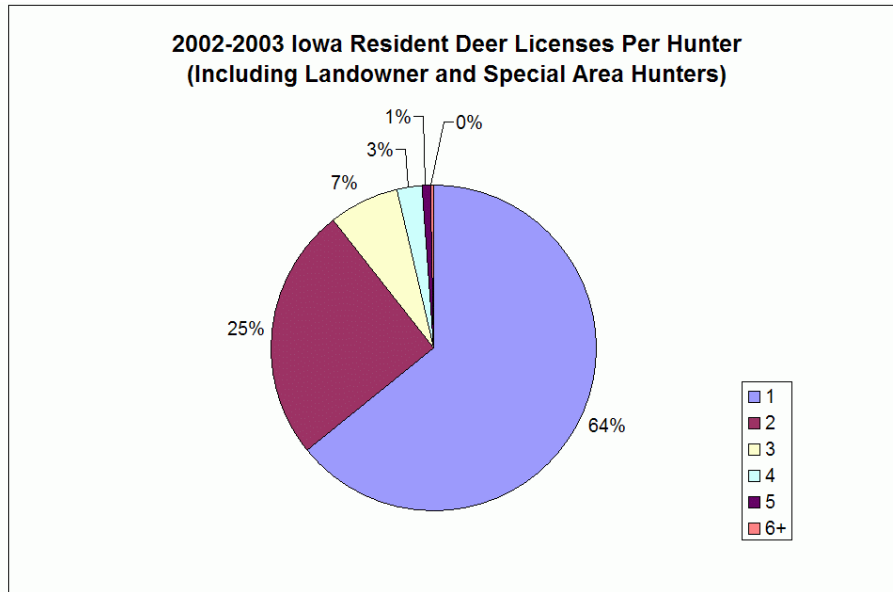


TRENDS IN IOWA WILDLIFE POPULATIONS AND HARVEST 2002



Number of Licenses	Number of Hunters	Percent of Total	Cumulative Percent
1	104969	64.06%	64.06%
2	41764	25.49%	89.54%
3	11237	6.86%	96.40%
4	4110	2.51%	98.91%
5	1120	0.68%	99.59%
6+	671	0.41%	100.00%
Total	163871		

***Iowa Department of Natural Resources
JEFFERY R. VONK, Director
September 2003***

TRENDS IN IOWA WILDLIFE POPULATIONS AND HARVEST 2002

Compiled by:

Peter Fritzell

Chapters Prepared by:

Willie Suchy

Todd Gosselink

Ron Andrews

Guy Zenner

Todd Bogenschutz

Doug Harr

Pat Schlarbaum

Bruce Ehresman

Mark McInroy

White-tailed Deer

Wild Turkeys & Ruffed Grouse

Furbearers & Wildlife Restoration

Waterfowl

Upland Wildlife

Wildlife Restoration

Wildlife Restoration

Wildlife Restoration

Wildlife Restoration

CONSERVATION & RECREATION DIVISION

September 2003

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WHITE-TAILED DEER

Historical Perspective

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

Re-establishment of deer into the state can be traced to escapes and releases from captive herds and translocation and natural immigration from deer herds in surrounding states. A conservative estimate of the population in 1936 placed statewide numbers at between 500 and 700 animals. This small herd grew steadily. By 1950 deer were reported in most counties and the statewide estimate topped 10,000. Concentrations in some areas were beginning to cause problems by damaging agricultural crops. In response to these problems the first modern deer season was held in December of 1953 and 4,000 deer were killed. This spring the deer herd was estimated to be about 210,000 before the fawning season. The harvest in 1996 exceeded 100,000 for the first time ever.

Although deer are frequently associated with forested areas, deer 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 fencelines, 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 food, cover and easy travel lanes. Deer utilize almost all plants for food at one time or another during the year. Deer feeding habits can best be described as being randomly selective as deer will sample many plants while feeding but often utilize a single source of food for the majority of their diet.

The whitetail's ability to thrive in Iowa is likely the result of an abundant, reliable food source and a winter climate where snow depths rarely exceed 12" for a prolonged length of time. These factors combine to allow deer to come through the "winter bottleneck" in excellent condition. The excellent nutrition also enables deer to have high reproductive rates. Many does in Iowa have a single fawn their first year and 2 fawns each subsequent year. Deer in the wild can probably maintain these high reproductive rates until they are well past 10 years of age. Past research in Iowa has found that 8 to 12% of adult does have 3 fawns.

Another reason that deer do so well in Iowa is that they are very mobile. Although many deer never move far from the area where they were born, a significant number (10-20% on average) leave and travel to new areas before establishing a core area. These core areas may change seasonally with deer shifting between wintering areas and fawning areas. These movements allow deer to fill voids left open due to deaths and changing habitat. Thus deer easily pioneer into new areas when habitat is suitable. The highest rates of movement occur during 2 periods of the year. The first is in the spring when does move to their fawning areas. Many of the previous year's fawns

are forced to 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 during early to 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 of carefully regulating the doe harvest since hunting provides the major source of mortality for deer in Iowa today. Unchecked, Iowa's deer herd could grow at a rate of 20% to 40% each year. At this rate, deer numbers would double in as few as 3 years. With Iowa's abundant agricultural crops providing food, densities could potentially reach 100 or more deer per square mile before natural regulatory mechanisms would begin to affect deer health and slow the rate of reproduction. Deer numbers this high would cause economic hardship to Iowa's landowners as well as alter the natural vegetative community. Maintaining a deer population in balance with the 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.

2002 Hunting Season Results

A record number of deer were killed during the 2002 season. The estimated kill was 140,490 (Table 1.4) which is about 3% higher than in 2001 (Table 1.2). The previous record harvest was in 2001 when an estimated 136,655 deer were taken. Almost all of the increase was due to an increased kill of antlerless deer. The number of does killed increased by about 4,200 or 7% over 2001. Most of the increase was due to the extra 22,695 antlerless licenses issued during the

archery, second shotgun and late muzzleloader season as well as during the January season. The estimated number of antlered deer in the harvest has stayed about the same since 2000.

The season framework was basically the same as last year (Table 1.1). This was the seventh year for the special January season which included 22 counties, an increase of 11 from 2001. Landowners in these counties could get a free tag for this season in addition to the normal free license and the regular tags a deer hunter could legally obtain. For the second year hunters in both shotgun seasons, the late muzzleloader season and the bow season were allowed to obtain a bonus antlerless license for all 99 counties in Iowa. These licenses were restricted to a specific county.

About 2,000 deer were taken during special management hunts in urban areas and state and county parks and another 1,150 deer were taken on special depredation tags issued to landowners with damage problems.

Seven of the top 10 counties for total kill were either in the northeast or southeast corner of the state. Clayton was the top county for total kill with 5,739 deer or about 7.5 per square mile of area (Table 1.5 & 1.6). Osceola county had the lowest kill with an estimate of 263 deer or only about 0.7 deer per square mile.

The relative precision of the harvest estimates from the 9 separate postcard surveys ranged from $\pm 2\%$ for first season shotgun hunters to $\pm 11\%$ for the youth season. The relative precision for the doe harvest ranged from $\pm 4\%$ for first season shotgun hunters to $\pm 18\%$ for the youth season. A total of 50,825 license holders were sampled with 32,179 responses returned. This is a response rate of 63%.

Shotgun Season

The kill during the shotgun seasons

was about the same as was recorded in 2001 (Table 1.2). This was despite 4% fewer licenses being issued. Success rates were a little higher than in 2001, especially for hunters with free landowner licenses. This year was the first year that landowners or tenants could obtain up to 2 antlerless licenses for their land. Just over 4,000 of these reduced price licenses were issued.

Antlered bucks made up about 46% of the total kill, while does made up 42% of the kill. The rest were buck fawns.

There were an estimated 67,955 hunters (paid licenses only) in the field during the first season and they killed 47,344 deer, while 44,731 hunters tagged 27,498 deer during the second season. This translates to a 70% success rate for first season hunters and 63% for second season hunters. Antlered deer made up the largest proportion (53%) of the kill during the first season while does made up the largest proportion (52%) of the deer tagged during the second season.

Hunting pressure (Fig. 1.1) was generally higher in most counties during the first season. About 60% of the hunters with paid licenses hunted during the first season. Highest hunter numbers were in eastern and southern Iowa during both seasons.

Deer kill (Fig. 1.2) was highest in northeast and southeast Iowa during the first season and in the eastern parts of the state during the second season.

Success rates (Fig. 1.3) were good across most of the state in both seasons. Hunters in almost all counties had success rates greater than 60% especially during the first season.

Does made up less than 40% of the kill in most counties during the first season (Fig. 1.4). However does made up over 50% of the harvest in most counties during the second season.

First season hunters averaged 2.8 days in the field, while second season

hunters averaged 4.0 days in the field.

Although the lack of precision of the county estimates (Table 1.5 and 1.6) makes it difficult to evaluate the kill in individual counties and determine whether management objectives are being met, it is possible to make some generalizations at a larger scale. Overall, regulations appear to be very effective in allowing more deer to be taken in southern and eastern Iowa (Fig. 1.5). However the doe harvest (Fig. 1.6) is still below 50% in most counties.

Bonus January Season

A special January season was held in 22 counties in southern Iowa to help reduce deer numbers. A total of 8,345 licenses were issued, which is more than a 70% increase from 2001 when only 11 counties were open. While 55% of the hunters who purchased one of these licenses reported that they actually tagged a deer only 16% of those with free licenses reported that they used them.

The kill during this season increased the total kill by 9% and doe kill by 17% in these 22 counties. An estimated 82% of the deer taken were does, 14% were buck fawns and 4% were bucks that had shed their antlers. This increased the number of adult bucks taken in the 22 counties by less than 1%.

Archery

A record number of deer were taken by archers in 2002. The reported harvest of 20,703 was 10% higher than the previous record kill reported in 2001 (Table 1.4). An increase in success rates and hunters purchasing extra antlerless licenses were the main reason for the increase since the number of regular archery licenses issued and the number of hunters both declined from 2001. Success rates on the regular

archery licenses went from 37% in 2001 to 39% in 2002 (Table 1.7). Hunters reported that 70% of the antlerless licenses were used to tag a deer.

Sixty six percent of the deer taken by archers were male and nearly 60% were antlered bucks. Archers averaged about 17 days in the field in 2002. The average archer hunted 46 days to bag a deer.

Muzzleloader

Kill during the early muzzleloader season was just over 10% higher than reported in 2001. Hunter numbers were about the same as in 2001 but success rates were slightly higher. About 56% of hunters reported that they tagged a deer. Bucks made up 65% of the kill, with antlered bucks making up about 52% of the kill (Table 1.8). Hunters averaged about 4.2 days in the field.

The kill during the late muzzleloader season was 6% higher than in 2001. The main reason was an increase in the number of licenses that were issued. Most of the increase was due to the extra antlerless licenses that were available in all 99 counties. About 27% of the deer killed during the late muzzleloader season were antlered bucks. Hunters averaged about 6 days in the field.

Nonresidents

Of the 5,979 any-sex licenses issued, 3,191 or 53% went to hunters during the shotgun seasons, 2,127 or 36% to bowhunters, and 671 or 11% to late season muzzleloader hunters. An additional 1,030 antlerless licenses were issued. Six hundred sixty of these went to hunters during the shotgun season, 327 went to bowhunters and 43 went to late season muzzleloader hunters. About 67% of the shotgun hunters, 45% of the muzzleloader hunters and 41%

of the archers were successful in tagging a deer. Nonresidents spent an average of 5.6 days in the field. Nearly 60% of the nonresidents reported that they were hunting with an Iowa resident.

Special Youth/Disabled Hunter Season

The number of licenses issued for this special season was slightly lower in 2002 than in 2001. The hunt is restricted to youths 12 through 15 years old or hunters who are disabled. The young hunter had to pass a hunter safety course and had to be accompanied into the field by an adult. Only 43 licenses or roughly 1% of the total were issued to disabled hunters. Hunter numbers were down by about 7%.

About 45% of the hunters were successful in bagging a deer. Slightly more than 60% of the deer taken were antlerless deer. These hunters spent an average of 4.3 days in the field.

Special Deer Management Zones

Special management hunts were conducted at 19 locations in 2002 (Table 1.10) which is 1 more than in 2001. 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. Most deer taken were antlerless and deer tagged did not count against the hunters regular bag limit. Most hunts were very successful in removing deer in these problem areas. An additional 1,857 tags were issued for depredation situations where hunters killed another 1,150 deer. This is about the same as in 2001.

Hunter Opinion

Due to changes in how post season post card survey was conducted hunters

were not asked to rate the quality of their hunt or the number of deer in the area where they hunt for the first time in 12 years.

Population Surveys

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

Deer populations for the state as a whole appear to have increased during the past 3 to 4 years (Fig 1.7). All 3 surveys are higher than they were during the last time deer numbers peaked in the late 1980's (Table 1.9).

The aerial survey conducted after the 2002 hunting season (Jan-Mar 2003) was up about 20%. Conditions for this survey were fairly good in most areas and somewhat better than in 2002. Aerial counts have stayed pretty much the same over the past 3 years.

The number of deer killed on rural highways decreased by about 11% in 2002. When this number is adjusted for the increase in vehicle miles driven (kill per billion miles), the decrease was 14%. In general the number of roadkills have

increased over the past 3 years.

