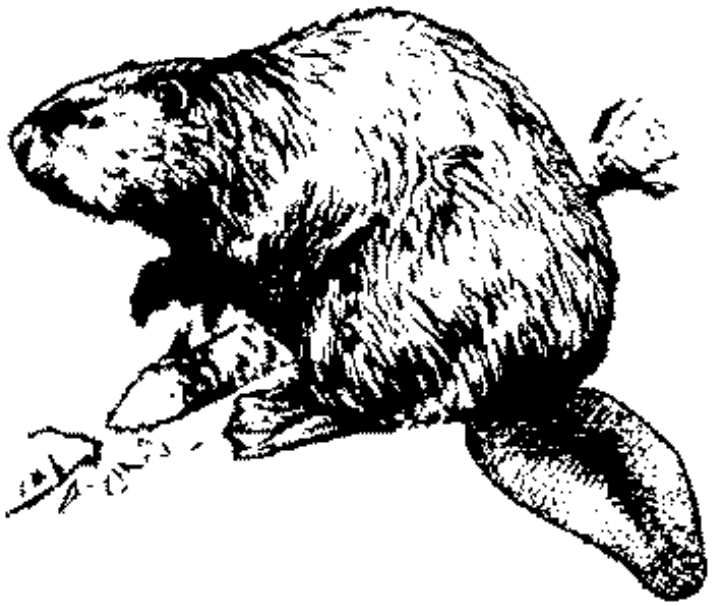
TRENDS IN IOWA WILDLIFE POPULATIONS AND HARVEST

2018-2019



Iowa Department of Natural Resources
Kayla Lyon, Director
September 2019

TRENDS IN IOWA WILDLIFE POPULATIONS AND HARVEST 2018-19

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CONSERVATION & RECREATION DIVISION
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WHITE-TAILED DEER

Historical Perspective

White-tailed deer (*Odocoileus virginianus*; hereafter deer) were reported to be abundant when European settlers arrived in Iowa in the early 1800s. 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 back 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 animals. Concentrations in some areas were beginning to cause conflicts with Iowa including increased agricultural damage and collisions with vehicles. In response to these problems, the first modern deer season was held in December of 1953, and 4,000 deer were harvested. The statewide harvest steadily increased, and in 1996 topped 100,000 for the first time in history.

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.

Deer thrive in Iowa mostly due to abundant, reliable food sources and a relatively mild 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. Together, these factors 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 greater than 95% of adult does become pregnant each year on average, and that most of these does are pregnant with twins with approximately 8% on average being pregnant with triplets.

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 Iowa today. Without active management, 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 population growth. Deer numbers this high would cause severe conflicts with Iowa citizens as well as alter the natural vegetative community on the landscape. 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.

2018-2019 Hunting Season Results

Iowa deer hunters harvested a total of 107,857 deer during the 2018/2019 season (Table 1.1), which is approximately 2% higher than in 2017 (Table 1.2). There were 601 more deer licenses issued for the 2018/2019 deer season, an increase of less than 1% compared to 2017/2018. Antlerless licenses comprised approximately 34% of the total licenses sold during the 2018/2019 season (Table 1.1).

Annual harvest has been slightly increasing since 2013 ranging from 99,414 in 2013 to 107,857 in 2018 (Table 1.3). A sustained harvest of 100,000-120,000 deer is consistent with the population goal established by the Iowa Deer Study Advisory Committee and is indicative of a healthy deer population statewide.

Antlerless deer (i.e., does) represented 49% of the total harvest during the 2018/2019 season, an increase of 3% compared to the 2017/2018 season (Table 1.1). The reported number of antlered deer represented 42% of the harvest in 2018/2019, a slight decrease from the 45% reported in 2017/2018 (shed-antlered bucks are included in this statistic). There were 634 shed-antlered bucks reported in the harvest, which is very similar to the 676 reported in 2017/2018.

Figure 1.1 compares the electronic 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.

Since 2014, hunters have been restricted to harvesting only antlerless deer during the early muzzleloader season and first shotgun season in twenty-seven northwestern counties (Table 1.6) in attempt to allow the population to recover to goal levels in this area of Iowa. The January antlerless-only season was reinstated in 4 counties for the 2018/2019 season: Allamakee, Appanoose, Clayton, and Wayne. This season was reinstated along with an increase in the number of county-specific antlerless licenses available in these counties to help slow the spread of Chronic Wasting Disease (CWD). As in previous years, 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-four counties had additional antlerless licenses available. Thirty-five counties in northern and central Iowa had no antlerless quota. A total of 73,700 antlerless licenses were available statewide during the 2018/2019 season, an increase of 1,550 antlerless licenses available compared to 2017/2018. 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 2,218 deer were reported taken during special management hunts in urban areas, and in state and county parks (Table 1.7). Hunters using special antlerless depredation licenses that were allotted to hunters on land where landowners were experiencing crop damage problems reported a total harvest of 2,242 deer (Table 1.1).

Four of the top 10 counties for total harvest were in the northeast portion of the state in 2018/2019 with the remainder being in southern Iowa. Clayton was again the top county for total reported harvest with 4,360 deer and antlered harvest density of 2.13 deer harvested per square mile (Table 1.4). Both Grundy County and Osceola County had the lowest harvest with a reported 123 deer.

Shotgun Season

A strong storm system dropped more than 1 inch of precipitation across much of the state during the first few days of December, resulting in unfavorable weather conditions during the first shotgun season. Consequently, total harvest for the first shotgun season was 9% lower in 2018/2019 compared to 2017/2018. Anecdotal reports from the Iowa Department of Natural Resources (DNR) call center in Des Moines suggested that many hunters with licenses for the first shotgun season switched their license to the second shotgun season. This is likely the main reason for the 7% decrease in licenses sold for the first shotgun season in 2018/2019. Reported harvest and license sales for the second shotgun season, however, increased by 17% and 5%, respectively. Overall, the total reported harvest during the entirety of the shotgun season was about 3% higher than that reported in 2017/2018 (Table 1.2).

Antlered bucks comprised 40% of the total harvest during the shotgun seasons, while 50% of the reported harvest was antlerless deer. Button bucks made up 10% of the reported harvest and shed-antlered bucks accounted for less than 0.5% (Table 1.1).

Similar to 2017/2018, 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 21,271 deer including the deer killed on the senior cross bow license, a 6% decrease from 2017/2018. This marks the largest decrease in reported harvest during the archery season since the 2013/2014 season. This fall was the 3rd wettest in 146 years of records according to the Iowa State Climatologist. This not only caused unfavorable hunting conditions during much of the archery season, but also resulted in delayed harvest of crops statewide making it challenging for archery hunters to pattern deer.

Antlered deer comprised 55% of the total reported harvest (includes shed-antlered bucks, Table 1.1 and Table 1.9).

Muzzleloader

The reported harvest during the early muzzleloader season was 3,594, a 5% increase from 2017/2018 despite the 7% decrease in license sales (Table 1.1 and Table 1.2). This increase follows three years of decreased harvest during this season. The total reported harvest included 50% antlered bucks and 43% antlerless deer.

Hunters reported harvesting 9,885 deer during the 2018/2019 late muzzleloader season (Table 1.1 and Table 1.2), a 3% increase in harvest compared to 2017/2018. Forty-five percent of the deer harvested during the late muzzleloader season were bucks (includes shed-antlered bucks).

Nonresidents

Nonresidents were issued 6,063 any-deer licenses for the 2018/2019 deer hunting seasons (Table 1.1). All 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 and antlerless-only licenses was 47% and 29%, respectively (Table 1.1). In total, nonresidents reported harvesting 2,887 antlered bucks (including shed-antlered bucks) and 2,589 antlerless deer in 2018/2019.

Special Youth/Disabled Hunter Season

The total number of youth season licenses issued (9,639) was 3% higher than in 2017/2018 (Table 1.1 and Table 1.2). Disabled hunters were issued 397 licenses which was a 9% decrease from 2017/2018. 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 any of the subsequent deer hunting seasons following all rules set forth for each specific season. 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 to that hunter in Iowa.

The success rate for youth licenses was 38% with 3,650 deer reported. Fifty-six percent of the deer reported were antlered bucks (including shed-antlered bucks). The success rate for disabled licenses was 35% with 138 deer reported. Forty-five percent of the deer reported were antlered bucks (Table 1.1). Reported harvest during the youth season was 13% higher than 2017/2018, whereas reported harvest during the disabled season was 3% lower than in 2017/2018.

Special Deer Management Zones

Special management hunts were conducted at 55 locations in 2018/2019 during which the total reported harvest was 2,218 deer (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. Most hunts were very successful in removing deer in these problem areas.

An additional 3,875 licenses and permits were issued to hunters/landowners in depredation situations which resulted in a reported harvest of 2,242 deer. This is an 18% increase in the depredation harvest from 2017/2018 (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 annual Bow Hunter 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.

The deer population is increasing slightly statewide but is still within our population goal (Figure 1.5). The goal was to return deer population levels to those that existed in the mid-to-late 1990s, specifically to sustain an annual harvest of 100,000-120,000 deer. This goal has been achieved on a statewide basis and we continue to adjust antlerless harvest in specific areas to address localized population concerns.

The number of deer killed on rural highways decreased by 28% in 2018 (Table 1.10). 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 9% in 2019 (Table 1.10).

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 increased by 13% in 2018.

The estimated harvest from 2006-2018 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, stabilized from 2013-2017, and is slightly increasing in 2018. 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 concerns as a result of disease or other population changes.

Outlook for 2019

After 10 years of increased doe harvest from 2003 to 2013, the deer population declined from all-time highs in the early 2000s. 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 2019/2020 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 2018/2019 hunting season. We continue to monitor population trends in this area closely and are seeing favorable results of this temporary restriction in terms of population recovery.

Adjustments were made to the county-specific antlerless quotas in 24 counties for the 2019/2020 season, largely in response to local population changes and management needs. Specifically, quotas are being increased in 20 counties and decreased in 4 counties resulting in a net increase of 3,525 county-specific antlerless licenses available statewide.

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 68,000 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 and in Iowa counties where CWD has been previously detected in wild deer. Samples are collected from both roadkill and hunter-harvested deer as well as sick deer that are found dead or dispatched.

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.

In 2018, the DNR implemented special Disease Management Zones (DMZs) in Allamakee, Clayton, and Wayne counties surrounding areas where CWD was previously detected in wild deer. Additional antlerless licenses were available specific to these three zones to increase harvest in these areas to slow the spread of CWD and increase CWD surveillance efforts.

Also in 2018, CWD was detected in a roadkill deer collected in Dubuque County, adding one new county to the list of those within which CWD was detected in wild deer.

As a result of surveillance efforts in 2018, we detected CWD in 9 deer in Allamakee County, 4 deer in Clayton County, 4 deer in Wayne County, and 1 deer in Dubuque County, bringing the overall total to 46 wild deer that have tested positive for CWD in Iowa since 2013.

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 membranes 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.

In 2018, we received 222 reports of deer suspected of dying from EHD. A total of 158 reports came from four counties in southeast Iowa: Des Moines (44), Henry (65), Jefferson (18), and Van Buren (17). The remaining reports were scattered among 23 counties mostly in southern and eastern Iowa.

Figures

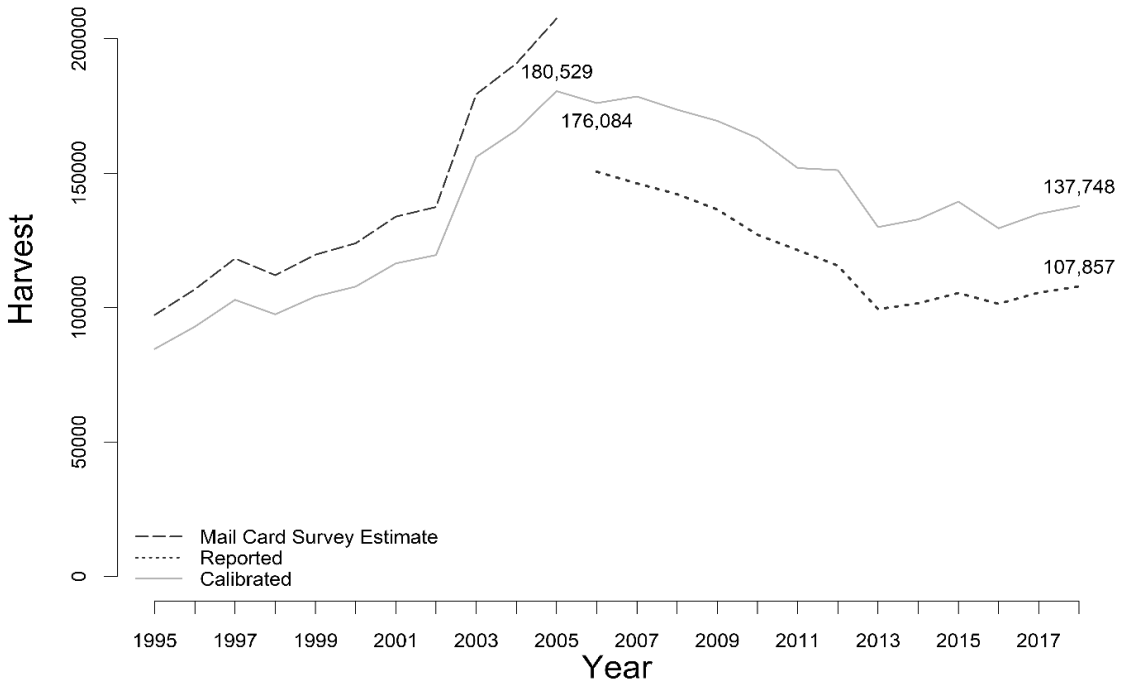


Figure 1.1 Post-season reported harvest and estimates from 1995-1996 to 2018-2019.

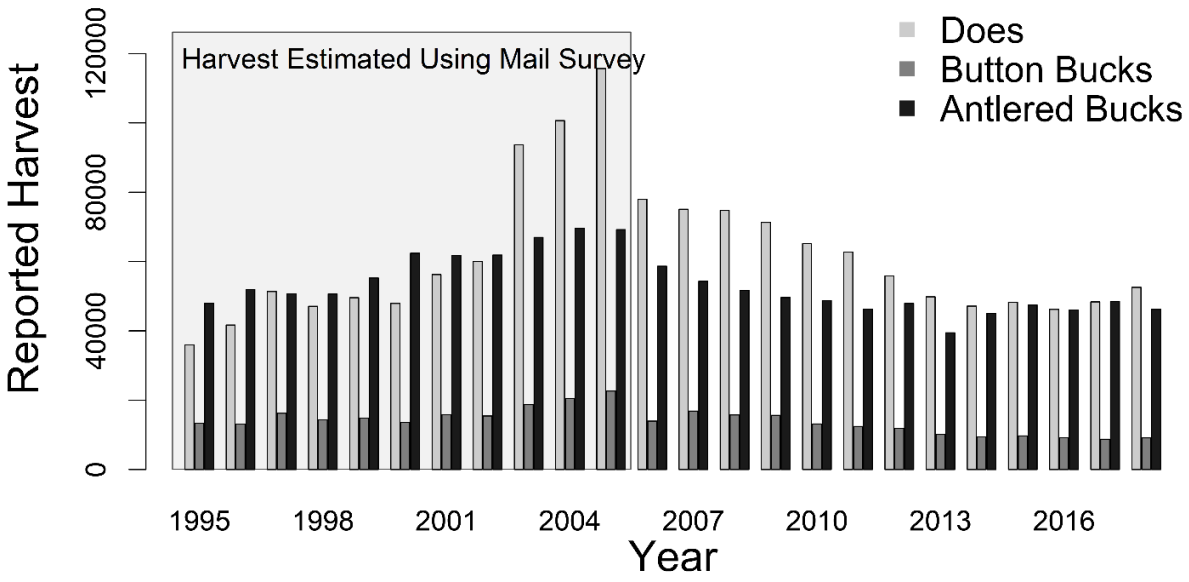


Figure 1.2 Number of does, button bucks, and antlered bucks harvested from 1995-1996 to 2018-2019. Since 2006, harvest was reported and is not directly comparable to previous estimates from mail card survey.

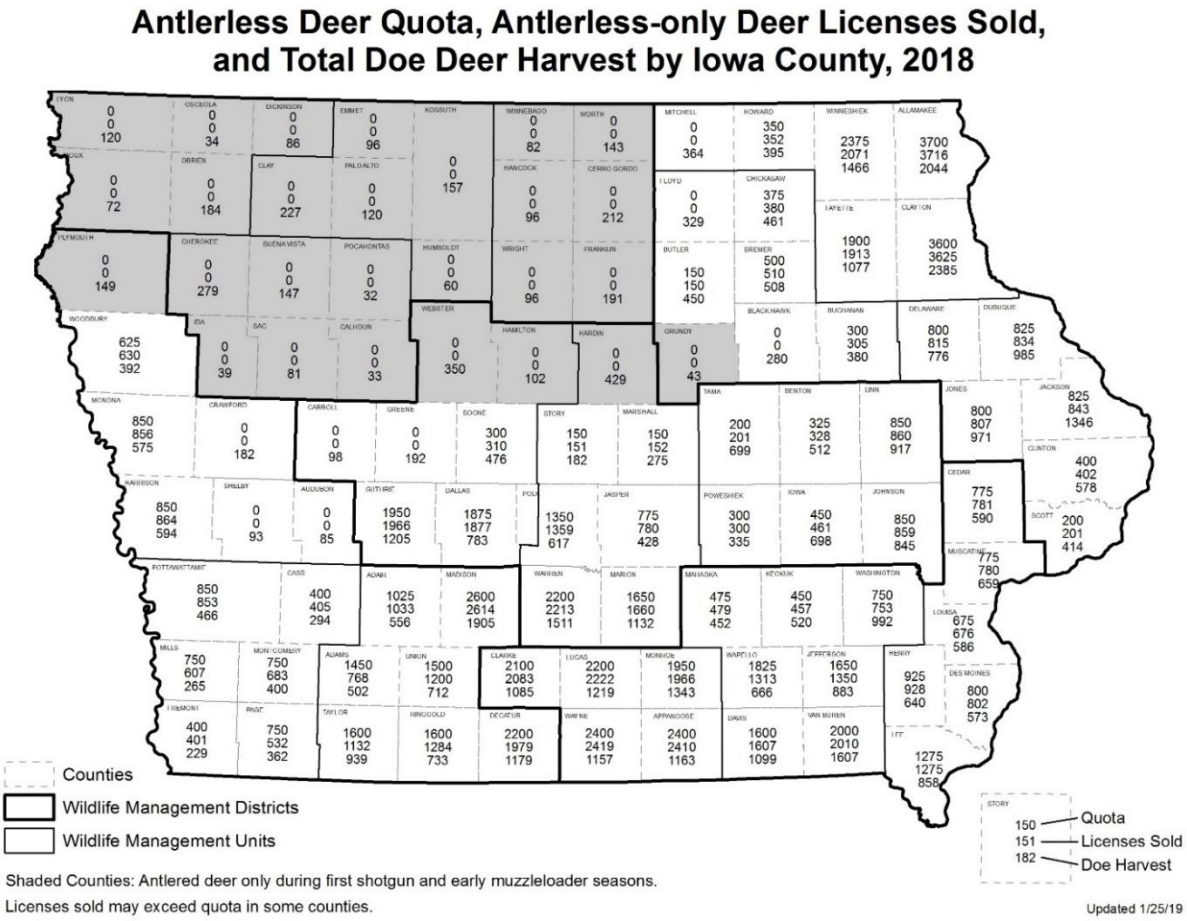


Figure 1.3 Resident antlerless-only deer quota, resident antlerless-only deer licenses sold, and total doe harvest in each county 2018-2019. Doe harvest may exceed licenses sold because antlerless deer could be harvested using either-sex, depredation, or special deer management unit tags.

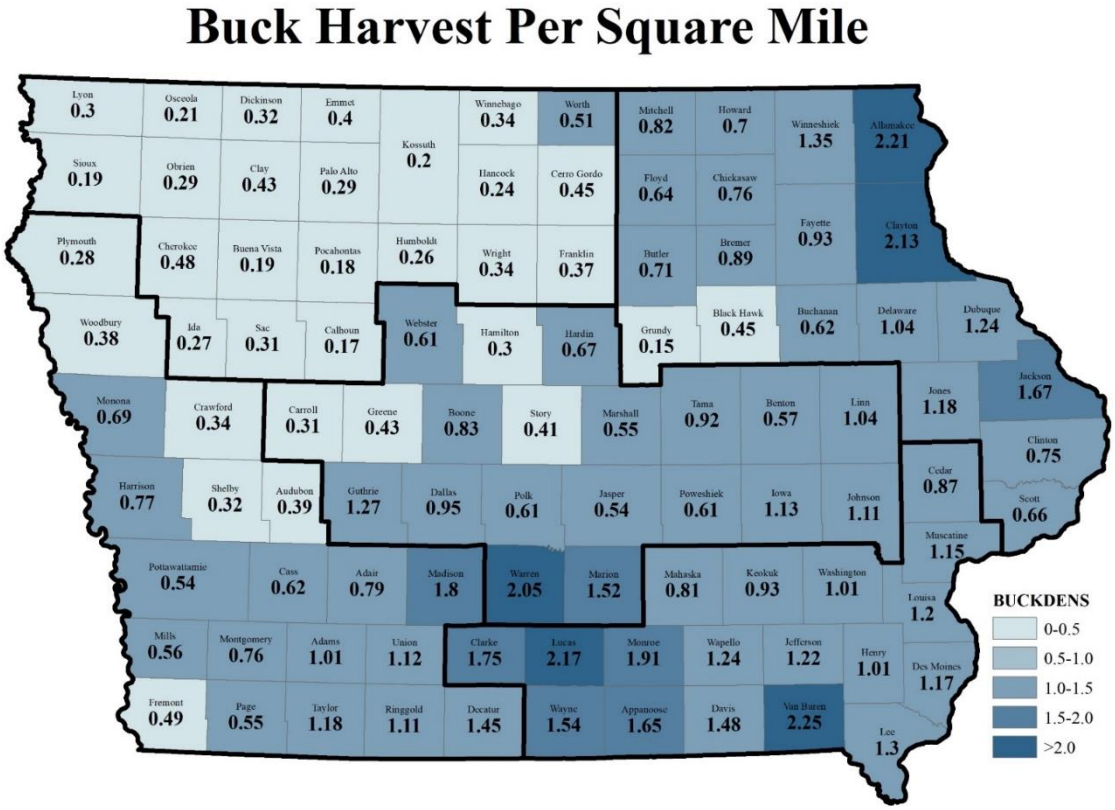
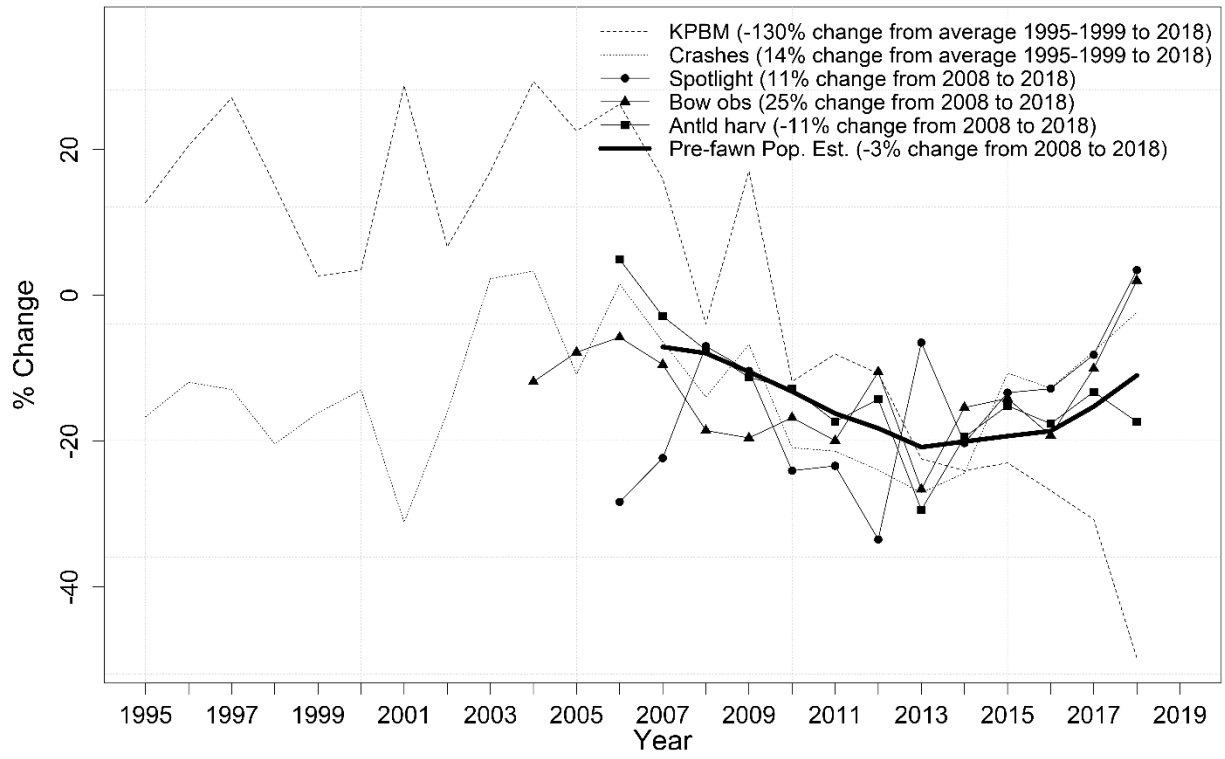


Figure 1.4 Average reported antlered deer harvest/mi^2 in each county during 2018-2019.



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, 1995-2018.

Tables

Table 1.1 License sales, hunters, reported harvest, and success rates by license type and season for 2018-2019.

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	1,111	2,030	229	9	3,379	37%	33%
		Antlerless	485	423	200	6	21	0	227	47%	88%
	LOT	Either-Sex	55	55	5	11	0	0	17	31%	29%
		Antlerless	57	57	22	0	0	0	27	47%	81%
		Total	**9,693**	**9,693**	**1,338**	**2,047**	**254**	**11**	**3,650**	**38%**	**37%**
Disabled	Paid	Either-sex	326	309	38	61	13	0	113	35%	34%
		Antlerless	43	34	20	0	2	0	22	51%	91%
	LOT	Either-Sex	18	18	2	0	0	0	2	11%	100%
		Antlerless	10	10	1	0	0	0	1	10%	100%
		Total	**397**	**397**	**61**	**61**	**15**	**1**	**138**	**35%**	**44%**
Early Muzzleloader	Paid	Either-sex	6,879	6,879	620	1,591	111	1	2,323	34%	27%
		Antlerless	1,480	1,121	565	3	82	0	650	44%	87%
	LOT	Either-Sex	1,242	1,242	120	210	23	0	353	28%	34%
		Antlerless	913	852	232	7	29	0	268	29%	87%
		Total	**10,514**	**10,514**	**1,537**	**1,811**	**245**	**1**	**3,594**	**34%**	**43%**
Shotgun 1	Paid	Either-sex	43,850	43,849	4,450	10,902	1,141	30	16,523	38%	27%
		Antlerless	16,237	10,049	6,403	94	1,103	19	7,619	47%	84%
Shotgun 2	Paid	Either-sex	47,363	47,363	5,465	8,666	1,401	101	15,633	33%	35%
		Antlerless	17,145	10,062	6,532	55	978	61	7,626	44%	86%
Shotgun 1 & 2	LOT	Either-Sex	22,931	22,931	1,597	3,731	362	25	5,715	25%	28%
		Antlerless	19,371	15,627	5,026	140	917	39	6,122	32%	82%
		Total	**166,897**	**51,225**	**29,473**	**23,588**	**5,902**	**275**	**59,238**	**35%**	**50%**
Late Muzzleloader	Paid	Either-sex	22,333	22,333	1,857	3,165	272	74	5,368	24%	35%
		Antlerless	10,700	7,042	2,624	12	402	91	3,129	29%	84%
	LOT	Either-Sex	2,625	2,625	157	254	29	7	447	17%	35%
		Antlerless	4,314	3,848	810	13	95	23	941	22%	86%
		Total	**39,972**	**3,194**	**5,448**	**3,444**	**798**	**195**	**9,885**	**25%**	**55%**

Season	Group[1]	Type	Licenses	Hunters	Reported Harvest					Success Rate[2]	Percent Does
					Does	Antlered	Buttons	Sheds	Total		
Archery	Paid	Either-sex	53,577	53,576	1,275	10,474	226	28	12,003	22%	11%
		Antlerless	23,040	15,597	5,793	36	791	14	6,634	29%	87%
	LOT	Either-Sex	5,206	5,206	161	1,112	26	2	1,301	25%	12%
		Antlerless	5,414	4,657	1,183	17	128	5	1,333	25%	89%
		Total	**87,237**	**57,137**	**8,412**	**11,639**	**1,171**	**49**	**21,271**	**24%**	**40%**
Senior Crossbow	Paid	Antlerless	322	322	54	0	14	0	73	23%	74%
Special Hunts		Antlerless	4,867	1,274	1,878	84	232	24	2,218	46%	85%
Depredation		Antlerless	3,875	1,572	1,997	23	209	13	2,242	58%	89%
Nonresidents[3]	Paid	Either-sex	6,063	6,063	101	2,715	25	7	2,848	47%	4%
		Antlerless	8,939	8,936	2,247	151	216	14	2,628	29%	86%
		Total	**340,252**	**166,021**	**52,544**	**45,564**	**9,115**	**634**	**107,857**	**32%**	**49%**

[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.

Season	2017-2018		2018-2019		% Change	
	Licenses	Harvest	Licenses	Harvest	Licenses	Harvest
Youth	9,377	3,217	9,693	3,650	3%	13%
Disabled	437	143	397	138	-9%	-3%
Archery	89,129	22,665	87,559	21,271	-2%	-6%
Early Muzzleloader	11,285	3,423	10,514	3,594	-7%	5%
Shotgun 1 (Paid)[1]	64,600	26,604	60,087	24,142	-7%	-9%
Shotgun 2 (Paid)[2]	61,242	19,955	64,508	23,259	5%	17%
Shotgun LOT[3]	42,017	11,161	42,302	11,837	1%	6%
Late Muzzleloader	40,272	9,629	39,972	9,885	-1%	3%
Special Hunts	4,351	1,772	4,867	2,218	12%	25%
Depredation	3,565	1,907	3,875	2,242	9%	18%
Nonresidents[4]	14,869	5,578	15,002	5,476	1%	-2%
January antlerless	NA	NA	3,059	797	NA	NA
Total	**339,651**	**105,578**	**340,252**	**107,857**	**0%**	**2%**

[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
1994	59,054	8,735	67,789	2,610	3,196	5,806	12,040	87,231

Year	Regular Gun			Muzzleloader			Archery	Grand Total*
	Paid	Landowner	Total	Early	Late	Total		
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
2017	46,559	11,161	57,720	3,423	9,629	13,052	22,665	105,578
2018	47,401	11,837	59,238	3,594	9,885	13,479	21,271	107,857

[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 2018-2019 deer season.

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Antld. Kill/ Sq. Mile
						Does	Antlered Bucks	
Adair	448	486	86	5	1025	47	44	0.79
Adams	432	426	63	4	925	46	47	1.01
Allamakee	1404	1962	290	37	3693	53	38	2.21
Appanoose	866	1179	229	26	2300	51	38	1.66
Audubon	175	81	20	2	278	29	63	0.39
Benton	410	453	69	6	938	48	44	0.57
Black Hawk	258	272	45	3	578	47	45	0.45
Boone	475	416	73	7	971	43	49	0.83
Bremer	392	468	91	4	955	49	41	0.89
Buchanan	350	376	63	5	794	47	44	0.62
Buena Vista	111	112	10	2	235	48	47	0.19
Butler	416	446	79	8	949	47	44	0.71
Calhoun	96	33	5	0	134	25	72	0.17
Carroll	180	97	32	4	313	31	58	0.31
Cass	346	275	46	5	672	41	51	0.62
Cedar	511	572	96	3	1182	48	43	0.87
Cerro Gordo	258	195	21	3	477	41	54	0.45
Cherokee	275	216	24	1	516	42	53	0.48
Chickasaw	382	452	89	5	928	49	41	0.76
Clarke	750	1048	153	14	1965	53	38	1.75
Clay	244	188	37	0	469	40	52	0.43
Clayton	1662	2329	326	43	4360	53	38	2.13
Clinton	520	552	113	5	1190	46	44	0.75
Crawford	244	163	34	2	443	37	55	0.34
Dallas	569	747	153	4	1473	51	39	0.95
Davis	753	1018	220	11	2002	51	38	1.48
Decatur	768	1106	109	6	1989	56	39	1.45
Delaware	593	683	120	5	1401	49	42	1.04
Des Moines	478	558	118	10	1164	48	41	1.17
Dickinson	121	75	23	0	219	34	55	0.32
Dubuque	758	980	180	20	1938	51	39	1.24
Emmet	156	87	12	3	258	34	60	0.4
Fayette	676	1037	136	11	1860	56	36	0.93
Floyd	321	299	64	6	690	43	47	0.64
Franklin	218	164	32	0	414	40	53	0.37
Fremont	257	208	38	2	505	41	51	0.49
Greene	247	187	37	0	471	40	52	0.43
Grundy	76	43	4	0	123	35	62	0.15
Guthrie	756	1102	193	17	2068	53	37	1.27
Hamilton	174	97	12	1	284	34	61	0.3
Hancock	138	74	13	3	228	32	61	0.24

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Antld. Kill/ Sq. Mile
						Does	Antlered Bucks	
Hardin	387	350	56	0	793	44	49	0.67
Harrison	533	522	86	3	1144	46	47	0.77
Henry	445	618	175	5	1243	50	36	1.01
Howard	332	374	81	6	793	47	42	0.7
Humboldt	112	58	12	0	182	32	62	0.26
Ida	115	39	8	0	162	24	71	0.27
Iowa	662	672	106	7	1447	46	46	1.13
Jackson	1077	1240	248	16	2581	48	42	1.67
Jasper	393	418	74	9	894	47	44	0.54
Jefferson	534	841	140	7	1522	55	35	1.22
Johnson	685	815	159	3	1662	49	41	1.11
Jones	691	886	149	17	1743	51	40	1.18
Keokuk	536	491	114	6	1147	43	47	0.93
Kossuth	193	141	17	1	352	40	55	0.2
Lee	683	828	165	7	1683	49	41	1.3
Linn	748	907	153	10	1818	50	41	1.04
Louisa	485	582	143	9	1219	48	40	1.2
Lucas	942	1131	204	17	2294	49	41	2.17
Lyon	178	94	19	2	293	32	61	0.3
Madison	1016	1591	226	10	2843	56	36	1.8
Mahaska	465	441	86	3	995	44	47	0.81
Marion	860	1060	192	7	2119	50	41	1.52
Marshall	319	267	23	2	611	44	52	0.56
Mills	250	252	44	6	552	46	45	0.56
Mitchell	385	310	45	5	745	42	52	0.82
Monona	481	470	70	2	1023	46	47	0.69
Monroe	833	1232	177	22	2264	54	37	1.91
Montgomery	321	367	62	4	754	49	43	0.76
Muscatine	510	648	162	11	1331	49	38	1.15
Obrien	166	129	12	3	310	42	54	0.29
Osceola	83	34	6	0	123	28	67	0.21
Page	295	308	48	4	655	47	45	0.55
Palo Alto	165	113	19	1	298	38	55	0.29
Plymouth	240	120	27	5	392	31	61	0.28
Pocahontas	105	32	6	0	143	22	73	0.18
Polk	360	639	127	6	1132	56	32	0.61
Pottawattamie	517	449	63	2	1031	44	50	0.54
Poweshiek	357	325	69	3	754	43	47	0.61
Ringgold	598	671	118	6	1393	48	43	1.11
Sac	180	81	8	0	269	30	67	0.31
Scott	299	399	76	4	778	51	38	0.66
Shelby	186	89	17	2	294	30	63	0.32

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Antld. Kill/ Sq. Mile
						Does	Antlered Bucks	
Sioux	142	69	18	0	229	30	62	0.19
Story	235	176	34	1	446	39	53	0.41
Tama	660	646	107	4	1417	46	47	0.92
Taylor	623	761	130	6	1520	50	41	1.18
Union	474	683	110	8	1275	54	37	1.12
Van Buren	1098	1425	296	11	2830	50	39	2.25
Wapello	542	637	109	3	1291	49	42	1.24
Warren	1176	1387	262	11	2836	49	41	2.06
Washington	573	913	158	14	1658	55	35	1.01
Wayne	821	1234	194	27	2276	54	36	1.54
Webster	435	303	58	5	801	38	54	0.61
Winnebago	137	81	17	0	235	34	58	0.34
Winneshiek	929	1332	179	12	2452	54	38	1.35
Woodbury	330	363	62	0	755	48	44	0.38
Worth	205	143	17	4	369	39	56	0.51
Wright	198	95	14	2	309	31	64	0.34
Total	**45,564**	**52,544**	**9,115**	**634**	**107,857**	**49%**	**43%**	**0.83**

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
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

Year	Regular Gun			Muzzleloader			Archery	Grand Total
	Paid	Landowner	Total	Early	Late	Total		
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
2017	125,842	42,017	167,859	11,285	40,272	51,557	89,129	339,651
2018	124,595	42,302	166,897	10,514	39,972	50,486	87,560	340,252

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	"		
1979	1-10	Dec 8-14	"				
1980	1-10	Dec 6-9	"	Oct 11-Dec 5	"		

Year	Zones	Shotgun Dates	Hours	Archery Dates	Hours	Muzzleloader Dates	Hours
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	"
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	"

Year	Zones	Shotgun Dates	Hours	Archery Dates	Hours	Muzzleloader Dates	Hours
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	"
2017	Statewide[i]	Dec 2-6	"	Dec 19-Jan 10	"	Oct 14-Oct 22	"
2017	Statewide	Dec 9-17	"	Dec 18-Jan 10	"	Dec 18-Jan 10	"
2018	Statewide[i]	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13-Oct 21	"
2018	Statewide	Dec 8-16	"	Dec 17-Jan 10	"	Dec 17-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 2018-2019.

Area	Type	Licenses Available	Licenses Sold	Reported Harvest
AMANA COLONIES ZONE	Archery & Firearm	250	157	67
AMES (CITY)	Archery	50	15	7
AMES (PERIMETER)	Archery & Firearm	50	30	4
BETTENDORF & RIVERDALE	Archery	125	83	41
CEDAR RAPIDS (CITY)	Archery	400	223	112
CEDAR RAPIDS (PERIMETER)	Archery & Firearm	500	276	100
CLINTON (CITY)	Archery	75	63	30
CORALVILLE (CITY)	Archery	200	138	55
CORALVILLE (PERIMETER)	Archery & Firearm	500	511	180
COUNCIL BLUFFS (CITY)	Archery	300	93	45
DAVENPORT (CITY)	Archery	250	262	94
DE SOTO NWR	Muzzleloader Oct. 22-23	100	7	0
DE SOTO NWR	Muzzleloader Dec. 17-18	100	15	4
DENISON (CITY)	Archery	50	21	7
DUBUQUE (CITY)	Archery	250	180	96
DUBUQUE (PERIMETER)	Archery & Firearm	250	110	46
ELDORA (CITY)	Archery	50	11	2
ELK ROCK STATE PARK	Muzzleloader	25	25	15
ELKADER CWD PERIMETER	Archery & Firearm	250	47	30
GREEN VALLEY STATE PARK	Muzzleloader	30	19	11
HARPERS FERRY CWD PERIMETER	Archery & Firearm	250	95	57
HONEY CREEK STATE PARK	Archery	50	38	28
IAAP	Archery & Firearm	1200	430	225
IOWA FALLS (CITY)	Archery	50	48	33
IOWA FALLS (PERIMETER)	Archery & Firearm	30	5	0
JEFFERSON COUNTY PARK	Archery	25	10	5
JONES COUNTY CENTRAL PARK	Archery	50	15	6
KENT PARK (ARCHERY)	Archery	100	66	32
KEOKUK (CITY)	Archery	50	17	9
KNOXVILLE (CITY)	Archery	25	0	0
LAKE AHQUABI STATE PARK	Archery	30	10	6
LAKE DARLING STATE PARK	Archery	50	28	12
LAKE IOWA COUNTY PARK	Archery	50	25	12
LAKE IOWA COUNTY PARK	Muzzleloader	75	20	10
LAKE MILLS (CITY)	Archery	50	6	1
LAKE OF THREE FIRES STATE PARK	Archery	40	38	21
LEDGES STATE PARK	Archery	40	25	7
MAQUOKETA CAVES STATE PARK	Archery	30	27	16
MARSHALLTOWN (CITY)	Archery	60	37	20
MARSHALLTOWN (PERIMETER)	Archery & Firearm	40	21	1
MASON CITY (CITY)	Archery	150	161	58
MOUNT PLEASANT (CITY)	Archery	50	3	1

Area	Type	Licenses Available	Licenses Sold	Reported Harvest
MUSCATINE (CITY)	Archery	150	127	59
OSKALOOSA (CITY)	Archery	100	25	11
OTTUMWA (CITY)	Archery	125	102	57
PIKES PEAK STATE PARK/MCGREGOR	Archery	100	38	11
PINE LAKE STATE PARK	Archery	30	27	9
POLK-DALLAS ARCHERY ONLY	Archery	1000	616	338
POLK-DALLAS RURAL ZONE	Archery & Firearm	75	25	7
REICHELT AREA	Muzzleloader	30	24	8
RIVERSIDE PK CARROLL CCB	Archery	40	1	1
SCOTT COUNTY PARK	Archery	50	18	11
SEYMOUR CWD PERIMETER	Archery & Firearm	250	112	66
SMITH WILDLIFE AREA	Firearm Dec. 3-7	3	3	1
SMITH WILDLIFE AREA	Firearm Dec. 10-18	3	3	1
SMITH WILDLIFE AREA	Firearm Dec. 19-Jan 10.	3	3	1
SQUAW CREEK PARK	Archery	100	65	28
STONE STATE PARK	Archery	50	50	18
WATERLOO & CEDAR FALLS	Archery	290	217	85
Totals		**8,699**	**4,867**	**2,218**

Table 1.8 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		
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	

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
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
	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	"				

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
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.
	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	“				

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
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	"				
2017	Oct 1-Dec 1 &	"	64	26	NA	Tags for anterless deer available in 63 counties
	Dec 18-Jan 10					
2018	Oct 1-Nov 30 &	"	60	24	NA	Tags for antlerless deer available in 64 counties
	Dec 17-Jan 10	"				

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

Table 1.9 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.

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
	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
	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

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
	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
	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.
2017	Oct 14-Oct 22	“	59	31	NA	7500 license quota, 27 counties buck only
	Dec 18-Jan 10	“	49	26	NA	Antlerless in 63 counties, no counties buck-only.
2018	Oct 13-Oct 21	“	57	34	NA	7500 license quota, 27 counties buck only
	Dec 17-Jan 10	“	45	25	NA	Antlerless in 64 counties, no counties buck-only

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

Table 1.10 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	70	4%			8,609	430	-5%	1,657	11%
2018	79	13%			6,230	312	-28%	1,879	13%
2019	86	9%							

[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 1900s 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 pre-settlement 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 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 1960s. Rio Grande and Merriam's subspecies were released at several sites during the 1960s 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). 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/mi^2 of timber per season.

2019: Iowa's 46th modern spring hunting season recorded an 11,389 turkeys harvested, with 47,423 licenses sold (Table

2.1 and Table 2.3). This was the 31st year the entire state was open to spring turkey hunting. The 38-day season (5 April-12 May, 2019) was partitioned into 5 separate seasons: a 3-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 39,343 resident shotgun licenses issued, which was a decrease of 1,123 from 2018. An additional 6,206 archery-only licenses were issued in 2019. Archery-only licenses harvested 1,209 turkeys, resulting in a 19.5% success rate. Twenty-two percent of the resident hunters were successful in harvesting a gobbler in 2019 (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 2.4). Declines observed in spring hunter success rates during 1983 and 1984 (Figure 2.4) can be partially explained by poor brood production during the summers of 1982 (Table 2.9). 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 30th spring that nonresidents were allowed to hunt turkeys in Iowa. Quotas filled in zone 4 (seasons 2, 3, 4), zone 5 (seasons 2, 3, 4), zone 6 (none filled), zone 7 (season 4) and zone 8 (seasons 1, 2, 3, 4) in 2019, leaving 365 licenses unassigned. Non-resident hunters harvested 816 turkeys (Table 2.1). Nonresidents reported a higher success rate for spring gobblers than did residents (43.5 % versus 22% respectively) (Table 2.4).

In spring of 2019, known jakes (spurs <½") harvested were 16% of the total harvest (14% the previous year). Turkeys harvested with spurs ½"-¾" were 27% (23% in 2017) of the total harvest. The majority (57%) of turkeys harvested in 2019 had spurs greater than ¾ of an inch in length.

Youth Turkey Season

Iowa's 15th youth spring turkey season has held April 5-7 2019. During the 3 day season, youth 15 and younger were allowed to participate with an accompanied licensed adult (adult licensed for one of the regular seasons). In 2005, the first year of the youth season, ages were limited to ages 12-15. Starting in 2006, ages 15 and younger could participate in the youth season. Youth season license sales decreased by 3 (4,861) from the 4,864 licenses sold in 2018 (Figure 2.8). Since the inception of ELSI (Electronic Licensing System of Iowa) in 2001, hunter age and gender has been recorded. From 2001-2006, youth spring turkey hunters (age 15 and under) increased each year. After the first youth season in 2005, youth licenses have shown an overall upward trend. (Figure 2.8). This is the third year of decreased youth season license sales. A code change in 2014 allowed for unfilled youth season tags to be valid for any other spring turkey season until filled. Twenty-five percent of youth hunters were successful in 2019.

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 maintain 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 through 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 6-60% (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-1980s. 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).

2018: Fall turkey hunter success rates dropped in 2018 to 6%, compared to 7% in 2016 (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 2018 to 6,935 from 7,439 in 2017. Bow-only season started October 1 and ran until January 10th 2019 with December 1st - December 16th excluded for the shotgun deer season. Gun/bow season was 46 days from October 16th - November 30th (Table 2.12). Forty-eight percent of the fall licenses were issued free to landowners, which was 2% higher than 2017. 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 6% of hunters reported harvesting a turkey, which was a large decrease from 2005, likely compiled with the mandatory reporting and low compliance rates (Table 2.8). Gun/Bow hunter success rates varied from 5.3% in zones 9 to 16% in Zone 8 (Table 2.8). Archery only licensed hunters reported a harvest of 108 turkeys in 2018 which was a 24% decrease from the 2017 season. The 4.5% success rate for 2018 archery only licenses was lower than the 6.1% rate from the previous year's

success rate (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 can be 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 and 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 2018 a mixed mode sampling system combined the traditional mail survey with an internet based survey. 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 2008-2018 are summarized in Table 2.9 and Table 2.10.

2018: The 2018 survey indicated generally consistent production across the state from the five year average. Production saw a slight dip in the northcentral region but generally the upper third of the State continues on a strong production pace. This is contradicted by the southern two thirds of the State that continue to see declines in production. Southwest and southeast Iowa continue to be of concern as well as central Iowa. Observers reported 4,558 hen turkeys on the 3,701 submitted responses statewide. Wild turkey brood production in 2018 was up per successful hen, and up with overall poults per hen statewide. Five of nine regions showed a decline in productive hens with the east central and southwest regions showing the largest one year change with a decline at 19% from the previous year. (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.

Rule Changes

Four rule changes to the turkey season occurred in 2019. The first license fee increase since 2002 raised the turkey hunting fee to $28.50. This may account for some drop in participation but was generally accepted by the majority of hunters. The youth season was shortened from the 9 day structure prior to the first regular season, back to the 3 day prior system that was originally in place. This was partially attributed to the fact that the youth tag is now valid for all seasons until filled, providing a youth tag hunter with 38 days of opportunity. With the introduction of additional nontoxic shot alloys available beyond just steel, the shot sizes for turkey hunting were updated to be inclusive for shot sizes 4-8 lead or nontoxic. Previously specific shot sizes where listed. The start of the first turkey season will now be on the second Monday of April. This replaces the floating date schedule.

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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.

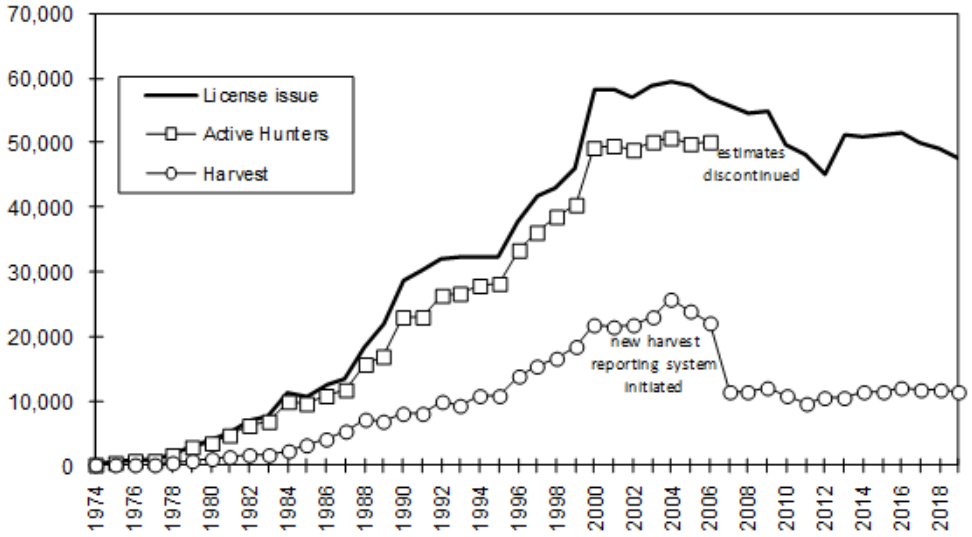


Figure 2.1 Iowa spring turkey hunting statewide estimates, 1974-2019

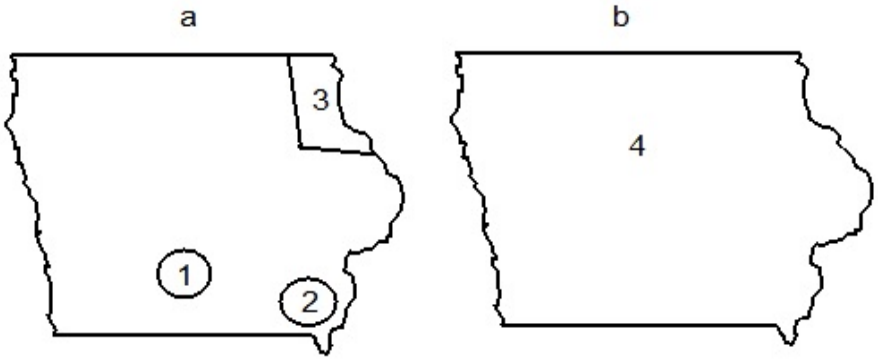
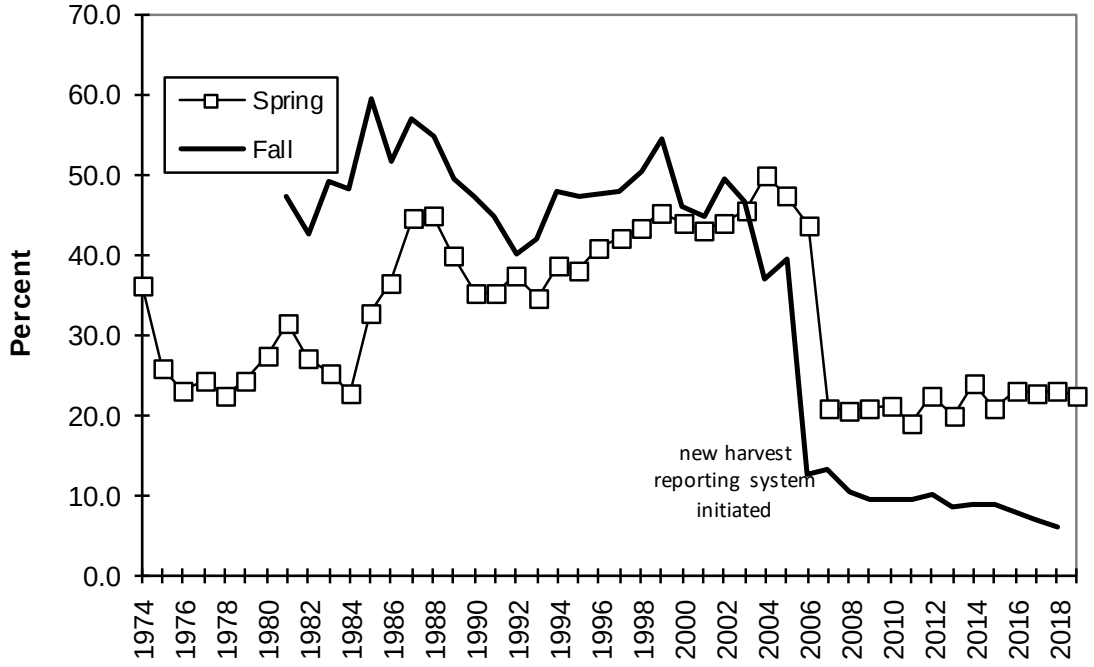


Figure 2.2 Spring turkey Hunting Zones, 1974 (a) and 2019 (b)



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

Figure 2.3 Iowa turkey harvest statewide success rates for residents, 1974-2019

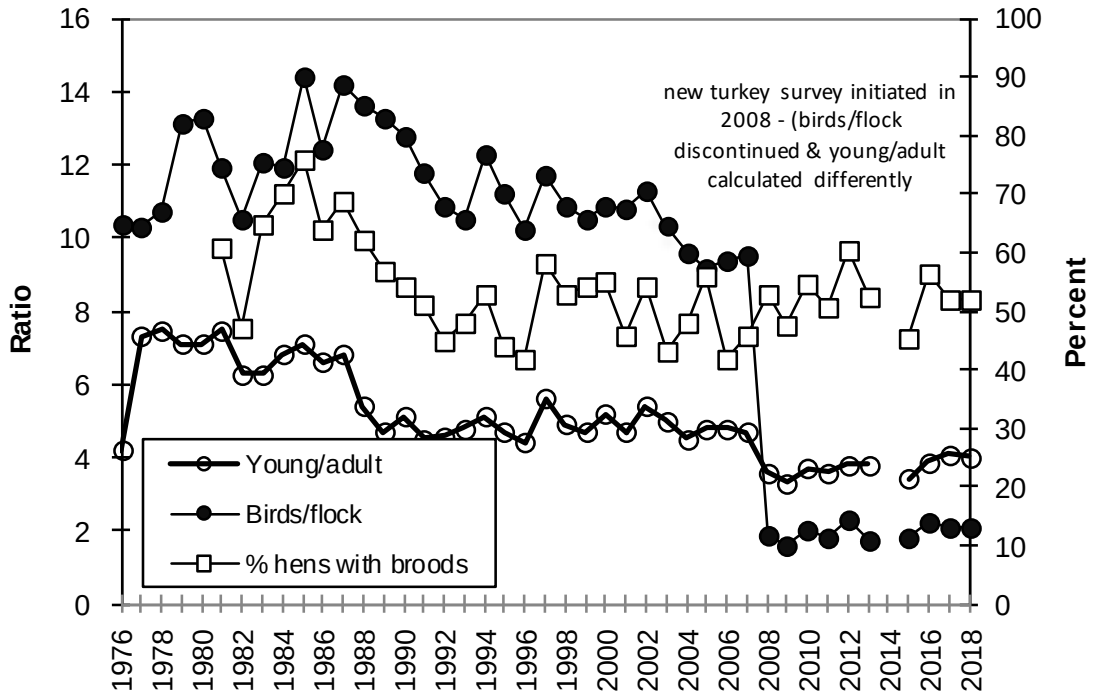
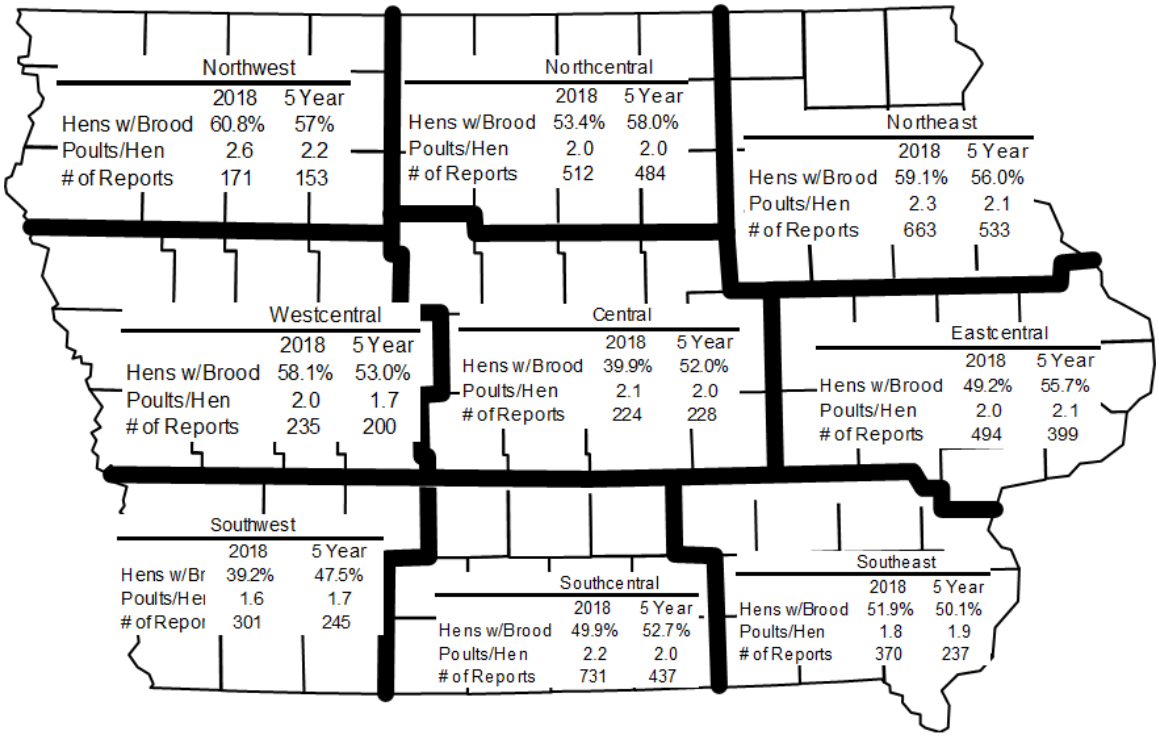


Figure 2.4 Iowa turkey brood survey statewide results, 1976-2018

	Statewide	
	2018	5 Year
Hens w/Brood	52%	51.5%
Poults/Hen	2.1	2.0
# of Reports	3701	2926



Hens w/Brood = percent of successful hens observed with a brood.
Poults/Hen = number poults observed per all hens.
# of Reports = number of times turkeys were observed by cooperators.

Figure 2.5 Iowa Summer Turkey Survey

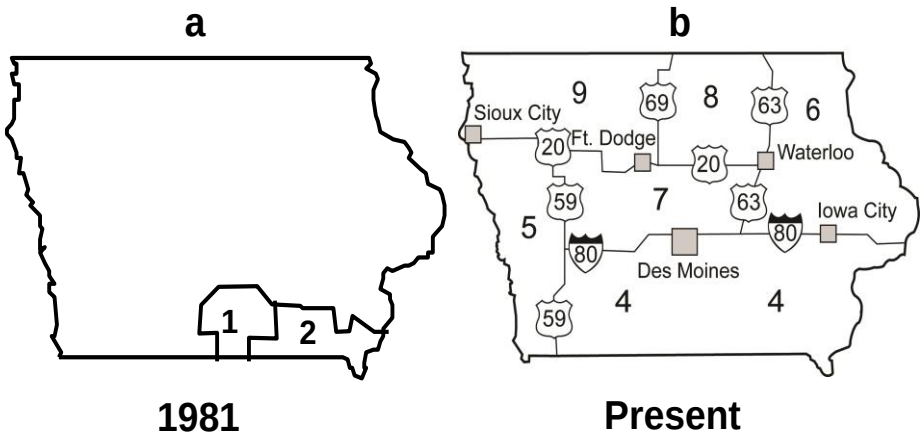
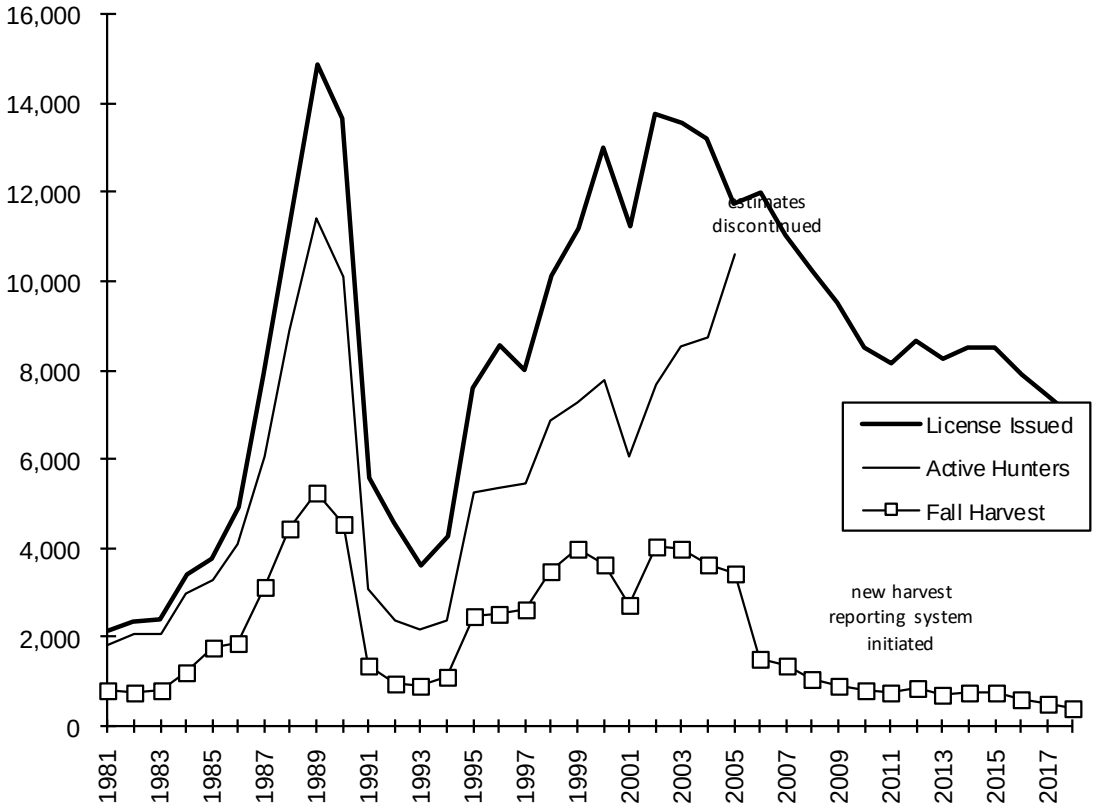


Figure 2.6 Fall turkey hunting zones, 1981 (a) and 2019 (b)



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, 1981-2018

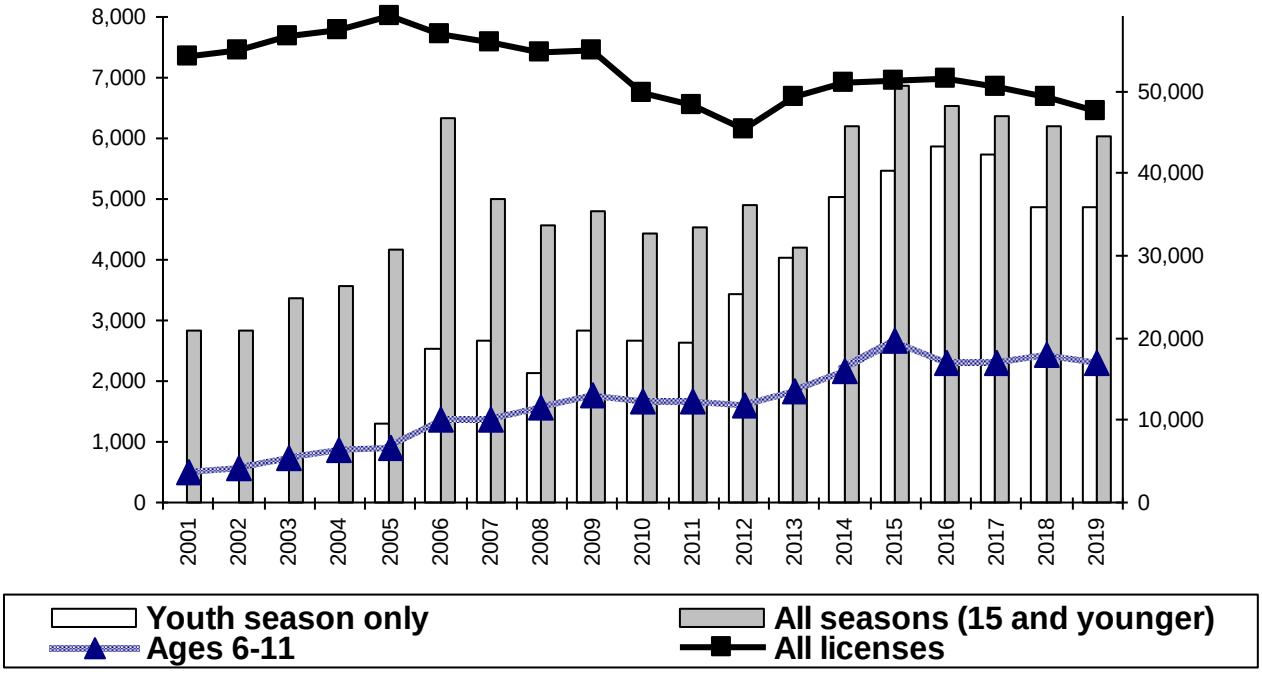


Figure 2.8 Iowa spring turkey license issue, 2001-2019

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

Year	Zone					Bow Only	Resident Total	Non-Resident	Total Harvest
	1	2	3	4	5				
2012	-	-	-	8,906	-	802	9,708	749	10,457
2013	-	-	-	8,838	-	986	9,824	741	10,565
2014	-	-	-	9,587	-	1,060	10,647	754	11,401
2015	-	-	-	9,528	-	1,090	10,618	787	11,405
2016				10,057	-	1,230	11,287	886	12,173
2017				9,748	-	1,188	10,936	843	11,779
2018				9,672	-	1,146	10,818	883	11,701
2019				9,364	-	1,209	10,573	816	11,387

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
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
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

Year	Zone					Bow Only	Resident Total	Non-Resident	Total Harvest
	1	2	3	4	5				
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
2018	-	-	-	40,466	-	6,701	47,167	2,047	49,214
2019				39,343		6,206	45,549	1,874	47,423

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

Year	Zone					Bow Only	Resident Total	Non-Resident
	1	2	3	4	5			
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
2018				23.5		18.8	22.9	43.1
2019				23.8		19.5	22.3	43.5

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
2017	-	-	-	894	220	747	261	153	146	2,457	7,439	0
2018				754	194	640	255	150	131	2,427	6,935	0

Table 2.6 Number of estimated active turkey hunters in Iowa fall turkey seasons 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. 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.

