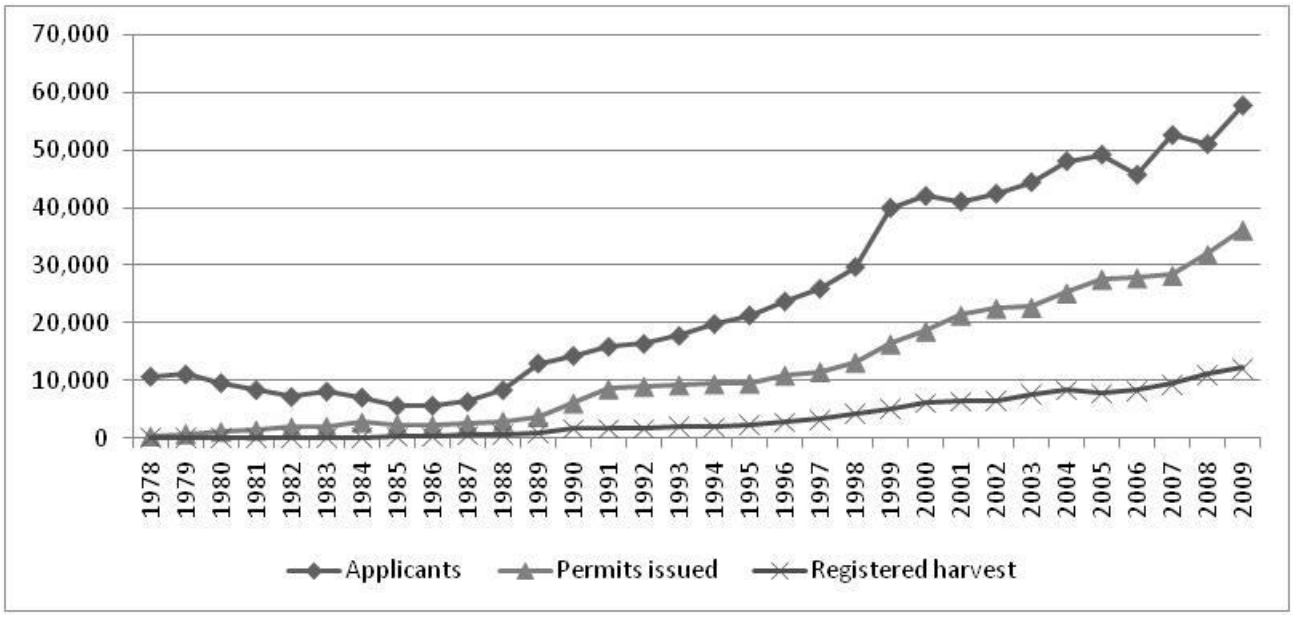



Fig. 2. Applicants, permits issued, and registered harvest for the spring wild turkey seasons 1978-2009, Minnesota.

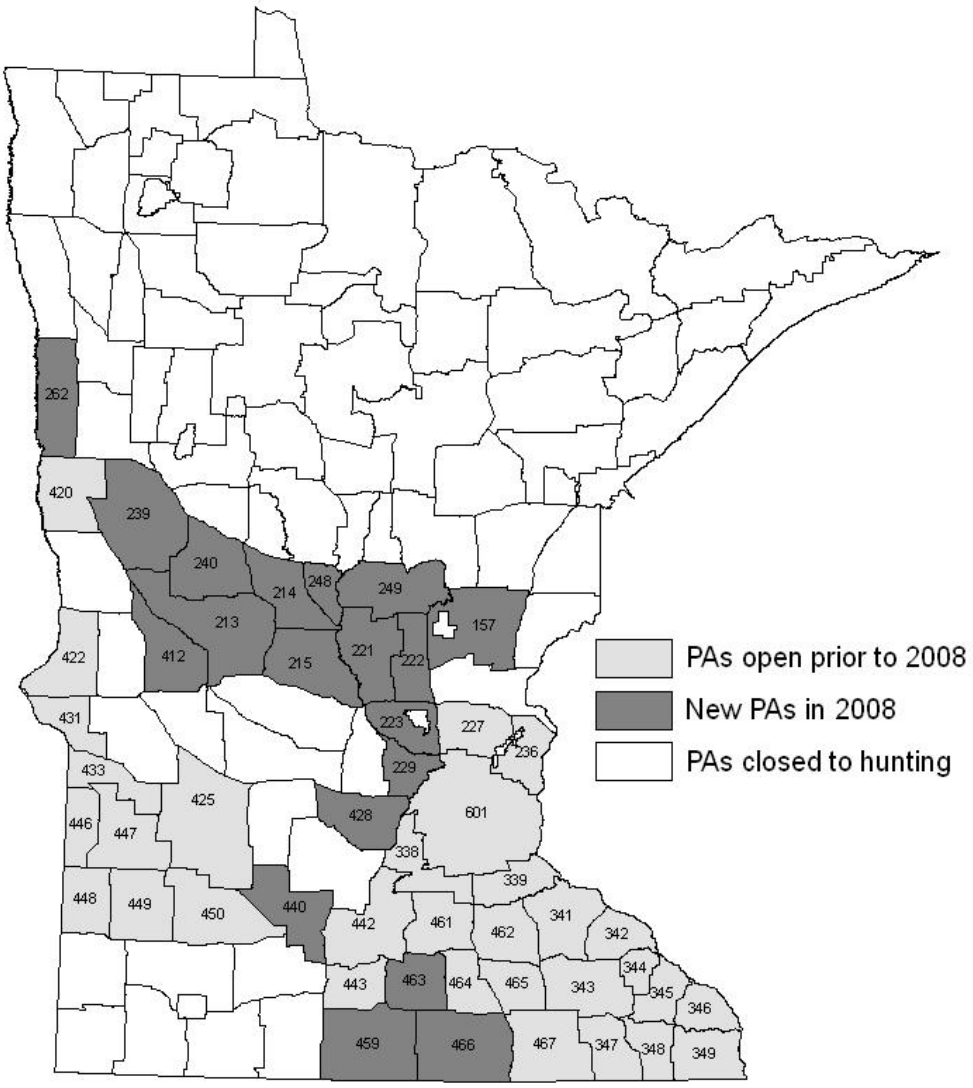



Fig. 3. Permit areas (PAs) open to hunting for the 2008 fall turkey hunting season, Minnesota.

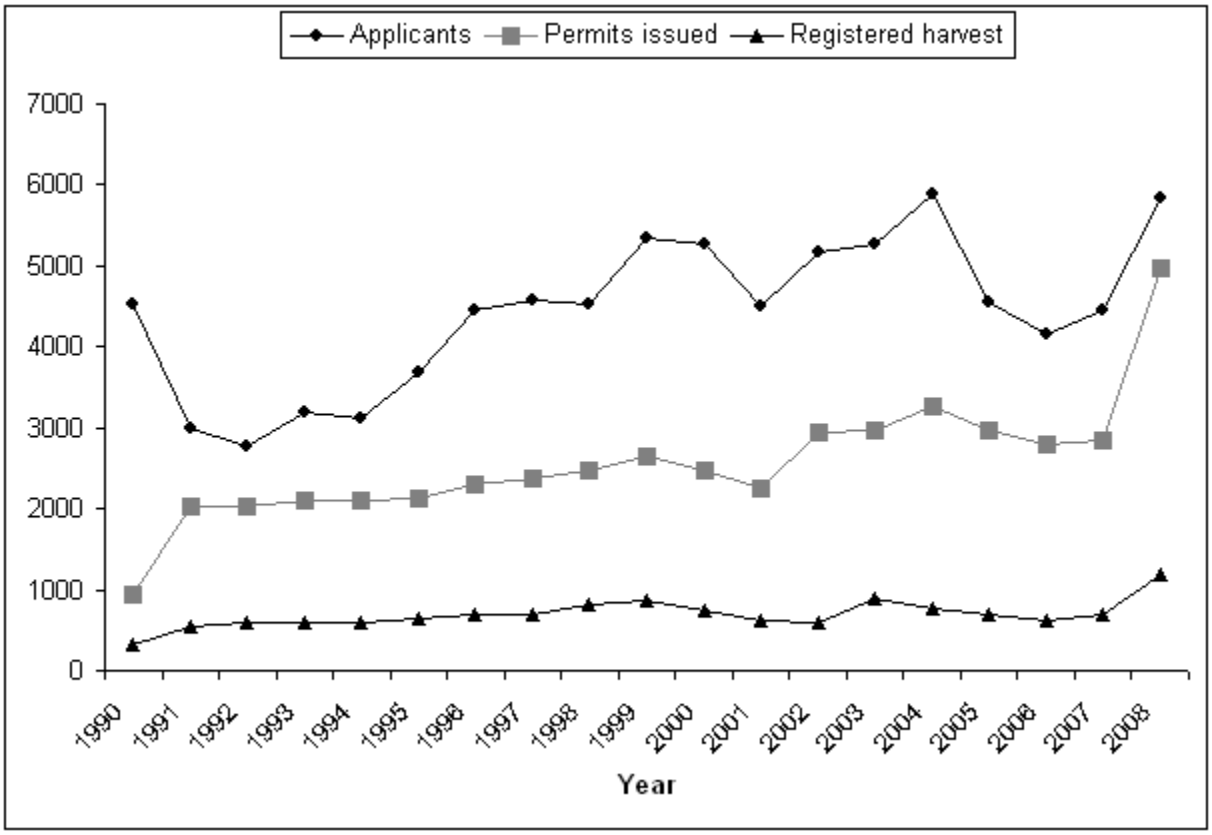



Fig. 4. Applicants, permits issued, and registered harvest for fall turkey seasons 1990 -2008, Minnesota.