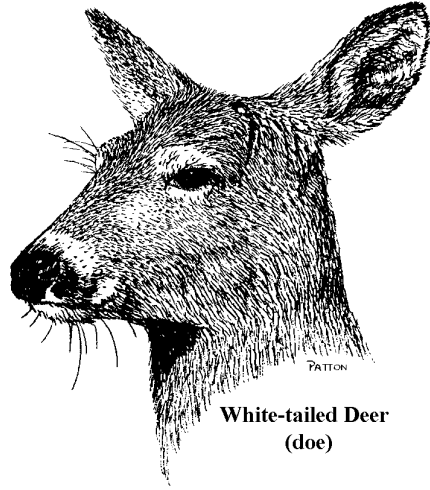
The number of deer seen per 25 mile route on the spotlight survey increased by about 15% in 2003. The mean number of deer reported per route is over 60% higher than those recorded in the late 1980's. However part of this increase was due to a change in the placement of the routes in 1994 and 1995. The trend over the past three years is up as well.

Outlook for 2003

Hunters will see some changes in the 2003 deer seasons. Regulations will again allow all hunters to take deer of either sex in both shotgun and muzzleloader seasons in all counties. These regulations may decrease the number of hunters that hunt during the second season.

The biggest change for 2003 is designed to encourage hunters to kill more antlerless deer. Antlerless licenses will be available in every county for the third year and the antlerless quota for each county in 2003 is two to three times higher than in 2002. If hunters buy all of the antlerless licenses a total of 53,000 antlerless licenses could be issued for 2003 which is 31,000 more than in 2002.

To allow more hunters to use these licenses, hunters in both the first shotgun season and the early muzzleloader season will be allowed to obtain one antlerless license for the first time ever. Also all 99 counties will be open during the bonus January season. The objective of these regulations is to bring deer numbers back to the 1995-96 target level.



**White-tailed Deer
(doe)**

Table 1.1 The dates, hours and zones for shotgun, archery and muzzleloader seasons (1953-present).
 (Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

Year	Zones	Shotgun		Archery		Muzzleloader	
		Dates	Hours	Dates	Hours	Dates	Hours
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 Sunset
1984	1-10	Dec 8-14	"				
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	1/2 hr before sunrise to
1986	1-10	Dec 13-19	"			Dec 20-Jan 4	1/2 hr after sunset
1987	1-10	Dec 5-9	"	Oct 1-Dec 4 &	"	Oct 10-18	"
1987	1-10	Dec 12-20	"	Dec 21-Jan 10	"	Dec 21-Jan 10	"
1988	1-10	Dec 3-7	"	Oct 1-Dec 2 &	"	Oct 15-23	"
1988	1-10	Dec 10-18	"	Dec 19-Jan 10	"	Dec 19-Jan 10	"
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	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13- Oct 21	"
1990	1-10	Dec 8-16	"	Dec 17-Jan 10	"	Dec 17-Jan 10	"
1991	1-10	Dec 7-11	"	Oct 1-Dec 6 &	"	Oct 12- Oct 20	"
1991	1-10	Dec 14-22	"	Dec 23-Jan 10	"	Dec 23-Jan 10	"
1992	1-10	Dec 5-9	"	Oct 1-Dec 4&	"	Oct 10-Oct 18	"
1992	1-10	Dec 12-20	"	Dec 21-Jan 10	"	Dec 21-Jan 10	"
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	"
1995	Statewide	Dec 9-17	"	Dec 18-Jan 10	"	Dec 18-Jan 10	"
1996	Statewide g	Dec 7-11	"	Oct 1-Dec 6&	"	Oct 12-Oct 20	"
1996	Statewide	Dec 14-22	"	Dec 23-Jan 10	"	Dec 23-Jan 10	"
1997	Statewide h	Dec 6-10	"	Oct 1-Dec 5&	"	Oct 11-Oct 18	"
1997	Statewide	Dec 13-21	"	Dec 22-Jan 10	"	Dec 22-Jan 10	"
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	"
2002	Statewide h	Dec 7-11	"	Oct 1-Dec 6 &	"	Oct 11- Oct 19	"
2002	Statewide	Dec 14-22	"	Dec 23-Jan 10	"	Dec 23-Jan 10	"

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
 i - 17 counties were buck-only during first 3 days of first season

Table 1.2 A summary of the number of licenses issued, the number of hunters, the number of deer harvested and success rates for the 2002-2003 season.

Season	License Type	Licenses Issued	Number of Hunters	Harvest	Success Rate
REGULAR GUN					
Paid	Season 1	68,926	67,955	47,344	70%
	Season 2	44,731	43,736	27,498	63%
	Antlerless	5,316	3,870	3,098	
	Nonresident	3,851	3,712	2,564	69%
	Total	122,824 (-7%)	119,273 (-7%)	80,504 (-5%)	
Landowner	Any sex	38,843	31,990	17,345	54%
	Antlerless	4,146	2,407	1,587	
	Total	42,989 (+8%)	34,397 (+13%)	18,932 (+28%)	
GUN SEASON TOTAL		165,813 (-4%)	153,670 (-4%)	99,436 (-1%)	65%
MUZZLELOADER					
Early	Paid	7,501	7,128	4,019	56%
	Landowner	2,306	1,949	1,072	55%
	Total	9,807 (-2%)	9,077 (+1%)	5,091 (+11%)	56%
Late	Paid	10,459	9,223	4,098	44%
	Antlerless	5,524	4,225	2,648	
	Landowner	2,782	1,783	728	41%
	Nonresident	714	661	298	45%
	Total	19,479 (+4%)	15,892 (-4%)	7,772 (+6%)	49%
MUZZLELOADER TOTAL		29,286 (+2%)	24,969 (+3%)	12,863 (+8%)	52%
JANUARY SEASON					
	Paid	4,078	2,962	2,240	76%
	Landowner	4,267	1,779	686	39%
	Total	8,345 (+72%)	4,741 (+69%)	2,926 (+90%)	62%
YOUTH	Paid	3,233	3,113	1,411	45%
	Landowner	214	180	50	28%
	Disabled	43	33	12	
	Total	3,490 (-6%)	3,326 (-7%)	1,473 (-8%)	44%
ARCHERY	Paid	36,324	31,405	12,382	39%
	Antlerless	7,752	5,720	5,560	
	Landowner	5,004	3,804	1,876	49%
	Nonresident	2,454	2,312	885	38%
ARCHERY TOTAL		51,534 (-1%)	43,241 (-11%)	20,703 (+10%)	48%
TOTAL b		265,185 (NC)	234,997 (-4%)	140,490 (+3%)	

a - the numbers in parentheses are the percent change from 2001-2002, NC = < 0.5%

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

Table 1.3 Historical data on deer license issue by license type (1953 - present). Totals include special IAAP licenses (1985-1990), 4074 special late season AS licenses for zone 6 (1985), nonresidents, special management unit hunts and special youth licenses.

(Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

Year	Regular Gun			Muzzleloader			Archery	Grand Total
	Paid	Landowner	Total	Early	Late	Total		
1983	75,918	15,067	90,985				19,945	110,930
1984	79,697	16,777	96,474		1,644	1,644	21,648	119,766
1985	82,218	20,674	102,892		1,522	1,522	22,830	127,244
1986	84,858	25,432	110,290	2,246	1,973	4,219	26,521	141,030
1987	91,804	26,780	118,584	3,091	2,710	5,801	28,910	153,295
1988	101,338	28,002	129,340	3,565	3,618	7,183	30,020	166,543
1989	107,171	33,798	140,969	5,995	12,201	18,196	34,745	194,611
1990	106,781	27,106	133,887	6,602	15,949	22,551	35,217	192,551
1991	100,587	30,834	131,421	7,064	11,458	18,522	33,359	184,041
1992	100,461	30,084	130,545	8,280	10,978	19,315	34,165	186,436
1993	96,577	21,887	118,464	7,306	8,926	16,232	30,938	168,017
1994	102,773	22,809	125,582	8,113	9,737	17,850	34,222	180,525
1995	101,053	18,157	119,210	7,193	8,059	15,463	34,434	177,441
1996	106,746	28,080	134,826	8,806	11,820	20,626	36,351	202,834
1997	109,169	24,423	133,592	8,979	15,049	24,028	37,106	211,118
1998	114,358	25,960	140,318	9,504	12,721	22,225	39,506	223,419
1999	113,695	31,196	144,891	10,246	13,260	23,506	43,687	233,690
2000	113,728	32,116	145,844	10,279	15,242	25,521	44,658	229,800
2001	128,041	38,820	166,861	10,037	18,751	28,788	52,002	265,939
2002	122,824	42,989	165,813	9,807	19,479	29,286	51,534	265,185

a - license not required

Table 1.4 Historical data on deer harvest by license type (1953-present). Totals include IAAP harvest, special management unit hunts, nonresidents and youth.

n are archived at <http://www.iowadnr.com/wildlife/>)

Year	Regular Gun		Muzzleloader			Archery	Grand Total
	Paid	Landowner	Total	Early	Late		
1983	27,078	3,297	30,375			5,244	35,619
1984	29,912	3,537	33,449		307	307	5,599
1985	32,613	5,344	37,957		457	457	5,805
1986	41,352	10,378	51,730	349	728	1,077	9,895
1987	53,230	10,270	63,500	1,509	1,027	2,536	9,722
1988	66,757	13,298	80,055	1,835	1,294	3,129	9,897
1989	67,606	12,963	80,569	2,619	3,715	6,334	11,857
1990	69,101	9,095	78,196	2,819	5,884	8,703	10,146
1991	56,811	11,575	68,386	3,120	2,766	5,886	8,807
1992	50,822	10,453	61,275	3,316	3,231	6,564	8,814
1993	52,624	8,354	60,978	2,219	2,883	5,102	9,291
1994	59,054	8,735	67,789	2,610	3,196	5,806	12,040
1995	65,206	7,917	73,123	2,831	3,408	6,363	13,372
1996	71,577	10,896	82,473	2,895	4,558	7,453	12,314
1997	77,169	10,588	87,757	4,062	5,508	9,570	14,313
1998	73,165	9,989	83,154	4,448	5,343	9,791	12,302
1999	74,362	12,966	87,328	5,277	5,329	10,606	15,266
2000	77,743	13,189	90,932	4,585	5,936	10,521	17,727
2001	82,721	14,801	97,522	4,593	7,320	11,913	18,798
2002	77,940	17,345	95,285	5,091	7,772	12,863	20,703

Table 1.5 Harvest estimates and ranking for each season by county for total kill during the 2002-2003 deer season.

County	Harvest							Rank						
	Paid Muzzleloader			Archery	Youth	Non-resident	Total	Muzzleloader			Archery	Youth	Non-resident	Total
	Shotgun	Early	Late					Shotgun	Early	Late				
Clayton	3,707	163	223	757	28	102	5,739	1	1	1	1	18	7	1
Van Buren	1,393	112	167	390	57	239	3,483	10	3	5	7	1	1	2
Allamakee	2,095	72	46	325	5	193	3,130	2	15	60	12	60	2	3
Jackson	1,991	55	101	376	29	76	3,076	3	29	20	8	15	13	4
Johnson	1,606	79	139	519	27	46	2,785	6	11	10	3	22	26	5
Fayette	1,793	73	94	289	36	70	2,758	4	14	24	19	9	15	6
Linn	1,424	103	183	632	14	12	2,737	9	5	3	2	44	69	7
Davis	1,359	62	148	226	31	81	2,656	12	21	6	30	14	10	8
Jones	1,536	65	139	354	25	46	2,611	8	19	11	10	24	27	9
Lee	1,246	101	83	305	25	46	2,571	15	6	30	16	25	28	10
Dubuque	1,538	114	68	409	42	36	2,538	7	2	40	6	3	39	11
Winneshiek	1,607	45	126	186	14	40	2,368	5	38	12	40	42	36	12
Iowa	1,314	68	120	310	19	19	2,326	13	16	14	14	37	55	13
Marion	1,385	60	87	449	52	40	2,310	11	24	28	5	2	37	14
Washington	1,295	54	186	290	37	44	2,307	14	30	2	18	7	32	15
Tama	1,169	42	148	198	32	21	2,115	17	41	7	37	12	51	16
Clinton	1,102	65	82	285	14	26	2,047	19	20	31	20	43	46	17
Cedar	1,139	86	96	236	5	5	2,035	18	10	22	27	67	83	18
Butler	1,084	37	82	251	10	14	1,916	21	47	32	26	51	67	19
Warren	1,186	62	102	150	23	35	1,883	16	22	19	51	29	41	20
Madison	938	12	67	312	21	69	1,852	26	85	41	13	34	16	21
Monroe	929	37	118	275	17	84	1,824	27	46	15	24	41	9	22
Pottawattamie	924	61	178	367	5	8	1,795	28	23	4	9	65	76	23
Jasper	901	87	93	277	27	30	1,793	31	8	26	23	23	43	24
Guthrie	1,102	25	104	211	22	44	1,762	20	54	18	31	31	33	25
Appanoose	898	47	143	171	1	176	1,735	33	35	8	45	82	3	26
Muscatine	885	87	59	338	28	46	1,735	35	9	49	11	19	29	27
Henry	900	43	39	278	0	57	1,733	32	40	69	22	89	22	28
Taylor	700	9	54	155	17	136	1,733	50	90	51	47	40	5	29
Des Moines	1,082	56	52	155	29	30	1,726	22	28	54	46	16	44	30
Delaware	846	66	87	281	35	19	1,702	37	17	29	21	10	56	31
Jefferson	1,040	6	38	234	0	79	1,692	24	97	72	28	84	12	32
Mahaska	984	34	141	77	19	25	1,579	25	49	9	76	36	48	33
Chickasaw	901	111	78	207	23	20	1,560	30	4	35	33	30	52	34
Lucas	759	18	33	293	27	89	1,552	44	73	78	17	21	8	35
Ringgold	695	25	50	140	0	124	1,538	52	56	58	54	83	6	36
Benton	915	24	82	115	41	3	1,523	29	59	33	64	4	89	37
Louisa	893	18	123	154	4	12	1,517	34	72	13	48	76	70	38
Decatur	745	48	77	110	9	81	1,481	47	34	36	65	53	11	39
Keokuk	1,045	29	98	79	0	66	1,476	23	51	21	75	86	18	40
Wayne	807	25	60	178	9	140	1,453	39	55	48	42	52	4	41
Hardin	763	95	116	149	38	26	1,429	43	7	17	52	5	47	42
Scott	657	52	51	492	13	0	1,418	56	32	56	4	49	95	43

Table 1.5 Harvest estimates and ranking for each season by county for total kill during the 2002-2003 deer season.