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	37	460	?	3,424	
2009	9	6	10	553	111	307	50	42	35	399	105	1,522	
2007	-	-	-	427	131	298	45	38	34	389	105	1,362	
2008	-	-	-	286	104	245	48	44	27	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	
2017	-	-	-	111	25	66	28	25	9	260	142	524	
2018				76	22	61	15	25	7	99	108	413	

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
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	

Year	Zone									Bow	Resident Mean	Non-Resident
	1	2	3	4	5	6	7	8	9			
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	
2017	-	-	-	12.4	11.4	8.8	10.7	16.3	6.2	6.1	7.0	
2018	-	-	-	10.1	11.3	9.5	5.9	16.7	5.3	4.4	5.9	

Table 2.9 Iowa wild turkey brood survey results by region for birds/flock and young/adult, 2008-Present.

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	4.21	2.42	3.69	1.94	4.06	2.04	5.04	2.47	4.40	2.45	4.30	2.46	3.50	1.94	4.40	1.97	4.17	2.20	4.09	2.12
2018	4.29	2.61	3.68	1.96	3.95	2.33	3.46	2.01	5.27	2.10	4.04	1.99	4.13	1.62	4.50	2.24	3.38	1.76	4.00	2.08

Table 2.10 Iowa wild turkey brood survey results by region for reports and percent hens with broods, 2008-Present.

= total reports and % hens with broods.

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	142	57.5	517	52.6	536	50.2	170	49.1	246	55.7	341	56.4	277	55.6	523	44.9	248	52.7	3037	51.9
2018	171	60.8	512	53.4	663	59.1	235	58.1	224	39.9	494	49.2	301	39.2	731	49.9	370	51.9	3701	52.0

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	Third 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		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	9	21,506	
1983	1	1/License		12 Apr-18 Apr	19 Apr-26 Apr	27 Apr-8 May			27	8	23,464	
1984	1	1/License		16 Apr-19 Apr	20 Apr-24 Apr	25 Apr-1 May	2 May-13 May		28	10	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	12	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	13	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	15	40,202	
1988	1	1/License		11 Apr-14 Apr	15 Apr-19 Apr	20 Apr-26 Apr	27 Apr-8 May		28	13	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	11	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	5	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	

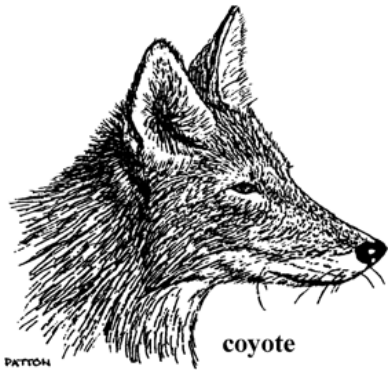
Year	Bag Limit	Poss Limit	Season					Splits	Season Length	# Zones	# Sq Miles	Major Rule Changes
			Youth	1	2	3	4					
1999	1	1/License		12 Apr-15 Apr	16 Apr-20 Apr	21 Apr-27 Apr	28 Apr-9 May		28	4	56,043	$22.50 fee, archers allowed 2 permits
2000	1	1/License		17 Apr-20 Apr	21 Apr-25 Apr	26 Apr-2 May	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 IA 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 eliminated
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	Youth season extended 6 days
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 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	
2018	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	
2019	1	1/License	5 Apr-7 Apr	8 Apr-11 Apr	12 Apr-16 Apr	17 Apr-23 Apr	24 Apr-12 May	38	1	1	56,043	$28.50 fee, youth 3 days prior to first season, Hard start of 2nd Monday of April, Shot sizes 4-8.

Table 2.12 Iowa's fall turkey gun hunting season, 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-1 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-8 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	9 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	$22 fee, licenses issued for zones 3 & 6 only (NE Iowa)
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	$22.50 fee, zone 8 added
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, 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 SF 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	
2017	1	1/License	16 Oct-1 Dec	54	6	56,043	
2018	1	1/License	16 Oct-30 Nov	46	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 (*Spilogale putorius*) skunk, red (*Vulpes vulpes*) and gray (*Urocyon cineroargenteus*) 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 has 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 Spring Spotlight Surveys for raccoons, other furbearer species, 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 Spring Spotlight Survey provides additional and useful data for managing important furbearer species in the state. To view the full report for the Spring 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, beavers 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.

For the past three years, the total fur harvest in Iowa has varied slightly but remained similar overall. The total harvest of all furbearer species in 2016-17 was 142,794 reported furs. In 2017-18 the total fur harvest was 178,935. For 2018-19, the total fur harvest was 162,688 (Table 3.1).

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 2018-19, the number of licensed furharvesters in Iowa declined slightly (14,141) from the previous year 14,493. But remains down from the 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 2018-19, there were 32 registered fur dealers (resident); similar to the previous year (31) in 2017-18 - consistent with the fur market trend (Figure 3.2).

Current Fur Market in Iowa

For the upcoming 2019-20 season, the overall wild fur market outlook again looks fairly weak except for coyotes, but may trend upward slightly from the previous year. Yet, still a stark contrast to when the market was relatively strong from 2010-2013. 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. The market for raccoon pelts remains weak which is unfortunate because an increased effort to harvest raccoons in Iowa is needed. Prices for wild bobcat, coyote, badger and otter are expected to remain somewhat decent for 2019-20. Muskrat prices may increase slightly from poor to fair. Demand for striped skunk, opossum, gray fox, beaver, and weasel has slowly declined over recent years and may continue that trend in the following year.

In 2018-19, furbearer prices and number of pelts sold in Iowa followed current furbearer market trends. Average pelt prices increased slightly from the previous year for raccoon, muskrat, coyote, badger, otter, and bobcats, while other species fetched only 50% of their value from just three years ago (Table 3.3). The total value for all species of pelts sold in Iowa also increased from the previous year of $1,146,285 to 1,512,178 in 2017 to 2018, respectively (Table 3.4). Mink, muskrat, and red fox prices were below the 5-year and long term pelt price averages in 2018-19. While raccoon prices in 2018-19 were just above the 5-year average of $6.71 at $7.90, and slightly above the long term average of $7.80 (Table 3.4).

2018-19 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, and the timing of freeze-up especially affect aquatic furbearer harvests throughout the state. Muskrat and beaver populations can be 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 2018-19 was different than the previous year. In 2018, weather conditions were generally normal heading into November, but then extended cold fronts along with snow blew in by the second and third week of November and kept temperatures throughout the state below normal (especially night time) temperatures remained throughout the state until mid-December. By mid to late December, temperatures moderated upward to near normal. Moisture levels varied throughout Iowa, with many parts in the north half wetter than normal, while parts of southern Iowa were variable with snow even blanketing several counties by mid-November. By mid-November, many waterbodies in the state were frozen over. In general, the weather was not ideal for water trapping furbearers throughout the state for much of November and early December, but ice conditions moderated some during early December to mid-January. Trapping on dry land was extremely variable due to the fluctuating temperatures and precipitation events. Even with low fur market prices on average, effort was up slightly in 2018-19 with a higher overall harvest than the previous year (Table 3.1).

The gray fox harvest (7) in 2018-19 remained low, down from the 2015-16 season (44) and 2016-17 (19) season (Table 3.3). The continued downward trend in the gray fox harvest is a concern, and obviously indicates severe declines in their population throughout the state. It should also be noted, that more gray fox are taken in for taxidermy or tanning than sold in the fur market. Those numbers are not reported to the Iowa DNR. 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 (70% and 30%), and fox (64% and 26%), however hunters harvested more coyotes (64%) than did trappers (36%) in 2018-19 (Table 3.5). 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 increased again from the previous year - an all-time high since 1930, and was well above the long term average. Decent fur market prices and a good population were likely reasons for another excellent coyote harvest for 2018-19 (Table 3.1).

The following sections cover 2018-19 harvest and population 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 94,174. By 1975, 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 4 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 2018-19 the statewide harvest for raccoons was 115,132 which was an increase in harvest from 2017 (Table 3.1). The raccoon trapping and hunting season was open from Nov 3, 2018-Jan. 31, 2019, with no daily bag limits nor possession limit (Table 3.6). The average raccoon pelt price in Iowa was $7.90 ($1.95-$16.00), which was up slightly from the 2017-18 average price ($5.71; Figure 3.4; Table 3.3). Trapping accounted for 70% of the total harvest, similar to the previous season, while hunting accounted for the remaining harvest (30%, Table 3.5).

The 2018 Iowa Bowhunter Observation Survey indicated populations trended up slightly from the previous year throughout all regions of the state except southwest and south central Iowa, but still remain high (Figure 3.5). Results from the 2019 Spring Spotlight Survey indicated the overall statewide raccoon population increased from the previous

year again (Figure 3.6). However, individual county by county Spring 2018 Spotlight Survey data also showed results varied in Iowa with some of the highest counts occurring in the southwest and east-central counties (Figure 3.7). The regional distribution averaged over the past five years shows a similar trend with higher distributions relative to other counties in southwest and east central Iowa (Figure 3.8). Field reports of raccoon litters this spring and summer indicate the population will again trend upward in some regions for 2019-20. Litter sizes and abundance vary drastically by region, but overall the statewide raccoon population remains high.

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. It should be noted the muskrat harvest, and population has been on a downward trend since the late 1980s. Even when the average price increased for muskrats during the 2000s, the harvest didn't track upward with it, indicating a poor population that no longer boomed with the water cycle as is once did (Figure 3.10).

In 2018-19, the muskrat harvest was 16,320, which was a significant decrease from the previous season (40,913, Table 3.3). In 2018-19, the average muskrat pelt price in Iowa was $2.64 ($1.44-$3.57), which was up slightly from the previous year ($2.43; Figure 3.10; Table 3.3). From 1997-2018, the average pelt price has remained above the long term average, but harvest has trended downward overall (Figure 3.10, Table 3.4).

Trapping season length (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in previous years (Table 3.6).

Heavy rains and some flooding occurred across much of the state in the spring and fall of 2018, this may have resulted in poor food availability in wetlands across Iowa. Figure 3.10 shows that muskrat harvest used to mirror the average pelt price (fur market) until the late 1990s, after that the average pelt price went up especially by 2013, yet harvest no longer rose with the average pelt price. This indicates the population is trending downward. There is also concern whether other environmental factors are suppressing the muskrat population besides water levels. Muskrat populations seem to increase whenever favorable weather conditions do occur especially in our renovated shallow lakes in north Iowa. But at the statewide level the population has not increased in several years as 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 varied annually, and 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). Then from 2009 to present, the harvest has increased significantly overall.

In 2018-19, the coyote harvest was the highest on record at 18,676 which was an increase from the previous season's harvest (15,185) and well above the long-term average (Table 3.1). It's notable the coyote harvest has been high for the past two years (2017 and 2018). The harvest for 2018-19 was nearly twice as high as the harvest in 2016-17 (9,283). The trapping and hunting season length (trapping: 3 Nov-31 Jan, hunting: year round), daily bag limits (no limit), and possession limits (no limit) remained the same to previous years (Table 3.6). The average coyote pelt price in Iowa for 2018-19 was 24.97 ($2.00-$28.28), which was slightly higher than the 2017-18 average price ($21.17; Table 3.3). Coyote pelts have held their value during the recent fur market decline. Trapping accounted for a lower proportion of the harvest (36%) than hunting (64%) which is similar to the previous season (Table 3.5). Ideal hunting conditions mainly occurred in January and February with significant snowfall to portions of the state. Strong pelt prices, changes in the technology of the equipment used for coyote hunting, TV shows, videos, etc. have all contributed to an overall popularity surge in coyote trapping and hunting effort.

The Iowa Bowhunter Observation Survey indicated the statewide population trends were variable for 2018 depending on the region of the state. There was an upward trend in 2018 throughout the north central, south central, north east, and east central regions of the state, but trended downward slightly in northwest, southwest and central Iowa (Figure 3.12). Overall statewide, coyote population trends from 2012 to 2018 appear to be stable or increasing in all regions and remain quite high for many regions of the state, especially the southwest. The 2019 Spring Spotlight Survey trended down slightly overall for number of coyotes seen from the previous year statewide (Figure 3.13). The 5-year average relative distribution among counties shows the highest abundance in the western half of the state and the east central region of the state, and a relatively high abundance throughout (Figure 3.14). In 2018, there were a similar number of reports to 2017 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 decline and since the 2004-05 season, remained below the long-term average of 10,631 (Table 3.1, Figure 3.13).

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 2018-19, the red fox harvest was 1,357, which is down from the previous season (2,284), near the 5-year average, and 14% of the long-term average (Table 3.1). Trapping and hunting season length (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained the same to previous years (Table 3.6). In 2018-19, the average red fox pelt price in Iowa was $9.39 ($4.00-$22.33), which was down slightly from the 2017-18 price ($11.81; Table 3.3). The average pelt price has remained higher than the harvest since 2005 which also indicates the fox population statewide is still relatively low but stable (Figure 3.15). Trapping accounted for 64% of the total harvest (red and gray fox), which was down from the previous season (Table 3.5). Hunting accounted for 26% of the total harvest (red and gray fox).

The 2018 Iowa Bowhunter Observation Survey indicated that population trends throughout most of the regions of the state were up slightly compared to the previous years, especially the central region (Figure 3.17). The 2019 Spring Spotlight Survey also showed an increase overall from the previous year (Figure 3.18). That survey also shows the 5-year average of highest distribution of red fox relative to other counties occurs in the central and eastern half of Iowa, and remains low in western Iowa (Figure 3.19). Field reports during the spring and summer of 2018 and 2019 also indicate an increase in red fox litters in some regions of the state, but remain quite variable locally. There is an increasing number of

red fox litters being reported in urban areas throughout central Iowa.

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 3.20). Since 1996-97, gray fox harvests have remained below their long-term average of 866.

In 2018-19, the reported gray fox harvest was again at an all-time low of 7 in Iowa (Table 3.1). In 2017-18, the gray fox harvest was only 4, well below the recent and long-term averages (Table 3.1). Trapping and hunting season length (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained the same as previous years (Table 3.6). The average gray fox pelt price in Iowa was $10.00 ($8.00-$15.00), which was similar to the 2017-18 average price ($11.00; Table 3.3). Trapping accounted for 64% of the total harvest (red and gray fox), which was lower than the previous season (Table 3.5). Hunting accounted for 26% of the total harvest (red and gray fox).

The 2018 Iowa Bowhunter Observation Survey indicated a low number of observations statewide across most regions of the state. Populations trended upward slightly from the previous year in the north east and central regions of Iowa and stable to downward especially in south east Iowa (Figure 3.21). Recent efforts to conduct research on the cause(s) of the gray fox population decline has been initiated in the Midwest. It is a concern.

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 3.22).

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 2018-19 decreased to 3,893 from 5,438 in 2017-18. Trapping season length (3 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 2018-19 average beaver pelt price in Iowa was $6.83 ($3.00-$8.69), which was the same as the 2017-18 average pelt price ($6.80; Table 3.3). Field reports, observations, and nuisance complaints actually indicate the beaver population is trending upward despite the low harvest in 2018-19. The low harvest is very likely due to a low amount of trapping effort not a lack of beavers. Trapping beavers and handling their pelts for market is a lot of work. Because their pelt value is so low, many trappers are choosing to pursue other species of furbearers instead. However, the beaver castor market remains strong.

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-$28.16 per pelt). During World War 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 3.23). Mink harvest does still continue to mirror the average pelt value in Iowa meaning the amount of harvest trends upward or downward with pelt values (Figure 3.24).

The 2018-19 mink harvest was 4,021 which is a decrease from 5,182 in the previous season (Table 3.1). The 2018-19 harvest was just below the 5-year and 10-year averages, and well below long-term average (19,192) (Table 3.1). Again,

fur prices, rather than the population level, has reduced the trapper effort for mink. 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 (3 Nov-31 Jan), daily bag (no limit), and possession (no limit) limits remained the same as in previous years (Table 3.6). The average mink pelt price in Iowa was $5.17 ($2.00-$8.10) in 2018-19, which was similar to the 2017-18 price ($5.38; Table 3.3).

Opossum

During the 1933-34 harvest season, the opossum harvest reached a current, all-time high of 83,625 (Figure 3.25). 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 2018-19 opossum harvest was 914, which decreased from the previous season (1,341) below the 5-year, 10-year and long-term averages (Table 3.1). Trapping season length (3 Nov-31 Jan), daily bag (no limit), and possession limits (no limit) remained the same as previous years (Table 3.6). The average opossum pelt price in Iowa was $1.02 ($0.00-$3.00), which was slightly higher than the 2017-18 price ($0.84; Table 3.3).

The 2018 Iowa Bowhunter Observation Survey indicated the population trended upward in west central, central and eastern regions of Iowa and downward in the northwest, north central, and southwest regions (Figure 3.26). The 2019 Spring Spotlight Survey showed overall statewide observations trended down considerably from the previous two spring surveys (Figure 3.27). The five year average distribution of opossum is highest in southwest Iowa and lower in northern and central regions of the state (Figure 3.28).

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. 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 slightly increasing but fluctuates up and down annually (Figure 3.29, Table 3.1).

In 2018-19, the badger harvest was 547 which was up from the previous year (470, Table 3.1), slightly above the 5-year harvest average and slightly below the long-term averages for Iowa. Trapping season length (3 Nov-31 Jan), daily bag (no limit), and possession limits (no limit) remained the same as previous years (Table 3.6). For 2018-19, the average badger pelt price in Iowa was $12.22 ($2.00-$20.00), which was slightly higher than the 2017-18 price ($10.02; Table 3.3).

The 2018 Iowa Bowhunter Observation Survey indicated that populations trended upward in the west, southwest, and south central regions of Iowa and were down in northwest region from the previous year. Overall though, this survey shows the statewide population trend for badgers in Iowa is mainly stable (Figure 3.30). Populations in western Iowa have typically remained a little higher than the remainder of the state in most years. This is especially evident looking at the five year average distribution of relative abundance among counties (Figure 3.31). This is likely due to the open terrain, less precipitation, and lighter soils which badgers prefer.

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 at that time (Figure 3.32). 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. For 2018, no new documented spotted skunk reports occurred. 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 3.33).

In 2018-19, the striped skunk harvest was 557, which was down from the previous season, which is above the 5-year average (514) but below the 20-year average (710, Table 3.1). Trapping season length (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to previous years (Table 3.6). The average striped skunk pelt price in 2018-19 for Iowa was $2.81 ($0.50-$7.00), which was up only slightly from the 2017-18 price ($2.67; Table 3.3).

The 2018 Iowa Bowhunter Observation Survey indicated the population trended down in central and southern regions from the previous year and trended upward in the west, north west, and north east regions (Figure 3.34). This survey shows an overall downward trend in the striped skunk population for the past 10 years (2008-2018) in all regions of Iowa. 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 2019 Spring Spotlight Survey showed total striped skunk observations for the entire state increased slightly from the previous spring 2018 (Figure 3.35). The 5-year average of relative distribution compared among counties is highest in the southwest and northeast regions of Iowa (Figure 3.36).

Although both surveys (bowhunter and spotlight) indicate that decent numbers exist throughout Iowa, low market prices for skunk furs have likely kept the effort to harvest relatively low in comparison to other species (e.g., badger) which remain at low population numbers yet produce relatively higher harvests due to good fur prices. The overall downward population trend indicated by the bowhunter survey will continue to be monitored.

Weasel

Weasel harvests during the 1930s and 1940s were characterized by dramatic fluctuations (Figure 3.37). 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 2018-19, the reported weasel harvest was 1 animal (Table 3.1). Although in should be noted that most trappers that target weasels keep most of their weasel pelts for tanning and don't sell them as pelts in the regular fur market. Trapping season length (3 Nov-31 Jan), daily bag (no limit), and possession (no limit) limits remained similar to previous years (Table 3.6). The average weasel pelt price in 2018-19 for Iowa was $1.00 ($1.00-$2.00), which was slightly lower than the 2017-18 price ($1.50; Table 3.3).

Low harvest numbers may indicate that statewide populations have not recovered that much 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 and distribution throughout the state.

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. The otter harvest quota was increased in subsequent years as the population increased. The otter harvest quota was lifted for the first time during the 2013-14 trapping season. The general furharvest season timing and length was used for this otter trapping season; 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 2017-18 season, otter harvest increased with a total of 882 otters trapped. Otter harvest for 2018-19 was 576 animals. County by county harvest is documented through CITES tag harvest reports which shows the highest otter harvests again occurred in eastern Iowa (Figure 3.38).

The average otter pelt price in 2018-19 was $19.04 ($10.00-$28.00), which was higher than the 2017-18 average price ($17.91; Table 3.3).

Since the trapping season was established in 2006, the sex ratio of harvested otters has remained relatively even (Figure 3.39). Foothold traps, conibear traps, and snares were the most common harvest method in the state (Figure 3.40; Table 3.9). The number of furharvesters intentionally targeting otters (41%) is slowly increasing, but incidental captures appear to be the most common cause for capture in Iowa at this time (53%) (Figure 3.41 and Figure 3.42).

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 2018 bowhunter survey indicated the population trended upward modestly in central, east central, and south central regions, but were down in the northeast and northwest regions. This survey shows the otter population trend from 2008 to 2018 at the statewide level is generally in most regions (Figure 3.43).

Otter populations appear to be quite variable from region to region throughout Iowa, but generally doing very well. Habitat quality is probably the most limiting factor. With the pelt value still fair to poor during the 2018-19 season, the harvest was down from the previous year - still below the 1,000 mark. This is likely due to lower trapper effort and early ice conditions in November, 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 3.44). 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 fur market declined and the bobcat harvest has decreased to 706 and 535 in 2014-15 and 2015-16, respectively. For the 2017-18 season, the bobcat harvest was 819. The bobcat harvest decreased to 687 in 2018-19. The average bobcat pelt price in Iowa for 2018-19 was $58.60 ($10.00-$75.00), which was higher than the 2017-18 price ($38.40) which makes bobcats the most valuable species for the fur market (average pelt value) of all Iowa furbearer species (Table 3.3). Harvest was highest in the southcentral to south east regions of Iowa (Figure 3.45). In 2018-19, bobcat harvest occurred more evenly throughout the season. More so than previous years when bobcat harvest was mainly in November and decreased in December and January. The most harvest occurred on weekends and holidays (Figure 3.46). There were 82 bobcats harvested by gun deer hunters in 2018, which is increasing. Archers harvested 50 bobcats in 2018 (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 (49%), than males (44%), and 7% unknown (Figure 3.47). Snares, conibear traps, and foothold traps were the most common trapping method and calling the most common hunting method in the state (Figure 3.48; Table 3.11). The number of bobcats intentionally harvested (43%) has been slowly increasing but remained similar to incidental harvest (44%) in 2018-19 (Figure 3.49 and Figure 3.50).

The 2018 Iowa Bowhunter Observation Survey indicated that since regulated bobcat trapping began in 2007, populations have remained fairly stable to increasing throughout the state. For 2018, bobcat observations trended upward in the western region, the northwest region, and the southeast region especially (Figure 3.51). Regional population trends show the highest number of observations occurred in south east Iowa in 2018. This is fairly consistent with data documented from research, harvest, road kills, incidental trapping captures, and field reports of sightings. Bobcat population expansion rates in central and east central Iowa have finally started to increase. Bobcat population expansion into 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. The bobcat population in Iowa is still expanding in numbers and distribution in a south to north direction generally. 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 2019-20, bobcat harvest season changes were made. The bag limit was increased from 1 to 3 for the southern 3 tiers of counties in Iowa. The season dates and season length will remain the same as it was for the 2018-19 season (2 Nov-31 Jan).

Figures

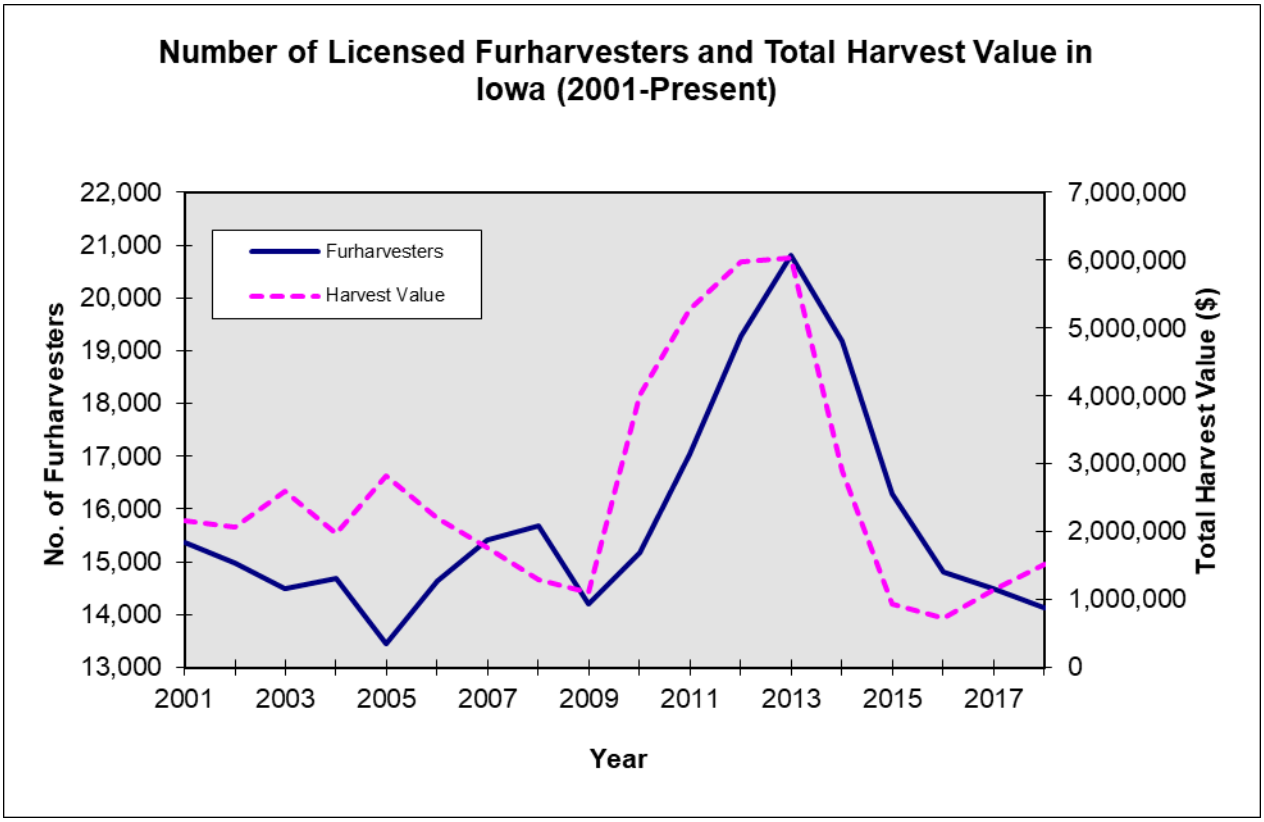


Figure 3.1 Number of licensed Iowa furharvesters and total harvest value in Iowa (2001-Present).

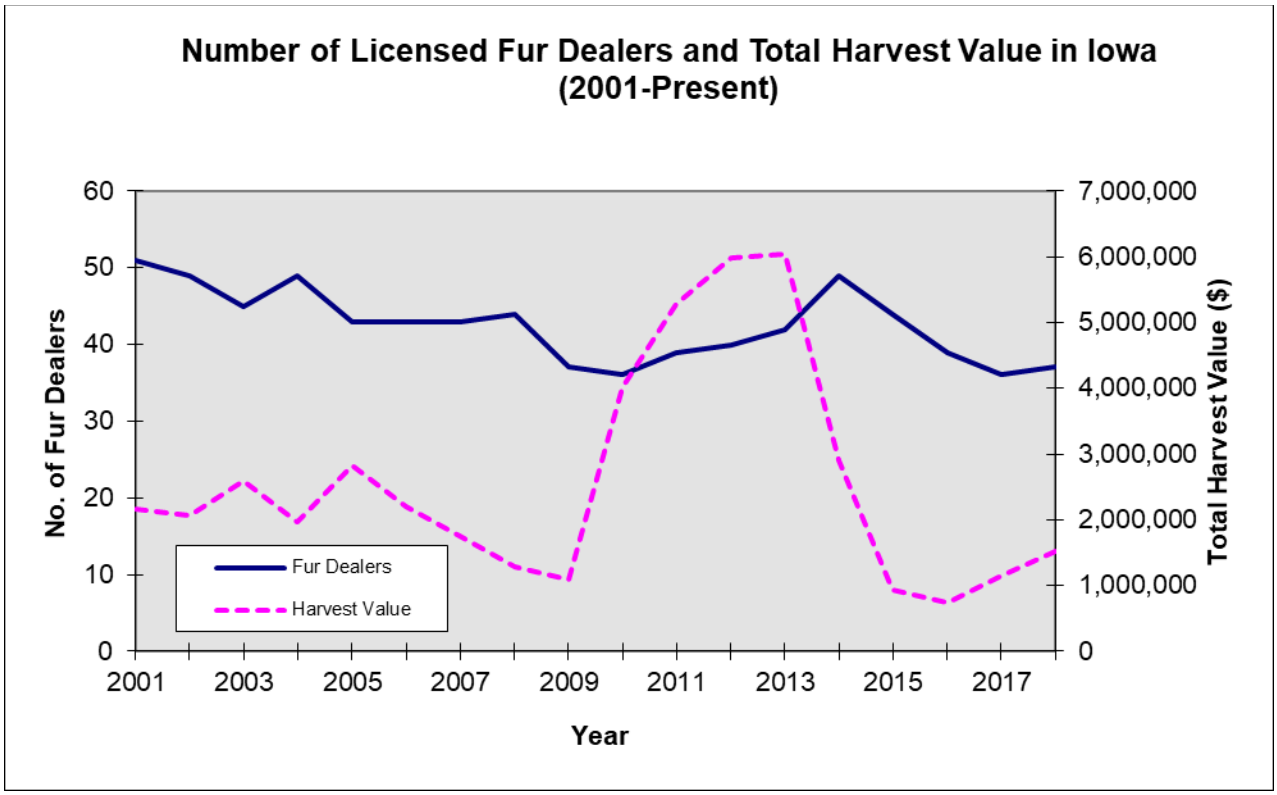


Figure 3.2 Number of licensed Iowa fur dealers and total harvest value in Iowa (2001-Present).

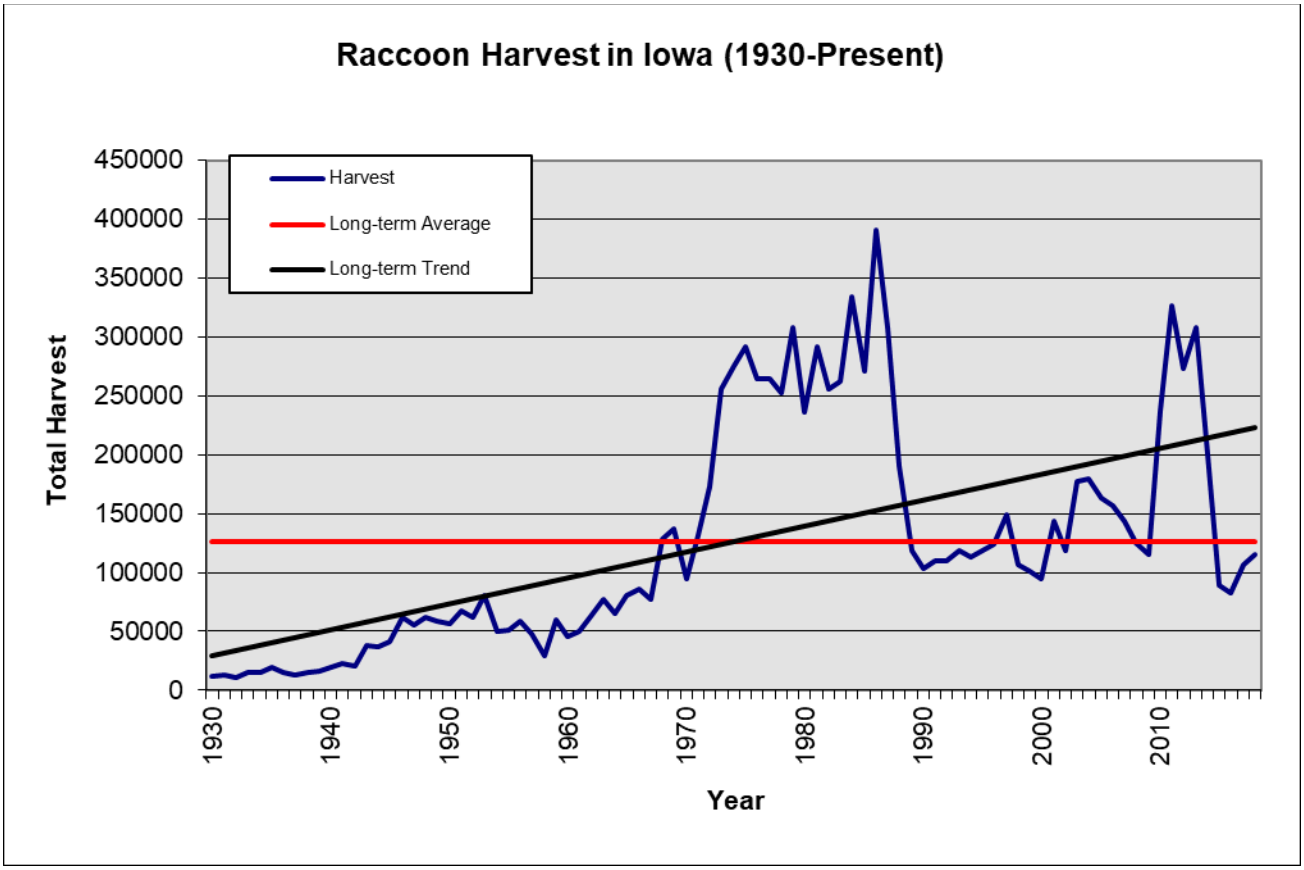


Figure 3.3 Annual raccoon harvests reported by licensed fur dealers in Iowa (1930-Present).

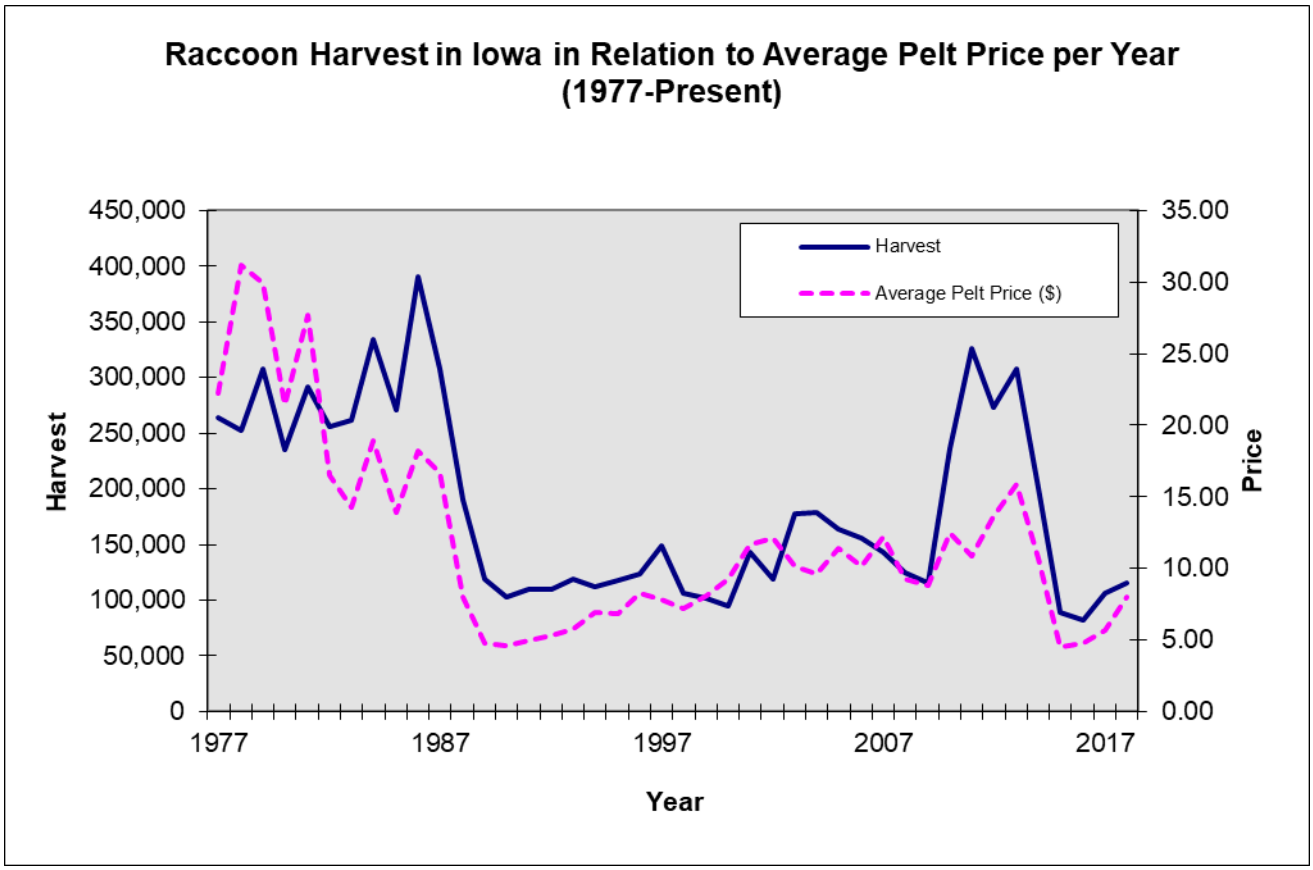


Figure 3.4 Raccoon harvest in Iowa and average pelt price paid by fur dealers (1977-Present).

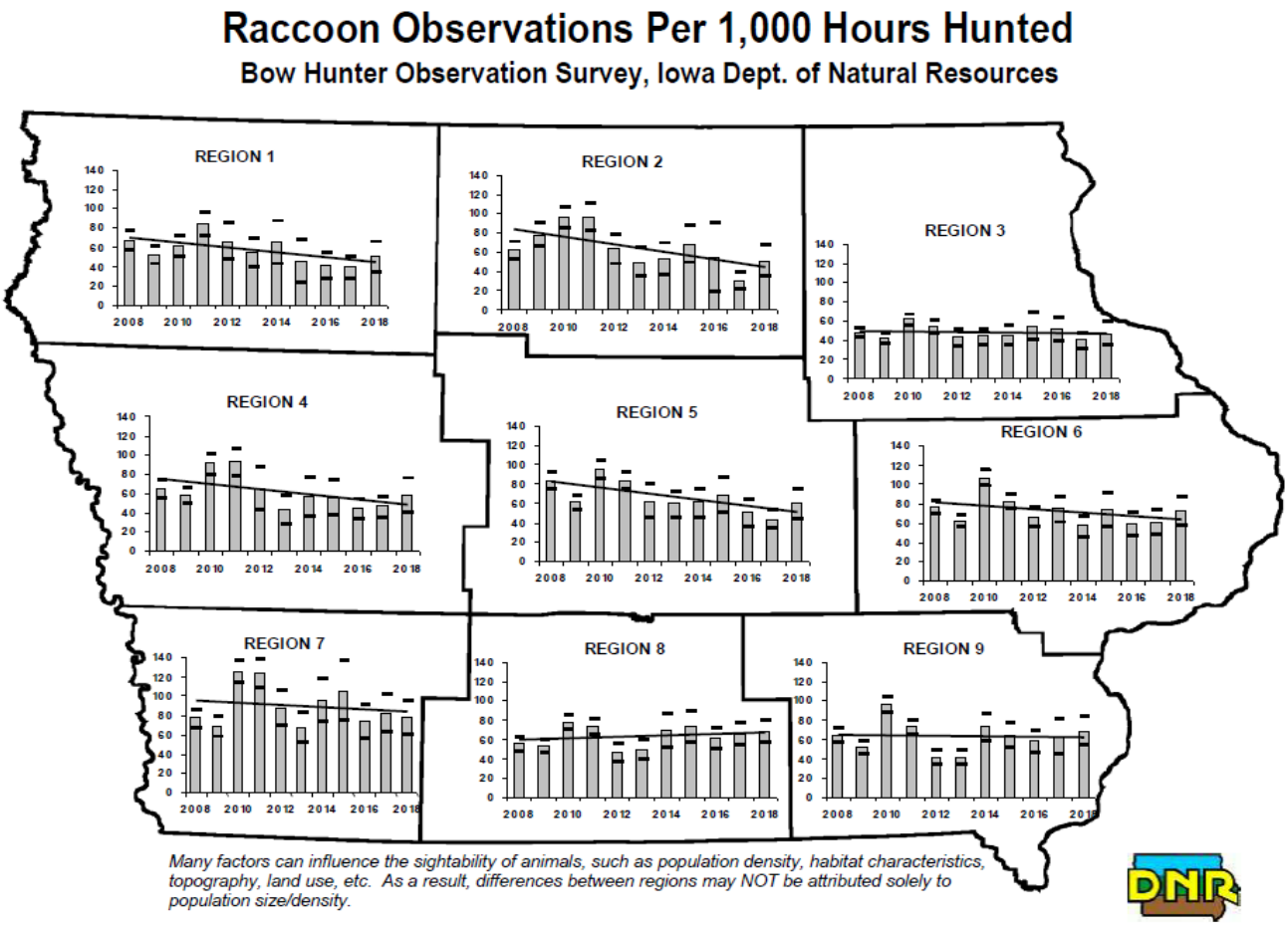


Figure 3.5 Results of raccoon Bowhunter Observation Survey in Iowa (2008-Present).

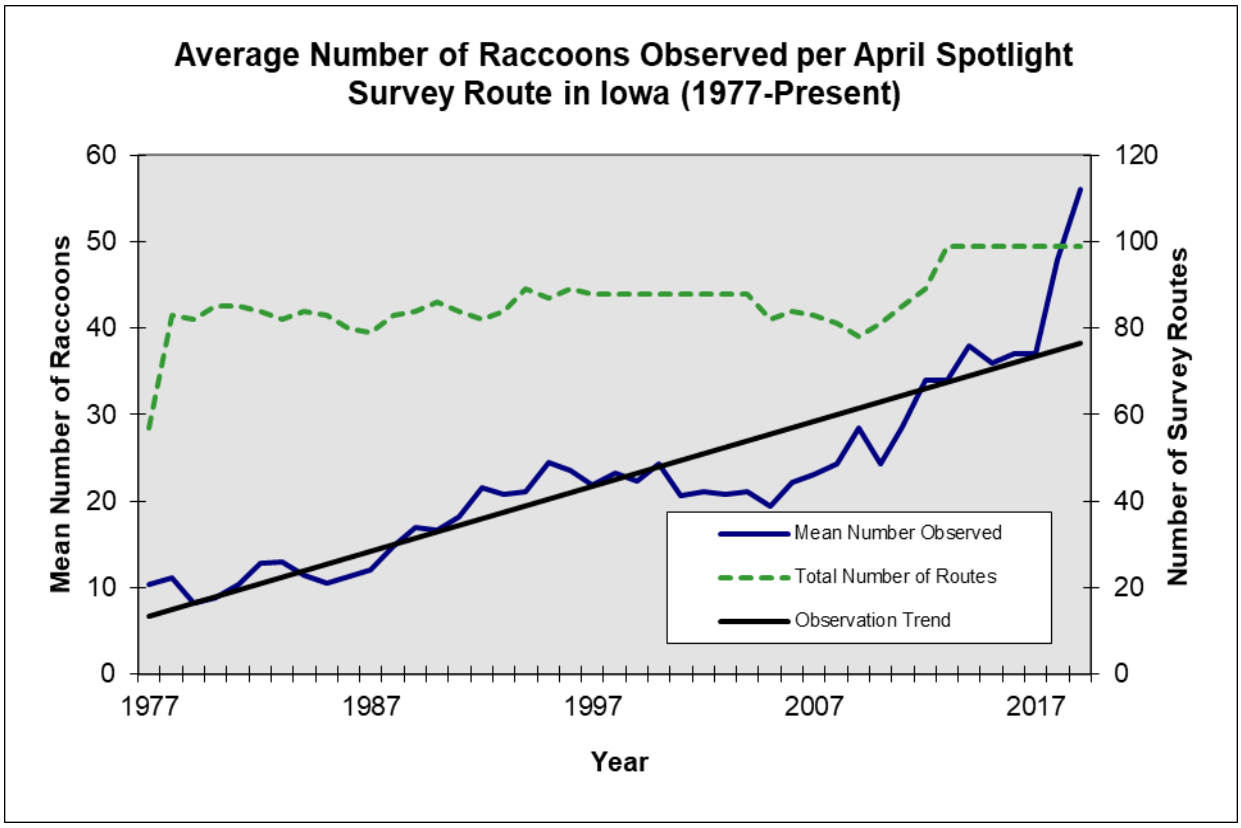


Figure 3.6 Results of April raccoon spotlight surveys in Iowa (1977-Present)

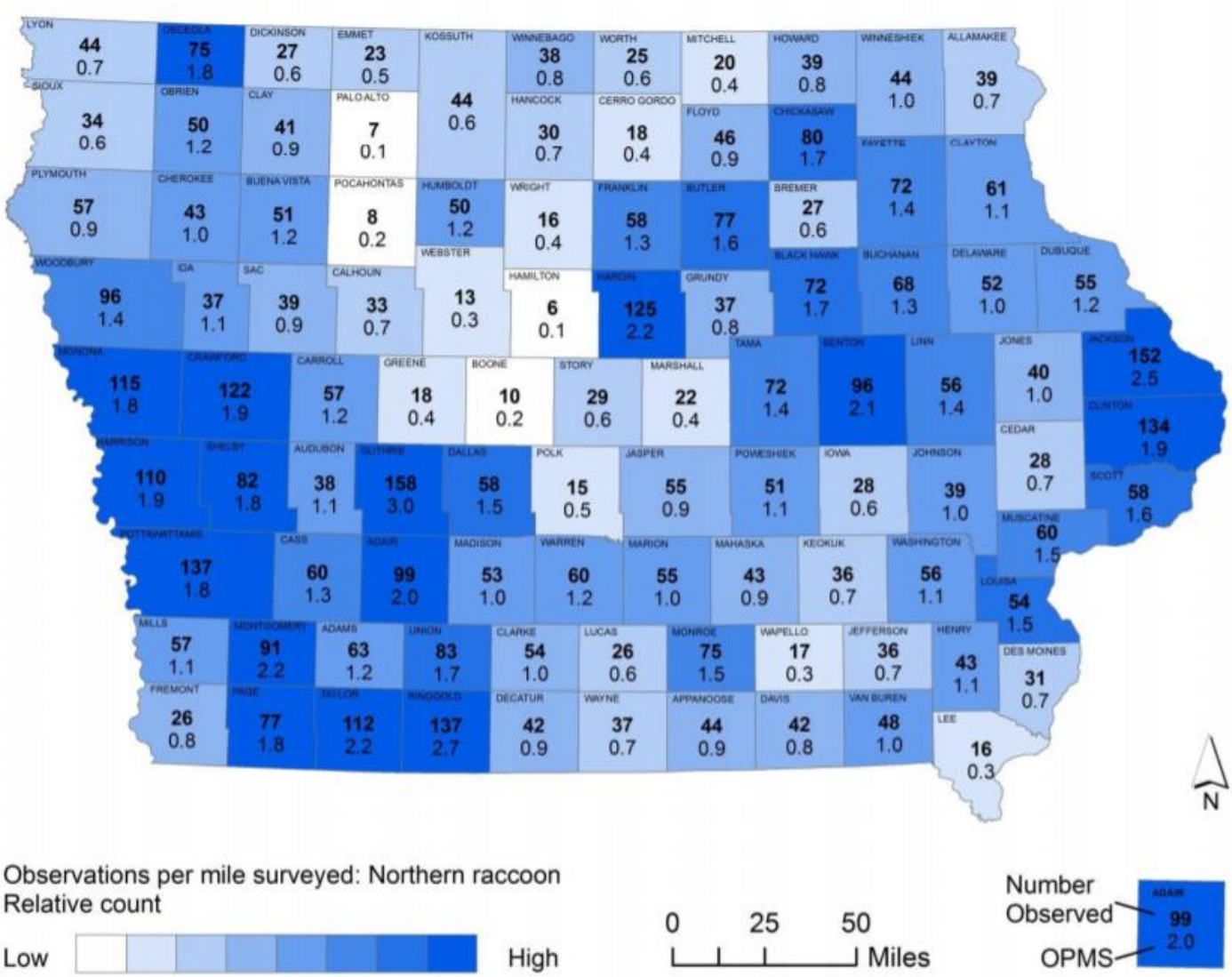
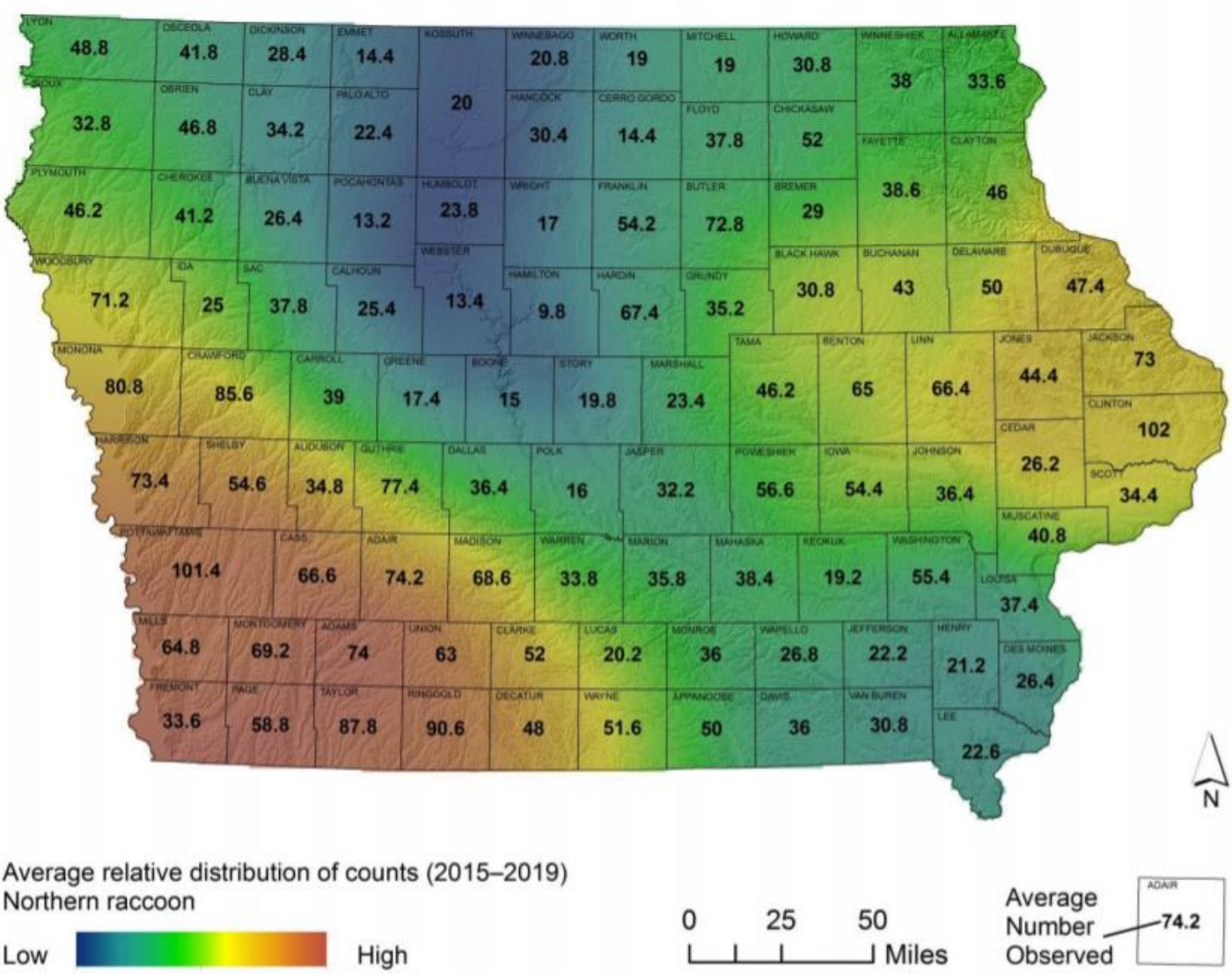


Figure 3.7 Total number of Northern raccoon observations per county in 2019. Color shading indicates the number of observations per mile surveyed (OPMS).



The number of observations per county is relative to the highest and lowest number of observations across all counties during the survey and may not represent an over- or under-abundance of the species (i.e., high counts are considered high relative to those observed in all other counties).

Figure 3.8 Relative distribution of average Spring Spotlight Survey Northern raccoon observations for the last 5 years.

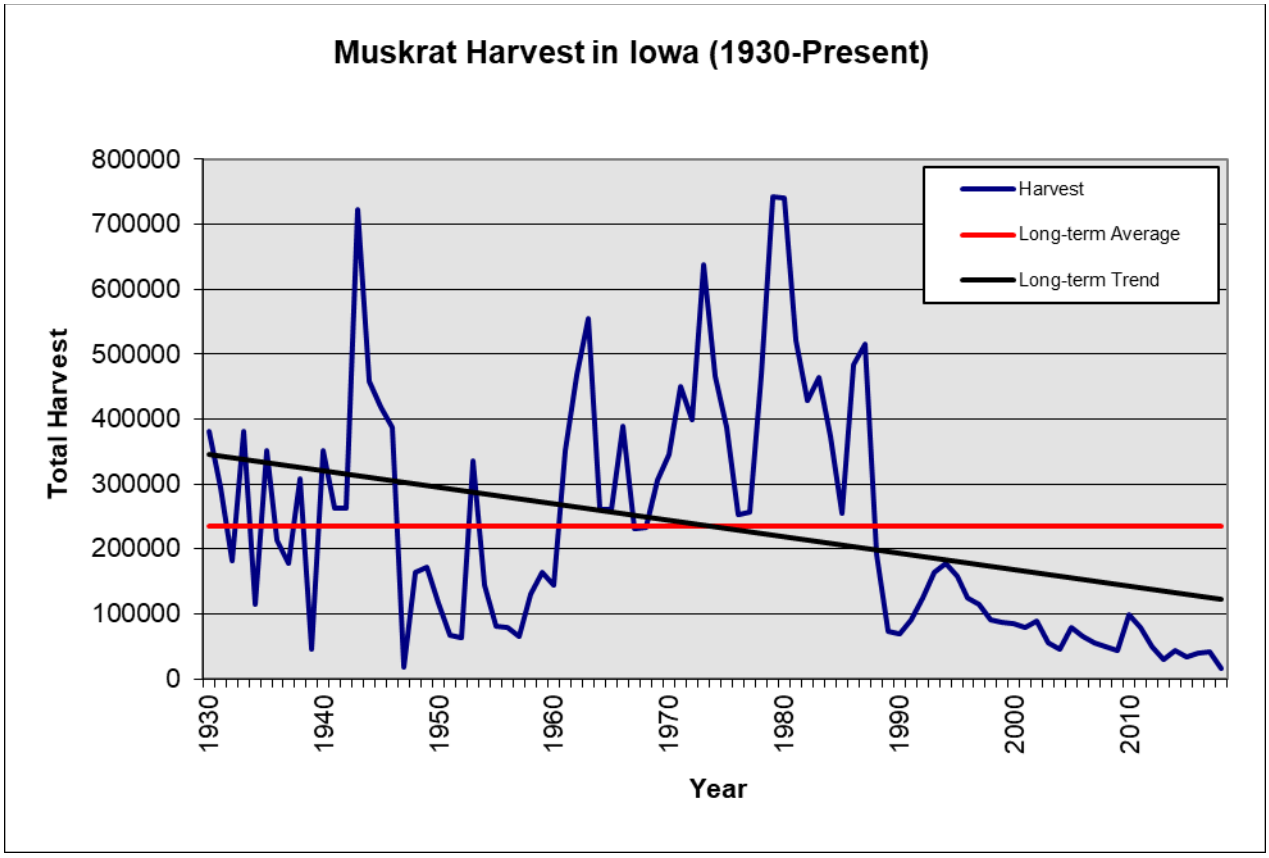


Figure 3.9 Annual muskrat harvests reported by licensed fur dealers in Iowa (1930-Present).

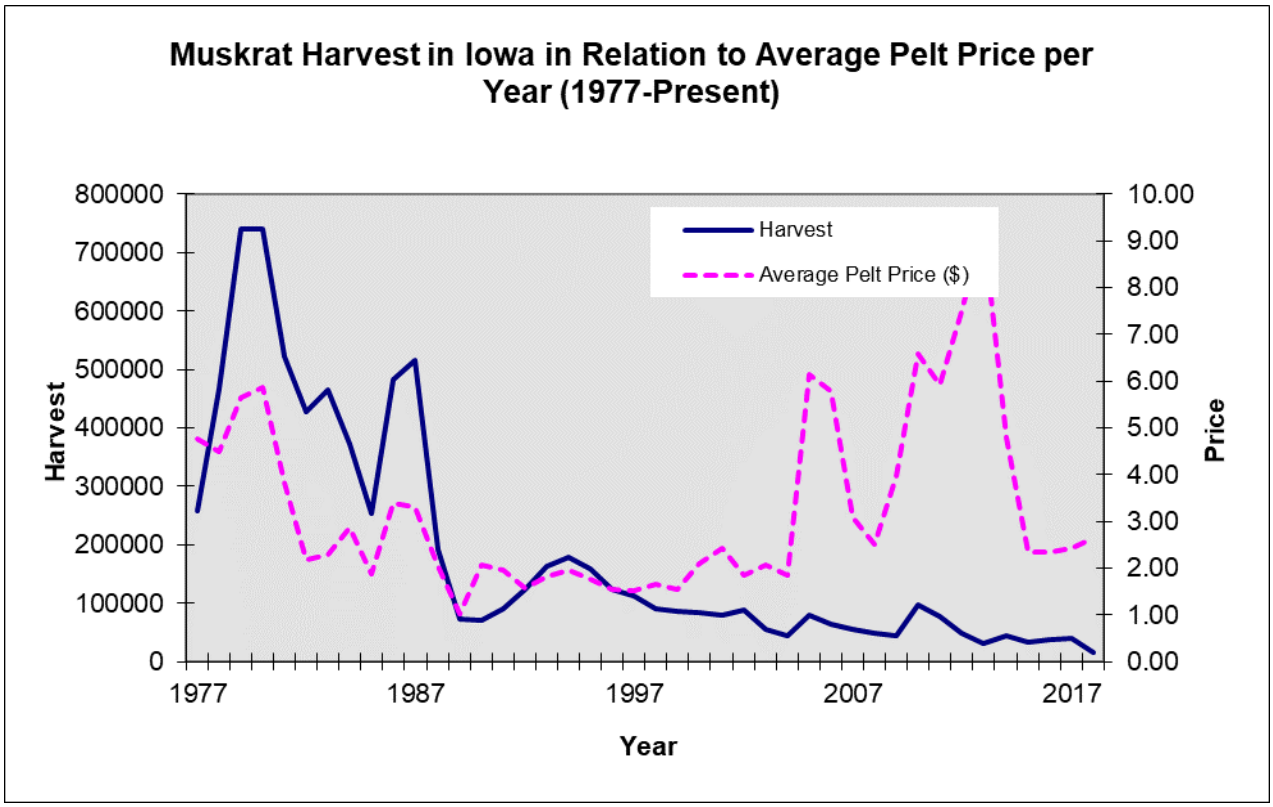


Figure 3.10 Muskrat harvest in Iowa and average pelt price paid by fur dealers (1977-Present).

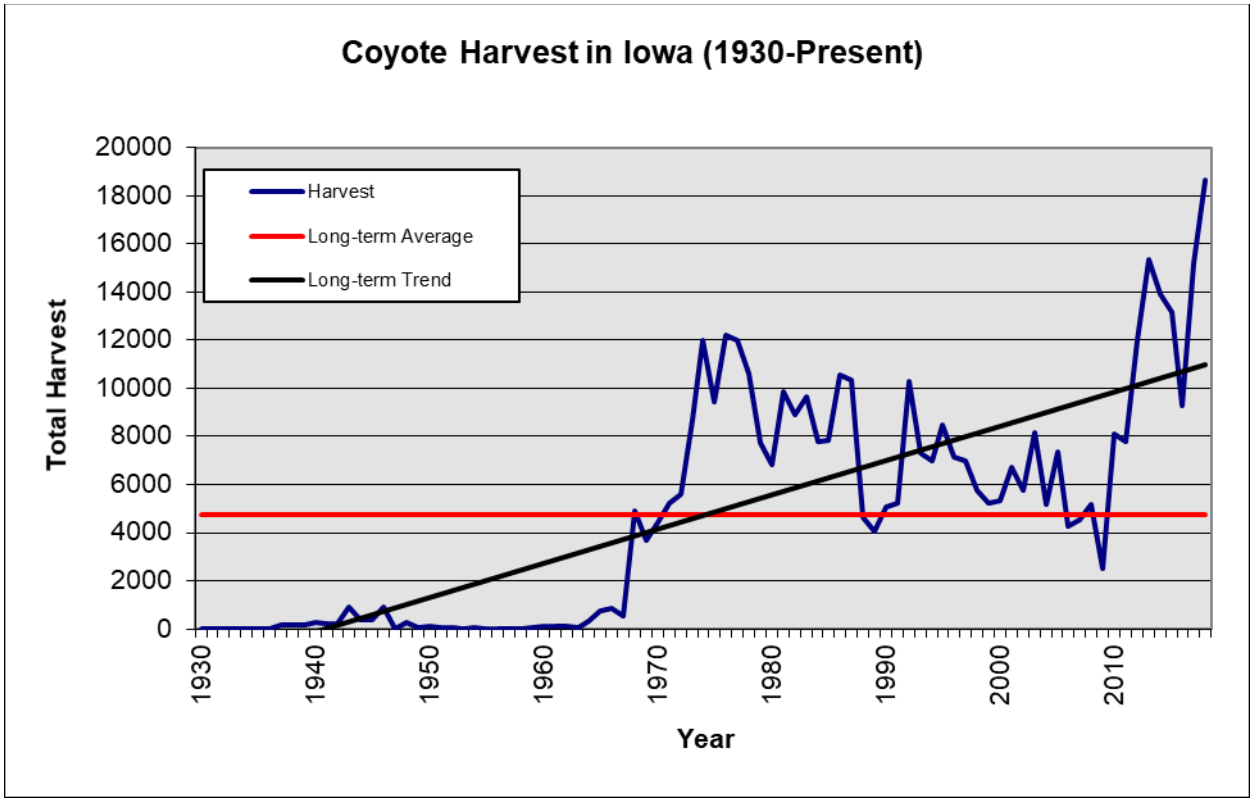


Figure 3.11 Annual coyote harvests reported by licensed fur dealers in Iowa (1930-Present).

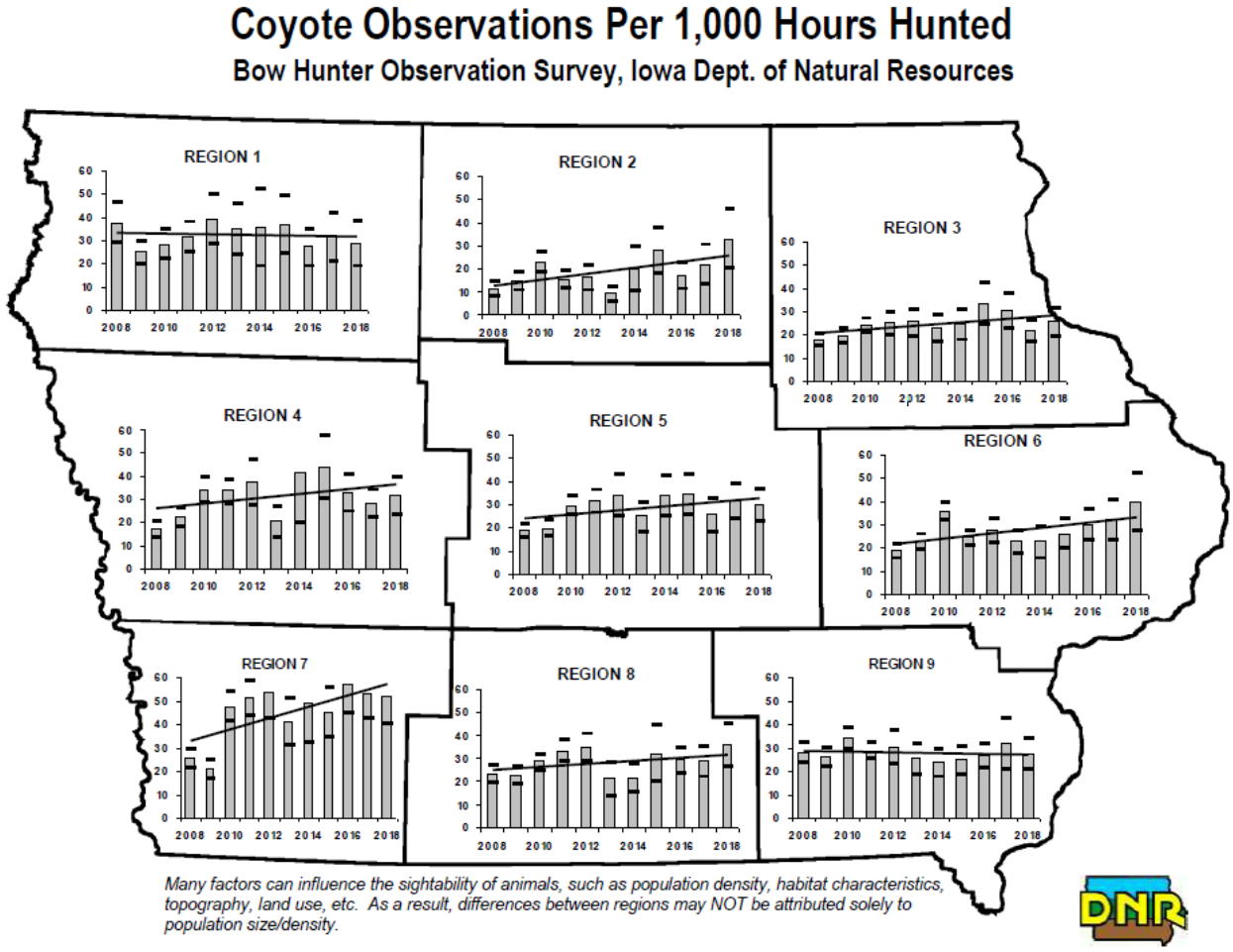


Figure 3.12 Results of coyote Bowhunter Observation Survey in Iowa (2008-Present).

