TRENDS IN IOWA WILDLIFE POPULATIONS AND HARVEST

2016-2017

Iowa Department of Natural Resources
Chuck Gipp, Director
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Compiled by:
Peter Fritzell

Chapters Prepared by:

Tyler Harms	**White-Tailed Deer**
Jim Coffey	**Wild Turkeys**
Vince Evelsizer	**Furbearers**
Orrin Jones	**Waterfowl**
Todd Bogenschutz	**Upland Wildlife**
Stephanie Shepherd	**Greater Prairie Chicken**
Pat Schlarbaum	**Osprey**
Bruce Ehresman	**Sandhill Crane**
Stephanie Shepherd	**Bald Eagle**
Bruce Ehresman	**Barn Owl**
Vince Evelsizer	**Mountain Lion**
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CONSERVATION & RECREATION DIVISION
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WHITE-TAILED DEER

Historical Perspective

White-tailed deer (*Odocoileus virginianus*) were reported to be abundant when European settlers arrived in Iowa in the early 1800's. Although the clearing and cultivating of land for agriculture may have initially improved the suitability of the landscape for deer, uncontrolled exploitation for food and hides rapidly reduced deer numbers. By 1880 deer were rarely sighted in much of the state and in 1898 the deer season was legally closed. By this time, deer had been virtually eliminated from all parts of the state.

Re-establishment of deer into the state can be traced to escapes and releases from captive herds and translocation and natural immigration from deer herds in surrounding states. A conservative estimate of the population in 1936 placed statewide numbers between 500 and 700 animals. This small herd grew steadily. By 1950 deer were reported in most counties and the statewide estimate topped 10,000. Concentrations in some areas were beginning to cause problems by damaging agricultural crops in addition to some complaints concerning deer-vehicle collisions. In response to these problems, the first modern deer season was held in December of 1953, and 4,000 deer were killed. The harvest in 1996 exceeded 100,000 for the first time ever.

Although deer are frequently associated with forested areas, they are very adaptable and will utilize many different types of habitat as long as the area provides adequate cover. Examples of these types of areas include brushy draws and fence lines, marshes, and grassy areas like those provided by the federal Conservation Reserve Program (CRP). Standing corn also provides ideal habitat for part of the year since it provides cover and food during portions of the growth cycle. Urban environments can also prove to be good habitat for deer, especially if there are green belts, parks or other natural spaces nearby.

Deer utilize almost all plants for food at one time or another during the year. Deer feeding habits can best be described as being widely selective as deer will sample many plants while feeding, but often utilize a single, palatable source of food for the majority of their diet seasonally. Preferred foods change throughout the year in response to changing metabolic demands and forage availability.

The whitetail's ability to thrive in Iowa is likely the result of abundant, reliable food sources and a winter climate where snow depths rarely exceed 12" for a prolonged length of time. Droughts are also rare, and do not impact the availability of food like they do in some areas of the United States. These factors combine to allow deer to come through the "winter bottleneck" in excellent condition. The excellent nutrition also enables deer to have high reproductive rates. Some one year old does can give birth to single fawn, and many will give birth to multiple fawns each subsequent year. Deer in the wild can maintain these high reproductive rates past 10 years of age. Research in Iowa has found that 8% of adult does have 3 fawns.

Another reason that deer do so well in Iowa is that they are very mobile. Although many deer never move far from the area where they were born, a significant number (10-20% on average) leave and travel to new areas before establishing a core area. These core areas may change seasonally with deer shifting between wintering areas and fawning areas.

These movements allow deer to fill voids left open due to deaths and changing habitat. Thus deer easily pioneer into new areas when habitat is suitable. The highest rates of movement occur during 2 periods of the year. The first is in the spring when does move to their fawning areas. Many of the previous year's fawns find areas of their own at this time. The second period is in the fall during the breeding season. The breeding season or rut begins in mid- October and runs through mid-January, although the peak of activity occurs in mid- November.

Careful management of deer populations by man has also played an important role in allowing deer numbers to return to the levels enjoyed today. Management consists primarily of regulating the doe harvest since hunting provides the major source of mortality for deer in modern day Iowa. Unchecked, Iowa's deer herd could grow at a rate of 20% to 40% each year. At this rate, deer numbers would double in as few as 3 years. With Iowa's long growing season and agricultural crops providing abundant food, densities could exceed 100 or more deer per square mile in year-round deer habitat before natural regulatory mechanisms would begin to affect deer health and slow the rate of growth. Deer numbers this high would cause severe economic hardship to Iowa's landowners as well as alter the natural vegetative community. Maintaining a deer population in balance with the differing and often competing wants and needs of the people in the state is a difficult task and hunting is the only viable management option to achieve this goal.

2016-2017 Hunting Season Results

The reported kill for the 2016/17 season was 101,397 (Table 1.1) which is 4% lower than in 2015 (Table 1.2). There were 1,637 fewer deer licenses issued for the 2016/17 deer season which is 1% lower than the number of deer licenses issued during the 2015/16 season (Table 1.2). Similar to last year, antlerless licenses made up 32% of the deer licenses issued during the 2016/17 deer season (Table 1.1).

The decline in the number of deer licenses issued for the 2016/17 deer season could have resulted in a decline in overall harvest. Unseasonably warm weather during the Youth, Disabled, and Early Muzzleloader seasons was likely the primary factor leading to declines in harvest of 10-19% during those seasons. Specifically, temperatures in September and October 2016 averaged 4.1 degrees (°F) and 4.4 degrees above normal, respectively, with several days during the above-mentioned hunting seasons averaging more than 10 degrees above normal (extremes of 91°F and 94°F were reported at locations in October and September, respectively). At higher temperatures (>61°F), deer reduce their daily activity which will affect their vulnerability to harvest.

Annual harvest has been relatively consistent since 2013 ranging from 99,414 in 2013 to 105,401 in 2015 (Table 1.3). A sustained harvest of 100,000-110,000 is consistent with population goals established by the Iowa Deer Study Advisory Group and is indicative of a stable deer population statewide.

Does represented 46% of the total harvest during the 2016/17 season, a decrease of 1% compared to the 2015/16 season (Table 1.1). The reported number of antlered deer represented 45% of the harvest in 2016/17 and remained stable compared to 2015/2016 (shed-antlered bucks are included in this statistic). There were 676 shed-antlered bucks reported in the harvest. Although this is a slight increase from 541 reported in 2015/16, it still represented about 1% of the total antlered harvest.

Figure 1.1 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 shows what the actual harvest might have looked like using the calculated relationship between the two systems. The reported harvest decreased by 7% when compared to 2015 (Figure 1.2).

Similar to 2015, hunters were only allowed to shoot antlered bucks during the early muzzleloader season and first shotgun season in twenty-seven northwestern counties in 2016 (Table 1.6). The January Antlerless season was discontinued in 2014/15 as population indices indicated the additional days of harvest were no longer needed (Figure 1.1). Landowners could get 1 reduced price either-sex license and up to 4 reduced price antlerless licenses in addition to the regular tags a deer hunter could legally obtain. Sixty-five counties had additional antlerless licenses available. Thirty-four counties in northern and central Iowa had no antlerless quota. Resident hunters in all seasons could obtain an unlimited number of antlerless licenses before the county quota was met, but were limited to the purchase of one antlerless license prior to September 15th. Antlerless licenses were restricted to a specific county and season.

A total of 1,995 deer were reported taken during special management hunts in urban areas, and in state and county parks (Table 1.7). One-thousand eight-hundred and seven deer were reported by hunters using special antlerless depredation licenses that were allotted to hunters on land where landowners were experiencing crop damage problems (Table 1.1).

Five of the top 10 counties for total kill were in the northeast portion of the state in 2016 with the remainder being in southern Iowa. Clayton was again the top county for total reported kill with 4,313 deer and antlered kill density at 2.35 deer harvested per square mile (Table 1.4). Grundy County had the lowest kill with a reported 104 deer.

Shotgun Season

The reported kill during the shotgun seasons was about 1% lower than the reported harvest in 2015 (Table 1.2). This follows a 1% increase between 2014 and 2015. Conditions were fair to slightly below average during shotgun season 2016. Much of the state received snow on the first couple days of the first season with the highest totals recorded in eastern Iowa. Cold temperatures dominated the second season, with the last couple days of second season recording the coldest temperatures of the month (morning lows on December 18 ranged from -8°F to -29°F).

Antlered bucks made up 42% of the total kill, while does made up 47% of the kill. Button bucks made up 11% of the reported harvest and shed-antlered bucks accounted for less than 0.5% (Table 1.1).

Similar to 2015, the reported antlered deer kill per square mile (Figure 1.4) was highest in northeastern and southern Iowa as would be expected due to deer densities and hunting opportunities.

Archery

Archery hunters harvested 22,329 deer including the deer killed on the senior cross bow license. The harvest and license sales were essentially unchanged from 2015.

Sixty-five percent of the deer taken by archers were male, and 59% were antlered bucks (includes shed-antlered bucks, Table 1.1 and Table 1.9).

Muzzleloader

The reported kill during the early muzzleloader season was 3,450, a 15% decrease from 2015. As mentioned earlier, this decline could be attributed to abnormally warm temperatures during this season. License sales for the early muzzleloader season decreased by 2% compared to 2015 (Table 1.1 and Table 1.2), which also could have resulted in a decline in harvest. Bucks made up 59% of the kill, with antlered bucks making up about 52% of the total (Table 1.1).

The reported kill during the late muzzleloader season was 9,560 (Table 1.1 and Table 1.2), remaining essentially the same as 2015 reported harvest. Forty-eight percent of the deer reported were bucks, and 42% of the deer killed during the late muzzleloader season were antlered bucks (includes shed- antlered bucks).

Nonresidents

Nonresidents were issued 6,073 any-deer licenses for the 2016/17 deer hunting seasons (Table 1.1). All of these nonresident hunters also received an antlerless-only license. Additional optional antlerless-only licenses were also available to nonresident hunters.

The reported success rate for the nonresident any-deer licenses was 47%, and 29% for the antlerless-only licenses held by these hunters (Table 1.1). In total, nonresidents reported harvesting 2,893 antlered bucks (including shed-antlered bucks) in 2016/17.

Special Youth/Disabled Hunter Season

The total number of youth season licenses issued (9,755) was 4% lower than in 2015 (Table 1.1 and Table 1.2). This follows a 2% decline between 2015 and 2014. Disabled hunters were issued 429 licenses which was a 4% decrease from 2015. Youth season hunters who did not take a deer during the youth deer hunting season were able to use the deer

hunting license and unused tag during the early or late muzzleloader seasons or one of the two shotgun seasons. Also, an either-sex deer license purchased by either a youth or disabled season hunter did not count towards the maximum number of any-deer licenses allowed in Iowa.

The success rate for youth licenses was 33% with 3,261 deer registered. Fifty-four percent of the deer reported were antlered (including shed-antlered bucks). The success rate for disabled licenses was 30% with 127 deer registered. Forty-two percent of the deer reported were antlered (Table 1.1). Harvest during the youth and disabled seasons was 10% and 19% lower than in 2015, respectively. This is likely due to the abnormally warm temperatures during these seasons which altered deer activity and hunter success.

Special Deer Management Zones

Special management hunts were conducted at 54 locations in 2016/17 and 1,995 deer were reported (Table 1.7). These hunts are designed to meet the management needs of areas such as state and county parks and urban areas that are not suitable to be opened to general regulations. Almost all deer taken were antlerless and deer tagged did not count against a hunter's regular licenses or bag limit. Most hunts were very successful in removing deer in these problem areas.

An additional 3,375 licenses and permits were issued to hunters/landowners in depredation situations which resulted in the reported harvest of 1,807 deer. This is a 4% decrease in the depredation harvest from 2015/16 (Table 1.1 and Table 1.2).

Population Trend Surveys

Four techniques are currently used to monitor trends in Iowa deer populations. These are (1) spotlight surveys conducted by Iowa DNR staff in March and April, (2) the number of deer killed on Iowa's rural highways throughout the year, coupled with annual highway use estimates, (3) the number of animal-related accidents reported to the Department of Transportation, and (4) the bowhunter observation survey coordinated by the Iowa DNR and conducted by volunteers during October– November. All of these surveys correlate well with the reported antlered harvest, and appear to provide reliable long-term trend indices. However, none of these surveys can be considered absolutely reliable indicators of annual changes in the population because of the high variability in the survey conditions, deer behavior, habitat conditions and weather.

Deer populations for the state as a whole have stabilized (Figure 1.5). This is due to the stabilized harvest pressure that has been applied to the female segment of the herd beginning in the 2013/14 hunting season. The goal was to return deer population levels to those that existed in the mid-to-late 1990s. This goal has been achieved on a statewide basis.

The number of deer killed on rural highways decreased by 4% in 2016 (Table 1.11). The trend in road kills (KPBM) declined since 2004 as the deer population was decreased by a concerted effort of hunters utilizing the antlerless licenses authorized by the DNR.

New spotlight routes were initiated in 2006 and replaced the old spotlight routes in 2012. The new routes consist of 199 transects distributed among all counties for a total survey mileage of about 4,750 miles; more than double the transect length of the old spotlight routes. The new spotlight survey transects are also set up to be more representative of the available rural habitats within a county. The average number of deer observed per 25 miles increased by 4% in 2017 (Table 1.11).

The bowhunter observation data, which began to be collected during the 2004 season, has replaced the aerial deer survey as a trend index. This survey represents over 100,000 hours of observation distributed throughout the state and is conducted voluntarily by a randomly selected group of Iowa archers. The tactics typically used during this season (stand hunting) make easier for hunters to gather observational data. Deer observations per hour decreased by 6% in 2016.

The estimated harvest from 2006- 2016 was utilized in the population model and the resulting "best fit" simulation indicates a stable deer population statewide (Figure 1.5). The model has its best correlations with components of the

road kill and bowhunter observation data.

The data indicate that, statewide, the deer herd declined from 2006-2013, and has stabilized after the 2013 hunting season. All of Iowa's counties have reached or are close to the established goal. Now that the deer herd has stabilized statewide, management efforts are being focused at local scales (e.g., single or multiple counties) in response to local population changes as a result of disease or other population changes.

Outlook for 2017

After 10 years of increased doe harvest from 2003 to 2013, the deer population declined from all-time highs in the early 2000's. The goal is a stable population at a level comparable to the mid- to-late 1990s. A population at this level should sustain an annual reported harvest of 100,000 to 120,000 deer, a goal that has been met since the 2012 hunting season.

To stabilize populations, the regulations for 2017 restrict the harvest to antlered deer during the early muzzleloader and first shotgun seasons in 27 north-central and northwestern counties. This is the same as it was during the 2016 hunting season.

Reductions were made to the county antlerless quotas in 22 counties for the 2017 season, largely in response to local population changes and management needs.

Deer numbers are still higher than the department's goals in some areas. However, most of these areas are near urban areas, parks or private refuges and the special hunts and depredation licenses provide the best management opportunity to fine tune the harvest in these areas.

Chronic Wasting Disease (CWD)

The DNR actively monitors diseases affecting deer in the state. Chronic Wasting Disease (CWD) is a neurological disease affecting primarily deer and elk. An abnormal protein, called a prion, attacks the brains of infected animals causing them to lose weight, display abnormal behavior and lose bodily functions. Signs of CWD in deer include excessive salivation, thirst and urination, loss of appetite, weight loss, listlessness and drooping ears and head. It is always fatal to the infected animal.

Iowa has tested more than 62,000 wild deer and more than 4,000 captive deer and elk as part of CWD surveillance efforts since 2002. Samples are collected from all 99 counties in Iowa; however, the majority have been taken in the counties nearest to areas where CWD has been detected in other states. Samples are collected voluntarily from hunter-harvested deer at check stations and meat lockers.

In April 2014, the DNR was notified that a deer harvested south of Harpers Ferry in Yellow River State Forest during the 2013 regular gun season tested positive for CWD. This was the first known case of CWD in a wild deer in the state. Three more CWD positives were reported for deer harvested in 2014, and two in 2015, all from Allamakee County. In 2016, 10 CWD positives were added in Allamakee County and one in Clayton County in northeast Iowa.

As a result of public meetings on February 17, 2015 in Harper's Ferry and Waukon, the DNR and local constituents agreed to begin an intensive sample collection effort in the surveillance area, defined as the sections adjacent to, and including, the sections where the four positive animals were found. The goal of this intensive surveillance is to provide more information on the extent and prevalence of CWD in this area. This information will then be used to guide decisions for future surveillance efforts and hunting seasons.

In 2017, the DNR implemented a special collection season in the CWD zones of Allamakee and Clayton Counties after the regular hunting seasons to increase the number of samples in this area. In Allamakee County, 928 permits were distributed to 520 hunters. A total of 263 deer were harvested as part of this effort, of which 202 CWD samples were collected (samples were not collected from 61 fawns). Of these samples, one deer tested positive for CWD. In Clayton County, 796 permits were distributed to 456 hunters resulting in a total harvest of 158 deer. Samples were collected from 138 deer and no deer tested positive for CWD.

Epizootic Hemorrhagic Disease (EHD)

Epizootic Hemorrhagic Disease (EHD), is spread be a biting midge that causes high fever in infected deer and also causes the cell walls in their heart, lungs and diaphragm to weaken and burst. In dry, drought years it can be worse as deer are more concentrated around water. The deer are attracted to the water to combat the fever and dehydration due to the hemorrhaging. Most deer die in one to four days after being infected with EHD.

Iowa experienced outbreaks of epizootic hemorrhagic disease (EHD) in 2012 and 2013, but only a few scattered reports of EHD were reported in 2014-2016.

Figures

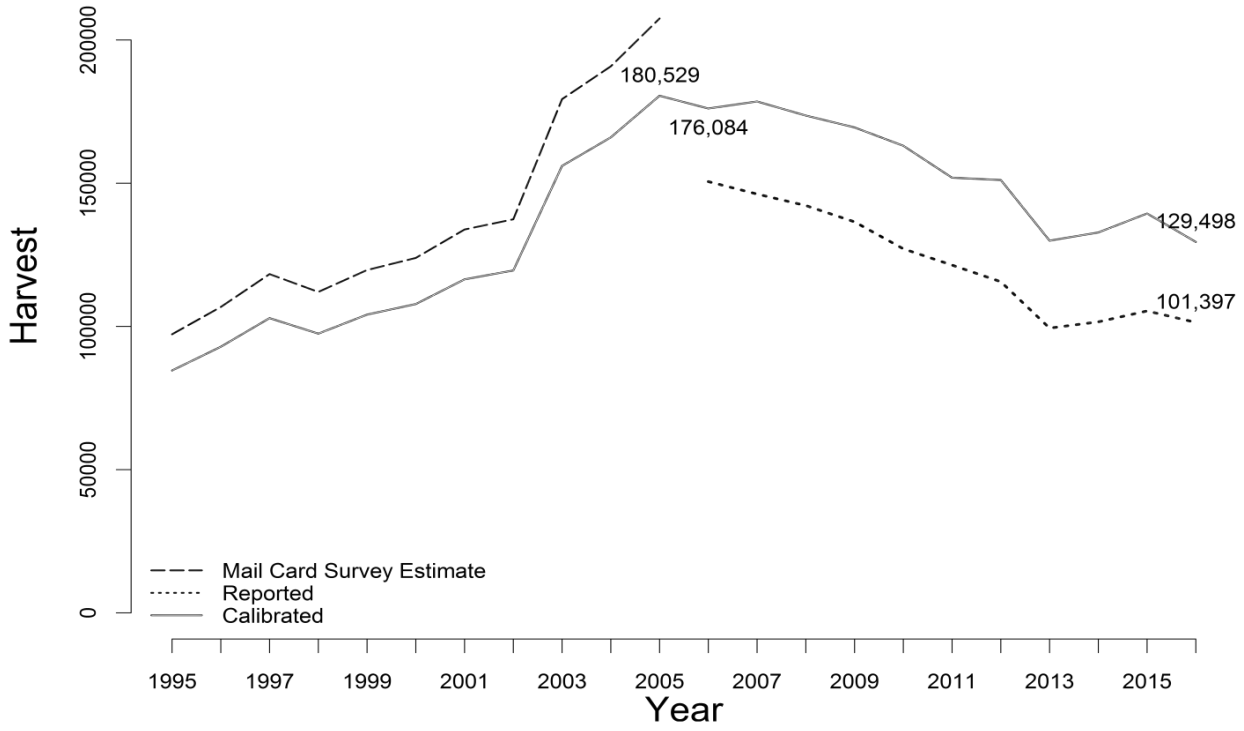


Figure 1.1 Post-season reported harvest and estimates from 1995-1996 to 2016-2017.

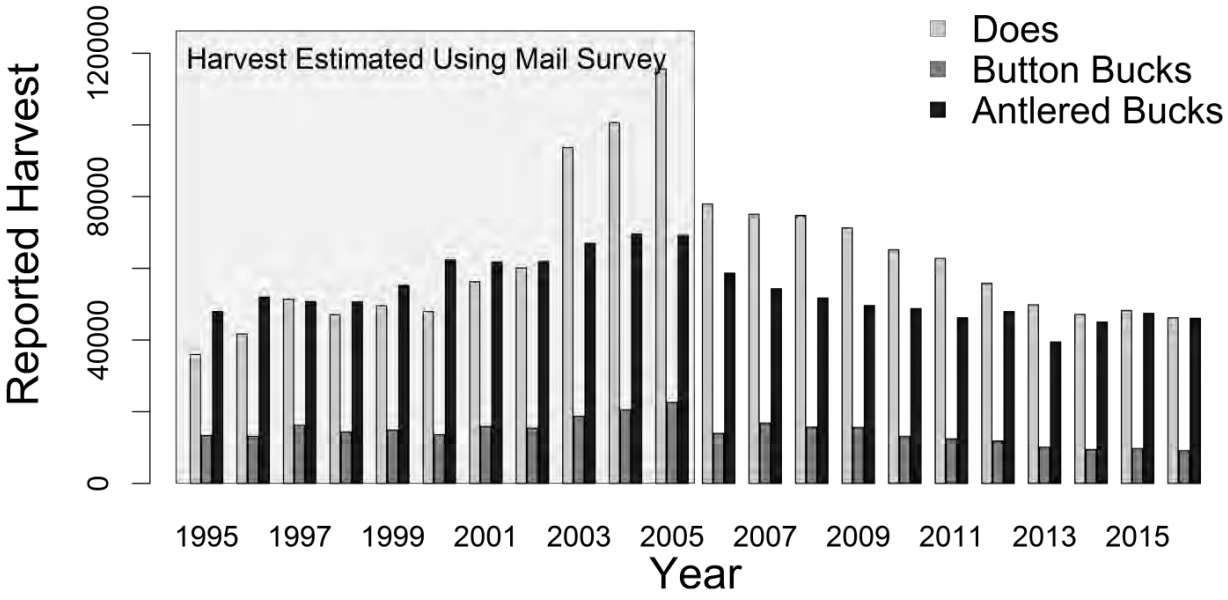


Figure 1.2 Number of does, button bucks, and antlered bucks harvested from 1995-1996 to 2016-2017. Since 2006, harvest was reported and is not directly comparable to previous estimates from mail card survey.

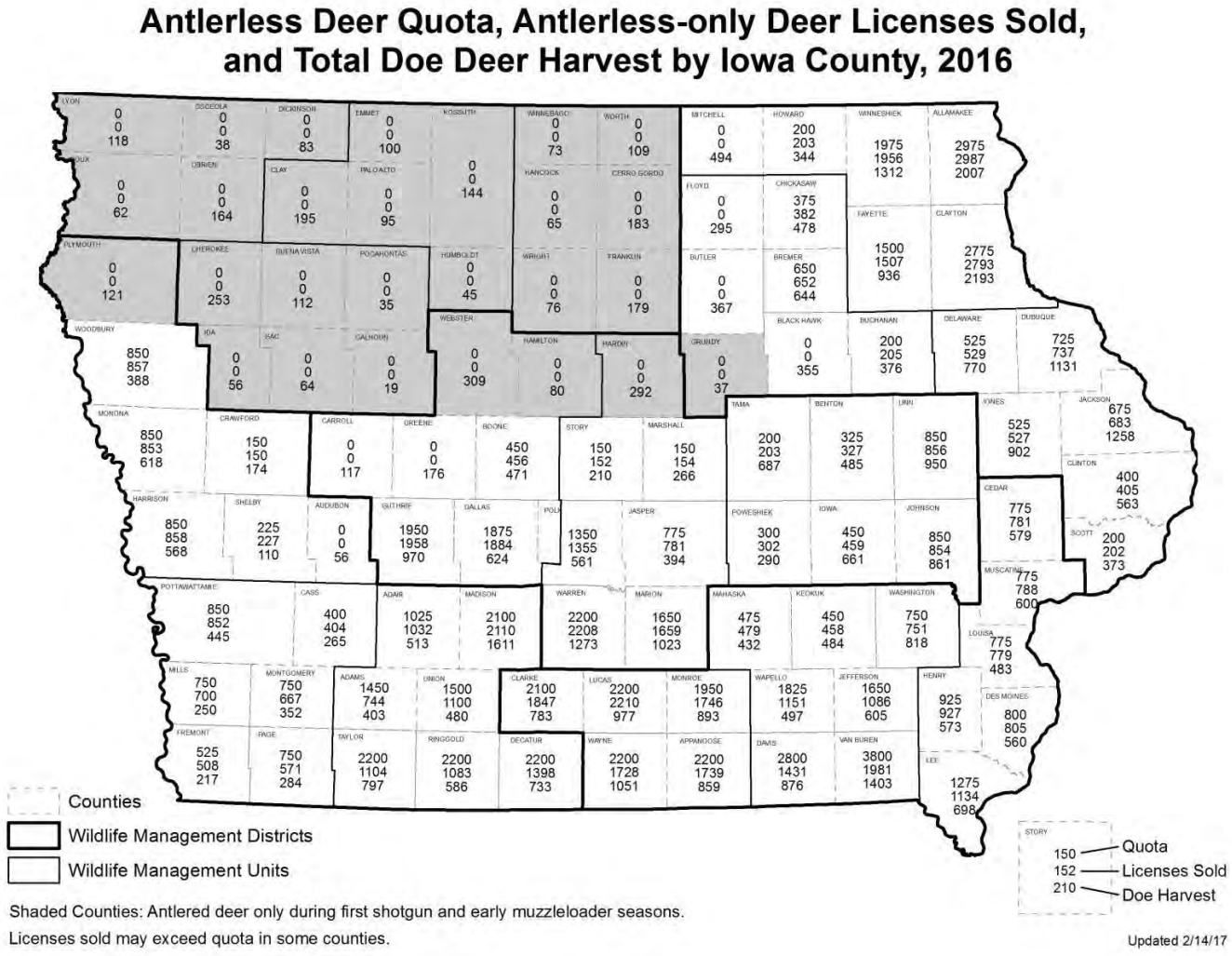


Figure 1.3 Resident antlerless-only deer quota, resident antlerless-only deer licenses sold, and total doe harvest in each county 2016-2017. Doe harvest may exceed licenses sold because antlerless deer could be harvested using either-sex, depredation, or special deer management unit tags.

Buck Harvest Per Square Mile

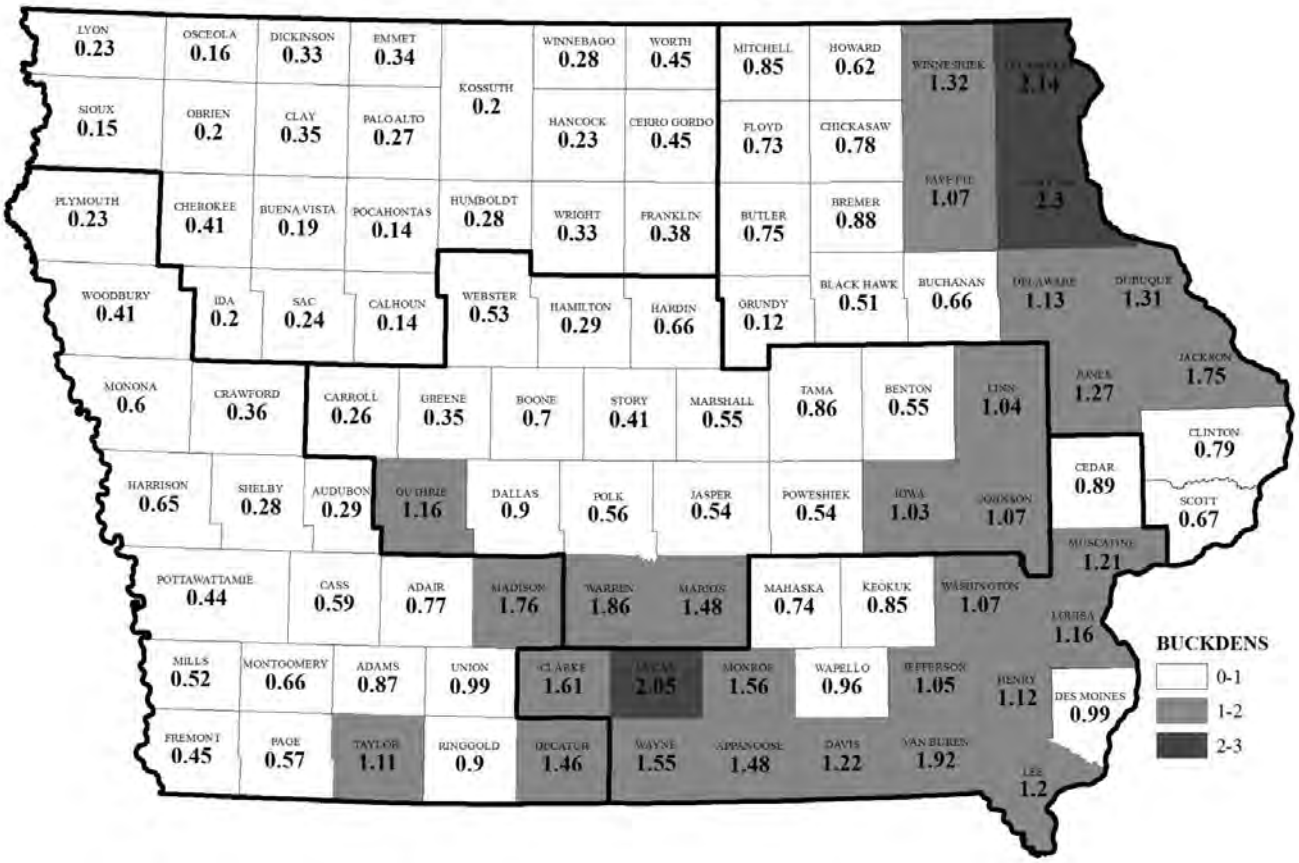
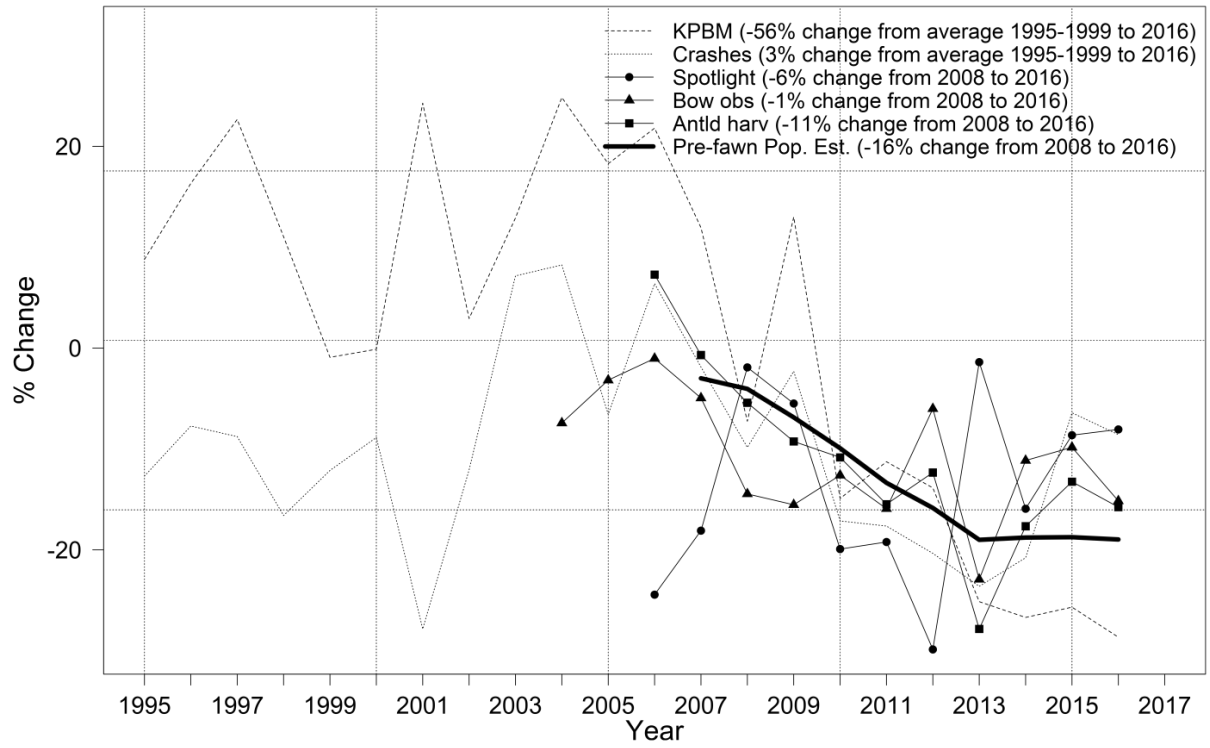


Figure 1.4 Average reported antlered deer harvest/mi^2 in each county during 2016-2017.



KPBM = recovered deer-vehicle collisions (IADOT and Salvage Tags) divided by billion miles driven on secondary highways (IADOT estimate).

Crashes = animal-related crashes reported to IADOT.

Bow obs = bow hunter observation survey from start of archery season through Friday before 1st weekend in December.

Antld harv = reported antlered deer harvest.

Pre-fawn Pop. Est. = pre-fawning (~end-May) population index from deterministic 2-sex, 10-age class accounting model.

Figure 1.5 Deer population indices with simulation, 1995-2016.

Tables

Table 1.1 License sales, hunters, reported harvest, and success rates by license type and season for 2016 – 2017.

Season	Group[1]	Type	Licenses	Hunters	Reported Harvest					Success Rate[2]	Percent Does
					Does	Antlered	Buttons	Sheds	Total		
Youth	Paid	Either-sex	9,177	9,177	1,066	1,756	237	17	3,076	34%	35%
		Antlerless	428	378	131	2	16	0	149	35%	88%
	LOT	Either-Sex	78	78	6	11	2	0	19	24%	32%
		Antlerless	72	72	17	0	0	0	17	24%	100%
		Total	**9,755**	**3,375**	**1,220**	**1,769**	**255**	**17**	**3,261**	**33%**	**37%**
Disabled	Paid	Either-sex	337	322	39	51	8	0	98	29%	40%
		Antlerless	58	42	19	0	3	0	22	38%	86%
	LOT	Either-Sex	21	21	2	2	0	0	4	19%	50%
		Antlerless	13	13	3	0	0	0	3	23%	100%
		Total	**429**	**429**	**63**	**53**	**11**	**0**	**127**	**30%**	**50%**
Early	Paid	Either-sex	7,496	7,496	565	1,571	120	1	2,257	30%	25%
Muzzleloader		Antlerless	1,562	1,203	533	6	90	0	629	40%	85%
	LOT	Either-Sex	1,494	1,494	98	214	17	0	329	22%	30%
		Antlerless	1,022	956	205	6	24	0	235	23%	87%
		Total	**11,574**	**11,574**	**1,401**	**1,797**	**251**	**1**	**3,450**	**30%**	**41%**
Shotgun 1	Paid	Either-sex	49,963	49,962	5,158	12,016	1,413	36	18,623	37%	28%
		Antlerless	14,712	9,514	5,588	93	1,055	16	6,752	46%	83%
Shotgun 2	Paid	Either-sex	44,312	44,312	4,600	6,636	1,301	85	12,622	28%	36%
		Antlerless	13,919	8,659	4,325	55	797	31	5,208	37%	83%
Shotgun 1 & 2	LOT	Either-Sex	22,882	22,882	1,439	3,369	360	15	5,183	23%	28%
		Antlerless	18,253	15,100	4,236	148	768	23	5,175	28%	82%
		Total	**164,041**	**47,634**	**25,346**	**22,317**	**5,694**	**206**	**53,563**	**33%**	**47%**
Late	Paid	Either-sex	21,837	21,837	1,621	3,065	287	148	5,121	23%	32%
Muzzleloader		Antlerless	10,814	7,294	2,513	12	458	130	3,113	29%	81%
	LOT	Either-Sex	2,556	2,556	148	277	35	7	467	18%	32%
		Antlerless	4,270	3,840	718	10	96	35	859	20%	84%
		Total	**39,477**	**39,477**	**5,000**	**3,364**	**876**	**320**	**9,560**	**24%**	**52%**

Season	Group[1]	Type	Licenses	Hunters	Reported Harvest					Success Rate[2]	Percent Does
					Does	Antlered	Buttons	Sheds	Total		
Archery	Paid	Either-sex	56,526	56,526	1,185	11,825	295	34	13,339	24%	9%
		Antlerless	22,548	15,647	5,368	57	870	19	6,314	28%	85%
	LOT	Either-Sex	5,246	5,246	171	1,237	38	5	1,451	28%	12%
		Antlerless	5,155	4,457	1,075	17	128	5	1,225	24%	88%
		Total	**89,475**	**60,054**	**7,799**	**13,136**	**1,331**	**63**	**22,329**	**25%**	**35%**
Senior Crossbow	Paid	Antlerless	270	270	50	0	10	0	60	22%	83%
Special Hunts		Antlerless	4,363	1,911	1,554	4	277	24	1,859	43%	84%
Depredation		Antlerless	3,375	1,441	1,585	11	195	16	1,807	54%	88%
Nonresidents[3]	Paid	Either-sex	6,073	6,073	113	2,697	13	1	2,824	47%	4%
		Antlerless	8,687	8,686	2,056	167	236	28	2,487	29%	83%
Total			**337,669**	**170,781**	**46,191**	**45,379**	**9,151**	**676**	**101,397**	**30%**	**46%**

[1]LOT = landowner/tenant licenses; Paid = non-landowner/tenant licenses.

[2]Percent of licenses that reported harvested deer.

[3]Nonresident licenses for either shotgun 1, shotgun 2, archery, late muzzleloader, disabled hunter, or holiday antlerless-only season.

- Quota of 6,000 nonresident general deer/antlerless-only licenses, 35% of which can be archery licenses. An additional 4,500 antlerless-only licenses are available for either one of the shotgun seasons or the disabled hunter season.

Table 1.2 Comparison of license sales and reported harvest by season for the previous 2 years.

	2015 - 2016		2016 - 2017		% Change	
Season	**Licenses**	**Harvest**	**Licenses**	**Harvest**	**Licenses**	**Harvest**
Youth	10,120	3,640	9,755	3,261	-4%	-10%
Disabled	449	157	429	127	-4%	-19%
Archery	89,652	22,489	89,745	22,389	0%	0%
Early Muzzleloader	11,803	4,042	11,574	3,450	-2%	-15%
Shotgun 1 (Paid)1	66,043	26,671	64,675	25,375	-2%	-5%
Shotgun 2 (Paid)2	58,731	18,543	58,231	17,830	-1%	-4%
Shotgun LOT3	41,624	11,041	41,135	10,358	-1%	-6%
Late Muzzleloader	38,517	9,604	39,477	9,560	2%	0%
Special Hunts	4,232	1,908	4,363	1,859	3%	-3%
Depredation	3,543	1,886	3,375	1,807	-5%	-4%
Nonresidents4	14,652	5,420	14,760	5,311	1%	-2%
Total	**339,366**	**105,401**	**337,669**	**101,397**	**-1%**	**-4%**

[1]1st shotgun season (5-days beginning 1st weekend in Dec) for licenses not claiming landowner/ tenant preference.

[2]2nd shotgun season (9-days beginning 2nd weekend in Dec) for licenses not claiming landowner/ tenant preference.

[3]Both shotgun seasons (14-days) for landowner/tenants choosing the shotgun firearm season.

[4]Nonresident licenses for either shotgun 1, shotgun 2, archery, late muzzleloader, disabled hunter, or holiday antlerless-only season.

-Quota of 6,000 nonresident general deer/antlerless-only licenses, 35% of which can be archery licenses. An additional 4,500 antlerless-only licenses are available for either one of the shotgun seasons or the disabled hunter season.

Table 1.3 Historical data on deer harvest by license type (1953 to present).

Year	Regular Gun			Muzzleloader			Archery	Grand Total*
	Paid	Landowner	Total	Early	Late	Total		
1953	2,401	1,606	4,007				1	4,008
1954	1,827	586	2,413				10	2,423
1955	2,438	568	3,006				58	3,064
1956	2,000	561	2,561				117	2,678
1957	2,187	480	2,667				138	2,805
1958	2,141	588	2,729				162	2,891
1959	1,935	541	2,476				255	2,731
1960	3,188	804	3,992				277	4,269
1961	4,033	964	4,997				367	5,364
1962	4,281	1,018	5,299				404	5,703
1963	5,595	1,017	6,612				538	7,151
1964	7,274	1,750	9,024				670	9,694
1965	6,588	1,322	7,910				710	8,620
1966	9,070	1,672	10,742				579	11,321
1967	7,628	2,764	10,392				791	11,183
1968	9,051	3,890	12,941				830	13,771
1969	6,952	3,779	10,731				851	11,582
1970	8,398	4,345	12,743				1,037	13,780
1971	7,779	2,680	10,459				1,232	11,691
1972	7,747	2,738	10,485				1,328	11,813
1973	10,017	2,191	12,208				1,822	14,030
1974	11,720	4,097	15,817				2,173	17,990
1975	15,293	3,655	18,948				2,219	21,167
1976	11,728	2,529	14,257				2,350	16,607
1977	10,737	2,051	12,788				2,400	15,188
1978	12,815	2,353	15,168				2,957	18,125
1979	14,178	1,971	16,149				3,305	19,454
1980	16,511	2,346	18,857				3,803	22,660
1981	19,224	2,354	21,578				4,368	25,946
1982	19,269	2,472	21,741				4,720	26,461
1983	27,078	3,297	30,375				5,244	35,619
1984	29,912	3,537	33,449		307	307	5,599	39,355
1985	32,613	5,344	37,957		457	457	5,805	44,219
1986	41,352	10,378	51,730	349	728	1,077	9,895	62,702
1987	53,230	10,270	63,500	1,509	1,027	2,536	9,722	75,758
1988	66,757	13,298	80,055	1,835	1,294	3,129	9,897	93,756
1989	67,606	12,963	80,569	2,619	3,715	6,334	11,857	99,712
1990	69,101	9,095	78,196	2,819	5,884	8,703	10,146	98,002
1991	56,811	11,575	68,386	3,120	2,766	5,886	8,807	83,635
1992	50,822	10,453	61,275	3,316	3,231	6,564	8,814	77,684
1993	52,624	8,354	60,978	2,219	2,883	5,102	9,291	76,430

Year	Regular Gun			Muzzleloader			Archery	Grand Total*
	Paid	Landowner	Total	Early	Late	Total		
1994	59,054	8,735	67,789	2,610	3,196	5,806	12,040	87,231
1995	65,206	7,917	73,123	2,831	3,408	6,363	13,372	97,256
1996	71,577	10,896	82,473	2,895	4,558	7,453	12,314	107,632
1997	77,169	10,588	87,757	4,062	5,508	9,570	14,313	118,404
1998	73,165	9,989	83,154	4,448	5,343	9,791	12,302	112,608
1999	74,362	12,966	87,328	5,277	5,329	10,606	15,266	121,635
2000	77,743	13,189	90,932	4,585	5,936	10,521	17,727	126,535
2001	82,721	14,801	97,522	4,593	7,320	11,913	18,798	136,655
2002	77,940	18,932	96,872	5,091	7,772	12,863	20,703	140,490
2003	96,757	25,353	122,110	6,155	12,049	18,204	26,486	182,856
2004	97,830	26,333	124,163	6,818	13,550	20,368	30,025	194,512
2005	96,110	27,988	124,098	7,209	13,930	21,139	32,986	211,451
2006	76,218	14,956	91,174	5,431	8,698	14,129	22,008	150,552
2007	67,175	13,862	81,037	4,462	10,530	14,992	22,240	146,214
2008	63,330	12,762	76,092	4,342	10,254	14,596	21,793	142,194
2009	58,801	12,630	71,431	4,495	9,482	13,977	23,172	136,504
2010	56,511	11,455	67,966	4,026	8,838	12,864	21,154	127,094
2011	52,130	11,009	63,139	4,427	8,165	12,592	21,983	121,407
2012	49,110	10,931	60,041	3,896	10,823	14,719	21,981	115,608
2013	42,442	9,271	51,713	4,027	6,828	10,855	20,319	99,414
2014	44,910	10,701	55,611	3,700	8,793	12,493	21,128	101,595
2015	45,214	11,041	56,255	4,042	9,604	13,646	22,489	105,401
2016	43,205	10,358	53,563	3,450	9,560	13,010	22,389	101,397

[1]Grand Total includes special management unit hunts, nonresidents and youth. Harvest estimates from 2005 and prior are not comparable to subsequent years.

Table 1.4 Total reported deer kill by county during the 2016-2017 deer season.

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Antld. Kill/ Sq. Mile
						Does	Antlered Bucks	
Adair	454	467	99	5	1025	46	44	0.8
Adams	403	354	60	2	819	43	49	0.95
Allamakee	1392	1783	289	36	3500	51	40	2.19
Appanoose	824	806	169	11	1810	45	46	1.58
Audubon	137	56	13	0	206	27	67	0.31
Benton	413	433	90	10	946	46	44	0.58
Black Hawk	304	349	66	2	721	48	42	0.54
Boone	416	441	102	8	967	46	43	0.73
Bremer	396	608	129	10	1143	53	35	0.9
Buchanan	381	374	78	5	838	45	45	0.67
Buena Vista	119	82	16	1	218	38	55	0.21
Butler	450	361	87	4	902	40	50	0.77

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Antld. Kill/ Sq. Mile
						Does	Antlered Bucks	
Calhoun	86	17	9	0	112	15	77	0.15
Carroll	160	115	27	0	302	38	53	0.28
Cass	353	240	48	3	644	37	55	0.63
Cedar	542	558	113	11	1224	46	44	0.93
Cerro Gordo	272	169	28	9	478	35	57	0.47
Cherokee	249	189	24	5	467	40	53	0.43
Chickasaw	403	456	109	6	974	47	41	0.8
Clarke	734	750	123	11	1618	46	45	1.71
Clay	208	155	27	9	399	39	52	0.36
Clayton	1833	2090	339	51	4313	48	42	2.35
Clinton	564	543	137	12	1256	43	45	0.81
Crawford	265	158	33	1	457	35	58	0.37
Dallas	575	599	161	8	1343	45	43	0.96
Davis	658	798	175	6	1637	49	40	1.29
Decatur	841	674	98	9	1622	42	52	1.59
Delaware	661	667	124	10	1462	46	45	1.16
Des Moines	429	551	150	6	1136	49	38	1.05
Dickinson	126	73	12	2	213	34	59	0.33
Dubuque	816	1085	240	11	2152	50	38	1.33
Emmet	138	83	10	1	232	36	59	0.35
Fayette	795	909	166	15	1885	48	42	1.09
Floyd	382	284	77	2	745	38	51	0.76
Franklin	228	161	32	4	425	38	54	0.39
Fremont	253	197	38	2	490	40	52	0.48
Greene	211	162	55	0	428	38	49	0.37
Grundy	64	36	4	0	104	35	62	0.13
Guthrie	733	918	189	11	1851	50	40	1.23
Hamilton	176	77	17	2	272	28	65	0.31
Hancock	135	55	11	2	203	27	67	0.24
Hardin	393	247	62	12	714	35	55	0.68
Harrison	485	503	96	7	1091	46	44	0.7
Henry	512	548	135	9	1204	46	43	1.16
Howard	299	325	57	7	688	47	43	0.63
Humboldt	125	44	11	0	180	24	69	0.29
Ida	89	56	7	0	152	37	59	0.21
Iowa	626	641	145	14	1426	45	44	1.07
Jackson	1151	1191	293	22	2657	45	43	1.79
Jasper	418	391	86	5	900	43	46	0.57
Jefferson	483	577	137	4	1201	48	40	1.11
Johnson	684	842	150	19	1695	50	40	1.11
Jones	755	795	162	22	1734	46	44	1.29

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Antld. Kill/ Sq. Mile
						Does	Antlered Bucks	
Keokuk	520	446	105	3	1074	42	48	0.9
Kossuth	202	126	20	3	351	36	58	0.21
Lee	665	675	136	8	1484	45	45	1.26
Linn	793	937	193	20	1943	48	41	1.11
Louisa	488	475	118	5	1086	44	45	1.21
Lucas	946	919	173	11	2049	45	46	2.18
Lyon	141	101	11	1	254	40	56	0.24
Madison	1056	1325	210	12	2603	51	41	1.87
Mahaska	437	412	87	2	938	44	47	0.76
Marion	877	980	172	12	2041	48	43	1.55
Marshall	322	253	52	5	632	40	51	0.56
Mills	241	236	42	2	521	45	46	0.54
Mitchell	404	395	61	10	870	45	46	0.87
Monona	446	476	79	6	1007	47	44	0.64
Monroe	735	835	143	10	1723	48	43	1.69
Montgomery	297	323	61	4	685	47	43	0.7
Muscatine	550	589	154	5	1298	45	42	1.24
Obrien	122	113	12	2	249	45	49	0.21
Osceola	64	38	4	1	107	36	60	0.16
Page	319	248	50	2	619	40	52	0.6
Palo Alto	154	90	19	0	263	34	59	0.28
Plymouth	209	92	19	1	321	29	65	0.24
Pocahontas	86	30	4	0	120	25	72	0.15
Polk	339	558	144	11	1052	53	32	0.57
Pottawattamie	451	427	71	4	953	45	47	0.47
Poweshiek	337	283	72	5	697	41	48	0.57
Ringgold	524	521	111	6	1162	45	45	0.97
Sac	143	63	10	0	216	29	66	0.25
Scott	320	370	56	9	755	49	42	0.7
Shelby	179	107	31	1	318	34	56	0.3
Sioux	118	59	15	0	192	31	61	0.15
Story	237	205	43	2	487	42	49	0.42
Tama	649	621	101	13	1384	45	47	0.9
Taylor	623	648	87	6	1364	48	46	1.18
Union	450	465	78	8	1001	46	45	1.06
Van Buren	999	1246	238	9	2492	50	40	2.05
Wapello	440	486	97	5	1028	47	43	1.01
Warren	1120	1188	248	9	2565	46	44	1.96
Washington	656	764	167	5	1592	48	41	1.15
Wayne	890	943	144	9	1986	47	45	1.67
Webster	396	268	69	4	737	36	54	0.55

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Antld. Kill/ Sq. Mile
						Does	Antlered Bucks	
Winnebago	124	71	14	3	212	33	58	0.31
Winneshiek	938	1205	186	14	2343	51	40	1.36
Woodbury	379	362	93	3	837	43	45	0.44
Worth	200	101	18	1	320	32	62	0.5
Wright	194	73	18	0	285	26	68	0.34
Total	**45,379**	**46,191**	**9,151**	**676**	**101,397**	**46%**	**45%**	**82%**

Table 1.5 Historical data on deer license issued by license type (1953 – present). Grand total includes special management unit hunts, nonresidents, and youth season licenses.

Year	Regular Gun			Muzzleloader			Archery	Grand Total
	Paid	Landowner	Total	Early	Late	Total		
1953	3,772	a	3,772				10	3,782
1954	3,778	3,368	7,146				92	7,238
1955	5,586	a	5,586				414	6,000
1956	5,440	a	5,440				1,284	6,724
1957	5,997	a	5,997				1,227	7,224
1958	6,000	a	6,000				1,380	7,380
1959	5,999	a	5,999				1,627	7,626
1960	7,000	a	7,000				1,772	8,772
1961	8,000	a	8,000				2,190	10,190
1962	10,001	a	10,001				2,404	12,405
1963	12,001	a	12,001				2,858	14,859
1964	15,993	a	15,993				3,687	19,680
1965	17,491	a	17,491				4,342	21,833
1966	20,811	a	20,811				4,576	25,387
1967	20,812	21,121	41,933				4,413	46,346
1968	20,485	24,796	45,281				5,136	50,417
1969	18,000	23,476	41,476				5,465	46,941
1970	18,000	21,697	39,697				5,930	45,627
1971	18,000	10,522	28,522				6,789	35,311
1972	19,000	11,205	30,205				6,916	37,121
1973	27,530	9,686	37,216				10,506	47,722
1974	33,772	16,329	50,101				12,040	62,141
1975	56,003	17,821	73,824				12,296	86,120
1976	60,196	17,818	78,014				12,522	90,536
1977	58,715	16,289	75,004				12,994	87,998
1978	51,934	15,699	67,633				12,809	80,442
1979	55,718	10,504	66,222				13,378	79,600
1980	64,462	12,858	77,320				15,398	92,718
1981	69,530	14,068	83,598				17,258	100,856
1982	74,331	15,431	89,762				18,824	108,586

Year	Regular Gun			Muzzleloader			Archery	Grand Total
	Paid	Landowner	Total	Early	Late	Total		
1983	75,918	15,067	90,985				19,945	110,930
1984	79,697	16,777	96,474		1,644	1,644	21,648	119,766
1985	82,218	20,674	102,892		1,522	1,522	22,830	127,244
1986	84,858	25,432	110,290	2,246	1,973	4,219	26,521	141,030
1987	91,804	26,780	118,584	3,091	2,710	5,801	28,910	153,295
1988	101,338	28,002	129,340	3,565	3,618	7,183	30,020	166,543
1989	107,171	33,798	140,969	5,995	12,201	18,196	34,745	194,611
1990	106,781	27,106	133,887	6,602	15,949	22,551	35,217	192,551
1991	100,587	30,834	131,421	7,064	11,458	18,522	33,359	184,041
1992	100,461	30,084	130,545	8,280	10,978	19,315	34,165	186,436
1993	96,577	21,887	118,464	7,306	8,926	16,232	30,938	168,017
1994	102,773	22,809	125,582	8,113	9,737	17,850	34,222	180,525
1995	101,053	18,157	119,210	7,193	8,059	15,463	34,434	177,441
1996	106,746	28,080	134,826	8,806	11,820	20,626	36,351	202,834
1997	109,169	24,423	133,592	8,979	15,049	24,028	37,106	211,118
1998	114,358	25,960	140,318	9,504	12,721	22,225	39,506	223,419
1999	113,695	31,196	144,891	10,246	13,260	23,506	43,687	233,690
2000	113,728	32,116	145,844	10,279	15,242	25,521	44,658	229,800
2001	128,041	38,820	166,861	10,037	18,751	28,788	52,002	265,939
2002	118,973	42,989	161,962	9,807	19,479	29,286	51,534	265,185
2003	136,810	52,148	188,958	11,907	23,905	35,812	60,320	322,096
2004	147,797	53,682	201,479	13,125	29,237	42,362	67,393	353,172
2005	143,856	58,248	202,104	13,693	30,717	44,410	73,518	391,864
2006	149,650	40,831	190,481	12,664	32,492	45,156	76,358	377,525
2007	147,424	41,460	188,884	12,558	34,832	47,390	79,991	389,163
2008	150,642	42,186	192,828	12,498	36,611	49,109	84,615	406,169
2009	149,646	41,197	190,843	13,083	37,614	50,697	89,646	405,547
2010	145,107	41,519	186,626	12,433	36,577	49,010	87,734	394,298
2011	143,995	41,973	185,968	12,433	38,192	50,625	88,526	392,930
2012	139,890	42,547	182,437	12,335	38,531	50,866	90,352	378,454
2013	132,608	40,197	172,805	11,832	34,831	46,663	89,286	359,958
2014	128,839	42,436	171,275	11,763	36,822	48,585	86,235	338,984
2015	124,774	41,624	166,398	11,803	38,517	50,320	89,652	339,366
2016	122,906	41,135	164,042	11,574	39,477	51,051	89,745	337,670

a - license not required

Table 1.6 The dates, hours and zones for shotgun, archery, muzzleloader seasons (1953-present).

Year	Zones	Shotgun Dates	Hours	Archery Dates	Hours	Muzzleloader Dates	Hours
1953	45 Counties	Dec 10-14	9am-4pm	Dec 10-14 [a]	9am-4pm		
1954	51 ½ Counties	Dec 10-12	9am-4pm	Dec 10-12 [b]	9am-4pm		
1955	Statewide	Dec 3-5	9am-4pm	Oct 29-Nov 20[c]	6:30am-4pm		
1956	Statewide	Dec 8-9	8am-4pm	Oct 13-Nov 12	6:30am-5pm		
1957	Statewide	Dec 7-8	8am-4pm	Oct 26-Nov 25	6:30am-5pm		
1958	Statewide	Dec 13-14	8am-4pm	Nov 1- Nov 30	6:30am-5:30pm		
1959	Statewide	Dec 12-13	8am-4pm	Oct 31-Nov 30	6:30am-5:30pm		
1960	Statewide	Dec 17-19	8am-4pm	Oct 15-Nov 27	6:30am-5:30pm		
1961	Statewide	Dec 16-18	8am-4pm	Oct 14-Nov 30	6:30am-5:30pm		
1962	Statewide	Dec 15-17	8am-4pm	Oct 13-Dec 1	6:30am-5:30pm		
1963	Long	Dec 14-16	8am-4pm	Oct 12-Dec 1	½ hr before		
1963	Short	Dec 14-15	8am-4pm		sunrise to		
1964	Long	Dec 12-15	8am-4pm	Oct 17-Dec 6	½ hr after		
1964	Short	Dec 12-13	8am-4pm		sunset		
1965	Long	Dec 11-14	8am-4pm	Oct 16-Dec 5	"		
1965	Short	Dec 11-12	8am-4pm				
1966	Long	Nov 19-22	8am-4pm	Oct 15-Nov 13&	"		
1966	Short	Nov 19-20	8am-4pm	Nov 26-Dec 16	"		
1967	1-3	Dec 2-4	8am-4:30pm	Sep 30-Nov 30	"		
1967	4-6	Dec 2-3	8am-4:30pm				
1968	1-2	Dec 7-9	8am-4:30pm	Sep 28-Nov 28	"		
1968	3-4	Dec 7-8	8am-4:30pm				
1969	1,2,4	Dec 6-8	8am-4:30pm	Sep 27- Nov 27	"		
1969	3,5	Dec 6-7	8am-4:30pm				
1970	1,2,4	Dec 5-7	8am-4:30pm	Sep 26-Nov 26	"		
1970	3,5	Dec 5-6	8am-4:30pm				
1971	1-5	Dec 4-5	8am-4:30pm	Oct 16-Nov 28&	"		
1972	1,2,4	Dec 2-3	8am-4:30pm	Oct 6-Nov 26	½ hr before		
1972	3,5[d]	Dec 2-5	8am-4:30pm		sunrise to		
1973	1-5e	Dec 1-5	Sunrise to	Oct 13-Nov 25&	½ hr after		
1973	1-5e		Sunset	Dec 8-16	sunset		
1974	1-5	Dec 7-11	"	Oct 12-Dec 1	"		
1975	1-5	Nov 22-25	"	Oct 11-Nov 21&	"		
1975	1-5	Dec 6-12	"	Nov 26-Dec 5			
1976	1-10	Nov 27-30	"	Oct 2-Nov 26	"		
1976	1-10	Dec 4-10	"				
1977	1-10	Dec 3-6	"	Oct 8-Dec 2	"		
1977	1-10	Dec 10-16	"				
1978	1-10	Dec 2-5	"	Oct 7-Dec 1	"		
1978	1-10	Dec 9-15	"				
1979	1-10	Dec 1-4	"	Oct 6-Nov 30	"		

Year	Zones	Shotgun Dates	Hours	Archery Dates	Hours	Muzzleloader Dates	Hours
1979	1-10	Dec 8-14	"				
1980	1-10	Dec 6-9	"	Oct 11-Dec 5	"		
1980	1-10	Dec 13-19	"				
1981	1-10	Dec 5-8	"	Oct 10-Dec 4	"		
1981	1-10	Dec 12-18	"				
1982	1-10	Dec 4-7	"	Oct 9-Dec 3	"		
1982	1-10	Dec 11-17	"				
1983	1-10	Dec 3-6	"	Oct 8-Dec 2	"		
1983	1-10	Dec 10-16	"				
1984	1-10	Dec 1-4	"	Oct 6-Nov 30	"	Dec 15-21	Sunrise to
1984	1-10	Dec 8-14	"				Sunset
1985	1-10	Dec 7-11	"	Oct 12-Dec 6	"	Dec 21-27	"
1985	1-10	Dec 14-20	"				
1986	1-10	Dec 6-10	"	Oct 11-Dec 5	"	Oct 11-17	½ hr before
1986	1-10	Dec 13-19	"			Dec 20-Jan 4	½ hr after
1987	1-10[e]	Dec 5-9	Sunrise to	Oct 1-Dec 4 &	½ hr before	Oct 10-18	½ hr before
1987	1-10	Dec 12-20	Sunset	Dec 21-Jan 10	sunrise to	Dec 21-Jan 10	sunrise to
1988	1-10	Dec 3-7	"	Oct 1-Dec 2 &	½ hr after	Oct 15-23	½ hr after
1988	1-10	Dec 10-18	"	Dec 19-Jan 10	sunset	Dec 19-Jan 10	sunset
1989	1-10	Dec 2-6	"	Oct 1-Dec 1 &	"	Oct 14-Oct 22	"
1989	1-10	Dec 9-17	"	Dec 18-Jan 10		Dec 18-Jan 10	"
1990	1-10[e]	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13- Oct 21	½ hr before
1990	1-10	Dec 8-16	"	Dec 17-Jan 10		Dec 17-Jan 10	½ hr after
1991	1-10	Dec 7-11	"	Oct 1-Dec 6 &	"	Oct 12- Oct 20	½ hr before
1991	1-10	Dec 14-22	"	Dec 23-Jan 10		Dec 23-Jan 10	sunrise to
1992	1-10	Dec 5-9	"	Oct 1-Dec 4&	"	Oct 10-Oct 18	½ hr after
1992	1-10	Dec 12-20	"	Dec 21-Jan 10		Dec 21-Jan 10	sunset
1993	2	Dec 4-8	"	Oct 1-Dec 3&	"	Oct 9-Oct 17	"
1993	2	Dec 11-19	"	Dec 20-Jan 10		Dec 20-Jan 10	"
1994	Statewide	Dec 3-7	"	Oct 1-Dec 2&	"	Oct 15-Oct 23	"
1994	Statewide	Dec 10-18	"	Dec 19-Jan 10		Dec 19-Jan 10	"
1995	Statewide[f]	Dec 2-6	"	Oct 1-Dec 1&	"	Oct 14-Oct 22	½ hr before
1995	Statewide	Dec 9-17	"	Dec 18-Jan 10		Dec 18-Jan 10	½ hr after
1996	Statewide[g]	Dec 7-11	"	Oct 1-Dec 6&	"	Oct 12-Oct 20	½ hr before
1996	Statewide	Dec 14-22	"	Dec 23-Jan 10		Dec 23-Jan 10	sunrise to
1997	Statewide[h]	Dec 6-10	"	Oct 1-Dec 5&	"	Oct 11-Oct 18	½ hr after
1997	Statewide	Dec 13-21	"	Dec 22-Jan 10		Dec 22-Jan 10	sunset
1998	Statewide[h]	Dec 5-9	"	Oct 1-Dec 4&	"	Oct 17-Oct 25	"
1998	Statewide	Dec 12-20	"	Dec 21-Jan 10		Dec 21-Jan 10	"
1999	Statewide[h]	Dec 4-8	"	Oct 1-Dec 3&	"	Oct 16-Oct 24	"
1999	Statewide	Dec 11-19	"	Dec 20-Jan 10		Dec 20-Jan 10	"
2000	Statewide[i]	Dec 2-6	"	Oct 1-Dec 1&	"	Oct 14-Oct 22	"

Year	Zones	Shotgun Dates	Hours	Archery Dates	Hours	Muzzleloader Dates	Hours
2000	Statewide	Dec 9-17	"	Dec 18-Jan 10		Dec 18-Jan 10	"
2001	Statewide[h]	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13- Oct 21	"
2001	Statewide	Dec 8-16	"	Dec 17-Jan 10		Dec 17-Jan 10	"
2002	Statewide[h]	Dec 7-11	½ hr before	Oct 1-Dec 6 &	"	Oct 12- Oct 20	"
2002	Statewide	Dec 14-22	sunrise to	Dec 23-Jan 10		Dec 23-Jan 10	"
2003	Statewide[h]	Dec 6-10	½ hr after	Oct 1-Dec 5 &	"	Oct 11- Oct 19	"
2003	Statewide	Dec 13-21	sunset	Dec 22-Jan 10		Dec 22-Jan 10	"
2004	Statewide[h]	Dec 4-8	"	Oct 1-Dec 3 &	"	Oct 16- Oct 24	"
2004	Statewide	Dec 11-19	"	Dec 20-Jan 10		Dec 20-Jan 10	"
2005	Statewide[h]	Dec 3-7	"	Oct 1-Dec 2 &	"	Oct 15- Oct 23	"
2005	Statewide	Dec 10-18	"	Dec 19-Jan 10		Dec 19-Jan 10	"
2006	Statewide[h]	Dec 2-6	"	Oct 1-Dec 1 &	"	Oct 14- Oct 22	"
2006	Statewide	Dec 9-17	"	Dec 18-Jan 10		Dec 18-Jan 10	"
2007	Statewide[h]	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13- Oct 21	"
2007	Statewide	Dec 8-16	"	Dec 17-Jan 10		Dec 17-Jan 10	"
2008	Statewide[h]	Dec 6-10	"	Oct 1-Dec 5 &	"	Oct 11- Oct 19	"
2008	Statewide	Dec 13-21	"	Dec 22-Jan 10		Dec 22-Jan 10	"
2009	Statewide[h]	Dec 5-9	"	Oct 1-Dec 4 &	"	Oct 17- Oct 25	"
2009	Statewide	Dec 12-20	"	Dec 21-Jan 10		Dec 21-Jan 10	"
2010	Statewide[h]	Dec 4-8	"	Oct 1-Dec 3 &	"	Oct 16-Oct 24	"
2010	Statewide	Dec 11-19	"	Dec 20-Jan 10		Dec 20-Jan 10	"
2011	Statewide[h]	Dec 3-7	"	Oct 1-Dec 2 &	"	Oct 15-Oct 23	"
2011	Statewide	Dec 10-18	"	Dec 19-Jan 10		Dec 19-Jan 10	"
2012	Statewide[h]	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13- Oct 21	"
2012	Statewide	Dec 8-16	"	Dec 17-Jan 10		Dec 17-Jan 10	"
2013	Statewide[h]	Dec 7-11	"	Oct 1-Dec 6 &	"	Oct 12- Oct 20	"
2013	Statewide	Dec 14-22	"	Dec 23-Jan 10		Dec 23-Jan 10	"
2014	Statewide[i]	Dec 6-10	"	Oct 1-Dec 5 &	"	Oct 11- Oct 19	"
2014	Statewide	Dec 13-21	"	Dec 22-Jan 10		Dec 22-Jan 10	"
2015	Statewide[i]	Dec 5-9	"	Oct 1-Dec 4 &	"	Oct 17- Oct 25	"
2015	Statewide	Dec 12-20	"	Dec 21-Jan 10		Dec 21-Jan 10	"
2016	Statewide[i]	Dec 3-7	"	Oct 1-Dec2 &	"	Oct 15-Oct 23	"
2016	Statewide	Dec 10-18	"	Dec 19-Jan 10	"	Dec 19-Jan 10	"

[a]Open for same counties as shotgun
[b]Same counties as shotgun plus 5 1/2 counties from Dec 1-12 bow-only
[c]Open statewide in all following years
[d]Modified bucks-only, license quota
[e]Unlimited bucks-only statewide in all following years
[f]34 counties were any-sex during 1st season and 74 were bucks only during first 7 days of the 2nd season
[g]35 counties were any-sex during 1st season and 26 were bucks only during the first 5 days of the 2nd season
[h]all counties were any-sex during both seasons
[j]27 counties were buck-only during 1st shotgun and early muzzleloader

Table 1.7 Results from controlled hunts in special management deer zone 2016-2017.

Area	Type	Licenses Available	Licenses Sold	Reported Harvest
AMANA COLONIES ZONE	Archery & Firearm	250	138	63
AMES (CITY)	Archery	50	23	12
AMES (PERIMETER)	Archery & Firearm	50	36	11
BETTENDORF & RIVERDALE	Archery	125	102	44
CEDAR RAPIDS (CITY)	Archery	400	225	150
CLINTON (CITY)	Archery	75	58	26
CORALVILLE (CITY)	Archery	200	140	56
COUNCIL BLUFFS (CITY)	Archery	300	125	69
DAVENPORT (CITY)	Archery	250	255	86
DE SOTO NWR	Muzzleloader Oct. 22 - 23	100	22	2
DE SOTO NWR	Muzzleloader Dec. 17 - 18	100	17	0
DENISON (CITY)	Archery	50	22	9
DUBUQUE (CITY)	Archery	250	230	95
DUBUQUE COUNTY	Archery & Firearm	250	103	35
ELDORA (CITY)	Archery	50	25	15
ELK ROCK STATE PARK	Muzzleloader	25	25	11
GREEN VALLEY STATE PARK	Muzzleloader	30	30	22
IAAP	Archery & Firearm	1,200	499	260
IOWA FALLS (CITY)	Archery	50	50	24
IOWA FALLS (PERIMETER)	Archery & Firearm	30	20	12
JEFFERSON COUNTY PARK	Archery	25	12	4
JOHNSON COUNTY	Archery & Firearm	500	500	146
KENT PARK (ARCHERY)	Archery	100	34	13
KEOKUK (CITY)	Archery	50	20	9
KNOXVILLE (CITY)	Archery	25	2	0
LAKE AHQUABI STATE PARK	Archery	30	18	9
LAKE AHQUABI STATE PARK	Mentor	15	7	3
LAKE IOWA COUNTY PARK	Archery	50	27	14
LAKE IOWA COUNTY PARK	Muzzleloader	75	24	11
LAKE MACBRIDE STATE PARK	Archery	50	33	7
LEDGES STATE PARK	Archery	30	29	16
LINN COUNTY	Archery & Firearm	400	205	62
MAQUOKETA CAVES STATE PARK	Archery	30	22	12
MARSHALLTOWN (CITY)	Archery	60	42	15
MARSHALLTOWN (PERIMETER)	Archery & Firearm	40	23	4
MASON CITY	Archery	50	50	20
MOUNT PLEASANT (CITY)	Archery	50	12	4
MUSCATINE (CITY)	Archery	150	118	57
OSKALOOSA (CITY)	Archery	100	50	21
OTTUMWA (CITY)	Archery	125	87	38
PINE LAKE STATE PARK	Archery	30	22	11

Area	Type	Licenses Available	Licenses Sold	Reported Harvest
POLK-DALLAS ARCHERY ONLY	Archery	1,000	715	357
POLK-DALLAS RURAL ZONE	Archery & Firearm	75	27	7
REICHELT AREA	Muzzleloader	30	25	6
RIVERSIDE PK CARROLL CCB	Archery	40	10	6
SCOTT COUNTY PARK	Archery	50	43	11
SMITH WILDLIFE AREA	Firearm Dec. 3 - 7	3	2	1
SMITH WILDLIFE AREA	Firearm Dec. 10 - 18	3	3	1
SMITH WILDLIFE AREA	Firearm Dec. 19 - Jan 10.	3	0	0
SPRINGBROOK STATE PARK	Archery & Firearm	30	20	8
SQUAW CREEK PARK	Archery	100	47	20
STONE STATE PARK	Archery	50	40	14
WAPSI ENVIRONMENTAL CENTER	Mentor	4	0	0
WATERLOO & CEDAR FALLS	Archery	290	238	86
Totals		**7,498**	**4,652**	**1,995**

Table 1.8 Reported deer harvest by county in each of the seasons, 2016-2017.

County	Residents								Nonresidents				Total
	Dep	Youth/ Disabled	Muzz			Shotgun			Late		Shotgun		
			Arch	Early	Late	Gun 1	Gun 2	LOT	Arch	Muzz	Gun 1	Gun 2	
Adair	16	20	147	22	118	308	247	92	8	0	37	10	1,025
Adams	15	23	125	14	87	211	157	75	29	10	56	15	819
Allamakee	76	79	581	148	304	1236	448	319	49	29	177	48	3,500
Appanoose	0	52	417	63	204	488	242	128	71	31	80	34	1,810
Audubon	0	6	36	4	18	56	45	35	4	0	2	0	206
Benton	46	42	214	52	90	183	177	126	3	0	10	2	946
Black Hawk	2	26	148	49	46	172	108	79	0	0	6	0	721
Boone	23	42	226	52	99	226	143	119	8	1	6	5	967
Bremer	38	35	300	47	112	341	140	117	2	0	8	3	1,143
Buchanan	0	47	162	32	62	349	69	112	0	0	5	0	838
Buena Vista	28	17	47	7	19	24	49	21	1	0	5	0	218
Butler	0	45	168	30	66	271	149	161	4	0	5	3	902
Calhoun	0	3	31	4	5	26	26	11	0	0	3	3	112
Carroll	0	20	42	15	39	84	47	44	0	2	2	1	302
Cass	0	23	125	12	59	177	129	74	4	2	24	15	644
Cedar	10	37	284	66	124	289	242	142	9	4	12	5	1,224
Cerro Gordo	15	16	135	23	55	73	85	47	2	0	5	2	478
Cherokee	59	14	99	16	50	81	85	49	3	0	7	4	467
Chickasaw	0	49	173	45	88	302	145	135	10	2	22	1	974
Clarke	9	75	419	45	198	340	315	141	17	22	23	14	1,618
Clay	34	23	80	21	58	49	73	36	8	3	14	0	399
Clayton	42	153	785	193	305	1536	722	460	25	7	67	13	4,313
Clinton	4	31	276	41	68	296	343	144	2	1	21	4	1,256
Crawford	7	5	75	7	43	157	86	47	1	0	17	3	457
Dallas	21	40	438	40	143	321	241	72	3	0	6	2	1,343
Davis	27	53	370	59	150	262	323	210	56	30	43	51	1,637
Decatur	13	44	409	52	224	274	234	151	77	34	74	34	1,622
Delaware	102	75	306	74	124	450	150	159	4	0	15	2	1,462
Des Moines	0	41	234	31	79	204	175	86	6	4	7	9	1,136
Dickinson	7	10	69	10	23	23	42	21	2	0	3	3	213

County	Residents								Nonresidents				Total
	Dep	Youth/ Disabled	Muzz			Shotgun			Late		Shotgun		
			Arch	Early	Late	Gun 1	Gun 2	LOT	Arch	Muzz	Gun 1	Gun 2	
Dubuque	40	85	412	88	104	678	383	215	6	0	16	1	2,152
Emmet	0	11	53	8	28	32	52	22	1	0	15	10	232
Fayette	0	67	411	73	147	685	257	197	7	4	21	13	1,885
Floyd	7	25	146	31	77	207	112	116	9	0	6	9	745
Franklin	12	6	67	7	43	63	133	78	5	3	6	2	425
Fremont	4	9	112	11	67	127	67	35	17	5	28	8	490
Greene	8	15	78	13	28	102	97	71	2	3	10	1	428
Grundy	0	4	33	6	3	16	23	18	0	0	1	0	104
Guthrie	23	60	527	46	196	526	254	138	23	4	35	9	1,851
Hamilton	0	4	60	12	32	54	64	32	4	0	7	3	272
Hancock	12	11	42	10	25	41	44	13	1	0	4	0	203
Hardin	48	39	147	23	55	93	145	82	6	1	12	2	714
Harrison	18	33	245	34	131	253	175	92	21	17	58	13	1,091
Henry	0	35	271	27	73	356	260	137	4	2	25	8	1,204
Howard	2	36	139	33	42	199	70	127	9	4	26	1	688
Humboldt	0	6	49	5	19	41	44	13	0	0	1	2	180
Ida	0	3	21	3	16	25	48	32	2	0	2	0	152
Iowa	5	34	225	47	111	393	321	171	9	4	15	3	1,426
Jackson	19	57	505	92	167	656	751	295	19	8	68	8	2,657
Jasper	0	29	190	21	89	270	192	94	0	1	7	2	900
Jefferson	0	33	231	18	116	362	251	126	6	8	37	9	1,201
Johnson	6	50	407	91	138	348	279	139	3	0	19	0	1,695
Jones	92	52	303	63	128	463	363	220	11	5	28	6	1,734
Keokuk	4	23	153	23	79	328	233	158	21	11	32	8	1,074
Kossuth	14	23	80	10	50	55	81	28	4	0	5	1	351
Lee	5	53	351	37	98	439	247	202	13	0	22	4	1,484
Linn	5	78	531	78	216	301	290	206	3	1	5	3	1,943
Louisa	0	35	278	33	73	350	185	118	6	0	3	3	1,086
Lucas	8	68	495	45	207	513	312	201	86	25	57	32	2,049
Lyon	16	14	64	14	19	37	66	19	3	0	2	0	254

County	Residents								Nonresidents				Total
	Dep	Youth/ Disabled	Muzz			Shotgun			Late		Shotgun		
			Arch	Early	Late	Gun 1	Gun 2	LOT	Arch	Muzz	Gun 1	Gun 2	
Madison	239	81	650	54	233	508	481	239	10	13	60	32	2,603
Mahaska	0	24	166	33	81	286	176	109	17	1	16	9	938
Marion	26	83	550	75	248	504	345	162	3	4	21	8	2,041
Marshall	1	9	125	29	56	173	132	63	2	5	9	9	632
Mills	1	6	144	23	61	81	123	48	8	4	18	4	521
Mitchell	86	57	140	39	85	216	95	109	5	0	36	2	870
Monona	80	18	196	46	70	174	208	49	44	29	41	50	1,007
Monroe	0	43	426	51	228	383	279	125	55	50	45	36	1,723
Montgomery	0	8	111	6	72	213	161	47	16	6	30	12	685
Muscatine	7	40	329	52	111	252	297	136	7	0	10	3	1,298
O'Brien	49	25	43	9	27	40	22	23	4	0	4	2	249
Osceola	0	5	28	5	15	12	37	5	0	0	0	0	107
Page	6	17	116	19	34	178	118	62	13	11	36	8	619
Palo Alto	0	13	49	10	23	43	98	16	1	0	9	1	263
Plymouth	25	16	80	13	48	38	66	22	1	2	8	2	321
Pocahontas	0	6	21	2	7	34	33	9	2	1	3	2	120
Polk	0	32	349	23	41	137	127	16	0	0	4	1	1,052
Pottawattamie	1	19	291	37	89	155	183	66	6	9	14	15	953
Poweshiek	2	21	131	21	76	197	153	81	0	0	14	1	697
Ringgold	27	28	171	42	127	341	194	126	26	14	42	24	1,162
Sac	0	18	55	6	19	40	53	24	0	1	0	0	216
Scott	0	17	251	22	51	93	122	54	1	1	3	5	755
Shelby	0	7	93	3	52	68	57	31	2	0	4	1	318
Sioux	2	21	50	9	17	24	46	19	2	0	0	2	192
Story	4	23	154	22	51	88	77	42	1	0	1	3	487
Tama	42	62	255	45	161	356	233	177	13	5	23	12	1,384
Taylor	44	25	201	27	114	254	294	94	75	49	131	56	1,364
Union	0	29	179	20	137	282	181	95	21	9	21	5	1,001
Van Buren	49	62	534	97	238	555	366	271	96	70	113	38	2,492
Wapello	0	53	288	36	66	202	189	113	9	2	17	14	1,028

County	Residents								Nonresidents				Total
	Dep	Youth/ Disabled	Muzz			Shotgun			Late		Shotgun		
			Arch	Early	Late	Gun 1	Gun 2	LOT	Arch	Muzz	Gun 1	Gun 2	
Warren	59	121	854	90	252	465	381	252	26	10	31	8	2,565
Washington	35	44	332	37	214	357	277	246	11	5	20	13	1,592
Wayne	1	78	397	36	325	421	242	193	53	52	133	53	1,986
Webster	40	29	178	22	72	82	208	73	17	2	13	1	737
Winnebago	1	6	65	7	33	26	58	12	0	1	3	0	212
Winneshiek	19	62	403	68	219	987	200	235	28	9	97	16	2,343
Woodbury	19	29	280	24	88	180	144	41	8	2	4	4	837
Worth	0	15	89	9	58	43	64	30	2	0	10	0	320
Wright	0	8	68	5	24	65	74	35	0	0	2	4	285
Total	**1,807**	**3,404**	**22,389**	**3,450**	**9,560**	**25,375**	**17,830**	**10,358**	**1,294**	**655**	**2,381**	**903**	**101,397**

Table 1.9 A summary of archery season dates, hours, success rates and other information (1953-present).

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
1953	Dec 10-14	9am-4pm		10		Open for same counties as shotgun. 40 lb draw limit. $15 fee. Limit 1/day
1954	Dec 1-9					Open in portions of 6 counties
1954	Dec 10-12	9am-4pm		11		Open for same counties as shotgun plus 5 ½ others.
1955	Oct 29-Nov 20	6:30am-4pm		14		Open statewide 1955 - present. Limit 1/season. $10 fee.
1956	Oct 13-Nov 12	6:30am-5pm		10		Separate archery license.
1957	Oct 26-Nov 25	6:30am-5pm		11		
1958	Nov 1- Nov 30	6:30am-5:30pm		12		
1959	Oct 31-Nov 30	6:30am-5:30pm		16		
1960	Oct 15-Nov 27	6:30am-5:30pm		16		
1961	Oct 14-Nov 30	6:30am-5:30pm		17		
1962	Oct 13-Dec 1	6:30am-5:30pm		17		
1963	Oct 12-Dec 1	½ hr before sunrise to		19		
1964	Oct 17-Dec 6	½ hr after sunset		19		30 lb minimum limit on draw weight.
1964	Oct 17-Dec 6	“				
1965	Oct 16-Dec 5	“		17		

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
1966	Oct 15-Nov 13&	“		13		No draw limit.
	Nov 26-Dec 16	“				
1967	Sep 30-Nov 30	“		19		
1968	Sep 28-Nov 28	“		17		
1969	Sep 27- Nov 27	“		16		
1970	Sep 26-Nov 26	“		18	14	
1971	Oct 16-Nov 28&	“		19	13	
	Dec 6-12	“				
1972	Oct 6-Nov 26	“	66	20	13	
1973	Oct 13-Nov 25&	“	59	18	11	
	Dec 8-16	“				
1974	Oct 12-Dec 1	“			.	Licenses issued by county recorder
1975	Oct 11-Nov 21&	“				
	Nov 26-Dec 5	“				
1976	Oct 2-Nov 26	“	60	20	14	
1977	Oct 8-Dec 2	“	64	20	16	
1978	Oct 7-Dec 1	“	62	25	15	$ 15 fee.
1979	Oct 6-Nov 30	“	63	26	16	
1980	Oct 11-Dec 5	“				
1981	Oct 10-Dec 4	“	68	26	17	
1982	Oct 9-Dec 3	“	67	26	16	
1983	Oct 8-Dec 2	“	69	28	16	
1984	Oct 6-Nov 30	“	69	27	16	
1985	Oct 12-Dec 6	½ hr before	68	26	15	$ 20 fee.
1986	Oct 11-Dec 5	sunrise to	72	38	17	Limit 1/Bow and 1/Gun
1987	Oct 1-Dec 4 &	½ hr after	68	35		Added late season.
	Dec 21-Jan 10	sunset				
1988	Oct 1-Dec 2 &	“	71	35	16	
	Dec 19-Jan 10	“				
1989	Oct 1-Dec 1 &	“	73	36	20	Bonus 2nd tag for antlerless deer
	Dec 18-Jan 10	“				statewide
1990	Oct 1-Nov 30 &	“	65	32	19	Bonus tag for antlerless early or any sex late, statewide

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
	Dec 17-Jan 10	“				
1991	Oct 1-Dec 6 &	“	73	28	17	Bonus tag for antlerless deer available only in zones 3a,4a,5a and 6. $25 fee.
	Dec 23-Jan 10	“				
1992	Oct 1-Dec 4 &	“	69	28	15	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
	Dec 21 -Jan 10	“				
1993	Oct 1-Dec 3 &	“	73	32	17	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
	Dec 20-Jan 10	“				
1994	Oct 1-Dec 2&	“	77	37	16	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
	Dec 19-Jan 10	“				
1995	Oct 1-Dec 1&	“	76	39	17	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
	Dec 18-Jan 10	“				
1996	Oct 1-Dec 6&	“	78	37	16	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
	Dec 23-Jan 10	“				
1997	Oct 1-Dec 5&	“	71	42	17	Bonus tag for antlerless deer available only in bonus antlerless zone. Could get firearm license also.
	Dec 22-Jan 10	“				
1998	Oct 1-Dec 4&	“	76	34	15	Bonus tag for antlerless deer available only in bonus antlerless zone. Could get firearm license also.
	Dec 21-Jan 10	“				
1999	Oct 1-Dec 3&	“	79	37	16	Bonus tag for antlerless deer available only in bonus antlerless zone. Could get firearm license also.
	Dec 20-Jan 10	“				
2000	Oct 1-Dec 1&	“	80	44	17	Bonus tag for antlerless deer available only in bonus antlerless zone. Could get firearm license also.
	Dec 18-Jan 10	“				
2001	Oct 1-Nov 30&	“	75	37	17	Bonus tag for antlerless deer available in every county.
	Dec 17-Jan 10	“				
2002	Oct 1-Dec 6 &	“	66	39	17	Bonus tag for antlerless deer available in every county.
	Dec 23-Jan 10	“				
2003	Oct 1-Dec 5 &	“	54	44	18	Bonus tag for antlerless deer available in every county.
	Dec 22-Jan 10	“				
2004	Oct 1-Dec 3 &	“	54	46	18	Bonus tag for antlerless deer available in every county.
	Dec 20-Jan 10	“				
2005	Oct 1-Dec 2 &	“	54	53	17	Bonus tag for antlerless deer available in every county.
	Dec 19-Jan 10	“				
2006	Oct 1-Dec 1 &	“	57	29[a]	NA	Tags for antlerless deer available in 79 counties.

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
	Dec 18-Jan 10	“				
2007	Oct 1-Nov 30 &	“	59	28	NA	Tags for antlerless deer available in 77 counties.
	Dec 17-Jan 10	“				
2008	Oct 1-Dec 5 &	“	58	26	NA	Tags for antlerless deer available in 77 counties.
	Dec 22-Jan 10	“				
2009	Oct 1-Dec 4 &	“	58	26	NA	Tags for antlerless deer available in 77 counties.
	Dec 21-Jan 10	“				
2010	Oct 1-Dec 3 &	“	60	24	NA	Tags for antlerless deer available in 72 counties.
	Dec 20-Jan 10	“				
2011	Oct 1-Dec 2 &	“	60	25	NA	Tags for antlerless deer available in 72 counties.
	Dec 19-Jan 10	“				
2012	Oct 1-Nov 30 &	“	61	25	NA	Tags for antlerless deer available in 72 counties.
	Dec 17-Jan 10	“				
2013	Oct 1-Dec 6 &	“	60	23	NA	Tags for antlerless deer available in 72 counties.
	Dec 23-Jan 10	“				
2014	Oct 1-Dec 5 &	“	63	24	NA	Tags for antlerless deer available in 65 counties.
	Dec 22-Jan 10	“				
2015	Oct 1-Dec 4 &	“	64	25	NA	Tags for antlerless deer available in 65 counties.
	Dec 21-Jan 10	“				
2016	Oct 1-Dec 2 &	“	65	25	NA	Tags for anterless deer available in 65 counties
	Dec 19-Jan 10	“				

[a]Success rates from 2005 and prior are not comparable to subsequent years.

Table 1.10 Summary of muzzleloader season dates, hours, success rates and other information (1984-present).

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
1984	Dec 15-21	Sunrise to Sunset	45	22	6	1500 A-S Quota. $15 fee.
1985	Dec 21-27	"	44	34	4	2000 A-S Quota. $20 fee.
1986	Oct 11-17	½ hr before	100	17	4	2500 B-O Quota.
	Dec 20-Jan 4	sunrise to	43	40	6	Unlimited A-S Quota.
1987	Oct 10-18	½ hr after	55	52	8	3000 A-S Quota
	Dec 21-Jan 10	sunset	46	42	6	Unlimited A-S Quota.
1988	Oct 15-23	"	55	55	4	3500 A-S Quota
	Dec 19-Jan 10	"	41	39	6	Unlimited A-S Quota.
1989	Oct 14-22	"	55	49	5	5000 A-S Quota
	Dec 18-Jan 10	"	28	39	9	Unlimited A-S Quota. Could hunt during shotgun & late muzzleloader seasons.
1990	Oct 13-21	"	53	46	5	5000 A-S Quota
	Dec 17 -Jan 10	"	50	45	8	Could hunt shotgun & late muzzleloader season.
1991	Oct 12-20	"	54	47	5	5000 A-S Quota
	Dec 23 -Jan 10	"	40	33	8	Could hunt shotgun & late muzzleloader season, but all 2nd tags valid for antlerless only in zones 3a,4a,5a&6.
1992	Oct 10-18	"	60	45	4	7500 Anysex license quota.
	Dec 21-Jan 10	"	40	36	8	All second licenses antlerless, Zones 4a,5a&6.
1993	Oct 9-17	"	71	34	5	7500 license quota, 65 counties buck-only.
	Dec 20-Jan 10	"	46	39	8	Antlerless in 14 counties, 35 counties buck-only.
1994	Oct 15-23	"	78	36	5	7500 license quota, 67 counties buck-only.
	Dec 19-Jan 10	"	52	39	8	Antlerless in 14 counties, 35 counties buck-only.
1995	Oct 14-22	"	73	43	5	7500 license quota, 69 counties buck-only.
	Dec 18-Jan 10	"	55	46	8	No antlerless tags, 29 counties modified buck-only.
1996	Oct 12-20	"	75	39	5	7500 license quota, 64 counties buck-only.
	Dec 23-Jan 10	"	49	46	7	Antlerless in 15 1/2 counties, 26 modified buck-only.
1997	Oct 11-19	"	55	62	4	7500 license quota, no counties buck only
	Dec 22-Jan 10	"	44	52	7	Antlerless in 19 1/2 counties, no counties buck-only.
1998	Oct 17-25	"	64	52	5	7500 license quota, no counties buck only
	Dec 21-Jan 10	"	54	50	7	Antlerless in 20 counties, no counties buck-only.
1999	Oct 16-24	"	60	57	4	7500 license quota, no counties buck only

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
	Dec 20-Jan 10	“	52	46	7	Antlerless in 21 counties, no counties buck-only.
2000	Oct 14-22	“	60	53	4	7500 license quota, 16 counties modified buck only
	Dec 18-Jan 10	“	50	47	7	Antlerless in 21 counties, no counties buck-only.
2001	Oct 13-21	“	54	53	4	7500 license quota, no counties buck only
	Dec 17-Jan 10	“	52	44	8	Antlerless in all counties, no counties buck-only.
2002	Oct 12- Oct 20	“	65	56	4	7500 license quota, no counties buck only
	Dec 23-Jan 10	“	41	46	6	Antlerless in all counties, no counties buck-only.
2003	Oct 11- Oct 19	“	54	55	4	7500 license quota, no counties buck only
	Dec 22-Jan 10	“	37	51	6	Antlerless in all counties, no counties buck-only.
2004	Oct 16- Oct 24	“	55	58	5	7500 license quota, no counties buck only
	Dec 20-Jan 10	“	37	48	6	Antlerless in all counties, no counties buck-only.
2005	Oct 15- Oct 23	“	53	58	4	7500 license quota, no counties buck only
	Dec 19-Jan 10	“	32	54	6	Antlerless in all counties, no counties buck-only.
2006	Oct 14-22	“	55	43[a]	NA	7500 license quota, no counties buck only
	Dec 18-Jan 10	“	41	27	NA	Antlerless in 79 counties, no counties buck-only.
2007	Oct 13-21	“	55	35	NA	7500 license quota, no counties buck only
	Dec 17-Jan 10	“	44	30	NA	Antlerless in 77 counties, no counties buck-only.
2008	Oct 11-19	“	53	35	NA	7500 license quota, no counties buck only
	Dec 22-Jan 10	“	43	28	NA	Antlerless in 77 counties, no counties buck-only.
2009	Oct 17-25	“	55	34	NA	7500 license quota, no counties buck only
	Dec 21-Jan 10	“	45	26	NA	Antlerless in 77 counties, no counties buck-only.
2010	Oct 16-24	“	57	32	NA	7500 license quota, no counties buck only
	Dec 20-Jan 10	“	46	25	NA	Antlerless in 72 counties, no counties buck-only.
2011	Oct 15-23	“	53	36	NA	7500 license quota, no counties buck only
	Dec 19-Jan 10	“	45	22	NA	Antlerless in 72 counties, no counties buck-only.
2012	Oct 13-21	“	55	32	NA	7500 license quota, no counties buck only
	Dec 17-Jan 10	“	48	27	NA	Antlerless in 72 counties, no counties buck-only.
2013	Oct 12- Oct 20	“	52	34	NA	7500 license quota, no counties buck only
	Dec 23-Jan 10	“	47	20	NA	Antlerless in 72 counties, no counties buck-only.
2014	Oct 11- Oct 19	“	58	31	NA	7500 license quota, 27 counties buck only
	Dec 22-Jan 10	“	48	24	NA	Antlerless in 65 counties, no counties buck-only.
2015	Oct 17- Oct 25	“	62	34	NA	7500 license quota, 27 counties buck only

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
	Dec 21-Jan 10	“	58	25	NA	Antlerless in 65 counties, no counties buck-only.
2016	Oct 15-Oct 23	“	59	30	NA	7500 license quota, 27 counties buck only
	Dec 19-Jan 10	“	48	24	NA	Antlerless in 65 counties, no counties buck-only.

[a]Success rates from 2005 and prior are not comparable to subsequent years.

Table 1.11 Results of deer population surveys (1976-present)

Year	Spotlight Survey		Aerial Survey		Traffic Kill	Traffic Kill Per Billion Vehicle Mi.		Bowhunter Obs (Deer per 1000 hrs)	
	Mean Count	Percent Change	Weighted Count[a]	Percent Change		Number	Percent Change	Number	Percent Change
1976			-	-	2,537	225	-1%		
1977			-	-	2,929	252	12%		
1978			-	-	2,872	241	-4%		
1979			-	-	3,005	259	7%		
1980			-	-	3,743	335	29%		
1981			-	-	4,164	365	9%		
1982			-	-	4,805	412	13%		
1983			5,903	-	5,335	448	9%		
1984			6,387	8%	6,177	500	12%		
1985			7,607	19%	5,925	495	-1%		
1986			9,790	29%	7,225	593	20%		
1987			-	-	8,440	678	14%		
1988			10,289	[b]	9,248	707	4%		
1989			9,672	-6%	8,914	655	-7%		
1990			7,070	-27%	8,799	607	-7%		
1991			9,191	30%	8,428	590	-3%		
1992			8,235	-10%	9,135	616	4%		
1993			8,680	5%	9,576	624	1%		
1994			10,483	21%	10,438	663	6%		
1995			10,877	4%	11,167	699	5%		
1996			12,051	11%	12,276	748	7%		
1997			13,902	15%	13,148	778	4%		
1998			12,651	-9%	12,427	714	-8%		
1999			14,928	18%	11,366	637	-11%		
2000			15,375	3%	11,114	642	1%		
2001			15,793	3%	14,243	799	24%		
2002			13,107	-17%	12,377	662	-17%		
2003			15,676	20%	13,720	726	10%		
2004			18,028	15%	15,361	803	11%	1,624	
2005			15,324	-15%	14,364	760	-5%	1,698	5%
2006	55		12,565	-18%	14,940	783	3%	1,736	2%
2007	59	8%	13,445	7%	13,730	720	-8%	1,667	-4%
2008	71	20%	13,427	0%	10,961	602	-16%	1,500	-10%
2009	68	-4%	13,528	1%	13,518	726	21%	1,482	-1%
2010	58	-15%	13,591	0%	10,153	547	-25%	1,533	3%
2011	58	1%	13,707	1%	10,626	570	4%	1,475	-4%
2012	51	-13%	discontinued		10,358	554	-3%	1,649	12%
2013	71	40%			9,174	481	-13%	1,352	-18%
2014	61	-14%			9,085	471	-2%	1,558	16%
2015	66	8%			9,418	478	1%	1,581	1%

Year	Spotlight Survey		Aerial Survey		Traffic Kill	Traffic Kill Per Billion Vehicle Mi.		Bowhunter Obs (Deer per 1000 hrs)	
	Mean Count	Percent Change	Weighted Count[a]	Percent Change		Number	Percent Change	Number	Percent Change
2016	66	0%			9,041	459	-4%	1,488	-6%
2017	69	4%							

[a]adjusted for missing counts
[b]change from 1986 to 1988

WILD TURKEYS

Historical Perspective

History: Iowa's primitive oak-hickory forests covered nearly 7 million acres (2.8 million ha) during the original land survey in 1859 (Thornton and Morgan 1959). Settlers' records indicate turkeys were associated with most of this timber. Although turkeys may not have been as numerous in Iowa as in their primary range east of the Mississippi River, they were still plentiful (Peterson 1943). Unfortunately, wild turkeys were eliminated from Iowa by the early 1900's due to habitat loss and partly because of uncontrolled subsistence market hunting (Little 1980).

Habitat: Only 2.6 million acres (1.1million ha) of forest remained when the second land survey was completed in 1956, a reduction of 63% in a century, and perhaps 50% of the remaining forest was badly mismanaged through overgrazing (Thornton and Morgan 1959). In 1974, Iowa had 1.6 million acres of forestland, which made up 4.3% of the State's land area. Iowa's forests now total 2.1 million acres (850,202 ha), just 5.7% of the State and only 30% of presettlement forests (Leatherberry et al. 1990). Forest types throughout Iowa are second or third growth oak-hickory on uplands and elm-ash- cottonwood on floodplains (Ostrom 1976). Oak types constitute 55% of all forest stands, with red oak - white oak - hickory (35% of all forests) dominant in all regions. Maple/basswood stands (10%) are found on mesic sites and are climax in the northeast and central regions, but are replaced by white oak (10%) and short, scrubby bur oak (10%) in the southern and arid western regions, respectively. Aspen and other northern hardwoods (1%) are found occasionally in the Northeast. Statewide, 65% of all commercial stands are entering sawtimber and 20% are in poletimber (Leatherberry et al. 1990). Ninety-two percent of Iowa's forest land is privately owned, with nearly half of the remaining 8% in state ownership, 38% owned by other public agencies and 14% in park-refuges withdrawn from active management (Ostrom 1976, Leatherberry et al. 1990). Iowa has no national forests, parks or wildlife refuges devoted to forest land management.

Restoration: The Iowa Department of Natural Resources (DNR) began experimenting with turkey restoration in 1920 using pen-reared birds. Releases were made over the next 18 years but all releases were uniform failures. The first attempts at releasing transplanted wild turkeys were in the early 1960's. Rio Grande and Merriam's subspecies were released at several sites during the 1960's but ultimately their poor adaptation to Iowa's oak-hickory forest led to population failures for both subspecies.

The first release of Eastern wild turkeys was in 1966 in Lee County. The population response of these turkeys was phenomenal – survival of released birds, reproduction, and poult survival were all excellent. The success of the Eastern subspecies stocking led to an additional stocking that also proved successful. By 1971 it was obvious that the Eastern subspecies was the turkey to use in future restoration attempts. Since the initial 1965 release 3,578 eastern wild turkeys have been trapped and released at 259 sites at a stocking rate of approximately 3 adult gobblers and 10 hens per site. Nearly all sites are considered successful. No sites are currently considered to be unsuccessful. Most sites were opened to hunting after populations were established, usually about 5 years post-stocking. Restorations by the DNR during the last 2 decades have returned wild turkeys to about 95% of the remnant timber stands in the state. Restoration efforts ended in 2001 with the last release site occurring in Linn County.

Spring Harvest Survey

History: Spring bearded-only turkey hunting seasons began in 1974. The objective of Iowa's spring season has been to maximize hunting opportunity while maintaining a quality hunting experience. Quality hunting is defined as the chance to hunt turkeys reasonably free of interference from other hunters. The primary method used to reduce interference is to control hunter densities through license quotas established for multiple zones and seasons. Annual licenses issued, hunters, and harvest increased gradually from 1974-87 (Figure 2.1 Iowa spring turkey hunting statewide estimates, 1974-2017). During 1988-99, there were dramatic increases in license issue and hunter numbers due to an unlimited license quota in the fourth season. The area open to spring turkey hunting in Iowa also increased dramatically from 2 small southern zones and 1 larger northeast zone in 1974 to the entire state during the 1999 spring season (Figure 2.2, a and b). In 2007 mandatory reporting of harvest was implemented and therefore the postcard harvest survey was eliminated (Table 2.2). Hunter numbers and timber acres with huntable turkey populations have increased proportionally, allowing hunter densities to remain at < 4 hunters/mi2 of timber per season.

2017: Iowa's 44th modern spring hunting season recorded an estimated 11,779 turkeys harvested, with 50,068 licenses sold (Table 2.1 and Table 2.3). This was the 29th year the entire state was open to spring turkey hunting (Table 2.11). The 44-day season (8 April through 21 May, 2017) was partitioned into 5 separate seasons: a 9-day youth-only season, and 4 regular seasons (4, 5, 7 and 19-days). The 5 season format, with unlimited license quota for all the periods, resulted in 41,123 resident shotgun licenses issued, which was a decrease of 1,172 from 2016. An additional 6,902 archery-only licenses were issued in 2017. Archery-only licenses harvested 1,188 turkeys, resulting in a 17.2% success rate. Twenty-three percent of the resident hunters were successful in harvesting a gobbler in 2017 (Table 2.4). 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 (Figure 2.3). Declines observed in spring hunter success rates during 1983 and 1984 (Figure 2.3) can be partially explained by poor brood production during the summers of 1982 (Table 2.10). Similarly, the decline in hunter success rates between 1988 and 1993 may be explained by 6 years of poor brood production starting in 1988. The success rates from 2002-2006 averaged 46.0%. The decrease in success rates beginning in 2007 and the number of turkeys harvested is likely due the change in survey methods. Starting in the spring of 2007, mandatory harvest reporting required successful hunters to report a harvested turkey. 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 28th spring that nonresidents were allowed to hunt turkeys in Iowa. Quotas filled in zone 4 (seasons 1,2,3,4), zone 5 (seasons 1,2,3,4), zone 6 (None filled), zone 7 (None filled) and zone 8 (seasons 1,2,3,4) in 2017, leaving 217 licenses available. Non-resident hunters harvested 843 turkeys (Table 2.1). Nonresidents reported a higher success rate for spring gobblers than did residents (41% versus 23% respectively) (Table 2.4).

In spring of 2017, known jakes (spurs <½") harvested were 16% of the total harvest (15% the previous year). Turkeys harvested with spurs ½" - ¾" were 20% (25.5% in 2016) of the total harvest. The majority (64%) of turkeys harvested in 2017 had spurs greater than ¾ of an inch in length.

Youth Turkey Season

Iowa's 13th youth spring turkey season has held April 8 -16, 2017. During the 9 day season, youth 15 and younger were allowed to participate with an accompanied licensed adult (adult licensed for one of the regular seasons). In 2005, the first year of the youth season, ages were limited to ages 12-15. Starting in 2006, ages 15 and younger could participate in the youth season. Youth season license sales decreased by 199 (5,719) from the record number 5,918 licenses sold in 2016 (Figure 2.8). Since the inception of ELSI (Electronic Licensing System of Iowa) in 2001, hunter age and gender has been recorded (Figure 2.8). From 2001-2006, youth spring turkey hunters (age 15 and under) increased each year. After the first youth season in 2005, youth licenses have shown an overall upward trend. (Figure 2.8). A code change in 2014 allowed for unfilled youth season tags to be valid for any other spring turkey season until filled. Twenty-nine percent of youth hunters were successful in 2017.

Fall Harvest Survey

History: Fall, any-sex turkey hunting was initiated in Iowa in 1981 to provide additional hunting recreation from the wild turkey resource. Because any-sex hunts are more controversial than male- only hunts and potential exists for over-harvesting hens, carefully controlled fall hunts began in 1981 on an experimental basis. These hunts occurred in portions of southern Iowa, which had established, stable turkey populations. Fall turkey hunting has changed dramatically since the initial experimental 1981 season. The area encompassed by fall hunting zones has increased from 2 small zones in southern Iowa during 1981 to 9 zones in 2005 encompassing the entire state (Figure 2.6, a and b). Fall zone boundaries in 1990 encompassed 9.7 times more area than in 1981, with 13.9 times more by 2005. Although zone boundaries did not change during 1991-1994, only zones 3 and 6 (northeast Iowa) had shotgun licenses available (residents only). The 5 remaining fall zones experienced 6 years of poor brood production and therefore did not have any licenses available. However in 1995, because of increased brood production in 1994, almost the entire state was opened to fall hunting. In 1999, the amount of land open to fall hunting increased slightly from 1998 with the addition of zone 8 (Figure 2.5). Results from a radio-telemetry study in southern Iowa and computer modeling of southern Iowa turkey mortality and hatching data suggest as much as 10% of the population could be removed during fall hunting without reducing long-term turkey populations. Past seasons' harvest have not approached this theoretical value. The present management

objective is to increase fall hunting opportunities and harvest. A harvest of fall turkeys similar to the number of spring gobblers harvested is the present goal. The number of fall licenses issued, hunter numbers and harvest increased steadily from 1981-89 (Figure 2.7 and Table 2.5-Table 2.7). As with spring seasons, fall turkey hunters have previously had exceptional statewide success rates, averaging 51% during 1981-89 (Table 2.8). However fall success rates have had considerable annual variation, ranging from 8-60% (Figure 2.3). Fall license quotas generally surpassed applications from 1981-84 and license quotas filled in only one zone in 1985. With the expansion of 2 hunting zones in 1986 a large increase in applications occurred. This resulted in rejecting a number of permit applications. License quota was increased in 1987 and in 1988. After 2 application periods in fall 1988, 51 licenses remained. Therefore license quota remained unchanged in 1989 although the hunting zone area increased. Because of the documented poor poult production in 1988 and 1989, license quota remained unchanged for 1990. Fall 1990 hunting zones were expanded to distribute (and hopefully reduce) hunting pressure on flocks. Continued poor statewide brood production warranted dramatic reductions in fall harvest for 1991-1994. Only the northeast corner (Zones 3 & 6) continued to have average brood production that allowed a fall shotgun season. Annual changes in hunter success, harvest and the age-sex composition of the fall harvest are at least partly explained by population events occurring in southern Iowa from 1981 to 1985. Excellent recruitment in the years of 1978 through 1980 produced very high turkey densities (100 wintering turkeys/mi^2 of forest on the southern Iowa Stephens Forest study area and region-wide densities of at least 40-50/mi^2. A cool wet spring in 1981 led to essentially no recruitment just prior to the first fall season. A large carryover of adults from previous successful hatches meant that hunters had high success rates in the fall of 1981, but harvested almost no juvenile turkeys. A slightly better hatch in 1982, coupled with the reduction in available adult turkeys, led to proportionally more juveniles in the bag in 1982, but the harvest and success rates were reduced. A good hatch in 1983 produced more juveniles in the bag and an increased harvest, suggesting populations were recovering from a 2-year depression. Another good hatch in 1984 resulted in even more juveniles in the bag and again an increased harvest. Fall 1985 was similar to 1984. The greatest effect was felt in southern Iowa where spring weather was least favorable in both 1981 and 1982. Indications of over-harvest on popular public hunting areas were greatest in the years when few juveniles were present to buffer adult turkey harvest. Harvest rates of adult hens (>2 years old), the most important age class reproductively, were greatest when few juveniles were produced and decreased to tolerable levels when recruitment was good. A similar scenario developed during the 6-year (1988-93) decline in poult production. Climatic factors, i.e., 2 years of drought followed by floods in 1990, 1991, and 1993, are assumed responsible for the reduced poult production observed over that time period. Likewise, harvest and hunting success declined over the same period, presumably as a result of the decrease in poult production. Fall harvest and hunting success rate increased in 1995 following a slight increase in poult production in 1994. Harvest and hunter success increased slightly again in 1996-1999, but decreased slightly in 2000–2001. However, fall harvest levels continue to be below the levels observed in the mid-1980's. Fall active hunters have not been estimated since the implementation of harvest mandatory reporting. This survey was conducted by postcard but was discontinued in 2006 (Table 2.6).

2016: Fall turkey hunter success rates dropped in 2016 to 7.9%, compared to 8.8 % in 2015 (Table 2.8), this is still well below the 2005 and prior estimates due to the change in harvest estimation (mandatory versus postcard survey as discussed earlier). Since the DNR's main objective for wild turkeys is to maintain populations in all suitable habitats and provide high quality recreational opportunity, a conservative fall turkey hunting season was established in 1992. Shotgun license quotas were reduced from 7,600 licenses available in 1990 to only 1,530 in 1992, 1993, and 1994. An increase in poult production was observed in 1994, and the shotgun license quota was increased in 1995 to 3,450. Quotas were increased slightly again in 1996 to 3,850, to 4,550 in 1997, to 5,650 in 1998, to 6,225 in 1999. In 1999, zone 8 was created in north central Iowa and zone 6 was reduced east to Highway 63. All other zone boundaries remained the same as in 1998, and all zones had licenses available. In 2009, quotas were decreased. All zones except zone 8 & 9 decreased (zone 4 from 4,500 to 1,500, zone 5 from 700 to 650, zone 6 from 3,000 to 1,400, and zone 7 from 400 to 250). All fall licenses issued (Gun/bow and bow only) decreased in 2016 to 7,919 from 8,537 in 2015. Bow-only season started October 1 and ran until January 10th 2017 with December 3rd-18th excluded for the shotgun deer season. Gun/bow season was 54 days from October 10th -December 2nd (Table 2.12). Forty-six percent of the fall licenses were issued free to landowners, which was the same percentage as in 2015. Estimated numbers of active hunters were undeterminable since there was no post card survey after the season (mandatory reporting eliminated the post card survey). Only 7.9% of hunters reported harvesting a turkey, which was a large decrease from 2005, likely due to the mandatory reporting and low compliance rates (Table 2.8). Hunter success rates varied from 9.3% in zones 7 to 21% in Zone 8 (Table 2.8). Archery only licensed hunters reported a harvest of 142 turkeys in 2016 which was an increase from

the 2015 archery-only license harvest. The 5.7% success rate for 2016 archery only licenses was lower than the previous year's success rates for archery only hunters (Table 2.8). Nonresidents have not been permitted to hunt fall turkeys in Iowa since 1990.

Discussion: Fall turkey hunting techniques are sufficiently different from spring hunting so that past experience with spring hunting seems to have little impact on success in the fall. If anything, reliance on camouflage, sitting still, and calling (the basic spring hunting method) may be less successful and less utilized than walking and flushing turkeys in the small woodlot situations which comprise the bulk of Iowa turkey habitat. Even though fall shotgun success rates are quite high, fall turkey hunting has not been popular. It doesn't seem to appeal to spring hunters and hunter numbers seem to be more related to zone size than anything else. Fall archery hunting has even fewer devotees. In spite of these differences between spring and fall hunting, they have one important feature in common – hunter concentrations on public hunting areas. Hunter densities are much greater on public hunting areas than on private lands. By the nature of fall hunting this has less impact on perceived interference between hunters than it does in spring hunting. Crowding leads to lower success rates on public areas and, on the largest most popular areas, there are some indications of excessive harvest over theoretically desirable levels. Any area that the DNR intends to manage for quality spring hunting may have to be zoned separately in the fall. Even in years of documented poor reproduction, hunters can still find turkeys due to Iowa's limited forest habitat and high turkey densities. Interference rates between hunters have not been documented in the fall since 1985. Interference rates have been lower during fall than in spring, which is probably due to the different techniques used for spring and fall hunting. Fall turkey hunter densities on public areas (that were surveyed) have been nearly 50 times greater than the average hunter density for private land. Turkey harvest densities on 13 of 16 public areas surveyed equaled or exceeded the theoretical maximum allowable harvest of 2 turkeys/mi^2 of forest as determined from empirical population data gathered from Stephens State Forest (DNR, unpubl. data). In 1986, only 4 counties sustained >4 hunters/mi^2 of forest, combined with turkey harvests of >2/mi^2 of forest. In 1987, with the large increase in licenses issued, 12 counties had both hunter densities >4, and turkey harvest >2/mi^2 of timber (out of 43 counties with reporting hunters). The high seasonal hunter densities were somewhat reduced by a 28-day season during 1987. No more than 34% of the hunters and 39% of the eligible hunters (those who had not yet bagged a turkey) were afield on any day. The opening 2 days and 4 weekend days were the most popular hunting days. There were no evident relationships between daily hunting pressure and daily success rates. To reduce daily hunter densities, hunter interference rates and increase fall recreation days, the 1988 fall season was extended to 49 days (October 10-November 27). However, a large increase in licenses issued in 1988 increased the number of counties exceeding allowable harvest and hunter density values to 16 (out of 53 counties with reported turkey harvest). Another record license issue in 1989 resulted in 24 counties (of 49 counties with reported turkey harvest) exceeding >4 hunters, and >2 turkeys harvested/mi^2 of timber. Fewer licenses were issued in 1990 and correspondingly only 16 counties exceeded hunter and harvest rate maximums. Due to continued poor brood production, both hunter numbers and harvest was dramatically reduced during 1991-1993 and increased only slightly throughout 1994-2000, but decreased slightly in 2001. Unfortunately, the present management concern is how to maintain turkey numbers instead of the enviable situation of being concerned about hunter densities. The record number of active hunters in 2005 (since 1989) may be related to this being the first season that turkey hunters where allowed to use dogs. Likely, pheasant hunters took this opportunity to harvest turkeys opportunistically while pheasant hunting. With mandatory reporting system (initiated in 2006), active hunters numbers are undeterminable.