County	Harvest							Rank						
	Paid Muzzleloader			Archery	Youth	Non-resident	Total	Muzzleloader			Archery	Youth	Non-resident	Total
	Shotgun	Early	Late					Shotgun	Early	Late				
Bremer	765	74	19	200	14	8	1,374	42	13	87	35	45	77	44
Marshall	749	56	117	307	4	36	1,345	46	27	16	15	71	40	45
Adair	650	38	67	177	0	46	1,338	57	45	42	43	90	30	46
Poweshiek	750	17	94	101	25	17	1,320	45	74	25	68	26	61	47
Woodbury	870	66	31	265	22	9	1,316	36	18	79	25	33	74	48
Harrison	696	22	91	52	21	29	1,305	51	64	27	86	35	45	49
Floyd	793	58	69	89	7	49	1,282	40	26	39	72	58	24	50
Union	725	9	46	66	0	61	1,278	48	91	61	81	87	19	51
Wapello	660	59	41	147	8	44	1,273	55	25	66	53	54	34	52
Cherokee	790	37	51	179	4	5	1,211	41	48	57	41	79	84	53
Clarke	639	19	17	130	0	60	1,205	58	71	92	59	88	20	54
Adams	525	12	82	76	6	49	1,157	66	84	34	77	59	25	55
Franklin	506	26	69	209	5	15	1,109	67	53	38	32	64	63	56
Buchanan	701	41	17	123	22	15	1,068	49	42	94	61	32	64	57
Howard	666	38	72	135	37	20	1,062	54	44	37	55	8	53	58
Boone	489	46	36	199	38	20	1,057	70	37	74	36	6	54	59
Crawford	825	16	54	58	32	12	1,054	38	75	52	84	13	71	60
Black Hawk	539	54	61	174	24	15	1,049	65	31	47	44	27	65	61
Page	554	23	34	134	5	46	1,046	63	63	77	56	63	31	62
Mitchell	611	12	31	60	5	56	1,031	60	86	80	83	62	23	63
Montgomery	670	47	37	26	13	59	1,014	53	36	73	92	48	21	64
Monona	615	27	42	69	0	75	1,001	59	52	65	80	85	14	65
Clay	497	24	58	233	8	41	996	69	61	50	29	55	35	66
Cass	583	24	40	122	5	68	967	61	62	68	62	61	17	67
Mills	412	15	95	151	0	23	962	77	77	23	50	93	50	68
Webster	552	79	52	117	28	18	905	64	12	55	63	20	58	69
Polk	504	50	18	204	4	19	901	68	33	90	34	73	57	70
Dallas	557	19	35	131	14	3	848	62	69	75	58	47	90	71
Sac	461	15	19	99	4	5	842	74	81	89	69	80	85	72
Story	363	24	62	196	5	6	755	81	60	45	38	66	79	73
Shelby	478	25	49	54	0	5	751	72	57	59	85	98	86	74
Cerro Gordo	480	16	39	89	4	15	748	71	76	70	73	75	66	75
Greene	422	40	53	96	0	9	748	75	43	53	70	96	75	76
Plymouth	381	6	61	189	14	6	742	80	96	46	39	46	80	77
Fremont	334	15	45	133	0	40	702	83	79	63	57	91	38	78
Kossuth	464	15	46	45	4	6	634	73	78	62	89	77	81	79
Palo Alto	406	9	39	71	0	12	620	78	92	71	78	95	72	80
Humboldt	338	12	17	129	8	12	589	82	88	93	60	56	73	81
O'Brien	331	15	41	48	29	3	575	84	80	67	87	17	91	82
Lyon	402	10	12	15	4	18	552	79	89	96	95	74	59	83
Hamilton	281	22	16	153	19	5	541	87	67	95	49	39	87	84
Buena Vista	414	9	20	3	5	3	508	76	95	86	99	68	92	85
Calhoun	225	9	22	101	33	0	491	94	94	83	67	11	96	86
Wright	260	25	45	69	12	18	471	90	58	64	79	50	60	87
Worth	298	9	24	94	0	5	470	85	93	82	71	99	88	88
Emmet	260	22	19	109	4	32	465	91	66	88	66	72	42	89
Audubon	241	3	65	37	0	24	462	93	98	44	91	92	49	90
Dickinson	212	22	67	63	19	17	450	95	65	43	82	38	62	91
Carroll	274	21	35	46	0	14	446	89	68	76	88	94	68	92
Sioux	280	12	20	87	24	2	428	88	87	84	74	28	94	93
Hancock	284	31	18	15	5	0	396	86	50	91	94	69	97	94
Ida	259	0	30	9	0	8	377	92	99	81	97	97	78	95
Winnebago	172	19	20	37	4	6	333	96	70	85	90	78	82	96
Pocahontas	166	15	11	17	2	0	296	98	82	97	93	81	98	97
Grundy	117	13	4	6	5	0	273	99	83	99	98	70	99	98
Osceola	166	44	10	13	8	3	263	97	39	98	96	57	93	99
Total	77,940	4,019	6,746	17,942	1,473	3,747	140,490							

Table 1.6 Harvest estimates by county for total kill during the 2002-2003 deer season.

County	Hunters	Antlered		Button		Total	Percent of kill		Hunters/ Sq. Mile	Kill/ Sq. Mile
		Bucks	Does	Bucks	Does		Does	Bucks		
Adair	2,177	602	594	142	1,338	44%	45%	3.8	2.4	
Adams	1,964	412	674	71	1,157	58%	36%	4.6	2.7	
Allamakee	5,206	1,655	1,144	331	3,130	37%	53%	8.2	4.9	
Appanoose	3,232	710	790	235	1,735	46%	41%	6.2	3.3	
Audubon	728	188	240	34	462	52%	41%	1.6	1.0	
Benton	2,638	644	687	192	1,523	45%	42%	3.7	2.1	
Black Hawk	2,248	496	443	110	1,049	42%	47%	4.0	1.8	
Boone	2,145	396	576	85	1,057	54%	37%	3.7	1.8	
Bremer	2,432	602	577	195	1,374	42%	44%	5.5	3.1	
Buchanan	1,951	537	412	119	1,068	39%	50%	3.4	1.9	
Buena Vista	1,022	252	248	8	508	49%	50%	1.8	0.9	
Butler	2,935	749	822	345	1,916	43%	39%	5.0	3.3	
Calhoun	841	245	199	47	491	41%	50%	1.5	0.9	
Carroll	953	221	178	47	446	40%	50%	1.7	0.8	
Cass	1,587	425	439	103	967	45%	44%	2.8	1.7	
Cedar	3,434	948	823	264	2,035	40%	47%	5.9	3.5	
Cerro Gordo	1,552	391	307	50	748	41%	52%	2.7	1.3	
Cherokee	2,101	585	419	207	1,211	35%	48%	3.7	2.1	
Chickasaw	2,441	687	702	171	1,560	45%	44%	4.8	3.1	
Clarke	2,363	488	607	110	1,205	50%	40%	5.5	2.8	
Clay	1,690	454	488	54	996	49%	46%	3.0	1.7	
Clayton	8,416	2,967	2,338	434	5,739	41%	52%	10.8	7.4	
Clinton	3,571	870	787	390	2,047	38%	43%	5.2	3.0	
Crawford	1,640	498	473	83	1,054	45%	47%	2.3	1.5	
Dallas	1,907	349	397	102	848	47%	41%	3.2	1.4	
Davis	3,913	864	1,532	260	2,656	58%	33%	7.7	5.2	
Decatur	2,800	576	685	220	1,481	46%	39%	5.3	2.8	
Delaware	2,855	1,014	573	115	1,702	34%	60%	5.0	3.0	
Des Moines	2,946	808	744	174	1,726	43%	47%	7.2	4.2	
Dickinson	927	224	190	36	450	42%	50%	2.4	1.2	
Dubuque	4,545	1,109	962	467	2,538	38%	44%	7.4	4.1	
Emmet	993	232	200	33	465	43%	50%	2.5	1.2	
Fayette	4,843	1,246	1,188	324	2,758	43%	45%	6.7	3.8	
Floyd	1,988	691	510	81	1,282	40%	54%	4.0	2.5	
Franklin	1,503	581	389	139	1,109	35%	52%	2.6	1.9	
Fremont	1,212	382	276	44	702	39%	54%	2.3	1.3	
Greene	1,500	272	346	130	748	46%	36%	2.6	1.3	
Grundy	541	105	152	16	273	56%	38%	1.1	0.5	
Guthrie	3,258	888	694	180	1,762	39%	50%	5.5	3.0	
Hamilton	1,198	282	219	40	541	40%	52%	2.1	0.9	
Hancock	780	200	170	26	396	43%	51%	1.4	0.7	
Hardin	2,035	634	674	121	1,429	47%	44%	3.5	2.5	
Harrison	2,441	572	625	108	1,305	48%	44%	3.5	1.9	
Henry	3,214	610	871	252	1,733	50%	35%	7.3	3.9	
Howard	1,831	448	528	86	1,062	50%	42%	3.9	2.3	
Humboldt	1,075	354	211	24	589	36%	60%	2.5	1.4	
Ida	642	176	151	50	377	40%	47%	1.5	0.9	
Iowa	3,641	963	1,074	289	2,326	46%	41%	6.2	4.0	
Jackson	4,935	1,212	1,438	426	3,076	47%	39%	7.7	4.8	
Jasper	3,125	876	824	93	1,793	46%	49%	4.3	2.4	
Jefferson	2,424	720	835	137	1,692	49%	43%	5.6	3.9	
Johnson	4,716	1,180	1,290	315	2,785	46%	42%	7.6	4.5	
Jones	4,076	1,079	1,197	335	2,611	46%	41%	7.0	4.5	
Keokuk	2,463	712	580	184	1,476	39%	48%	4.3	2.5	

Table 1.6 Harvest estimates by county for total kill during the 2002-2003 deer season.

County	Hunters	Antlered		Button		Total	Percent of kill		Hunters/ Sq. Mile	Kill/ Sq. Mile
		Bucks	Does	Bucks	Does		Does	Bucks		
Kossuth	1,456	230	344	60	634	54%	36%	1.5	0.6	
Lee	4,229	929	1,205	437	2,571	47%	36%	8.0	4.9	
Linn	5,355	1,283	1,072	382	2,737	39%	47%	7.5	3.8	
Louisa	2,546	462	857	198	1,517	56%	30%	6.3	3.8	
Lucas	2,701	719	653	180	1,552	42%	46%	6.2	3.6	
Lyon	1,144	314	211	27	552	38%	57%	1.9	0.9	
Madison	3,544	969	735	148	1,852	40%	52%	6.3	3.3	
Mahaska	2,529	632	783	164	1,579	50%	40%	4.4	2.8	
Marion	3,989	1,103	961	246	2,310	42%	48%	7.0	4.1	
Marshall	2,226	758	430	157	1,345	32%	56%	3.9	2.3	
Mills	1,517	570	320	72	962	33%	59%	3.4	2.2	
Mitchell	1,661	452	458	121	1,031	44%	44%	3.6	2.2	
Monona	1,828	466	493	42	1,001	49%	47%	2.6	1.4	
Monroe	2,903	795	802	227	1,824	44%	44%	6.7	4.2	
Montgomery	1,464	503	331	180	1,014	33%	50%	3.5	2.4	
Muscatine	3,061	766	782	187	1,735	45%	44%	6.9	3.9	
O'Brien	1,187	340	197	38	575	34%	59%	2.1	1.0	
Osceola	584	138	95	30	263	36%	52%	1.5	0.7	
Page	1,684	402	477	167	1,046	46%	38%	3.1	2.0	
Palo Alto	1,082	327	269	24	620	43%	53%	1.9	1.1	
Plymouth	1,563	411	301	30	742	41%	55%	1.8	0.9	
Pocahontas	767	183	72	41	296	24%	62%	1.3	0.5	
Polk	2,527	489	343	69	901	38%	54%	4.3	1.5	
Pottawattamie	3,328	1,047	544	204	1,795	30%	58%	3.5	1.9	
Poweshiek	2,318	644	624	52	1,320	47%	49%	3.9	2.2	
Ringgold	2,609	537	840	161	1,538	55%	35%	4.8	2.9	
Sac	1,424	479	293	70	842	35%	57%	2.5	1.5	
Scott	2,596	688	554	176	1,418	39%	49%	5.7	3.1	
Shelby	1,352	398	265	88	751	35%	53%	2.3	1.3	
Sioux	1,037	249	128	51	428	30%	58%	1.4	0.6	
Story	1,369	352	379	24	755	50%	47%	2.4	1.3	
Tama	3,351	920	931	264	2,115	44%	43%	4.7	2.9	
Taylor	2,566	645	867	221	1,733	50%	37%	4.9	3.3	
Union	2,104	448	602	228	1,278	47%	35%	5.0	3.0	
Van Buren	5,285	1,228	1,781	474	3,483	51%	35%	10.9	7.2	
Wapello	2,549	494	615	164	1,273	48%	39%	5.8	2.9	
Warren	3,823	876	736	271	1,883	39%	47%	6.7	3.3	
Washington	3,751	764	1,321	222	2,307	57%	33%	6.6	4.1	
Wayne	2,349	805	464	184	1,453	32%	55%	4.4	2.7	
Webster	1,720	424	374	107	905	41%	47%	2.4	1.3	
Winnebago	823	179	112	42	333	34%	54%	2.1	0.8	
Winneshiek	4,157	1,134	914	320	2,368	39%	48%	6.0	3.4	
Woodbury	2,630	502	629	185	1,316	48%	38%	3.0	1.5	
Worth	1,017	200	230	40	470	49%	43%	2.5	1.2	
Wright	1,207	232	198	41	471	42%	49%	2.1	0.8	
Total	243,556	61,867	62,609	16,012	140,490	45%	44%	4.3	2.5	