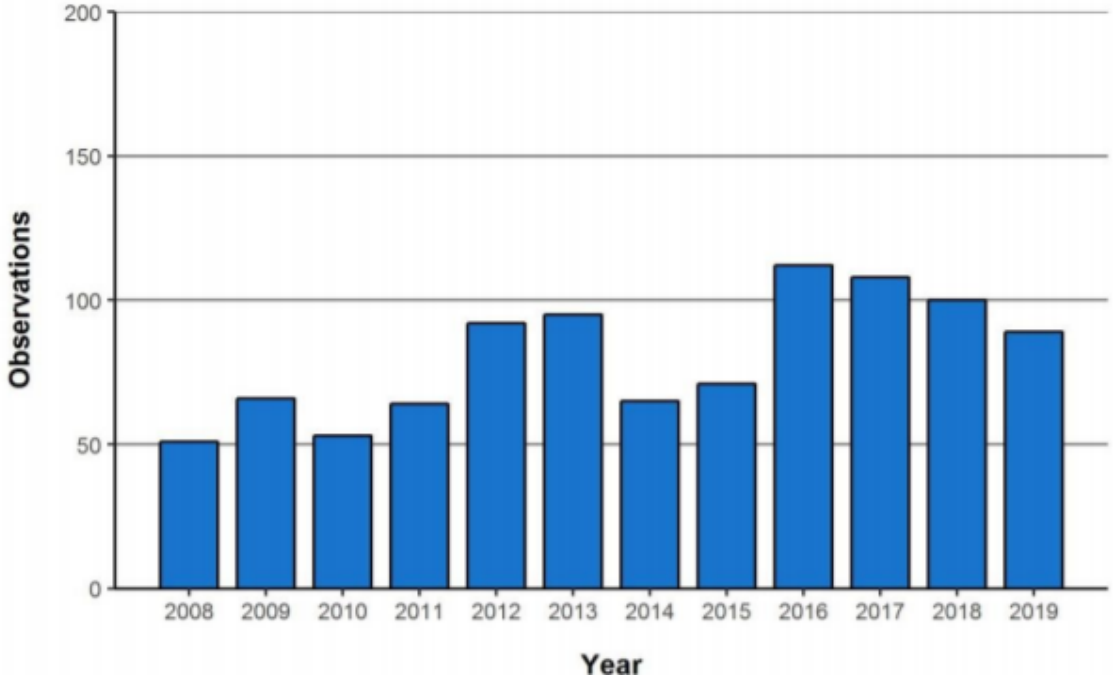
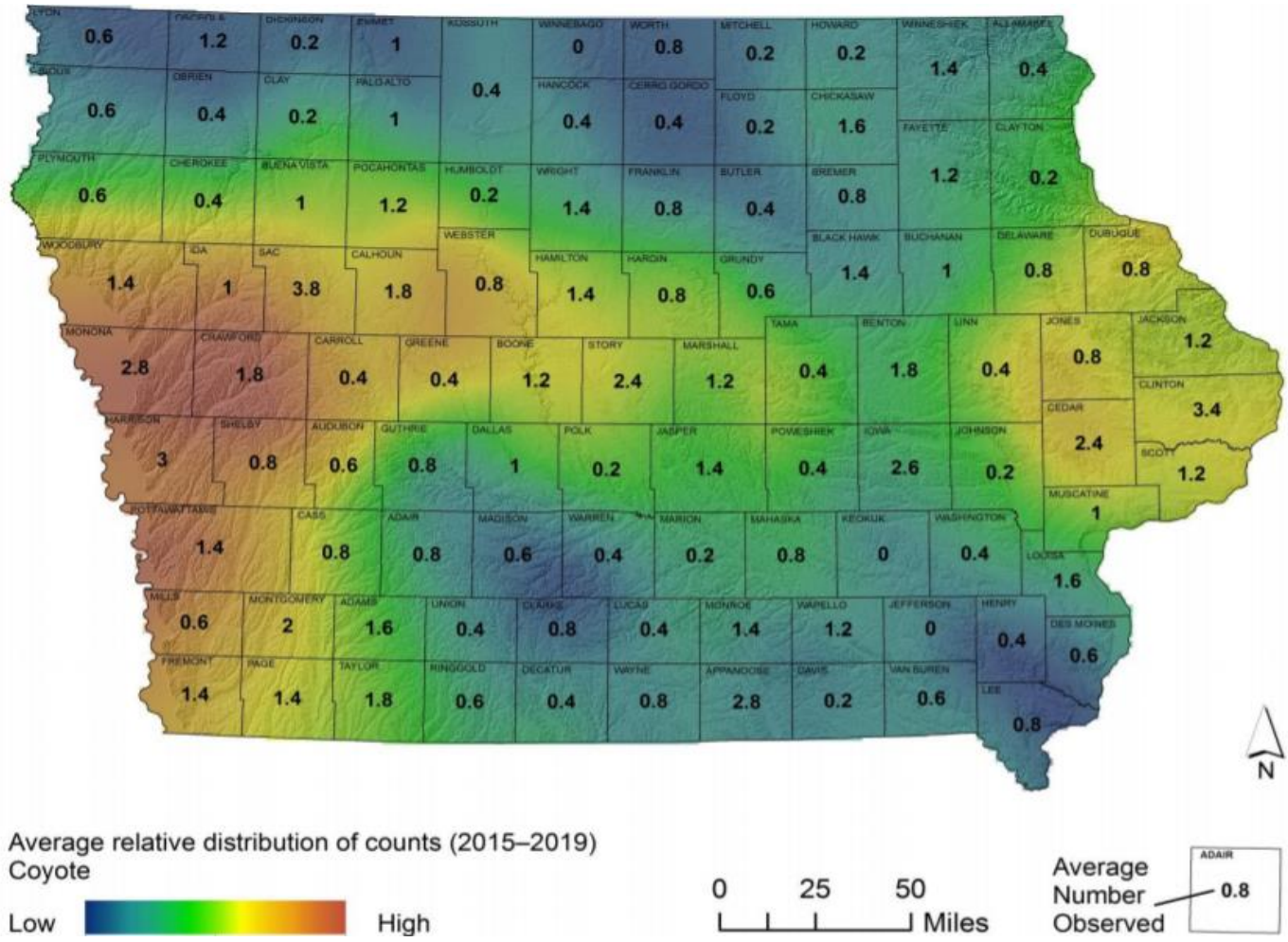


Figure 3.13 Total coyote observations by year during the Iowa Spring Spotlight Survey, 2008-Present.



The number of observations per county is relative to the highest and lowest number of observations across all counties during the survey and may not represent an over- or under-abundance of the species (i.e., high counts are considered high relative to those observed in all other counties).

Figure 3.14 Relative distribution of average Spring Spotlight Survey coyote observations for the last 5 years.

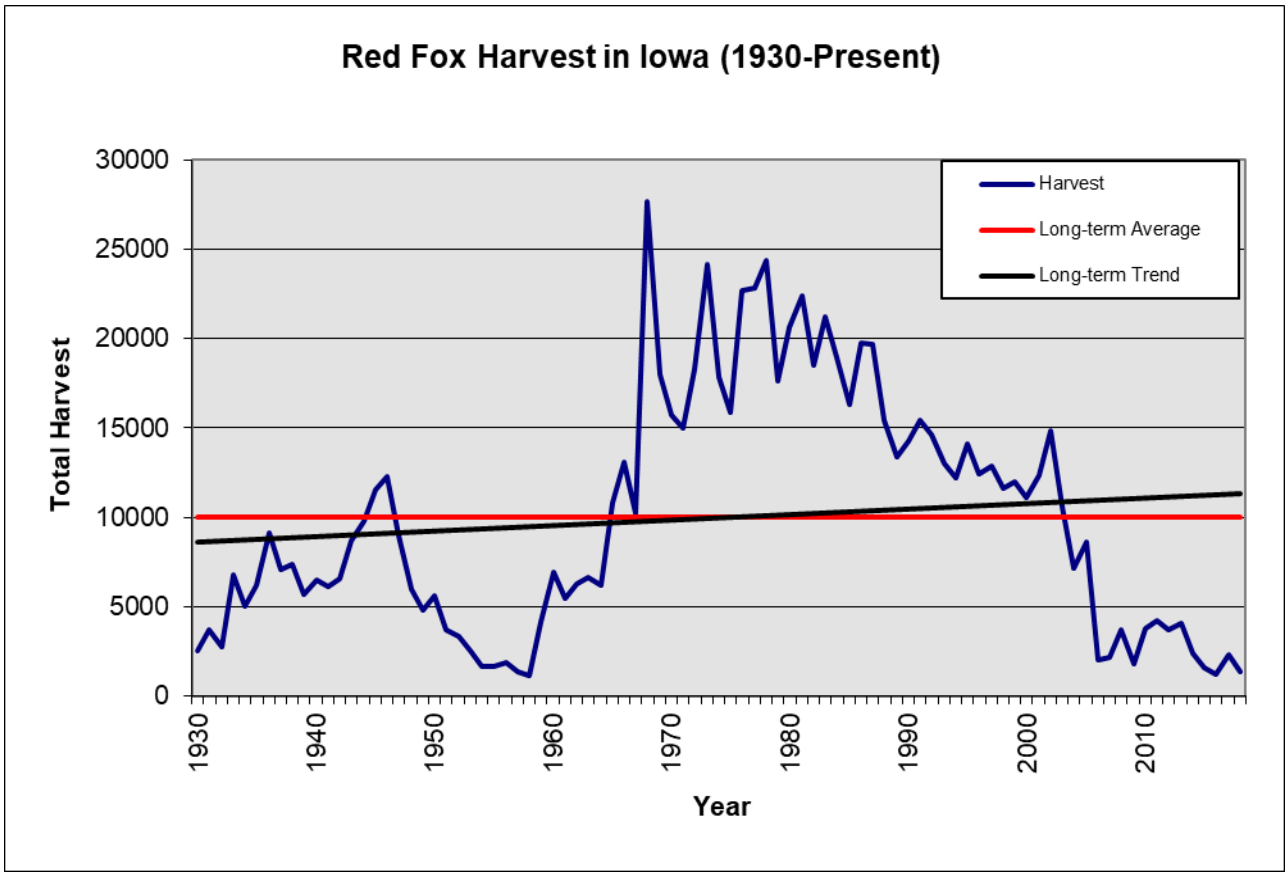


Figure 3.15 Annual red fox harvests reported by licensed fur dealers in Iowa (1930-Present).

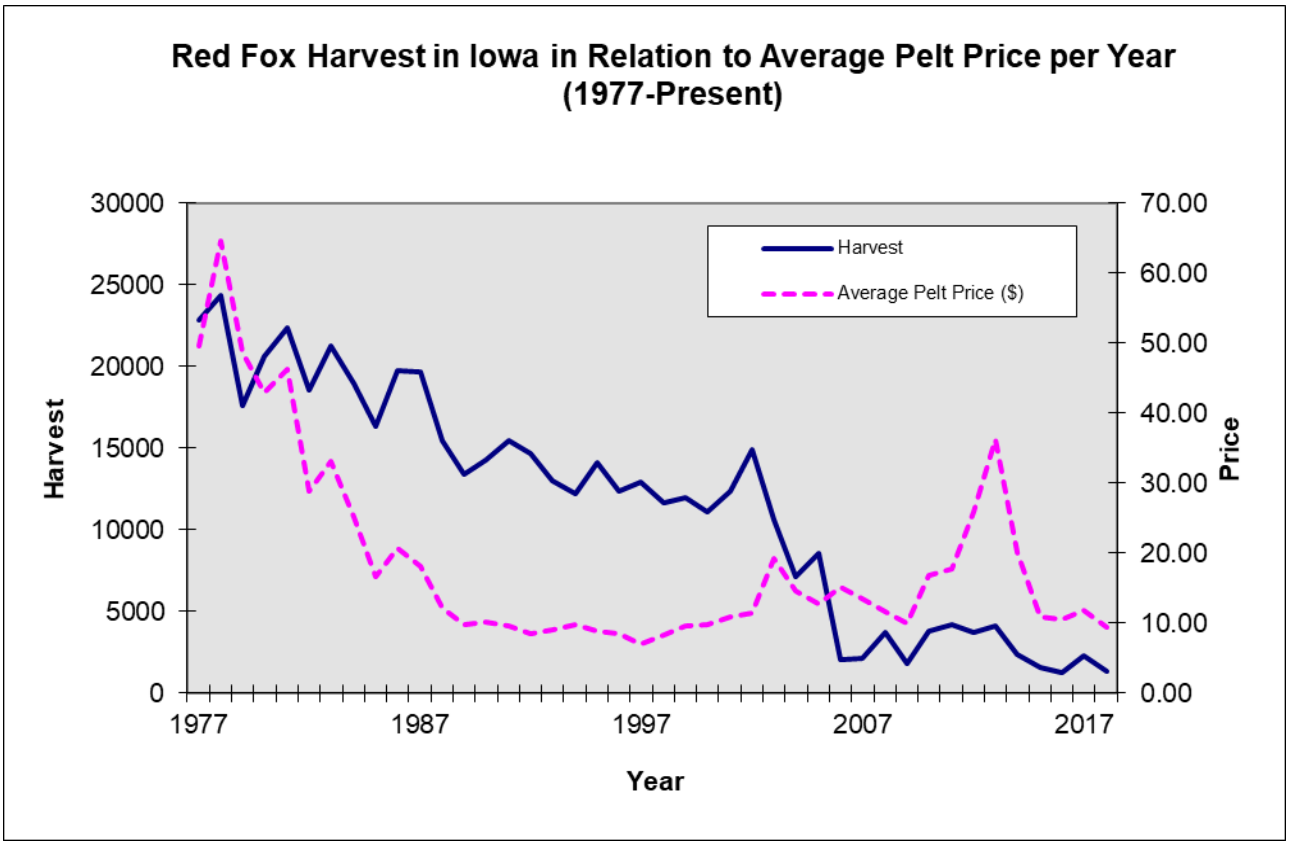


Figure 3.16 Red fox harvest in Iowa and average pelt price paid by fur dealers (1977-Present).

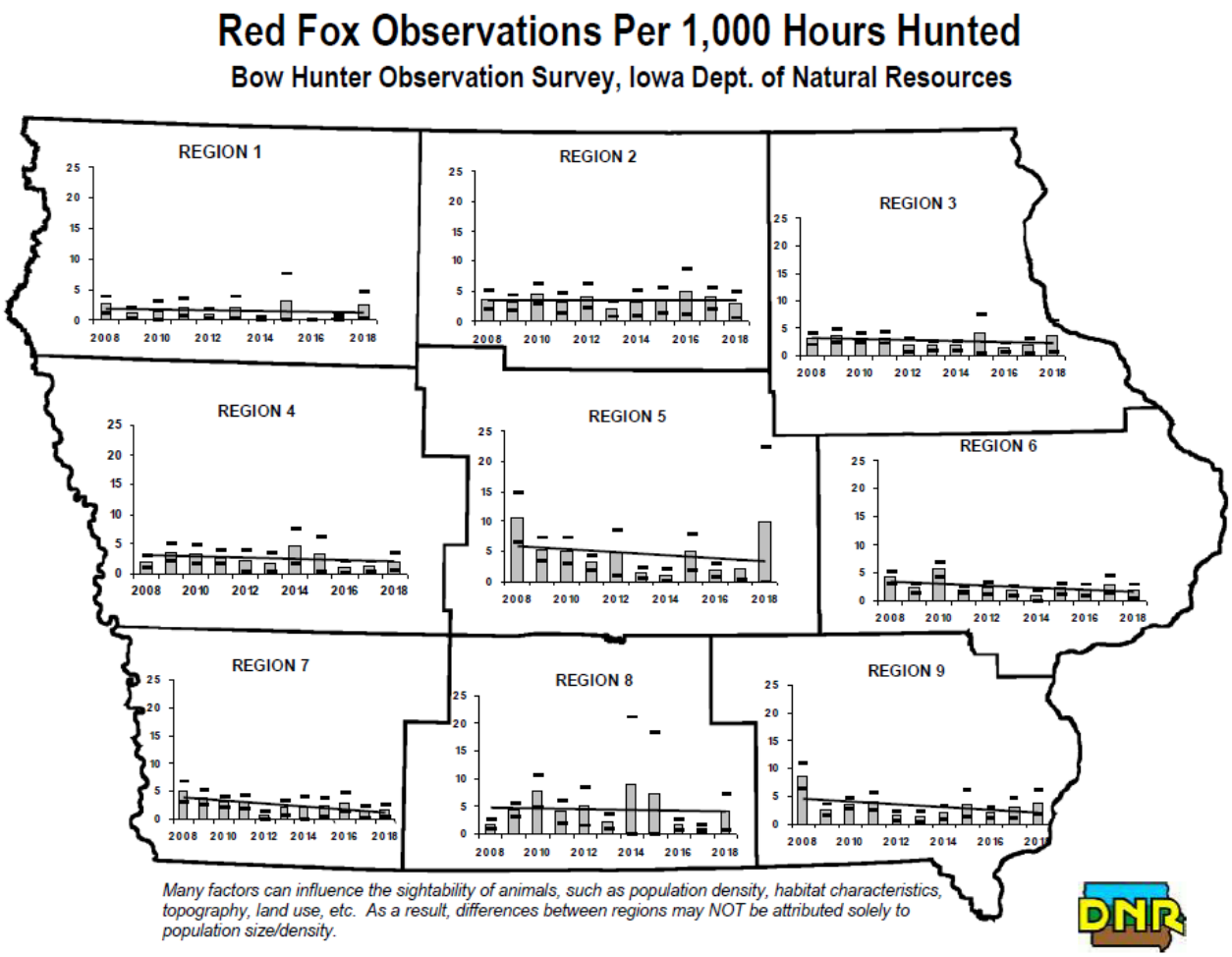


Figure 3.17 Results of red fox Bowhunter Observation Survey in Iowa (2008-Present).

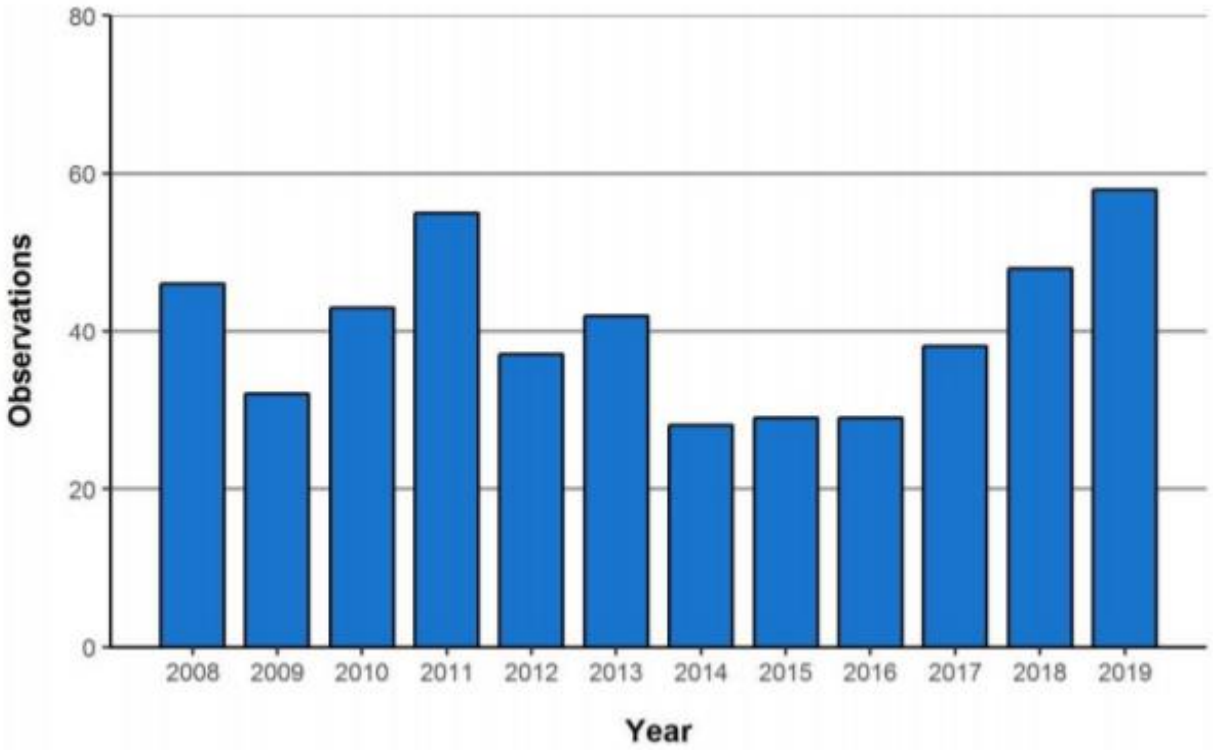
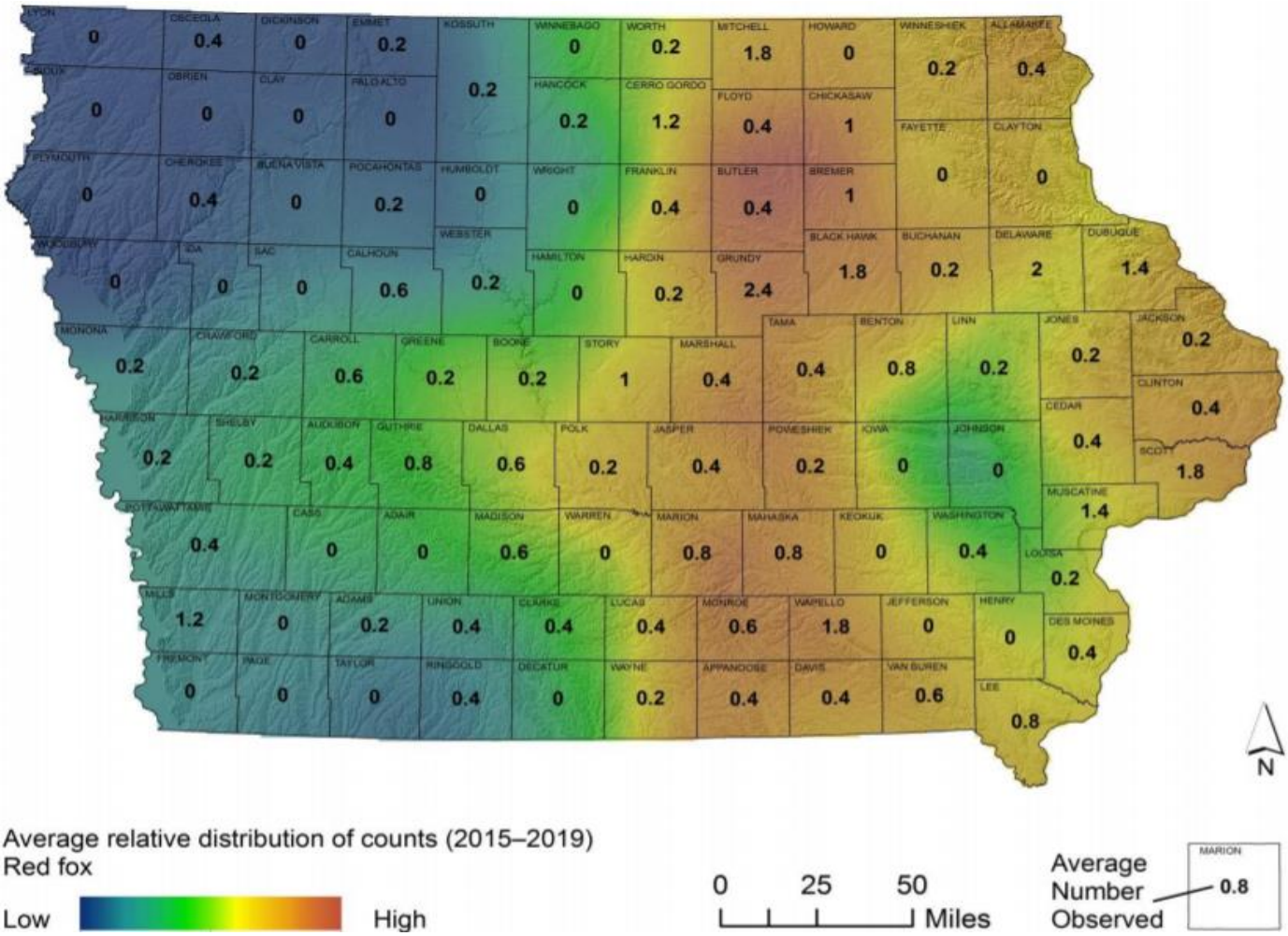


Figure 3.18 Total red fox observations by year during the Iowa Spring Spotlight Survey, 2008-Present.



The number of observations per county is relative to the highest and lowest number of observations across all counties during the survey and may not represent an over- or under-abundance of the species (i.e., high counts are considered high relative to those observed in all other counties).

Figure 3.19 Relative distribution of average Spring Spotlight Survey red fox observations for the last 5 years.

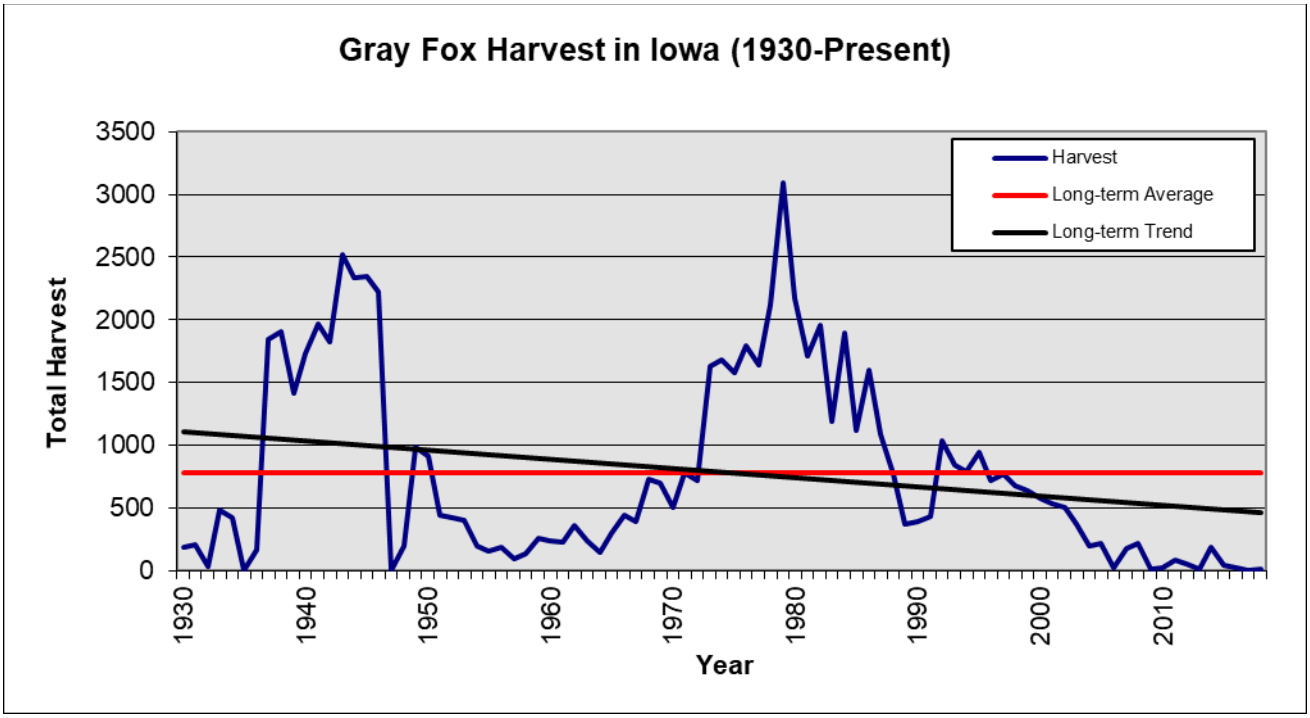


Figure 3.20 Annual gray fox harvests reported by licensed fur dealers in Iowa (1930-Present).

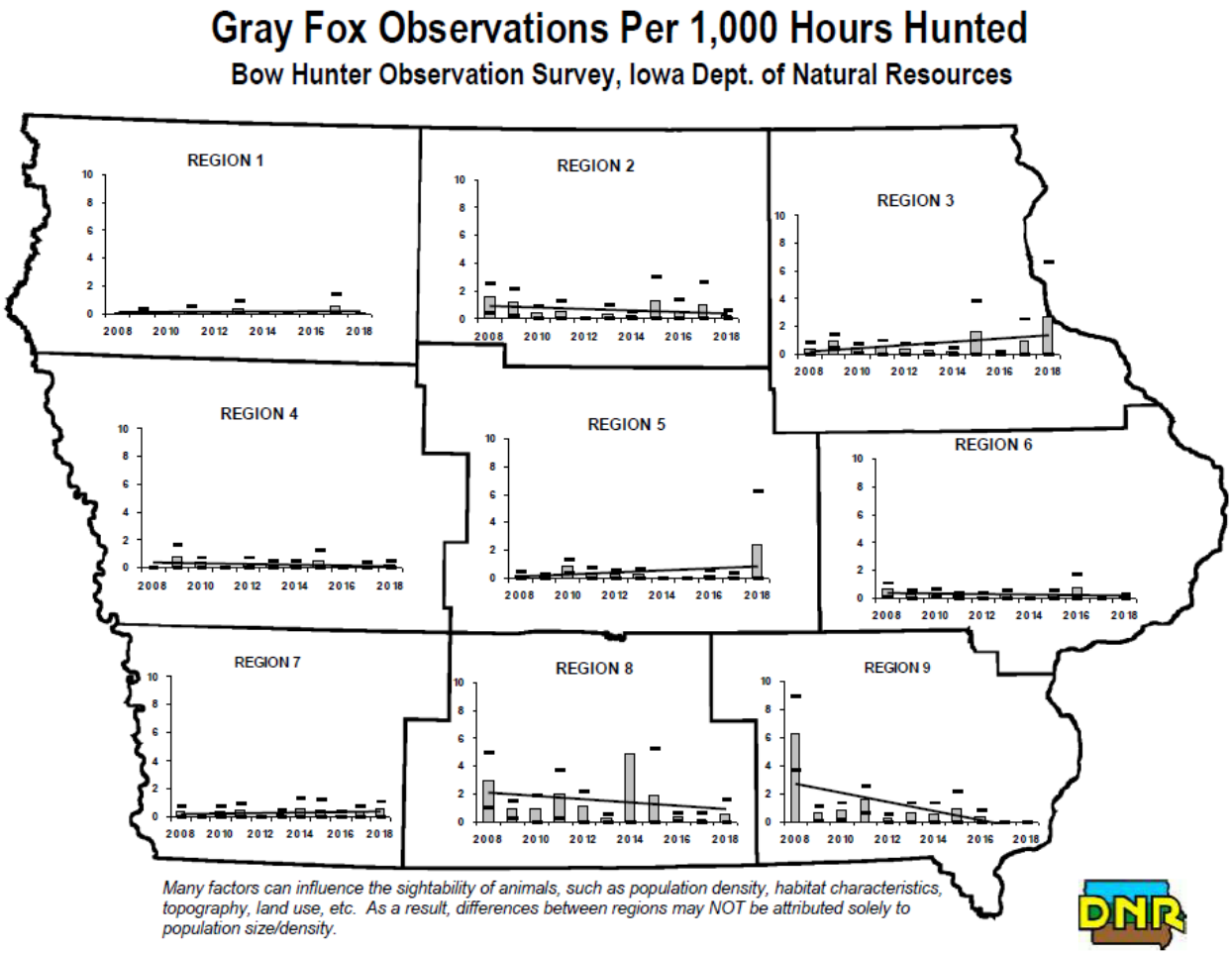


Figure 3.21 Results of gray fox Bowhunter Observation Survey in Iowa (2008-Present).

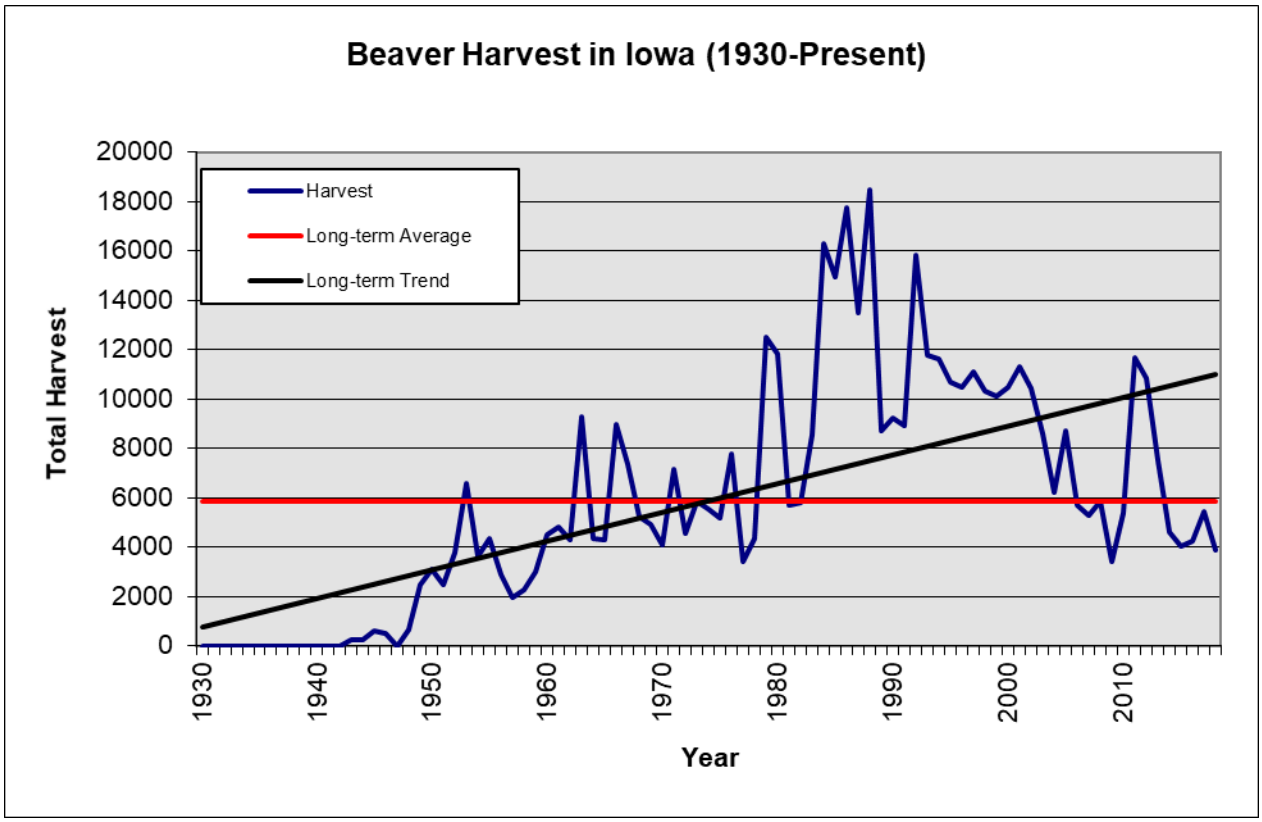


Figure 3.22 Annual beaver harvests reported by licensed fur dealers in Iowa (1930-Present).

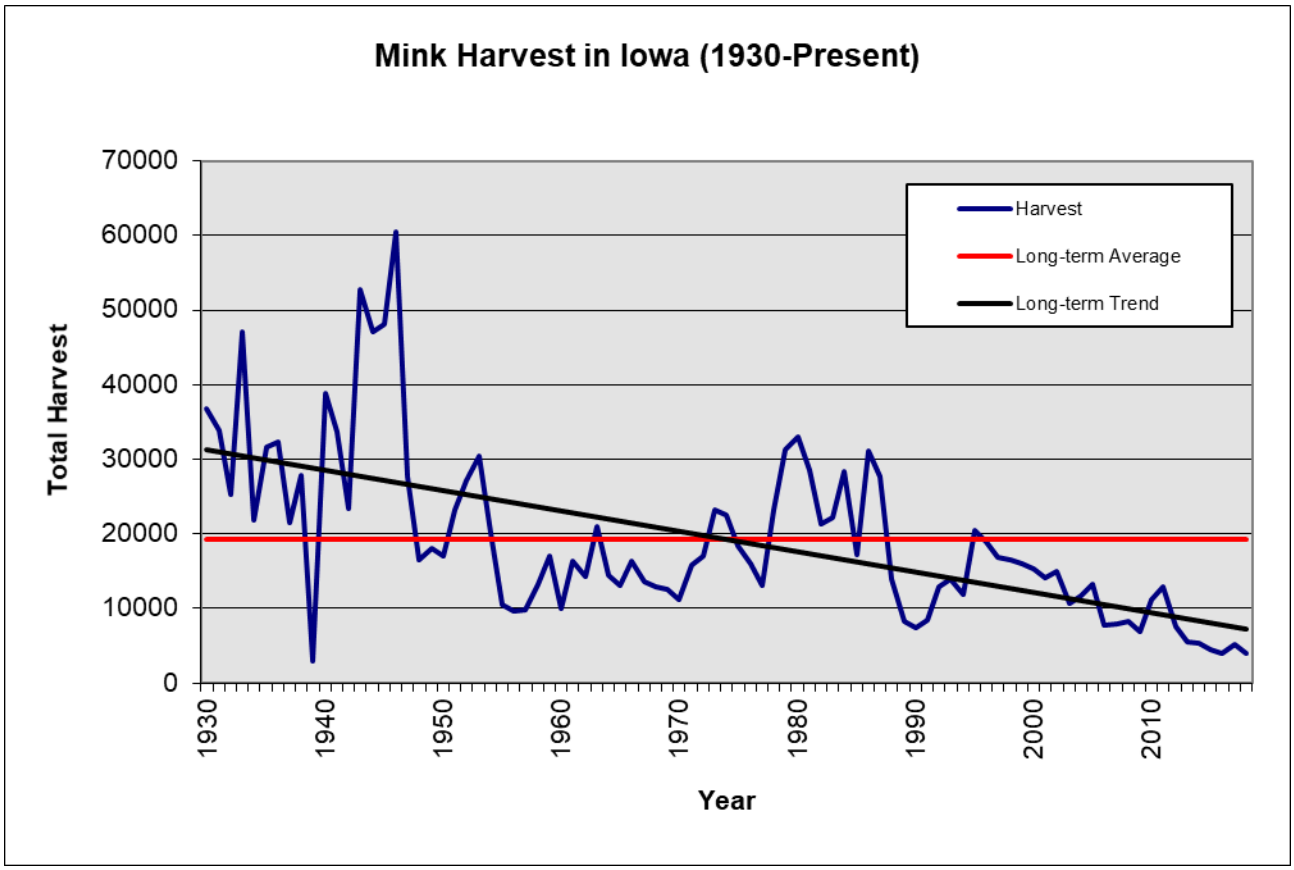


Figure 3.23 Annual mink harvests reported by licensed fur dealers in Iowa (1930-Present).

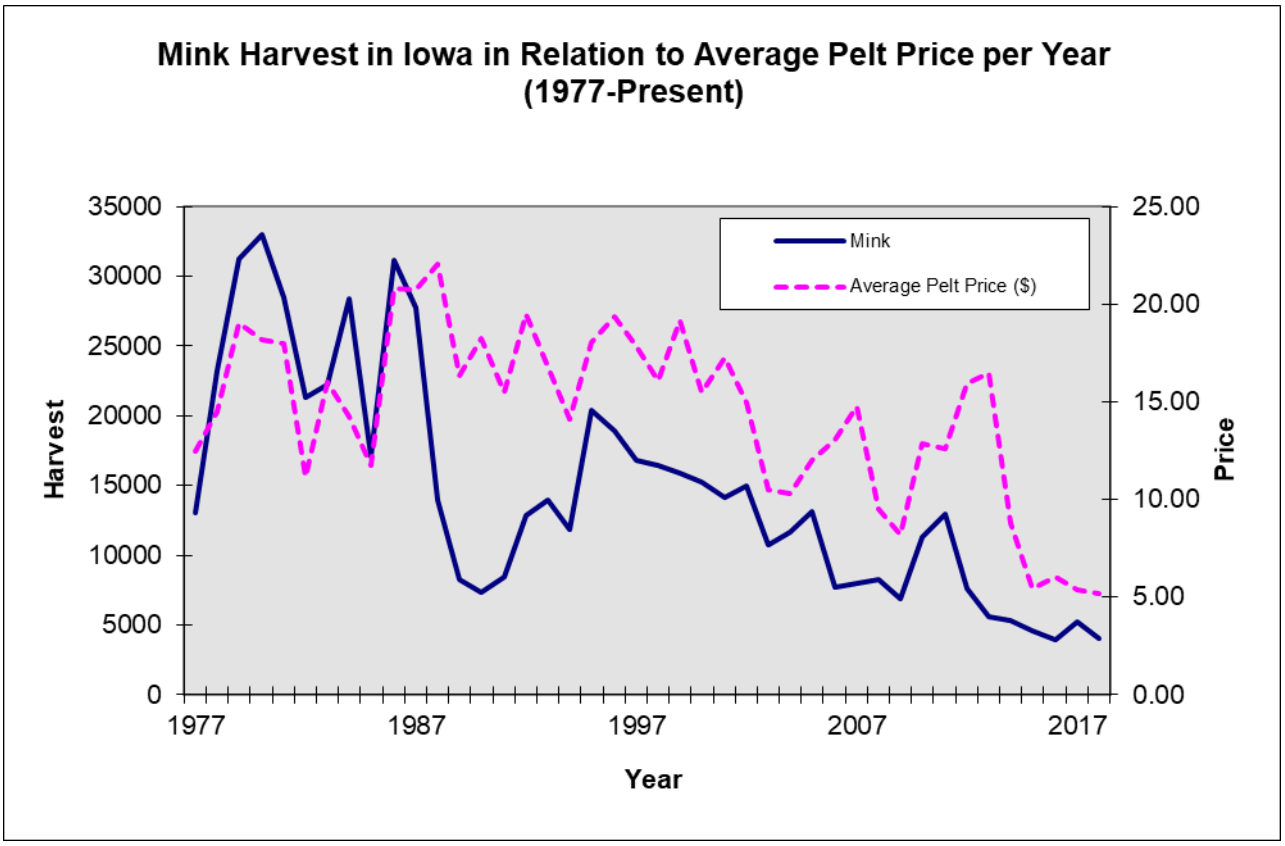


Figure 3.24 Mink harvest in Iowa and average pelt price paid by fur dealers (1977-Present).

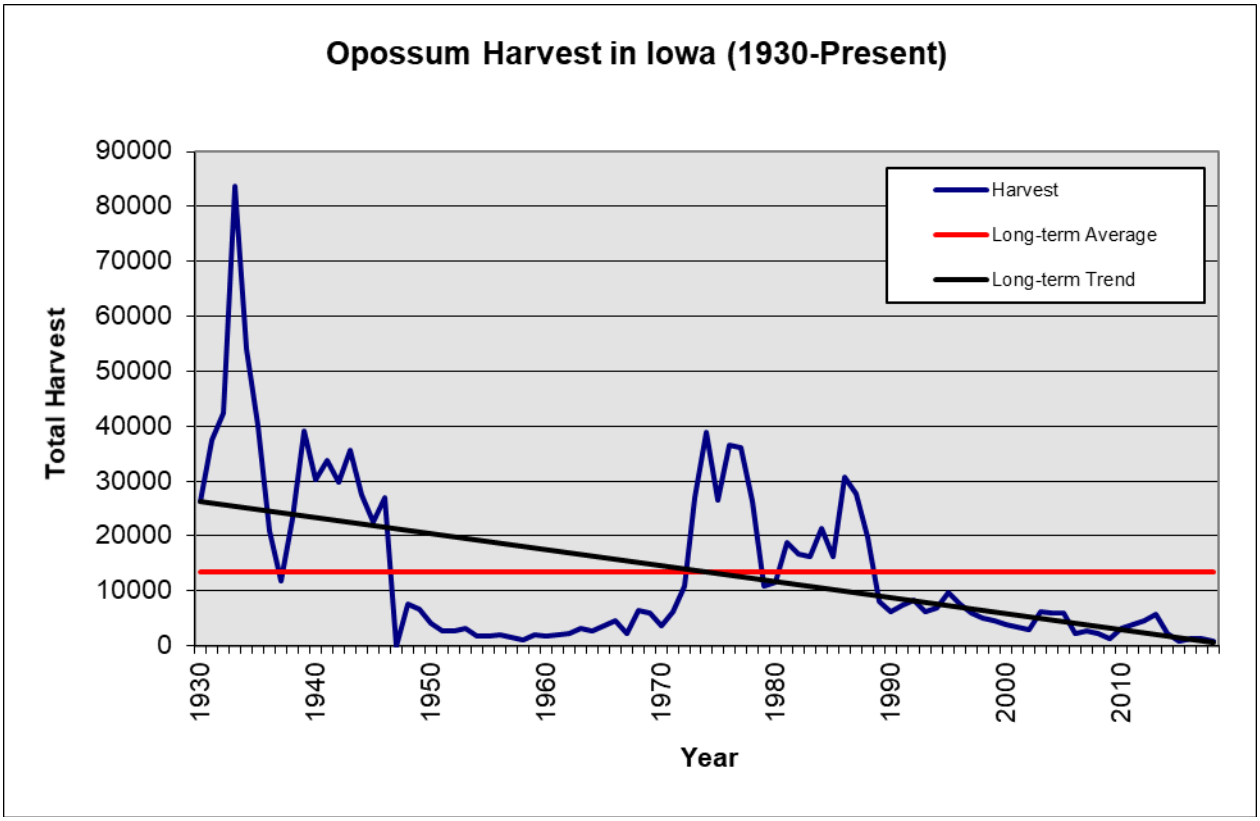


Figure 3.25 Annual opossum harvests reported by licensed fur dealers in Iowa (1930-Present).

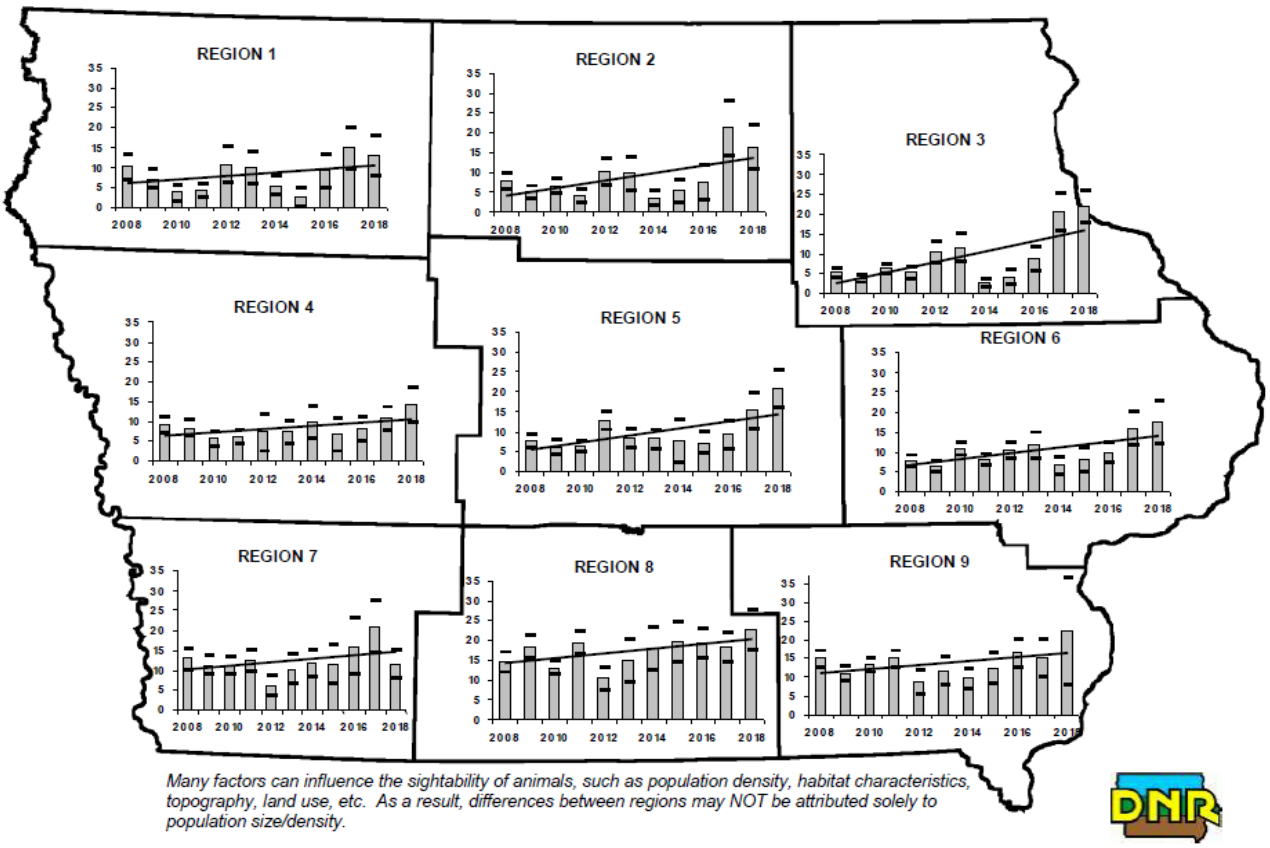


Figure 3.26 Results of opossum Bowhunter Observation Survey in Iowa (2008-Present).

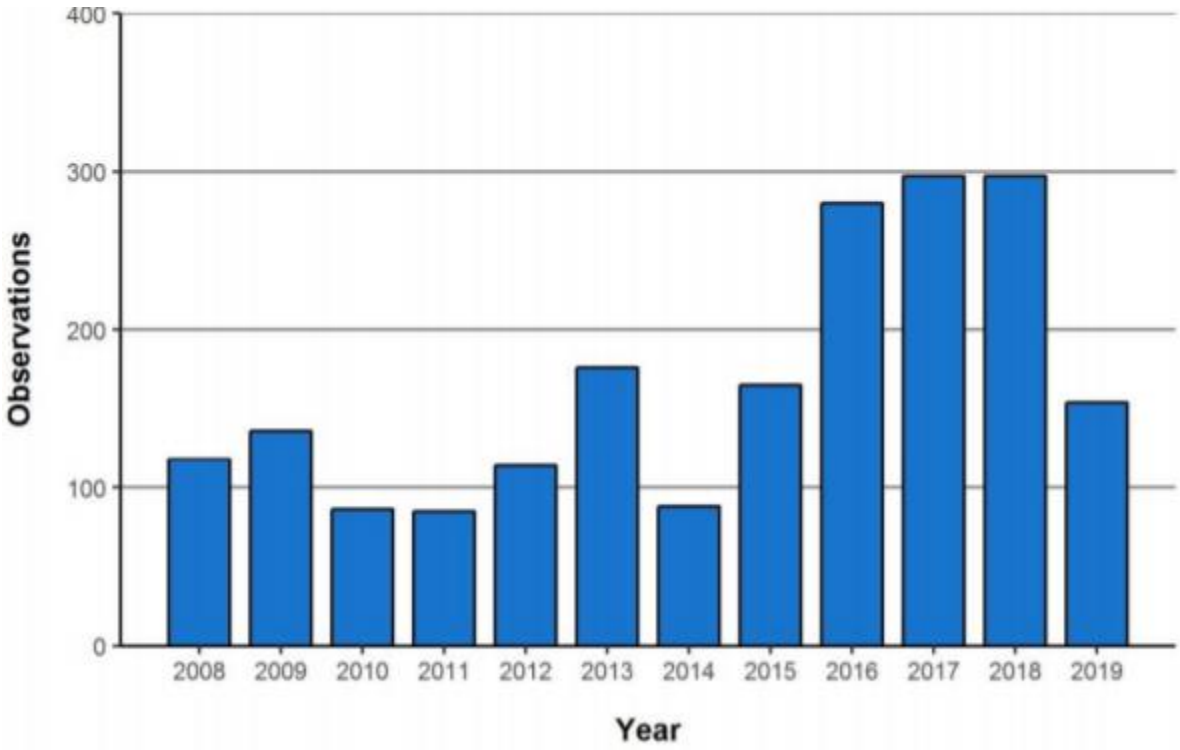
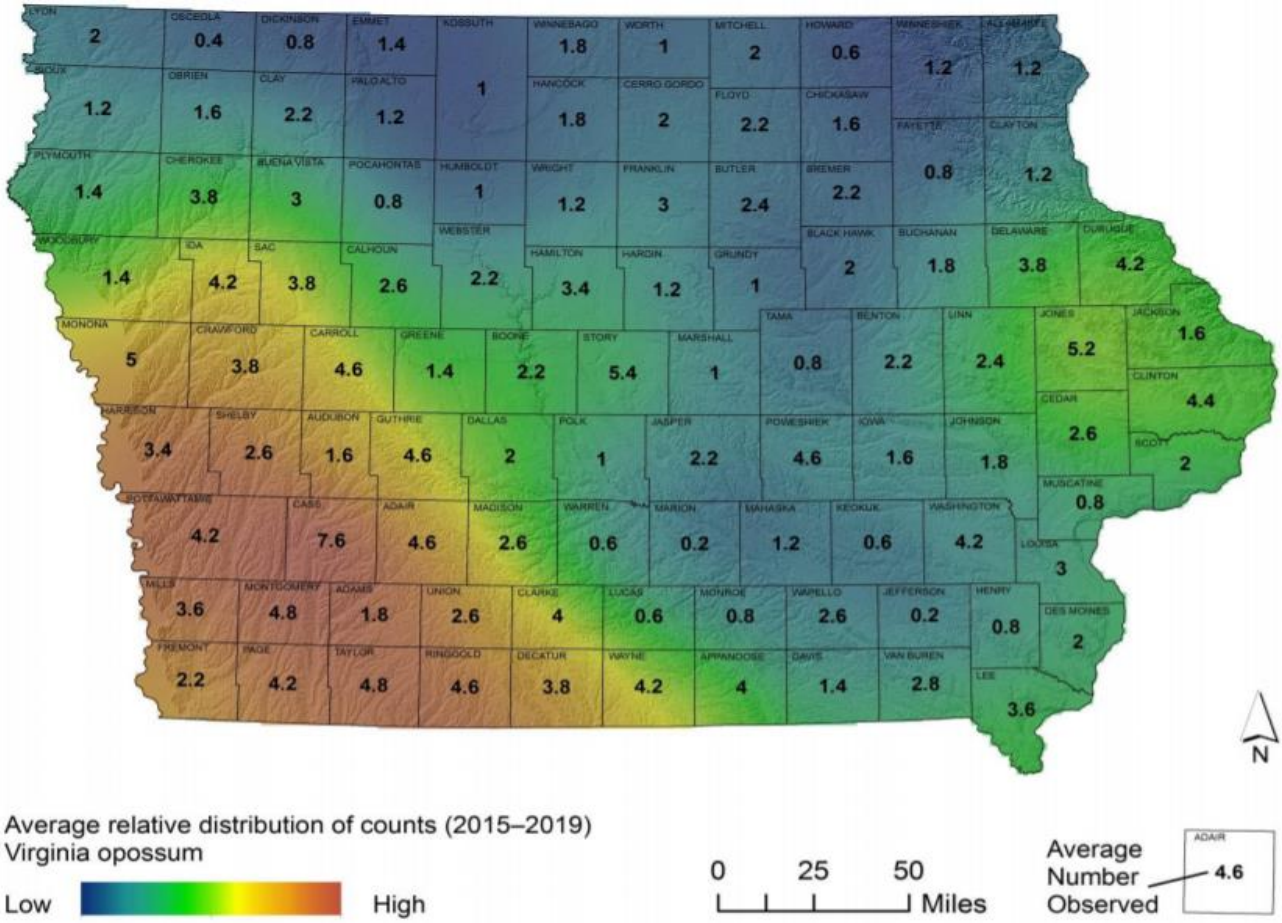


Figure 3.27 Total Virginia opossum observations by year during the Iowa Spring Spotlight Survey, 2008-Present



The number of observations per county is relative to the highest and lowest number of observations across all counties during the survey and may not represent an over- or under-abundance of the species (i.e., high counts are considered high relative to those observed in all other counties).

Figure 3.28 Relative distribution of average Spring Spotlight Survey Virginia opossum observations for the last 5 years.

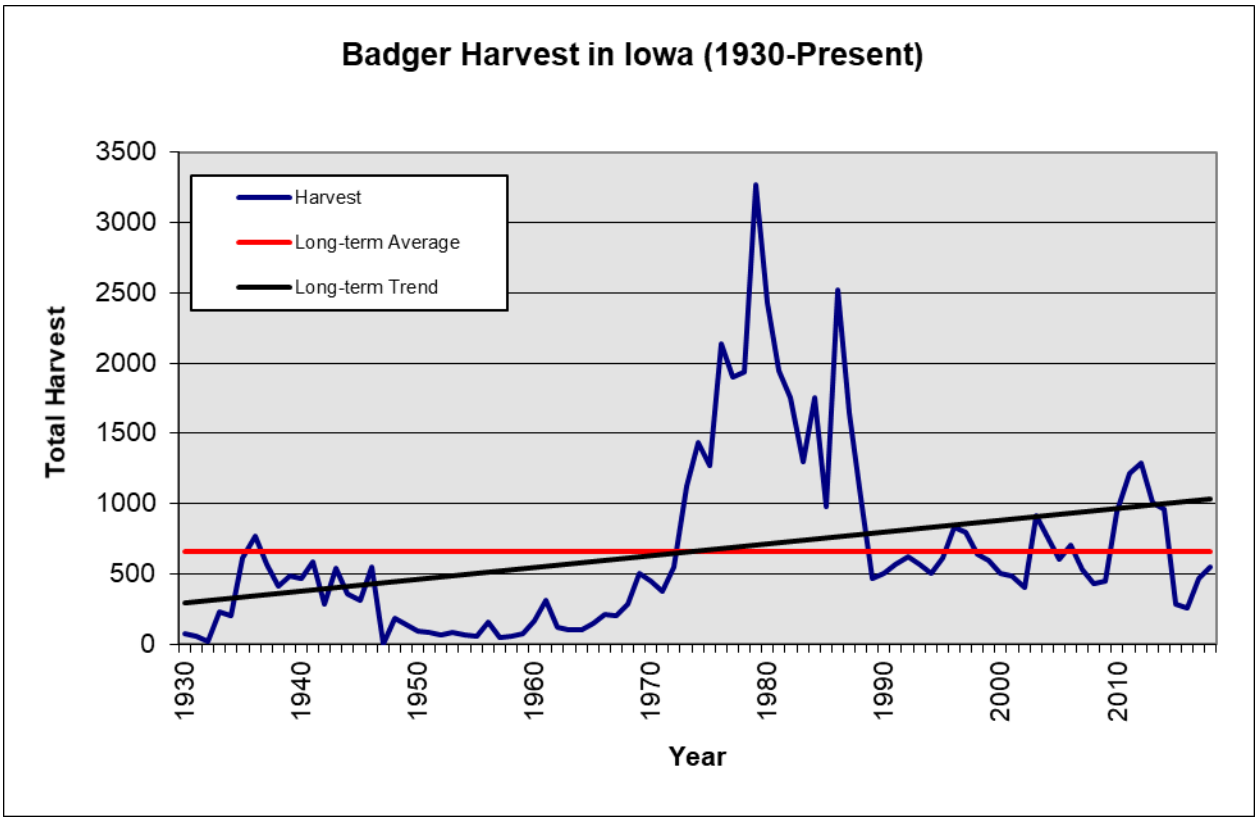


Figure 3.29. Annual badger harvests reported by licensed fur dealers in Iowa (1930-Present).

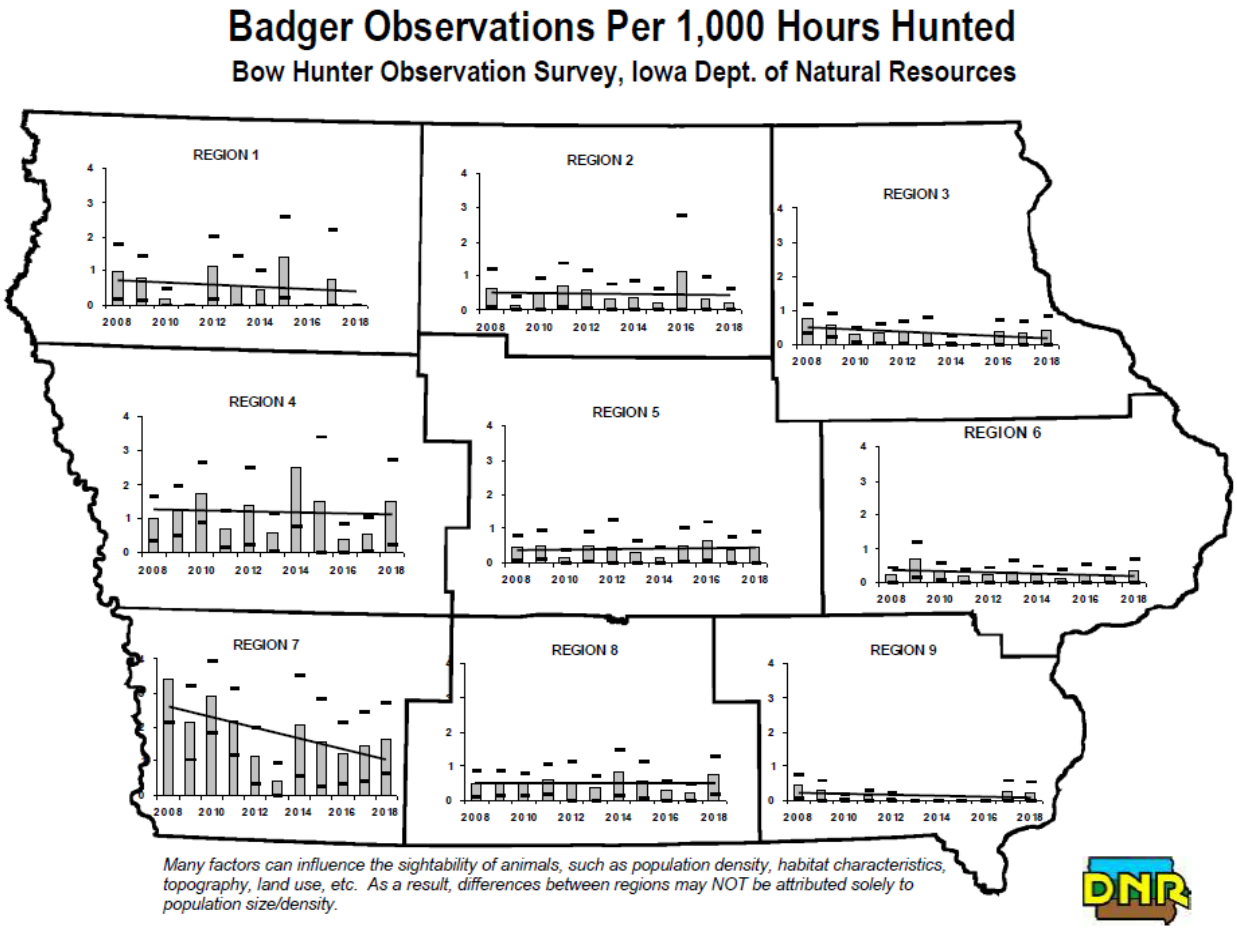
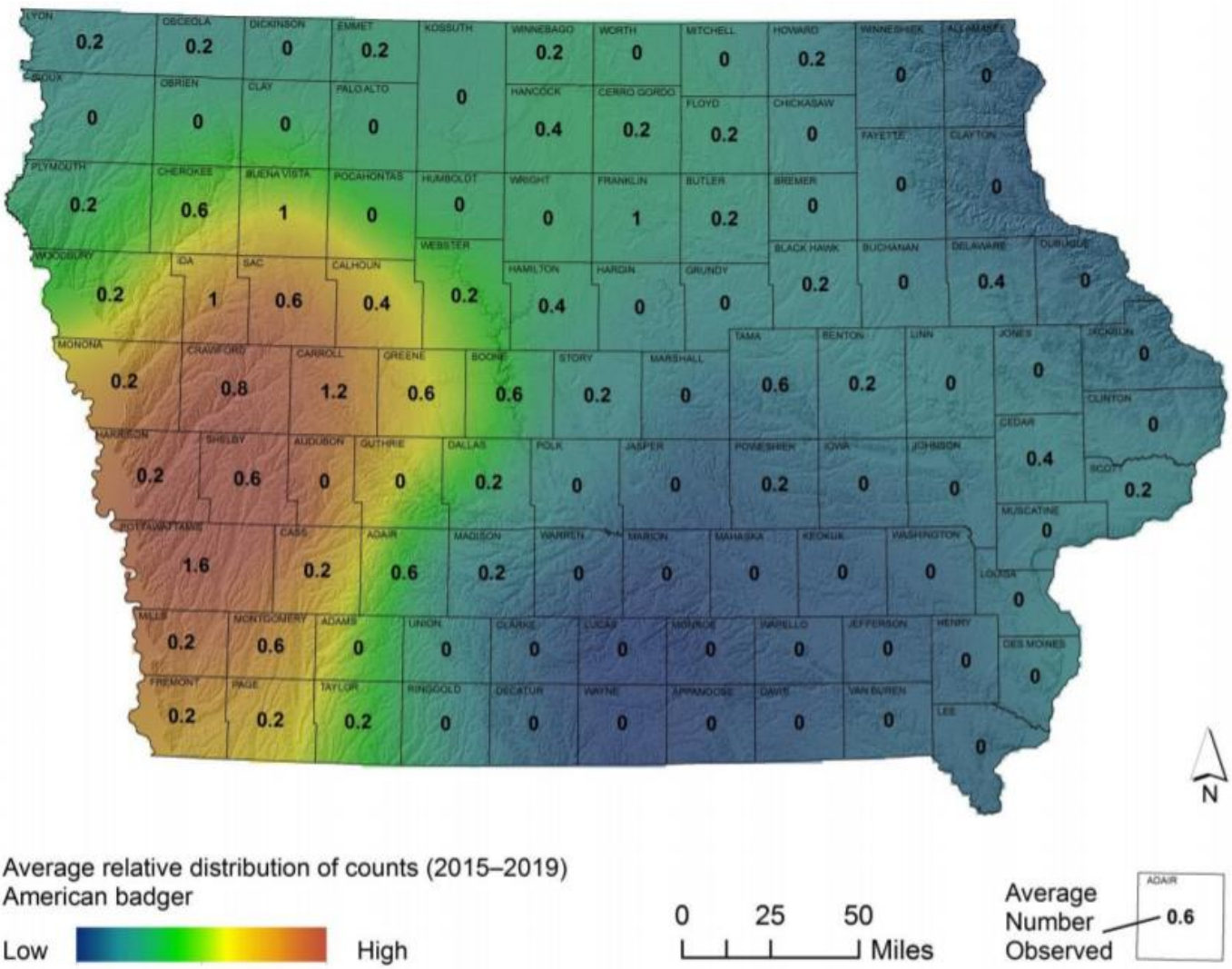


Figure 3.30 Results of badger Bowhunter Observation Survey in Iowa (2008-Present).