Brood Survey

History: Information on annual variations in turkey productivity is needed to evaluate the status of turkey populations in various regions of the state. Because few reliable wild turkey census techniques have been developed, hunter success rates, turkey harvest levels, and age ratios of harvested birds are the best available indicators of relative turkey populations between hunting zones. Lewis (1975 a, b) found significant correlations between both August poult:hen ratios, percent juveniles in the harvest, and total gobbler harvests in the subsequent spring in Missouri, suggesting that an index to productivity would be useful in establishing hunting regulations. Compared to the more formalized census procedures used for more visible wildlife species, indices to eastern wild turkey productivity are generally based on random observations of broods.

Methods: In 2016 a mixed mode sampling system combined the traditional mail survey with an internet based survey was conducted. A list of cooperators was established from DNR personnel and turkey license holders living in selected

portions of Iowa. All turkey license holders living in designated survey areas are sent a form to be returned if they are willing to participate in the survey. Each cooperator is sent a return-addressed postcard which is completed and returned based on turkey broods sighted between 1 July and 31 August. Productivity indices are constructed from these returns. Hanson (1988) compared the brood survey data with spring turkey harvest and data from a radio-telemetry study in southern Iowa. The poult:hen ratio (young/adult) was the variable that correlated best with the telemetry data. Results of additional analyses indicated that the brood survey did have some utility for forecasting turkey numbers available to the hunters in following springs. Additionally, Hanson concluded that in light of the correlations with harvest data the brood survey may also be useful for evaluating the status of turkey populations in various regions of the state. Survey statistics for 1976-2016 are summarized in Table 2.9 and Table 2.10.

***2016*:** The 2016 survey indicated increases across most of the state compared to the 2015 survey. Observers reported 31,805 turkeys on the 5,358 submitted responses. Wild turkey brood production in 2016 was up across the state with the southwest showing the greatest regional decline. This may be offset by the higher number of successful hens in the region. Increases in the number of poults per hen were up overall while the number of hens with poults was mixed in Iowa. Five of 9 regions showed a decline in productive hens with the west-central region having the largest decline at 22% (Figure 2.5).

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 (Table 2.10) observed with broods (i.e. observers may have recorded toms as 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 in 2008. In 2009, the brood survey used new regions (Figure 2.5) to analyze the data. To allow comparisons between years, 2008 was also analyzed using the new regions (Table 2.9 and Table 2.10) as well.

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Figures

Active hunters unknown after 2006 due to survey changes.
Harvest estimation methods changed from mail surveys to mandatory reporting beginning 2007.

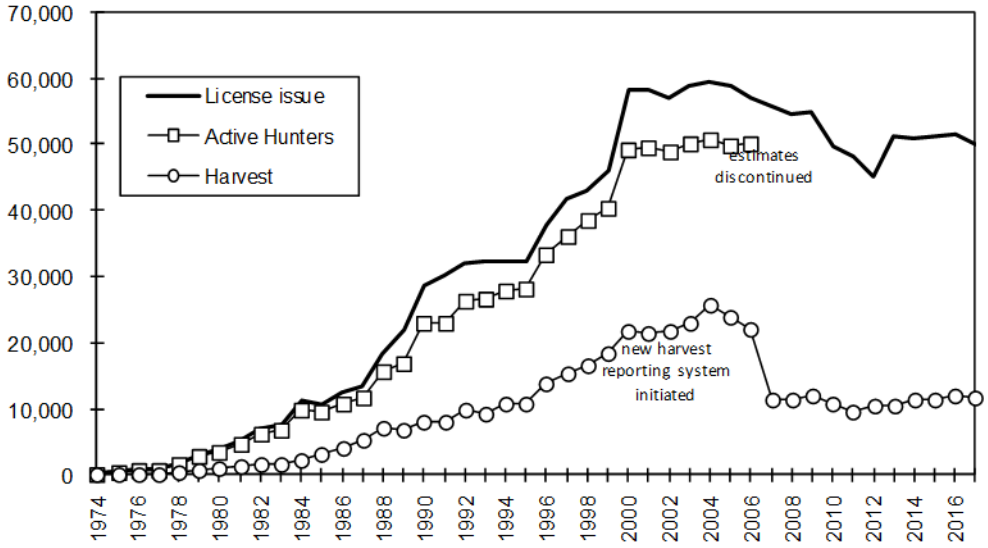


Figure 2.1 Iowa spring turkey hunting statewide estimates, 1974-2017

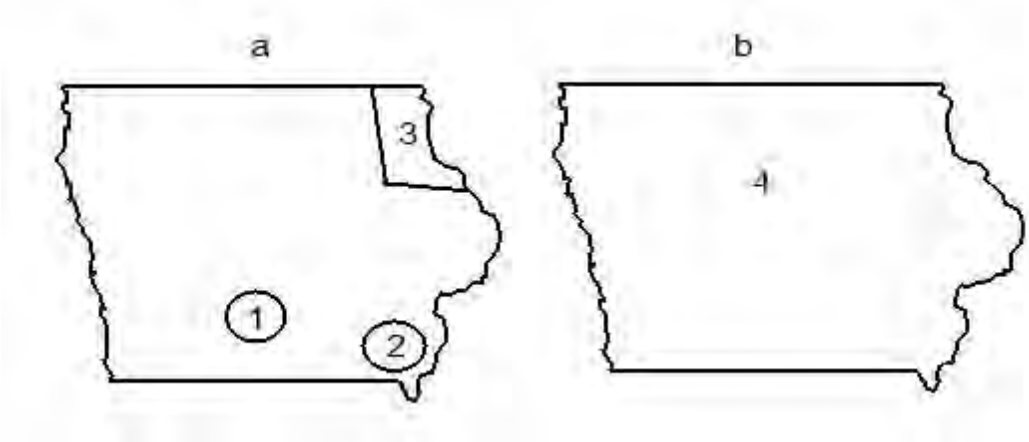
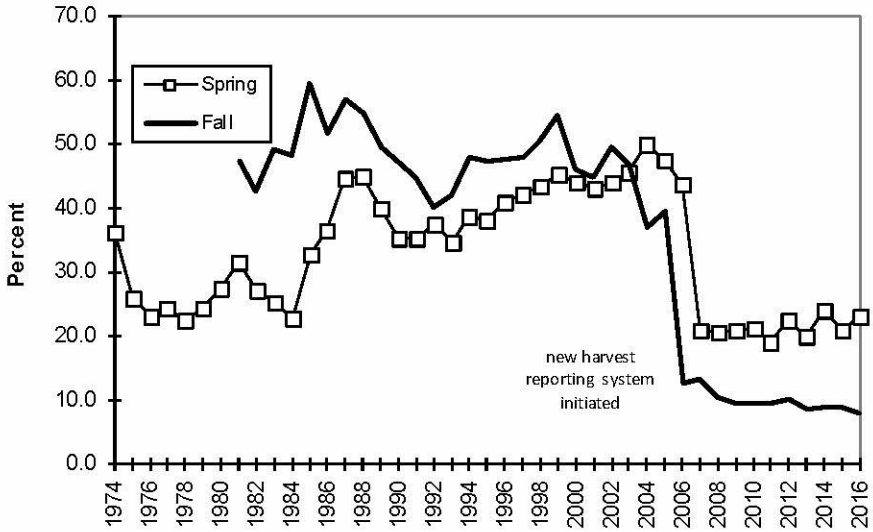


Figure 2.2 Spring turkey hunting zones, 1974 (Fig. a) and 2017 (Fig. b).



Success estimation methods changed from mail surveys to mandatory reporting beginning Fall 2006.

Figure 2.3 Iowa turkey harvest statewide success rates for residents, 1974-2017

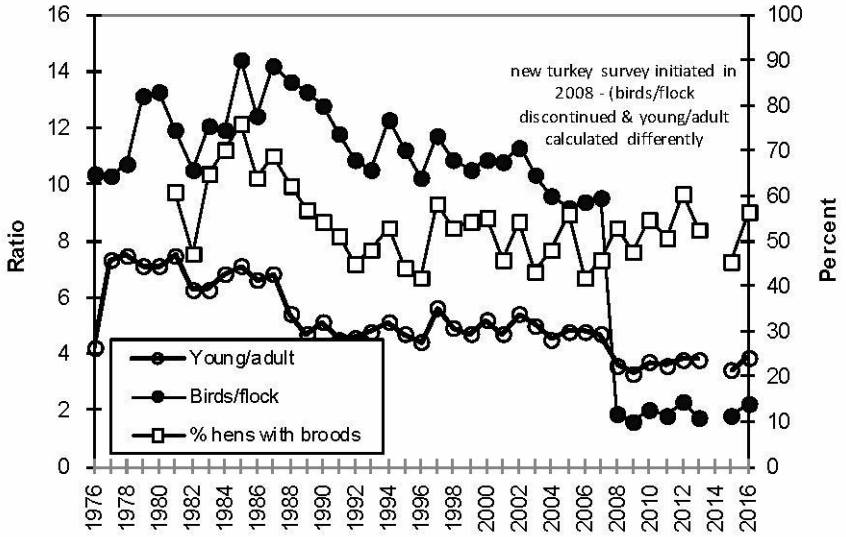
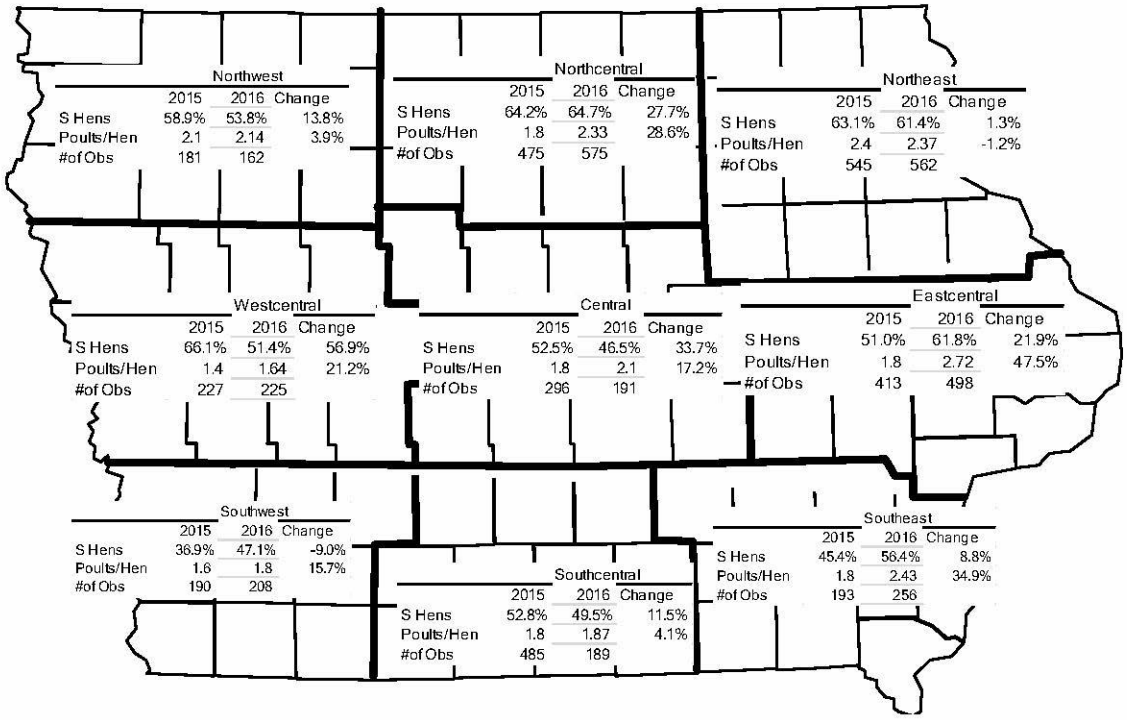


Figure 2.4 Iowa turkey brood survey statewide results, 1976-2016

2016 Summer Turkey Survey

Statewide

	2015	2016	Change
S Hens	45.6%	56.6%	13.7%
Poults/Hen	1.8	2.2	20.9%
#of Obs	3005	3166	



S hens = percent of successful hens observed with a brood.
Poults/Hen = number poults observed per all hens.
# of Obs = number times turkeys were observed by cooperators.

Figure 2.5 Iowa Summer Turkey Survey

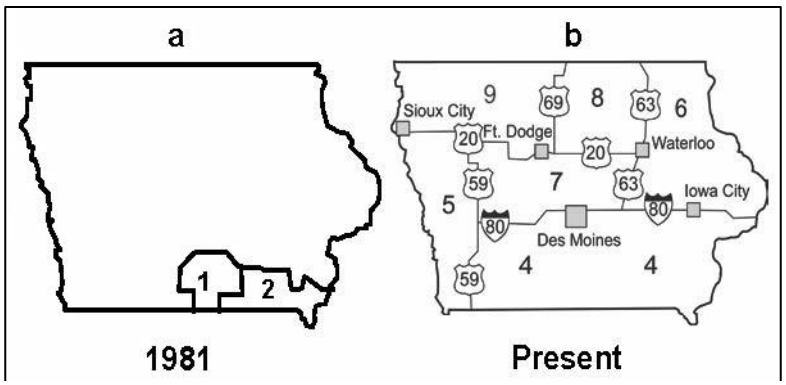
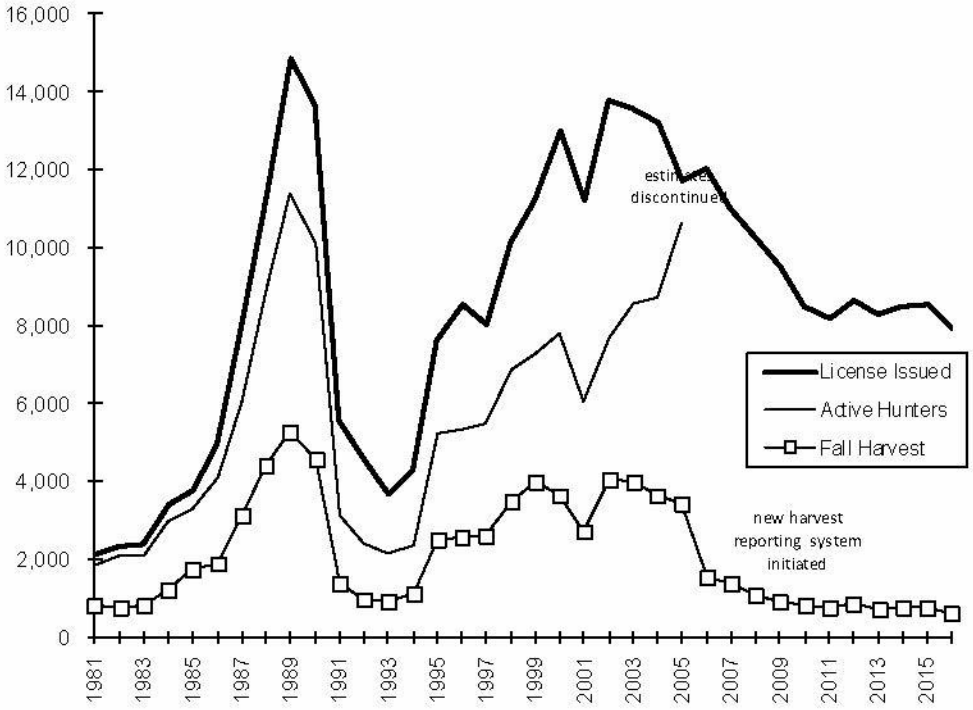


Figure 2.6 Fall turkey hunting zones, 1981 and the present.



Active hunters unknown after 2005 due to survey changes.
Success estimation methods changed from mail surveys to mandatory reporting beginning 2006

Figure 2.7 Iowa fall turkey hunting statewide estimates, 1981-2016

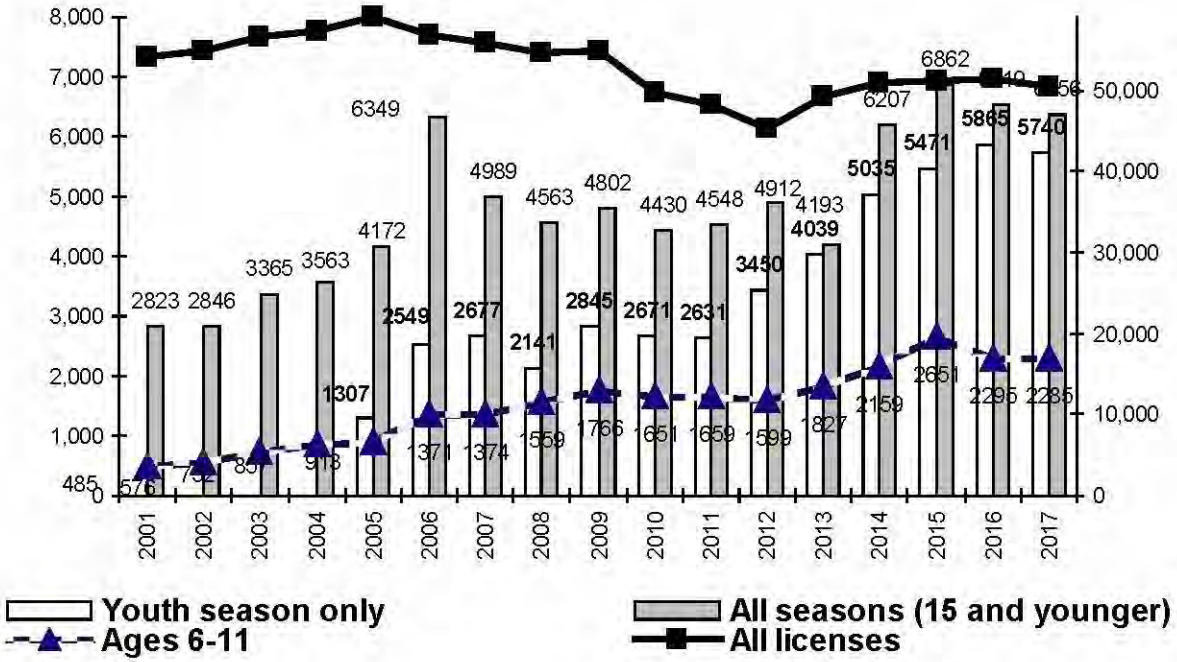


Figure 2.8 Iowa spring turkey license issue, 2001-2017.

Tables

Table 2.1 Number of estimated spring turkeys harvested by zone, 1974-present.

Archery-only licenses not included from 1974-2006. Zone 5 was combined into Zone 4 in 1994. Zones 1-3 were combined into Zone 4 in 2007.

In 2007, survey methods changed from a post-mailing survey to mandatory reporting, with an estimated 74% compliance rate.

Year	Zone					Bow Only	Resident Total	Non-Resident	Total Harvest
	1	2	3	4	5				
1974	41	31		30			102		
1975	29	41		69			139		
1976	38	37		119			194		
1977	60	53		102			215		
1978	54	72		240			366		
1979	55	41		592			688		
1980	50	43	35	860			988		
1981	49	40	58	1,267	25		1,439		
1982	75	112	48	1,411	39		1,685		
1983	76	113	38	1,469	33		1,729		
1984	32	83	40	2,015	51		2,221		
1985	29	138	67	2,831	62		3,127		
1986	49	183	75	3,570	97		3,974		
1987	83	198	114	4,667	147		5,209		
1988	79	151	86	6,493	250		7,059		
1989	49	133	42	6,264	211		6,699		
1990	48	148	106	7,452	363		8,117	74	8,191
1991	58	144	78	7,414	274		7,968	128	8,096
1992	37	71	31	9,348	255		9,742	151	9,893
1993	26	97	39	8,638	293		9,093	217	9,310
1994	57	81	32	10,428	-		10,598	229	10,827
1995	20	81	32	10,275	-		10,408	459	10,867
1996	49	77	36	13,078	-		13,240	544	13,784
1997	8	68	28	14,647	-		14,751	605	15,356
1998	15	73	46	15,676	-		15,810	938	16,748
1999	30	71	28	17,231	-		17,360	930	18,290
2000	37	60	24	20,759	-		20,880	970	21,850
2001	34	49	29	20,383	-		20,495	941	21,436
2002	39	68	17	20,538	-		20,662	1,061	21,723
2003	51	46	29	21,743	-		21,869	1,172	23,041
2004	30	65	31	24,254	-		24,380	1,224	25,604
2005	35	61	49	22,586	-		22,731	1,187	23,918
2006	42	88	48	20,863	-		21,041	1,195	22,236
2007	-	-	-	10,008	-	676	10,684	843	11,527
2008	-	-	-	9,643	-	788	10,431	898	11,329
2009	-	-	-	10,166	-	859	11,025	884	11,909
2010	-	-	-	9,156	-	907	10,063	826	10,889
2011	-	-	-	8,031	-	830	8,861	666	9,527
2012	-	-	-	8,906	-	802	9,708	749	10,457

Year	Zone					Bow Only	Resident Total	Non-Resident	Total Harvest
	1	2	3	4	5				
2013	-	-	-	8,838	-	986	9,824	741	10,565
2014	-	-	-	9,587	-	1060	10,647	754	11,401
2015	-	-	-	9,528	-	1090	10,618	787	11,405
2016				10,057		1230	11,287	886	12,173
2017				9,748		1188	10,936	843	11,779

Table 2.2 Number of estimated active Iowa spring turkey hunters by zone 1974-present.
Starting in 2007, the post card survey was discontinued and active hunters undeterminable.
Archery-only licenses not surveyed.

Year	Zone					Resident Total	Non-Resident	Total Harvest
	1	2	3	4	5			
1974	92	99		92		283		
1975	149	168		223		540		
1976	124	237		484		845		
1977	202	251		435		888		
1978	255	289		1,078		1,622		
1979	174	272		2,381		2,827		
1980	176	213	307	2,909		3,605		
1981	176	379	3,956	3,956	61	4,572		
1982	493	447	270	4,911	123	6,244		
1983	447	441	263	5,523	161	6,835		
1984	233	371	260	8,676	243	9,783		
1985	232	403	292	8,395	249	9,571		
1986	232	445	308	9,581	319	10,885		
1987	236	440	327	10,283	355	11,641		
1988	246	429	298	14,152	547	15,672		
1989	225	442	319	15,193	588	16,767		
1990	231	456	301	21,085	862	22,935	174	23,109
1991	234	477	289	20,905	868	22,773	273	23,046
1992	200	351	213	24,321	919	26,004	418	26,422
1993	124	391	197	24,648	888	26,248	542	26,790
1994	157	365	217	26,561	-	27,300	527	27,827
1995	113	331	211	26,734	-	27,389	881	28,270
1996	178	331	169	31,591	-	32,269	1,057	33,326
1997	152	356	210	34,314	-	35,032	1,229	36,261
1998	174	395	226	35,759	-	36,554	1,858	38,412
1999	139	336	179	37,873	-	38,527	1,803	40,330
2000	183	287	159	46,705	-	47,334	1,841	49,175
2001	75	103	92	47,327	-	47,597	1,822	49,419
2002	70	136	93	46,685	-	47,116	1,796	48,912
2003	100	157	107	47,755	-	48,119	1,939	50,058
2004	76	172	87	48,507	-	48,842	2,004	50,846
2005	115	124	105	47,461	-	47,805	2,120	49,925

Year	Zone					Resident Total	Non-Resident	Total Harvest
	1	2	3	4	5			
2006	113	200	142	47,599	-	48,054	2,166	50,220
2007	estimates discontinued							

Table 2.3 Number of Iowa spring turkey-hunting licenses issued by zone, 1974-present.

Archery-only licenses included in total licenses (not in resident total). Free landowner licenses included in total Zone 5 was combined into Zone 4 in 1994. Zones 1-3 were combined into Zone 4 in 2007.

Year	Zone					Bow Only	Resident Total	Non-Resident	Total Harvest
	1	2	3	4	5				
1974	105	113		82		-	300		
1975	168	184		248		-	600		
1976	143	273		558		-	974		
1977	235	276		494		-	1,005		
1978	280	323		1,212		-	1,815		
1979	195	298		2,662		-	3,155		
1980	195	225	357	3,227		-	4,004		
1981	195		420	4,374	67	-	5,056		
1982			297	6,592	135	-	7,024		
1983			300	7,231	165	-	7,696		
1984	259	416	325	9,849	277	-	11,126		
1985	259	449	320	9,379	277	-	10,684		
1986	273	493	339	11,032	356	-	12,493		
1987	289	507	357	11,828	404	-	13,385		
1988	268	471	324	16,438	632	-	18,133		
1989	268	505	338	20,091	736	-	21,938		
1990	261	500	322	25,331	1,030	-	27,444	184	28,658
1991	262	505	322	26,399	1,115	-	28,603	306	30,024
1992	260	487	320	28,220	1,083	-	30,370	445	31,898
1993	260	500	320	28,646	1,060	-	30,786	585	32,431
1994	262	508	324	30,714	-	-	31,808	602	32,410
1995	260	500	320	30,269	-	-	31,349	955	32,304
1996	260	487	302	35,740	-	-	36,789	1,124	37,913
1997	261	501	320	39,314	-	-	40,396	1,346	41,742
1998	260	500	320	39,783	-	-	40,863	2,005	42,868
1999	260	500	320	43,008	-	-	44,088	1,999	46,087
2000	257	392	242	55,290	-	-	56,181	2,013	58,194
2001	104	148	108	53,635	-	2,206	56,201	2,012	58,213
2002	121	207	158	51,940	-	2,491	54,917	1,944	56,861
2003	129	215	134	53,144	-	3,032	56,654	2,079	58,733
2004	132	191	128	53,404	-	3,469	57,324	2,133	59,457
2005	127	154	138	52,364	-	3,951	56,734	2,150	58,884
2006	235	315	238	49,113	-	4,739	54,640	2,245	56,885
2007	-	-	-	48,344	-	5,258	53,602	2,254	55,856
2008	-	-	-	46,822	-	5,596	52,418	2,258	54,676

Year	Zone					Bow Only	Resident Total	Non-Resident	Total Harvest
	1	2	3	4	5				
2009	-	-	-	46,470	-	6,139	52,609	2,158	54,767
2010	-	-	-	41,406	-	6,143	47,549	2,002	49,551
2011	-	-	-	40,393	-	6,053	46,446	1,859	48,305
2012	-	-	-	37,995	-	5,287	43,282	1,877	45,159
2013	-	-	-	42,627	-	6,630	49,257	1,952	51,209
2014	-	-	-	38,259	-	6,421	42,637	1,908	50,966
2015	-	-	-	36,857	-	6,886	42,328	1,929	51,143
2016	-	-	-	42,295	-	7,170	42,295	2,007	51,472
2017	-	-	-	41,123	-	6,902	48,025	2,043	50,068

Table 2.4 Estimated success rate of active Iowa spring turkey hunters by zone, 1974- present. Archery-only hunters not surveyed prior to 2007.

In 2007, survey methods changed from a post-mailing survey to mandatory reporting.

YEAR	ZONE					BOW ONLY	RESIDENT TOTAL	NON-RESIDENT
	1	2	3	4	5			
1974	44.6	31.3		32.6			36.0	
1975	19.5	24.4		30.9			25.7	
1976	30.6	15.6		24.6			23.0	
1977	29.7	21.1		23.4			24.2	
1978	21.2	24.9		22.3			22.6	
1979	31.6	15.1		24.9			24.3	
1980	28.4	20.2	11.4	29.6			27.4	
1981	27.8		15.3	32.0	41.0		31.5	
1982	15.2	25.1	17.8	28.7	31.7		27.0	
1983	17.0	25.6	14.4	26.6	20.5		25.3	
1984	13.7	22.4	15.4	23.2	21.0		22.7	
1985	12.5	34.2	22.9	33.7	24.9		32.7	
1986	21.1	41.1	24.4	37.3	30.4		36.5	
1987	35.2	45.0	34.9	45.4	41.4		44.7	
1988	32.1	35.2	28.9	45.9	45.7		45.0	
1989	21.8	30.1	13.2	41.2	35.9		40.0	
1990	20.8	32.9	35.0	35.3	42.1		35.3	40.0
1991	24.9	30.7	27.8	35.6	31.1		35.1	45.0
1992	19.1	21.0	16.0	38.5	27.9		37.4	36.0
1993	21.2	24.8	19.7	35.0	32.9		34.6	40.0
1994	36.3	22.2	14.7	39.3	-		38.8	43.5
1995	17.7	24.5	15.1	38.7	-		38.0	52.1
1996	27.5	23.2	21.3	41.4	-		41.0	51.5
1997	5.3	19.1	13.3	42.7	-		42.1	49.2
1998	8.6	18.5	20.4	43.8	-		43.3	50.5
1999	21.6	21.1	15.6	45.5	-		45.1	51.6
2000	20.2	20.9	15.1	44.4	-		44.1	52.7
2001	45.3	47.6	31.5	43.1	-		43.1	51.6

2002	55.7	50.0	18.3	44.0	-		44.0	59.1
2003	51.0	29.2	27.1	45.5	-		45.4	60.4
2004	39.5	37.8	35.6	50.0	-		49.9	61.1
2005	30.4	49.2	46.7	47.6	-		47.5	56.0
2006	37.2	44.0	33.8	43.8	-		43.8	55.6
2007				20.7		12.9	20.7	37.4
2008				20.5		14.1	20.5	39.8
2009				21.9		14.0	21.0	41.0
2010				22.1		14.8	21.2	41.3
2011				19.9		13.7	19.1	35.8
2012				23.4		15.2	22.4	39.9
2013				20.7		14.9	19.9	38.0
2014				22		16.5	24	39.5
2015				22		12.6	21	40.1
2016				23.7		17.1	23	44.1
2017				23.7		17.2	22.8	41.2

Table 2.5 Number of licenses issued to Iowa fall turkey hunters by zone, 1981-present.

In 1984 and 2001-present landowners were not broken-down by zone but do appear in the total. No non-resident licenses issued for fall turkey during 1991-present. Zones 1-3 were eliminated in 2007.

YEAR	ZONE									BOW	RESIDENT TOTAL	NON-RESIDENT
	1	2	3	4	5	6	7	8	9			
1981				1,946						193	2,139	
1982				1,995						353	2,348	
1983				1,873						529	2,402	
1984				1,999	214	612				552	3,414	
1985				2,143	295	784				540	3,762	
1986	121	190		2,403	296	1,206	74			663	4,953	
1987	107	149	105	3,934	340	2,264	148			877	7,924	
1988	103	203	106	4,861	524	4,054	282			1,243	11,376	
1989	102	200	100	6,194	891	5,792	545			1,022	14,855	157
1990	102	201	101	5,879	738	5,422	624			610	13,677	50
1991	0	0	50	0	0	4,575	0			942	5,567	0
1992	0	0	30	0	0	3,560	0			963	4,553	0
1993	0	0	30	0	0	3,118	0			488	3,636	0
1994	0	0	30	0	0	3,300	0			949	4,279	0
1995	50	50	50	2,593	330	3,518	320			715	7,626	0
1996	50	50	50	2,635	447	4,048	321			944	8,545	0
1997	50	50	50	2,156	425	4,287	224			768	8,010	0
1998	50	50	50	3,653	450	4,747	440			697	10,137	0
1999	50	50	50	3,778	43	4,894	422	212		1,317	11,206	0
2000	49	47	50	5,052	471	5,083	471	260		1,531	13,014	0
2001	44	29	38	2,500	300	2,401	200	75		1,496	11,225	0
2002	50	50	50	2,500	300	2,489	200	75		1,698	13,751	0
2003	50	50	50	3,502	450	2,402	201	75		1,674	13,566	0

2004	49	44	50	3,301	503	2,060	400	150		1,549	13,221	0
2005	50	37	50	3,091	501	1,684	400	150	202	1,512	11,722	0
2006	50	29	50	2,753	500	1,569	356	150	200	1,585	12,004	0
2007	-	-	-	2,313	658	1,544	348	150	200	1,721	11,024	0
2008	-	-	-	1,924	620	1,375	348	150	200	1,746	10,243	0
2009	-	-	-	1,500	560	1,284	250	150	187	1,808	9,526	0
2010	-	-	-	1,349	456	1,112	232	150	176	1,956	8,492	0
2011	-	-	-	1,228	357	1,081	250	150	170	1,913	8,172	0
2012	-	-	-	1,273	346	1,190	250	150	196	2,310	8,664	0
2013	-	-	-	1,207	312	1,052	249	150	197	2,242	8,272	0
2014	-	-	-	1,214	292	977	250	150	185	2,343	8,507	0
2015	-	-	-	1,149	230	991	260	151	192	2,514	8,537	0
2016	-	-	-	1,018	232	862	259	150	154	2,488	7,919	0

Table 2.6 Number of estimated active turkey hunters in Iowa fall turkey seasons by zone, 1981-

In 1984 and 2001-present landowners were not broken-down by zone but do appear in the total. No non-resident licenses issued for fall turkey during 1991-present. Starting in fall of 2006, the post card survey was discontinued and active hunters undeterminable.

YEAR	ZONE								UNK	BOW	RESIDENT TOTAL	NON-RESIDENT
	1	2	3	4	5	6	7	8				
1981				1,710						136	1,846	
1982				1,807						290	2,097	
1983				1,650						425	2,075	
1984				1,763	185	530				473	2,981	
1985				1,906	250	699				445	3,300	
1986	89	168		1,953	251	1,025	68			543	4,097	
1987	76	137	92	2,966	264	1,702	87			738	6,062	
1988	100	203	91	3,576	418	3,173	249			1,066	8,876	
1989	83	187	82	4,679	585	4,572	374			846	11,408	139
1990	41	125	55	4,326	509	4,125	400			502	10,083	47
1991			35			3,064				?	3,099	0
1992			22			2,362				?	2,384	0
1993			12			2,157				?	2,169	0
1994			12			2,343				?	2,355	0
1995	30	11	33	1,943	245	2,740	234			?	5,236	0
1996	14	14	16	1,727	334	3,038	195			?	5,338	0
1997	21	18	11	1,572	336	3,293	218			?	5,469	0
1998	11	27	11	2,678	337	3,530	297			?	6,891	0
1999	22	29	21	2,701	347	3,605	300	161	79	?	7,265	0
2000	11	26	23	3,300	355	3,523	309	171	56	?	7,774	0
2001	19	20	10	1,835	221	1,809	157	67	234	?	6,069	0
2002	12	26	18	1,827	233	1,940	149	56	362	?	7,682	0
2003	13	9	15	2,442	352	1,808	139	58	534	?	8,559	0
2004	16	20	22	2,214	328	1,495	268	109	622	?	8,718	0
2005	19	14	13	2,166	392	1,256	260	109	116	528	?	10,593	0
2006	estimates discontinued			-	-	-	-	-	-	-	-	-	-

Table 2.7 Estimated harvest for Iowa fall turkey hunting by zone, 1981-present. Same problem

In 1984 and 2001-present, landowners were not broken-down by zone (UNK) but do appear in the total. No non-resident licenses issued for fall turkey during 1991-present. Zones 1-3 were eliminated in 2007. In 2006, survey methods changed from a post-mailing survey to mandatory reporting.

YEAR	ZONE								UNK	BOW	RESIDENT TOTAL	NON-RESIDENT
	1	2	3	4	5	6	7	8				
1981				808						5	813	
1982				769						10	779	
1983				813						20	833	
1984				882	77	198				30	1,210	
1985				1,215	108	376				54	1,753	
1986	29	69		1,041	127	536	28			43	1,873	
1987	24	40	35	1,842	99	961	33			102	3,136	
1988	57	106	36	1,950	171	1,799	159			149	4,427	
1989	18	127	26	2,208	287	2,442	104			66	5,278	67
1990	0	33	39	2,052	190	2,084	135			41	4,574	14
1991			18			1,368				?	1,386	
1992			13			943				?	956	
1993			2			912				?	914	
1994			2			1,122				?	1,124	
1995	10	2	10	912	137	1,358	52			?	2,481	
1996	4	5	12	787	176	1,472	93			?	2,549	
1997	1	14	4	883	145	1,480	86			?	2,613	
1998	3	8	4	1,384	176	1,773	120			?	3,468	
1999	4	10	3	1,619	156	1,943	150	66	63	?	4,014	
2000	2	15	8	1,701	179	1,527	93	56	38	?	3,619	
2001	3	15	2	852	100	912	61	37	168	?	2,722	
2002	3	14	10	1,076	157	1,038	87	31	386	?	4,061	
2003	11	6	10	1,284	273	1,030	62	28	373	?	3,981	
2004	8	7	4	988	194	602	96	60	338	?	3,626	
2005	3	3	1	1,067	243	592	36	70	460	?	3,424	
2009	9	6	10	553	111	307	50	42	399	105	1,522	
2007	-	-	-	427	131	298	45	38	389	105	1,362	
2008	-	-	-	286	104	245	48	44	321	123	1,075	

YEAR	ZONE									UNK	BOW	RESIDENT TOTAL	NON-RESIDENT
	1	2	3	4	5	6	7	8					
2009	-	-	-	202	84	224	29	33	17	323	103	912	
2010	-	-	-	192	66	185	25	1	18	268	99	805	
2011	-	-	-	170	50	197	31	31	24	276	112	779	
2012	-	-	-	188	47	232	34	32	30	316	131	879	
2013	-	-	-	164	44	141	28	34	14	278	123	703	
2014	-	-	-	176	34	140	30	40	19	316	85	755	
2015				145	41	150	31	35	24	331	117	757	
2016				115	30	117	24	31	21	289	142	627	

Table 2.8 Success rate (to harvest 1 bird) of active Iowa fall turkey hunters by zone, 1981-present. Bow hunters In 1984 and 2001-present landowners were not broken-down by zone but do appear in the total.

No non-resident licenses issued for fall turkey during 1991-present. In 2006, survey methods changed from a post-mailing survey to mandatory reporting.

YEAR	ZONE									BOW	RESIDENT MEAN	NON-RESIDENT
	1	2	3	4	5	6	7	8	9			
1974												
1975												
1976												
1977												
1978												
1979												
1980												
1981				47.3						3.7	47.3	
1982				42.6						3.5	42.6	
1983				49.3						4.7	49.3	
1984				50.0	41.6	37.4				7.6	48.2	
1985				63.7	43.2	53.8				12.2	59.5	
1986	32.6	41.1		53.3	50.6	52.3	41.2			8.0	51.5	
1987	31.6	29.2	38.0	62.1	37.5	56.5	37.9			13.9	57.0	
1988	57.0	52.2	39.6	54.5	40.9	56.7	63.9			14.0	54.8	
1989	22.6	68.1	32.5	47.2	49.1	53.4	28.0			7.9	49.3	48.0
1990	0.0	26.6	71.4	47.4	37.4	50.5	33.9			8.3	47.4	29.0

YEAR	ZONE									BOW	RESIDENT MEAN	NON-RESIDENT
	1	2	3	4	5	6	7	8	9			
1991			53.2			44.7				?	44.8	
1992			62.2			39.9				?	40.1	
1993			16.7			42.3				?	42.1	
1994			17.0			48.1				?	47.9	
1995	33.3	18.2	30.3	46.9	66.3	49.6	20.2			?	47.4	
1996	28.6	35.7	75.0	45.6	53.9	48.5	47.6			?	47.7	
1997	4.8	77.8	36.4	56.2	43.2	44.9	39.4			?	47.8	
1998	27.3	29.7	36.4	52.0	52.2	50.1	40.4			?	50.3	
1999	18.1	35.5	14.6	59.2	45.1	52.8	49.9	40.7		?	54.4	
2000	18.2	57.7	34.1	51.3	50.5	42.1	30.2	32.9		?	45.9	
2001	16.1	73.7	20.0	46.4	45.3	50.4	39.3	55.7		?	44.8	
2002	27.3	56.0	39.7	55.2	59.0	52.0	55.6	52.7		?	49.4	
2003	84.3	55.6	65.9	47.3	71.0	52.1	42.8	44.8		?	46.5	
2004	50.0	30.0	13.6	39.2	53.0	36.9	31.3	49.5		?	37.1	
2005	10.7	21.1	8.3	39.5	56.8	43.8	13.8	53.9	30.2	?	39.6	
2006	18.0	20.7	20.0	20.1	22.2	19.6	14.0	28.0	17.5	6.6	12.7	
2007	-	-	-	18.4	19.9	19.3	12.9	25.3	17.0	6.1	13.3	
2008	-	-	-	14.9	16.8	17.8	13.8	29.3	13.5	7.0	10.5	
2009	-	-	-	13.5	15.0	17.4	11.6	22.0	9.1	5.7	9.6	
2010	-	-	-	14.2	14.5	16.6	10.8	34.0	10.2	5.1	9.5	
2011	-	-	-	13.8	14.0	18.2	12.4	20.7	14.1	5.9	9.5	
2012	-	-	-	14.8	13.6	19.5	13.6	21.3	15.3	5.7	10.1	
2013	-	-	-	13.58	14.1	13.4	11.2	22.7	7.1	5.5	8.5	
2014	-	-	-	14.5	11.6	14.3	12.0	26.7	10.3	5.5	8.8	
2015				12.62	17.83	15.14	11.92	23.18	12.5	6.6	8.8	
2016				11.3	12.9	13.6	9.3	20.7	13.6	5.7	7.9	

Table 2.9 Iowa wild turkey brood survey results by region for birds/flock and young/adult, 1976-present.

Y/A=young per adult (italics) and B/F=birds per flock (≥4).

YEAR	NORTHEAST		SOUTHERN		CENTRAL		WESTERN		EAST-CENTRAL		NORTH-WEST		NORTH-CENTRAL		STATEWIDE	
	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F
1976			4.2	10.4											4.2	10.4
1977			7.3	10.3											7.3	10.3
1978			7.5	10.7											7.5	10.7
1979			7.1	13.1											7.1	13.1
1980			7.1	13.3											7.1	13.3
1981	8.2	15.5	7.3	10.7											7.5	11.9
1982	6.1	12.6	6.2	9.3	7.1	9.5	6.6	9.5							6.3	10.5
1983	6.0	13.2	6.3	11.3	6.2	11.4	6.6	11.7	6.0	11.7					6.3	12.1
1984	6.6	12.9	7.4	11.5	4.6	10.6	6.9	12.6	6.8	10.9					6.8	11.9
1985	7.2	16.7	7.4	14.3	6.1	11.4	7.1	11.3	6.8	14.2					7.1	14.4
1986	7.0	14.1	6.2	11.8	6.6	11.7	5.7	9.3	6.8	12.5					6.6	12.4
1987	7.0	17.3	6.5	12.2	7.4	13.5	5.9	12.5	7.0	14.5					6.8	14.2
1988	5.0	17.1	5.6	10.1	5.3	11.3	4.6	12.6	6.5	14.3					5.4	13.6
1989	4.1	16.1	5.1	10.0	4.4	10.7	5.5	13.0	5.3	14.5					4.7	13.3
1990	5.1	15.8	4.9	9.0	2.7	7.9	6.0	12.2	4.9	11.9	7.7	11.3	6.6	8.3	5.1	12.8
1991	*4.7*	14.0	*4.1*	9.7	*3.3*	9.5	*4.8*	14.5	*5.1*	11.5	*6.8*	10.2	*4.3*	7.4	*4.5*	11.8
1992	*4.9*	11.8	*4.3*	9.4	*3.0*	9.1	*6.0*	10.2	*4.5*	11.9	*3.0*	4.0	*10.0*	11.0	*4.6*	10.9
1993	*5.2*	11.8	*5.1*	9.1	*5.0*	10.1	*4.4*	9.6	*4.6*	11.1	*2.5*	10.5	*4.6*	6.9	*4.8*	10.5
1994	*5.3*	13.1	*5.1*	11.6	*4.1*	10.0	*5.1*	16.9	*4.9*	11.5	*5.1*	11.0	*6.2*	11.6	*5.1*	12.3
1995	*5.1*	12.8	*4.9*	10.0	*4.1*	10.1	*5.7*	13.9	*3.9*	10.3	*4.5*	10.4	*4.5*	9.3	*4.7*	11.2
1996	*4.6*	10.4	*4.5*	9.9	*3.9*	9.4	*4.4*	11.2	*4.5*	10.4	*3.1*	11.1	*4.4*	8.9	*4.4*	10.2
1997	*5.2*	12.3	*6.0*	11.9	*5.6*	11.4	*5.8*	14.5	*5.4*	11.0	*3.2*	7.2	*4.9*	7.5	*5.6*	11.7
1998	*5.1*	11.9	*5.3*	10.0	*5.9*	9.8	*4.6*	10.0	*4.5*	11.6	*4.0*	11.9	*4.4*	10.5	*4.9*	10.9
1999	*3.9*	10.1	*5.0*	10.3	*3.8*	8.5	*4.7*	13.7	*5.0*	10.3	*6.9*	13.1	*3.1*	6.5	*4.7*	10.5
2000	*4.9*	10.5	*5.3*	10.5	*3.8*	8.2	*5.1*	12.2	*5.3*	11.1	*6.1*	17.4	*3.8*	6.7	*5.2*	10.9
2001	*5.1*	11.9	*4.6*	9.3	*5.0*	10.3	*4.6*	13.0	*4.5*	11.5	*3.9*	10.9	*4.5*	9.3	*4.7*	10.8
2002	*4.9*	10.8	*5.6*	10.7	*5.4*	9.6	*5.1*	11.7	*5.5*	12.0	*5.9*	13.0	*5.6*	13.6	*5.4*	11.3
2003	*5.1*	11.4	*5.2*	11.1	*4.9*	10.3	*5.1*	11.0	*5.1*	11.9	*5.2*	13.5	*4.9*	10.0	*5.0*	10.3
2004	*4.3*	8.7	*4.7*	9.3	*3.8*	8.1	*5.0*	14.3	*4.3*	8.7	*5.0*	11.5	*4.2*	8.3	*4.5*	9.6

YEAR	NORTHEAST		SOUTHERN		CENTRAL		WESTERN		EAST-CENTRAL		NORTH-WEST		NORTH-CENTRAL		STATEWIDE	
	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F
2005	*4.9*	10.0	*4.9*	8.3	*4.5*	8.1	*5.0*	11.9	*4.7*	8.6	*4.7*	11.2	*4.8*	8.8	*4.8*	9.2
2006	*4.8*	9.4	*4.7*	8.8	*4.3*	8.0	*4.5*	11.3	*5.9*	8.9	*4.7*	9.8	*4.7*	9.3	*4.8*	9.4
2007	*5.1*	10.2	*4.5*	8.2	*4.6*	9.7	*4.1*	9.3	*5.0*	9.7	*5.5*	10.0	*4.7*	10.2	*4.7*	9.5
2008	*4.5*	9.5	*4.5*	8.7	*4.8*	8.4	*4.3*	9.6	*4.1*	8.0	*4.5*	9.3	*3.9*	7.8	*4.3*	8.7

A new survey was initiated in 2008, with new regions and survey cards. 2008 was analyzed with the old and new regions to allow comparisons between years
Survey Response not adequate in 2014
Y/SH = poults per successful hens, and Y/AH = poults per all hens

YEAR	NORTHWEST		NORTH-CENTRAL		NORTHEAST		WEST-CENTRAL		CENTRAL		EAST-CENTRAL		SOUTHWEST		SOUTH-CENTRAL		SOUTHEAST		STATEWIDE	
	Y/SH	Y/AH	Y/SH	Y/AH	Y/SH	Y/AH	Y/SH	Y/AH	Y/SH	Y/AH	Y/SH	Y/AH	Y/SH	Y/AH	Y/SH	Y/AH	Y/SH	Y/AH	Y/SH	Y/AH
2008	4.20	2.60	2.90	1.50	3.80	1.90	3.90	1.90	4.00	1.90	3.70	1.90	3.10	1.90	3.60	2.10	3.50	1.70	3.60	1.90
2009	3.70	1.50	3.30	1.80	3.80	1.90	3.10	1.50	3.10	1.50	3.40	1.60	3.50	1.80	3.50	1.60	2.90	1.10	3.30	1.60
2010	4.10	2.10	3.80	2.80	3.80	2.40	3.20	1.60	3.70	2.30	3.70	1.90	3.60	1.70	4.10	2.00	3.10	1.40	3.70	2.00
2011	3.90	2.00	3.50	2.10	3.90	2.50	3.70	1.70	3.50	1.70	3.70	1.70	3.30	1.30	3.90	2.00	3.00	1.40	3.60	1.80
2012	3.90	1.90	4.20	3.00	4.70	3.80	2.70	1.50	3.50	2.10	4.00	2.70	3.70	2.20	3.90	2.30	3.10	1.50	3.80	2.30
2013	3.90	2.00	4.20	1.70	4.70	1.70	2.70	1.20	3.50	1.80	4.00	1.50	3.70	1.50	3.90	2.40	3.10	1.30	3.80	1.70
2014																				
2015	3.49	2.06	2.82	1.81	3.81	2.40	2.04	1.35	3.42	1.79	3.61	1.84	4.22	1.56	3.40	1.80	3.97	1.80	3.42	1.82
2016	3.97	2.14	3.60	2.33	3.86	2.37	3.20	1.64	4.57	2.10	4.40	2.72	3.84	1.80	3.79	1.87	4.32	2.43	3.89	2.20
2017																				
1 year % change	13.8	3.9	27.7	28.6	1.3	-1.2	56.9	21.2	33.7	17.2	21.9	47.5	-9.0	15.7	11.5	4.1	8.8	34.9	13.7	20.9

Table 2.10 Iowa wild turkey brood survey results by region for reports and percent hens with broods, 1976- present. #=total reports (italics) and % hens with broods.

YEAR	NORTHEAST		SOUTHERN		CENTRAL		WESTERN		EAST-CENTRAL		NORTH-WEST		NORTH-CENTRAL		STATEWIDE	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1976			78													
1977			98													
1978			77	80												
1979			170	80												
1980			142	57												
1981	65	65	194	57											*259*	61
1982	*118*	62	*163*	60	*31*	42	*10*	23							*322*	47
1983	*117*	75	*148*	69	*34*	67	*40*	57	*77*	46					*416*	65
1984	*106*	78	*134*	78	*13*	84	*41*	54	*76*	53					*370*	70
1985	*133*	81	*229*	82	*42*	94	*47*	57	*165*	65					*616*	76
1986	*191*	74	*236*	63	*42*	55	*65*	64	*137*	55					*671*	64
1987	*266*	77	*353*	61	*79*	78	*70*	72	*138*	71					*906*	69
1988	*379*	72	*394*	45	*138*	79	*90*	69	*278*	60					*1,279*	62
1989	*364*	72	*408*	54	*92*	38	*137*	46	*303*	54					*1,304*	57
1990	*421*	66	*257*	46	*38*	59	*118*	38	*303*	49	*18*	46	*28*	14	*1,183*	54
1991	*368*	57	*418*	47	*78*	40	*105*	46	*346*	55	*22*	46	*9*	35	*1,346*	51
1992	*344*	59	*431*	44	*49*	28	*68*	25	*387*	44	*18*	5	*9*	14	*1,306*	45
1993	*265*	48	*290*	45	*37*	67	*75*	47	*330*	47	*12*	64	*28*	44	*1,037*	48
1994	*403*	53	*425*	49	*56*	61	*95*	62	*338*	56	*35*	42	*36*	46	*1,388*	53
1995	*325*	57	*385*	35	*175*	28	*146*	40	*319*	53	*24*	58	*28*	80	*1,403*	44
1996	*425*	48	*428*	38	*134*	25	*68*	43	*371*	46	*37*	43	*68*	48	*1,531*	42
1997	*310*	59	*589*	67	*67*	64	*141*	60	*356*	51	*27*	28	*82*	39	*1,572*	58
1998	*474*	59	*783*	49	*76*	37	*158*	48	*504*	53	*49*	78	*97*	61	*2,141*	53
1999	*411*	52	*805*	60	*62*	54	*188*	60	*517*	49	*45*	57	*86*	35	*2,114*	54
2000	*293*	53	*759*	56	*74*	50	*210*	59	*350*	51	*41*	84	*59*	53	*1,786*	55
2001	*429*	67	*803*	41	*73*	47	*228*	44	*486*	39	*61*	65	*105*	38	*2,185*	46
2002	*563*	64	*853*	51	*157*	56	*200*	57	*675*	45	*86*	71	*153*	77	*2,742*	54
2003	*1230*	51	*2930*	39	*344*	49	*581*	52	*1467*	39	*116*	70	*368*	53	*7,142*	43
2004	*735*	46	*1792*	50	*184*	47	*464*	55	*1005*	44	*75*	59	*262*	49	*4,517*	48
2005	*647*	55	*1457*	50	*316*	58	*627*	62	*823*	58	*144*	72	*447*	57	*4,564*	56

YEAR	NORTHEAST		SOUTHERN		CENTRAL		WESTERN		EAST-CENTRAL		NORTH-WEST		NORTH-CENTRAL		STATEWIDE	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
2006	*707*	47	*1503*	40	*279*	48	*820*	42	*828*	40	*165*	46	*460*	56	*4,879*	42
2007	*687*	53	*1492*	37	*301*	55	*675*	38	*909*	54	*157*	56	*538*	55	*4,833*	46
2008	*477*	55	*952*	58	*259*	54	*394*	54	*600*	55	*155*	68	*453*	56	*3,289*	57

A new survey was initiated in 2008, with new regions and survey cards. 2008 was analyzed with the old and new regions to allow comparisons between years.
Bold indicates changes that are statistically different.
Inadequate response for 2014

YEAR	NORTHWEST		NORTH-CENTRAL		NORTHEAST		WEST-CENTRAL		CENTRAL		EAST-CENTRAL		SOUTHWEST		SOUTH-CENTRAL		SOUTHEAST		STATEWIDE	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
2008	134	62.0	303	50.2	377	48.1	238	48.3	145	48.7	358	49.9	120	60.8	353	58.3	247	47.7	2275	52.7
2009	135	41.3	403	54.1	688	50.8	329	48.8	213	46.6	648	48.3	302	51.4	470	46.8	467	39.4	3655	47.4
2010	200	51.2	433	73	643	63.5	389	50	255	63.7	636	51.4	340	47.2	344	50.3	377	46.2	3617	54.7
2011	164	52.9	514	60.1	629	63.5	255	46.9	281	49.9	512	46.6	286	40.1	379	52.1	424	45.8	3444	50.6
2012	173	46.9	439	72.6	641	79.9	334	56	281	59	495	68.4	308	58.4	372	58.8	391	48.9	3434	60.6
2013	128	57.8	368	50.4	490	50	178	46.7	177	54.9	343	53.4	306	50.4	252	63.7	252	46.1	2494	52.3
2014																				
2015	181	58.9	475	64.2	545	63.1	227	66.1	296	52.5	413	51	190	36.9	485	52.8	193	45.4	3005	45.4
2016	162	53.8	575	64.7	562	61.4	225	51.4	191	46.5	498	61.8	208	47.1	489	49.5	256	56.4	3166	56.6
2017																				
1 year % change		-8.7		0.8		-2.6		-22.2		-11.5		21.3		27.6		-6.3		24.2		24.7

Table 2.11 Iowa's Spring turkey hunting seasons, 1974-present.

YEAR	BAG LIMIT	POSS LIMIT	SEASON					SPLITS	SEASON LENGTH	# ZONES	# SQ. MILES	MAJOR RULE CHANGES
			Youth	1	2	3	4					
1974	1	1/License		4 May-10 May	11 May-19 May				16	3	5,682	$10 fee
1975	1	1/License		26 Apr-2May	3May-9May	10 May-18May			23	3	2,749	3rd Season added
1976	1	1/License		24 Apr-28 Apr	29 Apr-5 May	6 May-16 May			23	4	2,884	NE Iowa closed for restocking
1977	1	1/License		21 Apr-27 Apr	28 Apr-4 May	5 May-15 May			25	4	3,200	
1978	1	1/License		20 Apr-26 Apr	27 Apr-3 May	4 May-14 May			25	6	3,683	
1979	1	1/License		19 Apr-25 Apr	26 Apr-2 May	3 May-13 May		Zones 1-5	25			
		1/License		26 Apr-2 May	3 May-9 May	10 May-20 May		Zones 6-8	25	8	9,958	$15, NE Iowa reopened
1980	1	1/License		24 Apr-30 Apr	1 May-7 May	8 May-18 May		Zones 1-5	25			Muzzleloader legal, W Iowa open
		1/License		17 Apr-23 May	24 Apr-30 May	1 May-11 May		Zones 6-9	25	9	12,942	Stephens SF Special Zone
1981	1	1/License		14 Apr-20 Apr	21 Apr-28 Apr	29 Apr-10 May			27	9	21,873	Yellow River SF Special Zone, 2nd choice on app, 2 licenses available
1982	1	1/License		13 Apr-19 Apr	20 Apr-27 Apr	28 Apr-9 May			27	8	21,506	
1983	1	1/License		12 Apr-18 Apr	19 Apr-26 Apr	27 Apr-8 May			27	10	23,464	
1984	1	1/License		16 Apr-19 Apr	20 Apr-24 Apr	25 Apr-1 May	2 May-13 May		28	12	25,172	All 3 SF Special Zones, 4th season added
1985	1	1/License		15 Apr-18 Apr	19 Apr-23 Apr	24 Apr-30 Apr	1 May-12 May		28	13	27,005	$20 fee, decoys legal
1986	1	1/License		14 Apr-17 Apr	18 Apr-22 Apr	23 Apr-29 Apr	30 Apr-11 May		28	15	39,211	Combo gun/bow license, free landowner permit, archery only permit
1987	1	1/License		13 Apr-16 Apr	17 Apr-21 Apr	22 Apr-28 Apr	29 Apr-10 May		28	13	40,202	
1988	1	1/License		11 Apr-14 Apr	15 Apr-19 Apr	20 Apr-26 Apr	27 Apr-8 May		28	11	44,112	Unlimited 4th season permits, all day hunting
1989	1	1/License		10 Apr-13 Apr	14 Apr-18 Apr	19 Apr-25 Apr	26 Apr-7 May		28	5	56,043	Entire state open
1990	1	1/License		9 Apr-12 Apr	13 Apr-17 Apr	18 Apr-24 Apr	25 Apr-6 May		28	5	56,043	Nonresidents allowed
1991	1	1/License		15 Apr-18 Apr	19 Apr-23 Apr	24 Apr-30 Apr	1 May-12 May		28	5	56,043	
1992	1	1/License		13 Apr-16 Apr	17 Apr-21 Apr	22 Apr-28 Apr	29 Apr-10 May		28	5	56,043	$22 fee
1993	1	1/License		12 Apr-15 Apr	16 Apr-20 Apr	21 Apr-27 Apr	28 Apr-9 May		28	5	56,043	
1994	1	1/License		18 Apr-21 Apr	22 Apr-26 Apr	27 Apr-3 May	4 May-15 May		28	4	56,043	
1995	1	1/License		17 Apr-20 Apr	21 Apr-25 Apr	26 Apr-2 May	3 May-14 May		28	4	56,043	
1996	1	1/License		15 Apr-18 Apr	19 Apr-23 Apr	24 Apr-30 Apr	1 May-12 May		28	4	56,043	
1997	1	1/License		14 Apr-17 Apr	18 Apr-22 Apr	23 Apr-29 Apr	30 Apr-11 May		28	4	56,043	
1998	1	1/License		13 Apr-16 Apr	17 Apr-21 Apr	22 Apr-28 Apr	29 Apr-10 May		28	4	56,043	
1999	1	1/License		12 Apr-15 Apr	16 Apr-20 Apr	21 Apr-27 Apr	28 Apr-9 May		28	4	56,043	$22.50 fee, archers allowed 2 permits

YEAR	BAG LIMIT	POSS LIMIT	SEASON					SPLITS	SEASON LENGTH	# ZONES	# SQ. MILES	MAJOR RULE CHANGES
			Youth	1	2	3	4					
2000	1	1/License		17 Apr-20 Apr	21 Apr-25 Apr	26 Apr-2 May	3 May-21 May		35	4	56,043	
2001	1	1/License		16 Apr-19 Apr	20 Apr-24 Apr	25 Apr-1 May	2 May-20 May		35	4	56,043	
2002	1	1/License		15 Apr-18 Apr	19 Apr-23 Apr	24 Apr-30 Apr	1 May-19 May		35	4	56,043	$23 fee
2003	1	1/License		14 Apr-17 Apr	18 Apr-22 Apr	23 Apr-29 Apr	30 Apr-18 May		35	4	56,043	
2004	1	1/License		12 Apr-15 Apr	16 Apr-20 Apr	21 Apr-27 Apr	28 Apr-16 May		35	4	56,043	
2005	1	1/License	8 Apr-10 Apr	11 Apr-14 Apr	15 Apr-19 Apr	20 Apr-26 Apr	27 Apr-15 May		38	4	56,043	Youth season added
2006	1	1/License	7 Apr-9 Apr	10 Apr-13 Apr	14 Apr-18 Apr	19 Apr-25 Apr	26 Apr-14 May		38	4	56,043	NW Iowa zone added for nonresidents
2007	1	1/License	13 Apr-15 Apr	16 Apr-19 Apr	20 Apr-24 Apr	25 Apr-1 May	2 May-20 May		38	1	56,043	Mandatory harvest reporting, 3 SF zones elimnated
2008	1	1/License	11 Apr-13 Apr	14 Apr-17 Apr	18 Apr-22 Apr	23 Apr-29 Apr	30 Apr-18 May		38	1	56,043	season
2009	1	1/License	10 Apr-12 Apr	13 Apr-16 Apr	17 Apr-21 Apr	22 Apr-28 Apr	29 Apr-17 May		38	1	56,043	
2010	1	1/License	9 Apr-11 Apr	12 Apr-15 Apr	16 Apr-20 Apr	21 Apr-27 Apr	28 Apr-16 May		38	1	56,043	
2011	1	1/License	8 Apr-10 Apr	11 Apr-14 Apr	15 Apr-19 Apr	20 Apr-26 Apr	27 Apr-15 May		38	1	56,043	
2012	1	1/License	7 Apr-15 Apr	16 Apr-19 Apr	20 Apr-24 Apr	25 Apr-1 May	2 May-20 May		44	1	56,043	
2013	1	1/License	6 Apr-14 Apr	15 Apr-18 Apr	19 Apr-23 Apr	24 Apr-30 Apr	1 May-19 May		44	1	56,043	
2014	1	1/License	5 Apr-13 Apr	14 Apr-17 Apr	18 Apr-22 Apr	23 Apr-29 Apr	30 Apr-18 May		44	1	56,043	Unfilled youth tag valid for other seasons until filled
2015	1	1/License	4 Apr-12 Apr	13 Apr-16 Apr	17 Apr-21 Apr	22 Apr-28 Apr	29 Apr-17 May		44	1	56,043	
2016	1	1/License	9 Apr-17 Apr	18 Apr-21 Apr	22 Apr-26 Apr	27 Apr-3 May	4 May-22 May		44	1	56,043	
2017	1	1/License	8 Apr-16 Apr	17 Apr-20 Apr	21 Apr-25 Apr	26 Apr-2 May	3 May-21 May		44	1	56,043	

Table 2.12 Iowa's Fall turkey gun hunting seasons, 1981-present.

Archery only seasons same as deer seasons.

YEAR	BAG LIMIT	POSS LIMIT	SEASON	SEASON LENGTH	# ZONES	# SQ. MILES	MAJOR RULE CHANGES
1981	1	1/LICENSE	21 OCT-01 NOV	12	2	4,032	$15 fee
1982	1	1/LICENSE	19 OCT-31 OCT	13	2	5,254	1 Gun & 1 Bow, unlimited bow permits in spring zones
1983	1	1/LICENSE	18 OCT-30 OCT	13	2	5,254	Hunter safety required if born after 1 Jan 1967
1984	1	1/LICENSE	16 OCT-28 OCT	13	3	13,685	Decoys legal; Western, Central, and NE Iowa open
1985	1	1/LICENSE	15 OCT-27 OCT	13	3	13,685	$20 fee
1986	1	1/LICENSE	14 OCT-26 OCT	13	6	21,575	Stephens & Shimek SF special zones, statewide bow season
1987	1	1/LICENSE	12 OCT-08 NOV	28	7	21,575	2 licenses possible, Yellow River SF special zone
1988	1	1/LICENSE	10 OCT-27 NOV	49	7	25,402	
1989	1	1/LICENSE	09 OCT-26 NOV	49	7	29,610	Nonresidents allowed
1990	1	1/LICENSE	15 OCT-30 NOV	47	7	39,191	
1991	1	1/LICENSE	14 OCT-30 NOV	48	2 OF 7	9,060	Licenses issued for zones 3 & 6 only (NE Iowa); $22 fee
1992	1	1/LICENSE	17 OCT-29 NOV	44	2 OF 7	9,060	Licenses issued for zones 3 & 6 only (NE Iowa)
1993	1	1/LICENSE	11 OCT-28 NOV	49	2 OF 7	9,060	Licenses issued for zones 3 & 6 only (NE Iowa)
1994	1	1/LICENSE	10 OCT-30 NOV	52	2 OF 7	9,060	Licenses issued for zones 3 & 6 only (NE Iowa)
1995	1	1/LICENSE	16 OCT-30 NOV	46	7	39,191	
1996	1	1/LICENSE	14 OCT-30 NOV	48	7	39,191	
1997	1	1/LICENSE	13 OCT-30 NOV	49	7	39,191	
1998	1	1/LICENSE	12 OCT-30 NOV	50	7	39,191	
1999	1	1/LICENSE	11 OCT-30 NOV	51	8	44,056	ZONE 8 ADDED, $22.50 FEE
2000	1	1/LICENSE	16 OCT-30 NOV	46	8	44,056	
2001	1	1/LICENSE	15 OCT-30 NOV	47	8	44,056	
2002	1	1/LICENSE	14 OCT-30 NOV	48	8	44,056	$23 FEE
2003	1	1/LICENSE	13 OCT-5 DEC	54	8	44,056	
2004	1	1/LICENSE	11 OCT-3 DEC	54	8	44,056	
2005	1	1/LICENSE	10 OCT-2 DEC	54	9	56,043	NW IA ZONE ADDED, A 3rd LICENSE AVAILABLE, DOGS ALLOWED
2006	1	1/LICENSE	16 OCT-1 DEC	48	9	56,043	MANDATORY HARVEST REPORTING
2007	1	1/LICENSE	15 OCT-30 NOV	47	6	56,043	3 STATE FOREST ZONES ELIMINATED
2008	1	1/LICENSE	13 OCT-5 DEC	54	6	56,043	
2009	1	1/LICENSE	12 OCT-4 DEC	54	6	56,043	
2010	1	1/LICENSE	11 OCT-3 DEC	54	6	56,043	
2011	1	1/LICENSE	10 OCT-2 DEC	54	6	56,043	
2012	1	1/LICENSE	15 OCT-30 NOV	47	6	56,043	
2013	1	1/LICENSE	14 OCT-6 DEC	54	6	56,043	
2014	1	1/LICENSE	13 OCT-5 DEC	54	6	56,043	
2015	1	1/LICENSE	12 OCT-4 DEC	54	6	56,043	
2016	1	1/LICENSE	10 OCT- 2 DEC	54	6	56,043	

FURBEARERS

Introduction

Iowa supports a wide diversity of native furbearer species including badger (*Taxidea taxus*), beaver (*Castor canadensis*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), mink (*Mustela vison*), muskrat (*Ondatra zibethicus*), opossum (*Didelphis virginiana*), river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), striped (*Mephitis mephitis*) and spotted (*Spilogle putorius*) skunk, red (*Vulpes vulpes*) and gray (*Urocyon cinereoargenteus*) fox, and weasel (*Mustela* spp.). Data regarding population trends for these species is important for effectively evaluating management efforts and the status of furbearer species, statewide. Long-term population data for many furbearer species is difficult to obtain and often lacking at a landscape-scale. However, data such as harvest, road-kill, the bowhunter survey, and spotlight survey indices have shown positive correlations with changes in population abundance for many of these species. The Iowa Department of Natural Resources (DNR) monitors population trends of Iowa furbearer species through the use of 1) annual furharvest reports, 2) April spotlight surveys, and 3) the Iowa Bowhunter Observation Survey.

Each year since 1930, the Iowa DNR collected harvest data for furbearer species from licensed fur dealers in Iowa (Table 3.1). According to Iowa Code 109.97, every licensed fur dealer is required to report the total number of furs purchased per species from Iowa trappers and hunters by 15 May, annually. Although harvest data may only indicate a trend in population abundance, long-term harvest information provides a retrospective view of the status of various furbearer populations over time. Furthermore, in 1975, in response to debates regarding trapper versus hunter access to furbearer resources in the state, the Iowa DNR required licensed fur dealers to report the percent of raccoon, fox, and coyote pelts purchased from trappers and hunters, respectively. These data are useful in determining the impact of each harvest method on furbearer populations and the impact of weather on total harvest per species.

In 1978, the Iowa DNR began annual, statewide April spotlight surveys for raccoons and white-tailed deer (*Odocoileus virginianus*). Since 1978, the average raccoon harvest in Iowa has equaled or exceeded the average total harvest of all other furbearer species combined. Raccoon pelt values compose a significant portion of the total harvest value in Iowa each year. Thus, the April spotlight survey provides additional and useful data for managing this highly important furbearer species in the state. To view the full report for the April Spotlight Survey, go to: http://www.iowadnr.gov/Hunting/Population-Harvest-Trends

Population trend data for furbearer species have also been gathered annually since 2004 through the Iowa Bowhunter Observation Survey. This report can be viewed on the Iowa DNR's website at: http://www.iowadnr.gov/Hunting/Population-Harvest-Trends

Avid archers were identified *a priori* for survey and provide statewide observation data for Iowa furbearers during which more than 100,000 observation hours occur annually. Avid archers were considered ideal for collecting observation data because most are 1) experts at stand placement and concealment from wildlife, 2) knowledgeable regarding species identification, 3) in the field many hours each year, and 4) use methods for observing white-tailed deer that lend well to observation of many furbearer species. This dataset provides a repeatable and potentially long-term survey method for supplementing annual furharvest data.

Historic Furbearer Harvest

Prior to the 20th century, beaver furs were one of the most desired pelts on the market due to their thickness, durability, and warmth. However, because of high demand, beavers were overharvested around much of the world, even to extinction in Europe. In Iowa, beaver were extirpated by the turn of the century and populations were closed to harvest, statewide.

At the turn of the century, skunk furs were in high demand, worldwide. The fur trade was thriving as a result of increased visibility of actresses wearing furs and the high social status associated with fur products. However, in the 1930s, the market for skunk furs declined in response to demand for fox furs by the European fashion industry. During the 1930s, muskrat, mink, skunk, and opossum composed the largest proportion of total furbearer harvest in Iowa. By the end of the 1930s, the total skunk harvest in Iowa began to decline whereas the red and gray fox harvests were growing.

In the 1930s and 1940s, the Iowa Conservation Commission (currently the Iowa DNR) initiated a beaver reintroduction program in Iowa. Beavers were live captured and transplanted throughout the state and by 1943 the harvest season for beaver was reopened. During the 1943- 44 season 235 beavers were harvested (Table 3.1).

By the mid to late 1940s in Iowa, muskrat, mink, red and gray fox, striped and spotted skunk, opossum, coyote, and weasel harvests all faced dramatic declines in response to World War II (WWII). Within 5 years, total harvest collapsed from an all-time high of 418,484 to an all-time low of 135,108. Twelve species composed the total harvests in the early 1940s but during the 1947-48 season only muskrat, mink, striped and spotted skunk, red and gray fox, and raccoon were reported.

Following WWII, the fur market continued to depreciate as the production cost for labor- intensive fur products exceeded fur values and the need for fur products was replaced by the development of central heating. Society began viewing fur products as a trend characteristic of the previous generation and the demand for fox furs on the European market declined. Mink products, however, were viewed more favorably by the high class resulting in increased demand compared with previous decades.

Although demand was high, mink harvests in Iowa declined sharply in the early 1950s and remained low as a result of extended drought in the region and overall low mink prices, worldwide. Muskrat, striped and spotted skunk, red and gray fox, coyote, opossum, badger, and weasel also faced dramatic harvest crashes; composing less than 5% of the total harvest during the decade. Ultimately, raccoon and muskrat harvests became more stabilized and composed the greatest proportion of the total harvest in the 1950s.

During the 1960s, total harvest increased and was relatively stable in Iowa. Beaver populations had continued to recover with steady harvests averaging 6,800. Beginning in the early 1970s, raccoon, mink, red and gray fox, coyote, opossum, and badger all saw increased harvests. Striped skunk harvest had remained well below the 1930 average during the previous two decades but also showed a stable, yet small recovery. By the 1979-80 season, record total harvests topped 1 million (1,146,311) in Iowa for the first time in recorded history.

Although record furbearer harvests were achieved in the 1970s, spotted skunk populations struggled. Reports from the 1940s indicated that spotted skunk were common in portions of Iowa but by the 1970s, they were considered rare in the state. In 1976, the spotted skunk harvest season was closed, statewide, and the species was ultimately classified as an endangered species in Iowa. Throughout the 1970s and 1980s, the Iowa DNR received only 1 or 2 spotted skunk reports per year.

In the late 1970s and early 1980s, anti-furharvest groups formed and began protesting the development of fur products in the United States. Advertisements and celebrity endorsements were used to build public support against the fur trade. Demand for furs in North America subsequently declined although the fur market in Europe remained less affected.

Throughout the early and mid-1980s, total furharvest in Iowa remained relatively strong. However, by the late 1980s,

Iowa experienced extreme drought conditions. When combined with a weak global fur market, statewide harvests for all species crashed. Total reported harvest decreased by 450% in a 4-year period; reaching a low of 216,874 by 1990-91 (Table 3.1).

Total reported furharvest in Iowa remained low, stabilizing around 275,000 through the 1990s and early 2000s. Total harvest was primarily composed of raccoon and muskrat, as well as beaver, coyote, opossum, red fox, and mink in lower proportions.

In recent years the total fur harvest in Iowa has shown a marked decline since 10-year highs of 375,000 to 450,00 furs in 2011-14 to 148,629 and 142,794 furbearers in 2015-16 and 2016-17, respectively (Table 3.1). The total harvest in 2016-17 was down even from the previous year primarily due to a very weak fur market again.

Licensed Furharvesters and Fur Dealers

The average number of licensed furharvesters in Iowa fluctuates with current fur markets (Figure 3.1). Generally, as fur prices increase, the number of furharvesters in the state increases in subsequent years, and vice versa in years when fur prices are lower. In 2016-17, the number of licensed furharvesters in Iowa declined again from the previous year to 14,816 from a 10-year high of 20,818 in 2013-14 (Table 3.2).

Over the past 10 years, the number of licensed fur dealers in Iowa has fluctuated from 36 to 49 and is also dependent upon the fur market trends (Figure 3.2). In 2016-17, there were 34 dealers; a decrease from 2015-16 which was consistent with the fur market trend (Table 3.2).

Current Fur Market in Iowa

For the upcoming 2017-18 season, the fur market outlook again looks weak but may trend upward slightly from the previous year. Yet, still a stark contrast to when the market was relatively strong from 2010-13. Demand is still primarily from Russia and China, with several other smaller countries buying fur. Continued instability both politically and economically in several countries of Europe and the Middle East have created a general decline for demand in the global fur market. High quality furs are still prized in the fashion/style industry. Demand for ranch mink, oil prices, current fur inventories, and other factors can give some indication how the wild fur markets will trend for the upcoming year. The trim trade for longer haired pelts such as coyotes continues to do okay. Raccoon pelt inventories are more cleared out than last year so the average price for raccoon pelts sold in 2017-18 has a chance to go up slightly. Prices for wild bobcat, mink, coyote, red fox, beaver, and otter are expected to remain somewhat poor to decent for 2017. Muskrat prices may increase slightly from poor to fair. Demand for striped skunk and weasel has slowly declined over recent years and may continue that trend in the following year.

In 2016-17, furbearer prices and number of pelts sold in Iowa followed current furbearer market trends. Average pelt prices remained similar to the previous year for all species and most fetched only 50% of their value from just two years ago (Table 3.3). The total value for all species of pelts sold in Iowa also decreased from the previous year $926,640 to $728,652 in 2015 to 2016, respectively (Table 3.4). Mink, raccoon, and red fox prices in 2016 were below the 5-year and long term pelt price averages. While muskrat prices in 2016 were below the 5-year average but slightly above the long term average (Table 3.4).

2016-17 Furharvest Season in Iowa

Annual and long-term weather events, habitat, and disease significantly impact furbearer populations and harvest success in Iowa. Precipitation, water levels in wetlands and waterways, and time of freeze-up especially affect aquatic furbearer harvests throughout the state. Muskrat and beaver populations are typically cyclic and historically fluctuate following wet/dry periods; resulting in fluctuating annual harvests.

Terrestrial furbearer (coyotes, fox, badger, etc.) harvests are impacted by the severity of winters, level of snow cover, and the duration of extreme temperatures because it effects daily animal movement. The severity of harsh winter weather has also been shown to limit hunter and trapper effort in some years. Typically, trapping and raccoon hunting success is greater during mild winters in which snow cover is minimal. Inversely, hunter success harvesting coyote and fox increases during years of extended snow cover. Ultimately, consideration of annual weather is important for

analyzing harvest trends and developing sound management strategies for furbearers in Iowa.

The weather for furharvesters during the fall and winter of 2016-17 was different than the previous year. In 2016, weather conditions were generally good heading into November, but then above normal (especially night time) temperatures remained throughout the state until the third week. Most of the state received cold fronts with some wind and rain/snow by the third week of November. By late November, many waterbodies in the north half of the state were starting freeze over. In the northern half of the state, snow and freezing temperatures arrived in early to mid-December. While temperatures remained milder in the southern half of the state well into January. Statewide, December was cooler than average. In general, the weather was ideal for trapping furbearers throughout the state for much of the season. However, low fur market prices reduced trapper effort significantly during the 2016-17 furharvest season. This in turn resulted in low harvests of nearly every species that are comparable to totals seen during the late 1960s (Table 3.1).

The gray fox harvest (19) in 2016-17 declined from the 2015-16 season (44) and was more typical of the low harvest experienced in 2013 (Table 3.1). A continued downward trend in gray fox is a concern. We will continue to monitor the gray fox harvest and population. Further regional (Midwest) research is needed to help answer questions about the cause of their decline over that past 10 years.

The proportion of pelts purchased by Iowa fur dealers from trappers was higher than those harvested by hunters for raccoon (67% and 34%), and fox (72% and 28%), however hunters harvested slightly more coyotes (60%) than did trappers (40%) in 2016-17 (Table 5). Bobcat harvest by hunter versus trapper is recorded but is not complete because several animals are kept for taxidermy purposes. The total number of coyotes harvested decreased significantly from the previous year but was still higher than the long term average. Decent fur market prices were likely reasons for another good harvest for 2016-17 (Table 3.1).

The following sections cover 2016 -17 harvest and populations trends for each specific furbearer species.

Raccoon

Raccoon harvest in the 1930s was relatively low and comprised only 3% of the total harvest. By the mid to late 1940s, raccoon harvests had tripled; comprising a significant portion of the total harvest (14%) for the first time. Harvests steadily increased throughout the next two decades but remained relatively low until the early 1970s (Figure 3.3). During the 1970-71 season, raccoon harvest totaled approximately 94,000. By 1974, raccoon harvests had boomed, experiencing a 300% increase to 292,064 (Table 3.1). Although harvests had climbed to nearly 100,000 during the previous 2 decades, populations still increased steadily. Corn was being planted on more and more acres creating an abundant food source. High harvest rates likely minimized disease outbreaks such as distemper, helping to maintain healthy populations as well. By the 1986-87 season, harvests reached a current, all-time high of 390,773. However, within 3 years, harvests crashed to 103,468 (a 378% decline) as a result of poor market prices and regional drought. Average harvest throughout the 1990s and mid-2000s remained around 129,000. In 2011-2012, harvests again peaked to 326,368 when the fur market trended upward (Table 3.1 and Table 3.3).

In 2016-17 the statewide harvest for raccoons was 82,126 and has decreased annually since 2011 (Table 3.7). The raccoon trapping and hunting season was open from Nov 5, 2016-Jan. 31, 2017, with no daily bag limits nor possession limit (Table 3.6). The average raccoon pelt price in Iowa was $4.76 ($0.50-$7.00), which was up slightly from the 2015-16 average price ($4.53; Figure 3.4; Table 3.3). Trapping accounted for 67% of the total harvest, similar to the previous season, while hunting accounted for the remaining harvest (34%, Table 3.5).

The 2016 Iowa Bowhunter Observation Survey indicated populations decreased slightly from the previous year throughout all regions of the state, but still remain high (Figure 3.5). Results from the 2017 April spotlight survey indicated the overall statewide raccoon population remained similar from the previous year (Figure 3.6). However, individual county by county April 2016 spotlight surveys also showed results varied in Iowa with some of the highest counts occurring in the southwest and east-central regions (Figure 3.7). Regional spotlight survey data was variable compared to previous years, with an upward trend in southwest Iowa and downward trend in west central and southeast Iowa (Figure 3.8). Field reports of raccoon litters this spring and summer indicate the population will trend

upward in most regions for 2017 -18.

Muskrat

Since the 1930s, muskrat consistently composed the greatest proportion of the total annual harvest in Iowa (Table 3.1). Average pelt prices have remained consistently low compared with species such as raccoon, mink, and red fox (Table 3.4). However, because of the historically high muskrat population in the state and high rate of harvest over time, muskrat furs averaged 25% of the total harvest value in recorded history.

Fluctuations in the total annual furbearer harvest have primarily been due to the cyclic behavior of muskrat populations. Historic muskrat populations in Iowa fluctuated greatly following wet and dry periods. Droughts in the 1930s, 1950s, and late 1980s suppressed muskrat populations in the state. However, in subsequent wet years, populations quickly rebounded due to the prolific reproductive capacity of the species.

In 1979-80, muskrat harvest in Iowa reached a current, all-time high of 741,403 (Table 3.1). Harvests varied throughout the early and mid-1980s but by the 1987-88 season, extreme drought, poor wetland conditions, and a suppressed fur market resulted in significantly depressed populations and a 30-year-low harvest (Figure 3.9). Excessive precipitation in the early 1990s improved habitat and by the mid-1990s, populations had steadily rebounded. In the late 1990s, wetland conditions began to deteriorate as increasing/stable, high water levels degraded marsh vegetation and habitat. Harvests again declined to pre-1993 levels and remained low; averaging 68,500 through the 2000s. In 2010-11, the muskrat harvest reached a decade high of 98,079, yet still remained well below the long term average.

In 2016-17, the muskrat harvest was 38,944, which was an increase from the previous season (33,327, Table 3.3). For 2016 -17, pelt values for muskrats remained similar to the previous year, so the increase in harvest was likely due to the higher population in 2016 than in 2015. From 1997-2016, the average pelt price has remained above the long term average, but harvest has trended downward overall (Figure 3.10).

Trapping season length (5 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in previous years (Table 3.6). For 2016-17, the average muskrat pelt price in Iowa was $2.35 ($0.29-3.58), which was the same average price in 2015 ($2.35; Figure 3.10; Table 3.3).

Drought conditions in 2011 thru 2012 significantly decreased water levels in wetlands and subsequently suppressed muskrat populations and total harvest. There is also concern whether other environmental factors are suppressing the muskrat population as well. However, muskrat populations have increased with the generally wetter weather conditions that occurred in 2015 and 2016, but not to the level or widespread distribution seen in the past. This concern is not unique to Iowa. Further studies of muskrats will likely be underway in the Midwest over the next few years.

Coyote

Coyote harvest in the 1930s was nearly non-existent in Iowa and totaled only 517 animals throughout that entire decade (Figure 3.11). Harvests increased in the 1940s and averaged 374 per year, but by the 1950s, had once again dropped off. Through the 1950s and 1960s, harvests averaged fewer than 75 animals per year with annual harvests as low as 10 per year. Beginning in the 1968-69 season, coyote harvests increased noticeably and by 1976-77, reached a current, all-time high of 12,226 (Table 3.1). Since the late 1970s, harvests gradually decreased in the state but remained high in comparison to previous decades. Except for a dramatic decline in the late 1980s, harvests through the late 2000s averaged 6,800, well above the long-term average (4,207) (Figure 3.11).

In 2016-17, the coyote harvest was 9,283, which was down from the previous season's harvest (13,158) but well above the long-term average (Table 3.1). The trapping and hunting season length (trapping: 5 Nov-31 Jan, hunting: year round), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2015-16 (Table 3.6). The average coyote pelt price in Iowa was 17.22 ($5.00-30.00), which was slightly lower than the 2015-16 price ($20.36; Table 3.3). Coyote pelts have had the smallest loss of value during the recent fur market decline. Trapping accounted for a lower proportion of the harvest (40%) than hunting (60%) which is exactly the same as the previous season (Table 3.5). Ideal hunting conditions mainly occurred in December and February with significant snowfall to portions of the state.

The Iowa Bowhunter Observation Survey indicated the statewide population trended downward in 2016 throughout most regions of the state, but trended upward in southwest and southeast Iowa (Figure 3.12). Statewide, coyote population trends from 2012 to 2015 appear to be remaining quite high for many regions of the state, especially the southwest. The 2017 April spotlight survey showed a similar number of coyotes seen as in 2016 statewide (Figure 3.14). In 2016, there was a similar number of reports to 2015 from towns and cities in Iowa that urban coyotes were living within city limits.

Red Fox

Red fox harvests through the mid-1940s averaged approximately 6,900 in Iowa. Steady declines throughout the late 1940s and 1950s resulted in an all-time low harvest of 1,147 during the 1958-59 season. Harvest numbers rebounded in the 1960s and in the 1968-69 season, reached a current, all-time high of 27,661. Harvests fluctuated sharply throughout the next two decades but remained high, averaging 19,000 through the mid-1980s. In the late 1980s, red fox harvests began a steady declined and since the 2004-05 season, remained below the long-term average of 10,631 (Table 3.1, Figure 3.14).

In addition to depressed fur markets in the 1980s, recent red fox population declines in Iowa have been attributed to three occurrences. Since the early 1980s, mange has remained persistent in red fox populations and suppressed population recovery in the state. Secondly, habitat loss especially grasslands hurt fox populations. Furthermore, high coyote populations have resulted in encroachment on areas historically considered red fox habitat, increased competition for food and den sites, and increased predation by coyotes.

In 2016-17, the red fox harvest was 1,239, which is down from the previous season (1,581), half of the 5-year average, and 12% of the long-term average (Table 3.1). Trapping and hunting season length (5 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2015-16 (Table 3.6). The average red fox pelt price in Iowa was $10.47 ($7.17-20.00), which was similar to the 2015-16 price ($10.85; Table 3.3). The average pelt price has remained higher than the harvest since 2005 which indicates the fox population statewide is still relatively low but stable (Figure 3.15). Trapping accounted for 72% of the total harvest (red and gray fox), which was similar to the previous season (Table 3.5). Hunting accounted for 28% of the total harvest (red and gray fox).

The 2016 Iowa Bowhunter Observation Survey indicated that population trends throughout most of the eastern regions of the state were down slightly compared to previous years; northwest, northcentral, and southwest showed a slight increase (Figure 3.16). The 2017 April Spotlight Survey showed an increase overall from the previous year (Figure 3.17). Field reports during the spring and summer of 2017 also indicate an increase in red fox litters in some regions of the state, but remains quite variable locally.

Gray Fox

Gray fox harvests in Iowa have followed similar trends to those of red fox, although historically, populations have always existed at significantly lower numbers. During the 1930s and 1940s, harvests averaged around 1,300. Gray fox harvests dropped below 1,000 in the late 1940s and remained low until the early 1970s. Harvests steadily increased and during the 1979-80 season, reached a current, all-time high of 3,093. Whereas red fox harvests remained high throughout the 1980s, gray fox harvests have since dramatically declined (Figure 3.18). Since 1996-97, gray fox harvests have remained below their long-term average of 866. In 2009- 10, gray fox harvests reached an all-time low of 13 in Iowa (Table 3.1).

In 2016-17, the gray fox harvest was 19, which was lower than the previous season's harvest and well below the recent and long-term averages (Table 3.1). Trapping and hunting season length (5 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2015-16 (Table 3.6). The average gray fox pelt price in Iowa was $13.58 ($8.00-15.00), which was higher than the 2015-16 average price ($8.49; Table 3.3). Trapping accounted for 72% of the total harvest (red and gray fox), which was lower than the previous season (Table 3.5). Hunting accounted for 28% of the total harvest (red and gray fox).

The 2016 Iowa Bowhunter Observation Survey indicated that populations across most regions of the state trended downward from the previous year, except in east central Iowa (Figure 3.19). Recent research has been initiated in the Midwest to look at genetic differences in gray fox subspecies and may lead to further research on population limiting

factors.

Beaver

By the early 20th century, beaver were extirpated from Iowa. Harvest seasons remained closed throughout the 1930s and early 1940s while a statewide translocation and reintroduction program occurred. In 1943, the beaver harvest season was reopened and 235 were harvested. Beaver harvests averaged 450 through the late 1940s and by the early 1950s, began a steady upward trend. Harvests reached a current, all-time high of 18,459 during the 1988-89 season (Table 3.1). Harvests declined in the early 1990s although quickly stabilized, averaging 10,800 through the early 2000s. Harvests progressively declined in the 2000s and dropped below the long-term average (7,085) during the 2004-05 and 2006-07 through 2010-11 seasons (Figure 3.20). In 2012-13, the beaver harvest reached a 19-year high of 15,457; a number similar to the harvests recorded during the 1990s (Table 3.1). The harvest in 2016-17 increased slightly to 4,214 from 4,021 in 2015-16. Trapping season length (5 Nov-15 Apr), daily bag (no limit), and possession (no limit) limits have remained the same since the season was extended from April 1st to April 15th in the spring of 2012 (Table 3.6). The 2016-17 average beaver pelt price in Iowa was $6.54 ($3.00-10.00), which was lower than the 2015-16 price ($7.62; Table 3.3).

Mink

The proportion of mink in the total Iowa fur harvest has remained relatively constant since the 1930s. Mink harvests reached a current, all-time high of 60,397 during the 1946-47 season as a result of a sudden increase in value from the previous season ($6.75 to $28.16 per pelt). During WW II, European demand for furs collapsed and within 2 seasons, Iowa mink harvests dramatically fell to 16,571. Mink harvests stabilized in the early 1950s and averaged around 16,000 through the next 4 decades. Since the mid-1990s, mink harvests have remained below the long-term average. Harvests in the early and mid-2000s showed a steady decline although in 2010-11, topped the 5- and 10-year averages at 11,262 (Figure 3.21). Mink harvest did not go up when the mink pelt prices rose in value in 3 consecutive years (2011-2013) (Figure 3.22) indicating either low trap effort for wild mink or low populations or both.

The 2016-17 mink harvest was 3,957 which is a decrease from 4,545 in the previous season (Table 3.1). The 2016-17 harvest was below the 5- and 10-year averages, and long-term average (Table 3.1). Again, fur prices, rather than the population level, reduced trapper effort for mink and resulted in the harvest being down. Disease threats to wild mink are another factor that may impact the mink population negatively, but the extent of that impact is unknown at this time. The trapping season length (5 Nov-31 Jan), daily bag (no limit), and possession (no limit) limits remained similar to those in 2015-16 (Table 3.6). The average mink pelt price in Iowa was $6.01 ($2.00-12.00) in 2016-17, which was higher than the 2015-16 price ($5.42; Table 3.3).

Opossum

During the 1933-34 harvest season, the opossum harvest reached a current, all-time high of 83,625 (Figure 3.23). In the preceding and following years, harvests more typically averaged around 30,000. In the late 1940s, harvests significantly declined, reaching an all-time low of 953 in 1958-59. Opossum harvests remained below 10,000 until the early 1970s, when harvests again reached numbers comparable to those seen in the mid-1940s. In the late 1980s, harvests decreased again and have remained below the long-term average (14,549) from the 1990s to present.

The 2016-17 opossum harvest was 1,231, which increased from the previous season but still below the 5-year, 10-year and long-term averages (Table 3.1). Trapping season length (5 Nov-31 Jan), daily bag (no limit), and possession limits (no limit) remained similar to those in 2015-16 (Table 3.6). The average opossum pelt price in Iowa was $0.95 ($0.25-3.00), which was slightly higher than the 2015-16 price ($0.85; Table 3.3).

The 2016 Iowa Bowhunter Observation Survey indicated the population may trended upward in all regions of Iowa (Figure 3.24). The 2017 April Spotlight Survey also showed a trend upward in opossum numbers statewide (Figure 3.25).

Badger

Although an all-time low badger harvest occurred in 1932-33 (17), stable harvests averaging 450 per year were recorded from the mid-1930s until the mid-1940s (Figure 3.26). Harvests declined in subsequent years and averaged below 100 throughout the 1950s. By the late 1960s, badger harvests reached levels comparable to those recorded in the early 1940s. In the 1970s, harvest rates boomed in Iowa, reaching an all-time high of 3,274 during the 1979-80 season.

Harvests remained high throughout the 1980s but ultimately crashed to below 500 by the early 1990s. Harvests fluctuated around the long-term average (670) throughout the 1990s and 2000s. The long term trend in the badger harvest is increasing (Table 3.1).

In 2016-17, the badger harvest was 261 which was down slightly from the previous year (289, Table 3.1) and below the recent and long-term averages for Iowa. Trapping season length (5 Nov-31 Jan), daily bag (no limit), and possession limits (no limit) remained similar to those in 2015-16 (Table 3.6). For 2016-17, the average badger pelt price in Iowa was $9.05 ($2.00-35.00), which was slightly higher than the 2015-16 price ($8.78; Table 3.3).

The 2016 Iowa Bowhunter Observation Survey indicated that populations have trended upward in northern Iowa and were lower in southern regions of the state (Figure 3.27). Populations in western Iowa have typically remained a little higher than the remainder of the state in most years.

Spotted Skunk

Spotted skunk (also called civet cat) was proportionally one of the top 4 most harvested furbearer species throughout the 1930s in Iowa. In 1933-34, an all-time record 88,532 were harvested (Table 3.1). In 1946-47, the spotted skunk harvest crashed, although similar trends were recorded for most furbearer species in the state (Figure 3.28). Harvests stabilized around 1,700 in the 1950s and remained low throughout the decade. Many furbearer species began to show improvements in harvest numbers by the mid-1960s, but spotted skunk populations began a further decline. In 1976, the spotted skunk harvest season was closed and the species was classified as an endangered species in Iowa. During the 1970s and 1980s, 1-2 spotted skunk sightings were reported to the Iowa DNR per year. Since 1992, the only reported sighting in the state was a road kill individual in Ringgold County in southwest Iowa. We do get an occasional report of one in southern Iowa, but have not been able to verify any of them to this point. In 2014; two to three spotted skunks were reported/documented in the Camp Dodge area on 7/20/14. This was the first documented case of spotted skunks in Iowa in the past 20 years. In 2016, a roadkill spotted skunk was confirmed in Sac County. This animal was retained and kept for genetic study. Outside of that, spotted skunk numbers are nearly non-existent in Iowa. This is likely due to habitat changes and changes in farming practices. Time will tell if more ever show up in Iowa, but the outlook for that to occur is probably unlikely.

Striped Skunk

Striped skunk was proportionally the second most harvested furbearer species during the 1930s in Iowa. In 1936-37, an all-time record harvest of 153,497 was reported, although over the subsequent decade, harvest numbers for striped skunk steadily declined. By the early 1950s, harvests dropped below 10,000 and have generally averaged below 1,000 since 2008-09 (Figure 3.29).

In 2016-17, the striped skunk harvest was 355, which was down from the previous season and below the 5-year average (869) and the long-term average (755, Table 3.1). Trapping season length (5 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2015-16 (Table 3.6). The average striped skunk pelt price in 2016-17 for Iowa was $2.29 ($0.50-8.00), which was down from the 2015-16 price ($2.53; Table 3.3).

The 2016 Iowa Bowhunter Observation Survey indicated the population trended down in most regions from the previous year and trended upward in the northeast region (Figure 3.30). Populations have typically been highest in western and south-central portions of the state and relatively lower in central and eastern portions since the mid-2000s when this survey started. The 2017 April Spotlight Survey showed total striped skunk observations similar to the previous spring 2016.

Although both observation surveys indicate that decent numbers exist in Iowa, low market prices for skunk furs likely have kept harvest relatively low in comparison to species (e.g., badger) which remain at low population numbers yet produce relatively high harvests due to good fur prices.

Weasel

Weasel harvests during the 1930s and 1940s were characterized by dramatic fluctuations (Figure 3.32). In 1936-37, just 4 years following a decade low harvest of 256, the weasel harvest reached a current, all-time high of 7,190. Harvests

averaged 4,400 in the early and mid-1940s but by the mid-1950s, had dropped below 500 per year. Weasel harvests steadily decreased during the next 3 decades and in 1976, the harvest season was closed in Iowa. In 1987, the weasel harvest season was once again reopened, although the first reported harvested weasels did not occur until 2009-10. Harvests in 2009-10 and 2010-11 were 56 and 7, respectively, characteristic of the low harvest numbers reported throughout the 1960s and 1970s. Few trappers target weasels.

In 2016-17, the reported weasel harvest was 10 animals (Table 3.1). Although in should be noted that trappers keep at least some of their weasel pelts and don't sell them. Trapping season length (5 Nov-31 Jan), daily bag (no limit), and possession (no limit) limits remained similar to those in 2014-15 (Table 3.6). The average weasel pelt price in 2016-17 for Iowa was $1.00 ($1.00-1.00), which was higher than the 2015-16 price ($0.53; Table 3.3).

Low harvest numbers may indicate that statewide populations have not recovered since the 1970s. However, it is also likely that trappers have not yet targeted the species to any great extent since the harvest season was reopened in 1987 due to the low value of weasel pelts. Weasels are extremely hard to survey for population size estimates, right now, little is known about their population size.

River Otter

Except for small remnant populations along the Upper Mississippi River, the river otter was extirpated from Iowa by the early 20th century. In 1985, the Iowa DNR and partners initiated a reintroduction program in which 16 otters were released at Red Rock Reservoir in Marion County. Due to state regulations, the Iowa DNR was not able to directly purchase otters from Louisiana. A compromise was reached between Iowa, Kentucky, and Louisiana in which Kentucky purchased the otters from Louisiana ($400/otter) and Iowa traded wild turkeys to Kentucky (2 turkeys/otter) in exchange for the otters.

Between 1985 and 2003, a total of 345 otters were released throughout the state. By 2006, otter populations had expanded statewide. The Iowa DNR created the first regulated otter trapping season in 2006. The harvest quota was set at 400 animals (limit of 2 per licensed furharvester) and a 72-hour reporting grace period was established until the quota was met (Table 3.8). The 2006 harvest exceeded the quota by 66 otters so in 2007, the reporting grace period was shortened to 24 hours. The shortened grace period proved effective as the 2007 harvest exceeded the quota by only 16 animals. Harvest quotas were increased to 500 for the 2008, 2009, and 2010 seasons with harvests totaling 495, 519, and 515 per year, respectively.

In 2011, the harvest quota was set at 650 with a limit of 3 otters per licensed furharvester. A total of 770 otters were harvested (28 from unknown sources) which exceeded the quota due to inconsistencies in harvest reporting among individuals.

In 2012, the otter harvest quota was increased to 850. A total of 974 otters were harvested.

For the 2013-14 trapping season, the otter harvest quota was lifted for the first time and the general furharvest season timing and length was used; however the bag limit was reduced from 3 otters down to 2 otters per trapper. The 2013-14 otter harvest was 1,165.

The statewide otter harvest decreased to 835 and 692 in 2014-15 and 2015-16, respectively. For the 2016-17 season a total of 556 otters were trapped. County by county harvest is documented through CITES tag harvest reports which shows the highest otter harvests again occurred in eastern Iowa (Figure 3.33).

The average otter pelt price in 2016-17 for Iowa was $20.89 ($10.00-30.00), which was higher than the 2015-16 price ($19.74; Table 3.3).

Since the trapping season was established in 2006, the sex ratio of harvested otters has remained relatively even (Figure 3.34). Foothold traps, conibear traps, and snares were the most common harvest method in the state (Figure 3.35; Table 3.9). The number of furharvesters intentionally targeting otters is slowly increasing, but incidental captures appear to be the most common cause for capture in Iowa at this time (Figure 3.36 and Figure 3.37).

The Iowa Bowhunter Observation Survey is somewhat useful for otters, but not as much (correlated) as it is for other upland furbearer species that are more readily viewed by bowhunters. It is still a useful survey to gauge regional population trends. The 2016 bowhunter survey indicated the population trended upward modestly in northcentral and southeast regions, but were down in some the southwest region (Figure 3.38).

Otter populations appear to be quite variable from region to region throughout Iowa, but generally doing very well. With the pelt value still down during the 2016-17 season, the harvest was down from the previous year which was most likely due to lowered trapper effort, not a decline in the population. We will continue to gauge population trends however. At this time, the trapping regulations in place for the otter harvest are reasonable. However if data indicates the otter population is trending steadily downward or upward; then more restrictive or liberal harvest will be implemented. For otter, trapping is an especially effective population management tool because otter do not have many natural predators in Iowa but can be successfully trapped. The otter population must be managed to also fit social acceptance especially with pond owners and fishermen.

Bobcat

Three felid species including bobcat, Canada lynx, and mountain lion were native to Iowa, although historically, bobcats were most common. By the 1930s, only small remnant populations of bobcat remained scattered throughout the state, particularly in northeast Iowa. Between the 1940s and 1980s, bobcat sightings were exceedingly rare and the species was likely nearly extirpated for extended periods of time.

Since the early 1990s, bobcat sightings, road kills, and incidental captures by trappers had progressively increased in Iowa. By the early 2000s, confirmed bobcat sightings were recorded in 44 counties, primarily in southern Iowa and along the Mississippi and Missouri River. Populations were naturally expanding in Iowa, which was similarly being documented in Missouri, Nebraska, and Kansas. In 2003, the Iowa DNR concluded that populations had steadily increased and stabilized; therefore bobcats were delisted as a threatened species in the state. Over the next 2 years, bobcat sightings continued to increase. By 2005, confirmed sightings had been recorded in 78 counties.

In 2007, the Iowa DNR created the first regulated bobcat harvest season in the state. The harvest quota was set at 150 animals (limit of 1 per licensed furharvester) and a 24-hour reporting grace period was established until the quota was met (Table 3.10). Bobcat harvest was limited to the bottom two tiers of counties in Iowa (21 counties). The 2007 harvest included 149 bobcats plus an additional 5 road kill individuals.

Harvest quotas were increased to 200 bobcats during the 2008 and 2009 seasons with harvests totaling 232 and 231, respectively. Woodbury, Monona, Harrison, and Pottawattamie counties along the Missouri river were added to the open zone. In 2010, harvest quotas were further increased to 250 and a total of 263 bobcats were reported. The 2010 open zone was expanded to include the bottom 3 tiers of counties in Iowa plus Guthrie County in south-central Iowa. In 2011, the harvest quota was set at 350 (limit of 1 per licensed furharvester) and the open harvest zone remained similar to the 2010 zone (Figure 3.39).

In 2012, the harvest quota was set at 450. The bobcat harvest in 2012 was 528 (Table 3.10). The bobcat harvest quota was lifted for the first time in the 2013-14 fur season and the general trapping season length and timing were used; as it was for otters also. Bobcats can be trapped or hunted. The 2013-14 harvest for bobcats was 978 (Table 3.10).

Since then, the bobcat harvest has decreased to 706 and 535 in 2014-15 and 2015-16, respectively. For the 2016-17 season, the bobcat harvest was 591. The average bobcat pelt price in Iowa for 2016-17 was $40.78 ($11.00-150.00), which was higher than the 2015-16 price ($32.29) but still the highest average value per pelt of all Iowa furbearer species (Table 3.3). Harvest was highest in the southcentral regions of Iowa (Figure 3.40). Despite the season being open for 3 months again in 2016-17, the highest rate of harvest occurred in November and decreased in December and January with the most harvest occurring on weekends and holidays (Figure 3.41). Only 39 bobcats were harvested by gun deer hunters in 2016, which was fewer than expected. Archers harvested 56 bobcats in 2016 (Table 3.11).

Since the bobcat harvest season was established in 2007, the sex ratio of harvested bobcats has remained relatively

even, with a slightly higher proportion of females harvested (50%), than males (43%) (Figure 3.42). Snares, conibear traps, and foothold traps were the most common trapping method and calling the most common hunting method in the state (Figure 3.43; Table 3.11). The number of bobcats intentionally harvested has been slowly increasing and exceeded incidental harvest for the second time in 2016-17 (Figure 3.44 and Figure 3.45).

The 2016 Iowa Bowhunter Observation Survey indicated that since regulated bobcat trapping began in 2007, populations have remained fairly stable throughout the state, with the southwest, eastcentral, and northwest regions showing an upward trend and other regions showing a stable or decreasing trend (Figure 3.46). Regional population trends are highest throughout southern and western Iowa. This is consistent with data documented from research, harvest, road kills, incidental trapping captures, and habitat modeling. Populations appear higher in west-central Iowa along the Missouri River which is further supported by good harvest numbers in Monona and Harrison counties. Recovery in central and northern Iowa has been slow but fairly consistent. Lower numbers of bobcats in these regions of Iowa is mainly due to a lack of ideal habitat when compared with southern Iowa.

Bobcat populations have remained good throughout the state where ideal habitat exists especially in southern and western Iowa. Time will tell if bobcats naturally spread into northeast Iowa where additional good habitat is available. For 2017-18, the bobcat harvest season will remain the same as it was for the 2016-17 season, no quota and the limit remaining at 1 bobcat per licensed furharvester. The 2017-18 harvest season will again be open with the regular fur harvest season (4 Nov-31 Jan).

Figures

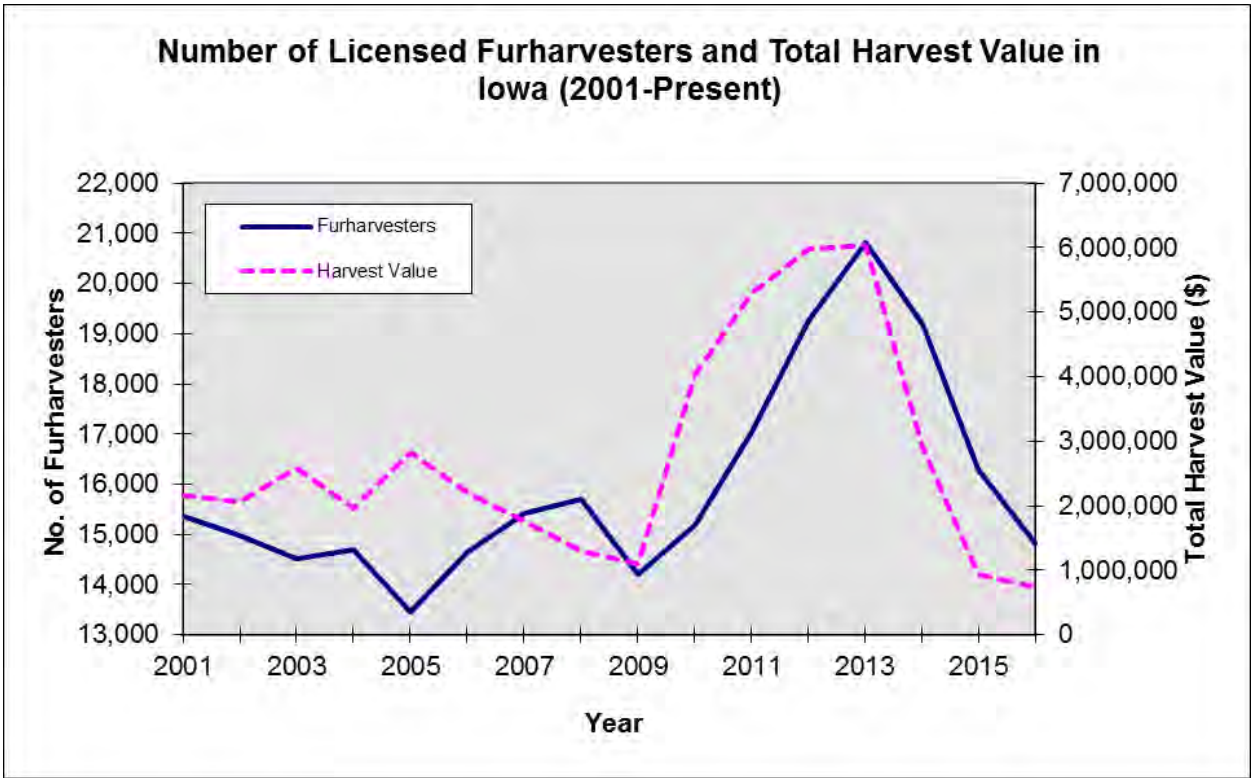


Figure 3.1 Number of licensed Iowa furharvesters and total harvest value in Iowa (2001-present).

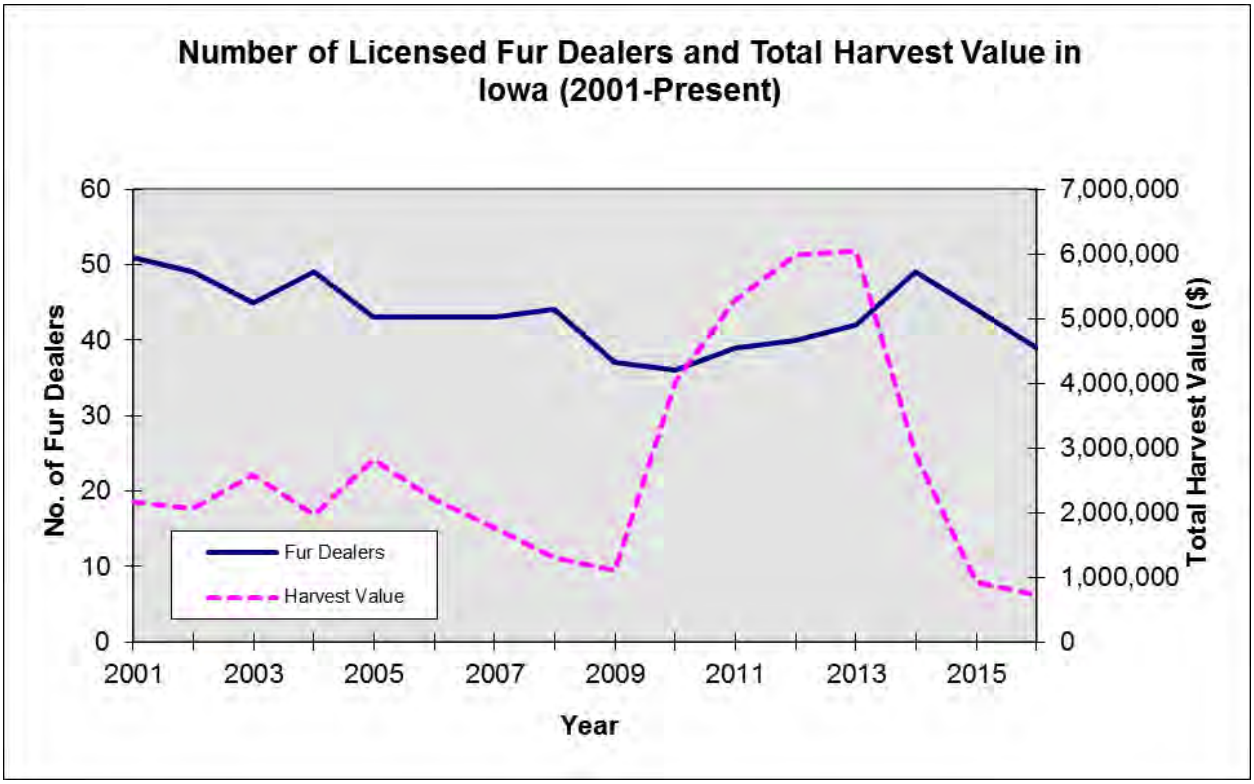


Figure 3.2 Number of licensed Iowa fur dealers and total harvest value in Iowa (2001-present).