Table 1.7 A summary of archery season dates, hours, success rates and other information (1953 - present).
 (Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
1983	Oct 8-Dec 2	1/2 hr	69	28	16	
1984	Oct 6-Nov 30	before	69	27	16	
1985	Oct 12-Dec 6	sunrise,	68	26	15	\$ 20 fee.
1986	Oct 11-Dec 5	1/2 hr	72	38	17	Limit 1/Bow and 1/Gun
1987	Oct 1-Dec 4 & Dec 21-Jan 10	after sunset.	68	35		Added late season.
1988	Oct 1-Dec 2 & Dec 19-Jan 10	"	71	35	16	
1989	Oct 1-Dec 1 & Dec 18-Jan 10	"	73	36	20	Bonus 2nd tag for antlerless deer statewide
1990	Oct 1-Nov 30 & Dec 17-Jan 10	"	65	32	19	Bonus tag for antlerless early or anysex late, statewide
1991	Oct 1-Dec 6 & Dec 23-Jan 10	"	73	28	17	Bonus tag for antlerless deer available only in zones 3a,4a,5a and 6. \$25 fee.
1992	Oct 1-Dec 4 & Dec 21 -Jan 10	"	69	28	15	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
1993	Oct 1-Dec 3 & Dec 20-Jan 10	"	73	32	17	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
1994	Oct 1-Dec 2& Dec 19-Jan 10	"	77	37	16	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
1995	Oct 1-Dec 1& Dec 18-Jan 10	"	76	39	17	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
1996	Oct 1-Dec 6& Dec 23-Jan 10	"	78	37	16	Bonus tag for antlerless deer available only in bonus antlerless zone if no gun tag.
1997	Oct 1-Dec 5& Dec 22-Jan 10	"	71	42	17	Bonus tag for antlerless deer available only in bonus antlerless zone. Could get firearm license also.
1998	Oct 1-Dec 4& Dec 21-Jan 10	"	76	34	15	Bonus tag for antlerless deer available only in bonus antlerless zone. Could get firearm license also.
1999	Oct 1-Dec 3& Dec 20-Jan 10	"	79	37	16	Bonus tag for antlerless deer available only in bonus antlerless zone. Could get firearm license also.
2000	Oct 1-Dec 1& Dec 18-Jan 10	"	80	44	17	Bonus tag for antlerless deer available only in bonus antlerless zone. Could get firearm license also.
2001	Oct 1-Nov 30& Dec 17-Jan 10	"	75	37	17	Bonus tag for antlerless deer available in every county. Could get firearm license also.
2002	Oct 1-Dec 6 & Dec 23-Jan 10	"	66	39	17	Bonus tag for antlerless deer available in every county. Could get firearm license also.

Table 1.8 A 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	1/2 hr before sunrise to	100	17	4	2500 B-O Quota.
	Dec 20-Jan 4	"	43	40	6	Unlimited A-S Quota.
1987	Oct 10-18	1/2 hr after sunset	55	52	8	3000 A-S Quota
	Dec 21-Jan 10	"	46	42	6	Unlimited A-S Quota.
1988	Oct 15-23	"	55	55	4	3500 A-S Quota
	Dec 19-Jan 10	"	41	39	6	Unlimited A-S Quota.
1989	Oct 14-22	"	55	49	5	5000 A-S Quota
	Dec 18-Jan 10	"	28	39	9	Unlimited A-S Quota. Could hunt during shotgun & late muzzleloader seasons.
1990	Oct 13-21	"	53	46	5	5000 A-S Quota
	Dec 17-Jan 10	"	50	45	8	Could hunt shotgun & late muzzleloader season.
1991	Oct 12-20	"	54	47	5	5000 A-S Quota
	Dec 23-Jan 10	"	40	33	8	Could hunt shotgun & late muzzleloader season, but all 2nd tags valid for antlerless only in zones 3a,4a,5a&6.
1992	Oct 10-18	"	60	45	4	7500 Anysex license quota.
	Dec 21-Jan 10	"	40	36	8	All second licenses antlerless, Zones 4a,5a&6.
1993	Oct 9-17	"	71	34	5	7500 license quota, 65 counties buck-only.
	Dec 20-Jan 10	"	46	39	8	Antlerless in 14 counties, 35 counties buck-only.
1994	Oct 15-23	"	78	36	5	7500 license quota, 67 counties buck-only.
	Dec 19-Jan 10	"	52	39	8	Antlerless in 14 counties, 35 counties buck-only.
1995	Oct 14-22	"	73	43	5	7500 license quota, 69 counties buck-only.
	Dec 18-Jan 10	"	55	46	8	No antlerless tags, 29 counties modified buck-only.
1996	Oct 12-20	"	75	39	5	7500 license quota, 64 counties buck-only.
	Dec 23-Jan 10	"	49	46	7	Antlerless in 15 1/2 counties, 26 modified buck-only.
1997	Oct 11-19	"	55	62	4	7500 license quota, no counties buck only
	Dec 22-Jan 10	"	44	52	7	Antlerless in 19 1/2 counties, no counties buck-only.
1998	Oct 17-25	"	64	52	5	7500 license quota, no counties buck only
	Dec 21-Jan 10	"	54	50	7	Antlerless in 20 counties, no counties buck-only.
1999	Oct 16-24	"	60	57	4	7500 license quota, no counties buck only
	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 11- Oct 19	"	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.

Table 1.9 The results of the deer population surveys (1976 - present).

Year	Spotlight Survey		Aerial Survey		Traffic Kill	Traffic Kill Per Billion Vehicle Mi.	
	Mean Count	Percent Change	Weighted Count a	Percent Change		Number	Percent Change
1976	-	-	-	-	2,537	225	-1%
1977	-	-	-	-	2,929	252	12%
1978	6.9	-	-	-	2,872	241	-4%
1979	6.8	-1%	-	-	3,005	259	7%
1980	7.1	4%	-	-	3,743	335	29%
1981	5.9	-17%	-	-	4,164	365	9%
1982	12.0	103%	-	-	4,805	412	13%
1983	13.3	11%	5,903	-	5,335	448	9%
1984	16.4	23%	6,387	8%	6,177	500	12%
1985	15.4	-6%	7,607	19%	5,925	495	-1%
1986	18.5	20%	9,790	29%	7,225	593	20%
1987	18.2	-2%	-	-	8,440	678	14%
1988	20.8	14%	10,289	5% b	9,248	707	4%
1989	26.8	29%	9,672	-6%	8,914	655	-7%
1990	24.0	-10%	7,070	-27%	8,799	607	-7%
1991	23.0	-4%	9,191	30%	8,428	590	-3%
1992	23.0	0%	8,235	-10%	9,135	616	4%
1993	30.0	30%	8,680	5%	9,576	624	1%
1994	25.8	-14%	10,483	21%	10,438	663	6%
1995	35.3	37%	10,877	4%	11,167	699	5%
1996	51.1	45%	12,051	11%	12,276	748	7%
1997	51.1	0%	13,902	15%	13,148	778	4%
1998	55.9	9%	12,651	-9%	12,427	714	-8%
1999	59.9	7%	14,928	18%	11,366	637	-11%
2000	57.2	-5%	15,375	3%	10,970	634	0%
2001	81.4	42%	15,793	3%	13,404	757	19%
2002	80.0	-2%	13,107	-17%	11,975	651	-14%
2003	92.5	16%	15,676	20%	-	-	

a - adjusted for missing counts

b - change form 1986 to 1988

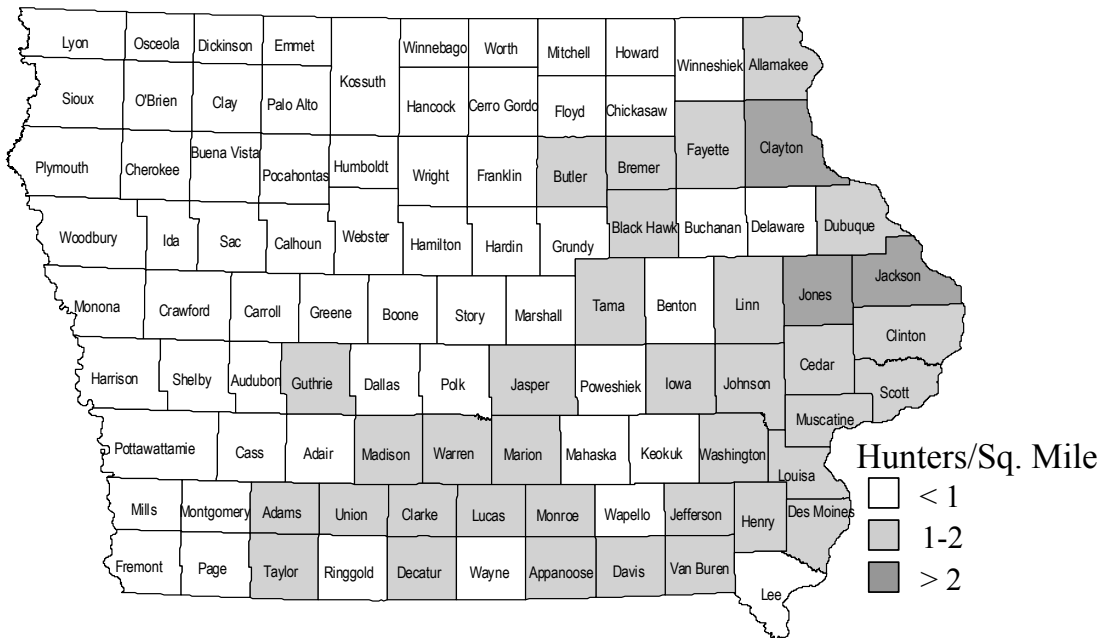
Table 1.10 Results from controlled hunts in the special deer management zones for 2002-2003.

Area	Weapon	Licenses	Hunters	Harvest
Lake Panorama	Archery	150	114	67
Lake of Three Fires	Shotgun	45	43	37
Kent Park	Shotgun	50	48	27
Coralville, City of	Archery	300	150	74
Johnson County Zone	Archery & Firearm	400	316	191
Waterloo/Cedar Falls Zone	Archery	290	191	100
Smith Wildlife Area	Shotgun	15	4	1
Lake Manawa State Park	Archery	35	34	15
Lake Darling	Shotgun	80	20	6
Elk Rock State Park	Shotgun	50	50	42
Scott County Park	Shotgun	75	74	34
Linn County Zone	Archery & Firearm	500	407	231
Squaw Creek Park	Archery	125	100	41
Marion, City of	Archery	75	34	28
Backbone State Park	Shotgun	120	119	99
Polk County Zone	Archery & Firearm	500	297	195
Dubuque County Zone	Archery & Firearm	650	313	182
Iowa Army Amunition Plant	Archery & Firearm	1000	606	408
Iowa Army Amunition Plant (Perimeter Zone)	Archery & Firearm	400	273	161
Depredation & Shooting Permits	Archery & Firearm	1857	1857	1150
Total		6717	5050	3089

Fig 1.1 The average number of hunters/square mile in each county during the 2002 shotgun season. Hunters with free landowner/tenant licenses are not included since their licenses were valid for both seasons.