The number of observations per county is relative to the highest and lowest number of observations across all counties during the survey and may not represent an over- or under-abundance of the species (i.e., high counts are considered high relative to those observed in all other counties).

Figure 3.31 Relative distribution of average Spring Spotlight Survey American badger observations for the last 5 years.

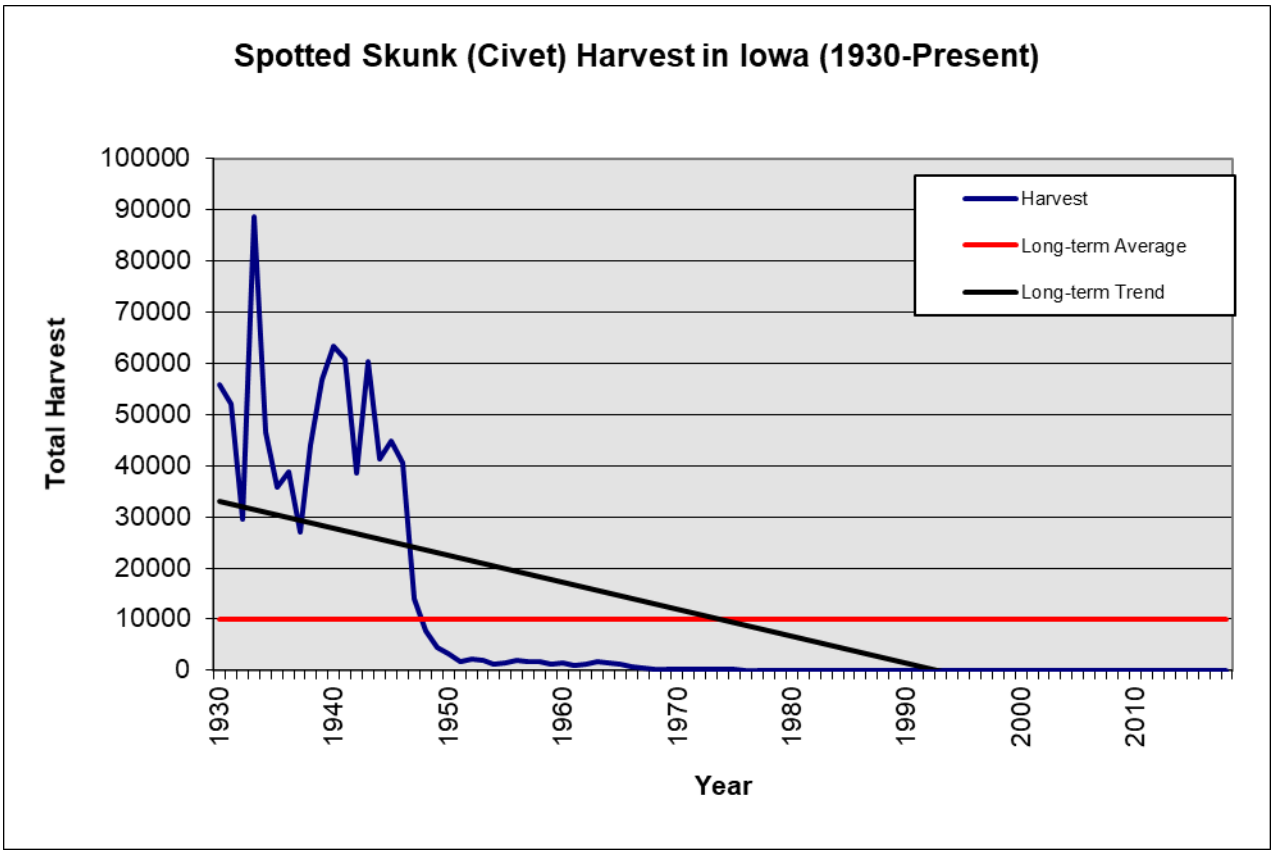


Figure 3.32 Annual spotted skunk harvests reported by licensed fur dealers in Iowa (1930-Present)

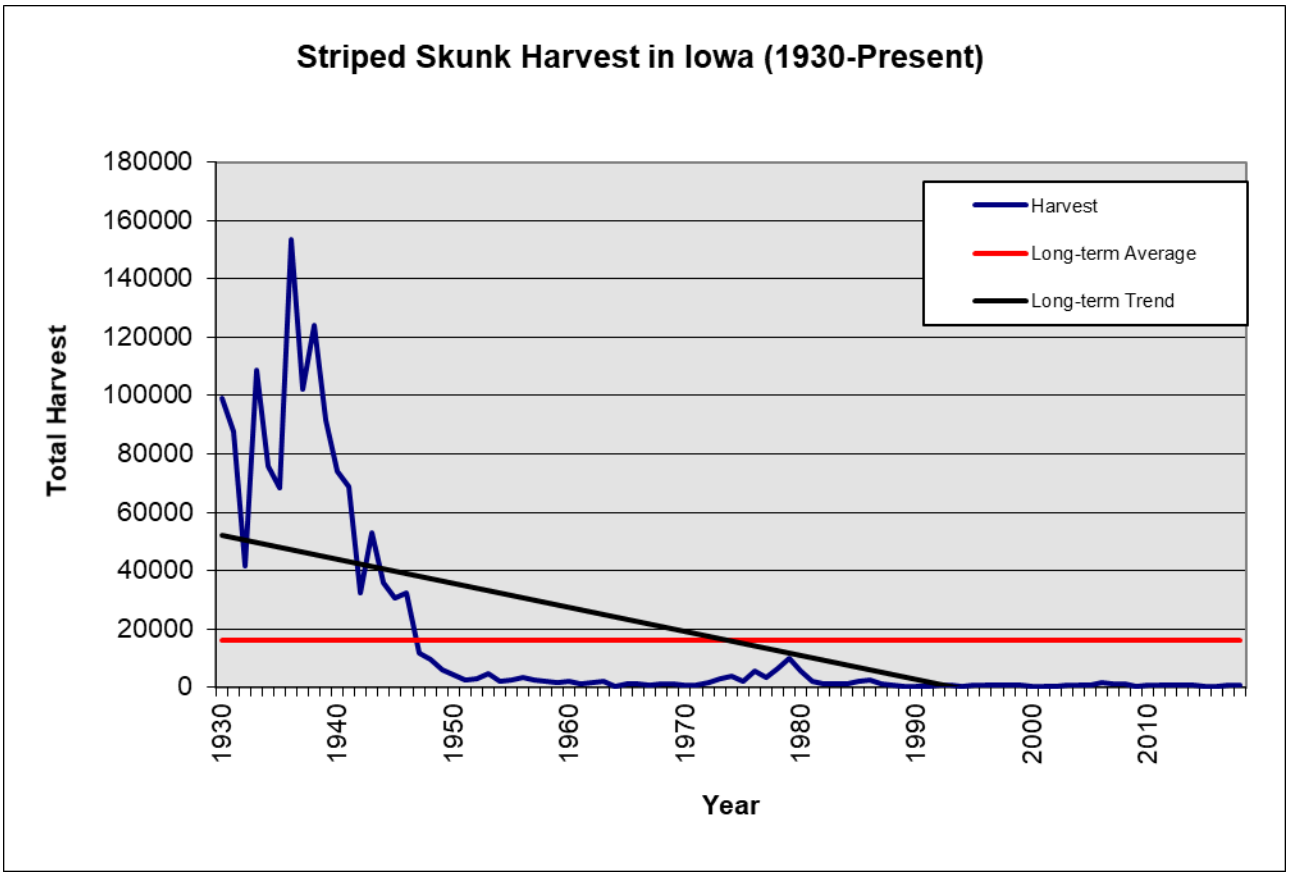


Figure 3.33 Annual striped skunk harvests reported by licensed fur dealers in Iowa (1930-Present).

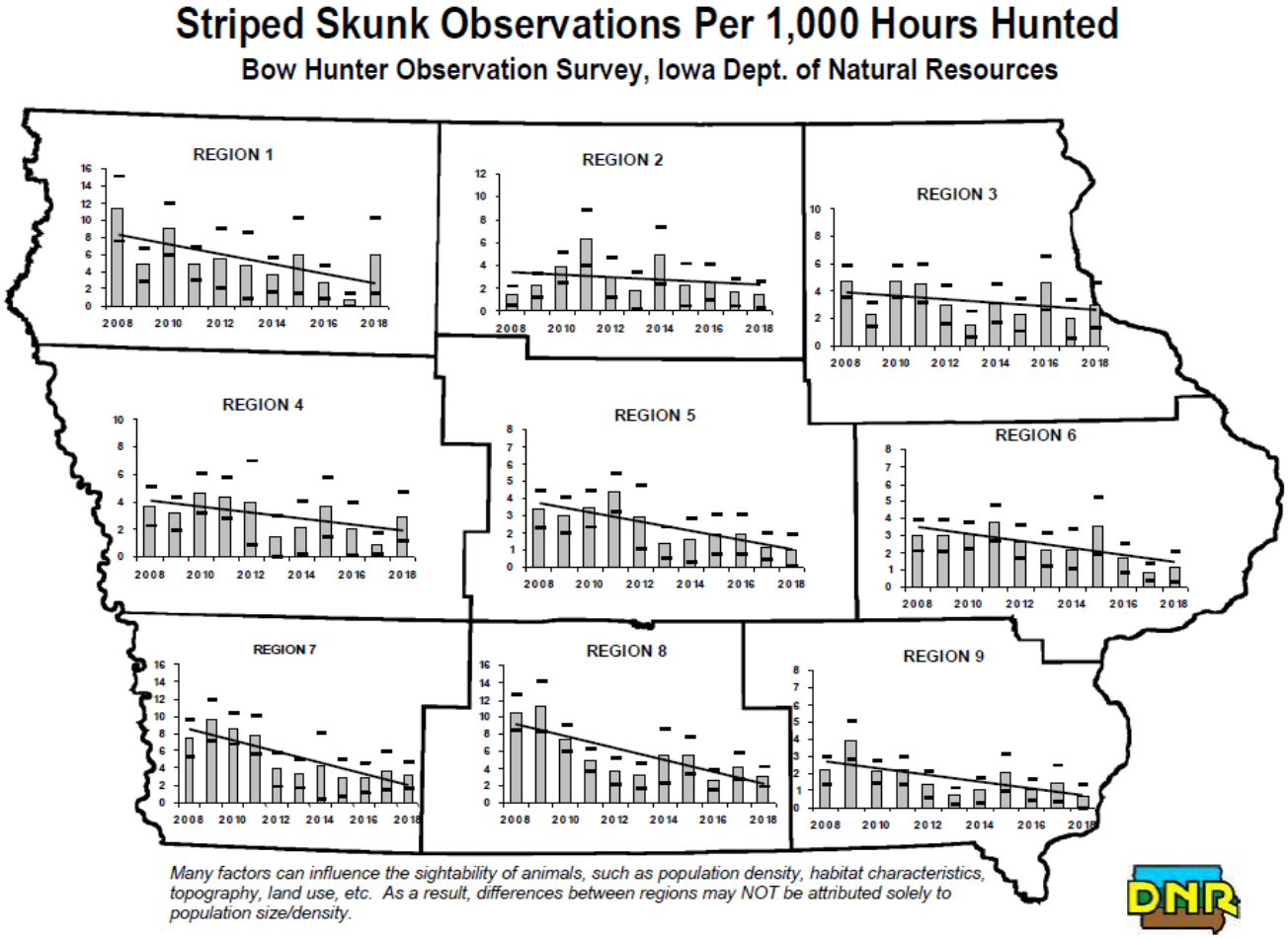


Figure 3.34 Results of striped skunk Bowhuner Observation Survey in Iowa (2008-Present).

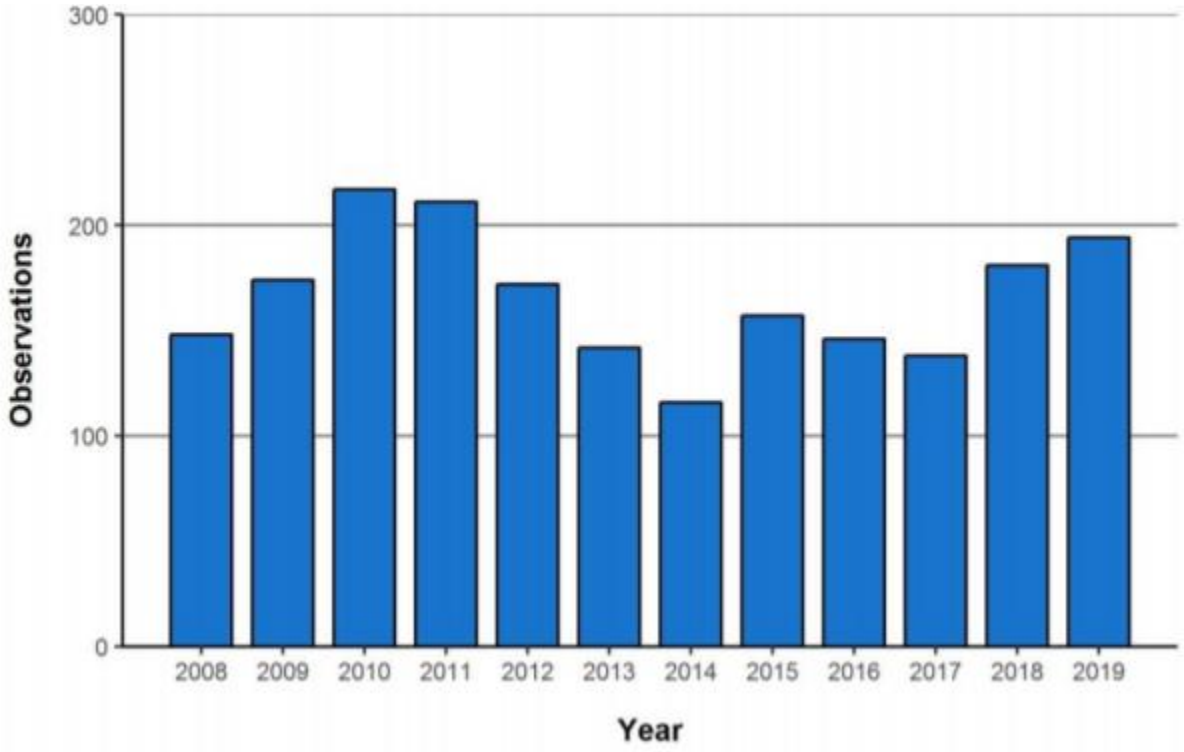
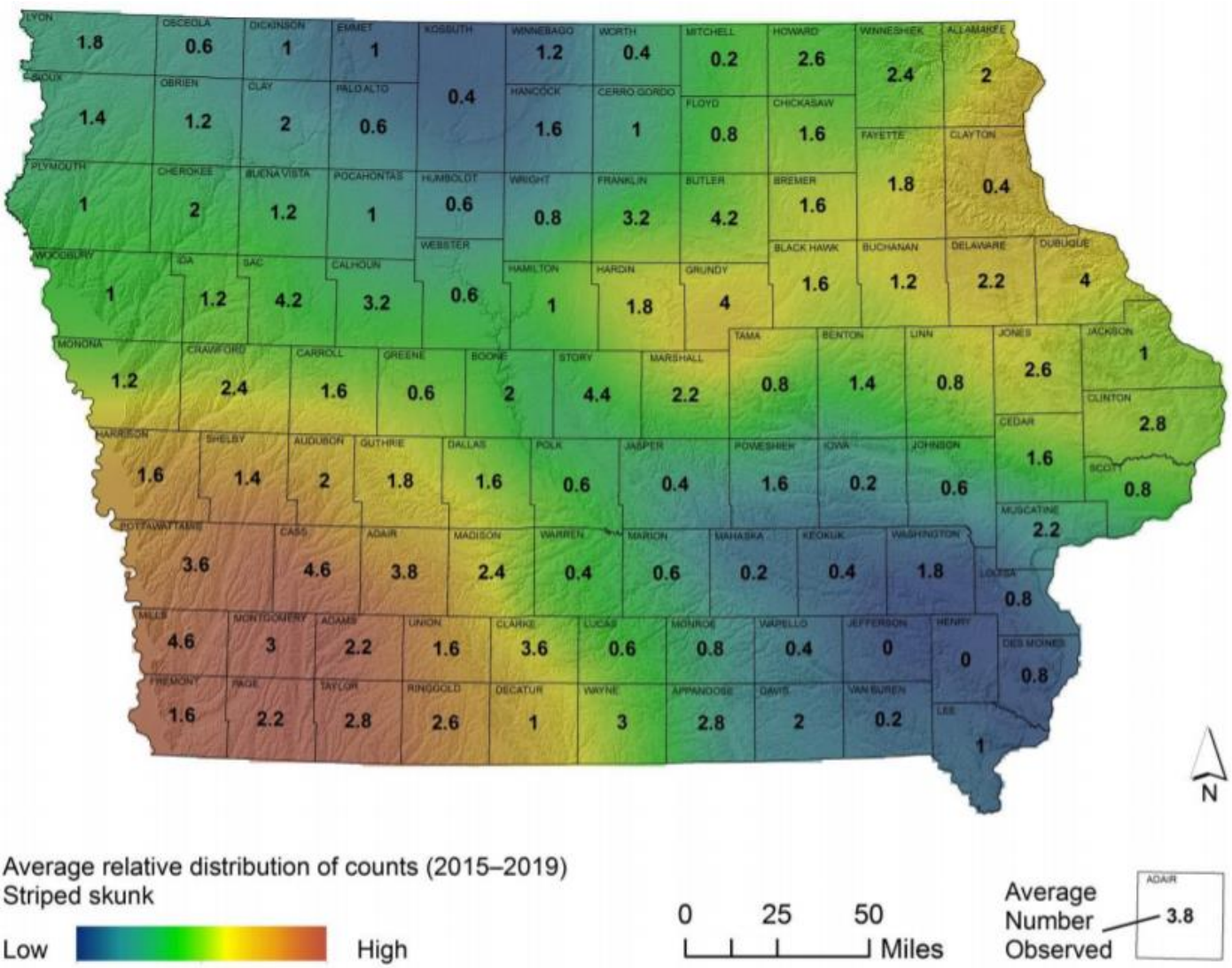


Figure 3.35 Total skunk observations by year during the Iowa Spring Spotlight Survey, 2008-Present.



The number of observations per county is relative to the highest and lowest number of observations across all counties during the survey and may not represent an over- or under-abundance of the species (i.e., high counts are considered high relative to those observed in all other counties). Skunk includes all observations recorded as “striped skunk” and “skunk” and likely includes none or few spotted skunk observations due to the rarity of the species in the state.

Figure 3.36 Relative distribution of average Spring Spotlight Survey skunk observations for the last 5 years.

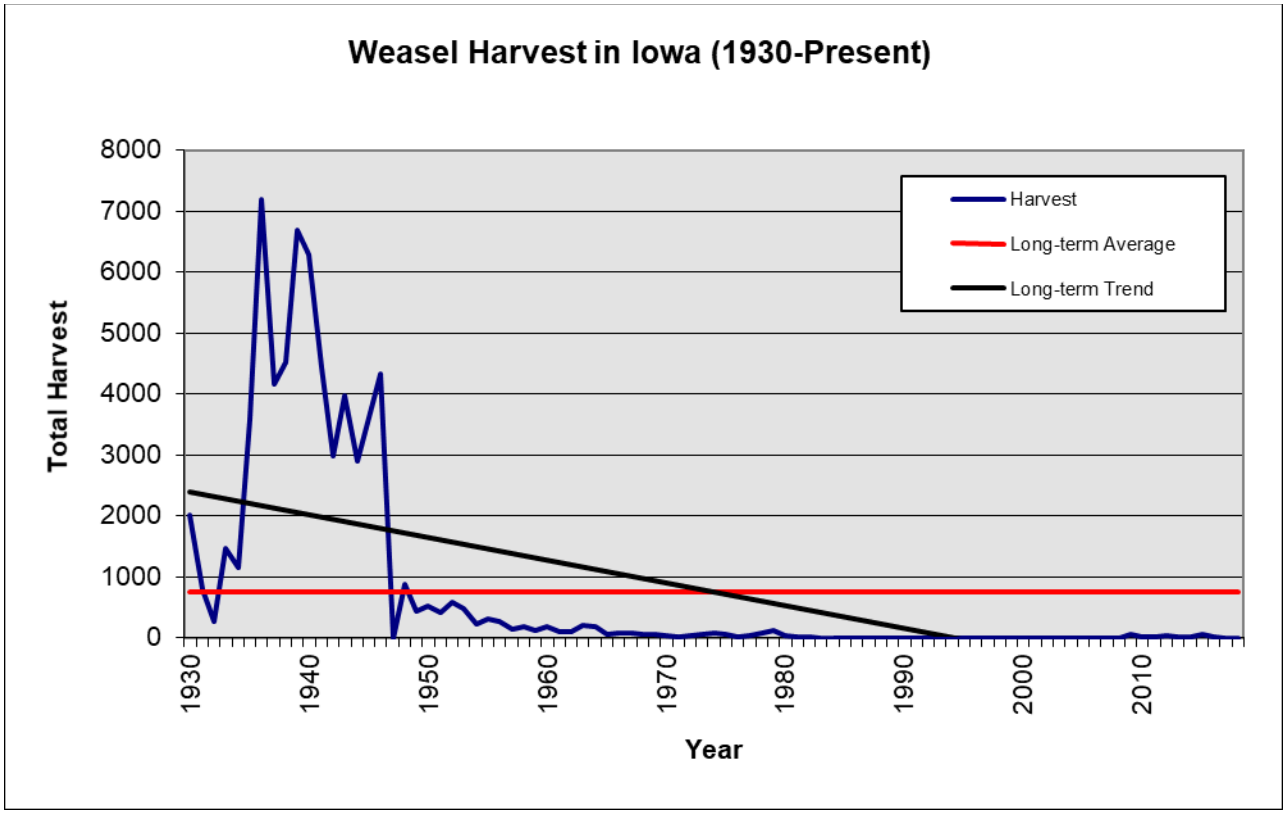


Figure 3.37 Annual weasel harvests reported by licensed fur dealers in Iowa (1930-Present).

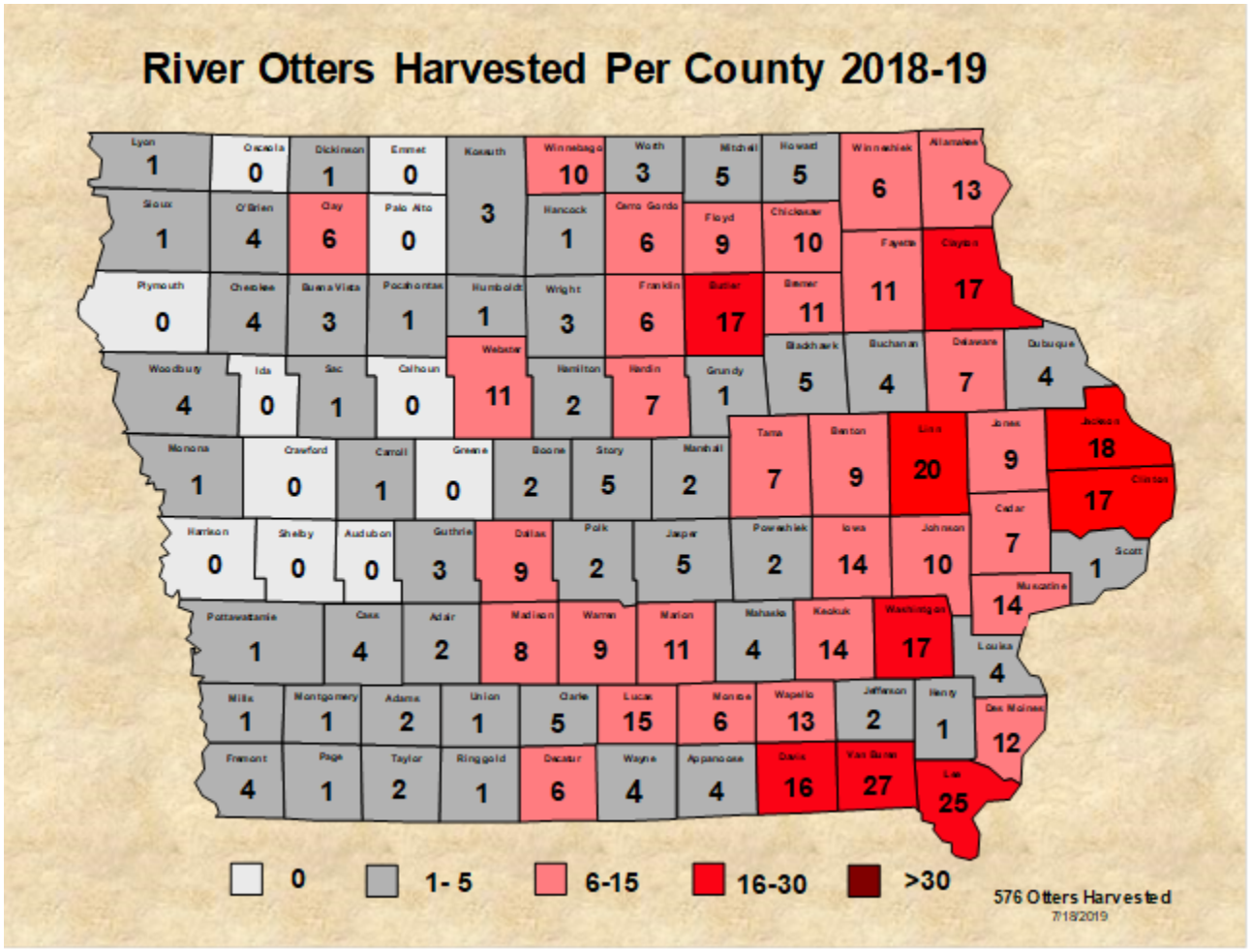


Figure 3.38 River otter harvest per county in Iowa, 2018-19.

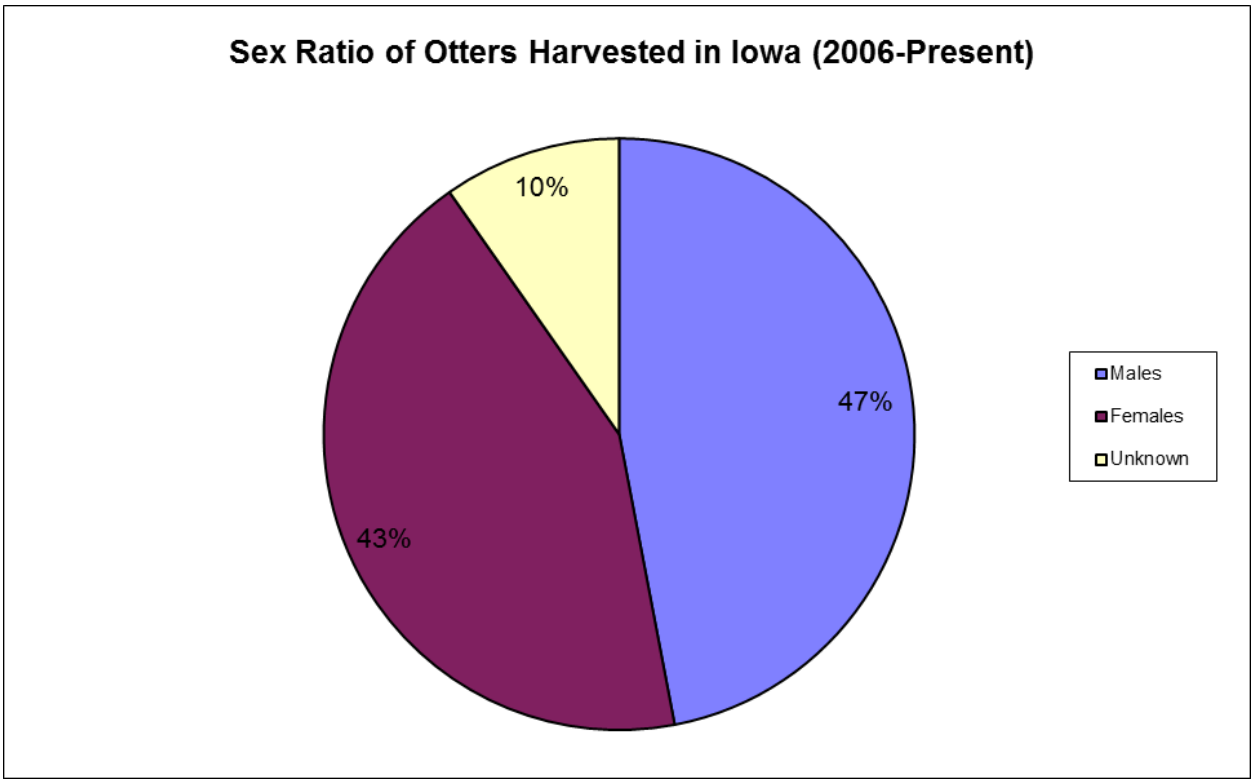


Figure 3.39 Sex ratio of harvested river otters in Iowa (2006-Present).

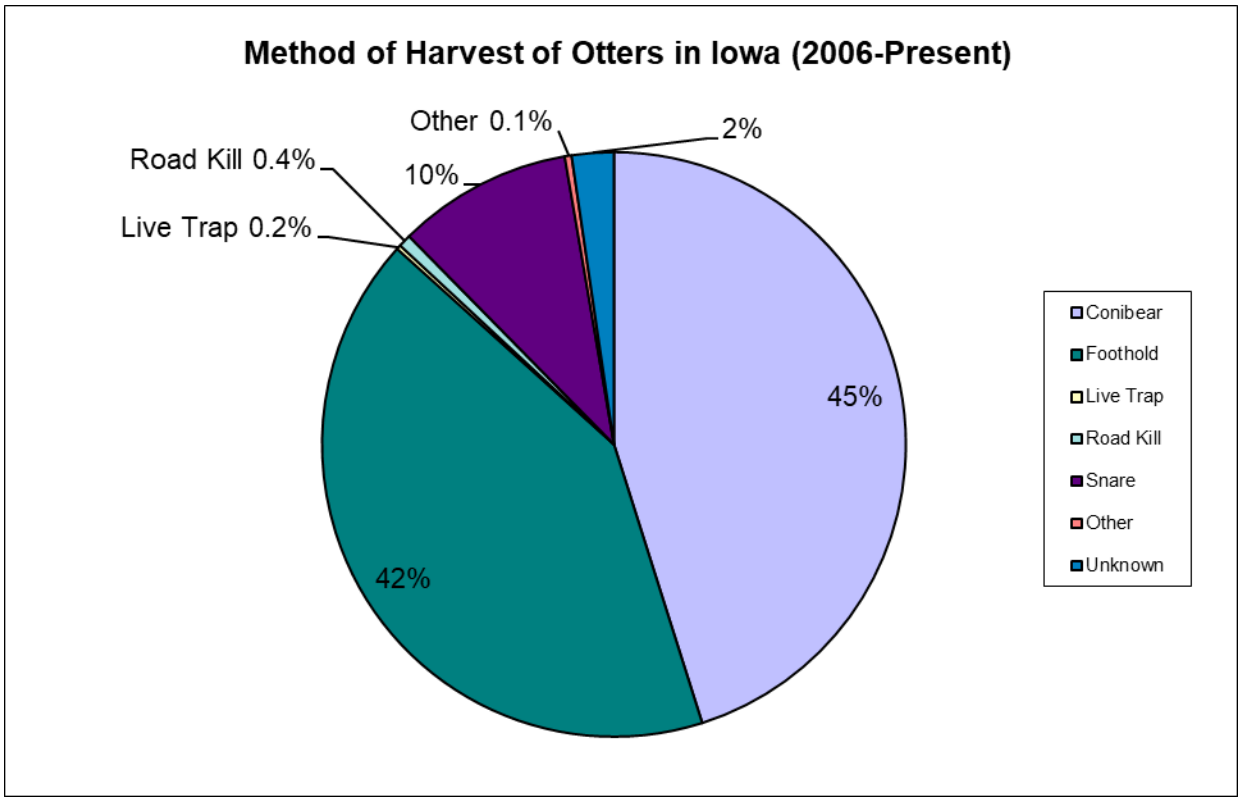


Figure 3.40 Harvest method of river otters in Iowa (2006-Present).

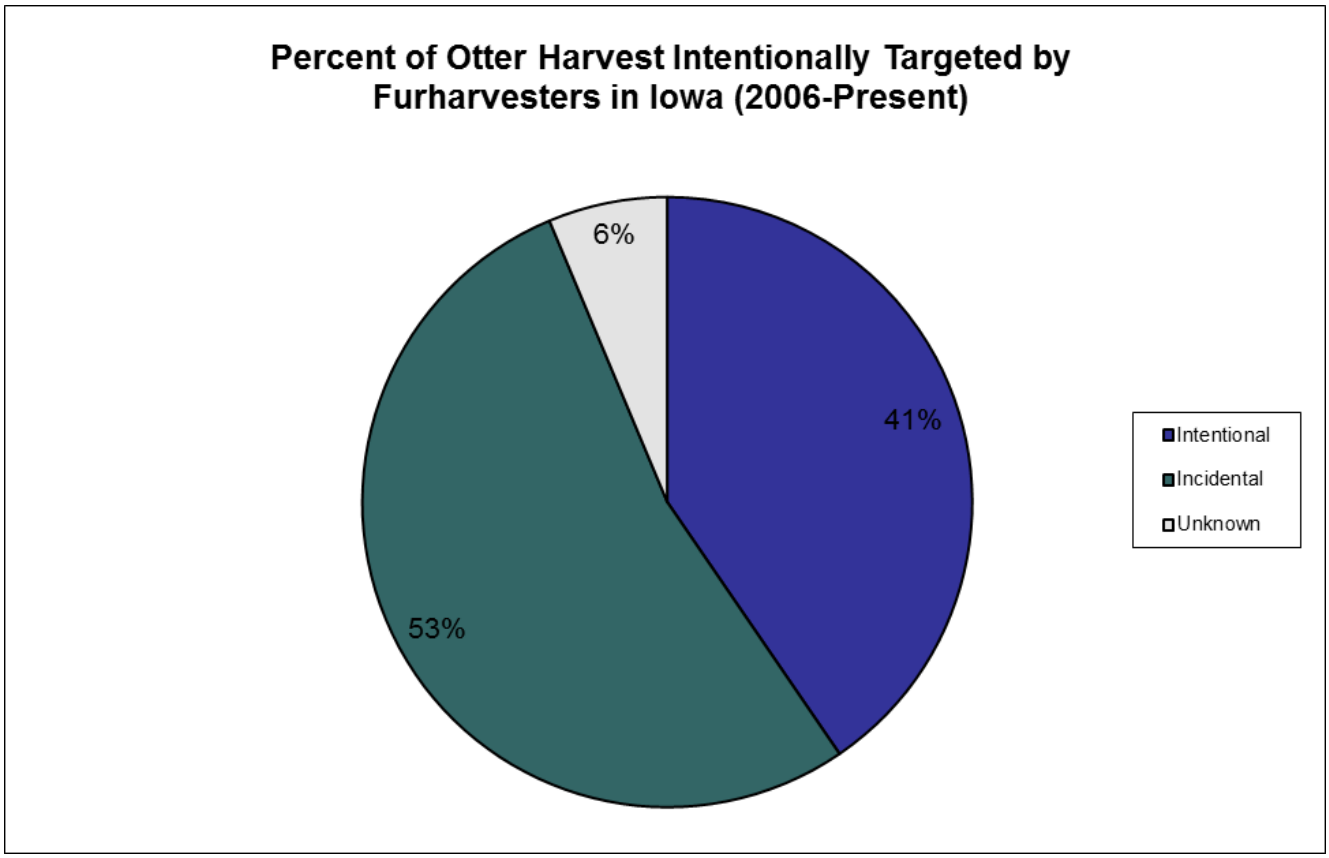


Figure 3.41 Percent of river otters intentionally and incidentally harvested in Iowa (2006-Present).

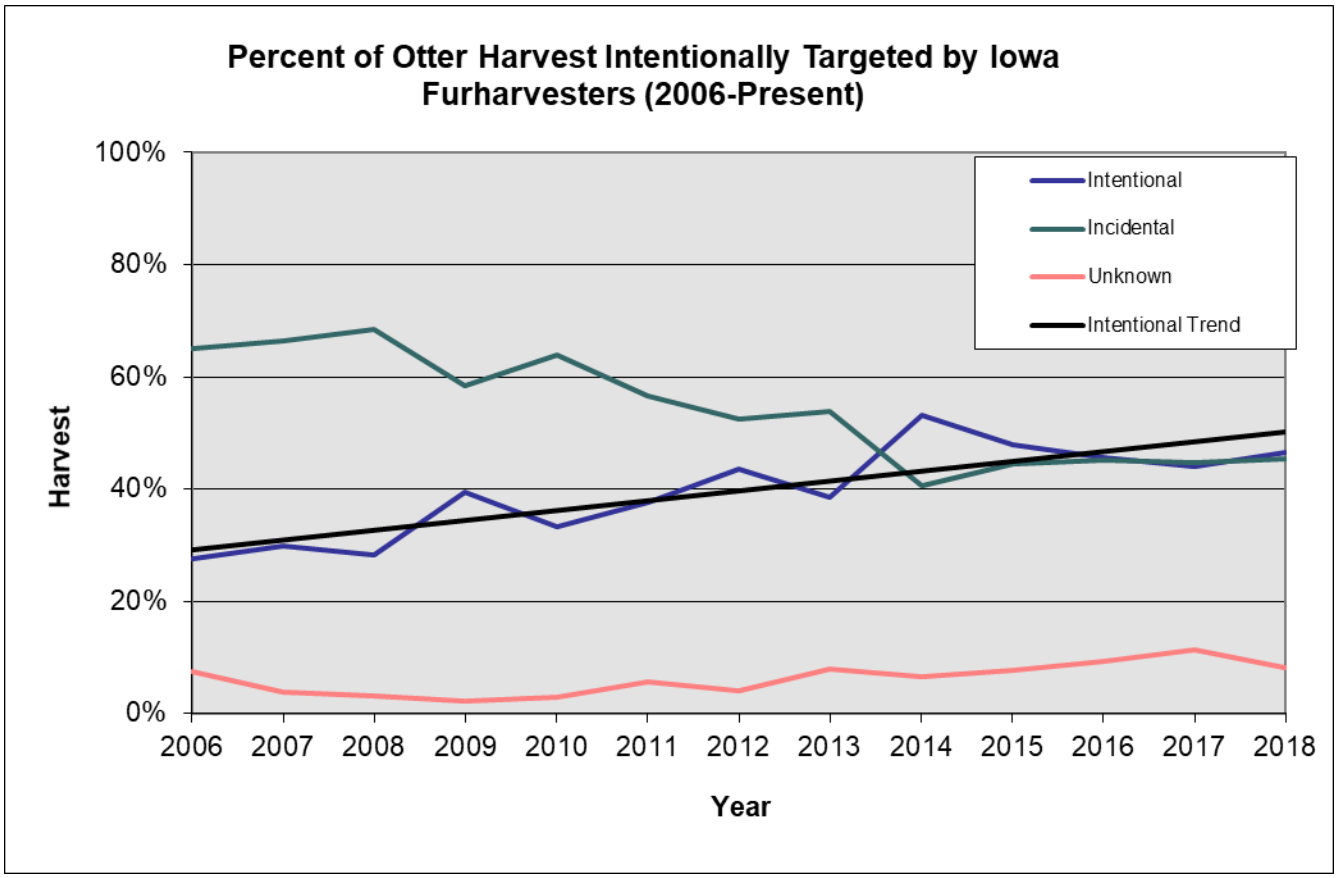


Figure 3.42 Trend for furharvesters intentionally targeting river otters in Iowa (2006-Present).

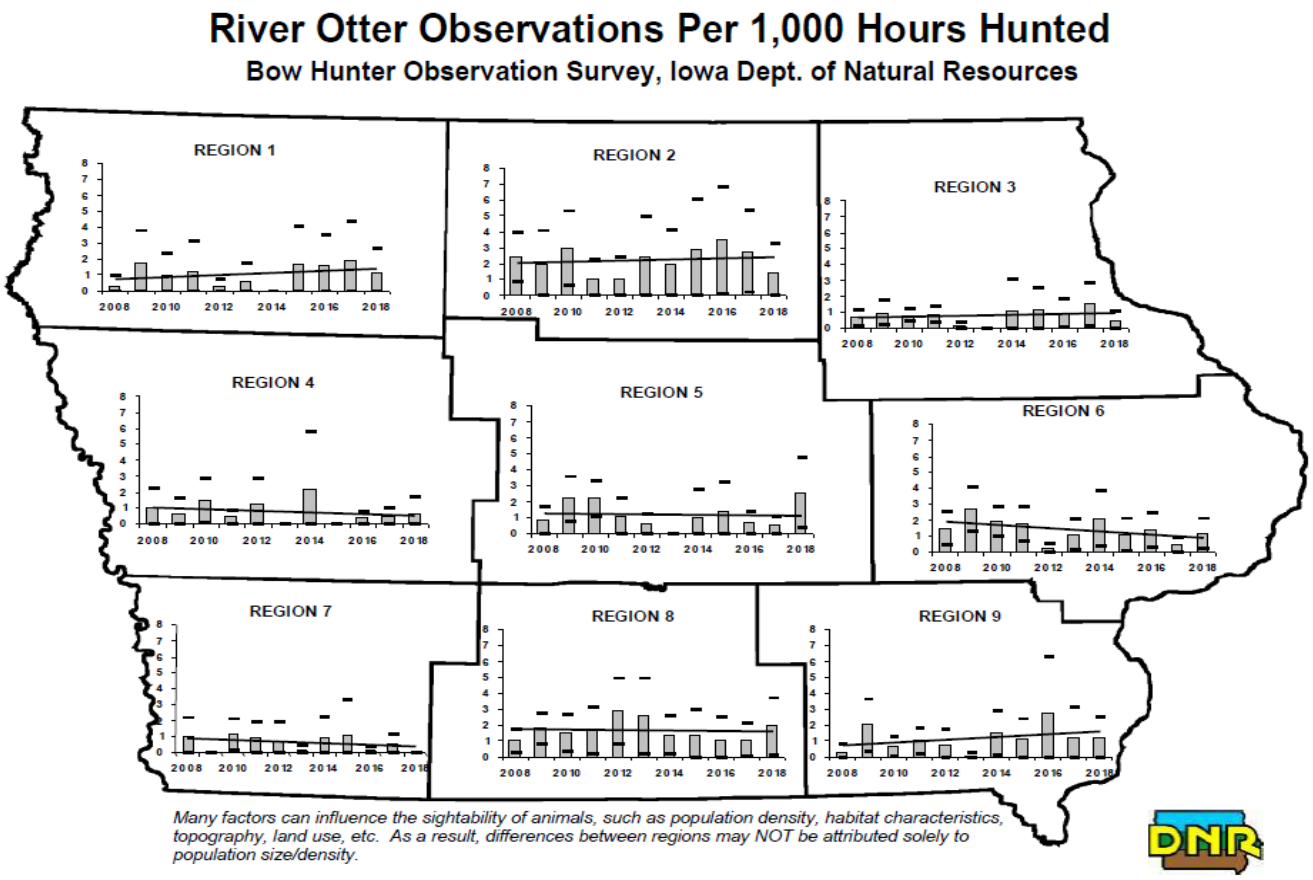


Figure 3.43 Results of river otter Bowhunter Observation Survey in Iowa (2008-Present).

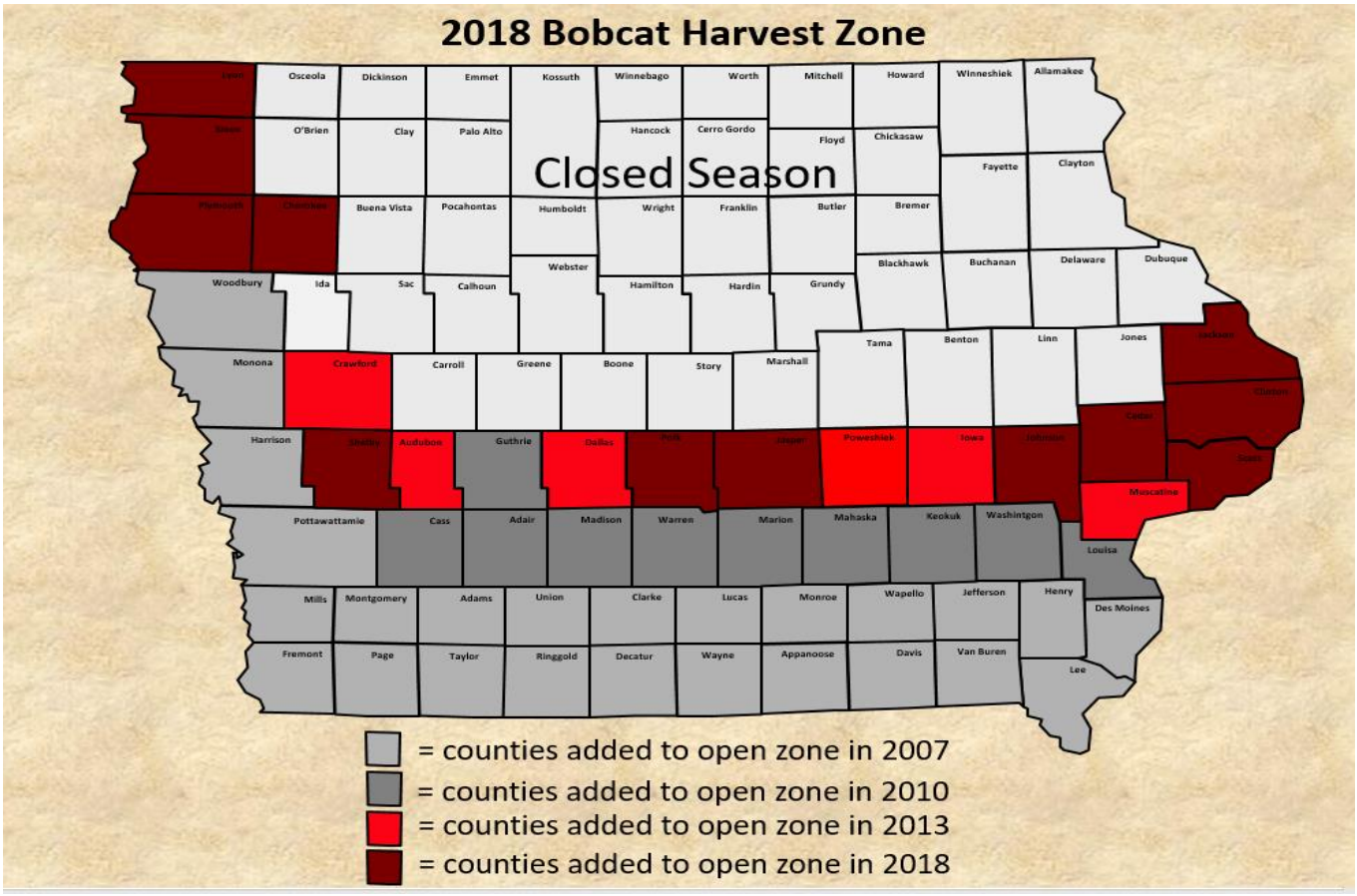


Figure 3.44 Open harvest zone for bobcat hunting/trapping season in Iowa, 2018-19.

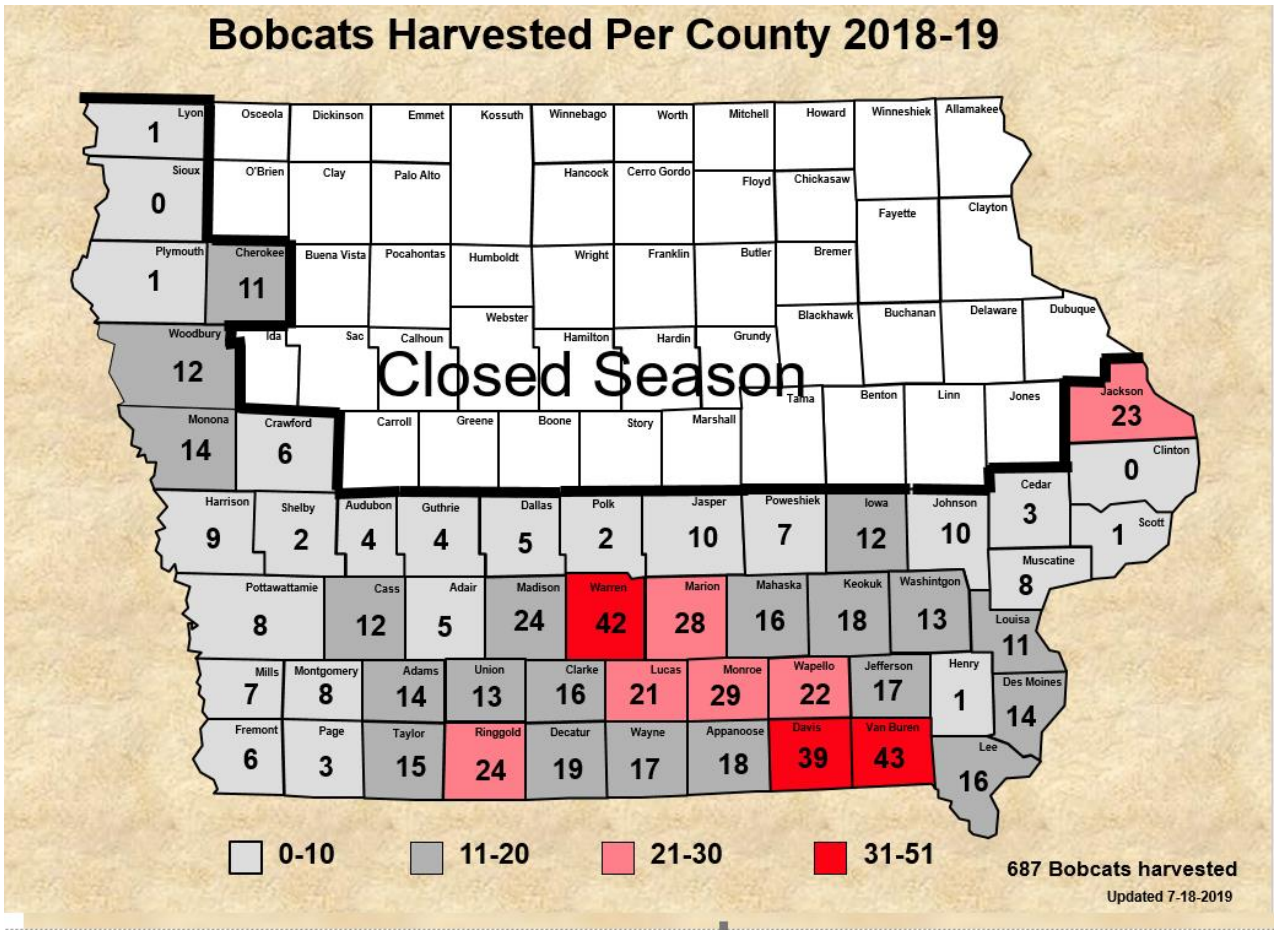


Figure 3.45 Bobcat harvest per county in Iowa, 2018-19.

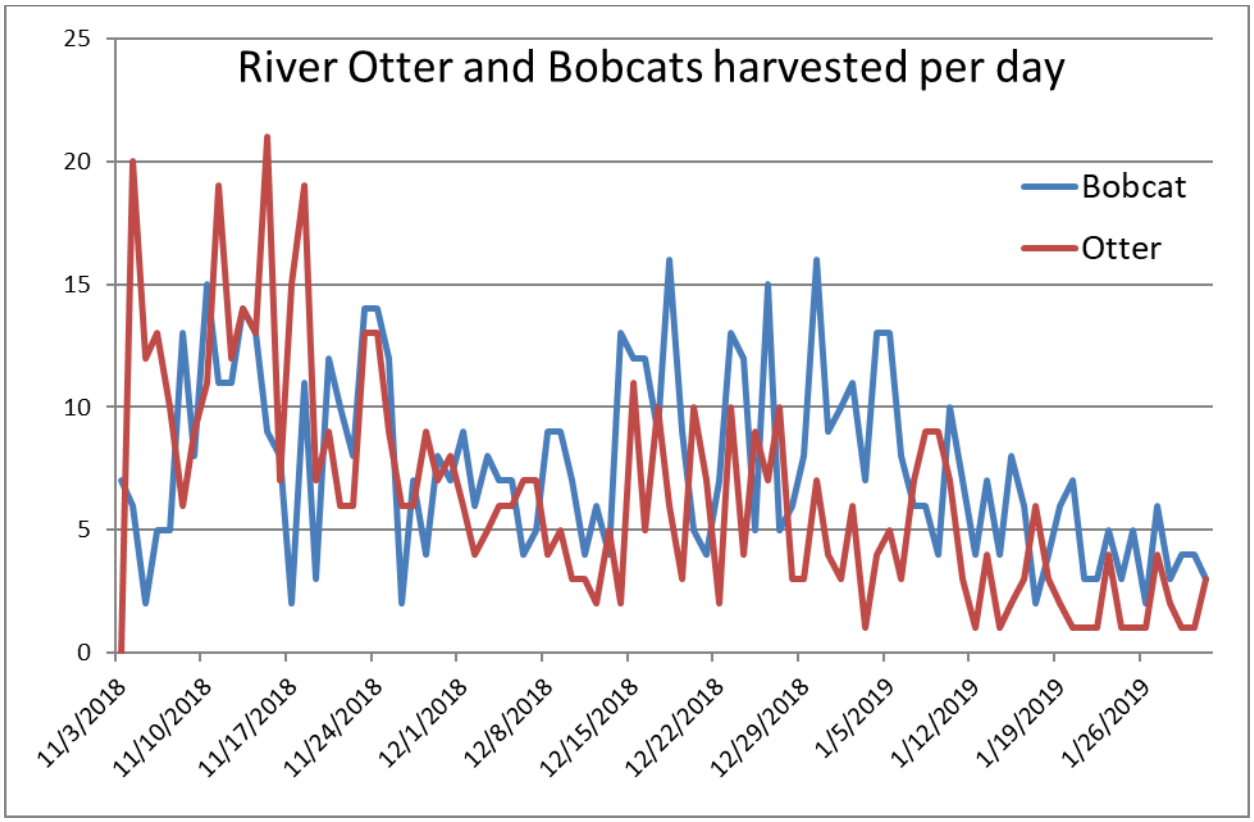


Figure 3.46 River Otter and bobcats harvested per day in Iowa (2018-19).

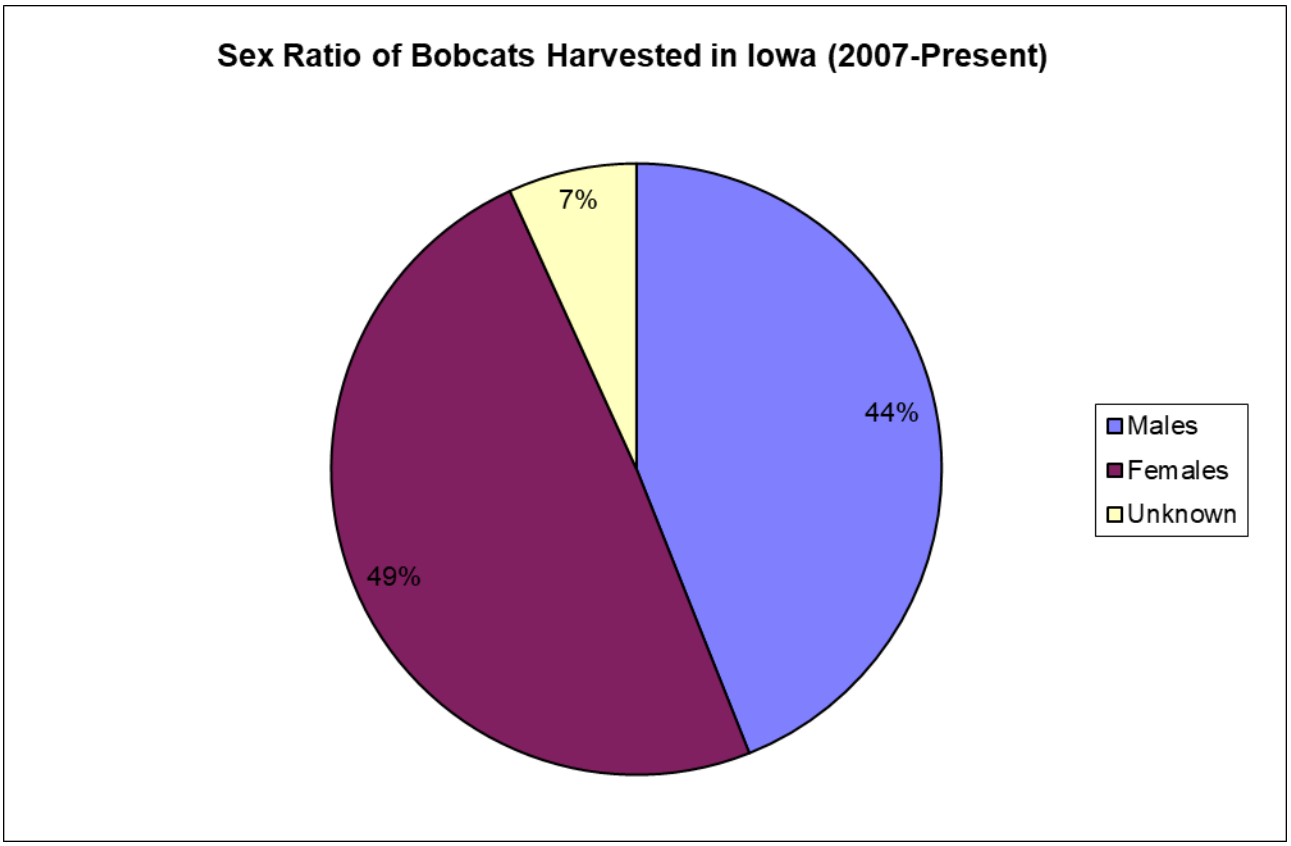


Figure 3.47 Sex ratio of harvested bobcats in Iowa (2007-Present).

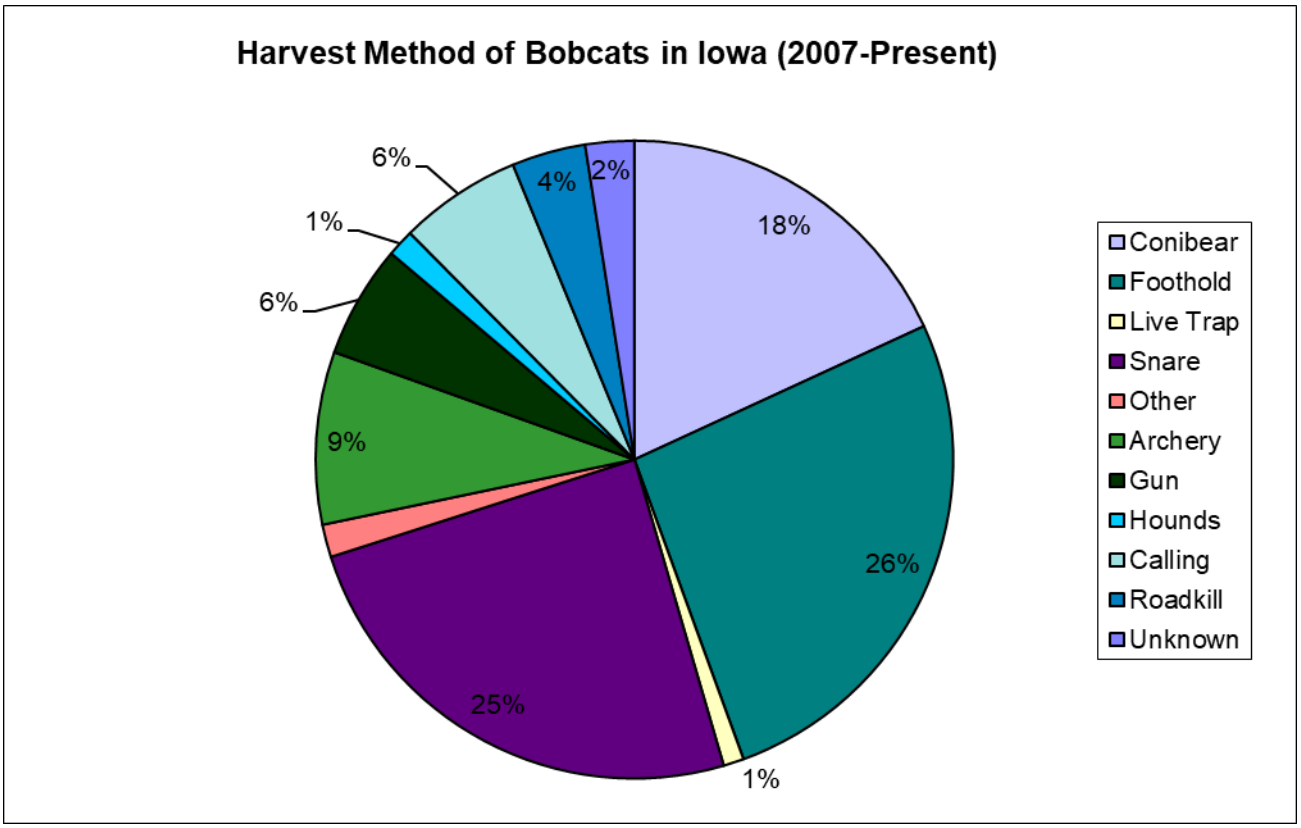


Figure 3.48 Harvest method of bobcats in Iowa (2007-Present).

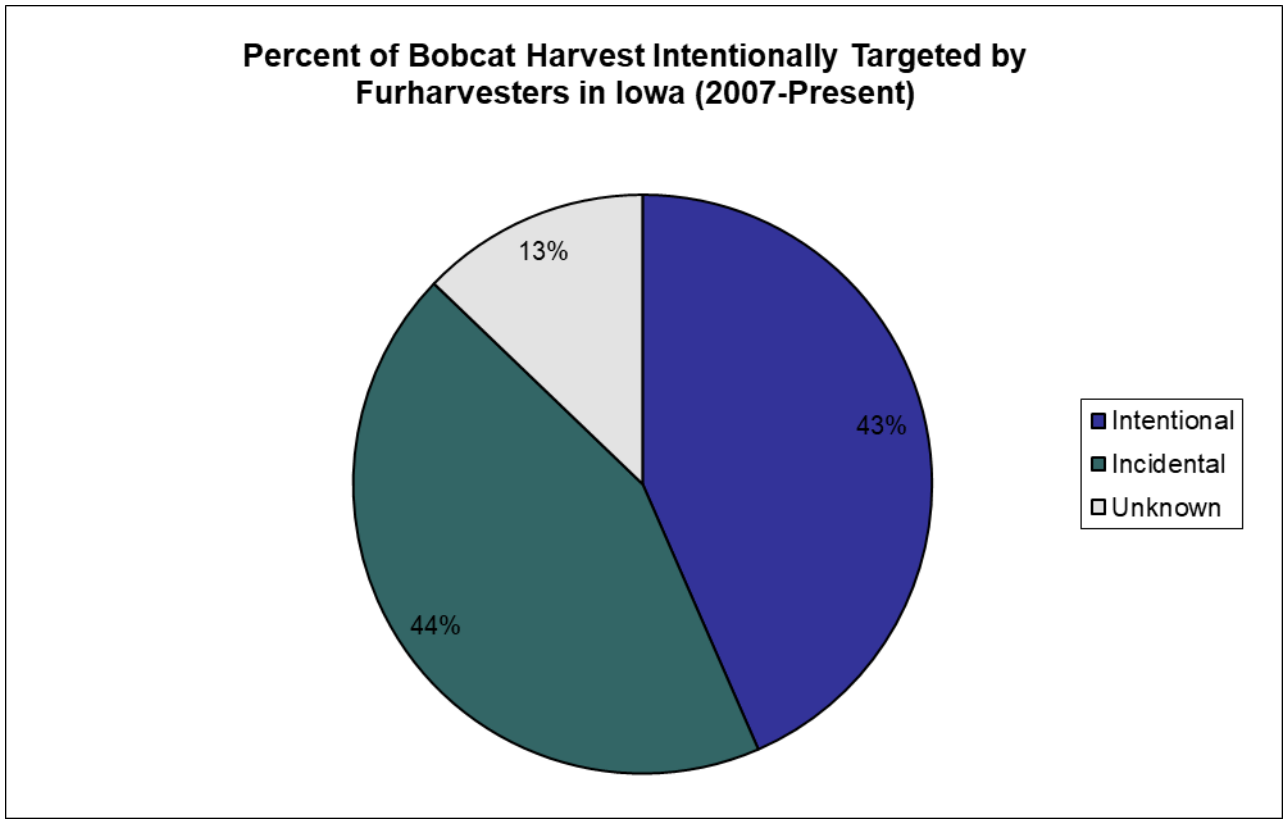


Figure 3.49 Percent of bobcats intentionally and incidentally harvested in Iowa (2007-Present).