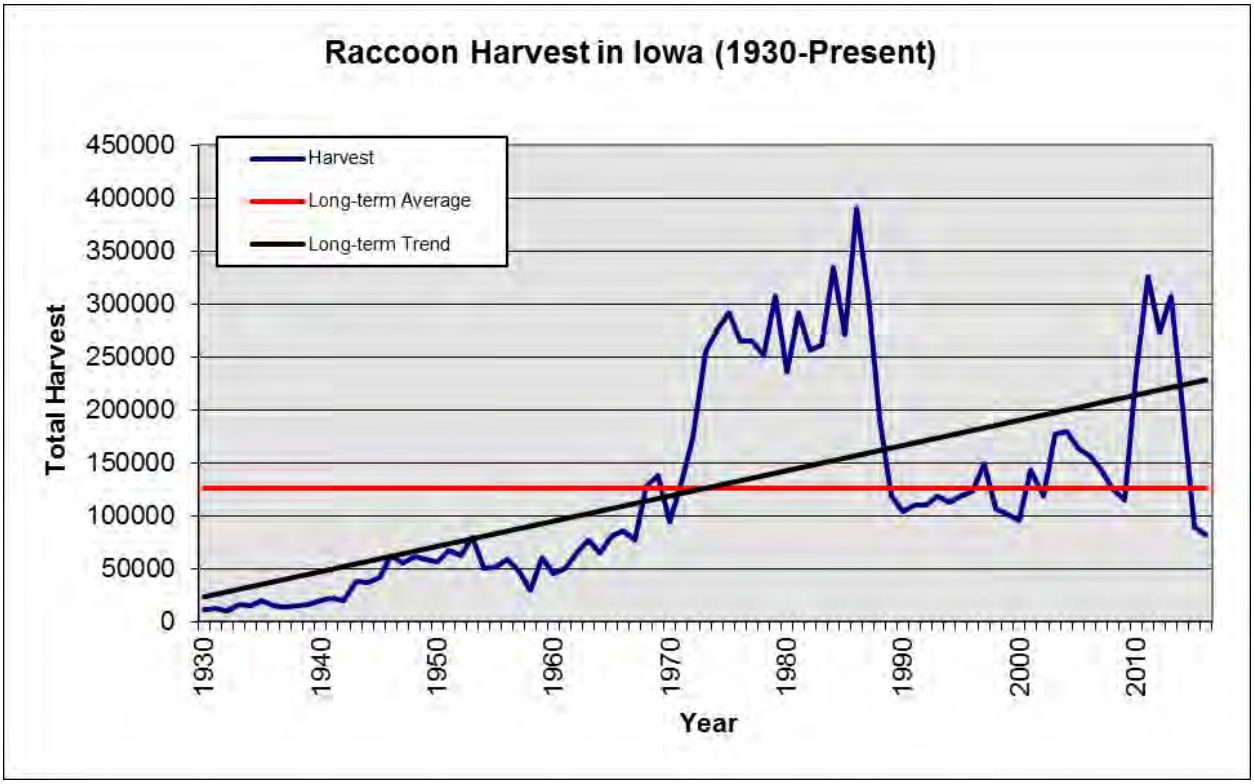


Figure 3.3 Annual raccoon harvests reported by licensed fur dealers in Iowa (1930-present).

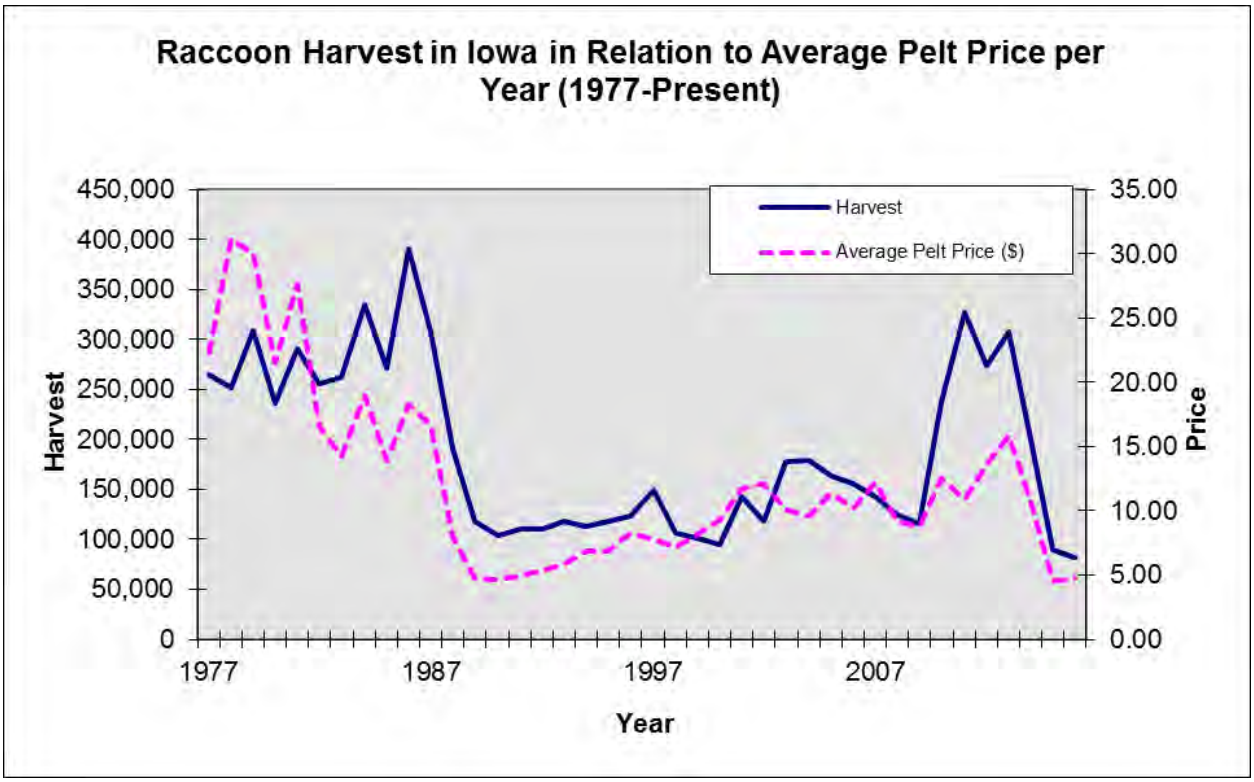


Figure 3.4 Raccoon harvest in Iowa and average pelt price paid by fur dealers (1977-present).

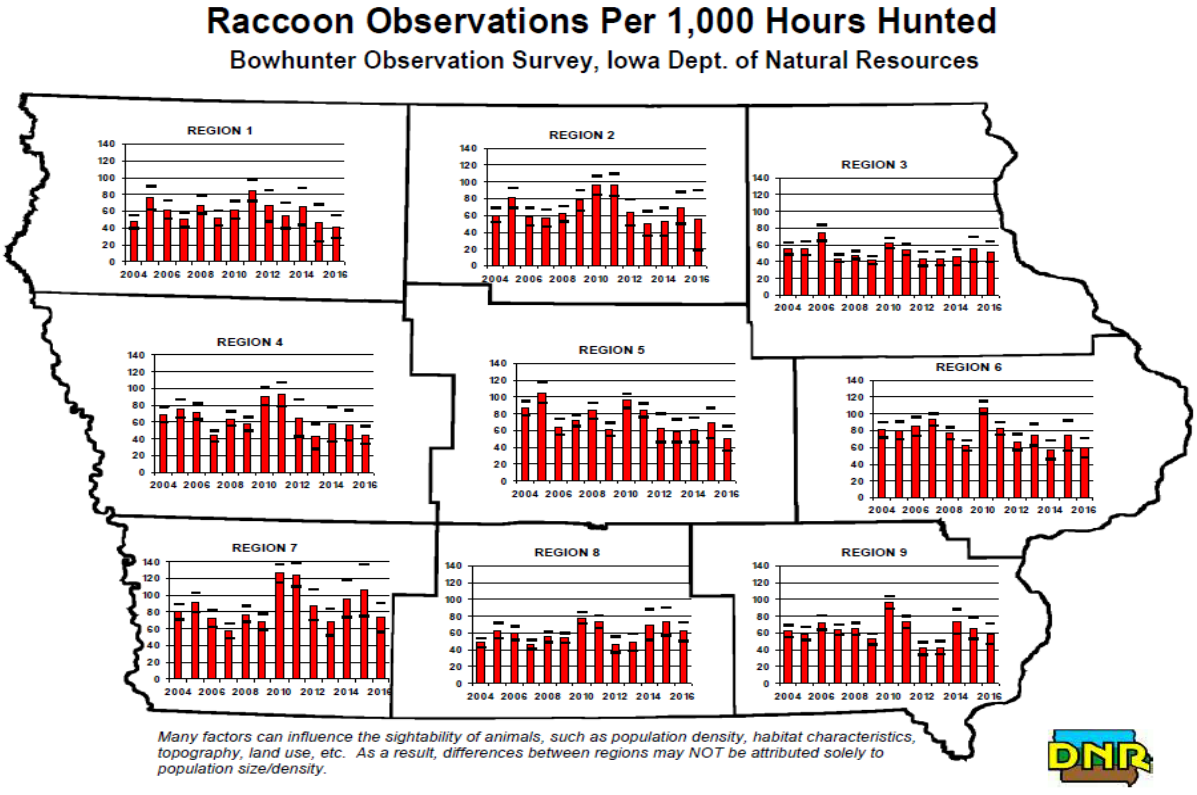


Figure 3.5 Results of raccoon Bowhunter Observation Survey in Iowa (2004-present).

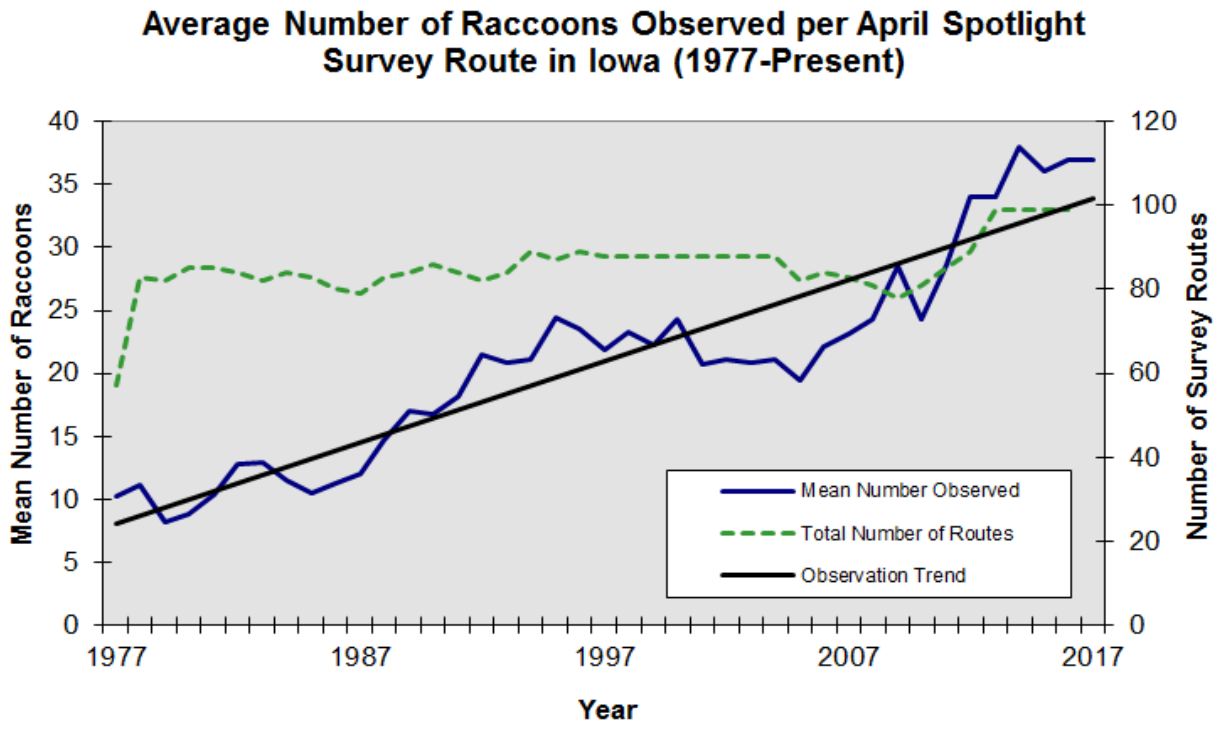


Figure 3.6 Results of April raccoon spotlight surveys in Iowa (1977-present)

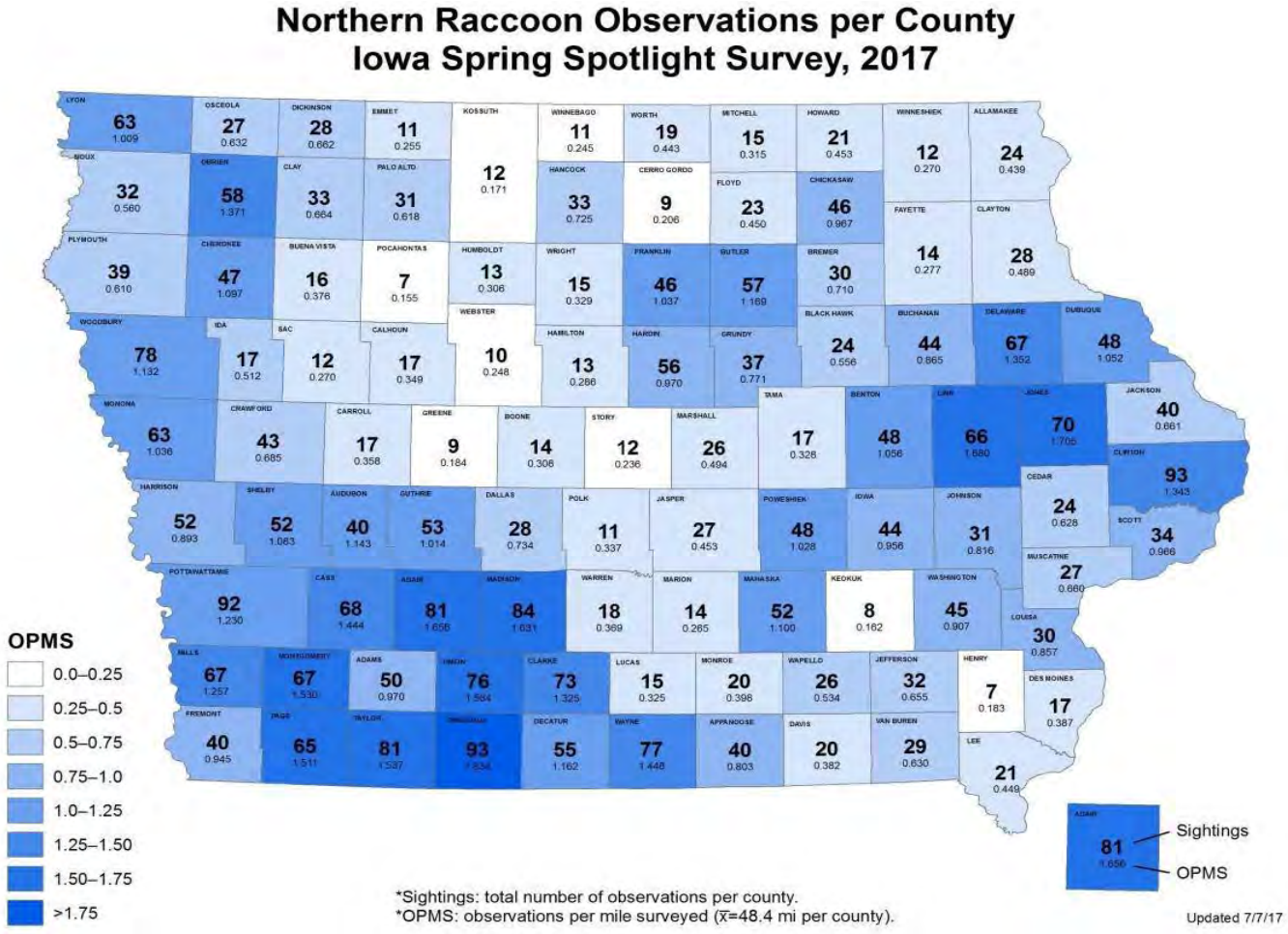


Figure 3.7 Raccoon observed per route during the spring spotlight survey 2017.

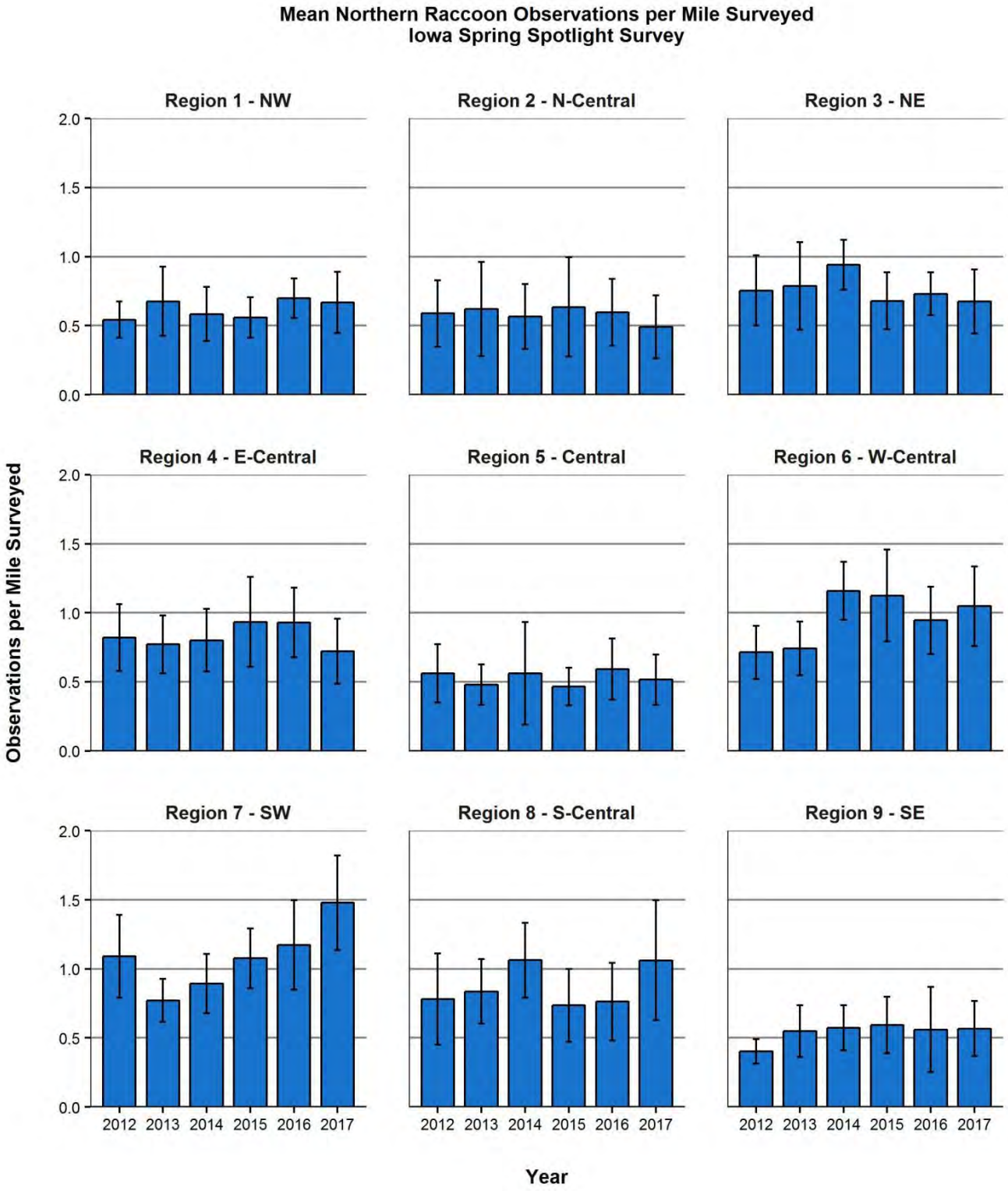


Figure 3.8 Mean Northern raccoon observations per mile surveyed during the Iowa Spring Spotlight Survey for each of the 9 Iowa Department of Natural Resources management regions. Observations were standardized by mile surveyed to account for regions in which counties were not surveyed or transect lengths changed due to annual variation in survey conditions. Error bars represent 95% confidence intervals around the means.

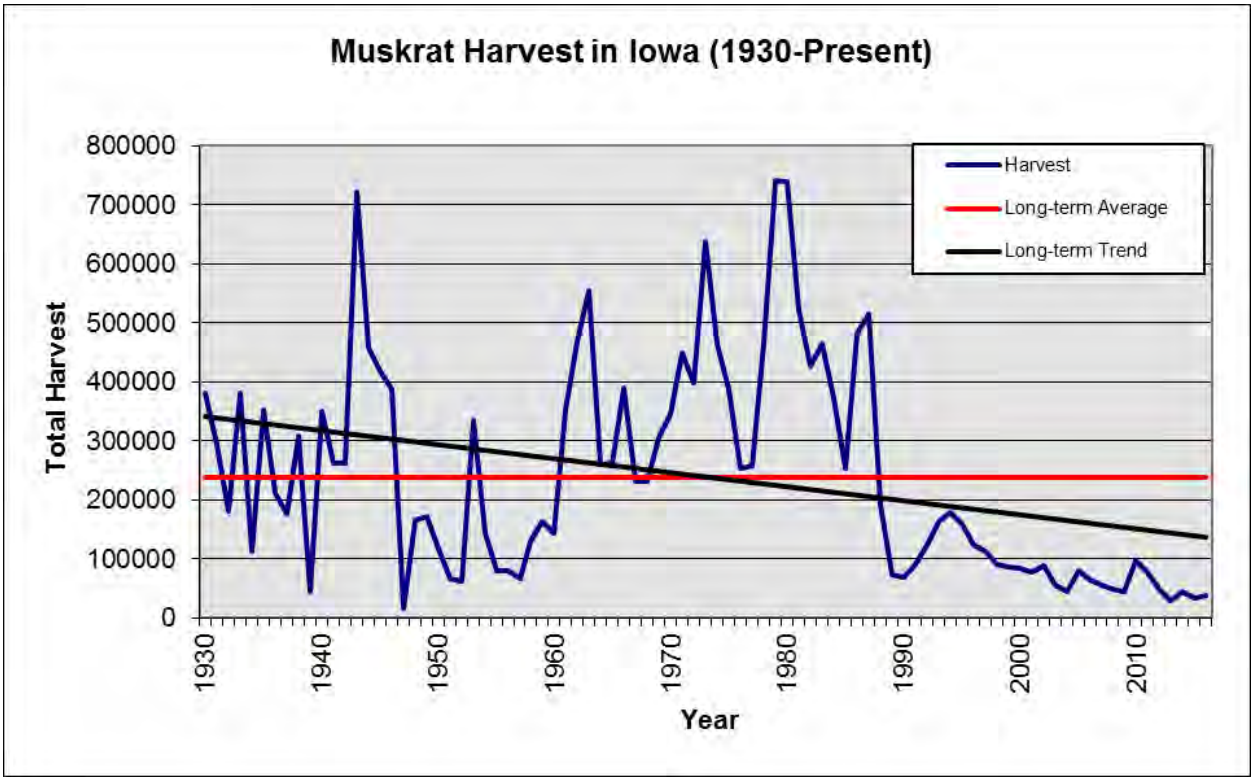


Figure 3.9 Annual muskrat harvests reported by licensed fur dealers in Iowa (1930-present).

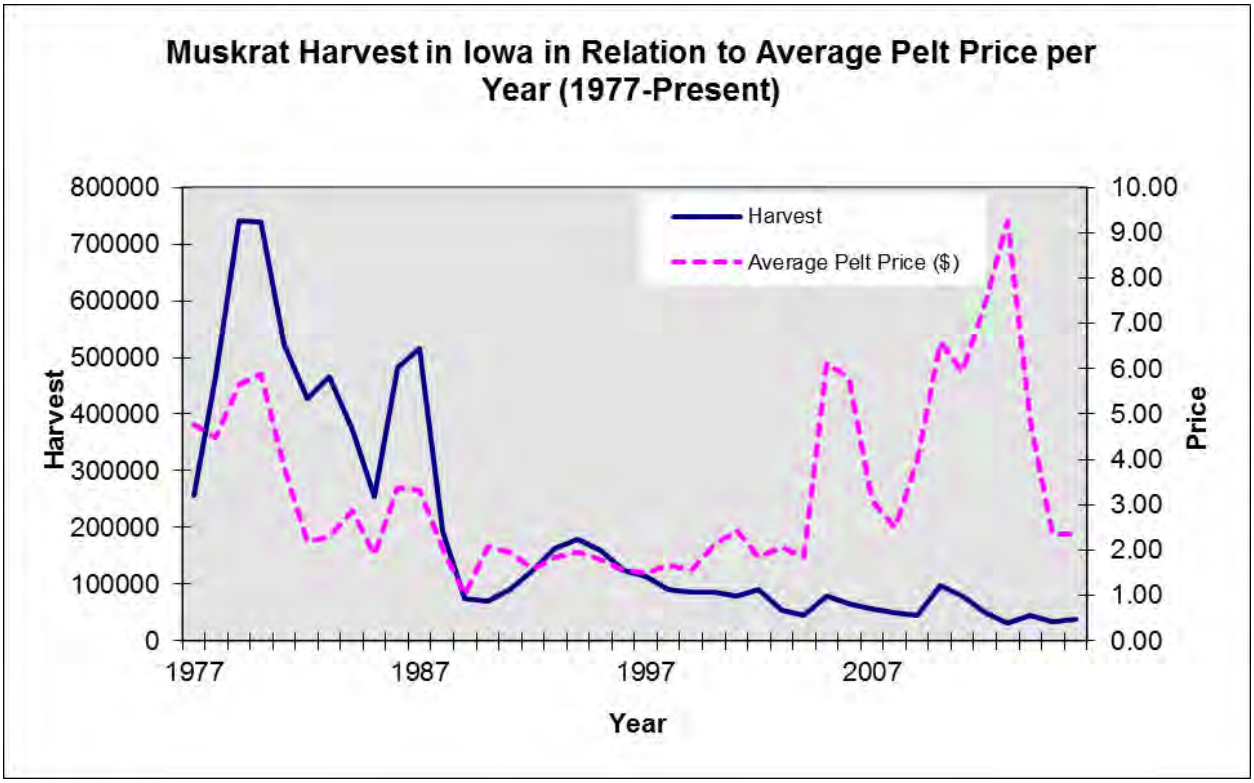


Figure 3.10 Muskrat harvest in Iowa and average pelt price paid by fur dealers (1977-present).

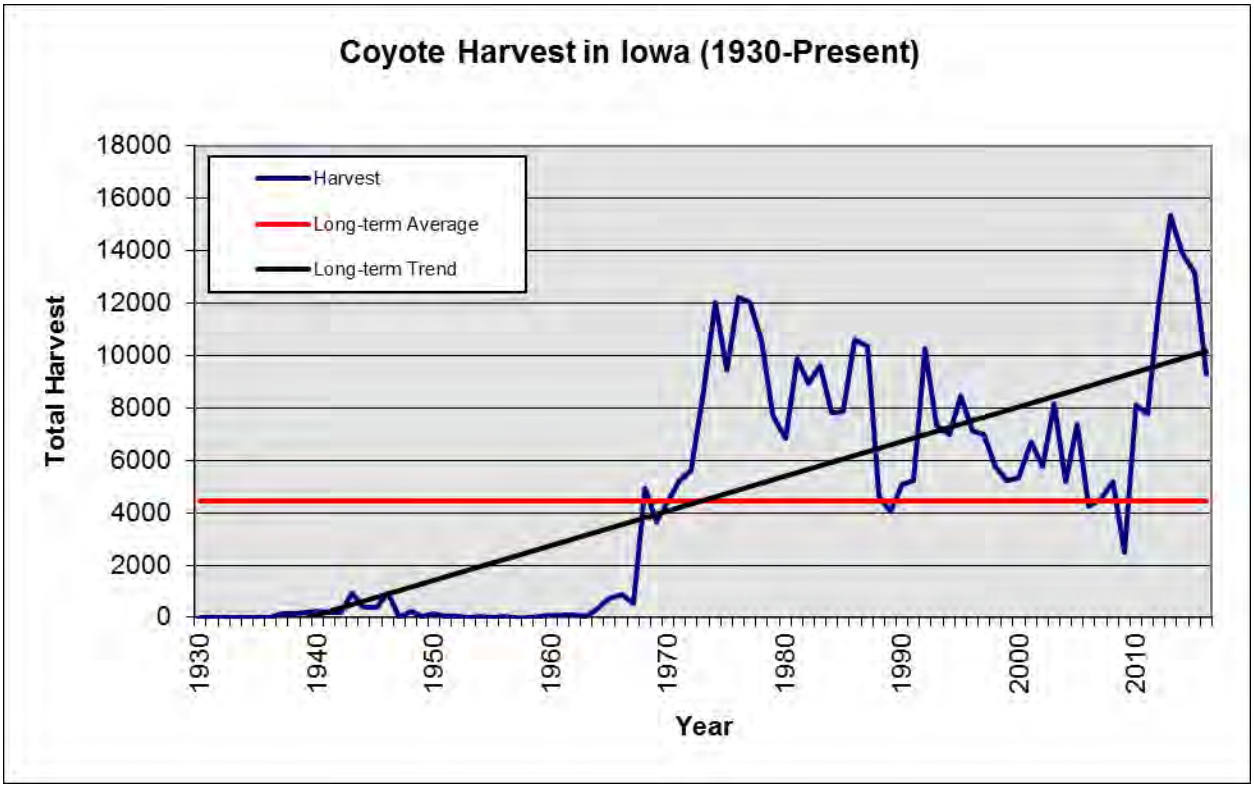


Figure 3.11 Annual coyote harvests reported by licensed fur dealers in Iowa (1930-present).

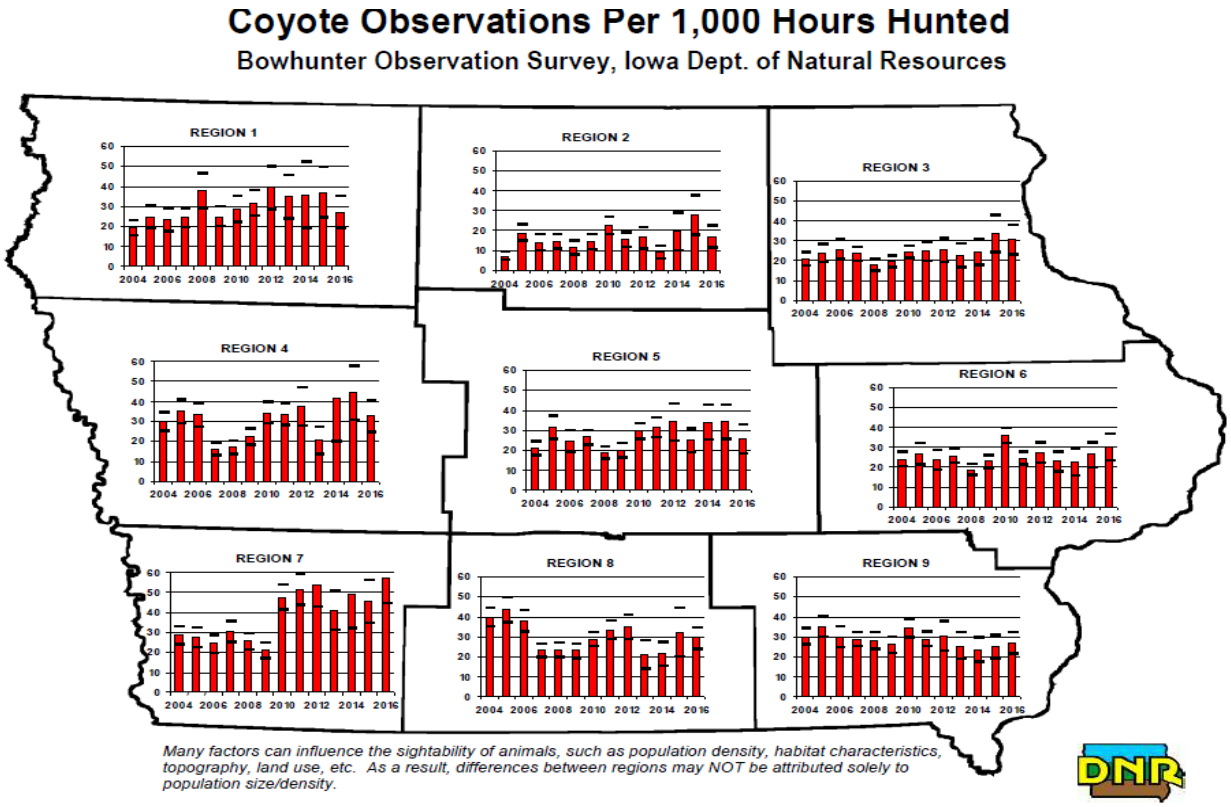


Figure 3.12 Results of coyote Bowhunter Observation Survey in Iowa (2004-present).

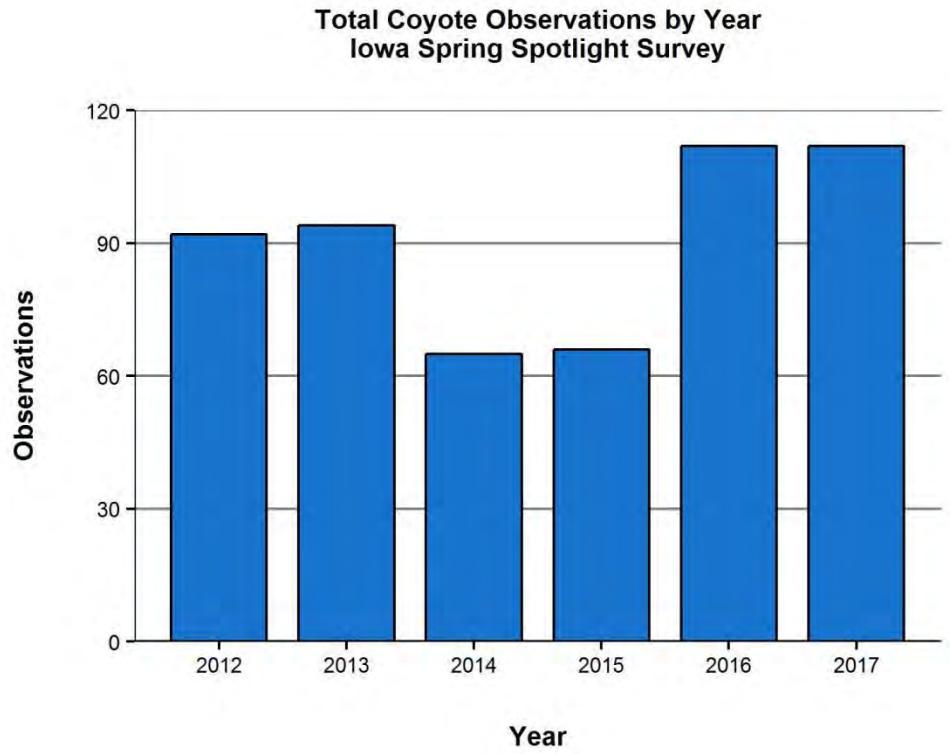


Figure 3.13 Total coyote observations by year during the Iowa Spring Spotlight Survey, 2012– present.

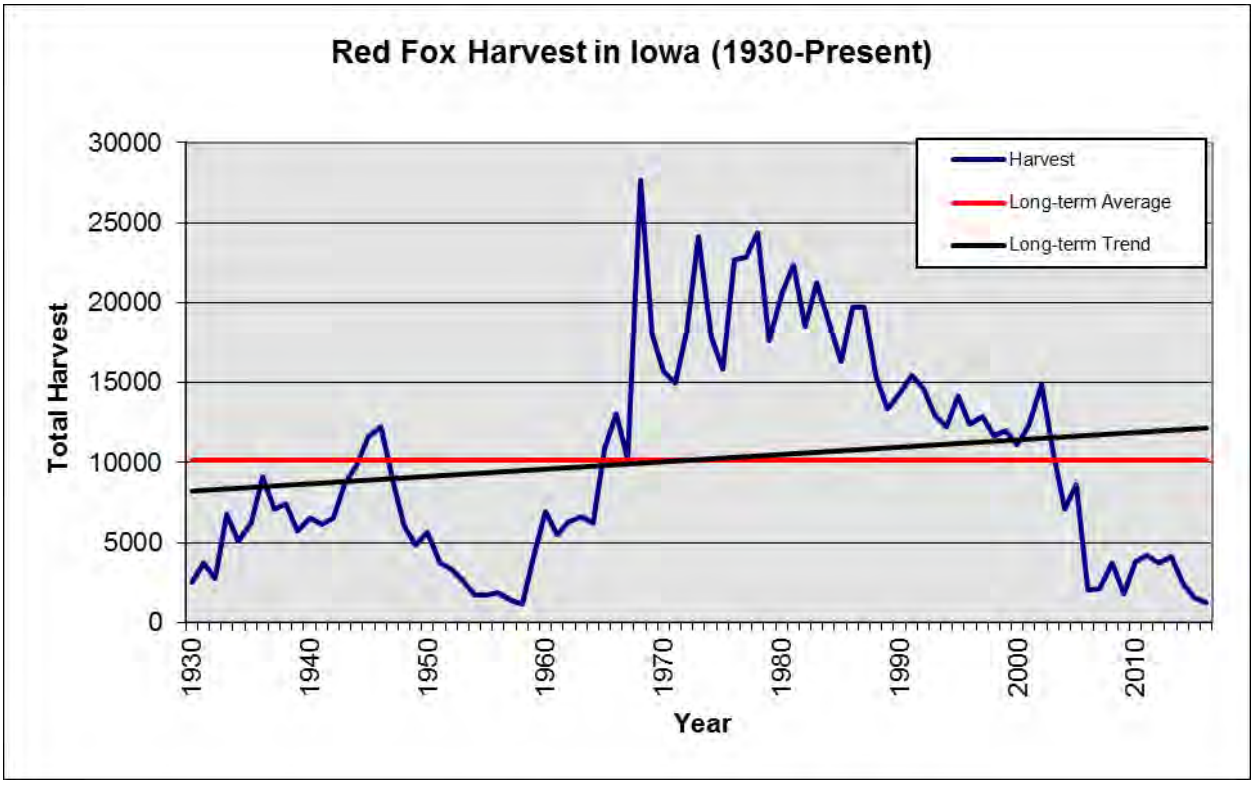


Figure 3.14 Annual red fox harvests reported by licensed fur dealers in Iowa (1930- present).

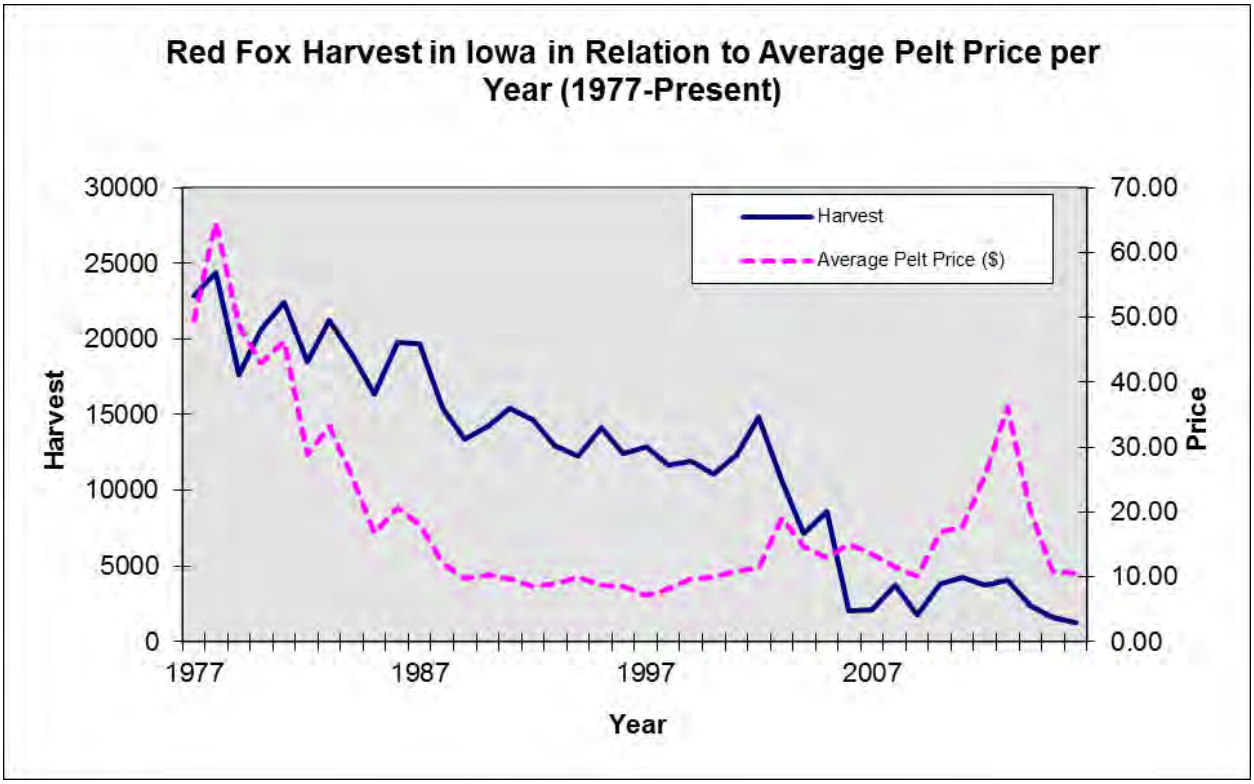


Figure 3.15 Red fox harvest in Iowa and average pelt price paid by fur dealers (1977-present).

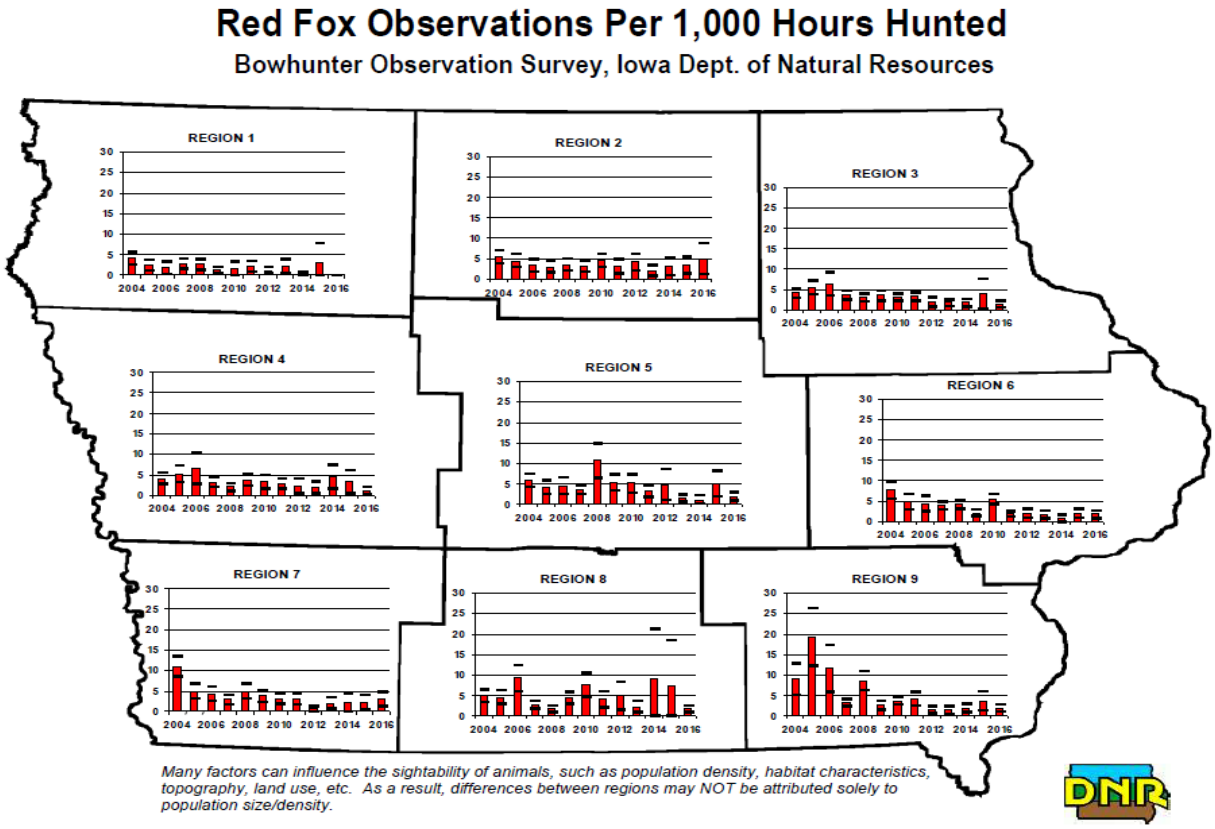


Figure 3.16 Results of red fox Bowhunter Observation Survey in Iowa (2004-present).

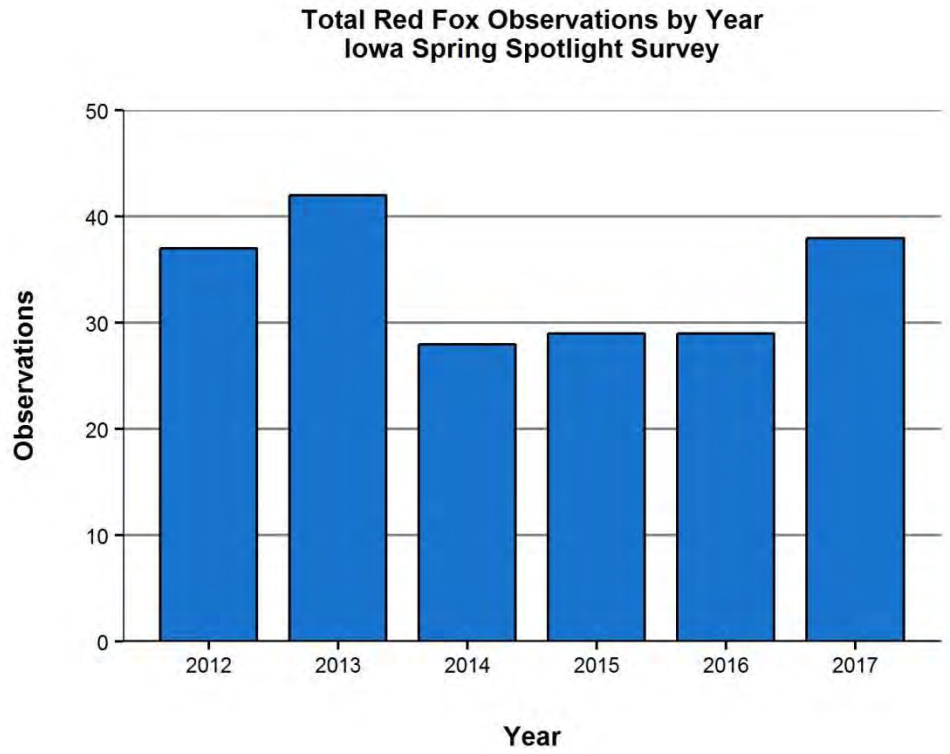


Figure 3.17 Total red fox observations by year during the Iowa Spring Spotlight Survey, 2012– present

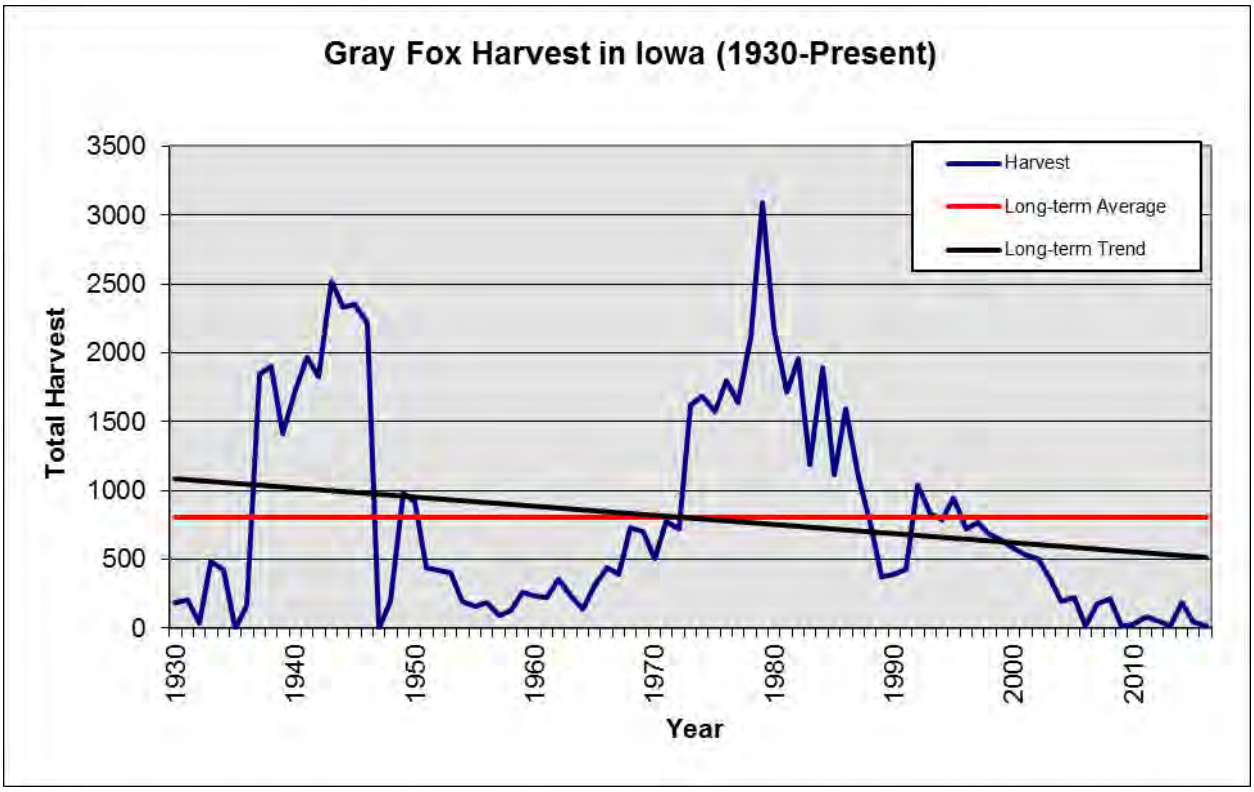


Figure 3.18 Annual gray fox harvests reported by licensed fur dealers in Iowa (1930- present).

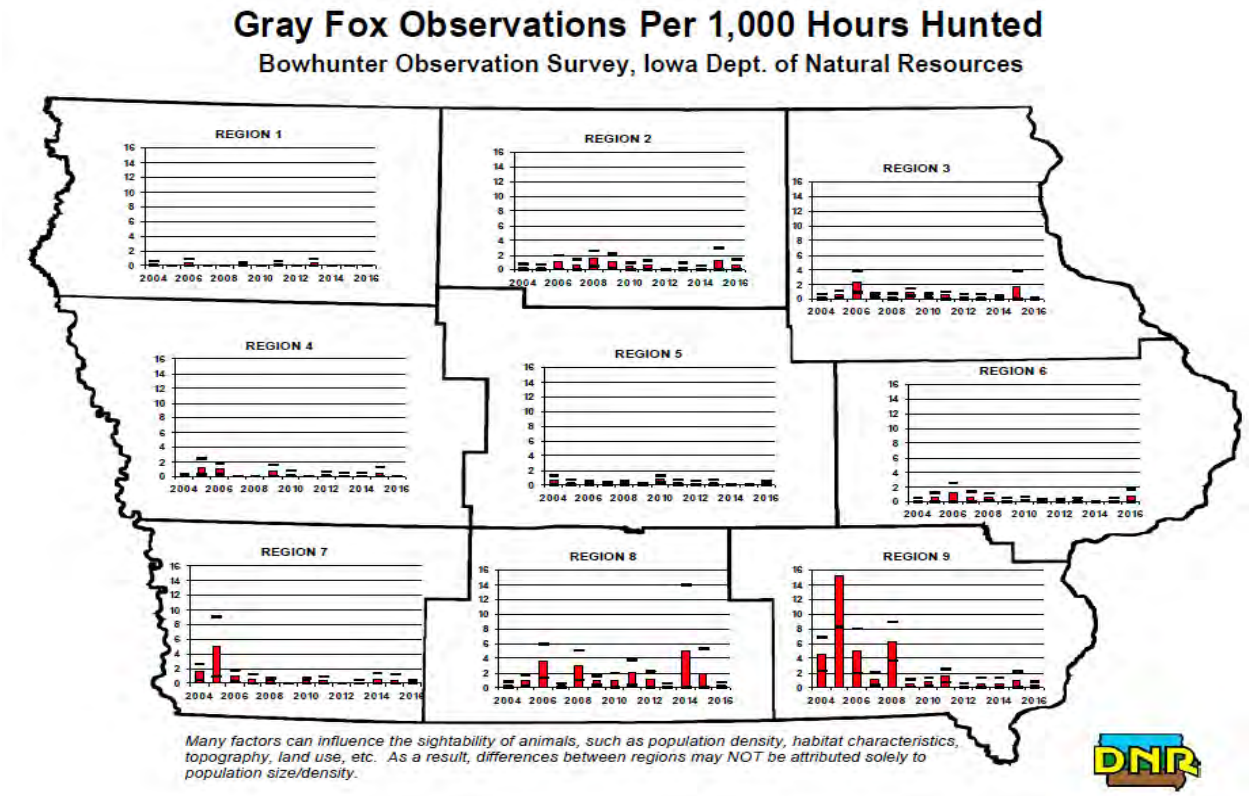


Figure 3.19 Results of gray fox Bowhunter Observation Survey in Iowa (2004- present).

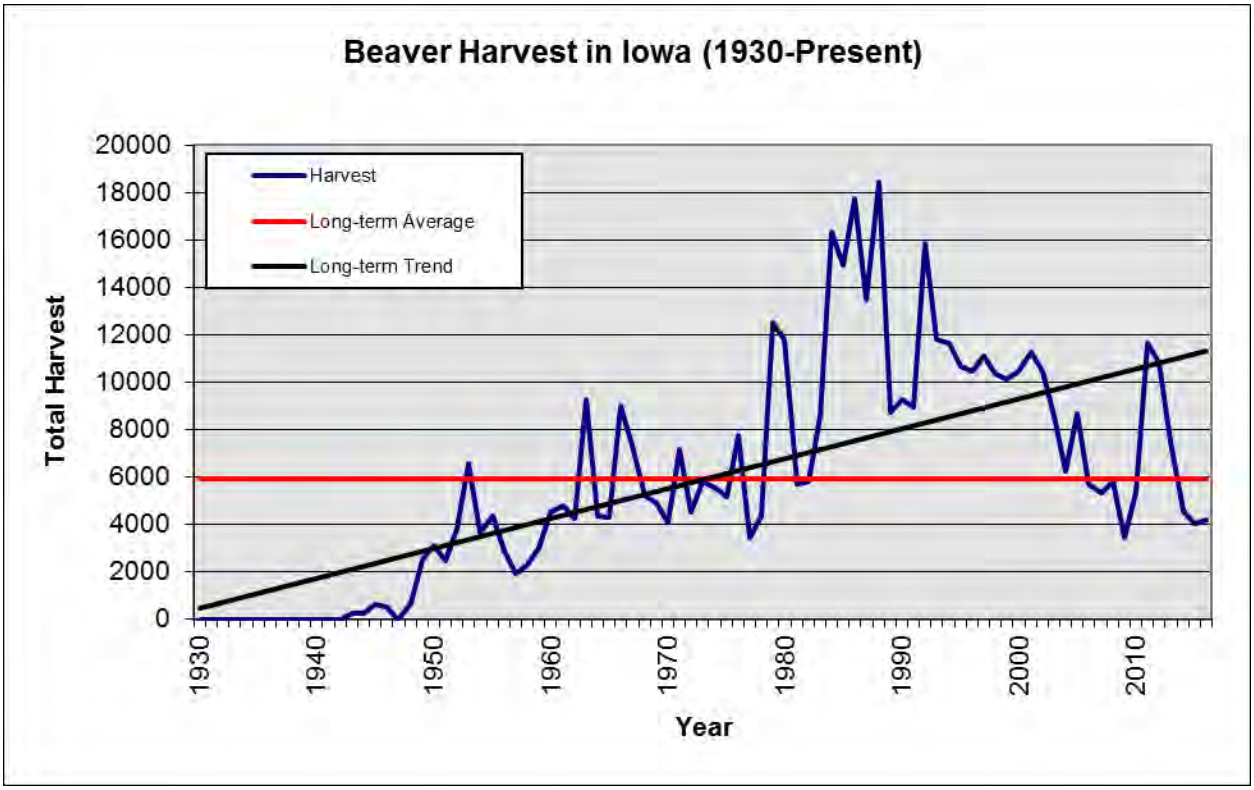


Figure 3.20 Annual beaver harvests reported by licensed fur dealers in Iowa (1930-present).

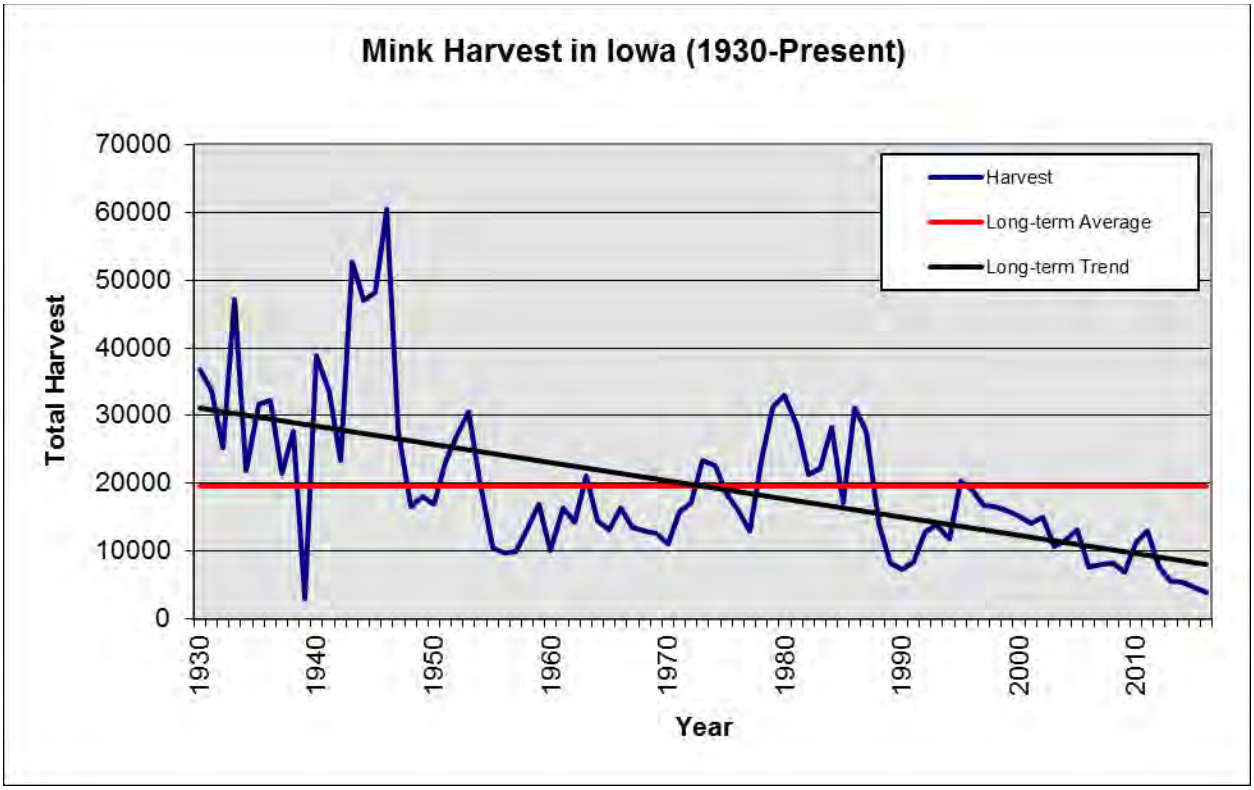


Figure 3.21 Annual mink harvests reported by licensed fur dealers in Iowa (1930-present).

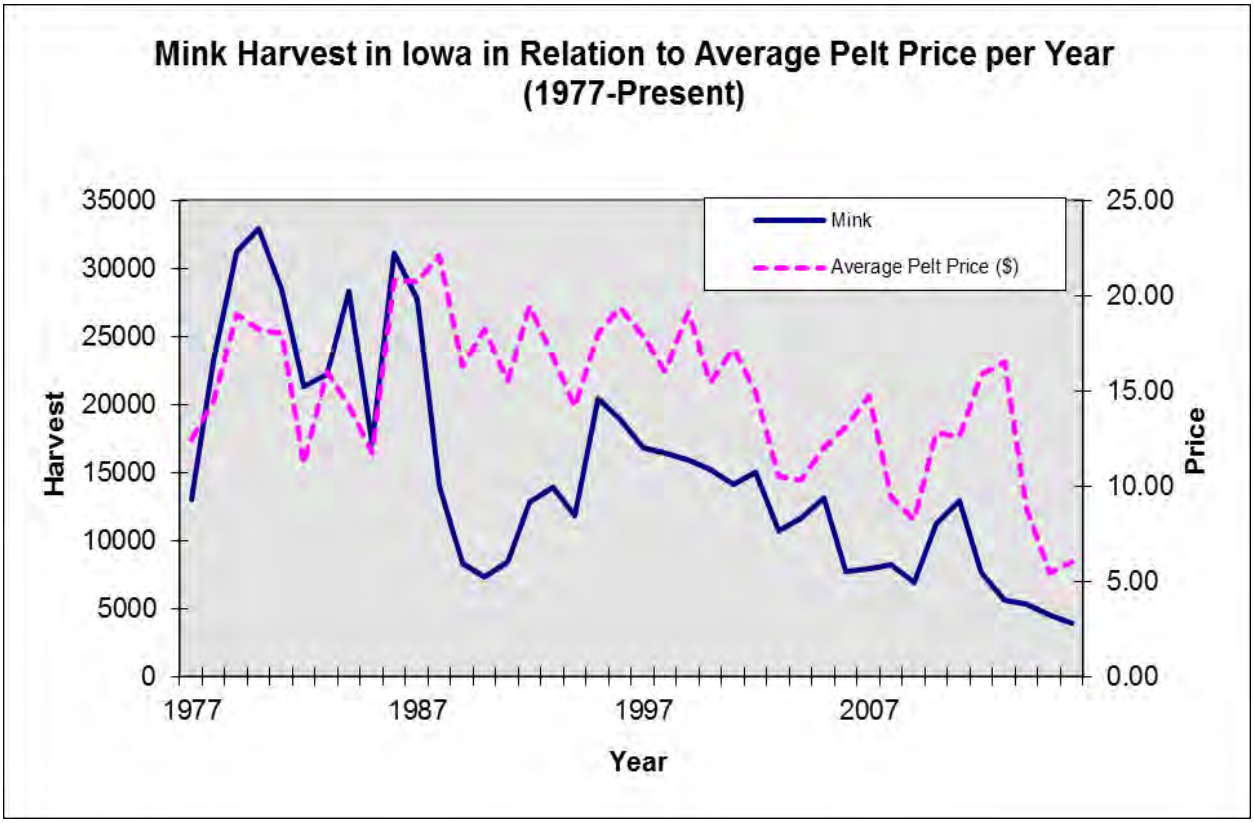


Figure 3.22 Mink harvest in Iowa and average pelt price paid by fur dealers (1977-present).

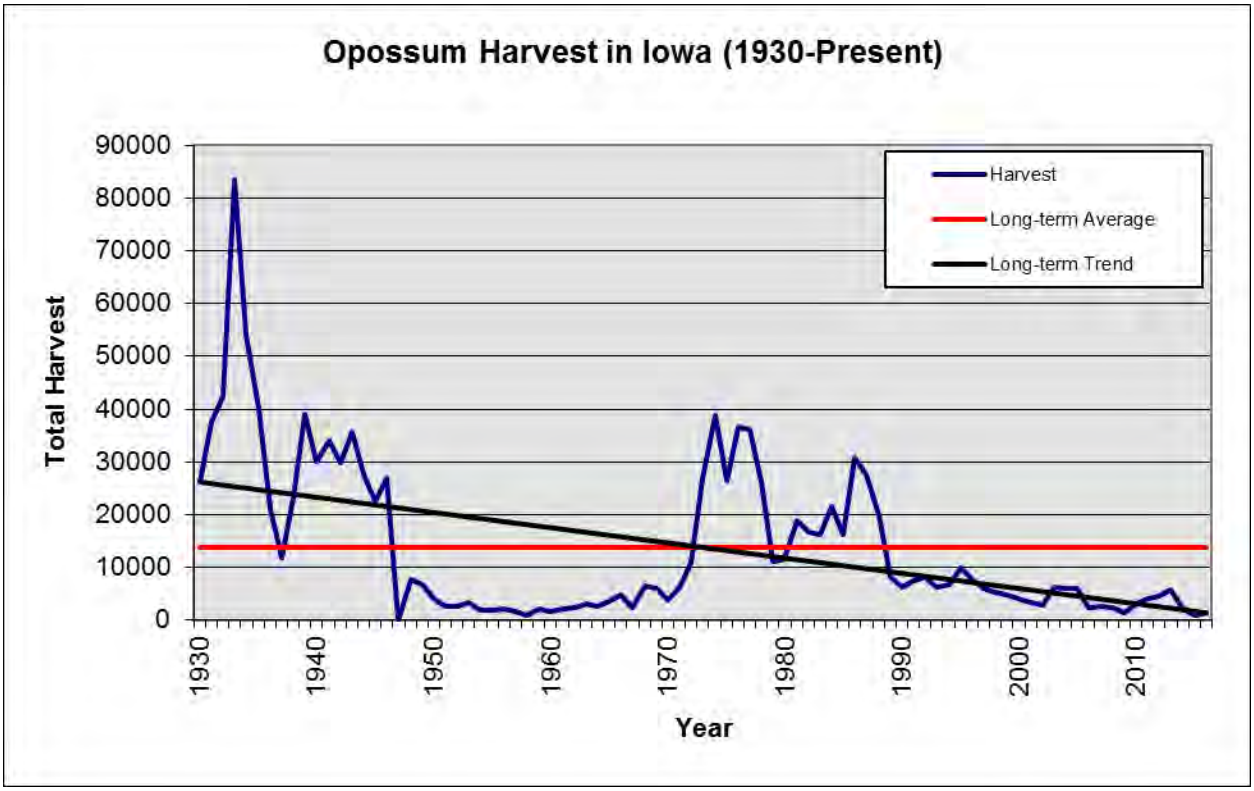


Figure 3.23 Annual opossum harvests reported by licensed fur dealers in Iowa (1930-present).

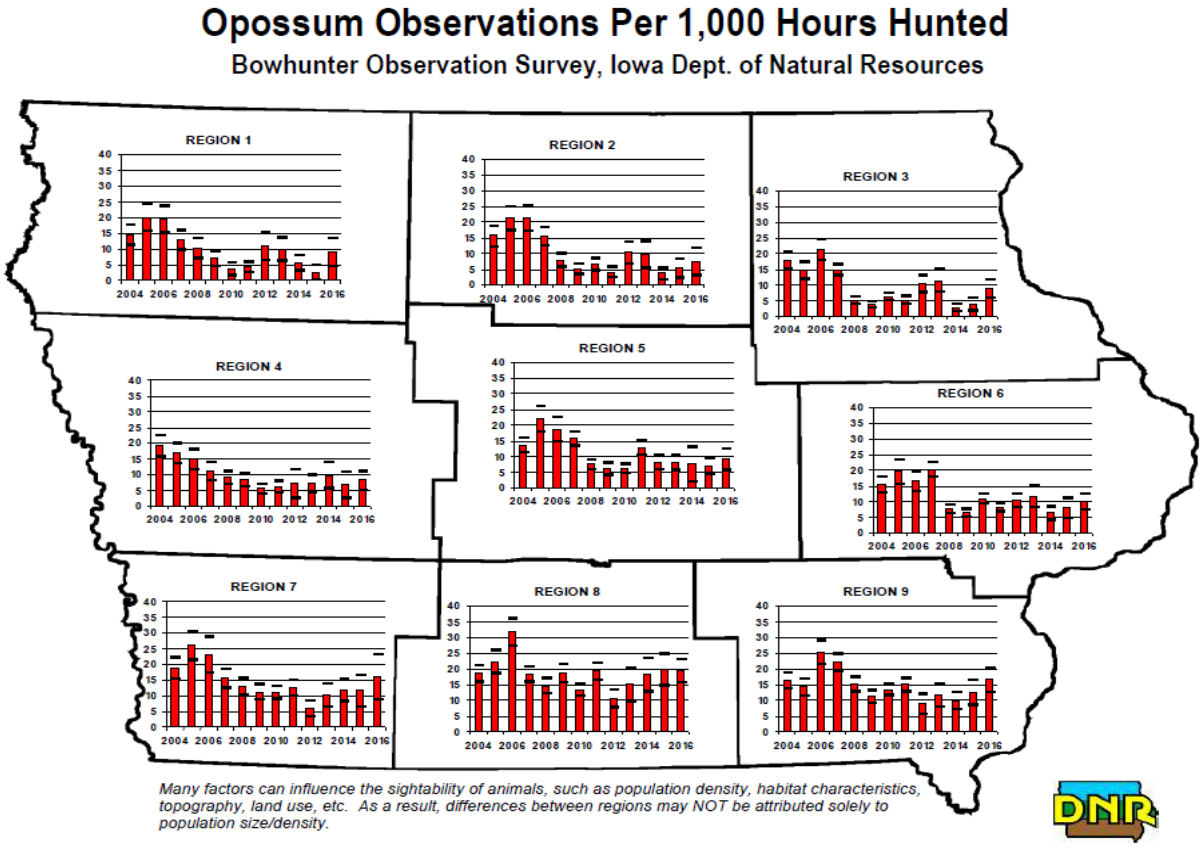


Figure 3.24 Results of opossum Bowhunter Observation Survey in Iowa (2004-present).

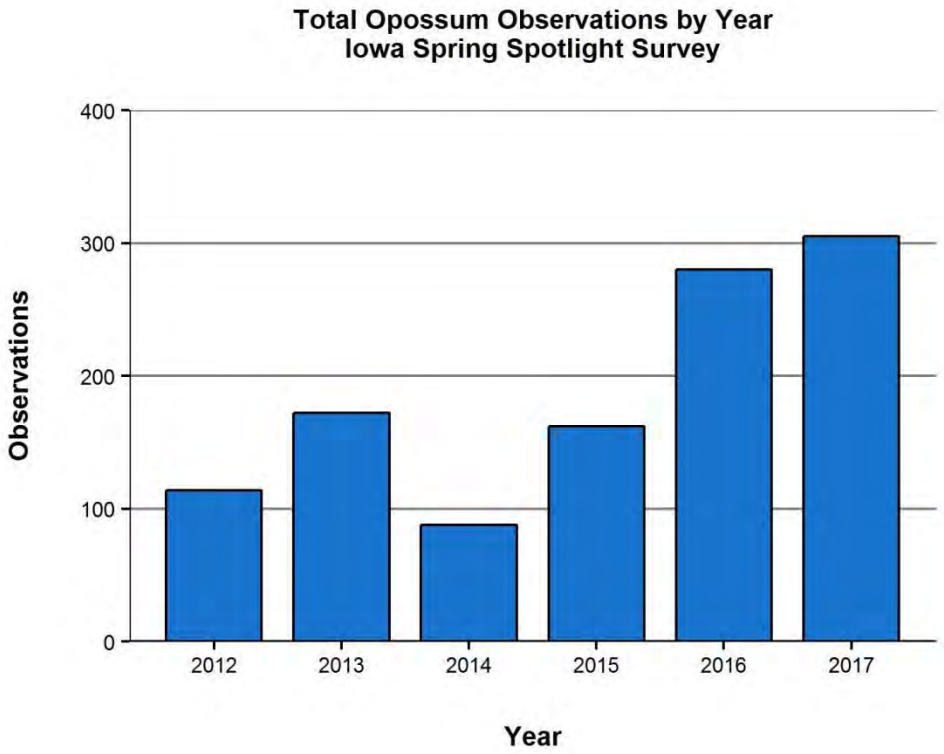


Figure 3.25 Total Virginia opossum observations by year during the Iowa Spring Spotlight Survey, 2012–present

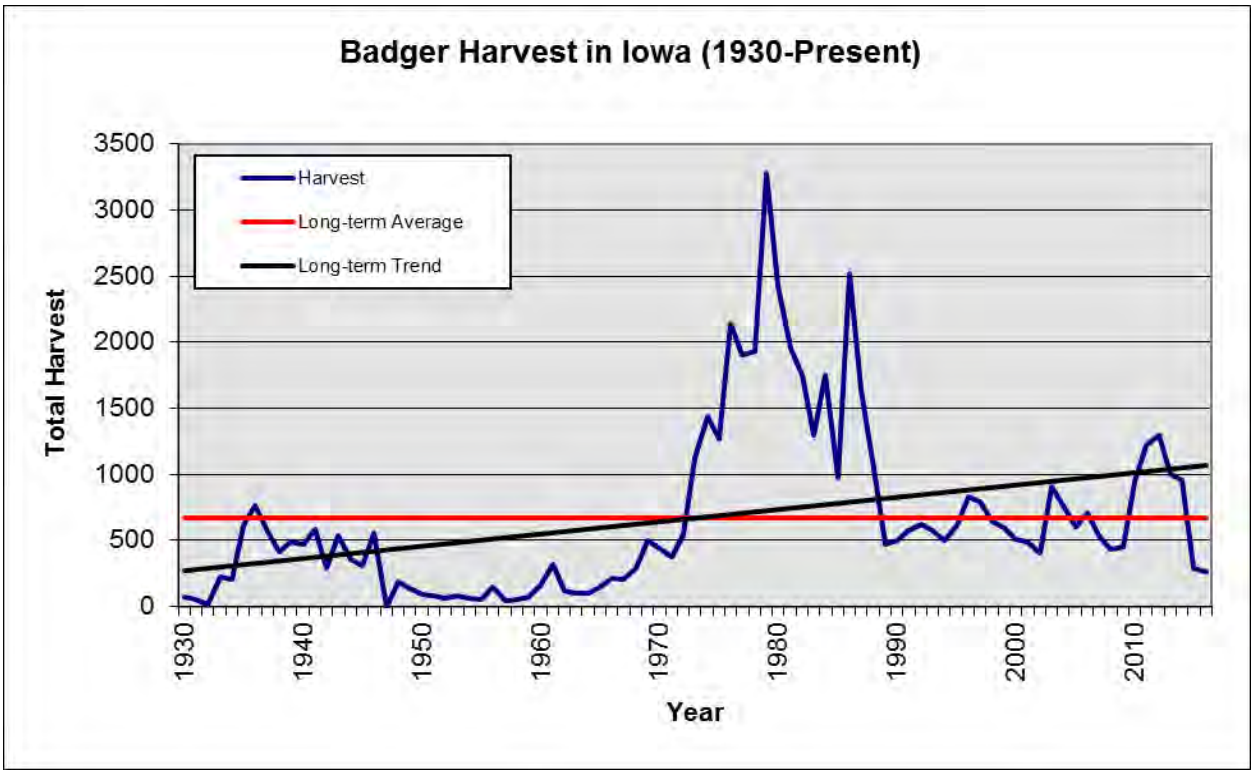


Figure 3.26 Annual badger harvests reported by licensed fur dealers in Iowa (1930-present).

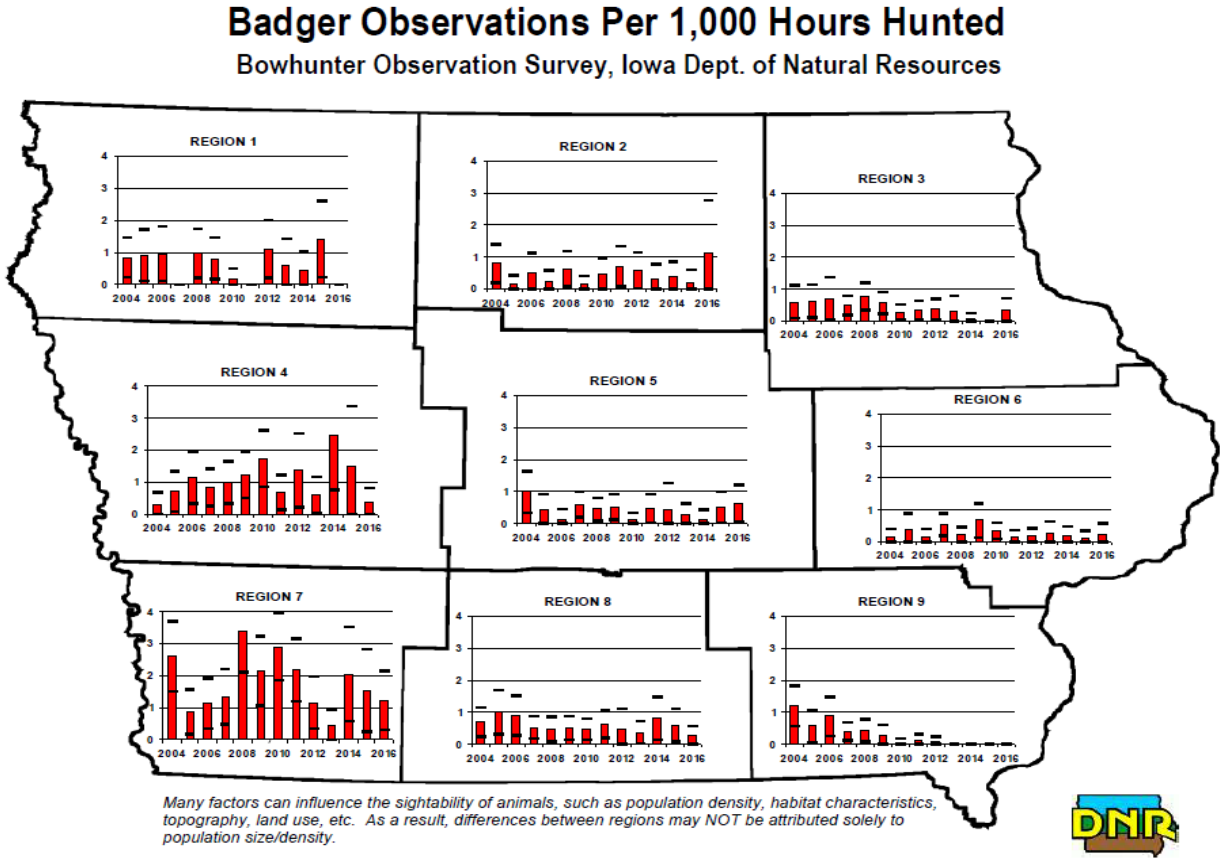


Figure 3.27 Results of badger Bowhunter Observation Survey in Iowa (2004-present).

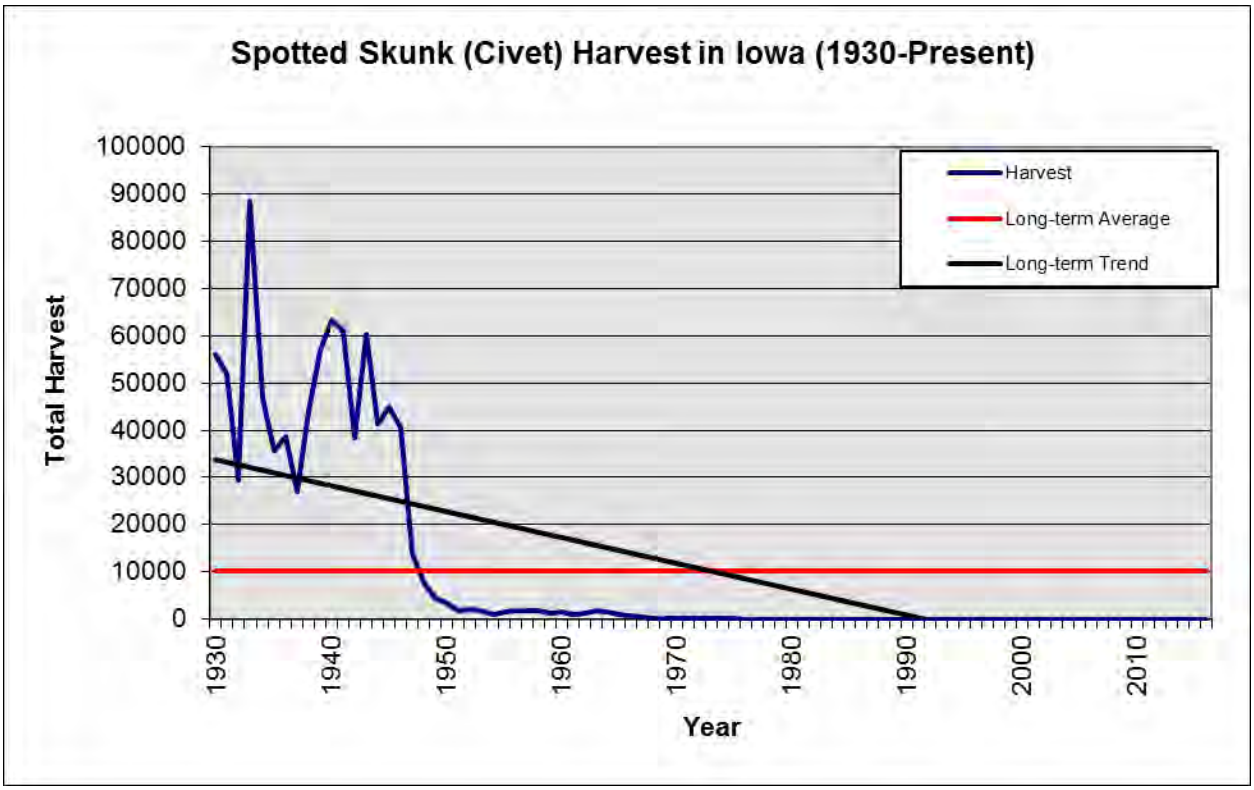


Figure 3.28 Annual spotted skunk harvests reported by licensed fur dealers in Iowa (1930-present)

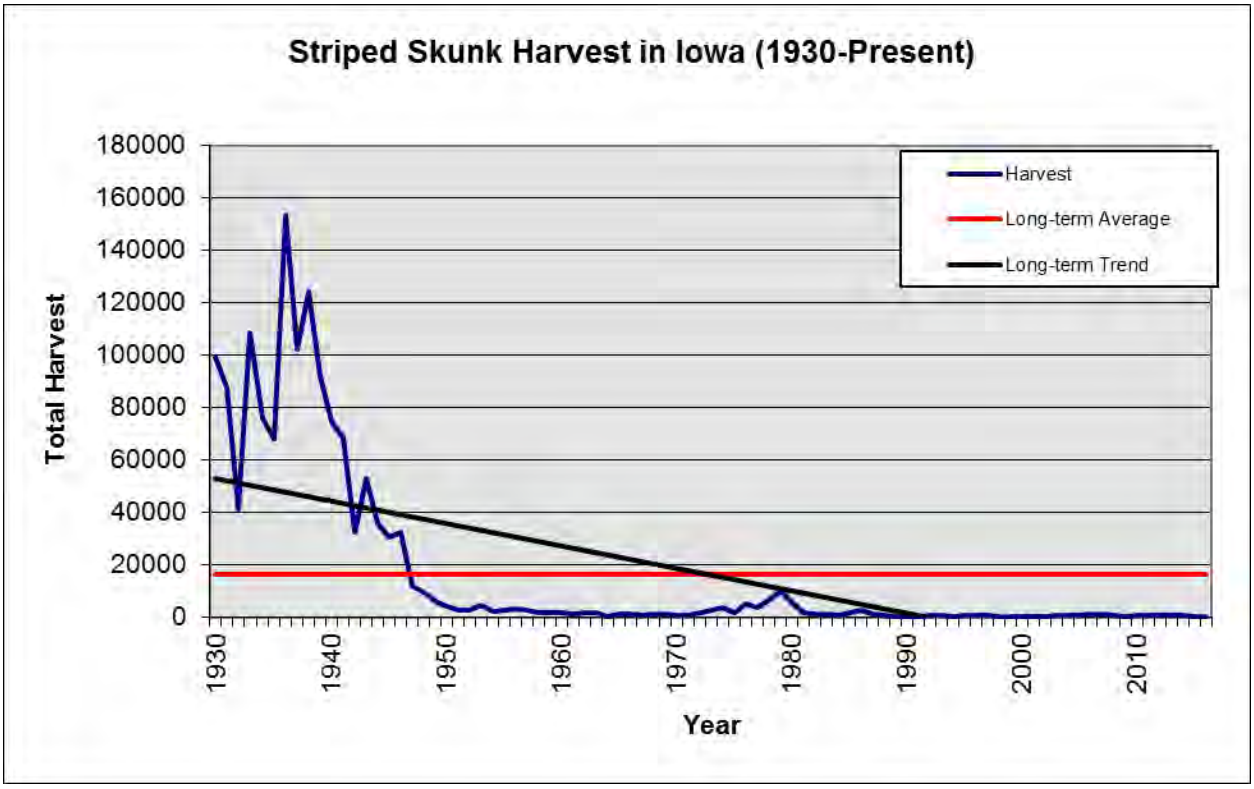


Figure 3.29 Annual striped skunk harvests reported by licensed fur dealers in Iowa (1930-present).

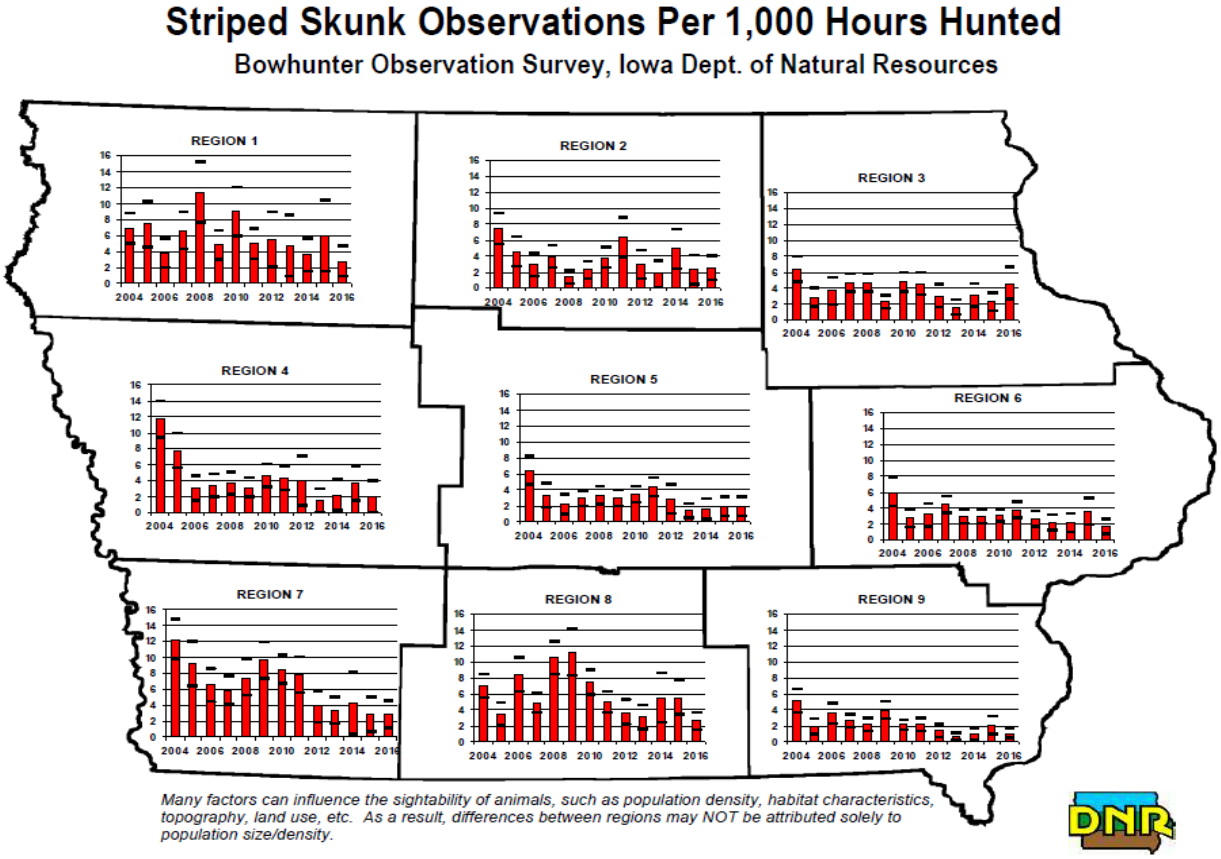


Figure 3.30 Results of striped skunk Bowhunter Observation Survey in Iowa (2004-present).

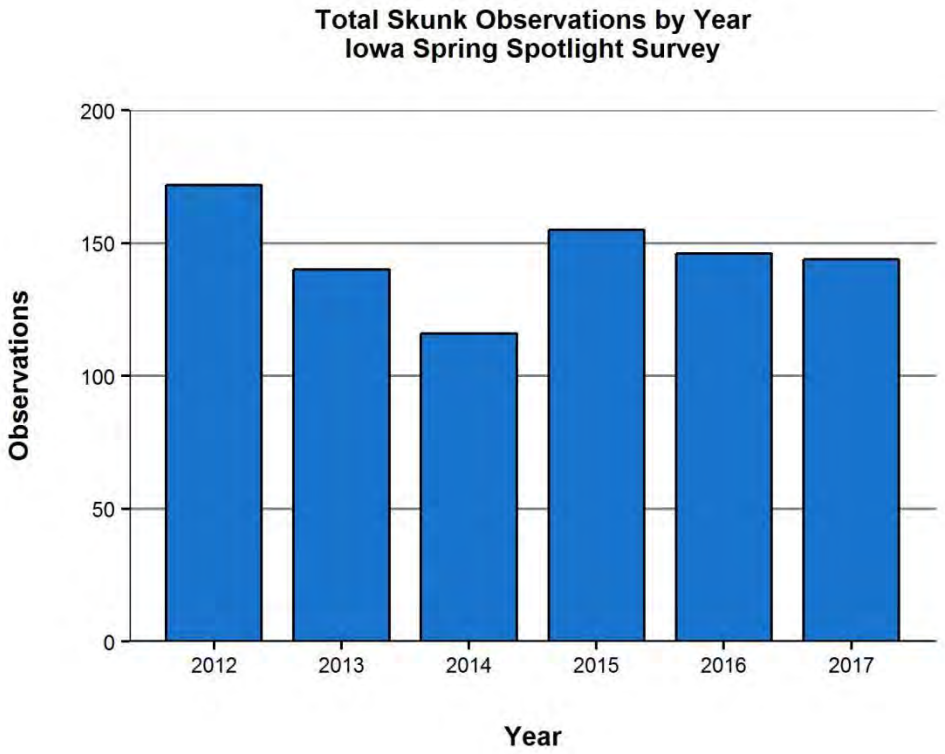


Figure 3.31 Total skunk observations by year during the Iowa Spring Spotlight Survey, 2012– present.

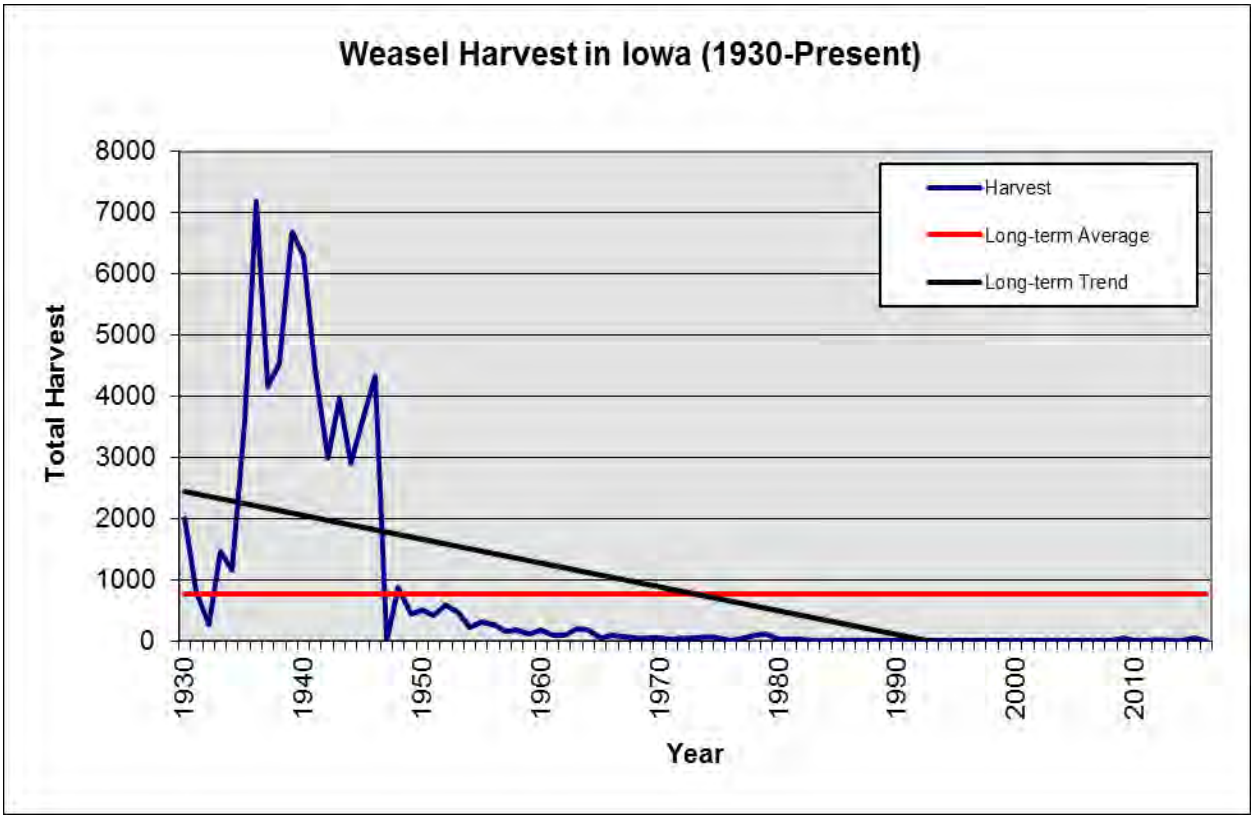


Figure 3.32 Annual weasel harvests reported by licensed fur dealers in Iowa (1930-present).

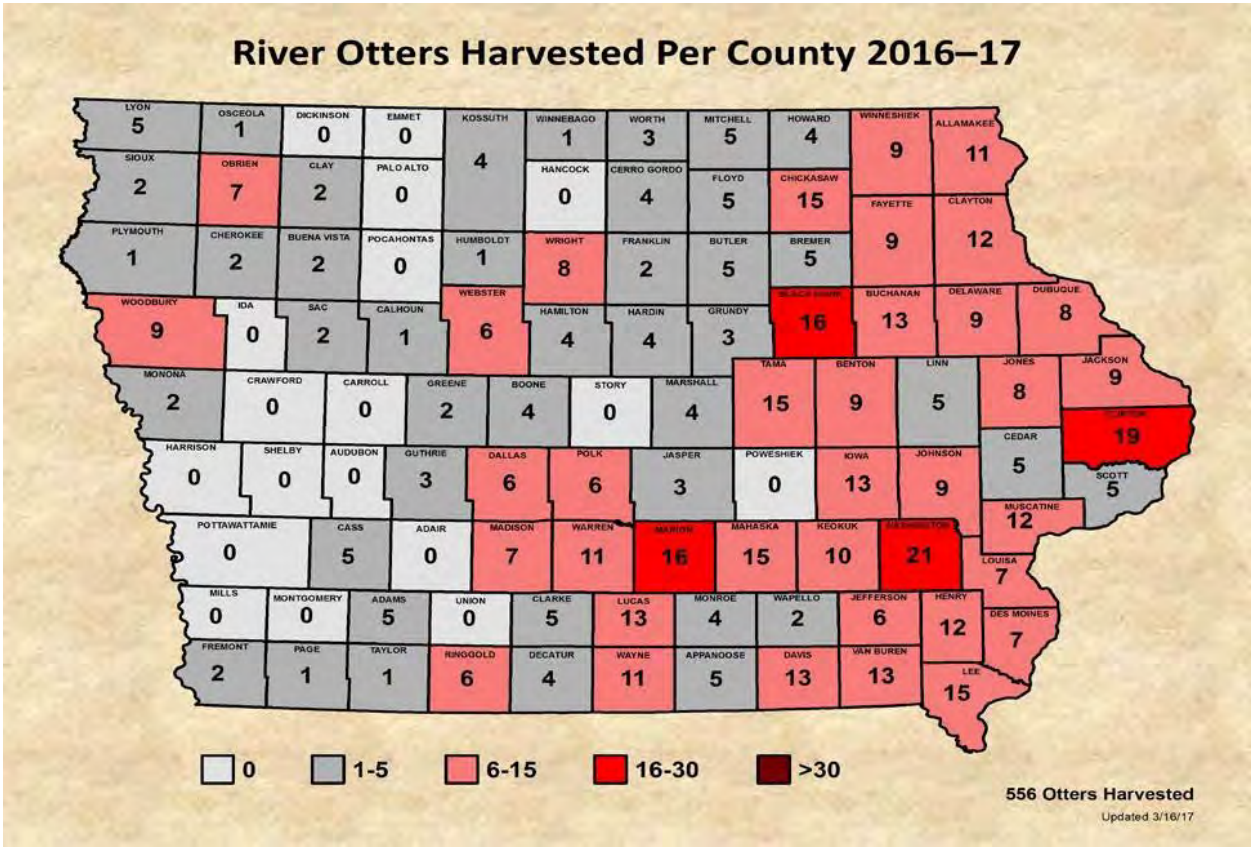


Figure 3.33 River otter harvest per county in Iowa, 2016-17.

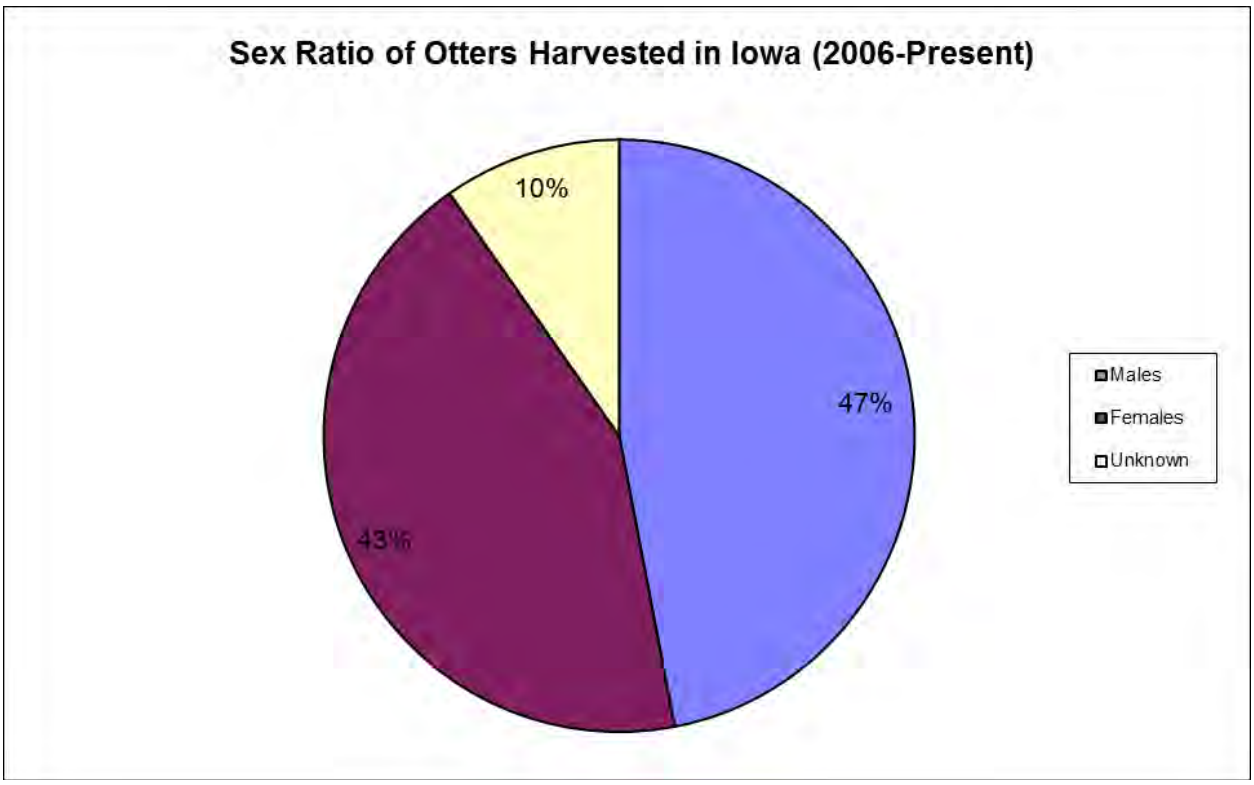


Figure 3.34 Sex ratio of harvested river otters in Iowa (2006-present).

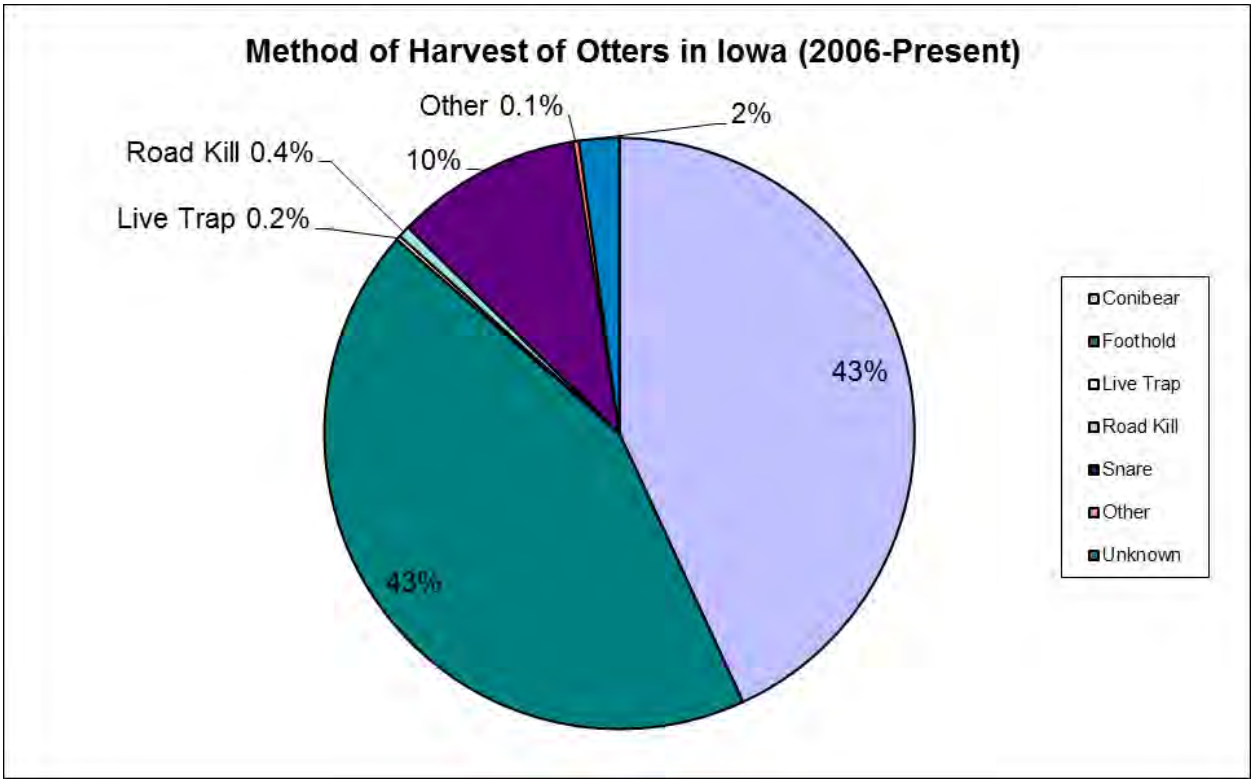


Figure 3.35 Harvest method of river otters in Iowa (2006-present).

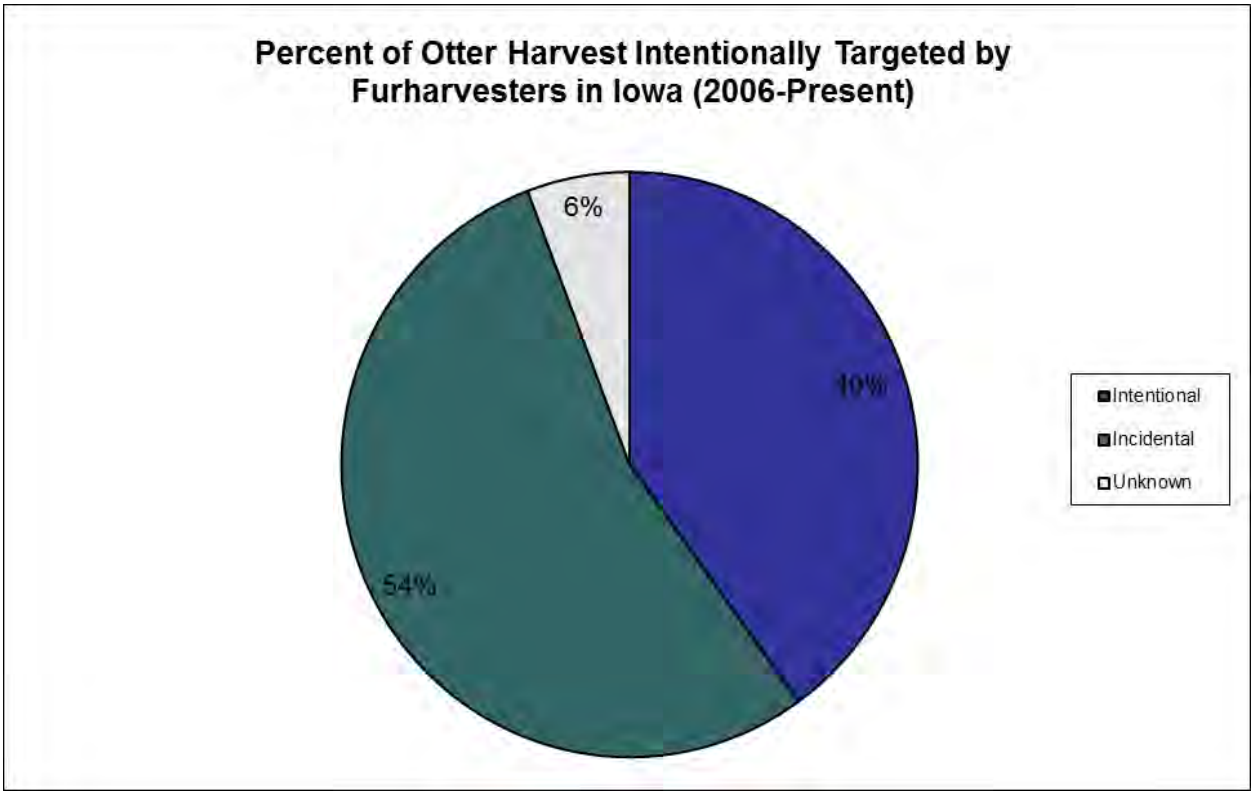


Figure 3.36 Percent of river otters intentionally and incidentally harvested in Iowa (2006-present).

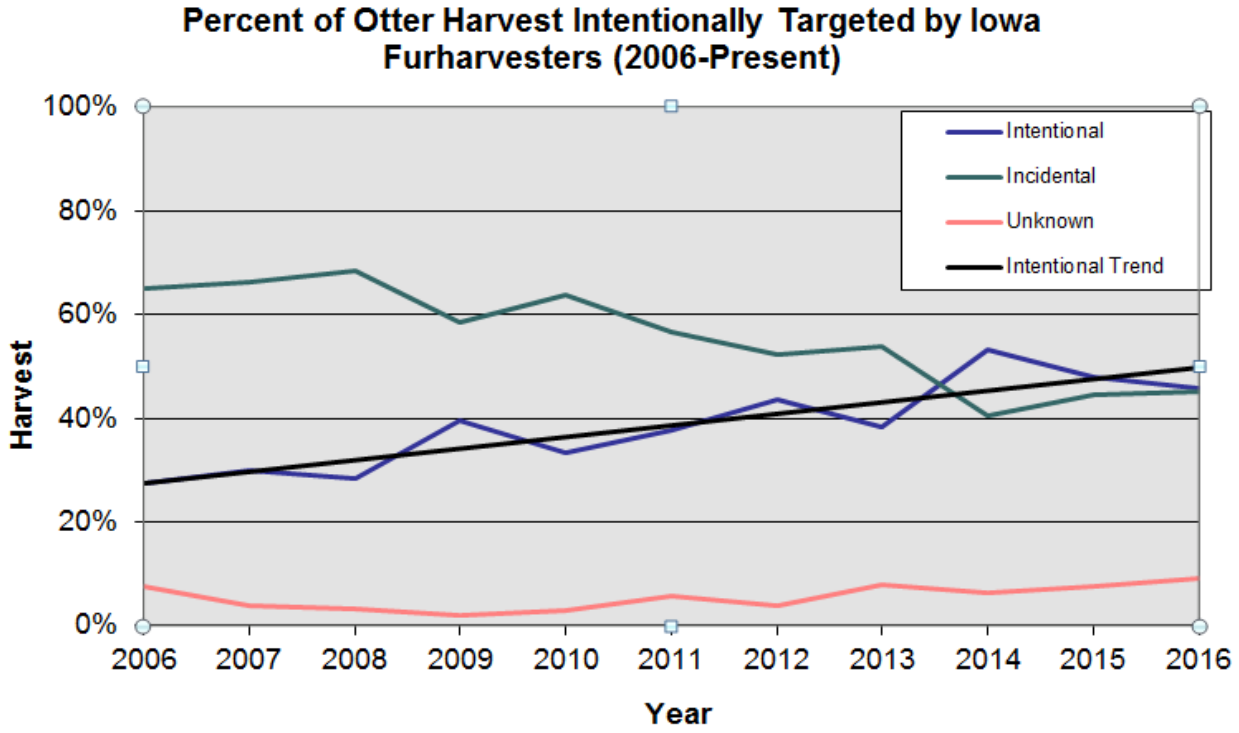


Figure 3.37 Trend for furharvesters intentionally targeting river otters in Iowa (2006-present).

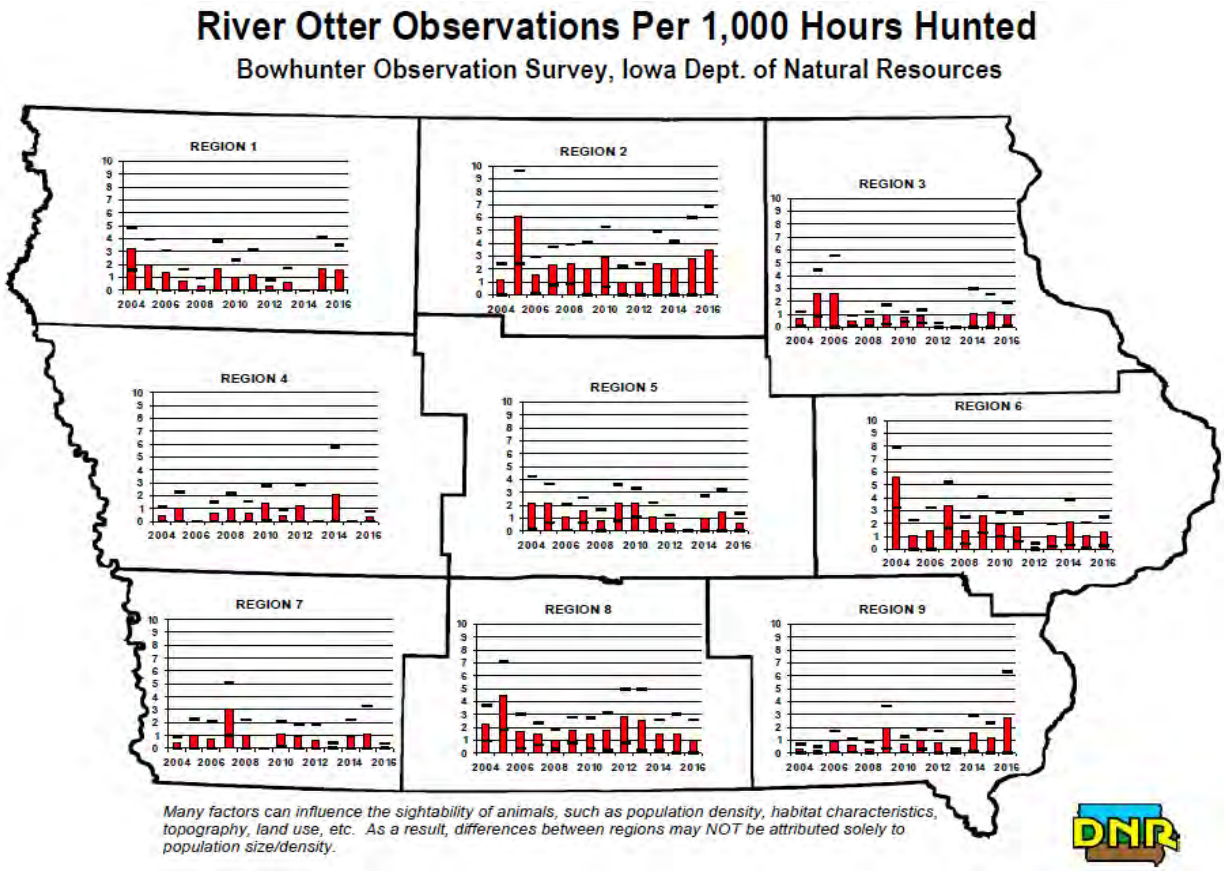


Figure 3.38 Results of river otter Bowhunter Observation Survey in Iowa (2004-present).