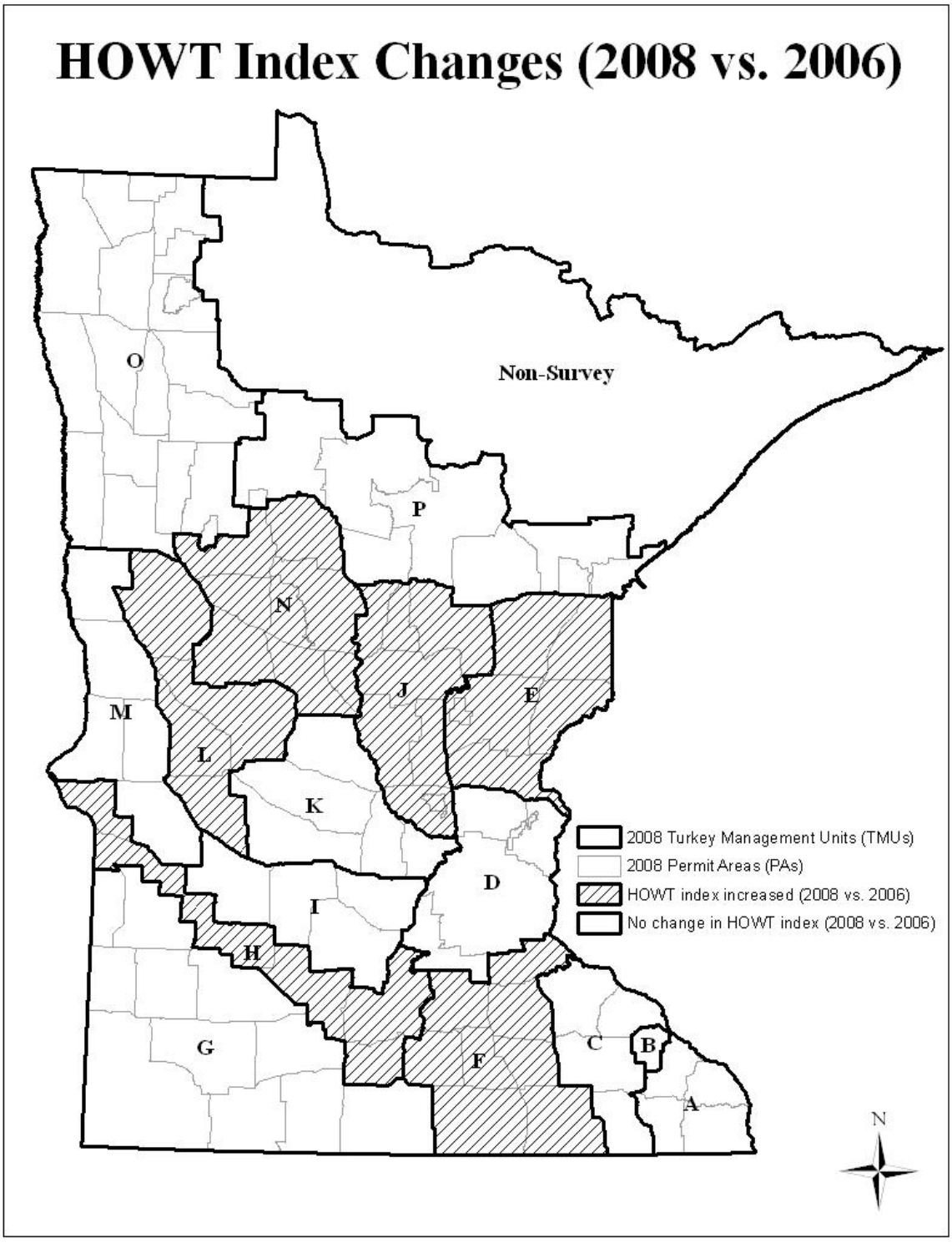



Fig. 5. Estimated changes in the wild turkey population index (HOWT) by Turkey Management Unit (TMU). Shaded regions show TMUs where HOWT increased between the 2006 and 2008 fall wild-turkey

population survey. Non-shaded TMUs had no change in HOWT or the desired level of precision was inadequate to detect change.

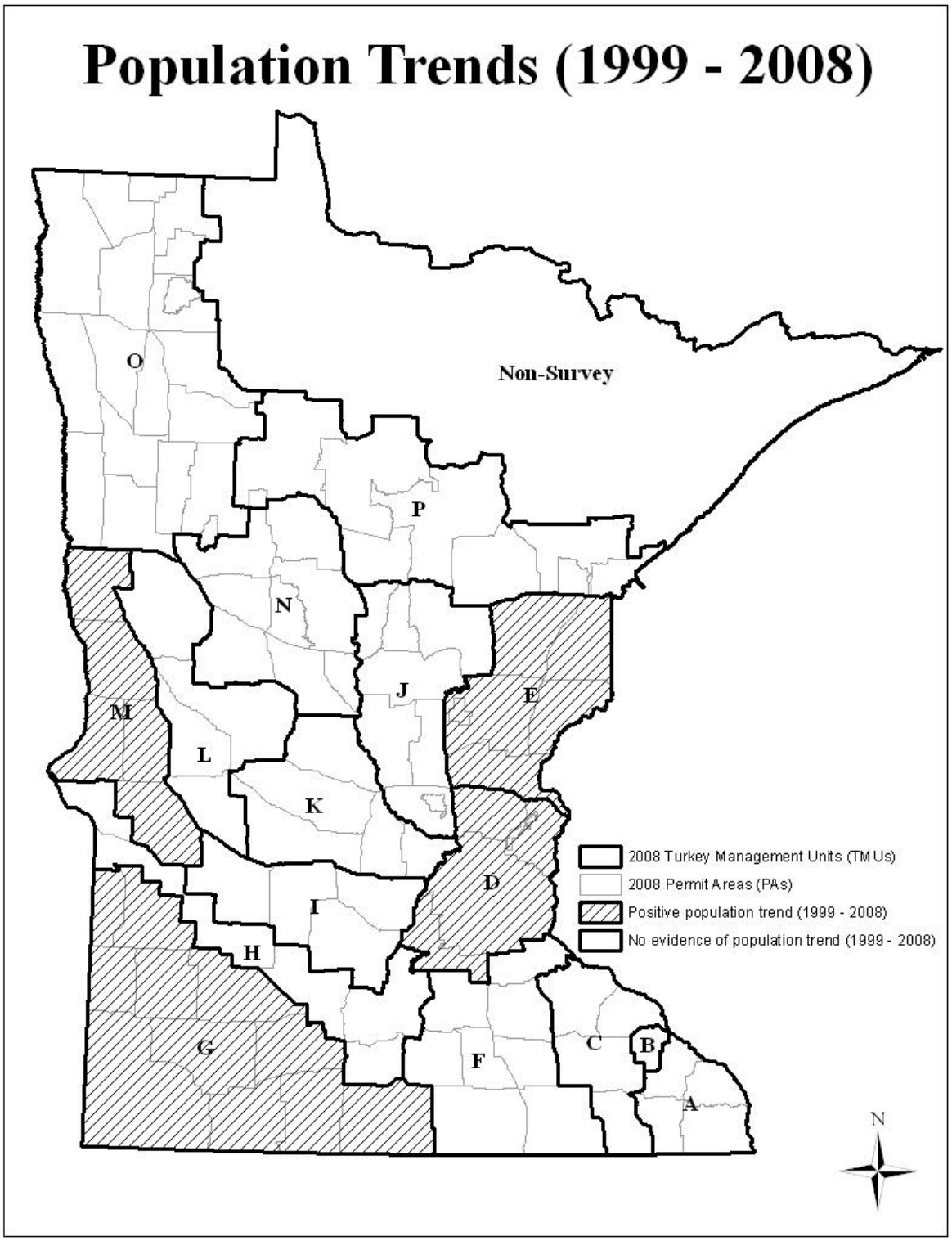


Fig. 6. Estimated population trends for wild turkeys in Minnesota, by Turkey Management Unit (TMU). Shaded TMUs had positive population trends during 1999 – 2008 (i.e., the 95% confidence interval [ λ] > 1). Non-shaded TMUs had no evidence of a population trend (linear increase or decrease).

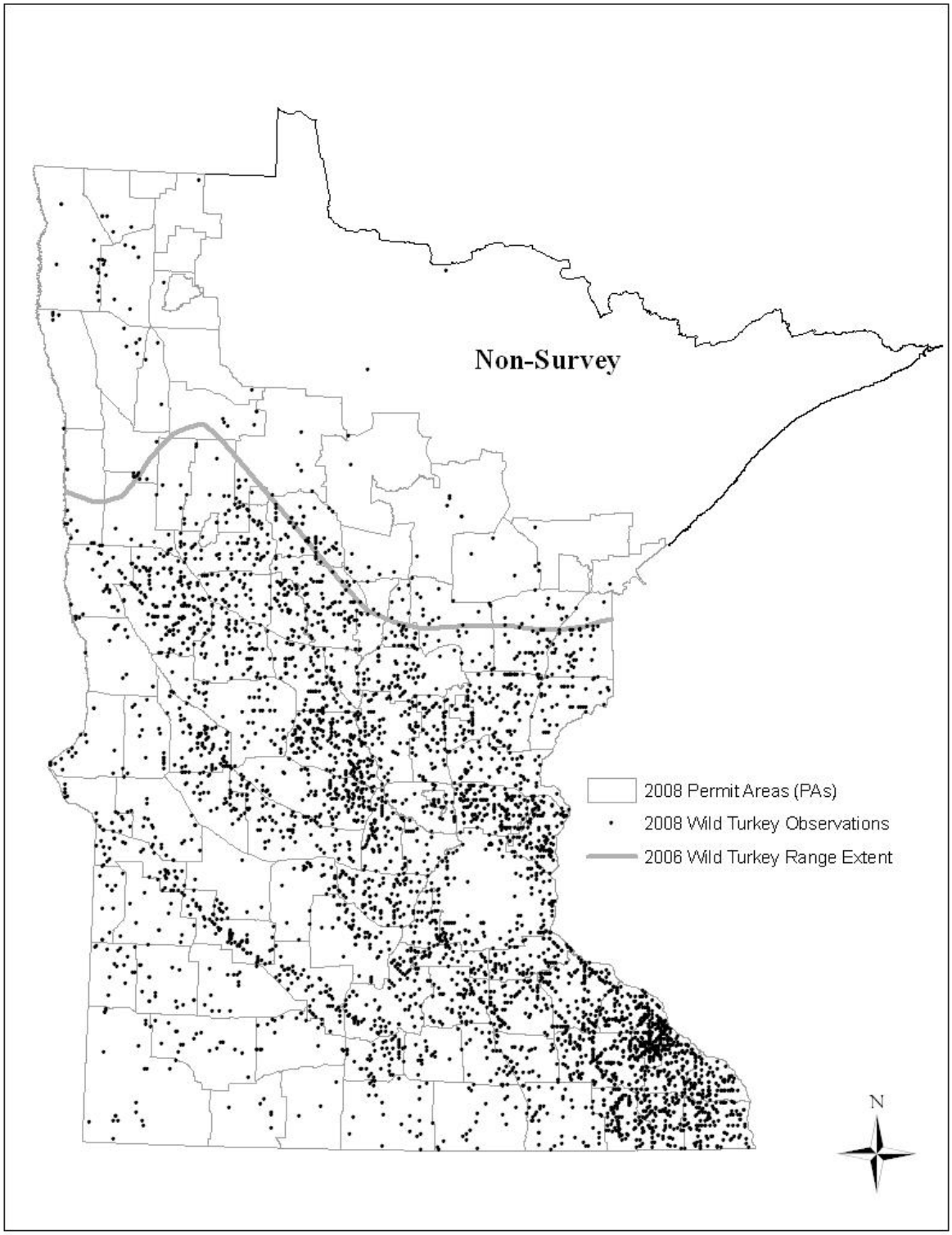


Fig. 7. Distribution of wild turkeys based on observations by deer hunters in Minnesota, fall 2008. The solid gray line indicates turkey range extent based on turkey distribution data from the 2006 survey.