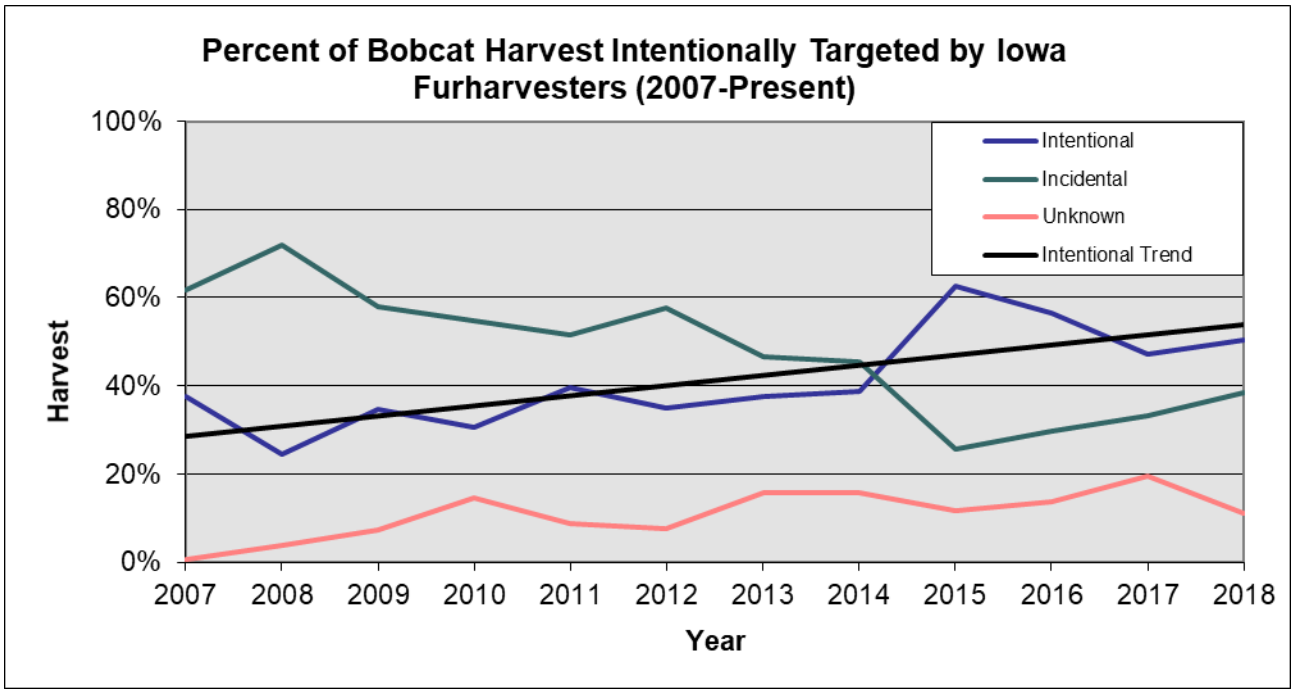


Figure 3.50 Trend for furharvesters intentionally targeting bobcats in Iowa (2007-Present).

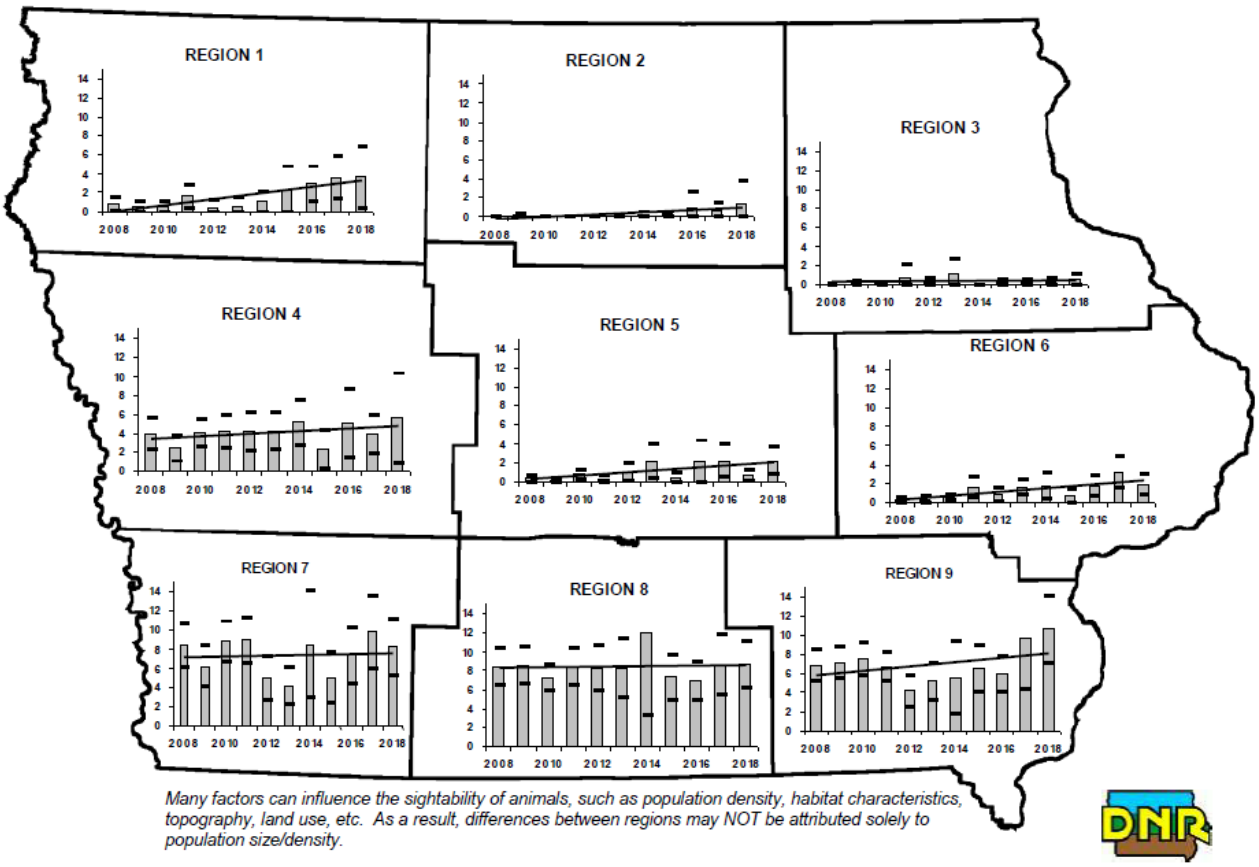


Figure 3.51 Results of bobcat Bowhunter Observation Survey in Iowa (2008-Present).

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
2017-18	40,913	5,182	630	106,842		2,284	4	1,341	2	15,185	470	5,438	214	430
2018-19	16,320	4,021	557	115,132		1,357	7	914	1	18,676	547	3,893	687	576
Average														
5-Year	34,736	4,607	514	118,734		1,772	51	1,323	13	14,043	505	4,431	668	696
10-Year	47,958	6,782	609	188,385		2,687	46	2,545	17	11,718	749	6,558	575	736
20-Year	58,434	9,379	710	164,325	0	5,568	195	3,271	17	8,745	672	7,410	512	671
50-Year	220,771	15,012	1,502	188,904	131	12,612	812	10,899	34	8,210	997	8,702	512	671
Long term[1]	234,143	19,192	16,007	126,310	18,327	9,987	800	13,586	1,076	5,033	672	7,025	512	671

[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 fur harvesters and fur dealers in Iowa, 2004-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	14,539	248	29	14,816	34	5	39
2017	14,100	296	97	14,493	31	5	36
2018	13,656	300	185	14,141	32	3	35

Table 3.3 Total number of pelts sold in Iowa and average, minimum, and maximum prices paid per species by fur dealers, 2015-Present

	No. of Pelts Sold in Iowa	Price Paid per Pelt ($)		
		Average	Minimum	Maximum
Raccoon				
2016-17	82126	4.76	1.00	8.00
2017-18	106842	5.71	0.50	7.00
2018-19	115132	7.90	1.95	8.00
Muskrat				
2016-17	38944	2.35	0.90	4.00
2017-18	40913	2.43	0.29	3.58
2018-19	16320	2.64	1.44	3.57
Mink				
2016-17	3957	6.01	1.00	20.00
2017-18	5182	5.38	2.00	12.00
2018-19	4021	5.17	2.00	8.10
Beaver				
2016-17	4214	6.54	2.61	20.00
2017-18	5438	6.80	3.00	10.00
2018-19	3893	6.83	3.00	8.69
Coyote				
2016-17	9283	17.22	6.65	30.00
2017-18	15185	21.17	5.00	30.00
2018-19	18676	24.97	2.00	28.28
Red Fox				

	No. of Pelts Sold in Iowa	Price Paid per Pelt ($)		
		Average	Minimum	Maximum
2016-17	1239	10.47	5.00	20.00
2017-18	2284	11.81	7.17	20.00
2018-19	1358	9.39	4.00	22.33
Opossum				
2016-17	1231	0.95	0.25	1.50
2017-18	1341	0.84	0.25	3.00
2018-19	914	1.02	0.00	3.00
Badger				
2016-17	261	9.05	3.00	20.00
2017-18	470	10.02	2.00	35.00
2018-19	547	12.22	2.00	20.00
Striped Skunk				
2016-17	355	2.29	0.50	7.00
2017-18	630	2.67	0.50	8.00
2018-19	557	2.81	0.50	7.00
River Otter				
2016-17	386	20.89	10.00	30.00
2017-18	430	17.91	10.00	30.00
2018-19	406	19.04	10.00	28.00
Bobcat				
2016-17	236	40.78	15.00	60.00
2017-18	214	38.40	11.00	150.00
2018-19	271	58.60	10.00	75.00
Gray Fox				
2016-17	19	13.58	3.00	15.00
2017-18	4	11.00	8.00	15.00
2018-19	7	10.00	8.00	15.00
Weasel				
2016-17	10	1.00	0.50	1.00
2017-18	2	1.50	1.00	1.00
2018-19	1	1.00	1.00	2.00

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
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

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
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
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

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
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
2017-18	5.38	27,897	2.43	99,249	5.71	610,135	11.81	26,971	1,146,285
2018-19	5.17	20,795	2.64	43,149	7.90	909,346	9.39	12,741	1,512,178
Average									
5-Year	6.15	28,779	2.91	104,792	6.71	890,281	12.53	23,623	1,443,892
10-Year	9.68	93,640	4.65	256,460	9.52	2,207,825	16.94	58,397	2,964,215
20-Year	11.69	130,103	3.79	229,446	9.97	1,823,478	14.90	81,950	2,461,362
50-Year	13.63	224,504	3.05	694,146	11.68	2,631,216	19.43	294,236	4,069,256
Long term	12.72	250,433	2.19	520,719	7.80	1,532,136	12.15	176,560	2,645,694

[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			

Season	Raccoon			Red and Gray Fox			Coyote			Bobcat		
	Trapper	Hunter	Unk	Trapper	Hunter	Unk	Trapper	Hunter	Unk	Trapper	Hunter	Unk
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			
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
2017-18	72	28	0	76	24	0	42	58	0	97	3	0
2018-19	70	30	0	64	26	12	36	64	0	95	5	0
Average												
5-Year	71	29	0	74	24	2	41	59	0	87	12	1
10-Year	67	29	4	69	25	6	40	55	5	86	11	3
20-Year	56	38	6	58	35	6	37	57	6	86	11	3
Total Avg.	47	46	8	51	41	8	32	61	7	86	11	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			
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			

Season	Species*	Trapping Season Dates		Hunting Season Dates		Bag Limit	
		Open	Close	Open	Close	Daily	Possession
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			
2017-18	ra, stsk, ba, op, rf, gf	Nov 4	Jan 31	Nov 4	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 4	Jan 31			No Limit	No Limit
	be	Nov 4	Apr 15			No Limit	No Limit
	co	Nov 4	Jan 31	Continuous open season		No Limit	No Limit
	ot[9]	Nov 4	Jan 31			2	2
	bc[9]	Nov 4	Jan 31	Nov 4	Jan 31	1	1
	spsk, gw	Continuous closed season		Continuous closed season			
2018-19	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 3	Apr 15			No Limit	No Limit
	co	Nov 3	Jan 31	Continuous open season		No Limit	No Limit
	ot[9]	Nov 3	Jan 31			2	2
	bc[9, 10]	Nov 3	Jan 31	Nov 3	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.

[10] 12 counties added to bobcat harvest zone (=53 total) in 2018.

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
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	106,842	5.71
2018	99	48	115,132	7.90

Year	Total Number of Routes	Mean Number Observed	Raccoon Harvest	Average Pelt Price ($)
2019	99	56		
Average				
5-Year	99	43	118,734	6.73
10-Year	95	37	185,369	9.53
20-Year	90	30	162,817	9.97
Overall	86	22	185,509	11.93

Table 3.8 Otter harvest seasons and harvest data in Iowa, 2006-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[b]	Statewide	Nov 5	Jan 31	88	6	291	228	37	556	none
2017[b]	Statewide	Nov 4	Jan 31	89	9	392	363	67	822	None
2018[b]	Statewide	Nov 3	Jan 31	90	6	275	239	62	576	None
					Total	4111	3773	843	8727	

*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	556	none
2017	451	272	2	59	13	25	822	None
2018	325	184	1	38	11	17	576	none
Total	**3937**	**3627**	**21**	**845**	**79**	**203**	**8727**	

[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
2017	41	4-Nov	31-Jan	89	9	364	401	54	819	None
2018	53	3-Nov	31-Jan	90	8	330	297	60	687	None
					Total	**2700**	**3022**	**417**	**6139**	

*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
2017	90	271	14	132	68	51	112	8	40	8	25	819	none
2018	81	184	8	107	50	82	106	11	34	12	12	687	none
Total	**1113**	**1615**	**64**	**1509**	**505**	**327**	**453**	**85**	**252**	**64**	**152**	**6139**	

*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 near 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 1990s, 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 1980s 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 1990s. 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

Iowa's Canada Goose Population

Temperate breeding Canada geese nested throughout Iowa prior to European settlement, but were extirpated from most of the Midwest, including Iowa, by 1900. The Canada goose restoration program initiated by the Iowa Conservation Commission in 1964, the forerunner to the Iowa DNR, has successfully restored this species to most of its former nesting range in Iowa (see Giant Canada Goose Restoration). Iowa's Canada goose population exhibited steady growth during 1965-2010, declined in 2013, but appears to have recovered since (Figure 4.2). Each summer, DNR staff 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 2018 indicated the population was 83,055 (±16,727) (±95% Conf. Limit).

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.

Iowa's duck harvests have fluctuated substantially since 1961. The lowest harvests of all ducks and mallards occurred in the early 1960s, 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.

The addition of an experimental Special September Teal season in 2014-2018 allowed Iowan's additional opportunity to hunt teal. Blue-winged teal harvest increased during 2014 and 2015. However, duck harvest during the first four seasons with a teal season compared to the average of the most recent five years preceding the teal season appears to have declined, particularly for wood ducks.

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 1990s, 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. Canada goose harvest during 2015-2018 is the first period 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 1970s, despite record high numbers of snow geese in the Flyway in the 1990s and 2000s. 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 1990s, 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 temperate-breeding 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 Canada geese while limiting harvests of migrant geese from Arctic and sub-Arctic regions.

In 2018 Iowa held a 16 day Special September Teal season. This was the first year of an operational season. Estimates of teal harvest during the first two experimental seasons were substantial (2014 = 48,870, 2015 = 33,733), however Iowa's entire season duck harvest has not increased.

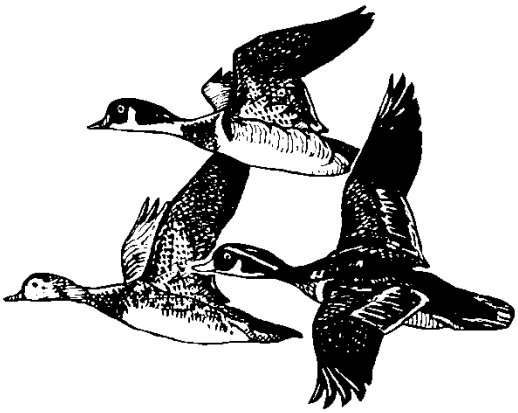
Waterfowl Banding

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 1960s emphasis was placed on banding blue-winged teal to evaluate special teal seasons. Winter mallard banding was conducted in the 1970s 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 2-3 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 Mississippi Flyway, USFWS and state conservation agencies attempt to balance harvest of abundant temperate breeding Canada goose populations and migrant Canada goose populations, which have been stable or decreasing.



Figures

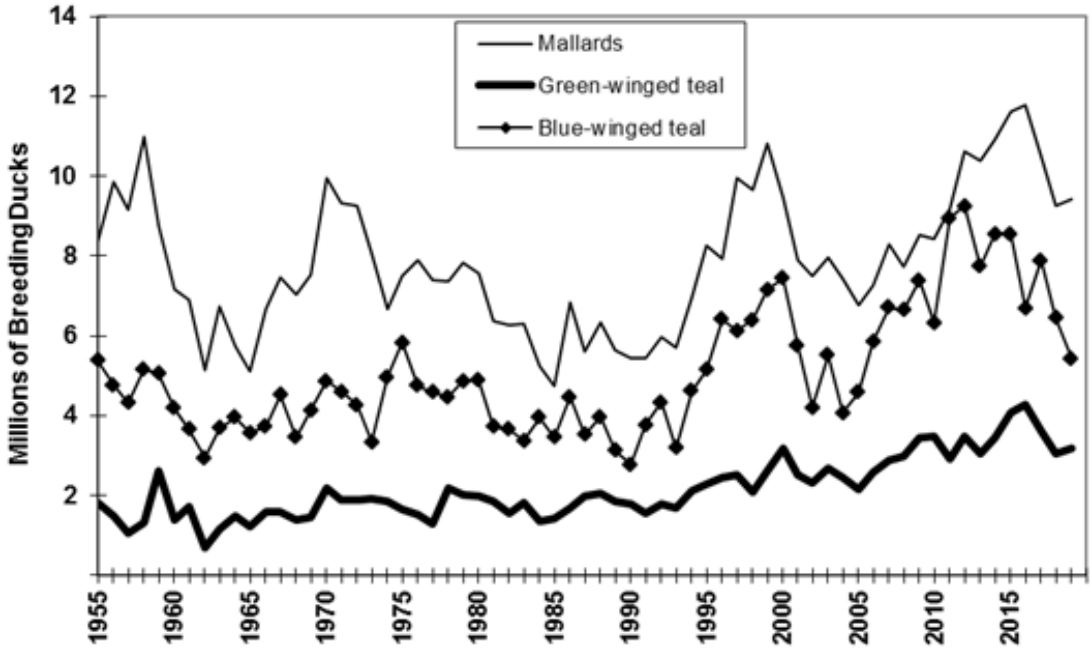


Figure 4.1 Breeding populations of ducks important to Iowa. (Source USFWS)

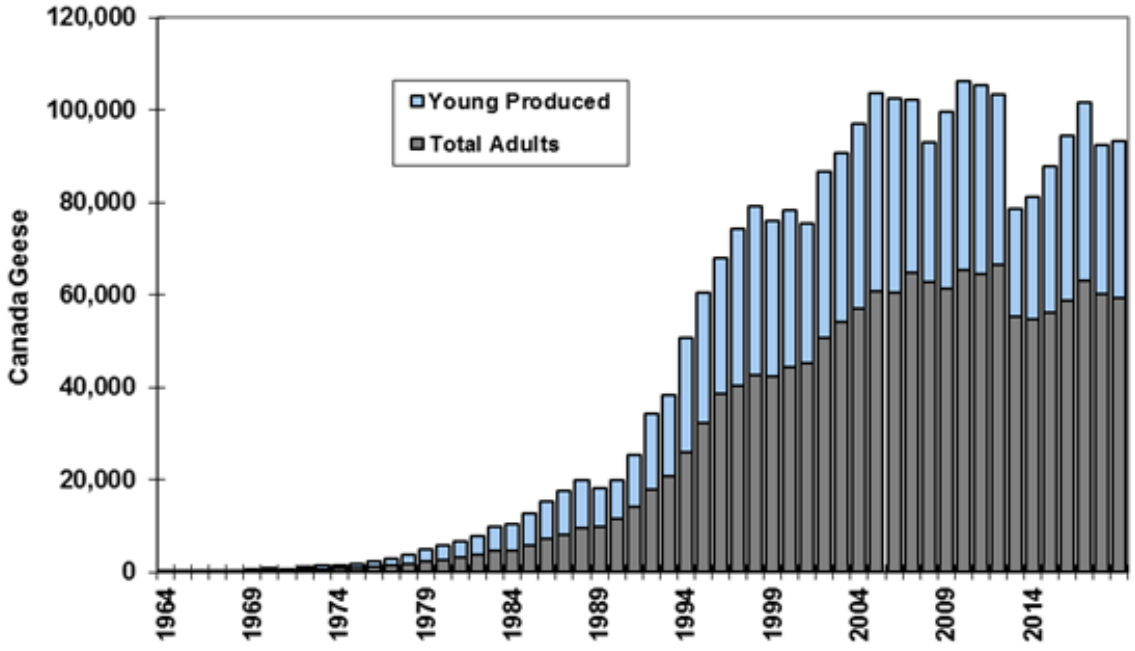


Figure 4.2 Iowa's Canada goose population. (Source Iowa DNR)

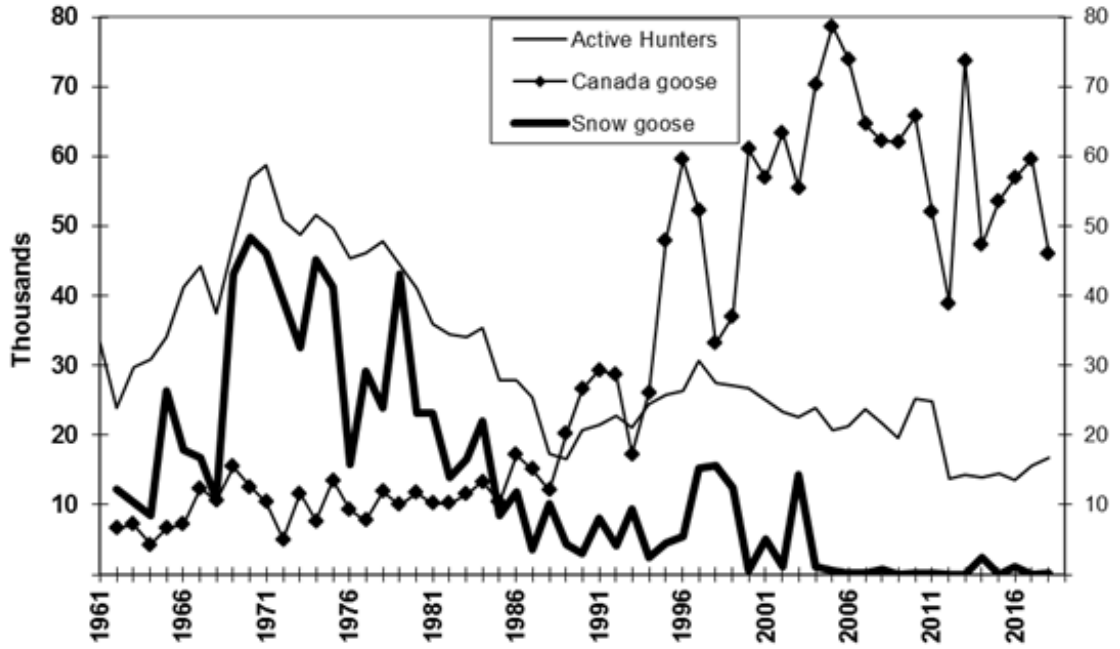


Figure 4.3 Goose harvests and active hunters in Iowa. (Source USFWS)

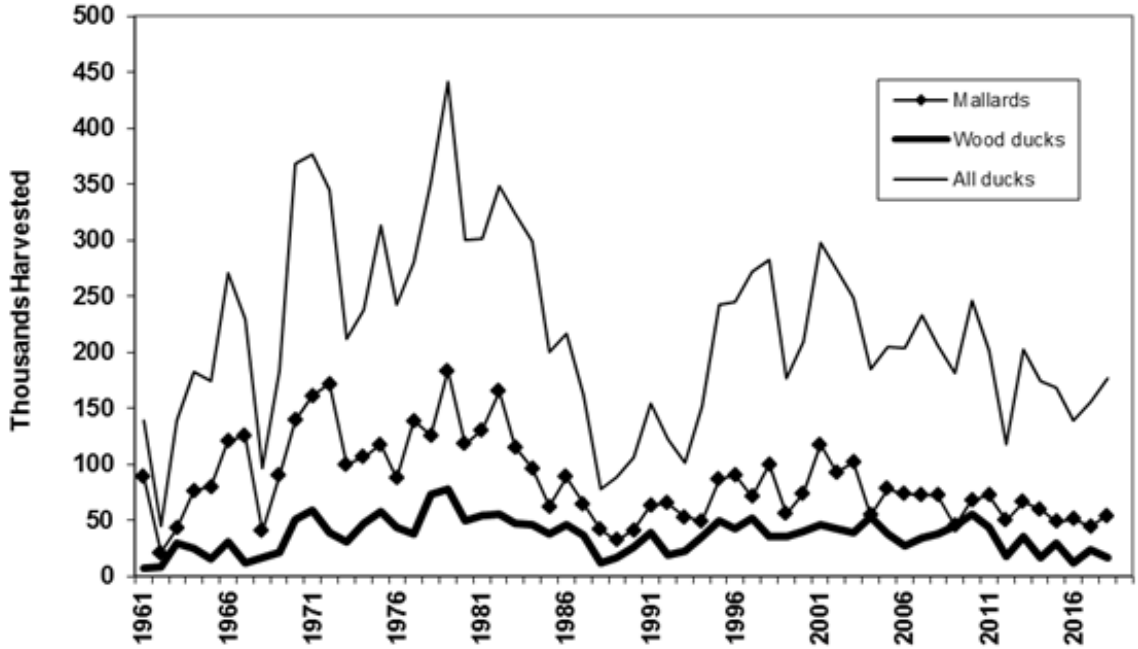


Figure 4.4 Duck harvests in Iowa. (Source USFWS)

Tables

Table 4.1 Breeding population estimates for 10 species of ducks (in thousands) in the 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
2018	9,255	2,886	2,820	3,043	6,450	4,208	2,365	999	686	3,989
2019	9,423	3,258	2,832	3,178	5,427	3,649	2,268	732	652	3,590
Percent Change in 2019 from:										
2018	2%	13%	0%	4%	-16%	-13%	-4%	-27%	-5%	-10%
1955-2019	20%	57%	9%	47%	7%	39%	-42%	0%	11%	-28%
1955-18 Statistics										
Average	7,873	2,044	2,603	2,165	5,093	2,614	3,841	730	589	4,942
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

Table 4.2 Selected waterfowl harvest and hunter activity estimates for Iowa. (Source is USFWS)

Data for 2001 to the present is based on the Harvest Information Program and is preliminary.

Year	Days & Harvest (1,000s)								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
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

Year	Days & Harvest (1,000s)								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			
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
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
2017	44.3	23.6	37.4	21.0	156.0	59.6	0.0	99.2	NA	11.6	15,700
2018	53.9	16.9	47.6	18.0	176.1	46.1	0.2	97.8	NA	10.9	16,700
Percent Change in 2018 From:											
2017	22%	-28%	27%	-14%	13%	-23%		-1%		-6%	6%
1961-2018 Average	-37%	-54%	46%	-29%	-19%	47%	-99%	-62%		41%	-45%
1961-18 Statistics											
Average	84.5	36.1	32.8	25.1	217.6	31.6	13.3	257.5	39,196.8	7.8	30,134.6
Maximum	183.3	77.8	74.0	45.2	441.0	78.6	48.3	536.5	68,401.0	14.1	58,700.0
Minimum	21.3	6.8	0.4	5.6	45.1	4.3	0.0	69.7	21,686.0	2.1	13,500.0
10-yr avg											
1961-70	82.5	21.5	28.7	25.2	182.9	9.2	21.6	304.9	45261	5.0	37960
1971-80	130.9	51.6	37.6	31.4	309.9	9.9	33.9	442.1	56845	6.0	48440
1981-90	83.7	37.7	31.5	22.5	212.3	14.7	11.7	244.8	32914	6.8	27560
1991-00	70.7	37.1	27.6	23.0	195.7	39.2	7.8	256.0	29973	7.2	25385
2001-10	77.6	41.7	36.1	28.4	227.9	65.3	2.4	160.5	28939.6	11.1	22690

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	
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.

Year	Season Length	Season Dates	Shooting Hours	Limits		Additional Bag Limit Information
				Duck Bag/Poss	Coot Bag/Poss	
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.
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.

Year	Season Length	Season Dates		Shooting Hours	Limits		Additional Bag Limit Information
					Duck Bag/Poss	Coot Bag/Poss	
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	
		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.

Year	Season Length	Season Dates		Shooting Hours	Limits		Additional Bag Limit Information
					Duck Bag/Poss	Coot Bag/Poss	
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	
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.

Year	Season Length	Season Dates		Shooting Hours	Limits		Additional Bag Limit Information
					Duck Bag/Poss	Coot Bag/Poss	
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	
		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	

Year	Season Length	Season Dates			Shooting Hours	Limits		Additional Bag Limit Information
						Duck Bag/Poss	Coot Bag/Poss	
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		
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		
2017	60	Sep 23-Oct 1 Oct 14-Dec 3	Sep 30-Oct 4 Oct 21-Dec 14	Oct 7-8 Oct 21-Dec 17	½ SR-SS	6/18[*at]	15/45	*[at]Only 4 Ma (2 Hn), 3 Wd, 1 Pt, 2 Rh,2 Bd, 2 Cb, & 3 Sc. 5 merg., only 2 Hm
Youth Day		Sep 16-17	Sep 23-24	Sep 30-Oct 1	½ SR-SS	6/18[*at]	15/45	
Teal		Sep 2-10	Sep 2-10	Sep 2-17	SR-SS	6/18		

Year	Season Length	Season Dates			Shooting Hours	Limits		Additional Bag Limit Information
						Duck Bag/Poss	Coot Bag/Poss	
2018	60	Sep 29-Oct 5 Oct 13-Dec 4	Oct 4-Oct 12 Oct 20-Dec 11	Oct 13-19 Oct 17-Dec 18	½ SR-SS	6/18*at	15/45	*atOnly 4 Ma (2 Hn), 3 Wd, 1 Pt, 2 Rh,2 Bd, 2 Cb, & 3 Sc. 5 merg., only 2 Hm
Youth Day		Sep 22-23	Sep 29-30	Oct 6-Oct 7	½ SR-SS	6/18*at	15/45	
Teal		Sep 1-16	Sep 1-16	Sep 1-16	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.
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.

Year	Goose Species	Season Length	Season Dates	Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
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]	
1974	Ca	45	Oct 1-Nov 14	SR-SS	1/2*[g]	
	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
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]	
			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]	

Year	Goose Species	Season Length	Season Dates		Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
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	
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	

Year	Goose Species	Season Length	Season Dates		Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
	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	
	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.

Year	Goose Species	Season Length	Season Dates		Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
			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	[c]Cons. Or.	Jan 11-April 15, 2010		½ SR-SS/½	20/none	
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	[c]Cons. 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	

Year	Goose Species	Season Length	Season Dates			Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
	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	[c]Cons. 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	[c]Cons. 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	[c]Cons. 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	[c]Cons. 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	
	Sn/Ro	[c]Cons. 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]	*[r]Aggregate bag lim.= 2 Ca & 1 Br through Oct. 31 and 3 Ca, 5 Wf, & 1 Br thereafter.
			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	[c]Cons. Or.	Jan 28-April 15, 2017			½ SR-SS	20/none	
2017	Ca	9	Sep 2-10 in metro zones[e]			½ SR-SS	5/15*[q]	

Year	Goose Species	Season Length	Season Dates		Shooting Hours	Limit Bag/Poss	Additional Bag Limit Information
	Dark Geese	98	Sep 23-Oct 8	Sep 30-8	½ SR-SS	5/15*[r]	*[r]Aggregate bag lim.= 2 Ca & 1 Br through Oct. 31 and 3 Ca, 5 Wf, & 1 Br thereafter.
			Oct 14-Jan 1	Oct 21-Jan 15	½ SR-SS		
	Sn/Ro	107	Sep 23-Oct 8	Sep 30 1-8	½ SR-SS	20/none	
			Oct 14-Jan 10	Oct 21-Jan 24	½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Jan 25-April 15, 2018		½ SR-SS	20/none	
2018	Ca	9	Sep 1-9 in metro zones[e]		½ SR-SS	5/15*[q]	
	Dark Geese	98	Sep 22-Oct 7	Sep 29-Oct 14	½ SR-SS	5/15*[r]	*[r]Aggregate bag lim.= 2 Ca & 1 Br through Oct. 31 and 3 Ca, 5 Wf, & 1 Br thereafter.
	Sn/Ro		Oct 13-Dec 4	Oct 20-Dec 11	½ SR-SS	20/none	
			Dec 15-Jan 12	Dec 22-Jan 19	½ SR-SS	20/none	
	Sn/Ro	[c]Cons. Or.	Jan 27-April 15, 2019		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

Year	Canada Geese	Mallards	Wood Ducks	Blue-winged Teal	Trumpeter Swans	Other Waterfowl Species	Total Waterfowl	Mourning Doves
2005	4,983	338	2,823	0	113	0	8,257	2079
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
2017	4,310	0	1,633	0	0	0	5,943	2,212
2018	4,374	0	1,204	0	0	0	5,578	1,882
Totals	124,954	36,749	134,288	35,810	1,133	2,236	335,170	28,852
Recent 10-year Avg	3,751	73	2,417	0	2835	0	6,269	1,878

Table 4.6 Giant Canada goose production and populations in Iowa, 1964-Present

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%

Year	Young Produced	Nesting Adults	Non-breeding Adults	Total Adults	Total Geese	% Change from Prev. Year
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%
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%
2018	32,243	21,094	39,172	60,077	92,203	-7%
2019	33,690	21,123	38,518	59,468	92,863	1%

UPLAND WILDLIFE

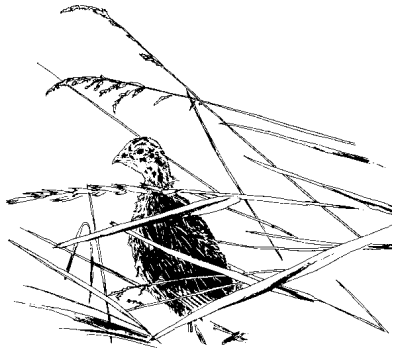
The Iowa DNR conducts 2 statewide surveys to monitor upland game populations in Iowa, the August Roadside survey and the Small Game Harvest survey.

DNR Wildlife and Enforcement Bureau personnel throughout the state of Iowa conduct August Roadside Survey each year during the first half of August. The survey generates data from 218 30-mile routes on ring-necked pheasants, bobwhite quail, gray partridge, cottontail rabbits, and white-tailed jackrabbits. Staff run routes on sunny, calm mornings with a heavy dew.

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 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 http://www.iowadnr.gov/pheasantsurvey.

Historical Summary of Populations & 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.

Owen Denny first successfully introduced the ring-necked pheasant into the United States in the Willamette Valley of Oregon 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 windstorm, of approximately 2,000 birds from the William Benton game farm in Cedar Falls. Where Mr. Benton's birds were from is unknown, 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 to 1918, 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, 1920-40s, 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 habitat 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."

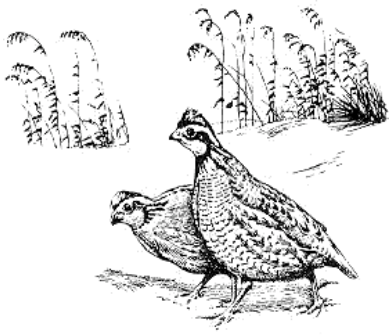
With the success of wild birds, the state game farms were shut down in 1932, but following several bad weather years, it was re-established in 1938. Populations recovered with good weather in the 1940s and stocking was greatly reduced, approximately 4,000 chicks and spent adults in 1943. The state game farm operated at approximately the same level until 1961.

Through the 1940-50s it became increasingly evident that pen-raised birds were not contributing to wild pheasant numbers. So similar to 1924-25, in 1955 a new policy of trap and transfer of wild birds was started in southern Iowa. Increasing wild 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, and VanBuren Counties) thru 1973. The state game farm was closed in late 1970s 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, were open to pheasant hunting. The entire state was opened to hunting in 1976. Historically (1930-50s), 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 1960s (Figure 5.2). Regionally, the greatest declines have occurred in the NC, C, and SW regions (Figure 5.7). By the early 1970s 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 2007-11 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 8am-4:30pm. Iowa's first youth pheasant season was held during the 1997-98 hunting season. Youth hunting is 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).

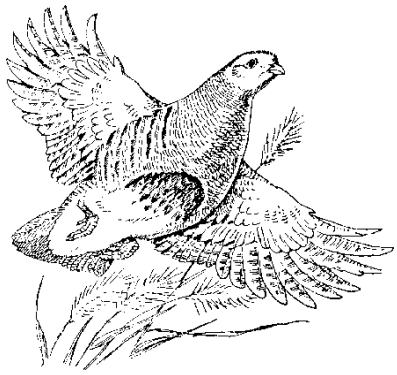


Bobwhite Quail

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 boom to Iowa's quail population. Between 1860-90 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 six miles of some of the finest quail cover ever grown in ever 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 acre in the central third and 1 quail/1-6 acre in the southern third of the state. However, quail populations have declined steadily, both nationally and in Iowa since the 1930s. Large scale landscape changes and clean farming practices are considered the major factors in this decline.

Since survey procedures were standardized in the early 1960s 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 70s and early 80s (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 2007-11 (Figure 5.8). Populations rebounded between 2012-18 with 5 consecutive relatively mild winters across southern Iowa, which led to above normal hen survival and increased populations.

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 8am-4:30pm (Table 5.11).



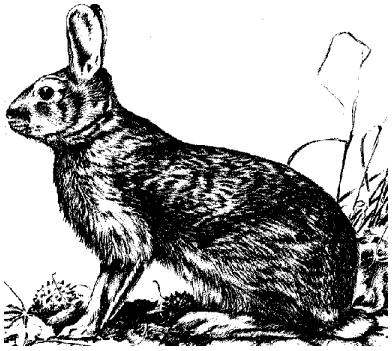
Gray Partridge

Senator HW Grant of Waterloo made the first release of fifty Hungarian or gray partridge in Iowa in Blackhawk County in 1902, but all 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 were more adept at coping with row-crop expansion. The statewide increase in partridge numbers between 1983-89 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 come 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 8am-4:30pm. (Table 5.12).



Eastern Cottontail

Little is known about the presettlement 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 opened the first Saturday in September 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 were found across in Iowa, except for a few southeastern counties. Their greatest abundance however was 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 5.3, Table 5.6, and Table 5.13.

Figures

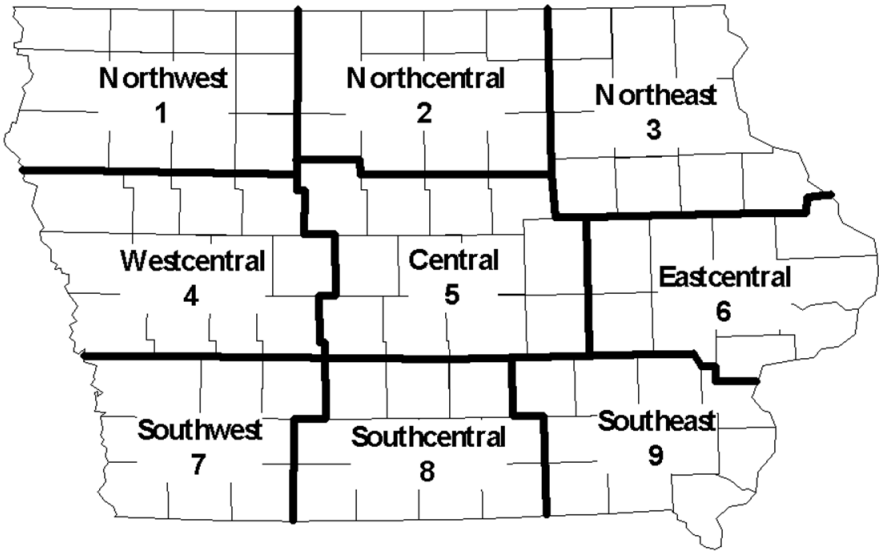


Figure 5.1 Survey regions for the August Roadside Survey.

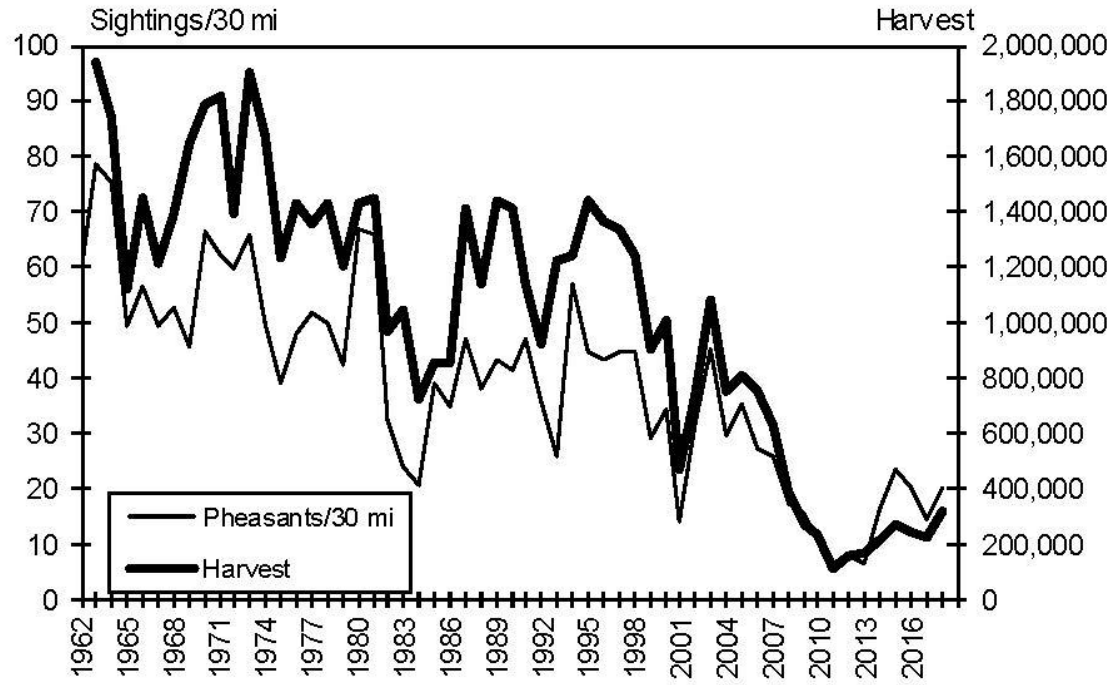


Figure 5.2 Statewide trends in pheasant harvest and August roadside survey counts.

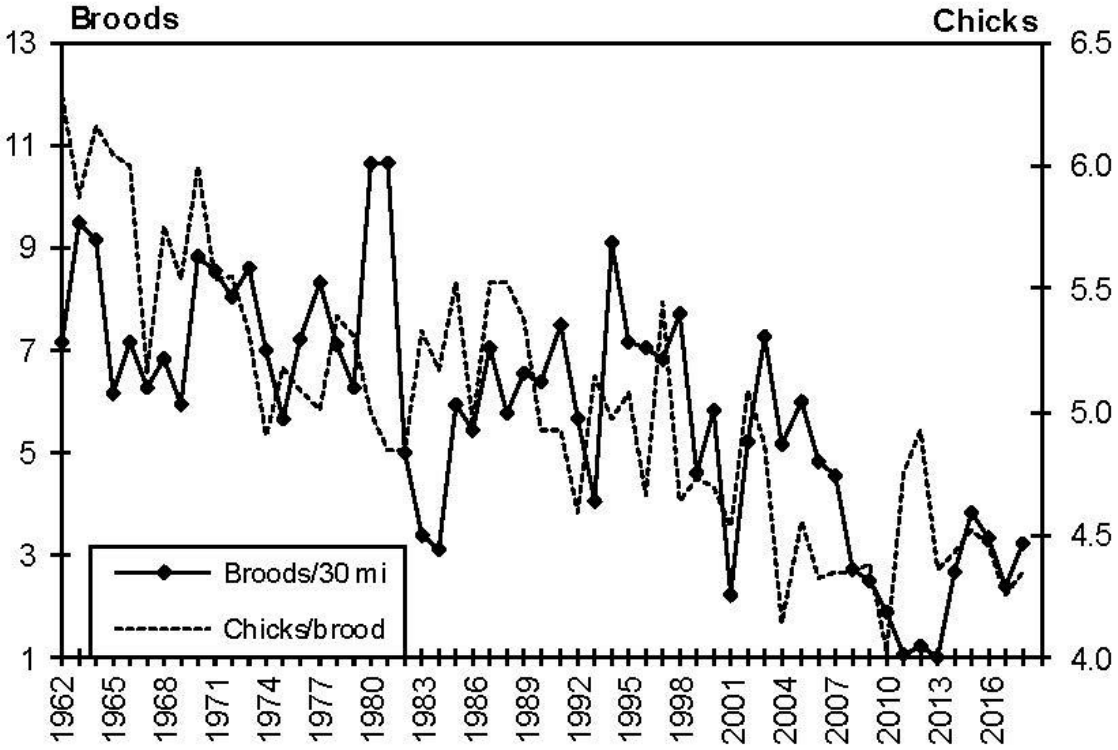


Figure 5.3 Statewide trends in pheasant broods and average brood size from August roadside survey.

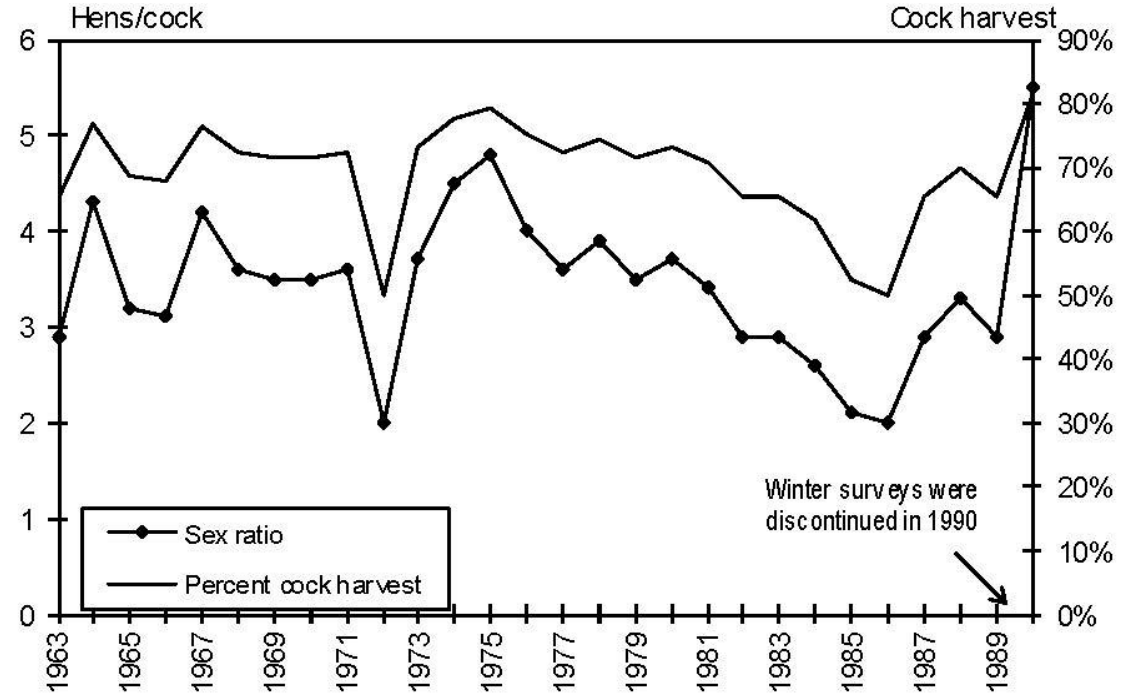


Figure 5.4 Statewide sex ratio and estimated cock harvest from winter pheasant surveys.

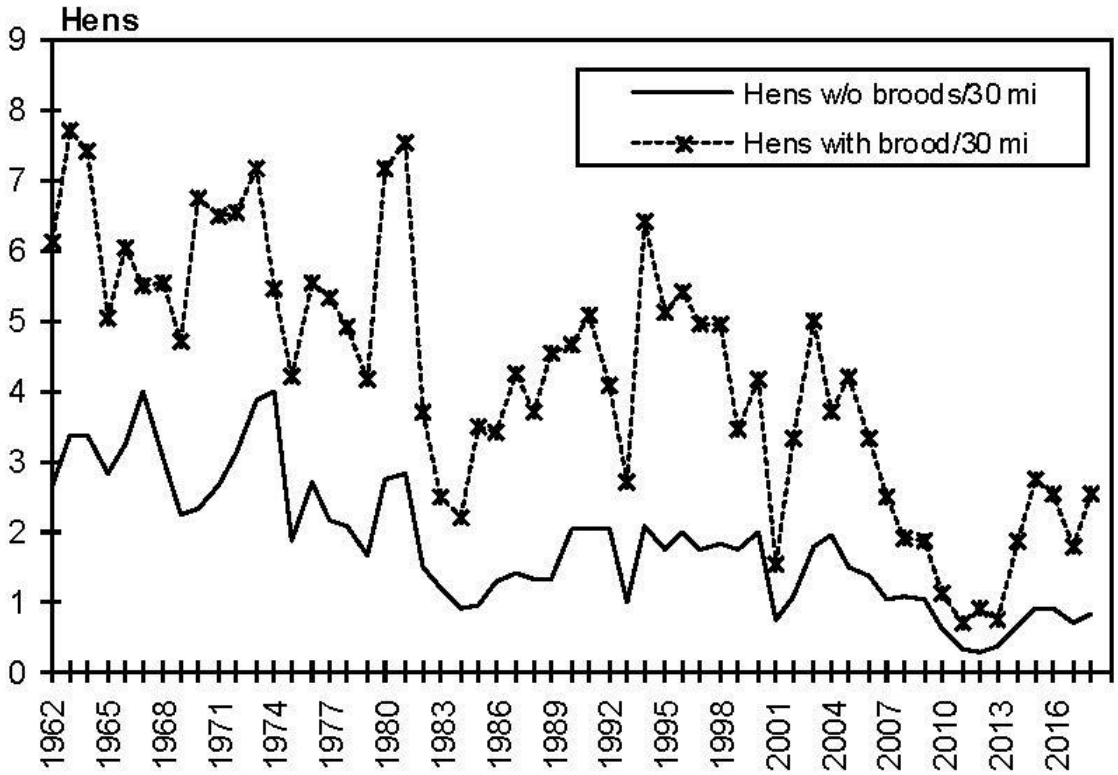


Figure 5.5 Statewide trends in pheasant hens with and without broods from August roadside survey.

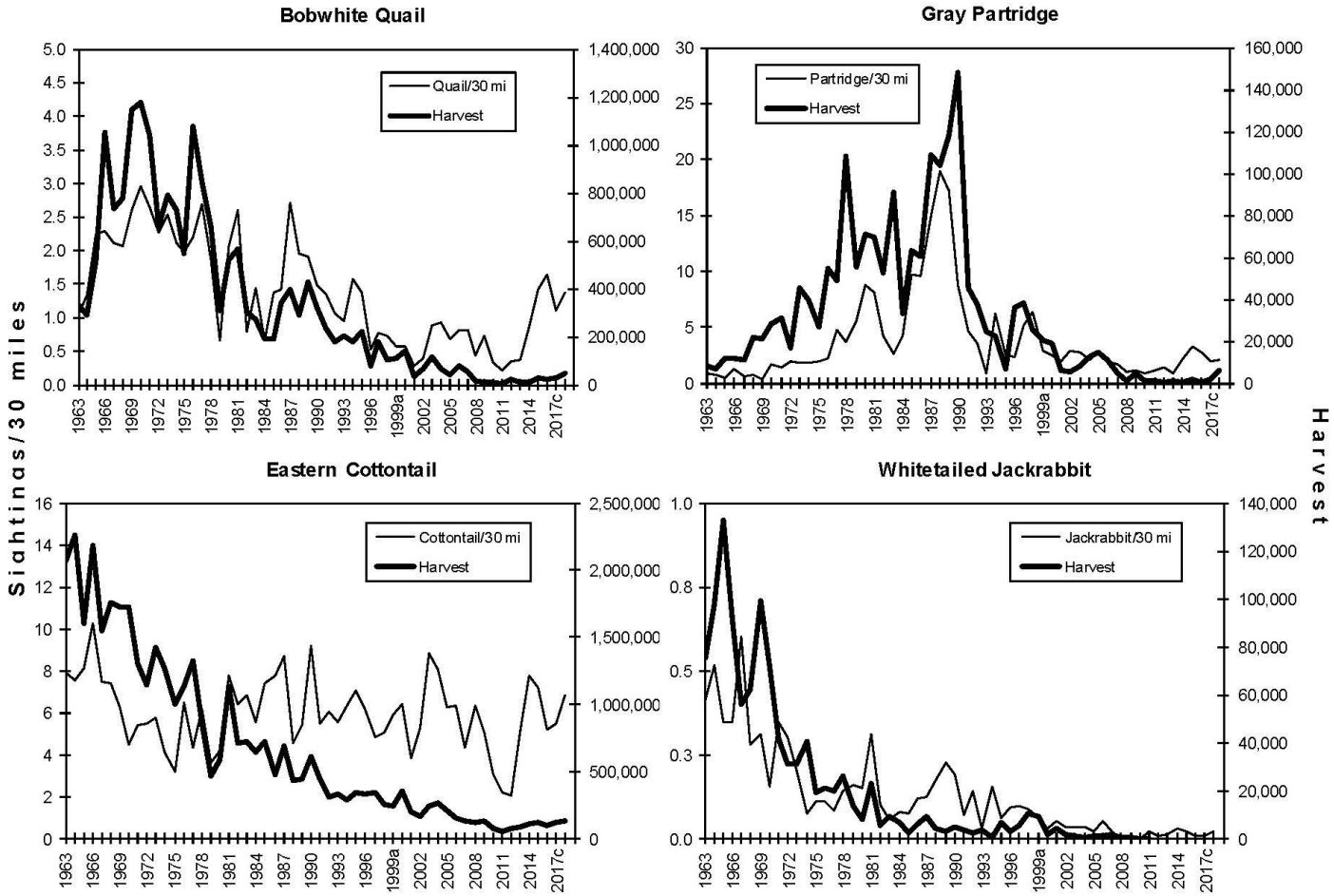
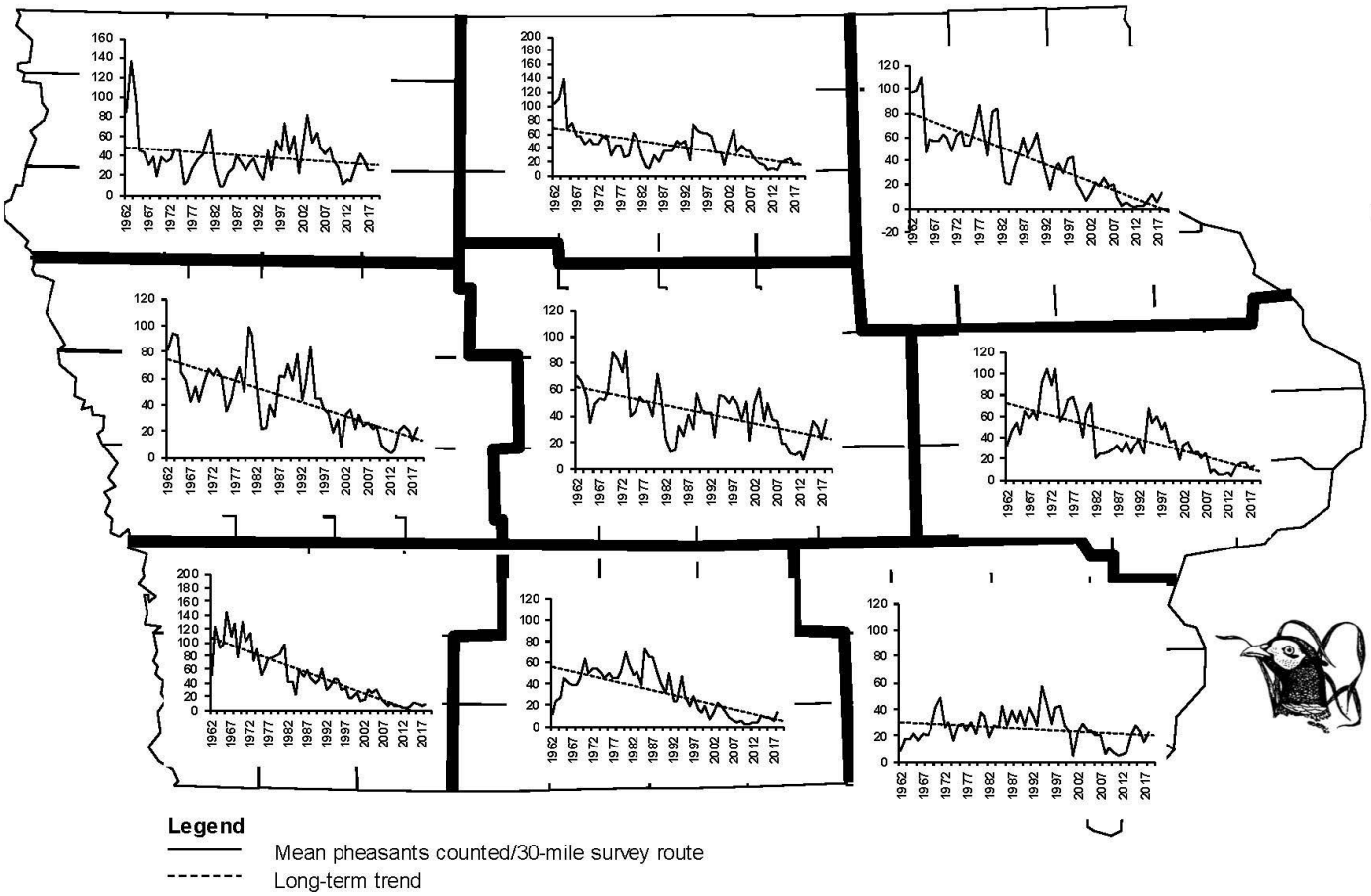


Figure 5.6 Statewide trends in small game harvests and August roadside survey counts.



Note: Because of variation in historical counts, vertical axes among survey regions are not to the same scale.

Figure 5.7 Regional trends in ring-necked pheasant numbers from the August roadside survey, 1962-Present.

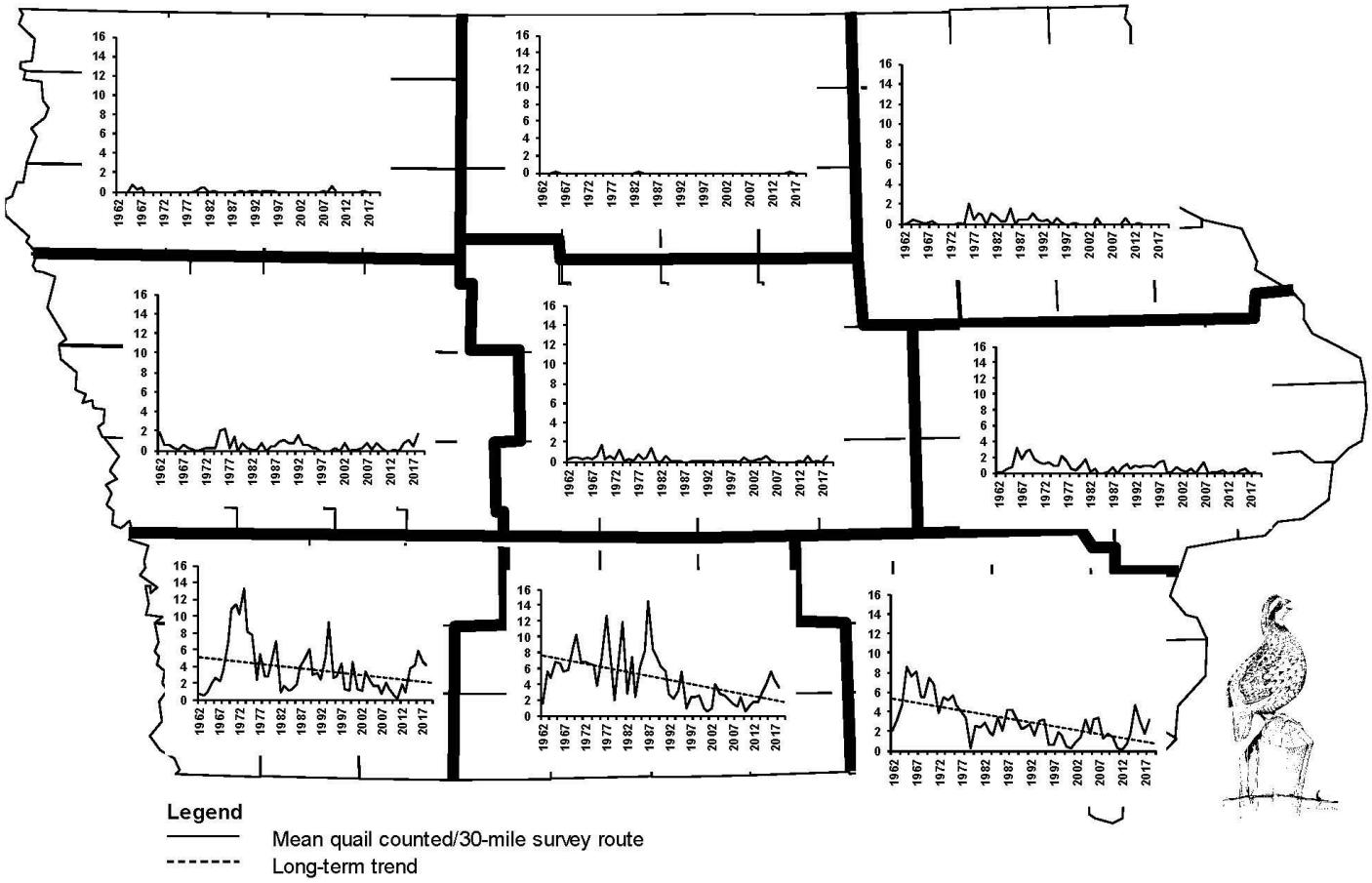


Figure 5.8 Regional trends in bobwhite quail numbers from the August roadside survey, 1962-Present.

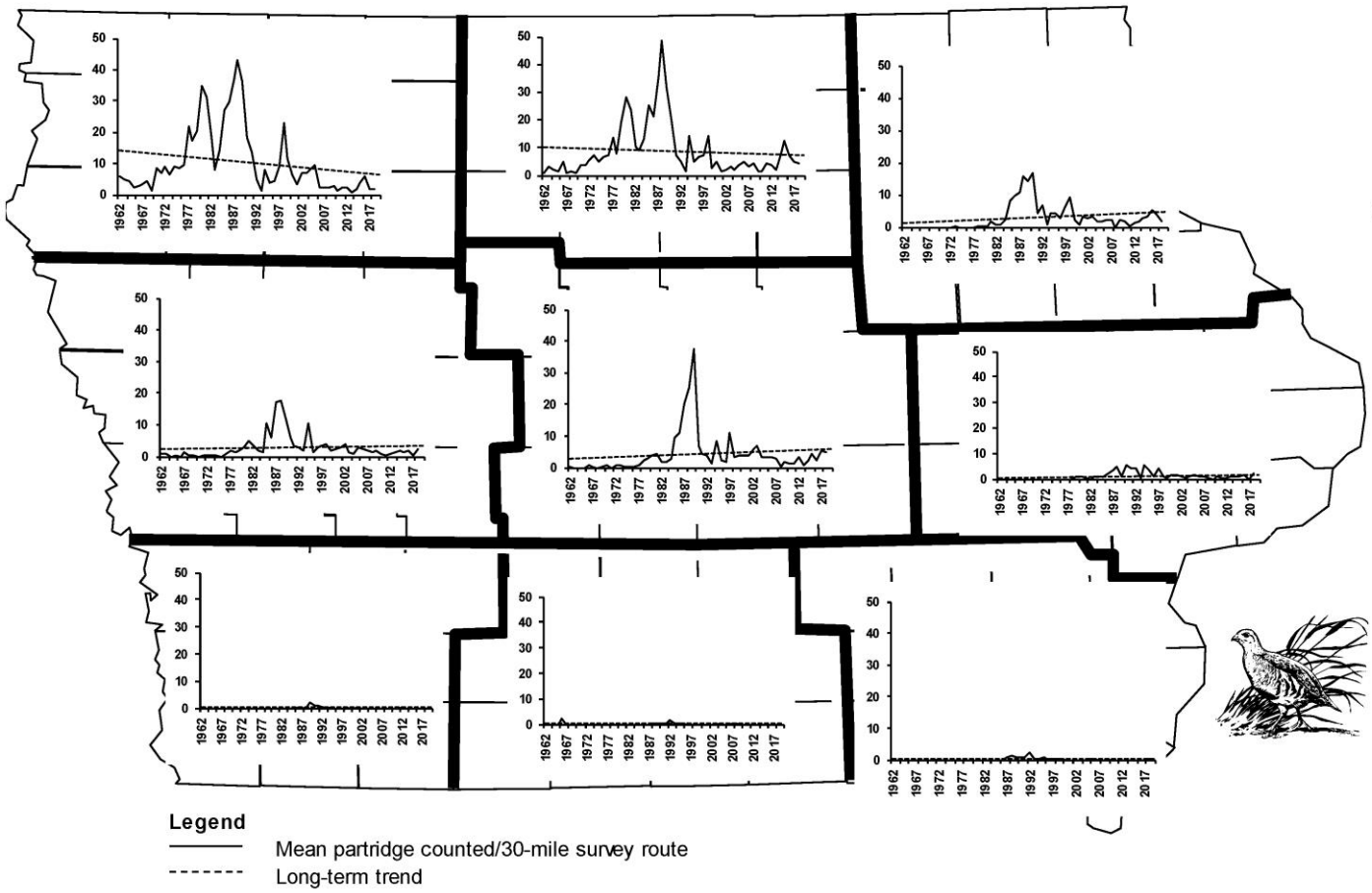


Figure 5.9 Regional trends in gray partridge numbers from the August roadside survey, 1963-Present.