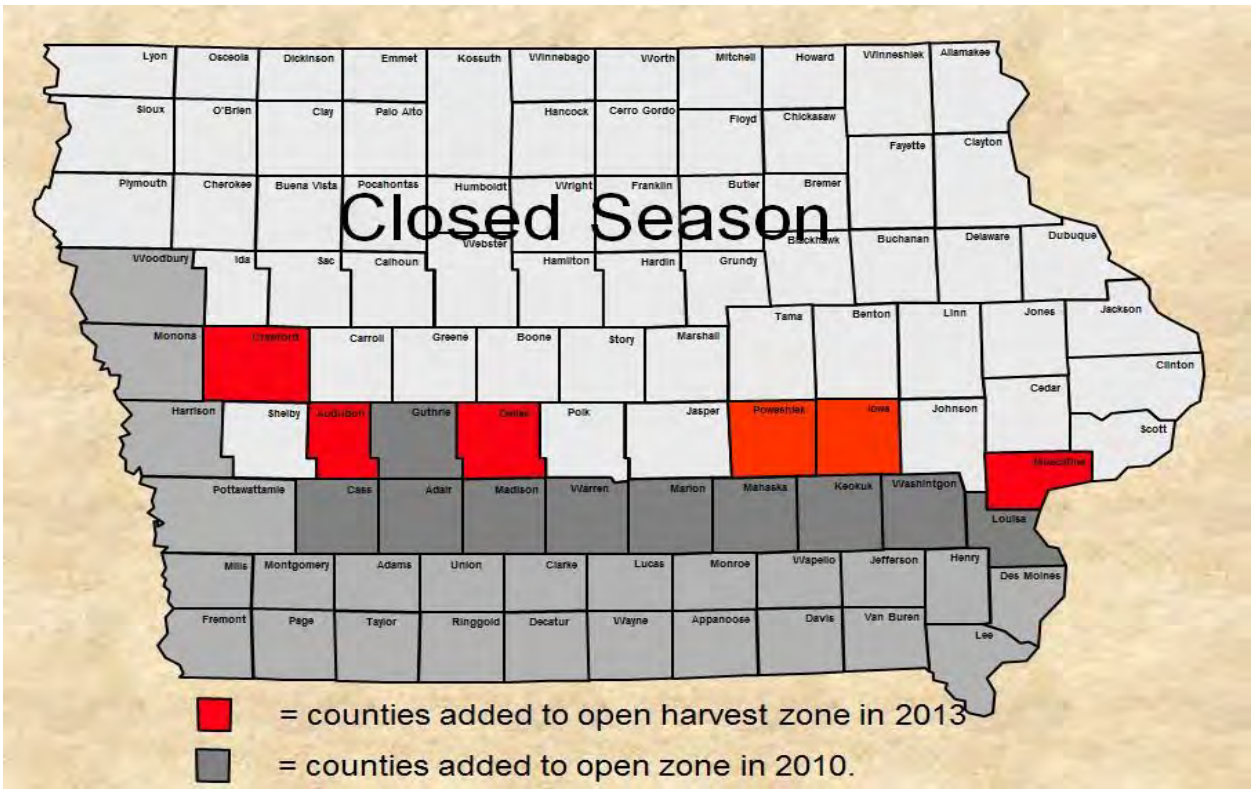


Figure 3.39 Open harvest zone for bobcat hunting/trapping season in Iowa, 2016-17.

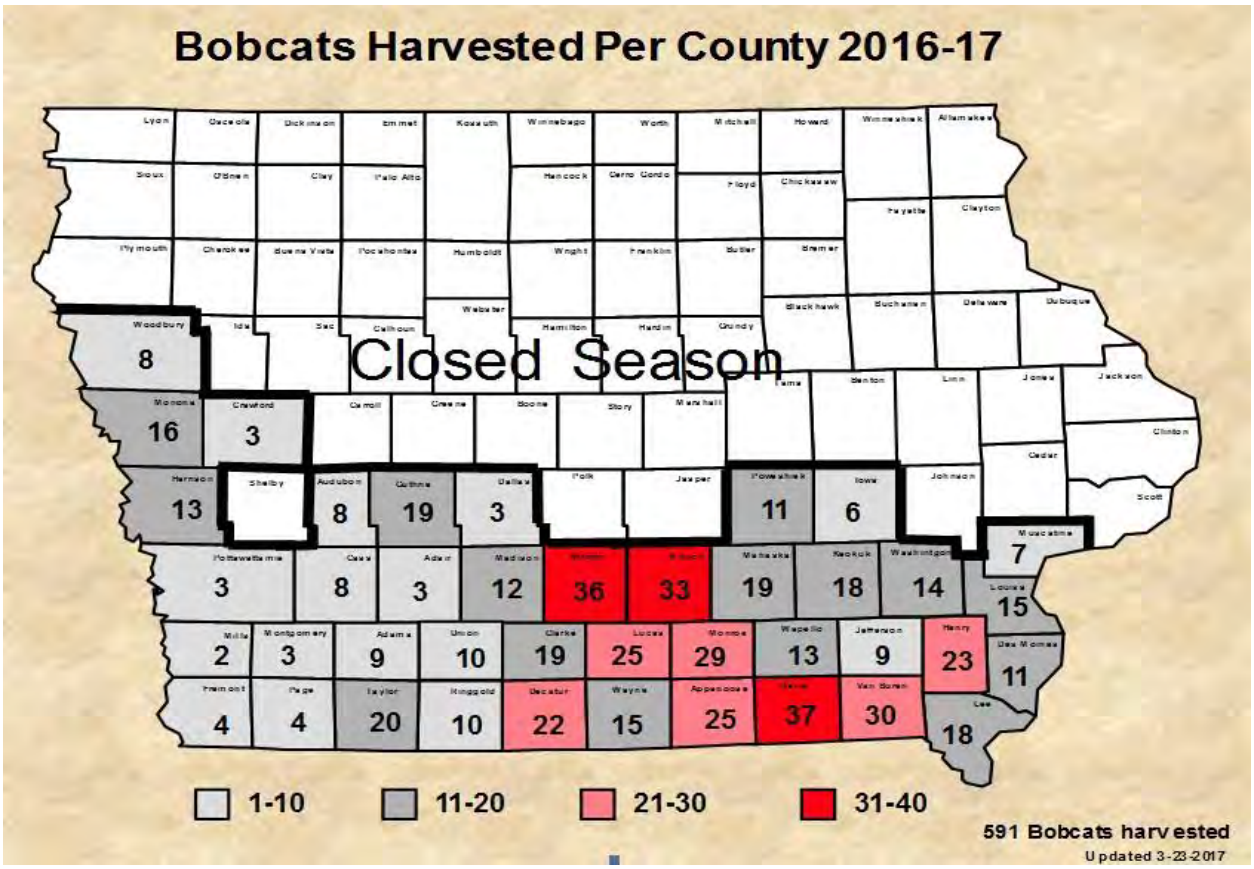


Figure 3.40 Bobcat harvest per county in Iowa, 2016-17.

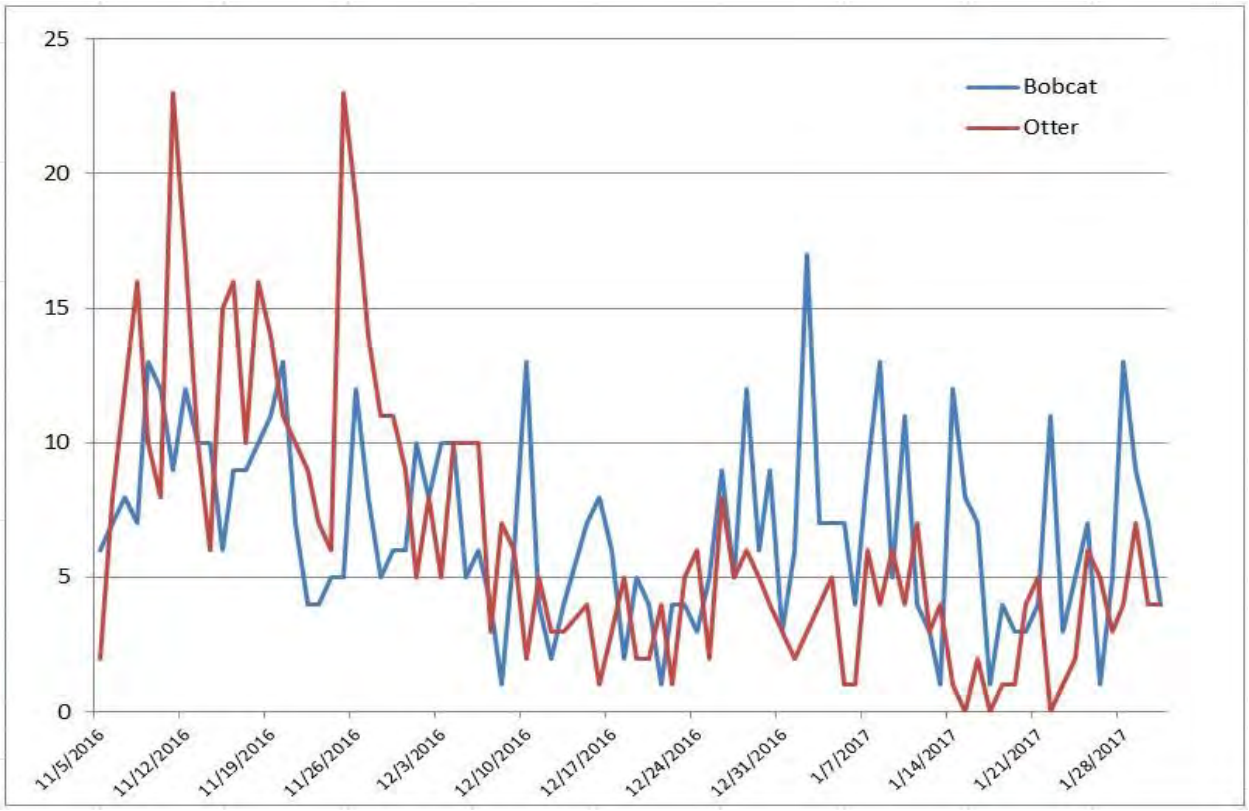


Figure 3.41 River Otter and bobcats harvested per day in Iowa (2016-17).

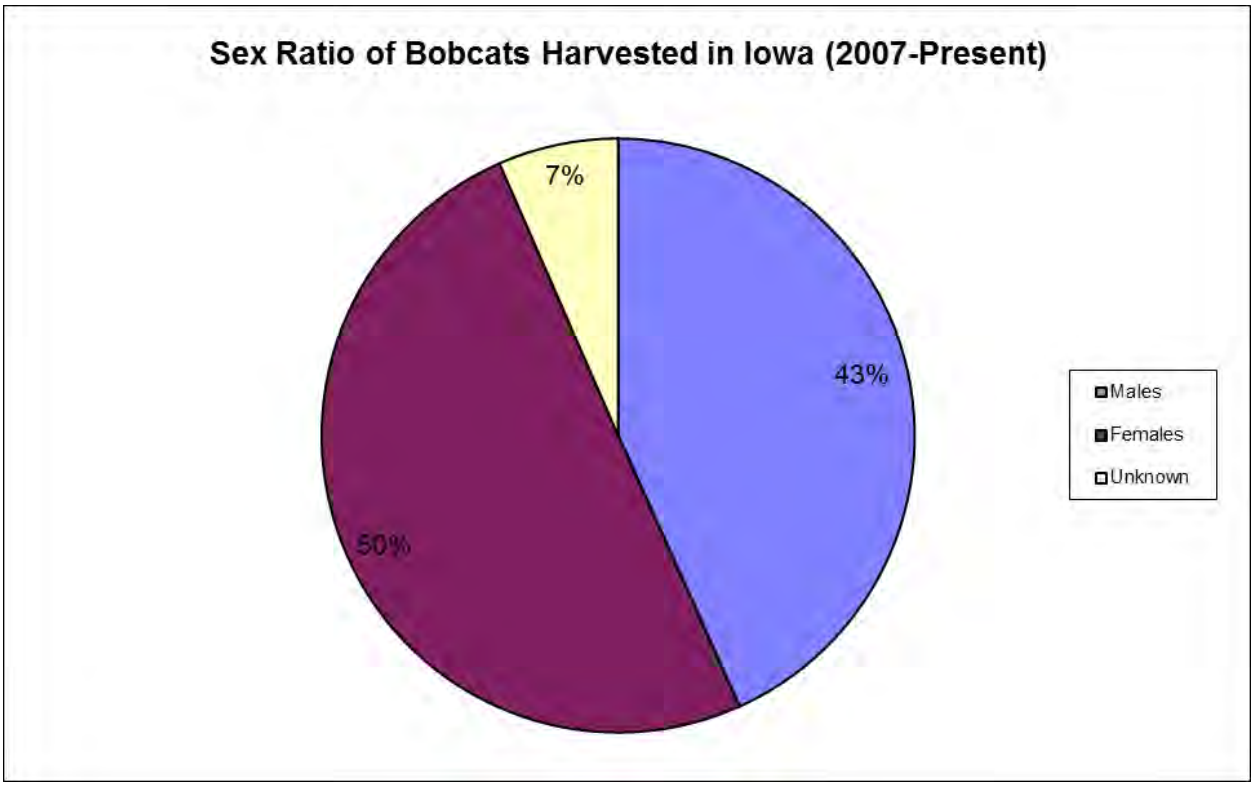


Figure 3.42 Sex ratio of harvested bobcats in Iowa (2007-present).

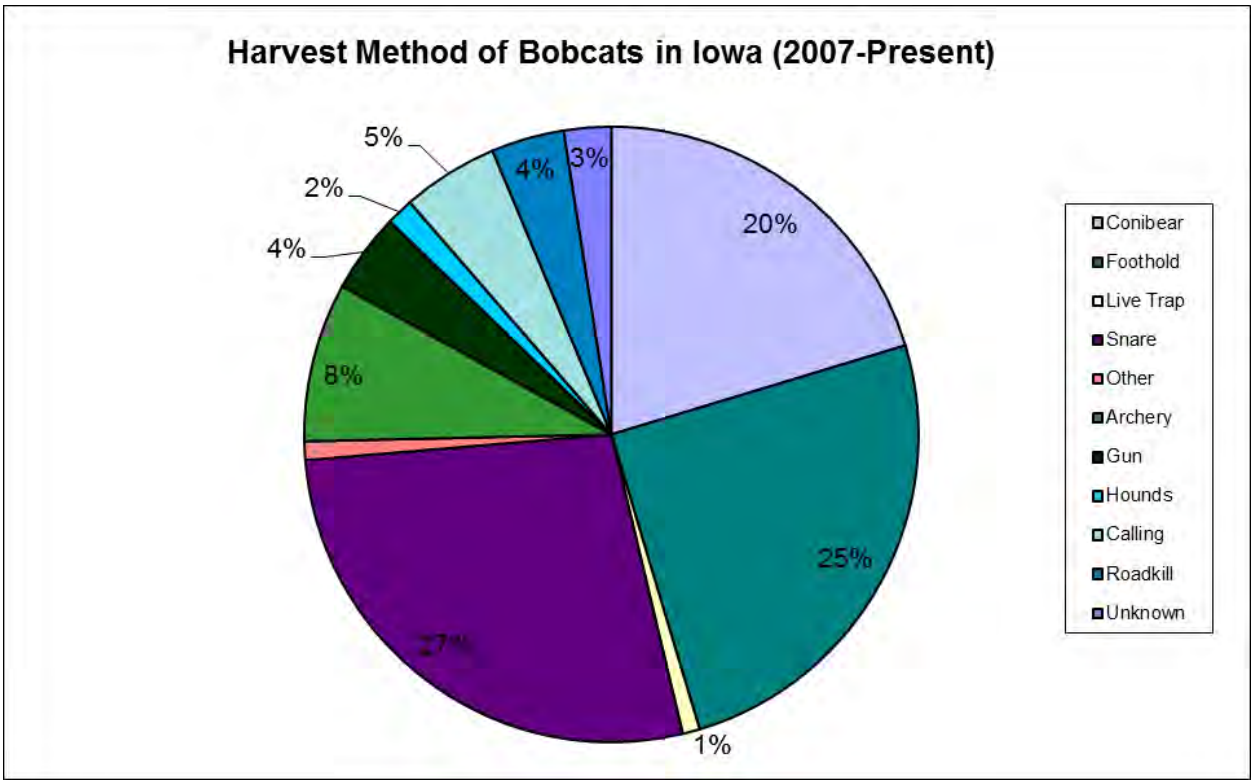


Figure 3.43 Harvest method of bobcats in Iowa (2007-present).

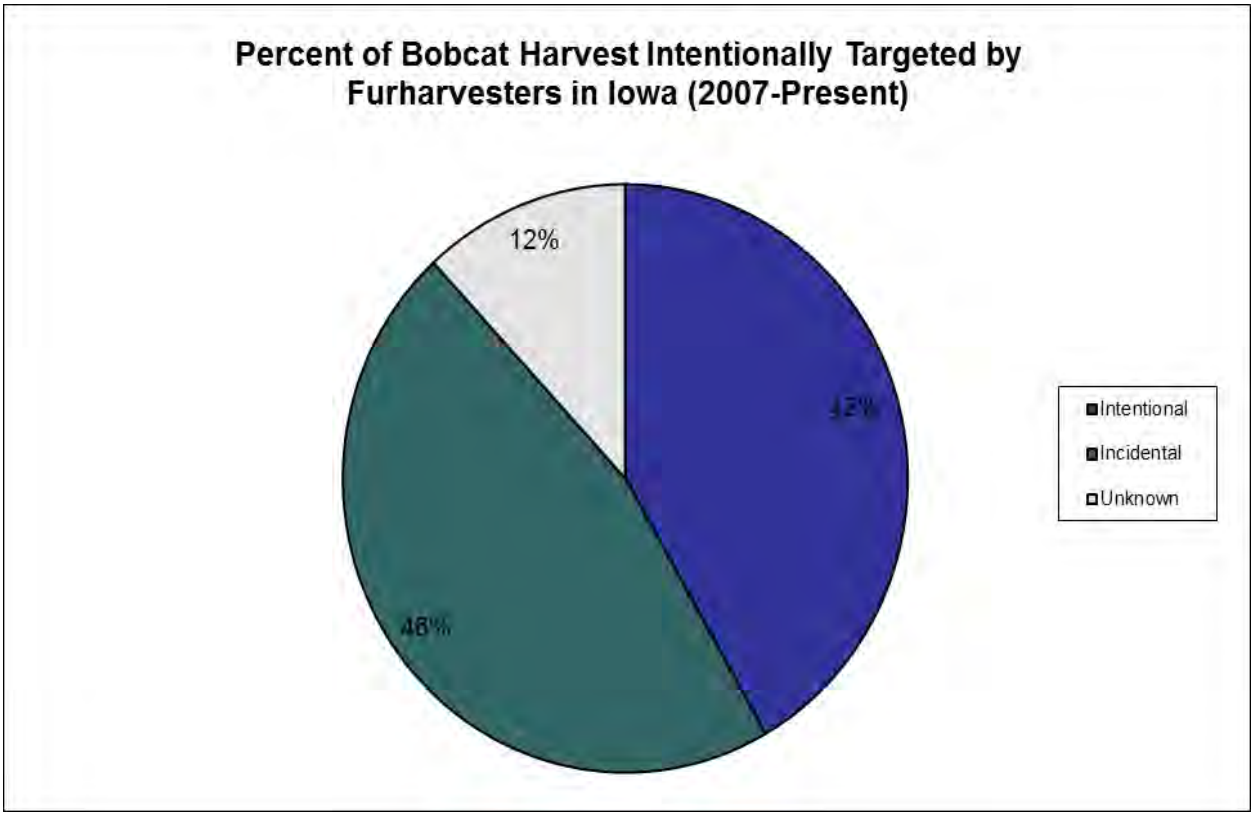


Figure 3.44 Percent of bobcats intentionally and incidentally harvested in Iowa (2007-present).

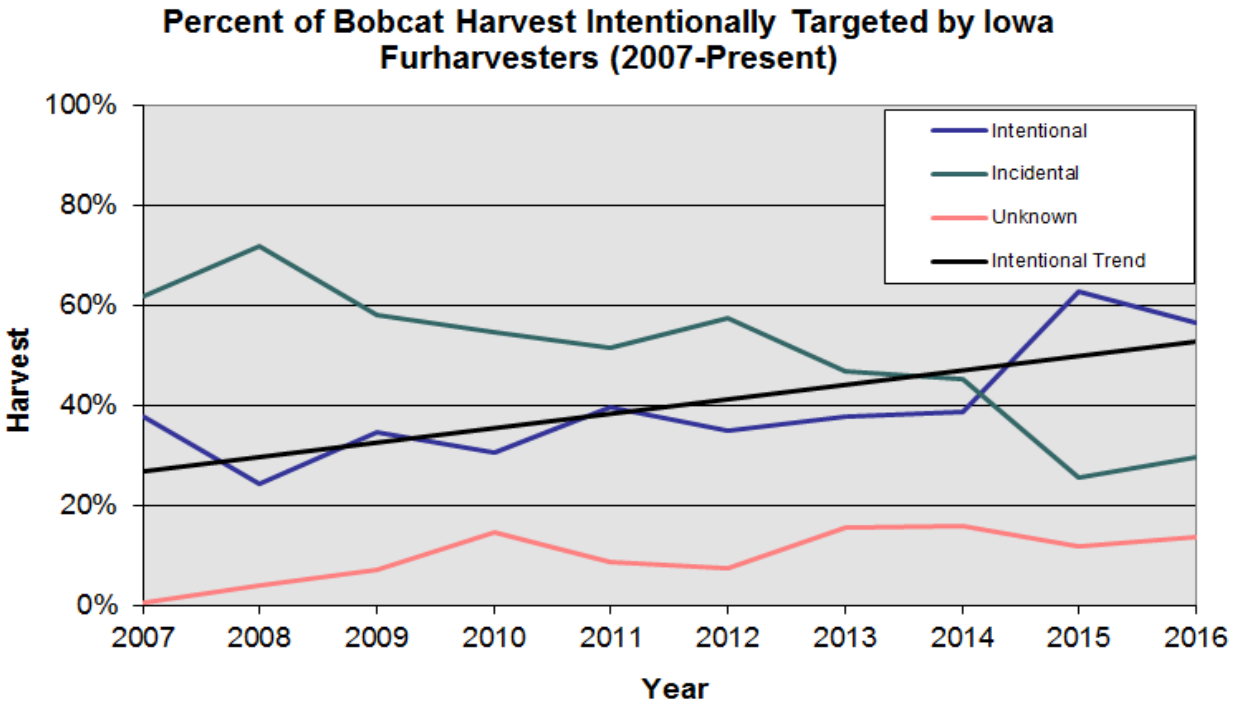


Figure 3.45 Trend for furharvesters intentionally targeting bobcats in Iowa (2007-present).

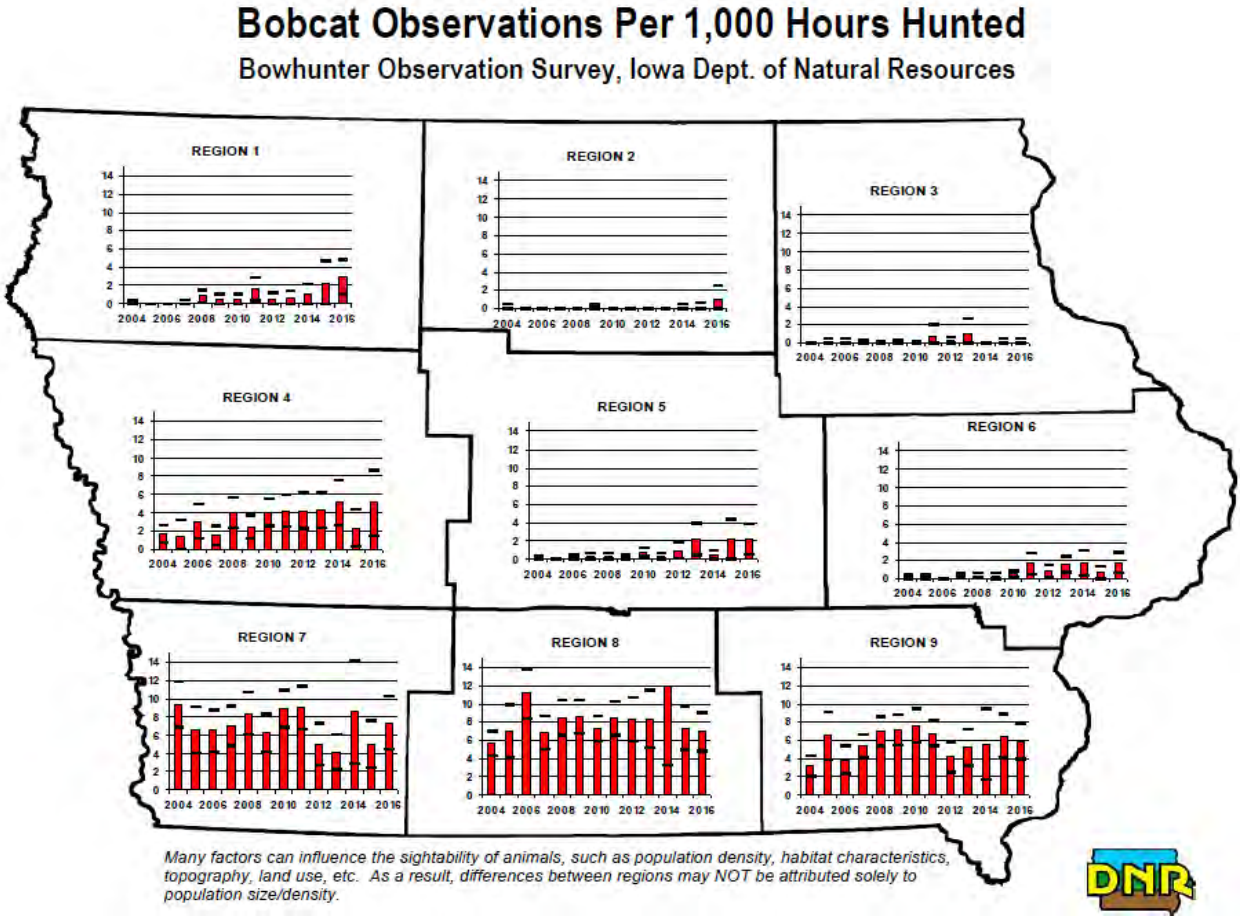


Figure 3.46 Results of bobcat Bowhunter Observation Survey in Iowa (2004-present).

Tables

Table 3.1 Statewide furbearer harvest in Iowa listed by species as reported in licensed fur dealer reports (1930-present). Data for each year includes harvest for the winter of the succeeding year, e.g., 1930=1930+1931 (winter).

Season	Muskrat	Mink	Striped Skunk	Raccoon	Spotted Skunk	Red Fox	Gray Fox	Opossum	Weasel	Coyote	Badger	Beaver	Bobcat[a]	Otter[a]
1930-31	381,651	36,842	99,321	11,740	55,938	2,550	182	26,230	2,018		75			
1931-32	293,294	33,780	87,701	12,951	52,022	3,723	208	37,558	801	3	56			
1932-33	181,038	25,303	41,511	10,468	29,505	2,755	35	42,415	256	1	17			
1933-34	380,275	47,119	108,776	15,447	88,532	6,807	486	83,625	1,468		227			
1934-35	113,889	21,755	75,900	14,719	46,676	5,065	417	54,025	1,149		207			
1935-36	351,968	31,613	68,231	19,353	35,767	6,218		39,961	3,602		611			
1936-37	212,332	32,337	153,497	15,037	38,724	9,133	170	20,985	7,190	22	768			
1937-38	176,759	21,438	102,212	13,287	26,928	7,111	1,846	11,755	4,159	146	569			
1938-39	308,015	27,783	124,322	15,014	43,971	7,403	1,900	23,303	4,529	162	412			
1939-40	46,003	2,877	91,838	16,465	56,708	5,706	1,413	39,050	6,692	183	486			
1940-41	350,700	38,817	74,251	19,756	63,256	6,505	1,730	30,131	6,290	259	470			
1941-42	262,007	33,650	68,840	22,512	60,944	6,137	1,967	33,839	4,440	202	586			
1942-43	262,562	23,297	32,437	20,128	38,508	6,560	1,823	29,691	2,982	209	287			
1943-44	722,360	52,760	53,199	38,303	60,238	8,695	2,516	35,579	3,966	926	538	235		
1944-45	457,573	47,040	35,737	36,803	41,235	9,785	2,332	27,513	2,905	388	354	259		
1945-46	418,417	48,145	30,755	41,084	44,827	11,554	2,350	22,501	3,607	388	314	623		
1946-47	387,614	60,397	32,458	61,880	40,661	12,259	2,223	26,960	4,334	915	553	494		
1947-48	17,059	27,638	11,903	55,601	13,944	8,963								
1948-49	164,736	16,571	9,712	61,419	7,815	6,015	192	7,563	881	265	182	670		
1949-50	171,820	17,973	6,136	58,527	4,532	4,826	983	6,681	433	57	136	2,489		
1950-51	117,051	17,007	4,270	56,075	3,321	5,618	917	4,090	509	131	90	3,103		
1951-52	67,211	23,257	2,558	67,211	1,842	3,703	443	2,600	412	34	81	2,465		
1952-53	62,356	27,222	2,730	62,356	2,143	3,313	420	2,632	584	34	67	3,790		
1953-54	335,451	30,459	4,511	79,939	1,892	2,573	399	3,203	470	17	82	6,565		
1954-55	143,886	20,051	2,278	49,592	1,122	1,679	196	1,758	229	45	63	3,635		
1955-56	80,414	10,548	2,677	50,849	1,480	1,678	156	1,774	304	6	57	4,336		
1956-57	79,109	9,706	3,219	58,944	1,888	1,892	183	2,062	263	24	153	2,874		
1957-58	65,969	9,838	2,690	48,134	1,778	1,389	90	1,494	149	9	47	1,938		
1958-59	130,668	13,308	1,988	29,361	1,710	1,147	132	953	181	6	58	2,289		
1959-60	164,485	16,942	1,789	59,814	1,171	4,162	262	2,065	113	61	77	2,980		

Season	Muskrat	Mink	Striped Skunk	Raccoon	Spotted Skunk	Red Fox	Gray Fox	Opossum	Weasel	Coyote	Badger	Beaver	Bobcat[a]	Otter[a]
1960-61	144,119	10,033	2,044	45,279	1,475	6,952	232	1,701	183	97	162	4,519		
1961-62	351,822	16,365	1,307	49,659	918	5,486	223	1,979	89	113	317	4,790		
1962-63	467,985	14,312	1,817	64,250	1,182	6,261	356	2,339	93	92	121	4,269		
1963-64	555,055	21,032	1,940	77,428	1,835	6,610	232	3,052	203	61	99	9,294		
1964-65	259,908	14,394	443	64,936	1,446	6,194	143	2,600	172	340	106	4,326		
1965-66	261,459	13,105	1,097	80,801	1,121	10,853	303	3,559	52	732	147	4,273		
1966-67	389,242	16,269	1,349	85,563	764	13,072	441	4,654	85	864	212	8,991		
1967-68	231,811	13,509	830	77,435	376	10,195	393	2,331	66	512	201	7,334		
1968-69	232,133	12,974	1,290	128,228	308	27,661	729	6,413	47	4,922	287	5,221		
1969-70	306,967	12,616	1,146	137,453	197	17,993	702	5,891	48	3,678	502	4,905		
1970-71	345,538	11,110	700	94,174	113	15,725	503	3,721	41	4,430	446	4,073		
1971-72	449,442	15,855	756	131,247	109	14,978	780	6,157	22	5,240	373	7,138		
1972-73	399,021	17,093	1,579	173,162	131	18,281	722	10,849	40	5,616	551	4,527		
1973-74	638,317	23,269	2,779	255,212	188	24,145	1,624	26,947	52	8,713	1,121	5,834		
1974-75	465,488	22,517	3,935	275,518	280	17,829	1,682	38,844	71	12,020	1,438	5,556		
1975-76	386,679	18,406	1,937	292,064	106	15,838	1,574	26,485	50	9,444	1,267	5,154		
1976-77	252,754	15,956	5,441	264,819	46	22,699	1,795	36,493	4	12,226	2,136	7,773		
1977-78	257,237	13,037	3,588	264,367	7	22,831	1,640	36,186	36	12,011	1,900	3,432		
1978-79	467,721	23,277	6,545	251,985		24,348	2,115	26,160	82	10,627	1,936	4,327		
1979-80	741,403	31,270	10,022	308,277		17,629	3,093	10,978	122	7,745	3,274	12,498		
1980-81	739,419	32,950	5,616	235,717		20,602	2,175	11,664	32	6,847	2,427	11,831		
1981-82	521,945	28,455	1,913	291,227		22,385	1,710	18,730	16	9,860	1,946	5,705		
1982-83	428,252	21,307	1,194	255,926		18,527	1,953	16,761	16	8,930	1,754	5,809		
1983-84	464,793	22,245	1,152	261,875		21,257	1,185	16,179		9,636	1,298	8,563		
1984-85	372,466	28,346	1,032	334,179		18,916	1,896	21,455		7,809	1,754	16,323		
1985-86	254,412	17,116	1,861	270,805		16,346	1,114	16,296		7,858	975	14,931		
1986-87	482,811	31,139	2,540	390,773		19,740	1,593	30,760		10,582	2,520	17,778		
1987-88	515,611	27,712	1,198	307,587		19,666	1,091	27,623		10,348	1,642	13,509		
1988-89	192,214	13,996	712	190,556		15,445	769	19,824		4,650	1,043	18,459		
1989-90	73,415	8,293	245	118,653		13,359	374	8,114		4,073	468	8,706		
1990-91	70,133	7,363	189	103,468		14,268	393	6,243		5,068	503	9,246		
1991-92	91,206	8,469	211	110,342		15,463	429	7,411		5,213	572	8,943		
1992-93	124,638	12,839	791	110,203		14,660	1,036	8,192		10,286	621	15,839		
1993-94	163,842	13,946	643	118,463		12,986	836	6,243		7,313	571	11,788		

Season	Muskrat	Mink	Striped Skunk	Raccoon	Spotted Skunk	Red Fox	Gray Fox	Opossum	Weasel	Coyote	Badger	Beaver	Bobcat[a]	Otter[a]
1994-95	178,683	11,819	510	112,686		12,243	789	6,782		6,986	502	11,643		
1995-96	158,241	20,392	786	118,136		14,136	948	9,781		8,462	614	10,678		
1996-97	123,460	18,946	693	123,698		12,402	721	7,643		7,159	832	10,481		
1997-98	113,621	16,832	649	149,492		12,896	768	6,012		6,992	796	11,122		
1998-99	90,126	16,461	536	106,641		11,646	681	5,123		5,786	642	10,336		
1999-00	86,998	15,931	528	101,233		11,968	631	4,649		5,231	597	10,108		
2000-01	84,972	15,235	469	94,989		11,103	576	3,922		5,348	506	10,478		
2001-02	78,867	14,162	398	143,206		12,349	529	3,361		6,702	487	11,287		
2002-03	89,421	14,986	417	118,531		14,869	507	2,905		5,746	402	10,431		
2003-04	54,919	10,711	842	177,315		10,608	365	6,184		8,178	912	8,591		
2004-05	45,516	11,662	930	179,185		7,122	198	5,858		5,197	761	6,221		
2005-06	79,328	13,162	793	163,746		8,587	219	5,916		7,381	606	8,698		
2006-07	64,799	7,706	1,434	156,379		2,013	20	2,254		4,258	704	5,675		466
2007-08	55,476	7,967	1,256	143,271		2,143	178	2,673		4,513	536	5,303	154	416
2008-09	48,794	8,236	1,042	124,789		3,729	217	2,251		5,176	431	5,829	234	479
2009-10	44,436	6,905	388	115,349		1,792	13	1,261	56	2,501	454	3,431	236	508
2010-11	98,079	11,262	708	236,943		3,810	26	3,156	7	8,089	946	5,382	274	456
2011-12	78,422	12,977	858	326,368		4,209	85	3,932	3	7,765	1,220	11,652	398	770
2012-13	54,382	8,060	788	303,496		4,104	63	4,820	31	13,261	1,343	15,457	528	971
2013-14	30,584	5,582	779	308,025		4,099	16	5,668	9	15,347	1,006	7,496	978	1,165
2014-15	44,175	5,332	642	200,509		2,397	182	2,187	3	13,911	957	4,591	706	835
2015-16	33,327	4,545	386	89,061		1,581	44	940	50	13,158	289	4,021	535	692
2016-17	38,944	3,957	355	82,126		1,239	19	1,231	10	9,283	261	4,214	591	556
Average														
5-Year	40,282	5,495	590	196,643		2,684	65	2,969	21	12,992	771	7,156	597	810
10-Year	52,662	7,482	720	192,994		2,910	84	2,812	21	9,300	744	6,738	428	668
20-Year	65,759	10,584	710	166,033		6,613	267	3,715	23	7,691	693	8,016	428	649
50-Year	228,905	15,358	1,521	188,578	219	13,296	834	11,029	38	7,642	987	8,767	428	649
Long term[1]	238,868	19,527	16,362	126,662	18,327	10,174	819	13,876	1,112	4,742	676	7,090	428	649

[1]Long-term data dates back to 1930.

[a]Otter and bobcat harvest data was recorded from the harvest reporting system, not licensed fur dealers.

Table 3.2 Number of licensed furharvesters and fur dealers in Iowa (2001-Present)

Year	Resident Furharvesters	Lifetime Furharvesters	Non-Resident Furharvesters	Total	Resident Fur Dealers	Non-Resident Fur Dealers	Total
2003	14,404	-	99	14,503	43	2	45
2004	14,607	-	91	14,698	46	3	49
2005	13,376	-	83	13,459	41	2	43
2006	14,542	-	100	14,642	38	5	43
2007	15,279	-	134	15,413	39	4	43
2008	15,523	-	168	15,691	40	4	44
2009	14,098	-	99	14,197	34	3	37
2010	15,033	-	144	15,177	34	2	36
2011	16,928	-	121	17,049	34	5	39
2012	19,197	-	171	19,268	36	4	40
2013	20,148	455	248	20,818	36	6	42
2014	18,482	560	144	19,186	44	5	49
2015	14,659	955	670	16,284	40	4	44
2016	14539	248	29	14,816	34	5	39

Table 3.3 Total number of pelts sold in Iowa and average, minimum, and maximum prices paid per species by fur dealers (2012-Present).

	No. of Pelts Sold in Iowa	Price Paid per Pelt ($)		
		Average	Minimum	Maximum
Raccoon				
2014-15	200,509	10.66	3.32	19.13
2015-16	89,061	4.53	1.00	8.00
2016-17	82,126	4.76	0.50	7.00
Muskrat				
2014-15	44,175	4.79	1.00	7.41
2015-16	33,327	2.35	0.90	4.00
2016-17	38,944	2.35	0.29	3.58
Mink				
2014-15	5,332	8.77	3.88	16.00
2015-16	4,545	5.42	1.00	20.00
2016-17	3,957	6.01	2.00	12.00
Beaver				
2014-15	4,591	9.51	3.00	20.00
2015-16	4,021	7.62	2.61	20.00
2016-17	4,214	6.54	3.00	10.00
Coyote				
2014-15	13,911	24.67	1.00	43.91
2015-16	13,158	20.36	6.65	30.00
2016-17	9,283	17.22	5.00	30.00
Red Fox				
2014-15	2,397	20.14	10.00	25.03
2015-16	1,581	10.85	5.00	20.00

	No. of Pelts Sold in Iowa	Price Paid per Pelt ($)		
		Average	Minimum	Maximum
2016-17	1,239	10.47	7.17	20.00
Opossum				
2014-15	2,187	1.33	0.25	2.50
2015-16	940	0.85	0.25	1.50
2016-17	1,231	0.95	0.25	3.00
Badger				
2014-15	957	12.01	4.00	25.00
2015-16	289	8.78	3.00	20.00
2016-17	261	9.05	2.00	35.00
Striped Skunk				
2014-15	642	4.18	0.50	8.94
2015-16	386	2.53	0.50	7.00
2016-17	355	2.29	0.50	8.00
River Otter				
2014-15	835	31.91	10.00	50.00
2015-16	692	19.74	10.00	30.00
2016-17	386	20.89	10.00	30.00
Bobcat				
2014-15	706	44.57	25.00	150.00
2015-16	535	32.29	15.00	60.00
2016-17	236	40.78	11.00	150.00
Gray Fox				
2014-15	182	15.36	12.00	25.00
2015-16	44	8.49	3.00	15.00
2016-17	19	13.58	8.00	15.00
Weasel				
2014-15	3	2.67	0.50	7.00
2015-16	50	0.53	0.50	1.00
2016-17	10	1.00	1.00	1.00

Table 3.4 Value ($) of pelts from important furbearer species harvested in Iowa (1930-present). Data for each year includes harvest from the winter of the succeeding year, e.g., 1930 = 1930+1931 (winter).

Season	Mink		Muskrat		Raccoon		Red Fox		All Species
	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Total Value
1930-31	3.50	128,947	0.42	160,293	4.50	52,830	6.85	17,467	534,409
1931-32	3.60	121,608	0.52	152,512	4.40	56,984	4.50	16,753	497,260
1932-33	3.00	75,909	0.30	54,311	2.60	27,216	3.25	8,953	213,186
1933-34	4.40	207,323	0.52	197,743	3.45	53,292	4.50	30,631	615,688
1934-35	4.40	95,810	0.70	79,722	3.50	51,516	4.00	20,260	348,843
1935-36	5.93	187,465	0.98	344,928	3.95	76,444	2.95	18,343	723,451
1936-37	9.00	291,033	1.25	265,440	4.00	60,148	3.00	27,399	842,666
1937-38	5.60	120,052	0.60	106,055	3.65	48,497	3.00	21,333	412,361

Season	Mink		Muskrat		Raccoon		Red Fox		All Species
	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Total Value
1938-39	7.25	201,426	0.75	231,011	2.80	42,039	3.50	25,910	723,099
1939-40	6.25	17,981	1.05	48,303	2.45	40,339	2.50	14,265	277,519
1940-41	7.30	283,364	1.21	424,347	3.71	73,294	2.70	17,563	979,482
1941-42	6.75	227,137	1.32	345,849	4.90	110,308	4.50	27,616	903,874
1942-43	6.15	143,276	1.47	385,966	3.65	73,467	5.40	35,424	741,621
1943-44	12.50	659,500	2.25	1,625,310	3.25	277,696	10.00	86,950	2,961,462
1944-45	6.75	317,520	1.32	603,966	4.90	180,334	4.50	44,032	1,267,151
1945-46	28.16	1,355,763	2.18	912,149	2.89	118,732	3.95	45,638	2,630,655
1946-47	18.14	1,095,601	1.71	622,819	1.97	121,903	2.03	24,885	2,003,965
1947-48	29.73	821,677	2.40	40,941	2.61	145,118	1.26	11,293	1,018,093
1948-49	18.30	303,249	1.62	266,872	2.23	136,964	0.88	5,293	737,577
1949-50	12.15	218,371	1.38	237,371	1.95	114,127	0.60	2,895	611,352
1950-51	23.50	399,664	1.81	211,862	2.95	165,421	0.75	4,213	828,250
1951-52	17.48	406,532	1.37	361,081	2.67	179,453	0.39	1,444	972,134
1952-53	16.40	446,440	1.13	444,587	1.72	107,252	0.42	1,391	1,026,952
1953-54	13.49	380,891	0.69	231,461	1.57	125,504	0.36	926	773,398
1954-55	17.59	352,697	0.93	133,813	1.71	84,802	0.36	604	594,635
1955-56	18.03	190,180	1.11	98,259	2.81	142,885	0.24	402	458,230
1956-57	15.09	146,463	0.83	65,657	1.81	106,688	0.20	378	339,464
1957-58	12.50	122,975	0.75	49,476	1.15	55,354	0.25	347	251,660
1958-59	14.31	190,437	0.77	100,614	1.78	52,262	0.51	584	363,240
1959-60	16.63	281,745	0.83	136,500	2.82	168,675	1.43	5,951	621,201
1960-61	10.38	104,142	0.61	87,912	1.96	88,746	1.24	8,620	327,976
1961-62	10.20	166,923	0.58	204,056	2.31	114,712	1.36	7,460	527,389
1962-63	11.08	158,576	0.83	388,427	2.42	155,485	1.81	11,332	743,506
1963-64	10.90	229,248	1.17	649,414	1.44	111,496	1.86	12,294	1,069,812
1964-65	8.73	125,659	1.02	265,106	1.51	98,053	1.84	11,396	536,544
1965-66	7.83	102,612	1.32	345,244	2.47	199,578	5.80	62,947	753,832
1966-67	7.84	127,548	0.98	381,457	2.17	185,671	3.02	39,477	815,957
1967-68	8.08	109,152	0.70	162,267	2.63	203,654	4.12	42,003	600,422
1968-69	11.44	148,422	0.92	213,562	4.62	592,413	10.39	287,397	1,355,639
1969-70	7.06	89,068	1.15	353,012	3.43	471,463	5.86	105,448	1,090,212
1970-71	4.93	54,772	0.88	311,993	2.35	211,308	6.05	95,136	736,023
1971-72	7.86	124,620	1.37	615,735	5.20	682,484	10.59	158,617	1,700,782
1972-73	13.50	230,755	2.05	817,993	8.50	1,471,877	21.87	399,805	3,061,442
1973-74	11.35	264,103	2.25	1,436,213	9.80	2,501,077	26.95	650,707	5,083,978
1974-75	8.67	195,222	2.40	1,117,171	10.60	2,920,490	19.56	348,735	4,818,166
1975-76	9.65	177,617	2.85	1,102,035	17.85	5,213,342	39.88	631,619	7,390,136
1976-77	14.06	224,341	4.31	1,089,369	22.51	5,961,075	46.33	1,051,644	8,976,168
1977-78	12.44	162,180	4.77	1,227,020	22.27	5,887,453	49.53	1,130,819	8,871,156
1978-79	14.48	337,050	4.49	2,100,067	31.18	7,856,892	64.65	1,574,098	12,516,946
1979-80	19.04	595,380	5.64	4,181,512	29.97	9,239,061	48.71	858,708	15,499,322

Season	Mink		Muskrat		Raccoon		Red Fox		All Species
	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Total Value
1980-81	18.20	599,690	5.88	4,347,783	21.47	5,060,843	42.88	883,413	11,269,768
1981-82	17.99	511,905	3.84	2,004,268	27.69	8,064,075	46.29	1,036,201	12,021,854
1982-83	11.18	238,212	2.18	933,589	16.54	4,233,016	28.85	534,503	6,235,053
1983-84	16.03	356,481	2.30	1,152,686	14.23	3,726,481	33.16	704,882	6,180,169
1984-85	14.22	403,080	2.88	1,072,702	18.94	6,329,350	25.24	477,439	8,574,748
1985-86	11.76	201,274	1.89	480,838	14.34	3,883,343	16.70	272,978	5,163,651
1986-87	20.79	647,379	3.39	1,636,729	18.22	7,119,884	20.73	409,210	10,335,629
1987-88	20.76	575,301	3.32	1,711,828	16.65	5,121,323	18.07	355,365	8,097,250
1988-89	22.06	308,751	2.05	394,038	7.96	1,516,825	12.15	187,656	2,602,695
1989-90	16.34	138,890	1.02	76,500	4.74	568,800	9.70	135,800	1,018,622
1990-91	18.26	134,448	2.08	145,876	4.96	513,201	10.22	145,898	1,074,761
1991-92	15.49	131,184	1.96	178,764	5.36	591,433	9.63	148,909	1,198,863
1992-93	19.46	249,846	1.58	196,928	6.36	700,891	8.43	123,078	1,579,821
1993-94	16.78	234,014	1.83	299,831	5.81	688,270	8.98	116,614	1,388,729
1994-95	14.13	167,003	1.95	348,432	6.89	706,686	9.86	120,716	1,409,848
1995-96	18.01	367,259	1.78	281,670	6.83	808,371	8.76	123,831	1,745,504
1996-97	19.36	336,795	1.56	182,598	8.92	1,103,386	8.43	104,549	1,661,687
1997-98	17.86	302,303	1.51	171,568	7.79	1,169,643	7.04	90,788	1,729,199
1998-99	16.05	264,199	1.66	149,609	7.21	768,882	8.21	95,637	1,203,362
1999-00	19.16	255,583	1.55	134,847	8.13	823,024	9.68	115,850	1,329,304
2000-01	15.46	235,533	2.09	177,591	9.26	879,598	9.86	109,476	1,378,689
2001-02	17.23	244,011	2.43	191,647	11.69	1,674,078	10.86	134,110	2,168,918
2002-03	14.96	244,191	1.85	165,429	12.16	1,441,370	11.36	168,912	2,069,869
2003-04	10.51	112,573	2.06	113,133	10.11	1,792,655	19.16	203,441	2,589,802
2004-05	10.27	119,769	1.85	85,115	9.62	1,723,760	14.68	104,551	1,965,131
2005-06	12.03	158,339	6.15	487,867	11.43	1,871,612	12.81	109,999	2,827,822
2006-07	13.07	100,703	5.79	375,339	10.18	1,591,138	15.13	36,503	2,204,483
2007-08	14.76	116,876	3.08	170,886	12.34	1,442,250	13.55	29,038	1,757,223
2008-09	9.48	78,077	2.51	122,473	9.23	1,151,822	11.57	43,145	1,293,846
2009-10	8.22	56,760	3.97	176,411	8.80	1,015,071	10.04	17,992	1,095,999
2010-11	12.83	144,542	5.31	645,472	12.52	2,965,833	16.81	64,030	4,020,719
2011-12a	12.62	193,285	5.93	511,780	10.86	4,098,994	17.74	106,182	5,288,094
2012-13	15.91	305,842	7.48	423,249	13.60	4,664,032	25.85	128,958	5,983,493
2013-14a	16.50	92,077	9.28	283,731	15.85	4,882,917	36.27	148,689	6,034,386
2014-15a	8.77	46,781	4.79	211,583	10.66	2,137,468	20.14	48,281	2,905,703
2015-16a	5.42	24,641	2.35	78,280	4.53	403,850	10.85	17,155	926,640
2016-17	6.01	23,782	2.35	97,699	4.76	390,605	10.47	12,966	728,652
Average									
5-Year	10.52	98,624	5.25	218,908	9.88	2,495,774	20.72	71,210	3,315,775
10-Year	11.05	108,266	4.71	272,156	10.32	2,315,284	17.33	61,644	3,003,476
20-Year	12.86	155,993	3.70	238,685	10.04	1,844,430	14.60	89,285	2,475,067
50-Year	13.81	228,681	2.99	698,934	11.55	2,616,747	19.29	300,030	4,055,208

Season	Mink		Muskrat		Raccoon		Red Fox		All Species
	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Total Value
Long term	12.89	255,630	2.18	531,121	7.82	1,549,893	12.19	180,163	2,675,957

[1]Long-term data dates back to 1930.

[a]For years when there furharvesters which reported number of pelts purchased without average price paid per pelt, total values for those furharvesters were estimated using the overall average price paid per pelt calculated from all furharvesters.

Table 3.5 Percent of fox, raccoon, and coyote furs purchased from hunters and trappers statewide in Iowa; determined from fur dealer reports (1975-present). Data for each year includes harvest from the succeeding year, e.g., 1975=1975+1976 (winter). (Unk: Unknown)

Season	Raccoon			Red and Gray Fox			Coyote			Bobcat		
	Trapper	Hunter	Unk	Trapper	Hunter	Unk	Trapper	Hunter	Unk	Trapper	Hunter	Unk
1975-76	28	60	12	45	48	7	18	72	10			
1976-77	28	66	6	55	41	4	28	68	4			
1977-78	24	68	8	36	55	9	18	72	10			
1978-79	31	61	8	37	58	5	17	74	9			
1979-80	30	58	12	53	32	15	30	59	11			
1980-81	33	60	7	66	29	5	33	60	7			
1981-82	42	46	12	38	46	16	20	74	6			
1982-83	35	53	12	47	45	8	25	69	6			
1983-84	37	50	13	33	59	8	17	67	16			
1984-85	33	41	26	49	31	20	26	60	14			
1985-86	37	52	11	39	54	7	23	65	12			
1986-87	46	49	5	59	35	6	34	62	4			
1987-88	49	47	4	53	43	4	32	62	6			
1988-89	49	46	5	58	34	8	30	67	3			
1989-90	35	45	20	48	28	24	24	61	15			
1990-91	38	55	7	43	46	11	28	66	6			
1991-92	41	51	8	44	49	7	25	67	8			
1992-93	45	50	5	40	52	8	36	54	6			
1993-94	43	52	5	43	50	7	34	57	9			
1994-95	44	46	10	39	55	6	33	59	8			
1995-96	47	45	8	41	52	7	30	65	5			
1996-97	48	48	4	44	48	8	32	58	10			
1997-98	48	46	5	40	47	13	29	62	9			
1998-99	46	47	5	46	48	6	33	63	4			
1999-00	42	53	5	45	46	9	34	61	5			
2000-01	38	46	16	34	58	8	31	58	11			
2001-02	43	47	10	52	43	5	36	56	8			
2002-03	48	42	10	56	38	6	32	59	9			
2003-04	49	43	8	52	44	4	35	58	7			
2004-05	43	49	8	49	45	6	32	60	8			
2005-06	39	52	9	53	38	9	30	64	6			
2006-07	49	47	4	51	45	4	34	58	8			

Season	Raccoon			Red and Gray Fox			Coyote			Bobcat		
	Trapper	Hunter	Unk	Trapper	Hunter	Unk	Trapper	Hunter	Unk	Trapper	Hunter	Unk
2007-08	48	49	6	44	51	6	37	57	6			
2008-09	44	48	8	40	55	5	35	59	6			
2009-10	45	46	9	36	48	6	36	58	6			
2010-11	63	14	23	46	24	30	18	53	29			
2011-12a	63	28	9	73	15	12	41	43	16			
2012-13	69	31	0	80	20	0	47	53	0	70	15	15
2013-14a	73	27	0	82	18	0	47	53	0	96	4	0
2014-15a	78	22	0	84	16	0	49	51	0	62	38	0
2015-16a	68	32	0	73	27	0	40	60	0	92	8	0
2016-17	67	34	0	72	28	0	40	60	0	90	5	0
Average												
5-Year	71	29	0	78	22	0	45	55	0	82	14	3
10-Year	62	33	6	63	30	6	39	55	6	82	14	3
20-Year	53	40	7	55	38	6	36	57	7	82	14	3
50-Year	45	46	8	50	42	8	31	61	8	82	14	3

Table 3.6 Trapping and hunting furbearer harvest seasons in Iowa (2009-Present).

Season	Species*	Trapping Season Dates		Hunting Season Dates		Bag Limit	
		Open	Close	Open	Close	Daily	Possession
2009-10	ra, stsk, ba, op, rf, gf	Nov 7	Jan 31	Nov 7	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 7	Jan 31			No Limit	No Limit
	be	Nov 7	Apr 1			No Limit	No Limit
	co	Nov 7	Jan 31	Continuous open season		No Limit	No Limit
	ot[1,9]	Nov 7	Jan 31			2	2
	bc[3,9]	Nov 7	Jan 31	Nov 7	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			
2010-11	ra, stsk, ba, op, rf, gf	Nov 6	Jan 31	Nov 6	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 6	Jan 31			No Limit	No Limit
	be	Nov 6	Apr 01			No Limit	No Limit
	co	Nov 6	Jan 31	Continuous open season		No Limit	No Limit
	ot[1,9]	Nov 6	Jan 31			2	2
	bc[4,9]	Nov 6	Jan 31	Nov 6	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			
2011-12	ra, stsk, ba, op, rf, gf	Nov 5	Jan 31	Nov 5	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 5	Jan 31			No Limit	No Limit
	be	Nov 5	Apr 15			No Limit	No Limit
	co	Nov 5	Jan 31	Continuous open season		No Limit	No Limit
	ot[5,9]	Nov 5	Jan 31			3	3
	bc[6,9]	Nov 5	Jan 31	Nov 5	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			

Season	Species*	Trapping Season Dates		Hunting Season Dates		Bag Limit	
		Open	Close	Open	Close	Daily	Possession
2012-13	ra, stsk, ba, op, rf, gf	Nov 3	Jan 31	Nov 3	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 3	Jan 31			No Limit	No Limit
	be	Nov 5	Apr 15			No Limit	No Limit
	co	Nov 3	Jan 31	Continuous open season		No Limit	No Limit
	ot[7,9]	Nov 3	Jan 31			3	3
	bc[8,9]	Nov 3	Jan 31	Nov 3	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			
2013-14	ra, stsk, ba, op, rf, gf	Nov 2	Jan 31			No Limit	No Limit
	mi, mu, we	Nov 2	Jan 31			No Limit	No Limit
	be					No Limit	No Limit
	co	Nov 2	Jan 31	Continuous open season		No Limit	No Limit
	ot[9]	Nov 2	Jan 31			2	2
	bc[9]	Nov 2	Jan 31	Nov 2	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			
2014-15	ra, stsk, ba, op, rf, gf	Nov 1	Jan 31			No Limit	No Limit
	mi, mu, we	Nov 1	Jan 31			No Limit	No Limit
	be	Nov 1	Apr 15			No Limit	No Limit
	co	Nov 1	Jan 31	Continuous open season		No Limit	No Limit
	ot[9]	Nov 1	Jan 31			2	2
	bc[9]	Nov 1	Jan 31	Nov 1	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			
2015-16	ra, stsk, ba, op, rf, gf	Nov 7	Jan 31	Nov 7	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 7	Jan 31			No Limit	No Limit
	be	Nov 7	Apr 15			No Limit	No Limit
	co	Nov 7	Jan 31	Continuous open season		No Limit	No Limit
	ot[9]	Nov 7	Jan 31			2	2
	bc[9]	Nov 7	Jan 31	Nov 7	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			
2016-17	ra, stsk, ba, op, rf, gf	Nov 5	Jan 31	Nov 5	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 5	Jan 31			No Limit	No Limit
	be	Nov 5	Apr 15			No Limit	No Limit
	co	Nov 5	Jan 31	Continuous open season		No Limit	No Limit
	ot[9]	Nov 5	Jan 31			2	2
	bc[9]	Nov 5	Jan 31	Nov 5	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			

*Species codes: ba – badger; bc – bobcat; be – beaver; co – coyote; gr – gray fox; gw – gray wolf; mi – mink; mu – muskrat; op – opossum; ot – otter; ra – raccoon; rf – red fox; spsk – spotted skunk; stsk – striped skunk; we – weasel.

[1]State-wide quota of 500 animals, plus a 48-hour grace period. Season bag limit of two per licensed furharvester

[2]Quota of 200 animals in the southern two tiers of counties only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.

[3]Quota of 200 animals in the southern two tiers of counties and Pottawattamie, Harrison, Monona, and Woodbury counties along the Missouri river only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.

[4]Quota of 250 animals in the southern three tiers of counties, Harrison, Monona, and Woodbury counties along the Missouri river,

and Guthrie County only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.
[5]State-wide quota of 650 animals, plus a 48-hour grace period. Season bag limit of three per licensed furharvester.
[6]Quota of 350 animals in the southern three tiers of counties, Harrison, Monona, and Woodbury counties along the Missouri river, and Guthrie County only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.
[7]State-wide quota of 850 animals, plus a 48-hour grace period. Season bag limit of three per licensed furharvester.
[8]Quota of 450 animals in the southern three tiers of counties, Harrison, Monona, and Woodbury counties along the Missouri river, and Guthrie County only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.
[9]CITES tag required.

Table 3.7 Results of the Iowa raccoon spotlight survey with raccoon harvest and pelt price (1977-present). The spotlight survey is conducted in April each year. Harvest data are from previous harvest season.

Year	Total Number of Routes	Mean Number Observed	Raccoon Harvest	Average Pelt Price ($)
1977	57	10	264,367	22.27
1978	83	11	251,985	31.18
1979	82	8	308,277	29.97
1980	85	9	235,717	21.47
1981	85	10	291,227	27.69
1982	84	13	255,926	16.54
1983	82	13	261,875	14.23
1984	84	12	334,179	18.94
1985	83	11	270,805	13.91
1986	80	11	390,773	18.22
1987	79	12	307,587	16.65
1988	83	15	190,556	7.96
1989	84	17	118,653	4.74
1990	86	17	103,468	4.62
1991	84	18	110,342	4.96
1992	82	22	110,203	5.36
1993	84	21	118,463	5.81
1994	89	21	112,686	6.89
1995	87	24	118,136	6.83
1996	89	24	123,698	8.26
1997	88	22	149,492	7.79
1998	88	23	106,641	7.21
1999	88	22	101,233	8.13
2000	88	24	94,989	9.26
2001	88	21	143,206	11.69
2002	88	21	118,531	12.16
2003	88	21	177,313	10.11
2004	88	21	179,185	9.62
2005	82	19	163,746	11.43
2006	84	22	156,379	10.18
2007	83	23	143,271	12.24
2008	81	24	124,789	9.23
2009	78	29	115,349	8.80
2010	81	24	236,943	12.52

Year	Total Number of Routes	Mean Number Observed	Raccoon Harvest	Average Pelt Price ($)
2011	85	29	326,368	10.86
2012	89	34	273,339	13.60
2013	99	34	308,025	15.85
2014	99	38	200,509	10.66
2015	99	36	89,061	4.53
2016	99	37	82,126	4.76
2017	99	37		
Average				
5-Year	97	36	190,612	10
10-Year	89	31	189,978	10
20-Year	88	31	164,525	10
Overall	85	21	189,235	12

Table 3.8 Otter harvest seasons and harvest data in Iowa (2007-Present).

Season	Harvest Season					Male Harvest	Female Harvest	Unknown Sex Harvest	Total Harvest[2]	Quota
	No. of Counties[1]	Open Date	Close Date	Season Length	Average Catch Rate per Day					
2006[a,b,d]	Statewide	Nov 4	Nov 17	14	33	197	191	80	468	400
2007[b,e]	Statewide	Nov 3	Nov 25	23	18	192	185	42	419	400
2008[b,e]	Statewide	Nov 1	Nov 27	25	19	222	218	40	480	500
2009[b,e]	Statewide	Nov 7	Dec 4	28	18	225	240	49	514	500
2010[b,e]	Statewide	Nov 6	Nov 24	19	24	200	206	51	457	500
2011[c,e]	Statewide	Nov 5	Nov 23	19	41	360	335	75	770	650
2012[c,e]	Statewide	Nov 3	Nov 25	23	42	446	460	67	973	850
2013[b]	Statewide	Nov 2	Jan 31	91	13	559	484	122	1165	none
2014[b]	Statewide	Nov 1	Jan 31	92	9	409	345	81	835	none
2015[b]	Statewide	Nov 7	Jan 31	86	8	343	279	70	692	none
2016	Statewide	Nov 5	Jan 31	88	6	291	228	37	556	none
					Total	3444	3171	714	7329	

*Harvest data excludes known road-killed otters.

[a]First regulated otter harvest season in Iowa.

[b]Season bag limit of two per licensed furharvester.

[c]Season bag limit of three per licensed furharvester.

[d]Harvest data includes animals harvested during a 72-hour grace period following season closure.

[e]Harvest data includes animals harvested during a 48-hour grace period following season closure.

[1]Statewide includes 99 Iowa counties.

[2]Data includes harvest from unknown sources; may include road-killed animals. Source of collection was not specified in some harvest reports.

Table 3.9 Otter harvest methods by season in Iowa (2006-Present).

Season	Harvest Method						Total Harvest	Harvest Quota
	Conibear	Foothold	Live Trap	Snare	Other[1]	Unknown[1]		
2006[a,b]	160	254	0	26	4	22	468	400
2007[c]	141	231	3	40	0	1	419	400
2008[c]	174	239	0	49	0	17	480	500
2009[c]	197	249	2	52	0	8	514	500
2010[c]	196	198	0	39	0	23	457	500
2011[c]	305	340	1	96	0	28	770	650
2012[c]	371	470	5	116	2	7	973	850
2013	549	471	1	119	6	19	1165	none
2014	422	308	2	79	12	12	835	none
2015	358	228	1	74	18	13	692	none
2016	288	183	3	58	3	11	546	none
Total	3161	3171	18	748	45	161	7304	

[a]First regulated otter harvest season in Iowa

[b]Harvest data includes animals harvested during a 72-hour grace period following season closure.

[c]Harvest data includes animals harvested during a 48-hour grace period following season closure.

[1]Data may include road-killed animals. Source of collection was not specified in some harvest reports.

Table 3.10 Bobcat harvest seasons and harvest data in Iowa (2007-Present).

Season	Harvest Season					Male Harvest	Female Harvest	Unknown Sex Harvest	Total Harvest[2]	Quota
	No. of Counties[1]	Open Date	Close Date	Season Length	Average Catch Rate per Day					
2007[a]	21	3-Nov	21-Nov	19	8	69	71	14	154	150
2008	25	1-Nov	21-Nov	21	11	103	117	14	234	200
2009	25	7-Nov	30-Nov	24	9	107	107	21	235	200
2010	35	6-Nov	23-Nov	18	15	100	140	34	274	250
2011	35	5-Nov	29-Nov	25	16	162	209	27	398	350
2012	35	3-Nov	1-Dec	29	18	233	263	32	528	450
2013	41	2-Nov	31-Jan	91	11	436	484	58	978	None
2014	41	1-Nov	31-Jan	92	8	315	356	35	706	None
2015	41	7-Nov	31-Jan	86	6	228	274	33	535	None
2016	41	5-Nov	31-Jan	88	7	253	303	35	591	None
					Total	2006	2324	303	4633	

*Season bag limit of one per licensed furharvester (2007-present).

*Harvest data includes animals harvested during a 48-hour grace period following season closure.

*Harvest data excludes known road-killed bobcats.

[a]First regulated bobcat harvest season in Iowa.

Table 3.11 Bobcat harvest methods by season in Iowa (2007-Present).

Season	Harvest Method											Total Harvest	Harvest Quota
	Conibear	Foothold	Live Trap	Snare	Archery	Gun	Calling	Hounds	Roadkill	Other	Unknown		
2007[a]	37	26	0	40	20	4		6	5		16	154	150
2008	72	35	3	85	23	3		7	2		4	234	200
2009	56	35	0	82	24	7		4	14		13	235	200
2010	58	50	1	92	38	6		4	6		19	274	250
2011	114	85	3	122	32	5		6	7		24	398	350
2012	107	143	7	167	47	16	15	7	15		4	528	450
2013	223	231	7	328	51	37	51	5	30	10	5	978	none
2014	124	217	7	174	45	44	31	14	27	4	19	706	none
2015	63	157	9	89	51	33	64	8	38	19	4	535	none
2016	88	181	5	91	56	39	74	5	34	11	7	591	none
Total	942	1160	42	1270	387	194	235	66	178	44	115	4633	

*Harvest data includes animals harvested during a 48-hour grace period following season closure.
[a]First regulated bobcat harvest season in Iowa

WATERFOWL MANAGEMENT, SEASONS, AND HARVESTS IN IOWA

Duck Breeding Populations

Breeding population estimates are made each year for 10 key species of ducks in the principal breeding areas of Alaska, Canada, and the northcentral United States (Table 4.1, Figure 4.1). Surveys are conducted in May and early June by the U.S. Fish and Wildlife Service (USFWS), Canadian Wildlife Service, and provincial and state conservation agencies. Ducks are counted from fixed-wing aircraft on the same transects each year. Estimates of ducks and ponds seen from the air are corrected for visibility bias by conducting ground counts on a sample of transects. The estimates in Table 4.1 are not the entire continental breeding populations of ducks; a portion of each population (potentially 25% for mallards) nests outside the surveyed areas.

Although numbers of breeding ducks have fluctuated substantially from year to year, trend analysis suggests that total duck numbers are at all-time highs. This positive trend, however, is the result of increasing numbers of some species (e.g., mallards and blue-winged teal) and decreasing numbers of others (e.g., pintails and scaup). Despite the improvements in duck numbers in the 1990's, there are still concerns about the long-term loss of both wetland and upland habitat in the prairie pothole region and the long-term outlook for duck populations in the future.

Duck populations have fluctuated substantially over time. The drought of the 1980's pushed many populations to near record low levels. The resiliency of these birds, however, was dramatically illustrated when most populations rebounded after water returned to the prairies in the 1990's. Pintails and scaup were exceptions to this rule; pintails because drought continued to plague their primary nesting areas in Alberta and scaup for reasons apparently related to nutritional deficiencies on migration habitats. Duck populations will continue to fluctuate in the future as the numbers of wetlands on the landscape in north-central North America rise and fall with changes in the weather

Giant Canada Goose Population

Giant Canada geese nested throughout Iowa prior to European settlement, but were extirpated from most of the Midwest, including Iowa, by 1900. The giant Canada goose restoration program initiated by the Iowa Conservation Commission in 1964, the forerunner to the Iowa Dept. of Natural Resources (DNR), has successfully restored this species to most of its former nesting range in Iowa (see Giant Canada Goose Restoration). The giant Canada goose population in Iowa exhibited steady growth during 1965-2010, declined in 2013, but appears to have recovered since (Figure 4.2). Each summer, biologists and technicians estimate the numbers of adult Canada geese and goslings in their wildlife units. To obtain a statistically valid estimate of this population, an aerial survey is also conducted each spring. The results of an aerial survey conducted during April 2017 indicated the population was 106,611 (±24,110353) (±95% Conf. Limit). It should be noted that 2017 was the first year that a revised aerial survey was implemented using a new predictive model. Therefore, results may not be directly comparable to previous time series. Prior to 2005, the population estimates made by wildlife biologists were nearly identical to the population estimates obtained from the aerial surveys. This indicates that the biologists' estimates accurately represented the growth rate and size of this population for most of the 20th century.

Waterfowl Harvests

Waterfowl harvests and hunter activity in Iowa are estimated annually by the USFWS (Table 4.2). Harvest estimates are calculated by combining the results of 2 surveys: 1) a survey of randomly selected hunters from the Harvest Information Program (HIP), which is used to calculate the total number of waterfowl killed, and 2) a survey that solicits duck wings and goose tails, which is used to estimate the species composition of the harvest. Due to staffing vacancies and changes in the timing of the regulatory schedule the USFWS had not released the 2016 harvest estimates at the time of submission.

Iowa's duck harvests have fluctuated substantially since 1961. The lowest harvests of all ducks and mallards occurred in the early 1960's, years with low duck populations and restrictive hunting regulations. The highest duck harvest was in 1979, a year with good duck numbers and, perhaps more importantly, excellent habitat conditions in Iowa due to above normal rainfall in August and September. Duck harvests began to decline in 1985, bottoming out in 1988 and 1989. Reasons for reduced harvests included smaller breeding populations and fall flights, shorter seasons, reduced bag limits,

fewer hunters, and poor local habitat conditions. Duck harvests have increased in recent years as a result of improvements in duck numbers, liberal hunting regulations, and increases in numbers of active hunters.

Iowa's Canada goose harvest was relatively constant during 1967-85, but began to increase in 1986 as a result of increasing numbers of local giant Canada geese (Table 4.2). Canada goose harvests increased substantially after 1988, but were dampened in 1993 when restrictive Canada goose hunting regulations were implemented to reduce the harvest of Eastern Prairie Population (EPP) Canada geese. EPP geese nest on the west coast of Hudson Bay and are one of the two principle migrant Canada goose populations that fly through Iowa (the other consists of small Canada geese, commonly called "cacklers" or "hutchies," that nest on Baffin Island in the Arctic). The floods of 1993 may have also contributed to the decrease in the Canada goose harvest that year. Canada goose harvests resumed their increasing trend in the mid 1990's, and peaked at 78,600 in 2005. The apparent drop in harvest in 1998 and 1999 may be an artifact of how the estimates were calculated rather than an actual change in harvest. At that time, the USFWS was converting from the old waterfowl stamp survey methodology to the new Harvest Information Program (HIP) survey. Harvest numbers from 1999 to the present are HIP estimates. Despite the Canada goose season being lengthened from 70 to 90 days in 2006 and to 98 days in 2010, Canada goose harvests have not increased in recent years. The smaller harvests in recent years likely reflect poor goose production in Iowa in those years. However, 2015 was the first year where Iowa's estimated Canada goose harvest was higher than the estimated mallard harvest.

The snow goose harvest in Iowa has declined since the early 1970's, despite record high numbers of snow geese in the Flyway in the 1990's and 2000's. Declining harvests resulted from shifting snow goose migration patterns, later migrations, increased use of refuges, and large numbers of older geese in the population. By the mid 1990's, the mid-continent light goose population was severely damaging Arctic breeding habitats. To increase harvests of light geese, more liberal hunting regulations were implemented (liberal bag limits, 107-day seasons) and a conservation order was implemented in 1999 to permit taking light geese after March 10 and to allow for hunting beyond the 107-day limit imposed by the Migratory Bird Treaty with Canada and Mexico. The harvest during the conservation order period in Iowa has ranged from 8,200 to 32,000 during 1999-2015. During the 1998-2011 regular light goose seasons, the harvest ranged from 0 to 15,000.

Waterfowl Seasons

Iowa waterfowl hunters have experienced a wide range of duck and goose seasons since the USFWS began regulating waterfowl hunting in 1918 (Table 4.3 and Table 4.4). Nearly every conceivable season-date combination has been tried in the past 90 years. Duck hunting regulations are inherently complex because they involve many species. The general lack of consistency in regulations, however, has made interpretation of the effects of these regulations on duck harvests very difficult. Goose hunting regulations, on the other hand, have been less complex and more consistent. The relative secure goose breeding habitat, along with consistently conservative seasons and bag limits, have enabled goose populations to prosper. The growing giant Canada goose population, however, has complicated traditional Canada goose harvest management. It is particularly challenging to develop hunting regulations that will increase harvests of local giant Canada geese while limiting harvests of migrant geese from Arctic and sub-Arctic regions.

In 2016 Iowa held a 9 day Special September Teal season in the North and South zones (September 3-11) and a 16 day Special September Teal season in the Missouri River zone (September 3-18). This was the third year of what is intended to be a three year experimental season, with a fourth experimental season (2017) to allow for the regulation setting timeline to conclude. Estimates of teal harvest during the first two experimental seasons of were substantial (2014 = 48,870, 2015 = 33,733), however Iowa's entire season duck harvest did not appear to increase.

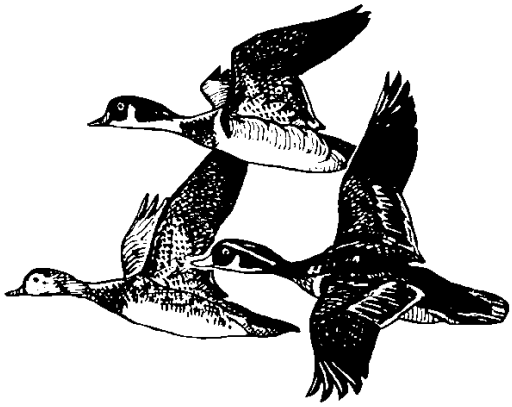
Waterfowl Banding

Ducks and geese are captured and banded with leg bands to obtain information on survival rates, hunting mortality, migration patterns and timing, and the relationships of harvest areas to production areas. Banding is conducted at the request of the USFWS and the Mississippi Flyway Council (MFC). Both state and federal personnel band ducks in Iowa, but DNR personnel band all the Canada geese and more than 95% of the wood ducks (Table 4.5). Nearly 300,000 ducks and geese have been banded by DNR personnel since 1964.

The USFWS, in concert with the MFC, determines banding priorities. In the 1960's emphasis was placed on banding blue-

winged teal to evaluate special teal seasons. Winter mallard banding was conducted in the 1970's to supplement breeding grounds bandings and examine hen mortality during spring and summer. Wood duck bandings were used to evaluate Iowa's September duck seasons. Wood duck bandings are also important to measure the effects of hunting on wood duck populations, an aspect that has been particularly important since 2008 when the wood duck bag limit was increased from 2 to 3 birds per day. The DNR has consistently cooperated with USFWS and MFC banding programs and has one of the top wood duck banding programs in the nation, accounting for 10% of all wood ducks banded in North America in the last 10 years.

Canada goose banding has increased with the growth of the local Canada goose population in Iowa. Migrant Canada geese have also been banded as part of cooperative projects with the MFC. Canada goose banding will be increasingly important as the USFWS attempts to assess the impacts of special harvest regulations on resident Canada goose populations, which have been increasing, and migrant Canada goose populations, which have been stable or decreasing.



Figures

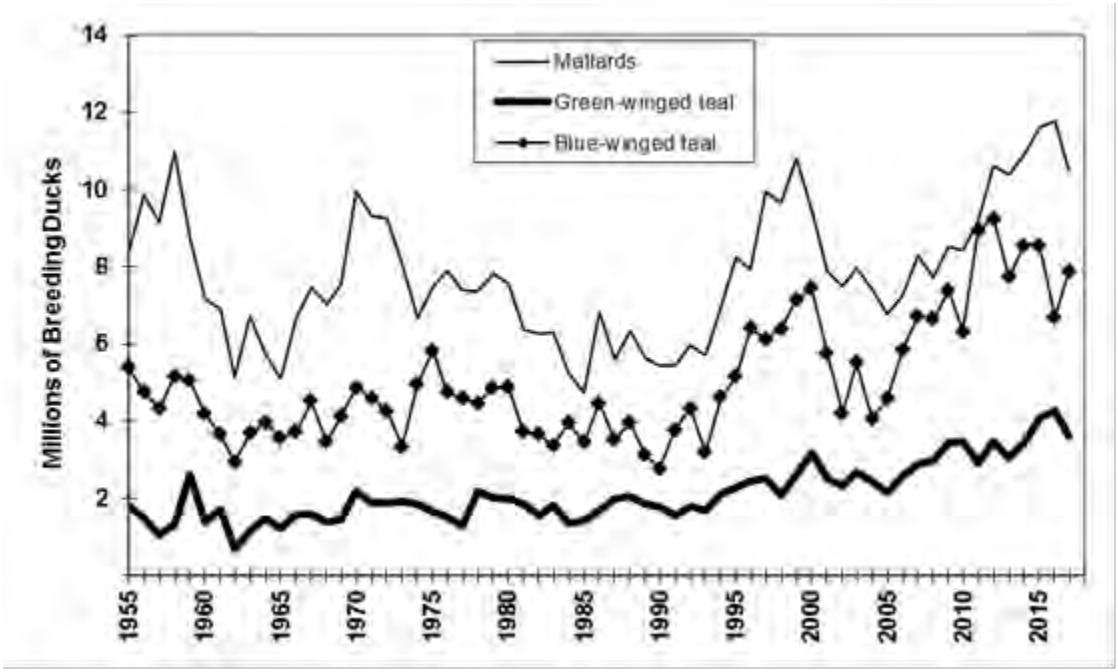


Figure 4.1 Breeding populations of ducks important to Iowa. (Source: USFWS)

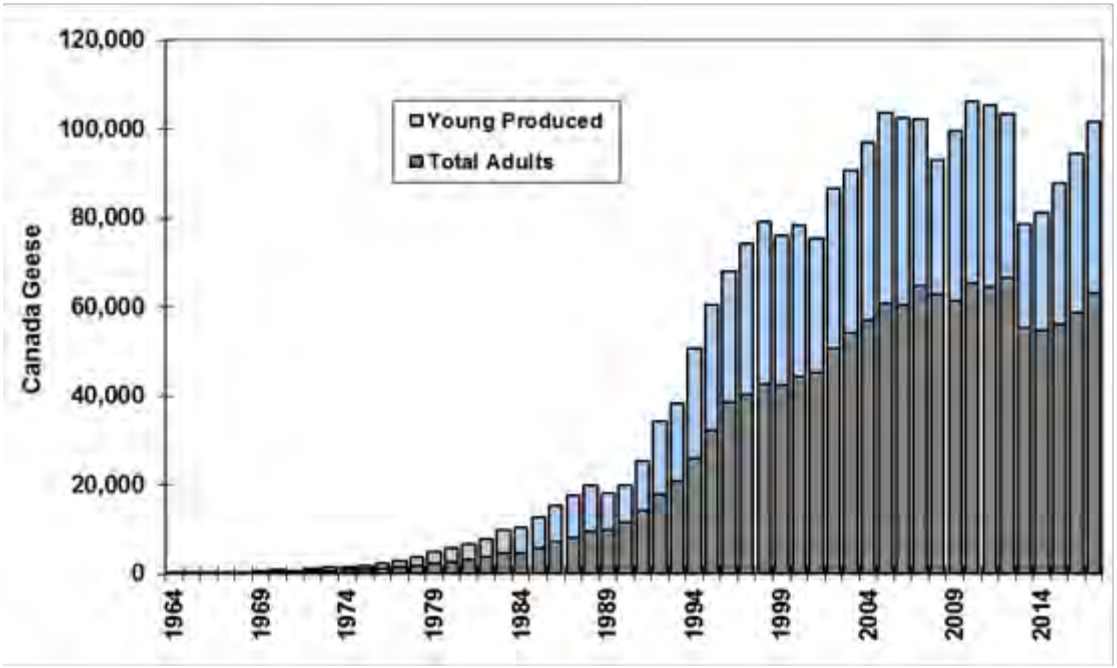


Figure 4.2 Iowa's giant Canada goose population. (Source: Iowa DNR)

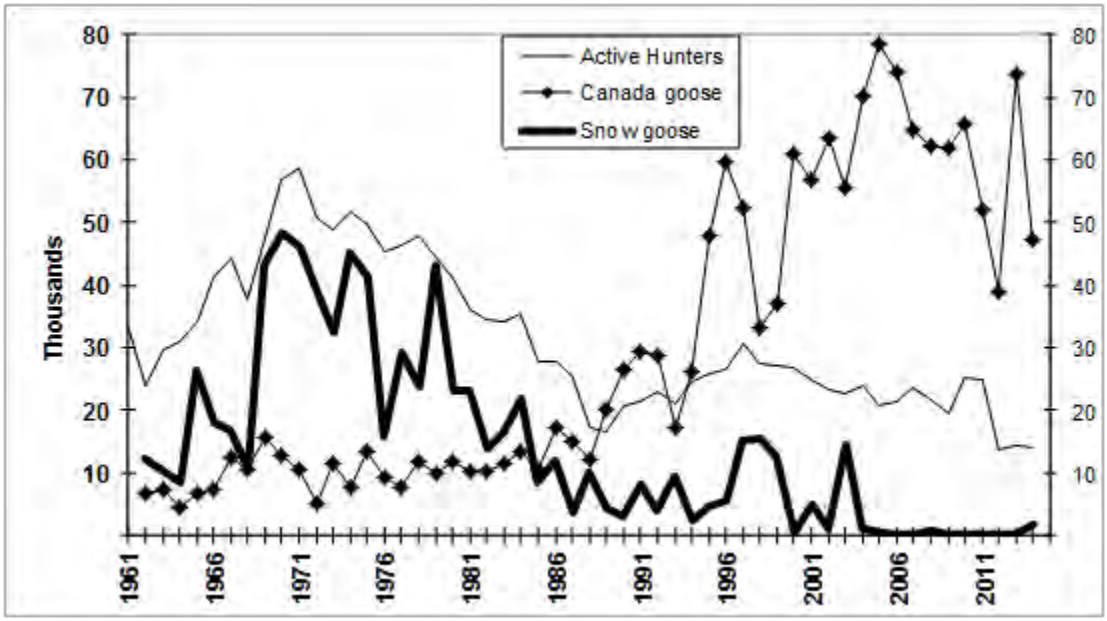


Figure 4.3 Goose harvests and active hunters in Iowa (1961 - 2014). (Source: USFWS)

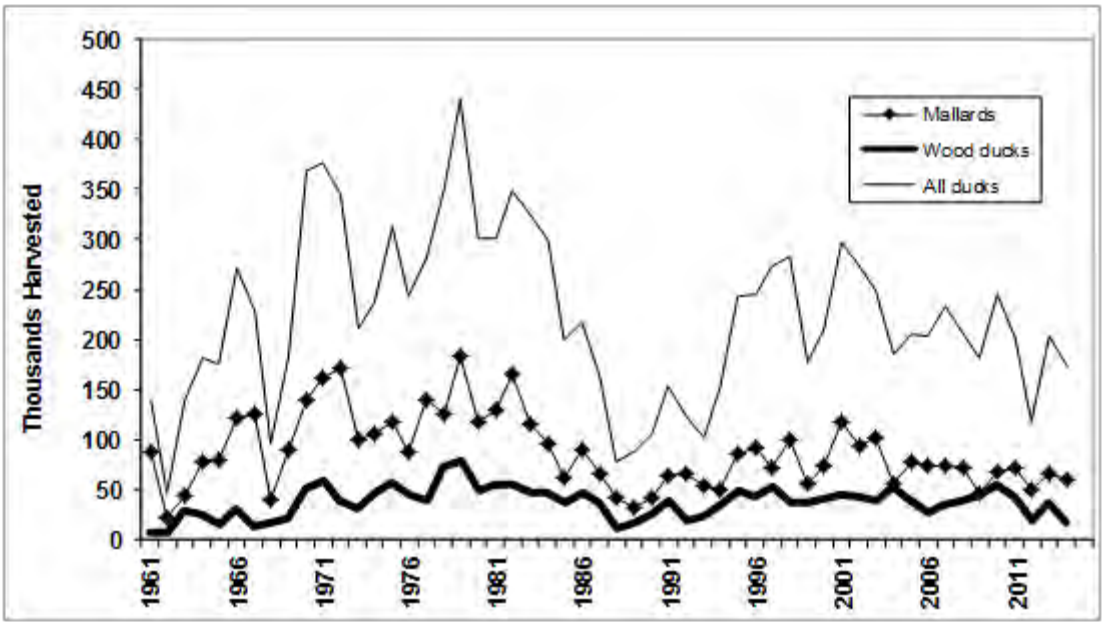


Figure 4.4 Duck harvests in Iowa (1961 - 2014). (Source: USFWS)

Tables

Table 4.1 Breeding population estimates for 10 species of ducks (in thousands) in the USFWS's traditional survey region in North America. (Source: USFWS)

Year	Mallard	Gadwall	American Wigeon	Green Winged Teal	Blue Winged Teal	Northern Shoveler	Northern Pintail	Red-Head	Canvas Back	Scaup
1955	8,356	663	3,067	1,823	5,381	1,571	9,387	572	599	5,609
1956	9,842	783	3,118	1,480	4,763	1,630	9,897	755	696	5,734
1957	9,151	691	2,852	1,053	4,312	1,459	6,311	542	615	5,745
1958	10,994	454	2,421	1,326	5,165	1,187	5,552	443	742	5,286
1959	8,746	527	3,703	2,601	5,046	1,456	5,483	493	481	6,961
1960	7,164	721	2,937	1,390	4,185	1,743	5,414	495	600	4,826
1961	6,912	594	2,817	1,709	3,655	1,256	3,676	319	428	5,335
1962	5,139	846	1,882	700	2,940	1,183	3,395	503	354	5,240
1963	6,723	1,092	1,706	1,155	3,681	1,278	3,622	413	499	5,396
1964	5,740	825	2,495	1,505	3,961	1,608	3,013	527	649	5,058
1965	5,101	1,270	2,312	1,237	3,570	1,372	3,549	599	520	4,652
1966	6,680	1,672	2,282	1,580	3,718	2,103	4,764	713	658	4,432
1967	7,470	1,385	2,320	1,588	4,509	2,291	5,270	734	500	4,932
1968	7,019	1,947	2,282	1,405	3,459	1,646	3,470	493	561	4,360
1969	7,536	1,573	2,919	1,468	4,133	2,145	5,900	633	501	5,131
1970	9,960	1,606	3,447	2,171	4,858	2,220	6,369	624	578	5,634
1971	9,306	1,603	3,281	1,881	4,607	2,005	5,874	534	444	5,063
1972	9,255	1,621	3,172	1,895	4,277	2,441	7,018	551	426	7,932
1973	8,060	1,247	2,864	1,936	3,334	1,624	4,351	498	617	6,222
1974	6,681	1,592	2,665	1,840	4,968	2,006	6,583	627	504	5,720
1975	7,494	1,641	2,692	1,667	5,829	1,962	5,878	829	591	6,427
1976	7,894	1,245	2,476	1,536	4,747	1,756	5,475	668	610	5,779
1977	7,396	1,312	2,560	1,291	4,589	1,475	3,935	637	667	6,247
1978	7,353	1,561	3,286	2,194	4,471	1,978	5,106	738	369	5,936
1979	7,816	1,751	3,087	2,019	4,861	2,386	5,382	695	573	7,540
1980	7,570	1,391	3,558	1,994	4,884	1,902	4,514	753	727	6,314
1981	6,367	1,402	2,924	1,851	3,726	2,325	3,472	596	610	5,918
1982	6,254	1,637	2,440	1,543	3,657	2,141	3,709	617	510	5,468
1983	6,313	1,517	2,606	1,836	3,366	1,870	3,506	709	523	7,136
1984	5,247	1,532	2,987	1,361	3,956	1,620	2,969	673	520	6,909
1985	4,754	1,304	2,040	1,435	3,459	1,697	2,511	579	373	5,038
1986	6,836	1,540	1,732	1,682	4,463	2,118	2,737	560	437	5,204
1987	5,613	1,311	1,982	2,003	3,518	1,951	2,629	502	451	4,837
1988	6,331	1,349	2,194	2,058	3,975	1,680	2,011	441	436	4,684
1989	5,650	1,416	1,974	1,843	3,128	1,540	2,113	511	478	4,344
1990	5,452	1,672	1,860	1,790	2,776	1,759	2,257	481	539	4,294
1991	5,444	1,584	2,254	1,558	3,764	1,716	1,803	446	491	5,255
1992	5,976	2,033	2,208	1,773	4,333	1,954	2,098	596	482	4,639
1993	5,708	1,755	2,053	1,695	3,193	2,047	2,053	485	472	4,080
1994	6,980	2,318	2,382	2,108	4,616	2,912	2,972	654	526	4,529
1995	8,269	2,836	2,615	2,301	5,140	2,855	2,758	889	771	4,446
1996	7,941	2,984	2,273	2,459	6,416	3,449	2,736	834	849	4,250
1997	9,940	3,897	3,118	2,507	6,124	4,120	3,558	918	689	4,112
1998	9,640	3,742	2,858	2,087	6,399	3,183	2,521	1,005	686	3,472
1999	10,806	3,236	2,920	2,631	7,150	3,890	3,058	973	716	4,412
2000	9,470	3,158	2,733	3,194	7,431	3,521	2,908	926	707	4,026

Year	Mallard	Gadwall	American Wigeon	Green Winged Teal	Blue Winged Teal	Northern Shoveler	Northern Pintail	Red-Head	Canvas Back	Scaup
2001	7,904	2,679	2,494	2,509	5,757	3,314	3,296	712	580	3,694
2002	7,504	2,235	2,334	2,334	4,207	2,138	1,790	565	487	3,524
2003	7,950	2,549	2,551	2,679	5,518	3,620	2,558	637	558	3,734
2004	7,425	2,590	1,981	2,461	4,073	2,810	2,185	605	617	3,807
2005	6,755	2,179	2,225	2,157	4,586	3,592	2,561	592	521	3,387
2006	7,277	2,825	2,171	2,587	5,860	3,680	3,386	916	691	3,247
2007	8,307	3,356	2,807	2,890	6,708	4,553	3,335	1,009	865	3,452
2008	7,724	2,728	2,487	2,980	6,640	3,508	2,613	1,056	489	3,738
2009	8,512	3,054	2,469	3,444	7,384	4,376	3,225	1,044	662	4,172
2010	8,430	2,977	2,425	3,476	6,329	4,057	3,509	1,064	585	4,244
2011	9,183	3,257	2,084	2,900	8,949	4,641	4,429	1,356	692	4,319
2012	10,602	3,586	2,145	3,471	9,242	5,018	3,473	1,270	760	5,239
2013	10,372	3,351	2,644	3,053	7,732	4,751	3,335	1,202	787	4,166
2014	10,900	3,811	3,117	3,440	8,542	5,279	3,220	1,279	685	4,611
2015	11,600	3,834	3,037	4,080	8,547	4,391	3,043	1,195	757	4,395
2016	11,793	3,712	3,411	4,275	6,689	3,967	2,618	1,289	736	4,992
2017	10,488	4,180	2,777	3,605	7,888	4,353	2,889	1,115	732	4,371
Percent Change in 2017 from:										
2016	-11%	13%	-19%	-16%	18%	10%	10%	-13%	-1%	-12%
1955-2016 Average	35%	111%	7%	71%	57%	71%	-26%	55%	25%	-12%
1955-16 Statistics										
Average	7,827	2,012	2,595	2,135	5,066	2,573	3,889	725	587	4,979
Maximum	11,793	4,180	3,703	4,275	9,242	5,279	9,897	1,356	865	7,932
Minimum	4,754	454	1,706	700	2,776	1,183	1,790	319	354	3,247
NAWMP-Goals	8,700	1,600	3,300	2,300	5,300	2,100	6,300	760	580	7,600
Percent Difference from Goal										
2017	21%	161%	-16%	57%	49%	107%	-54%	47%	26%	-42%

Table 4.2 Waterfowl harvest and hunter activity estimates for Iowa. Source is USFWS.
Data for 2001 to the present are based on the Harvest Information Program.

Year	Days & Harvest (1,000's)								Federal Duck Stamp	Avg Seasonal Duck Bag	Active Adult Hunters
	Mallard	Wood Duck	B-W Teal	G-W Teal	All Ducks	Canada Geese	Snow Geese	Days Hunted			
1961	88.5	6.8	0.5	16.3	139.4			230.4	41,147	3.9	33,500
1962	21.3	7.8	0.4	5.6	45.1	6.6	12.2	162.0	30,602	2.1	24,000
1963	43.0	29.0	27.9	14.9	139.2	7.2	10.4	228.2	37,166	4.7	29,700
1964	76.6	24.5	17.9	26.8	182.1	4.3	8.5	236.9	37,668	6.2	30,900
1965	79.8	15.4	43.8	22.3	174.6	6.6	26.3	271.6	39,941	6.0	34,000
1966	121.3	30.8	47.3	40.7	270.2	7.2	17.9	361.2	47,438	7.4	41,300
1967	124.9	12.4	43.3	38.4	229.4	12.4	16.8	394.6	52,269	6.6	44,300
1968	40.4	16.1	0.9	19.7	96.3	10.6	10.8	270.0	45,753	2.6	37,500

Year	Days & Harvest (1,000's)								Federal Duck Stamp	Avg Seasonal Duck Bag	Active Adult Hunters
	Mallard	Wood Duck	B-W Teal	G-W Teal	All Ducks	Canada Geese	Snow Geese	Days Hunted			
1969	89.9	21.1	53.3	22.3	183.7	15.5	43.2	397.3	54,807	5.1	47,500
1970	139.2	50.6	51.6	45.2	368.7	12.6	48.3	496.6	65,822	6.0	56,900
1971	160.9	59.3	49.6	26.6	376.2	10.4	46.1	536.5	68,401	6.3	58,700
1972	171.8	39.3	31.2	23.9	344.5	5.0	39.3	513.8	57,907	6.4	50,800
1973	99.9	31.0	18.5	18.1	211.9	11.6	32.5	401.1	57,196	3.9	48,700
1974	106.1	46.7	26.0	24.0	238.0	7.7	45.1	450.6	60,446	4.3	51,600
1975	117.4	57.5	51.0	38.6	313.6	13.5	41.2	446.1	58,791	5.9	49,700
1976	87.5	44.0	33.0	27.5	242.2	9.3	15.8	359.6	55,449	5.0	45,400
1977	138.7	37.9	17.0	38.7	280.0	7.8	29.1	407.3	57,143	5.3	46,200
1978	125.6	73.6	41.1	41.7	351.4	11.9	23.9	424.9	56,259	6.7	47,800
1979	183.3	77.8	69.2	38.0	441.0	10.0	43.2	496.7	49,845	9.5	44,400
1980	118.1	49.1	39.0	37.3	299.9	11.7	23.1	384.6	47,008	6.6	41,100
1981	130.2	54.3	34.6	27.7	301.1	10.2	23.1	371.5	41,648	7.9	35,900
1982	164.9	55.3	58.2	24.3	348.8	10.2	14.0	354.9	40,599	9.6	34,400
1983	115.2	47.3	74.0	27.8	324.2	11.5	16.5	310.4	40,381	8.5	34,000
1984	96.3	46.3	56.8	36.2	299.5	13.3	22.0	300.3	41,078	7.5	35,300
1985	62.0	37.4	41.5	22.6	199.8	10.4	8.5	241.4	33,304	6.8	27,900
1986	88.9	46.0	26.9	18.3	217.0	17.2	11.8	244.0	33,504	7.3	27,900
1987	64.8	36.1	14.2	20.1	161.1	15.1	3.6	207.0	30,248	6.0	25,500
1988	41.6	11.4	1.4	12.5	78.3	12.1	10.1	131.8	22,008	4.3	17,300
1989	32.2	17.0	2.9	17.9	87.8	20.2	4.4	127.5	21,686	4.7	16,600
1990	41.3	25.6	4.6	17.8	105.8	26.6	3.1	159.3	24,686	4.9	20,800
1991	63.1	39.4	6.6	13.3	154.2	29.3	8.1	196.7	24,989	6.8	21,400
1992	64.9	18.8	2.9	14.3	122.8	28.7	4.1	198.6	26,744	5.1	22,800
1993	52.7	22.2	4.1	7.9	100.9	17.3	9.5	176.5	25,640	4.7	21,092
1994	49.1	34.9	17.5	22.5	151.8	26.1	2.4	232.6	29,206	6.0	24,523
1995	86.1	49.2	38.9	23.7	242.3	48.0	4.6	280.2	30,282	8.2	25,792
1996	90.6	42.5	36.2	31.0	244.7	59.5	5.4	284.2	30,945	7.9	26,338
1997	71.2	52.1	54.5	32.7	272.0	52.2	15.2	338.3	36,062	8.3	30,737
1998	99.6	36.0	47.7	41.9	281.9	33.2	15.6	292.8	30,864	9.9	27,454
1999	55.9	35.8	41.9	17.4	176.7	33.0	12.5	271.9	32,419	7.2	27,024
2000	74.2	39.9	25.3	25.4	209.6	61.0	0.6	288.4	30,951	8.2	26,693
2001	117.2	45.5	49.3	29.7	296.4	58.1	5.2	203.5	32,090	11.9	25,000
2002	97.2	44.5	50.6	43.0	287.2	67.1	1.1	185.7	30,806	12.3	23,300
2003	101.7	38.6	30.1	29.4	248.9	55.5	14.4	187.1	30,206	11.0	22,500
2004	54.7	52.9	28.5	16.8	184.5	70.3	1.0	203.0	28,649	9.0	23,900
2005	77.9	38.1	39.0	21.2	205.2	78.6	0.6	128.9	26,943	11.8	20,800
2006	73.2	26.7	27.8	31.9	203.3	73.9	0.2	129.9	29,380	11.3	21,300
2007	72.7	34.2	40.3	39.5	232.8	64.6	0.3	151.4	26,531	11.4	23,700
2008	72.3	38.3	15.0	31.3	206.1	62.2	0.8	135.8	26,354	10.9	21,700
2009	45.3	45.1	35.5	22.5	181.5	62.0	0.0	130.3	Not avail.	10.3	19,500
2010	68.3	55.5	46.8	20.3	245.5	65.8	0.2	149.1	Not avail.	11.1	25,200

Year	Days & Harvest (1,000's)								Federal Duck Stamp	Avg Seasonal Duck Bag	Active Adult Hunters
	Mallard	Wood Duck	B-W Teal	G-W Teal	All Ducks	Canada Geese	Snow Geese	Days Hunted			
2011	72.0	43.3	23.4	19.7	201.8	52.0	0.1	136.2	Not avail.	10.8	24,900
2012	50.0	18.2	14.8	13.0	117.7	38.9	0.0	69.7	Not avail.	9.4	13,800
2013	66.6	35.9	42.7	19.3	202.3	73.7	0.0	128.5	Not avail.	14.1	14,400
2014	60.0	16.1	56.6	17.5	174.1	47.3	1.6	96.6	Not avail.	12.5	13,900
2015	48.8	29.9	47.1	16.1	167.8	53.6	0.0	119.8	NA	11.5	14,555
2016	51.3	11.6	18.3	23.2	138.6	56.9	1.2	105.4	NA	10.3	13,500
Percent Change in 2015 From:											
2014	-19%	86%	-17%	-8%	-4%	13%		24%		-8%	5%
1961-2016 Average	-45%	-25%	41%	-38%	-27%	63%	-100%	-55%		46%	-53%
1961-15 Statistics											
Average	87.5	39.9	33.7	25.6	228.8	33.3	13.8	265.6	38854.4	8.0	30504.3
Maximum	183.3	77.8	74.0	45.2	441.0	78.6	48.3	536.5	68401.0	14.1	58700.0
Minimum	32.2	11.4	0.9	7.9	78.3	5.0	0.0	69.7	21686.0	2.6	13800.0
10-yr avg											
1961-70	82.5	21.5	28.7	25.2	182.9	9.2	21.6	304.9	45261.3	5.0	37960.0
1971-80	133.0	51.8	38.8	32.2	316.8	10.0	36.5	453.3	58725.9	5.9	50020.0
1981-90	83.7	37.7	31.5	22.5	212.3	14.7	11.7	244.8	32914.2	6.8	27560.0
1991-00	67.5	35.7	25.5	22.2	185.3	35.4	8.0	243.1	29183.7	6.9	24796.0
2001-10	78.0	41.9	36.3	28.6	229.1	65.8	2.4	160.5	28869.8	11.1	22690.0

Table 4.3 Duck and coot seasons in Iowa.

Year	Season Length	Season Dates	Shooting Hours	Limits		Additional Bag Limit Information
				Duck Bag/Poss	Coot Bag/Poss	
		Statewide				
1917	227	Sep 1-Apr 15	Unknown	?	?	
1918	107	Sep 16-Dec 31	SR-SS	25/none	25/none	
1919	107	Sep 16-Dec 31	SR-SS	25/none	25/none	
1920	107	Sep 16-Dec 31	SR-SS	25/none	25/none	
1921	107	Sep 16-Dec 31	SR-SS	25/none	25/none	
1922	107	Sep 16-Dec 31	SR-SS	25/none	25/none	
1923	107	Sep 16-Dec 31	SR-SS	25/none	25/none	
1924	107	Sep 16-Dec 31	½ SR-SS	15/50 WF	25/none	WF = all waterfowl combined
1925	107	Sep 16-Dec 31	½ SR-SS	15/50 WF	25/none	
1926	107	Sep 16-Dec 31	½ SR-SS	15/50 WF	25/none	
1927	107	Sep 16-Dec 31	½ SR-SS	15/50 WF	25/none	
1928	107	Sep 16-Dec 31	½ SR-SS	15/50 WF	25/none	
1929	107	Sep 16-Dec 31	½ SR-SS	15/21 DC	25/none	DC = all ducks combined
1930	107	Sep 16-Dec 31	½ SR-SS	15/21 DC	25/none	
1931	30	Oct 20-Nov 19	½ SR-SS	15/21 DC	25/none	
1932	61	Oct 1-Nov 30	½ SR-SS	15/21*[a]	25/none	*[a]Closed season on Wd, Ru, & Bu.
1933	61	Oct 1-Nov 30	½ SR-SS	12/24*[a]	25/none	
1934	30	Oct 10-Nov 18	SR-SS	12/24*[a]	25/none	Live decoys limited to 25. Season included 10 rest days.
1935	30	Oct 21-Nov 19	7am-4pm	10/10*[a]	15/15	Use of live decoys prohibited.
1936	30	Nov 1-Nov 30	7am-4pm	10/10*[b]	15/15	*[b]Closed sea. on Wd, Cb, Rh, Ru, & Bu.
1937	30	Oct 9-Nov 7	7am-4pm	10/10*[b]	25/25	
1938	45	Oct 15-Nov 28	7am-4pm	10/20*[c]	25/25	*[c]Only 1 Bu, 1 Cb, 1 Ru, and 1 Rh, & no more than 3 in aggregate
1939	45	Oct 22-Dec 5	7am-4pm	10/20*[c]	25/25	
1940	60	Oct 16-Dec 14	SR-4pm	10/20*[c]	25/25	
1941	60	Oct 16-Dec 14	SR-4pm	10/20*[d]	25/25	*[d]Only 3 Rh or 3 Bu or 3 in aggregate & only 1 Wd in poss at any time.
1942	70	Oct 15-Dec 23	SR-SS	10/20*[d]	25/25	

Year	Season Length	Season Dates	Shooting Hours	Limits		Additional Bag Limit Information
				Duck Bag/Poss	Coot Bag/Poss	
1943	70	Sep 25-Dec 3	½ SR-SS	10/20*[d]	25/25	
1944	80	Sep 20-Dec 8	½ SR-SS	10/20*[e]	25/25	*[e]Only 5 each or in comb.: Ma, Pt, or Wg & only 1 Wd. 25 Am or Rm or comb.
1945	80	Sep 20-Dec 8	½ SR-SS	10/20*[f]	25/25	*[f]Only 1 Wd in poss. at any time 25 Cm or Rm or comb.
1946	45	Oct 26-Dec 9	½ SR-½ SS	7/14*[f]	25/25	
1947	30	Oct 21-Nov 19	½ SR-1 SS	4/8*[f]	15/15	
1948	30	Oct 29-Nov 27	½ SR-1 SS	4/8*[f]	15/15	
1949	40	Oct 21-Nov 29	½ SR-1 SS	4/8*[f]	15/15	
1950	35	Oct 20-Nov 23	½ SR-1 SS	4/8*[f]	15/15	
1951	45	Oct 12-Nov 25	½ SR-1 SS	4/8*[f]	10/10	
1952	55	Oct 8-Dec 1	½ SR-1 SS	4/8*[g]	10/10	*[g]Only 1 Wd in poss. at any time. 1 Hm or 25 Cm or Rm or comb.
1953	55	Oct 8-Dec 1	½ SR-SS	4/8*[g]	10/10	
1954	55	Oct 15-Dec 8	½ SR-1 SS	4/8*[h]	10/10	*[h]Closed sea. on Wd.; 1 Hm or 25 Cm or Rm or comb.
1955	70	Oct 8-Dec 16	½ SR-½ SS	4/8*[g]	10/10	
1956	70	Oct 6-Dec 14	½ SR-½ SS	4/8*[h]	10/10	
1957	70	Oct 5-Dec 13	½ SR-SS	4/8*[i]	10/10	*[i]Closed season on Wd.; 5 mergansers, only 1 Hm.
1958	70	Oct 4-Dec 12	½ SR-SS	4/8*[ii]	10/10	*[ii]Only 2 Cb or 2 Rh or 2 in comb.; No Wd season. 5 merg. only 1 Hm.
1959	50	Oct 20-Dec 8	SR-SS	3/6*[j]	3/6	*[j]Only 1 Wd, 1 Cb, 1 Rh, or 1 Ru.; 5 mergansers, only 1 Hm.
1960	50	Oct 15-Dec 3	½ SR-SS	3/6*[k]	8/12	*[k]Only 1 Wd. Closed sea. on Cb & Rh.; 5 mergansers, only 1 Hm.
1961	30	Oct 21-Nov 19	SR-SS	2/4*[k]	6/6	
1962	25	Oct 27-Nov 20	SR-SS	2/4*[l]	6/6	*[l]Only 1 Ma or Bd, 2 Wd. No Cb or Rh.; 2 bonus Sc., 5 merg., only 1 Hm.
1963	35	Oct 5-13 Oct 26-Nov 20	SR-SS	4/8*[m]	8/8	*[m]Only 2 Ma or Bd, 2 Wd. No Cb or Rh.; 5 mergansers, only 1 Hm.
1964	35	Oct 3-4 Oct 24-Nov 25	SR-SS	4/8*[n]	10/20	*[n]Only 2 Ma or Bd, 2 Wd, 2 Cb or 2 Rh.; 5 mergansers, only 1 Hm.
1965	40	Sep 11-19 (teal season) Oct 23 - Dec 1	SR-SS ½ SR-SS	4/8*[o]	10/20	*[o]Only 1 Ma or Pt or Bd, 2 Wd, 2 Cb or Rh.; 5 mergansers, only 1 Hm.
1966	45	Sep 17-25 (teal season) Oct 15 - Nov 28	SR-SS ½ SR-SS	4/8*[oo]	10/20	*[oo]Only 2 Ma or Bd, 2 Wd, 2 Cb.; 5 mergansers, only 1 Hm.