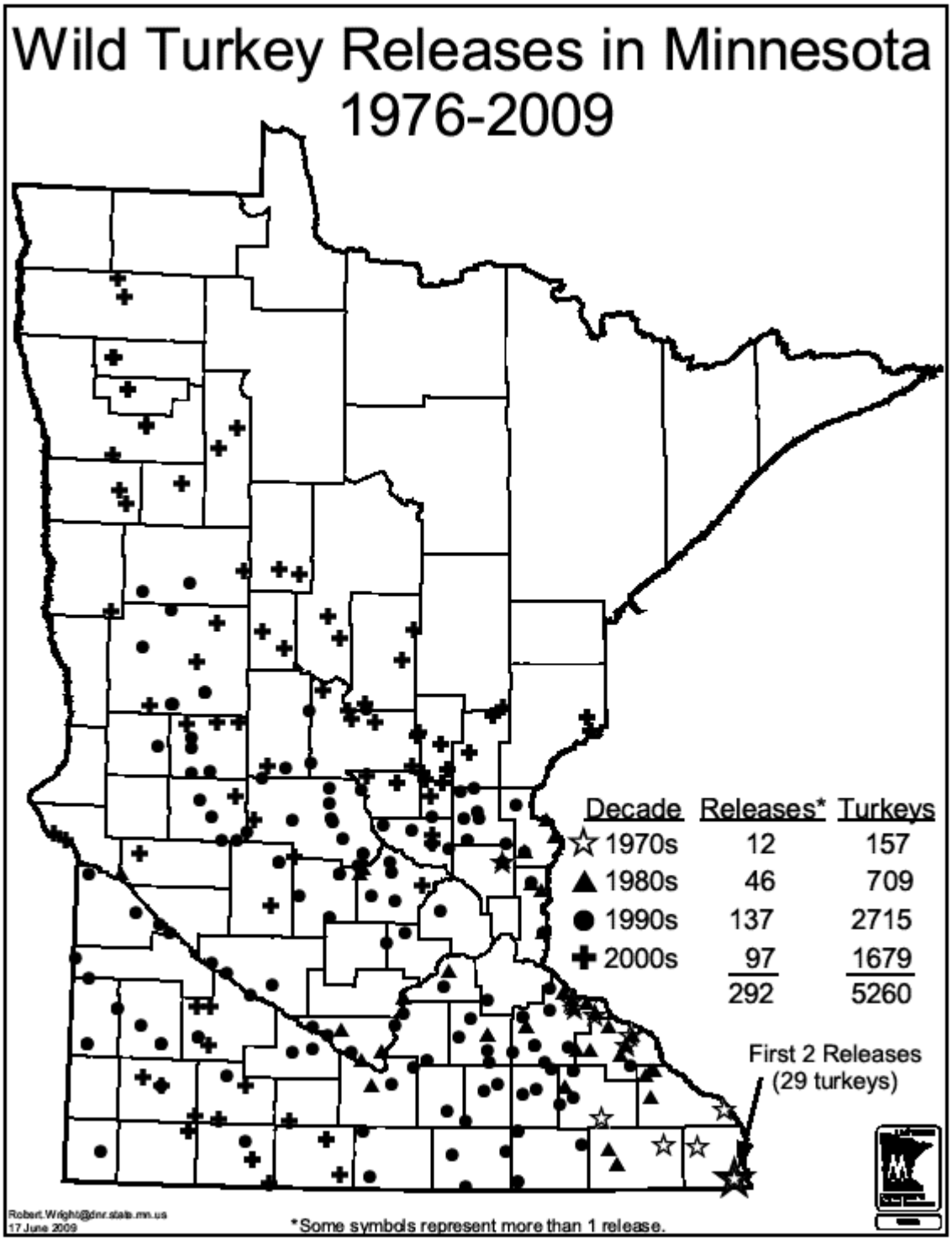



Fig. 8. Locations of wild turkey releases by decade in Minnesota, 1976 – 2009.

# MISSOURI WILD TURKEY STATUS REPORT

**Prepared for Midwest Wild Turkey Study Group**
**August 2009**

**Thomas V. Dailey, Ph.D.**
**Missouri Department of Conservation**
**Resource Science Division**

## POPULATION

Based on the assumption that we harvest 15% of the population, Missouri's spring 2009 harvest of 44,713 turkeys translates to a population estimate in early April of 298,087 birds.

## REPRODUCTION

Based on data gathered by hundreds of volunteers and MDC staff, the predicted production for summer 2009 is 1 poult per hen, the same as the record low indexes recorded the past 2 years. Missouri's poult/hen index does not include groups of birds with >2 hens.

## RESTORATION

None.

## SEASONS

## FALL

Fall turkey hunting regulations have not changed for several years:

- Shotgun Season: 1-31 October with shooting hours of ½ hour before sunrise to sunset
- All counties except Dunklin, McDonald, Mississippi, New Madrid, Newton, Pemiscot & Scott
- Archery Season: 15 September—13 November & 25 November—15 January with shooting hours of ½ hour before sunrise to ½ hour after sunset
- Season limit: Two birds of either sex; both can be harvested on same day
- Mandatory harvest registration via telephone or internet
- October firearms permit cost is $13 with youth age 6-15 receiving a 50% discount
- Youth Deer/Turkey permit purchased last spring can also be used, but limit is one turkey
- Non-resident fall turkey permit increased from $105 to $110

## SPRING

Spring turkey hunting regulations have not changed for several years:

- The regular 3-week season opens the 3rd Monday in April
- The youth weekend opens 9 days before the regular season except when Easter falls on that weekend; in that case the youth season opens the weekend before Easter weekend

- Hunting hours are ½ hour before sunrise to 1:00 p.m. for the regular season and hunting is allowed until sunset for the youth weekend
- Season limit: Two male turkeys or turkeys with visible beard provided that only one may be taken the first week and only one per day
- Mandatory harvest registration via telephone or internet
- Spring permit cost is $19, with youth age 6-15 receiving a 50% discount.

## HARVEST

## FALL SEASON

Fall turkey hunting participation typically tracks summer poult production, so with a second straight year of near record low poult production in 2008 (1 poult per hen), we expected relatively light hunting. The fall 2008 harvest of 7,391 turkeys by 17,532 permit holders (267 of which were nonresidents) continues the recent downward trend in fall hunting (Figure 1). It appears that Missouri fall turkey hunting has been reduced to a core group of hunters. Although firearms hunting has declined, archery harvest remains vigorous with archers killing 2,484 turkeys, 16.8% above the average for the previous 10 years.

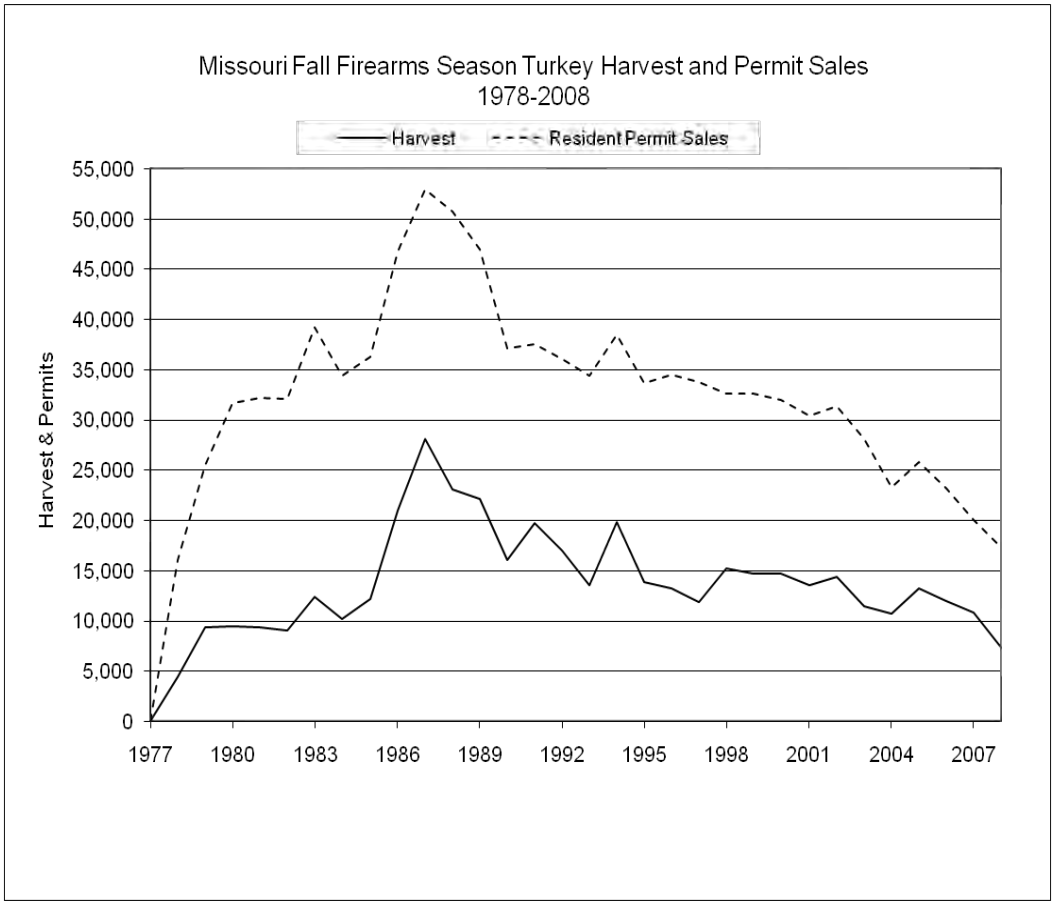



Figure 1. Estimate of Missouri fall firearms turkey harvest and permits sold from 1978 to 2008. Note that significant change in regulations influence the trends in harvest and permit sales, including: (1) In 1986 the bag limit was increased from 1 to 2 birds; (2) Permit cost increased in 1990; (3) New 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 to 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; and (4) In 2005, fall turkey regulations were liberalized to allow hunters to take both fall birds on the same day and season length was increased from 14 to 31 days.

## SPRING SEASON

An estimated 151,475 spring turkey hunters killed 44,713 turkeys, including 2,883 during youth weekend and 41,830 during the regular 3-week season. Regional harvest totals were: Central, 6,311; Southwest, 6,129; Northwest, 5,820; Ozarks, 5,671; Northeast, 5,472; Kansas City, 4,801; Southeast, 4,197; and St. Louis, 3,430. The record spring turkey harvest, including the youth and regular seasons, occurred in 2004, when hunters checked 60,744 turkeys.
The percentage of juvenile male turkeys in the 2009 harvest was 22%, close to the average of the past 10 years.

Missouri's total turkey harvest from September 15, 2008 through the spring 2009 season was 54,588, down 2.9% from the previous year, and well below the 70,000 plus killed in previous years.

## RESEARCH

We continue to sample spring and fall turkey hunters' opinions and hunting activity using post-season mail surveys. As turkey populations continue to decline, hunters are becoming more dissatisfied. Although the majority of survey respondents still favor a change in the spring season to all-day hunting, the positive responses have diminished markedly along with reduced turkey abundance.

In spring 2009 we conducted the 3rd year of a 5-year study of gobbling behavior. Data collectors are almost exclusively volunteers and they enter their own data in an internet program. The number of volunteers has dropped from 433 in 2007 to 222 in 2009, and along with other data issues, this has greatly weakened the statistical validity of the data. Various approaches have been used to recruit and keep volunteers, including an annual prize drawing (shotgun or lifetime hunting/fishing permit), and communication in blogs, email, meetings, department magazine, NWTF state newsletter, and news releases. Preliminary data analysis shows our opening days of turkey hunting (April 16, 2007; April 21, 2008; April 20, 2009) are catching gobblers after the peak in gobbling, which on average occurs in mid-April (study week 5)(Figure 2).

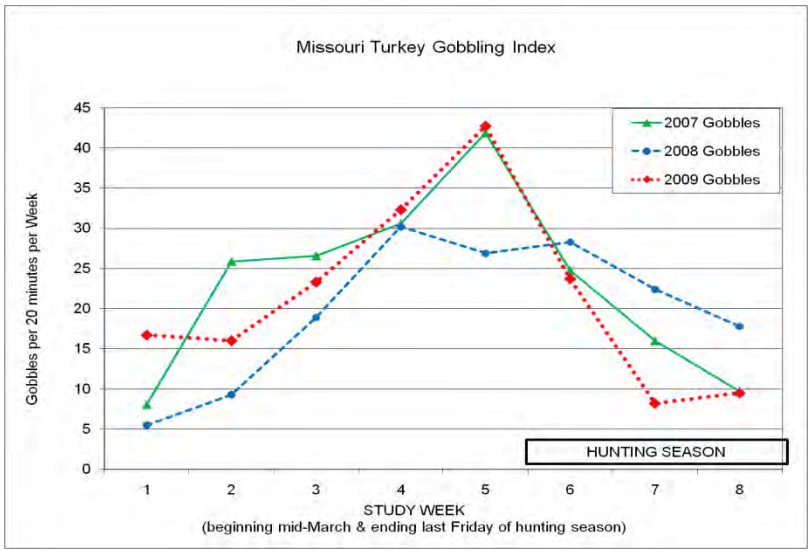



Figure 2. Average number of gobbles heard per 20-minute observation per week.

## HUNTING ACCIDENTS

During the spring 2009 season 4 firearms-related turkey hunting incidents were reported. One was fatal and involved a 56-year-old man pulling a loaded shotgun from his vehicle by the barrel. He was struck in the chest when the trigger caught on an object, causing the gun to discharge. The other three incidents involved shooters who either mistook victims for game or fired at movement.