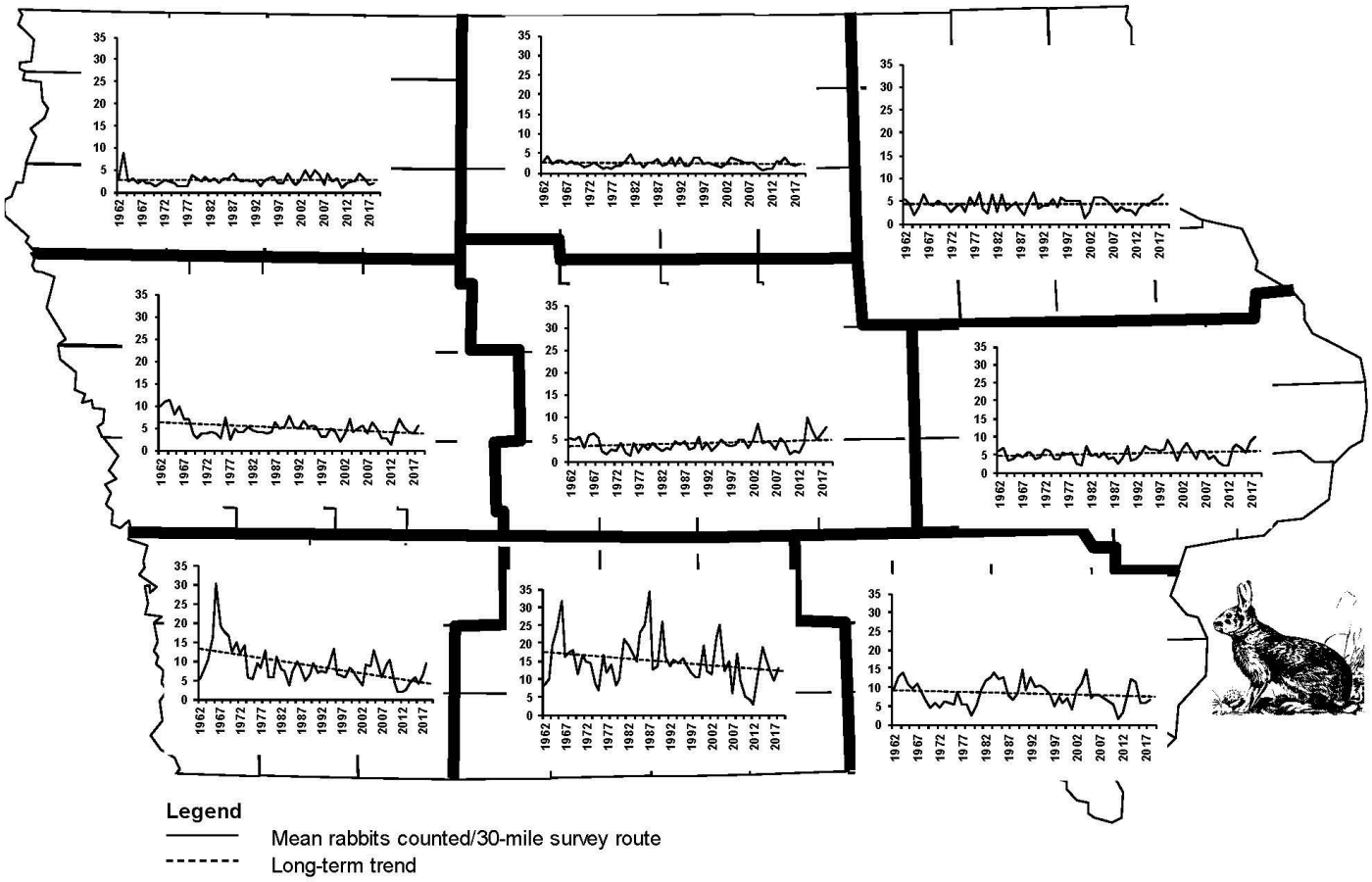


Figure 5.10 Regional trends in cottontail rabbit numbers from the August roadside survey, 1962-Present.

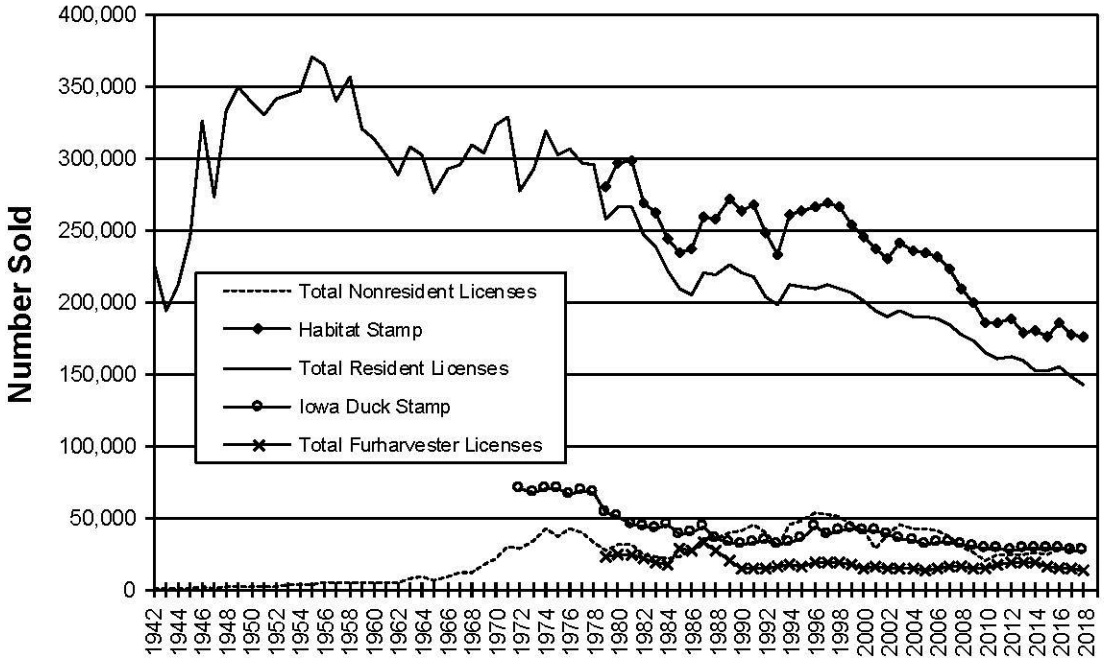


Figure 5.11 Sales of Iowa hunting licenses

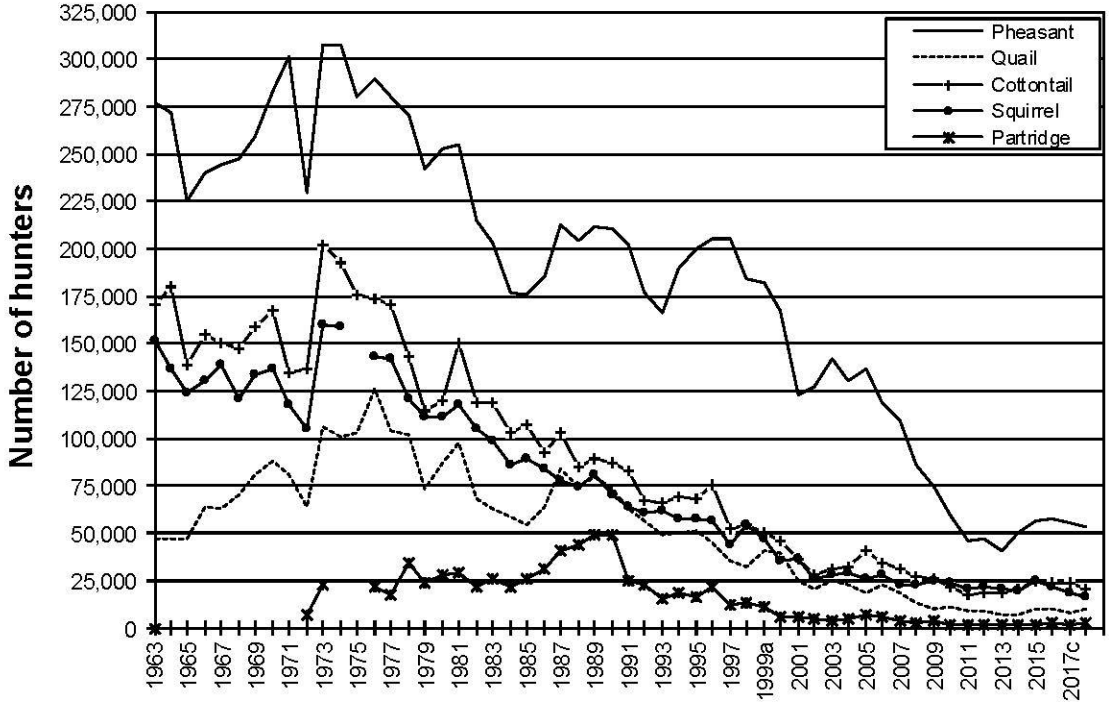


Figure 5.12 Estimated number of Iowa small-game hunters (resident and NR hunters combined).

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		
2017	25.8	15.1	5.3	13.0	22.7	12.0	6.8	5.8	15.5	14.4		
2018	25.9	18.1	13.1	22.7	37.4	12.2	8.7	12.3	22.2	20.2		
Statistics:												
10 Yr Avg.	26.3	15.8	5.4	14.7	20.8	10.0	7.1	6.2	14.1	14.2		
Long-term Avg	39.8	42.3	39.5	44.3	42.8	40.5	49.4	31.3	25.4	39.1	3.4	69%
Percent Change from:												
2017	0.5	-19.6	147.2	73.7	64.8	1.9	27.8	113.4	43.1	40.7		
10 Yr Avg.	-1.7	-14.5	143.3	54.1	80.0	21.9	22.5	99.2	58.0	42.9		
Long-term Avg	-35.0	-57.2	-66.8	-48.8	-12.6	-69.8	-82.4	-60.7	-12.5	-48.2		

[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

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
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

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
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
2017	4.2	4.5	2.5	4.2	1.0	3.2	2.0	4.2	4.3	4.3	1.6	5.0	0.9	3.6	0.9	4.1	2.7	4.4	2.4	4.3
2018	4.2	4.0	2.4	4.9	2.4	4.1	4.0	4.0	5.9	4.4	1.8	4.1	1.4	3.2	1.8	5.5	3.8	4.4	3.2	4.3
Statistics:																				
10 Yr Avg.	4.2	4.4	2.6	4.4	1.0	3.8	2.4	4.3	3.4	4.5	1.5	5.0	1.2	4.0	1.0	4.1	2.4	4.4	2.3	4.4
LT Avg	6.1	4.9	6.1	5.1	5.5	5.0	6.8	4.8	6.4	5.0	5.8	5.3	7.5	4.7	4.8	5.1	3.7	5.2	5.8	5.0
Percent Change from:																				
2017	-0.9	-11.0	-5.2	16.7	147.4	28.5	95.3	-4.7	37.9	2.6	8.4	-18.2	53.5	-10.6	98.9	35.2	43.0	0.6	33.9	2.2
10 Yr Avg.	-2.0	-8.9	-7.0	12.8	142.7	9.3	63.6	-6.7	73.0	-3.2	17.6	-17.5	23.3	-18.1	74.2	34.2	55.8	1.9	38.3	-2.2
LT Avg	-31.6	-17.0	-60.2	-3.3	-57.5	-17.4	-40.8	-17.3	-8.1	-12.0	-69.3	-22.1	-80.7	-30.8	-63.7	8.6	1.7	-14.2	-44.5	-13.5

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

	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
2017	0.00	0.00	0.00	0.33	0.00	0.00	4.41	4.56	1.70	1.11	0.005
2018	0.00	0.00	0.00	1.76	0.65	0.14	4.06	3.46	3.17	1.37	0.019
Statistics:											
10 Yr Avg.	0.07	0.01	0.06	0.51	0.14	0.15	2.63	2.75	1.83	0.84	0.01
LT Avg.	0.06	0.01	0.26	0.48	0.25	0.75	3.63	4.74	3.04	1.37	0.134
Percent Change from:											
2017							-8.1	-24.2	86.7	23.7	280.0
10 Yr Avg.						-10.7	54.4	25.8	72.9	63.3	66.7
LT Avg.						-81.9	11.9	-27.0	4.1	0.4	-85.8

Table 5.4 Mean number of gray partridge counted/30-mile route on the August roadside survey, regionally and statewide, 1963-Present

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
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

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide
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
2017	2.04	4.69	3.90	0.14	5.16	0.00	0.00	0.00	0.00	1.99
2018	1.62	4.22	2.00	2.29	4.77	2.27	0.00	0.00	0.08	2.09
Statistics:										
10 Yr Avg.	2.50	4.91	2.48	1.16	2.78	0.84	0.01	0.00	0.03	1.77
LT Avg.	10.48	8.83	2.91	2.71	4.16	1.10	0.08	0.11	0.16	3.72
Percent Change from:										
2017	-20.8	-10.0	-48.7	1498.6	-7.4					5.0
10 Yr Avg.	-35.5	-14.0	-19.2	97.8	71.4	170.1				17.5
LT Avg.	-84.6	-52.2	-31.2	-15.7	14.8	106.4				-43.9

Table 5.5 Mean number of cottontail rabbits counted/30-mile route on the August roadside survey, regionally and statewide, 1962-Present

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
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

Year	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Statewide
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
2017	1.6	2.0	5.5	3.6	6.4	8.7	6.5	9.3	5.8	5.4
2018	1.9	2.1	6.4	5.4	7.6	10.2	9.2	13.1	6.6	6.8
Statistics:										
10 Yr Avg.	2.4	2.0	4.0	4.0	4.9	5.7	5.1	10.2	6.7	5.0
LT Avg.	2.7	2.4	4.2	4.9	4.0	5.2	8.7	15.0	8.3	6.0
Percent Change from:										
2017	19.1	5.6	17.4	50.0	18.3	17.3	40.4	40.4	13.7	24.8
10 Yr Avg.	-18.4	6.3	58.9	34.5	53.6	78.4	80.7	27.7	-0.4	36.6
LT Avg.	-29.2	-13.8	50.8	10.6	90.4	95.3	5.6	-12.8	-19.9	13.4

Table 5.6 Small game harvest estimates from the Iowa small-game survey, 1963-Present

Resident and NR hunter harvests combined.

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
2017[c]	221,291	26,955	118,942		125,844	1,754	76,837
2018	319,811	47,305	123,309		80,843	6,220	118,855
Statistics:							
10 Yr Avg.	221,304	19,510	95,896	304	123,475	1,936	106,518
LT Avg.	1,046,613	335,383	671,415	22,127	576,689	32,615	106,518
Percent Change from:							
2016	44.5	76.0	5.4		-35.7	254.6	55.4
10 Yr Avg.	44.5	142.5	28.6		-34.5	221.3	11.6
LT Avg.	-69.4	-85.9	-81.6		-86.0	-80.9	11.6

[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).

[c]Survey methodology changed for unrealistic harvet/day for quail, huns, rabbits, squirrel, and doves.

*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

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*	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
1999[a]	142,521	684,596	39,152	214,578	32,306	86,058	8,811	24,070
2000[b]	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
2017[c]	45,007	177,762	9,908	43,529	7,604	25,448	964	1,507
2018	43,707	266,237	10,196	53,574	7,811	72,791	2,071	4,514
Statistics:								
10 Yr Avg.	45,065	179,063	8,968	42,242	7,718	20,758	1,201	1,751
LT Avg.	105,508	604,219	26,739	177,422	26,333	92,549	5,743	19,862
Percent Change from:								
2017	-2.9	49.8	2.9	23.1	18.7	186.9	120.8	199.5
10 Yr Avg.	-3.0	48.7	13.7	26.8	1.2	250.7	72.4	157.8
LT Avg.	-58.6	-55.9	-61.9	-69.8	-70.3	-21.3	-63.9	-77.3

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

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

[c]Survey methodology changed for unrealistic harvest/day for quail, huns, rabbits, squirrel, and doves.

*Iowa lost 800,000 acres of whole field enrollment CRP.

Table 5.8 Sales of hunting-related licenses and stamps in Iowa, 1942-Present

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				
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
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

Year[a]	Resident				Non Resident				Habitat Stamp[f]	IA Duck Stamp[g]	Hunt Preserve[h]
	Furharvester			Resident Hunt[d]	Lifetime	Hunting		Total License[e]			
	over 16[b]	under 16	Total[c]		over 65	over 18	under 18				
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
2013[i]	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
2017	13,464	636	14,100	147,596	2,976	27,370	940	28,310	176,836	27,345	2,401
2018[j]	12,919	584	13,503	142,763	3,668	31,298	958	32,256	175,701	26,492	2,149
Statistics:											
10 Yr Avg.	15,351	956	16,307	160,235	2,381	24,594	883	25,477	186,183	28,436	2,386
LT Avg.	16,540	1,697	18,237	251,853	2,188	31,033	1,287	23,448	236,758	40,930	2,094
Percent Change from:											
2017	-4.0	-8.2	-4.2	-3.3	23.3	14.4	1.9	13.9	-0.6	-3.1	-10.5
10 Yr Avg.	-14.9	-37.2	-16.2	-8.9	44.4	25.8	11.1	25.3	-3.9	-5.5	-7.9
LT Avg	-21.5	-65.0	-25.5	-43.0	62.1	0.8	-24.6	36.9	-25.3	-34.8	2.6

[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)

[i]New combination hunt/fish/fur/habitat licenses started in 2013. LT combined to maintain similar historical tallies.

[j]Includes Lifetime and Vet Lifetime beginning in 2018

Table 5.9 Estimated hunter numbers (resident & NR combined) from the Iowa small-game survey

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	
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	
1999[a]	181,673	41,117	50,254	2,456	46,994	11,390	
2000[b]	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	

Year	Pheasant	Quail	Cottontail	Jackrabbit	Squirrel	Huns	Mourning Dove
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
2017[c]	54,915	8,568	23,814		18,428	2,847	9,982
2018	53,266	9,882	20,523		16,749	2,379	9,767
Statistics:							
10 Yr Avg.	53,969	8,919	21,523		21,206	2,055	10,226
LT Avg.	185,442	51,534	89,135	9,005	74,440	15,817	10,226
Percent Change from:							
2017	-3.0	31.4	-11.9		-8.5	18.2	2.1
10 Yr Avg.	-1.3	10.8	-4.6		-21.0	15.8	-4.5
LT Avg.	-71.3	-80.8	-77.0		-77.5	-85.0	-4.5

[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.

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

[c]Survey methodology changed for unrealistic harvest/days for quail, huns, rabbits, squirrel, and doves

*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 (days)	Shooting Hours	Limit Bag/Poss.		# Counties Open
				Regular	Youth	
1925	22-24 Oct	3	½ hr before sunrise-1200	3/?		13
1926	14-16 Oct	3	½ hr before sunrise-½ hr after sunset	3/9		18
1927	14, 15, 21, 22, 29 Oct	5 in 3 counties		3/?		17
		3 in 14 counties	½ hr sunrise-sunset	3/?		
1928	No Season					
1929	30 Oct-2 Nov	3	½ hr sunrise-sunset	3 any sex/?		24
1930	1, 5, 6, 14, 15 Nov	5	½ hr sunrise-sunset	3 any sex/?		31
1931	6-7 Nov	2	½ hr sunrise-sunset	3 any sex/?		23
1932	16, 18, 19	3	1200-sunset	3 (1 hen)/6 (2 hens)		21
1933	10, 11, 17, 18, 25, 28 Nov	6 days in all/ parts of 11 counties	1200-1700	3/6		30
		4 days in all/ part os 25 counties (6 counties were in both zones)	1200-1700	3/6		
1934	24, 27, 28 Nov	3	1200-1700	3/6		27
1935	20-26 Nov	7	1200-1700	3 (1 hen)/6 (2 hens)		38
1936	No Season					
1937	No Season					
1938	12-14 Nov	3	1200-1700	3/6		42
1939	12-14 Nov	3	1200-1700	3/6		42
1940	12-18 Nov	7	1200-1700	3/6		46
1941	12-18 Nov	7	1200-1700	3/6		53
1942	12 Nov-2 Dec	21 in 39 counties	1200-1700	3/6		59
	12-18 Nov	7 in 20 counties	1200-1700	3/6		
1943	15-22 Mar	8	0900-1700	5 (2 hens)/10 (4 hens)		11 (Spring)
	28 Oct-3 Dec	37 in 38 counties	0900-1700	6 (1 hen)/12 (2 hens)		65 (Fall)
	28 Oct-7 Nov	11 in 27 counties	0900-1700	3/12		
1944	28 Oct-8 Dec	42 in 37 counties	0900-1700	6/18		64
	28 Oct-6 Nov	10 in 27 counties	0900-1700	3/18		
1945	28 Oct-30 Nov	34 in 36 counties	0900-1700	4/8		66
	28 Oct-6 Nov	10 in 30 counties	0900-1700	4/8		
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

Year	Dates Regular/Youth	Season Length (days)	Shooting Hours	Limit Bag/Poss.		# Counties Open
				Regular	Youth	
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
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		↓		

Year	Dates Regular/Youth	Season Length (days)	Shooting Hours	Limit Bag/Poss.		# Counties Open
				Regular	Youth	
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				
2018-19	27 Oct-10 Jan/20-21 Oct	76/2				
2019-20	26 Oct-10 Jan/19-20 Oct	77/2				

[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			
2018-19	27 Oct-31 Jan	97			
2019-20	26 Oct-31 Jan	98			

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

Year	Dates	Season Length	Shooting Hours	Limit Bag/Poss	Area Open
1985-86	2 Nov-31 Jan	91		6/12	N. I-80
1986-87	1 Nov-31 Jan	92		6/12	STATEWIDE
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			
2018-19	13 Oct-31 Jan	111			
2019-20	12 Oct-31 Jan	112			

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	
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	

Year	Dates Cottontail/Jackrabbit	Season Length	Shooting Hours	Limit-Bag/Poss		Area Open
				Cottontail	Jackrabbit	
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			↓	
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				
2018-19	1 Sep-28 Feb/Closed	181/Closed				
2019-20	31 Aug-28 Feb/Closed	182/Closed				

1963-1977 Seasons and limits are an aggregate of Cottontails and Jackrabbits.
[a]Cottontail opener changed from 1 Sep 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			
2018-19	1 Sep-29 Nov				
2019-20	1 Sep-29 Nov				

[a]Governor signed SF464 giving the DNR authority to establish the state's first mourning dove season in 2011.
Dove species in Iowa include mourning, Eurasian collared, and white winged.

WILDLIFE RESTORATION 2018-2019 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 1930s, most prairie chickens found in the northwestern part of the state were migrant winter flocks. By the 1950s, 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 1980s, 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 1960s. 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 2018 covers all or parts of 4 counties (not including two counties in Missouri) and 35 survey sites. All 35 sites were surveyed at least twice and up to three times between March 20th and late April (Figure 6.2). To compensate for surveying fewer sites, three routes were set up in likely areas (areas where prairie-chicken reports and habitat are fairly common but which have no known leks) and were driven with frequent stops to scan for leks once during the survey period. Finally, since 2016, a blitz-type survey has been performed which involves multiple staff going out on a designated single morning and spending 20 minutes at each of 13 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)

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.

2018: During late March and April, 35 sites were surveyed at least twice for active prairie-chicken lekking. The blitz survey was performed on 13 sites on April 5, 2018.

Between these two surveys, Prairie-chickens were detected lekking on seven sites in Iowa though only two had five or more birds in attendance. The maximum number of birds counted in a single morning was 49 birds with the two main lek sites hosting 36 birds and 13 more birds counted on other lek sites. Missouri counted 33 birds on five lek sites during the blitz survey which was their maximum count on a single morning.

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

The only winter flock report was from a new location in SW Decatur County where a dozen birds were seen and 26 birds which were counted on Dunn Ranch in Missouri.

2019: Between March 20 and April 20th several lek-based surveys were performed in Iowa and Missouri. The blitz survey (all sites on IA and MO side surveyed on the same morning) was accomplished on April 5th, 2019.

Between these two surveys, Prairie-chickens were detected lekking on 3 sites in Iowa and 5 sites in Missouri which was a decline in active sites since 2018. A maximum number of 31 birds were detected on Iowa leks (Table 6.2 and Figure 6.2) and 23 on Missouri leks for a maximum total of 54 birds. This number represents the minimum number of birds known to exist in the Grand River Grassland greater landscape.

New this year, DNR staff tested survey protocols to count winter flocks of prairie chickens. Roads were driven after snow in a 6.4 kilometer radius around the Kellerton, Tingley, and Lamoni leks, and any Prairie-chicken flocks were mapped and counted (Svedarsky et.al, 2003). No birds were seen on the Lamoni survey, an average of 33.6 and maximum of 40 were counted in the Kellerton area and an average of 1.5 and maximum of 6 birds were seen on the Tingley (Figure 6.3). No decision has been made about whether to continue this survey in 2020.

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, and The Iowa Natural Heritage Foundation) are implementing many actions to make progress on those objectives.

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Figures

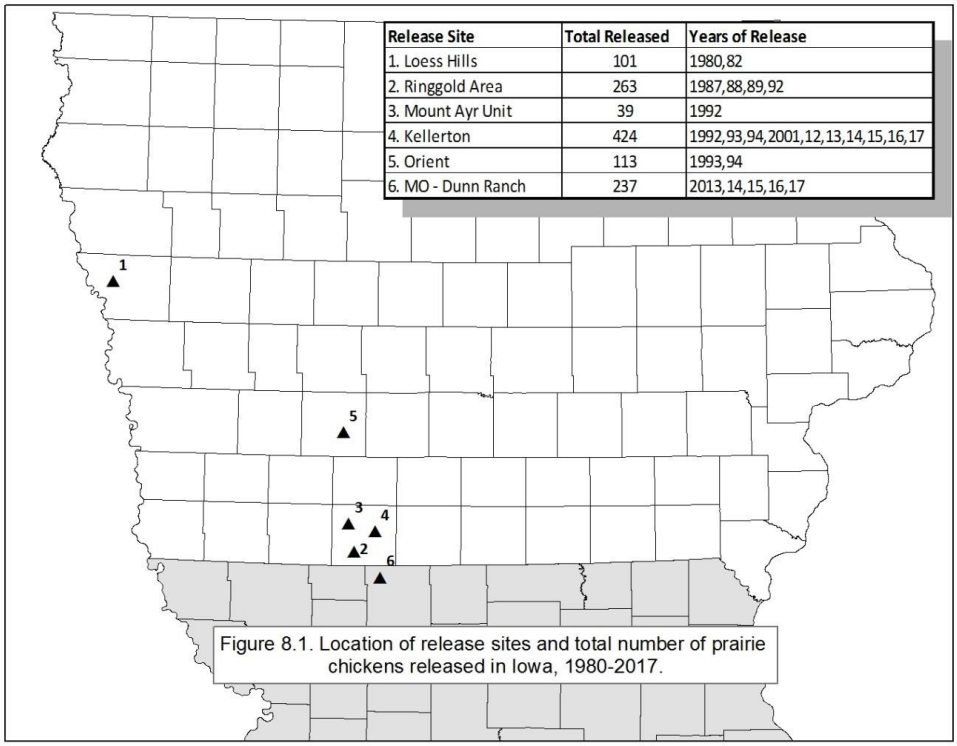

Figure 6.1 Location of release sites and total number of prairie chickens released in Iowa, 1980-2017.

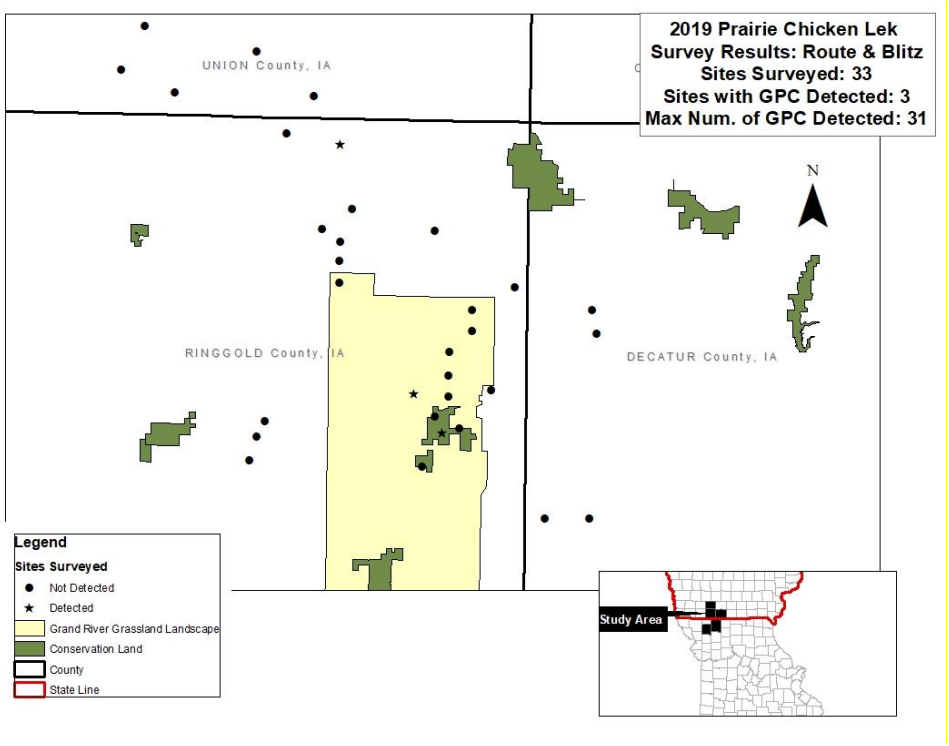

Figure 6.2 Location of sites surveyed and sites where chickens were detected during the 2019 Prairie-chicken lek surveys both route based and blitz combined.

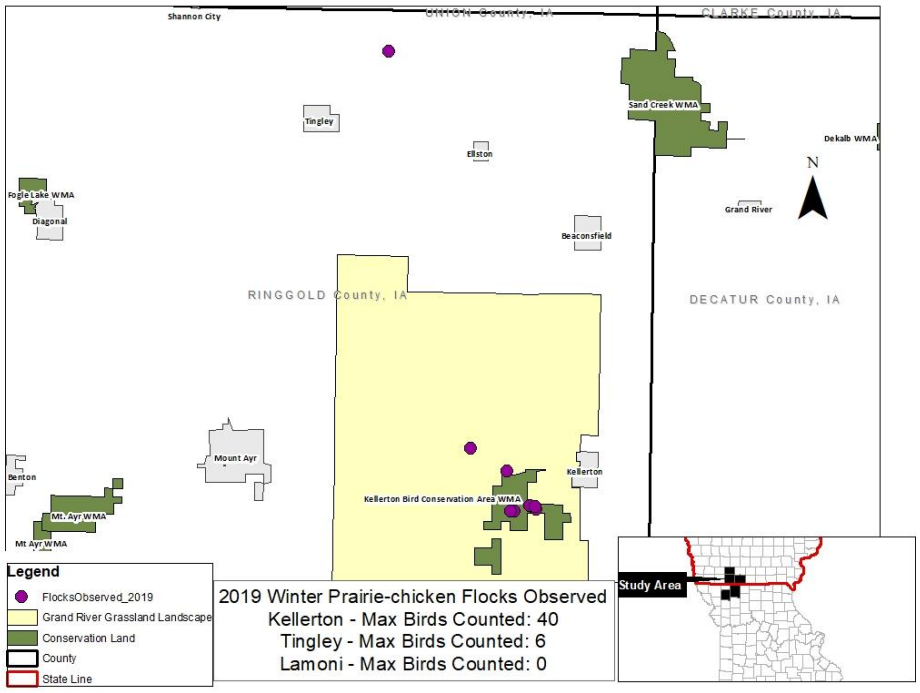

Figure 6.3 Location of winter Prairie-chicken flocks observed in Ringgold County Iowa in 2019 as part of the pilot Winter Flock Count survey.

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	17Γ, 16E	NGP (DNR Trapping)	Dunn Ranch, Harrison Co., Missouri
April 2014	26Γ, 31E	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 164
April 2014	25Γ, 20E	NGP (DNR Trapping)	Dunn Ranch, Harrison Co., Missouri
April 2014	6Γ, 1E	NGP (DNR Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 6
April 2015	13Γ, 25E	NGP (DNR Trapping)	Kellerton, Ringgold Co.,Athens TWP., Sec. 164
April 2015	13Γ, 5E	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	19Γ, 20E	NGP (DNR Trapping)	Dunn Ranch, Harrison Co., Missouri
April 2016	20Γ, 20E	NGP (MDC Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 164
April 2016	29Γ, 30E	NGP (MDC Trapping)	Dunn Ranch, Harrison Co., Missouri
April 2017	19Γ, 17E	NGP (MDC Trapping)	Kellerton, Ringgold Co., Athens TWP., Sec. 164
April 2017	28Γ, 33E	NGP (MDC Trapping)	Dunn Ranch, Harrison Co., Missouri

Table 6.2 Location and number of greater prairie chickens observed on active leks in Iowa, 2009-2019

County	Township	Legal Description			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
		Twp	Rge	Sec											
Adams	Douglas	72N	35W	26	2										
Adams	Prescott	72N	33W	4			2a								
Decatur	Grand River	69N	27W	16											
Decatur	Grand River	69N	27W	33										3	
Decatur	Garden Grove	70N	24W	36							2				
Ringgold	Athens	68N	28W	4		7						1			
Ringgold	Athens	68N	28W	16NE	13	8	6	2	9	17	35	28	17	24	18
Ringgold	Athens	68N	28W	16SW					9						
Ringgold	Athens	68N	28W	8	1				1				1		
Ringgold	Athens	68N	28W	17						1					
Ringgold	Athens	68N	28W	20				1						1	
Ringgold	Athens	68N	28W	6	5	4	7	9	9	4	11	16	11	12	8
Ringgold	Athens	68N	28W	5				5							
Ringgold	Rice	68N	30W	24								4	1		
Ringgold	Monroe	69N	28W	28											
Ringgold	Monroe	69N	28W	12										4	
Ringgold	Monroe	69N	28W	15								3			
Ringgold	Monroe	69N	28W	22							2				
Ringgold	Tingley	70N	29W	10							5c	3	6	4	5
Ringgold	Liberty	69N	29W	3										1	
Ringgold	Tingley	70N	29W	34											
Wayne	Jackson	68N	21W	18											
Total Chickens[b]		mean=		31.09	21	19	13	17	24	22	55	55	36	49	31
Total Active sites		mean=		4.182	4	3	2	4	4	3	5	6	5	7	3
Total Chickens/Sites[b]					5.25	6.33	6.50	4.25	6	7.3	11	9.2	7.2	7	10.3

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 1930s 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 DNR 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.

The second objective was to "Trumpet the Cause for Wetlands". There have been over 368 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. DNR staff have used these opportunities to educate the public on the value of healthy wetlands to support "charismatic mega-fauna" such as Trumpeter Swans.

Swans used for the restoration project in Iowa have been obtained from 26 different states, including zoos, private propagators and other state swan restoration programs. A total of 132 sources and partnerships have been used to date. Once in Iowa, flightless breeder pairs are established at appropriate sites, the young of which are removed and later released for free flight across the state. Currently, there are seventeen partnership breeding pair sites that are active in the state.

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 2022.

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. 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 USFWS 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 4,480 observations of neck collared swans. As of 2019, Iowa marked swans have been reported in 17 states, as far west as Colorado, east to Virginia and north into two Canadian provinces (Figure 6.5). 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. 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 1880s. 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, Laurie Severe Pond near Nora Springs, Dale Maffitt Reservoir southwest of Des Moines and a rock quarry near Fertile, IA. Many 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 trumpeter swan cygnets. Goals of the project include: 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/track-trumpeter which provides location updates on marked swans. A cygnet that was captured and GPS collared in Tama county was later reported in Arkansas.

Trumpeter Swan Mortality Factors

Lead poisoning, power line collisions, illegal shootings 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 due to negative impacts on trumpeter swan recruitment. We hope illegal shootings will decrease with increased publicity, additional enforcement efforts, and public scrutiny. 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.

Four hundred thirty sixty known mortalities have occurred to date: 193 died due to lead poisoning, 110 died due to power line collisions, 72 poached by violators, 48 to diseases and 13 due to apparent malnutrition. A total of 55 lead poisoned swans were recorded in Iowa in the fall/winter of 2017-18. 34 mortalities were documented at one wetland site in western Clinton County. Low water levels appear to be a contributing factor. 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 possible 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.

Twenty trumpeter swans were released in Iowa in 2019 (Table 6.3). A total of 1,218 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). In 2019, 55 trumpeter swan nest attempts occurred in Iowa, 54 nests in 2018 and 2017 (Figure 6.4).

Since 1998, 699 known trumpeter swan nests have occurred in Iowa (Table 6.5). Spring flash flooding accounts for 5-10% of annual nest loss. Cygnet survival was near normal in 2019. Higher cygnet mortality was recorded in previous years with dry wetland conditions in the fall and increased cases of lead poisoning. 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 2,470 trumpeters were tallied in 40 out of 99 counties during the mid-winter waterfowl survey in January 2019. Up from 1,219 trumpeters tallied in January 2018 (Table 6.6). It appears the colder temps and harsher winter weather in MN and WI may have forced additional swans south into Iowa. If swans can find open water and food, many of them will remain in Iowa throughout the winter. These “winter” sites have provided many people the viewing opportunities of 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 and they expand their breeding range.

Figures

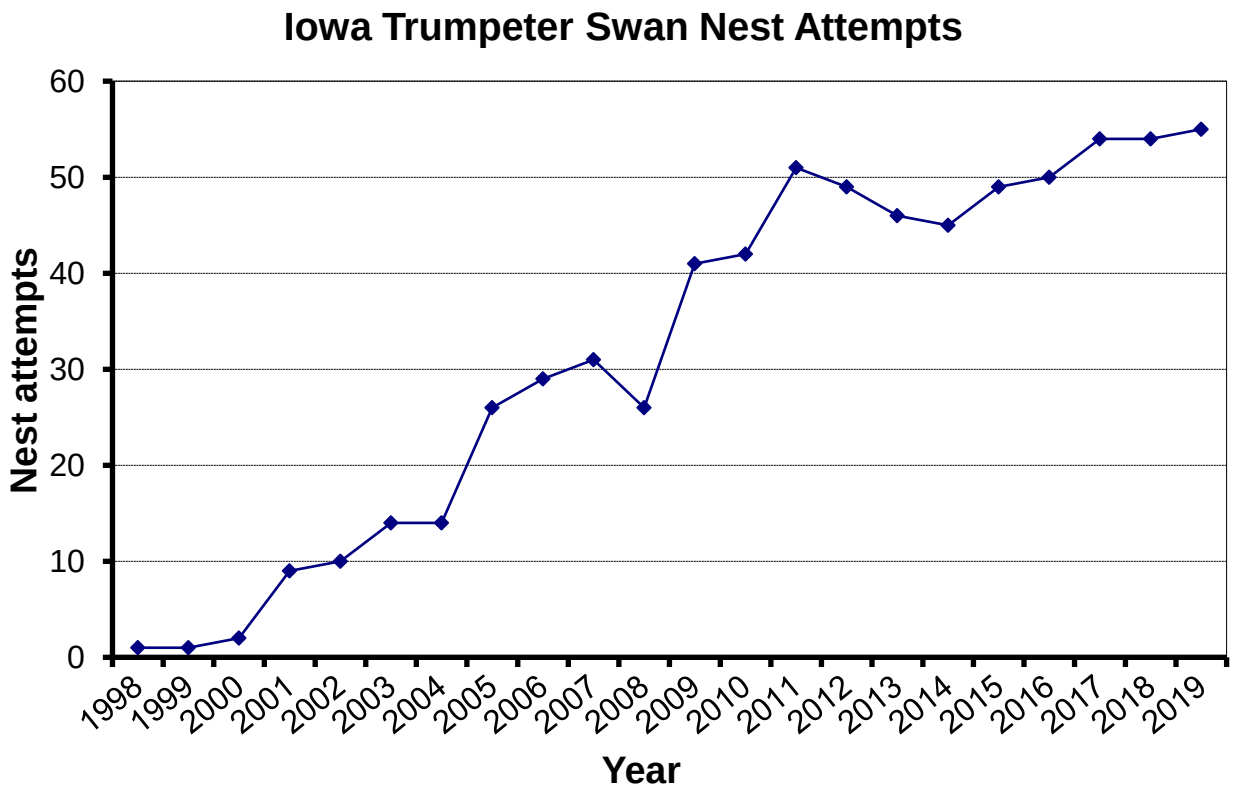

Figure 6.4 Iowa Trumpeter Swan Nests Attempts

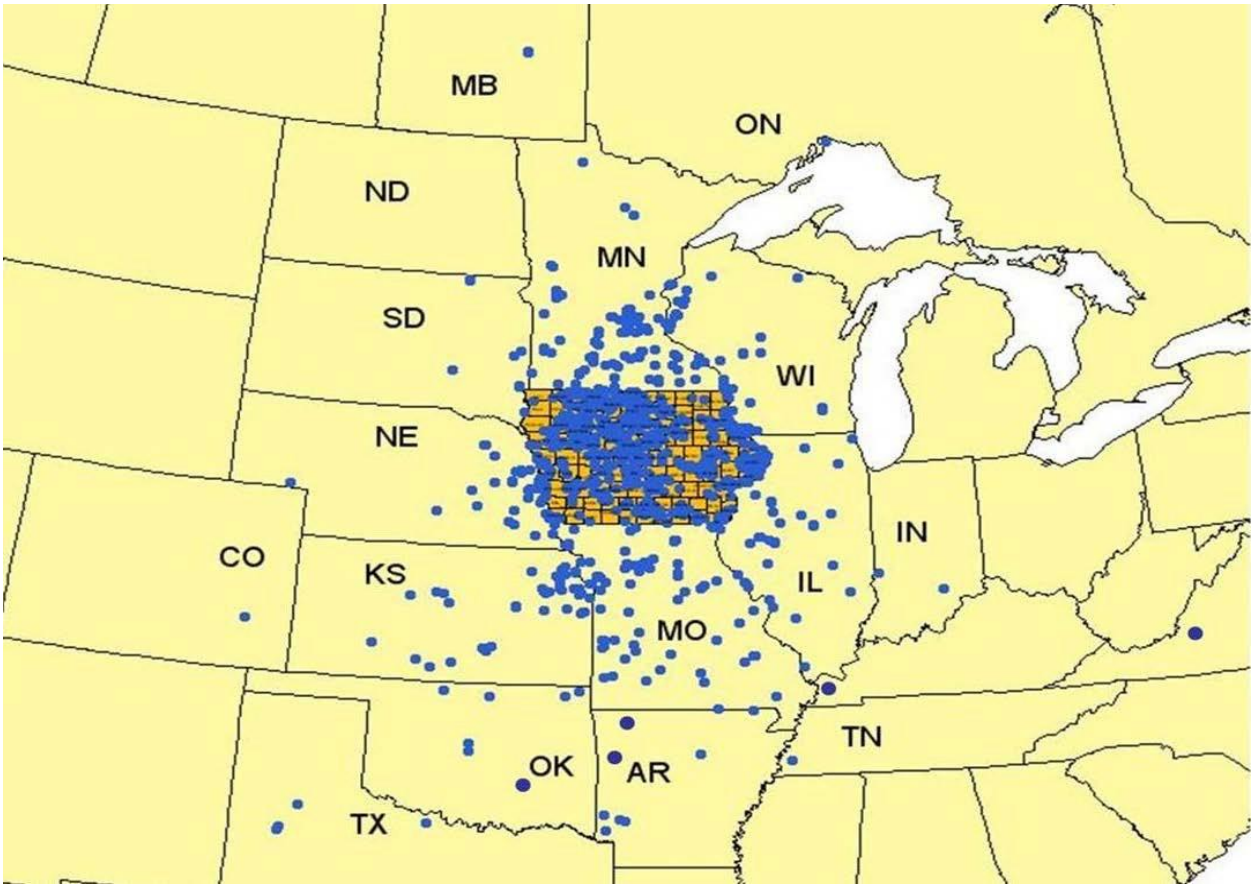

Figure 6.5 Observation reports of Iowa-collared/banded Trumpeter Swans, 1995-2019.

Tables

Table 6.3 Trumpeter Swans released in Iowa 2019

Year	Release Site	County	Males	Females	Total
2019	Lake Anita	Cass	5	3	8
	Lake Icaria	Adams	7	3	10
	Viking Lake	Montgomery	0	2	2
				Total	20
				Grand Total	1218

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)
2016	50	47	188	4.0	138		4	1823	38.5	
2017	54	49	196	4.0	149		13	1219	-49.5	
2018	54	48	192	4.0	145		13	2470	50.6	
2019	55	50	200	4.0	152		20			
Total	699	428	2363	4.8	1706		1218			

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					
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
2017	350	76		22	12	13			**1219** midwinter survey
2018	110	140		55	124			129	**2470** 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

Bald Eagle (*Halieetus leucocephalus*) status in Iowa, 2018

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Abstract

The Iowa DNR coordinates two different surveys used to monitor Bald Eagles in the state. The Bald Eagle Nest Monitoring Survey employs volunteer citizen scientist monitors to annually observe at least 25% of the nests in Iowa excluding those found on the Upper Mississippi Wildlife Refuge. The Bald Eagle Midwinter Survey occurs in January along most of the major rivers in Iowa. These two surveys together provide a dataset that can be used to evaluate the Bald Eagle population in Iowa. After the 2018 nesting season, Iowa had 377 active Bald Eagle territories. 67% of the nests surveyed were successful and on average 1.38 young were produced per nest. A total of 3,921 Bald Eagles were counted on the Bald Eagle Midwinter survey, averaging 2.37 birds observed per mile of river surveyed. The results of both surveys suggest that the Bald Eagles that nest and/or winter in Iowa have stable or increasing numbers.

Introduction

In the last 25 years, Iowa has witnessed a dramatic increase in the number of nesting and wintering Bald Eagles. Nationally, the Bald Eagle has recovered enough from the dangerously low numbers of the 1960s and 1970s that the USFWS removed it from the Threatened and Endangered species list (T&E list) in 2007 (Removing the Bald Eagle, 2007). Iowa followed suit by upgrading the eagle from a status of Threatened to a status of Special Concern on the state T&E list in 2009. Despite the Bald Eagle population's apparent good health, challenges to their conservation still exist. Strategic monitoring of eagle activity in the state remains a priority.

The Iowa DNR uses two different surveys to monitor Bald Eagle Populations in Iowa. One survey focuses on monitoring Eagle nesting activity and success and the other surveys the population of wintering eagles along Iowa's rivers.

The goal in monitoring Bald Eagle nesting data is to measure reproductive success as well as providing a robust, though not comprehensive, database of eagle nest locations. For monitored nests, data is collected on annual activity and the number of young successfully produced and these data can then be used as metrics of the resident Bald Eagle population's health.

The second survey, called the Bald Eagle Midwinter Survey, focuses on Eagles that use Iowa's rivers as winter foraging habitat. This survey is national in scope and is coordinated at that scale by the U.S. Army Corps of Engineers (USACE).

Iowa's rivers hold some of the largest congregations of wintering Eagles in the lower 48 states. The same segments of river have been surveyed since the early 1990s and the survey provides a long term trend which when combined with data from other states is a helpful index of eagle population trends at a larger scale.

This report summarizes data collected on Bald Eagles during the 2017 winter and nesting season as well as data from previous years.

Study Area

The Iowa DNR's formal nest monitoring program focuses on monitoring nests statewide, excluding nests located on the Upper Mississippi Wildlife Refuge (Figure 6.5). Opportunistic reports of new nests or existing nest activity from various sources are accepted and this overall nest dataset does include USFWS data collected on the refuge. However, for most summary and analysis, monitoring data collected by trained volunteers and staff are used. In 2018, standardized data was collected on 182 Bald Eagle territories in 59 Iowa counties spaced across the state (Figure 6.5).

In 2010, a random selection was done of 50% of the known active nests in the inland part of the state (i.e. not in the Upper Mississippi Wildlife Refuge) and stratified by landform. The result was a total of 147 bald eagle breeding sites established as sentinel territories. The goal is to have at least half of these sentinel nests monitored reliably on an annual basis in addition to the non-random nests monitored by trained volunteers (Figure 6.6). Please note that Iowa's Bald Eagle nest database is not comprehensive so it does not track all eagle nests in the state, just the portion that have

been reported to the Iowa DNR.

The Bald Eagle Midwinter Survey also has statewide coverage and includes survey routes along the following rivers in Iowa: Mississippi, Des Moines, Skunk, Maquoketa, Missouri, Wapsipinicon, Chariton, Iowa, Cedar, Little Sioux, South Maquoketa, Turkey, Nodaway, as well as Lakes Saylorville, Red Rock and Rathbun and a few other smaller waterbodies. Routes were not randomly mapped but were intentionally designed to cover primary Bald Eagle habitat. In 2018, 1,651 miles of river or lakeshore were surveyed on 49 standardized routes (Figure 6.7). This survey is part of a larger nationwide survey currently being coordinated by the USACE. As of 2010, 44 states participated in the nationwide survey.

Methods

Bald Eagle Nest Monitoring

Since eagles returned to nest in Iowa in the late 1970s, the DNR has engaged in opportunistic data collection on eagle nesting territories. Opportunistic data collection includes casual monitoring of some eagle nests by DNR personnel as well as reports of nest locations and activity from Iowa citizens. These data are not systematically collected so the data available for each breeding territory varies. Additionally, territories reported on may not be representative (i.e. people may be more likely to report on an active nest versus an inactive nest). In 2017, these types of reports were entered into the dataset at a lower rate than in the past.

Since 2010, to complement the opportunistic reports received, the Iowa DNR has had a program to collect data on bald eagle nesting territories in a more systematic manner. This data collection method relies heavily on trained, dedicated citizen volunteers who monitor a sample of randomly selected nesting territories called “sentinel” sites as well as some non-randomly selected nest sites. As many of the sentinel nest sites as possible are assigned to a volunteer to officially monitor and many additional non-sentinel sites are also monitored by trained volunteers. Summaries and analysis are done on all nests monitored by volunteers, both random (sentinel) and non-random. To make sure non-random territories do not skew the data, the two sets of nests were first analyzed separately and then together and no significant differences were detected in the results.

The training for volunteers is available as a video online: www.iowadnr.gov/vwmp/ or is completed during in-Person workshops which are held in March in various locations across the state. After training, volunteers are assigned to one or several particular nests in their area to monitor with sentinel nests being given priority.

Volunteer monitors are instructed to visit their assigned nest site at least 3 times during the nesting season and collect data on whether the nest is active or inactive, how many young hatch and then how many young fledge. Nests are observed using optics from a distance in order to avoid disturbing the nesting birds and as such, not all of the required data can be collected on each site; the number of young hatched is particularly challenging to collect. Volunteers monitor the same nests annually and are instructed to continue to monitor an inactive nest for 3 years of inactivity before that nest is retired from monitoring

Monitoring focuses on Bald Eagle breeding territories and not necessarily individual nests. Eagles are known to rebuild downed nests in close vicinity to the original nest and sometimes even build alternate nest sites when the original nest appears in good condition. The monitoring focuses on this pair of birds and not on one of the potentially multiple nests sites that could be a part of their territory in time and space. We can’t be sure that we are watching the exact same pair of birds as the previous year but what we are focused on is the combination of a defended area of breeding habitat and a pair of eagles. Our working definition of a breeding territory based on evidence from the dataset and other literature (Buehler 2000): “A habitat area up to 1 mile in radius (though sometimes smaller in good habitat) that is defended by a pair of eagles and used for breeding. Meets all breeding habitat needs including appropriate trees (or very occasionally other structures) to build nests and a nearby food source. A territory may hold more than 1 nest but may not house more than 1 pair of eagles within the same breeding season. The pair of eagles need not be the same pair across years.”

The metrics used to assess the relative health of the nesting Bald Eagle population are the proportion of nests that fail to produce young versus successful nests and the average number young fledged per nest. If the percent of failed versus successful nests moves closer together or the average number of fledged young per nest drops below 1 for three years

in a row this would trigger some additional actions to evaluate the health of the nesting eagle population.

Bald Eagle Midwinter

The Bald Eagle Midwinter survey is conducted each year during the first two weeks of January. There are two dates in the middle of the two week period that are designated as target dates, and surveyors are encouraged to run the survey on those dates if possible, but the survey can be run on any day during the two week period. The survey is designed so that surveyors can also run the survey at the same time as conducting another national survey, the Midwinter Waterfowl Survey, which is usually scheduled on one day in the first week of January. The survey is meant to ideally be run on clear sunny days with no fog or precipitation impairing visibility. In 2018, the dates for the survey were January 3-17th with target dates of the 12th and 13th.

There are 52 active standard routes in Iowa, of varying lengths and this includes two fixed point routes (routes that only cover 1 mile of habitat, usually a roost site). To conduct the survey, volunteers and staff move along their assigned route at a moderate pace and count all adult and immature eagles that are spotted. All of the routes in Iowa (that aren't fixed point) are driven by car or truck (Figure 6.9). Data is also collected on the amount of time spent surveying, the weather conditions and the percentage of ice coverage along the route. The habitat covered and route driven should be the same each year though detours are sometimes required because of winter road conditions or other road maintenance issues.

Results

Bald Eagle Nest Monitoring

Since 1977, approximately 908 bald eagle territories have been reported to the Iowa DNR. In 2015, the state hit the milestone of having had at least one eagle nest reported in all of Iowa's 99 counties (Figure 6.9). Allamakee County, with 144, has the highest number of nests reported, followed by Clayton County with 71 (Figure 6.9). Following the 2018 nesting season, 377 territories have an overall designation of active (316 "inland", 61 Upper Miss. Refuge), 225 are designated inactive, and 306 have an unknown status (this usually means they have not been reported on >3 years but the nest was active at last report). A territory is considered active if it has had some activity in at least one of the last three nesting seasons.

In 2018 a total of 182 nests were monitored, 74 of which were sentinel territories and 108 which were non-random. Of these territories 129 have been reported on for 3 or more years since 2010, and 27 for all 9 years. For the 146 territories for which there is data in 2017 and 2018 10 nests that were reported as active in 2017 were inactive in 2018 (7%). One territory that was inactive in 2017 (and 2016 and 2015), was reported as active again in 2018. This represents a nest turnover rate of 8%.

Within the 182 territories monitored, 165 were active (91%), 15 were inactive (8%) and two were reported as activity unknown (Table 6.7). The outcome of the nesting season for the 165 active territories broke down as follows: 111 nests successful, 17 failed and 37 unknown (Table 6.7, Figure 6.10). Failed nests usually had birds at the nest early but they either abandoned or did not produce young. One of the 17 nests blew down.

Out of the 128 territories which had reliable reports of the nest's outcome in producing young, 170 young were produced: 17 nests fledged no young, 58 nests fledged 1 young, 47 nests fledged 2 young and 6 nests fledged 3 young. The estimated number of young produced per nest was 1.38 (Table 6.7).

For 107 territories, monitors were able to collect data on the number of chicks and the number of fledglings. Twelve young were lost before fledging. From these data it appears that eaglet survival to fledging was high; 93% of the chicks observed in these nests reached fledging (168 total young counted, 156 fledged). Accurately counting the number of young in the nest, right after hatching, is very difficult to impossible from the ground so the accuracy of this analysis is probably low. Their survival after fledging is not tracked.

Bald Eagle Midwinter Survey

In 2018, 49 routes were completed, covering 1,651 miles of habitat. Twenty-five (51%) of the 49 surveys were conducted on the target dates of January 12-13th and the average survey took 149 minutes to complete. Weather conditions during the survey were harsh with an average temperature at 8^{o} Fahrenheit, the lowest in recent years. In addition, the percent

of the waterways covered in ice was also much higher at 88% versus 56% in 2017.

A total of 3,921 Bald Eagles were counted during the 2018 Bald Eagle Midwinter Count, which is the third highest count in the history of the survey (Figure 6.12) and is almost 1,000 birds higher than the previous ten-year (2008-2017) average of 3,080.9. The average number of birds counted per route was 75.4 or 2.4 eagles per mile surveyed (Figure 6.13). A total of 2,607 of the birds counted, or 66%, were adults and 1,276 (32.5%) were immatures (Figure 6.14). The remaining 38 birds counted could not be aged.

The most highly surveyed rivers, which also usually host the highest numbers of eagles are the Mississippi and the Des Moines. The Mississippi has traditionally held the most birds but the Des Moines has been more highly used in recent years. In 2018, the number of birds using the Mississippi River were almost eight times more than those on the Des Moines (2,821 vs. 376). The Mississippi also had the highest number of Eagles counted per mile at 11.19. The second highest water body in eagles counted per mile was the Cedar River at 3.87. The Mississippi accounted for 72% of all the birds counted on the survey as a whole.

Discussion

Bald Eagle Nesting

The original Northern States Bald Eagle Recovery Plan (Grier et al., 1983) set recovery goals at 1200 nesting pairs across 16 states with an average of 1.0 young produced per nest. With roughly 400-500 nesting pairs in Iowa alone and an average young/nest consistently between 1 and 2, Iowa is definitely contributing to the regional Bald Eagle population and is supporting a stable breeding population. In fact, Iowa far surpassed the state-specific goal identified in the regional plan of 10 pairs by the year 2000 (over 100 eagle nests were recorded by that time).

While Iowa does not have a comprehensive dataset of Eagle nests in the state throughout the entire recovery, the trend in Iowa has roughly reflected the well-studied Virginia population (Watts et al. 2008). The addition of nesting territories in the 1980s was slow, growing from 1 to 14 nest pairs from 1977-1989, sped up in the 1990s, growing to 100 pairs in 1998 and then has seen huge growth since 2000. However, the Volunteer Wildlife Monitoring Survey is not designed to measure the growth in breeding pairs, which instead shifts the focus towards measuring reproductive success of a sample of nests in the state.

The conservatively estimated nest success rate of 67% is roughly equal to the previous 7 year average of 67% and suggests stability in nesting success. This rate is somewhat lower than that cited for the Chesapeake Bay area (>80%) (Watts 2008) but our rate was calculated using the total number of nests surveyed, including those with an unknown outcome and if those nests are removed, nest success rate jumps to 87%. Considering that the Chesapeake Bay is one of the more productive eagle breeding areas in the country (Grier 1983, Watts 2008) the success rates in Iowa are comparable.

If 91% of the currently 377 active territories in the state were occupied in 2018 (343 nests), and 87% of those were successful (298 nests), then using the average of 1.38 chicks per nest, an estimate of 412 total young were produced by nests in Iowa. With 377 territories classified as active in Iowa, the adult population of breeding Bald Eagles at a minimum numbers 754. The Bald Eagle population is four times the original goal set for Iowa in the early recovery plan (Grier et al., 1983) and successful reproduction rates suggest the population is currently stable or growing.

One notable change from 2017 to 2018 was the number of overall territories designated as active in the DNR database fell from 427 to 377, a drop of 50 nests. This seems alarming but is just an artifact of many fewer nests being monitored on the Upper Mississippi Wildlife refuge. The refuge is home to over 120 eagle pairs, most of which in the past, were monitored every year. In recent years, only a small sample have been monitored so those active territories that haven't been reported on in 3 or more years had their status shifted from active to unknown. This doesn't account for all 50 nests but it accounts for a large proportion of them. Only 1 nest had their status shifted from active to inactive at the end of the 2018 nesting season; all the rest that are no longer designated as active are just missing data.

Bald Eagle Midwinter

The long-term Midwinter Survey results suggest that the number of eagles that winter in Iowa, particularly since 2003, fluctuates widely from year to year. The 2014 survey saw the highest number of eagles ever counted, while 2015 represented the lowest since 2007 and 2016 was the lowest since 2003. Now two years later the numbers were very high again. Unfortunately the survey does not do a good job of clearing up what might be driving these fluctuations. The obvious culprit is weather if only because harsher winters with more ice should drive more birds south from northern stronghold states (Minnesota, Wisconsin) and also create ideal conditions for counting by concentrating birds at limited areas of open water. However, only a very weak correlation exists between more birds and more ice and there is virtually no correlation with temperature. This doesn't necessarily mean that weather doesn't have an effect but the survey design may not be appropriate for picking it up. The availability of food is the most obvious root motivation for Bald Eagles to move across the landscape for which weather just may not be a strong enough predictor. Other factors that are not collected, including the availability of food, could explain the huge fluctuations.

Despite the increasingly large fluctuations, the overall trend across the survey since 1994, is upwards. This upward trajectory is settling into a flatter trend in recent years which is to be expected as eagles may be getting close to carrying capacity, at least in the states to the north which host over 1,000 nesting pairs each year. This state trend mirrors the results of a recent national analysis of the first 25 years of the survey which suggests that Bald Eagle population trends may be flattening as the bird's numbers reach a level that can be supported by the existing habitat available (Eakle et al. 2015). If this is the case we would expect to see the trend to continue to become more level in future years. Regardless, Iowa provides important wintering habitat and resources for the Bald Eagle population in the U.S. and we will continue to monitor their numbers.

Management Implications

Based on nesting and wintering data, the Bald Eagle population in Iowa, despite annual variability, is stable so there are no immediate actions that need to be taken on behalf of the species. However, there are still a number of challenges to eagles and the DNR will continue to protect nests and nesting habitat as well as monitoring the species to facilitate early detection of any changes to the stable status.

Acknowledgements

Monitoring the eagle population in Iowa would not be possible without the help of an army of caring citizens who volunteer their time. A huge thanks goes out to all the volunteers and DNR, USFWS, USACE staff which help with both these surveys. Your contributions to our knowledge of this species in Iowa is vital!

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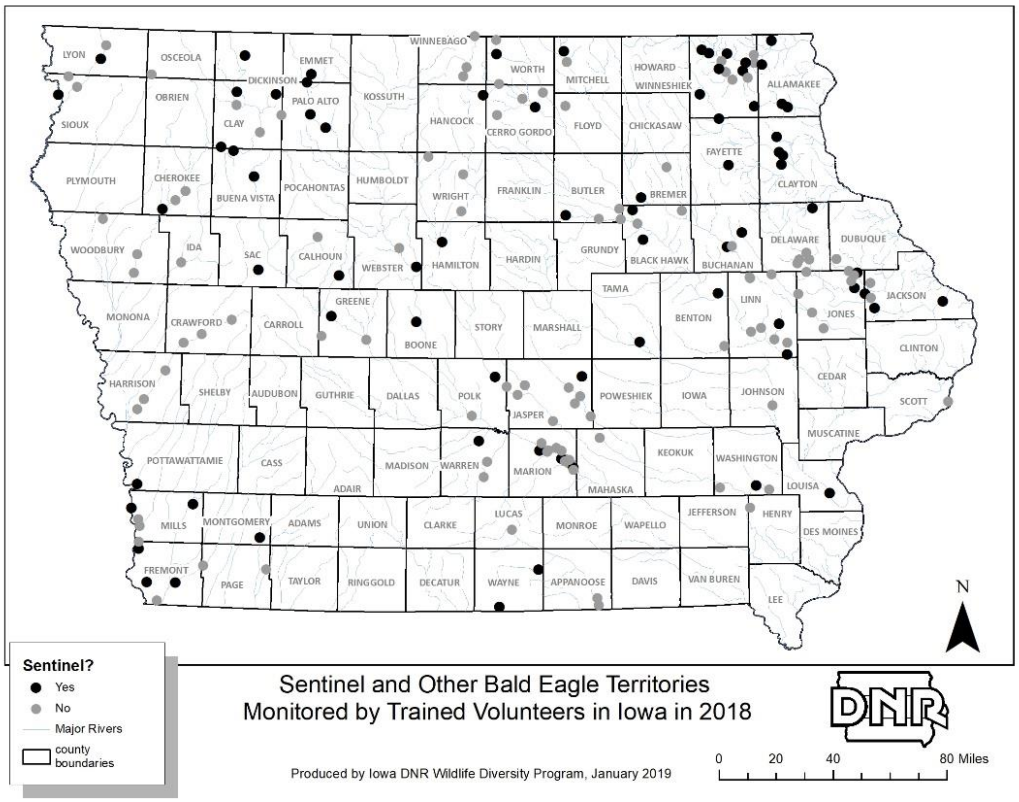
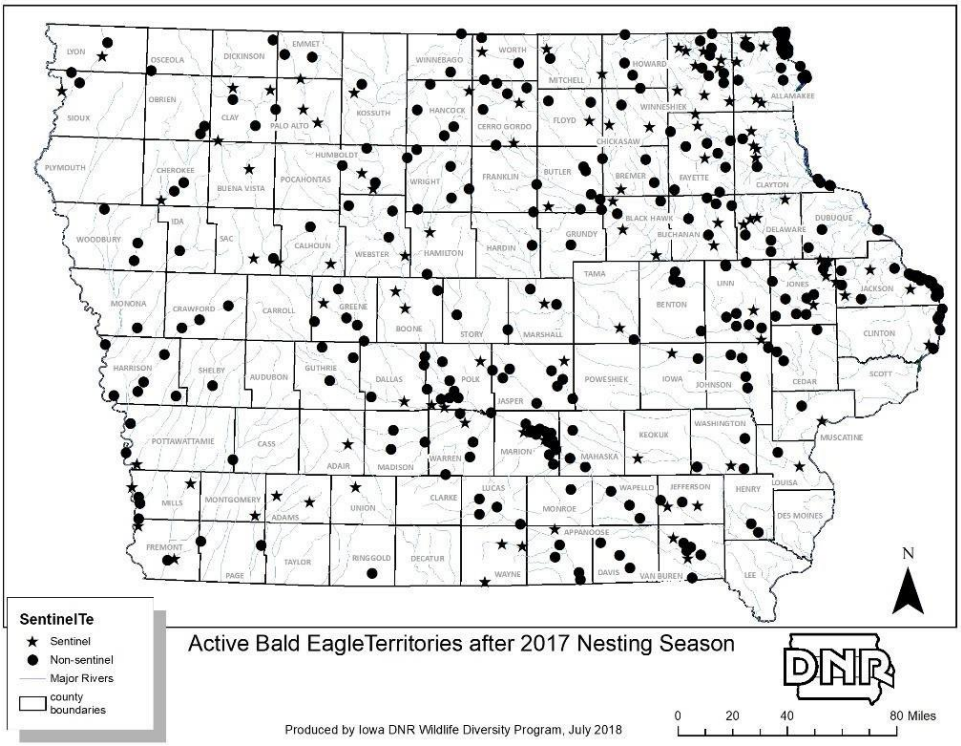
Figures



Sentinel Nests were randomly selected, other nests were non-random.