Year	Season Length	Season Dates	Shooting Hours	Limits		Additional Bag Limit Information
				Duck Bag/Poss	Coot Bag/Poss	
1967	40	Sep 16-24 (teal season) Oct 21 - Nov 29	SR-SS ½ SR-SS	4/8*[p]	10/20	*[p]Only 2 Ma or Bd, 1 Wd, & 1 Cb.; 5 mergansers, only 1 Hm.
1968	30	Oct 26 - Nov 24	½ SR-SS	3/6*[q]	10/20	*[q]Only 1 Ma, 2 Bd, 2 Wd, 1 Cb or Rh.; 5 mergansers, only 1 Hm.
1969	30	Sep 13-21 (teal season) Oct 25 - Nov 23	SR-SS ½ SR-SS	4/8*[r]	10/20	*[r]Only 2 Ma, 2 Bd, 2 Wd, 1 Cb or Rh.; 5 mergansers, only 1 Hm.
1970	55	Oct 3-Nov 26	SR-SS	PS*[s]	15/30	*[s]90 pt = Hn Ma, Bd, Wd, Rh, Cb, Hm.; 20 pt= Dr Ma, Hn Pt, Rn. 10 pt= all other.
1971	50	Oct 2-Nov 20	½ SR-SS	PS*[t]	15/30	*[t]100 pt= Cb, Rh. 90 pt= Hn Ma, Bd, Wd, Hm.; 20 pt= Dr Ma, Hn Pt, Rn. 10 pt= all other.
1972	50	Oct 7-12 Oct 21-Dec 3	SR-SS	PS*[u]	15/30	*[u]90 pt= Hn Ma, Bd, Wd, Hm. 20 pt= Dr Ma, Hn Pt, Rn. 10 pt= all other.; Closed season on Cb & Rh.
First year state duck stamp required						
1973	45	Oct 6-10 Oct 20-Nov 28	SR-SS	PS*[v]	15/30	*[v]100 pt= Cb, Rh. 90 pt= Hn Ma, Wd, Hm.; 25 pt= Dr Ma, Pt, Bd, Rn & all others.; 15 pt= Bt, Gt, Ga, Wg, Sh, Sc, Cm, Rm.
1974	45	Oct 5-12 Oct 26-Dec 1	SR-SS	PS*[w]	15/30	*[w]100 pt= Cb, Rh. 90 pt= Hn Ma, Bd, Wd, Hm.; 35 pt= Dr Ma, Rn, Md. 15 pt= all others.
1975	45	Oct 4-11 Oct 25-Nov 30	½ SR-SS	PS*[x]	15/30	*[x]100 pt= Cb, Rh. 90 pt= Hn Ma, Bd, Wd, Hm.; 35 pt= Dr Ma, Rn, Wg, & all others.; 10 pt= Bwt, Gwt, Ga, Pt, Sh, Sc.
1976	50	Oct 2-7 Oct 23-Dec 5	½ SR-SS	PS*[y]	15/30	*[y]100 pt= Cb. 70 pt= Hn Ma, Bd, Wd, Rh, Hm.; 25 pt= Dr Ma, Rn, Wg, & all others.; 10 pt= Bt, Gt, Ct, Ga, Pt, Sh, Sc, Cm, Rm.
1977	45	Oct 8-15 Oct 22-Nov 27	SR-SS	PS*[y]	15/30	
1978	50	Oct 1-8 Oct 21-Dec 1	½ SR-SS	PS*[z]	15/30	*[z]100 pt= Cb. 70 pt= Hn Ma, Bd, Wd, Rh, Hm.; 35 pt= Dr Ma, Rn, & all others.; 10 pt= Bt, Gt, Ct, Ga, Wg, Pt, Sh, Sc, Cm, Rm.
1979	50	Sep 22-26 Oct 20-Dec 3	½ SR-SS	PS*[aa]	15/30	*[aa]100 pt= Cb. 70 pt= Hn Ma, Bd, Wd, Rh, Hm.; 25 pt= Dr Ma, Rn, & all others.; 10 pt= Bt, Gt, Ct, Ga, Wg, Pt, Sh, Sc, Cm, Rm.
1980	50	Sep 20-24 Oct 18-Dec 1	½ SR-SS	PS*[aa]	15/30	
1981	50	Sep 19-23 Oct 17-Nov 30	½ SR-SS	PS*[aa]	15/30	
1982	50	Sep 18-22 Oct 23-Dec 6	½ SR-SS	PS*[aa]	15/30	

Year	Season Length	Season Dates		Shooting Hours	Limits		Additional Bag Limit Information
					Duck Bag/Poss	Coot Bag/Poss	
		North Zone (1)	**South Zone (1)**				
1983	50	Sep 17-21 Oct 15-Nov 28	Sep 17-21 Oct 22-Dec 5	½ SR-SS	PS*[ab]	15/30	*[ab]100 pt= Cb, Bd. 70 pt= Hn Ma, Wd, Rh, Hm.; 25 pt= Dr Ma, Rn, & all others.; 10 pt= Bt, Gt, Ct, Ga, Wg, Pt, Sh, Sc, Cm, Rm.
1984	50	Sep 22-26 Oct 20-Dec 3	Sep 22-26 Oct 27-Dec 10	½ SR-SS	PS*[ab]	15/30	
1985	40	Sep 21-23 Oct 19-Nov 24	Sep 21-23 Oct 26-Dec 1	½ SR-SS	PS*[ac]	15/30	*[ac]100 pt= Hn Ma, Cb, Bd. 70 pt= Wd, Rh, Hm.; 35 pt= Dr Ma, Pt, Rn, & all others.; 20 pt= Bt, Gt, Ct, Ga, Wg, Sh, Sc, Cm, Rm.
1986	40	Sep 20-24 Oct 18-Nov 21	Sep 20-22 Oct 25-Nov 30	½ SR-SS	PS*[ad]	15/30	*[ad1]00 pt= Hn Ma, Bd. 70 pt= Wd, Rh, Hm.; 35 pt= Dr Ma, Pt, Rn, & all others.; 20 pt= Bt, Gt, Ct, Ga, Wg, Sh, Sc, Cm, Rm.; Closed season on Cb.
		North Zone (2)	**South Zone (2)**				
1987 (*SH)	40	Sep 19-23 Oct 17 - Nov 20	Sep 19-21 Oct 24-Nov 29	½ SR-SS	PS*[ad]	15/30	
1988	30	Oct 8 - 9 Oct 22 - Nov 18	Oct 22-28 Nov 5-27	SR-SS	3/6*[ae]	15/30	*[ae]Only 2 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd.; 5 merg., only 1 Hm. Closed sea. on Cb.
1989	30	Oct 7 - 8 Oct 21 - Nov 17	Oct 21-27 Nov 4-26	SR-SS	3/6*[ae]	15/30	
1990	30	Oct 6-7 Oct 20-Nov 16	Oct 20-26 Nov 3-25	½ SR-SS	3/6*[ae]	15/30	
1991	30	Oct 5-6 Oct 19-Nov 15	Oct 19-25 Nov 9-Dec 1	½ SR-SS	3/6*[ae]	15/30	
1992	30	Oct 10-13 Oct 24-Nov 18	Oct 24-30 Nov 7-29	½ SR-SS	3/6*[ae]	15/30	
1993	30	Oct 2-4 Oct 23-Nov 18	Oct 23-29 Nov 6-28	½ SR-SS	3/6*[ae]	15/30	
1994	40	Sept 17-19 Oct 15-Nov 20	Oct 1-3 Oct 22-Nov 27	½ SR-SS	3/6*[af]	15/30	*[af]Only 2 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd, 1 Cb.; 5 merg., only 1 Hm.
1995	50	Sept 23-27 Oct 15-Nov 28	Sept 23-25 Oct 21-Dec 6	½ SR-SS	5/10*[ag]	15/30	*[ag]Only 4 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd, 1 Cb.; 5 merg., only 1 Hm.
1996	50	Sept 21-25 Oct 19-Dec 2	Sept 21-23 Oct 19-Dec 4	½ SR-SS	5/10*[ah]	15/30	*[ah]Only 4 Ma (1 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb.; 5 merg., only 1 Hm.
Youth Day		Oct 5	Oct 5	½ SR-SS	5/10*[ah]		
1997	60	Sept 20-24 Oct 11-Dec 4	Sept 20-24 Oct 18-Dec 11	½ SR-SS	6/12*[ai]	15/30	*[ai]Only 4 Ma (2 Hn), 2 Wd, 3 Pt, 2 Rh,1 Bd, 1 Cb.; 5 merg., only 1 Hm.
Youth Day		Sept 27	Sept 27	½ SR-SS	6/12*[ai]	15/30	

Year	Season Length	Season Dates		Shooting Hours	Limits		Additional Bag Limit Information
					Duck Bag/Poss	Coot Bag/Poss	
1998 (*HIP)	60	Sept 19-23 Oct 10-Dec 3	Sept 19-23 Oct 17-Dec 10	½ SR-SS	6/12*[aj]	15/30	*[aj]Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb.; 5 merg., only 1 Hm.
Youth Day		Sept 26	Sept 26	½ SR-SS	6/12*[aj]	15/30	
1999	60	Sept 18-22 Oct 16-Dec 9	Sept 18-22 Oct 16-Dec 9	½ SR-SS	6/12*[ak]	15/30	*[ak]Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb & 3 Sc. 5 merg., only 1 Hm.
Youth Day		Oct 9	Oct 9	½ SR-SS	6/12*[ak]	15/30	
2000	60	Sept 23-27 Oct 14-Dec 7	Sept 23-27 Oct 14-Dec 7	½ SR-SS	6/12*[ak]	15/30	
Youth Day		Oct 7-8	Oct 7-8	½ SR-SS	6/12*[ak]	15/30	
2001	60	Sept 22-26 Oct 13-Dec 6	Sept 22-26 Oct 13-Dec 6	½ SR-SS	6/12*[ak]	15/30	
Canvasback		Oct. 27-Nov 15	Nov 17-Dec 6				
Youth Day		Oct 6-7	Oct 6-7	½ SR-SS	6/12*[ak]	15/30	
2002	60	Sept 21-25 Oct 12-Dec 5	Sept 21-23 Oct 19-Dec 14	½ SR-SS	6/12*[al]	15/30	*[al]Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, & 3 Sc. 5 merg., only 1 Hm. Closed sea. on Cb
Pintail		Sept 21-25 Oct 12-Nov 5	Sept 21-23 Oct 19-Nov 14				
Youth Day		Oct 5-6	Oct 5-6	½ SR-SS	6/12*[al]	15/30	
2003	60	Sept 20-24 Oct 11-Dec 4	Sept 20-22 Oct 18-Dec 13	½ SR-SS	6/12*[ak]	15/30	*[ak]Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb & 3 Sc. 5 merg., only 1 Hm.
Pintail		Sept 20-24 Oct 11-Nov 4	Sept 20-22 Oct 18-Nov 13				
Canvasback		Oct 18-Nov 16	Oct 25-Nov 23				
Youth Day		Oct 4-5	Oct 4-5	½ SR-SS	6/12*ak	15/30	
2004	60	Sept 18-22 Oct 16-Dec 9	Sept 25-26 Oct 16-Dec 12	½ SR-SS	6/12*[ak]	15/30	
Pintail		Sept 18-22 Oct 16-Nov 9	Sept 25-26 Oct 16-Nov 12				
Canvasback		Oct 23-Nov 21	Oct 23-Nov 21				
Youth Day		Oct 2-3	Oct 9-10	½ SR-SS	6/12*[ak]	15/30	
2005	60	Sept 17-21 Oct 15-Dec 8	Sept 24-28 Oct 22-Dec 15	½ SR-SS	6/12*[am]	15/30	*[am]Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb & 2 Sc. 5 merg., only 1 Hm.
Canvasback		Oct 22-Nov 20	Oct 29-Nov 27				
Youth Day		Oct 8-9	Oct 8-9	½ SR-SS	6/12*[am]	15/30	

Year	Season Length	Season Dates			Shooting Hours	Limits		Additional Bag Limit Information
						Duck Bag/Poss	Coot Bag/Poss	
		North Zone (3)	**South Zone (3)**					
2006	60	Sept 23-27 Oct 14-Dec 7	Sept 23-27 Oct 21-Dec 14		½ SR-SS	6/12*[an]	15/30	*[an]Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb & 2 Sc. 5 merg., only 2 Hm.
Youth Day		Oct 7-8	Oct 7-8		½ SR-SS	6/12*[an]	15/30	
2007	60	Sept 22-26 Oct 13-Dec 6	Sept 22-26 Oct 20-Dec 13		½ SR-SS	6/12*[ao]	15/30	*[ao]Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 2 Cb & 2 Sc. 5 merg., only 2 Hm.
Youth Day		Oct 6-7	Oct 6-7		½ SR-SS	6/12*[ao]	15/30	
2008	60	Sept 20-24 Oct 18-Dec 11	Sept 20-24 Oct 18-Dec 11		½ SR-SS	6/12*[ap]	15/30	*[ap]Only 4 Ma (2 Hn), 3 Wd, 1 Pt, 2 Rh,1 Bd, & 1 Sc (Nov 1-20 limit 2 Sc). 5 merg., only 2 Hm. Closed season on Cb.
Youth Day		Oct 4-5	Oct 4-5		½ SR-SS	6/12*[ap]	15/30	
2009	60	Sept 19-23 Oct 10-Dec 3	Sept 19-23 Oct 17-Dec 10		½ SR-SS	6/12*[aq]	15/30	*[aq]Only 4 Ma (2 Hn), 3 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb, & 2 Sc. 5 merg., only 2 Hm.
Youth Day		Oct 3-4	Oct 3-4		½ SR-SS	6/12*[aq]	15/30	
2010	60	Sept 18-22 Oct 16-Dec 9	Sept 18-22 Oct 23-Dec 16		½ SR-SS	6/12*[ar]	15/30	*[ar]Only 4 Ma (2 Hn), 3 Wd, 2 Pt, 2 Rh,1 Bd, 1 Cb, & 2 Sc. 5 merg., only 2 Hm.
Youth Day		Oct 2-3	Oct 9-10		½ SR-SS	6/12*[ar]	15/30	
		North Zone (4)	**South Zone (4)**					
2011	60	Sept 17-21 Oct 15-Dec 8	Sept 17-21 Oct 22-Dec 15		½ SR-SS	6/12*[ar]	15/30	
Youth Day		Oct 1-2	Oct 8-9		½ SR-SS	6/12*[ar]	15/30	
		North Zone (5)	**South Zone (5)**	**Missouri River (5)**				
2012	60	Sept 22-26 Oct 13-Dec 6	Sept 22-26 Oct 20-Dec 13	Sept 22-26 Oct 27-Dec 20	½ SR-SS	6/12*[as]	15/30	*[as]Only 4 Ma (2 Hn), 3 Wd, 2 Pt, 2 Rh,1 Bd, 1 Cb, & 4 Sc. 5 merg., only 2 Hm.
Youth Day		Oct 6-7	Oct 13-14	Oct 20-21	½ SR-SS	6/12*as	15/30	
2013	60	Sept 21-25 Oct 12-Dec 5	Sept 21-25 Oct 19-Dec 12	Sept 21-25 Oct 26-Dec 19	½ SR-SS	6/18*[at]	15/45	*[at]Only 4 Ma (2 Hn), 3 Wd, 2 Pt, 2 Rh,1 Bd, 2 Cb, & 4 Sc. 5 merg., only 2 Hm.
Youth Day		Oct 5-6	Oct 12-13	Oct 19-20	½ SR-SS	6/18*[at]	15/45	
2014	60	Oct 4-19 Oct 25-Dec 7	Oct 4-8 Oct 18-Dec 11	Oct 4-8 Oct 25-Dec 18	½ SR-SS	6/18*[at]	15/45	*[at]Only 4 Ma (2 Hn), 3 Wd, 2 Pt, 2 Rh,1 Bd, 2 Cb, & 4 Sc. 5 merg., only 2 Hm.
Youth Day		Sep 27-28	Oct 11-12	Oct 18-19	½ SR-SS	6/18*[at]	15/45	
Teal		Sep 6-21	Sep 6-21	Sep 6-21	SR-SS	6/18		
2015	60	Oct 3-18 Oct 24-Dec 6	Oct 3-7 Oct 17-Dec 10	Oct 3-7 Oct 24-Dec 17	½ SR-SS	6/18*[at]	15/45	*[at]Only 4 Ma (2 Hn), 3 Wd, 2 Pt, 2 Rh,1 Bd, 2 Cb, & 4 Sc. 5 merg., only 2 Hm.
Youth Day		Sep 26-27	Oct 10-11	Oct 17-18	½ SR-SS	6/18*[at]	15/45	
Teal		Sep 5-20	Sep 5-20	Sep 5-20	SR-SS	6/18		

Year	Season Length	Season Dates			Shooting Hours	Limits		Additional Bag Limit Information
						Duck Bag/Poss	Coot Bag/Poss	
2016	60	Sep 24-Oct 2 Oct 15-Dec 4	Oct 1-5 Oct 22-Dec 15	Oct 8-9 Oct 22-Dec 18	½ SR-SS	6/18*[at]	15/45	*[at]Only 4 Ma (2 Hn), 3 Wd, 2 Pt, 2 Rh,1 Bd, 2 Cb, & 4 Sc. 5 merg., only 2 Hm.
Youth Day		Sep 17-18	Sep 24-25	Oct 1-2	½ SR-SS	6/18*[at]	15/45	
Teal		Sep 3-11	Sep 3-11	Sep 3-18	SR-SS	6/18		

DUCK SPECIES: Ma = Mallard, Wd = Wood duck, Bd = Black duck, Cb = Canvasback, Rh = Redhead, Ru = Ruddy duck, Bu = Bufflehead, Pt = Pintail, Wg = Wigeon, Sc = Scaup, Rn = Ring-necked duck Bt = Blue-winged teal, Gt = Green-winged teal, Ga = Gadwall, Sh = Shoveler, Ct = Cinnamon teal, Md = Mottled duck, (Hn = Hen, Dr = Drake) Cm = Common merganser, Rm = Red-breasted merganser, Hm = Hooded merganser

SHOOTING HOURS: SR to SS = sunrise to sunset, ½ SR to SS = ½ hour before sunrise to sunset, ½ SR to ½ SS = ½ hour before sunrise to ½ hour before sunset, ½ SR to 1 SS = ½ hour before sunrise to 1 hour before sunset. Shooting hours began at 12:00 pm (Noon) on opening day for hunting seasons 1931-33, 1947-54, & 1959-63. Iowa set daily shooting hours at sunrise or later during 27 of the 72 hunting seasons between 1918-89. Federal regulations set daily shooting hours at sunrise or later during 16 of the 90 hunting seasons between 1918-2007.

LIMIT: BAG = Daily bag limit,

POSS = Possession limit

POSS LIMIT = Twice the daily bag limit unless otherwise noted.

PS = Point System was used to determine the daily bag limit. The daily bag limit was obtained when the point value of the last duck taken, added to the point values of the previous ducks bagged, equaled or exceeded 100 points.

SPEC. REGULATIONS: Wood duck season was closed by Federal regulation from the 1918 through the 1940 season. Canvasback and redhead seasons were closed on the Mississippi River from 1975 thru 1979. Canvasback season was closed on the Mississippi River in 1980-82. Canvasback season closed on Pools 9 & 19 on the Mississippi River from 1983-85. Canvasback season closed statewide 1936-37, 1960-63, 1972, 1986-93, 2002, 2008.

DUCK ZONE BOUNDARY (1) = a line running from the Nebraska-Iowa border along I-80 to the Iowa-Illinois border.

DUCK ZONE BOUNDARY (2) = a line running from the Nebraska-Iowa border along St Hwy 175, east to St Hwy 37, southeast to US Hwy 59, south to I-80 and along I-80 to the Iowa-Illinois border.

DUCK ZONE BOUNDARY (3) = a line running from the Nebraska-Iowa border along St Hwy 175, east to St Hwy 37, southeast to St Hwy 183, northeast to St Hwy 141, east to US Hwy 30, and along US Hwy 30 to the Iowa-Illinois border.

DUCK ZONE BOUNDARY (4) = a line beginning on the South Dakota-Iowa border at I-29, southeast to Woodbury Co Rd D38, east to Woodbury Co Rd K45, southeast to St Hwy 175, east to St Hwy 37, southeast to St Hwy 183, northeast to St Hwy 141, east to US Hwy 30, and along US Hwy 30 to the Iowa-Illinois border.

DUCK ZONE BOUNDARY (5) = The North Zone is all of Iowa north of a line beginning on the on the South Dakota-Iowa border at I-29, southeast to St Hwy 175, east to St Hwy 37, southeast to St Hwy 183, northeast to St Hwy 141, east to US Hwy 30, and along US Hwy 30 to the Iowa-Illinois border. The Missouri River Zone includes all lands and water in Iowa west of I-29 and north of Hwy 175. The South Zone is the remainder of the state not in the North or Missouri River Zones. (*SH) Steel shot required statewide for hunting all migratory gamebirds except woodcock.

STEEL SHOT REGULATIONS HISTORY: In 1977, no person could hunt waterfowl on all waters and a 150 yard zone thereto in Fremont and Mills Counties while possessing 12 gauge shotshells loaded with any shot other than steel. Drainage ditches, temporary sheet water and the Missouri River were exempt. During 1978 & 1979, no person could hunt waterfowl on all waters and a 150 yard zone thereto in Fremont and Mills Counties and on the Upper Mississippi Wildlife Refuge while possessing 12 gauge shotshells loaded with any shot other than steel. Drainage ditches, temporary sheet water, and the Missouri River in Mills and Fremont Counties were exempt. In 1980, Sweet Marsh in Bremer County, Big Marsh in Butler County, and the Princeton Area in Scott County, were added to the areas previously described in the steel shot regulations and the rule now applied to all shotgun gauges. In 1981, Green Island in Jackson County was added to the list of areas previously described where steel shot was required. During the 1982 through 1984 seasons, the previously described list of areas for steel shot remained the same. During the 1985 & 1986 seasons, no person could hunt migratory game birds except woodcock on any lands or waters under the jurisdiction of the State Conservation Commission, the US Government, or any county conservation board, or on all waters and a 150 yard zone adjacent to these waters, including reservoirs, lakes, ponds, marshes, bayous, swamps, rivers, streams, and seasonally flooded areas of all types, while possessing shotshells loaded with shot other than steel shot. Temporary sheet water, farm ponds less than 2 acres in size, and streams with water less than 25 feet in width where the hunting was occurring were exempt. In addition, no person could hunt waterfowl in the zone bounded on the west by the Missouri River, on the south by I-680, on the east by I-29 and on the north by the Soldier River, while possessing any shotshells loaded with shot other than steel shot. From 1987 to the present, no person could hunt migratory game birds except woodcock on all lands and waters within the State of Iowa while possessing any shotshell loaded with shot other than steel shot, or copper or nickel coated steel shot. In 1998, nontoxic shot was required for any shotgun shooting (except turkey hunting) on most DNR managed wildlife areas in Iowa's prairie pothole region that had waterfowl production potential. (*HIP) First year migratory bird hunters in Iowa registered (by phone) for the federal Harvest Information Program (HIP).

Table 4.4 Goose seasons in Iowa.

Year	Goose Species	Season Length	Season Dates	Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
			Statewide			
1917	Ca/Sn/Wf	227	Sep 1 Apr 15	Unknown	?	
1918	Ca/Sn/Wf	107	Sep 16-Dec 31	SR-SS	8/none	
1919	Ca/Sn/Wf	107	Sep 16-Dec 31	SR-SS	8/none	
1920	Ca/Sn/Wf	107	Sep 16-Dec 31	SR-SS	8/none	
1921	Ca/Sn/Wf	107	Sep 16-Dec 31	SR-SS	8/none	
1922	Ca/Sn/Wf	107	Sep 16-Dec 31	SR-SS	8/none	
1923	Ca/Sn/Wf	107	Sep 16-Dec 31	SR-SS	8/none	
1924	Ca/Sn/Wf	107	Sep 16-Dec 31	½ SR-SS	8/50 WF	WF = all waterfowl combined
1925	Ca/Sn/Wf	107	Sep 16-Dec 31	½ SR-SS	8/50 WF	
1926	Ca/Sn/Wf	107	Sep 16-Dec 31	½ SR-SS	8/50 WF	
1927	Ca/Sn/Wf	107	Sep 16-Dec 31	½ SR-SS	8/50 WF	
1928	Ca/Sn/Wf	107	Sep 16-Dec 31	½ SR-SS	8/50 WF	
1929	Ca/Sn/Wf	107	Sep 16-Dec 31	½ SR-SS	8/50 WF	
1930	Ca/Sn/Wf	107	Sep 16-Dec 31	½ SR-SS	4/8	
1931	Ca/Sn/Wf	30	Oct 20-Nov 19	½ SR-SS	4/8	
1932	Ca/Sn/Wf	61	Oct 1-Nov 30	½ SR-SS	4/8	
1933	Ca/Sn/Wf	61	Oct 1-Nov 30	½ SR-SS	4/8	
1934	Ca/Sn/Wf	30	Oct 10-Nov 18	SR-SS	4/8	(included 10 rest days)
1935	Ca/Sn/Wf	30	Oct 21-Nov 19	7am-4pm	4/4	
1936	Ca/Sn/Wf	30	Nov 1-Nov 30	7am-4pm	4/4	
1937	Ca/Sn/Wf	30	Oct 9-Nov 7	7am-4pm	5/5	
1938	Ca/Sn/Wf	45	Oct 15-Nov 28	7am-4pm	5/10	
1939	Ca/Sn/Wf	45	Oct 22-Dec 5	7am-4pm	4/8	
1940	Ca/Sn/Wf	60	Oct 16-Dec 14	SR-4pm	3/6	
1941	Ca/Sn/Wf	60	Oct 16-Dec 14	SR-4pm	3/6	
1942	Ca/Sn/Wf	70	Oct 15-Dec 23	SR-SS	2/4	
1943	Ca/Sn/Wf	70	Sep 25-Dec 3	½ SR-SS	2/4	
1944	Ca/Sn/Wf	80	Sep 20-Dec 8	½ SR-SS	2/4*[a]	*[a]Sn goose poss. limit = 8.
1945	Ca/Sn/Wf	80	Sep 20-Dec 8	½ SR-SS	2/4*[a]	
1946	Ca/Sn/Wf	45	Oct 26-Dec 9	½ SR-½ SS	4/4*[b]	*[b]Closed Ca goose season.

Year	Goose Species	Season Length	Season Dates	Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
1947	Ca/Sn/Wf	30	Oct 21-Nov 19	½ SR-1 SS	4/4*[c]	*[c]Only 1 Ca or 1 Wf goose in bag.
1948	Ca/Sn/Wf	30	Oct 29-Nov 27	½ SR-1 SS	4/4*[c]	
1949	Ca/Sn/Wf	40	Oct 21-Nov 29	½ SR-1 SS	4/4*[c]	
1950	Ca/Sn/Wf	35	Oct 20-Nov 23	½ SR-1 SS	4/4*[c]	
1951	Ca/Sn/Wf	45	Oct 12-Nov 25	½ SR-1 SS	5/5*[d]	*[d]Only 2 Ca or 2 Wf, or 1 Ca & 1 Wf.
1952	Ca/Sn/Wf	55	Oct 8-Dec 1	½ SR-1 SS	5/5*[d]	
1953	Ca/Sn/Wf	55	Oct 8-Dec 1	½ SR-SS	5/5*[d]	
1954	Ca/Sn/Wf	55	Oct 15-Dec 8	½ SR-1 SS	5/5*[d]	
1955	Ca/Sn/Wf	70	Oct 8-Dec 16	½ SR-½ SS	5/5*[d]	
1956	Ca/Sn/Wf	70	Oct 6-Dec 14	½ SR-½ SS	5/5*[d]	
1957	Ca/Sn/Wf	70	Oct 5-Dec 13	½ SR-SS	5/5*[d]	
1958	Ca/Sn/Wf	70	Oct 4-Dec 12	½ SR-SS	5/5*[d]	
1959	Ca/Sn/Wf	70	Oct 7-Dec 15	SR-SS	5/5*[d]	
1960	Ca/Sn/Wf	70	Oct 8-Dec 16	½ SR-SS	5/5*[d]	
1961	Ca/Sn/Wf	70	Oct 7-Dec 15	SR-SS	5/5*[d]	
1962	Ca/Sn/Wf	70	Oct 6-Dec 14	SR-SS	5/5*[d]	
1963	Ca/Sn/Wf	70	Oct 5-Dec 13	SR-SS	5/5*[d]	
1964	Ca/Sn/Wf	70	Oct 3-Dec 11	SR-SS	5/5*[d]	
1965	Ca/Sn/Wf	70	Oct 2-Dec 10	½ SR-SS	5/5*[d]	
1966	Ca/Sn/Wf	70	Oct 1-Dec 9	½ SR-SS	5/5*[d]	
1967	Ca/Sn/Wf	70	Sep 30-Dec 8	½ SR-SS	5/5*[d]	
1968	Ca/Sn/Wf	70	Sep 28-Dec 6	½ SR-SS	5/5*[d]	
1969	Ca/Sn/Wf	70	Oct 4-Dec 12	½ SR-SS	5/5*[d]	
1970	Ca	23	Oct 3-Nov 26	SR-SS	1/1*[e]	*[e]Bag & pos. lim.= 5 w/ only 1 Ca, 1 Ca + 1 WF, or 2 Wf.
	Sn/Wf	70	Oct 3-Dec 11		5/5*[e]	
1971	Ca	23	Oct 9-Oct 31	½ SR-SS	1/1*[e]	
	Sn/Wf	70	Oct 2-Dec 10		5/5*[e]	
1972	Ca	23	Oct 1-Nov 9	SR-SS	1/2*[f]	*[f]Bag lim.= 5 w/ only 1 Ca,1 Ca + 1 WF, or 2 Wf. Pos. lim.= 5 w/ only 2 Ca, 1 Ca + 1 WF, or 2 Wf.
	Sn/Wf	70	Oct 7-Dec 15		5/5*[f]	
First year state duck stamp required						
1973	Ca	40	Oct 1-Nov 9	SR-SS	1/2*[g]	*[g]Bag lim.= 5 w/ only 1 Ca & 2 Wf. Pos lim.= 5 w/ only 2 Ca & 2 Wf.
	Sn/Wf	70	Oct 1-Dec 9		5/5*[g]	

Year	Goose Species	Season Length	Season Dates		Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
1974	Ca	45	Oct 1-Nov 14		SR-SS	1/2*[g]	
	Sn/Wf	70	Oct 1-Dec 9			5/5*[g]	
1975	Ca	45	Oct 1-Nov 14		½ SR-SS	2/2*[h]	*[h]Bag lim.= 5 w/ only 2 Ca & 2 Wf. Pos lim.= Bag lim.
	Sn/Wf	70	Oct 1-Dec 9			5/10*[h]	
1976	Ca	45	Oct 1-Nov 14		½ SR-SS	5/10*[h]	
	Sn/Wf	70	Oct 1-Dec 9			5/10*[h]	
1977	Ca	45	Oct 1-Nov 14		SR-SS	5/10*[h]	
	Sn/Wf	70	Oct 1-Dec 9			5/10*[h]	
1978	Ca/Sn/Wf	70	Oct 1-Dec 9		½ SR-SS	5/10*[h]	
1979	Ca/Sn/Wf	70	Sep 29-Dec 7		½ SR-SS	5/10*[h]	
1980	Ca/Sn/Wf	70	Oct 4-Dec 12		½ SR-SS	5/10*[i]	*[i]Bag lim.= 5 w/ only 2 Ca & 2 Wf. Pos lim.= 10 w/ only 4 Ca & 4 Wf.
1981	Ca/Sn/Wf	70	Oct 3-Dec 11		½ SR-SS	5/10*[i]	
1982	Ca/Sn/Wf	70	Oct 2-Dec 10		½ SR-SS	5/10*[i]	
1983	Ca/Sn/Wf	70	Oct 1-Dec 9		½ SR-SS	5/10*[i]	
			Most of State	**SW Zone (1)**			
1984	Ca/Sn/Wf	70	Sep 29-Dec 7	Oct 13-Dec 21	½ SR-SS	5/10*[i]	
1985	Ca/Sn/Wf	70	Sep 28-Dec 6	Oct 12-Dec 20	½ SR-SS	5/10*[i]	
1986	Ca/Sn/Wf	70	Oct 4-Dec 12	Oct 18-Dec 26	½ SR-SS	5/10*[i]	
1987	Ca	45	Oct 3-Nov 16	Oct 17-Nov 30	½ SR-SS	2/4*[i]	
(*SH)	Sn/Wf	70	Oct 3-Dec 11	Oct 17-Dec 25		5/10*[i]	
1988	Ca	45	Oct 1-Nov 14	Oct 15-Nov 28	SR-SS	2/4*[i]	
	Sn/Wf	70	Oct 1-Dec 9	Oct 15-Dec 23		5/10*[i]	
			Most of State	**SW Zone (2)**			
1989	Ca	45	Sep 30-Nov 13	Oct 14-Nov 27	SR-SS	2/4*[j]	*[j]Bag lim.= 7 w/ only 2 Ca & 2 Wf. Pos lim.= 14 w/ only 4 Ca & 4 Wf.
	Sn/Br	80	Sep 30-Dec 18	Oct 14-Jan 1		7/14*[j]	
	Wf	70	Sep 30-Dec 8	Oct 14-Dec 22		2/4*[j]	
1990	Ca/Wf/Br	70	Sep 29-Dec 7	Oct 13-Dec 21	½ SR-SS	2/4*[j]	
	Sn	80	Sep 29-Dec 17	Oct 13-Dec 31		7/14*[j]	
1991	Ca/Wf/Br	70	Sep 28-Dec 6	Oct 12-Dec 20	½ SR-SS/1	2/4*[j]	
	Sn	80	Sep 28-Dec 16	Oct 12-Dec 30		7/14*[j]	
1992	Ca/Wf/Br	70	Oct 3-Dec 11	Oct 10-Dec 18	½ SR-SS/1	2/4*[j]	
	Sn	80	Oct 3-Dec 21	Oct 10-Dec 28		7/14*[j]	

Year	Goose Species	Season Length	Season Dates		Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
			North Zone (1)	South Zone (1)			
1993	Ca/Wf/Br	55	Oct 9-Dec 2	Oct 23-Dec 16	½ SR-SS	2/4*[j]	
	Sn	80	Oct 9-Dec 27	Oct 23-Jan 10		7/14*[j]	
1994	Ca/Wf/Br	55	Oct 8-Dec 1	Oct 22-Dec 15	½ SR-SS	2/4*[j]	
	Sn	102	Oct 1-Dec 10	Oct 1-Jan 10		7/14*[j]	
1995	Ca/Wf/Br	70	Sep 30-Dec 8	Oct 14-Dec 22	½ SR-SS	2/4*[k]	
	Sn	107	Sep 30-Jan 10	Oct 14-Jan 10		10/20*[k]	*k) Bag lim.= 10 w/ only 2 Ca & 2 Wf. Pos lim.= 20 w/ only 4 Ca & 4 Wf.
			None	Feb 24-Mar 10, 1996 south of Interstate 80.			
1996	Ca	2	Sep 14-15	None	½ SR-SS	2/4*[l]	*[l]Bag lim.= 2 Ca.
	Ca/Wf/Br	70	Sep 28-Dec 6	Oct 5-Oct 13	½ SR-SS	2/4*[m]	*[m]Bag lim.= 2 Ca, 2 Wf, & 2 Br . Pos lim.= 4 Ca, 4 Wf, & 4 Br.
				Oct 19-Dec 18			
	Sn	107	Oct 12-Jan 10, 1997		½ SR-SS	10/30	
			Feb 22-Mar 9, 1997				
1997	Ca	2	Sep 13-14	None	½ SR-SS	2/4*[l]	
	Ca/Wf/Br	70	Oct 4-Dec 12	Oct 4-Oct 12	½ SR-SS	2/4*[m]	
				Oct 18-Dec 17			
	Sn/Ro	107	Oct 4-Dec 31		½ SR-SS	10/30	
			Feb 21-Mar 10, 1998				
1998	Ca	2	Sep 12-13[b]	None	½ SR-SS	2/4*[l]	
(*HIP)	Ca/Wf/Br	70	Oct 3-Dec 11	Oct 3-Oct 11	½ SR-SS	[a]2/4*[m]	
				Oct 17-Dec 16			
	Sn/Ro	107	Oct 3-Dec 31		½ SR-SS	20/none	
			Feb 20-Mar 10, 1999				
	Sn/Ro	[c]Cons. Or.	March 11-April 16, 1999		½ SR-SS/½	20/none	
1999	Ca	2	Sep 11-12[b]	None	½ SR-SS	2/4*[l]	
	Ca/Wf/Br	70	Oct 2-Dec 10	Oct 2-Oct 10	½ SR-SS	2/4*[m]	
				Oct 16-Dec 15			
	Sn/Ro	107	Oct 2-Dec 26		½ SR-SS	20/none	
			Feb 19-Mar 10, 2000				
	Sn/Ro	[c]Cons. Or.	March 11-April 16, 2000		½ SR-SS/½	20/none	

Year	Goose Species	Season Length	Season Dates		Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
2000	Ca	2	Sep 9-10[b]	None	½ SR-SS	2/4*[l]	
	Ca/Wf/Br	70	Sep 30-Dec 8	Sep 30-Oct 15	½ SR-SS	2/4*[m]	
				Nov 4-Dec 27			
	Sn/Ro	107	Sep 30-Jan 14, 2001		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Feb 15-April 15, 2001		½ SR-SS/½	20/none	
2001	Ca/Wf/Br	70	Sep 29-Dec 7	Sep 29-Oct 21	½ SR-SS	2/4*[m]	
				Nov 10-Dec 26			
	Sn/Ro	107	Sep 29-Jan 13, 2002		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Feb 2-April 15, 2002		½ SR-SS/½	20/none	
2002	Ca/Wf/Br	70	Sep 28-Dec 6	Sep 28-Oct 20	½ SR-SS	2/4*[m]	*[m]Bag lim.= 2 Ca , 2 Wf, & 2 Br. Pos lim.= 4 Ca, 4 Wf, & 4 Br.
				Nov 9-Dec 25			
	Sn/Ro	107	Sep 28-Jan 12, 2003		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Feb 1-April 15, 2003		½ SR-SS/½	20/none	
2003	Ca	15	Sep 1-15 in metro zones[d]		½ SR-SS	3/6*[n]	*[n]Bag lim.= 3 Ca.
	Ca & Br	70	Sep 27-Dec 5	Sep 27-Oct 19	½ SR-SS	2/4 *[o]	*[o]Bag lim.= 2 Ca & 2 Br . Pos lim.= 4 Ca & 4 Br.
				Nov 8-Dec 24			
	Wf	86	Sept 27-Dec 21	Sept 27-Dec 21	½ SR-SS	2/4	
	Sn/Ro	107	Sep 27-Jan 11, 2004		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Jan 12-April 15, 2004		½ SR-SS/½	20/none	
			North Zone (2)	**South Zone (2)**			
2004	Ca	15	Sep 1-15 in metro zones[d]		½ SR-SS	3/6*[n]	
	Ca	2	Sep 11-12	None	½ SR-SS	2/4*[l]	*[l]Bag lim.= 2 Ca.
	Ca & Br	60	Sep 25-Oct 3	Oct 2-10	½ SR-SS	2/4*[o]	
			Oct 16-Dec 5	Oct 30-Dec 19			
	Wf	86	Sept 25-Dec 19	Oct 2-Dec 26	½ SR-SS	2/4	
	Sn/Ro	107	Sep 25-Jan 9, 2005		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Jan 10-April 15, 2005		½ SR-SS/½	20/none	
2005	Ca	15	Sep 1-15 in metro zones[d]		½ SR-SS	3/6*[n]	
	Ca	2	Sep 10-11	Sep 10-11	½ SR-SS	2/4*[l]	
	Ca & Br	70	Oct 1-9	Oct 1-9	½ SR-SS	2/4*[o]	
			Oct 15-Dec 4	Oct 22-Dec 4			
			Dec 24-Jan 2	Dec 24-Jan 9			
	Wf	72	Oct 1-Dec 11	Oct 1-Dec 11	½ SR-SS	2/4	

Year	Goose Species	Season Length	Season Dates		Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
	Sn/Ro	107	Oct 1-Jan 15, 2006		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Jan 16-April 15, 2006		½ SR-SS/½	20/none	
2006	Ca	15	Sep 1-15 in metro zones[d]		½ SR-SS	3/6*[n]	
	Ca	2	Sep 9-10	Sep 9-10	½ SR-SS	2/4*[l]	
	Ca & Br	90	Sep 30-Dec 10	Sep 30-Oct 8	½ SR-SS	2/4*[p]	*[p]Bag lim.= 2 Ca & 1 Br. Pos lim.= 4 Ca & 2 Br.
			Dec 16-Jan 2	Oct 21-Jan 9			
	Wf	72	Sep 30-Dec 10	Sep 30-Dec 10	½ SR-SS	2/4	
	Sn/Ro	107	Sep 30-Jan 14, 2007		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Jan 15-April 15, 2007		½ SR-SS/½	20/none	
2007	Ca	15	Sep 1-15 in metro zones[d]		½ SR-SS	5/10*[q]	*[q]Bag lim.= 5 Ca.
	Ca	2	Sep 8-9	Sep 8-9	½ SR-SS	2/4*[l]	
	Ca & Br	90	Sep 29-Dec 9	Sep 29-Oct 7	½ SR-SS	2/4*[p]	
			Dec 15-Jan 1	Oct 20-Jan 8			
	Wf	72	Sep 29-Dec 9	Sep 29-Dec 9	½ SR-SS	2/4	
	Sn/Ro	107	Sep 29-Jan 13, 2008		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Jan 14-April 15, 2008		½ SR-SS/½	20/none	
2008	Ca	15	Sep 1-15 in metro zones[e]		½ SR-SS	5/10*[q]	
	Ca & Br	90	Sep 27-Oct 5	Sep 27-Oct 5	½ SR-SS	2/4*[p]	
			Oct 18-Dec 21	Oct 18-Dec 21			
			Dec 27-Jan 11	Dec 27-Jan 11			
	Wf	72	Sep 27-Dec 7	Sep 27-Dec 7	½ SR-SS	2/4	
	Sn/Ro	107	Sep 27-Jan 11, 2009		½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Jan 12-April 15, 2009		½ SR-SS/½	20/none	
			North Zone (3)	**South Zone (3)**			
2009	Ca	15	Sep 1-15 in metro zones[e]		½ SR-SS	5/10*[q]	
	Ca & Br	90	Sep 26-Oct 4	Sep 26-Oct 4	½ SR-SS	2/4*[p]	
			Oct 10-Dec 13	Oct 17-Dec 13			
			Dec 19-Jan 3	Dec 19-Jan 10			
	Wf	72	Sep 26-Dec 6	Sep 26-Dec 6	½ SR-SS	2/4	
	Sn/Ro	107	Sep 26-Jan 10, 2010		½ SR-SS	20/none	
	Sn/Ro	cCons. Or.	Jan 11-April 15, 2010		½ SR-SS/½	20/none	

Year	Goose Species	Season Length	Season Dates			Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
2010	Ca	9	Sep 4-12 in metro zones[e]			½ SR-SS	5/10*[q]	
	Ca & Br	98	Sep 25-Oct 10	Oct 2-Oct 17		½ SR-SS	2-3/4-6*[r]	*[r]Bag lim.= 2 Ca & 1 Br through Oct. 31 and 3 Ca & 1 Br thereafter.
			Oct 16-Jan 5	Oct 23-Jan 12				
	Wf	72	Sep 25-Dec 5	Oct 2-Dec 12		½ SR-SS	2/4	
	Sn/Ro	107	Sep 25-Jan 9	Oct 2-Jan 14		½ SR-SS	20/none	
	Sn/Ro	cCons. Or.	Jan 15-April 15, 2011			½ SR-SS/½	20/none	
			North Zone (4)	**South Zone (4)**				
2011	Ca	9	Sep 3- 11 in metro zones[e]			½ SR-SS	5 / 10 *q	
	Ca & Br	98	Sep 24-Oct 9	Oct 1-Oct 16		½ SR-SS	2-3/4-6*[r]	
			Oct 15-Jan 4	Oct 22-Jan 11				
	Wf	74	Sep 24-Dec 6	Oct 1-Dec 13		½ SR-SS	2/4	
	Sn/Ro	107	Sep 24-Jan 8	Oct 1-Jan 13		½ SR-SS	20/none	
	Sn/Ro	cCons. Or.	Jan 14-April 15, 2012			½ SR-SS/½	20/none	
			North Zone (5)	**South Zone (5)**	**Missouri River (5)**			
2012	Ca	9	Sep 1-9 in metro zones[e]			½ SR-SS	5/10*[q]	
	Ca & Br	98	Sep 29-Dec 11	Oct 6-Jan 11	Oct 13-Jan 18	½ SR-SS	2-3/4-6*[r]	
	Wf	74	Sep 29-Dec 11	Oct 6-Dec 18	Oct 13-Dec. 25	½ SR-SS	2/4	
	Sn/Ro	107	Sep 24-Jan 8	Oct 1-Jan 13	Oct 13-Jan 18	½ SR-SS	20/none	
	Sn/Ro	cCons. Or.	Jan 14-April 15, 2013			½ SR-SS	20/none	
2013	Ca	9	Sep 7-15 in metro zones[e]			½ SR-SS	5/15*[q]	
	Ca & Br	98	Sep 28-Jan 3,	Oct 5-Jan 10	Oct 12-Jan 17	½ SR-SS	2-3/6-9*[r]	
	Wf	74	Sep 28-Dec 10	Oct 5-Dec 17	Oct 12-Dec. 24	½ SR-SS	2/6	
	Sn/Ro	107	Sep 28-Jan 12	Oct 5-Jan 17	Oct 12-Jan 17	½ SR-SS	20/none	
	Sn/Ro	cCons. Or.	Jan 18-April 15, 2014			½ SR-SS	20/none	
2014	Ca	9	Sep 6 - 14 in metro zones[e]			½ SR-SS	5/15*[q]	
	Ca & Br	98	Sep 27-Jan 2,	Oct 4-Jan 9	Oct 11-Jan 16	½ SR-SS	2-3/6-9*[r]	
	Wf	74	Sep 27-Dec 9	Oct 4-Dec 16	Oct 11-Dec. 23	½ SR-SS	2/6	
	Sn/Ro	107	Sep 27-Jan 11	Oct 4-Jan 16	Oct 11-Jan 16	½ SR-SS	20/none	
	Sn/Ro	cCons. Or.	Jan 17-April 15, 2015			½ SR-SS	20/none	
2015	Ca	9	Sep 5-13 in metro zones[e]			½ SR-SS	5/15*[q]	
	Ca & Br	98	Sep 26-Jan 1	Oct 3-Jan 8	Oct 10-Jan 15	½ SR-SS	2-3/6-9*[r]	
	Wf	74	Sep 26-Jan 1	Oct 3-Jan 8	Oct 10-Jan 15	½ SR-SS	5/15**	**in aggregate with Ca & Br
	Sn/Ro	107	Sep 26-Jan 10	Oct 3-Jan 15	Oct 3-Jan 15	½ SR-SS	20/none	

Year	Goose Species	Season Length	Season Dates			Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
	Sn/Ro	cCons. Or.	Jan 16-April 15, 2016			½ SR-SS	20/none	
2016	Ca	9	Sep 3-11 in metro zones[e]			½ SR-SS	5/15*[q]	
	Dark Geese	98	Sep 24-Oct 9	Oct 1-9	Oct 8-16	½ SR-SS	5/15*[r]	
			Oct 15-Jan 4	Oct 22-Jan 18	Oct 22-Jan 18	½ SR-SS		
	Sn/Ro	107	Sep 24-Oct 9	Oct 1-9	Oct 8-16	½ SR-SS	20/none	
			Oct 15-Jan 13	Oct 22-Jan 27	Ocr 22-Jan 27	½ SR-SS	20/none	
	Sn/Ro	cCons. Or.	Jan 28-April 15, 2017			½ SR-SS	20/none	

GOOSE SPECIES: Ca = Canada goose, Sn = Snow goose, Wf = White-fronted goose, Br = Brant, Ro = Ross's goose

SEASON LENGTH: Maximum number of days the season could be open.

SHOOTING HOURS: SR-SS = sunrise to sunset, ½ SR-SS = ½ hour before sunrise to sunset, ½ SR-½ SS= ½ hour before sunrise to ½ hour before sunset, ½ SR-1 SS = ½ hour before sunrise to 1 hour before sunset. ½ SR to SS/1 = ½ hour before sunrise to sunset in all of state except SW Zone where shooting hours were ½ hour before sunrise to 1pm until Dec. 1 in 1991 and until Nov. 29 in 1992, then ½ hour before sunrise to sunset thereafter. ½ SR-SS ½ = ½ hour before sunrise to ½ hour after sunset.

LIMIT: BAG = Daily bag limit, **POSS** = Possession limit

SW ZONE(1) = that portion of the state south and west of a line running from the Iowa-Missouri state line along US Hwy 71 to St Hwy 92 and west on Hwy 92 to the Nebraska-Iowa border.

SW ZONE(2) = that portion of the state south and west of a line running from the Iowa-Missouri state line along US Hwy 71 to I-80, west on I-80 to US Hwy 59, north on US Hwy 59 to St Hwy 37, then NW on Hwy 37 to St Hwy 175, and west on Hwy 175 to the Nebraska-Iowa border.

GOOSE ZONE BOUNDARY (1) = a line running from the Nebraska-Iowa border along St Hwy 175, southeast to St Hwy 37, east to US Hwy 59, south to I-80, and along I-80 to the Iowa-Illinois border. This was the same boundary used to divide the north and south duck zones during 1993-2003.

GOOSE ZONE BOUNDARY (2) = a line running from the Nebraska-Iowa border along St Hwy 20. This change was made in the 2004 season and was maintained through the 2008 season.

GOOSE ZONE BOUNDARY (3) = a line running from the Nebraska-Iowa border along St Hwy 175, east to St Hwy 37, southeast to St Hwy 183, northeast to St Hwy 141, east to US Hwy 30, and along US Hwy 30 to the Iowa-Illinois border. The duck and goose zone boundaries were identical from 1993-2003. The goose zone boundary was moved to Hwy 20 from 2004-2008. In 2009, the goose zone boundary was changed to match the duck zone boundary, i.e., along Hwy 30.

GOOSE ZONE BOUNDARY (4) = a line beginning on the South Dakota-Iowa border at Interstate 29, southeast to Woodbury Co Rd D38, east to Woodbury Co Rd K45, southeast to St Hwy 175, east to St Hwy 37, southeast to St Hwy 183, northeast to St Hwy 141, east to US Hwy 30, and along US Hwy 30 to the Iowa-Illinois border.

GOOSE ZONE BOUNDARY (5) = The North Zone is all of Iowa north of a line beginning on the on the South Dakota-Iowa border at I-29, southeast to St Hwy 175, east to St Hwy 37, southeast to St Hwy 183, northeast to St Hwy 141, east to US Hwy 30, and along US 30 to the Iowa-Illinois border. The Missouri River Zone includes all lands and water in Iowa west of I-29 and north of Hwy 175. The South Zone is the remainder of the state not in the North or Missouri River Zones.

(*SH) Steel shot required statewide for hunting all migratory gamebirds except woodcock. See Iowa's Duck and Coot Seasons for a complete history of steel shot regulations in Iowa.

(*HIP) First year migratory bird hunters in Iowa registered (by phone) for the federal Harvest Information Program (HIP).

SPECIAL REGULATIONS: Ross's goose season was closed by Federal regulation from 1942-61.

[a]The daily limit was 2 Canada geese through Oct. 31 and 1 thereafter except in the south zone where it was 2 after Nov. 30.

[b]The special 2-day September Canada goose season was only open in the north zone west of Hwy 63.

[c]A conservation order was issued by the USFWS to permit the taking of light geese (snow + ross) after the regular season, including after March 10, the last day regular waterfowl seasons can be open. Hunters could use electronic calls and unplugged shotguns and hunt until ½ hour after sunset. Hunters had to be fully licensed to hunt waterfowl in Iowa (no Fed. Mig. Bird stamp) and registered with HIP.

[d]This special September Canada goose season was only open in the Des Moines and Cedar Rapids/Iowa City zones.

[e]This special September Canada goose season was only open in the Des Moines, Cedar Rapids/Iowa City and Cedar Falls/Waterloo zones.

Table 4.5 Waterfowl banded in Iowa. (Numbers include both state and federal bandings.)

Year	Canada Geese	Mallards	Wood Ducks	Blue-winged Teal	Trumpeter Swans	Other Waterfowl Species	Total Waterfowl	Mourning Doves
1964	51	440	488	6,046		273	7,298	0
1965	32	533	571	4,485		120	5,741	0
1966	61	504	564	3,836		172	5,137	0
1967	66	1,928	410	4,022		113	6,539	0
1968	91	1,809	315	3,716		63	5,994	0
1969	53	2,282	414	1,634		135	4,518	0
1970	143	2,368	935	2,649		236	6,331	0
1971	301	1,901	1,644	1,395		330	5,571	0
1972	148	672	1,381	1,000		127	3,328	0
1973	410	1,022	1,665	601		115	3,813	0
1974	268	522	1,333	638		34	2,795	0
1975	222	563	2,026	248		164	3,223	0
1976	544	3,165	1,620	334		19	5,682	0
1977	799	678	1,261	223		25	2,986	0
1978	633	4,418	1,765	1,022		98	7,936	0
1979	409	4,683	1,490	509		3	7,094	0
1980	775	2,175	1,302	1,880		85	6,217	0
1981	736	350	1,523	919		86	3,614	0
1982	975	99	2,747	26		1	3,848	0
1983	1,444	446	2,411	35		3	4,339	0
1984	1,293	110	2,489	38		6	3,936	0
1985	1,710	389	1,953	30		1	4,083	0
1986	1,847	383	2,623	18		3	4,874	0
1987	2,127	380	2,199	98		8	4,812	0
1988	2,421	349	2,115	37		2	4,924	0
1989	1,712	70	2,636	0		0	4,418	0
1990	1,556	13	1,908	64		0	3,541	0
1991	1,880	151	4,874	0		0	6,905	0
1992	2,043	392	3,776	0		13	6,224	0
1993	2,538	130	2,931	0		1	5,600	0
1994	3,737	146	3,631	0		0	7,514	0
1995	3,671	221	6,717	0		0	10,609	0
1996	3,809	263	4,188	0		0	8,260	0
1997	4,852	77	4,375	0		0	9,304	0
1998	4,462	292	4,837	0	58	0	9,649	0
1999	6,073	229	4,669	0	46	0	11,017	0
2000	2,971	133	2,380	0	90	0	5,574	0
2001	2,942	60	3,711	0	78	0	6,791	0
2002	3,479	338	3,146	207	68	0	7,238	0
2003	4,066	259	4,048	0	87	0	8,460	1987
2004	3,338	143	4,769	0	91	0	8,341	2326
2005	4,983	338	2,823	0	113	0	8,257	2079

Year	Canada Geese	Mallards	Wood Ducks	Blue-winged Teal	Trumpeter Swans	Other Waterfowl Species	Total Waterfowl	Mourning Doves
2006	4,203	210	2,729	0	78	0	7,220	1000
2007	4,283	231	2,321	0	73	0	6,908	986
2008	3,288	157	2,402	100	69	0	6,016	1,699
2009	3,593	31	2,552	0	81	0	6,257	1,266
2010	3,568	8	2,770	0	69	0	6,415	1,084
2011	3,765	40	2,252	0	51	0	6,108	2,227
2012	3,586	254	2,917	0	20	0	6,777	2,205
2013	3,483	16	3,355	0	20	0	6,874	2,080
2014	3,464	293	2,093	0	18	0	5,868	1,976
2015	3,421	34	3,301	0	18	0	6,774	1,929
2016	3,945	51	2,096	0	5	0	6,097	1,914
Totals	116,270	36,749	131,451	35,810	1,133	2,236	323,649	24,758
Recent 10-year Avg	3,822	158	2,621	10	59	0	6,670	1,660

Table 4.6 Giant Canada goose production and populations in Iowa.

Year	Young Produced	Nesting Adults	Non-breeding Adults	Total Adults	Total Geese	% Change from Prev. Year
1964	24	16	16	32	56	
1965	17	28	37	65	82	46%
1966	66	44	34	78	144	76%
1967	66	42	80	122	188	31%
1968	114	66	100	166	280	49%
1969	121	78	304	382	503	80%
1970	348	228	288	516	864	72%
1971	330	208	234	442	772	-11%
1972	402	268	481	749	1,151	49%
1973	590	404	399	803	1,393	21%
1974	763	498	407	905	1,668	20%
1975	961	602	356	958	1,919	15%
1976	1,234	754	433	1,187	2,421	26%
1977	1,401	914	596	1,510	2,911	20%
1978	2,045	1,266	610	1,876	3,921	35%
1979	2,459	1,588	884	2,472	4,931	26%
1980	3,011	1,969	842	2,811	5,822	18%
1981	3,636	2,238	912	3,150	6,786	17%
1982	3,966	2,531	1,298	3,829	7,795	15%
1983	5,235	3,177	1,486	4,663	9,898	27%
1984	5,796	3,307	1,429	4,736	10,532	6%
1985	6,742	3,791	2,155	5,946	12,688	20%
1986	8,139	4,626	2,610	7,230	15,357	22%

Year	Young Produced	Nesting Adults	Non-breeding Adults	Total Adults	Total Geese	% Change from Prev. Year
1987	9,418	5,480	2,748	8,228	17,646	15%
1988	10,408	5,820	3,761	9,581	19,989	13%
1989	8,249	4,875	4,993	9,868	18,117	-9%
1990	8,432	5,291	6,168	11,459	19,891	10%
1991	11,218	7,087	7,208	14,295	25,513	28%
1992	16,406	8,931	9,108	18,039	34,445	35%
1993	17,720	10,632	10,079	20,711	38,431	11%
1994	24,732	13,312	12,726	26,038	50,770	32%
1995	28,392	15,262	16,924	32,186	60,578	19%
1996	29,266	16,699	22,030	38,729	67,995	12%
1997	34,057	18,047	22,428	40,355	74,406	9%
1998	36,443	18,794	24,066	42,720	79,157	6%
1999	33,586	17,733	24,826	42,334	75,920	-4%
2000	33,923	17,340	27,163	44,398	78,321	3%
2001	30,264	17,996	27,337	45,246	75,510	-4%
2002	36,071	19,751	30,971	50,674	86,745	15%
2003	36,564	21,072	33,180	54,212	90,776	5%
2004	39,992	22,042	34,990	56,992	96,984	7%
2005	42,905	23,750	37,021	60,751	103,656	7%
2006	42,040	23,734	36,715	60,425	102,465	-1%
2007	37,452	24,590	40,206	64,782	102,234	0%
2008	30,231	23,420	39,320	62,740	92,971	-9%
2009	38,251	23,344	37,931	61,275	99,526	8%
2010	40,940	23,380	41,898	65,278	106,218	7%
2011	40,906	24,039	40,457	64,496	105,402	-1%
2012	37,021	23,363	43,062	66,425	103,446	-2%
2013	23,257	20,042	38,867	55,309	77,926	-25%
2014	26,549	19,189	37,499	54,653	79,633	2%
2015	31,489	20,580	38,898	56,223	85,373	7%
2016	35,602	21,577	39,633	58,760	91,763	7%
2017	38,612	21,932	41,099	63,111	99,499	3%

UPLAND WILDLIFE

The Iowa Department of Natural Resources (DNR) conducts 2 statewide surveys to monitor upland game populations in Iowa, the August Roadside survey and the Small Game Harvest survey.

August Roadside Survey is conducted each year by DNR Enforcement and Wildlife Bureau personnel throughout the state of Iowa during the first half of August. The survey generates data from 215 30-mile routes on ring-necked pheasants, bobwhite quail, gray partridge, cottontail rabbits, and white-tailed jackrabbits. Counts are conducted on sunny, calm mornings with heavy dew. All comparisons are based on total routes run.

The small game harvest survey is a mail survey of Iowa small game hunters conducted following the small game hunting seasons. Each year a random sample of small game hunters (5% of licensed hunters) are send a postcard and survey participants are asked where they hunted, which species they hunted, how many days they hunted, and how many of each species they harvested.

The data from these 2 surveys form the basis for historical information on upland game populations in Iowa and are summarized in the historical text and tables. Both surveys have been conducted annually since 1962. The full reports for both surveys can be found on the DNR's website at www.iowadnr.gov/pheasantsurvey.

Historical Summary of Populations and Harvest

Ring-necked Pheasant

The genus Phasianus or true pheasant is native to Southeast Asia. The ring-necked pheasant now found in Iowa has been classified as (*Phasianus colchicus torquatus*). This name suggests a cross between 2 of the true Asiatic pheasants. One the Rion Caucasian (Black-necked) pheasant (*Phasianus colchicus colchicus*) native to the area between the Black and Caspian Seas and the true Chinese ring-necked pheasant (*Phasianus torquatus torquatus*) found in eastern China and northwestern Indo-China.

The ring-necked pheasant was first successfully introduced into the United States in the Willamette Valley of Oregon by Owen Denny in 1882. Mr. Denny transported wild birds from China to the US to establish a population on his land. It is believed that the majority of the pheasant range in the US was stocked with birds from this original wild foundation or other wild birds from China.

Early records for Iowa are limited, but accounts suggest attempts were made to establish pheasants in Iowa as early as 1884, but the first recorded successful release was an accidental release, following a wind storm, of approximately 2,000 birds from the William Benton game farm in Cedar Falls. The source of Mr. Benton's birds is not known with certainty,

but reports say they were from an importer in Tacoma, Washington and thus very likely wild birds from China or wild birds from the Owen Denny Farm. The conservation department mentions pheasants for the first time in 1910. Early on eggs were purchased from breeders (wild or tame is unknown) and given to landowners to raise and release statewide, the 1910 biennial report indicates 6,000 eggs were distributed to applicants in 82 counties. Egg distribution met with poor success and the conservation department established a hatchery in 1913 and by 1914 mostly young birds were distributed (1,088 that year). Another 10,912 birds were distributed statewide from 1915-16. Records show all northwest counties received 200-800 bird plantings of pheasants from 1915-18, with a planting of 2,500 in Winnebago County.

In 1905, it was generally assumed that southern Iowa had better pheasant habitat than northern Iowa. The existence of this belief is supported by the fact that up until 1913 it was customary to make stockings in timber. It is interesting to note Iowa's pheasant populations reached their highest abundance in NW and NC Iowa. The early success, 1920-40's, of pheasants in north central Iowa was undoubtedly due to the abundance of grassy habitats (tame and native hay, oats, flax, and prairie pothole wetlands) interspersed with weedy crop fields.

Pheasants did extremely well in northern Iowa with crop depredation reported in 1923, with the first open season in 1925. Policy changed in 1924-25 and wild birds and eggs were trapped and moved in an effort to establish populations in southern Iowa. Between 1925 and 1931 some 26,498 wild birds and 60,000 wild eggs were gathered from areas of undue abundance in northern Iowa and distributed to other regions, mostly southern Iowa. From 1927-30 and additional 10,211 birds and 31,372 eggs were distributed in southern Iowa counties. During, 1929-30 the average southern Iowa County received over 500 birds. However, by 1936 the policy on stocking had changed:

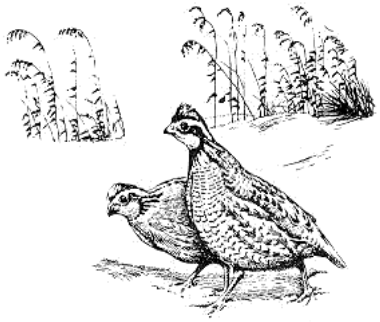
"The old policy of stocking birds without paying attention to the environment has been discontinued… for instance, during the past 20-25 years there have been thousands of pheasants released in southern Iowa and… in except a few cases pheasants disappeared after two or three generations in most counties."

With the success of wild birds, the state game farms were shut down in 1932, but following several bad weather years it was re- established in 1938. Populations recovered with good weather in the 1940's and stocking was greatly reduced, approximately 4,000 chicks and spent adults in 1943. The state game farm operated at approximately the same level until 1961. Through the 1940-50's it became increasingly evident that pen raised birds were not contributing to wild pheasant numbers. Similar to what had been done in 1924-25, in 1955 a new policy of trap and transfer of wild birds was started in southern Iowa. Increasing populations in Union and Adair counties were trapped (1,375 birds) and transplanted to Ringgold, Decatur, Wayne, Washington, and Appanoose counties. Also new wild birds were brought to the state game farm. These new "wild" birds were distributed to unoccupied range (Washington, Keokuk, Henry, Davis, VanBuren counties) thru 1973. The state game farm was closed in late 1970's and dismantled.

Iowa's first pheasant season was held October 20-22, 1925 in Kossuth, Humboldt, Winnebago, Hancock, Wright, Cerro Gordo, Franklin, Mitchell, Floyd, Butler, Grundy, Blackhawk and Bremer counties. The hunting season opened ½ hour before sunrise and ended at noon with a bag limit of 3 cocks. It appears the decision to open counties to hunting in these early years was based largely on pheasant crop depredation complaints as annual pheasant censuses, predecessor to the August Roadside Survey, were not begun until 1935. Flush count records show 7 men flushed 850 pheasants in 5 hours in Hancock County in 1931. By 1945 most of northern Iowa was open to hunting and by 1965 all of Iowa, except a few southeastern counties, was open to pheasant hunting. The entire state was opened to hunting in 1976. Historically (1930-50's), the NW, NC, and C regions had Iowa's highest pheasant densities (Figure 5.1). However, intensified agriculture has led to a decline in pheasant populations since the 1960's (Figure 5.2). Regionally, the greatest declines have occurred in the NC, C, and SW regions (Figure 5.7). By the early 1970's southern Iowa had become the states premiere pheasant range.

Populations have declined following severe winter weather in 1964-65, 1966-67, 1978-79, 1981-82, 2000-01, and 2007-11, with recoveries occurring in years with milder winters (Table 5.1). While the number of broods sighted/30-mile route has also fluctuated with the severity of the winter (Figure 5.3), the all-time lows recorded in 1983, 1984, 1993, 1999, 2001, and 2007-10 were the results of very cool and/or wet conditions during spring and early summer (Table 5.2; Figure 5.3). Observed brood sizes have declined slightly since 1962, with the 2010 estimate of 4.0 chicks/brood the lowest ever

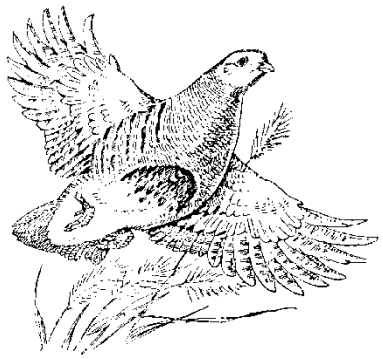
recorded (Table 5.2; Figure 5.3). Modest recoveries of all survey parameters occurred between 1984 and 1996 with the enrollment and seeding down of 2.2 million acres of row crops in the 10-year federal Conservation Reserve program (CRP). Pheasant populations in historical ranges, northern and central regions, have rebound since the inception of CRP (Figure 5.7). Populations in the southern regions initially responded to CRP the same way northern and central populations did, but have declined since 1992. Declines in SW and SC regions, in particular, are likely related to wet weather during the nesting season, lack of habitat management on CRP acres and other land use changes. The pheasant season opens the last Saturday in October and runs through January 10th, statewide with a bag/possession limit of 3/12 roosters (Table 5.10). Shooting hours are 8 am to 4:30 pm Iowa's first youth pheasant season was held during the 1997-98 hunting season. Youth hunting was allowed statewide for resident hunter's 15 years or younger whom a licensed adult accompanied. The youth pheasant season opens the weekend proceeding the regular season. Bag limit is 1 rooster/day with 2 in possession after the first day (Table 5.10).



Bobwhite Quail

Our native bobwhite was probably never very abundant on Iowa's virgin prairie; most populations were likely restricted to the prairie-timber edges of Iowa. Early settlement changed Iowa's landscape forever. At least initially these changes proved to be a boon to Iowa's quail population. Between 1860 and 1890 settlers began carving up Iowa a ¼ section at a time, but early settlers lacked timber and wire to make fences, so they planted Osage hedges instead. Three to 6 miles of some of the finest quail cover ever grown in every ¼ section, all within spitting distance of newly planted "weedy" grain fields. Quail populations exploded like never seen before or likely to be seen again. Quail could be found in every county, but these conditions could not last. By 1920 reports show quail populations beginning to decline as farming practices improved and hedgerows were replaced with barbed wire fence. The 1931-32 winter quail survey reported population densities of 1 quail per 20-40+ acres in the northern third of the state, 1 quail/6-20 ac. in the central third and 1 quail/1-6 ac. in the southern third of the state. However, quail populations have declined steadily, both nationally and in Iowa since the 1930's. Large scale landscape changes and clean farming practices are considered the major factors in this decline. Since survey procedures were standardized in the early 1960's the mean number of quail/30 miles sighted on the August roadside survey has fluctuated over the years with significant declines occurring since 1977 (Figure 5.6). This decline, along with the severe fluctuations in SW and SC Iowa in recent years, are related to losses in shrubby habitat and clean farming practices that have occurred since row-crop agriculture expanded in the mid 70's and early 80's (Figure 5.8). Similar to pheasants, quail numbers have declined sharply following harsh winters in 1964-65, 1966-67, 1978-79, 1981-82, 2000-01, and 2007-10 (Figure 5.8).

Quail have been hunted in Iowa since settlement. The first bag limit was set in 1878 at 25 birds/day, it was reduced to 15/day in 1915. The season was closed in 1917 and a limited season reopened in 1933. Currently the season opens the last Saturday in October and runs through January 31st, statewide, with a bag/possession limit of 8/16 birds. Shooting hours are 8 am to 4:30 pm (Table 5.11).

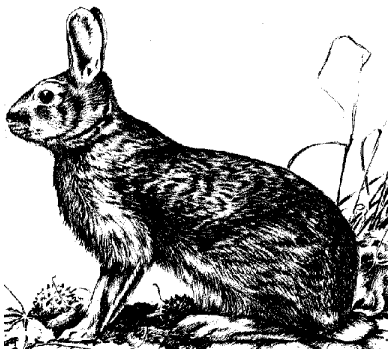


Gray Partridge

Senator HW Grant of Waterloo made the first release of Hungarian or gray partridge in Iowa in Blackhawk County in 1902, but all 50 birds died. The first successful release of Huns in Iowa occurred in Palo Alto County in 1905. This release constitutes Iowa's first wild stock. Successful releases were made in Humboldt county in 1906, O'Brien in 1909, and in Kossuth in 1910. By 1914 most northern Iowa counties had received standardized releases of 20 pairs each. All releases, similar to pheasants, were made on leased timbered lands. Reports show many local farmers were surprised when the bird promptly moved to the nearest prairie upland. By 1932 it is estimated the state conservation commission had stocked 20,000+ partridge in Iowa. Most plantings were in northern Iowa, although a few were attempted in south central Iowa; all southern attempts failed. The birds gained their strongest hold in northwest Iowa in Osceola, O'Brien, Dickinson, and Clay counties and were generally present in most northern Iowa counties by 1940.

While numbers of other upland game birds have decreased over time, the number of gray partridge sighted on roadside counts had been increasing until 1990 (Figure 5.6). Not only had the mean number partridge per 30-mile route increased statewide, but partridge populations had expanded their range from the NW and NC regions to all other regions of the state by 1986 (Figure 5.9). While losses of woody cover and nesting cover have created less favorable conditions for pheasant and quail, partridge have been more adept at coping with row-crop expansion. The statewide increase in partridge numbers between 1983 and 1989 can be attributed a drought during these years and improved nesting conditions on land enrolled in CRP. Following the drought populations have returned to levels seen prior to 1983 (Figure 5.6). Huns were imported to this country from the arid, steppe region of southeastern Europe and northern Asia, and research has shown they do not reproduce well in this country during years with wet springs.

Iowa's first partridge season was held in 11 northwestern counties in 1937-39. Partridge season was standardized in 1989 to opens the second Saturday in October and runs through January 31st, statewide, with a bag/possession limit of 8/16 birds. Shooting hours are 8 am to 4:30 pm (Table 5.12).



Eastern Cottontail

Little is known about the pre-settlement distribution of cottontail rabbits in Iowa. Cultivation by man no doubt favored rabbits much the same way it favored quail at the turn of the century. Cottontails prefer habitats similar to quail, favoring shrubby-grassy edge habitats. Cottontails may have up to 6 litters a year in Iowa and reproduce best during warm moderately wet springs. Numbers of cottontail rabbits observed on the August roadside survey have fluctuated with changing land use and weather conditions (Figure 5.6). Hunter interest has declined in recent years (Figure 5.12). Cottontails have been hunted in Iowa since settlers first arrived. The cottontail season was standardized in 1978 and opens the first Saturday in September and runs through February 28th, statewide, with a bag/possession limit of 10/20 rabbits. Shooting hours are sunrise to sunset (Table 5.13). The rule regarding the opening day of the cottontail season

was changed in 1997 to open the 1997-98 season on Sept. 1st. This change in date allows inclusion of the Labor Day weekend in all years. It was changed again in 2008 to open the Saturday before Labor Day to allow youth hunters to participate in the opener.

White-tailed Jackrabbit

Before settlement white-tailed jackrabbits could be found everywhere in Iowa, except for a few southeastern counties. They appear in greatest abundance on the glaciated soils of the Des Moines Lobe and the Missouri Loess soils of northwestern Iowa. They are most at home on the wide- open expanses of prairie/wetland/pasture habitat types, although moderate cultivation favors the species. Dry growing seasons appear conducive to jackrabbit abundance as population's decline in wet years. Jackrabbit counts have declined greatly over time, closely paralleling the losses of pasture, hay, and small grain acreage's. Because of this downward trend the bag/possession limit was reduced from 2/4 to ½ following the 2005-06 hunting season. The hunting season on jackrabbits was closed during 2011-12 hunting season because of continued declines on DNR roadside surveys. It may be reopened if populations recover due to landscape changes like grass based biomass.

Jacks have been hunted in Iowa since the time of settlement. Conservation officers reported hunters killing 180+ jacks on two circle hunts in Carroll and Buena Vista counties during the winter of 1960. Historic trends in jackrabbit population, harvest, and hunting seasons can be found in Table 5.3Table 5.6, and Table 5.13.

Figures

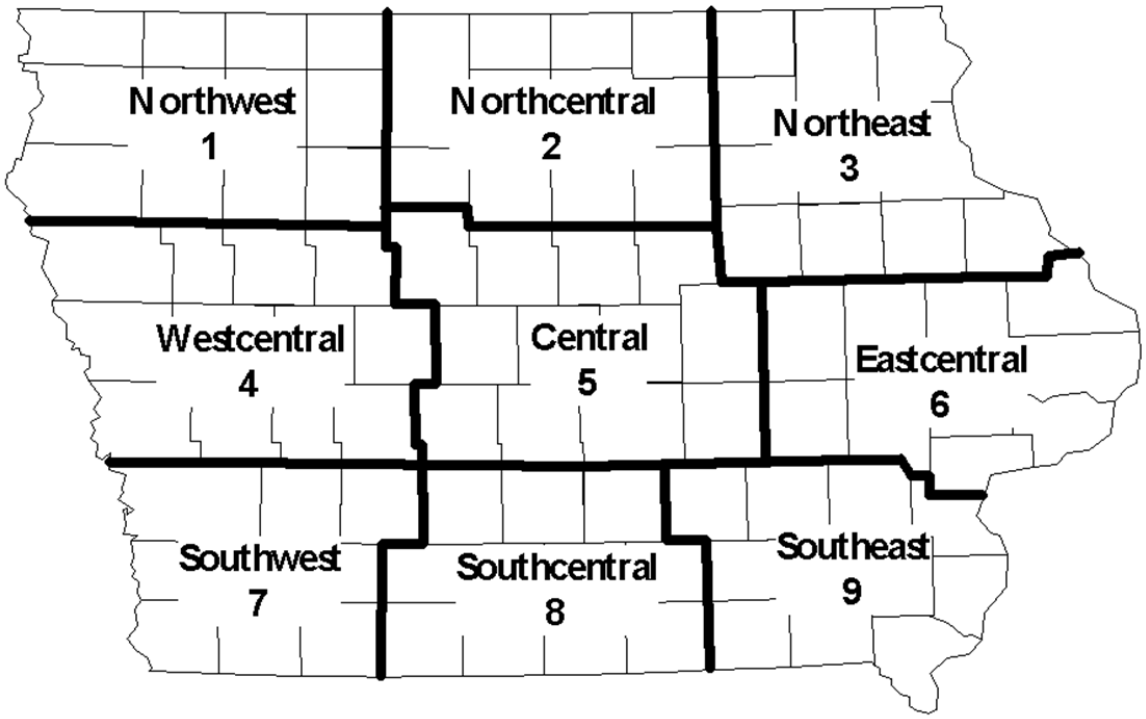


Figure 5.1 Survey regions for the August Roadside Survey.

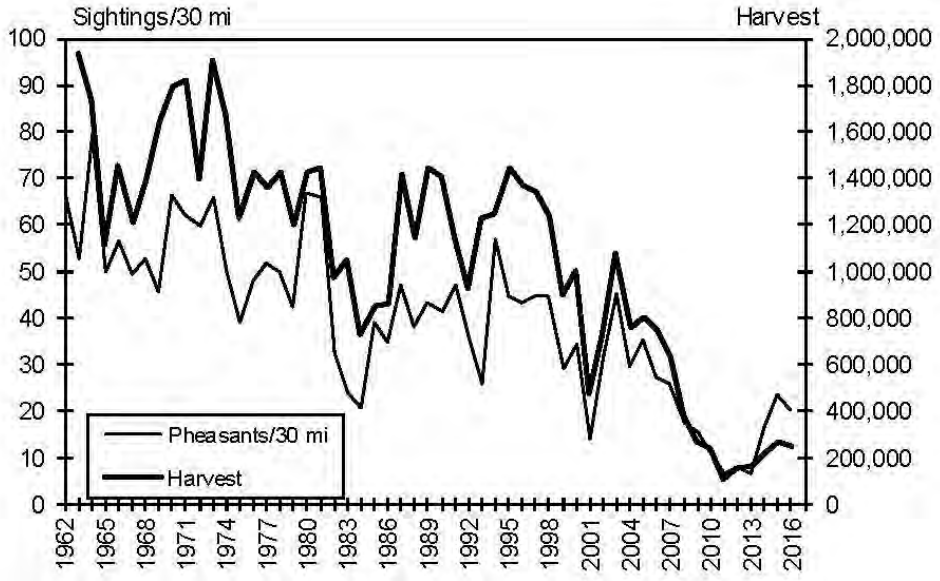


Figure 5.2 Statewide trends in pheasant harvest and August roadside survey counts

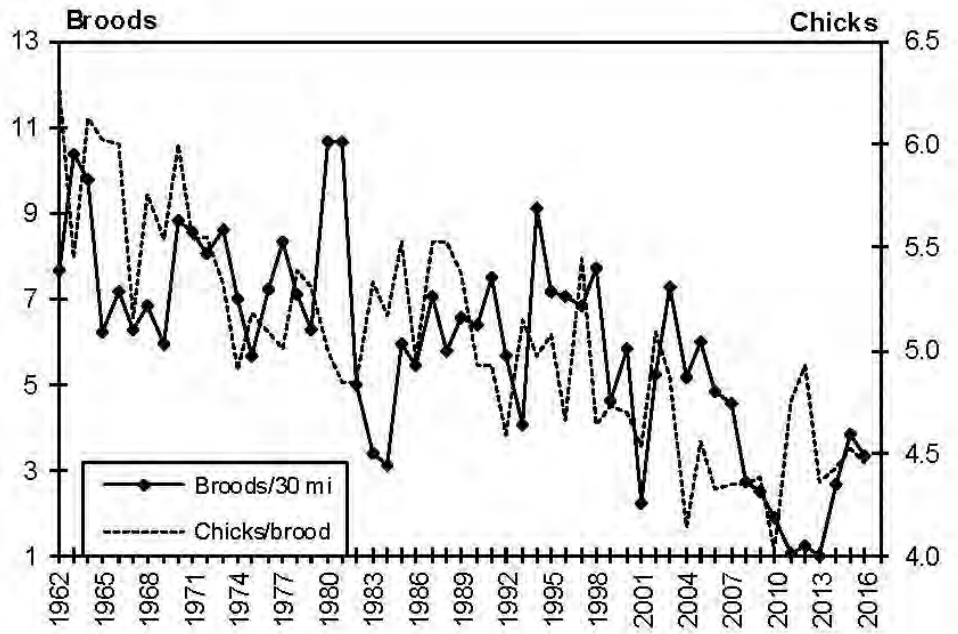


Figure 5.3 Statewide trends in pheasant broods and average brood size from August roadside survey

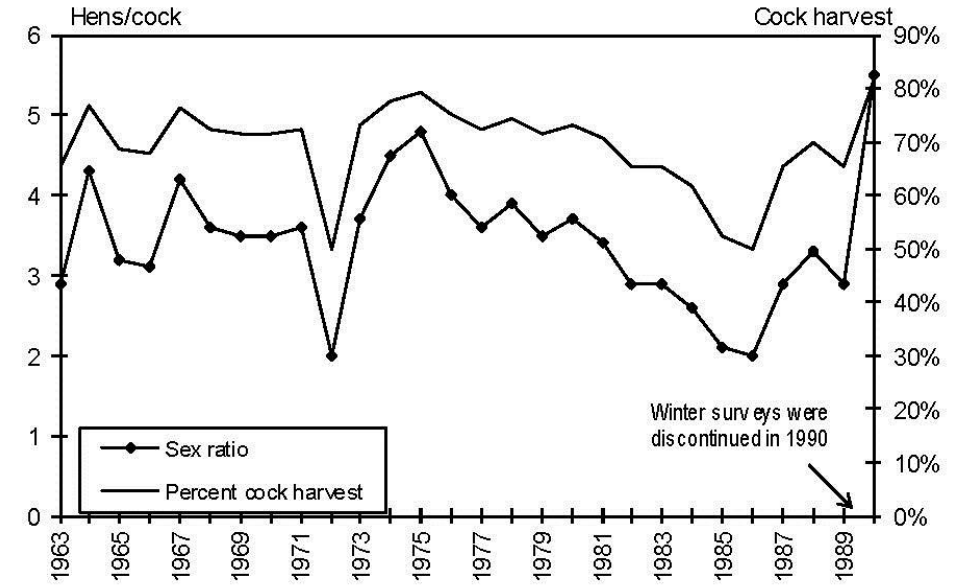


Figure 5.4 Statewide sex ratio and estimated cock harvest from winter pheasant surveys

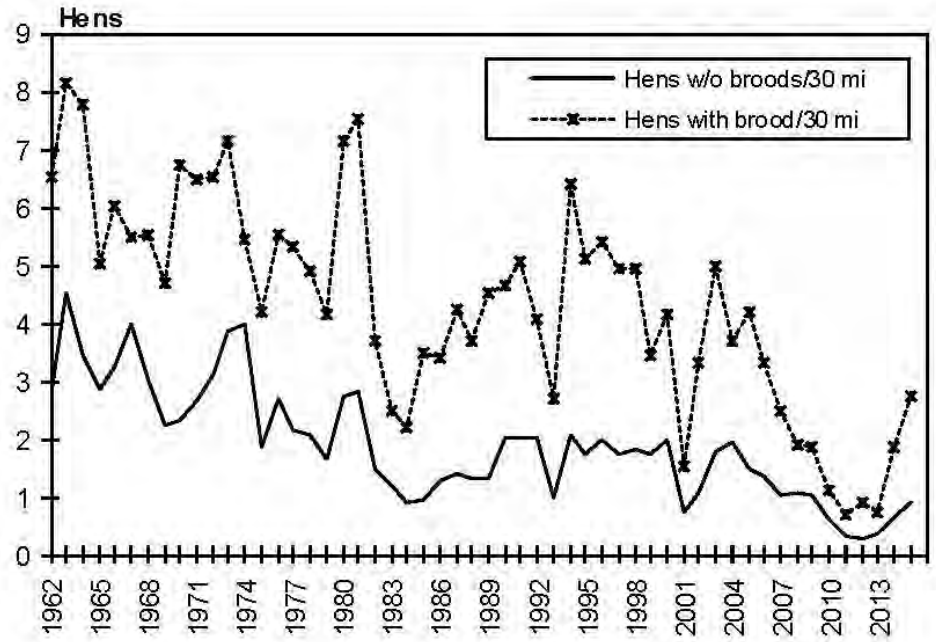


Figure 5.5 Statewide trends in pheasant hens with and without broods from August roadside survey

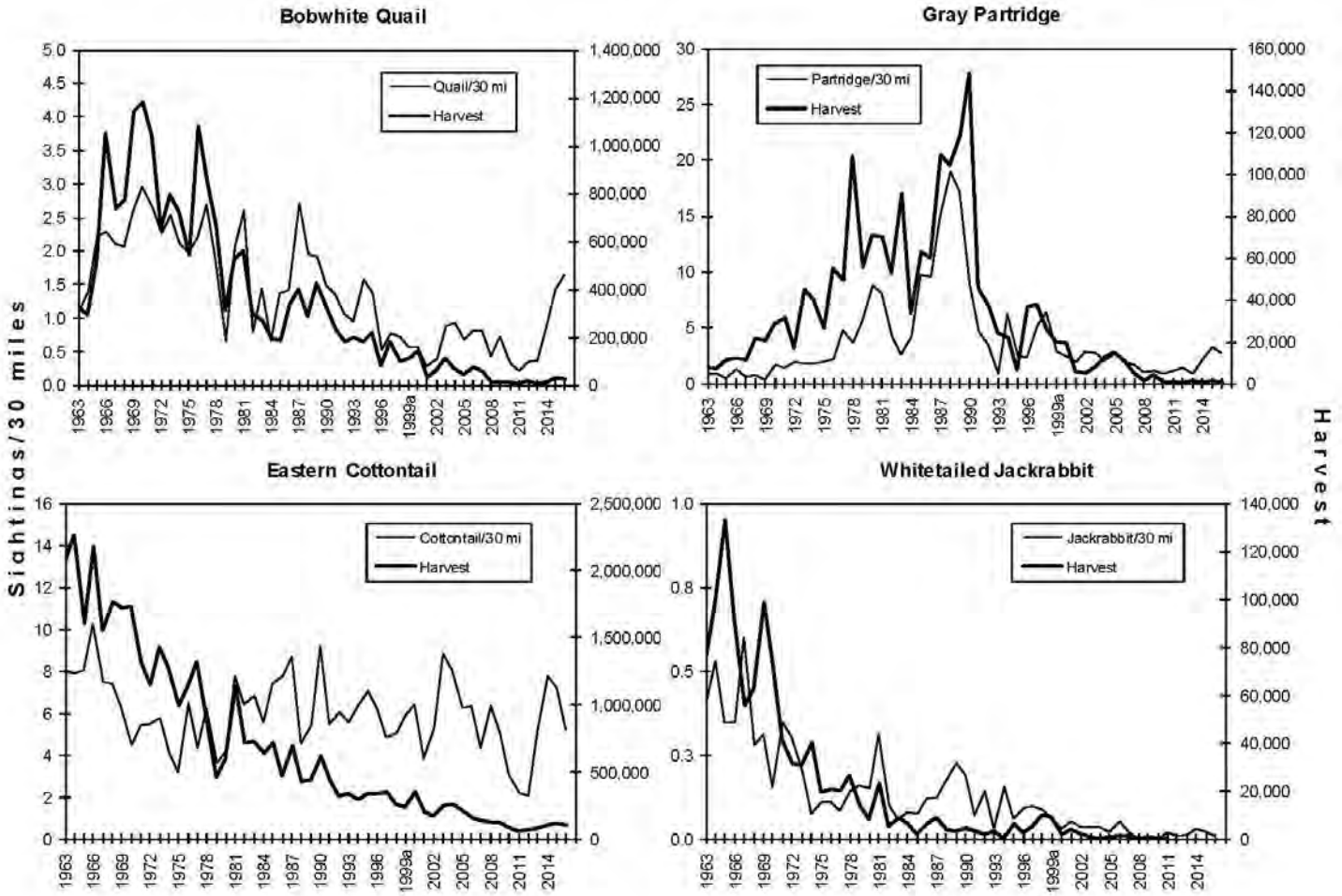


Figure 5.6 Statewide trends in small game harvests and August roadside survey counts

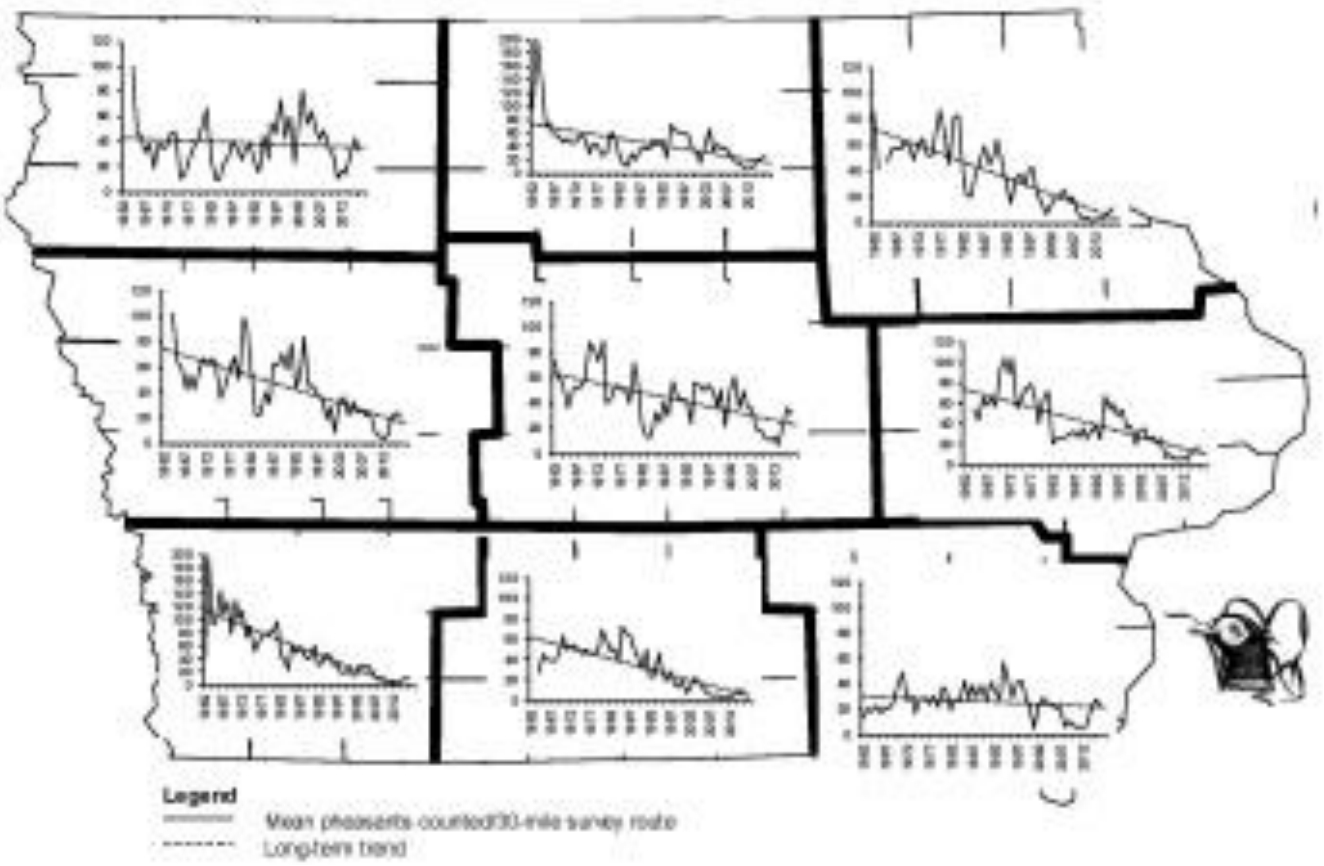


Figure 5.7 Regional trends in ring-necked pheasant numbers from the August roadside survey (1962-present). Note: Because of variation in historical counts, vertical axises among survey regions are not to the same scale.

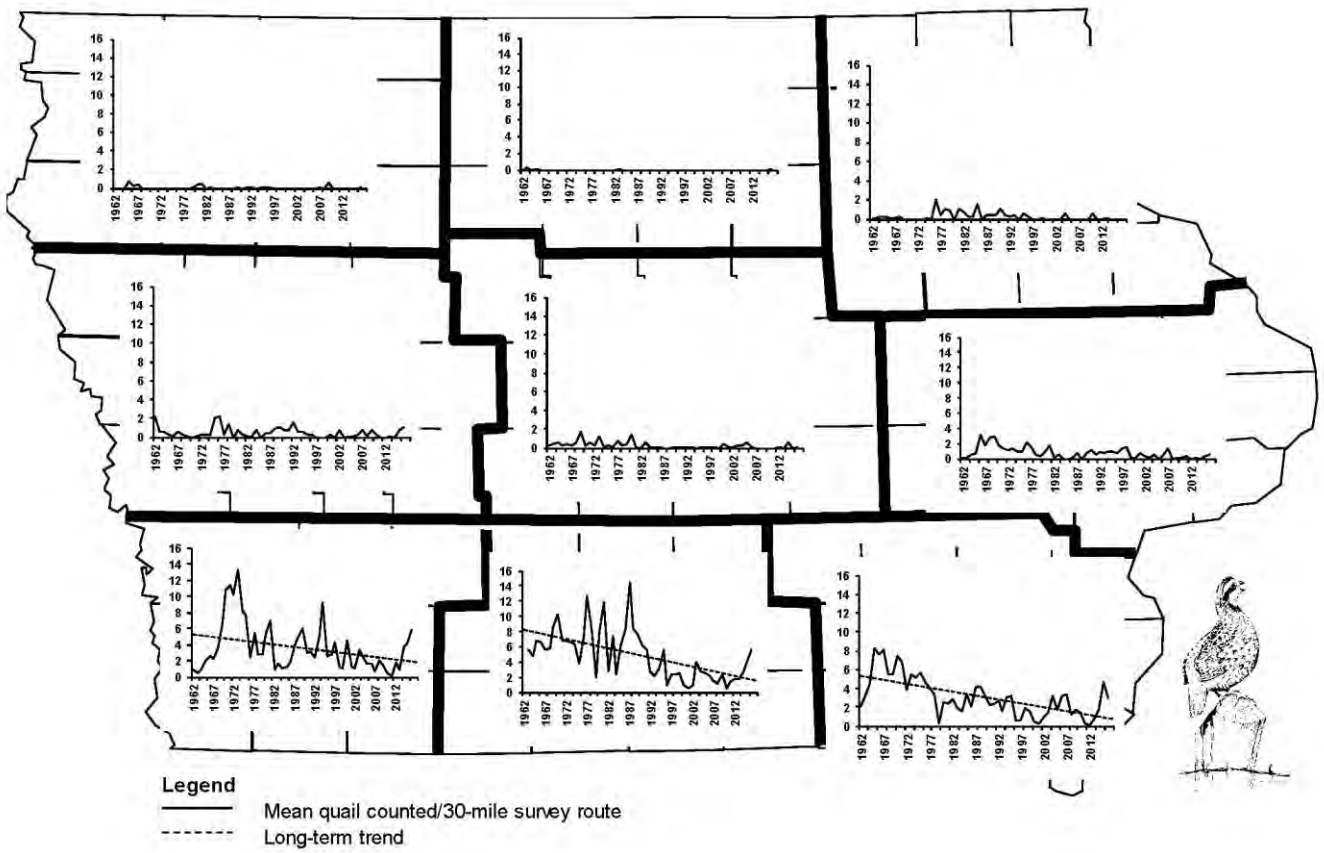


Figure 5.8 Regional trends in bobwhite quail numbers from the August roadside survey (1962-present).

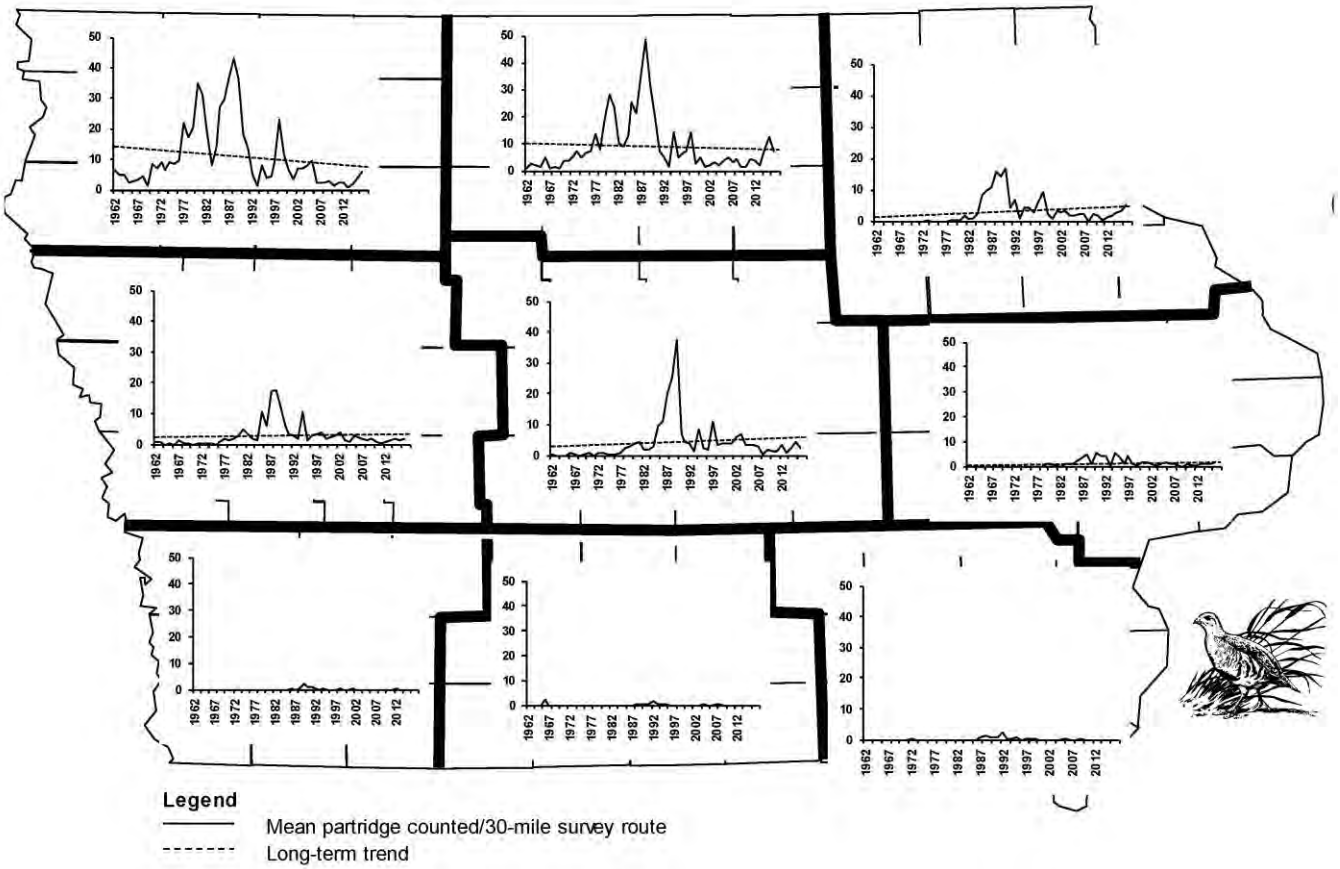


Figure 5.9 Regional trends in gray partridge numbers from the August roadside survey (1963-present).

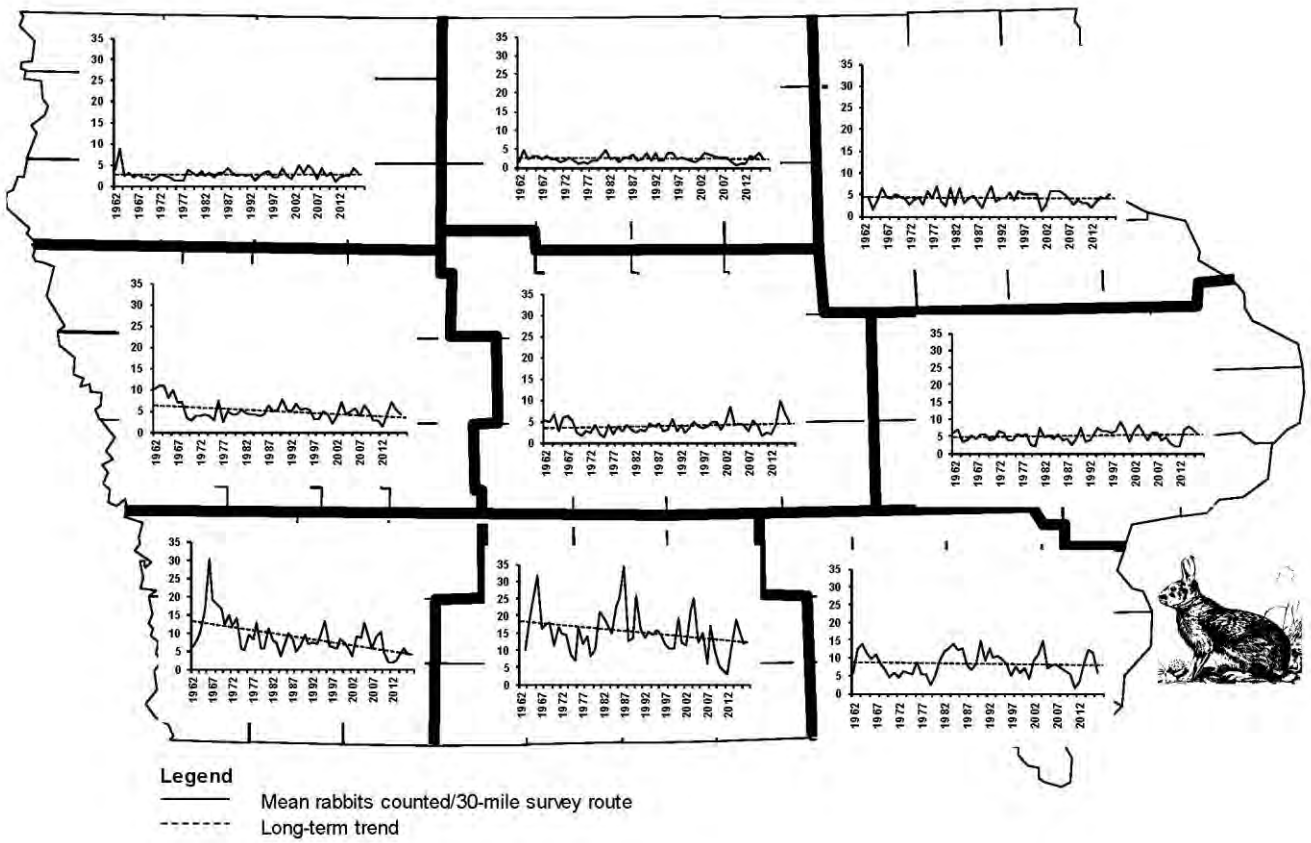


Figure 5.10 Regional trends in cottontail rabbit numbers from the August roadside survey (1962-present).

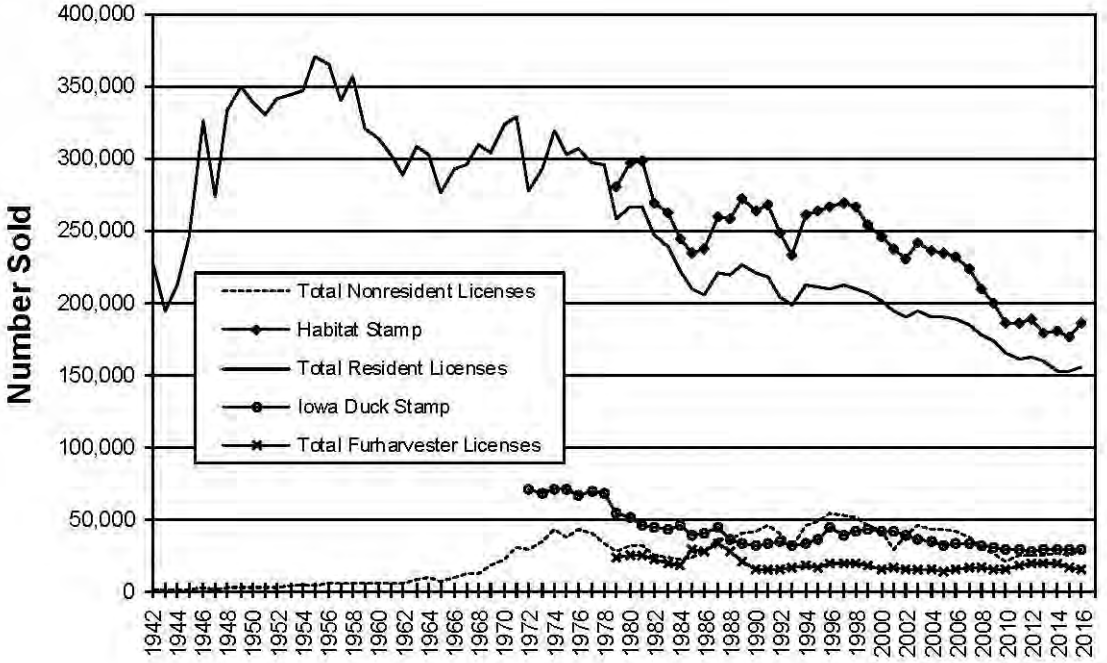


Figure 5.11 Sales of Iowa hunting licenses

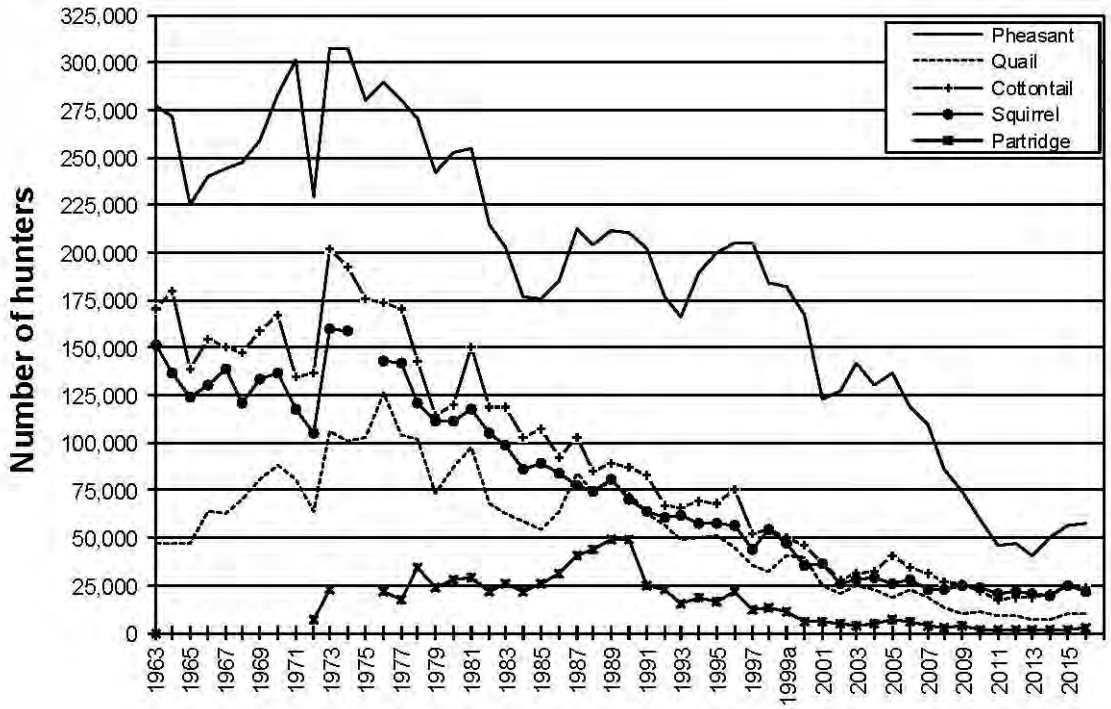


Figure 5.12 Estimated number of Iowa small-game hunters (resident and NR hunters combined)

Tables

Table 5.1 Mean number of pheasants counted/30-mile route on the August roadside survey regionally and statewide (1962-present). Severe winter weather preceded the August counts in 1965, 75, 79, 01, 04 08, 10, 11. Abnormally wet weather occurred during 1973, 82, 84, 95, 99, 01, 08, 13 nest seasons. Winter sex ratio and cock harvest data are statewide estimates. Sex ratio counts were done the year succeeding the year listed.

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	State wide	Sex[a] Ratio	Cock[b] Harvest
1962	84.7	95.5	85.3	85.0	74.6	32.3	44.4		12.8	65.9		
1963		200.4	40.8		60.3		200.4		19.8	52.6	2.9	66%
1964	99.9	138.0		101.6	54.4	53.9	92.6	26.3	18.3	79.4	4.3	77%
1965	46.0	67.5	47.8	64.7	36.2	43.9	97.6	44.6	22.8	49.9	3.2	69%
1966	43.5	75.3	57.5	58.4	49.3	63.9	144.1	40.7	17.1	56.6	3.1	68%
1967	31.0	56.8	57.2	42.4	53.2	58.6	108.3	38.8	21.1	49.1	4.2	76%
1968	38.0	56.0	56.6	53.5	52.2	64.3	127.4	38.7	19.7	52.7	3.6	72%
1969	18.8	44.7	62.5	42.2	57.6	57.2	77.9	44.2	25.2	45.5	3.5	71%
1970	39.2	53.0	59.6	56.1	87.8	91.7	129.1	63.8	40.5	66.2	3.5	71%
1971	34.6	45.2	49.0	66.2	82.6	104.3	101.6	49.7	48.4	62.0	3.6	72%
1972	37.9	44.6	61.0	61.4	73.2	88.6	112.3	54.3	25.8	59.6	2.0	50%
1973	47.0	56.9	65.4	66.3	88.7	103.5	72.4	54.3	30.2	65.8	3.7	73%
1974	46.6	53.2	52.5	60.5	40.0	55.9	90.1	49.6	16.8	49.7	4.5	78%
1975	10.5	28.7	52.3	34.3	43.2	64.3	51.0	45.4	27.4	38.8	4.8	79%
1976	14.8	42.2	68.1	44.8	54.9	75.4	61.7	49.2	28.7	48.2	4.0	75%
1977	26.9	44.2	86.7	56.9	50.8	78.5	75.1	44.3	24.4	51.7	3.6	72%
1978	36.3	26.1	68.8	67.8	50.5	63.2	76.7	45.5	30.5	49.7	3.9	74%
1979	40.1	29.6	44.8	49.4	39.2	39.6	80.9	51.5	21.8	42.4	3.5	71%
1980	51.2	61.7	81.2	98.7	72.2	63.5	82.1	68.9	37.2	67.0	3.7	73%
1981	66.4	53.5	83.6	92.9	57.8	72.9	97.1	57.8	35.2	65.9	3.4	71%
1982	26.7	27.9	38.9	55.5	23.1	20.9	41.6	47.7	19.3	32.3	2.9	66%
1983	9.6	12.8	21.7	21.6	13.3	25.3	42.6	51.1	27.5	23.7	2.9	66%
1984	8.8	11.1	19.2	22.1	14.4	24.5	23.8	38.5	26.4	20.6	2.6	62%
1985	21.6	28.0	36.4	40.0	32.7	26.0	59.2	72.6	42.0	38.9	2.1	52%
1986	27.5	20.4	48.2	31.2	24.8	29.0	49.7	65.2	27.2	34.8	2.0	50%
1987	40.2	36.8	59.7	61.4	41.1	33.2	58.5	64.2	39.0	46.8	2.9	66%
1988	33.6	35.0	45.1	60.8	29.6	26.0	45.7	49.8	29.8	38.1	3.3	70%
1989	25.3	36.5	52.1	69.9	57.1	35.3	38.6	40.0	39.0	43.2	2.9	66%
1990	34.3	49.4	63.9	57.9	44.3	24.7	44.5	31.7	27.3	41.2	5.5	82%
1991	37.3	45.3	48.8	77.6	41.6	33.3	61.2	49.4	41.6	46.8	Discontinued	
1992	24.4	50.5	30.5	44.0	42.1	37.8	29.4	23.6	34.2	35.8		
1993	15.8	21.4	15.2	55.2	23.8	25.0	34.3	24.0	28.1	25.9		
1994	45.0	74.1	33.3	83.3	55.6	67.8	47.3	46.0	56.7	56.9		
1995	26.0	63.2	37.6	44.7	54.3	54.3	43.7	27.8	43.2	44.6		
1996	54.7	61.8	29.5	45.2	49.8	59.4	29.8	19.5	28.2	43.4		
1997	46.1	62.0	41.2	37.3	54.7	47.4	31.7	28.8	41.3	44.8		
1998	74.2	56.7	43.1	33.9	49.6	53.9	18.1	15.7	41.7	44.6		
1999	42.7	33.6	21.6	19.5	37.9	36.0	17.5	12.9	27.0	29.1		

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	State wide	Sex[a] Ratio	Cock[b] Harvest
2000	60.6	33.3	14.9	29.0	50.3	37.0	25.5	19.3	22.0	34.3		
2001	22.4	16.0	6.2	8.4	22.0	19.0	12.0	7.3	4.6	13.9		
2002	47.0	42.9	13.6	32.0	49.9	32.0	15.7	11.7	22.6	31.7		
2003	81.2	67.3	20.7	36.1	61.2	35.6	29.3	21.8	28.2	44.9		
2004	54.4	34.4	19.0	21.5	35.6	24.4	24.9	19.6	24.4	29.7		
2005	63.5	42.3	25.3	32.0	49.9	25.9	28.9	12.6	23.5	35.1		
2006	48.3	36.1	18.4	23.7	36.8	20.4	20.3	9.0	20.0	27.0		
2007	41.3	35.0	20.1	26.0	36.2	25.0	12.8	5.6	19.8	25.8		
2008	49.4	25.4	9.1	21.2	18.6	7.4	5.7	4.4	5.3	17.5		
2009	35.5	16.6	2.6	23.5	19.1	9.3	10.0	4.8	10.1	15.4		
2010	29.6	16.2	4.7	8.8	11.7	5.3	6.1	1.8	6.6	10.8		
2011	11.1	7.3	2.4	5.5	10.2	5.9	6.3	2.9	4.7	6.6		
2012	16.3	10.9	1.3	3.5	12.3	6.3	4.4	4.0	5.4	7.8		
2013	14.3	9.0	2.7	5.2	7.1	4.2	2.5	4.4	6.3	6.5		
2014	29.3	18.1	2.6	20.8	19.9	13.0	6.5	9.8	19.8	16.3		
2015	42.4	22.5	8.1	23.6	36.4	16.7	11.3	8.2	27.8	23.2		
2016	33.0	24.1	11.2	20.5	30.9	15.4	8.7	7.8	22.2	20.4		
Statistics:												
10 Yr Avg.	30.2	18.5	6.5	15.9	20.2	10.8	7.4	5.4	12.8	15.0		
Long-term Avg	38.6	44.7	37.9	44.5	43.2	41.4	52.2	32.7	25.8	39.6	3.4	69%
Percent Change from:												
2015	-22.2	7.4	38.6	-12.8	-15.3	-8.0	-23.3	-5.9	-20.4	-12.3		
10 Yr Avg.	9.3	30.5	72.6	29.5	52.5	41.7	16.9	44.4	73.3	35.6		
Long-term Avg	-14.5	-45.9	-70.6	-53.9	-28.6	-62.9	-83.4	-76.3	-13.9	-48.5		

[a]Hens per cock.