## REGULATION CHANGES

Wild turkey hunting regulation recommendations are not yet available for the 2010 seasons, but changes are not anticipated.

# NEBRASKA STATUS REPORT

# MIDWEST DEER AND TURKEY GROUP

## Rock Springs 4H Camp (Junction City), Kansas
## Sept. 13 – 16, 2009

Submitted by the State of Nebraska
Nebraska Game and Parks Commission - Wildlife Division
Research, Analysis and Inventory Section
Big Game Program Manager: Kit Hams

### *Collection and Analysis of Turkey Harvest Data - 2008*

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

# Job E2: Collection and Analysis of Turkey Harvest Data **(K. Hams)**

## 2008 Spring Turkey Harvest

*Objective:* Estimate total harvest, success, effort, distribution of kill, sex and age composition and hunter opinion on the spring turkey season.

*Activity:* Within 1 month of the season's close, send an email survey to those hunters who provide a valid email address when buying Spring turkey permits. Within two weeks of the 1st mailing, send a 2nd mailing to nonrespondents. Season dates for 2008 were March 25 - May 18 for Statewide Archery; April 12 - May 18 for Shotgun; April 5 – May 18 for Youth Shotgun.

*Significant deviations:* None.

*Results:* The spring 2008 harvest was estimated from 15,081 email surveys sent to turkey hunters who provided an email address. 13,374 were deliverable (89%) and resulted in responses from 5,767 hunters who reported buying 8,041 permits.

Hunter response rate was 41%.

**Table 1. Mail survey: mailings, returns and success.**

| Unit | Permits Sold | Mailings | Permits Reported | | Reported Harvest | Estimated Harvest | Harvest Success | Mean Days Hunted |
|---|---|---|---|---|---|---|---|---|
| | | | No. | % | | | | |
| Youth | 2,480 | | 430 | 17 | 3,888* | 1,548 | 62% | |
| Shotgun | 24,650 | | 5,800 | 24 | 3,888* | 15,383 | 62% | |
| Archery | 6,792 | | 1,811 | 27 | 770 | 2,888 | 43% | |
| Total | 33,922 | 13,374 | 8,041 | 24 | 4658 | 19,819 | 58% | 5.4 |

* Shotgun and youth harvest combined

A total of 33,922 spring turkey permits was issued with an estimated harvest of 19,819 turkeys. Youth and Shotgun hunter success was estimated at 58%, with 15,383 turkeys taken on 24,650 shotgun permits and 1,548 turkeys taken on 2,480 youth permits. Archery success was estimated at 43%, with 2,888 birds taken on 6,792 archery permits. Youth and shotgun data was combined when calculating success. Two percent of permit buyers did not hunt.

Permit sales and harvest are at all time record highs and reflect the continued growth in the statewide turkey population over the past 6 years (Table 2).

**Table 2. Spring Turkey Archery and Shotgun Success, 2002-2008.**

| | | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|
| Archery | Permits | 3,641 | 4,100 | 4,759 | 5,349 | 5,902 | 6,830 | 6,792 |
| | Harvest | 1,104 | 1,483 | 1,837 | 2,340 | 2,424 | 2,601 | 2,888 |
| | % Success | 30 | 36 | 39 | 44 | 41 | 38 | 43 |
| | | | | | | | | |
| Shotgun | Permits | 18,859 | 19,678 | 22,891 | 21,707 | 22,716 | 25,432 | 24,650 |
| | Harvest | 7,998 | 8,627 | 11,021 | 11,641 | 12,636 | 14,270 | 15,333 |
| | % Success | 42 | 46 | 48 | 54 | 56 | 56 | 62 |
| | | | | | | | | |
| Youth | Permits | 0 | 0 | 0 | 1,525 | 1,394 | 1,490 | 2,480 |
| | Harvest | | | | 801 | 750 | 1,130 | 1,548 |
| | % Success | | | | 53 | 54 | 76 | 62 |

Hunters were asked on the survey card to if they harvested a juvenile or adult male. Reported ages were 19% juvenile in 2008 (jakes hatched in 2007). The proportion of juveniles harvested in the previous ten years has ranged from 19% to 45% and is reported in Table 3.

**Table 3. Percent juvenile toms in the harvest, 1998-2007**

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|
| % Juvenile | 27 | 23 | 45 | 44 | 35 | 28 | 26 | 20 | 21 | 19 |

Harvest distribution by county is estimated from 4,919 county of kill locations.

Top ten counties in order of estimated kill were: Holt, Knox, Lincoln, Custer, Dawes, Boyd, Cherry, Sheridan, Frontier and Keya Paha. The top ten counties of the state in kill per mile were: Boyd, Pawnee, Knox, Washington, Johnson, Harlan, Douglas, Cass, Sarpy and Keya Paha. Kill density is shown in Table 4.

County harvest data was assigned to regions. Kill per 100 square miles ranges from 49 in the Verdigre to 12 in the Panhandle. Kill density is shown in Table 4.

**Table 4. Kill Density by County**

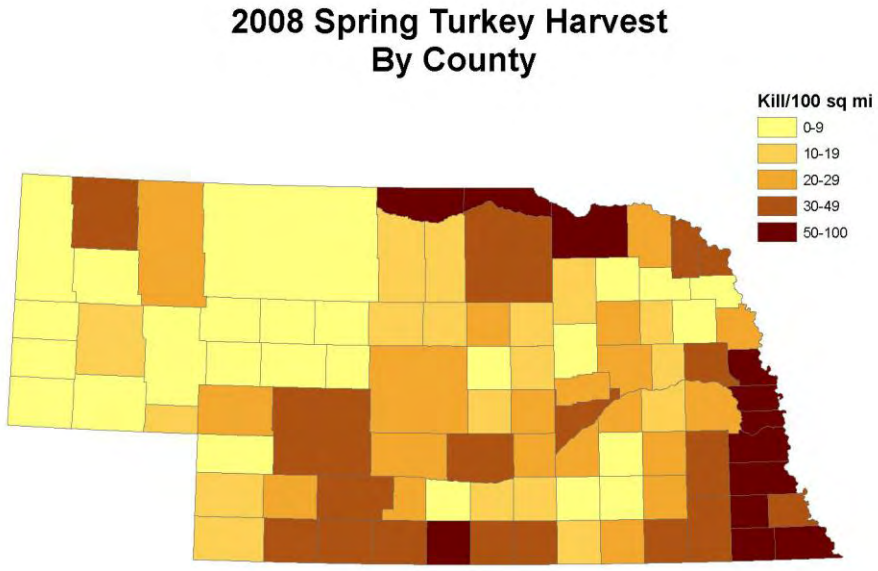



**Table 5. Estimated Turkey Harvest and Kill density by Region**

| UNITS | Square Miles | Reported Kill | Estimated Harvest | Approximate Kill per 100 sq. miles |
|---|---|---|---|---|
| Central | 10,696 | 514 | 1549 | 16 |
| East | 13,425 | 1,637 | 4934 | 37 |
| Niobrara | 8,964 | 408 | 1230 | 14 |
| Panhandle | 14,181 | 556 | 1676 | 12 |
| Southwest | 24,696 | 1,757 | 5296 | 21 |
| Verdigre | 4,918 | 792 | 2387 | 49 |

*Discussion:* The email survey of turkey hunters has been a very efficient tool for collecting and compiling harvest data. It has allowed us to triple the amount of data collected while putting forth half the effort and expense of the mail survey. Spring harvest figures for 2000-2008 concur with population inventory data from the Rural Mail Carrier Survey (Tables 6 and 7) and indicate that turkey populations in Nebraska are at record high levels. Harvest has tripled over the past 10 years, yet the turkey population could likely sustain significantly more hunting pressure over most of the state. RMCS suggests a quadrupling in the statewide population since year 2000.

**Table 6. Spring Harvest (2000 – 2008)**

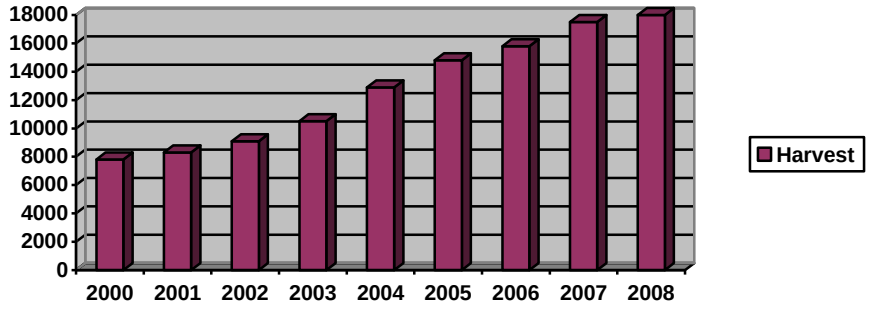
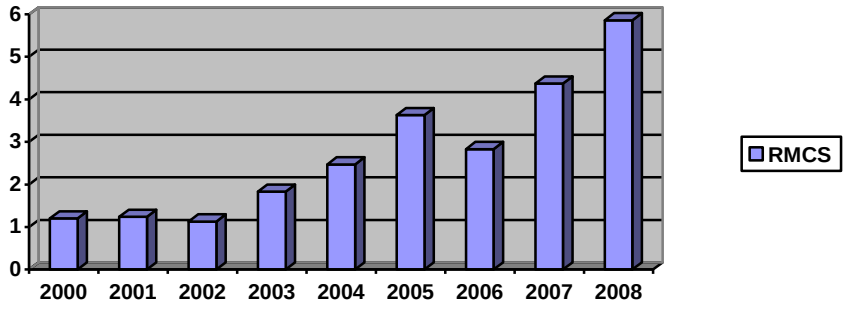



**Table 7. 2000 – 2008 Spring Rural Mail Carrier Survey (birds per 100 miles)**




*Recommendations:* Continue use of the email harvest survey.

## 2008 Fall Turkey Harvest

*Objective:* Estimate total harvest, hunter success, hunting effort, distribution of kill and the sex/age composition of the fall turkey harvest.

*Activity:* An email survey was sent to all fall turkey hunters with a valid address (43%). All duplicate email addresses were eliminated prior to the mailing. The mailing was sent in late March. One week after the 1st email, a reminder email was sent to all hunters. Harvest estimates were calculated for archers and shotgun hunters using the results of both mailings. A response was allowed from each turkey hunter at the email address. Respondents who had two permits were allowed to provide harvest data for both permits.

*Significant deviations:* None.

*Results:* The bag limit remained at two birds per permit as occurred for the first time in 2007. Permit sales decreased from 12,283 in 2007 to 11,335 in 2008. The shotgun season lasted 69 days, extending from Oct 11 – Dec. 31 and archery season was 83 days from Oct. 1 – Dec. 31. Both seasons were closed during the November firearm deer season (Nov. 15–23, 2008).

11,335 permits were issued. 87% were shotgun permits and 13% were archery permits.

Email surveys were sent to 4,880 addresses. Harvest was estimated from 1,753 responses, representing 2,211 permits. The response rate was 45%. Results are in Table 8.

**Table 8. Questionnaire mailings, returns and harvest estimate.**

| Unit | Permits | Surveys Mailed | Sample Rate | *Returns | | Successful | | Estimated Harvest |
|---|---|---|---|---|---|---|---|---|
| | | | | No. | % | No. | % | |
| Shotgun | 9,855 | | | 1,832 | | 1,531 | 84 | 8,236 |
| Archery | 1,480 | | | 379 | | 138 | 36 | 539 |
| Total | 11,335 | 5,141 | 45% | 2,211 | 43 | 1,669 | 75 | 8,775 |

*Some hunters reported on more than one permit.