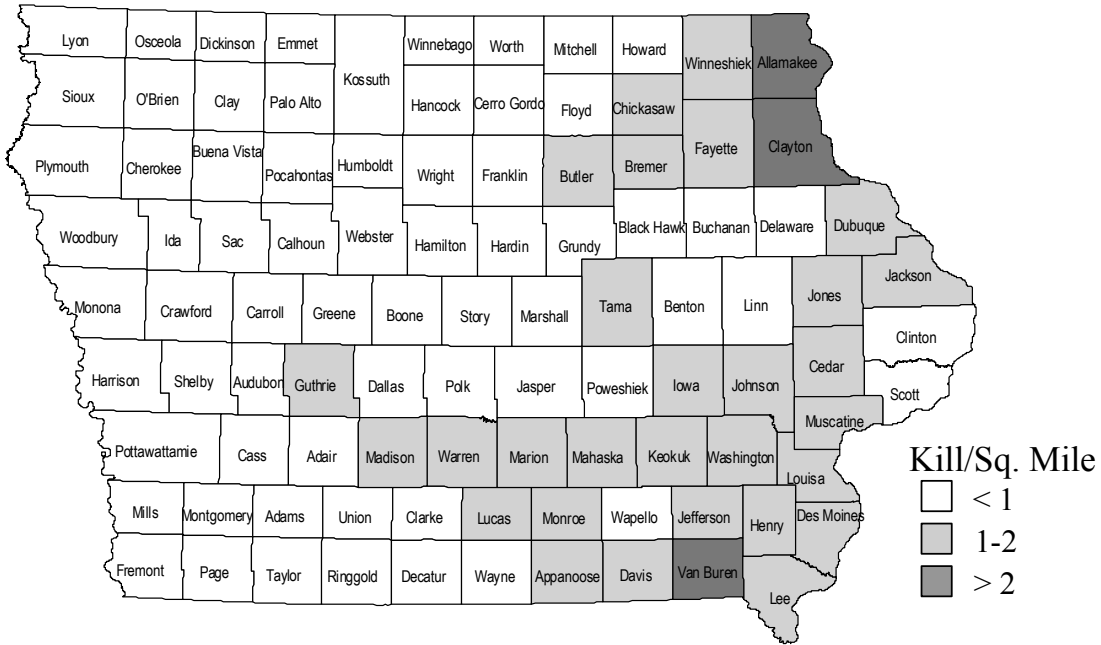


Season 1

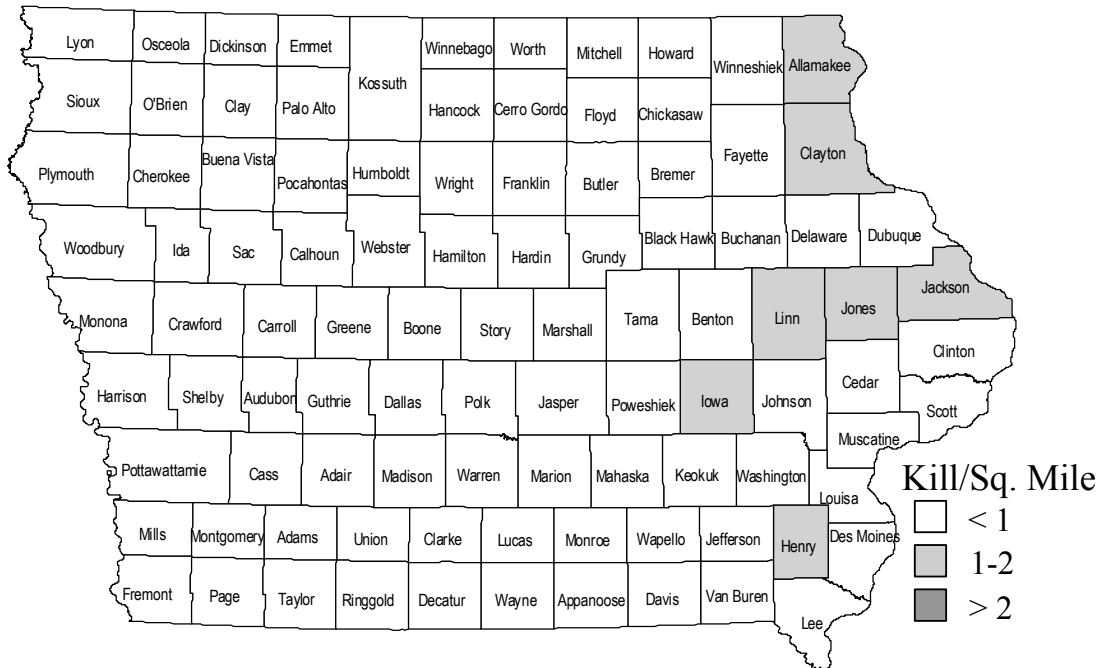


Season 2

Fig 1.2 The average number of deer killed/square mile in each county during the 2002 shotgun season. The kill by hunters with free landowner/tenant licenses was not included since their licenses were valid for both seasons.

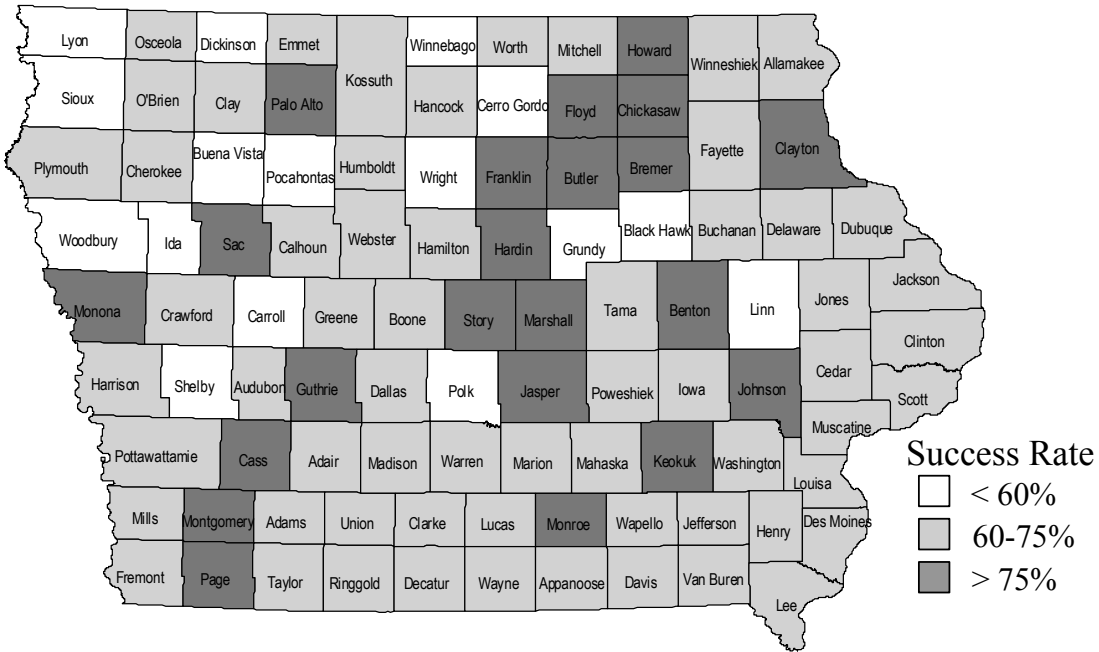


Season 1

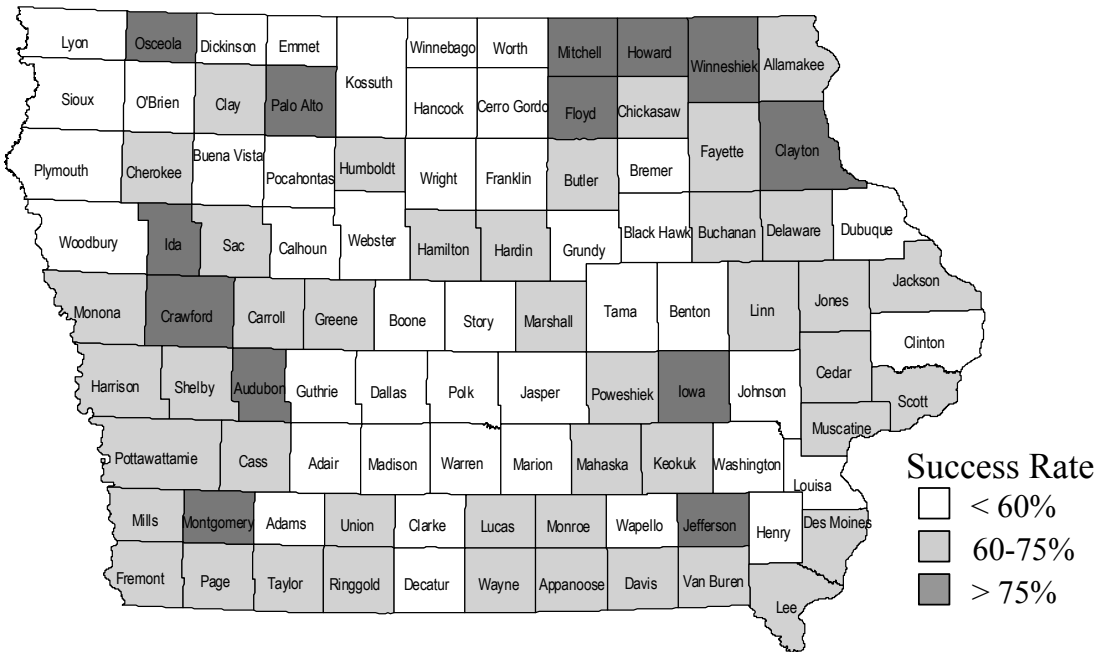


Season 2

Fig 1.3 The average success rate for hunters with paid licenses in each county during the 2002 shotgun season. Hunters with free landowner/tenant licenses are not included since their licenses were valid for both seasons.

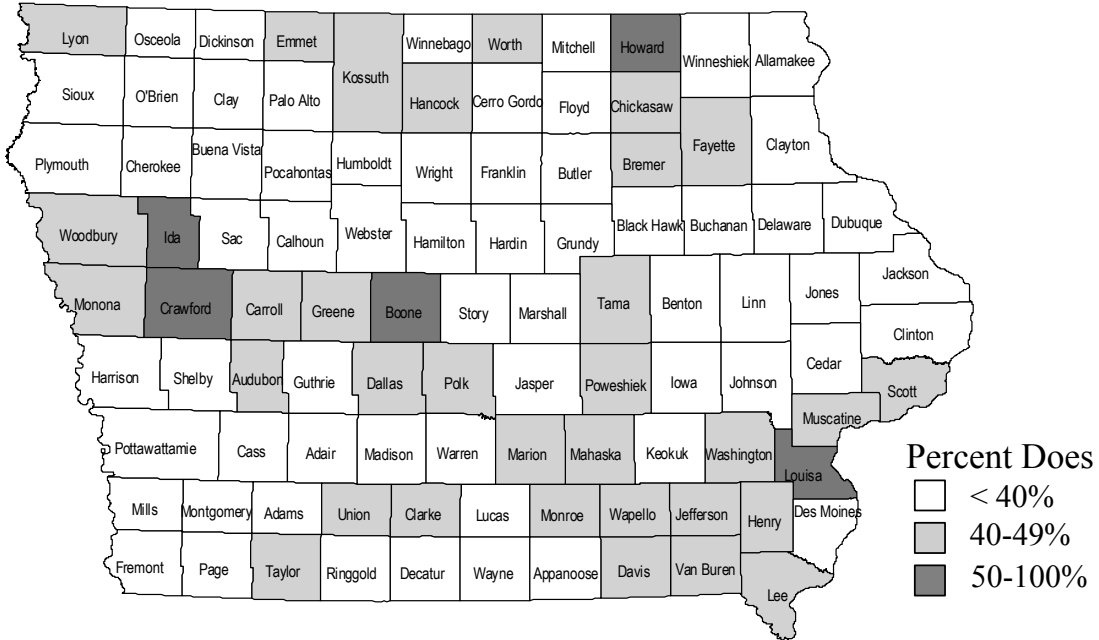


Season 1

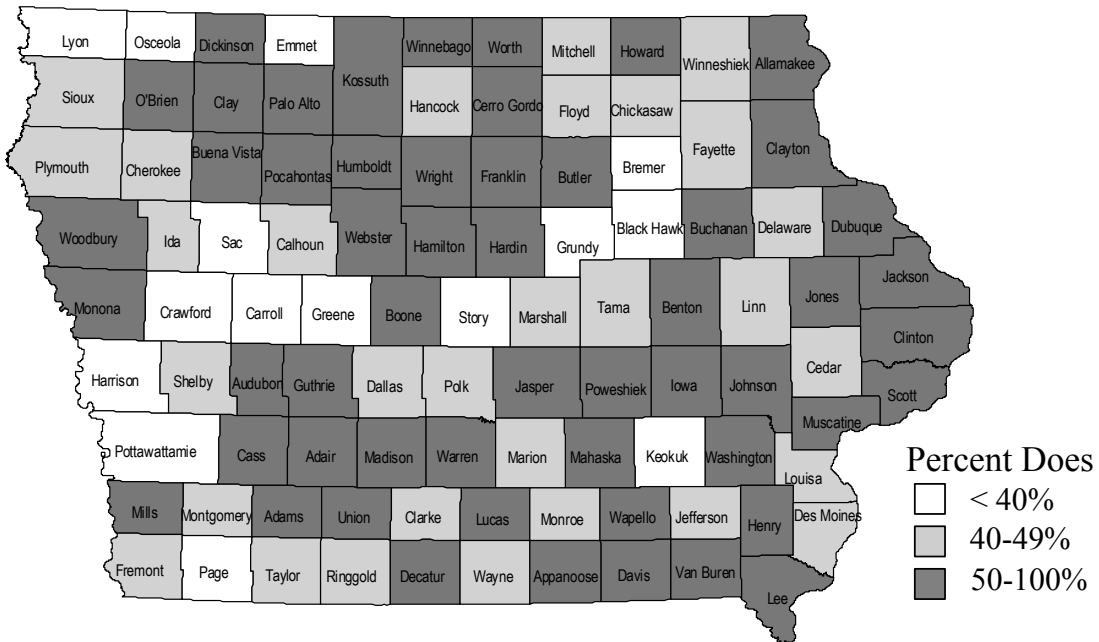


Season 2

Fig 1.4 The proportion of the harvest by hunters with paid licenses that were does during the 2001 shotgun season. The kill by hunters with free landowner/tenant licenses are not included since their licenses are valid for both seasons.