[b]Percent cock harvest calculated as [((hens/cocks)-1)/(hens/cock)] *100 (Wooley, JB etal.1978. IA WL Res Bull No 24.)

Table 5.2 Mean number of broods counted/30-mile route and chicks/brood observed on the August roadside survey, (1962-present) (LT: Long term).

Year	North West		North Central		North East		West Central		Central		East Central		South West		South Central		South East		Statewide	
	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood
1962	10.1	5.1	11.5	5.7	10.1	6.3	9.6	7.7	8.0	7.5	4.2	5.4	5.5	5.8			1.0	7.3	7.7	6.3
1963	17.2		16.6		11.7	5.2	12.3		8.4	5.9	5.8		15.4	5.4	3.4		2.6	5.4	10.4	5.4
1964	12.1	5.2	17.0	6.1	22.7	7.3	13.0	5.8	7.3	5.3	6.5	6.2	12.1	6.4	3.1	8.7	1.8	6.3	9.8	6.1
1965	5.9	5.9	8.0	6.2	5.7	5.7	8.7	5.0	4.7	5.8	4.8	7.6	13.3	5.8	5.9	6.0	2.5	6.0	6.2	6.0
1966	5.5	5.6	9.2	5.9	7.7	4.5	8.1	5.9	6.2	6.4	7.7	6.3	19.0	6.3	5.1	6.2	1.8	7.4	7.2	6.0
1967	3.9	4.6	6.7	5.3	7.1	5.4	5.3	4.8	7.0	5.0	7.5	5.5	13.9	5.4	6.0	5.6	2.3	5.1	6.3	5.2
1968	5.2	5.1	6.4	6.2	6.3	6.3	7.3	5.1	7.1	5.8	8.5	5.6	16.8	5.8	5.5	5.9	2.3	6.4	6.8	5.8
1969	2.3	4.9	5.4	6.0	7.5	6.7	5.2	5.8	7.0	5.6	8.7	5.0	10.8	5.4	6.4	5.5	3.3	5.4	6.0	5.5
1970	5.4	5.9	7.0	5.7	7.7	6.1	7.4	5.7	12.3	5.9	11.7	6.2	18.0	6.4	8.8	5.9	4.6	6.4	8.8	6.0
1971	4.2	5.5	6.3	5.4	6.8	5.0	9.6	4.9	10.7	6.2	14.0	5.8	15.0	5.7	7.4	5.4	6.8	5.8	8.5	5.5
1972	5.2	5.3	5.9	5.7	8.6	5.4	8.1	5.0	9.8	5.9	11.2	6.0	15.1	6.1	7.7	5.7	3.8	4.8	8.0	5.6
1973	6.4	4.6	7.2	5.6	8.8	5.5	8.6	4.7	11.8	5.1	13.0	5.6	9.7	5.4	7.5	5.9	4.1	5.5	8.6	5.3
1974	6.7	4.6	7.3	4.8	6.9	5.5	8.5	5.0	5.4	4.7	8.3	4.4	12.1	5.4	7.8	5.0	2.2	5.2	7.0	4.9
1975	1.4	5.4	4.1	5.0	8.3	4.9	4.7	5.3	6.4	4.8	9.1	5.1	7.4	5.4	6.5	5.8	4.4	5.2	5.7	5.2
1976	2.3	5.1	6.0	5.1	9.7	5.1	6.3	5.2	8.9	4.6	11.3	5.3	9.7	5.2	7.8	5.4	3.9	4.9	7.2	5.1
1977	4.6	4.9	6.4	5.7	12.8	5.6	10.7	4.6	7.7	4.7	13.1	4.8	12.3	5.2	7.1	5.1	4.1	4.7	8.3	5.0
1978	5.9	5.2	3.5	5.4	9.1	5.4	9.9	5.0	6.9	5.4	8.8	5.5	11.1	5.5	7.4	5.5	4.0	5.8	7.1	5.4
1979	6.7	4.5	4.0	5.7	5.5	5.3	7.3	5.4	5.4	5.9	6.1	5.0	11.1	5.8	8.7	5.2	3.3	5.0	6.3	5.3
1980	8.1	4.9	9.4	5.2	12.1	5.2	16.6	4.9	11.3	5.0	9.9	4.8	13.5	4.5	11.6	5.3	5.8	5.2	10.7	5.0
1981	11.4	4.4	8.7	4.9	11.2	5.4	15.5	4.8	10.0	4.6	11.5	5.0	16.9	4.4	8.8	5.2	5.5	4.7	10.7	4.8
1982	4.4	4.3	4.1	5.3	6.2	4.9	8.9	4.7	3.6	5.6	3.0	4.5	6.9	4.3	6.8	5.4	2.9	4.2	5.0	4.9
1983	1.6	4.7	1.9	4.9	3.1	5.2	2.8	4.9	1.8	5.4	3.6	5.4	5.9	5.3	7.5	5.9	3.8	5.8	3.4	5.3
1984	1.3	5.9	1.5	5.7	2.8	5.3	3.5	5.2	2.3	5.0	3.6	5.1	3.6	4.4	5.8	5.2	4.1	4.8	3.1	5.2
1985	3.5	5.4	4.2	5.3	4.9	6.1	5.8	5.3	5.4	5.5	3.9	5.4	8.9	5.7	12.2	5.3	5.7	6.1	6.0	5.5
1986	3.9	5.9	2.9	5.0	7.1	5.5	5.6	3.8	4.1	4.7	4.9	4.4	8.1	4.9	10.3	5.3	3.8	4.9	5.4	5.0
1987	5.8	6.2	5.0	6.2	8.5	5.8	9.3	5.1	6.3	4.9	4.8	5.6	9.9	5.0	10.5	5.4	5.7	5.4	7.1	5.5
1988	5.3	5.1	5.0	5.6	5.8	6.6	9.7	5.1	4.0	6.1	3.5	5.8	7.8	4.9	8.5	4.9	4.3	5.5	5.7	5.5
1989	3.8	5.2	5.0	5.9	8.2	5.1	10.9	5.3	8.1	5.4	5.5	5.4	6.9	4.6	6.5	5.2	5.5	5.9	6.5	5.4
1990	5.2	5.0	6.9	5.4	9.6	5.4	9.8	4.5	6.6	4.9	3.9	4.7	7.3	4.9	5.8	4.4	4.1	5.2	6.4	4.9
1991	5.8	4.7	6.4	5.4	7.7	5.4	12.5	4.8	7.1	4.3	4.9	5.0	11.5	4.2	7.9	5.1	6.6	5.2	7.5	4.9
1992	4.3	4.0	7.1	5.6	4.6	4.9	6.9	4.4	6.8	4.4	5.7	5.2	5.1	4.1	4.2	3.9	5.6	4.7	5.7	4.6

Year	North West		North Central		North East		West Central		Central		East Central		South West		South Central		South East		Statewide	
	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood	Broods per 30m	Chicks per brood
1993	2.4	4.8	3.4	5.4	2.3	4.9	8.9	5.1	3.8	5.2	3.6	5.4	5.8	4.3	3.7	5.5	4.2	5.2	4.0	5.1
1994	7.5	4.6	11.2	5.5	5.7	4.5	14.2	4.5	9.4	4.8	10.0	5.4	8.9	4.1	6.8	5.4	8.7	5.4	9.1	5.0
1995	4.8	4.6	10.1	5.0	5.7	5.4	8.1	4.5	9.4	4.5	7.4	6.1	7.3	4.6	4.3	5.5	6.1	5.6	7.2	5.1
1996	9.1	4.6	9.6	5.0	4.8	4.5	7.4	4.6	8.5	4.9	8.9	5.6	5.6	4.0	3.7	3.7	4.0	4.8	7.1	4.7
1997	6.8	5.7	9.1	5.1	6.7	5.1	5.9	5.0	8.6	5.1	7.0	5.4	5.7	3.7	3.8	6.9	6.1	6.3	6.8	5.4
1998	14.1	4.2	9.6	4.7	6.7	5.4	6.1	4.7	8.3	4.6	8.8	5.2	4.3	3.2	2.7	4.3	6.3	5.1	7.7	4.6
1999	7.2	4.5	5.5	4.1	3.5	4.6	3.5	4.2	6.1	4.6	4.7	5.8	3.1	3.8	1.9	5.2	4.1	5.9	4.6	4.7
2000	11.3	4.7	5.5	4.9	2.4	4.7	4.7	5.3	8.8	4.2	5.7	5.2	4.4	4.3	3.5	3.7	3.3	5.2	5.8	4.7
2001	3.3	4.6	2.7	4.6	0.9	5.4	1.6	3.2	3.3	4.9	2.9	5.6	2.3	3.8	1.2	4.4	0.7	3.4	2.2	4.5
2002	7.4	5.1	7.8	5.0	2.4	4.7	5.3	4.8	7.9	5.0	4.5	5.9	3.5	3.4	1.8	5.5	3.6	5.5	5.2	5.1
2003	13.9	4.5	10.3	5.4	4.1	3.7	5.6	5.4	10.3	4.6	5.6	5.3	4.7	4.9	3.5	4.6	4.1	5.3	7.3	4.9
2004	9.5	4.1	6.0	4.0	2.7	4.5	4.1	3.4	6.2	4.1	3.5	5.0	4.8	3.7	3.4	4.4	4.6	4.2	5.2	4.1
2005	11.7	4.2	7.2	4.3	4.2	4.7	6.1	3.9	8.3	4.6	3.5	5.2	4.9	4.2	2.1	4.8	3.9	5.1	6.0	4.6
2006	7.7	4.8	7.1	4.1	3.4	4.0	4.7	4.0	6.6	4.3	4.0	4.1	4.1	3.9	1.4	4.5	3.1	5.1	4.8	4.3
2007	7.7	4.2	6.1	4.3	3.4	4.1	4.7	4.7	6.4	4.3	4.5	4.3	2.4	3.6	0.8	4.2	3.3	5.1	4.6	4.3
2008	8.6	4.6	4.0	4.2	1.5	3.4	2.9	4.9	2.7	4.4	1.1	5.0	0.8	3.5	0.7	4.3	0.8	3.9	2.7	4.4
2009	5.5	4.4	2.9	3.4	0.6	2.2	3.9	4.6	2.7	5.1	1.2	6.4	1.9	4.1	0.8	4.6	2.2	3.6	2.5	4.4
2010	4.9	4.0	2.7	4.5	1.0	4.0	1.8	3.8	2.1	3.9	0.8	5.0	0.9	4.8	0.5	2.5	1.2	4.2	1.9	4.0
2011	1.7	4.1	1.2	4.2	0.4	4.8	0.9	4.0	1.8	4.0	1.0	4.9	1.1	5.0	0.4	2.0	0.7	3.0	1.1	4.8
2012	2.7	4.9	1.6	5.2	0.3	3.4	0.6	3.9	1.9	5.1	1.0	6.0	0.8	3.7	0.6	5.0	0.8	5.7	1.2	4.9
2013	2.1	4.5	1.4	4.0	0.5	3.3	0.8	4.4	1.2	4.7	0.7	4.8	0.4	3.0	0.6	4.7	0.9	4.8	1.0	4.4
2014	4.7	4.5	3.3	4.6	0.5	2.8	3.4	4.5	3.2	4.7	1.8	5.5	1.2	3.1	1.8	4.4	3.1	4.6	2.7	4.4
2015	6.7	4.9	3.6	4.6	1.2	6.0	3.6	4.9	6.5	3.9	2.6	3.9	1.8	4.4	1.5	3.9	5.0	4.6	3.8	4.5
2016	5.6	4.5	4.3	4.0	1.9	4.0	3.5	4.5	4.5	5.3	2.5	4.4	1.2	4.7	1.1	4.3	4.0	4.0	3.4	4.5
Statistics:																				
10 Yr Avg.	5.0	4.5	3.1	4.3	1.1	3.8	2.6	4.4	3.3	4.5	1.7	5.0	1.3	4.0	0.9	4.0	2.2	4.4	2.5	4.5
LT Avg	6.2	4.9	6.2	5.1	5.8	5.0	6.9	4.8	6.5	5.0	5.9	5.3	7.7	4.7	5.0	5.0	3.8	5.2	5.9	5.0
Percent Change from:																				
2015	-15.9	-7.2	20.8	-14.0	68.1	-32.1	-4.5	-8.2	-30.5	36.5	-3.8	11.5	-30.8	4.9	-28.8	8.7	-19.3	-12.0	-12.9	-1.6
10 Yr Avg.	11.7	1.9	38.3	-7.8	72.9	6.6	33.0	1.6	37.0	17.4	45.7	-12.6	-3.0	17.1	21.8	7.4	81.6	-7.5	34.4	-0.1
LT Avg	-9.8	-6.5	-31.0	-22.2	-66.7	-19.5	-50.1	-7.1	-30.3	6.1	-57.8	-17.5	-84.1	-1.0	-78.4	-15.0	6.3	-22.3	-43.6	-11.8

Table 5.3 Mean number of bobwhite quail and white-tailed jackrabbits counted/30-mile route on the August roadside survey, regionally and statewide (1962 - present) (LT: Long term).

	Quail per Route										
Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide	Jack Rabbits Statewide
1962	0.00	0.00	0.00	2.22	0.25	0.18	0.88		2.00	0.62	0.449
1963	0.00	0.29	0.08	0.50	0.47	0.13	0.54	5.58	3.20	1.12	0.408
1964	0.00	0.00	0.29	0.64	0.50	0.60	0.83	4.69	4.47	1.39	0.530
1965	0.81	0.04	0.32	0.28	0.25	0.81	2.08	6.76	8.27	2.21	0.346
1966	0.22	0.00	0.12	0.11	0.44	3.05	2.58	6.65	7.59	2.29	0.348
1967	0.38	0.00	0.16	0.56	0.20	1.81	2.17	5.48	8.09	2.10	0.599
1968	0.00	0.00	0.28	0.17	0.65	2.68	3.46	5.81	5.55	2.06	0.278
1969	0.00	0.00	0.00	0.06	1.68	3.00	6.83	8.58	5.40	2.60	0.308
1970	0.00	0.00	0.00	0.00	0.17	1.64	10.75	10.15	7.36	2.95	0.155
1971	0.00	0.00	0.00	0.06	0.52	1.35	11.42	6.82	6.79	2.64	0.345
1972	0.00	0.00	0.00	0.26	0.25	1.13	10.27	6.84	3.80	2.26	0.300
1973	0.00	0.00	0.00	0.21	1.24	1.29	13.31	6.58	5.55	2.54	0.202
1974	0.00	0.00	0.11	0.25	0.13	1.00	8.07	6.39	5.13	2.11	0.072
1975	0.00	0.00	0.00	2.00	0.30	0.92	7.64	3.78	5.64	1.98	0.108
1976	0.00	0.00	2.00	2.21	0.16	2.04	2.40	7.39	4.68	2.19	0.109
1977	0.00	0.00	0.41	0.21	0.68	1.55	5.40	12.63	3.96	2.69	0.085
1978	0.00	0.00	1.06	1.37	0.17	0.50	2.73	8.42	3.40	1.87	0.141
1979	0.04	0.00	0.88	0.00	0.35	0.32	2.75	2.00	0.30	0.66	0.158
1980	0.36	0.00	0.00	0.68	1.39	1.00	5.27	7.88	2.61	2.05	0.149
1981	0.40	0.00	1.00	0.21	0.10	1.64	7.00	11.84	2.43	2.60	0.310
1982	0.00	0.00	0.67	0.05	0.00	0.14	0.87	2.64	2.83	0.79	0.099
1983	0.08	0.08	0.28	0.16	0.50	0.57	1.64	7.32	1.87	1.44	0.055
1984	0.00	0.00	0.22	0.80	0.03	0.00	1.13	2.40	1.57	0.66	0.078
1985	0.00	0.00	1.44	0.00	0.10	0.00	1.27	6.24	3.30	1.37	0.074
1986	0.00	0.00	0.00	0.37	0.03	0.14	1.73	8.16	2.09	1.42	0.118
1987	0.00	0.00	0.33	0.47	0.00	0.74	3.93	14.52	4.17	2.70	0.123
1988	0.00	0.00	0.44	0.94	0.00	0.00	4.87	8.46	4.13	1.96	0.173
1989	0.04	0.00	0.33	1.06	0.10	0.70	6.07	7.67	3.17	1.91	0.223
1990	0.00	0.00	1.00	0.72	0.13	1.04	2.93	6.25	2.21	1.48	0.188
1991	0.08	0.00	0.47	0.72	0.13	0.52	3.13	5.54	2.33	1.34	0.068
1992	0.12	0.00	0.22	1.50	0.07	0.96	2.43	2.83	2.71	1.07	0.143
1993	0.00	0.00	0.37	0.50	0.03	0.78	5.07	2.13	1.61	0.96	0.030
1994	0.08	0.00	0.00	0.65	0.00	0.87	9.19	3.21	3.04	1.58	0.155
1995	0.08	0.00	0.63	0.17	0.06	0.86	2.53	5.54	3.22	1.37	0.058
1996	0.08	0.00	0.21	0.28	0.09	0.71	2.73	0.88	0.65	0.51	0.092
1997	0.00	0.00	0.00	0.00	0.07	1.24	4.27	2.25	0.50	0.77	0.098
1998	0.00	0.00	0.00	0.00	0.07	1.48	1.20	2.30	1.81	0.72	0.086
1999	0.00	0.00	0.05	0.00	0.00	0.13	1.07	2.50	1.50	0.57	0.060
2000	0.00	0.00	0.00	0.20	0.47	0.17	4.40	0.83	0.41	0.57	0.029
2001	0.00	0.00	0.00	0.00	0.09	0.76	1.31	0.50	0.32	0.29	0.053
2002	0.00	0.00	0.00	0.70	0.03	0.27	1.06	0.88	0.96	0.39	0.034

Quail per Route

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide	Jack Rabbits Statewide
2003	0.00	0.00	0.00	0.00	0.22	0.14	3.27	3.92	1.36	0.89	0.033
2004	0.00	0.00	0.50	0.05	0.19	0.55	2.19	2.64	3.19	0.93	0.033
2005	0.00	0.00	0.00	0.09	0.53	0.00	1.71	2.52	1.64	0.69	0.019
2006	0.00	0.00	0.00	0.32	0.03	0.52	1.65	2.16	3.22	0.82	0.052
2007	0.04	0.00	0.00	0.78	0.00	1.40	0.63	1.52	3.30	0.81	0.019
2008	0.00	0.00	0.00	0.13	0.00	0.00	2.00	1.04	1.26	0.45	0.000
2009	0.58	0.00	0.00	0.67	0.00	0.18	1.22	2.24	1.67	0.72	0.005
2010	0.00	0.00	0.56	0.30	0.00	0.05	0.44	0.50	1.32	0.33	0.000
2011	0.00	0.00	0.00	0.00	0.00	0.35	0.07	1.28	0.22	0.22	0.019
2012	0.00	0.00	0.00	0.00	0.07	0.00	1.75	1.68	0.13	0.36	0.005
2013	0.00	0.00	0.05	0.04	0.00	0.10	0.78	1.68	0.78	0.36	0.009
2014	0.00	0.00	0.00	0.00	0.59	0.00	3.65	2.71	1.76	0.86	0.028
2015	0.00	0.00	0.00	0.81	0.00	0.30	4.06	3.88	4.58	1.42	0.019
2016	0.15	0.07	0.00	1.14	0.07	0.41	5.83	5.50	3.00	1.65	0.005
Statistics:											
10 Yr Avg.	0.08	0.01	0.06	0.39	0.07	0.28	2.04	2.20	1.80	0.72	0.01
LT Avg.	0.06	0.01	0.26	0.47	0.25	0.78	3.61	4.83	3.06	1.37	0.140
Percent Change from:											
2015						36.3	43.7	41.8	-34.5	15.7	-73.7
10 Yr Avg.						46.8	185.6	149.7	66.5	129.7	-54.1
LT Avg.						-47.3	61.7	14.0	-1.8	20.3	-96.4

Table 5.4 Mean number of gray partridge counted/30-mile route on the August roadside survey, regionally and statewide, (1963-present) (LT: Long term).

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide
1962	6.27	0.82	0.00	1.00	0.08	0.00	0.00		0.00	1.13
1963	4.67	2.71	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.92
1964	4.93	2.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
1965	2.38	1.52	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.48
1966	2.70	4.96	0.00	0.00	0.76	0.00	0.00	2.05	0.00	1.30
1967	3.33	1.13	0.00	1.11	0.20	0.00	0.00	0.00	0.00	0.66
1968	4.13	1.30	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.68
1969	1.25	1.14	0.00	0.17	0.32	0.00	0.00	0.00	0.00	0.38
1970	8.43	4.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	1.66
1971	7.09	3.55	0.00	0.29	0.00	0.00	0.00	0.00	0.00	1.44
1972	8.92	5.44	0.00	0.47	0.61	0.00	0.00	0.00	0.20	1.92
1973	6.57	7.08	0.22	0.32	0.52	0.00	0.00	0.00	0.00	1.87
1974	9.00	4.79	0.00	0.30	0.33	0.00	0.00	0.00	0.00	1.82
1975	8.50	6.73	0.00	0.00	0.19	0.00	0.00	0.00	0.00	1.98
1976	9.50	7.20	0.00	0.84	0.23	0.00	0.00	0.00	0.00	2.14

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide
1977	22.04	13.88	0.00	1.58	0.55	0.00	0.00	0.00	0.00	4.70
1978	17.23	7.68	0.11	1.42	2.43	0.00	0.00	0.00	0.00	3.73
1979	20.28	19.32	0.18	1.58	2.90	0.77	0.00	0.00	0.00	5.59
1980	35.04	28.08	0.11	3.00	4.03	0.82	0.00	0.00	0.00	8.81
1981	31.44	23.60	1.78	5.00	4.19	0.32	0.00	0.00	0.00	8.08
1982	18.48	10.16	0.94	3.37	1.87	0.00	0.00	0.00	0.00	4.21
1983	8.04	8.88	0.72	1.84	1.87	0.65	0.00	0.00	0.00	2.65
1984	14.16	13.24	2.11	1.05	3.03	1.05	0.00	0.00	0.00	4.22
1985	26.84	25.23	8.06	10.68	9.26	1.18	0.00	0.00	0.00	9.75
1986	29.48	21.04	10.00	5.79	11.13	2.41	0.13	0.00	0.00	9.62
1987	36.88	35.08	10.56	17.00	20.32	3.17	0.00	0.00	0.61	14.93
1988	42.84	48.65	15.61	17.83	25.07	4.48	0.20	0.38	1.39	19.00
1989	36.54	31.82	14.39	12.06	37.48	0.96	2.07	0.38	0.70	17.27
1990	18.40	20.12	16.68	5.89	6.93	5.52	1.00	0.38	0.88	8.75
1991	13.88	7.52	4.16	3.17	4.23	4.00	0.87	0.54	0.58	4.59
1992	5.15	4.76	6.67	2.61	3.77	4.17	0.07	1.46	2.05	3.58
1993	1.33	1.39	0.84	2.00	1.19	0.17	0.00	0.13	0.17	0.85
1994	7.92	14.48	4.47	10.41	8.29	5.39	0.13	0.29	0.35	6.17
1995	3.72	4.86	4.11	1.28	2.52	3.18	0.00	0.29	0.78	2.47
1996	4.42	6.64	3.00	2.61	1.81	1.24	0.00	0.00	0.00	2.37
1997	9.00	7.33	6.47	3.16	10.77	3.95	0.00	0.00	0.36	5.10
1998	23.00	13.96	9.17	3.58	3.36	1.24	0.07	0.00	0.05	6.42
1999	11.41	2.75	2.11	1.84	3.68	0.52	0.00	0.00	0.09	2.83
2000	6.54	4.75	0.90	2.05	4.00	1.74	0.00	0.00	0.00	2.53
2001	3.23	1.30	3.44	2.75	3.94	1.33	0.13	0.00	0.00	1.90
2002	7.04	2.04	2.94	4.00	5.88	1.23	0.00	0.00	0.00	2.82
2003	6.77	3.04	3.20	1.50	7.00	0.13	0.00	0.00	0.00	2.76
2004	7.77	2.30	1.90	0.86	3.25	1.00	0.00	0.04	0.00	2.12
2005	9.31	3.59	1.80	2.68	3.53	1.83	0.00	0.00	0.36	2.79
2006	2.50	4.96	2.10	2.14	3.53	0.86	0.00	0.00	0.39	2.01
2007	2.19	2.93	2.30	1.96	2.90	0.85	0.00	0.28	0.00	1.62
2008	2.39	4.11	0.00	1.09	0.40	0.20	0.00	0.12	0.00	1.03
2009	2.92	1.39	2.29	1.57	1.83	0.00	0.00	0.00	0.21	1.17
2010	1.15	1.69	1.83	0.83	1.40	1.26	0.00	0.00	0.00	0.93
2011	2.46	4.19	0.47	0.24	1.16	0.61	0.00	0.00	0.00	1.15
2012	2.50	3.56	1.33	0.71	3.45	0.05	0.06	0.00	0.00	1.47
2013	1.00	2.00	1.65	1.09	0.63	0.81	0.00	0.00	0.00	0.81
2014	1.81	7.74	2.65	1.91	2.53	0.87	0.00	0.00	0.00	2.13
2015	3.80	12.41	3.37	1.19	4.53	1.00	0.00	0.00	0.00	3.26
2016	5.73	7.22	5.26	1.59	2.39	1.55	0.00	0.00	0.00	2.76
Statistics:										
10 Yr Avg.	2.60	4.72	2.12	1.22	2.12	0.72	0.01	0.04	0.02	1.63

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide
LT Avg.	10.81	8.98	2.91	2.77	4.13	1.10	0.09	0.12	0.17	3.78
Percent Change from:										
2015	50.8	-41.8	56.3	33.7	-47.3	54.5				-15.4
10 Yr Avg.	120.8	52.9	148.7	30.7	12.5	114.8				68.9
LT Avg.	-47.0	-19.6	81.0	-42.5	-42.2	40.5				-27.2

Table 5.5 Mean number of cottontail rabbits counted/30-mile route on the August roadside survey, regionally and statewide, (1962-present) (LT: Long term).

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide
1962	3.6	1.5	4.3	10.1	5.3	6.2	6.0		5.6	5.2
1963	8.9	4.8	4.2	10.8	5.0	6.9	8.0	9.9	12.7	7.9
1964	2.3	2.3	1.7	11.1	6.6	3.1	10.2	19.4	13.7	7.9
1965	3.1	3.0	3.7	7.9	2.8	4.0	16.2	24.3	11.2	8.1
1966	2.0	3.2	6.5	9.7	5.9	5.0	30.2	31.7	9.5	10.3
1967	2.8	2.4	4.4	6.9	6.1	4.0	18.8	16.3	10.9	7.5
1968	1.9	3.3	4.0	6.9	5.3	5.7	17.7	17.5	8.5	7.4
1969	2.0	2.2	5.0	3.4	2.5	5.6	16.6	18.0	6.8	6.3
1970	1.4	2.0	4.3	2.7	1.7	3.6	12.5	11.3	4.7	4.4
1971	1.9	1.4	3.9	3.7	2.8	4.2	14.8	16.5	5.6	5.4
1972	2.8	1.7	2.7	3.9	2.3	6.4	11.7	14.8	4.7	5.5
1973	2.2	2.6	3.7	3.9	4.2	6.0	13.8	14.3	6.1	5.8
1974	2.1	1.9	4.4	3.6	2.0	3.9	5.8	8.4	6.0	4.1
1975	1.3	1.2	2.5	2.6	1.4	3.6	5.1	7.0	5.2	3.2
1976	1.3	1.6	5.9	7.3	4.2	5.5	9.3	16.4	8.9	6.4
1977	1.4	1.2	4.0	2.2	1.9	5.1	7.9	11.7	5.4	4.3
1978	3.8	2.0	6.9	4.7	3.7	5.5	12.7	14.0	5.2	6.2
1979	3.2	1.7	3.3	4.1	2.7	2.3	5.6	8.2	2.5	3.6
1980	2.3	3.0	2.1	4.2	4.2	1.8	5.5	9.8	4.9	4.2
1981	3.4	4.6	6.4	5.2	3.2	7.4	11.1	21.1	9.0	7.8
1982	2.4	2.3	2.7	4.4	2.5	4.9	7.7	19.5	11.7	6.4
1983	3.1	2.5	6.4	4.2	3.1	5.0	7.2	17.6	12.7	6.8
1984	2.0	1.4	3.0	4.2	2.6	4.0	3.5	14.7	14.0	5.6
1985	3.2	2.7	3.9	3.8	4.4	5.5	7.1	22.9	12.0	7.4
1986	3.0	2.6	4.6	4.3	3.8	3.8	9.7	25.2	12.7	7.7
1987	4.1	3.5	3.2	6.3	4.4	4.3	8.1	34.4	7.7	8.6
1988	3.1	1.8	2.0	4.8	2.6	2.5	4.6	12.8	6.7	4.5
1989	2.4	2.4	4.6	5.2	2.9	4.3	6.3	13.5	8.5	5.4
1990	2.7	3.9	7.0	7.7	5.5	7.3	9.2	26.0	14.7	9.2
1991	2.4	1.8	3.4	5.1	2.5	3.3	7.0	16.3	9.1	5.5
1992	2.6	3.8	4.0	4.8	4.1	3.6	7.1	13.7	12.4	6.0

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide
1993	1.3	1.8	3.9	6.5	2.2	5.0	6.7	15.4	10.1	5.5
1994	2.2	1.9	5.4	5.4	3.3	7.4	8.9	14.4	10.4	6.3
1995	3.2	4.0	3.8	5.5	4.8	6.5	13.0	15.7	9.5	7.0
1996	3.6	3.7	5.8	5.2	3.7	6.3	6.4	13.8	8.5	6.2
1997	2.1	2.4	5.2	2.9	3.4	6.2	6.0	11.8	5.1	4.9
1998	2.0	2.7	5.1	3.1	3.7	6.3	5.8	10.4	7.5	5.1
1999	4.1	2.3	5.1	5.0	4.7	9.1	7.9	10.6	6.0	5.9
2000	2.4	2.0	4.9	4.2	4.9	6.9	7.4	19.3	7.2	6.4
2001	1.6	1.6	1.3	2.1	3.0	3.5	5.3	12.0	4.1	3.8
2002	2.7	2.2	2.7	3.7	4.8	6.5	3.8	11.2	9.3	5.3
2003	5.0	3.9	5.7	6.9	8.3	8.0	9.1	21.4	11.0	8.8
2004	3.0	3.3	5.7	4.2	3.9	6.1	8.7	24.9	14.6	8.1
2005	4.7	2.9	5.7	5.0	4.6	3.7	12.6	12.1	7.0	6.2
2006	3.8	2.8	5.2	5.6	4.3	5.8	8.4	14.9	7.8	6.4
2007	1.7	2.6	4.2	3.6	2.8	6.1	5.7	6.1	8.0	4.3
2008	4.0	2.8	2.6	6.1	5.1	3.6	8.8	16.9	7.0	6.3
2009	2.2	1.3	3.7	4.7	4.0	4.5	10.3	9.6	6.1	5.0
2010	2.9	0.8	2.9	2.7	1.6	2.7	4.3	5.1	5.5	3.1
2011	1.1	1.0	2.8	2.5	2.4	2.0	1.9	4.3	1.7	2.2
2012	2.0	1.0	1.9	1.2	1.8	2.0	1.9	3.0	3.3	2.0
2013	2.3	3.0	3.5	4.1	4.1	6.9	2.5	11.4	8.2	5.1
2014	2.3	2.6	4.5	6.9	9.7	7.9	4.5	18.9	12.2	7.8
2015	4.0	3.7	4.1	5.1	6.9	6.8	5.7	15.8	11.3	7.2
2016	3.2	2.4	4.9	4.0	4.9	5.5	3.9	11.9	5.7	5.2
Statistics:										
10 Yr Avg.	2.6	2.1	3.5	4.1	4.3	4.8	4.9	10.3	6.9	4.8
LT Avg.	2.8	2.5	4.2	4.9	3.9	5.1	8.7	15.1	8.3	6.0
Percent Change from:										
2015	-19.2	-35.0	20.5	-21.3	-28.2	-19.8	-30.9	-24.8	-49.6	-28.1
10 Yr Avg.	25.6	14.0	40.6	-1.4	14.1	14.0	-20.3	15.7	-17.4	7.2
LT Avg.	17.5	-2.6	18.5	-17.7	27.0	7.8	-54.7	-21.3	-31.6	-13.8

Table 5.6 Small game harvest estimates from the Iowa small-game survey (1963-present). Resident and NR hunter harvests combined (LT: Long term).

Year	Pheasant	Quail	Cottontail	Jackrabbit	Squirrel	Huns	Mourning Dove
1958*	1,548,564						
1959*	1,070,285						
1963	1,935,000	327,977	2,066,472	75,015	1,440,576	8,000	
1964	1,737,400	291,030	2,260,090	97,785	1,111,290	7,000	
1965	1,117,500	513,760	1,602,060	133,000	1,236,400	11,500	
1966	1,449,400	1,051,630	2,180,525	91,690	1,370,250	12,000	
1967	1,212,200	736,520	1,548,035	55,660	1,196,810	11,300	
1968	1,393,900	777,685	1,761,370	62,405	1,014,940	21,600	
1969	1,642,899	1,144,700	1,722,280	98,930	1,164,030	20,900	
1970	1,788,500	1,178,685	1,725,535	71,705	1,115,410	28,300	
1971	1,817,000	1,037,957	1,305,083	41,468	1,172,742	31,100	
1972	1,396,900	657,300	1,148,100	31,200	1,048,000	16,800	
1973	1,905,086	791,242	1,424,927	30,863	1,105,271	45,284	
1974	1,672,476	727,324	1,271,577	40,027	1,119,048	39,976	
1975	1,230,095	543,971	996,227	19,064	1,046,559	26,436	
1976	1,425,500	1,080,500	1,136,300	20,700	1,377,500	54,800	
1977	1,357,862	849,183	1,322,263	19,975	1,283,043	48,991	
1978	1,428,708	660,625	856,999	26,077	815,562	108,473	
1979	1,200,709	312,410	461,285	13,713	696,363	55,414	
1980	1,429,617	524,450	588,363	7,932	844,999	70,764	
1981	1,447,969	563,569	1,134,781	22,860	949,681	69,698	
1982	972,556	302,648	712,227	5,237	759,438	52,782	
1983	1,047,027	270,690	720,012	8,845	669,490	91,035	
1984	724,192	190,708	636,209	6,376	529,316	33,306	
1985	852,716	189,236	717,631	2,108	673,665	62,931	
1986	855,894	339,000	472,585	6,082	506,769	60,018	
1987	1,412,082	397,633	690,091	8,830	532,001	109,061	
1988	1,139,599	289,592	424,561	3,907	510,065	104,094	
1989	1,441,990	426,302	435,791	3,025	583,183	118,282	
1990	1,407,002	321,493	608,805	4,463	466,140	147,922	
1991	1,138,463	231,818	437,144	3,171	407,172	45,541	
1992	925,123	179,825	311,607	2,113	328,644	37,328	
1993	1,226,010	201,461	334,667	3,212	439,477	24,577	
1994	1,245,580	178,589	288,982	262	395,232	22,331	
1995	1,443,010	220,999	335,862	6,280	377,714	6,677	
1996	1,367,060	81,039	331,047	2,666	302,908	36,358	
1997	1,340,050	181,025	340,661	5,063	265,874	38,045	
1998	1,237,980	100,594	255,149	10,008	319,081	25,613	
1999[a]	899,174	110,128	237,409	8,777	242,224	20,200	
2000[b]	1,001,867	140,828	350,739	1,626	217,116	19,258	
2001	470,116	32,226	196,483	3,840	248,833	5,814	
2002	729,460	63,872	167,284	1,637	152,825	5,130	

Year	Pheasant	Quail	Cottontail	Jackrabbit	Squirrel	Huns	Mourning Dove
2003	1,080,466	114,067	243,699	738	202,729	8,204	
2004	756,184	68,256	259,327	151	233,530	12,535	
2005	806,601	40,675	210,591	671	132,195	14,674	
2006	748,025	75,276	155,892	999	165,255	10,724	
2007	631,638	54,444	131,250	1,262	169,478	4,885	
2008	383,083	13,391	122,296	57	120,998	1,420	
2009	271,126	12,136	127,663	608	169,041	4,643	
2010	238,208	11,620	74,044	0	119,590	1,057	
2011	108,905	4,539	51,815	Closed	108,783	1,046	57,285
2012	158,099	20,474	70,003		158,615	611	94,864
2013	166,554	8,708	79,985		90,167	1,370	117,915
2014	215,816	10,705	102,379		110,600	451	137,927
2015	268,464	28,362	113,276		175,507	1,698	117,358
2016	244,769	24,366	99,464		95,805	510	131,468
Statistics:							
10 Yr Avg.	268,666	18,875	97,218		131,858	1,769	109,470
LT Avg.	1,074,330	346,430	691,832	22,127	594,221	33,675	109,470
Percent Change from:							
2015	-8.8	-14.1	-12.2		-45.4	-70.0	12.0
10 Yr Avg.	-8.9	29.1	2.3		-27.3	-71.2	20.1
LT Avg.	-77.2	-93.0	-85.6		-83.9	-98.5	20.1

[a]Small Game Harvest Survey changed from a single to a double mailing. Harvest estimates from 1999-present are more conservative than pre-1999 estimates.

[b]Survey methodology changed account for unrealistic harvest (e.g. reports of 1 bird harvested for 60 days effort).

*Nomsen RC. 1961. Results of the 1958 and 1959 Pheasant Hunter Survey. Ia Acad. Sci. 68:281-283.

Table 5.7 Estimated hunter and harvest numbers for pheasant and quail by residency status from the Iowa small-game survey (1987-present) (LT: Long term).

Year	Pheasant				Quail			
	Resident		Non Resident		Resident		Non Resident	
	Hunters	Harvest	Hunters	Harvest	Hunters	Harvest	Hunters	Harvest
1987	178,203	1,129,395	33,915	251,613	70,026	181,378	13,727	64,760
1988	170,323	902,226	33,682	237,373	59,230	212,646	13,792	76,946
1989	173,017	1,122,951	38,569	319,039	69,591	381,321	10,380	44,981
1990	171,016	1,047,529	39,829	359,473	61,219	269,896	11,667	51,597
1991	161,741	852,158	40,578	286,305	49,713	184,195	11,271	47,623
1992	139,681	677,670	36,749	247,453	47,641	155,919	8,646	23,906
1993	138,619	999,149	27,642	226,857	43,027	175,793	6,318	25,667
1994	147,841	876,365	41,824	369,216	41,504	156,413	8,754	22,176
1995	155,308	1,118,638	44,995	324,368	39,653	193,544	11,185	27,454
1996	155,889	1,059,385	49,704	307,675	33,996	62,438	10,978	18,601
1997[a]	154,855	1,037,620	50,349	302,432	24,927	134,418	10,546	46,607
1998	141,838	936,181	42,748	301,797	26,393	83,067	5,985	17,527
1999b	142,521	684,596	39,152	214,578	32,306	86,058	8,811	24,070
2000	134,873	781,143	32,648	220,724	33,114	114,110	6,843	26,718
2001	99,125	352,469	23,781	117,620	20,459	24,812	4,132	7,414
2002	97,842	548,413	29,757	181,047	16,194	43,492	4,693	20,380
2003	108,819	849,898	33,414	230,568	19,937	99,971	4,958	14,096
2004	99,753	586,632	31,009	169,552	17,139	57,486	5,197	10,770
2005	107,255	641,957	28,937	164,644	15,277	33,714	3,301	6,961
2006	91,642	558,369	27,038	189,656	17,787	49,783	4,769	25,493
2007	85,803	481,754	23,426	149,884	14,227	42,799	4,007	11,645
2008	69,640	299,875	16,231	83,208	12,114	10,716	1,791	2,675
2009	60,708	217,816	13,309	53,310	8,237	11,098	1,942	1,038
2010	51,258	197,266	8,800	40,942	9,150	9,572	1,454	2,048
2011	39,515	75,897	6,460	33,008	8,574	3,664	862	875
2012	41,437	137,215	5,743	20,884	7,947	19,420	822	1,054
2013	34,688	140,348	6,293	26,206	6,165	8,467	320	241
2014	41,200	165,000	8,725	50,816	5,428	9,666	1,118	1,039
2015	46,679	212,858	9,480	55,606	8,189	26,081	1,573	2,281
2016	46,455	200,229	10,763	44,540	9,093	21,452	912	2,914
Statistics:								
10 Yr Avg.	51,738	212,826	10,923	55,840	8,912	16,294	1,480	2,581
LT Avg.	109,585	629,700	27,852	186,013	27,609	95,446	6,025	20,985
Percent Change from:								
2015	-0.5	-5.9	13.5	-19.9	11.0	-17.7	-42.0	27.8
10 Yr Avg.	-10.2	-5.9	-1.5	-20.2	2.0	31.7	-38.4	12.9
LT Avg.	-57.6	-68.2	-61.4	-76.1	-67.1	-77.5	-84.9	-86.1

[a]Iowa lost 800,000 acres of whole field enrollment CRP.

Table 5.8 Sales of hunting-related licenses and stamps in Iowa (1942-present) (LT: Long term).

Year[a]	Resident				Non Resident			Habitat Stamp[f]	IA Duck Stamp[g]	Hunt Preserve[h]
	Furharvester			Resident Hunt[d]	Lifetime over 65	Hunting		Total License[e]			
	over 16[b]	under 16	Total[c]			over 18	under 18				
1942				226,046				447			
1943				193,270				612			
1944				211,657				1,163			
1945				245,609				998			
1946				326,128				1,646			
1947				273,242				632			
1948				332,019				1,727			
1949				349,734				2,256			
1950				338,111				2,393			
1951				329,320				2,371			
1952				340,935				2,391			
1953				343,982				3,115			
1954				346,435				3,203			
1955				369,493				3,936			
1956				364,985				4,544			
1957				339,389				4,422			
1958				355,658				5,521			
1959				320,246				4,535			
1960				313,851				5,352			
1961				301,809				5,448			
1962				288,087				5,470			
1963				307,475				7,531			
1964				301,964				8,370			
1965				275,640				6,505			
1966				292,745				9,638			
1967				295,276				11,244			
1968				309,424				12,223			
1969				303,602				17,326			
1970				322,509				21,898			
1971				328,542				30,264			
1972				277,317				28,559		70,446	
1973				291,755				34,497		67,323	
1974				318,930				42,224		70,797	
1975				302,436				36,382		70,814	
1976				306,489				41,849		66,120	
1977				296,940				39,032		69,023	
1978				295,696				32,848		67,041	
1979	17,602	4,813	22,415	257,676				27,302	279,621	52,865	768
1980	19,366	5,529	24,895	266,655				30,793	296,667	50,202	822
1981	19,116	4,990	24,106	266,053				31,379	297,297	45,751	742

Year[a]	Resident				Non Resident				Habitat Stamp[f]	IA Duck Stamp[g]	Hunt Preserve[h]
	Furharvester			Resident Hunt[d]	Lifetime over 65	Hunting		Total License[e]			
	over 16[b]	under 16	Total[c]			over 18	under 18				
1982	17,505	4,248	21,753	245,969				24,002	269,290	44,391	751
1983	14,964	3,699	18,663	237,851				23,206	261,340	42,981	766
1984	14,537	3,329	17,866	221,519				21,927	243,154	44,445	696
1985	25,156	3,519	28,675	208,444				22,977	233,779	37,681	729
1986	23,709	3,064	26,773	205,356				27,254	236,219	40,157	882
1987	28,923	3,338	32,261	220,674				35,676	259,350	43,357	1,112
1988	24,105	2,380	26,485	218,588				35,023	257,702	34,799	1,696
1989	18,411	1,530	19,941	226,124				40,197	271,342	32,920	1,499
1990	13,853	973	14,826	219,636				41,500	263,530	31,468	1,786
1991	14,208	719	14,927	217,200				45,792	266,845	32,537	1,454
1992	14,272	793	15,065	203,508				39,211	247,673	34,304	1,810
1993	14,672	829	15,501	197,966				29,231	232,298	31,741	2,137
1994	15,811	952	16,763	211,289				45,610	260,815	33,232	1,870
1995	15,343	903	16,246	210,727				48,028	263,531	34,903	2,467
1996	17,237	1,021	18,258	209,663				53,058	265,653	43,060	2,317
1997	18,330	1,066	19,396	211,530				52,730	269,443	38,275	2,516
1998	18,325	1,078	19,403	208,790				50,511	266,519	40,349	3,107
1999*	***15,804***	***1,004***	***16,808***	***206,210***	***2,885***	***42,379***	***2,086***	***44,465***	***253,943***	***42,588***	***2,772***
2000	12,793	1,936	14,729	200,995	1,642	39,067	1,901	40,968	245,351	40,913	2,898
2001	14,665	658	15,323	194,051	1,515	26,748	1,090	27,838	237,407	40,378	2,963
2002	14,235	644	14,879	189,138	2,339	36,728	1,532	38,260	229,829	37,574	3,282
2003	13,753	651	14,404	193,279	1,772	43,145	1,951	45,096	240,527	35,746	3,173
2004	13,906	701	14,607	190,154	1,786	41,159	1,847	43,006	235,336	34,611	3,254
2005	12,711	665	13,376	189,813	1,886	40,159	1,801	41,960	233,416	31,666	3,165
2006	13,796	746	14,542	188,628	1,973	39,038	1,815	40,853	231,284	31,982	3,370
2007	14,445	834	15,279	184,257	1,970	35,267	1,604	36,871	222,559	31,992	3,010
2008	14,673	850	15,523	177,723	2,074	28,427	1,167	29,594	208,461	30,560	2,665
2009	13,376	722	14,098	172,230	2,257	24,352	1,026	25,378	198,880	29,644	2,562
2010	14,162	871	15,033	164,380	2,016	19,992	773	20,765	185,598	28,263	2,254
2011	15,908	1,020	16,928	160,256	2,109	23,657	714	24,371	185,559	27,930	2,460
2012	17,970	1,215	19,185	161,642	2,350	23,766	793	24,559	187,698	26,420	2,270
2013i	17,954	1,382	19,336	158,490	2,374	23,082	756	23,838	178,258	27,867	2,341
2014	17,272	1,206	18,478	152,696	2,399	24,348	798	25,146	179,331	29,122	2,316
2015	15,351	958	16,309	152,147	2,531	23,349	902	24,251	176,364	28,749	2,155
2016	13,383	701	14,084	155,186	2,726	27,598	964	28,562	184,846	28,455	2,435
Statistics:											
10 Yr Avg.	15,449	976	16,425	163,901	2,281	25,384	950	26,334	190,755	28,900	2,447
LT Avg.	16,621	1,725	18,346	253,243	2,145	31,237	1,307	23,383	238,335	41,232	2,086
Percent Change from:											
2015	-12.8	-26.8	-13.6	2.0	7.7	18.2	6.9	17.8	4.8	-1.0	13.0

Year[a]	Resident					Non Resident					
	Furharvester			Resident Hunt[d]	Lifetime over 65	Hunting		Total License[e]	Habitat Stamp[f]	IA Duck Stamp[g]	Hunt Preserve[h]
	over 16[b]	under 16	Total[c]			over 18	under 18				
10 Yr Avg.	-13.4	-28.2	-14.3	-5.3	19.5	8.7	1.5	8.5	-3.1	-1.5	-0.5
LT Avg	-19.5	-59.4	-23.2	-38.7	27.1	-11.6	-26.2	22.1	-22.4	-31.0	16.7

[a]Change to ELSI electronic licensing system in 1999*. Resident hunting, combination, fur/fish/game licenses and furharvester w ere license types issued prior to ELSI implementation.
[b]Furharvester (over 16) sales is the sum of discontinued fur(over 16) and fur/fish/game licenses, from 1979-99.
[c]Total furharvester sales is the sum of furharvester over and under 16 columns. Total does not include NR sales.
[d]Total resident licenses is sum of resident hunt, combination, and fur/fish/game, until ELSI system implementation in 1999. License types (2,9,29,30,37) beginning in 2013
[e]For comparisons to previous year's total NR licenses is sum of NR over and under 18 sales after 1999 ELSI implementation.
[fgh]Numbers represent combined resident and non-resident sales. Habitat fee license types (9,20,28,29,30,31,32,37,38,93,94)

Table 5.9 Estimated hunter numbers (resident & NR combined) from the Iowa small-game survey (LT: Long term).

Year	Pheasant	Quail	Cottontail	Jackrabbit	Squirrel	Huns	Mourning Dove
1958*	267,455						
1959*	238,903						
1963	277,400	47,028	169,994	30,494	150,932		
1964	271,285	46,535	179,585	31,815	136,415		
1965	225,735	46,450	138,379	26,080	123,640		
1966	240,400	63,785	154,647	20,355	130,500		
1967	244,300	62,485	150,050	20,615	138,520		
1968	247,100	70,367	147,380	20,131	120,790		
1969	259,100	81,100	159,000	24,810	133,600		
1970	283,400	87,665	167,190	26,460	136,150		
1971	301,150	80,250	134,470	16,326	118,059		
1972	230,000	63,900	137,000	12,800	105,000	6,400	
1973	307,974	106,150	201,560	23,209	159,473	22,374	
1974	307,200	101,101	192,100		159,000		
1975	280,019	102,668	175,850				
1976	289,592	125,575	173,125	11,600	143,474	22,054	
1977	279,689	103,776	170,074	11,302	141,596	17,691	
1978	270,413	101,916	142,809	14,268	120,503	34,329	
1979	241,972	73,461	114,642	10,029	111,434	23,465	
1980	252,440	86,816	119,901	8,526	111,425	27,554	
1981	254,803	97,430	150,881	11,106	117,942	28,731	
1982	214,263	68,479	118,994	4,862	105,262	21,532	
1983	203,014	63,060	118,535	7,331	98,553	25,366	
1984	176,312	58,630	102,993	5,543	86,380	21,179	
1985	175,225	54,427	107,500	6,568	88,849	25,956	
1986	184,759	63,985	92,727	5,193	84,082	30,822	
1987	212,118	83,754	103,199	7,298	77,819	40,878	
1988	204,659	74,584	84,529	4,376	74,783	44,154	

Year	Pheasant	Quail	Cottontail	Jackrabbit	Squirrel	Huns	Mourning Dove
1989	211,586	79,971	89,054	5,634	80,937	48,785	
1990	210,845	72,886	87,437	4,679	70,539	49,220	
1991	202,319	62,684	83,200	4,001	63,601	25,165	
1992	176,430	56,287	66,967	5,802	60,443	22,949	
1993	166,260	49,345	65,704	1,547	62,175	14,920	
1994	189,664	50,258	68,840	1,239	57,381	18,294	
1995	200,302	50,839	68,499	4,361	57,495	15,954	
1996	205,592	44,974	75,870	2,623	56,382	21,914	
1997	205,203	35,473	51,785	2,872	43,632	12,330	
1998	184,585	32,378	54,588	1,604	53,859	13,502	
1999a	181,673	41,117	50,254	2,456	46,994	11,390	
2000	167,521	39,957	46,311	1,572	35,395	6,043	
2001	122,906	24,591	36,125	2,933	36,760	5,757	
2002	127,599	20,887	27,945	1,692	25,482	4,417	
2003	142,233	24,895	31,600	326	27,863	4,054	
2004	130,583	22,336	32,195	600	29,302	4,537	
2005	136,192	18,578	40,225	1,870	25,943	7,147	
2006	118,680	22,556	34,292	1,989	27,746	5,553	
2007	109,229	18,234	31,106	1,502	23,160	3,819	
2008	85,871	13,095	27,191	1,405	22,857	2,996	
2009	74,017	10,179	25,840	1,894	24,586	3,705	
2010	60,058	10,604	22,005	541	23,440	1,229	
2011	45,975	9,436	17,197	Closed	20,420	1,782	8,780
2012	47,180	8,769	18,247		21,698	1,481	9,328
2013	40,981	6,485	18,903		20,203	1,651	8,208
2014	49,925	6,546	20,904		19,704	1,631	11,396
2015	56,159	9,762	24,838		25,081	1,994	11,353
2016	57,218	10,005	23,475		21,874	2,686	13,409
Statistics:							
10 Yr Avg.	62,661	10,312	22,971	1,336	22,302	2,297	10,412
LT Avg.	190,133	53,120	91,624	9,005	76,587	16,451	10,412
Percent Change from:							
2015	1.9	2.5	-5.5		-12.8	34.7	18.1
10 Yr Avg.	-8.7	-3.0	2.2		-1.9	16.9	28.8
LT Avg.	-69.9	-81.2	-74.4		-71.4	-83.7	28.8

[a]Small Game Harvest Survey changed from a single to a double mailing. Hunter estimates from 1999-present are more conservative than pre-1999 estimates.

*Nomsen RC. 1961. Results of the 1958 and 1959 Pheasant Hunter Survey. Ia Acad. Sci. 68:281-283.

Table 5.10 Iowa's ring-necked pheasant hunting seasons.

Year	Dates Regular/Youth	Season Length	Shooting Hours	Limit Bag/Poss.		# Counties Open
				Regular	Youth	
1946	28 OCT-17 NOV	21	1000-1600	3/6		59
1947	11 NOV-20 NOV	10	1200-1600	2/2		64
1948	11 NOV-30 NOV	20	1200-1600	2/4		68
	11 NOV- 5 DEC	25	1200-1630	2/4		68
1949	11 NOV-17 NOV	7	1200-1630	2/4		11
1950	11 NOV- 5 DEC	25	1200-1630	3/3		70
	11 NOV-20 NOV	10	1200-1630	3/3		13
1951	11 NOV- 5 DEC	25	1200-1630	3/3		65
	11 NOV-22 NOV	12	1200-1630	3/3		27
1952	18 NOV-12 DEC	25	1200-1630	3/3		65
	18 NOV-29 NOV	12	1200-1630	3/3		27
1953	11 NOV- 5 DEC	25	1200-1630	3/3		69
	11 NOV-22 NOV	12	1200-1630	3/3		23
1954	11 NOV- 5 DEC	25	1200-1630	3/3		70
	11 NOV-22 NOV	12	1200-1630	3/3		22
1955	12 NOV- 5 DEC	24	1200-1630	3/3		70
	12 NOV-24 NOV	13	1200-1630	3/3		22
1956	10 NOV- 3 DEC	24	1200-1630	3/3		70
	10 NOV-22 NOV	13	1200-1630	3/3		22
1957	9 NOV- 2 DEC	24	1200-1630	3/3		70
	9 NOV-21 NOV	13	1200-1630	3/3		22
1958	8 NOV- 1 DEC	24	1000-1630	3/6		70
	8 NOV-23 NOV	16	1000-1630	3/6		22
1959	14 NOV- 7 DEC	24	0900-1630	3/6		70
	14 NOV-29 NOV	16	0900-1630	3/6		22
1960	5 NOV-28 NOV	24	0900-1630	3/6		92
1961	11 NOV-15 DEC	35	0900-1630	3/6		92
1962	10 NOV-14 DEC	35	0900-1630	3/6		92
1963-64	9 NOV- 1 JAN	54	0830-1700	3/9		92
1964-65	7 NOV- 3 JAN	58	0830-1700	3/9		92
1965-66	13 NOV- 2 JAN	51	0830-1600	2/6		92
1966-67	12 NOV- 2 JAN	52	0800-1630	3/6		92
1967-68	11 NOV- 1 JAN	52	0800-1630	3/6		94
1968-69	9 NOV-31 DEC	53	0800-1630	3/6		94
1969-70	8 NOV-31 DEC	54	0800-1630	3/6		94
1970-71	14 NOV- 3 JAN	51	0800-1630	3/6		94
1971-72	13 NOV- 2 JAN	51	0800-1630	3/6		96
1972-73	11 NOV- 1 JAN	52	0800-1630	3/12		96
1973-74	10 NOV- 6 JAN	58	0800-1630	3/12		96
1974-75	9 NOV- 5 JAN	58	Sunrise-Sunset	3/12		97
1975-76	8 NOV- 4 JAN	58	0800-1630	3/6		97

Year	Dates Regular/Youth	Season Length	Shooting Hours	Limit Bag/Poss.		# Counties Open
				Regular	Youth	
1976-77	6 NOV- 2 JAN	58	0800-1630	3/6		STATEWIDE
1977-78	5 NOV- 1 JAN	58	0800-1630	3/6		STATEWIDE
1978-79	4 NOV- 1 JAN	60	0800-1630	3/6		STATEWIDE
1979-80	3 NOV- 6 JAN	65	0800-1630	3/6		STATEWIDE
1980-81	1 NOV- 4 JAN	65	0800-1630	3/6		STATEWIDE
1981-82	7 NOV- 3 JAN	58	0800-1630	3/6		STATEWIDE
1982-83	6 NOV- 2 JAN	58	0800-1630	3/6		STATEWIDE
1983-84	5 NOV- 1 JAN	58	0800-1630	3/6		STATEWIDE
1984-85	3 NOV- 1 JAN	60	↓	3/6		↓
1985-86	2 NOV- 5 JAN	65		3/9		
1986-87	1 NOV- 4 JAN	65		3/9		
1987-88	31 OCT- 3 JAN	65		3/12		
1988-89	29 OCT- 8 JAN	72		↓		
1989-90	28 OCT-10 JAN	75				
1990-91	27 OCT-10 JAN	76				
1991-92	26 OCT-10 JAN	77				
1992-93	31 OCT-10 JAN	72				
1993-94	30 OCT-10 JAN	72				
1994-95	29 OCT-10 JAN	74				
1995-96	28 OCT-10 JAN	75				
1996-97	26 OCT-10 JAN	77				
1997-98[1]	26 OCT-10 JAN / 18-19 OCT	77/2			1/2	
1998-99	31 OCT-10 JAN / 23-24 OCT	72/2			↓	
1999-00	30 OCT-10 JAN / 22-23 OCT	73/2				
2000-01	28 OCT-10 JAN / 21-22 OCT	75/2				
2001-02	27 OCT-10 JAN / 20-21 OCT	76/2				
2002-03	26 OCT-10 JAN / 19-20 OCT	77/2				
2003-04	25 OCT-10 JAN / 18-19 OCT	78/2				
2004-05	30 OCT-10 JAN / 23-24 OCT	73/2				
2005-06	29 OCT-10 JAN / 22-23 OCT	74/2				
2006-07	28 OCT-10 JAN / 21-22 OCT	75/2				
2007-08	27 OCT-10 JAN / 21-22 OCT	76/2				
2008-09	25 OCT-10 JAN / 18-19 OCT	78/2				
2009-10	31 OCT-10 JAN / 24-25 OCT	72/2				
2010-11	30 OCT-10 JAN / 23-24 OCT	73/2				
2011-12	29 OCT-10 JAN / 22-23 OCT	74/2				
2012-13	27 OCT-10 JAN / 20-21 OCT	76/2				
2013-14	26 OCT-10 JAN / 19-20 OCT	77/2				
2014-15	25 OCT-10 JAN / 18-19 OCT	78/2				
2015-16	31 OCT-10 JAN / 24-25 OCT	72/2				
2016-17	29 OCT-10 JAN / 22-23 OCT	74/2				
2017-18	28 OCT-10 JAN / 21-22 OCT	75/2				

[1]Iowa's first youth pheasant season, open to resident hunters 15 years or younger.

Table 5.11 Iowa's Bobwhite quail hunting seasons.

Year	Dates	Season Length	Shooting Hours	Limit Bag/Poss	Area Open
1963-64	2 NOV- 1 JAN	61	0830-1700	6/12	Statewide
1964-65	31 OCT- 3 JAN	65	0830-1700	8/16	↓
1965-66	6 NOV-31 JAN	86	0830-1600	8/16	
1966-67	22 OCT-31 JAN	102	0800-1630	8/16	
1967-68	21 OCT-28 JAN	103	0800-1630	8/16	
1968-69	26 OCT-31 JAN	98	0800-1630	8/16	
1969-70	25 OCT-31 JAN	99	0800-1630	8/16	
1970-71	24 OCT-31 JAN	100	0800-1630	8/16	
1971-72	23 OCT-31 JAN	101	0800-1630	8/16	
1972-73	28 OCT-31 JAN	96	0800-1630	8/16	
1973-74	27 OCT-31 JAN	97	0800-1630	8/16	
1974-75	26 OCT-31 JAN	98	Sunrise - Sunset	8/16	
1975-76	25 OCT-31 JAN	99	0800-1630	8/16	
1976-77	6 NOV-31 JAN	86	↓	8/16	
1977-78	5 NOV-31 JAN	87		8/16	
1978-79	4 NOV-31 JAN	88		8/16	
1979-80	3 NOV- 6 JAN	64		6/12	
1980-81	1 NOV-31 JAN	92		8/16	
1981-82	7 NOV-31 JAN	86		↓	
1982-83	6 NOV-31 JAN	87			
1983-84	5 NOV-31 JAN	88			
1984-85	3 NOV-31 JAN	90			
1985-86	2 NOV-31 JAN	91			
1986-87	1 NOV-31 JAN	92			
1987-88	31 OCT-31 JAN	93			
1988-89	29 OCT-31 JAN	95			
1989-90	28 OCT-31 JAN	96			
1990-91	27 OCT-31 JAN	97			
1991-92	26 OCT-31 JAN	98			
1992-93	31 OCT-31 JAN	93			
1993-94	30 OCT-31 JAN	93			
1994-95	29 OCT-31 JAN	95			
1995-96	28 OCT-31 JAN	96			
1996-97	26 OCT-31 JAN	98			
1997-98	25 OCT-31 JAN	99			
1998-99	31 OCT-31 JAN	93			
1999-00	30 OCT-31 JAN	94			
2000-01	28 OCT-31 JAN	96			
2001-02	27 OCT-31 JAN	97			
2002-03	26 OCT-31 JAN	98			
2003-04	25 OCT-31 JAN	99			
2004-05	30 OCT-31 JAN	94			

Year	Dates	Season Length	Shooting Hours	Limit Bag/Poss	Area Open
2005-06	29 OCT-31 JAN	95			
2006-07	28 OCT-31 JAN	96			
2007-08	27 OCT-31 JAN	97			
2008-09	25 OCT-31 JAN	99			
2009-10	31 OCT-31 JAN	93			
2010-11	30 OCT-31 JAN	94			
2011-12	29 OCT-31 JAN	95			
2012-13	27 OCT-31 JAN	97			
2013-14	26 OCT-31 JAN	98			
2014-15	25 OCT-31 JAN	99			
2015-16	31 OCT-31 JAN	93			
2016-17	29 OCT-31 JAN	95			
2017-18	28 OCT-31 JAN	96			

Table 5.12 Iowa's Hungarian partridge hunting seasons.

Year	Dates	Season Length	Shooting Hours	Limit Bag/Poss	Area Open
1963-64	9 NOV- 1 JAN	54	0830-1700	2/4	16 NW Counties
1964-65	7 NOV- 3 JAN	58	0830-1700	2/4	W US 65, N US 20
1965-66	13 NOV- 2 JAN	51	0830-1600	2/4	W US 65, N US 20
1966-67	12 NOV- 2 JAN	52	0800-1630	2/4	W US 65, N US 20
1967-68	11 NOV- 1 JAN	52	0800-1630	2/4	W US 65, N US 20
1968-69	9 NOV-31 DEC	53	0800-1630	4-Feb	?
1969-70	8 NOV-31 DEC	54	0800-1630	2/4	?
1970-71	14 NOV- 3 JAN	51	0800-1630	2/4	W. US 65; N. US 30, I29, STATE 141
1971-72	13 NOV- 2 JAN	51	0800-1630	2/4	W. US 65; N. US 30, I29, STATE 141
1972-73	11 NOV- 1 JAN	52	0800-1630	4/8	W. US 65; N. US 30, I29, STATE 141
1973-74	10 NOV- 6 JAN	58	0800-1630	4/8	N. US 30
1974-75	9 NOV- 5 JAN	58	Sunrise - Sunset	4/8	N. US 30
1975-76	8 NOV- 4 JAN	58	0800-1630	4/8	N. US 30
1976-77	6 NOV- 2 JAN	58	↓	4/8	N. US 30
1977-78	5 NOV- 1 JAN	58		6/12	N. US 30
1978-79	4 NOV- 1 JAN	60		6/12	N. US 30
1979-80	3 NOV- 6 JAN	65		6/12	N. US 30
1980-81	1 NOV-31 JAN	92		6/12	N. I-80
1981-82	7 NOV-31 JAN	86		6/12	N. I-80
1982-83	6 NOV-31 JAN	87		6/12	N. I-80
1983-84	5 NOV-31 JAN	88		6/12	N. I-80
1984-85	3 NOV-31 JAN	90		6/12	N. I-80
1985-86	2 NOV-31 JAN	91		6/12	N. I-80
1986-87	1 NOV-31 JAN	92		6/12	STATEWIDE

Year	Dates	Season Length	Shooting Hours	Limit Bag/Poss	Area Open
1987-88	31 OCT-31 JAN	93		8/16	↓
1988-89	29 OCT-31 JAN	94		↓	
1989-90	7 OCT-31 JAN	117			
1990-91	6 OCT-31 JAN	118			
1991-92	5 OCT-31 JAN	119			
1992-93	10 OCT-31 JAN	114			
1993-94	9 OCT-31 JAN	115			
1994-95	8 OCT-31 JAN	116			
1995-96	14 OCT-31 JAN	109			
1996-97	12 OCT-31 JAN	112			
1997-98	11 OCT-31 JAN	113			
1998-99	10 OCT-31 JAN	114			
1999-00	9 OCT-31 JAN	115			
2000-01	14 OCT-31 JAN	110			
2001-02	13 OCT-31 JAN	111			
2002-03	12 OCT-31 JAN	112			
2003-04	11 OCT-31 JAN	113			
2004-05	9 OCT-31 JAN	115			
2005-06	8 OCT-31 JAN	116			
2006-07	7 OCT-31 JAN	117			
2007-08	13 OCT-31 JAN	111			
2008-09	11 OCT-31 JAN	113			
2009-10	10 OCT-31 JAN	114			
2010-11	9 OCT-31 JAN	115			
2011-12	8 OCT-31 JAN	116			
2012-13	13 OCT-31 JAN	111			
2013-14	12 OCT-31 JAN	112			
2014-15	11 OCT-31 JAN	113			
2015-16	10 OCT-31 JAN	114			
2016-17	8 OCT-31 JAN	116			
2017-18	14 OCT-31 JAN	110			

Table 5.13 Iowa's cottontail and jackrabbit seasons.

Year	Dates Cottontail/Jackrabbit	Season Length	Shooting Hours	Limit - Bag/Poss		Area Open
				Cottontail	Jackrabbit	
1963-64	14 SEP-23 FEB	163	0600-1800	Aggregate	10/None	Statewide
1964-65	12 SEP-21 FEB	163	0600-1800	Aggregate	10/None	↓
1965-66	12 SEP-21 FEB	163	0600-1800	Aggregate	10/None	
1966-67	10 SEP-19 FEB	163	0600-1800	Aggregate	10/None	
1967-68	15 SEP-17 FEB	163	0600-1800	Aggregate	10/None	
1968-69	14 SEP-16 FEB	163	0600-1800	Aggregate	10/None	
1969-70	13 SEP-15 FEB	163	0600-1800	Aggregate	10/None	
1970-71	12 SEP-28 FEB	170	0600-1800	Aggregate	10/None	

Year	Dates Cottontail/Jackrabbit	Season Length	Shooting Hours	Limit - Bag/Poss		Area Open
				Cottontail	Jackrabbit	
1971-72	11 SEP-29 FEB	171	0600-1800	Aggregate	10/None	
1972-73	9 SEP-28 FEB	173	0600-1800	Aggregate	10/None	
1973-74	8 SEP-28 FEB	174	0600-1800	Aggregate	10/None	
1974-75	7 SEP-28 FEB	175	Sunrise-Sunset	Aggregate	10/None	
1975-76	6 SEP-28 FEB	176	↓	Aggregate	10/None	
1976-77	11 SEP-28 FEB	171		Aggregate	10/None	
1977-78	3 SEP-28 FEB	179		Aggregate	10/None	
1978-79	2 SEP-28 FEB/4 NOV-7 JAN	180/65		10/None	3/6	
1979-80	1 SEP-29 FEB/3 NOV-6 JAN	182/65		10/20	3/6	
1980-81	6 SEP-28 FEB/1 NOV-4 JAN	176/65		↓	3/6	
1981-82	5 SEP-28 FEB/7 NOV-3 JAN	177/58			3/6	
1982-83	4 SEP-28 FEB/6 NOV-2 JAN	178/58			3/6	
1983-84	3 SEP-29 FEB/5 NOV-18 DEC	180/44			3/6	
1984-85	1 SEP-28 FEB/3 NOV-16 DEC	181/44			3/6	
1985-86	31 AUG-28 FEB/2 NOV-15 DEC	182/44			3/6	
1986-87	30 AUG-28 FEB/1 NOV-14 DEC	183/44			3/6	
1987-88	5 SEP-29 FEB/31 OCT-13 DEC	178/44			3/6	
1988-89	3 SEP-28 FEB/28 OCT-10 DEC	179/44			3/6	
1989-90	2 SEP-28 FEB/29 OCT-11 DEC	180/44			3/6	
1990-91	1 SEP-28 FEB/27 OCT-9 DEC	181/44			3/6	
1991-92	31 AUG-29 FEB/26 OCT-8 DEC	183/44			3/6	
1992-93	5 SEP-28 FEB/31 OCT-6 DEC	177/37			3/6	
1993-94	4 SEP-28 FEB/30 OCT-5 DEC	176/37			2/4	
1994-95	3 SEP-28 FEB/29 OCT-4 DEC	177/37			2/4	
1995-96	2 SEP-28 FEB/28 OCT-1 DEC	178/35			2/4	
1996-97	7 SEP-28 FEB/26 OCT-1 DEC	174/37			2/4	
1997-98	1 SEP-28 FEB/25 OCT-1 DEC	181/38			2/4	
1998-99	1 SEP-28 FEB/31 OCT-1 DEC	181/32			2/4	
1999-00	1 SEP-28 FEB/30 OCT-1 DEC	181/33			2/4	
2000-01	1 SEP-28 FEB/28 OCT-1 DEC	181/35			2/4	
2001-02	1 SEP-28 FEB/27 OCT-1 DEC	181/36			2/4	
2002-03	1 SEP-28 FEB/26 OCT-1 DEC	181/37			2/4	
2003-04	1 SEP-28 FEB/25 OCT-1 DEC	181/38			2/4	
2004-05	1 SEP-28 FEB/30 OCT-1 DEC	181/33			2/4	
2005-06	1 SEP-28 FEB/29 OCT-1 DEC	181/34			2/4	
2006-07	1 SEP-28 FEB/28 OCT-1 DEC	181/35			1/2	
2007-08	1 SEP-28 FEB/27 OCT-1 DEC[a]	181/36			1/2	
2008-09	30 AUG-28 FEB/25 OCT-1 DEC	182/38			1/2	
2009-10	5 SEP-28 FEB/31 OCT-1 DEC	177/32			1/2	
2010-11	4 SEP-28 FEB/30 OCT-1 DEC	178/33			1/2	
2011-12	3 SEP-28 FEB/Closed	179/Closed			Closed	
2012-13	1 SEP-28 FEB/Closed	181/Closed			↓	

Year	Dates Cottontail/Jackrabbit	Season Length	Shooting Hours	Limit - Bag/Poss		Area Open
				Cottontail	Jackrabbit	
2013-14	31 AUG-28 FEB/Closed	182/Closed				
2014-15	30 AUG-28 FEB/Closed	183/Closed				
2015-16	5 SEP-28 FEB/Closed	177/Closed				
2016-17	3 SEP-28 FEB/Closed	179/Closed				
2017-18	2 SEP-28 FEB/Closed	189/Closed				

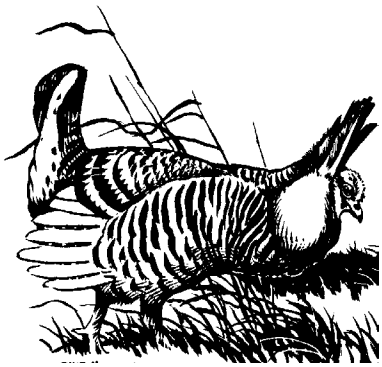
1963-1977 SEASONS AND LIMITS ARE AN AGGREGATE OF COTTONTAILS AND JACKRABBITS.
[a]Cottontail opener changed from 1 Sept. to Saturday before Labor Day.

Table 5.14 Iowa's dove seasons[a].

Year	Dates	Season Length	Shooting Hours	Limit Bag/Poss	Area Open
2011-12	1 SEP-9 Nov	70	½ hr before Sunrise-Sunset	15/30	Statewide
2012-13	1 SEP-9 Nov	↓	↓	↓	↓
2013-14	1 SEP-9 Nov				
2014-15	1 SEP-9 Nov				
2015-16	1 SEP-9 Nov				
2016-17	1 SEP-9 Nov				
2017-18	1 SEP-29 Nov	90			

[a]Governor signed SF464 giving the DNR authority to establish the state's first mourning dove season in 2011.

WILDLIFE RESTORATION 2016-2017 ACTIVITIES



Greater Prairie Chicken Restoration

Historical Review

Greater prairie chickens (*Tympanuchus cupido pinnatus*) commonly nested throughout Iowa from the time of European settlement in the mid-nineteenth century until about 1900. Numbers peaked about 1880 when most of Iowa was a mosaic of small grainfields, hayfields, pasture, and native prairie, which provided ideal habitat conditions (Ehresman 1996). During the late nineteenth century, prairie chickens were the most abundant gamebird on Iowa prairies. Hunting and trapping them for food and market were very important to settlers. Bags of 25 to 50 a day were common, and some hunters took up to 200 per day.

By 1878, Iowa lawmakers were concerned that prairie chickens were being over- harvested. The Iowa Legislature passed a law that year limiting the daily bag of prairie chickens to 25 birds per person. This is believed to be the first time that bag limits were used as a tool to regulate the harvest of game in the United States. Additional restrictions followed, and the last open season for prairie chickens in Iowa was held in 1915 (Stempel and Rodgers 1960).

As agricultural land use intensified, populations of prairie chickens started to decline. By the 1930's, most prairie chickens found in the northwestern part of the state were migrant winter flocks. By the 1950's, the only known nesting prairie chickens were in Appanoose, Wayne, and Ringgold Counties in southern Iowa. The last verified nesting prior to reintroduction attempts was in Appanoose County in 1952 (Stempel and Rodgers 1960).

Restoration

First Reintroduction

In the early 1980's, the Iowa Conservation Commission, now the Iowa Department of Natural Resources (DNR), attempted to restore prairie chickens to west central Iowa. The DNR negotiated with the Kansas Fish and Game Commission (KFGC), now Kansas Department of Wildlife and Parks (KDWP), to trade wild turkeys for 100 prairie chickens (Table 6.1). The release site was located in the Loess Hills east of Onawa, Monona County (Figure 6.1). This is an area of steep to moderately rolling bluffs and hills bordering the Missouri River valley. These hills have large expanses of grassland interspersed with brush and small crop fields.

Fifty-three prairie chickens were released in 1980. Results from the first release were generally poor. No spring leks were located in the 2 years following the release, and no reproduction was reported.

In 1982, KFGC personnel decided to attempt a different trapping approach, using rocket-nets to trap chickens on the lek sites. This resulted in 48 more chickens being transported to Iowa for release at the same area in the Loess Hills. A greater effort to acclimatize the birds was made in the 1982 release. The birds were banded and put in a large holding pen with separate cells for each sex. They were kept in pens overnight for the males and a day longer for the females. It was hoped that males would be stimulated to remain near the release site by holding the females a day longer. Taped lek calls were also played through speakers located near the pen about 45 minutes prior to releasing males. This was an attempt to induce chickens to establish a lek in the area.

Two prairie chicken broods were reported near the release site in 1982, and up to six adults were observed near the Missouri River bottom the same year. Two leks consisting of only a few displaying males were located in 1983 and 1984.

Most sightings were in the heavily agricultural Missouri River valley instead of the hills where they were released. Suitable grassland habitat was lacking in the valley. Only an occasional sighting has been reported in this region since 1984, leading to the conclusion that this reintroduction effort failed (Ron Munkel, DNR, *pers. comm.*).

Second Reintroduction Attempt

1987-1989 Stockings: In 1987, the DNR made a second restoration attempt at Ringgold Wildlife Area located two miles north of the Missouri border in Ringgold County (Figure 6.1). Wildlife personnel considered this region to be the best potential prairie chicken habitat in Iowa. In addition, the immediate vicinity was one of the last strongholds of prairie chickens in southern Iowa and northern Missouri (Christisen 1985, Stempel and Rodgers 1960). The surrounding portions of Ringgold County and adjacent Harrison County, Missouri, are cattle country, with 60% or more of the land in permanent grass. Donald Christisen (1985) concluded that the demise of prairie chickens in this area was due to heavy utilization of grasslands by livestock, resulting in poor quality habitat. Recent years had brought some positive changes in the grasslands of the area including the restoration of around 200 ha of prairie on the Ringgold Wildlife Area.

Birds were again obtained from Kansas through a three-way trade in which DNR supplied wild turkeys to the Michigan Department of Natural Resources (MDNR) while a MDNR crew trapped prairie chickens in Kansas for translocation to Iowa. Prairie chickens were captured in the spring with funnel traps set on booming grounds in the Flint Hills region of Kansas. Every few days the captured birds were transported to Iowa and released the next morning utilizing a soft release box and artificial lek technique, which had been successfully used in Kansas to reintroduce sharptail grouse (Rodgers 1987). A total of 254 prairie chickens were translocated to the Ringgold Wildlife Area from Kansas during 1987, 1988, and 1989 (Table 6.1).

By the spring of 1988, leks had been established at the release site and a site 15 km south in Missouri. The Missouri site was on the Dunn Ranch, a cattle ranch operated by Forrest and Maury Meadows of Bethany, Missouri. The ranch included about 500 ha of well-managed native prairie pasture in addition to several hundred hectares of cool season pasture. This ranch contained a major lek before the disappearance of prairie chickens in the 1960's. The lek established in 1988 was on the same site as the historic lek, and the birds using it were verified as Iowa release birds by the bands on their legs (Maury Meadows, *pers. comm.*).

During 1990 and 1991 reproductive conditions for gallinaceous birds were poor in this area; however, brood sightings were made each year. By 1991, prairie chickens appeared to be firmly established on Dunn Ranch, but only one lek of six males could be located in Iowa that year. The success of the reintroduction of prairie chickens to the Dunn Ranch was the bright spot of the project thus far. It was evident that reintroductions in this region could succeed.

1992-94 Stockings: An agreement with KDWP once again allowed DNR crews to trap and translocate 100 prairie chickens a year. Instead of releasing all of the birds at one site, it was decided to release significant numbers on large grassland tracts in the region, while releasing a smaller number at the original Ringgold Wildlife Area. Birds were translocated to two new sites in 1992, Mount Ayr and Kellerton, respectively 28 and 24 km north of Ringgold (Figure 6.1). Sites continued to shift in subsequent years and the Orient site (Adair County) was added in 1993. All of the sites contained high quality grasslands and open landscapes. Predominant land use at all three sites was a mixture of pasture, hay, and CRP.

A total of 304 prairie chickens were released in this three-year period (Table 6.1).

Subsequent Stocking: No additional stockings were anticipated following releases in 1994. However in 2001, South Dakota Game Fish and Parks (SDGFP) employees incidentally trapped three prairie chickens and offered them to DNR. One male and two female chickens were released at the Kellerton lek in April 2001. This additional release results in a total of 561 prairie chickens translocated to Iowa since 1987.

Missouri Reintroduction: The Missouri Department of Conservation (MDC) were also reintroducing prairie chickens in north central Missouri from 1993 to 2000. Approximately 100 birds were released each year through 1997 and again in 2000. They have released birds at eight sites located 60 to 100 km southeast of the Ringgold Wildlife Area and 10 to 40 km south of the Iowa border (Larry Mechlin, MDC, *pers. comm.*). Some of these birds were spotted in Iowa over the

years.

Continued Restoration

Current Restoration Attempts: In 2012 the Iowa DNR assembled an Iowa Management Plan for Greater Prairie Chickens. The plan includes a relatively detailed analysis of habitat in Ringgold County, Iowa and recommendations for managing that habitat for prairie chickens. A portion of the plan also proposes a translocation effort to bolster the diminishing population of birds.

In the short-term, the plan suggested trapping and releasing roughly 350 birds between 2012 and 2015. This goal was accomplished with 328 birds, half male and half female, trapped and released over this four year period. The trapped birds were split in 2013-2015 with roughly 60% of the birds being released near Kellerton, IA and 40% released at Dunn Ranch (TNC) in Harrison County, MO. The birds were documented moving between Dunn Ranch and Kellerton using transmitters.

In 2016 and 2017, the Missouri Department of Conservation extended the trapping and translocation project, successfully releasing 195 more birds from Nebraska across the two years. The ratio of released birds was reversed with 40% of the birds (50/50 male/female split) in IA at Kellerton WA and 60% in MO at Dunn Ranch. This cooperative work between Iowa DNR, Missouri Department of Conservation and The Nature Conservancy all takes place in the roughly 140,000 acre Grand River Grasslands focal area that straddles the state line.

A complete list of the numbers of birds and where they were released can be found in Table 6.1.

Booming Ground Survey

Methods

Attempts have been made each spring by DNR personnel and volunteers to locate leks and count booming males. Counts of known leks are made on sunny mornings with winds <10 mph throughout the last part of March and through the month of April. In the past, lek sites were glassed or flushed to determine the number of booming males and new leks were located by driving gravel roads and stopping periodically to listen for booming. A more formalized survey was started in 2009, using a prairie chicken habitat suitability model to establish 10 Survey Areas across 8 southern Iowa counties. The area surveyed has been adjusted a few times to accommodate staff time and reasonable effort and as of 2017 covers all or parts of 6 counties and 74 survey sites. All 74 sites were surveyed at least once and up to four times between March 20th and late April (Figure 6.2). In addition, in 2016 and 2017, a blitz-type survey was performed which involved 6 staff going out on the same morning and spending 30 minutes at each of 17 sites. These sites were chosen based on a recent (last 15 years) and consistent history of holding an active Lek or because they were the site of a prairie chicken sighting during the current Spring. Similar counts were done on and around the Dunn Ranch in Missouri. It is possible that some booming grounds have not been located.

Results (Current and Previous 10 Years)

2007: Four active leks were identified this year spread through 3 counties (Table 6.2). Only 15 booming males were recorded across these leks with an average of 3.75 males per lek. The largest lek is by the Kellerton viewing platform and observers on April 2, 2007 reported between 14-22 birds at a time on the lek evenly split between male and female. No broods were spotted during summer surveys in 2007.

The number of leks has declined over the past 10 years from a high of 9 to this year's 4. The number of booming males has declined as well and broods have proven difficult to find.

2008: A new effort was embarked upon in 2008 to determine the genetic diversity of southern Iowa's prairie chicken population. Trap lines were set out at the largest lek on the Kellerton Wildlife Area at the end of March and run through April 18th. Blood was collected from the 10 birds captured (7 males, 3 females) and sent for genetic analysis. Full results are still pending.

Booming males were counted on four leks this year all in Ringgold County. The biggest lek was once again at Kellerton Wildlife area where as many 14 males were initially observed booming though once the females appeared there were

only 10 males. Current and prior lek locations are shown in Figure 6.2.

2009: The newly established lek survey recorded 3 established lek sites in Ringgold County and one possible lek site in Adams County. The well-established Kellerton lek had a high of 13 males and 4 females observed, while a smaller lek area to the north of Kellerton had a high of 4 males and 1 female seen during the survey (Table 6.2). This smaller lek area was likely used by a total of 5 males and 2 females. One male was possibly heard booming at a lek area to the east of this smaller lek site. Another two male chickens were not seen, only heard at a possible lek area in Adams County.

In addition, a prairie chicken nest was located for the first time just southwest of the main Kellerton lek. Twelve eggs were counted and a later visit confirmed that 11 successfully hatched. A further sighting of the brood recorded that two of the chicks had died and the remainder of the brood was not seen and their fate is unknown.

2010: The 2010 lek survey recorded 3 established lek sites in Ringgold County. The well-established Kellerton lek had a high of only 8 males however a high of 7 was collected on another satellite lek site and an additional 4 were observed on the final lek site, north of Kellerton (Table 6.2). Outside of the lek survey an additional 6 females were observed on one of the satellite lek sites. The average number of males observed per lek was the highest it has been in the previous 10 years at 6.33. While this number should be somewhat encouraging it really seems to reflect the concentration of birds on fewer lek sites.

No prairie chicken nests or broods were located in the Kellerton area during 2010. However, two broods were flushed in two different fields at TNC's Dunn Ranch in northern Missouri. Other sightings in the Kellerton area include 2 observations of a winter flock containing 24-25 individual birds.

2011: Prairie Chickens were detected at 6 locations representing 3 lek sites. One of these areas, in Adams County, was previously unreported but despite additional visits with more intensive searching it was never confirmed as a lek site. It is presented here with the caveat that it is unconfirmed. A maximum of 6 males were detected at the lek on the Kellerton Wildlife Area. A maximum of 7 males were detected on the lek on private land northwest of the Kellerton Wildlife Area. The data for the lek in Adams County listed only "more than 1" bird heard. No females were detected during the survey though up to 2 were seen at other times on the private lek.

Flushing brood surveys at the Kellerton Wildlife Area on August 1 turned up 5 adult prairie chickens, 3 of which were female, but no broods.

2012: The 2012 lek survey covered a 25 mile radius around the two active lek/release sites and 47 sites were surveyed. All survey sites had been surveyed using the same methodology in 2011. Twenty-five sites were historically known lek sites and 22 were random survey points. Each site was visited around sunrise twice between April 1 and 25. Prairie chickens were detected on 4 different sites all on or within 1.5 miles of a currently active lek. A count of 14 birds was recorded on April 2nd before the translocation began and 17 birds were detected on April 18th including one bird seen on one new site. A survey of one active lek from a blind on April 17th counted 8 males and 2 females present with one of the birds wearing a leg band from the translocation.

Two broods have also been detected through opportunistic observations. One was located on the Kelleron Wildlife Area and one on private ground about 2 miles Northwest of the Kellerton Lek. A total of 10 young were counted.

2013: The 2013 lek survey covered a 25 mile radius around the two active lek/release sites and 47 sites were surveyed. All survey sites had been surveyed using the same methodology since 2009. Twenty-five sites were historically known lek sites and 22 were random survey points. Each site was visited around sunrise twice between April 1 and 25. Prairie chickens were detected on 4 different sites all on or within 1.5 miles of a currently active lek. Post-release average counts of birds increased by an average of 1.23 birds from pre-release counts. The average maximum birds across the four active leks was seven. The maximum number of birds seen on one morning during the booming season was 24 birds. Outside of the formal lek survey (and normal booming season) prairie chicken booming was heard on a historic lek to the north of Kellerton on June 6.

Ten of the hens that were translocated in 2013 were fitted with satellite GPS transmitters. Only one of the hens remains under surveillance as of September 2013 and she was located in Southwest Union County, IA. Up to that time she had traveled over 1000 miles in large loops through Southern IA and Northern Missouri. Seven of the ten hens were confirmed mortalities with the other two having an unknown fate.

Two broods have been opportunistically observed on Kellerton WA: one with six young on June 26 and one with four young on August 9th. No broods were observed on a pilot roadside brood survey conducted in mid-July.

2014: In 2014, two additional lek survey routes were added in Iowa based on the dispersal data from birds released in 2013. This expanded the area covered to include two additional counties and a total of 6 routes and 71 survey sites. Two routes were also surveyed across the border in Missouri. Each site was surveyed 6 times between March 21st and May 8th. Prairie chickens were observed booming on two lek sites with a maximum of 21 birds counted in one survey.

Twelve of the translocated birds were fitted with GPS transmitters: 2 males and 10 females. As of August 26th, four out of the twelve birds are still being tracked (1 male and 3 hens) along with 1 hen from the 2013 release. Of the losses, seven are suspected mortalities and one slipped its transmitter. Two of the surviving hens successfully nested, one on the Kellerton Wildlife Area and the other at Pawnee Prairie in Missouri. The third is suspected to have nested on Dunn Ranch based on behavior but a nest was never located.

A formal roadside brood survey conducted in July did not pick up any prairie chicken broods however a number of broods were identified opportunistically throughout the nesting season. Brood sightings began being reported on the 17th of June and by July 15th there had been 13 confirmed sightings of chicken broods, some with collared hens and others not. These 13 sightings probably translate into an estimate of 11-13 separate broods, four in Missouri and 7-9 in Iowa. A total of 85 young were reported from these sightings, ranging from 3-13 with an average brood size of 7.27.

2015: A total of 6 routes and 73 survey sites were surveyed in Iowa along with two routes across the border in Missouri. Each site was surveyed 4 times between March 20th and April 20th. Prairie chickens were observed booming on four lek sites with a maximum of 46 males counted booming in one survey at the two main leks and a total of 2, 2 and 5 birds reported at three new outlying lek sites.

Three of the translocated hens were fitted with GPS transmitters. As of August 21st, none of the three birds are still being tracked, 2 were mortalities and one was likely a malfunctioning transmitter. Two hens fitted with transmitters in 2014 were also still being followed up until July of 2015. Both birds appeared to nest successfully, one on Kellerton WA and one on Pawnee Prairie in Missouri but it is unknown if they were able to care for their broods through fledging.

No formal roadside brood survey was conducted in 2015 and only one brood with one young was identified opportunistically in Iowa on June 29th. There was at least one known nest on Kellerton WA located within 1 mile of the main lek. On the Missouri side of the Grand River Grasslands brood sightings were more abundant in the Dunn Ranch/Pawnee Prairie area.

2016: A total of 6 routes and 74 sites were surveyed in Iowa along with two routes across the border in Missouri. Each site was surveyed 1-4 times between March 20th and April 20th. Prairie chickens were observed booming on six lek sites though only two had five or more displaying males counted. A maximum of 44 birds were counted at the two main leks and a maximum of 1, 3, 3 and 4 birds reported at the outlying lek sites. Two of these outlying sites were newly detected this year.

The Blitz survey was performed on April 7, 2016 in Iowa and 54 total birds were counted on 4 of the 22 sites (Figure 6.2). Missouri could not do their Blitz survey on the same day but completed it on April 12, 2016. They surveyed 24 sites and observed a total of 47 birds on 7 of those sites.

Thirty of this year's translocated birds were fitted with radio transmitters by MDC, all of which were released in Missouri. Six of these birds attempted nests including one on Kellerton WA. The nest on Kellerton was depredated before hatching. Only one of the six monitored nests hatched successfully with a brood of 10 chicks on Dunn Ranch in

Missouri. Another brood of 5 young was opportunistically spotted on Pawnee Prairie in MO and a brood of 14 pigeon-sized young was observed near the lek on Kellerton WA in early July. There have been a few other sightings in August of groups numbering 10-12 birds but it was difficult to say if they were young of the year.

The only other counts of birds available were informal reports of winter flocks. Iowa had three areas where flocks were seen: around the private lek site just north of Kellerton, around the private lek site near Tingly and on the Kellerton WA. A maximum of 19 birds was counted in the flock near Tingly, 42 on Kellerton WA and 26 near the private lek north of Kellerton. Birds from these flocks, especially the latter two, likely interchange and the counts were not made on the same days so it is impossible to provide a total for the whole area but these numbers provide an idea of the minimum number of birds in the area. There were at least 42 birds, and likely more, wintering in Ringgold County, IA.

2017: A total of 6 routes and 74 sites were surveyed in Iowa along with two routes across the border in Missouri. Each site was surveyed 1-4 times between March 20th and April 21st. Prairie chickens were observed booming on five lek sites though only three had five or more displaying males counted. A maximum of 36 birds were counted at the three main leks and a maximum of 1 bird reported at the other two outlying sites (Figure 6.2).

The Blitz survey was performed on April 6, 2017 in Iowa and Missouri. A total of 39 birds were counted on 5 of the 17 sites in Iowa (Figure 6.2). Missouri counted 64 birds on 9 sites out of a total of 30 sites surveyed.

There are no reports of nests or broods at this time.

The only other counts of birds available are informal reports of winter flocks.

Iowa had three areas where flocks were seen: north of Kellerton WA, around the private lek site near Tingly and on the Kellerton WA. A maximum of 10 birds were reported in the flock near Tingly, 32 on Kellerton WA and 9 north of Kellerton. Between the three flocks, there were at least 52 birds, wintering in Ringgold County, IA.

Discussion

Prairie chicken reintroduction efforts have resulted in a small population of prairie chickens in a concentrated area of southern Iowa and northern Missouri.

Pasture and hay are still primary land uses in this region which benefits the chickens. The Iowa Prairie Chicken Management Plan sets objectives for not only prairie chicken population numbers but also for enhancing this landscape to increase the amount of native grass and provide more habitat for chickens and other grassland dependent wildlife. The Iowa DNR and many outside partners (The Nature Conservancy, The Missouri Department of Conservation, the Iowa Natural Heritage Foundation) are implementing many actions to make progress on those objectives.

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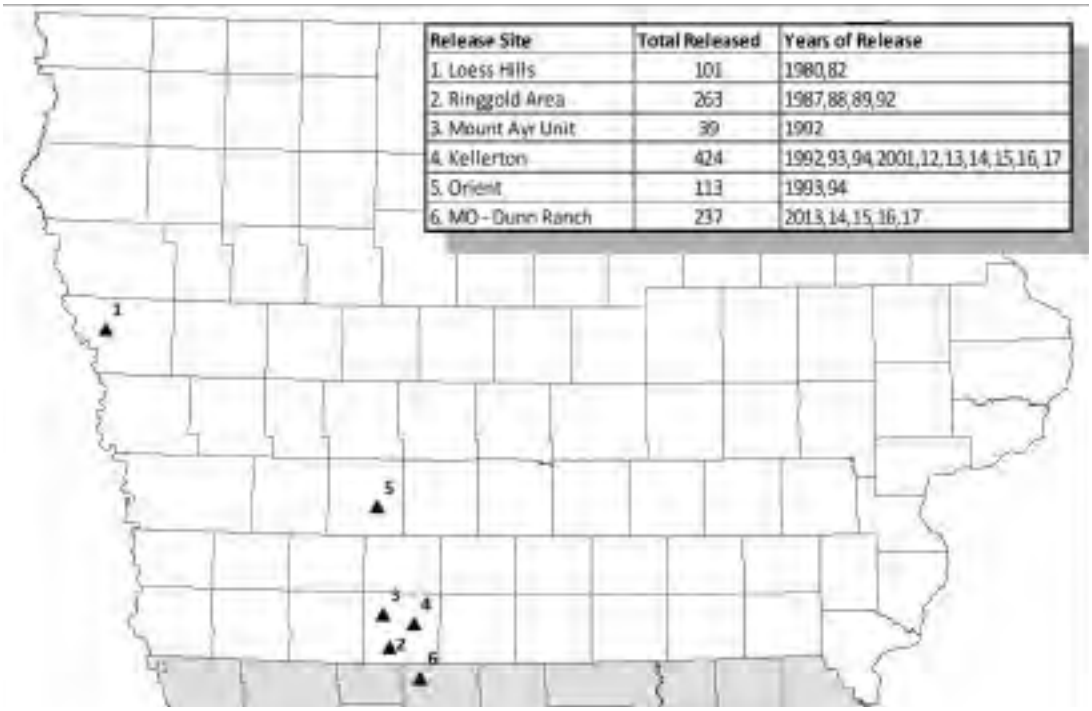
Figures



Release Site	Total Released	Years of Release
1. Loess Hills	101	1980,82
2. Ringgold Area	263	1987,88,89,92
3. Mount Ayr Unit	39	1992
4. Kellerton	424	1992,93,94,2001,12,13,14,15,16,17
5. Orient	113	1993,94
6. MO - Dunn Ranch	237	2013,14,15,16,17

Figure 6.1 Location of release sites and total number of prairie chickens released in Iowa, 1980-2017.

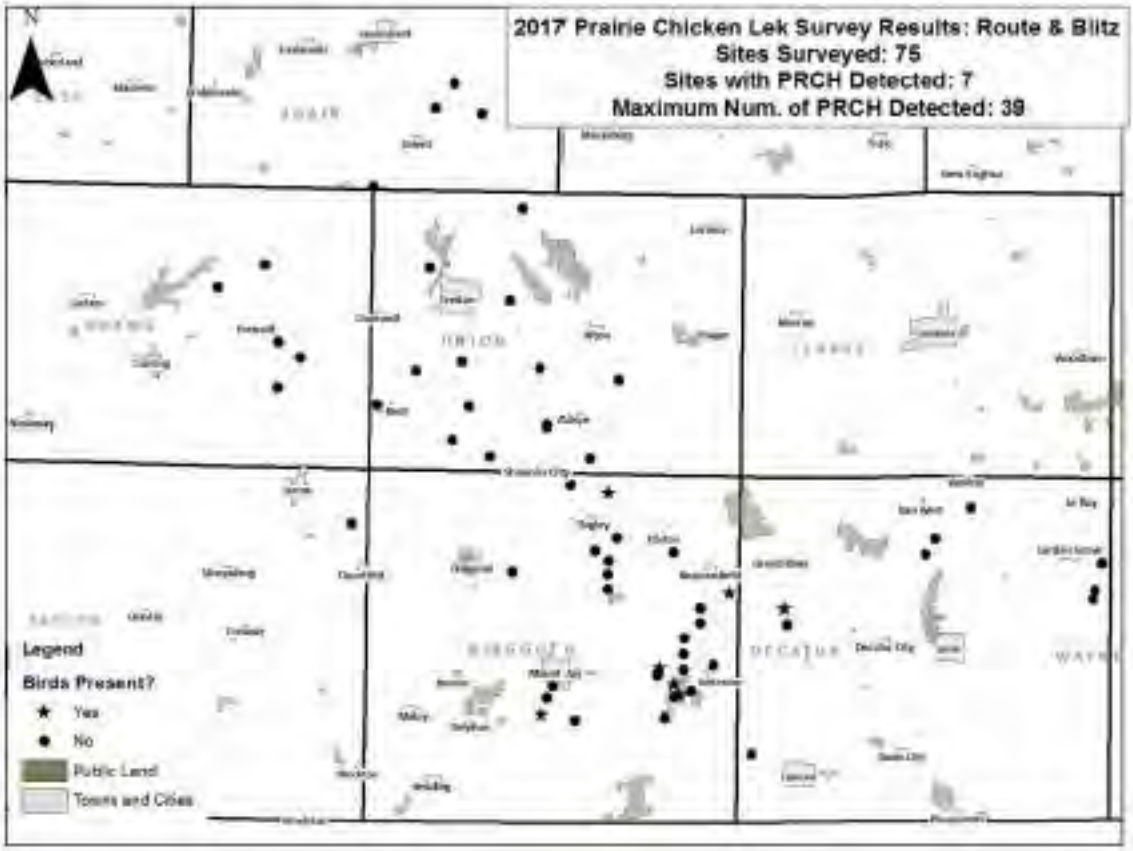


Figure 6.2 Location of sites surveyed and sites where chickens were detected during the 2017 Prairie-chicken lek surveys both route based and blitz combined.

Tables

Table 6.1 Dates, numbers, and locations of greater prairie chicken releases in Iowa, 1980-2015. Gamma (Γ)= male, Epsilon (E) = female. * KFGC = Kansas fish and Game Commission, KDWP = Kansas Department of Wildlife and Parks, SDGFP = South Dakota Game Fish and Parks Department, DNR = Iowa Department of Natural Resources, NGP = Nebraska Game and Parks, MDC = Missouri Department of Conservation. 1-5 Release sites indicated on county map (Figure 6.1)

Release Date	No. Released	Source*	Release Location
February 1980	29Γ, 24E	KFGC	Loess Hills Wildlife Area, Monona Co.1
April 1982	31Γ, 18E	KFGC	Loess Hills Wildlife Area, Monona Co.
April 1987	20Γ, 9E	KFGC	Ringgold Wildlife Area, Ringgold Co.2
April 1988	48Γ, 75E	KFGC	Ringgold Wildlife Area, Ringgold Co.
April 1989	40Γ, 62E	KFGC	Ringgold Wildlife Area, Ringgold Co.
April 1992	18Γ, 21E	KDWP (DNR trapping)	Mount Ayr, Ringgold Co., Price Twp., Sec. 13.3
April 1992	31Γ, 20E	KDWP (DNR trapping)	Kellerton, Ringgold Co., Athens Twp., Sec. 8.4
April 1992	9Γ, 9E	KDWP (DNR trapping)	Ringgold Wildlife Area, Ringgold Co., Lotts Creek Twp., Sec. 24.2
April 1993	13Γ, 33E	KDWP (DNR trapping)	Kellerton, Ringgold Co., Athens Twp., Sec. 8. 2
April 1993	24Γ, 24E	KDWP (DNR trapping)	Orient, Adair Co., Lee Twp., Sec. 36.5
April 1994	10Γ, 17E	KDWP (DNR trapping)	Kellerton, Ringgold Co., Athens Twp., Sec. 8.4
April 1994	31Γ, 34E	KDWP (DNR trapping)	Orient, Adair Co., Lee Twp., Sec. 36.5
April 2001	1Γ, 2E	SDGFP	Kellerton, Ringgold Co., Athens Twp., Sec. 16.4
April, 2012	12Γ, 8E	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens Twp., Sec. 16.4
April, 2012	10Γ, 17E	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 6
April 2013	16Γ, 10E	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 164
April 2013	5Γ, 9E	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 6
April 2013	16E, 17Γ	NGP (DNR Trapping)	Dunn Ranch, Harrison Co., Missouri
April 2014	31E, 26Γ	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 164
April 2014	20E, 25Γ	NGP (DNR Trapping)	Dunn Ranch, Harrison Co., Missouri
April 2014	1E, 6Γ	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 6
April 2015	25E, 13Γ	NGP (DNR Trapping)	Kellerton, Ringgold Co.,Athens TWP., Sec. 164
April 2015	5E, 13Γ	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 6
April 2015	4Γ	NGP (DNR Trapping)	Kellerton, Ringgold Co., Monroe TWP., Sec. 14
April 2015	20E, 19Γ	NGP (DNR Trapping)	Dunn Ranch, Harrison Co., Missouri
April 2016	20E, 20Γ	NGP (MDC Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 164
April 2016	30E, 29Γ	NGP (MDC Trapping)	Dunn Ranch, Harrison Co., Missouri
April 2017	17E, 19Γ	NGP (MDC Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 164
April 2017	33E, 28Γ	NGP (MDC Trapping)	Dunn Ranch, Harrison Co., Missouri

Table 6.2 Location and number of greater prairie chickens observed on active leks in Iowa, 2006-2017

County	Township	Legal Description			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
		Twp	Rge	Sec											
Adams	Douglas	72N	35W	26			2								
Adams	Prescott	72N	33W	4					2[a]						
Decatur	Grand River	69N	27W	16	1										
Decatur	Grand River	69N	27W	22	2										
Decatur	Garden Grove	70N	24W	36									2		
Ringgold	Athens	68N	28W	4		2		7						1	
Ringgold	Athens	68N	28W	16NE	9	14	13	8	6	2	9	17	35	28	17
Ringgold	Athens	68N	28W	16SW							9				
Ringgold	Athens	68N	28W	8			1				1				
Ringgold	Athens	68N	28W	17								1			
Ringgold	Athens	68N	28W	20						1					
Ringgold	Athens	68N	28W	6			5	4	7	9	9	4	11	16	11
Ringgold	Athens	68N	28W	5						5					
Ringgold	Rice	68N	30W	24										4	1
Ringgold	Monroe	69N	28W	28		2									
Ringgold	Monroe	69N	28W	15										3	
Ringgold	Monroe	69N	28W	22									2		
Ringgold	Tingley	70N	29W	10									5[c3]	6	
Ringgold	Tingley	70N	29W	34		1									
Wayne	Jackson	68N	21W	18	2										
Total Chickens[b]		mean=		22.67	14	19	21	19	13	17	24	22	55	55	36
Total Active sites		mean=		3.67	4	4	4	3	2	4	4	3	5	6	5
Total Chickens/Sites[b]					3.50	4.75	5.25	6.33	6.50	4.25	6	7.3	11	9.2	7.2

[a]Not confirmed and number of birds hear listed as “more than 1”.
[b]Before 2009 = only males, maximum number of chickens counted on one morning, may not equal lek counts
[c]Not part of formal lek survey. Reported by others.

Trumpeter Swan Restoration

Prior to the settlement of Iowa, trumpeter swans nested throughout the state. However, wetland drainage and unregulated harvest of trumpeters together caused their demise. Prior to 1998, the last pair of wild nesting trumpeter swans in Iowa occurred in 1883 on the Twin Lakes Wildlife Area southwest of Belmond, Iowa in Hancock County. Trumpeter swans were first given nationwide protection in 1918 when the United States, Canada, and Mexico signed the International Migratory Bird Treaty. A nationwide survey in the early 1930's indicated that only 69 trumpeters existed in the continental United States with all of those occurring in Red Rock Lakes National Wildlife Refuge in southwest Montana. The Red Rock Lakes became the nation's first National Wildlife Refuge because of the presence of these trumpeter swans.

Trumpeter Swan Restoration Program

Some 115 years later, the first modern day hatch of three wild trumpeter swan cygnets occurred in 1998 in Dubuque County. In 2000, a second pair nested on a Winnebago County Conservation Board wetland (Russ Tract at Thorpe Park) 8 miles west of Forest City.

In 1993, the Iowa Department of Natural Resources developed a plan to restore trumpeter swans to the state. There were two primary objectives with this plan. The first objective was to restore a self-sustaining, migratory population of trumpeter swans to its former nesting range in Iowa. To accomplish this, an initial goal was set to establish 15 wild nesting pairs to the state by 2003. That goal was reached in 2004. Due to the project's success, another goal was set to have 25 wild nesting pairs by 2006. That goal was reached in 2005.

Birds used for restoration purposes in Iowa have been obtained from 26 different states, including zoos, private propagators, other state swan projects, and any other sources that might have available swans. A total of 121 sources and partnerships have been used to date. Once in Iowa, flightless breeder pairs are established at appropriate sites, the young of which are released for free flight across the state. We have found it necessary to move young produced at these flightless pair sites. Otherwise they interfere with the following year's reproductive activity because the adult pair will continually harass the young in order to exclude them from their nesting territory.

The second objective was to use the swans to "Trumpet the Cause for Wetlands". There have been over 360 swan releases conducted by DNR staff with the public and media in attendance. At which times, the many positive values of wetlands have been discussed. The swans serve as great ambassadors and have garnered a lot of attention and interest from the public and the media alike. DNR staff have used these opportunities to educate the public on value of healthy wetlands to support "charismatic mega-fauna" such as Trumpeter Swans.

Additional Outreach-Upcoming Film

The Iowa DNR is partnering with the Trumpeter Swan Society and Steve Harryman (filmmaker) to assist in production of an upcoming film: *Return of Trumpeters* (film trailer https://vimeo.com/56795018) due out in theaters 2020.
Funding to help support the DNR with this restoration program has come from a wide variety of swan enthusiasts, conservation groups, and charities. Considerable soft match/in-kind contributions have been made and are conservatively estimated at over 1.75 million dollars. The Trumpeter Swan Program was also awarded a State Wildlife Grant (SWG) in 2004. These funds have been used to help cover the costs of feed, vet care, nesting site preparations,

equipment, and the purchase of swans.

Marked Swans and Reported Observations

Through the summer of 2008 nearly all trumpeter swans released in Iowa were marked with plastic green or red neck collars and leg bands, along with U.S. Fish and Wildlife Service metal leg bands. The plastic neck collars and leg bands are marked with alpha letters C, F, H, J, K, P, T, M, and two numbers, 00 through 99. We have been disappointed that several of our marked swans have lost both plastic neck collars and legs bands and a few have lost the soft aluminum metal USFWS leg bands. Neck collar losses create problems analyzing both movements and mortality of Iowa Trumpeter Swans. In 2004, we began using stainless steel lock-on 9C FWS leg bands and we are not aware of any leg band losses since. Throughout the last 5 years, we have neck collared less than 5% of released swans.

Iowa has the largest trumpeter swan observation database with over 4,400 observations of neck collared swans. As of 2017, Iowa marked swans have been reported in 17 states, as far west as Colorado, east to Virginia and north into two Canadian provinces (Figure 6.3). After 20 years of migration observations, the largest concentrations of migrating Iowa swans are wintering in northeast and east-central Kansas and northwest and west-central Missouri. One Iowa trumpeter swan wintered as far south as Oklahoma during the winter of 1998. Also, Iowa swans winter near Heber Springs, Arkansas and River lands Bluffs area in SW Illinois. During the winter of 2002-2003, 2 swans released at Hottes Lake near Spirit Lake, Iowa migrated to Lubbock, Texas. These are possibly the first known, or at least the first of very few interior swans to migrate to Texas since the 1880's. Migration movements "out of that norm" included 3 swans released at Union Slough NWR that migrated to and wintered in southeast Colorado near Ft Lyon. Two of these were observed at Monticello, Minnesota in the spring of 1997. The straight-line round trip mileage for these birds is over 1,300 miles.

"Traditional" swan wintering sites are developing in Iowa. Sites include Bill Beemer's Pond, a private partner site near Webster City, Schilberg quarry at Atlantic in southwest Iowa, Bob & Mary Boock's wetland near Wheatland in east central Iowa, Laurie Severe Pond near Nora Springs, Dale Maffitt Reservoir south west of Des Moines and a rock quarry near Fertile, IA. A review of the last 20 years of swan sightings indicates most areas of the state are now seeing swans at some time during the year. This is another indication that the restoration effort is moving forward.

Trumpeter Swan Research

The Iowa DNR is partnering with Iowa State University (ISU) to capture and GPS collar eleven trumpeter swan cygnets. Goals of the project: 1) evaluate breeding locations, migratory movements and wintering areas of trumpeter swans. 2) provide the opportunity for ISU ornithology students to collect and analyze ornithological data. 3) provide information to the public on trumpeter swan ecology, movements and the value of wetlands via a website https://www.nrem.iastate.edu/ which provides regular location updates on marked swans.

Trumpeter Swan Mortality Factors

Illegal shootings, lead poisoning, powerline collisions and disease are the leading mortality factors in Iowa. Nearly 75% of the released trumpeter swans perish before they reach their breeding age. This high mortality rate is a concern because it negatively impacts trumpeter swan recruitment. We hope that with increased publicity, additional enforcement efforts, and public scrutiny, that illegal shootings will decrease. There have been 13 confirmed shootings of Iowa swans that occurred out-of-state, (1 in Wisconsin, 5 in Missouri, 5 in Texas). A $17,000 fine was charged to four men in connection with the family group of 5 Iowa swans shot in Texas.

Three hundred fifty nine known mortalities have occurred to date: 88 have died due to power line collisions, 82 died due to lead poisoning, 68 poached by violators, 44 to diseases and 11 due to apparent malnutrition. Several other mortalities have likely occurred from unknown and unreported causes. Mortality rates are higher than anticipated and slow trumpeter swan restoration efforts. Shooting a trumpeter swan can result in a citation of $1500, liquidated damages, court costs, and perhaps hunting license revocation.

Current Status of the Trumpeter Swan Restoration Program

Trumpeter Swans are nearing sustainable numbers in north central and east central Iowa. As a result of the program's success, the Iowa DNR has significantly reduced their direct hands-on efforts of handling and transporting swans over the past five years. Instead, time is now more focused on coordinating swan restoration efforts with partners such as

county conservation boards and private landowners with suitable nesting and release sites. The southern half of Iowa is the current priority area for restoration work and cygnet releases due to very low trumpeter swan nesting densities and the fact that trumpeters very rarely pioneer their nesting efforts south. An objective of self-sustaining numbers across south Iowa is desired with a goal of eight nesting pairs south of Interstate 80 by 2022. Currently, there are seventeen partnership breeding pair sites that are active in the state, down from the initial 121 total sites.

Thirteen trumpeter swans were released in Iowa in 2017 (Table 6.3). A total of 1,185 trumpeters have been released to date. A total of 71 wild free flying Trumpeter swans have been captured, banded and released in Iowa since 1997 (Table 6.4). Also in 2017, 54 trumpeter swan nest attempts occurred in Iowa, 50 nests in 2016 and 49 in 2015 (Figure 6.4).