Figure 6.6 Data was collected on 164 nests in 59 Iowa Counties in 2018



Stars are the randomly selected sentinel nests which represent roughly 50% of the active nests excluding those found on the Upper Mississippi Wildlife Refuge.

Figure 6.7 Active Bald Eagle Nests in Iowa after 2018 nesting season (379 nests)

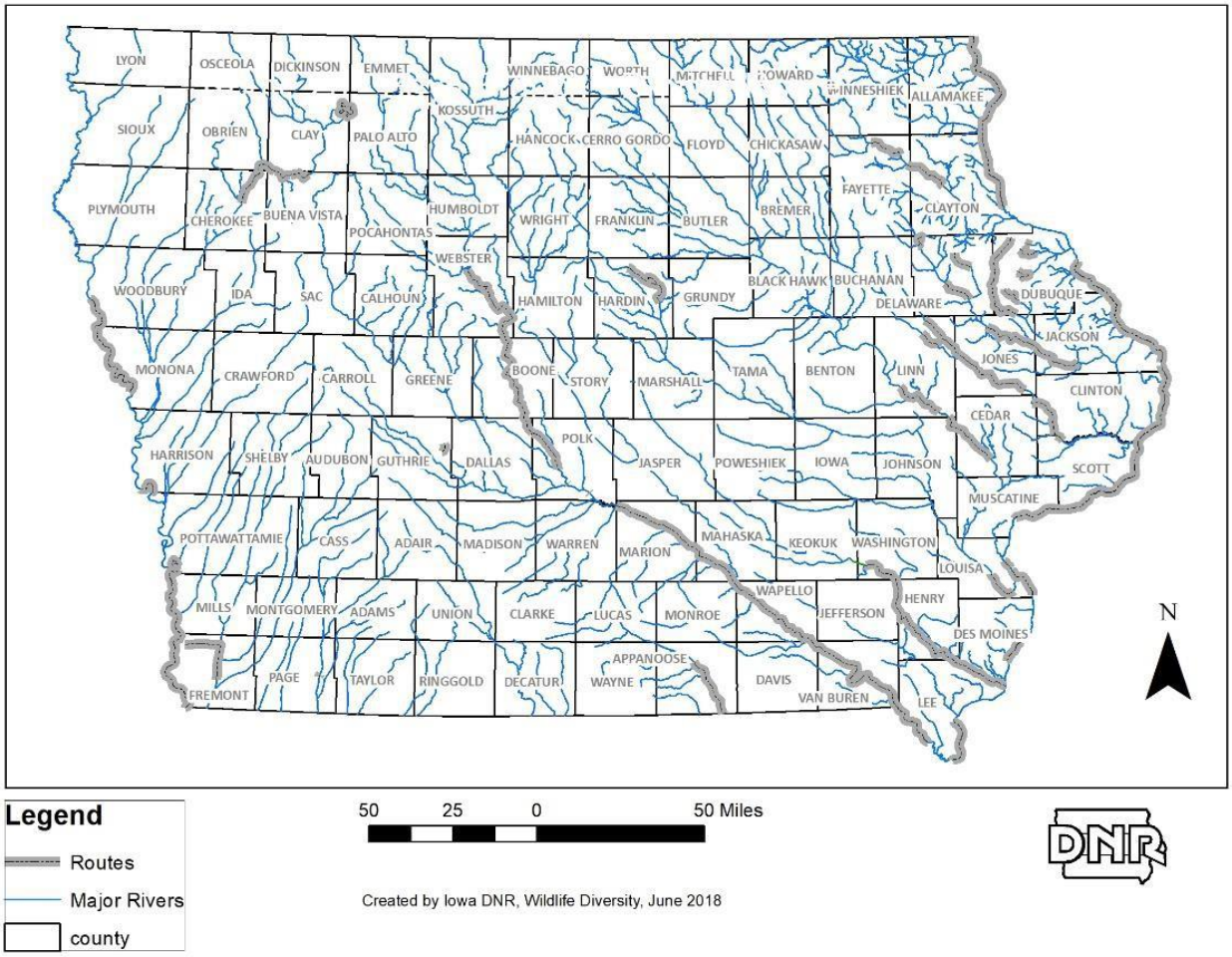


Figure 6.8 Bald Eagle Midwinter Routes in Iowa

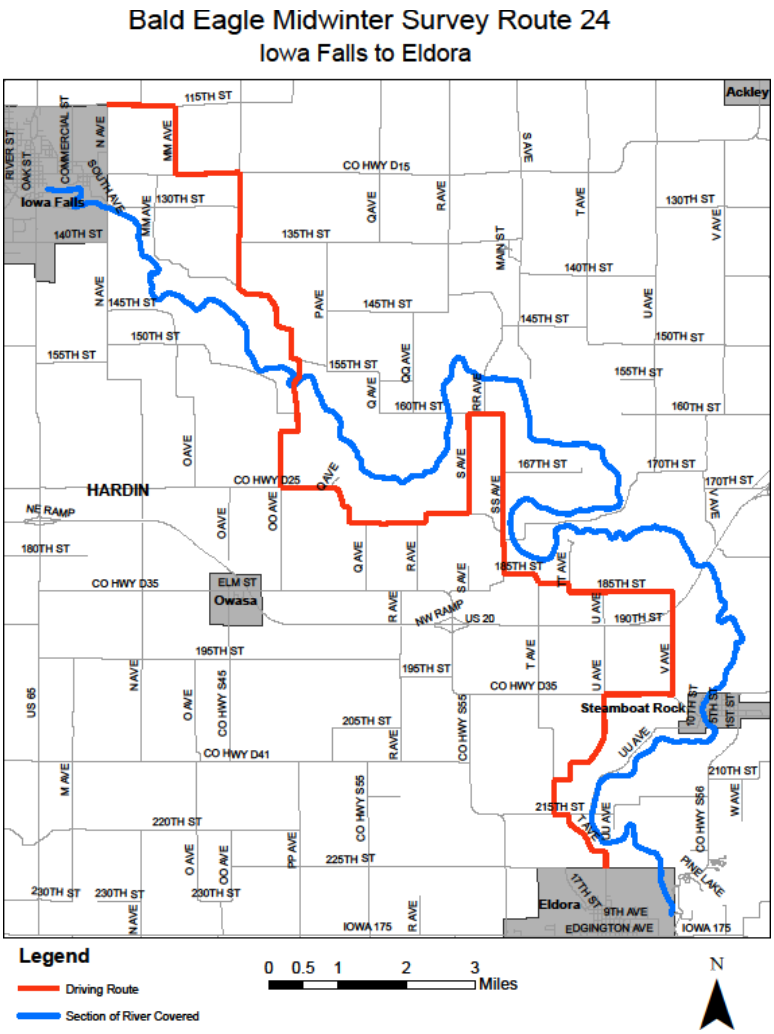


Figure 6.9 Example of Midwinter Survey Route - Route 24 - The portion of river (eagle habitat covered) and the driving route

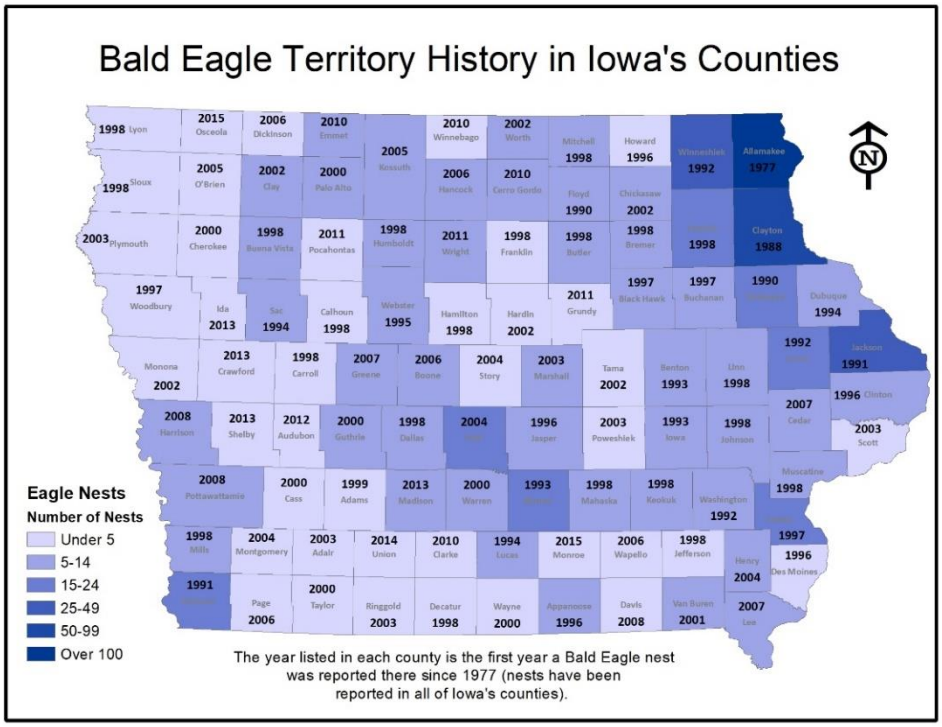


Figure 6.10 Number of eagle nests and first year reported for each county in Iowa

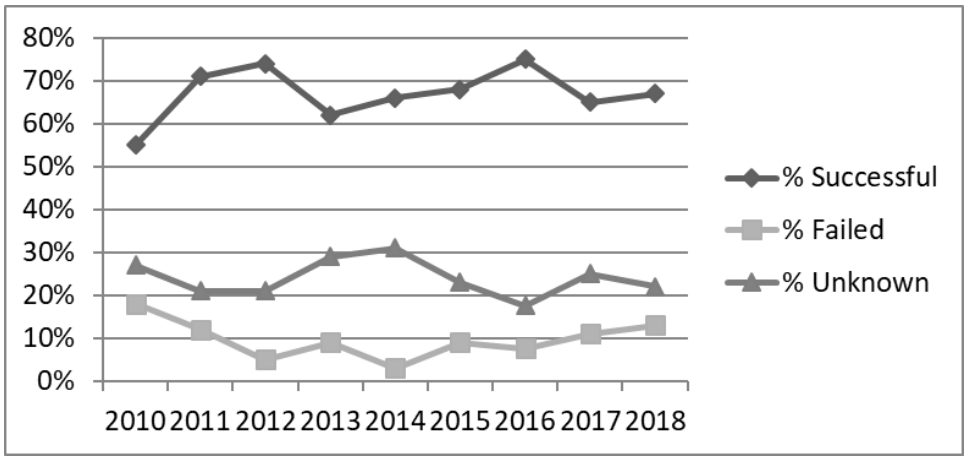


Figure 6.11 Percent of monitored Eagle nests that were successful versus failed, 2010-Present

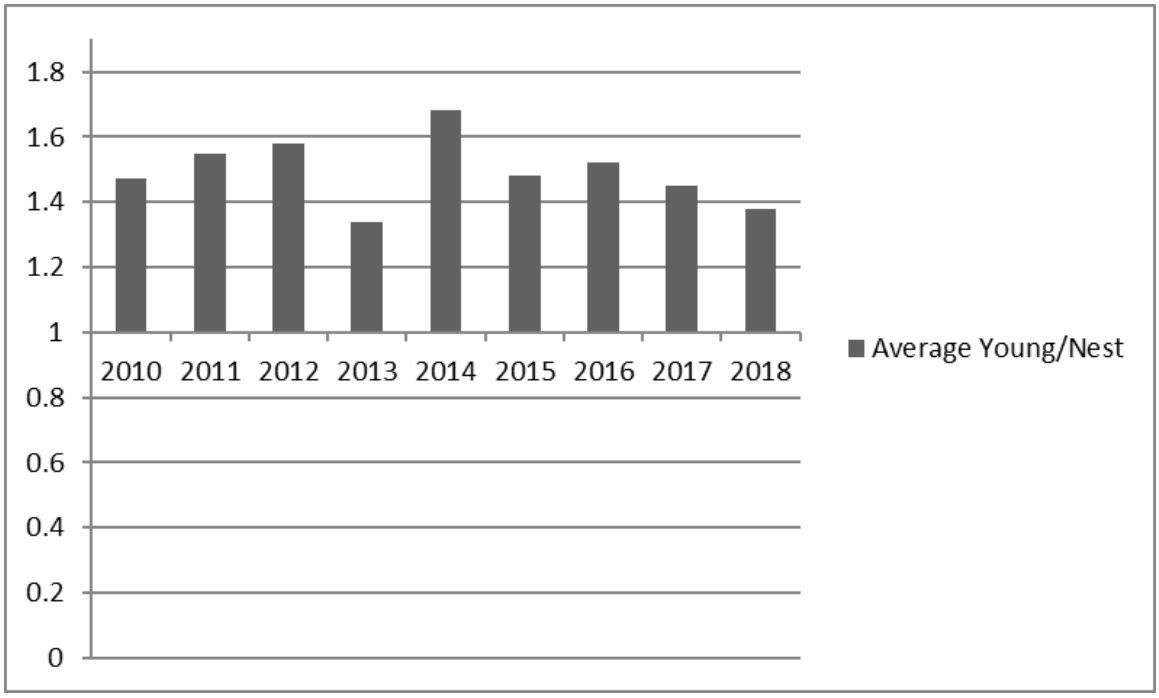


Figure 6.12 Average number of young produced by monitored Bald Eagle nests

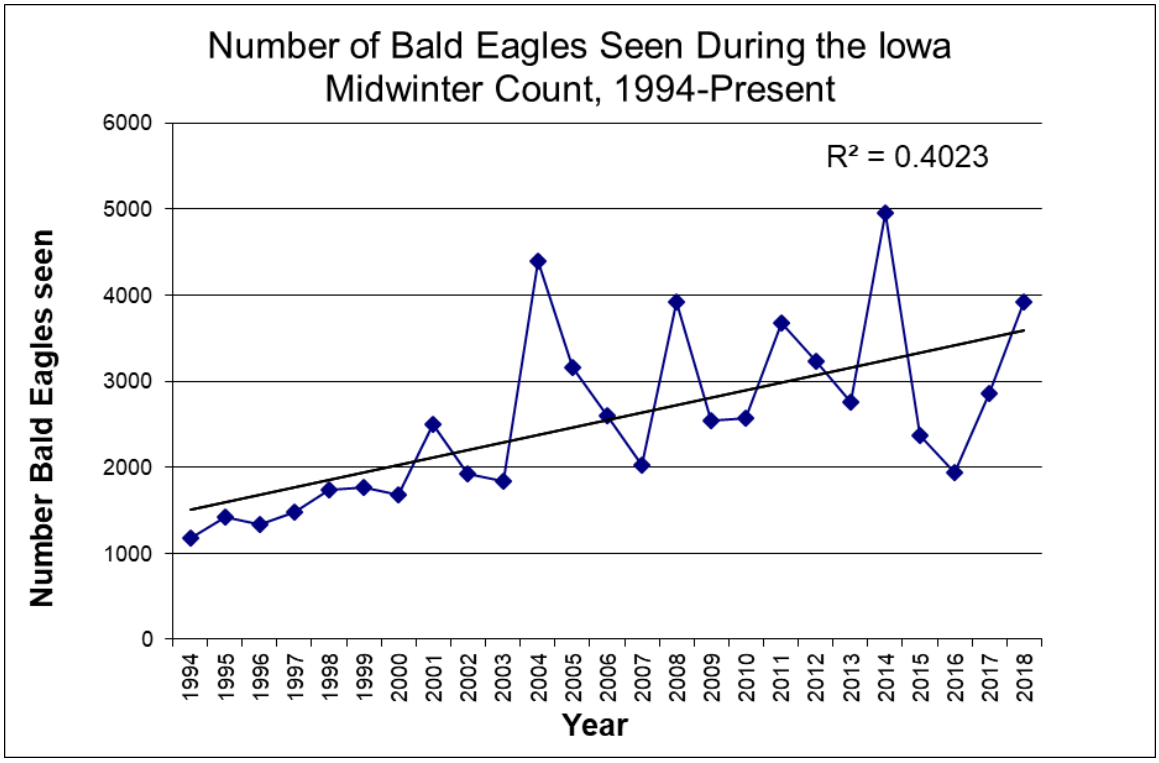


Figure 6.13 Total Bald Eagles counted during the Bald Eagle Midwinter survey, 1994-Present

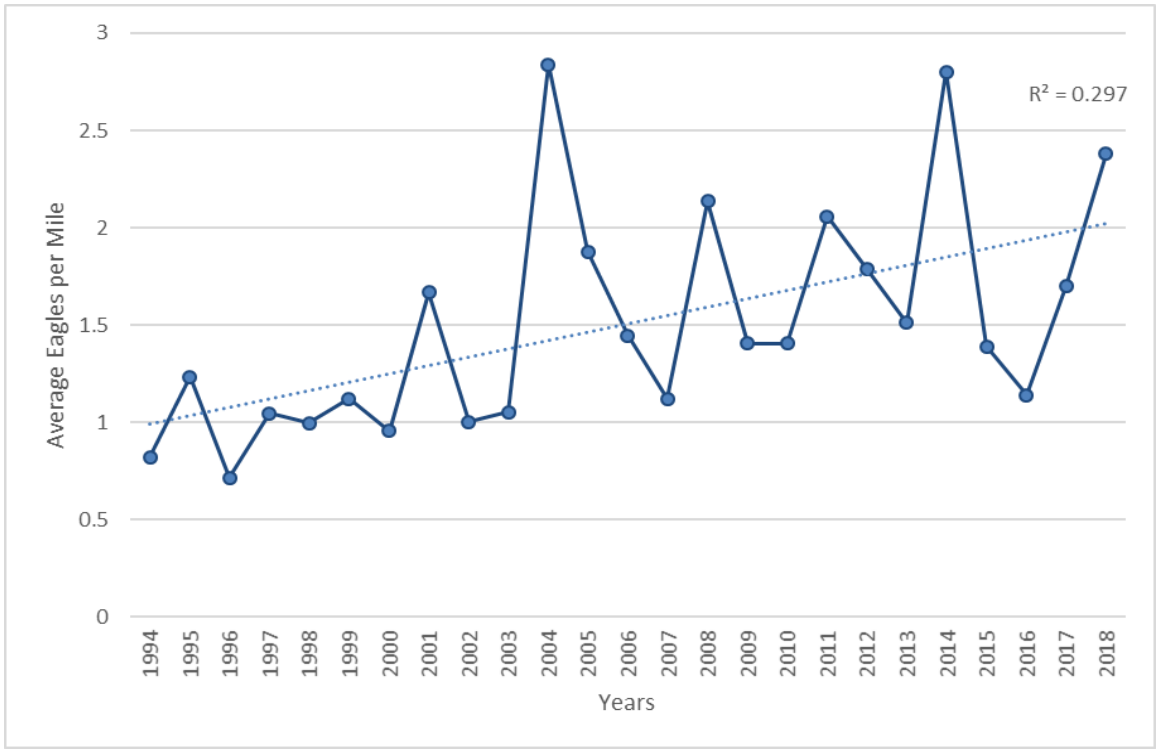


Figure 6.14 Average number of Bald Eagles per survey route counted during the Bald Eagle Midwinter survey, 1994-Present

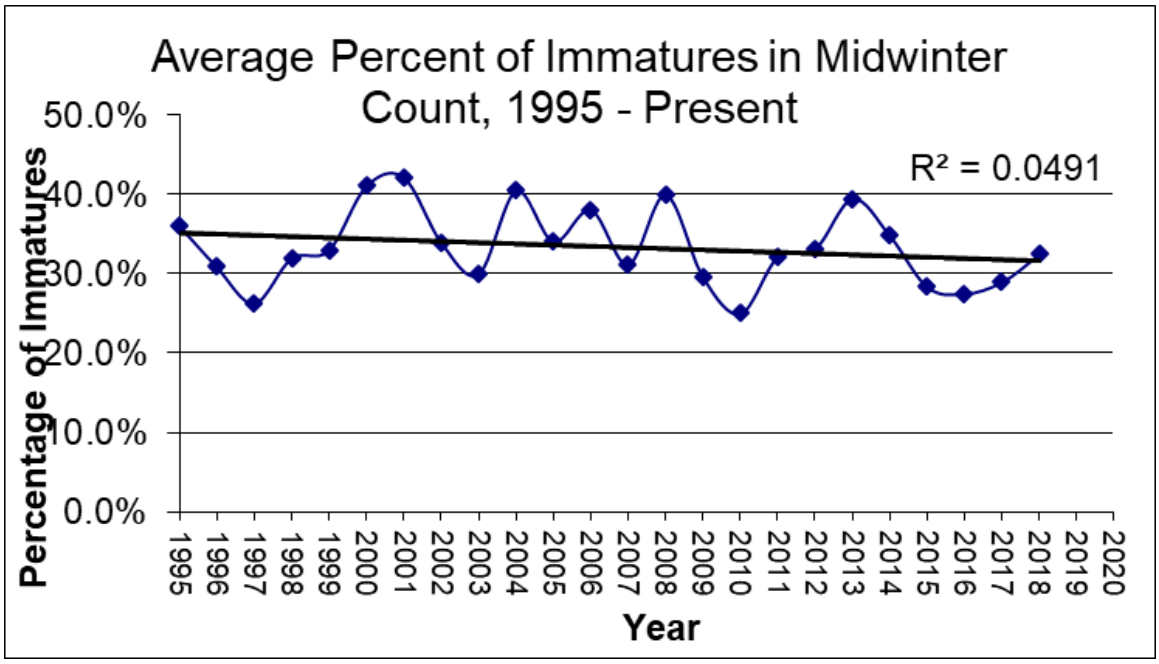


Figure 6.15 Percentage of immature bald eagles counted during the Bald Eagle Midwinter survey 1995-Present

Tables

Table 6.7 Summary of data collected by volunteer monitors on Bald eagle nests, 2010 to 2018

	2010	2011	2012	2013	2014	2015	2016	2017	2018
# of Territories With Data Collected	42	69	77	80	76	85	84	172	182
Active Territories	33	52	61	65	62	78	80	160	165
Successful	18 (55%)	37 (71%)	45 (74%)	40 (62%)	41 (66%)	53 (68%)	60 (75%)	104 (65%)	111 (67%)
Failed	6 (18%)	6 (12%)	3 (5%)	6 (9%)	2 (3%)	7 (9%)	6 (7.5%)	17 (11%)	17 (13%)
Outcome Unknown	9 (27%)	11 (21%)	13 (21%)	19 (29%)	19 (31%)	18 (23%)	14 (17.5%)	40 (25%)	37 (22%)
Number of Young	35	50	71	72	72	88	107	175	170
Avg. # of Young/Nest	1.46	1.16	1.48	1.57	1.67	1.52	1.73	1.45	1.38
Inactive Territories	4	14	14	12	13	7	4	11	15
Unknown Territories	5	3	3	3	1	0	0	1	2

Table 6.8 Summary of data collected during the 2018 Bald Eagle Midwinter Survey by waterbody

Water Body*	% of Total BE	Total BE	Adult BE	Imm BE	Unk Age BE	Total GE	Un-ID Eagle	Miles Surveyed	Average Bald Eagles Per Mile
State Total	100%	3921	2607	1276	38	2	20	1651	2.37
Mississippi River	71.9%	2821	1892	915	14	0	0	252	11.19
Des Moines River	9.6%	376	250	125	1	0	0	320.5	1.73
Cedar River	6.7%	263	162	98	3	0	0	68	3.87
Iowa River	2.1%	84	60	22	2	1	0	68	1.24
Maquoketa River	1.7%	68	45	11	12	0	0	96	0.71
S. Maquoketa River	1.7%	66	36	29	1	0	0	105	0.63
Wapsipinicon River	1.6%	64	44	20	0	0	0	106	0.60
Skunk River	1.1%	45	37	8	0	0	0	72	0.63
Missouri River	1.1%	42	23	19	0	0	0	182	0.23
Unknown	1.1%	42	28	13	1	1	0	170	0.25
Little Sioux River	0.7%	28	14	10	4	0	0	65	0.43
Turkey River	0.2%	8	7	1	0	0	0	15	0.53
Lake Rathbun	0.2%	8	5	3	0	0	0	85	0.09
Chariton River	0.2%	6	4	2	0	0	0	45	0.13
Nodaway River	0.02%	1	1	0	0	0	0	1	1
Age Composition		**100%**	**66.5%**	**32.5%**	**0.97%**	**NA**	**NA**	NA	NA

STATUS OF SELECTED OTHER SPECIES IN IOWA

Mountain Lion/Cougar Status in Iowa 1995-2018

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-1990s, 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 (1995-2018). Tracks and/or sightings reported to us throughout the year are documented as confirmed, highly probable or unconfirmed after investigating the evidence. In 2017 two confirmed mountain lions were females. These were the first females documented for Iowa since the 1800s. Both were shot and killed, one by a gun deer hunter (Plymouth Co) and one by DNR staff (Ida Co) due to human safety concerns. The Plymouth Co female was wearing a GPS neck collar from Nebraska GF&P. The Ida Co female had DNA that matched cats in Wyoming. This past year (2018), the Iowa DNR had at least 2 confirmed mountain lion reports and 1 probable report, (Table 7.1). So far in 2019, there have 3 confirmed reports of mountain lions in Iowa and 1 probable report. 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 to 4 sightings per week is 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 origins of the 6 dead mountain lions have been completed and results indicate that they are of North American origin, except one that was of unknown 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 2018 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. At this point most DNR personnel are skeptical of those reports because of a lack of evidence whenever an area is investigated.

In 2018, we didn't have any reports of mountain lion kittens. 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), and two females shot in 2017. To date, we do not have a documented breeding population of mountain lions in Iowa. Credible mountain lion sightings and tracks are important to the Iowa DNR. Two excellent websites to help with mountain track identification are http://www.bear-racker.com/cougar.html and http://www.geocities.com/Yosemite/9152/cougar.html. 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, www.mountainlion.org.
Also the Eastern Cougar Network is a source of Mountain lion/cougar information. Their website is mdowling@courgarnet.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 65-75 people have been attacked by mountain lions/cougars, resulting in 63 injuries, 20 of which were fatal, and none occurred in Iowa.

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. Information about mountain lions can be found on the Iowa DNR's website at: http://www.iowadnr.gov/Conservation/Iowas-Wildlife/Occasional-Wildlife-Visitors.

Figures

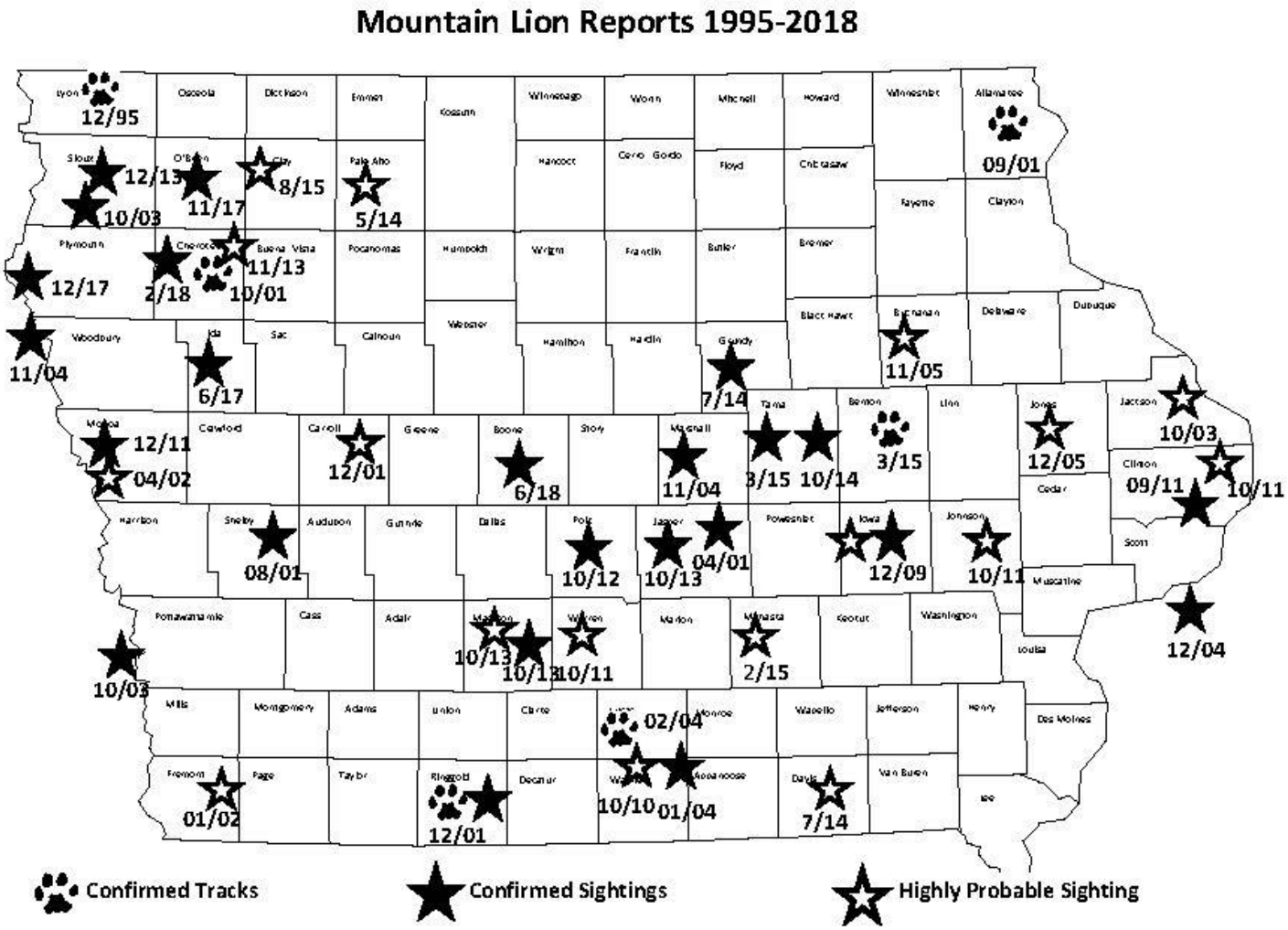


Figure 7.1 The location of mountain lion reports in Iowa. Numerous additional sighting have been reported, but are not mapped because of less than credible information. (6/27/18)

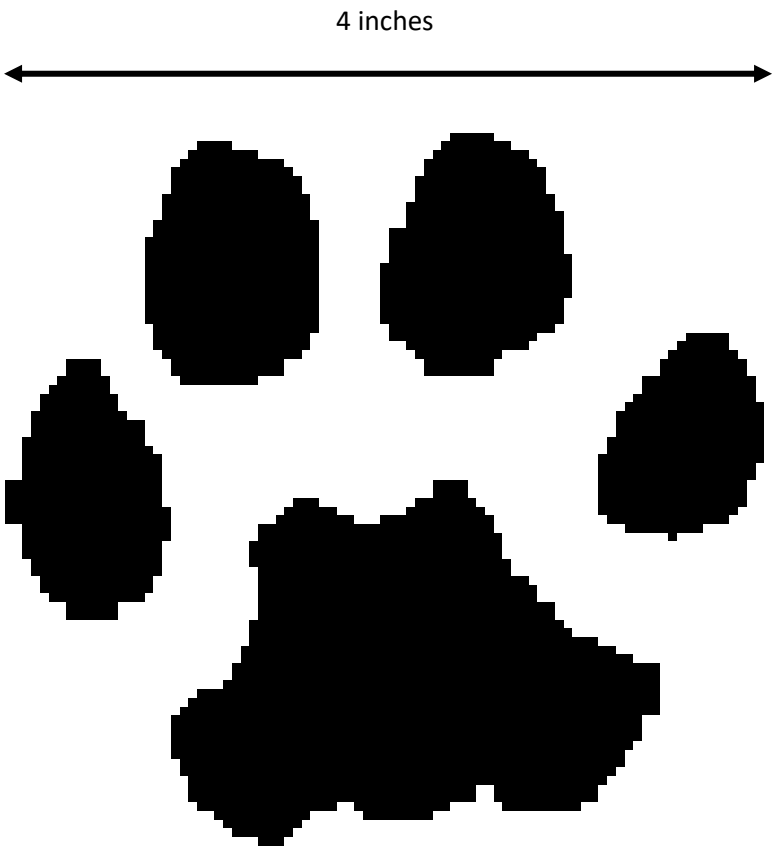


Figure 7.2 Typical Mountain Lion track

Tables

Table 7.1 Confirmed Mountain Lions in Iowa, 2001-2019

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
December	2017	Shot	Plymouth
June	2018	Tracks	Boone
April	2018	Trail Camera Pictures	Cherokee
September	2018	Sighting	Winneshiek
April	2019	Vehicle Collision/no kill	Woodbury
May	2019	Videos/Sightings	Polk
July	2019	Sighting	Polk
May	2019	Sighting	Allamakee

Table 7.2 Confirmed and Probable Mountain Lions in Iowa by year, 2001-2019

1995	1
2001	5
2003	2
2004	5
2009	1
2011	1
2012	1
2013	2
2014	2
2015	1
2016	0
2017	4
2018	3
2019	4
Total	**32**

Table 7.3 Method of confirmation for Mountain Lions in Iowa, 1995-2019

Confirmation Method	No. of Mountain Lions
Sightings	7
Tracks	8
Pictures	8
Shot	5
Roadkills/Collision	3
Video(s)	1
Total	**32**

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 (Table 7.4). 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 locations by county of the most recent sightings of bears in Iowa - including those in 2018. 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 DNR 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).

In 2017, there were at least five confirmed black bears in Iowa. No cubs were documented. These bears were located in the eastern half of the state from Mitchell County in the north part of the state to Davis County in the south part of the state.

In 2018, there were at least two confirmed black bears in Iowa. One again was reported in the same area north of Decorah in Winneshiek County, the second bear was reported in Fayette County. Both were seen in May.

So far in 2019, there have been four bears reported in Iowa. Two separate bears in Winneshiek County, one of which was again north of Decorah. We believe this bear is a resident. The second bear was approximately 6 miles east of Decorah. One bear was again reported in Fayette County and could be a resident, the fourth bear was reported in Delaware County.

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 they will feed upon animals as well. Human tolerance will be the deciding factor as to whether black bears would ever re-establish a breeding population again in Iowa. If they do, their numbers would likely remain quite small.

Figures

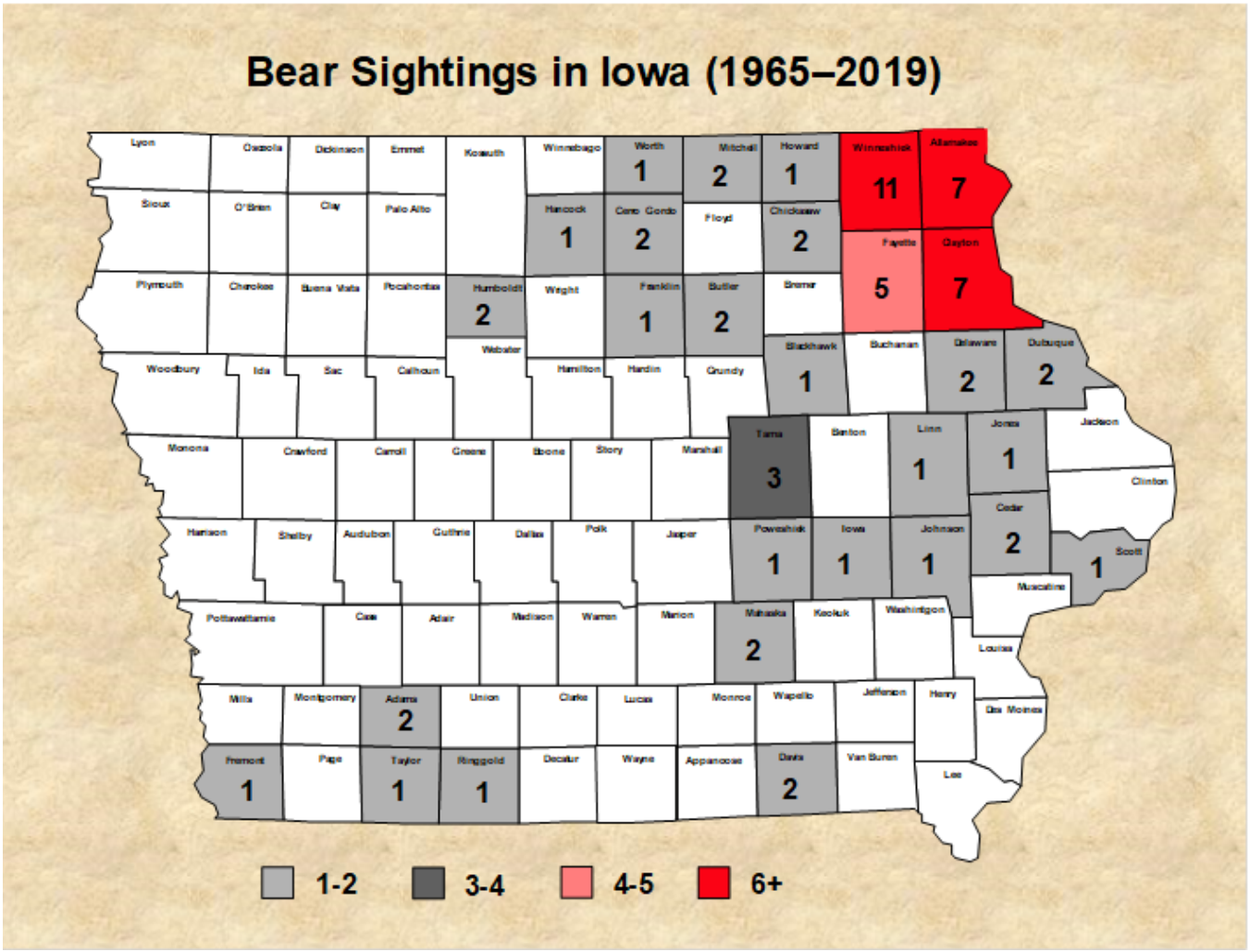


Figure 7.3 Confirmed locations of Black Bears in Iowa 1965 – 2019. (1876 Last Historical Sighting, Dickinson County) (8/05/19)

Tables

Table 7.4 The number of confirmed black bears in Iowa by year 2002-2019.

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
2018	2
2019	4
Total	38

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, the Great Lakes population of wolves were reclassified (down-listed) from endangered to threatened under the ESA in Minnesota. The US Department of Interior's Fish and Wildlife Service administers the ESA. The Fish and Wildlife Service 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 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. Since then, attempts to appeal the decision along with continued debates within Minnesota and Wisconsin continue.

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 by the late 1880s 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 the Driftless region is relatively rugged there is some habitat available that is conducive to wolves. It's not likely 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+ yrs old, meaning this wolf was about 18 mos old. The third wolf was shot in Van Buren Couty by a deer muzzleloader hunter. This wolf was a male that weighed approximately 103 lbs and tooth aged at 1+ yrs 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).

2017
In 2017, there 4 unconfirmed reports of gray wolves seen in Iowa, with 1 possible confirmed report in Allamakee County. With this animal, camera footage was recorded by deer hunters on a public hunting area. However, the DNR hasn't been able to view this footage to verify this animal as a wolf, so it will be recorded as an unconfirmed wolf report.

2018
In 2018, there were 4 reports of wolves, but none of those were able to be confirmed.

2019
So far in 2019, there's no reports of wolves. However, we continue to have an occasional dog with a high-content of wolf genetics in it sighted, killed, or reported in various areas of the state.

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

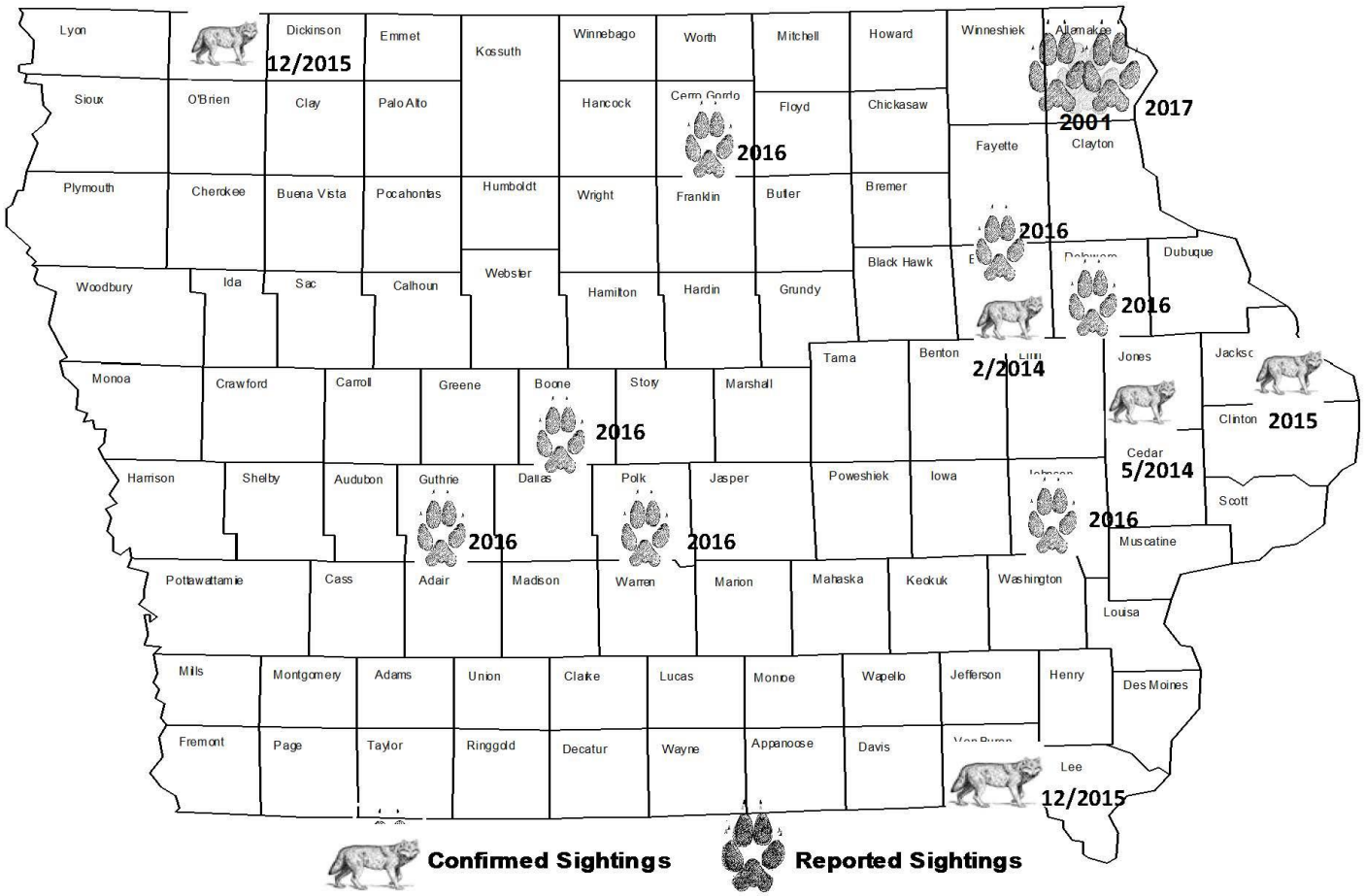


Figure 7.4 Gray (Timber) Wolf Sightings in Iowa (8/29/19)

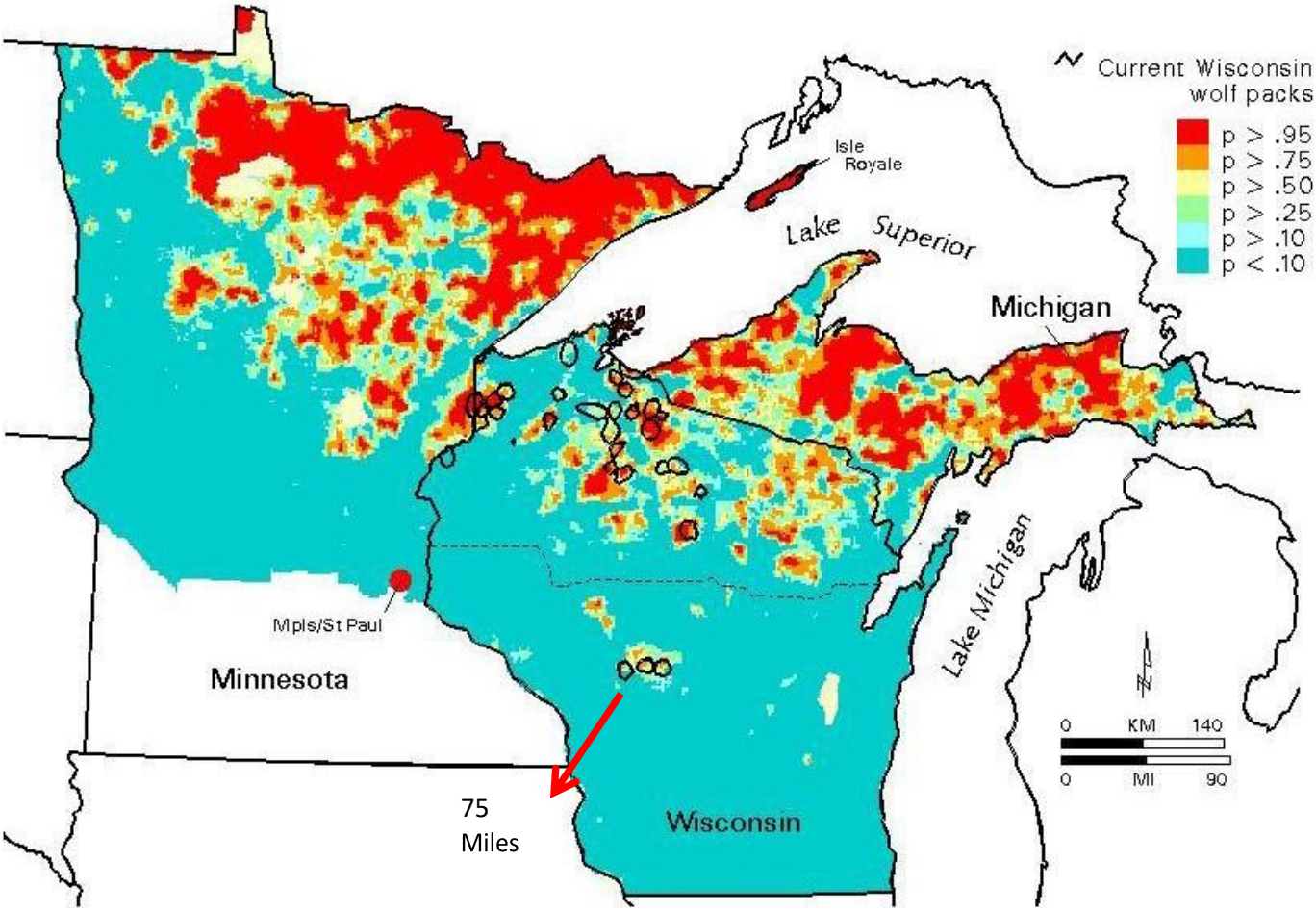


Figure 7.5 Favorable Gray Wolf habitat and pack locations in the Northern Great Lakes Region
Source: http://www.timberwolfinformation.org/info/wolves/prob1.jpg

Tables

Table 7.5 Public reports of wolf sightings in Iowa by year (2012-2017).

Year	Confirmed Wolf Sightings	Unconfirmed Wolf Sightings
2012	0	2
2013	0	1
2014	2	4
2015	3	1
2016	0	4
2017	0	5
2018	0	4
2019	0	0
Total	5	21

A few unconfirmed wolves were reported for the years (1938-2009). Unconfirmed wolf sightings began being documented better in 2012 as shown in the table above.

IOWA BOW HUNTER OBSERVATION SURVEY: 2018 SUMMARY

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Abstract
Each year, the Iowa Department of Natural Resources (DNR) solicits responses from bow hunters as part of the Bow Hunter Observation Survey conducted from 1 October to 2 December. The primary objectives of this survey are 1) to collect observations of white-tailed deer which serve as an independent index of regional deer populations across the state and supplement other deer data collected by the DNR, and 2) to collect observations of other select species to develop a long-term database of relative abundance used to monitor population trends of these species. The DNR selects survey participants each year using a two-stage, stratified-random sampling design in which a sample of 9,000 individual bow hunters are selected from the list of all hunters who purchased an archery hunting license in each of the preceding three years. Each participant receives a diary for recording the number of hours hunted during each hunting trip, as well as the number of deer, wild turkey, and select furbearer species seen during each trip. Reminder postcards are sent to all non-respondents by November 15 each year, and respondents are asked to return all surveys by December 2. Observations for 12 species are standardized by 1,000 hours hunted, and the mean number of observations per 1,000 hours hunted (95% confidence interval) are estimated statewide and by survey region. In 2018, we collected responses from 2,098 bow hunters consisting of 20,907 hunting trips and 67,202 hours of total observation time (3.21 ±0.029 hours/trip). The total number of deer observations increased between 2017 and 2018 in all nine survey regions, and the 10-year trend is increasing in seven of nine survey regions. Wild turkey observations increased in northwest, northeast, west-central, and south-central Iowa between 2017 and 2018 but decreased in all other regions. According to 10-year trends, bobcat and opossum observations are increasing while raccoon and red fox observations are decreasing statewide. Data from this survey are extremely valuable in monitoring population trends for harvested species such as white-tailed deer and raccoon and serve as the only index for monitoring population trends for uncommon species such as gray fox.

Introduction
Reliable long-term indices of wildlife population trends are critical for making informed decisions on management of harvested species such as white-tailed deer (*Odocoileus virginianus*) and bobcat (*Lynx rufus*) and for monitoring population status of rare species or species of conservation concern such as gray fox (*Urocyon cinereoargenteus*). Data to generate such indices, however, can be logistically challenging to collect at a statewide scale. Hunter observation surveys have been implemented by several natural resource agencies throughout the U.S. as a means for collecting data to successfully monitor population trends for a variety of species including white-tailed deer (Winchcombe and Ostfeld 2001, Haskell 2011), moose (*Alces alces*; Ericsson and Wallin 1999, Crum et al. 2017), and gray wolf (*Canis lupus*; Rich et al. 2013). These citizen-science surveys provide a wealth of information at broad spatial scales for a small cost relative to other standardized surveys using paid staff. Therefore, hunter observation surveys are an extremely cost-effective approach for obtaining quality data to guide management decisions for both harvested species and species of conservation concern.

In 2004, the Iowa Department of Natural Resources (DNR) implemented the annual Iowa Bow Hunter Observation Survey. Designed in cooperation with Iowa State University, the survey had two primary objectives: 1) to collect observations of white-tailed deer to serve as an independent supplement to other deer indices used by the DNR, and 2) to develop a long- term database of observations for other select species to monitor trends in relative abundance. Since the development of the Iowa survey, several other Midwest states have implemented similar surveys including Illinois (Bluett 2013), Indiana, Missouri, Minnesota (Norton et al. 2017), Ohio (Ohio DNR 2015), and Wisconsin (Rees Lohr 2017). Bow hunters are ideal for collecting wildlife observational data because they typically employ stationary hunting methods (e.g., camouflage, scent masks, etc.) from a ground blind or tree stand which is conducive to observing wildlife in an undisturbed state and because they have access to privately-owned lands that may not be accessible by paid staff, therefore increasing the coverage area of the survey. Furthermore, the archery season in Iowa (October 1 to early

December and mid-December to January 10) is longer than any other deer hunting season and, as a result, bow hunters often spend more time in the field than other types of hunters. This allows for collection of repeated observations that can be used for a variety of purposes related to monitoring both short- and long-term wildlife population trends.

The purpose of this report is to summarize results from the 2018 survey and relative abundance trends of surveyed species for the past 10 years.

Study Area

The Iowa Bow Hunter Observation Survey was conducted statewide and administered to participants in each of nine regions in Iowa (Figure A.1).

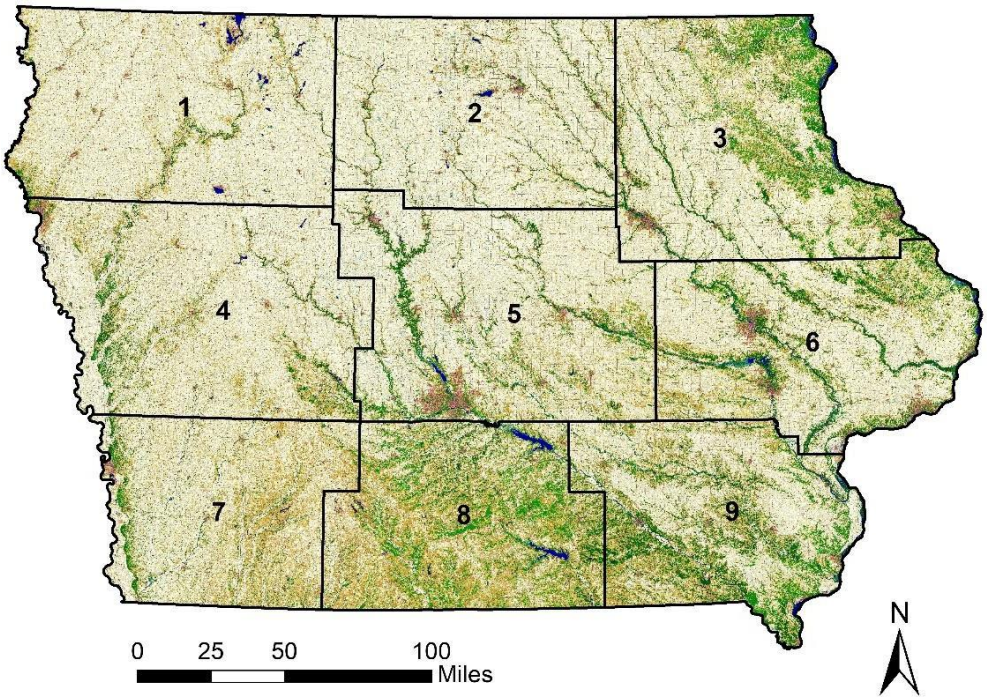

Figure A.1 Survey regions in Iowa used for distributing the Iowa Bow Hunter Observation Survey, 2018.

Methods

Survey participants were selected using a two-stage, stratified random sampling design (Figure A.2). The first stage of the sampling process involved selecting a list of bow hunters that 1) indicated interest in participating on a pre-survey sent to all avid bow hunters (i.e., individuals who purchased an archery hunting license in Iowa for each of the past three years) in Iowa in 2016 or 2) responded to the survey in one of the last two years ("core" sample; Figure A.2). The core sample is refreshed every three years to maintain a consistent response rate and was last refreshed in 2016. Therefore, 2018 is the final year for the current core sample. For the second sampling stage, we selected individuals from a list of bow hunters who were not on either of the aforementioned lists as the "supplemental" sample (Figure A.2). We selected a total of 999 individuals from the combined core and supplemental samples for each of the nine climate regions in Iowa (Figure A.1) which resulted in approximately 91 survey participants selected for each of Iowa's 99 counties. Our final statewide sample size was 8,991, which is approximately 15% of the population of all archery hunters in recent years (N = ~60,000 individual hunters annually).

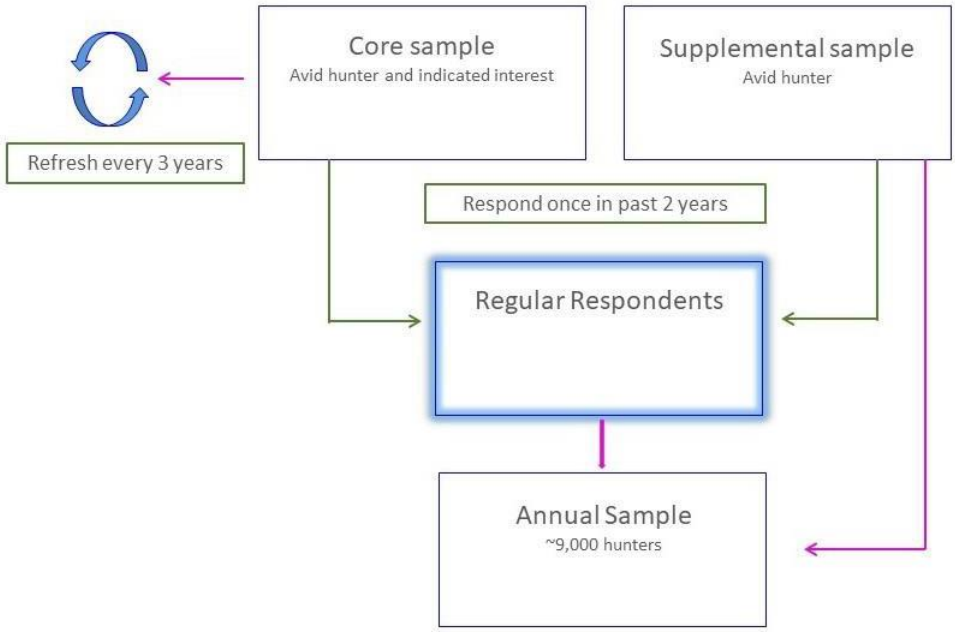

Figure A.2 Sampling process schematic for Iowa Bow Hunter Observation Survey, 2018.

The survey consisted of a two-page diary in which hunters were asked to record the four counties they most frequently hunted, and subsequently the date, county (one of the four already listed above), number of hours spent hunting, and the number of individuals of 12 different species observed during each hunting trip (see Appendix for species surveyed). For white-tailed deer, hunters were asked to record the number of antlered (i.e., buck) and antlerless (i.e., doe or fawn) deer observed during each hunting trip, as well as the number of deer in which sex could not be determined (i.e., unknown). We mailed surveys, along with a cover letter explaining the purpose of the survey, to hunters prior to the start of the Iowa archery season on October 1 each year. Reminder postcards were mailed to hunters who had yet to return their survey by November 15. Hunters were asked to return their survey by December 2 or when they were finished hunting, whichever came first.

We standardized observations for each species by 1,000 hours hunted to account for differences in the number of hunting trips taken and number of hours per hunting trip by region of the state. We reported the mean observations per 1,000 hours hunted and 95% confidence intervals (CI) for each species and summarized 10-year trends for each species.

Results

A total of 226 surveys were returned as undeliverable in 2018. Therefore, the realized sample size in 2018 was 8,765. We obtained responses from 2,098 bow hunters statewide for a response rate of 24%. Statewide, participants spent a total of 67,202 hours hunting on 20,907 trips for an average of 3.18 (95% CI = 3.02, 3.36) hours per trip. Participants reported a median of 11 trips during the 63-day hunting season. The number of trips and hours hunted varied by region and ranged from 1,423 trips (4,413 total hours) in northwest Iowa (Region 1) to 3,110 trips (10,789 total hours) in south-central Iowa (Region 8; Appendix).

White-tailed deer were the most frequently observed species on the survey with a total of 16,730 (95% CI = 14,881, 18,580) observed per 1,000 hours hunted statewide, which includes a statewide total of 4,678 (95% CI = 4,154, 5,201) antlered deer and 10,854 (95% CI = 9,524, 12,183) antlerless deer observed per 1,000 hours hunted. The 10-year trend of antlered deer observations is increasing in all regions except southwest Iowa (Region 7; Appendix), whereas the 10-year trend for both antlerless and total deer observations is increasing in all regions except west-central (Region 4) and southwest (Region 7) Iowa.

Wild turkey (*Meleagris gallopavo*) are the second-most frequently observed species on the survey. Observations ranged from 329 birds (95% CI = 252, 406) per 1,000 hours hunted in southeast Iowa (Region 9) to 654 birds (95% CI = 469, 840) per 1,000 hours hunted in northwest Iowa (Region 1). Between 2017 and 2018, wild turkey observations increased in northwest (Region 1), northeast (Region 3), west-central (Region 4), and south-central (Region 8) Iowa (Appendix). The

10-year trend for wild turkey shows increases in four of nine regions in Iowa mostly in the northern and central parts of the state.

Bobcat (*Lynx rufus*) observations are increasing statewide according to the 10-year trend with the most pronounced increases occurring in northwest and southeast Iowa (Regions 1 and 9, respectively; Appendix). Statewide, a total of 43 bobcats (95% CI = 21, 65) were observed per 1,000 hours hunted in 2018, an increase nearly 50% since the survey was initiated in 2004. Observations for other furbearer species such as badger (*Taxidea taxus*), coyote (*Canis latrans*) and opossum (*Didelphis virginiana*) are mostly stable or increasing statewide according to 10-year trends, whereas observations of raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), and striped skunk (*Mephitis mephitis*) are decreasing statewide (Appendix).

Discussion

Our survey response rate of 24% in 2018 was approximately 2% higher than last year and comparable to response rates from similar surveys in other states (Ohio DNR 2015, Norton et al. 2017). Despite the increased response rate, the number of hunting trips and hours reported decreased between 2017 and 2018 likely due to extended periods of unfavorable weather during the 2018 archery season. The fall of 2018 was the 3rd wettest on record in Iowa with the statewide precipitation total 6.48 inches above normal (Glisan 2018). Not only did increased precipitation likely reduce the number of favorable days for hunters to spend in the field, it also resulted in a delayed crop harvest statewide that likely impacted deer behavior and hunters' ability to effectively pattern deer due to the persistence of dense agricultural cover throughout the fall. A decline of 6% in the statewide reported deer harvest for the archery season between 2017 and 2018 was the largest decline since 2013 and supports that unfavorable weather contributed to a decreased archery harvest in 2018. Nevertheless, bow hunters still recorded more than 67,000 hours of observations statewide, which would cost the DNR nearly $2 million to collect using field staff.

White-tailed deer observations increased in all regions between 2017 and 2018 and the 10-year trends indicate a slightly increasing population in all regions except west-central and southwest Iowa. This trend is corroborated by the Iowa Spring Spotlight Survey conducted in 2018, which also documented an increase in deer observations statewide between 2017 and 2018 (Kaminski et al. 2018). Deer populations are mostly impacted by harvest and winter weather severity. While statewide reported harvest has remained stable since 2013, winters have been relatively mild in Iowa since 2012 which likely resulted in above-average winter survival for deer and, in turn, led to slight population increases in certain areas over time.

Trends for wild turkey are increasing in northern and central Iowa but are decreasing across the southern portion of the state (Appendix). Similar patterns are currently being observed in neighboring states. Both Minnesota and Wisconsin reported growth and expansion of wild turkey populations in recent years, whereas Missouri populations have been declining slightly since 2007 largely due to poor poult production (Isabelle 2017). In addition, a new disease called Lymphoproliferative Disease (LPDV) has recently been documented in wild turkeys in some Midwest states including Iowa. While the extent of the disease in the Midwest is largely unknown, biologists are concerned about its potential long-term impacts on wild turkey populations. Further investigation into the mechanisms driving declines in turkey populations are needed, and continued monitoring of turkeys in Iowa will help guide future management decisions and research efforts to address these concerns.

Bobcat observations are steadily increasing statewide according to 10-year trends in each region (Appendix), further documenting the successful recovery of this species in Iowa. These increases are especially pronounced in northwest Iowa as bobcats expand north along the Des Moines, Little and Big Sioux, and other major river systems, and in southeast Iowa as bobcats continue to thrive in suitable habitat. Bobcat harvest has also increased annually since the implementation of the harvest season in 2007. The original harvest zone consisted of the southern-most two tiers of counties in Iowa. However, in response to growing and expanding populations in the state, the harvest zone has been expanded to include the southern 4 tiers of counties in the state as well as counties adjacent to Missouri River in western Iowa.

While raccoon observations increased throughout much of Iowa between 2017 and 2018, the 10-year trends show declines in all regions except south central Iowa. Observations of raccoons on the annual spring spotlight survey also

increased between 2017 and 2018, although it's unknown whether this increase is an artifact of survey conditions or driven by a decrease in harvest due to low pelt prices (Kaminski et al. 2018). Similar to the spring spotlight survey, observations of badger, coyote, and opossum are mostly stable or increasing statewide; however, observations of red fox on the spring spotlight survey are increasing whereas observations from this survey are stable to slightly decreasing statewide. Canids, both the red and gray fox especially, are challenging to detect on most wildlife surveys such as the spotlight survey due to their elusive behavior. Therefore, the Bow Hunter Observation Survey likely provides a better index to populations of these species than the spring spotlight survey. This survey continues to be the best, and in some cases the only data set used to monitor population trends of Iowa's furbearers.