A total of 11,335 fall turkey permits was issued with an estimated harvest of 8,775 turkeys. Shotgun success was estimated at 84% with 8,236 turkeys on 9,855 permits. Archery success was estimated at 36% with 539 turkeys taken on 1,480 permits. Permit sales decreased 8% and harvest decreased 7% in 2008. Permits and harvest are the 2nd highest on record. Fall harvest and permit sales for 2001-2008 is shown in Table 9.

**Table 9. Fall Turkey Archery and Shotgun Success**, 2001-2008.**

| Unit | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|
| Shotgun | Permits | 5,747 | 5,671 | 6,030 | 7,199 | 7,415 | 8,373 | 10,784 | 9,855 |
| | Harvest | 2,864 | 3,013 | 3,076 | 3,691 | 3,565 | 4,092 | 8,857 | 8,236 |
| | % Success | 50 | 53 | 51 | 51 | 48 | 49 | 82* | 84* |
| | | | | | | | | | |
| Archery | Permits | 824 | 911 | 1,041 | 1,125 | 1,022 | 1,269 | 1,499 | 1,480 |
| | Harvest | 203 | 229 | 229 | 255 | 251 | 334 | 572 | 539 |
| | % Success | 25 | 25 | 22 | 23 | 25 | 26 | 38* | 36* |

* Bonus tags inflate success.

Age and sex of turkeys were determined from information submitted by hunters on the survey. Hunters provided data on 1,636 turkeys. 30% were adult hens, 39% were adult male, 20% were juvenile male and 9% were juvenile female. The accuracy of hunters in determining the sex and age of harvested birds is questionable. Links were provided on the email survey so that hunters could look at feather and spur, sex identification characteristics.

Harvest distribution by unit as calculated from county of kill was tabulated and compared by season (Table 10).

**Table 10. Estimated Turkey Harvest and Kill density by Region by Season**

| UNITS | Square Miles | Reported Spring Kill | Reported Fall Kill | % of Spring Harvest by Unit | % of Fall Harvest by Unit |
|---|---|---|---|---|---|
| Central | 10,696 | 514 | 171 | 9% | 10% |
| East | 13,425 | 1,637 | 365 | 29% | 22% |
| Niobrara | 8,964 | 408 | 115 | 7% | 7% |
| Panhandle | 14,181 | 556 | 129 | 10% | 8% |
| Southwest | 24,696 | 1,757 | 691 | 31% | 42% |
| Verdigre | 4,918 | 792 | 165 | 14% | 10% |
| Statewide | | 5,664 | 1,636 | | |

*Discussion:* Fall harvest does not reflect turkey population size as there is limited hunter interest in the season. Approximately three Spring permits are issued for every Fall permit. Increasing turkey populations across much of the state provides unprecedented opportunity to the NGPC to liberalize seasons and increase harvest opportunities. The fall season will be open during the 9 day November firearm season in 2009. This should result in large increases in hunter participation and harvest of turkeys in the fall of 2009.

*Recommendations:* Use of the email survey should be continued. Conduct the fall survey in January.

## Table 11. Nebraska Turkey Season History (1980 – 2009)

| | Total | | Total | | Total | |
|---|---|---|---|---|---|---|
| | Spring | Fall | Spring | Fall | Nres Permits | |
| Year | Harvest | Harvest | Permits | Permits | SPR | Fall |
| **1980** | 1,153 | 2,167 | 3,477 | 3,607 | | |
| **1981** | 1,813 | 2,329 | 4,955 | 4,914 | | |
| **1982** | 1,763 | 2,381 | 5,707 | 5,188 | | |
| **1983** | 1,795 | 2,896 | 5,910 | 5,735 | | |
| **1984** | 1,752 | 3,011 | 6,217 | 5,761 | | |
| **1985** | 2,386 | 3,014 | 7,058 | 5,888 | | |
| **1986** | 2,528 | 2,964 | 7,431 | 5,923 | | |
| **1987** | 3,256 | 4,107 | 7,922 | 6,678 | | |
| **1988** | 4,215 | 4,619 | 9,058 | 7,926 | | |
| **1989** | 4,594 | 4,198 | 10,205 | 8,604 | | |
| **1990** | 4,231 | 3,718 | 11,594 | 7,069 | | |
| **1991** | 4,147 | 3,966 | 11,125 | 7,200 | | |
| **1992** | 4,698 | 3,028 | 12,079 | 6,934 | | |
| **1993** | 3,918 | 2,849 | 11,337 | 6,068 | | |
| **1994** | 4,269 | 3,028 | 11,552 | 6,094 | | |
| **1995** | 4,513 | 2,805 | 12,057 | 5,911 | | |
| **1996** | 4,823 | 2,668 | 13,439 | 5,783 | | |
| **1997** | 5,353 | 2,565 | 14,479 | 5,411 | | |
| **1998** | 6,160 | 2,724 | 15,759 | 5,906 | | |
| **1999** | 7,443 | 2,678 | 17,605 | 5,614 | | |
| **2000** | 7,812 | 2,502 | 19,430 | 6,338 | | |
| **2001** | 8,309 | 3,067 | 21,757 | 6,571 | 3,307 | 380 |
| **2002** | 9,102 | 3,242 | 22,500 | 6,582 | 3,573 | 381 |
| **2003** | 10,536 | 3,305 | 23,778 | 7,071 | 3,865 | 430 |
| **2004** | 12,858 | 3,946 | 27,650 | 8,324 | 4,747 | 511 |
| **2005** | 14,782 | 3,816 | 28,581 | 8,437 | 5,663 | 612 |
| **2006** | 17,531 | 4,426 | 30,012 | 9,642 | 6,368 | 541 |
| **2007** | 18,001 | 9,429 | 33,758 | 12,283 | 7,933 | 782 |
| **2008** | 19,819 | 8,775 | 34,099 | 11,335 | 8,712 | 797 |
| **2009** | 22,182 | | 35,293 | | 8,886 | |

# WILD TURKEY MANAGEMENT AND RESEARCH IN OHIO 2008-2009

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## HARVEST MANAGEMENT

### 2008 Fall Either-Sex Season

Hunters and Regulations.--Ohio held its 13th fall either-sex wild turkey season 11 October – 30 November 2008 in 46 counties. Since 2002, Ohio has had a 16-day fall shotgun season followed by a 28- to 35-day fall archery season; however, the use of shotguns was expanded for the entire 51-day fall turkey season in 2008. Nine new counties in northeastern Ohio were also opened to fall turkey hunting. Criteria applied to determine eligibility for fall either-sex wild turkey hunting included a spring turkey harvest ≥200 birds the past 2 years, ≥20% 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 all license vendors. 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 also 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.

Harvest and Hunting Pressure.-- A total of 2,139 birds, 76% more than in 2007, was harvested during the 2008 Ohio fall wild turkey season (Table 1). The increase in the fall turkey harvest can partly be attributed to increased hunting opportunity. An emergence of 17-year cicadas in portions of southern Ohio may have increased brood survival and resulted in higher harvests in some counties. Ashtabula County had the highest reported fall harvest (165 turkeys), followed by Adams (98), Harrison (85), Brown (81), and Coshocton (79) counties. The top 5 counties collectively accounted for nearly 24% of the 2008 fall turkey harvest.

Adult females (*n* = 691) comprised 36.4% of the harvest with a known age and sex, followed by juvenile females (*n* = 479, 25.2%), adult males (*n* = 421, 22.2%), and juvenile males (*n* = 309, 16.3%). The majority of turkeys were harvested on private land (55.5%) or the hunter's own land (34.4%). The fall turkey harvest was well distributed throughout the season with 15% of turkeys harvested during opening weekend and 21% harvested during the next full week of the season. Each of the remaining 6 weeks of the season accounted for 7-14% of the total harvest.

A total of 23,600 fall turkey permits were sold or issued free to hunters in 2008; a modest 4% increase over 2007 sales (Table 1). A turkey hunter survey was mailed in 2009 to estimate fall turkey hunter participation and success rates.

**2009 Spring Gobbler Season**

Turkey Population Status.--Entering the 2009 spring gobbler season, Ohio's wild turkey population was projected to be stable to slightly increasing because of average reproductive success during 2007 and 2008. The statewide population estimate of 200,000 wild turkeys based on the method described by Lewis (1980) appeared to confirm this projection. Rangewide gobbling counts showed a 4% decline in 2009, but the decline was not statistically significant (Division of Wildlife, unpublished data).

Hunters and Regulations.--Permits for the 2009 spring wild turkey season (20 Apr-17 May) were available over-the-counter at all license vendors. Individuals who were 66 years old or older and born on or before 31 December 1937 were eligible for a free license and permit, also 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 2008, a basic 1-bird bag limit was in effect. However, landowners, tenants, free license recipients, and those hunters purchasing a second spring turkey permit were eligible to harvest an additional bearded turkey. The second turkey could be harvested during all 4 weeks of the 2009 season. The bag limit was 1 bearded bird per day.

Resident and nonresident hunting licenses and permits were the same as in 2008 (resident hunting license = $19.00; nonresident = $125.00: spring turkey permit = $24.00). A total of 80,644 spring turkey permits were sold or issued for the 2009 spring turkey season. Based on customer identification from our point-of-sale system, 44,168 individuals purchased a spring turkey permit, 10,234 individuals purchased a youth spring turkey permit, and 13,311 individuals age 66 and older either purchased a reduced-cost senior permit or were issued a free senior permit. The number of individuals purchasing spring turkey permits (67,713) for the 2009 season declined 1.5% from the 2008 total of 68,691.

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 spring turkey hunting.

Harvest and Hunting Pressure.--The 2009 harvest of 20,710 gobblers was 1.5% higher than the 2008 total of 20,389 birds (Table 2). Landowners and tenants who hunted on their own land or on land where they resided harvested 4,288 gobblers (21%) of the statewide harvest. Second turkeys made up 14.3% (2,954 birds) of the total harvest. Youth hunters harvested 1,869 of the gobblers during the statewide youth season held on April 19-20. Based on spur length measurements, juveniles comprised 37.3% of the 2009 harvest, higher than the 33.3% juveniles recorded in the 2008 harvest and the 1985-09 average of 34.7% juveniles. Two- and 3-year-old birds comprised 23.6% of the harvest and birds ≥4 years old comprised 43.0%.

The 2009 spring turkey harvest increased in 54 counties, decreased in 32 counties, and stayed the same in 2 counties compared to the 2008 spring turkey harvest. Ashtabula County, with a reported harvest of 990 gobblers, was highest in the State. Rounding out the top 5 counties, which collectively accounted for nearly 16% of the 2009 harvest, were Tuscarawas (596 birds), Muskingum (577 birds), Harrison (562 birds), and Guernsey (548 birds). Due to poor weather conditions resulting in low gobbling activity, a lower percentage of the harvest occurred during the first week (44%) of the 2009 season than in previous years. The second and third weeks accounted for 19% and 15% of the harvest, respectively. The final week of the season accounted for 22% of the harvest; twice the numbers of turkeys harvested in the fourth week of the 2008 season.

An estimated 64,344 of the 67,713 individuals who either purchased or received a free permit pursued a turkey during the 2009 season. The number of hunters declined 1% from the 64,920 hunters in 2008. Turkey hunters spent an estimated 377,654 days hunting in spring 2009. Participation rates and hunter effort were estimated from a recent spring turkey hunter questionnaire (Swanson et al. 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.

Public lands in Ohio remain important to both wild turkeys and the sport of turkey hunting. In 2009, 8.7% of the spring turkey harvest occurred on public land. However, public land comprises less than 5% of the land area open to turkey hunting (Ohio Department of Natural Resources 2007).

**Turkey Hunting Incidents**

There were no turkey hunting incidents reported during the 2008 fall turkey season. Only 5 non-fatal hunting incidents have occurred in the 13 years of fall turkey hunting in Ohio. Three non-fatal turkey hunting incidents were reported during the 2009 spring turkey season. A declining trend in the rate of spring turkey hunting incidents has occurred since 1984, the year these statistics were first recorded in Ohio. However, the occurrence of even one hunting incident reinforces 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.