Since 1998, 590 known trumpeter swan nests have occurred in Iowa (Table 6.5). Figure 6.3 shows the statewide distribution of these nesting attempts. Spring flash flooding accounts for 5-10% of annual nest loss. Cygnet survival was near normal in 2017. Higher cygnet mortality was recorded in the fall 2012-2014 with dry wetland conditions and increased cases of lead poisoning. Many wetlands went completely dry in August and cygnets were forced to walk overland in search food and water. All wildlife populations are cyclic so we know that nest attempts will show ups and downs over the duration of the trumpeter restoration efforts. Each year there could also be 4 or 5 other nest attempts that we do not know about as we have had at least a few families of swans show up in the state prior to normal migration dates. Also of note, we have several pairs of Iowa swans nesting in Southern Minnesota and Wisconsin.

A total of 1,823 trumpeters were tallied during the mid-winter waterfowl survey in January 2017, up from 1121 in 2016 and 582 tallied in January 2015 (Table 6.6). If swans can find open water and food, many of them will remain throughout the winter. These “winter” sites have provided many people the opportunity to view these “charismatic-mega fauna.”

The DNR and many Iowans are very excited about the future of trumpeter swans in the state and hope their numbers remain strong.

Figures

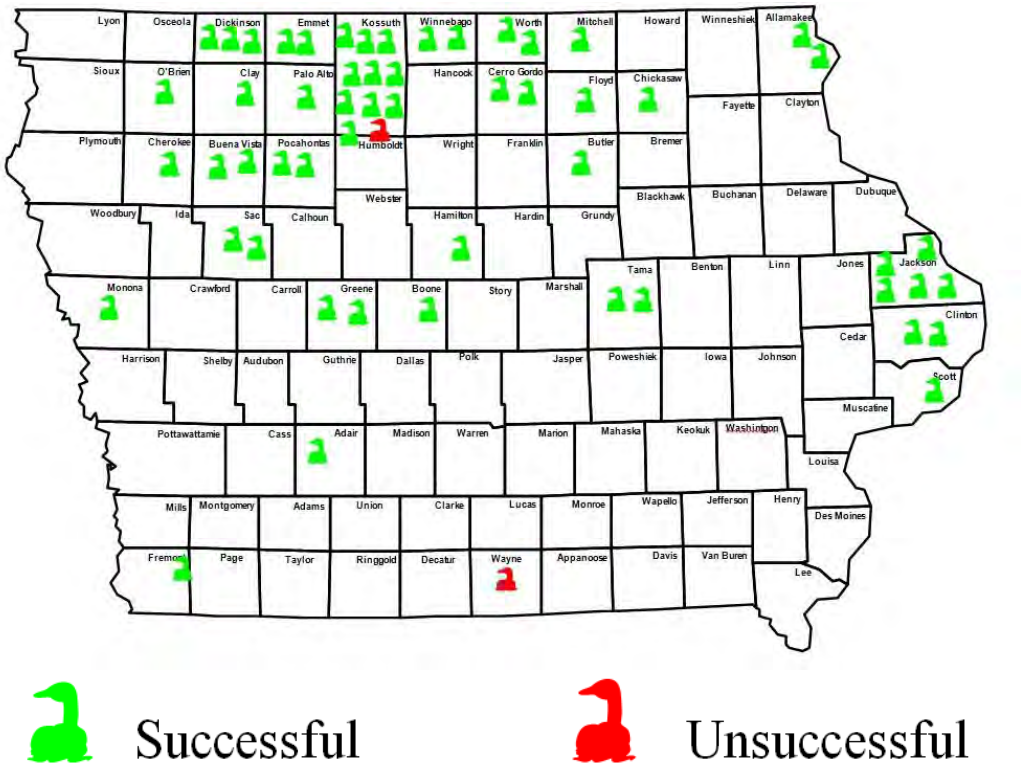


Figure 6.3 Wild Trumpeter Swan Nests 2017 (54 nest attempts)

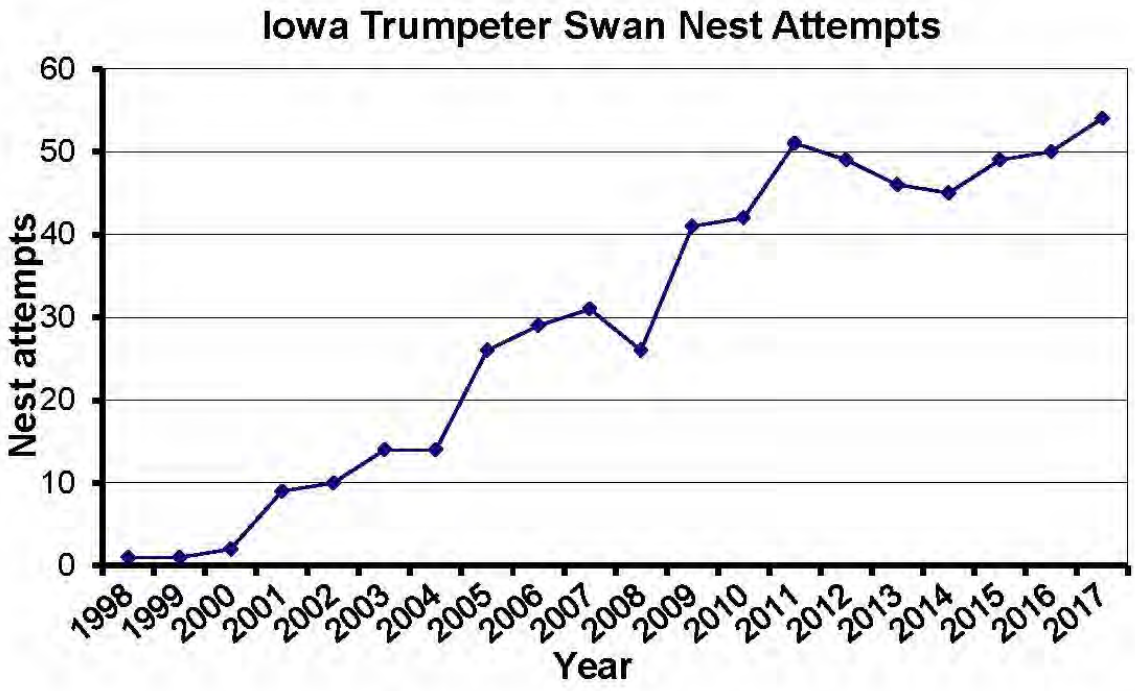


Figure 6.4 Wild Trumpeter Swan Nests 2017

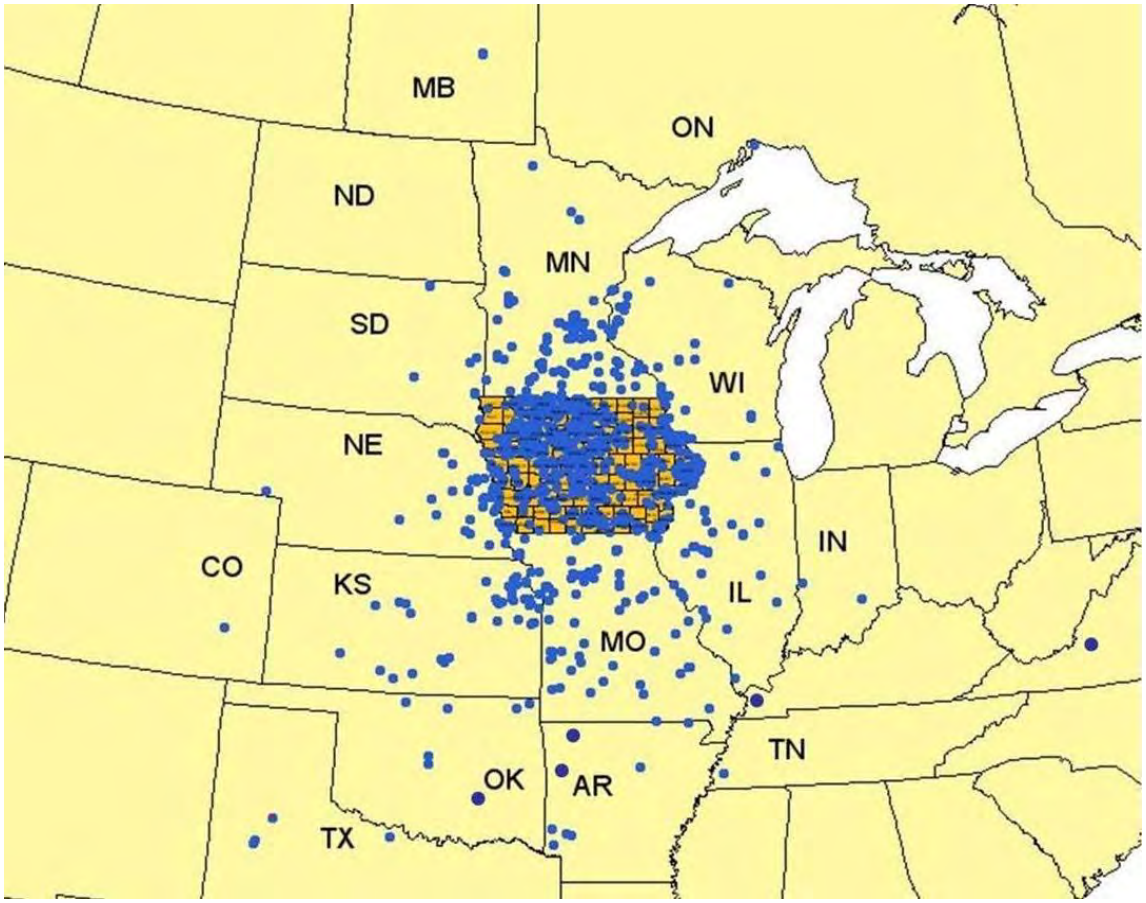


Figure 6.5 Observation reports of Iowa-collared/banded Trumpeter Swans, 1995-2016.

Tables

Table 6.3 Trumpeter Swans released in Iowa 2017.

Year	Release Site	County	Males	Females	Total
2017	Coffey Marsh	Wayne	1	1	2
	Lake Anita	Cass	1	1	2
	Lake Icaria	Adams	3	2	5
	Pin Oak Bottoms	Lucas	1	1	2
	Viking Lake	Montgomery	2	0	2
				Total	13
				Grand Total	1185

Table 6.4 Wild free flying Trumpeter Swans banded and released in Iowa, 1997-present

Year	Area	County	Males	Females	Total
1997	Miller's Quarry	Black Hawk	0	1	3
1998	Holzer's Pond	Dubuque	2	1	5
1999	Mason City	Cerro Gordo	3	2	3
2000	Holzer's Pond	Dubuque	2	1	4
2000	Mason City	Cerro Gordo	2	2	2
2000	Stark/Nessa Quarry	Hamilton	2	0	1
2001	Dunbar Slough	Greene	1	0	2
2001	Kennedy's Pond	Dubuque	1	1	4
2002	Holzer's Pond	Dubuque	3	1	5
2002	Schildberg Gravel Quarry	Cass	1	4	2
2002	East Twin Lake	Hancock	2	0	4
2003	Schildberg Gravel Quarry	Cass	2	2	12
2004	Schildberg Gravel Quarry	Cass	5	7	8
2004	Beener's Pond	Hamilton	3	5	5
2005	Stark/Nessa Quarry	Hamilton	5	0	6
2006	Beemer's Pond	Hamilton	4	2	1
2006	Schildberg Gravel Quarry	Cass	0	1	2
2007	Ventura Marsh	Cerro Gordo	0	2	1
2008	Ventura Marsh	Cerro Gordo	0	1	1
				Total	71

Table 6.5 Wild free flying Trumpeter Swans nest attempts and total number of released swans, 1997-present.

Year	Nest Attempts	# of Broods	# Hatched	Mean brood	~# Fledged	Adult Total	Captive Released	Mid-Winter	% Winter	Estimated Population
1994	0	0	0		0		4			
1995	0	0	0		0		14			
1996	0	0	0		0		31			
1997	0	0	0		0		35			
1998	1	1	3	3.0	3		57			
1999	1	1	5	5.0	0		42			
2000	2	2	5	2.5	3		91			
2001	9	7	26	3.7	19		83			
2002	10	8	37	4.6	27		63			
2003	14	12	53	4.4	36		82			
2004	14	9	44	4.9	36		75			
20005	26	19	87	4.6	67	86	113			total= 266 (Pop Survey Estimate)
2006	29	22	80	3.6	52		85			
2007	31	27	103	3.8	60		73			
2008	26	22	91	4.1	55		65			
2009	41	37	120	3.2	80		71			
2010	42	*27-39	112	4.4	84	156	57			total= 297 (Pop Survey Estimate)
2011	51	50	230	4.6	161		51			
2012	49	43	170	3.9	119		20			
2013	46	37	114	4.7	94		20	458		
2014	45	38	122	4.4	90		18	582	21.3	
2015	49	46	185	4.0	136		18	1121	48.1	total= 339 (Pop Survey Estimate)
206	50	47	188	4.0	138		4	1823	38.5	
2017	54	49	196	4.0	149		13			
Totals	590	428	1971	4.8	1409		1185			

Table 6.6 Wintering Trumpeters in Iowa

Year	Beemers*	Atlantic*	Boock*	Severe*	Mason City*	Fertile Quarry	Cedar Rapids	Ames	Est Total # in state
1997	5								
1998	4								
1999	4								
2000	4								
2001	25								
2002	25	26							75
2003	35	22							100
2004	61	24	15						100
2005	74	24	15		13				
2006	75	33							200
2007	84	37							
2008	100	50	12	35					

Year	Beemers*	Atlantic*	Boock*	Severe*	Mason City*	Fertile Quarry	Cedar Rapids	Ames	Est Total # in state
2009	150	50							
2010	100	32	25	36	0				193
2011	300	60	33	44	0				437
2012	160	45		65 in Nov, 0 on 1/9/13		52	23		747 midwinter survey
2013	160	39	20	55 but all left		20			458 midwinter survey
2014	286	40		40	11			40-61	582 midwinter survey
2015	155	60							1121 midwinter survey
2016	360	135							1823 midwinter survey

*Beemer's Pon, 5 miles W of Webster City, IA, Hamilton County
*Atlantic Quarry, 1 mile MW of Atlantic, IA, Cass County
*Boock's Wetland, 4 miles N of Wheatland, IA, Clinton County
*Laurie Severe Pond, 2 miles S of Nora Springs, IA, Floyd County
*Mason City, 1 miles S of Mason City, IA, Cerro Gordo County

Sandhill Cranes in Iowa

Prior to European settlement of Iowa, Sandhill Cranes probably were a common nesting species and abundant migrants. As early as 1820, Edwin James saw large flocks of cranes migrating north along the Missouri River in Harrison County. Even in the 1890's, it was not uncommon to see flocks of hundreds or even thousands of cranes in Winnebago and Hancock Counties in spring. Although there are few specific records, Sandhill Cranes probably were fairly common nesters in north-central and northwest Iowa. With settlement, the combination of unregulated hunting and loss of nesting habitat led to a rapid disappearance of nesting cranes from Iowa. The last Sandhill Crane nesting of that era was at the headwaters of the Iowa River near Hayfield in Hancock County in May 1894. As was common in those days, the eggs were taken for an egg collection.

Cranes nest in shallow wetlands with dense vegetation. They create a nest mound by pulling up marsh plants and laying one to three eggs that hatch in late spring. About three months after hatching the young begin to fly, but the brownish-colored young remain with their parents throughout their first winter. Cranes eat waste grain, seeds, berries, roots, tubers, snakes, frogs, crayfish, worms and insects.

By the early 1900s, even migrating Sandhill Cranes were rare in Iowa. For the next 60 years, there are very few reports of cranes in Iowa. Throughout the Midwest, problems similar to Iowa's caused Sandhill Crane populations to dwindle. Just a few dozen pairs remained in Wisconsin, Minnesota and Michigan through the 1940s. During the 1970s and 1980s, however, nesting populations increased in the northern states, and a few migrating sandhills were seen in Iowa.

The number of Sandhill Cranes reported in Iowa increased greatly in the late 1970s and 1980s (Dinsmore 1989), culminating in their return as a nesting species. Nesting birds derive from populations in Wisconsin, which increased greatly in the 1970s and 1980s (Robbins 1992) and eventually spilled over into Iowa. These birds winter in Florida and Georgia. The huge flocks that gather in central Nebraska nest in the Arctic. Those flocks are probably the source of most cranes seen in western Iowa (Kent and Dinsmore 1996).

In 1992, after a 98-year absence, Sandhill Cranes successfully nested in Iowa at Otter Creek Wildlife Management Area in Tama County. Two colts were produced. In 1993, cranes also attempted to nest at a second area at Green Island along the Mississippi River in Jackson County, however due to annual flooding, young were not produced at that site until 1997. In the meantime cranes at Sweet Marsh became established and successfully nested, beginning in 1994. The Sweet Marsh flock has grown to include four other sites in Bremer Co.

2002

In 2002, Sandhill Cranes were observed in four new sites. Reports were received of cranes sited in Clinton and Chickasaw County. Allamakee County picked up another site where young were produced and in western Iowa, young were produced in Woodbury County. Cranes have been included in bird counts in at least 14 counties during the year.

2003

In 2003 unison calling between adults increased to 27 pairs around the state. There were 95 known sightings and fifteen documented young around the state. Dr. Jim Dinsmore provided a sightings file that included a number of counties where cranes were seen in recent years.

In Boone County a nesting pair had wintered at a farmstead south of Madrid. The pair performed nesting courtship displays and created a nest in the farmyard. Two eggs were laid in the spring. In April the nest and eggs were destroyed. Raccoons or dogs were suspected. In June a Sandhill Crane carcass was discovered in the vicinity of the nest near powerlines. The fate of this unconventional pair is unknown.

2004

In 2004 cold, wet spring conditions hampered Sandhill Crane nesting in Iowa. Twenty-seven pairs of cranes were reported but only seven young hatched. However, most sites had summering cranes and additional pairs were reported near Belle Plaine, Chickasaw Co., and Olin in Jones Co. Jones County became the 15th county documenting crane nesting.

2005

Exciting news in 2005 includes successful nesting of cranes in Winnebago County. CCB Director, Robert Schwartz, reported a colt at Hogsback Wildlife Area. Also DNR Biologist, Bill Ohde, reported a new pair at Wiese Slough in Muscatine County that produced one young. Ric Zarwell, in Allamakee Co., reported four pairs with four young. Across the state 20 pairs were reported with nine pairs that successfully reproduced 13 young. Including Winnebago and Muscatine Counties, Sandhill Cranes have now been reproduced in 17 counties.

2006

In 2006 a favorable nesting season has maintained our Sandhill Cranes nesting population at 17 counties. Two notable crane sightings occurred when Whooping Cranes were reported in Iowa. During spring migration five whoopers stayed over in Winnebago Co. A second flock of eight whoopers were discovered in northeastern Iowa. By early June all had left Iowa and returned to their home at Necedah National Wildlife Refuge in Wisconsin. In September three of the five Whoopers returned to Winnebago Co. As of 2005 there were only 336 whoopers in the wild and 135 in captivity.

2007

In 2007 Sandhill Crane sightings were included in three new counties: Palo Alto, Greene, and Madison Counties. Also Crane reproduction was noted at Chichaqua Bottoms in Polk Co. bringing our total to 18 counties with cranes successfully nesting.

Also, during this past summer there were record numbers of Whooping Crane chicks hatched at Wood Buffalo National Park in northern Canada. An aerial survey of the breeding grounds found 65 nests and 84 new chicks. The new Whooping Crane chicks include 28 sets of twins. This year's offspring come after last year's encouraging numbers of 76 new chicks - including 24 sets of twins.

2008

Record flood levels in 2008 suppressed nesting crane reproduction around the state, but good numbers have been frequenting our marshes during autumn migration of 2007. Otter Creek Marsh in Tama Co. and Sweet's Marsh in Bremer Co. reported flocks of 25 and 27 birds last autumn. This nesting season Sweet Marsh reported 15 birds with five unison calling pairs. Otter Creek had 18 cranes with two pairs producing one young each. Allamakee Co. distinguished itself with 22 cranes sighted during spring survey and four unison calling pairs. Although there has been limited growth of crane population and subsequent reports around the state, cranes are increasingly appreciated by birding community and conservation groups dedicated to providing marshland habitat around the state.

2009

In 2009 the weather during the crane survey in April was quite favorable. Twenty five pairs have been reported with two counties, Muscatine and Woodbury, including crane sightings after a few years of not recording any sightings. With suitable nesting habitat being emphasized in every county, it is hopeful Sandhill Cranes will maintain their incremental growth in reproduction. A pair near Comanche, Iowa raised young at a five acre wetland near Hwy 30.

2010

Wetland conditions during the Crane Survey in April, 2010 were quite favorable for successful nesting as record snowfall provided the melt water to fill wetland basins. With a wetter than normal summer we should see moderate population changes, if summer 2010 flooding is similar to the 2008 flooding around Iowa. At this time, good reproduction has occurred at enough sites to maintain our optimism that Iowa's Sandhill Crane population is continuing to increase. Autumn flights of cranes around Pool 9 of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts opportunities to see Cranes on Iowa wetlands. About 110 cranes were observed during this spring's survey. Nesting success was confirmed for 11 pairs, resulting in a 2010 production of 14 colts.

2011

Wetland conditions during April, 2011 were good, but the weather on survey day was challenging with 35 degrees and wind gusts to 40mph. With a wetter than normal spring we will see moderate population ebbs and flows. However, good reproduction has occurred in enough sites to maintain our optimism that our Sandhill Crane population continues to increase. Most exciting area that cranes have discovered is Mitchell Co. along Cedar River in north central Iowa.

Cranes have reproduced in 22 counties since 1992. Autumn concentrations of cranes around pool nine on the NE Iowa portion of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts spectacular flights and social interactions of Cranes adapting to Iowa's wetland complexes.

Each autumn Iowa's Sandhill Cranes are establishing concentration or staging areas at Sweet Marsh where 35 have been reported, Green Island Bottoms along Mississippi River in Jackson co. with 35 more, and Otter Creek Marsh in Tama County where 54 were reported in October, 2010. This is an exciting development that has grown incrementally since the first successful nesting at Otter Creek Marsh in 1992.

2012

Wetland conditions during April, 2012 were exceptional throughout the nesting season. Summer drought conditions created wildlife hardships but cranes fared as well or better than the majority of species surveyed. Good reproduction has occurred in enough sites to maintain our optimism that our Sandhill Crane population continues to increase. Cranes have reproduced in 21 counties since 1992. Autumn concentrations of cranes around pool nine on the NE Iowa portion of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts spectacular flights and social interactions of Cranes adapting to Iowa's wetland complexes.

Each autumn Iowa's Sandhill Cranes are establishing concentration or staging areas at Sweet Marsh where 42 have been reported a record high, Green Island Bottoms along Mississippi River in Jackson co. with 35 more, and Otter Creek Marsh in Tama County where 107were reported in October, 2011. This is an exciting development that has grown incrementally since the first successful nesting at Otter Creek Marsh in 1992.

2013

Weather conditions during April and May were wetter and colder than normal in 2013. The interior Crane nesting areas in Tama and Bremer counties saw precipitation that was 10 inches above normal during May, and May snowfall totals of 4-8 inches. Following the severe flooding of May the precipitation ceased and a drought persisted throughout the summer.

Crane reproduction was reported at enough sites to maintain our optimism that our Sandhill Crane population continues to increase. Cranes have reproduced in 21 counties since 1992. Autumn concentrations of cranes around pool nine on the NE Iowa portion of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts spectacular flights and social interactions of Cranes adapting to Iowa's wetland complexes.

Each autumn Iowa's Sandhill Cranes are establishing concentration or staging areas at Sweet Marsh where 42 have been reported a record high, Green Island Bottoms along Mississippi River in Jackson co. with 35 more, and Otter Creek Marsh in Tama County where 107were reported in October, 2011. This is an exciting development that has grown incrementally since the first successful nesting at Otter Creek Marsh in 1992.

In November 2012 there were 98 cranes reported statewide with 35 at Sweet Marsh, 40 at Otter Creek and 18 at Green Island. Crane calling was noted at Kirchner Prairie marsh in Clay Co. in mid Nov.

In October 2013 there were 78 reported with the majority, 59, at Otter Creek Marsh. Temperate autumn conditions have resulted in a slower than normal migration but cold fronts in the forecast will create change. Anticipation is high that Iowa's growing crane population will continue upward trends.

2014

Wetland conditions during April, 2014 were exceptional throughout the nesting season. Good reproduction has occurred in enough sites to maintain our optimism that our Sandhill Crane population continues to increase. This year four new counties documented reproduction: Wright, Howard, Delaware and Johnson Counties. Cranes have reproduced in 26 counties since 1992. Autumn concentrations of cranes around pool nine on the NE Iowa portion of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts spectacular flights and social interactions of Cranes adapting to Iowa's wetland complexes.

Each autumn Iowa's Sandhill Cranes are establishing concentration or staging areas at Sweet Marsh where 42 have been reported a record high, Green Island Bottoms along Mississippi River in Jackson co. with 35 more, and Otter Creek Marsh in Tama County where 117were reported in October, 2013. This is an exciting development that has grown incrementally since the first successful nesting at Otter Creek Marsh in 1992.

In November 2013 there were 95 cranes reported statewide with 35 at Sweet Marsh, 40 at Otter Creek and 18 at Green Island.

Our documentation of crane nesting in Iowa will receive a boost in 2015. Our Volunteer Wildlife Monitoring Program will assist crane enthusiasts in focusing on sites that have known crane activity. It is not always conducive to see young or colts at many sites as the marsh seems to swallow their presence. 2014 was a good year for Sandhill Cranes in Iowa.

2015

In the spring of 2015, nine Sandhill crane colts were observed at Sweet Marsh Wildlife Area in Bremer County likely produced from nests along the Wapsi River. In the fall of 2015, during weekly fall migration surveys carried out by wildlife management unit staff cranes were reported from eight different units mostly in the eastern portion of the state. Two cranes were observed repeatedly at the Riverton Wildlife area in Fremont County. These were the westernmost observed birds seen during the fall migration surveys.

The highest weekly statewide count occurred during the week of November 13th, 2015 when 172 cranes were reported. The Otter Creek Wildlife Area consistently reported the largest numbers of cranes during the fall of 2015 where the number of cranes built to a high of 127 birds the week of November 13th.

2016

Weather conditions during the spring of 2016 seem to have been quite conducive to sandhill crane reproduction. Including several nest records from early 2017, eight more counties have confirmed crane nesting. These newest counties include: Mitchell, Palo Alto, Floyd, Black Hawk, Story, Linn, Jasper, and Iowa. Currently, 34 counties have documented sandhill crane reproduction. U.S. F&WS Biologist, Tom Skilling reports that sandhill crane nesting still has not been confirmed at Union Slough National Wildlife Refuge (Kossuth County), even though a territorial pair of cranes was documented at that location by Wildlife Biologist, Natalie Randall, on 18 May 2011. Other records from Iowa's Breeding Bird Atlas indicated sandhill cranes were spending summers at Dunbar Slough WMA (2010) and Snake Creek WMA (2012) in Greene County, and there were several summer reports from Barringer Slough and Dewey's Pasture in Clay County in 2010, as well as at Sunken Grove WMA in Pocohontas County. Given these records, it seems likely that sandhill cranes are likely nesting in a number of areas where they have yet not been documented.

Fall migration surveys indicate growing numbers of cranes staging in Iowa, primarily at the same three locations where sandhill cranes were first documented to nest in the state in the early 1990s: Otter Creek Marsh, Green Island WMA, and Sweet Marsh WMA. On 30 November 2016, 142 cranes were counted at Otter Creek, 41 at Green Island, and 30 at Sweet Marsh, with 5 more cranes counted between Riverton and Forney Lake WMAs in Fremont County – for a total of 218 sandhill cranes (Figure 6.7). It appears that Iowa's sandhill crane population is consistently growing and expanding into new counties.

Figures

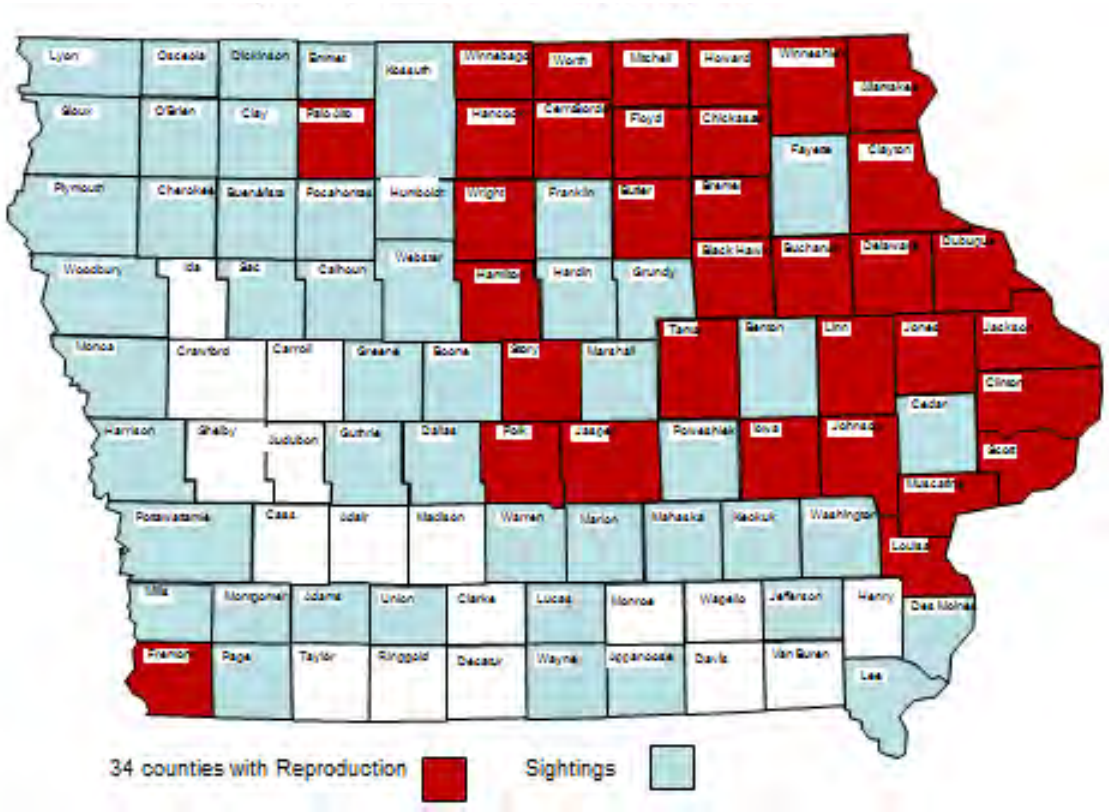


Figure 6.6 Sandhill Cranes in Iowa, through 2017

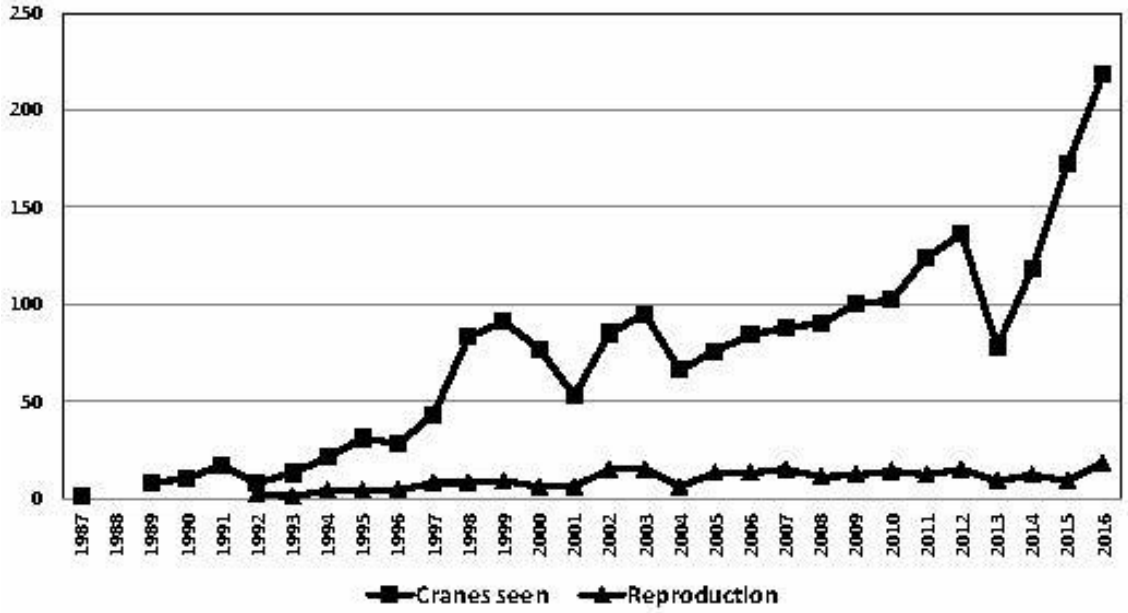


Figure 6.7 Sandhill Crane fall numbers and reproduction in Iowa 1987-present

Osprey Restoration

Osprey, Pandion haleatus, commonly called the fish hawk or fish eagle, is neither a true hawk nor eagle. Ospreys are cosmopolitan and occur worldwide with the exception of Antarctica. The species is of ancient lineage and presently is classified near the kite family. There are four subspecies presently recognized, two occurring in North America, P.H. carolinenses and P.H. ridgwayi. Ridgwayi is found in the Bahamas and Caribbean, while carolinensis is the Midwestern

species. Carolinensis is migratory in its northern range and resides in south Florida and possibly part of the Gulf coast and northwest Mexico.

Ospreys were never confirmed to historically nest in Iowa, but were probably here given the abundance of lakes and wetlands that dotted the prairie. Ospreys are very unwary birds and territorially appear weak. Pairs will nest colonially. Nests may be upon structure, manmade or natural, that provides a platform, but Ospreys have been known to nest on the ground. Nests are generally at least one-foot deep and four to five feet wide, are made of sticks and lined with grass. Highest productivity is attained on power poles and nesting platforms.

Ospreys were heavily affected by the biocide crash of the 1950s. Populations were severely reduced throughout the range but hardest hit in the Great Lakes and Atlantic coast. A strong fidelity to ancestral breeding areas slowed range expansion into vacant and newly created habitat since the DDT era.

With construction of lakes by Department of Natural Resources and reservoirs by U.S. Army Corps of Engineers, potential osprey habitat exists that was previously not available. There are numerous osprey summer sightings in Iowa, but apparently these young, non-breeding ospreys return to northern areas for mating and nesting. Despite this population growth, ospreys have demonstrated little breeding range expansion. Minnesota and Wisconsin DNR officials suggest that ospreys, in our lifetime, do not readily pioneer new breeding ranges. Instead they experience suppressed reproduction as density of breeders increase. To address this issue, young ospreys from Wisconsin and Minnesota are being relocated to areas with suitable habitat in southern Minnesota, Iowa, Kansas, Missouri and Ohio.

The Iowa Department of Natural Resources has assisted conservation partners with technical assistance, encouragement, and fish to successfully release ospreys in Iowa. The Macbride Raptor Project located near Coralville Reservoir has spearheaded this work. Beginning in 1997, four or five young ospreys have been released annually at their facility until 2002. Personnel at the Hartman Reserve Nature Center and volunteers in Cedar Falls initiated a release at their facility in 1998. Staff of Boone County Conservation Board and Polk County Conservation Board with volunteers coordinated a release at Saylorville Reservoir in 2000. Boone Co. staff and volunteers began releases at Don Williams Lake in 2003. Wickiup Hill in Linn Co. and Clear Lake were added in 2004. The U.S. Army Corps of Engineers has provided distinguished service for releases at Coralville and Saylorville Reservoir respectively. Assisted by literally hundreds of volunteers, these conservation organizations have devoted their efforts to bring ospreys to Iowa as a nesting species. A four-year minimum commitment of releasing ospreys is required at each site. Project fundraising is the responsibility of the conservation organizations doing the releases. Ospreys cost about $500 per bird.

In Iowa, ospreys have two bands, a silver U.S. Fish and Wildlife Service band and a numbered, **lavender** band on separate legs.

Forty-eight ospreys have been released at the three sites since 1997. Beginning in 2000 Osprey released in SW Minnesota by Minnesota DNR, built a nest atop a microwave tower near Cayler Prairie in NW Iowa. In late winter Great-horned Owls were seen at the nest and tending young, however by April the Ospreys were once again nesting at the site. Incubation appeared to be progressing, but ultimately the nesting attempt failed. It was believed extremely violent storms were a factor in the demise of the nesting attempt. A second pair was also observed nest building in the Spirit Lake area. At Coralville reservoir a 1998 released Osprey was nest building with two other unidentified adult Osprey. The adults were seen feeding the year-class of 2001.

2014

In 2014 there were 21 Osprey nest attempts with 15 successful nests produced 30 young. This year six Ospreys were brought to Iowa from Minnesota and released at two sites.

At Swan Lake in Carroll CCB staff with Kay Neumann and Saving Our Avian Resources placed three Ospreys. One was outfitted with a transmitter to provide information about migration and mortality.

At Clear Lake Ron Andrews and local staff at the Baptist Camp placed three Ospreys.

At Annett Nature Center, Warren CCB staff reported pair nest-building but did not proceed to nesting. There were five wild nesting pairs at Lake Macbride. The site off Scales Bend Road produced two young. Staff was unable to read adult bands, if any. The site at Sugar Bottom had one young. The female was unbanded and the male was unconfirmed. Another site at Lake Macbride came down and **no** young were reported. One of adults had a purple band.

There is a new nest near Solon High School parking lot. Another new nest has been established at Sand Lake, in Johnson County, but n**o** report of young.

At Jester Park in Polk County, no young were produced from the pair at campground #6.

A pair at Walnut Woods built a sizable nest in 2009 and produced three young.

A nest one mile east of Big Creek State Park was active. Two young were noted in August. A nest on a cell phone tower SW of Jordan Creek Mall in eastern Dallas Co. fledged two. One and one half mile east of this tower at Jordan Creek Mall a pair of Ospreys carried sticks to a construction crane. There is interest to place a pole with a platform when crane leaves in September.

A nest at Camp Dodge near Saylorville Reservoir had two young.

At Don Williams lake in Boone County three pairs were reported in the area. Canada geese were occupying a previous nest site. A pair attempted to nest near the dam, but was unsuccessful.

In Cedar Falls, a pair returned to successfully nest upon an *IWireless* cell phone tower. One adult is band #A/T from White Rock 2006. The pair produced two young. A pair at Evansdale produced two young.

At Duane Arnold Plant a pair from Wickiup Hill in Linn Co. produced two young, and a second Linn Co. nest south of Palo fledged two young. A possible third nesting pair is in area.

At Spirit Lake, a pair nested near the Nature Center release site. Two young fledged. A nest at Lower Gar fledged two young.

There is a nesting pair just south of Sioux City near Sergeant Bluff in Woodbury Co. The Cell Tower pair produced two young according to Jerry Von Ehwegen. Also according to Rich Pope, there was pair at their farmsite south of Sloan in Monona Co. However a wind storm destroyed the young in the nest.

There is a new nest on a cell tower along US 20 at Independence in Buchanan Co. At least one young was produced.

In summary for 2014, 21 nesting pairs had 15 successful nest attempts with 30 young produced. Since 1997, 297 Ospreys have been released at twelve sites in Iowa. Since 2003, 164 wild Ospreys have been produced at 95 successful nests.

<u>2015</u>

In 2015 there were 22 Osprey nest attempts that we knew about with 18 successful nests produced 38 young. There are two pairs separate from release sites at Independence and Colfax.

This year four Ospreys were brought to Iowa from Minnesota. At Swan Lake in Carroll CCB staff with Kay Neumann and Saving Our Avian Resources placed four Ospreys.

At Annett Nature Center, Warren CCB staff reported pair nest-building but did not proceed to nesting.

There were four wild nesting pairs at Macbride. Site off Scales Bend Road produced two. Staff was unable to read adult bands, if any. Site at Sugar Bottom has one young. Female is unbanded and male is unconfirmed. Site at Lake Macbride came down and no young reported. One of adults has a purple band. New nest at Sand Lake no report of young.

At Jester Park in Polk CCB two young was produced from a pair at campground #6.

Pair at Walnut Woods built sizable nest in 2009 and produced three young.

A nest one mile east of Big Creek was active. Two young were noted in August. Nest on cell phone tower SW of Jordan Creek Mall in eastern Dallas Co. fledged two.

Wells Fargo in West Des Moines had one young.

A nest at Camp Dodge near Saylorville Reservoir had two young.

At Don Williams, Boone CCB reported three pairs in the area early. No nesting was noted on the Lake this year.
In Cedar Falls, a pair returned to successful nest site upon *iwireless* cell phone tower. One adult is AT from White Rock 2006. Pair produced two young.

Pair at Evansdale produced two young.

At Duane Arnold Plant pair from Wickiup Hill in Linn Co. produced two young.

A second Linn Co. nest south of Palo fledged three young.

At Spirit Lake a pair nested near Nature Center release site. Three young fledged. Nest at Lower Gar fledged three young.

There is a nesting pair just south of Sioux City near Sergeant Bluff in Woodbury Co. Cell tower pair produced two young according to Jerry Von Ehwegen.

Also according to Rich Pope, there was pair at their farm site south of Sloan in Monona Co. This year two young fledged.
There is a new nest on cell tower along US 20 at Independence in Buchanan Co. At least two young was produced.

There is a new nesting pair at Colfax quarries. Two young were produced.

In summary 22 nesting pairs had 18 successful nest attempts with 36 young produced. Since 1997 301 Ospreys have been released at twelve sites. Since 2003, 200 wild Ospreys have been produced at 113 successful nests.

<u>2016</u>
In 2016 there were 24 Osprey nest attempts that we knew about with 22 successful nests produced 42 young. There are three pairs separate from release sites at Independence and Colfax.

This year five Ospreys were brought to Iowa from Minnesota. At Swan Lake in Carroll CCB staff with Kay Neumann and Saving Our Avian Resources placed three Ospreys. At Clear Lake three Ospreys were placed at Iowa Regular Baptist Camp NW Clear Lake. One of the young hatched in Iowa, was blown from cell tower near Palo, was rescued and released in Iowa.

There were four wild nesting pairs at Macbride. Site off Scales Bend Road produced two. Site at Sugar Bottom has one young. New nest at Sand Lake no report of young. North Liberty nest building 8/13/2015 outcome in 2016 has not been reported.

At Jester Park in Polk CCB the nest at campground #6 came down. It is believed this pair nested on cell tower between Saylorville and Big Creek along Hwy 415. Two young were seen in August.

Pair at Walnut Woods cell tower built sizable nest in 2009 and produced three young.

There is a new nesting pair on cell tower east of Walnut Woods on the Hwy 5 bypass that fledged one young.

Nest one mile east of Big Creek on Cell tower was active. Two young were noted in August.

Wells Fargo in West Des Moines had three young.

A nest at Camp Dodge cell tower near Saylorville Reservoir had two young.

At Easter Lake there is a new nesting pair on cell tower that fledged one young.

Nest on cell phone tower SW of Jordan Creek Mall in eastern Dallas Co. fledged two.

In Cedar Falls, a pair returned to successful nest site upon iWireless cell phone tower. One adult is AT from White Rock 2006. Pair produced one young.

Pair at Evansdale cell tower produced two young.

At Duane Arnold Plant pair from Wickiup Hill in Linn Co. produced two young on meteorological tower.

A second Linn Co. nest south of Palo on cell tower fledged two young. One of these young was rescued by Sunnie Day. It was successfully released at Clear Lake.

At Spirit Lake a pair nested near the Nature Center release site. All three young perished in a storm.

Nest on cell tower at Lower Gar fledged two young.

There is a new pair at Okoboji High School at Milford where three young fledged.

There is a nesting pair just south of Sioux City near Sergeant Bluffs in Woodbury Co. Cell tower pair relocated to platform placed at Brown's Lake by Rick Schneider with Woodbury CCB. Two young were produced according to Jerry Von Ehwegen.

Also according to Rich Pope, there was pair at their farmsite cell tower south of Sloan in Monona Co. This year three young fledged.

There is a new nest on cell tower along US 20 at Independence in Buchanan Co. At least two young was produced.

There is a nesting pair at Colfax quarries. Three young were reported. There is a second nesting pair at Colfax quarries. Two young was produced.

One of the nest sites separate from our release sites has been Colfax. A new nesting pair added to this site this year. Mid-American Energy removed sticks from a power line pole and erected a pole with a platform by their entrance to Quarry Springs Park. The new pair was successful in fledging two young.

In summary 24 nesting pairs had 22 successful nest attempts with 42 young produced. Since 1997 307 Ospreys have been released at twelve sites. Since 2003, 242 wild Ospreys have been produced at 135 successful nests.

2016 has provided incremental growth with our nesting Ospreys in Iowa. So far we have learned of four new nesting pairs. One in Dickinson County, one in Jasper County and two in Polk County. It is exciting to document seven nesting pairs this year in Polk County. Some of these birds originated at Red Rock Reservoir in Marion Co. and Lake Aquabi in Warren County. Folks at those areas are patiently awaiting nesting Ospreys.

Another exciting nesting has increased Dickinson County's Ospreys. A nesting pair has been successful at the Okoboji

High School in Milford. Charles Vigdal with Dickinson CCB and Tim Waltz with Iowa DNR have enjoyed seeing Dickinson County's ospreys increase to three nesting pairs this year.

2017

In 2017 there were 28 Osprey nest attempts that we knew about with 23 successful nests producing 47 young. There are four pairs separate from release sites at Independence and Colfax. Jay Gilliam, a local birder, reports a new pair on cell tower in northern Madison County SW of Moffat Reservoir.

This year is the first year since 1997 that Ospreys were not released in Iowa. Future relocation of young Minnesota Ospreys will be determined on a year by year basis. Yet, release sites will remain available for any Iowa Ospreys needing a helping hand.

Young in cell tower nests are vulnerable to being blown out. A July wind storm in 2016 blew a young of the year from cell tower near Palo. Also that year, a volunteer monitoring the site rescued a bird that was released at Clear Lake with hacked Ospreys from Minnesota.

There were three wild nesting pairs at Lake Macbride. The site off Scales Bend Road produced two young. There is a nest near Swan Lake Road that fledged at least one young. And a new nest at Ely was under construction in late August. There might be a nest near North Liberty to confirm.

A pair on the cell tower at Butch Olafson Shooting Range between Saylorville and Big Creek along Highway 415 was successful. Two young were seen in August.

A pair at Walnut Woods cell tower built a sizable nest in 2009 and produced two young.

There is a new nesting pair on a cell tower east of Walnut Woods on the Hwy 5 by-pass called Norwalk. No young were produced at this site this year yet adults were in the area.

A nest one mile east of Big Creek on a cell tower was active. Two young were noted in August.

A nest at Wells Fargo in West Des Moines had three young

A nest at Camp Dodge cell tower near Saylorville Reservoir had two young. At Easter Lake there is a nesting pair on a cell tower that fledged two young.

There is a new nesting pair on the cell tower SW of Moffat Reservoir in Madison Co.

A nest on a cell phone tower SW of Jordan Creek Mall in eastern Dallas Co. fledged one.

In Cedar Falls, a pair returned to successfully nest at the site upon the IWireless cell phone tower. One adult is AT from White Rock 2006. The pair produced two young.

A pair at the Evansdale cell tower produced two young.

At the Duane Arnold Plant a pair from Wickiup Hill in Linn Co. produced two young on the meteorological tower.

A second Linn Co. nest south of Palo on a cell tower fledged two young.

At Spirit Lake a pair nested near the Nature Center release site. Three young fledged.

At Okoboji High School in Milford three young fledged. A nest on a cell tower at Lower Gar fledged two young.

There is a new pair at Garlock Slough this year.

There is a nesting pair just south of Sioux City near Sergeant Bluff in Woodbury Co. A cell tower pair relocated to a platform placed at Brown's Lake by Rick Schneider with Woodbury CCB. This pair started on a cell tower. Two platforms were constructed at Brown's Lake. When the nest was disrupted at the cell tower, the pair moved to a platform at Brown's Lake. This year a Canada goose pair occupied that platform. The osprey pair used the second platform site this year. Two young were produced according to Jerry Von Ehwegen.

Also, according to Rich Pope, there was a pair at their farmsite cell tower south of Sloan in Monona Co. This year three young fledged.

At least two young were produced at a nest on a cell tower along US 20 at Independence in Buchanan County.

There is a new nesting pair west of Lake Panorama in Guthrie County, and SOAR volunteers reported three young in August.

There is a nesting pair at Colfax quarries, and two young were reported. There is a second nesting pair at Colfax quarries. Two young were produced. There is also a third nest that was constructed in August this year.

In summary 28 nesting pairs had 23 successful nest attempts with 47 young were produced. Since 1997, 307 Ospreys have been released at twelve sites in Iowa. Since 2003, 285 wild Ospreys have been produced at 158 successful nests.

2017 has provided incremental growth with our nesting Ospreys in Iowa. So far we have learned of three new nesting pairs. One in Dickinson County, one in Jasper County and one in Madison County. It is exciting to see growth and development of nesting Ospreys away from release sites and in the case of Madison, a new county for nesting Ospreys.

One of the nest sites separate from our release sites has been Colfax at their Quarry Springs municipal park. Mid-American Energy removed sticks from a power line pole and erected a pole with a platform by their entrance. The pair was successful in fledging two young again this year. And a third nesting pair has completed a new nest along the eastern shore of the quarry. A total of eight Ospreys were reported at the site this summer in June. Quarry Springs hosted an Osprey gathering of all the Osprey partners in May. Bill Fraundorf with ALLETE Energy was recognized for their contribution of supplying Iowa with Minnesota Ospreys.

The Iowa Department of Natural Resources Wildlife Diversity Program extends a special thank you to now retired Kerry Pat Schlarbaum for his dedication and many hours and miles facilitating Osprey restoration in Iowa over the last two decades.

Figures

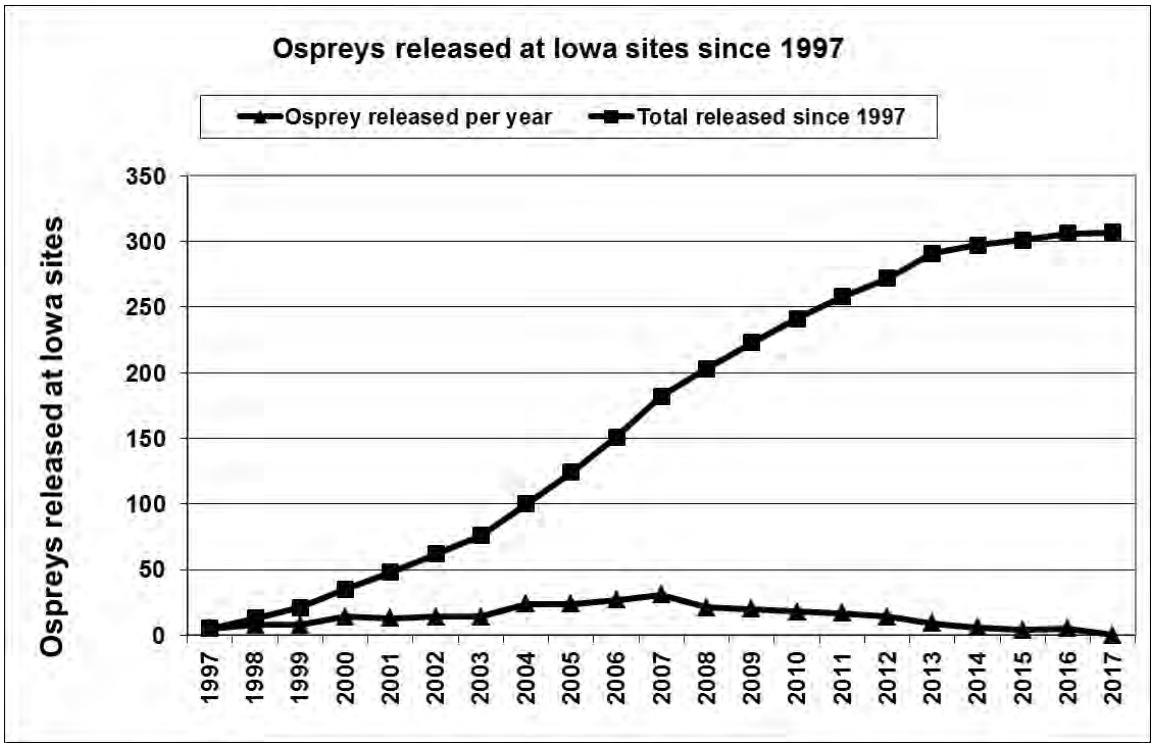


Figure 6.8 Osprey released in Iowa

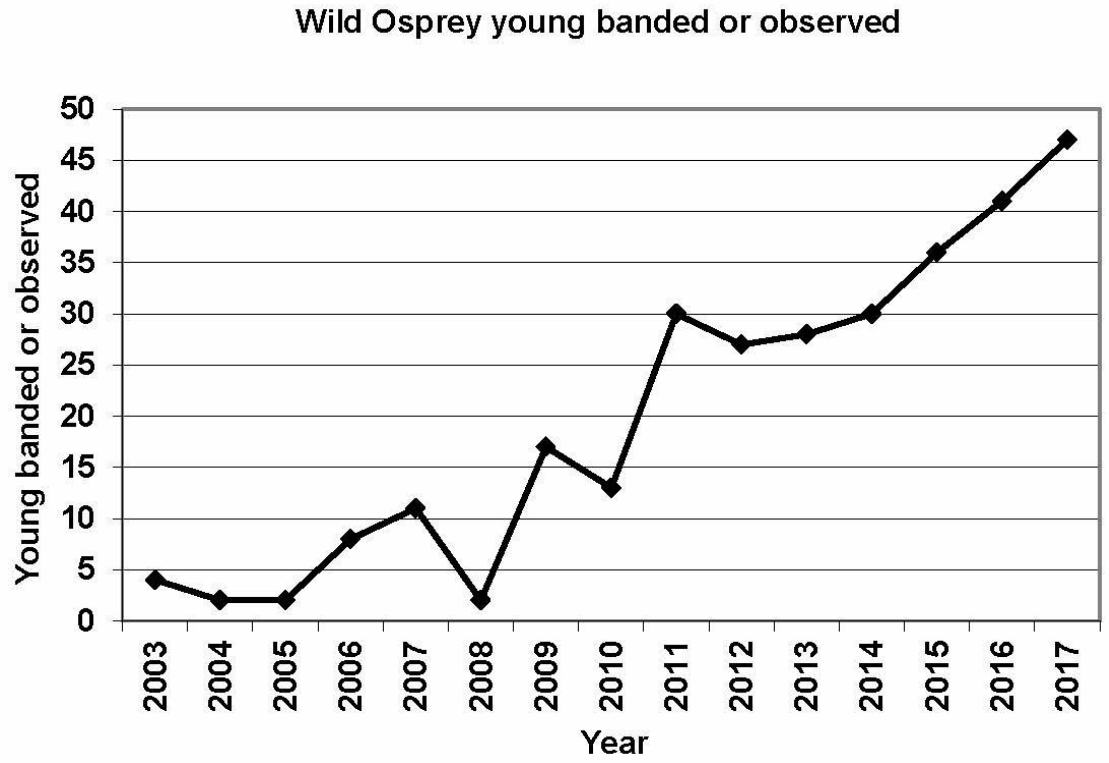


Figure 6.9 Wild Osprey produced in Iowa

Bald Eagle Restoration

Historical Review

When Euro-Americans first arrived in Iowa, it is likely that bald eagles nested throughout the state, particularly in the woodlands along rivers, streams, and fish infested lakes. As forests were cut and the woodland habitat occupied by eagles was altered, eagle numbers declined. Direct persecution (mostly shooting) and changes in eagle habitat, particularly nesting habitat, appear to have eliminated the bald eagle as an Iowa nester by the early 1900s. Early records for the bald eagle in Iowa do not give us a good idea of how many nests there once were for this species, but we do know that eagles were "formerly common in Iowa and frequently nested in favorable localities" (Anderson 1907). It appears that the last nest documented near the turn of the last century was in Jasper County in 1905, where two young eaglets were taken from a nest near Kellogg (Anderson 1907).

The passage of the Federal Bald Eagle Protection Act of 1940 was the first real effort to protect eagles, especially from shooting. The use of organochlorine pesticides (such as DDT) after World War II also severely devastated eagle populations (Broley 1958, Carson 1962). It was only after the banning of organochlorine pesticide use in this country in 1972 and the listing of the bald eagle for protection on the Endangered Species Act in 1978 that this species began to recover. The bald eagle was considered an extirpated species on Iowa's first threatened and endangered species list in 1977 (Roosa 1977), and it was not again expected to be seen nesting in Iowa.

More Recent Iowa Nesting Records

As improbable as it seemed, the bald eagle did nest in Iowa again. The first nest noted in over 70 years was located near New Albin on the Mississippi River floodplain in 1977 (Roosa and Stravers 1989).

Two young were produced that first year, but it was not until 1980 that another eaglet was produced from that nesting territory. In 1984, Dinsmore et al. (1984) considered the bald eagle a rare summer resident. It was in 1985 that a second Iowa eagle nest appeared, just three miles downstream from the first. That nest produced three young. During 1986, a third nesting territory appeared in Allamakee County on the Mississippi River, and a fourth occurred in Jackson County. The first documented nest away from the Mississippi River was found in 1987 along the Skunk River near Coppock in Jefferson County (Figure 6.10). The following year there were eight active nests reported. Two more new nests were discovered away from the Mississippi River, one in Allamakee County and one in Fremont County near Forney's Lake. A new nest was also found in Clayton County along the Mississippi River, and a nest in a huge cottonwood tree was reported by towboat captain, Pat Flippo, for Des Moines County near the mouth of the Skunk River.

As part of the USF&WS regional plan for bald eagle recovery, in 1981 Iowa established a goal of 10 active Bald Eagle nests by the year 2000 (Grier 1988). This goal was surpassed in 1991 when the number of active nests jumped to 13. Nest numbers climbed to 21 in 1992, to 43 in 1995, and to 84 in 1998 - the last year in which most Iowa nests were monitored closely. At that time, bald eagles had nested in 42 different counties.

The number of eagle pairs continued to grow, and in 2015, the milestone of having reports of eagle nests in all 99 counties was reached. The last two counties to get their first eagle nest were Monroe and Osceola (Figure 6.10). Annual Nesting Summaries – 5 Years Since 2010, data on eagle nesting in Iowa has been collected through opportunistic reports as well as more formally, by trained volunteers, from a randomly selected subset of nests called sentinel territories. The opportunistically reported data is important because it is the primary source of new nest reports and does provide a valuable yearly snapshot. However, the full dataset, including the opportunistic reports, may not be representative of the nesting population as a whole and is misleading when examining trends across years. The sentinel territory monitoring put into place in 2010 compensates for some of these full dataset weaknesses.

2012: Reports received from all sources were for 307 territories, 48 of which were reported for the first time. Roughly 72% (222) of the territories were reported active in 2012, and 21% (65) were reported inactive. The remaining 20 territories were reported with unknown activity. Currently a total of 336 territories are designated as active in the DNR's database which is not comprehensive but this number at least represents a minimum. The total number of territories in the database is 614.

A total of 95 sentinel territories were assigned to trained volunteer monitors and data was received on 77 (81%) of these territories. This represents 23% of the known active territories (objective is to get data on 25%). Within the 77 territories, 61 were active (79%), 13 were inactive (17%), and 3 could not be found or had unknown activity. The outcome of the 61 active nests broke down as follows: 45 successful, 3 failed and 13 unknown. Seventy-one young were produced by the active nests: 3 nests fledged no young, 8 nests fledged 1 young, 27 nests fledged 2 young, and 3 nests fledged 3 young. The estimated number of young produced per nest was 1.48 (Table 6.7).

2013: Reports were received for 347 territories, 59 of which were reported on for the first time. Approximately 69% (241) of the territories were reported active in 2013, and 18% (63) were reported inactive. There were 43 territories for which the activity was unknown. Currently a total of 363 territories are designated as active in the DNR's database which is not comprehensive but this number at least represents a minimum. The total number of territories in the database is 683.

A total of 98 sentinel territories were assigned to trained volunteer monitors and data was received on 80 (82%) which represents 34% of the known active inland territories (objective is to have data on 25%). Within the 80 territories, 65 were active (82%), 12 were inactive (15%), and 3 could not be found or had unknown activity. The outcome of the 65 active nests broke down as follows: 40 successful, 6 failed and 19 unknown. Seventy-two young were produced by the active nests: 6 nests fledged no young, 10 nests fledged 1 young, 28 nests fledged 2 young and 2 nests fledged 3 young. The estimated number of young produced per nest was 1.57 (Table 6.7).

2014: Reports were received for 349 territories, 66 of which were reported for the first time. Approximately 61% (214) of the territories were reported active in 2014, and 24% (83) were reported inactive. There were 52 territories for which activity was unknown. Currently a total of 401 territories are designated as active in the DNR's database which is not comprehensive but this number at least represents a minimum. The total number of territories in the database is 737.

Ninety-six sentinel territories were assigned to a trained volunteer monitor and data was received on 76 (81%) which represents 29% of the known active inland territories (objective is to have data on 25%). Within the 76 territories, 62 were active (82%), 13 were inactive (17%), and 1 could not be found or had unknown activity. The outcome of the 62 active nests broke down as follows: 41 successful, 2 failed and 19 unknown. Seventy-two young were produced by the active nests: 2 nests fledged no young, 14 nests fledged 1 young, 23 nests fledged 2 young and 4 nests fledged 3 young. The estimated number of young produced per nest was 1.67 (Table 6.7).

2015: Reports were received for 410 territories, 76 of which were reported for the first time. Approximately 62% were reported as active, 15% were reported as inactive, and 23% were reported with unknown activity. The milestone of having a bald eagle nest observed in 99 Iowa counties was reached during this nesting season (Figure 6.10).Currently a total of 427 territories are designated as active in the DNR's database which is not comprehensive but this number at least represents a minimum. The total number of territories in the database is 813.

A total of 102 sentinel territories were assigned to a trained volunteer monitor and data was received on 85 (83%) which represents 26% of the known active inland territories (objective is to have data on 25%). Within the 85 territories, 78 were active (92%), and 7 were inactive (8%). The outcome of the 78 active nests broke down as follows: 53 successful, 7 failed and 18 unknown. Eighty-eight young were produced by the active nests: 5 nests fledged no young, 20 nests fledged 1 young, 31 nests fledged 2 young and 2 nests fledged 3 young. The estimated number of young produced per nest was 1.55 (Table 6.7).

2016: Reports were received for 314 territories, 52 of which were reported for the first time. Approximately 88% were reported as active, 11% were reported as inactive, and the remaining 5 territories were reported with unknown activity. Currently a total of 412 territories are designated as active in the DNR's database which is not comprehensive but this number at least represents a minimum. The total number of territories in the database is 863.

A total of 109 sentinel territories were assigned to a trained volunteer monitor and data were received on 84 (77% data return) which represents 25% of the known active inland territories (objective is to have data on 25%). Within the 84 territories, 80 were active (95%), and 4 were inactive (5%). The outcome of the 80 active nests broke down as follows:

60 successful, 6 failed and 14 unknown. Out of the 62 territories which had reliable reports of young fledged, 107 young were produced: 6 nests fledged no young, 13 nests fledged 1 young, 35 nests fledged 2 young and 8 nests fledged 3 young. The estimated number of young produced per nest was 1.73 (Table 6.7).

Wintering Eagles - Midwinter Bald Eagle Survey

Beginning in 1983, Iowa Conservation Commission staff cooperated on a national Midwinter Bald Eagle Survey to assess the health of the greater bald eagle population. In cooperation with the current national survey coordinator, the US Army Corps of Engineers, DNR Wildlife Diversity Staff continue to coordinate this survey today. Data from this survey indicates an overall increase in Iowa winter bald eagle numbers since 1991 (Figure 6.11 and Figure 6.12). The highest concentrations of eagles are counted on the Southern portions of the Mississippi and Des Moines rivers. High counts on the survey are 2004 (4,388), 2008 (3,913) and 2014 (4, 957). The ten year average total count is 3,083 birds.

2017 Survey

The 2017 survey was run between January 4th and 18th and 51 total standardized survey routes were completed. A total of 2,860 eagles were counted which were broken down as follows: 1,853 Adults, 838 Immatures, and 163 unknown. One Golden Eagle was also counted on the survey.

Roughly 66% of the eagles counted were observed on routes along the Des Moines River and an additional 22% were counted on the Mississippi. The Iowa, Maquoketa and Wapsipinicon rivers also held significant numbers of eagles. Temperatures during the survey were not as mild as 2016 but were still relatively moderate with an average temperature of 16 degrees Fahrenheit and approximately 58% of the waterways surveyed covered with ice.

Discussion

Both nesting and winter survey data were used for evaluating the delisting of bald eagles in the United States. Such information was used to upgrade the bald eagle national status from Endangered to Threatened in 1995, and in August 2007, the bald eagle was removed from the Federal Endangered/Threatened Species list. Iowa upgraded bald eagle from Endangered to Special Concern status in 2009.

Undoubtedly there are several reasons why nesting Bald Eagles have staged a comeback in Iowa. One reason for the recovery may be related to this species' ability to pioneer into suitable nesting habitat. This was not only true of Iowa's first nest in seven decades, which appeared in Allamakee County, but it also became obvious in 1987 when a pair of eagles nested in Jefferson County along the Skunk River. It was further evidenced in 1988 when an eagle pair nested in extreme southwestern Iowa in Fremont County near the Missouri River. Another key element helping eagle recovery appears to be Iowa's close proximity to one of the more stable nesting populations of bald eagles in the continental United States. Three states to the north, including Minnesota, Wisconsin, and Michigan, presently have a combined total of approximately one-third of all nesting eagles in the lower 48 states. There is little doubt that Iowa's eagle population has benefitted from its neighbor states to the north. In 1998, when eagle nests occurred in 42 counties, over half of all Iowa's eagle nests could be found in four counties in the northeastern corner of the state. That phenomenon appears to hold true today, even though there are now about seven times the number of nesting eagles in the state.

An unanticipated factor that has helped bald eagle numbers recover is the species' adaptability. It appears that eagles nesting in the Mississippi River floodplain may be somewhat tolerant of boat traffic (McKay et al. 1995). Other instances indicate that some eagles are more tolerant of disturbance than others. Currently, there are numerous nests located within several hundred yards of buildings, roads, and farm fields. The city of Des Moines, alone, holds at least seven active eagle nesting territories. One nest along the Upper Iowa River in Howard County was only about 100 yards from the bedroom window of very interested eagle nest watchers. The nest was located on the opposite side of the river, which probably minimized the impact of human activity. Grier (1988) explained that eagles' ability to tolerate human activity and to nest close to buildings has "broadened their amount of available habitat and living space."

The Future

Although the outlook for Iowa's eagle population is favorable, there are still factors that affect eagle numbers. Unmanaged logging can pose a threat to eagles, and the removal of large, mature cottonwoods along Iowa streams limit where eagles can nest and find foraging perches. Logging in the vicinity of eagle nests also can affect the nesting

outcome, especially if done during the nesting season. Even though there are strict federal laws protecting eagle roost and nest sites against disturbance during their occupancy, cutting of roost trees of bald eagles during the time of year that eagles are not using them is not prohibited.

Lead poisoning is still a concern, as a number of eagles are found in Iowa each year, either dead or suffering from this problem. Iowa's Wildlife Rehabilitators report that of the bald eagles received by rehabilitators and tested for presence of lead since January 2004, approximately 50% show elevated levels of lead. Since 1996, an average of 25% of the bald eagles admitted each year to The Raptor Center at the University of Minnesota have toxic levels of lead in their blood. Where the majority of this lead is coming from is yet to be fully determined. Iowa State University graduate student, Billy Reiter-Marolf completed his study that involved collecting eagle droppings at eagle nest and roost sites to determine if lead is present in breeding and wintering eagles. His study results indicated that lead did not appear to be affecting the larger eagle population, and Iowa's eagle nest monitoring efforts indicate the population is still growing.

Overall, bald eagle numbers continue to recover. In 1963, an Audubon Society survey found only 417 remaining bald eagle nests in the continental United States. It was a species headed for extinction. In 2006, the USFWS estimated about 9,500 active nests in the lower 48 states. Iowa, which had no nests for over 70 years, in 2016 had over 400 active nests. The enforcement of protective laws and a change in the public's attitude toward eagles have helped bring back this species.

Bald Eagle Appreciation Days: Iowa DNR staff has been involved with promoting the appreciation of bald eagles since helping establish the first event in Keokuk in 1985. There are presently at least 13 Bald Eagle Appreciation Days held in Iowa each winter to celebrate the existence of eagles and between 35,000 and 45,000 people gather at these events annually. With the continuation of public support for bald eagle recovery, this bird's population should continue to increase.

Acknowledgements

Our thanks to the many Iowans who continue to monitor our eagle nests, continue to help with winter eagle surveys, and provide information that better helps the different agencies protect and manage for this species.

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Figures

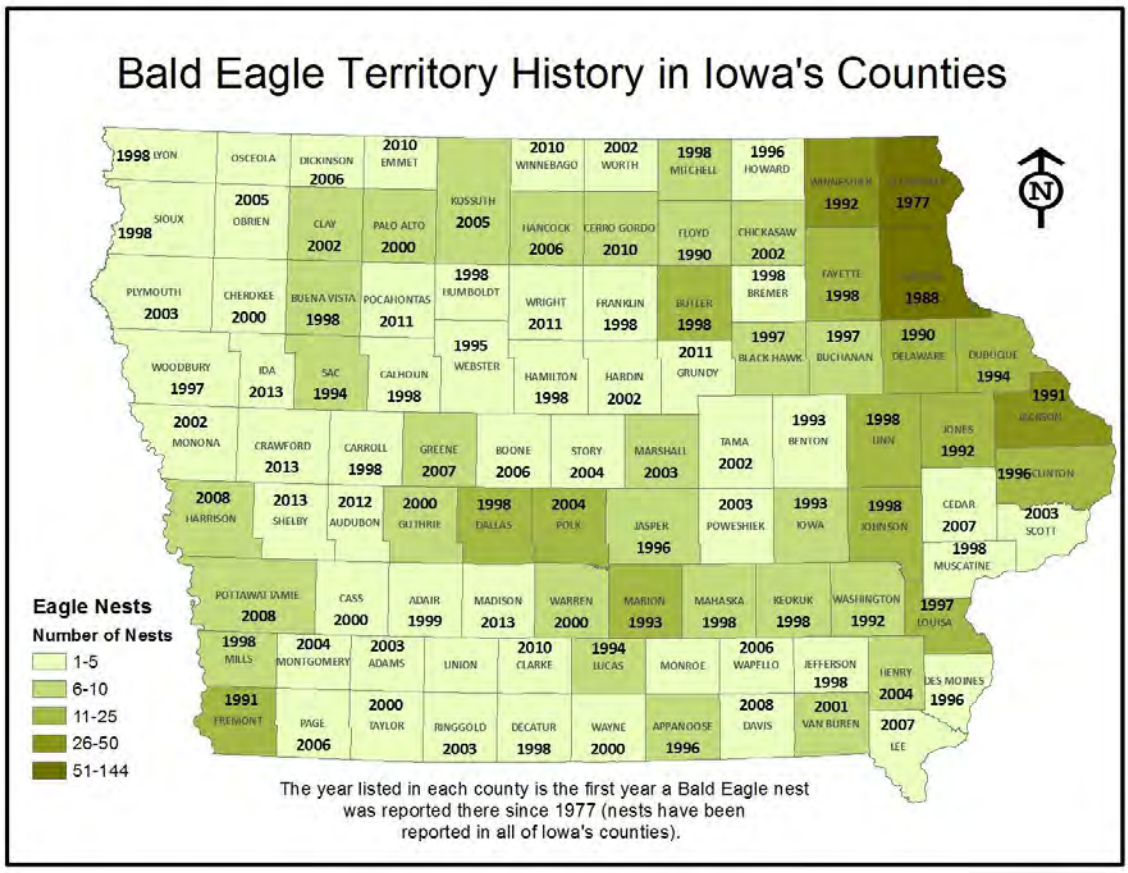

Figure 6.10 Bald Eagle Territory History in Iowa by County

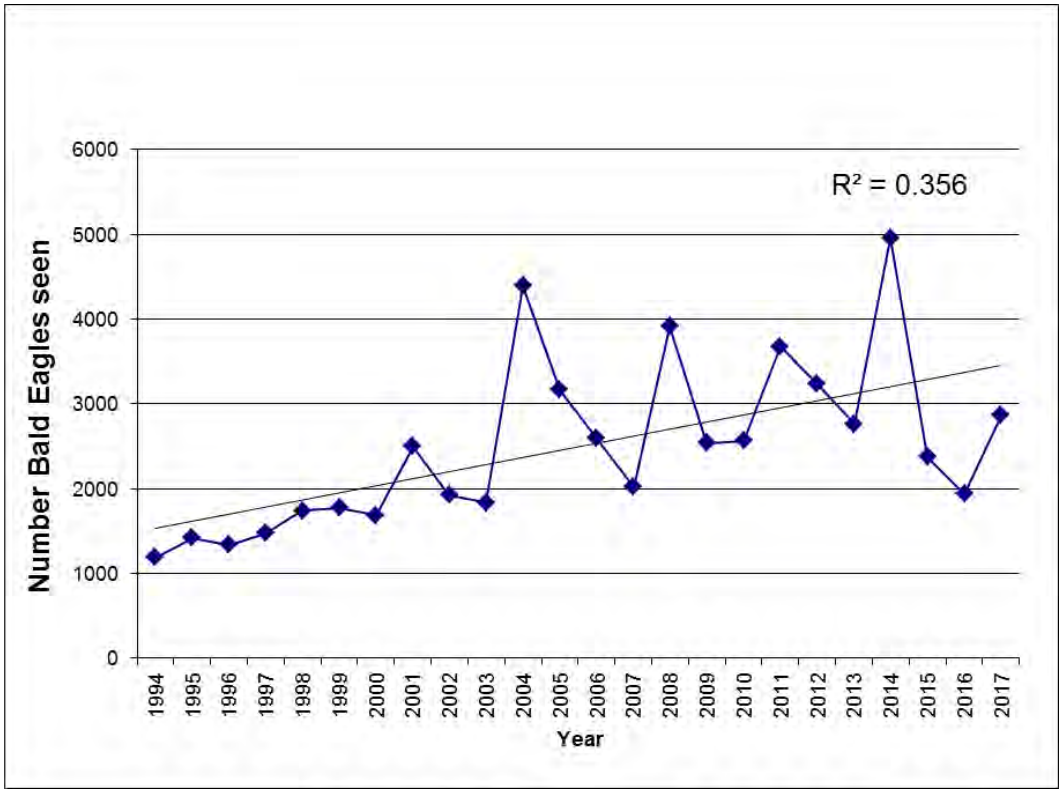

Figure 6.11 Total Number of eagles observed on the survey.

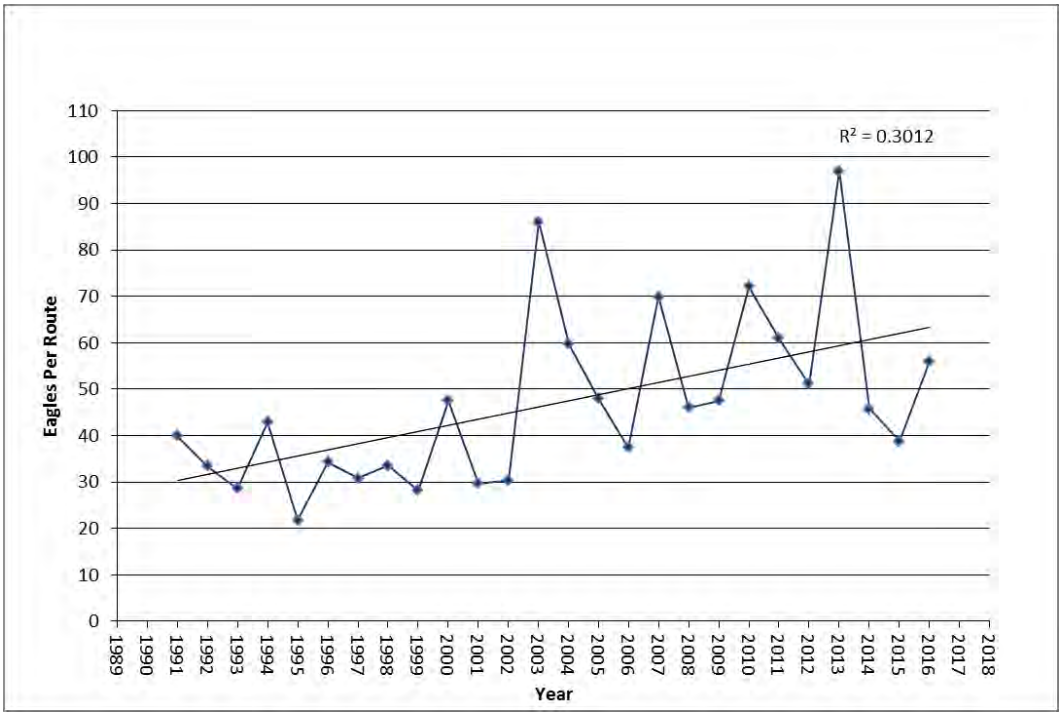

Figure 6.12 Average number of eagles seen per route.

Tables

Table 6.7 Summary of Monitoring Results for Sentinel Bald Eagle Nests 2010-2016

	2010	2011	2012	2013	2014	2015	2016
Total Territories Chosen	54	136	136	130	128	161	152
Assigned Territories	48	81	95	93	96	102	105
# of Territories With Data Collected	42	69	77	80	76	85	84
Active Territories	33	52	61	65	62	78	80
Successful	18 (55%)	37(71%)	45(74%)	40(62%)	41(66%)	53(68%)	60(75%)
Failed	6 (18%)	6 (12%)	3 (5%)	6 (9%)	2(3%)	7(9%)	6(7.5%)
Outcome Unknown	9 (27%)	11(21%)	13(21%)	19(29%)	19(31%)	18(23%)	14(17.5%)
Number of Young	35	50	71	72	72	88	107
Avg. # of Young/Nest	1.46	1.16	1.48	1.57	1.67	1.52	1.73
Inactive Territories	4	14	14	12	13	7	4
Unknown Territories	5	3	3	3	1	0	0

Barn Owl Restoration

Adult barn owls, female on left ©Bruce Ehresman

Historical Review

The barn owl has never been considered a commonly occurring species in Iowa, partly because Iowa is on the northern edge of its breeding range. While Anderson (1907) noted the barn owl to be a somewhat rare resident in the southern half of Iowa and rarely found in the north, Bailey (1918) explained that "this peculiar owl is counted rare in Iowa because of its strictly nocturnal habits." Dumont (1933) described it to be more numerous in the south and west. Brown (1971) called the barn owl a "rare permanent resident" of Iowa and noted it had declined markedly in abundance and distribution. The barn owl probably fared well until major agricultural land use changes occurred in the early 1970s, when farming methods changed from small-field diversified farming practices, including perennial grasslands for haying and grazing, to large-field annual row cropping. That trend toward large-field annual row crop production reduced the abundance of small mammals across large portions of the Midwest, and that trend continues today. The result of this change to an industrialized type of farming is the near total loss of Iowa's native grassland and savanna communities. As a consequence of converting grasslands to corn and soybean crops, the loss of grassland foraging habitat is considered the greatest reason for the decline of barn owls, with the most severe declines occurring in the Midwest (Stewart 1980, Colvin et al.

1984, Marti et al. 2005). Other factors which appear to affect the barn owl's population decline include loss of secure nest and roost sites (removal of hollow trees and vacant buildings), starvation during extremely cold and snowy winters, and predation on barn owls by the great horned owl (Marti et al. 2005). State Ecologist, Dean Roosa (1977) classified barn owl as Endangered in Iowa due to loss of habitat and secluded nest sites.

With only seven nest records noted for the Iowa barn owl from 1950 to 1980 and with fewer than four barn owls sighted in any given year, it was postulated that barn owl populations may be so low that mature birds may not be able to find suitable mates. In 1982, the Iowa Conservation Commission (ICC) Nongame Program decided to make an effort to assist this species. An extensive literature review, coupled with discussions with raptor specialists, including Iowa State Ecologist Dean Roosa and Iowa State University's Dr. Erwin Klaas, provided support for a project to enhance numbers of barn owls by releasing captively produced birds, as well as owls acquired from other states, for that purpose. The neighboring states of Missouri and Nebraska also embarked on barn owl release programs at this time, too.

Iowa Reintroduction Effort: The Iowa Conservation Commission publicly advertised a need for release sites, and about 200 concerned citizens responded offering their farmsteads as potential release areas. Release sites were chosen based on their value to barn owls. Within a one-mile radius of the release site structure, an ideal area needed to be 30-50% grassland, contain several undisturbed potential nest sites, have no known great horned owls present, and have a history of barn owl presence nearby.

ICC reared (in captivity) and released 427 barn owls from 1983 to 1987 (Ehresman et al. 1988). Owls were released from 44 sites in 28 counties (Figure 6.13) where grassland habitat appeared suitable. Barn owls were placed at sites as mated pairs in January, pairs with young in April and May, and groups of immature birds from May through October. Most release areas were in southern counties where most of Iowa's remaining grassland exists. Several release sites were in northeastern Iowa's dairy farming areas and in the Loess Hills of western Iowa, where remnant prairie still exists. To

further enhance the nesting potential of release site areas, well over 200 barn owl nest boxes were erected in release areas.

Numbers of verified barn owl sightings reported to ICC personnel increased steadily during the project period from 17 in 1983 to 48 in 1986, perhaps due in-part to greater public awareness about barn owls brought on by information related to the releases. Numbers of confirmed or suspected nesting of barn owls in Iowa varied from zero to five per year during the study period. No banded (released) individuals were known to contribute to any confirmed nests, although 7 nests were confirmed from 1983-1987 (Figure 6.14).

Since no barn owls returned to nest at release site area nest boxes after the first two years of releases, a barn owl radio telemetry study was implemented in 1985 and1986 to gather information about the survival, movements, and habitat use of the owls which were released. Five sites were chosen for this study in Lucas (two sites), Tama (two sites), and Poweshiek (one site) counties (Figure 6.15). Using backpack mounted radio transmitters, 36 barn owls were monitored during this project. Although much was learned about the movements of these owls and the type of habitat that they preferred, the study also documented a very high mortality of these released birds.

The telemetry study documented the death of 24 of the 36 radioed barn owls within 60 days after their release. Two owls managed to slip their transmitters within two days of their release, and only 10 barn owls were known to survive at least 30 days. The main cause of death was predation by great horned owls, which apparently killed 13 barn owls; four barn owls were killed by automobile collisions, two were predated by mammals, and five died of unknown causes (Ehresman et al. 1988).

Since the barn owl telemetry study indicated that releasing captively reared owls did not significantly increase the wild population, the release program was discontinued by the DNR after 1987. It was not felt, however, that this effort failed. There was an enormous amount of public education that resulted concerning the barn owl (and raptors, in general) due to the extraordinary amount of coverage of releases by the media. As evidence of this, prior to the first barn owl releases in 1983, it was unusual to document more than four barn owl sightings in a year, and only seven nests had been documented in the previous 29 years. During the barn owl releases from 1983-1987, 171 barn owl sightings were verified, seven nests were confirmed, and seven other possible nests were reported.

As a result of its efforts to help the barn owl, valuable information was gained about barn owl life history in Iowa and where these birds prefer to nest. Current emphasis of the program is directed at placing nest boxes in quality habitat areas (grasslands) where these owls are known to occur, encouraging landowners to maintain and restore prairie remnants or other grassland areas which benefit this unique species, and increasing awareness of the barn owl's value through public education.

Iowa Breeding Bird Atlas: During Iowa's first Breeding Bird Atlas (1985-1990, Figure 6.18), the barn owl was found in 46 (6%) of the 717 blocks surveyed, and it was found most frequently in the southern half of the state (Jackson et al. 1996) where a high proportion of Iowa's grassland and savanna habitats existed. Most (27) of the records were of single owls seen in suitable nesting habitat, whereas five probable sightings were pairs of owls seen in suitable nesting habitat and four were birds presumed to be on nesting territories. The barn owl's use of a mosaic of habitat types likely contributed to the fact that this species was reported in both priority blocks (with public ground) (59%) and standard blocks (41%) (Jackson et al. 1996).

Barn owl records collected during Iowa's second Atlas (2008-2012, Figure 6.19) showed some distribution changes since the first Atlas, especially with a decline in records from northern Iowa. This owl was detected in only nine (1.1% blocks, eight of which were identified as habitat blocks (those containing a minimum of 40 acres of public land). Nesting was confirmed in three (33.3%) of the blocks with barn owl records: 1) a nest with young in a barn in Washington County, 2) a nest with eggs under a bridge in Lucas County, and 3) a fledgling young found at Honey Creek State Park in Appanoose County. Statewide, there were 21 confirmed barn owl nests during the second Atlas, 18 of which occurred at sites outside of blocks. Confirmed nesting outside of blocks during the Atlas survey period occurred at sites in the following 16 counties: Calhoun, Carroll, Clarke, Crawford, Decatur, Greene, Ida, Lucas, Mahaska, Marion, Muscatine, Taylor, Wapello, Washington, Wayne, and Van Buren. While there were 37 (80%) more records during the first Atlas than the

second, it is believed that many of those records were related to the DNR barn owl release program that occurred from 1983-1987.

Iowa Nest Records: In total, since 1975, barn owls sightings have been reported from 80 Iowa counties (DNR Natural Areas Inventory data, Figure 6.16). From 1960-2017, confirmed barn owl nesting has been reported from 52 counties (Figure 6.17). Most of these records come from counties in the southern one-half of the state. There is a trend for the number of nest reports to increase over time, with twice as many reports from 2006-2015 (62 nest reports) compared to 1996-2005 (30 nest reports). From 2006-2015, the average number of Iowa nests reported per year was about six, with 15 confirmed barn owl nests reported in 2015 and 17 nests in 2016. Over the past several decades, these data suggest that an increase in barn owl abundance is occurring.

Conservation Measures: Deployment of nest boxes – the most frequently undertaken conservation action for barn owls – is the only practice that has been documented to consistently increase the total number of successful nesting barn owls in a given area (Marti et al. 2005). A nest box program in Ohio increased the number of known nests in the state from <20 identified per year before 1990 to >55 identified per year since 2004 (Ohio Department of Natural Resources 2009), and by 2015, a similar program in Illinois has experienced similar positive results (T. Esker, pers. comm.). Nest boxes are most likely to increase barn owl abundance when nest sites are limiting near foraging areas and least likely to benefit in areas where prey is scarce (Colvin et al. 1984). There is some evidence that barn owl nests in boxes are more productive than nests in natural nest sites. In Ohio (1988-2004), barn owl nests in nest boxes had an 83% success rate and an average of 4.3 young fledged per nest (Ohio Department of Natural Resources 2009).

Iowa Department of Natural Resources staff and volunteers placed well over 200 barn owl nest boxes in private and public buildings, since 1983. At least 26 of those nest boxes have been used to successfully fledge owls in 14 counties, producing at least 130 young. Similarly, Illinois Department of Natural Resources (DNR) staff and cooperators erected over 100 nest boxes on public and private lands in Illinois since the 1980s, with at least 9 of 47 documented barn owl nests occurring in boxes or trays placed in barns and silos (Walk et al. 2010). An even more efficient and effective nest box placement system has been developed in Illinois, mounting nest boxes on free-standing metal poles. The use of pole mounted barn owl nest boxes (properly installed to be safe from mammal and snake predation) seemed to be the major factor that increased the number of barn owl nests in Illinois, with the majority of known barn owl nests during 2015 in pole mounted nest boxes (Terry Esker, pers. comm.).

Releasing captive-reared barn owls is the other commonly attempted conservation measure, although it has not achieved definitive success likely because captive-raised barn owls are ill-suited for survival in natural settings (i.e., often predated or starve) more frequently than their wild counter-parts (Fajardo et al. 2000). From 1979 to 1986, about 1,400 captive-reared barn owls were released in Indiana, Iowa, Michigan, Missouri, Nebraska, and Wisconsin (Marti 1988b), resulting in only three known nest attempts (Henke and Crawford 1987).

While changes in land use appear to have contributed to changes in barn owl distribution and abundance over time, it seems little habitat management has been specifically implemented for the sake of conserving barn owls. Managing grassland foraging habitat for barn owls has been prescribed in conservation plans for barn owls in Ontario (Ontario Barn Owl Recovery Team 2009) and Wisconsin (Matteson and Peterson 1988). Managing habitat specifically for barn owls is complicated by their widespread occurrence at low density, short lifespan, and long-distance natal dispersal. These factors make it difficult to target specific areas to manage habitat for barn owls or to expect that certain management actions will measurably improve barn owl populations.

Marti et al. (2005) included U.S. Department of Agriculture conservation programs, such as the CRP, among the agricultural practices that have “inadvertently” benefited barn owls. Barn owls appear to have increased in Iowa since the beginning of the CRP, and numerous nests have been documented in counties with extensive CRP enrollments. Undoubtedly the greatest boon to the barn owl in several decades has been the addition of over two million acres idled in Iowa under the Conservation Reserve Program (CRP) of the 1985 Farm Bill. In 1994, six Iowa barn owl nests were confirmed, the most nests recorded in one year ever (at that time). Three nests were in barn owl nest boxes, and all nests occurred adjacent to large tracts of CRP grassland. During 1995, 12 nests were documented in six counties; Taylor, Wayne, Ringgold, Mills, Guthrie, and Tama. Seven of the nests were in nest boxes.

In Iowa, the best example of the positive influence of CRP on barn owl production was on a farmstead in Taylor County, where much of the credit for so many successful Iowa nests is due to the efforts of "barn owl guardian," Zelbert Freemyer. Zelbert first found barn owls nesting on his property in a metal grain bin in 1989. He then built and placed several barn owl nest structures on his property, as well as at his neighbors'. He also set aside about 500 acres of CRP grasslands on his farm. The nest boxes in his two barns were only about 40 yards apart, and yet they each contained nesting owls in 1994 and 1995. A third female barn owl was incubating eggs on the ceiling of a chicken house during June, 1995, so that there were three females nesting within 60 yards of one another. Even more extraordinary is the fact that two of the females appear to have nested a second time, one in the same nest box and the other in a nest box in an adjacent metal corn bin. Three of Zelbert's five nests proved successful and fledged at least 13 young in 1995. From 1989-2009, less than 100 barn owl young fledged from nest boxes at this Taylor County site and from boxes located adjacent to the property.

Recovery Potential: Although barn owls are rare in Iowa, they remain somewhat broadly distributed within the state. Barn owls can quickly colonize areas of suitable habitat, readily adopt nest boxes, show tolerance of human presence, and are capable of high reproductive output and rapid population growth (Marti et al. 2005).

Barn owl populations are secure in Mississippi River Valley states to the south, and populations in some Midwestern states (i.e., Missouri and Ohio) appear to be expanding. While low availability of grassland foraging habitat is likely a limiting factor, it is most probable (based on positive results seen in Illinois) that the grassland areas in Iowa (especially southern one-half) can support more barn owls than are currently known to exist in the state. Though the barn owl is unlikely to become common throughout most of Iowa, implementation of this recovery plan is expected to improve the status of the barn owl so that it no longer warrants listing as an Iowa Endangered or Threatened species.

Ecosystem Restoration & Management: Historically, barn owls probably occurred in transition areas from oak savannas to tallgrass prairies, nesting in tree cavities and hunting voles and other small mammals in nearby grasslands (Kirk 1999). Within Iowa, prairies and savannas have been largely converted to row crop agriculture, and few high-quality remnants of these communities remain.

Barn owls are wide-ranging predators characteristic of the grassland-open woodland ecotone, and habitats used by barn owls support a diverse array of other Species of Greatest Conservation Need. As indicated previously, targeting areas to improve habitat for barn owls is complicated by their occurrence at low density and high dispersal. Efforts to protect and restore prairies and savannas, and sites targeting conservation of other grassland species (especially upland game birds) are likely to benefit barn owls.

<u>Iowa Recovery Plan</u>
Using guidelines modified from the Illinois DNR (Walk et al. 2010b) and basing recovery numbers on data collected on Iowa barn owls since 1980, it is recommended that the DNR evaluate the status of the barn owl and consider a change in status from *Endangered* to *Threatened* when 40 active nest sites, distributed among at least 15 counties, are reported within a 5-year period. A nest site active in >1 year of the 5 year interval is considered a single record. Further considerations include evaluating the threats to the population and to nesting sites and assuring threats to barn owl habitat are manageable with existing conservation resources. A change in status from *Threatened* to *Special Concern* should be considered when 80 active nest sites, distributed among at least 30 counties, are reported in a 5-year period, and other threats (like decreasing acres of foraging habitat) to the population are low. The reverse of these conditions could be used to consider a change from *Threatened to Endangered* or *Special Concern to Threatened*, should the population's condition degrade at some future point following an improvement in status. The population should be likely to persist at similar levels with sustainable conservation actions (e.g., nest box maintenance and monitoring program, with responsibility for program continuation assigned to one or more entities). The reason for choosing an objective, which is measured over a 5-year interval, is to decrease the influence of inter-annual stochasticity (i.e., barn owl nesting numbers can vary widely from year-to-year, depending especially on weather conditions and prey abundance).

These population size and distribution objectives represent greater barn owl abundance and distribution than have

previously been observed in Iowa and are intermediate to benchmarks recently applied in other Midwestern states (Walk et al. 2010b). From various sources, Walk et al. (2010a) found reports of six Illinois barn owl nests (29 total reports) during the 1970s. The barn owl was listed as Endangered in Illinois in 1978. Through the 1980s, only three nesting records were reported. In the 2000s, 29 nesting records were reported from 21 of 102 Illinois counties. In the past five years (2005-2009), 19 barn owl nest locations were reported from 18 Illinois counties. The report from Illinois (for 2015) was that 179 barn owl nest boxes were monitored in 39 counties, and 51 nests were documented in nest boxes, with 62 nests total reported for the state in 21 counties (Terry Esker, pers. comm.).

As part of Iowa's barn owl recovery plan (Ehresman 2016), an important strategy that Iowa DNR is implementing is the placement and monitoring of nest boxes within Iowa's most suitable nesting areas on public properties, especially concentrating efforts in Bird Conservation Areas in southern Iowa. A near-term objective of this strategy is to increase the number of known barn owl nests in Iowa. Longer-term monitoring of nest boxes will serve as a proxy for monitoring barn owl population changes. The first phase of this strategy was to install at least 15 new nest boxes (on metal poles or sign posts) per year in plausible nesting areas (Years 1-5), beginning in 2016. Focusing the deployment of additional nest boxes in the vicinity of occupied nest boxes or incidentally-discovered barn owl nests will help define the extent of local populations. In 2016, +20 nest boxes were placed on poles in Kellerton BCA (Ringgold County), Lake Sugema BCA (Van Buren County), Iowa River Corridor BCA (Tama County), Coralville WMA in Johnson County, and several other sites.

A review of barn owl nesting records in the Iowa Natural Areas Inventory (NAI) database suggests that the barn owl may be sufficiently well-distributed (e.g. this owl has been documented to nest in 52 counties), although this species (currently) is not reported frequently enough to prompt a status review (Table 6.8). To date, there has been no systematic survey of barn owl nests in Iowa, and the vast majority of records in the NAI database are derived from reports from the public, from DNR employees, or from volunteers who have been asked to keep records on local barn owl sightings and nests.

Recent Barn Owl Nest Records: Following a harsh winter with above average snowfall and lower than average temperatures, 11 barn owl nests were recorded in 2014. There was one nest each reported in Story, Guthrie, Ringgold, Decatur, and Harrison counties and two nests each in Lucas, Taylor, and Jefferson counties. At least 22 young fledged from these ten sites. Barn owl presence was also noted in five other counties; including Plymouth, Dallas, Keokuk, Tama, and Franklin.

There were 15 barn owl nests documented in 2015. This included two nests each in Lucas, Taylor, and Marion counties and one nest each in Ringgold, Decatur, Wayne, Van Buren, Plymouth, Harrison, Guthrie, Polk, and Jefferson counties. At least 35 barn owl young fledged from these nests. Additional barn sightings occurred in Allamakee, Story, and Mills counties.

In 2016, barn owls were recorded to occur at 30 different sites in 23 counties. Nesting attempts were documented at 17 of these sites within the following 14 counties: Sioux, Franklin, Harrison, Jasper, Adair, Warren, Marion, Washington, Adams, Taylor, Ringgold, Decatur, Lucas and Wayne. There has never in Iowa's written history been this many wild barn owl nest attempts documented in one year. At least 29 barn owl youngsters fledged from these nest sites. Six of the nest sites were in nest boxes, and at least four of the successful nest sites were in hollow trees. While barn owls historically primarily nested in hollow trees, this appears to be the most tree nests reported in one year in modern times.

By 8 September 2017, 31 Iowa barn owl nests have been confirmed in 21 counties. Plus, there have been 23 single barn owl sightings in an additional ten counties. From 20 successful nests have fledged, at least, 59 young. More nest reports are anticipated. At least two nests were in nest boxes placed (November 2016) on metal poles within public wildlife areas in extreme southern Iowa. Thirteen nests were reported in or on metal grain storage bins, grain elevators, and silos. Four nests have been in cities or towns.

Discussion

The increased number of confirmed barn owl nests in Iowa may be related to the amount of Conservation Reserve Program (CRP) grasslands established in the state (a high of 2.2 million CRP acres in Iowa in 1997) during the past few decades, especially in southern Iowa. The quantity and quality of dense grassland habitats are significantly related to

barn owl nesting activity (Colvin and Hegdal 1988). The minimum amount of grassland habitat required to successfully raise a brood of barn owl young was observed to be 10-15 acres, within one mile radius of a nest site in Greene County, Iowa (B. Ehresman, pers. obs.). While there has been a substantial loss of grassland habitat in recent decades, the barn owl may be less impacted, as compared with more area-sensitive species, like short-eared owl (*Asio flammeus*) and northern harrier (*Circus cyaneus*) that require large landscapes of grassland. Harriers typically prefer to nest in areas larger than 100 ha (Johnson and Igl 2001), and short-eared owls typically nest in the same larger grassland landscape in which Northern Harriers nest (Sample and Mossman 1997).

Barn owls hunt opportunistically, have a high reproductive potential, and adapt to available nest sites. They readily use nest boxes when placed in suitable nesting or foraging habitats, and Colvin and Hegdal (1986) noted that the annual proportion of nests found in nest boxes was similar to that observed for tree cavities prior to box installation. Furthermore, vole densities are also associated with habitat quality for this species. One year of poor meadow vole abundance can result in a rapid population decline, while one year of substantial meadow vole abundance can result in rapid population recovery (Colvin and McLean 1986, Marti et al. 2005). Thus, where food and nest sites (artificial if natural sites do not exist) are available, and disturbance and competition with other predators are minimized, barn-owls should be able to become reestablished and persist.

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Figures

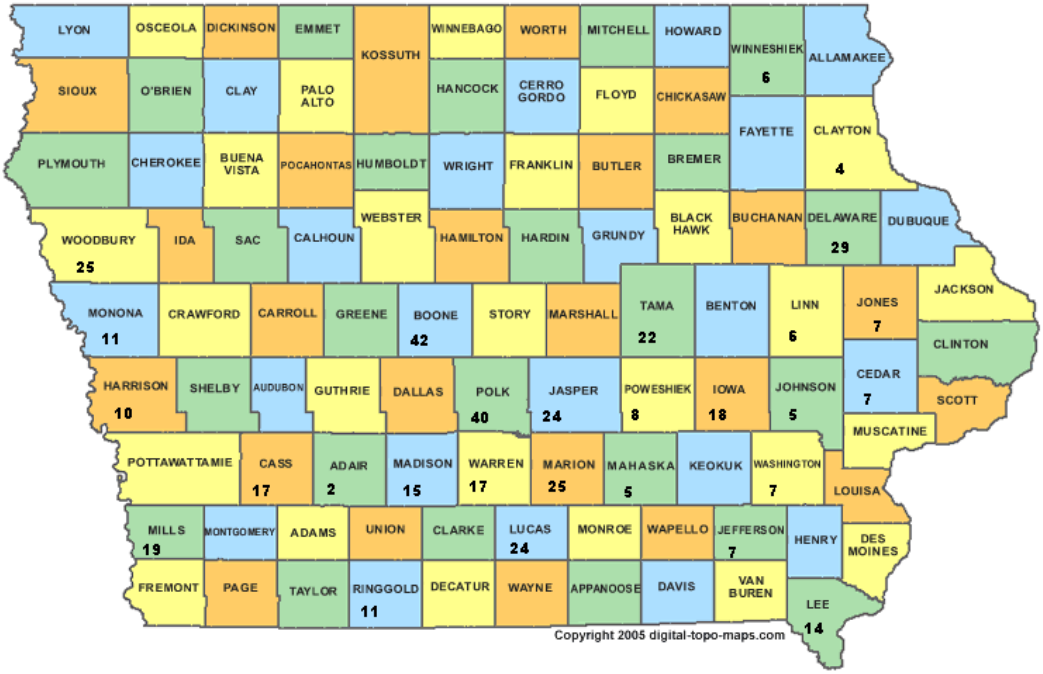


Figure 6.13 Number of captive-reared barn owls (427 total) released within each of 28 counties from 44 release sites from 1983-1987.

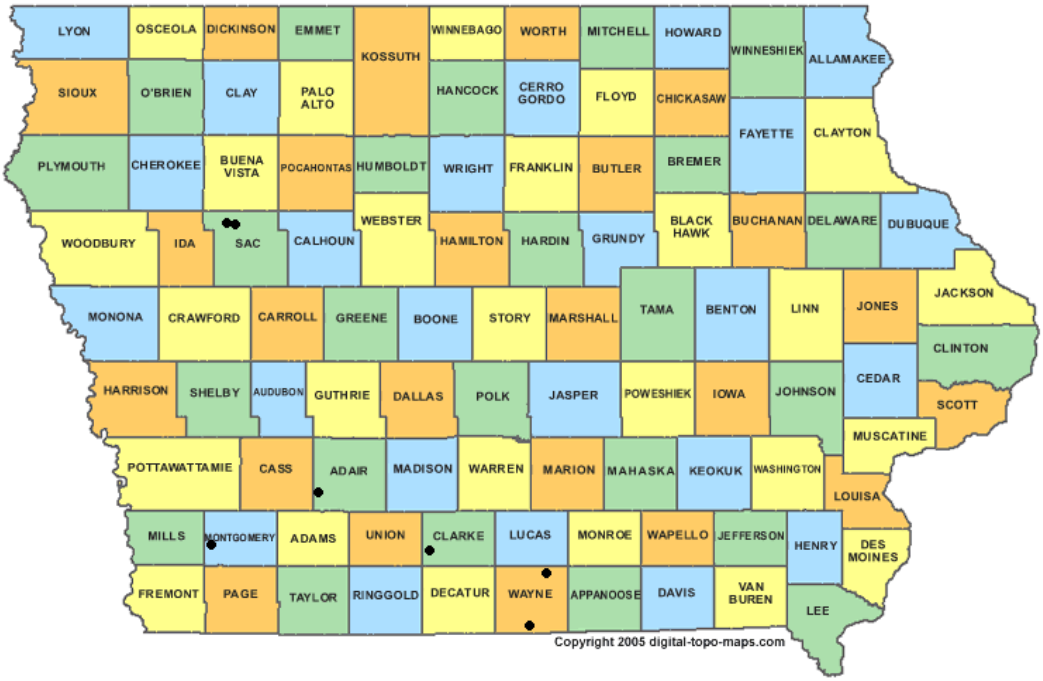


Figure 6.14 confirmed barn owl nests in 5 counties from 1983-1987.

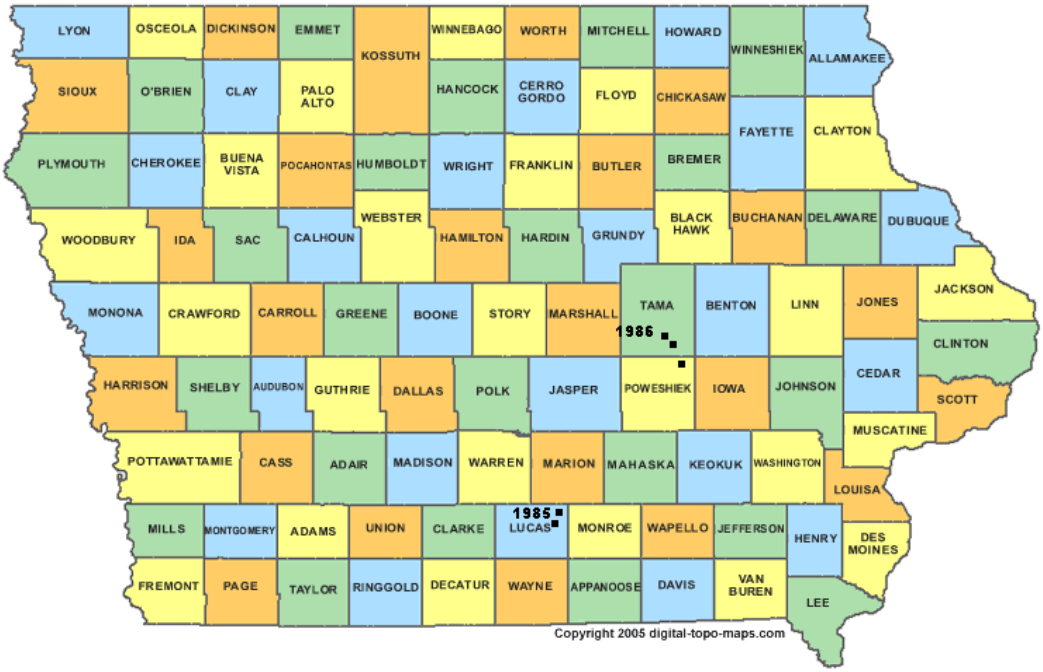


Figure 6.15 1985 & 1986 barn owl telemetry release sites.

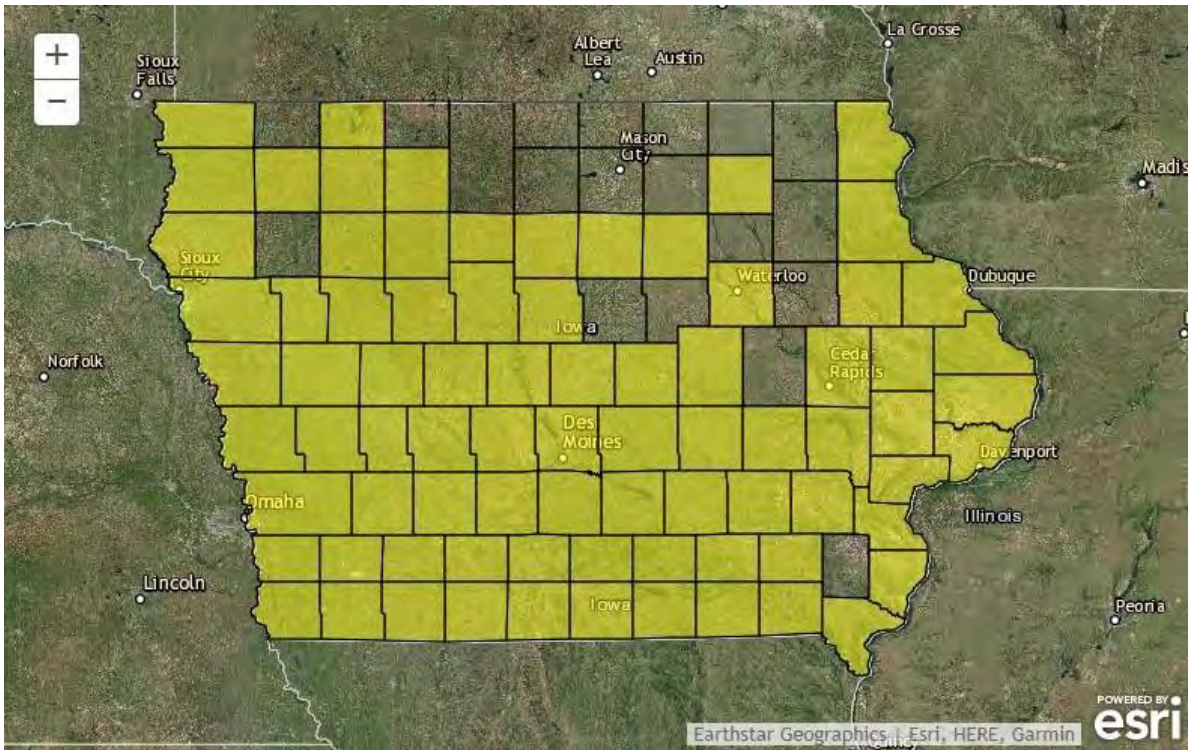


Figure 6.16 Barn owl sightings reported in 80 counties, 1975-2017.

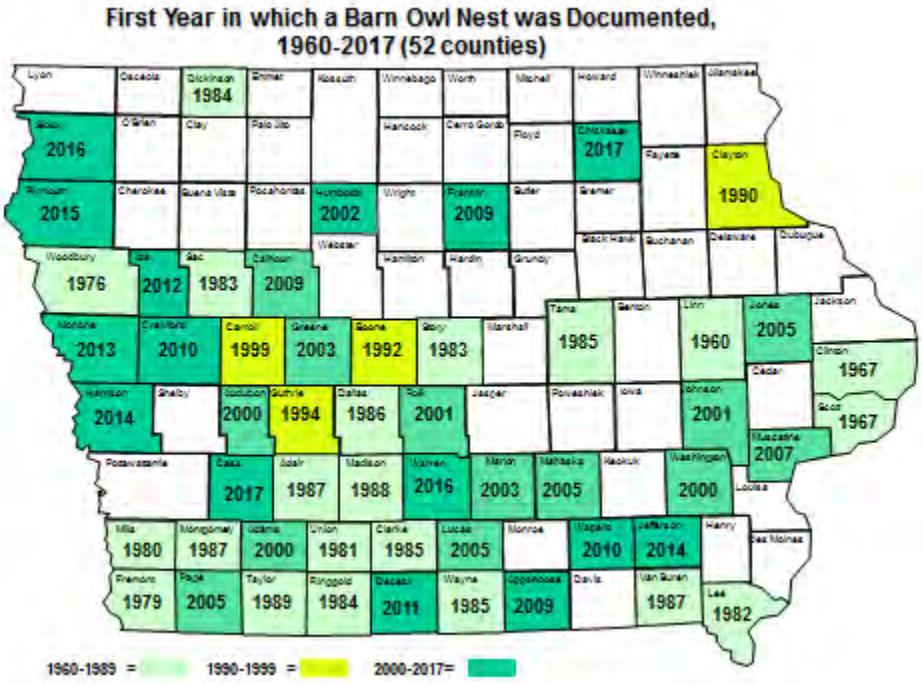


Figure 6.17 First year in which barn owl was documented nesting in each county 1960-2017 (52 counties total).

BBA 1 - 1985-1990 (861 Blocks)

1985-1990	Observed	Possible	Probable	Confirmed
46 (5.3%) BLOCKS	9	27	9	1
Grid Blocks	4	12	3	0
Priority Blocks	5	15	6	1

10 (1.2%) blocks were confirmed or probable

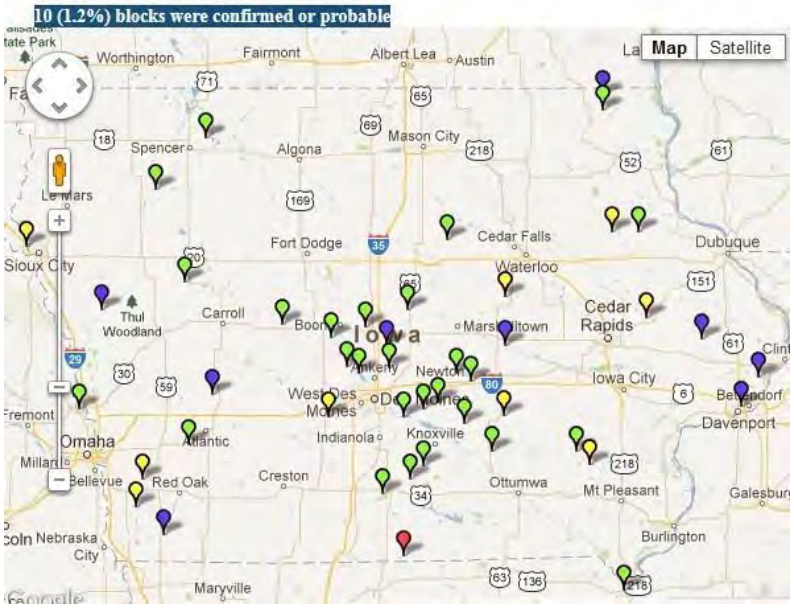


Figure 6.18 Barn owl Breeding Bird Atlas I records, 1985-1990.