Season 1



Season 2

Fig 1.5 The average number of deer killed per square mile in each county during the 2002 deer season.

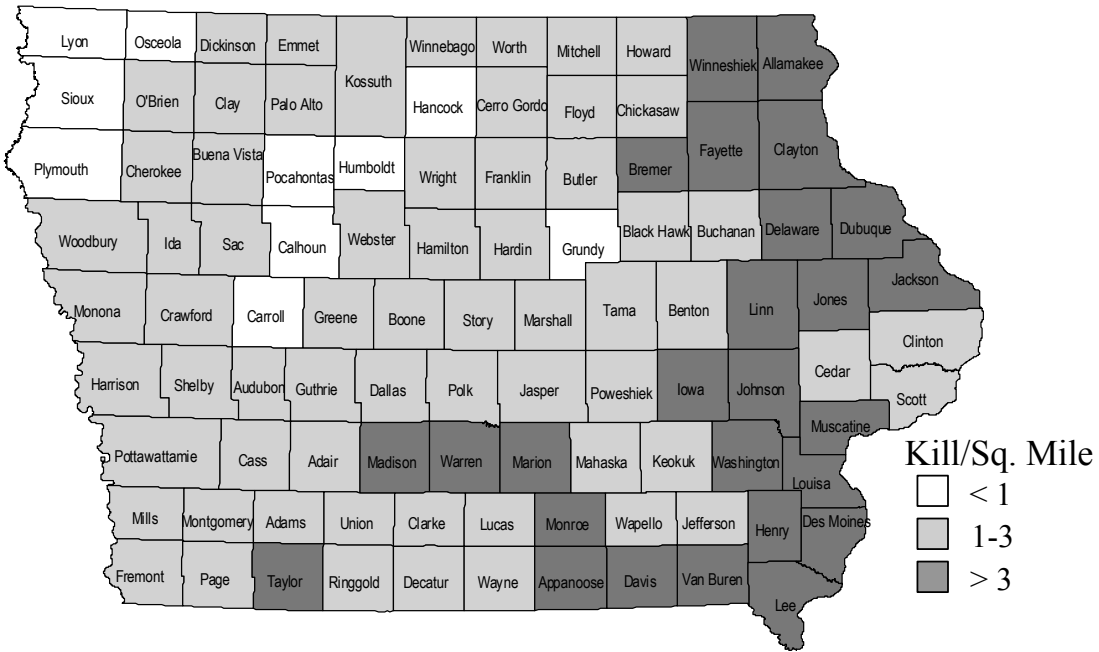


Fig 1.6 The proportion of the harvest that were does in each county during the 2002 deer season.

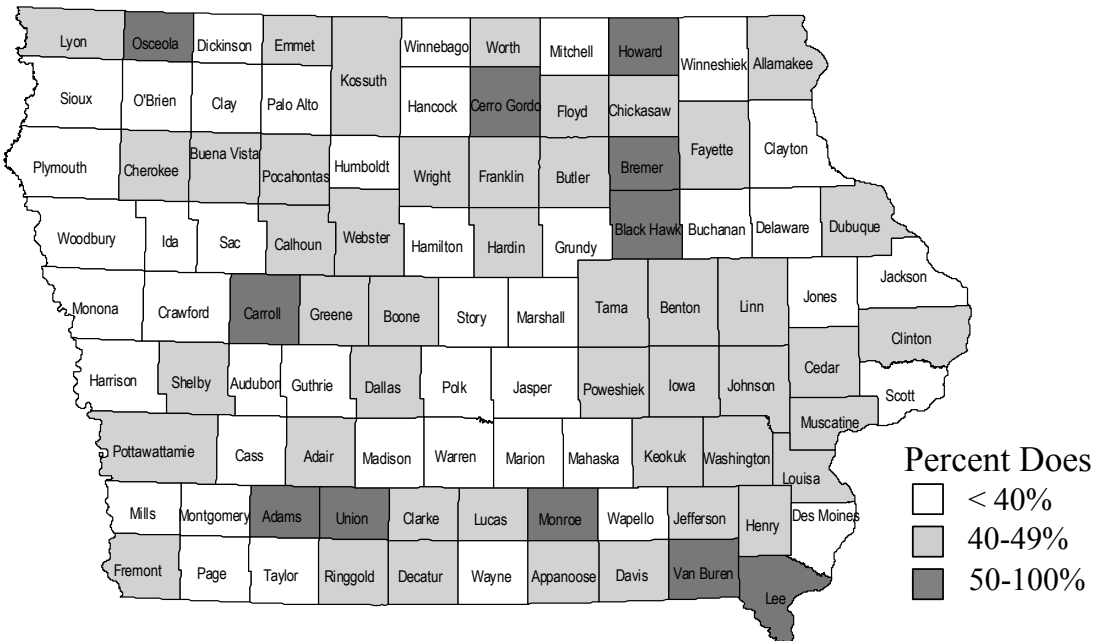


Fig 1.7 Deer population indices and correlation with simulation, 1985-present.

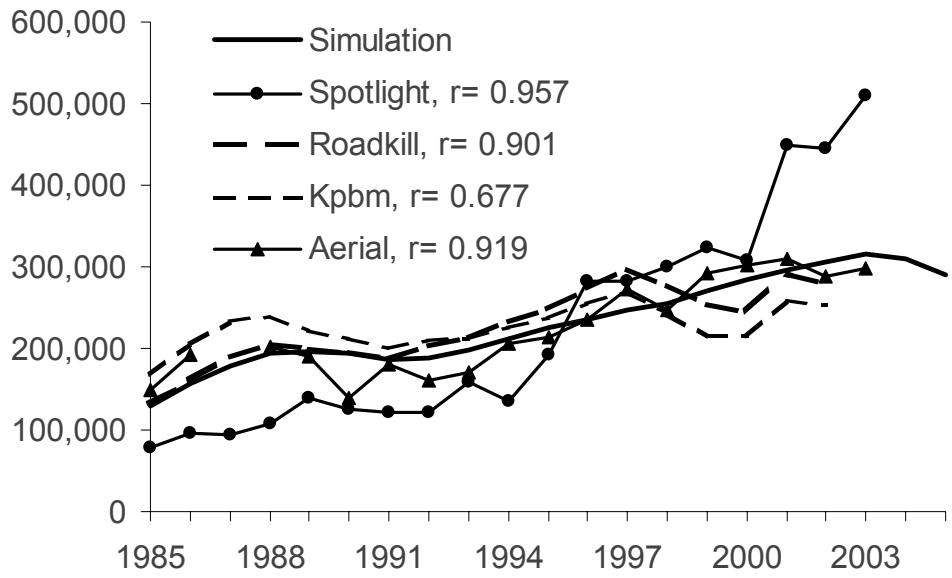
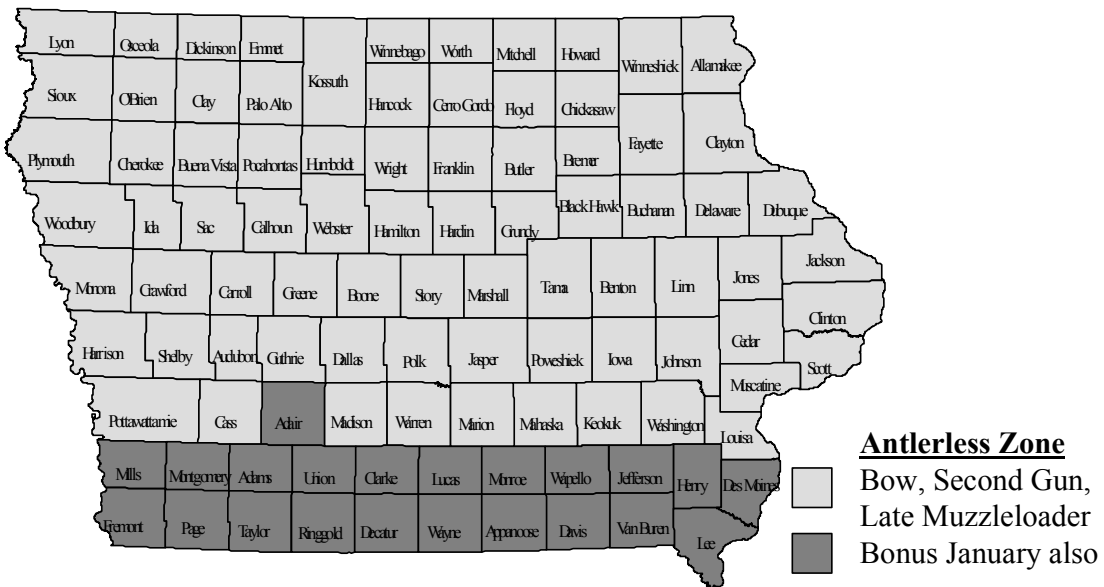


Fig 1.8 2002 Deer Hunting Zones



WILD TURKEYS

Historical Perspective

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

Habitat: Only 2.6 million acres (1.1 million 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 remnant 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 burr oak (10%) in the southern

and arid western regions, respectively. Aspen and other northern hardwoods (1%) are found occasionally in the Northeast. Statewide, 65% of all commercial stands are entering sawtimber and 20% are in poletimber (Leatherberry et al. 1990). Ninety-two percent of Iowa's forest land is privately owned, with nearly half of the remaining 8% in state ownership, 38% owned by other public agencies and 14% in park-refuges withdrawn from active management (Ostrom 1976, Leatherberry et al. 1990). Iowa has no national forests, parks or wildlife refuges devoted to forest land management.

Restoration: The Iowa Department of Natural Resources (IDNR) began experimenting with turkey restoration in 1920 using pen-reared birds. Releases were made over the next 18 years but all releases were uniform failures.

The first attempts at releasing transplanted wild turkeys were in the early 1960's. Rio Grande and Merriam's subspecies were released at several sites during the 1960's but ultimately their poor adaptation to Iowa's oak-hickory forest led to population failures for both subspecies.

The first release of eastern wild turkeys was in 1966 in Lee County. The population response of these turkeys was phenomenal – survival of released birds, reproduction, and poult survival were all excellent. The success of this 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, however the most recent stockings are still being evaluated. No sites are currently considered to be unsuccessful. Most sites were opened to hunting after populations were established, usually about 5 years post-stocking. Restorations by the IDNR during the last 2 decades have returned wild turkeys to about 95% of the remnant timber stands in the state. Restoration efforts ended in 2001 with the last release site occurring in Linn county.

Spring Harvest Survey

History: Spring bearded-turkey-only 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 (Fig. 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 (Fig. 2.2, a and b). Hunter numbers and timber acres with huntable turkey populations have increased

proportionally, allowing hunter densities to remain at < 4 hunters/mi² of timber per season.

2002: Iowa's 29th modern spring hunting season increased in the number of harvested turkeys, even though active hunters decreased slightly (Table 2.2 and 2.3). License sales decreased slightly in 2002 (Table 2.1). This was the fourteenth year the entire state was open to spring turkey hunting (Table 2.11). The 35-day season (15 April through 19 May, 2002) was partitioned into 4 separate seasons: 4, 5, 7, and 19-days in length, respectively. The 4-season format, with unlimited license quota an unlimited license quota for all the periods, resulted in 52,426 resident shotgun licenses issued. An additional 2,492 archery-only licenses were issued. Archery-only harvest surveys have ceased because of poor survey response compliance by archery-only hunters. However, archery-only harvest and success rates varied little during the years with survey information.

Forty-four percent of the hunters were successful in harvesting a gobbler in 2002 (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 (Fig. 2.3). Declines observed in spring hunter success rates during 1983 and 1984 (Fig. 2.3) can be partially explained by poor brood production during the summers of 1981 and 1982 (Fig. 2.4). 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 over the last five years averaged 44.2%.

This was the thirteenth spring that non-residents were allowed to hunt turkeys in Iowa. Four hundred non-

resident turkey licenses were not sold in 2002, most likely due to increased non-resident license fees. Ninety-two percent of the non-resident hunters that were issued a license actually hunted and they harvested an estimated 1061 wild turkeys (Tables 2.2 and 2.3). Non-residents were more successful than residents in harvesting a spring gobbler (59.1% versus 44.0%, respectively) (Table 2.4)

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 overharvesting 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 8 zones in 1999 that contain the majority of Iowa's turkey population (Fig. 2.5, a and b). Fall zone boundaries in 1990 encompassed 9.7 times more area than in 1981 (Table 2.12) and geographically different regions were added to open zones, notably the west and northeast portions of Iowa. 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 (Fig. 2.5).

Results from a radio-telemetry study in southern Iowa and computer modeling of southern Iowa turkey mortality and hatching data suggest as much as 10% of the population could be removed during fall hunting without reducing long-term turkey populations. Past seasons' harvest have not approached this theoretical value. The present management objective is to increase fall hunting opportunities and harvest. A harvest of fall turkeys similar to the number of spring gobblers harvested is the present goal.