**NATIONAL WILD TURKEY FEDERATION (NWTF) TECHNICAL GUIDANCE**

The Ohio State Chapter, NWTF, raised approximately $150,000 from fund raising events in 2008. 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 $3,561,686 was spent on projects benefiting wild turkeys from 1986 through 2008 (Table 3). Land acquisition projects make up 68.5% of current expenditures. The most significant Ohio Super Fund project in recent years was spending $500,000 to assist the Ohio Division of Wildlife in acquiring timberlands totaling 5,000 acres in Jackson and Ross counties in 2007.

**RESTORATION**

Wild turkey restoration was completed in the 2007-08 trapping season; no additional wild turkeys are scheduled to be captured for translocation in future years. In 2009, turkeys were present in all 88 counties and occupied range was estimated at 34,000 $mi^2$ compared to 22,000 $mi^2$ in 2004; this represents a 55% increase in the occupied range of wild turkeys in Ohio.

**RESEARCH**

**Tri-State Gobbler Banding Study**

The Division of Wildlife participated in a cooperative gobbler banding study with New York and Pennsylvania to estimate the harvest rate of wild turkey gobblers during spring turkey seasons. A total of 661 gobblers was banded in 28 Ohio counties during 2006 – 2008. Preliminary harvest rate estimates were 0.390 (SE = 0.021) for adults and 0.102 (SE = 0.020) for juvenile wild turkeys in Ohio during 2008. Associated reporting rates were 0.752 (SE = 0.071) for adults and 0.742 (SE = 0.135) for juvenile wild turkeys. A final report should be completed in 2010.

A secondary objective of the project was to estimate loss of butt-end leg bands placed below the spur on male wild turkeys (Diefenbach et al. 2009). We used band loss information from 887 turkeys recovered between 31 days and 570 days after release ($\bar{x}$ = 202 days). Band loss was greater for turkeys banded as adults (>1 yr old) than juveniles and was greater for aluminum than stainless steel bands. We estimated band retention was 79–96%, depending on age at banding and type of band, for turkeys recovered 3 months after release. Band retention was <50% for all age classes and band types

15 months after banding. We concluded that use of butt-end leg bands on male wild turkeys is inappropriate for use in mark–recapture studies.

**Wild Turkey Hen Population Dynamics Study**

Because of public requests to increase hunting opportunity during both the spring gobbler-only and fall either-sex hunting seasons, information was needed on the population dynamics of wild turkey hens. This study was the first to collect information on reproductive parameters of wild turkeys in Ohio. We used rocket nets to capture wild turkey hens during December 2001 - March 2006. Transmitters weighing 85 g were attached to hens using a backpack-style harness. Wild turkeys were located weekly. We monitored 372 radiotagged hens (151 for >1 yr) between December 2001 – August 2006. We censored 6 hens for reproductive parameters because we lost contact with them during the nesting season (1 Apr – 31 Aug). Nesting rate was 80.9 $\pm$ 2.7% (*n* = 523) and second nesting rate was 21.0 $\pm$ 1.5% (*n* = 523). Eighty-five percent (*n* = 445) of nesting attempts were by adult wild turkey hens and 15% (*n* = 78) juveniles (individuals entering their first reproductive season). The median date of incubation initiation was 1 May $\pm$ 0.6 days. Nest success rate was 68.3 $\pm$ 4.0% (*n* = 355). We observed 882 poults with 162 radiotagged hens for a production success rate of 55.2 $\pm$ 4.1% (*n* = 355) and a production rate of 2.95 $\pm$ 0.12 poults alive 4 – 5 weeks post-hatch/female alive on 1 April (*n* = 523).

Wild turkey population modeling suggests fall harvest rates of ≤10% are sustainable. Following the successful restoration of the wild turkey to Ohio, fall either-sex hunting was opened in select counties in 1996. We estimated annual survival and cause-specific mortality for 382 radiomarked wild turkey hens during 2002 – 2006 in 6 counties open to spring gobbler and fall either-sex turkey hunting in southeastern Ohio. Predation (79.7%) and illegal kills (14.8%) accounted for most of the 183 mortalities that occurred during this study. All other sources of mortality combined, including legal harvest, accounted for <5% of the total mortality. Mean annual survival was 68.2% ± 5.4% (SE) and ranged from 55.6 to 84.2%. The combined annual harvest rate from legal and illegal mortality of hen turkeys averaged 6.2% ± 1.1% (SE), but was as high as 10.5% in 2002.

**DISCUSSION AND RECOMMENDATIONS**

**2008 Fall Either-Sex Season**

The 2008 fall either-sex wild turkey season was Ohio's 13$^{th}$ year of fall turkey hunting. 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, <30% of the spring turkey harvest in each county, was very modest. Research from other states indicated that up to 10% of the fall turkey population could be harvested without impacting subsequent growth and expansion (McGhee et al. 2008). Based on mandatory check station results, 1.2% of the fall turkey population in the 46 counties open to hunting was harvested during the 2008 fall turkey season.

Based on the minimal turkey harvests observed during more than a decade of fall turkey hunting, the season was expanded significantly both in terms of the length and the number of counties open to fall hunting in 2008. Shotgun hunting was permitted for the entire fall season which lasted 7 weeks (October 11 – November 30 2008). An additional 9 northeast Ohio counties were opened to fall hunting to bring the total to 46 counties. While the majority of the new counties met criteria related to the number of turkeys harvested in spring seasons, forest cover was limited in many of these suburban counties. However, fall hunting may help alleviate an increasing occurrence of nuisance turkey complaints in some suburban areas.

Monitoring the expanded fall turkey season should occur for at least 3 years to determine if the extended season is sustainable and to ensure that it does not result in turkey population declines in any counties in eastern Ohio. Fall harvest rates approaching 30% of the spring harvest will be viewed with caution and may result in recommendations to revert to a more conservative fall season framework. A few counties open to fall hunting have less ability to sustain fall harvest due to a lower turkey population and limited habitat and must be watched with more scrutiny. These counties include Lake, Lorain, Medina, and Wayne counties.

**2009 Spring Gobbler Season**

The 1.5% increase in the 2009 spring turkey harvest suggests that wild turkey abundance was likely similar to 2008 populations. The 2009 turkey harvest increased in most counties across northern Ohio; this is likely reflective of populations that are still experiencing rapid growth and expansion following recent turkey restoration efforts.

However, turkey populations in several southeastern counties may 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. Furthermore, spring turkey harvests have remained relatively stable or actually declined in several counties with good numbers of wild turkeys and ample public lands. For example, spring turkey harvests in Hocking and Vinton counties, initial sites for turkey restoration in the 1960s, have declined since the harvest peaks observed in the 2001 spring hunting season (fig. 1).

Other factors that may help explain the pattern in turkey harvest trends in recent years include changing hunter distribution. As turkeys have expanded throughout Ohio and all 88 counties have been opened to spring turkey hunting, the proportion of the harvest occurring in southeastern Ohio (District 4) has steadily declined. However, turkey hunter numbers have remained relatively constant during this same time period. Therefore, declining turkey harvests in southeastern Ohio could be the result of fewer turkey hunters, fewer wild turkeys, or both. The current system of over-the-counter spring turkey permit sales does not provide adequate data on hunter effort to conclusively determine what is behind declining harvests in southeastern Ohio. Additional surveys to estimate hunter effort may be needed to clarify these developing trends.

An important consideration in the harvest management of wild turkeys is the method and underlying assumptions used to estimate wild turkey populations. Lewis (1980) developed a population index in Missouri based on 15 years of turkey census and harvest data. He observed that spring gobbler harvests averaged about 10% of the wild turkey population. An important assumption with any index is that fluctuations in turkey harvest reflect actual changes in the turkey population. However, if turkey hunter numbers are declining in southeastern counties, absolute harvest may no longer track turkey population trends and Lewis's population index may no longer be valid. This could have important consequences for setting harvest regulations and monitoring population trends. Gobbling surveys provide an independent population index that may help explain changes in turkey harvests in this region.

**Tri-State Gobbler Banding Study**

Three years of spring gobbler harvest data were collected in Ohio during the tri-state gobbler banding study. No additional gobblers were banded in 2009 due to budget constraints. Preliminary results suggest harvest rates are currently below a recommended threshold to maintain spring turkey hunting quality. A final report should be completed in 2010.

**Wild Turkey Hen Population Dynamics Study**

Reproductive parameters and annual survival rates in the wild turkey hen population dynamics study were among the highest reported for eastern wild turkeys. The skewed age distribution of our radiotagged hens toward adults probably contributed to these high rates as older hens play a significant role in wild turkey reproduction in the Appalachians. Average annual harvest rates (legal and illegal) of wild turkey hens were below the 10% threshold at which population models suggest wild turkey harvests are sustainable in all but 1 year. However, illegal hen mortality was substantial and heretofore unaccounted for in Ohio harvest estimates. Illegal harvest of hen turkeys was distributed throughout all open spring and fall hunting seasons. Due to illegal hen mortality, we caution against further expansion of fall turkey seasons in Ohio.

Survival and reproductive data collected during the wild turkey hen population dynamics study and harvest rates estimated from the tri-state gobbler banding study should be incorporated into a model to predict population trajectory of wild turkeys in southeastern Ohio under various harvest management scenarios.

**Acknowledgments**

I thank Division of Wildlife personnel who annually conduct gobbling surveys, administer check stations, and submit wild turkey brood observations. I also thank check station proprietors who generously contribute their time and facilities to check wild turkeys in spring and fall each year. Finally, the success of Ohio's wild turkey restoration and research projects would not have been possible

without the countless hours spent trapping by the Division of Wildlife's wild turkey trapping crews at Cooper Hollow, Deer Creek, Fallsville, Grand River, Highlandtown, Killbuck, Salt Fork, Wolf Creek, and Woodbury Wildlife Areas.

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Table 1. Ohio fall turkey season dates, permits sales, and total harvest, 1996 – 2008.

| Year | Season Dates | Open Counties | Bag Limit | Permit Fee | Permits Sold[a] | Total Harvest[b] |
|---|---|---|---|---|---|---|
| 1996 | 10/21 – 10/26 | 22 | 1 | $20.00 | 10,050 | 1,250 |
| 1997 | 10/20 – 10/25 | 22 | 1 | $20.00 | 8,240 | 1,210 |
| 1998 | 10/19 – 10/25 | 22 | 1 | $20.00 | 4,804[c] | 1,234 |
| 1999 | 10/18 – 10/24 | 25 | 1 | $20.00 | 28,683 | 3,071 |
| 2000 | 10/14 – 10/22 | 28 | 1 | $20.00 | 28,537 | 2,428 |
| 2001 | 10/13 – 10/28 | 32 | 1 | $20.00 | 30,892 | 3,331 |
| 2002[d] | 10/12 – 10/27<br>10/28 – 12/1 | 35 | 1 | $20.00 | 34,109 | 2,394 |
| 2003 | 10/11 – 10/26<br>10/27 – 11/30 | 36 | 1 | $20.00 | 33,857 | 2,060 |
| 2004 | 10/9 – 10/24<br>10/25 – 11/28 | 36 | 1 | $24.00 | 28,615 | 1,808 |
| 2005 | 10/8 – 10/23<br>10/24 – 11/27 | 37 | 1 | $24.00 | 27,882 | 1,339 |
| 2006 | 10/14 – 10/29<br>10/30 – 11/26 | 37 | 1 | $24.00 | 25,541 | 1,175 |
| 2007 | 10/13 – 10/28<br>10/29 – 11/25 | 37 | 1 | $24.00 | 22,667 | 1,216 |
| 2008[e] | 10/11 – 11/30 | 46 | 1 | $24.00 | 23,600 | 2,139 |

[a]Includes youth, reduced cost and free senior fall turkey permit recipients.