BBA 2 - 2008 - 2012 (791 Blocks)

2008-2012	Observed	Possible	Probable	Confirmed
9 (1.1%) BLOCKS	1	3	2	3 (33.3%}
Grid Blocks (0.3%)	0	1	0	0
Habitat Blocks (2%)	1	2	2	3

5 (0.6%) blocks were confirmed or probable

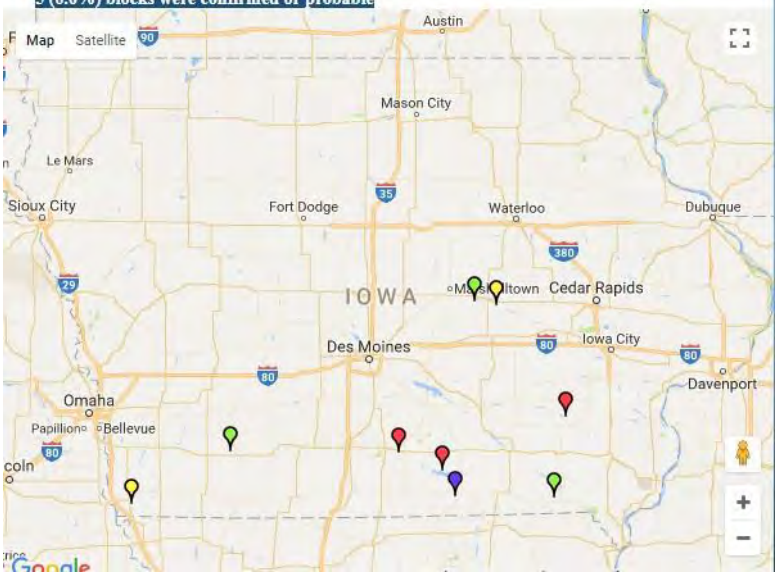


Figure 6.19 Barn owl Breeding Bird Atlas II records, 2008-2012.

Tables

Table 6.8 Number of nest records and number of counties with nest records of barn owls over the preceding three 5-year intervals, as reported to the Iowa Department of Natural Resources. At least 40 nest records from 15 counties in a 5-year interval are necessary to prompt a review of the barn owl's status in Iowa.

5-Year Interval	# Nest Records	# Counties With Nest Records
2001-2005	13	9
2006-2010	22	15
2011-2015	38	18

STATUS OF SELECTED OTHER SPECIES IN IOWA

Mountain Lion/Cougar Status in Iowa 1995-2016

The mountain lion/cougar (or puma, panther, and various other names) is the largest of the three wildcats historically documented in Iowa. The lynx and the bobcat are the other two. The mountain lion/cougar probably occurred throughout most of the state originally, but nowhere in great numbers. The lynx has been extirpated and the bobcat is established in Iowa again after nearly being extirpated. The last historical record of a mountain lion/cougar in Iowa was one that was shot in 1867 in Appanoose County near the town of Cincinnati, Iowa.

Since the mid-1990's, the DNR has received several reports of large "cat" like sightings which led some to believe that a few "free ranging" mountain lions/cougars may again be occurring in some portions of the state. These "free ranging" mountain lions/cougars could be either escapees, or released animals, privately owned, (grandfathered in before July 1, 2007 legislation to curtail the ownership of certain "dangerous wild animals") or they are fully wild animals dispersing from western and southwestern states. Southeast South Dakota, eastern Nebraska, northeast Kansas, Missouri, as well as Minnesota, Wisconsin, and Illinois, have reported increased mountain lion/cougar sightings during the past 15 years.

Confirmed Mountain Lions in Iowa

Figure 7.1 is a map showing mountain lion sightings reported to the DNR that were confirmed or highly probable confirmations (1995-2016). Tracks and/or sightings reported to us throughout the year are documented as confirmed, highly probable or unconfirmed after investigating the evidence. This past year (2016), the Iowa DNR had no confirmed mountain lion reports, (Table 7.1). So far in 2017, there have three confirmed reports of mountain lions in Iowa. However, we have multiple unconfirmed reports especially in the Polk County area of Iowa. Table 7.2 shows the number of confirmed mountain lions in Iowa by year. The following methods have been used to confirm the presence of mountain lions in Iowa to date: roadkills, shot and killed, verified camera pictures, verified tracks, and sightings (Table 7.3).

It is important to note that an average of 2-4 sightings per week are reported to us in the Clear Lake office from locations all over the state. This does not count all of the reports other DNR staff receive in their regions throughout the state as well. Over 2,000 mountain lion sightings have been reported since 2010. However, strong evidence in the form of legitimate tracks, photos, video or other evidence is necessary before we can officially place them on our map as "confirmed".

It is very likely that we have the occasional mountain lion wandering through or staying in our state for a period of time, however we have not documented a self-sustaining breeding population of mountain lions in Iowa at this time. **THE IOWA DNR HAS NOT 'STOCKED' OR INTRODUCED MOUNTAIN LIONS INTO THE STATE NOR IS THERE ANY CONSIDERATION OF DOING SO.**

With the methods of deer hunting that take place in Iowa, one would expect to get more reports of mountain lions during that time. Overall however, the 150,000+ deer hunters seldom report a sighting of a mountain lion during their hunting activities. We actually receive more reports of mountain lion sightings during the summer when wildlife cover is at its maximum than we do in the winter when it is at its minimum. It is an interesting trend and not exactly sure why.

DNA testing is used to determine the origin of mountain lions that are killed in Iowa whenever possible. The origin of the 5 dead mountain lions have been completed and results indicate that they are of North American origin. Results from that testing have shown strong indications that it matched DNA common to cats from the Black Hills region of South Dakota and parts of Nebraska and recently, Wyoming. There are some indications the only legal source of captive mountain lions/cougars should be of South American origin, although more study is necessary before that theory can be substantiated or discounted.

Currently the mountain lion has no legal status in the Iowa Code, thus they are not given any sort of protection by Iowa Law. Although the DNR does not advocate the indiscriminate killing of mountain lions, the few mountain lions that do wander into Iowa are often shot. The DNR requested that the 2002 legislative session consider legislation to designate the mountain lion and the black bear as furbearers, thus allowing the DNR to properly manage these species,

should their numbers increase. The DNR also requested that indiscriminate killing of these animals not be allowed unless they are about to cause damage or injury to property or persons. The legislation did not pass. Afterward, the Governor's office asked the DNR to not pursue mountain lion/cougar and black bear furbearer status in the Iowa Code in 2006, 2007, and 2008.

Depredation: This past year, we had some cases of livestock damage/depredation but none were positively confirmed as mountain lion. In almost all cases, it was from dogs or self-inflicted injuries on fences or gates around the stock pens or pastures. We also had a few unconfirmed reports of deer kills by mountain lions. Whenever possible, DNR staff made an effort to examine the evidence left at the scene before trying to say for sure what the predator might have been. Most depredation cases in Iowa are from canines (dogs or coyotes). It is possible for a mountain lion to attack/ depredate livestock; however again, we did not have any documented cases in Iowa in 2016 where we could determine for sure whether a mountain lion caused livestock damage. However, mountain lion research shows that white-tailed deer and other wild animals, especially mammals, are the preferred prey. Even so, predators are generally opportunists and if hungry they will take what is readily available.

In 2013 we had at least 3 reports (1 in Jasper, 1 in Allamakee, and 1 in Palo Alto County) from people who believe that they had seen mountain lion kittens.

In 2016, we didn't have any reports of mountain lion kittens. At this point most DNR personnel are skeptical of those reports because of a lack of evidence whenever an area is investigated. All mountain lions that have been killed in Iowa in recent years have all been reproductively immature 1 to 2 year old males, except for one mature male (4 yrs old). To date, we do not have a documented breeding population of mountain lions in Iowa. As of summer 2017, it should be noted that a mature female mountain lion currently has a territory in the far eastern part of Nebraska, across the Missouri River from Iowa.

Credible mountain lion sightings and tracks are important to the Iowa DNR. Two excellent websites to help with mountain lion track identification are http://www.bear-tracker.com/caninevsfeline.html and http://www.naturetracking.com/mountain-lion-tracks/. It is important to remember that all cat tracks are round in shape; with 4 toes and a heel pad that has 3 posterior lobes and a less than prominent M shape on the forepart of the heel pad (Figure 7.2). Adult mountain lion/cougar tracks are 4 inches or larger in diameter, whereas bobcat tracks are nearer to the 2 ½ to 3 inch range in diameter. All cats have retractable claws, thus the tracks they leave often show no claw marks except in unusual circumstances. When possible, good plaster casts or cell phone photos of suspected tracks will aid greatly in their identification. We will continue to monitor and map reliable sightings, but because there are still many mountain lion/cougar sightings that are reported with poor quality photos or video and so few tracks found, they are difficult to substantiate.

Safety Issues

The good news is that lions generally avoid humans. People are more apt to be killed by a dog or struck by lightning than attacked by a mountain lion/cougar.

Some safety do's and don'ts can be found at the Mountain Lion Foundation website, http://mountainlion.org/. Also the Eastern Cougar Network is a source of Mountain lion/cougar information. Their website is http://www.cougarnet.org/ (E-mail: mdowling@cougarnet.org).

Here are some suggestions on what to do in the remote chance you have a mountain lion/cougar encounter:

(1) Spread your jacket, coat or shirt above you head attempt to look larger.
(2) Hold your ground, wave, shout and don't run, as running stimulates the predator reflex (just like dogs) to pursue anything that runs away.
(3) Maintain eye contact if you sight a lion. Lions prefer to attack from ambush and count on the element of surprise
(4) If small children are present, or if there are several people in your group, gather everyone very close together. Mountain lions are not predators of large groups.

In the past 110 years 66 people have been attacked by mountain lions/cougars, resulting in 61 injuries, 19 of which were fatal, and none occurred in Iowa. In 2010, the DNR published a 4 fold brochure on the Status of Mountain Lions/Cougars in Iowa for the State Fair. The brochure is available on the Iowa DNR website and we send it out whenever needed to interested individuals or the media. This brochure is updated annually.

Since the first modern reports of mountain lion/cougars sightings began to increase significantly in 2001, Ron Andrews (previous Iowa DNR Furbearer Biologist, now retired 2011) gave well over 250 public informational meetings statewide regarding the status of mountain lions/cougars in Iowa and the Midwest. This was done to educate the public about Mountain Lions and help with their concerns. More mountain lion information has been put on the DNR's website and outreach efforts continue. It's important to the Iowa DNR to work with the public on this topic.

Figures

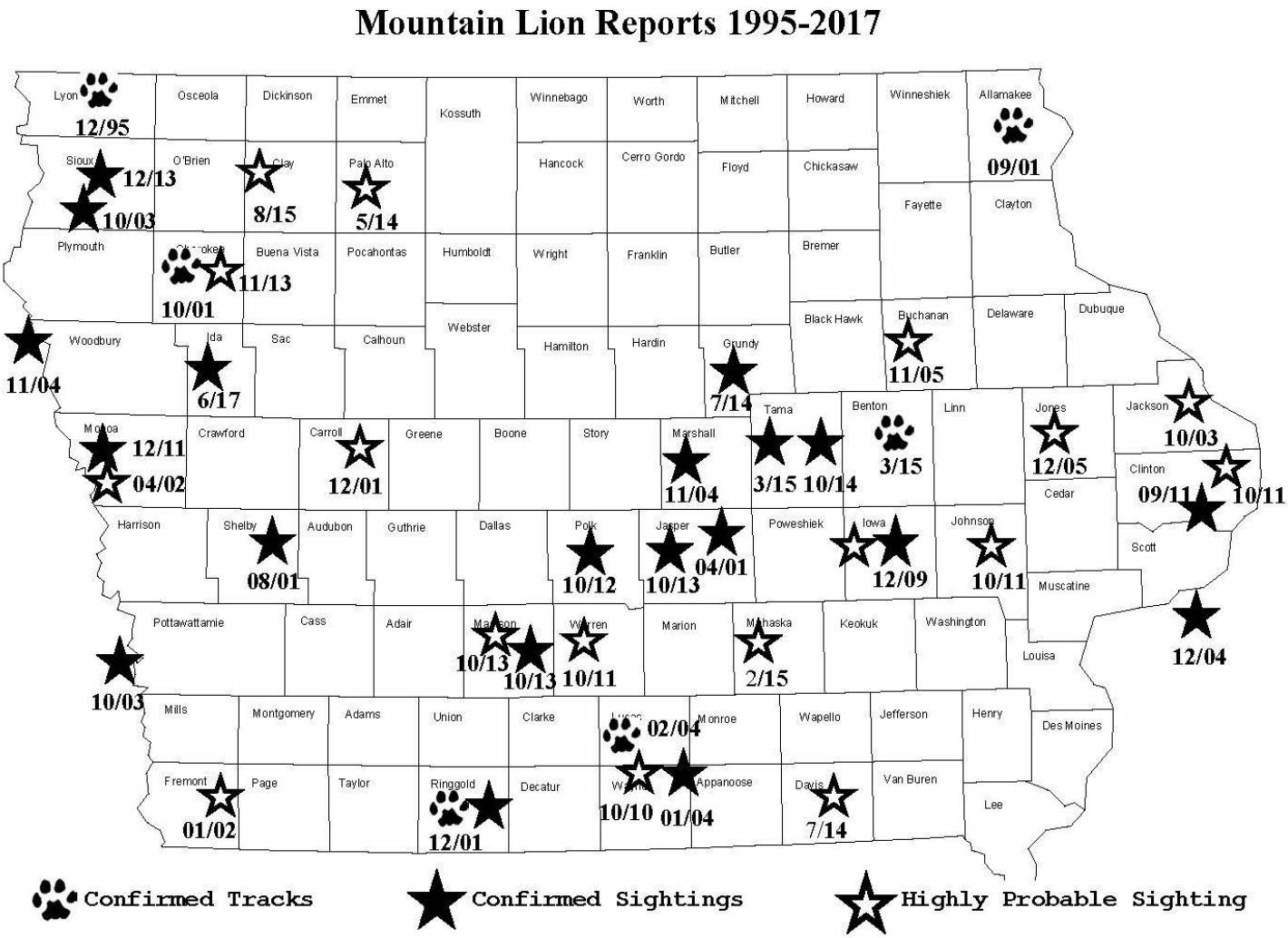


Figure 7.1 Map of Iowa showing the locations of confirmed mountain lion reports

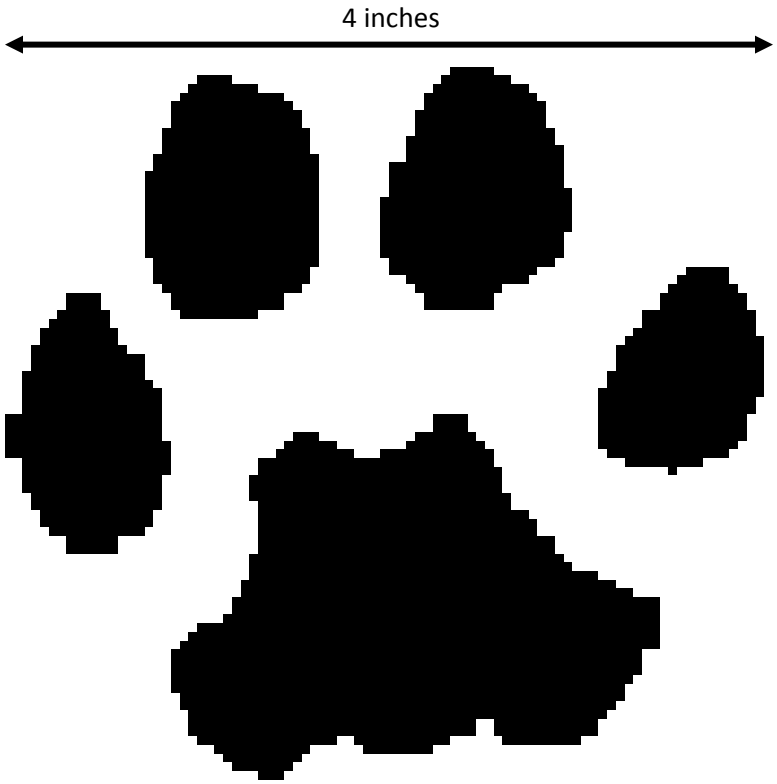


Figure 7.2 Typical Mountain Lion track.

Tables

Table 7.1 Confirmed Mountain Lions in Iowa (2001 – 2015).

November	2004	Sighting	Woodbury
November	2004	Trail Camera Pictures	Marshall
December	2004	Sighting	Scott
December	2009	Shot	Iowa
September	2011	Trail Camera Pictures	Clinton
October	2012	Shot	Polk
October	2013	Trail Camera Pictures	Warren
December	2013	Shot	Sioux
July	2014	Tracks	Grundy
October	2014	Trail Camera Pictures	Tama
March	2015	Tracks	Benton
June	2017	Shot	Ida
August	2017	Trail Camera Pictures	Clay
August	2017	Trail Camera Pictures	Cherokee

Table 7.2 Confirmed Mountain Lions in Iowa by year (1995 – 2015).

1995	1
2001	5
2003	2
2004	5
2009	1
2011	1
2012	1
2013	2
2014	2
2015	1
2016	0
2017	3
Total	24

Table 7.3 Method of confirmation for Mountain Lions in Iowa (1995 – 2015).

Confirmation Method	No. of Mountain Lions
Sightings	4
Tracks	7
Pictures	5
Shot	6
Roadkills	2
Total	24

Black Bear Status in Iowa (2001-Present)

Black bears were one of the most recognizable and noticeable mammals encountered by Europeans as they settled North America. As settlers moved west, they generally killed any bears they encountered. Thus, black bear numbers declined rapidly in many areas and disappeared from much of their former range. Most present-day Iowans probably associate black bears with some of our large national parks and do not realize they once occurred in Iowa. When the settlers reached Iowa, they found them widespread throughout the state but higher numbers occurred where there were more woodlands. Bears were killed because they would damage crops, harass and kill livestock, and because they were valuable both as food and for their hides. Several black bear stories of the exploits of early-day "Davy Crocketts" in Iowa have been recorded in journals and diaries.

There are pre-1900 records of black bears from 48 Iowa counties, two-thirds of them from counties in the eastern half of Iowa. The last recorded historical bear sighting in the 1800s was one killed near Spirit Lake in 1876. Although a Fish Commission had been established in 1873 nothing really happened in terms of Game/Wildlife legislation until after the last black bear had disappeared. Thus they are not recognized as a designated wildlife species in the Iowa Code. In the 1960s, black bear reports began to occur in the state. Several of these reports were from captive bears that were either turned loose or were escapees. In the 1990s through the present, we began to field more reports of what appeared to be wild free ranging black bears in the state. Currently, the nearest established wild populations of black bears are in Wisconsin, Minnesota, and central/southern Missouri. These populations are expanding their range towards Iowa from both the north and south. Figure 7.3 shows the most recent sightings of bears in Iowa – including those in 2016. Many of those confirmed reports are occurring in northeast/eastern Iowa. During 2002 alone, there were at least 5 different fairly reliable black bear sightings. In 2003 and 2004, no reliable sightings were reported. However during the spring and

summer of 2005, the Iowa DNR received its first modern day black bear depredation complaint. In Allamakee County, a black bear reportedly was marauding several beehives in a few scattered locations foraging on both the bees and the honey. In 2008, 5 black bear sightings occurred, 1 in each of the following counties: Davis, Johnson, Winneshiek, as well as one shot in both Franklin and Fremont counties a week apart. Although not validated, the circumstantial evidence seems to indicate the one shot in Franklin County may have been and escaped or released bear while the one in Fremont County appears to be wild as it had been seen in Missouri, just days before it was killed just across the border from where it was last seen in Missouri.

In July (2009), a male black bear entered the northeast part of the state and paralleled the eastern Iowa border south before crossing the Mississippi returning to Wisconsin. This bear crossed the Mississippi River near Harpers Ferry in Allamakee County moved westward then south and basically paralleled the river southward to near Clinton. Then it crossed the Mississippi River near Green Island, Iowa back into Wisconsin then northward to Baraboo, Wisconsin where it became impossible to keep track of it because it had no specific markings.

During May of 2010, there was a reliable report of an adult black bear and a yearling spotted just west of Marquette, IA (Clayton County) feeding at bird feeders. In late May, 2010, a smaller bear, probably a yearling, was witnessed in northwest Mitchell County near Carpenter, IA. In early June, a bear was seen north of Northwood (Worth County) near the Iowa/Minnesota border. Observations of this bear were also reported in southern Minnesota. It would seem unlikely that this bear was the same one reported near Marquette as it was not reported at any point between and in Iowa that would be unusual as there is so much open territory to see the bear. All indications are that these were wild, free ranging bears, not bears released or escaped from captivity.

In October 2010 a black bear was sighted in and around the Yellow River Forest in Allamakee County. This prompted the Iowa Department of Natural Resources to issue a warning for people to avoid the animal at that time. This bear is likely a young male that moved into Iowa from southern Wisconsin where there is a healthy wild bear population.

In September 2011, a black bear was sighted in Winneshiek County. Again, this is likely to be a wandering bear from southeast Minnesota or southwest Wisconsin. A few unconfirmed reports came from Mitchell County along the upper Cedar River as well.

In May through June 2012, a black bear was sighted multiple times in northeast Iowa. From field reports, it seemed to make a loop through the following counties: Winneshiek, Fayette, Chickasaw, Mitchell, Howard, and back to Winneshiek where it was last seen moving in a northerly direction. No further confirmed reports came to us after that possibly indicating it moved back into southeast Minnesota. Further reports of black bear sightings occurred there through the summer 2012.

In 2013, there were no confirmed reports of black bears in Iowa.

In 2014, there were at least 3 separate reports of black bears in Iowa. In late May, one adult bear was sighted twice in Winneshiek County three to five miles east of Decorah. In June and July scat and a trail camera photos were observed eight to ten miles east of Decorah in Allamakee County – likely the same bear. In July and October, another bear was observed with trail camera photos in Fayette/Clayton counties, and a third bear was reported in Ringgold County. The bear seen in the Fayette/Clayton county area was reported to have two cubs with it, but the DNR hasn't been able to confirm this. This bear(s) is has also raided beehives causing extensive damage to the bee owner's hives.

In 2015, there were at least 3-4 black bears reported several times as they moved around northeast Iowa – 2 of which were killed. The following is a summary of reported bears.

- 3/14/15 small bear reported near Marquette (Clayton Co)
- 5/2/15 decent sized (6 ft long) male bear found dead by mushroom hunters (Fayette/Clayton Co border). Probably one of the honey bee raiders from previous year.
- 5/25/15 Confirmed several reports of bear(s) in Dubuque area
- 6/5/15 Two confirmed bear reports today. One near Jesup and the other between Colesburg and Edgewood. Likely one or both bears seen in Dubuque area.

- 6/7/15 Confirmed bear reported in Cedar Falls (Black Hawk Co) area
- 6/10/15 Two confirmed bears reported - one in Delaware Co, one in Black Hawk Co
- 6/12/15 Confirmed bear reported in Rockford, then Rockwell (Cerro Gordo Co),
- 6/13/15 confirmed bear south of Osage (Mitchell Co).
- 6/14/15 Confirmed roadkill bear (subadult male) on Hwy 20 east of Jesup.
- 6/16/15 confirmed bear reported in Chester, IA/Lyle, MN area
- 6/22/15 (Unconfirmed) two bears together reported in Worth Co, near Worth Co Lake – no other reports on these two bears

In 2016, at least three bears were confirmed in Iowa. At least one bear, likely two, were again confirmed in northeast Iowa. One was reported in Winneshiek County and a second bear reported in the Allamakee/Clayton County area. That bear is believed (from reports) to have travelled around the area until it was struck by a truck and killed on Hwy 76. This animal was taken to a taxidermy shop and will be on display at the Allamakee County Nature Center. Table 7.4 shows the number of bears confirmed in Iowa since 2002. The location of bears seen around the state is also recorded. Northeast Iowa is the most common region for sightings of black bears (Figure 7.3).

Black bear sightings are usually more reliable than mountain lion/cougar sightings because they are very distinct in appearance and do not necessarily flee when sighted. Also bear tracks are very distinct, and they are not readily mistaken for other animals. Black bears, like mountain lions/cougars, have no legal status in Iowa. That means they aren't protected. The DNR continues to consider legislation to give both species legal furbearer status in the Iowa Code. The Governor's office has discouraged the DNR from pursuing legal status of the black bear and mountain lion/cougar because of bio-political conflicts between agriculture and these two wildlife species.

The effort to give them furbearer status needs to be pursued in the future. This would allow appropriate wildlife management to occur which would include opportunities to handle nuisance black bear complaints.

A lot of emotion is generated when one of these bears are killed. Where possible, we should discourage the indiscriminant killing of black bears unless there are concerns for human, pets, or livestock safety. Bears are omnivores, primarily vegetarians, foraging on seeds, fruits, berries and other plant material but given the hunger and need they will feed upon animals as well. Human tolerance will be the deciding factor as to whether black bears would ever reestablish a breeding population again in Iowa. If they do, their numbers would likely remain quite small.

Figures

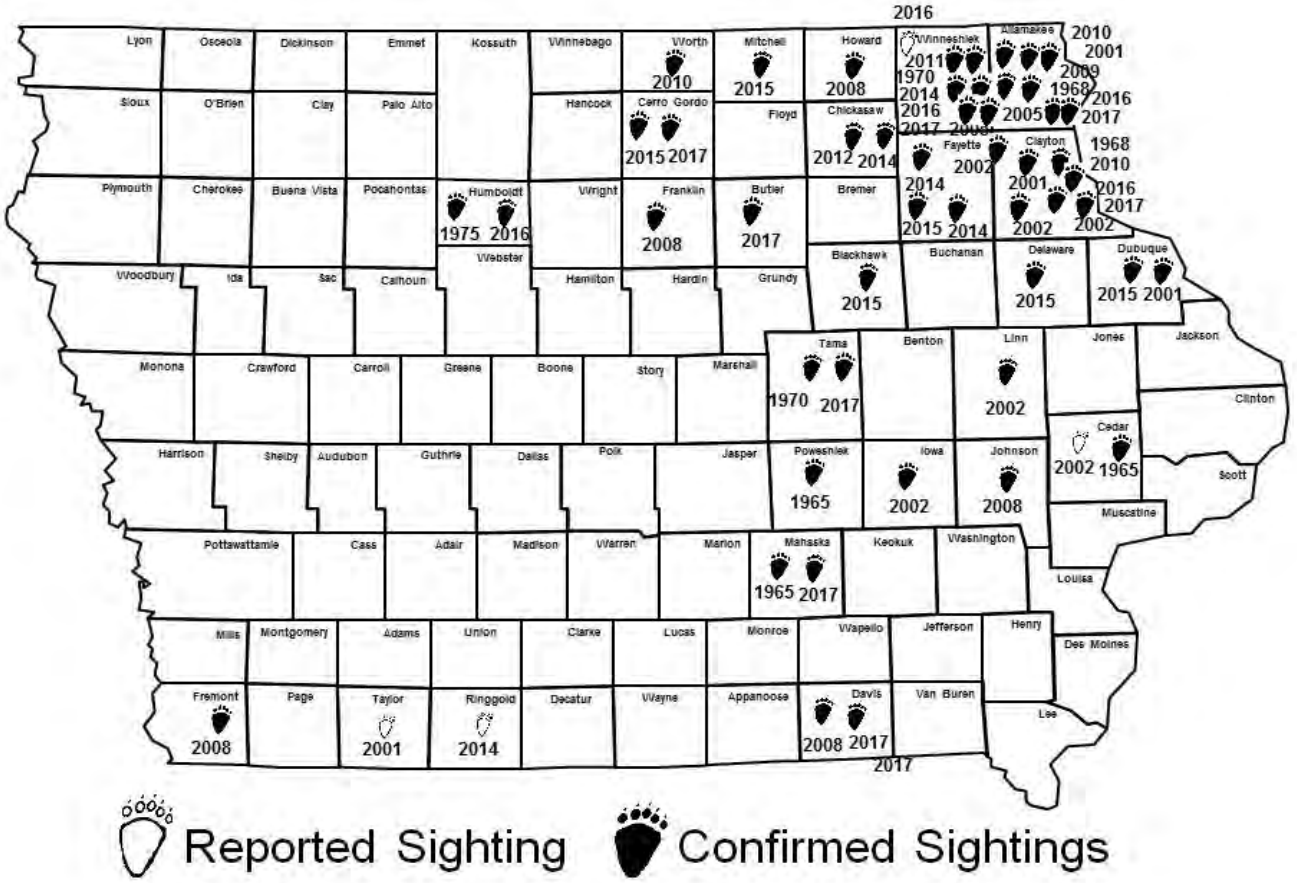


Figure 7.3 Black Bear sighting locations in Iowa.

Tables

Table 7.4 The number of confirmed black bears in Iowa by year 2002 – 2017.

2002	5
2003	0
2004	0
2005	1
2006	0
2007	0
2008	5
2009	1
2010	3
2011	1
2012	1
2013	0
2014	3
2015	4
2016	3
2017	5
Total	32

Gray Wolf (Timber Wolf) Status in Iowa (2001-Present)

Two large wolf-like mammals were frequently encountered by early settlers in Iowa. While Iowa was still part of the Louisiana Territory, in the early 1800s the very first piece of wildlife legislation was that to encourage killing wolves. Much of the legislation centered on bounties. There are no known specimens preserved in museums from the state. Historians usually did not distinguish between the gray (timber) wolf, *Canis lupus* and the coyote, *Canis latrans* often called the "prairie wolf." Both species were greatly persecuted and until very recently, only the coyote remains and thrives in the state.

Two different subspecies of gray wolf occurred in Iowa. The Great Plains wolf (a name that causes considerable confusion because the coyote which was often given a similar name, the prairie wolf), was found over the western two-thirds of the state. The Great Plains Wolf followed the bison herds, feeding on the stragglers from the herd as well as other prey (Dinsmore, 1994). The other subspecies was the gray (timber) wolf found primarily in eastern Iowa, especially in the wooded northeastern corner of the state. Gray wolves were likely extirpated by the late 1800s. Bowles (1971) regards the last valid wolf record to be from Butler County in the winter of 1884-85. A timber wolf taken in Shelby County in 1925 appeared to be wild, but it also could have escaped from captivity before being shot. Gray wolves often fed on the domestic animals that settlers brought to Iowa, and there are numerous reports of them killing chickens, pigs, calves, and sheep in Iowa. Gray wolves were fully protected in all the 48 states in August of 1974 under the Endangered Species Act (ESA) of 1973.

Great Lakes Population of Gray Wolves

In 1978, this population of wolves were reclassified (down-listed) from endangered to threatened under the ESA in Minnesota. The USFWS administers the ESA. The USFWS is working to allow more state rights' management of gray wolves and other resident species. Taking the gray wolf off the endangered/threatened list has continued to generate considerable controversy between wildlife professionals and animal rights' activists. Public review and input of this effort continues.

Both Minnesota and Wisconsin were allowed to move forward with their first modern day wolf harvest season that first took place in the Fall/Winter 2012.

On Feb 20, 2015 the Great Lakes Gray Wolf population was again put back on the Endangered Species List due to a court order.

Rocky Mountain Population of Gray Wolves

The Rocky Mountain wolf population was delisted from threatened on July 18, 2008 which allowed them to be legally harvested with approved state management plans, however an injunction by animal rights activists placed them back on the Threatened List which in essence gave them protection again. Court disputes between activist groups, ranchers, and government agencies continued for the next few years. The Rocky Mountain population was officially delisted from Endangered and Threatened Status on March 6, 2009. The back and forth between federal protection or delisting has continued since. However, many western states now allow wolves to be readily killed if there is concern for the welfare of livestock. Numerous animals have, in fact, been taken since this occurred.

Gray Wolf Status in Iowa

Unlike the mountain lion and the black bear, the gray (timber) wolf is designated as a furbearer with state protected status under the Iowa Code. Gray wolves likely have protection status because they were not clearly separated from the coyote in early bounty legislation, while Mountain Lions and Black Bear had basically been extirpated before any wildlife legislation occurred. Thus wolves are listed as a furbearer under Iowa code and are protected by state law. We currently have a closed season but a gray wolf could be killed if it was causing livestock damage. With the Great Lakes population of gray wolves again listed as threatened and endangered by the US Fish and Wildlife Service, they also have federal protection status in Iowa.

Beginning in the mid-1990s, a few wolves were appearing in west-central Wisconsin and southeast Minnesota which is approximately 75 miles from the Iowa border. It's very likely major river corridors, especially the Mississippi River, in this tri- state region (MN, WI, IA) serve as travel corridors for wolves. Because this Driftless region is relatively rugged there is

some habitat available that is conducive to wolves. It's not likely that wolves will visit Iowa often, nor in high numbers, however it is entirely likely for the occasional wolf to come down into Iowa from Minnesota or Wisconsin (Figure 7.4).

In October of 2000, a radio collared wolf from Michigan was shot and killed near Kirksville, Missouri. This animal traveled over 600 miles (Straight line from where it was radio collared to where it was killed) and could have actually moved through a portion of Iowa before being killed in Missouri. Kirksville is located about 50 miles south of Bloomfield, IA.

On November 15, 2002, a wolf was shot in Houston County, Minnesota which is adjacent to Allamakee County, Iowa; the northeastern most county of Iowa. Two known wolf-like animals were taken in 2010 in Sioux and Guthrie County.

Wolves are very mobile animals and as they extend their range southward more will likely frequent Iowa. The distribution of gray wolves in Wisconsin and Minnesota's is being actively documented (Figure 7.5). Indications from both states, especially Wisconsin, are of some trends in wolves colonizing in a southward direction in recent years.

During 2009 through 2012, a few reports came from people seeing what they believed were gray wolves in Iowa on a more frequent basis. For example, one (unconfirmed) report was in Jefferson County in July 2012.

2013

There were no confirmed reports of wolves in Iowa for 2013. However, there were some additional reports to the Iowa DNR that weren't able to be confirmed. Missouri and Illinois both reported 2 – 4 documented wolves in their states in 2013.

2014

In 2014, the Iowa DNR was able to confirm that two female wolves were shot and killed. One was shot in February in Buchanan County, the second was shot in Jones County. Both weighed close to 70 pounds and neither showed indications that they had whelped. It is likely they were both 2 year olds based on tooth wear, body size, and other features. DNA evidence on one wolf indicated it matched somewhat with the Great Lakes population of wolves. It is likely both of these wolves travelled on their own into Iowa from MN, WI, or MI. Missouri also reported a female gray wolf was shot in the south eastern part of the state in January 2014.

2015

There were three separate, confirmed reports of gray wolves in Iowa. One wolf was confirmed in February via trail camera in Jackson County. A second gray wolf was shot by coyote hunters in December in Osceola County. This wolf was a male that weighed approximately 99 lbs and tooth aged at 1+ years old, meaning this wolf was about 18 months old. The third wolf was shot in Van Buren County by a deer muzzleloader hunter. This wolf was a male that weighed approximately 103 lbs and tooth aged at 1+ years old also. It is likely all three wolves dispersed from the Great Lakes states of MN, WI, or MI. However, DNA testing could not confirm this for sure.

2016

During 2016, we had 9 unconfirmed reports and 0 confirmed reports of gray wolves in Iowa (Table 7.5).

It is possible that we may continue to have a roving wolf move into or through our state on rare occasion, but it's important to understand that we don't have a breeding population at this time. Time will tell whether or not a breeding population of gray wolves will become established in Iowa. Because gray wolves, at a distance can be readily mistaken for coyotes or in some cases dogs, many reports will likely be cases of mistaken identity. Modern day coyote hunters should take extra care to identify their target before shooting because it's now possible (although the chances are small), that it could be a gray wolf.

Figures

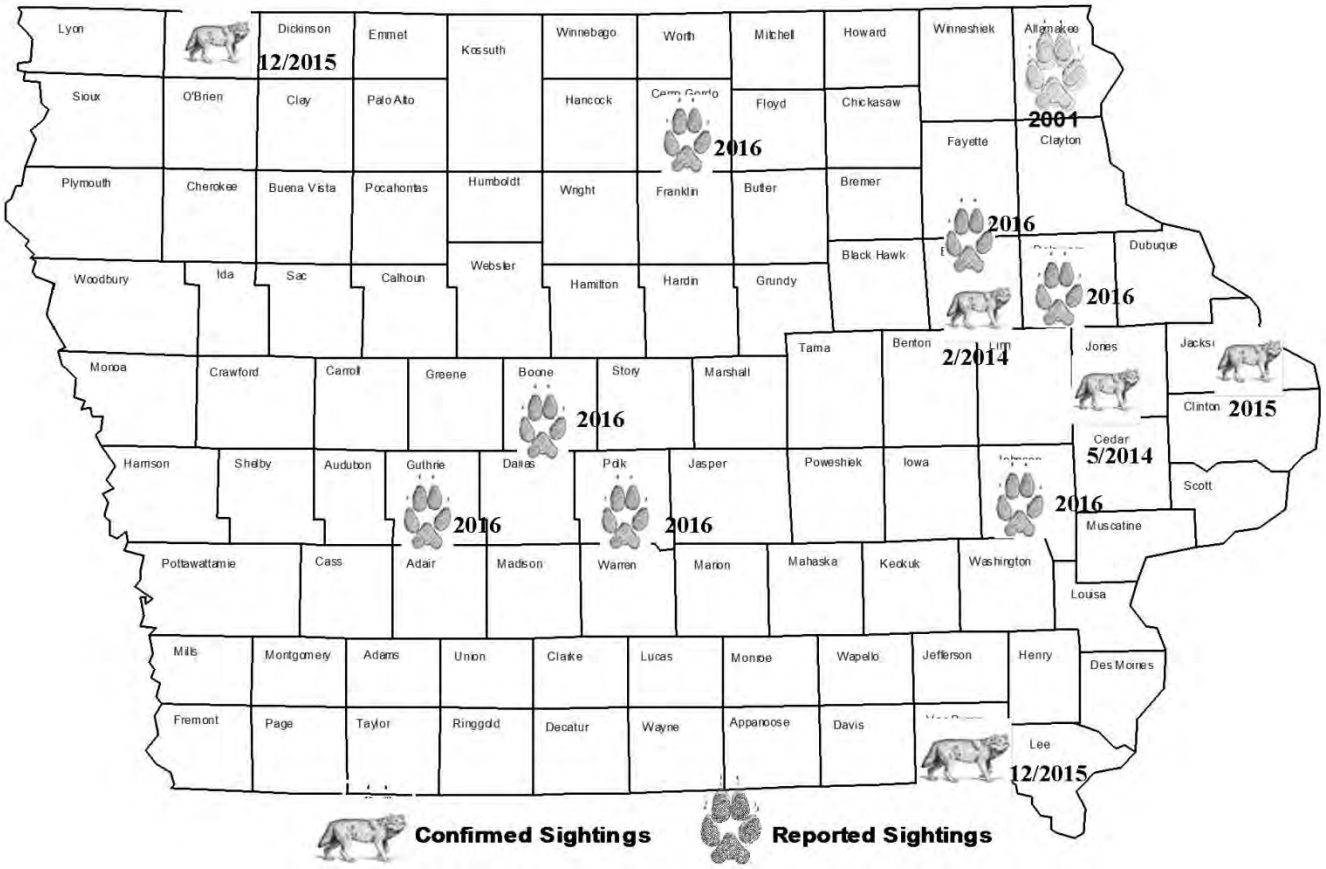


Figure 7.4 Gray (Timber) Wolf Sightings in Iowa

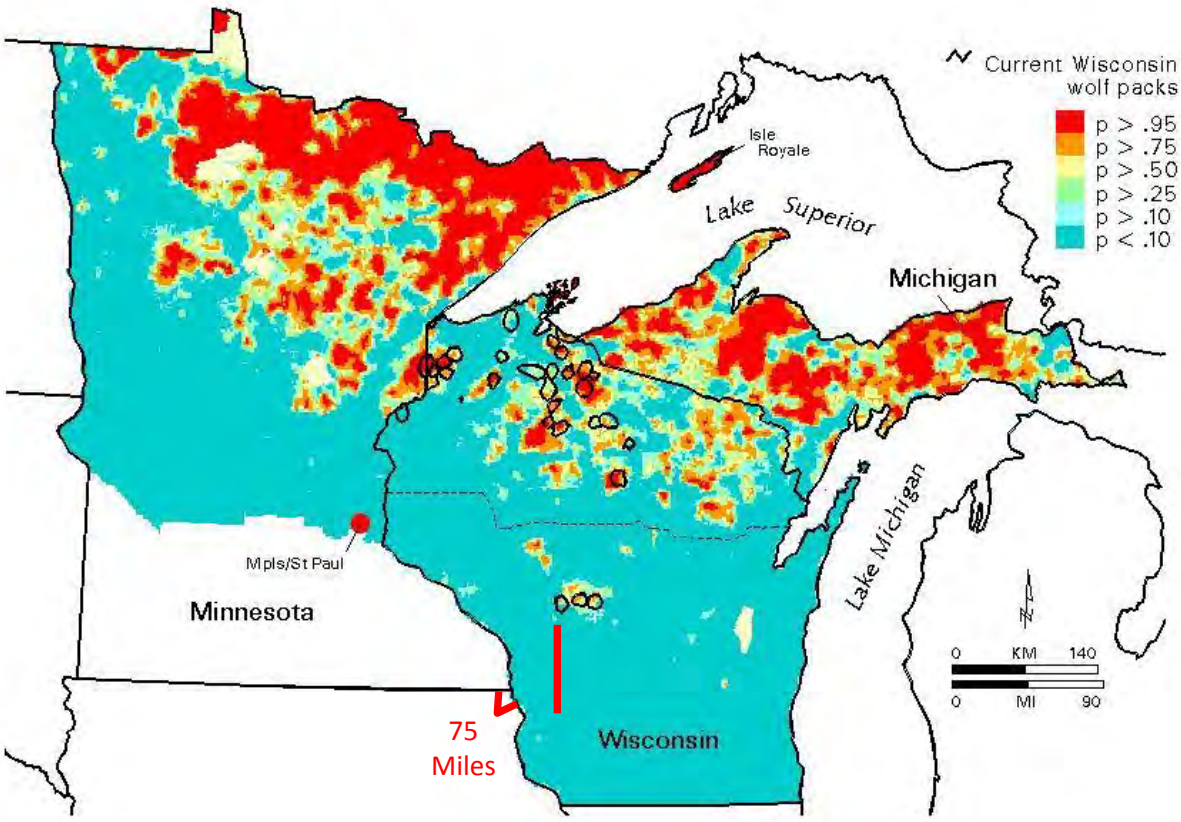


Figure 7.5 Favorable Gray Wolf habitat and pack locations in the Northern Great Lakes Region
Source: http://www.timberwolfinformation.org/info/wolves/prob1.jpg

Tables

Table 7.5 Public reports of wolf sightings in Iowa by year (2012 – 2014).

Year	Confirmed Wolf Sightings	Unconfirmed Wolf Sightings
2012	0	2
2013	0	1
2014	2	4
2015	3	1
2016	0	9
Total	5	17

A few unconfirmed wolves were reported for the years (1938 – 2012). Unconfirmed wolf sightings began being documented better in 2012 as shown in the table above.

PRIOR RESTORATIONS (WITHOUT 2016-2017 ACTIVITIES)

Ruffed Grouse
Wild Turkeys
Canada Geese

(Archived in 2002 http://www.iowadnr.gov/portals/idnr/uploads/hunting/logbook_2002.pdf)

2016 BOW HUNTER OBSERVATION SURVEY

Iowa Department of Natural Resources

Andrew S Norton, PhD, Biometrician, Iowa DNR
William R Clark, PhD, Professor Emeritus, Iowa State University

The Iowa Department of Natural Resources (DNR) solicited responses from bow hunters for the annual Bow Hunter Observation Survey conducted from October 1 to December 2, 2016. This was the thirteenth year of the survey, which was designed jointly with William R. Clark, emeritus Professor at Iowa State University. The two primary objectives for this survey are to: 1) provide an independent supplement to other deer data collected by the DNR; and 2) develop a long-term database of selected species data for monitoring and evaluating relative species abundance. Bow hunters are a logical choice for observational-type surveys because the methods used while bow hunting deer are also ideal for viewing most wildlife species in their natural environment. In addition, bow hunters typically spend a large amount of time in bow stands: more than 40 hours/season is not uncommon. We believe avid bow hunters (defined as those purchasing a license three years in a row prior to the survey year) are the best hunters to select for participation in this survey because they not only hunt often, but they also have the most experience in selecting good stand locations, controlling or masking human scent, using camouflage, identifying animals correctly, and returning surveys.

Participants for the 2016 survey were selected either from a list of avid bow hunters that indicated interest in participating based on a pre-survey and respondents from at least one of the past two years, or from a list of bow hunters who had purchased a license for each of the 3 years prior to 2016. Our goal was to select approximately 999 bow hunters in each of Iowa's 9 climate regions. Each climate region contains approximately 11 counties, and approximately 91 bow hunters were selected per county in an effort to evenly distribute observations in each region. Selection of participants consisted of a 3- step process. In each county, participants were first randomly selected from a core group of avid bow hunters 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 bow hunters 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 8,992 bow hunters was selected for participation. Of surveys mailed, 183 were either returned due to USPS address issues or hunters indicated they did not hunt this year, making the final statewide sample 8,809.

Responses were obtained from 2,033 bow hunters who recorded their observations during 27,504 hunting trips, yielding 93,273 hours of total observation time (3.39 ± 0.053 hours/trip; mean ± 95% CL). Bow hunters reported a median of 12 trips during the 63-day season. Regionally, the number of bow hunting trips (and hours hunted) ranged from 1,897 (5,722 hours) in northwest Iowa (Region 1) to 4,389 (14,353 hours) in northeast Iowa (Region 3). The raw survey response rate was 23.1%, an 8% increase from last year, which increased confidence in the results. We kindly thank all bow hunters that participated in the survey efforts this year.

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. There was high precision for total deer estimates, and confidence limits were within ±10% of the mean estimate. Precision among estimates for other common species, such as wild turkeys, coyotes, and raccoons, was good: confidence limits were generally within ±20 to 30% of the mean estimate. Less common or visible species, such as bobcat, house cat, opossum, red fox, and skunk, precision was lower, but still adequate for inference about annual trends. Precision and sightabilty for badger, grey fox, and river otter was likely too low to provide reliable annual mean estimates at the regional scale. However, long-term (e.g., 10 year) temporal trends may be inferred at the region level for these species.

A comparison of results from 2005 to 2016 suggests that the number of total deer observed/1,000 hours has decreased or stayed the same across all nine regions of Iowa, except for the northcentral region where an increasing trend was observed, and the southcentral region where the trend was relatively stable. Turkey observations from 2005 to 2015 generally decreased across all southern, west central, and east central regions, and stayed the same for northern and central regions. Bobcat observations/1,000 hours remain very low in regions 2 and 3, while regions 7, 8, and 9 appear to

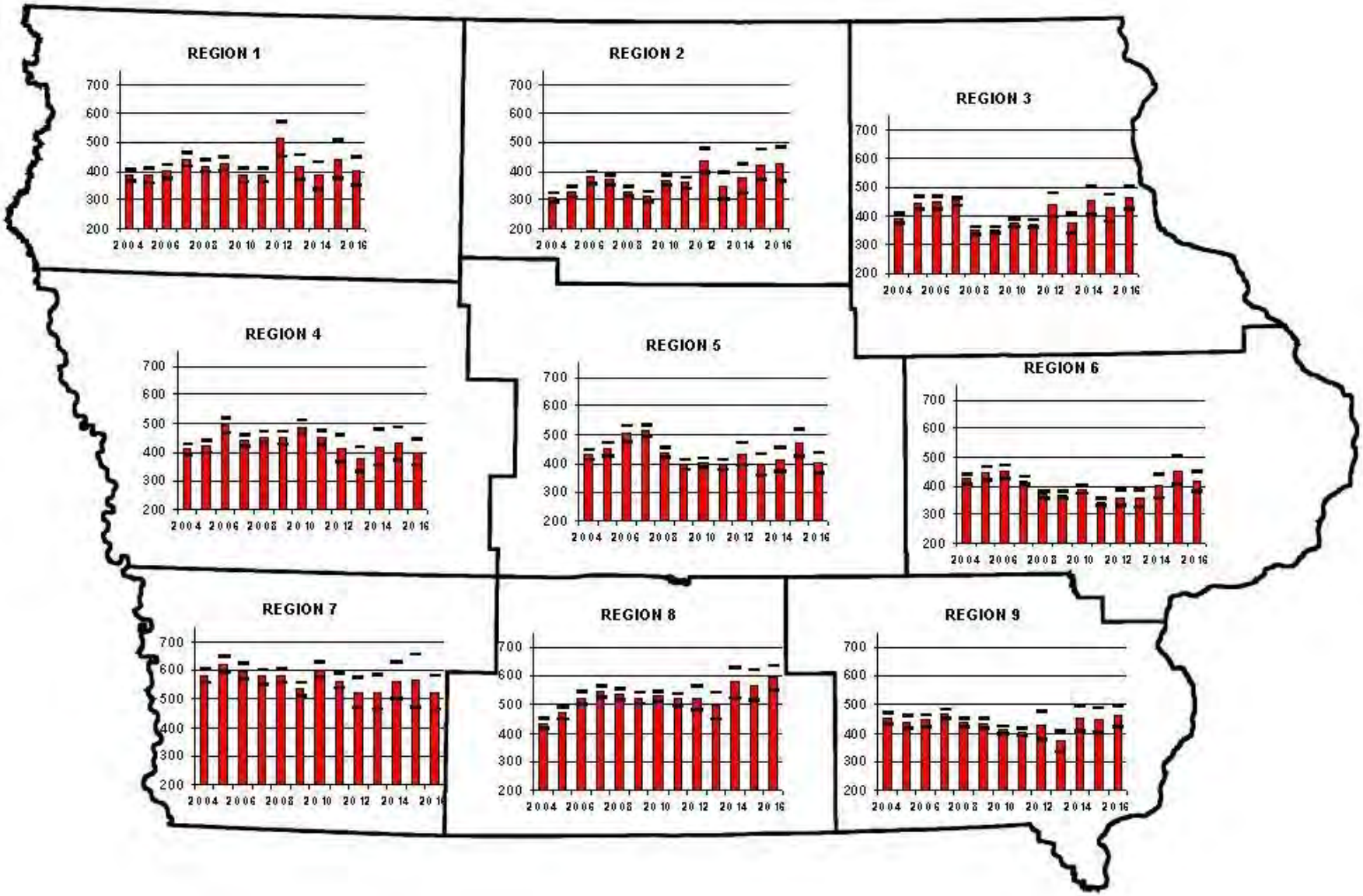
have a consistent observation rate with previous years. Although observation rates were relatively low, it appears the bobcat range expanded northward from 2004 to 2016.

We at the DNR thank all participants in the 2016 Bow Hunter Observation Survey. The volume of information provided by bow hunters could never be duplicated by the staff of biologists, technicians, and conservation officers in the Iowa DNR. Iowa's bow hunters are the best group of hunters to provide this observational information, and their participation in this survey plays a critical role in the conservation of these and other wildlife species for the future.

Any differences in observation rates between regions could be related to differences in many factors such as population size, habitat, topography, land use, or any other factor affecting the sightability of animals. For example, deer densities are likely greater in the southeast and northeast regions of Iowa, however, regional differences from the bow hunter survey do not reflect a similar trend.

Antlered Deer Observations Per 1,000 Hours Hunted

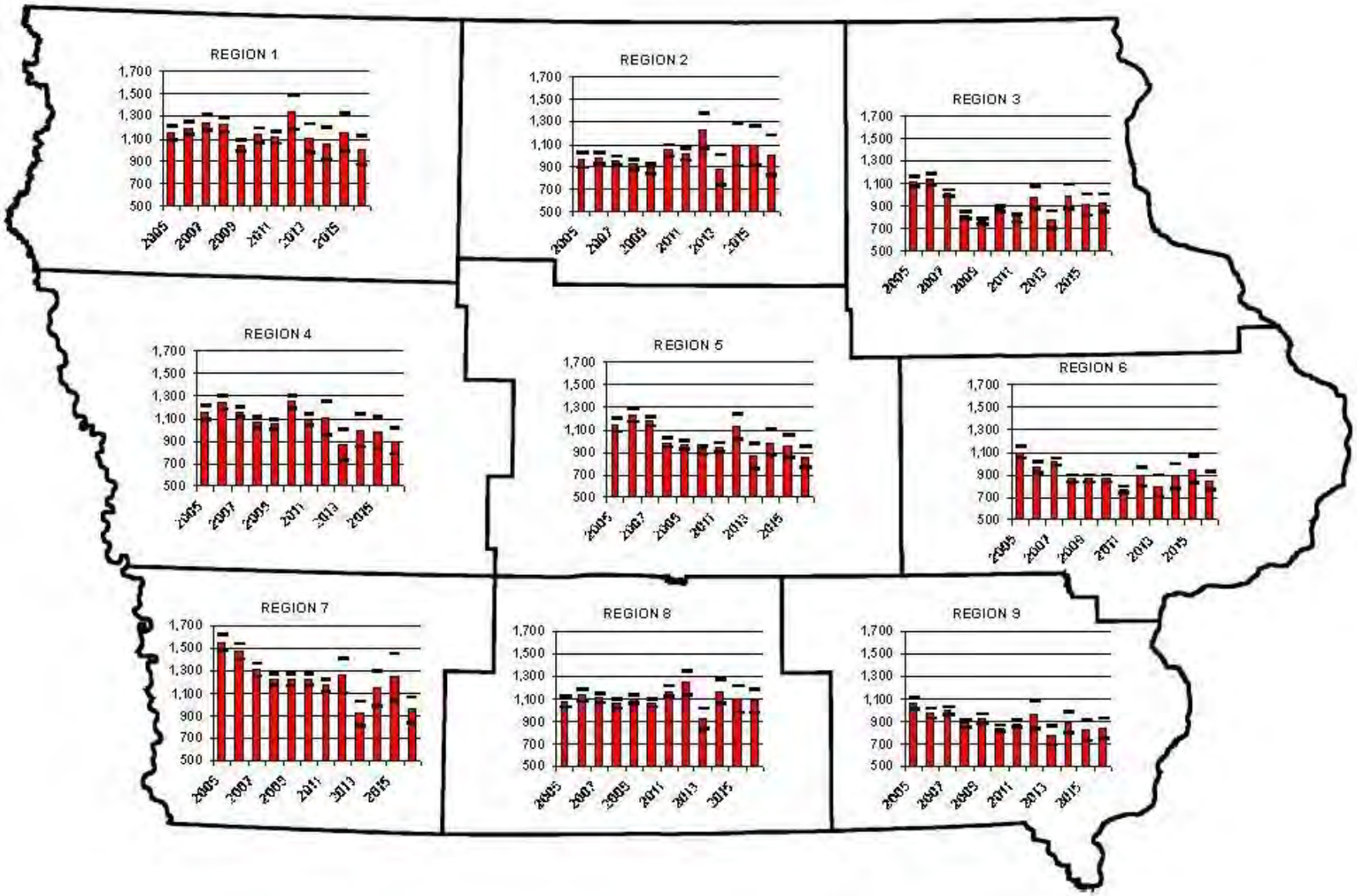
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Antlerless Deer Observations Per 1,000 Hours Hunted

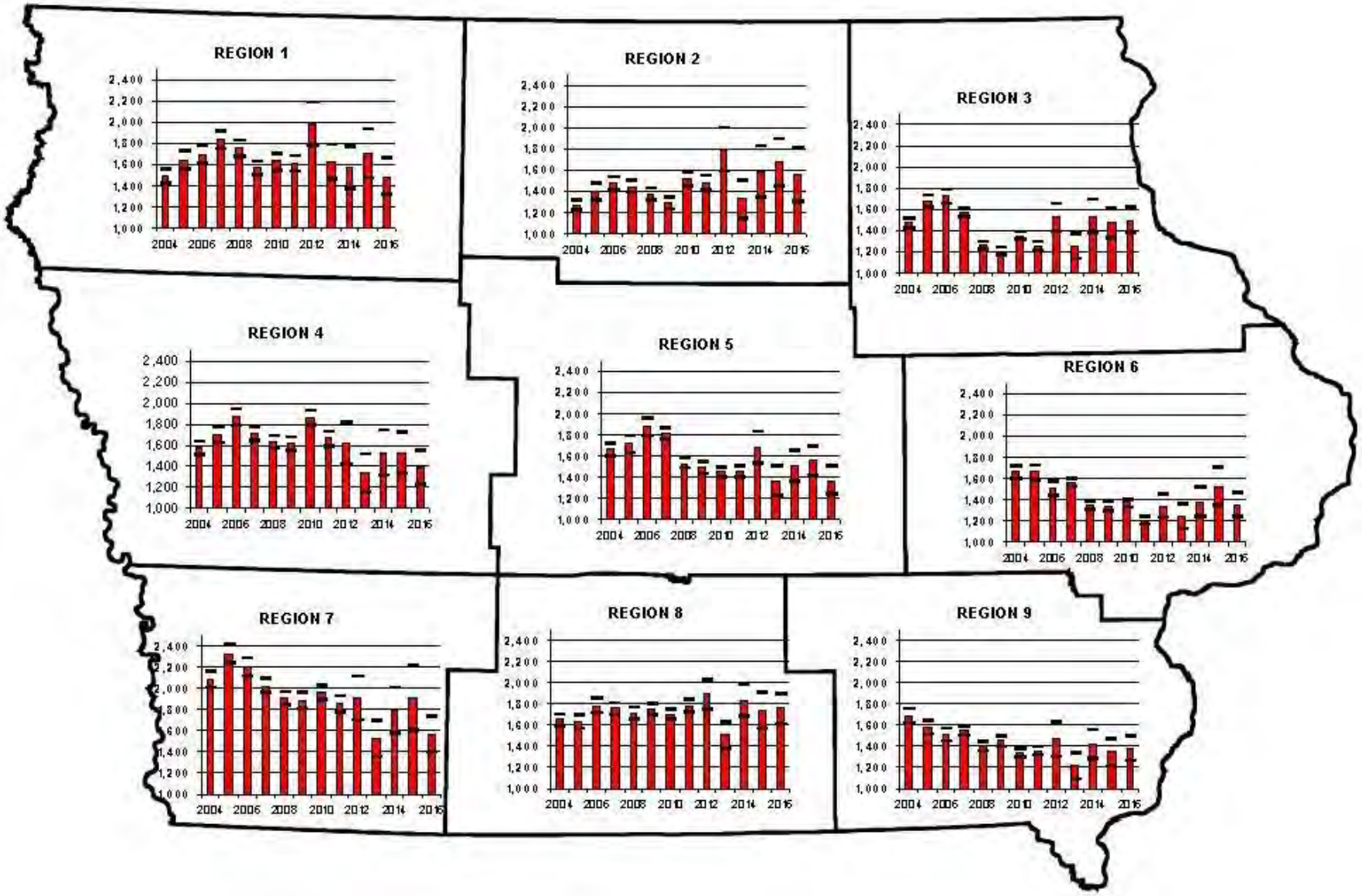
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Total Deer Observations Per 1,000 Hours Hunted

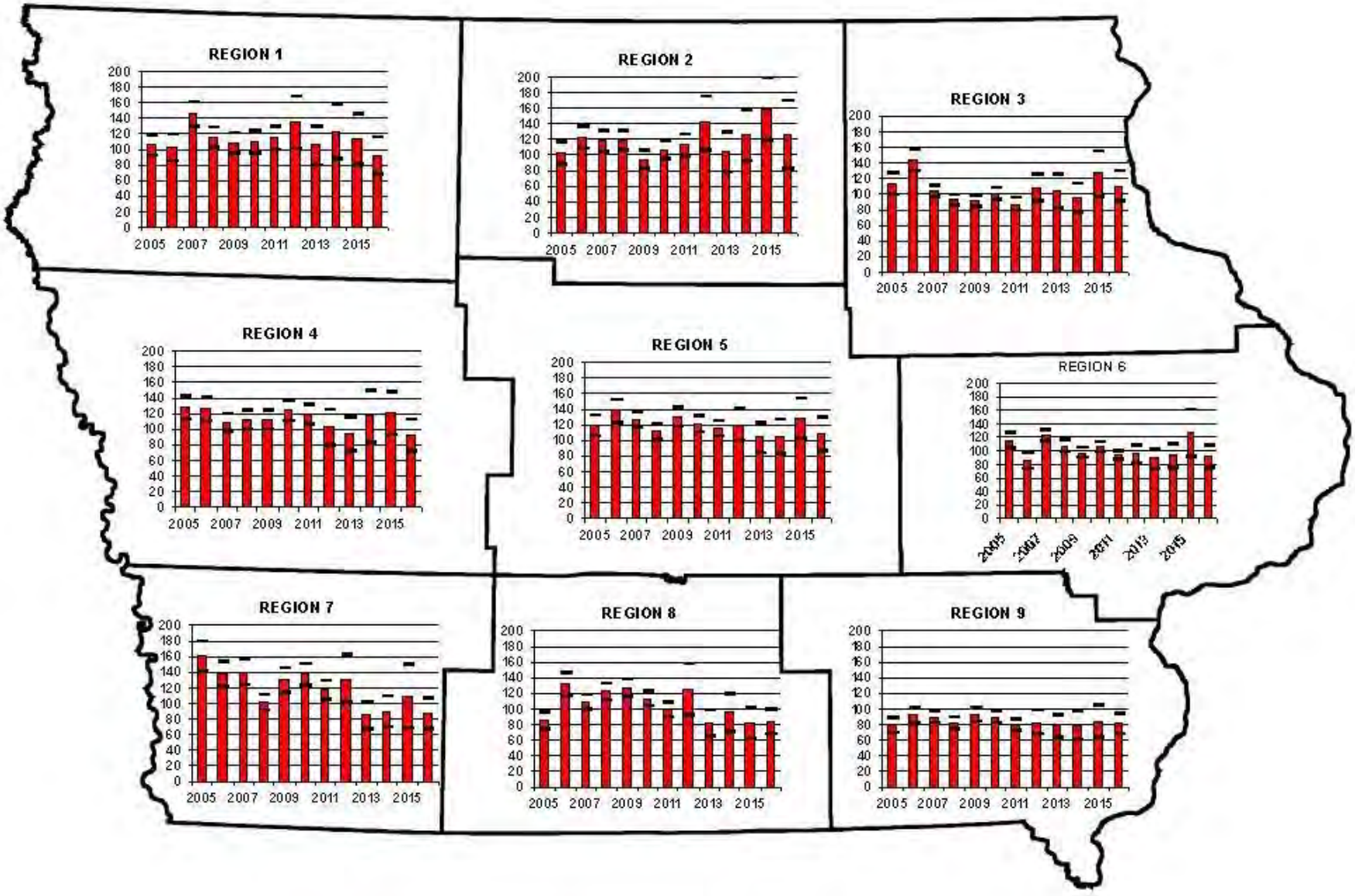
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Unknown Deer Observations Per 1,000 Hours Hunted

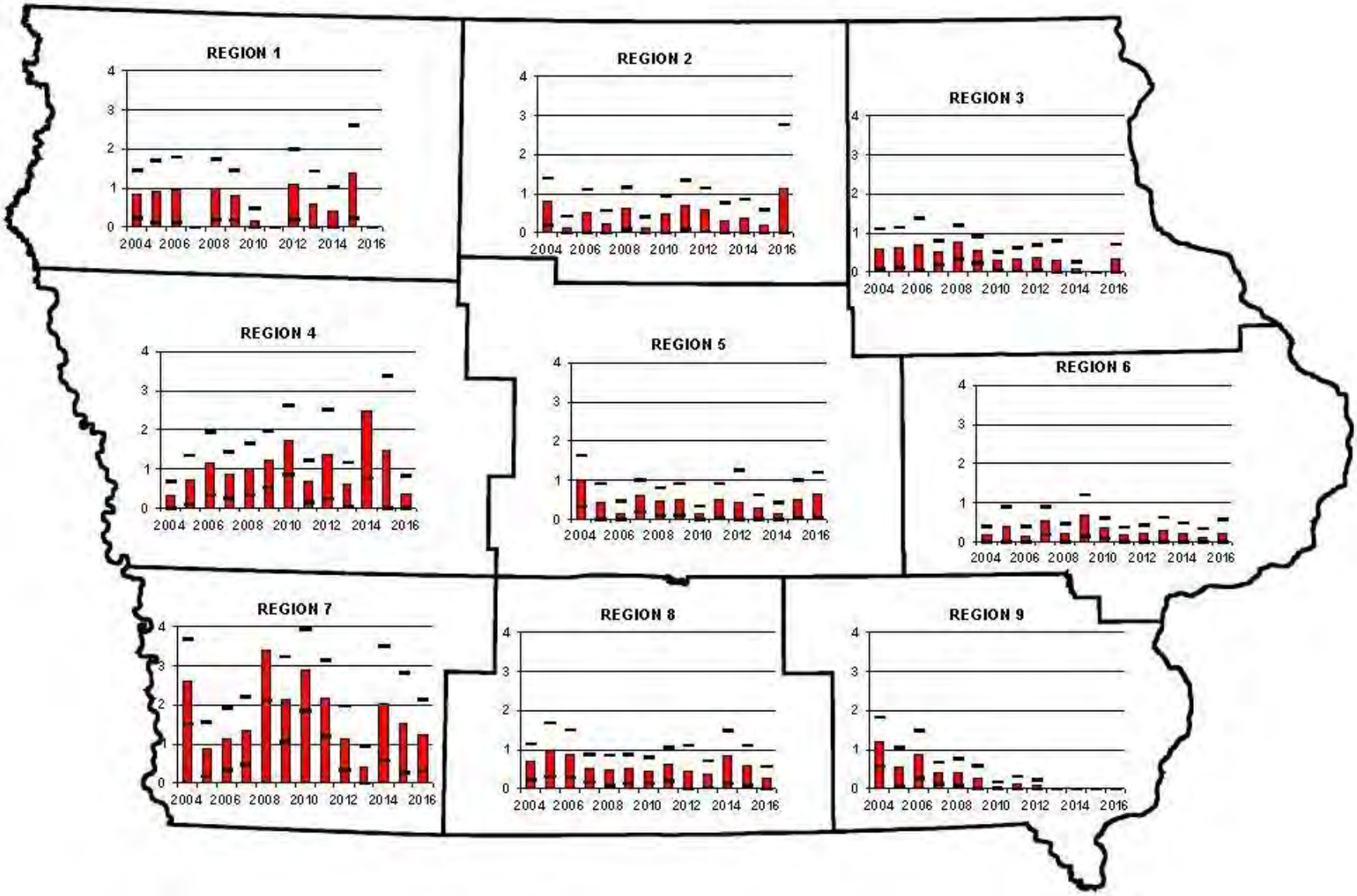
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Badger Observations Per 1,000 Hours Hunted

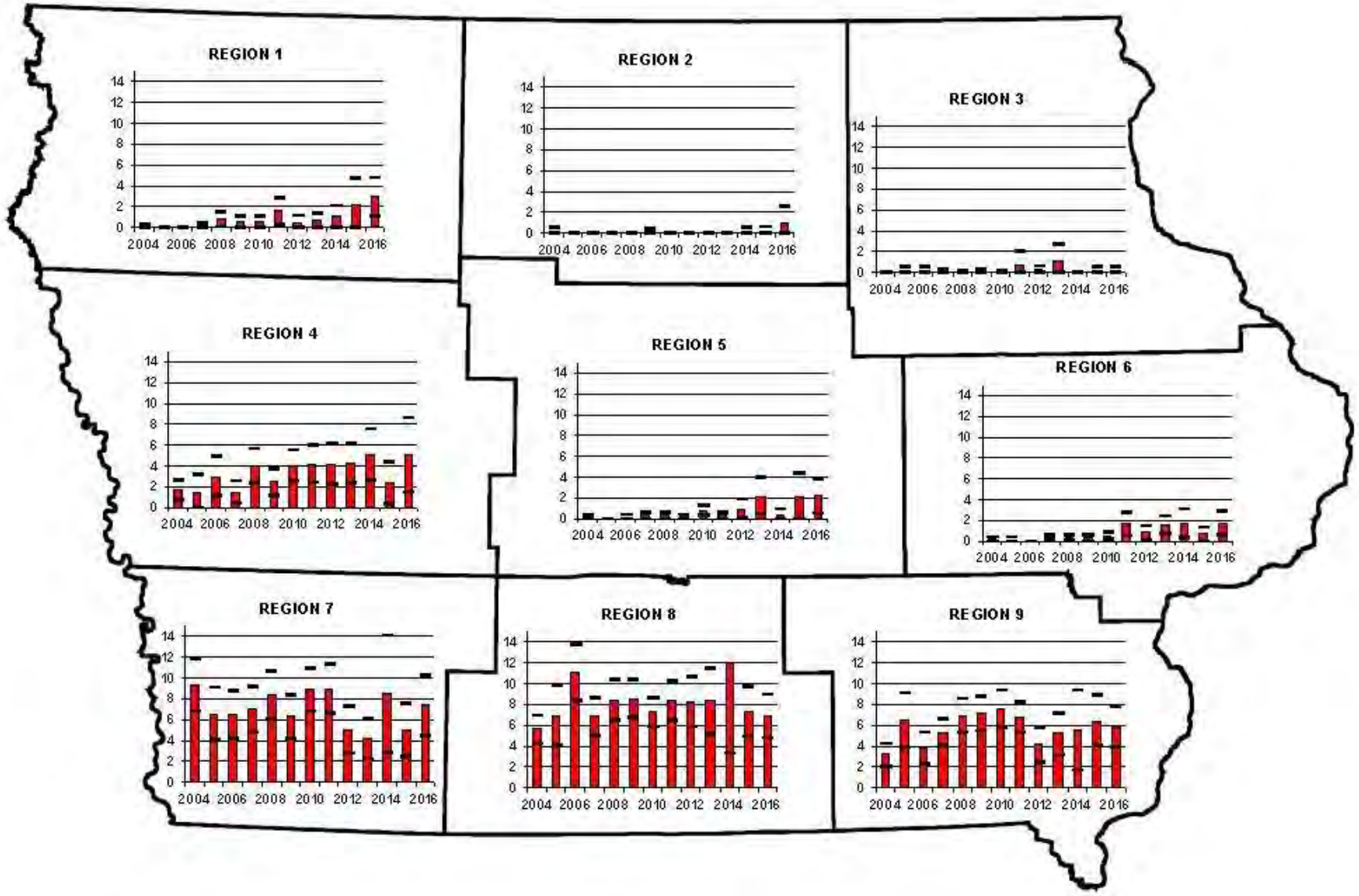
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Bobcat Observations Per 1,000 Hours Hunted

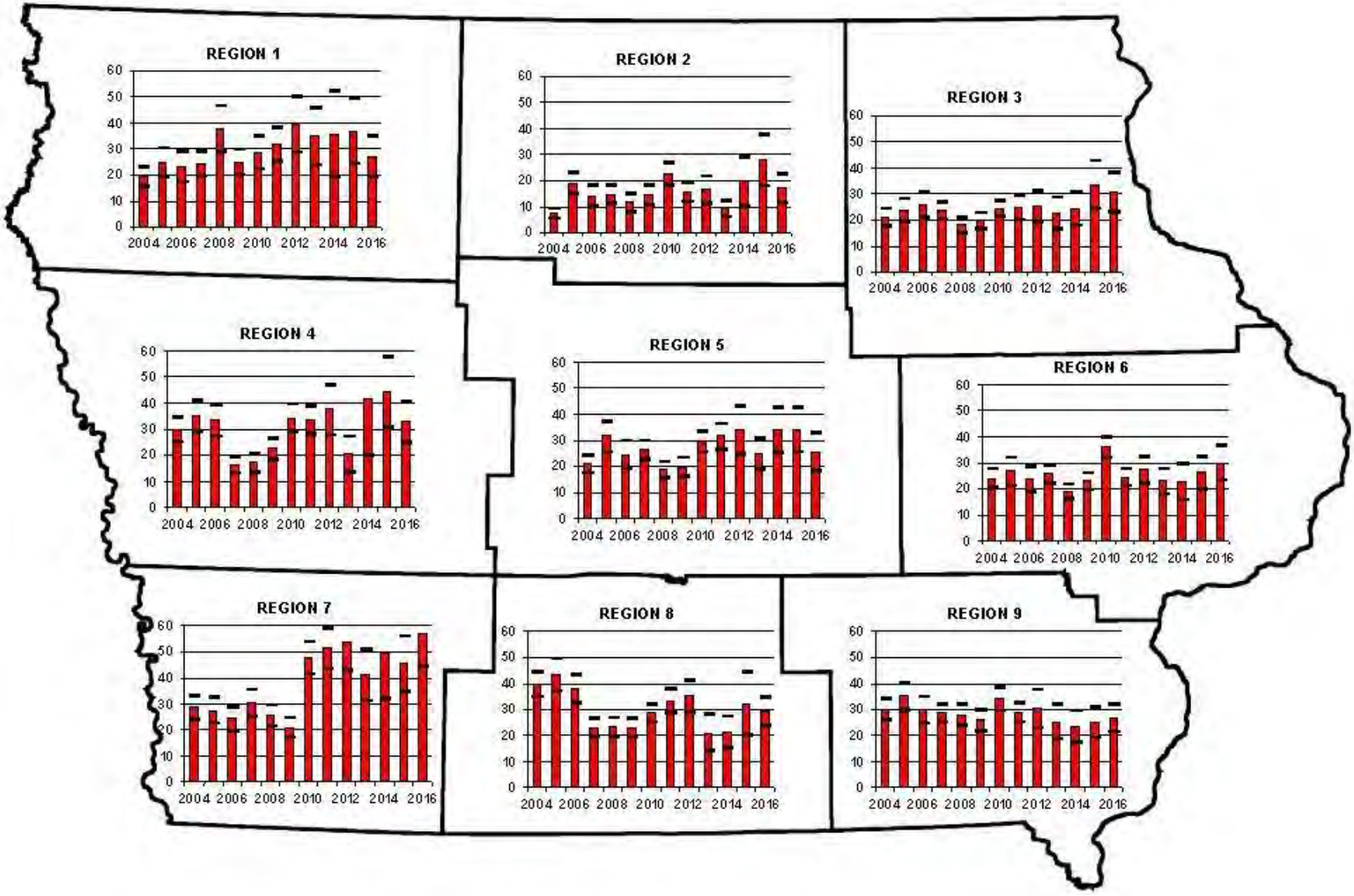
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Coyote Observations Per 1,000 Hours Hunted

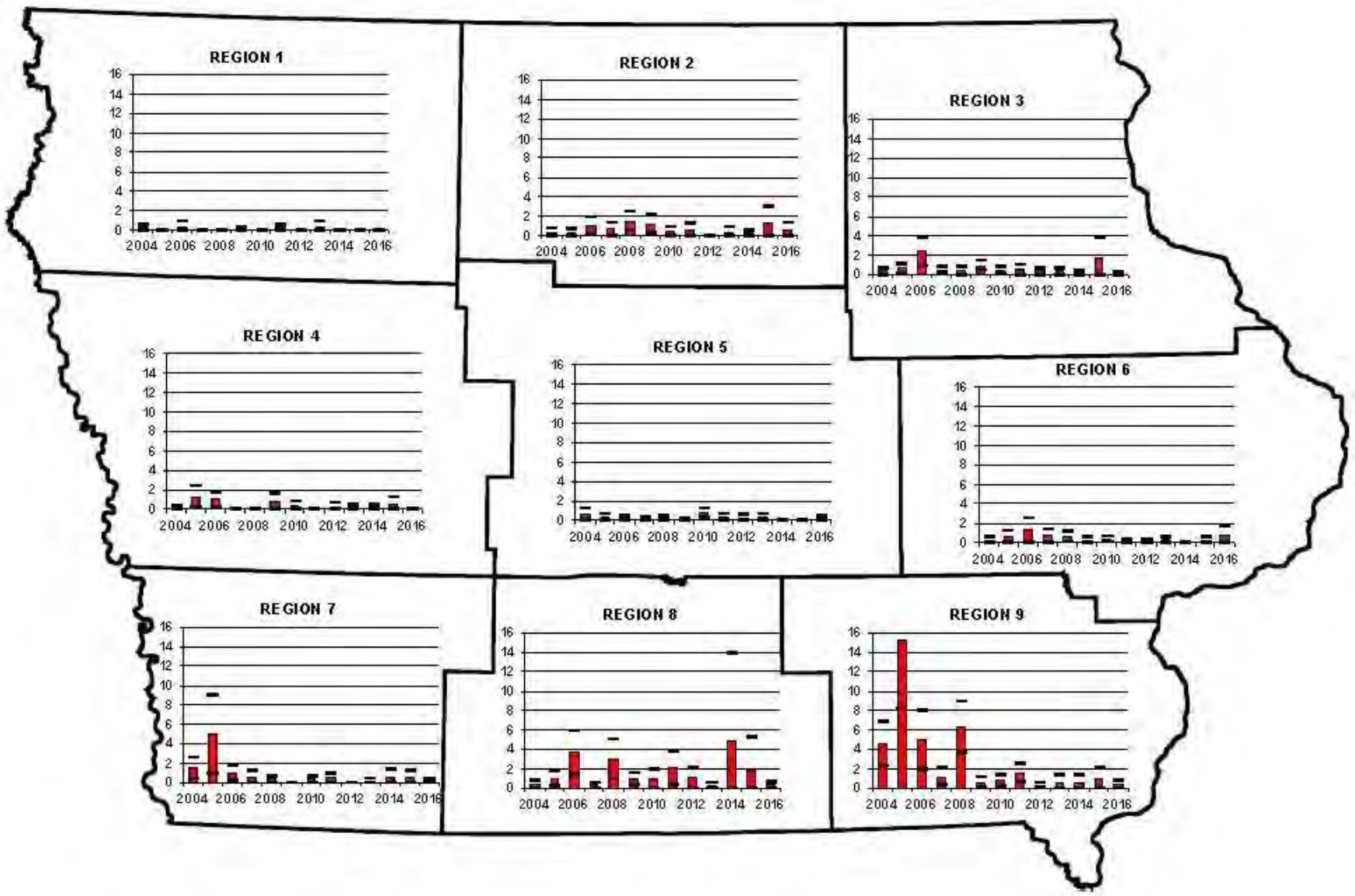
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Gray Fox Observations Per 1,000 Hours Hunted

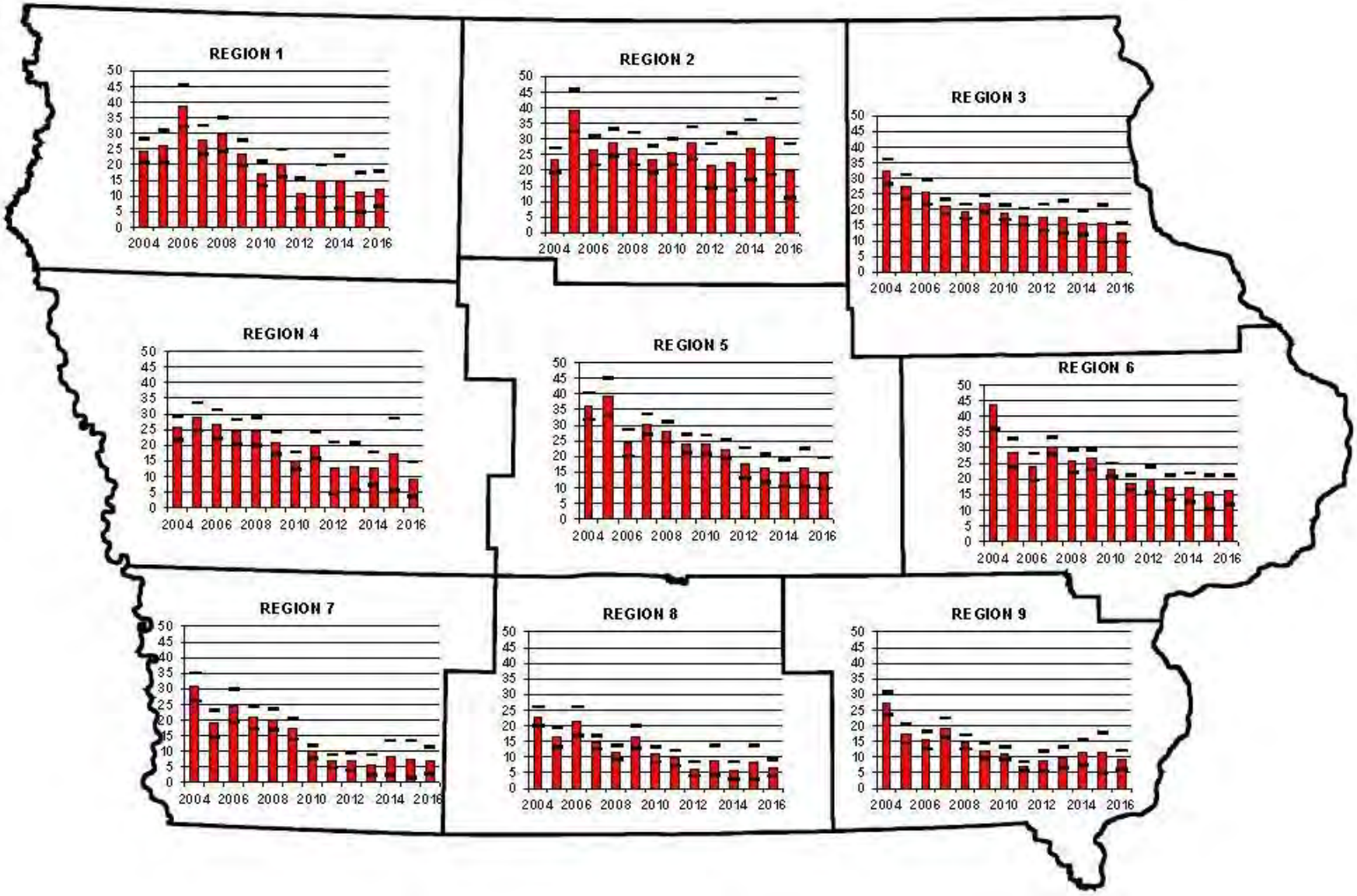
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

House Cat Observations Per 1,000 Hours Hunted

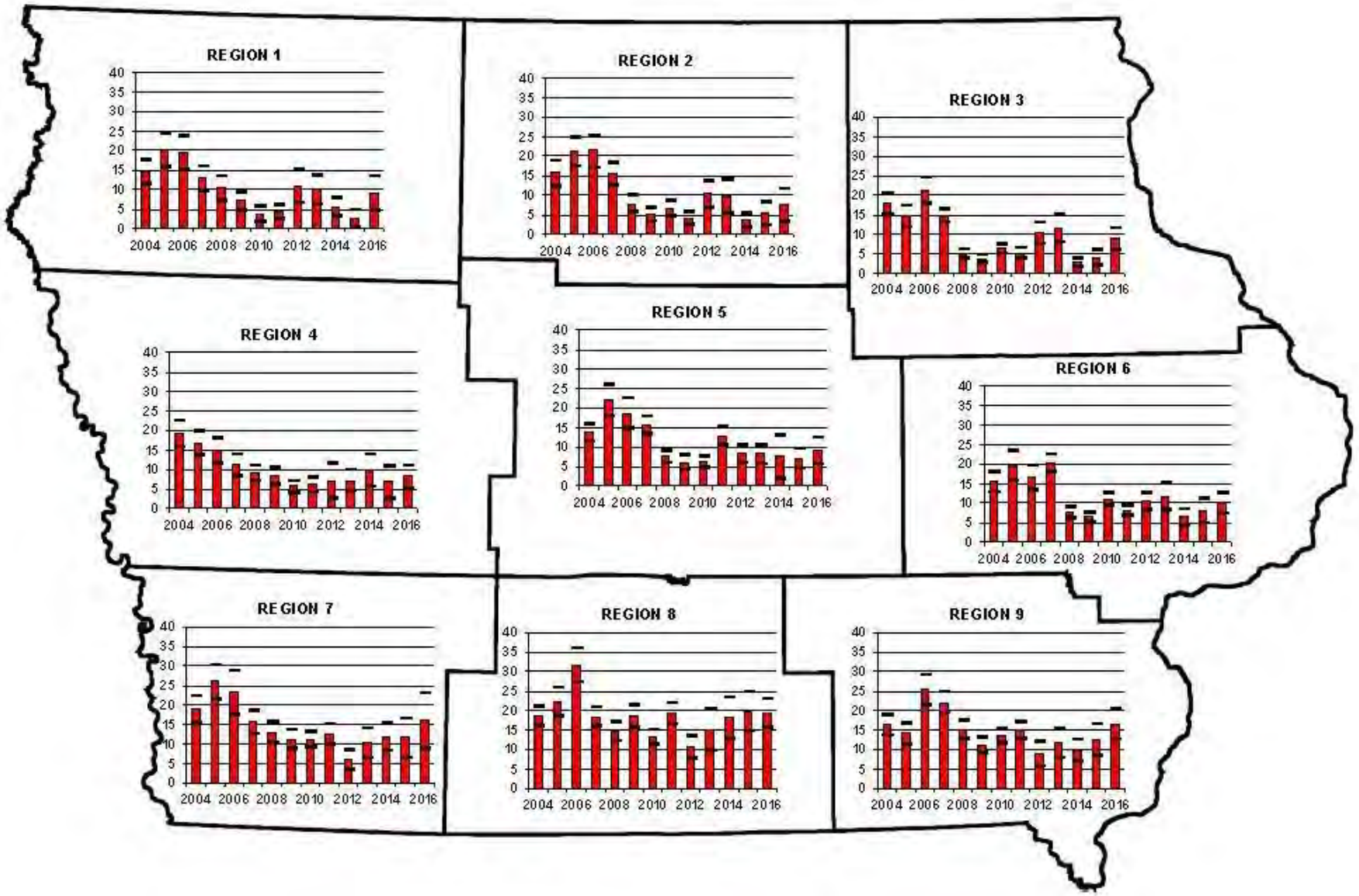
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Oppossum Observations Per 1,000 Hours Hunted

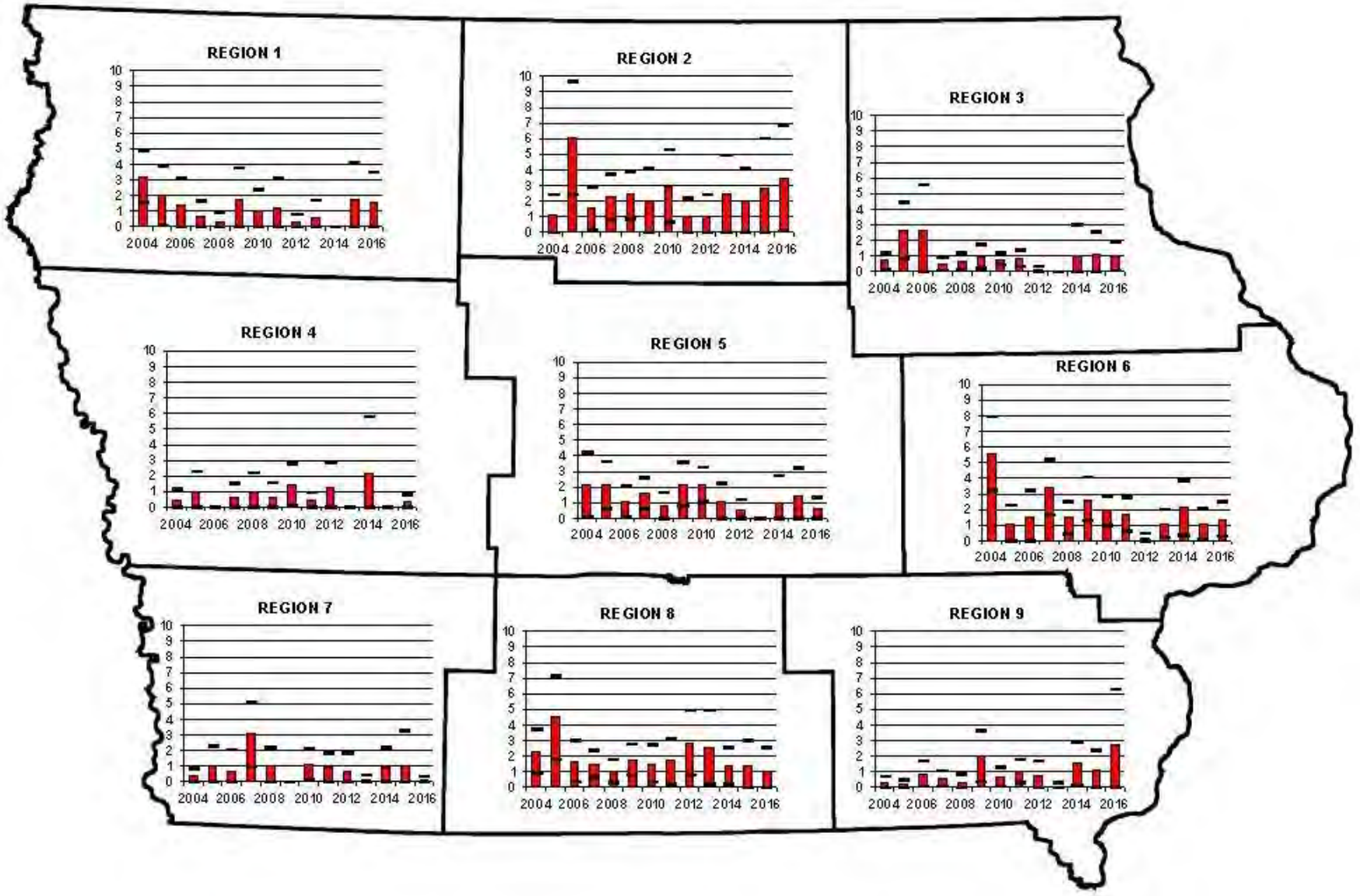
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

River Otter Observations Per 1,000 Hours Hunted

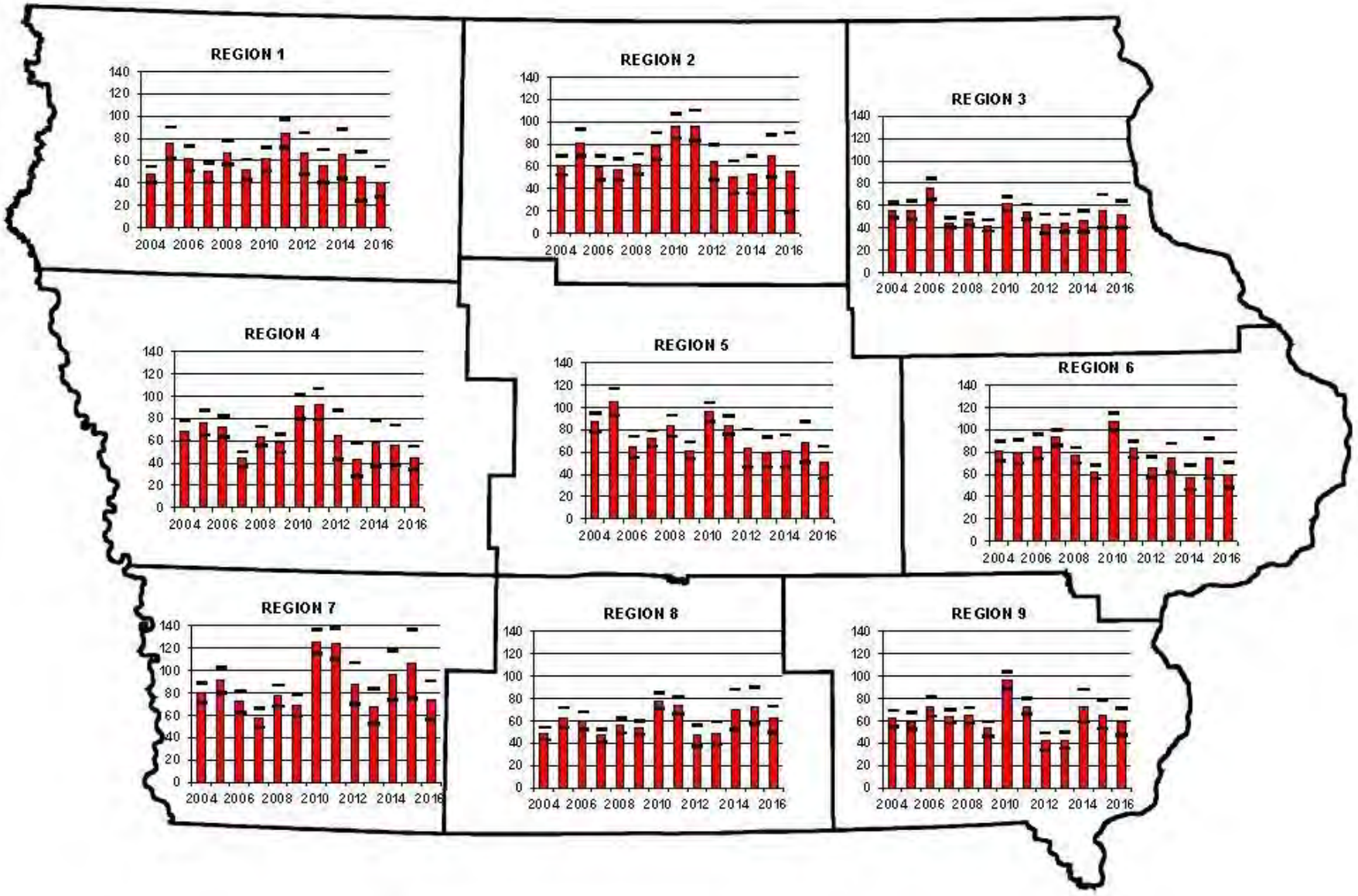
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Raccoon Observations Per 1,000 Hours Hunted

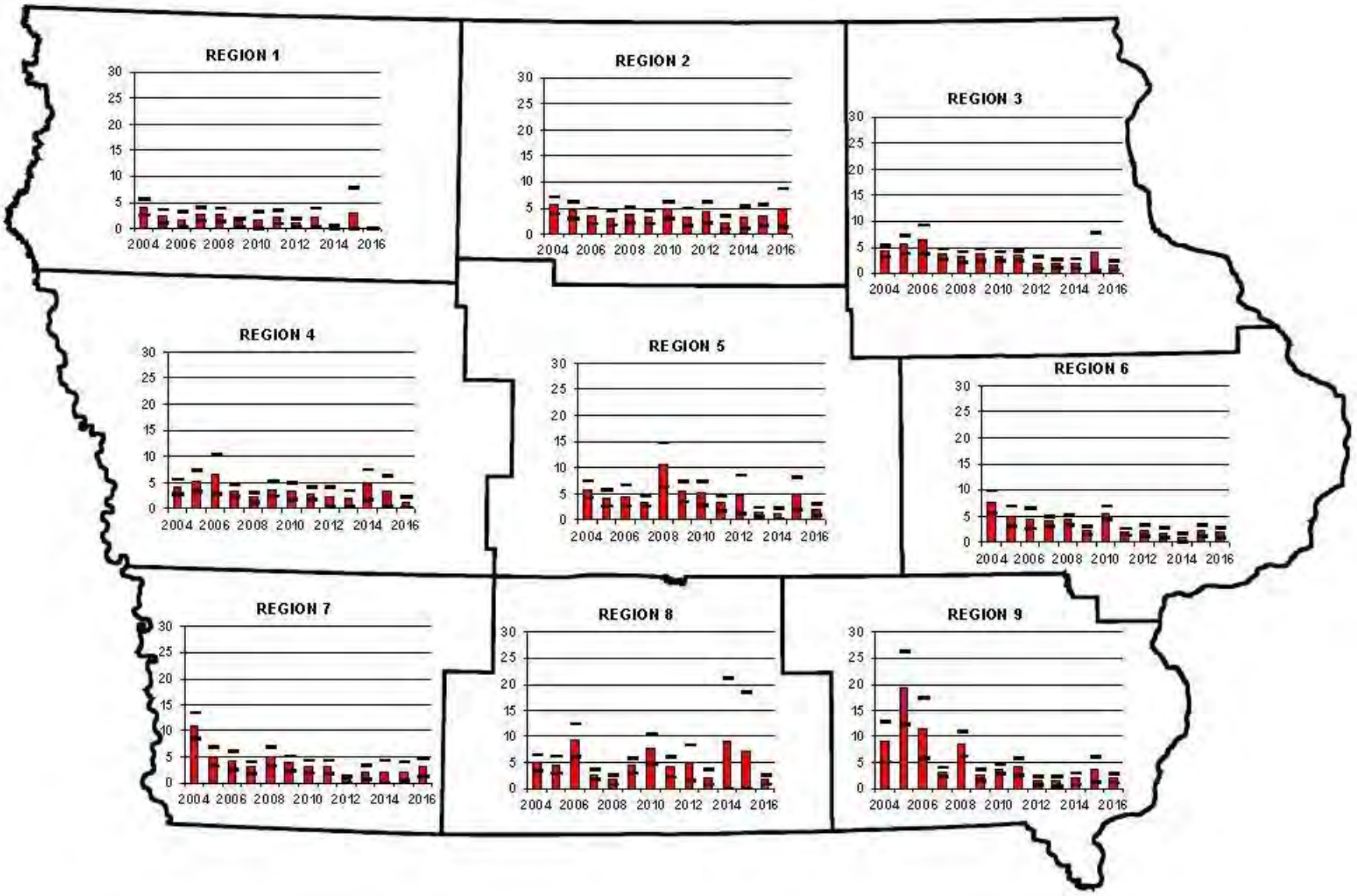
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Red Fox Observations Per 1,000 Hours Hunted

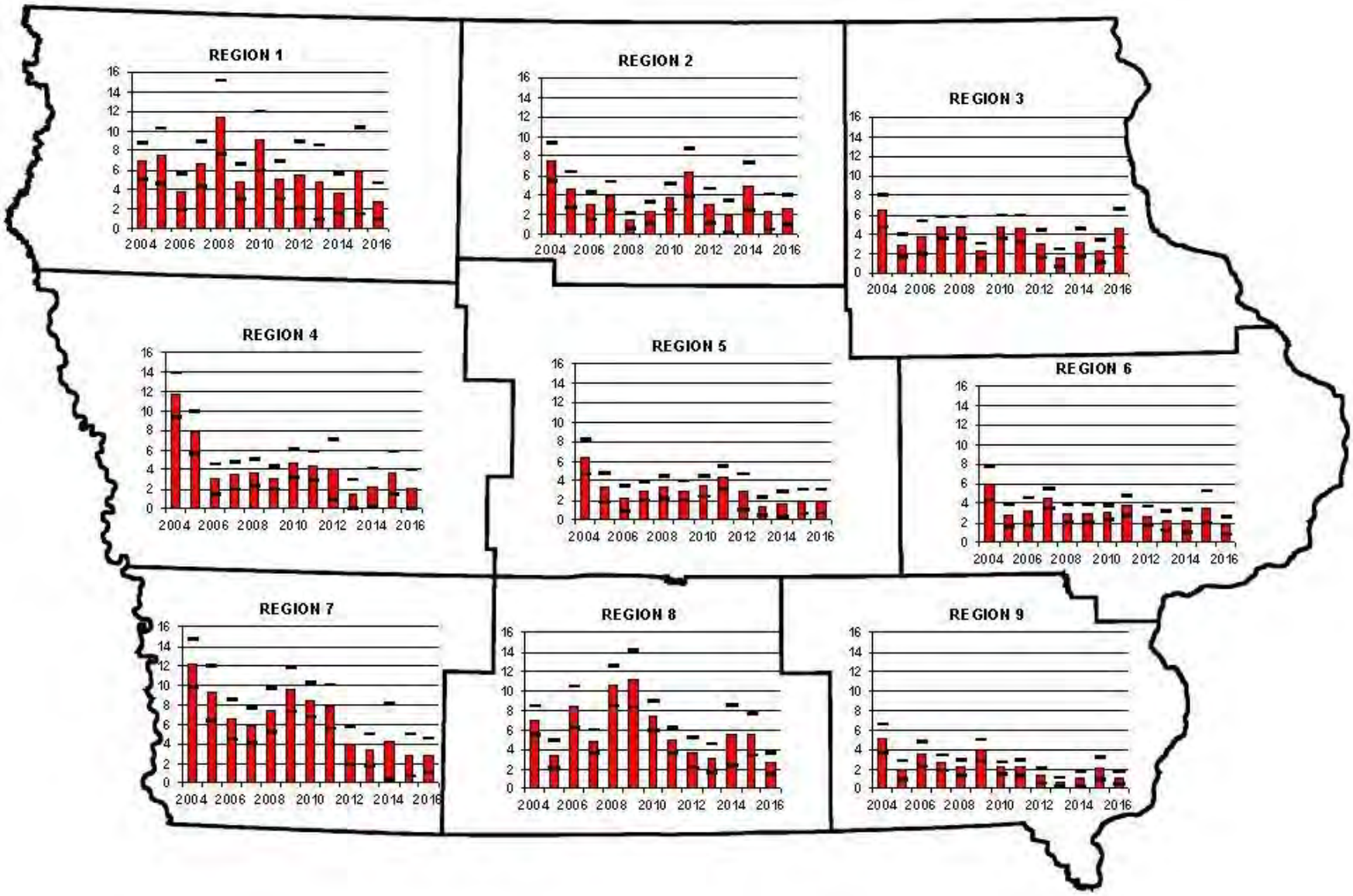
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Striped Skunk Observations Per 1,000 Hours Hunted

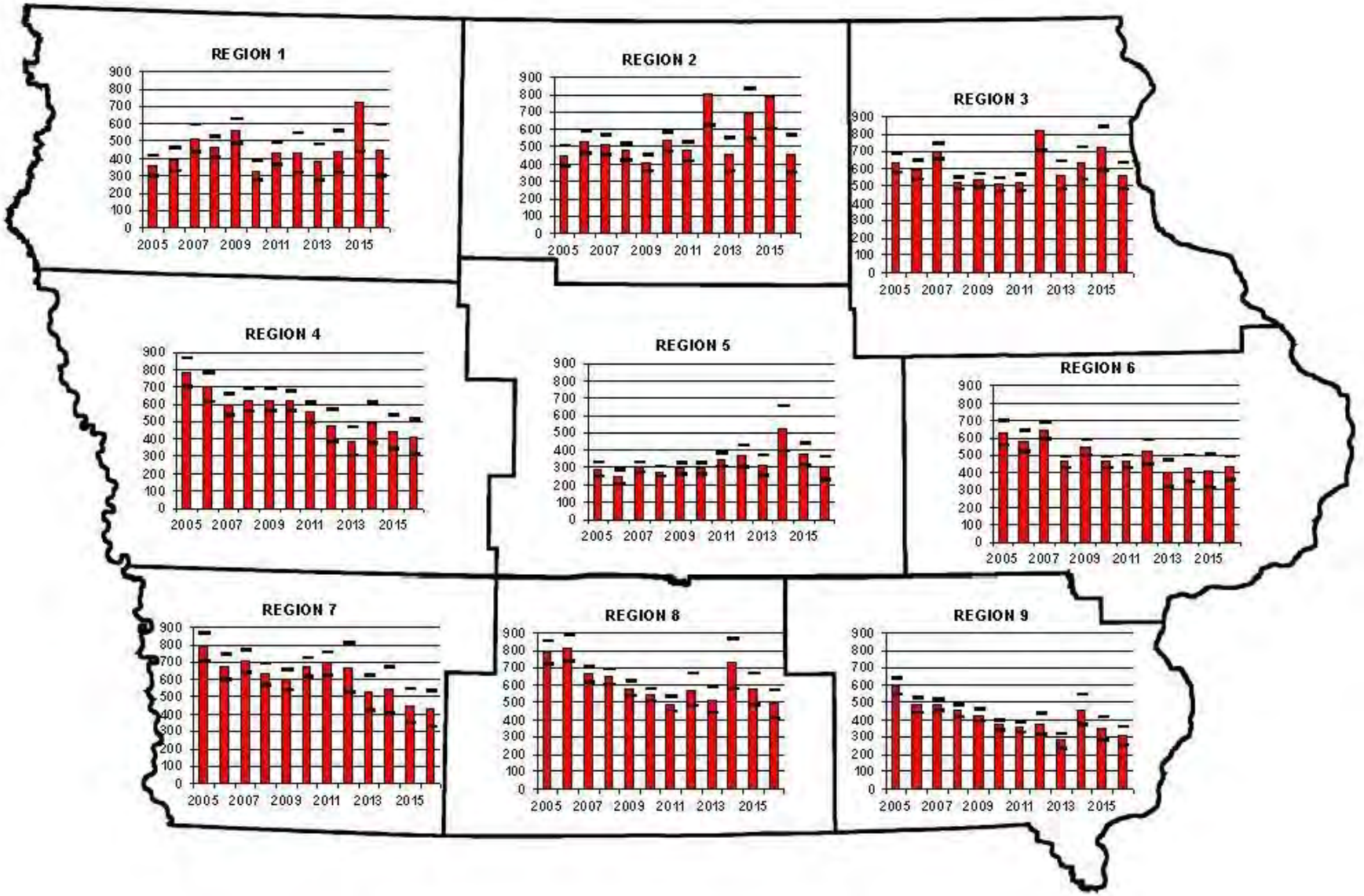
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Wild Turkey Observations Per 1,000 Hours Hunted

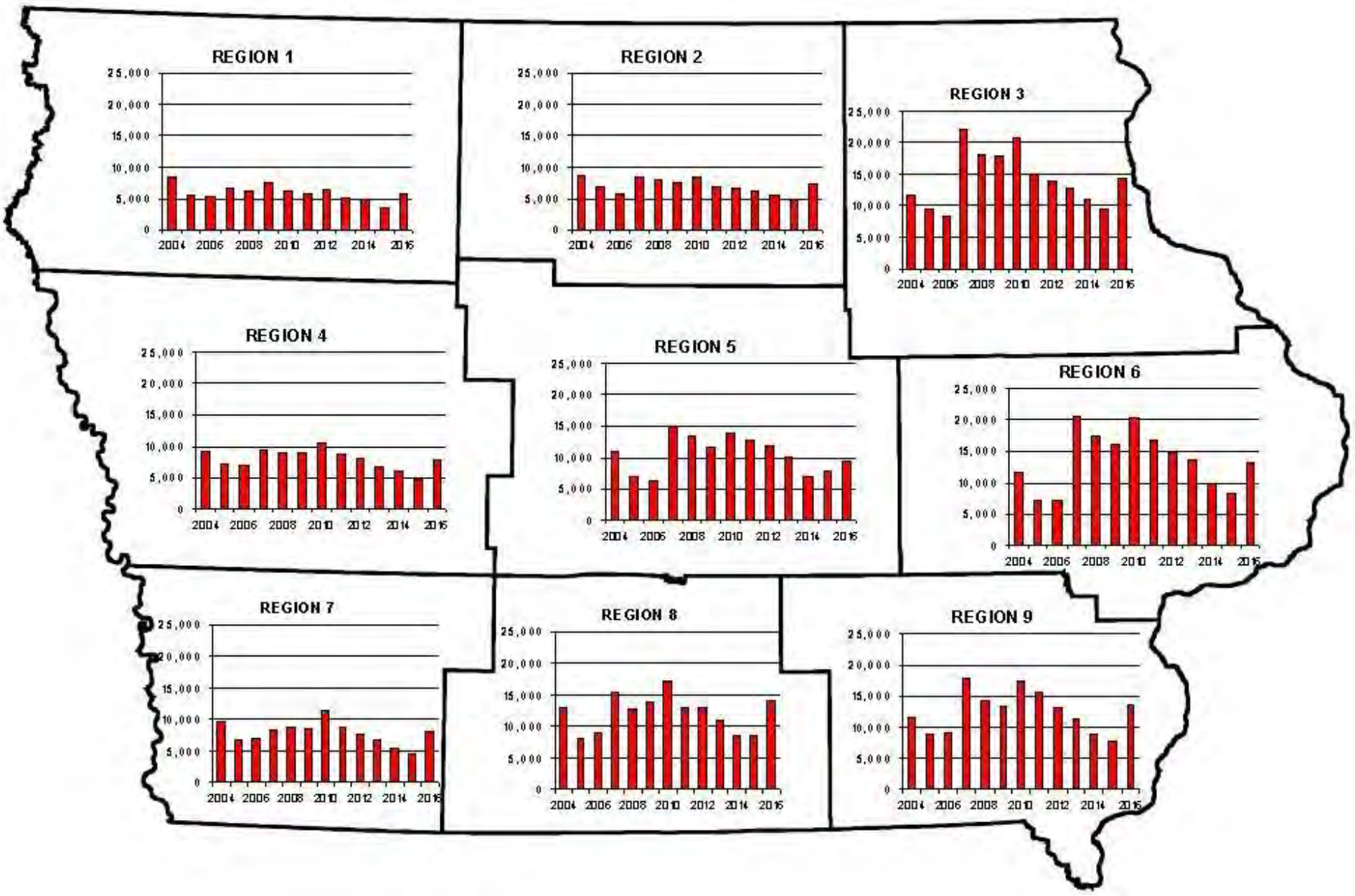
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

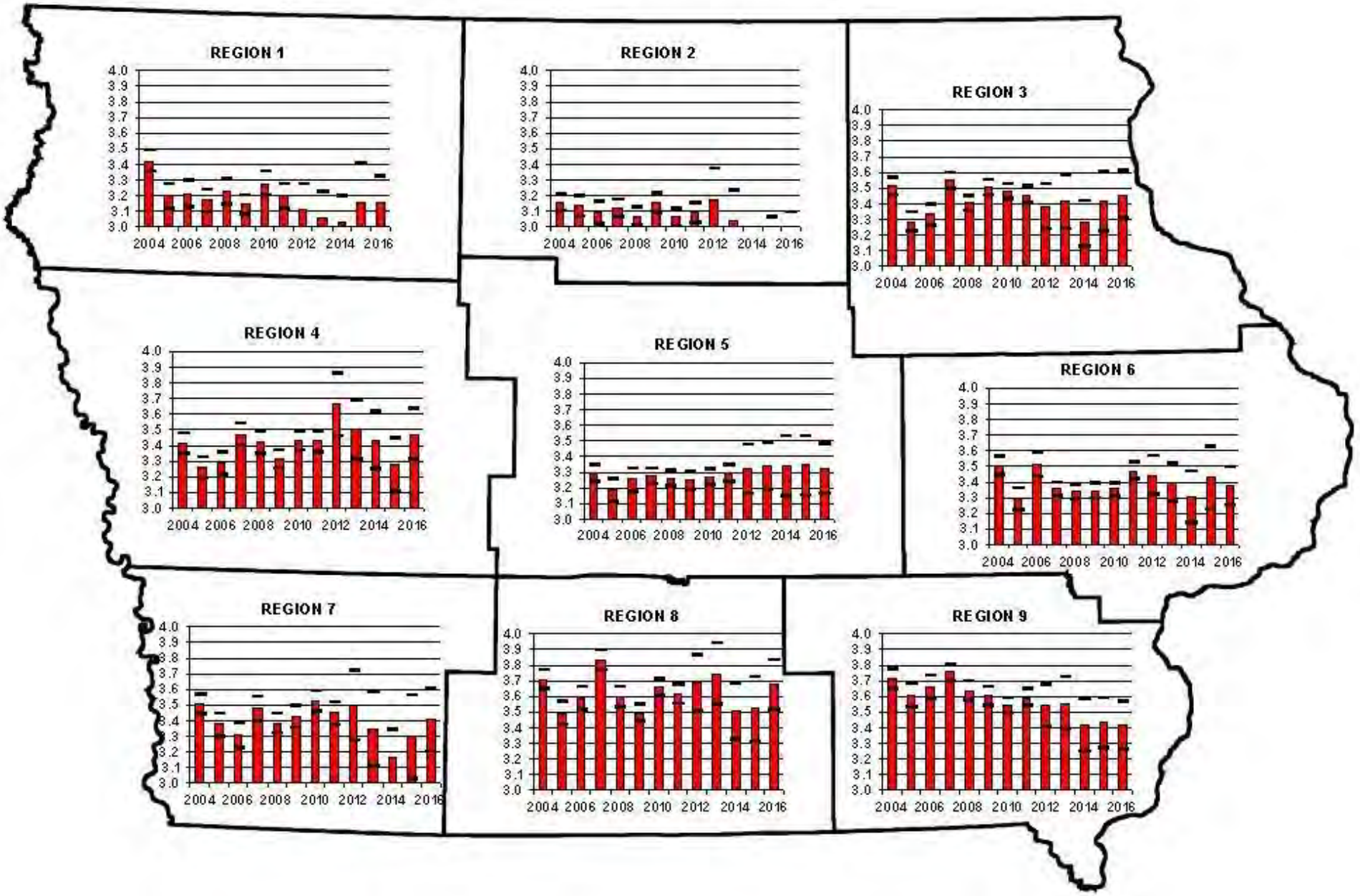
Hours Hunted by Survey Participants

Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Average Hours Hunted/Bowhunting Trip

Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Bowhunting Trips by Survey Participants

Bowhunter Observation Survey, Iowa Dept. of Natural Resources