The number of fall licenses issued, hunter numbers and harvest increased steadily from 1981-89 (Fig. 2.6 and Tables 2.5-2.7).

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 40 - 60% (Fig. 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 (Table 2.12). 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/mi² of forest on the southern Iowa Stephens Forest study area and region-wide densities of at least 40-50/mi²). 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 overharvest on popular public hunting areas was 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 recent 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, 1997, 1998 and 1999, but decreased slightly in 2000 and 2001. However, fall harvest levels continue to be well below the levels observed in the mid-1980's.

2002: Wild turkey brood production in 2002 was the highest since 1997, and fall turkey hunter success rates also increased. Since the IDNR'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 quota was 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 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 2002, zones and quotas remained the same as 1999-2001. Shotgun license issue (paid and free combined) increased from the 2001 level to 12,053 for the 48-day season that ran from 14 October through 30 November, 2002 (Table 2.12). Over 47% of the shotgun licenses were issued free to landowners. An additional 1,698 archery-only licenses were issued for a season that ran from 1 October through 6 December, 2002 and 23 December, 2002 through 10 January, 2002. Only 7,682 shotgun hunters actually hunted for turkeys during fall 2002. Forty-nine percent of the active hunters harvested a turkey. Hunter success rates varied from 27% in zone 1 to 59% in zone 5 (Table 2.8). Nonresidents were not permitted to hunt fall turkeys in Iowa this year.

Discussion: Fall turkey hunting techniques are sufficiently different from spring hunting so that past experience with spring hunting seems to have little impact on success in the fall. If anything, reliance on camouflage, sitting still, and calling (the basic spring hunting method) may be less successful and less utilized than walking and flushing turkeys in the small woodlot situations which comprise the bulk of Iowa turkey habitat. Even though fall shotgun success rates are quite high, fall turkey hunting has not been popular. It doesn't seem to appeal to spring hunters and hunter numbers seem to be more related to zone size than anything else. Fall archery hunting has even fewer devotees.

In spite of these differences between spring and fall hunting, they have one important feature in common -- hunter concentrations on public hunting areas. Hunter densities are much greater

on public hunting areas than on private lands. By the nature of fall hunting this has less impact on perceived interference between hunters than it does in spring hunting. Crowding leads to lower success rates on public areas and, on the largest most popular areas, there are some indications of excessive harvest over theoretically desirable levels. Any area that the IDNR 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. Success rates are high for Iowa hunters when compared with surrounding states. 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/mi² of forest as determined from empirical population data gathered from Stephens State Forest (IDNR, unpubl. data). In 1986, only 4 counties sustained > 4 hunters/mi² of forest, combined with turkey harvests of > 2/mi² of forest. In 1987, with the large increase in licenses issued, 12 counties had both hunter densities > 4, and turkey harvest > 2/mi² 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/mi² 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.

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 (1975a, 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: A list of cooperators has been established from IDNR personnel and rural residents living in selected portions of Iowa containing established turkey populations. All rural residents 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 return-addressed postcards which are to be completed and returned based on turkey broods sighted between 1 July and 31 August. Productivity indices are constructed from these returns.

Hanson (1988) compared the brood survey data with spring turkey harvest and data from a radio-telemetry study in southern Iowa. The poult:hen ratio (young/adult) was the variable that correlated best with the telemetry data. Results of additional analyses indicated that the brood survey did have some utility for forecasting turkey numbers available to the hunters in following springs. Additionally, Hanson concluded that in light of the correlations with harvest data the brood survey may also be useful for evaluating the status of turkey populations in various regions of the state. Survey

statistics for 1976-2002 are summarized in Tables 2.9 and 2.10.

2002: Statewide: Wild turkey poult production per hen increased during 2002 (5.4 poults/hen) from 2000 (4.7 poults/hen) based on 2,742 observations statewide (Table 2.9; Fig. 2.4). The percent of hens with broods also increased from the 2001 estimates (Table 2.10). Evidence of increased production in 2002 was an observed increase in average turkey flock size (Fig. 2.4). Brood production in 2002 was higher than the 10-year average. The 2002 production index (which combines the number of poults per hen and the percent of hens with brood) also increased slightly from 2001, but is still below 1983-87 levels.

Northeast Region: The northeast region's production index was lower than the values obtained for 2001. This region continues to maintain relatively high production index values compared to other areas of the state.

Southern Region: The southern region's poult/hen ratio increased from 2001 and the number of birds per flock increased. The percent of hens with brood also increased from 2001 levels.

Central Region: The number of poults per hen and the percent of hens

with brood increased in 2002 in the central region from the values observed in 2000. However, the number of birds per flock decreased.

Western Region: In 2002, the western region experienced decreases in the birds/flock, but experienced increases in poult/hen ratio and the percent of hens with brood.

East-Central Region: The east-central region data indicated an increase in poult production over 2001. Increases occurred in the percent of hens with brood and the number of poults/hen. The number of birds per flock also increased.

Northwest Region: This region experienced the most increase in turkey production from 2001, with the most change in poult/hen reports.

North-Central Region: The number of birds per flock and the number of poults/hen increased substantially in the north-central region over 2001 levels, and the percent of hens with broods had the most increase in this region of the state compared to the previous year.

Literature Cited

- Hanson, G. A. 1988. Iowa's turkey brood survey as an index to productivity and a tool to forecast subsequent harvests. Pages 171-182 in *Wildl. Res. and Sur. in Iowa, Annu. Perf. Rep., P.R. Proj No. W-115-R.*
- Leatherberry, E. C., S. M. Roussopoulos, and J. S. Spencer, Jr. 1990. An analysis of Iowa's forest resources, 1990. U.S.D.A. For. Serv. Resour. Bull. NC-142. 67pp.
- Lewis, J. B. 1975a. Statewide wild turkey survey. Missouri Dep. Conserv. Study Completion Rep. P.R. Proj. No. W-12R-28. Job No. 1.

- _____. 1975b. Evaluation of spring turkey seasons in Missouri. Proc. Natl. Wild Turkey Symposium 3:176-183.
- Little, T. W., 1980. Wild turkey restoration in "marginal" Iowa habitats. Proc. Natl. Wild Turkey Symposium 4:45-60.
- Ostrom, A. J. 1976. Forest statistics for Iowa, 1974. U.S.D.A. For. Serv. Resour. Bull. NC-33. 25pp.
- Peterson, W. J. 1943. Come to the turkey valley. Palimpsest 24:358-359.
- Thornton, P. L., and J. T. Morgan. 1959. The forest resources of Iowa. U.S.D.A. For. Serv. Central States For. Exp. Stn. Release 22. 46pp.



Table 2.1 Number of Iowa spring turkey-hunting licenses issued by zone, 1974-present.
Archery-only licenses not included.

YEAR	ZONE					RESIDENT	NON-
	1	2	3	4	5	TOTAL	RESIDENT
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
1991	262	505	322	26,399	1,115	28,603	306
1992	260	487	320	28,220	1,083	30,370	445
1993	260	500	320	28,646	1,060	30,786	585
1994	262	508	324	30,714	-	31,808	602
1995	260	500	320	30,269	-	31,349	955
1996	260	487	302	35,740	-	36,789	1,124
1997	261	501	320	39,314	-	40,396	1,346
1998	260	500	320	39,783	-	40,863	2,005
1999	260	500	320	43,008	-	44,088	1,999
2000	257	392	242	55,290	-	56,181	2,013
2001	104	148	108	53,635	-	53,995	2,012
2002	121	207	158	51,940	-	52,426	1,944



Table 2.2 Number of estimated active Iowa spring turkey hunters by zone 1974-present.
Archery-only licenses not included.

YEAR	ZONE					RESIDENT TOTAL	NON- RESIDENT
	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	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
1991	234	477	289	20,905	868	22,773	273
1992	200	351	213	24,321	919	26,004	418
1993	124	391	197	24,648	888	26,248	542
1994	157	365	217	26,561	-	27,300	527
1995	113	331	211	26,734	-	27,389	881
1996	178	331	169	31,591	-	32,269	1,057
1997	152	356	210	34,314	-	35,032	1,229
1998	174	395	226	35,759	-	36,554	1,858
1999	139	336	179	37,873	-	38,527	1,803
2000	183	287	159	46,705	-	47,334	1,841
2001	75	103	92	47,327	-	47,597	1,822
2002	70	136	93	46,685	-	47,116	1,796



Table 2.3 Number of estimated spring turkeys harvested by zone, 1974-present.
Archery-only licenses not included.

YEAR	ZONE					RESIDENT	NON-
	1	2	3	4	5	TOTAL	RESIDENT
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
1991	58	144	78	7,414	274	7,968	128
1992	37	71	31	9,348	255	9,742	151
1993	26	97	39	8,638	293	9,093	217
1994	57	81	32	10,428	-	10,598	229
1995	20	81	32	10,275	-	10,408	459
1996	49	77	36	13,078	-	13,240	544
1997	8	68	28	14,647	-	14,751	605
1998	15	73	46	15,676	-	15,810	938
1999	30	71	28	17,231	-	17,360	930
2000	37	60	24	20,759	-	20,880	970
2001	34	49	29	20,383	-	20,495	941
2002	39	68	17	20,538	-	20,662	1061

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

YEAR	ZONE					RESIDENT	NON-
	1	2	3	4	5	TOTAL	RESIDENT
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

Table 2.5 Number of licenses issued to Iowa fall turkey hunters by zone, 1981-present.
 In 1984 and 2001-2002 landowners were not broken-down by zone but do appear in the total.
 No non-resident licenses issued for fall turkey during 1991-2002.

YEAR	ZONE								BOW	RESIDENT	NON-	
	1	2	3	4	5	6	7	8		TOTAL	RESIDENT	
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	554		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	433	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	

Table 2.6 Number of estimated active turkey hunters in Iowa fall turkey seasons by zone, 1981-present. Same problem for 1984 and 2001-2002 as in Table 2.5. No licenses in 1991-94 for zones other than 3 & 6. Bow hunters not surveyed after 1990. No non-resident licenses issued for fall turkey during 1991-2002.

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

Table 2.7 Estimated harvest for Iowa fall turkey hunting by zone, 1981-present. Same problem for 1984 and 2001-2002 as in Table 2.5. Same comments about 1991-94 as in Table 2.6.

YEAR	ZONE								UNK	BOW	RESIDENT\NON-	
	1	2	3	4	5	6	7	8			TOTAL	RESIDENT
1981				808						5	813	
1982				769						10	779	
1983				813						20	833	
1984				882	77	198				36	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	

Table 2.8 Success rate of active Iowa fall turkey hunters by zone, 1981-present. Bow hunters not included in mean. Same comment for 1991-94 as in Table 2.6.

YEAR	ZONE								BOW	RESIDENT	NON-	
	1	2	3	4	5	6	7	8		MEAN	RESIDENT	
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	
2002	27.3	56.0	39.7	55.2	59.0	52.0	55.6	52.7		?	49.4	

Table 2.9 Iowa wild turkey brood survey results by region for birds/flock and young/adult, 1976-present.
 Y/A=young per adult and B/F=birds per flock.

YEAR	NORTHEAST		SOUTHERN		CENTRAL		WESTERN		EAST-CENTRAL		NORTH-WEST		NORTH-CENTRAL		STATEWIDE	
	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F	Y/A	B/F
1976			4.2	10.4											4.2	10.4
1977			7.3	10.3											7.3	10.3
1978			7.5	10.7											7.5	10.7
1979			7.1	13.1											7.1	13.1
1980			7.1	13.3											7.1	13.3
1981	8.2	15.5	7.3	10.7											7.5	11.9
1982	6.1	12.6	6.2	9.3	7.1	9.5	6.6	9.5							6.3	10.5
1983	6.0	13.2	6.3	11.3	6.2	11.4	6.6	11.7	6.0	11.7					6.3	12.1
1984	6.6	12.9	7.4	11.5	4.6	10.6	6.9	12.6	6.8	10.9					6.8	11.9
1985	7.2	16.7	7.4	14.3	6.1	11.4	7.1	11.3	6.8	14.2					7.1	14.4
1986	7.0	14.1	6.2	11.8	6.6	11.7	5.7	9.3	6.8	12.5					6.6	12.4
1987	7.0	17.3	6.5	12.2	7.4	14	5.9	12.5	7.0	14.5					6.8	14.2
1988	5.0	17.1	5.6	10.1	5.3	11.3	4.6	12.6	6.5	14.3					5.4	13.6
1989	4.1	16.1	5.1	10.0	4.4	10.7	5.5	13.0	5.3	14.5					4.7	13.3
1990	5.1	15.8	4.9	9.0	2.7	7.9	6.0	12.2	4.9	11.9	7.7	11.3	6.6	8.3	5.1	12.8
1991	4.7	14.0	4.1	9.7	3.3	9.5	4.8	14.5	5.1	11.5	6.8	10.2	4.3	7.4	4.5	11.8
1992	4.9	11.8	4.3	9.4	3.0	9.1	6.0	10.2	4.5	11.9	3.0	4.0	10.0	11.0	4.6	10.9
1993	5.2	11.8	5.1	9.1	5.0	10.1	4.4	9.6	4.6	11.1	2.5	10.5	4.6	6.9	4.8	10.5
1994	5.3	13.1	5.1	11.6	4.1	10.0	5.1	16.9	4.9	11.5	5.1	11.0	6.2	11.6	5.1	12.3
1995	5.1	12.8	4.9	10.0	4.1	10.1	5.7	13.9	3.9	10.3	4.5	10.4	4.5	9.3	4.7	11.2
1996	4.6	10.4	4.5	9.9	3.9	9.4	4.4	11.2	4.5	10.4	3.1	11.1	4.4	8.9	4.4	10.2
1997	5.2	12.3	6.0	11.9	5.6	11.4	5.8	14.5	5.4	11.0	3.2	7.2	4.9	7.5	5.6	11.7
1998	5.1	11.9	5.3	10.0	5.9	9.8	4.6	10.0	4.5	11.6	4.0	11.9	4.4	10.5	4.9	10.9
1999	3.9	10.1	5.0	10.3	3.8	8.5	4.7	13.7	5.0	10.3	6.9	13.1	3.1	6.5	4.7	10.5
2000	4.9	10.5	5.3	10.5	3.8	8.2	5.1	12.2	5.3	11.1	6.1	17.4	3.8	6.7	5.2	10.9
2001	5.1	11.9	4.6	9.3	5.0	10.3	4.6	13.0	4.5	11.5	3.9	10.9	4.5	9.3	4.7	10.8
2002	4.9	10.8	5.6	10.7	5.4	9.6	5.1	11.7	5.5	12.0	5.9	13.0	5.6	13.6	5.4	11.3
10-year avg.	4.9	11.6	5.1	10.3	4.7	9.7	5.0	12.7	4.8	11.1	4.5	11.7	4.6	9.1	5.0	11.0
10 year % change	-0.6	-6.57	8.9	3.58	16	-1.4	3.03	-7.66	14.3	8.3	30.5	11.6	21.7	49.8	9.091	2.45
1 year % change	-4.1	-10.2	18	13.1	7.4	-7.3	9.8	-11.1	18.2	4.17	33.9	16.2	19.6	31.6	12.96	4.42