[b]Total harvest by all hunter types (paid, youth, senior, and exempt).

[c]The number of free senior fall turkey permits were not included in permits sold in 1998.

[d]Fall turkey season was split into separate shotgun and archery seasons in 2002.

[e]The use of shotguns was permitted throughout the entire fall turkey season in 2008.

Table 2. Ohio spring turkey season dates, permits sold, and harvest, 1989 – 2009.

| Year | Season Dates | Open Counties | Bag Limit | Permit Fee | Permits Sold[a] | Total Harvest[b] |
|---|---|---|---|---|---|---|
| 1989 | 04/24 – 05/13 | 36 | 1 | $11.00 | 18,887 | 3,171 |
| 1990 | 04/23 – 05/12 | 37 | 1 | $16.00 | 19,613 | 4,096 |
| 1991 | 04/22 – 05/11 | 38 | 1 | $16.00 | 22,898 | 5,009 |
| 1992 | 04/27 – 05/16 | 38 | 1 | $16.00 | 28,974 | 5,678 |
| 1993 | 04/26 – 05/15 | 42 | 1 | $16.00 | 29,538 | 7,470 |
| | | | 2 | $32.00 | 4,106 | |
| 1994 | 04/25 – 05/14 | 44 | 1 | $16.00 | 29,334 | 9,098 |
| | | | 2 | $32.00 | 5,187 | |
| 1995 | 04/24 – 05/13 | 44 | 1 | $20.00 | 30,837 | 10,892 |
| | | | 2 | $40.00 | 6,136 | |
| 1996 | 04/22 – 05/11 | 46 | 1 | $20.00 | 31,003 | 12,098 |
| | | | 2 | $40.00 | 7,700 | |
| 1997 | 04/28 – 05/17 | 47 | 1 | $20.00 | 30,511 | 12,393 |
| | | | 2 | $40.00 | 8,130 | |
| 1998 | 04/27 – 05/16 | 50 | 1 | $20.00 | 31,037 | 13,251 |
| | | | 2 | $40.00 | 8,133 | |
| 1999 | 04/26 – 05/16 | 57 | 1 | $20.00 | 42,363 | 14,419 |
| | | | 2 | $40.00 | 7,846 | |
| 2000 | 04/24 – 05/14 | 88 | 1 | $20.00 | 49,982 | 20,276 |
| | | | 2 | $40.00 | 9,720 | |
| 2001 | 04/23 – 05/13 | 88 | 1 | $20.00 | 54,841 | 26,156 |
| | | | 2 | $40.00 | 11,092 | |
| 2002 | 04/22 – 05/19 | 88 | 1 | $20.00 | 48,821 | 22,190 |
| | | | 2 | $40.00 | 24,633 | |
| 2003 | 04/28 – 05/25 | 88 | 2 | $20.00[c] | 94,989 | 20,368 |
| 2004 | 04/26 – 05/23 | 88 | 2 | $24.00 | 74,119 | 16,927 |
| 2005 | 04/18 – 05/15 | 88 | 2 | $24.00 | 85,053 | 18,833 |
| 2006 | 04/24 – 05/21 | 88 | 2 | $24.00 | 85,248 | 20,023 |
| 2007 | 04/23 – 05/20 | 88 | 2 | $24.00 | 75,408 | 18,584 |
| 2008 | 04/21 – 05/18 | 88 | 2 | $24.00 | 79,962 | 20,389 |
| 2009 | 04/20 – 05/17 | 88 | 2 | $24.00 | 80,644 | 20,710 |

[a]Includes youth, reduced cost and free senior spring turkey permit recipients.

[b]Includes total harvest by all hunter types (paid, youth, senior, and exempt).

[c]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 3. Ohio State Chapter, National Wild Turkey Federation Super Fund expenditures, 1986 through 2008. 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[a] | $ 2,441,135 | 68.5% |
| Education | $ 538,856 | 15.1% |
| Hunting Heritage | $ 193,100 | 5.4% |
| Habitat Enhancement | $ 123,686 | 3.5% |
| Enforcement | $ 10,997 | 0.3% |
| Management projects | $ 7,841 | 0.2% |
| Research | $ 6,425 | 0.2% |
| Restoration | $ 2,702 | 0.1% |
| Miscellaneous | $ 236,944 | 6.7% |
| Grand Total | $ 3,561,686 | |

[a]"Super Fund Guidelines" earmark 65% of expenditures for land acquisition.

# Appendices

# Group Meeting Notes

**(Notes by Robert E. Rolley)**

The meeting was held at Rock Springs 4-H Center south of Junction City on the site of the Rock Springs ranch that is nestled in Kansas' scenic Flint Hills. The ranch dates from the 1850s.

**Kansas Wild Turkey Research.** Marc Chipault. University of Wisconsin. Research on survival and reproduction associated with 3 public hunting areas with various levels of hunting pressure. Capture success was higher on the lightly hunted area as was male survival rates. Hunting and wounding loss was responsible for 2/3s of mortality with predation responsible for 1/3.

**Wild Turkey Research in South Dakota**. K.C. Jensen. South Dakota State University. Continuing studies in the Black Hills of SD. Previous research documented high male mortality in southern Black Hills (42% annual survival, 73% mortality due to spring hunt). Current work is in northern Black Hills on both side of the border with Wyoming. Approximately 75 males were radio-tagged on each study area in 2008 and 100 in 2009. Modeled effect of hunting and spring weather on survival using Program MARK. Harvest of 2+ year olds was high. Heavy snowfall just prior to spring hunting season, after birds left winter range and moved to breeding range in the mountains, resulted in significant adult mortality.

**Marketing Spring Turkey Hunting in Kansas**. Jim Pitman. Kansas Parks and Wildlife. Kansas has high turn-over and low retention of spring turkey hunters. Tested a direct mail marketing campaign directed at prior buyers of turkey licenses. Cost ~$10,000 to print and mail postcards, increased permit sales by 2.4%.

**Deer Genetics and the Potential Impacts of Selective Harvest**. Jason Sumners. Missouri Department of Conservation. Studied male paternity on King Ranch in Texas. Most bucks in population were successful breeders, 70% of males sired 1 fawn, few had multiple litters, 17% of breeding done by yearlings. Most breeding occurred in early December and mature males cannot monopolize females. Large effective population size.

**Using GIS to Compare Landcover along White-tailed Deer Spotlight Survey Routes on Public and Private Lands in Kansas**. Tyson Seirer. Kansas estimates deer density with spotlight distance surveys on 3-4 routes through private land and plus public land routes within each of the 13 deer management units. Tested whether habitat composition along survey routes were representative of habitats with the deer management units. Used GIS with a statewide landcover layer to buffer survey routes with a 300 meter buffer and classified habitats within buffer. Close correlation between habitat on survey routes and habitat within DMU.

**CSI: Deer Camp: looking to criminology theory to enhance hunter compliance and cooperation**. Brent Rudolph. Michigan DNR. Michigan banned baiting in TB area reduced large scale feeding activity but smaller scale baiting is hard to detect and enforce. There is a low risk of getting caught and the fine for baiting is small. Many hunters do not perceive a health risk associate with population size in the area where they hunt. Plan to conduct human dimension research to examine current attitudes and beliefs associated with baiting ban and risks to deer herd of TB. Will explore ways to increase hunter cooperation and compliance with regulations.

**North America Wild Turkey Management Plan**. John Burk. NWTF. NTWF is coordinating with national and regional bird planning efforts in development of a management plan for turkeys. It will include regional and state plans. The Missouri state component includes goals related to habitat enhancement, hunter access, research, and outreach.

**Environmental, Social, and Biological Factors Associated with Contact Rates Between Deer on Quivira National Wildlife Refuge**. Kevin Blecha. Will be assessing factors that influence contact rates among deer and could promote disease transmission. Using GPS collars on males and VHF collars on females. Study is in early phase. Will be looking at direct and indirect (same location at different times) contact rates.

**Spotlight Surveys in Iowa: out with the old and in with the new?** Tom Litchfield. Iowa DNR. Iowa uses spotlight surveys along with aerial surveys, bowhunter observation surveys, and roadkill trends to monitor deer population trends. Trend data is used to calibrate population models. Current spotlight surveys are done in combination with surveys for raccoons and are placed in riparian forested habitats. Concern that they may be less sensitive to population change in less optimal habitats. Current routes 90 transects, 2250 miles. New routes 199 transects, 4742 miles, more representative of habitats within deer management units. Currently running both old and new routes. Old routes were provided simple counts, are testing distance sampling on new routes with laser rangefinders. Conducting in late March-early April. 2 people/vehicle. Only on gravel roads with very low traffic. New routes have lager sample size and are less variable than old routes. Variation in spring weather appears to affect dispersal and observability. No recreational spotlighting in spring so deer are less wary of spotlights than in fall. Hope data will provide more fine-scale picture of deer density variation. Not yet calculated density estimates from distance data.

**Use of Distance Sampling to Monitor Deer Abundance in Kansas**. Lloyd Fox. Kansas Parks and Wildlife. Been conducting spotlight surveys since 2002, 3-4 routes/DMU, 20 mile transects, count for 3 hours/night. Conduct in late October-early November. Also survey public hunting lands in DMU, 5+ miles of transects on public land, repeated 3 nights or until 60 groups observed. In 2008, 1824 miles surveyed, 234 hours, 2572 clusters observed, 5377 deer, ~3 deer/mile. Density much higher on public land than on private land (better habitat on public

land), buck:doe ratios slightly higher on private land, fawn:doe ratios similar. Distance sampling pointing to higher statewide deer populations than previously estimated by modeling. Looking to incorporate covariates of habitat and behavior into estimates. Use a platform in bed of truck for observers.

## ***Deer breakout session*** (notes by Robert Rolley)

**Nebraska deer disease update**. CWD, ~5000 deer sampled in 2008, 22 positives. No evidence of significant geographic expansion. Some mule deer have been affected by meningeal worms, 28 animals collected after reports of circling behavior. Some white-tailed deer have been found with heavy parasite loads. Bovine TB was confirmed in a captive cervid (elk and fallow deer) facility. 60% of elk and 60% of fallow deer had lesions when facility was eventually depopulated. 42 wild deer were collected outside of facility and 0 were positive. TB was a cervid strain. Live animal test preformed poorly for cervids. Will be asking hunters to be aware of TB signs via mailings and news releases. Four mule deer were collected with hair loss syndrome, associate with lice. HLS has caused significant population decline in Washington State.

**Iowa Deer Feeding Ban**. Iowa has tested 29,000 deer and has not detected CWD or bovine TB. Current illegal to bait deer in Iowa, proposing to ban feeding. During recent governor's deer task force, farm bureau and cattlemen association were concerned about potential for TB. Modeling language after similar feeding ban in Illinois.

**Illinois Agency Deer Culling for CWD Control**. Sharpshooting has been effective at targeting deer removal in high prevalence areas, 25% of samples tested were collected through sharpshooting resulting in 50% of CWD positive deer. Multiple years of sharpshooting (3+ years) with cumulative removal of 25+ deer/sq mile are linked to local declines in deer density of up to 40%. They are seeing significant declines in prevalence among yearling deer and females.

**Quality Deer Management in Iowa**. There is significant agreement between stated goals of QDMA and state agencies toward heard health, habitat quality and public perceptions of deer and deer hunting. However, there is often a big difference between what QDMA says and what is happening on the ground (trophy management). Adequate doe harvest is not occurring on many properties. Illinois has developed guidelines to encourage landowners with hunting leases to require an earn-a-buck provision in the lease and to treat inadequate doe harvest as a breach of contract.