Interestingly, domestic house cat (*Felis catus*) observations are declining statewide, a trend that is also demonstrated by the spring spotlight survey (Kaminski et al. 2018). The mechanism for this decline is largely unknown but is likely a combination of several factors. House cats have been shown to have significant negative impacts on native wildlife populations, especially birds and small mammals (Loss et al. 2013). It is uncertain, however, what impact this decline has on bird and small mammal populations in Iowa due to the lack of population estimates these groups of species statewide.

Management Implications

Effective management of wildlife populations must be based on sound science. This survey provides a consistent, long-term data set for monitoring trends and spatial distribution of Iowa wildlife populations and allows for future modeling and analysis that provide robust metrics to guide harvest management and conservation decisions for some of Iowa's most charismatic species.

Acknowledgements

We are extremely grateful for the effort and time of the many Iowa bow hunters who assisted this year with collecting valuable observations to guide wildlife management in Iowa. Thanks also to S Roberts and WR Clark for their thoughtful design of this survey. The survey would not be possible without the help of P Fritzell and S Sussex, who assisted with survey distribution, and R Haindfield, who spent countless hours entering survey data.

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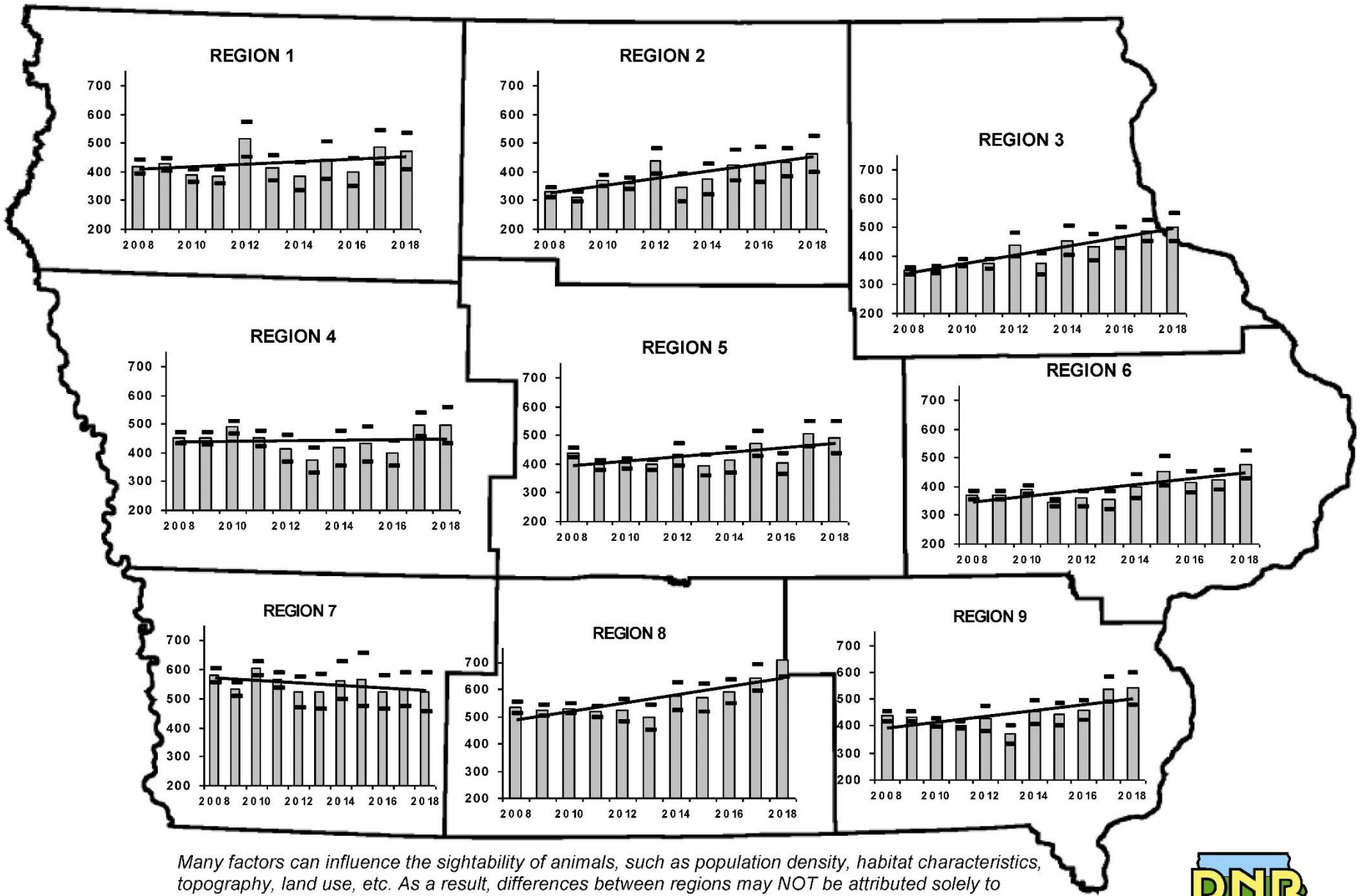
Maps

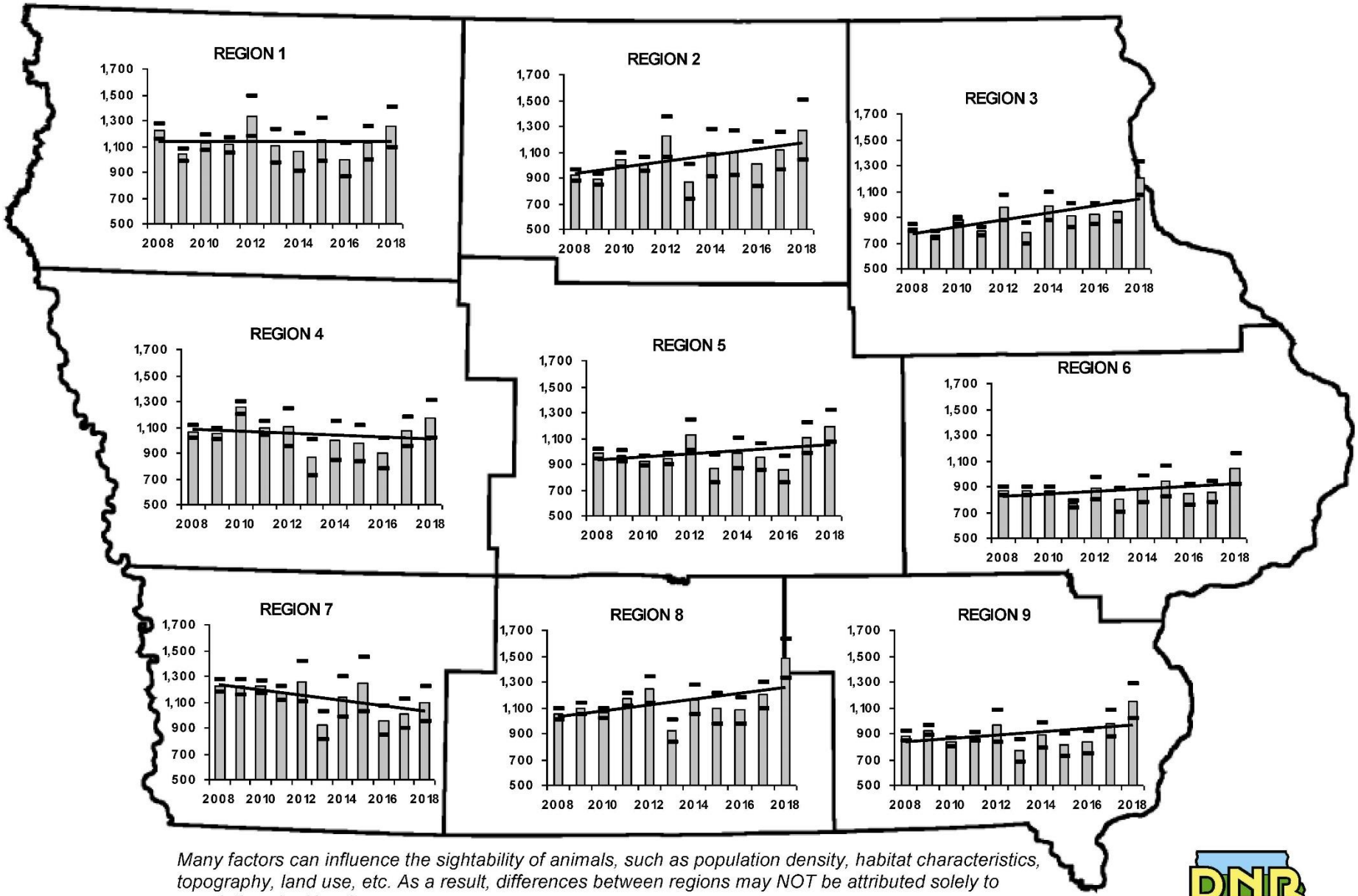
Summary of trips, hours hunted, hours per trip, and species observations per 1,000 hours hunted (95% confidence interval) by region from the Iowa Bow Hunter Observation Survey, 2018.

Antlered Deer Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



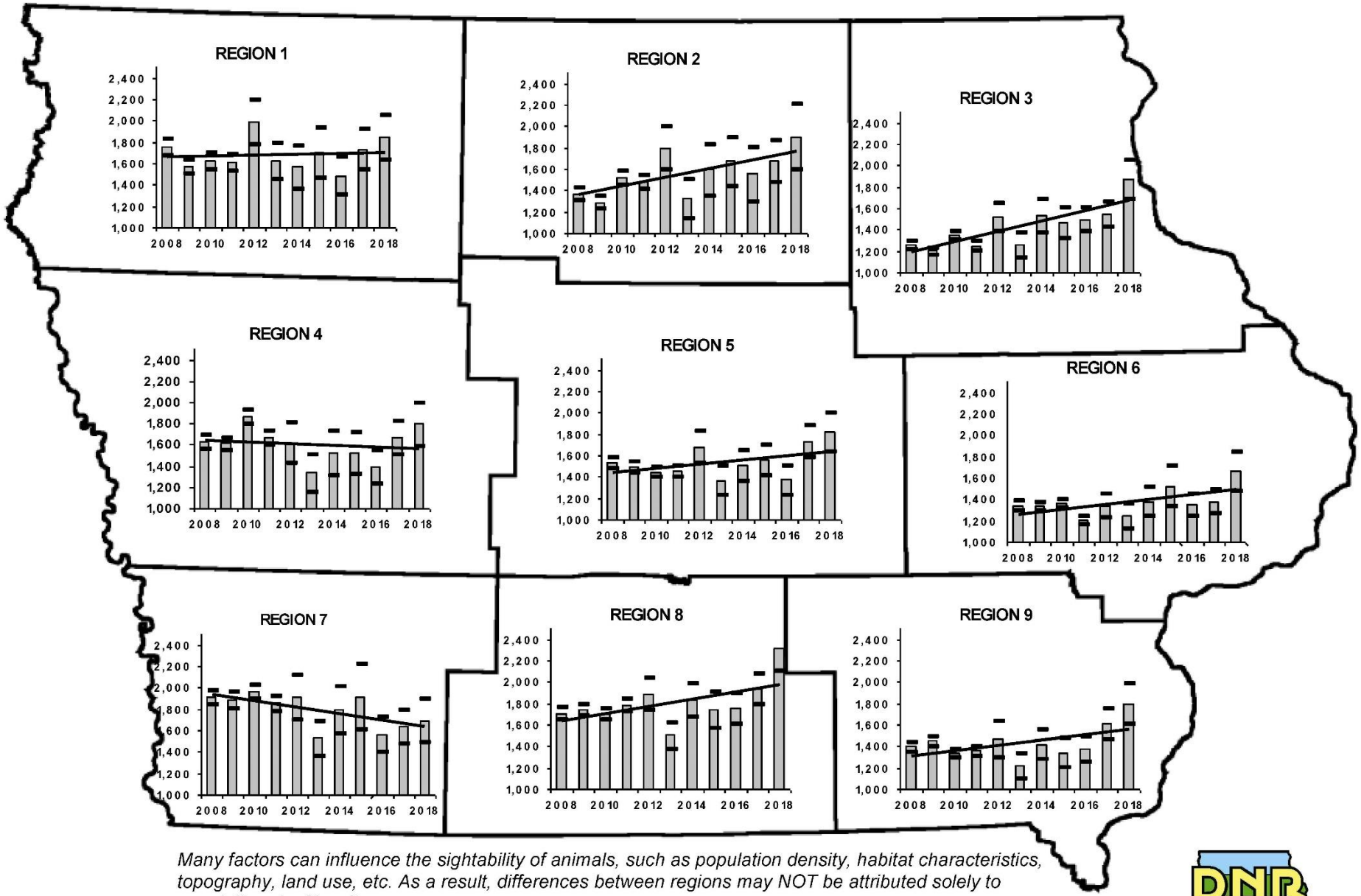
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Antlerless Deer Observations Per 1,000 Hours Hunted
Bow Hunter 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
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



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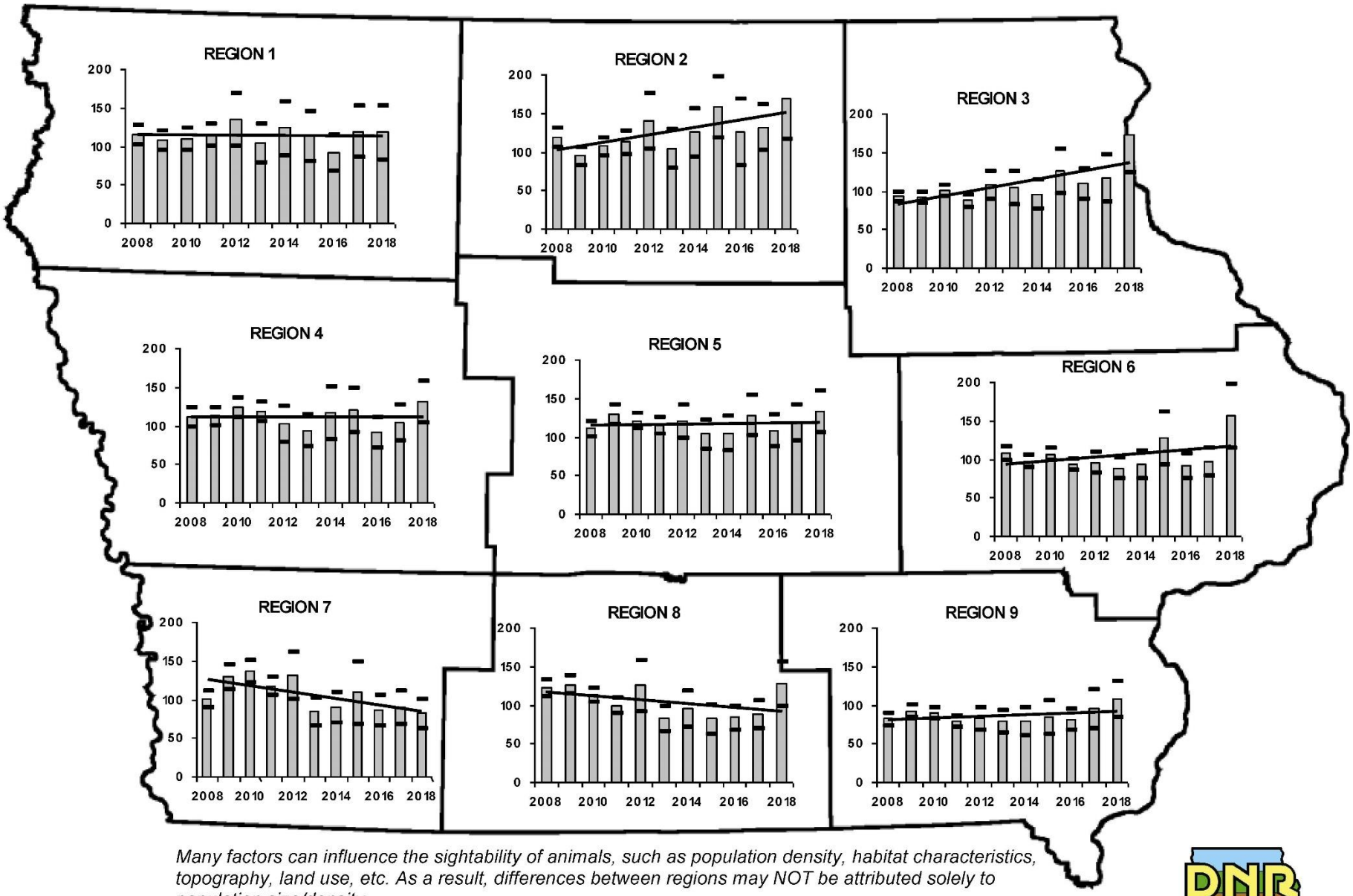
Unknown Deer Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



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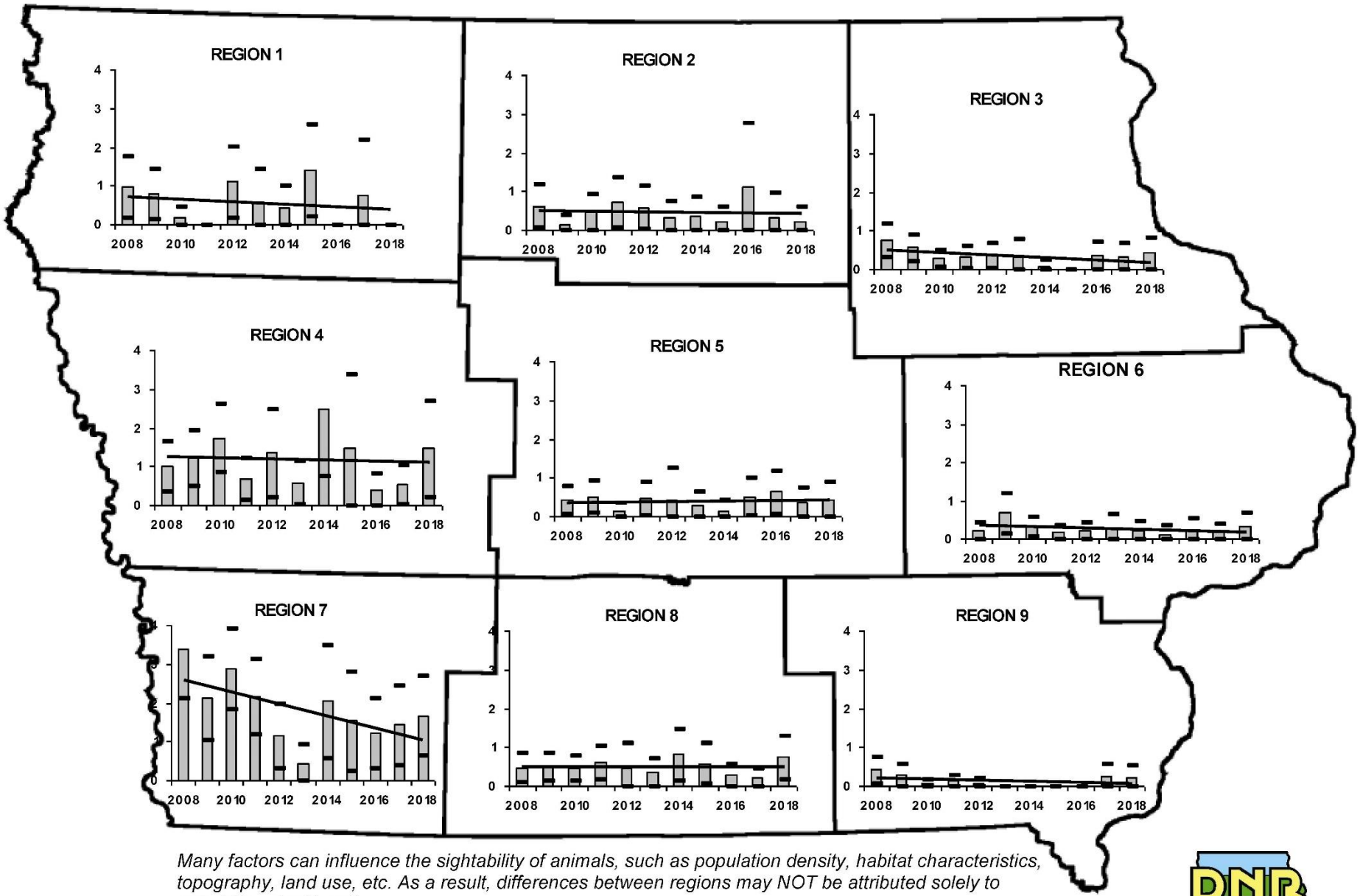
Badger Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



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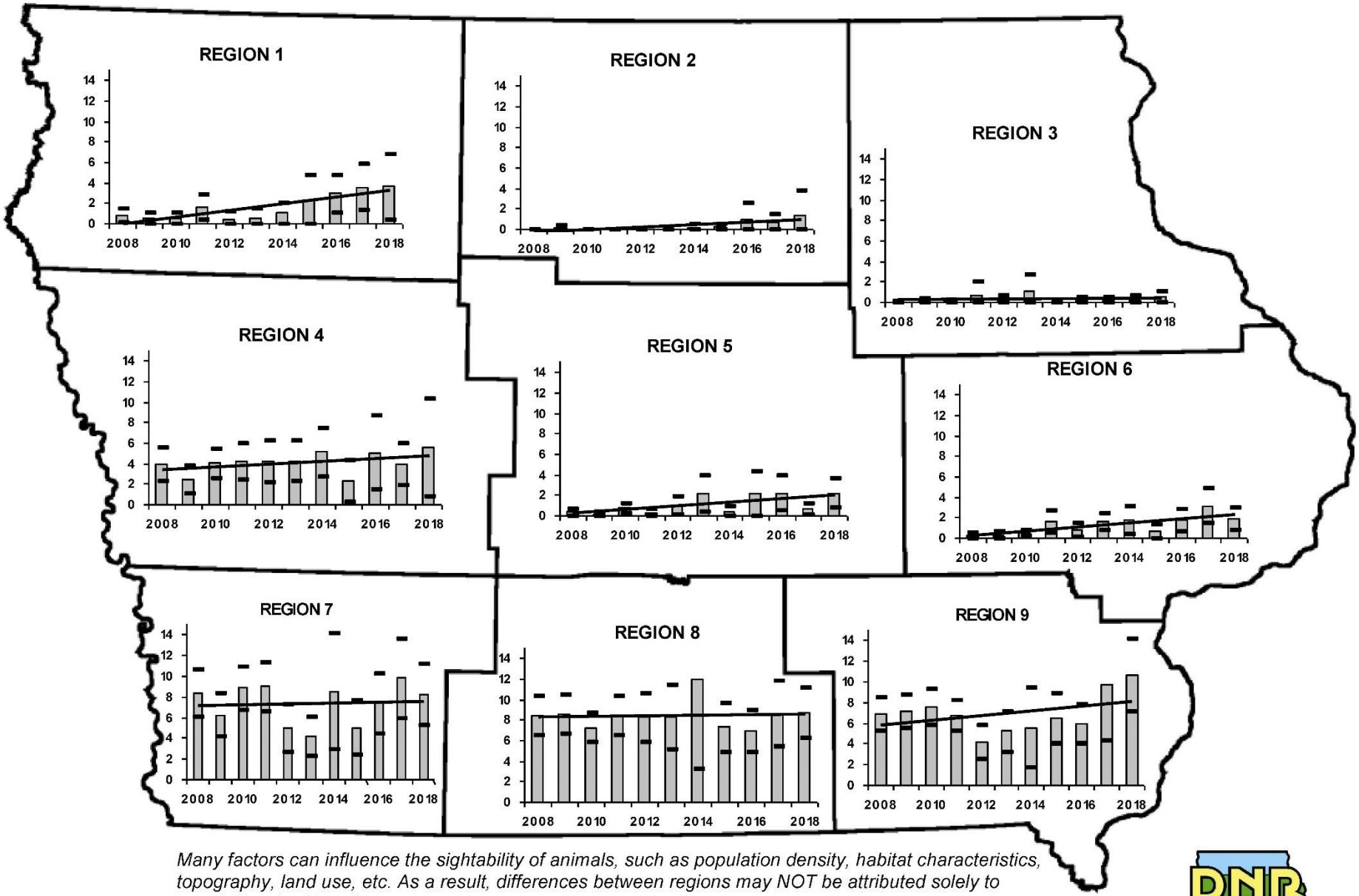
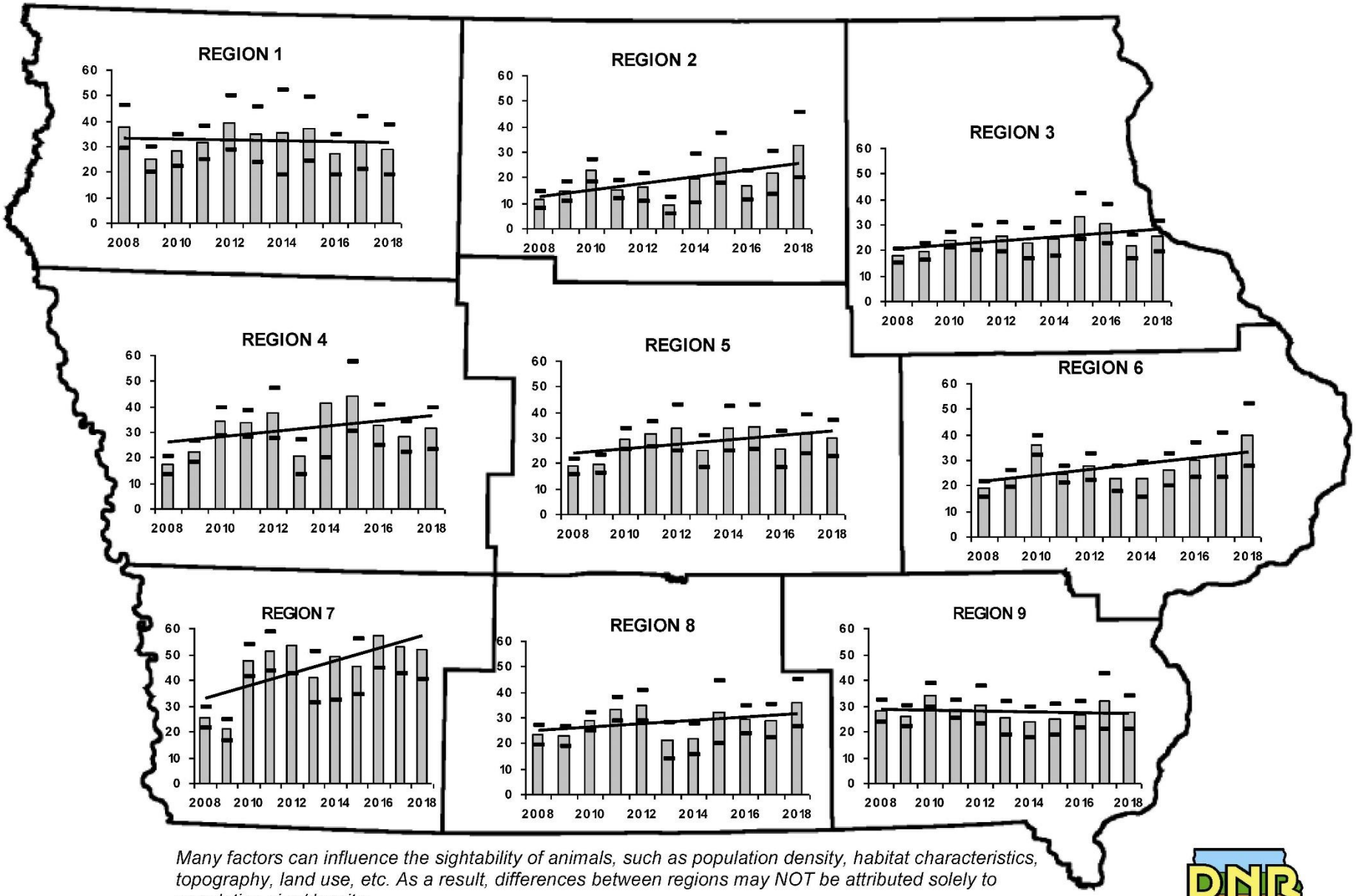
Bobcat Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



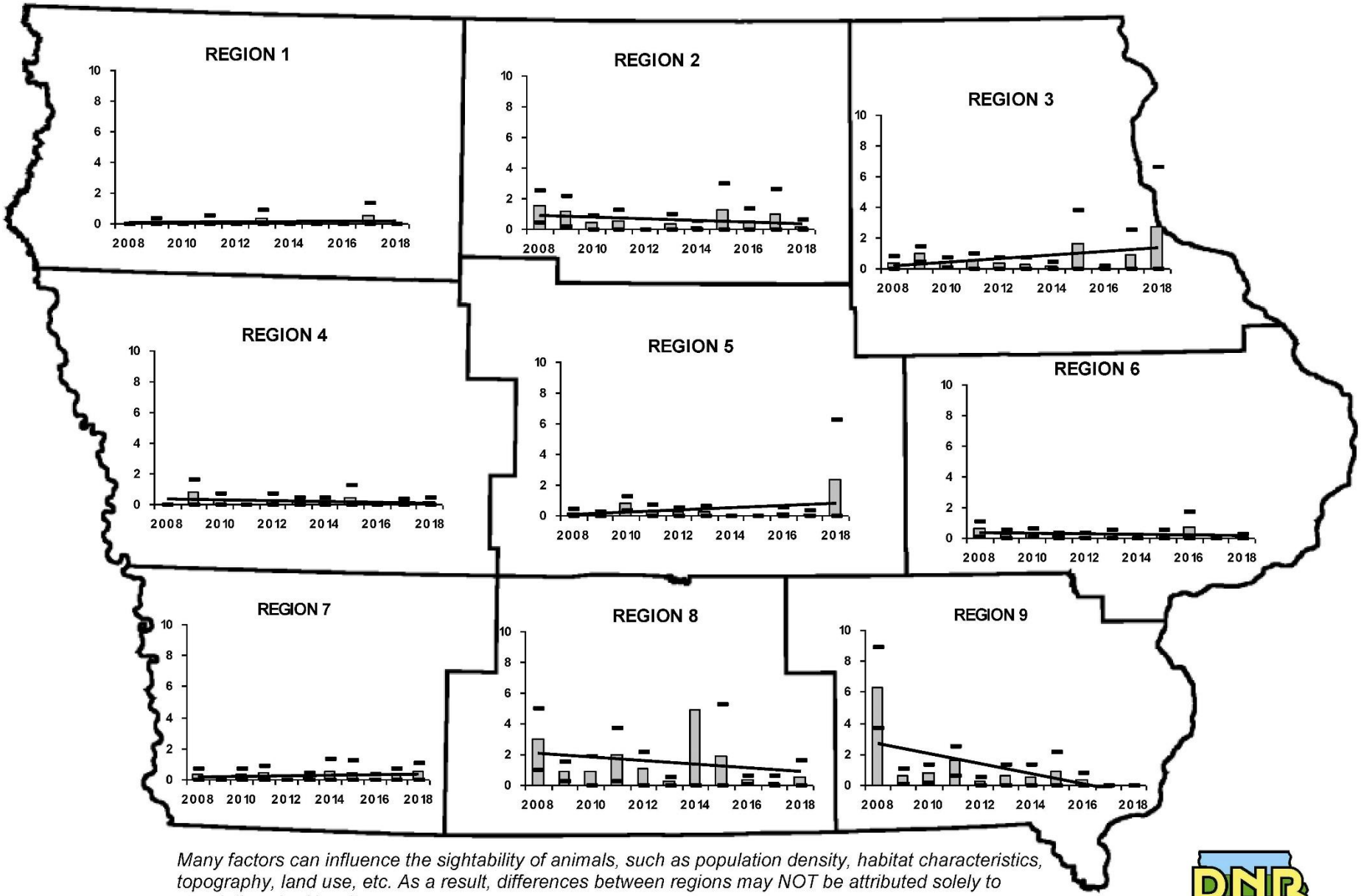
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Coyote Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



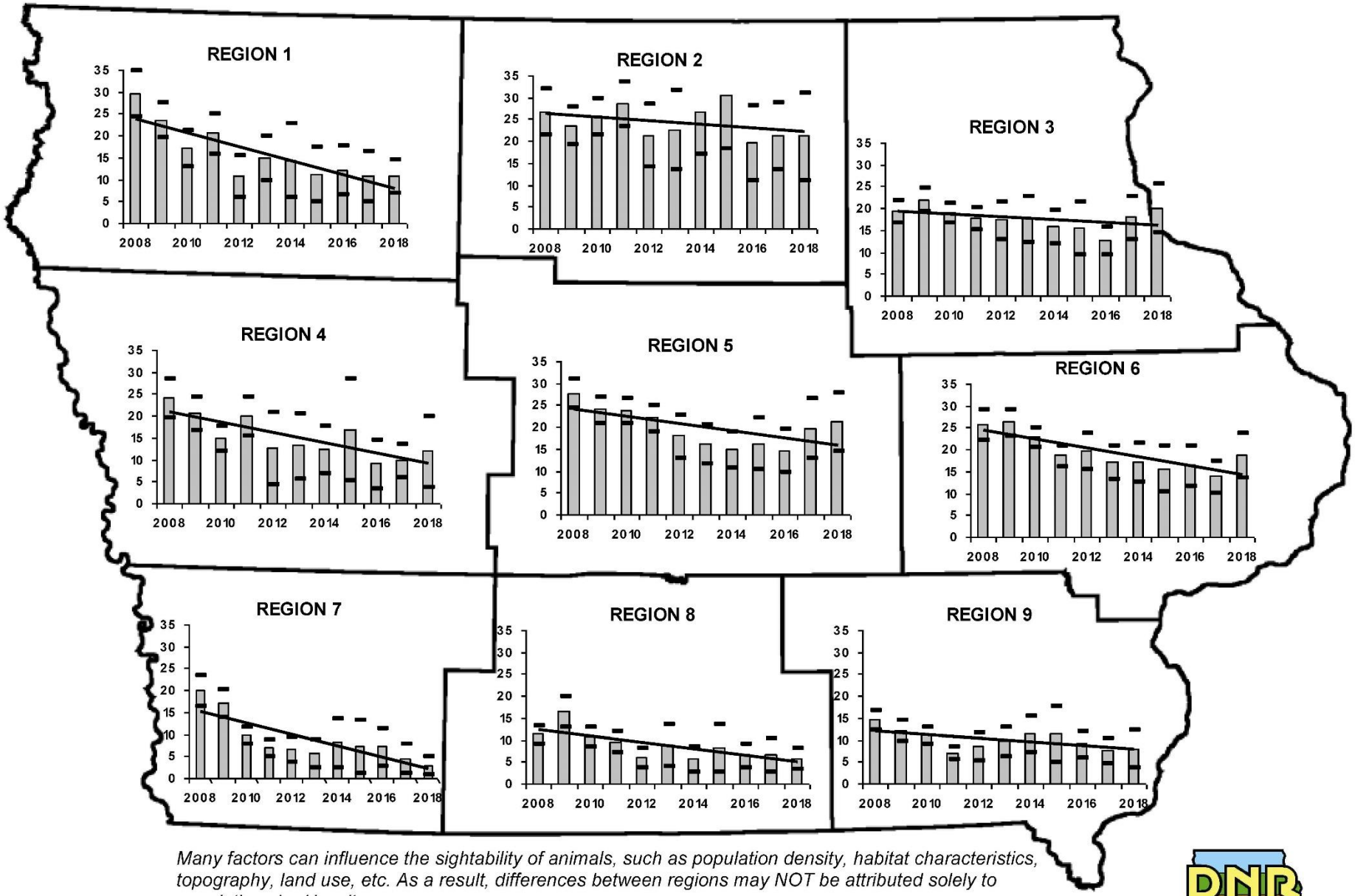
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Gray Fox Observations Per 1,000 Hours Hunted
Bow Hunter 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
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



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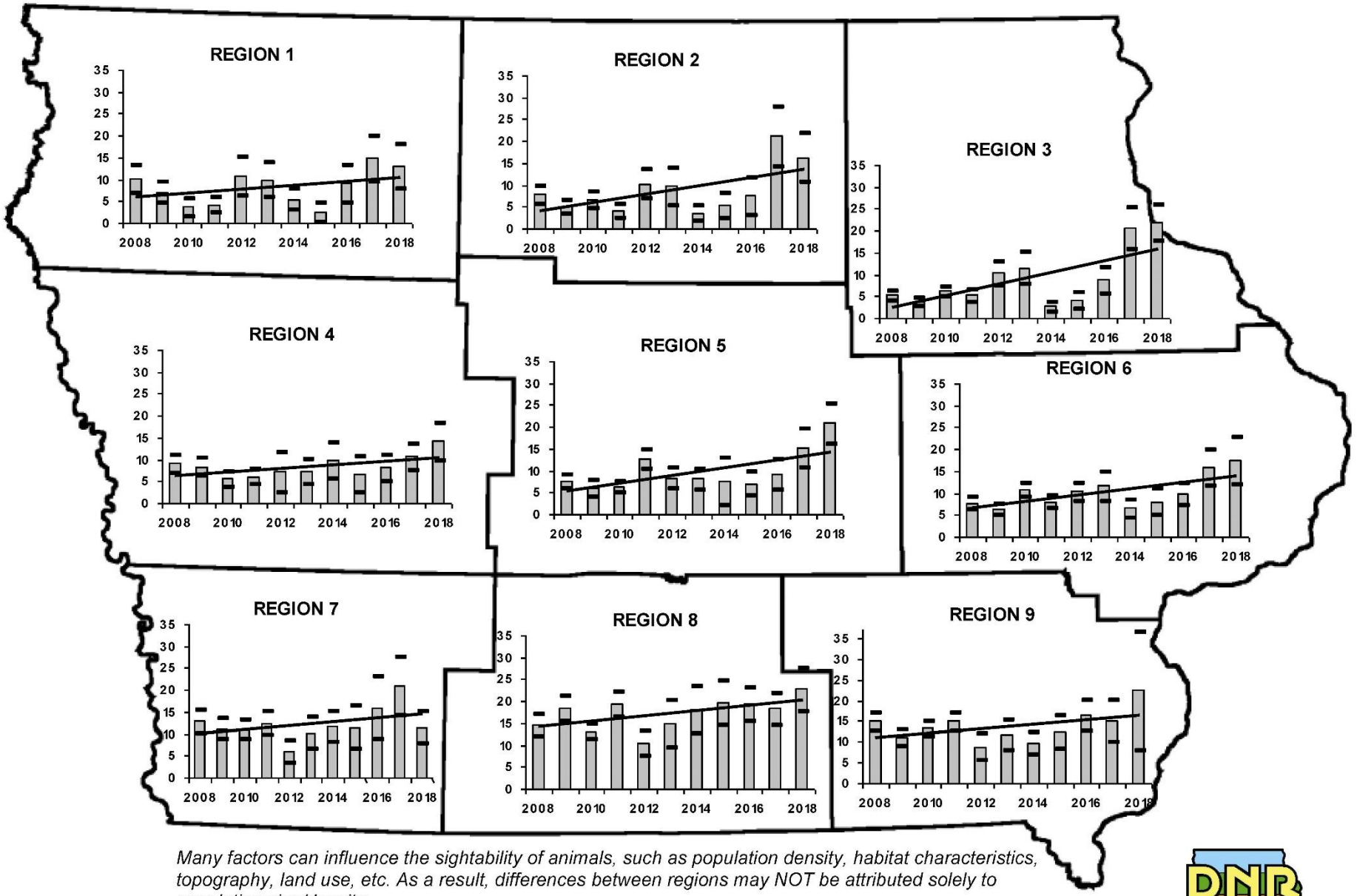
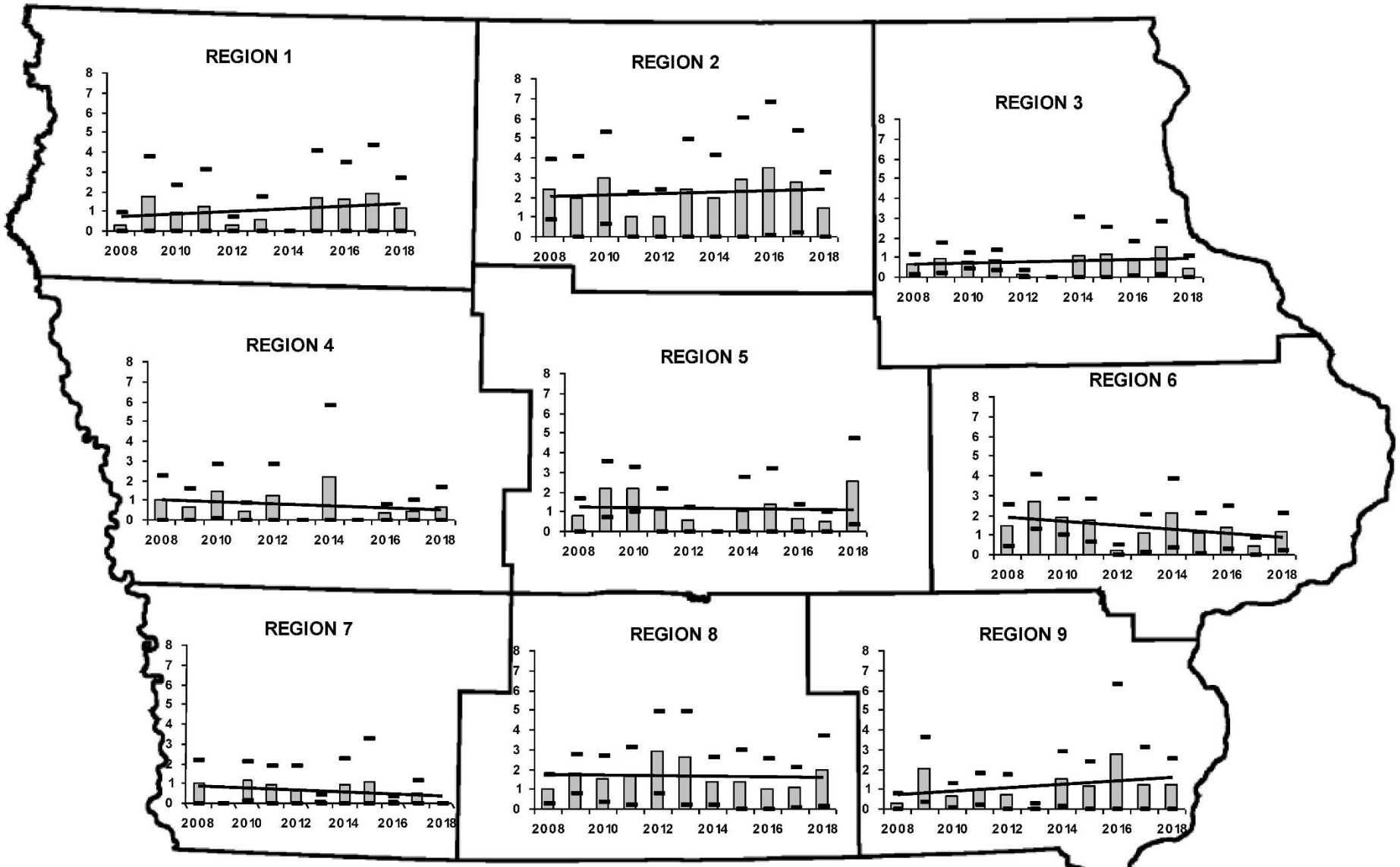
Opossum Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



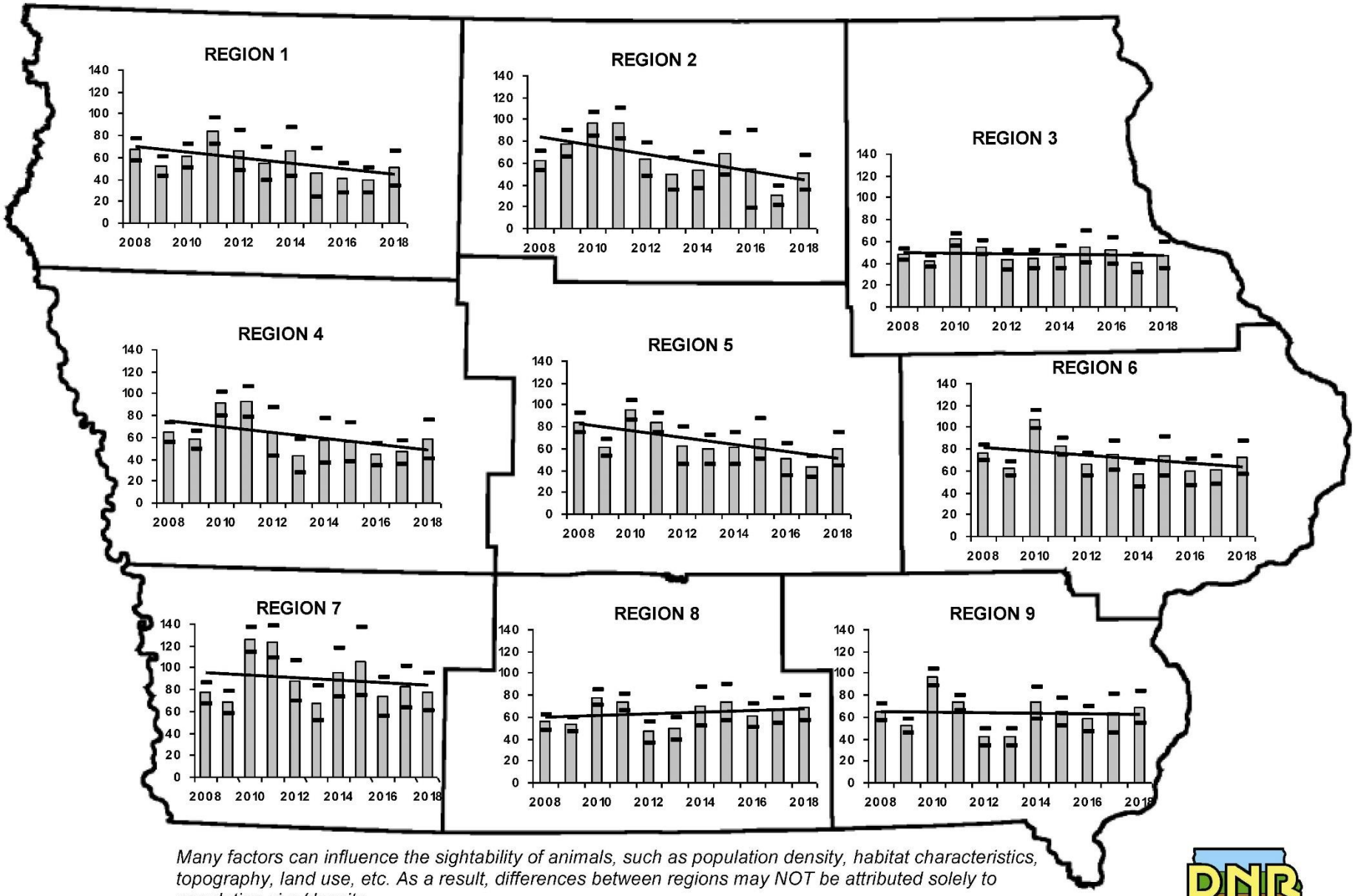
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

River Otter Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



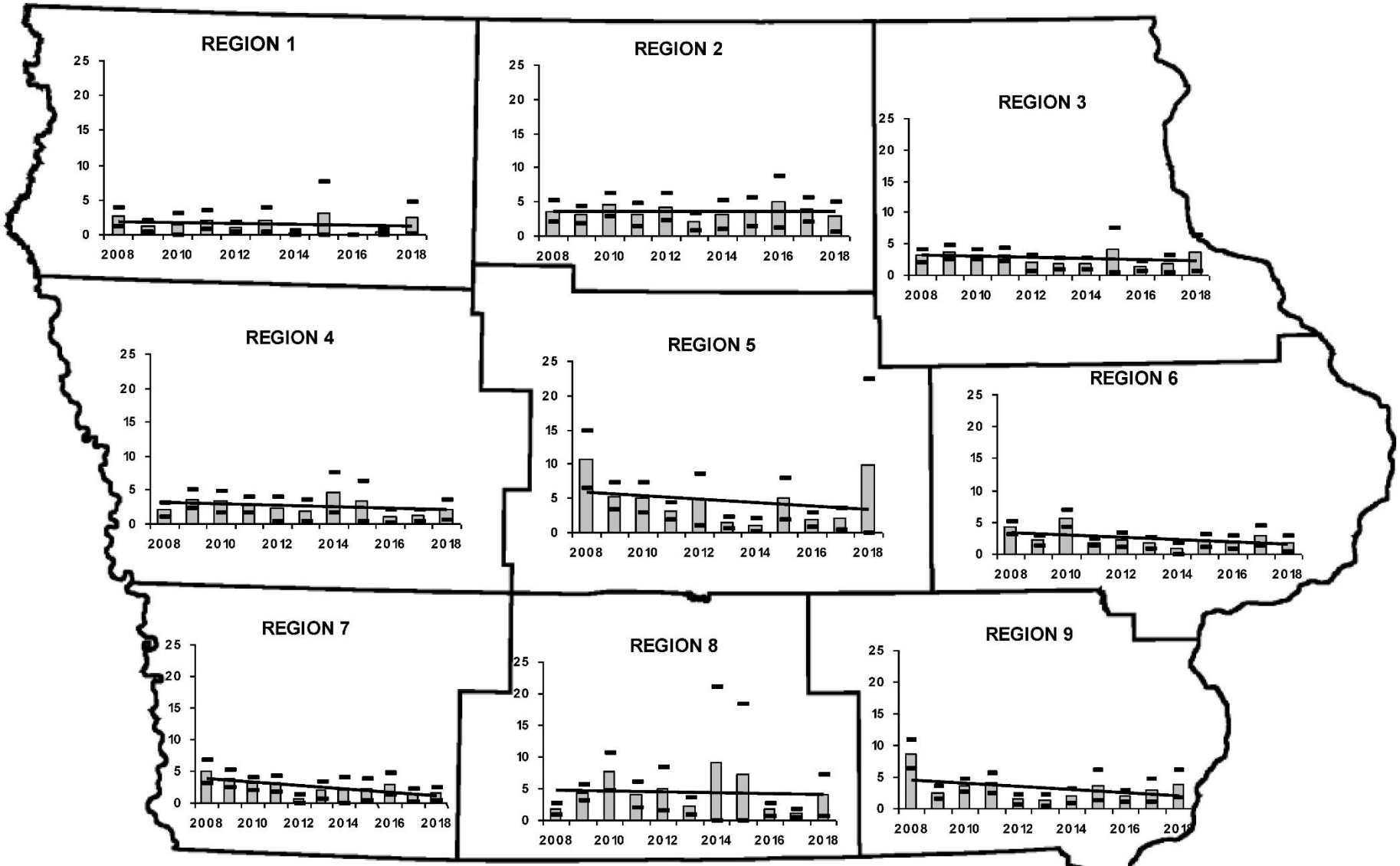
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Raccoon Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



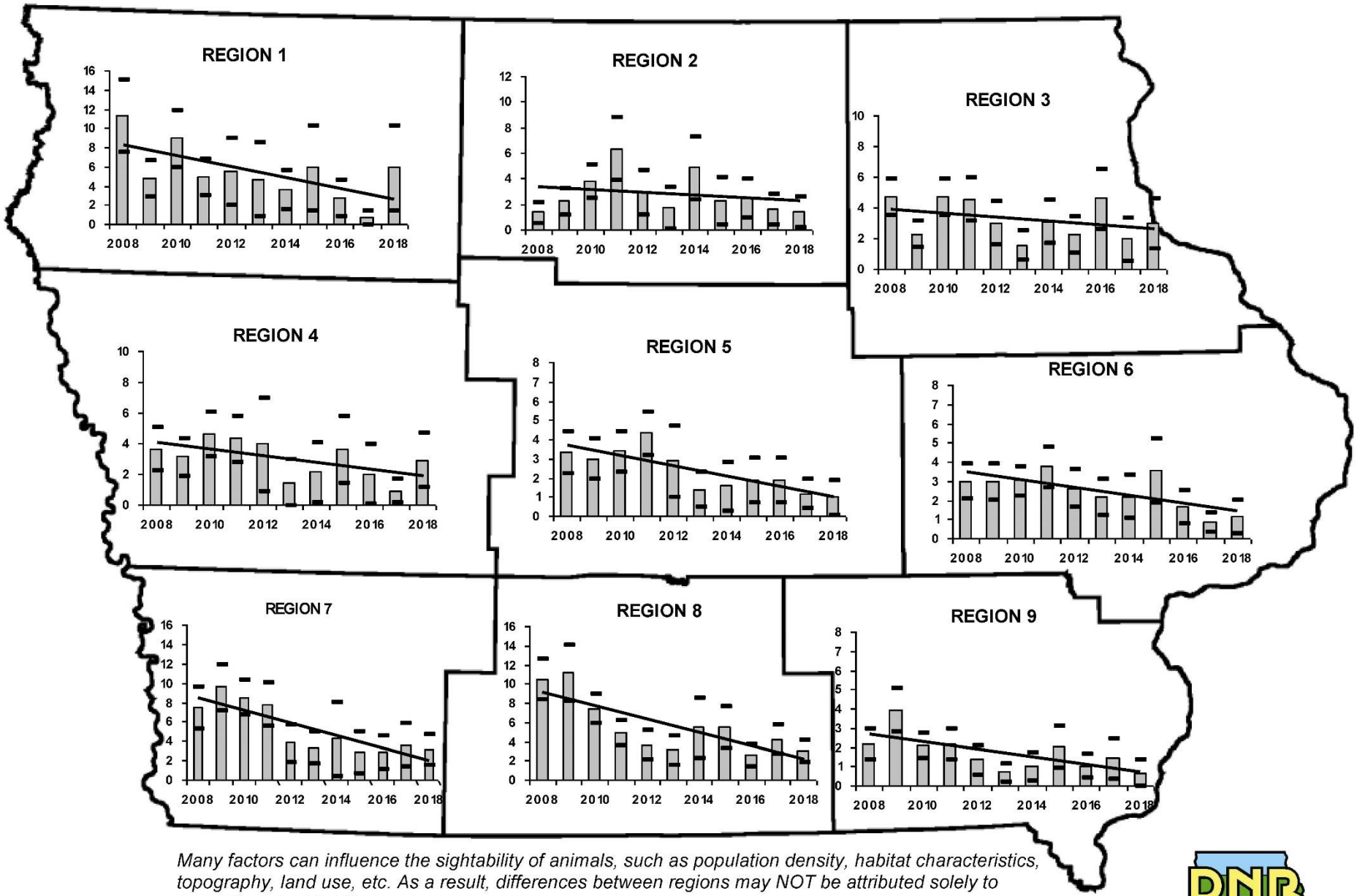
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Red Fox Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



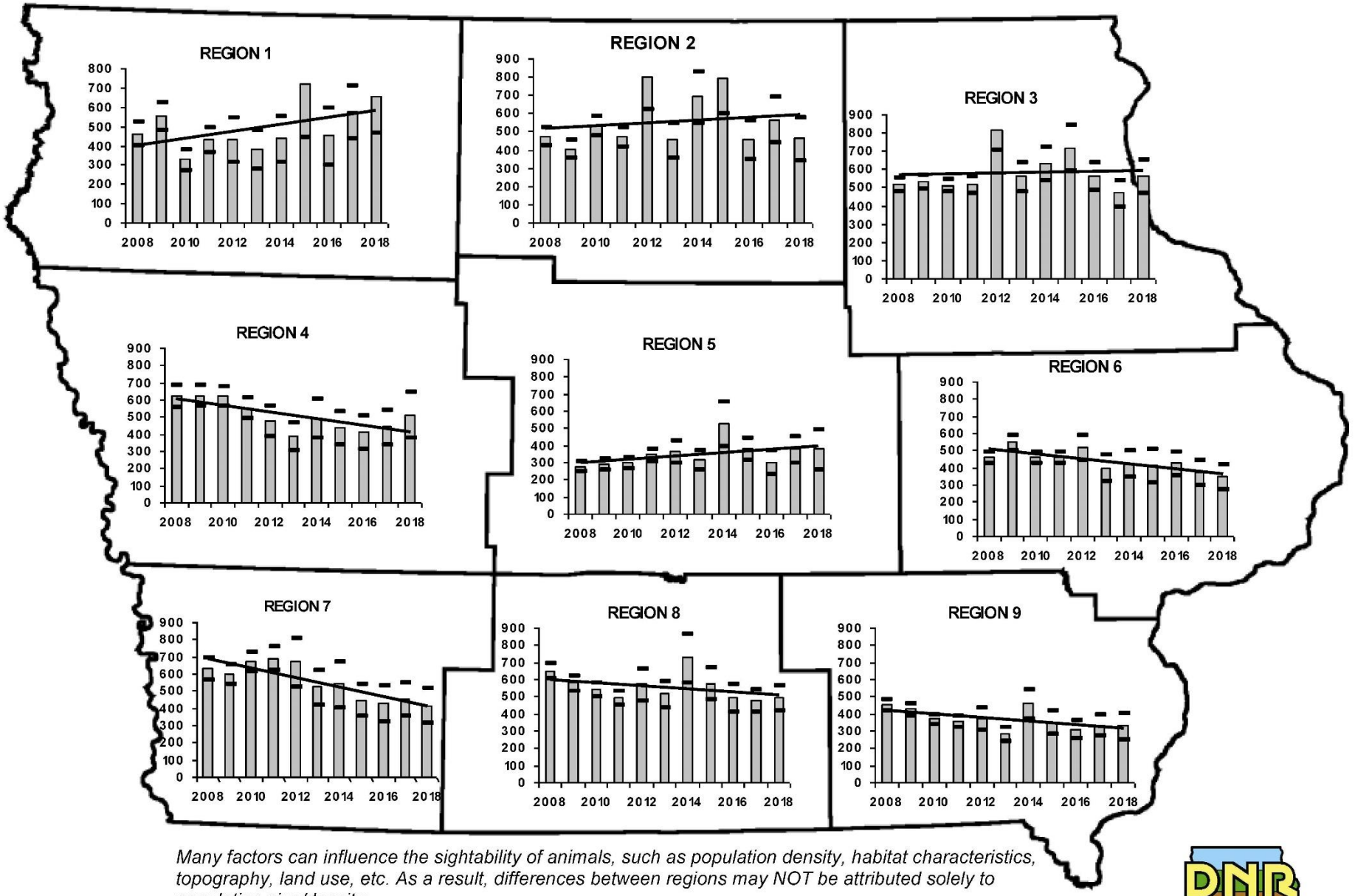
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Striped Skunk Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



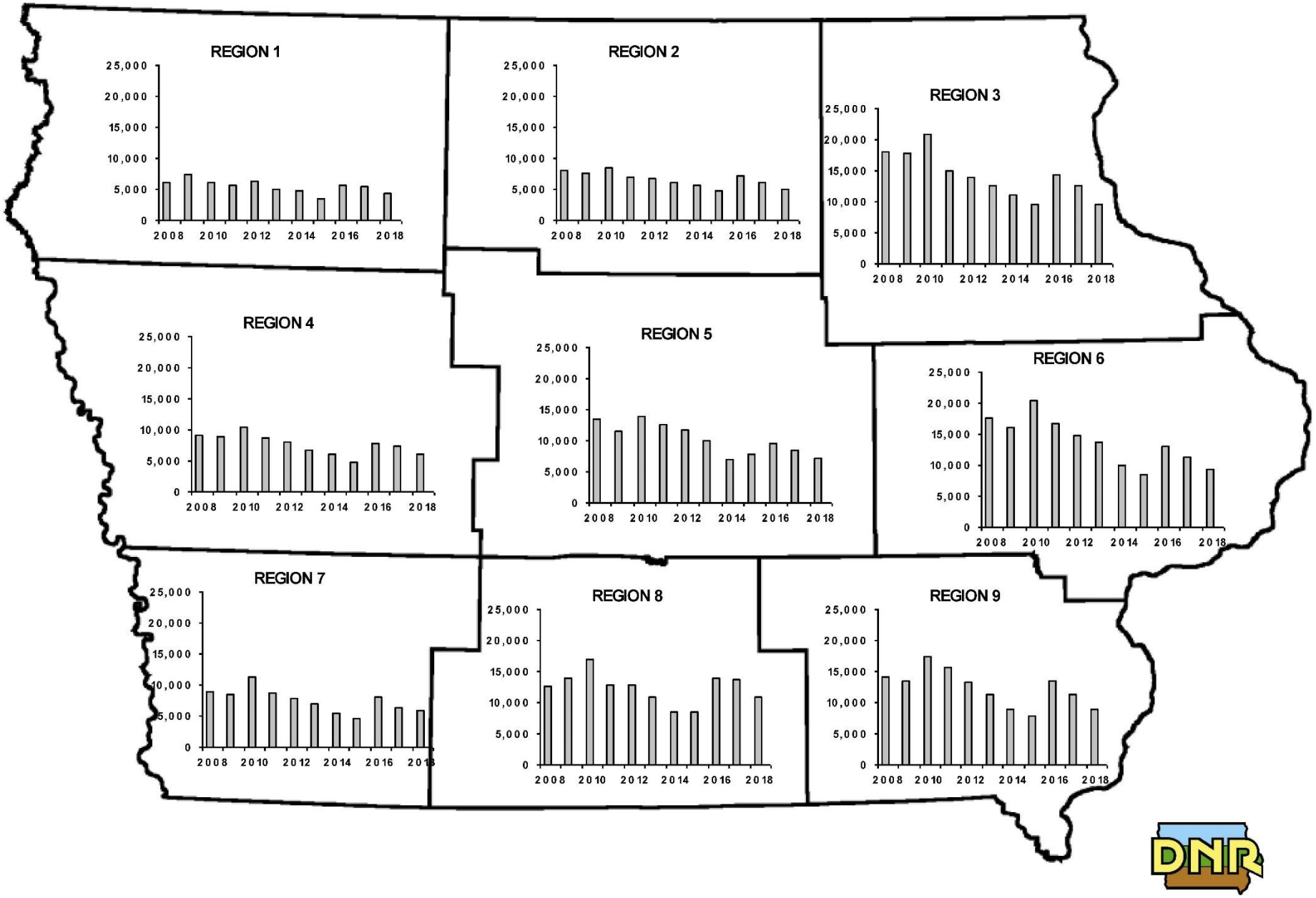
Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Wild Turkey Observations Per 1,000 Hours Hunted
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources

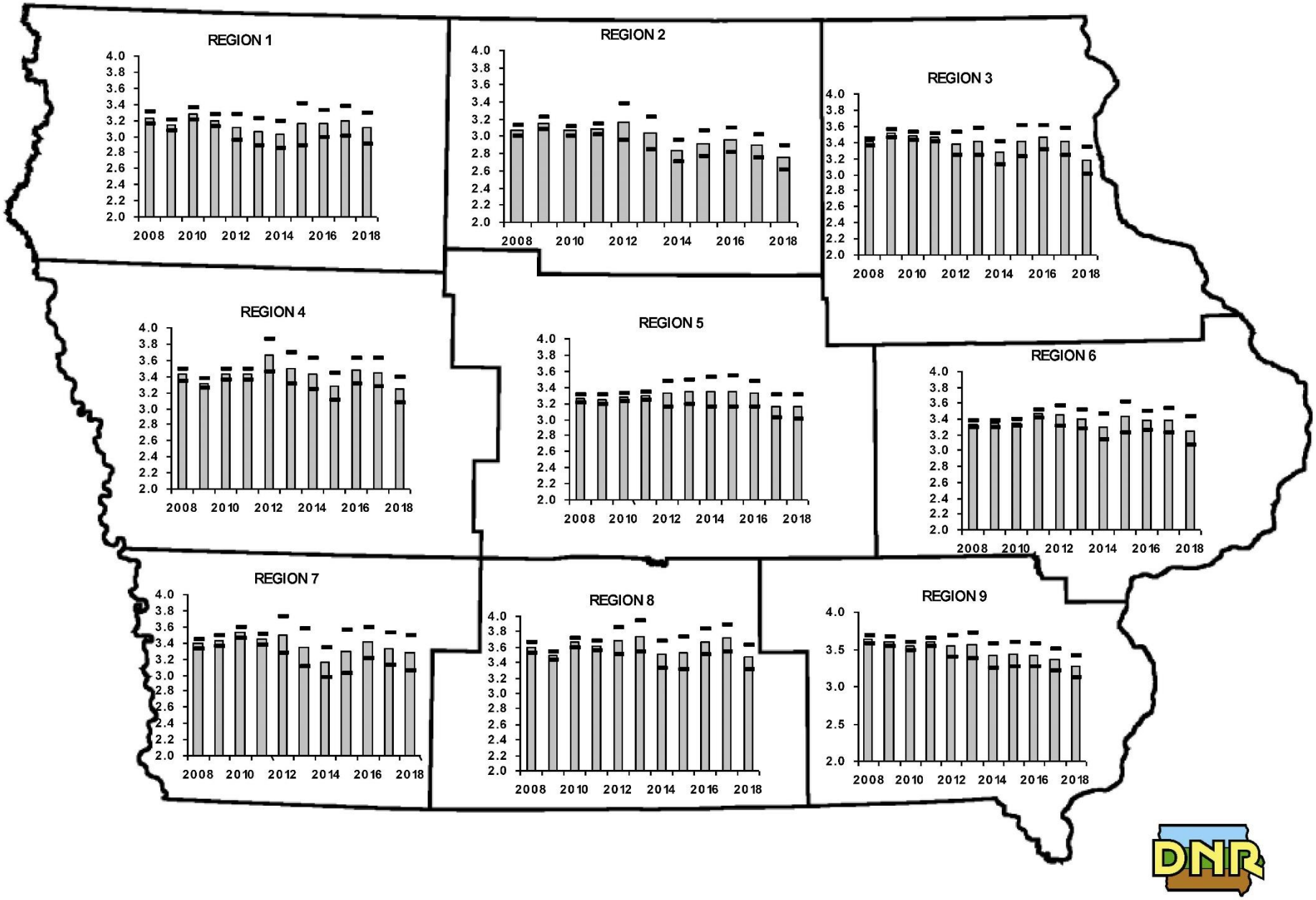


Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions may NOT be attributed solely to population size/density.

Hours Hunted by Survey Participants
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



Average Hours Hunted/Bowhunting Trip
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources



Bowhunting Trips by Survey Participants
Bow Hunter Observation Survey, Iowa Dept. of Natural Resources