**Aerial and Ground Surveys for Population Estimation in Minnesota**. Minnesota has numeric population goals for deer management units. Using helicopter quadrat surveys to estimate

population size to calibrate models in forest-ag fringe DMUs. DNR has 3 helicopters. Quadrats based on PLSS sections, ~20% of unit surveyed, using stratified random design with optimum allocation based on percent woody cover. Attempting to estimate sightability with repeated counts at slower speed. Preliminary estimates range from 65-85%. Costs are $400/hour, budget of $30-80,000/year, able to survey 4-8 DMUs per year depending on snow cover and competition for air time. They are investigating the use of distance sampling during roadside spotlight surveys to estimate density in agricultural units. Have purchased a FLIR unit and will be testing its usefulness.

**Michigan landowner and human dimension issues**. Michigan has adopted an early antlerless firearm season (September 17-21) on private land to aid with herd control. Also has a late firearm season and a 16 day muzzleloader season. Killed 13,000 antlerless deer in early season, a 10% increase, 17,000 in late season, and 22,000 in muzzleloader season. Beginning in 2009, crossbows are permitted to be used in firearm seasons, in the early bow season by hunters 50 years old or older, and in any season by hunters 12 year old and older in Zone 3. There is a 3 year sunset. Michigan has a number of deer management cooperatives that have formed, with increasing cooperation with QDMA. These cooperatives are resulting in lots of staff contact, staff are encouraging substantial antlerless harvest, not clear if adequate antlerless harvest is taking place. The DNR is considering developing a certification program to with templates to certify deer management plans developed by these cooperatives.

**Lead in venison**. In North Dakota food pantries are accepting venison and labeling it with warnings to not feed small children and pregnant women. This remains a topic of concern among state agencies. Minnesota DNR conducted studies to compare bullet fragmentation and deposition patterns of rapid expansion lead bullets, controlled expansion lead bullets, copper bullets, lead slugs, and lead bullets from a .50 caliber muzzleloader rifle. Considerable fragmentation and migration of fragments were documented.

**Urban Deer Management in Missouri and Kansas**. The community of Town and Country is in Western St. Louis County and has significant problems with overabundant deer. Densities are about 70 deer/sq. mile. There has been strong opposition to lethal control. Previous research in the community demonstrated that trap-and-relocation resulted in high mortality and is not appropriate for urban deer control. Community is currently proposing a combination of sterilization and sharpshooting to reduce population size and reproduction. Approximately 100 adult does will be captured and sterilized and 100 will be shot. Control activities are scheduled for this winter. The agency is hoping this will evolve into a lethal control program, there is discussion about allowing archery hunting. Kansas is facing strong local opposition to lethal deer control in a suburb of Kansas City. Opponents are pushing for a trap, sterilization/contraception project. It is expected that EPA will soon license GonaCon for deer

contraception:
http://www.aphis.usda.gov/wildlife_damage/nwrc/research/reproductive_control/gonacon.shtml

**Illinois deer task force**. The primary concern was high numbers of deer-vehicle collisions. Recommended using DVCs as basis of deer population goals, wanting to reduce DVCs to level that occurred in late 1990s and early 2000s. Task force recommended an early antlerless only season in late October to increase antlerless harvest. This was overwhelming opposed by bowhunters and outfitters.

## ***Turkey breakout session*** (notes by Eric Dunton)

*Kansas – Jim Pitman*

- Spring hunter success below 50% in southeast Kansas for first time in several years; spring success rates average >60% for the rest of the state.
- Reported potential turkey decline in certain portions of the state, particularly southeast KS, presumably in response to cool wet spring conditions.
- Currently, 4 turkey management units within the state and would like to shift to 6 management units to align hunt units with survey management units.
- In 2010, youth permits will be available over-the-counter. Permits will be valid in all hunting units (i.e., statewide). In the past, youth had to draw for a permit in Unit 4 (SW Kansas) just like everyone else.
- Spring archery and youth hunters can hunt a week before the regular season begins. If they are unsuccessful the permit is good for the regular spring turkey season.
- In 2009, crossbows were legalized for turkey hunting. Based on the spring hunter survey only 1 of approximately 2500 responding hunters reported harvesting a turkey with a crossbow. It is likely that <100 birds were harvested with crossbows across the entire state.
- Approximately 10,000 fall hunters, mostly males are harvested (based on survey information), and nearly ½ the hunters reported harvesting birds opportunistically (i.e., engaged in another hunting activity and harvested a turkey).
- Fall success rates average 40 – 50% (long-term).
- KS will be offering an incentive for hunters to purchase permits early. Hunters that purchase both permits prior to March 15 will receive a $5.00 discount compared to the cost of buying those permits separately.
- Discussed walk-in program and a new lease program for eastern KS where the majority of the population is but less land enrolled in the current walk-in program.
- Turkey translocation for restoration is complete in KS. Still receive calls to move nuisance birds and requests to supplement low density populations. Urban/Nuisance birds are trapped and relocated. Areas in the state have wintering flocks > 500 turkeys.

*Michigan – Al Stewart*

- In 2009, there were approximately 120,000 spring turkey hunters who purchased a permit and approximately 95,000 hunted. During the spring season there is approximately a 40% turn-over rate among hunters in MI. Michigan surveyed these hunters and the primary reason for the turn-over was hunters were too busy to hunt.
- 2009 was a record spring harvest approximately 42,000 turkeys were harvested.
- Statewide spring turkey hunting success was 43%, MI statewide goal is to maintain success rates at or above 20%.
    - Discussion on liberalizing harvest strategy (i.e., 20% hunter success goal and the long term average is significantly higher should harvest be maximized or maintain status quo). There has been resistance to liberalizing harvest strategy in MI (other states reported similar issues).
- In the Upper Peninsula spring turkey permits are essentially available over-the-counter. Permit levels are capped at 8,000 but they have never sold all of the permits. Some hunters quit applying and wait for the permits to go on sale as surplus.
- Michigan DNR is working with a marketing firm to promote fall turkey hunting.
- In some areas of the state MI DNR wanted to increase turkey harvest. Hunters were issued a free 2nd harvest permit. Legislatively the state can only sell 1 permit so they made the permits available for free. Management objectives in this area have been achieved and 2nd harvest permits will no longer be issued.
- In southern MI, which is the best turkey habitat in the state, permits for private land hunting are available essentially over-the-counter. The number of permits offered is capped at a level that has never been achieved.
    - Hunters, particularly in the southern portion of the state, have expressed strong interest in allowing hunters to purchase a 2nd permit because generally there is a large volume of surplus permits. The agency uses this strategy because in the future they may need to adopt a more restrictive harvest strategy and they set the number of permits available each spring.

*Minnesota – Eric Dunton*

- 2009 was a record spring harvest with 12,210 turkeys harvested and a spring hunter success rate of 34% (similar to long-term average). Permits increased by 11% and harvest increased by 11% statewide.
- In 2010, considering allowing youth hunters to purchase a spring turkey permit for any time period over-the-counter.
- Fall turkey hunting opportunity in the last few years has dramatically increased in MN. In 2008, 18 new permit areas (PA) were opened to hunting. In 2009, 17 new permit areas will be opened for a total of 67 PAs open for fall turkey hunting. There were 76 PAs open for the 2009 spring turkey hunting season.
- Reported initial findings from a winter wild turkey food habits research project that was initiated on the northern fringe of turkey range in Minnesota.
- Discussed results of the fall wild turkey population survey (i.e., survey of regular firearm deer hunters in Minnesota) that is conducted once every other year.
- Discussed the status of the wild turkey trap and transplant program. The program has been suspended and turkey populations will be monitored using the 2008 and 2010 fall population survey.

*Nebraska – Kit Hams*

- Record spring harvest every year since 2002
- Using an e-mail based spring turkey hunter survey. In 2009, issued 30,000 spring turkey hunting permits and collected 15,000 valid e-mail addresses. The 2009 survey cost approximately $1,700 and received a 40% response rate. The first year this survey metric was used results were compared to the traditional mail survey. There were some differences between the two survey metrics.
    - Interested in measuring hunter satisfaction, specifically can they maintain a quality hunt in eastern NE while increasing permits (specific concern on public land).
- The 2009 fall season will be open from September 15 – December 31, and season will run through the fall deer season, but rifles will not be allowed to harvest a turkey.
    - Through August fall turkeys sales were up 50%
    - Hunters allowed to purchase 2 fall permits and harvest 2 turkeys/permit for a total fall bag limit of 4 turkeys.
- In 2007, 2 turkeys could be harvested under 1 permit. Success increased from 49% to 82% and overall harvest increased from 4,092 to 8,857.
- Based on rural mail carrier survey data turkey populations in every region in NE increased by at least 25% this year.
- In 2010, a $5.00 youth turkey hunting permit for resident and non-resident hunters.

*National Wild Turkey Federation (NWTF) – John Burk*

- Discussed the results of the summer brood survey conducted in Missouri. Some areas of the state had reductions, presumably due to wet cool spring conditions.
- Discussed conservation planning and focus areas that NWTF has been working on in Missouri.

*Illegal Release of Turkeys*

- Indiana reported an increasing trend to release multiple sub-species within the state. It appears that some hunters are interested in trying to shoot all the turkey sub-species in a single state this may be leading to the illegal release of these birds.
- All states reported some degree of illegal releases but doesn't appear to be a major concern.

*Use of Rifles*

- Discussion on which states allow rifles to be used for turkey hunting. Based on the discussion South Dakota is the only Midwestern state which allows the use of rifles. There was discussion that SD is trying to rescind this but a SD representative was not present to comment.
- Nebraska is opening fall turkey hunting during the rifle deer season starting this fall but rifles will not be a legal weapon for turkeys.
- Discussion on the effect using rifles may have on turkey populations.

*Livestock Producers*

- Some states receiving calls from livestock producers regarding turkey/livestock interaction.
- Concern from producers over possible disease transmission, specifically fecal accumulation on livestock feed.
- Producers voiced concern that turkeys that get into silage bags/bunkers is leading to high rates of calf abortion.
    - Michigan wildlife veterinarians reported this is not a concern.
- Discussion on avian pox in turkeys, all states reported some level of avian pox present.
    - Michigan reported a large number of houses finches with avian pox
- Group stated that it would be nice to have a public information brochure regarding turkeys and disease. Group asked if NWTF had any information or brochures available or could take the lead in producing this type of document.

*Value of Permits*

- Discussions on hunter's ability to print hunting permits online and make multiple copies of the permit.
    - Kansas and NE documented cases where individuals had multiple permits in their possession.
- Discussion on the value of a "tag" has for spring turkey hunting. Hunters with a permit from a licensing agent can "tag" a bird and remove it at a later point.
- Overall doesn't appear to be a major problem, although this is a very hard thing to document.

*Scale of Turkey Management*

- Discussion on the spatial scale that states are currently managing turkeys and scale data is being collected. Several states reported attempts to alter scale they are currently managing turkeys. Discussion on the spatial scale to manage and the advantages and disadvantages of lottery based systems for turkey management.

*Hunter surveys*

- Discussion on hunter survey techniques and value of these surveys. All states reported conducting spring turkey hunter surveys
- Kansas mails hunters a survey card and ask them to respond online (i.e., website is provided on the card). Non-respondents are sent a traditional mail survey for second mailing. Online responses resulted in reduced mailing cost and reduced staffing cost for data entry.
- Michigan uses a standard mail survey with multiple mailings (approximately 3 mailings). In addition, MI has a website where anyone can log on using their permit number and complete a hunter survey.
- Nebraska collects e-mail addresses and has a contract with a company to conduct spring hunter surveys.
- Minnesota conducts a standard mail survey with multiple mailings (2 to 3 mailings).
- All states reported collecting information on crowding/interference, access to hunting land, and hunter satisfaction/quality. These surveys appear to be a good qualitative metric for measuring hunter attitudes and asking hunters about potential regulation changes.