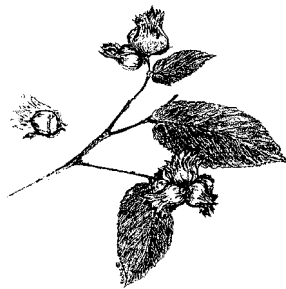


Table 2.10 Iowa wild turkey brood survey results by region for reports and percent hens with broods, 1976-present. #=total reports and %=% hens with broods.

YEAR	NORTHEAST		SOUTHERN		CENTRAL		WESTERN		EAST-CENTRA		NORTHWEST		NORTH-CENTRAL		STATEWIDE	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1976			78													
1977			98													
1978			77	80												
1979			170	80												
1980			142	57												
1981	65	65	194	57											259	
1982	118	62	163	60	31	42	10	23							322	
1983	117	75	148	69	34	67	40	57	77	46					416	65
1984	106	78	134	78	13	84	41	54	76	53					370	70
1985	133	81	229	82	42	94	47	57	165	65					616	76
1986	191	74	236	63	42	55	65	64	137	55					671	64
1987	266	77	353	61	79	78	70	72	138	71					906	69
1988	379	72	394	45	138	79	90	69	278	60					1,279	62
1989	364	72	408	54	92	38	137	46	303	54					1,304	57
1990	421	66	257	46	38	59	118	38	303	49	18	46	28	14	1,183	54
1991	368	57	418	47	78	40	105	46	346	55	22	46	9	35	1,346	51
1992	344	59	431	44	49	28	68	25	387	44	18	5	9	14	1,306	45
1993	265	48	290	45	37	67	75	47	330	47	12	64	28	44	1,037	48
1994	403	53	425	49	56	61	95	62	338	56	35	42	36	46	1,388	53
1995	325	57	385	35	175	28	146	40	319	53	24	58	28	80	1,403	44
1996	425	48	428	38	134	25	68	43	371	46	37	43	68	48	1,531	42
1997	310	59	589	67	67	64	141	60	356	51	27	28	82	39	1,572	58
1998	474	59	783	49	76	37	158	48	504	53	49	78	97	61	2,141	53
1999	411	52	805	60	62	54	188	60	517	49	45	57	86	35	2,114	54
2000	293	53	759	56	74	50	210	59	350	51	41	84	59	53	1,786	55
2001	429	67	803	41	73	47	228	44	486	39	61	65	105	38	2,185	46
2002	563	64	853	51	157	56	200	57	675	45	86	71	153	77	2,742	54
10-year avg.		56.0		49.1		48.9		52.0		49.0		59.0		52.1		50.7
10 year % change		14		3.9		15		9.6		-8.2		20.34		48		6.51
1 year % change		-4.7		20		16		23		13		8.451		51		14.8

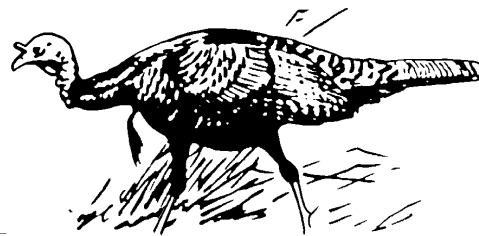


Table 2.11 Iowa's Spring turkey hunting seasons, 1974-present.

YEAR	LIMIT	BAG POSSESSION LIMIT	SEASON				SPLITS	SEASON LENGTH	# ZONES	# SQ. MILES	MAJOR RULE CHANGES
			1	2	3	4					
1974	1	1/LICENSE	04 MAY-10 MAY	11 MAY-19 MAY			16	3	5,682	\$ 10 FEE	
1975	1	1/LICENSE	26 APR-02 MAY	03 MAY-09 MAY	10 MAY-18 MAY		23	3	2,749	THIRD SEASON ADDED	
1976	1	1/LICENSE	24 APR-28 APR	29 APR-05 MAY	06 MAY-16 MAY		23	4	2,884	NE IOWA CLOSED FOR RESTOCKING	
1977	1	1/LICENSE	21 APR-27 APR	28 APR-04 MAY	05 MAY-15 MAY		25	4	3,200		
1978	1	1/LICENSE	20 APR-26 APR	27 APR-03 MAY	04 MAY-14 MAY		25	6	3,683		
1979	1	1/LICENSE	19 APR-25 APR	26 APR-02 MAY	03 MAY-13 MAY		ZONES 1-↓	25			
			26 APR-02 MAY	03 MAY-09 MAY	10 MAY-20 MAY		ZONES 6-↓	25	8	9,958 \$ 15, NE IOWA RE-OPENED	
1980	1	1/LICENSE	24 APR-30 APR	01 MAY-07 MAY	08 MAY-18 MAY		ZONES 1-↓	25		MUZZLELOADER LEGAL, W. IOWA OPEN,	
			17 APR-23 MAY	24 APR-30 MAY	01 MAY-11 MAY		ZONES 6-↓	25	9	12,942 STEPHENS SF SPECIAL ZONE	
1981	1	1/LICENSE	14 APR-20 APR	21 APR-28 APR	29 APR-10 MAY		27	9	21,873	YELLOW RIVER SF SPECIAL ZONE, 2ND CHOICE ON APP, 2 LICENSES AVAILABLE	
1982	1	1/LICENSE	13 APR-19 APR	20 APR-27 APR	28 APR-09 MAY		27	8	21,506		
1983	1	1/LICENSE	12 APR-18 APR	19 APR-26 APR	27 APR-08 MAY		27	10	23,464		
1984	1	1/LICENSE	16 APR-19 APR	20 APR-24 APR	25 APR-01 MAY	02 MAY-13 MAY	28	12	25,172	ALL 3 SF SPECIAL ZONES, 4TH SEASON ADDED	
1985	1	1/LICENSE	15 APR-18 APR	19 APR-23 APR	24 APR-30 APR	01 MAY-12 MAY	28	13	27,005	\$20 FEE, DECOYS LEGAL	
1986	1	1/LICENSE	14 APR-17 APR	18 APR-22 APR	23 APR-29 APR	30 APR-11 MAY	28	15	39,211	COMBO GUN-BOW LICENSE, FREE LANDOWNER PERMIT, ARCHERY-ONLY PERMIT	
1987	1	1/LICENSE	13 APR-16 APR	17 APR-21 APR	22 APR-28 APR	29 APR-10 MAY	28	13	40,202		
1988	1	1/LICENSE	11 APR-14 APR	15 APR-19 APR	20 APR-26 APR	27 APR-08 MAY	28	11	44,112	UNLIMITED 4TH SEASON PERMITS, ALL DAY HUNTING	
1989	1	1/LICENSE	10 APR-13 APR	14 APR-18 APR	19 APR-25 APR	26 APR-07 MAY	28	5	56,043	ENTIRE STATE OPEN	
1990	1	1/LICENSE	09 APR-12 APR	13 APR-17 APR	18 APR-24 APR	25 APR-06 MAY	28	5	56,043	NONRESIDENTS ALLOWED	
1991	1	1/LICENSE	15 APR-18 APR	19 APR-23 APR	24 APR-30 APR	01 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-09 MAY	28	5	56,043		
1994	1	1/LICENSE	18 APR-21 APR	22 APR-26 APR	27 APR-03 MAY	04 MAY-15 MAY	28	4	56,043		
1995	1	1/LICENSE	17 APR-20 APR	21 APR-25 APR	26 APR-02 MAY	03 MAY-14 MAY	28	4	56,043		
1996	1	1/LICENSE	15 APR-18 APR	19 APR-23 APR	24 APR-30 APR	01 MAY-12 MAY	28	4	56,043		
1997	1	1/LICENSE	14 APR-17 APR	18 APR-22 APR	23 APR-29 APR	30 APR-11 MAY	28	4	56,043		
1998	1	1/LICENSE	13 APR-16 APR	17 APR-21 APR	22 APR-28 APR	29 APR-10 MAY	28	4	56,043		
1999	1	1/LICENSE	12 APR-15 APR	16 APR-20 APR	21 APR-27 APR	28 APR-9 MAY	28	4	56,043	\$22.50 FEE, ARCHERS ALLOWED 2 PERMITS	
2000	1	1/LICENSE	17 APR-20 APR	21 APR-25 APR	26 APR-02 MAY	03 MAY-21 MAY	35	4	56,043		
2001	1	1/LICENSE	16 APR-19 APR	20 APR-24 APR	25 APR-1 MAY	02 MAY-20 MAY	35	4	56,043		
2002	1	1/LICENSE	15 APR-18 APR	19 APR-23 APR	24 APR-30 APR	01 MAY-19 MAY	35	4	56,043	\$23 FEE	

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

YEAR	BAG POSSESSION		SEASON	SEASON LENGTH	# ZONES	# SQ. MILES	MAJOR RULE CHANGES
	LIMIT	LIMIT					
1981	1	1/LICENSE	21 OCT-01 NOV	12	2	4,032	\$15 FEE
1982	1	1/LICENSE	19 OCT-31 OCT	13	2	5,254	1 GUN & 1 BOW, UNLIMITED BOW PERMITS IN SPRING ZONES
1983	1	1/LICENSE	18 OCT-30 OCT	13	2	5,254	HUNTER SAFETY REQUIRED IF BORN AFTER 1 JAN 1967
1984	1	1/LICENSE	16 OCT-28 OCT	13	3	13,685	DECOYS LEGAL; WESTERN, CENTRAL & 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 :
1987	1	1/LICENSE	12 OCT-08 NOV	28	7	21,575	2 LICENSES POSSIBLE, YELLOW RIVER SF SPECIAL ZONE
1988	1	1/LICENSE	10 OCT-27 NOV	49	7	25,402	
1989	1	1/LICENSE	09 OCT-26 NOV	49	7	29,610	NONRESIDENTS ALLOWED
1990	1	1/LICENSE	15 OCT-30 NOV	47	7	39,191	
1991	1	1/LICENSE	14 OCT-30 NOV	48	2 OF 7	9,060	LICENSES ISSUED FOR ZONES 3 & 6 ONLY (NE IOWA), \$22 FEE
1992	1	1/LICENSE	17 OCT-29 NOV	44	2 OF 7	9,060	LICENSES ISSUED FOR ZONES 3 & 6 ONLY (NE IOWA)
1993	1	1/LICENSE	11 OCT-28 NOV	49	2 OF 7	9,060	LICENSES ISSUED FOR ZONES 3 & 6 ONLY (NE IOWA)
1994	1	1/LICENSE	10 OCT-30 NOV	52	2 OF 7	9,060	LICENSES ISSUED FOR ZONES 3 & 6 ONLY (NE IOWA)
1995	1	1/LICENSE	16 OCT-30 NOV	46	7	39,191	
1996	1	1/LICENSE	14 OCT-30 NOV	48	7	39,191	
1997	1	1/LICENSE	13 OCT-30 NOV	49	7	39,191	
1998	1	1/LICENSE	12 OCT-30 NOV	50	7	39,191	
1999	1	1/LICENSE	11 OCT-30 NOV	51	8	44,056	ZONE 8 ADDED, \$22.50 FEE
2000	1	1/LICENSE	16 OCT-30 NOV	46	8	44,056	
2001	1	1/LICENSE	15 OCT-30 NOV	47	8	44,056	
2002	1	1/LICENSE	14 OCT-30 NOV	48	8	44,056	\$23 FEE

Figure 2.1 Iowa spring turkey hunting statewide estimates, 1974-2002.

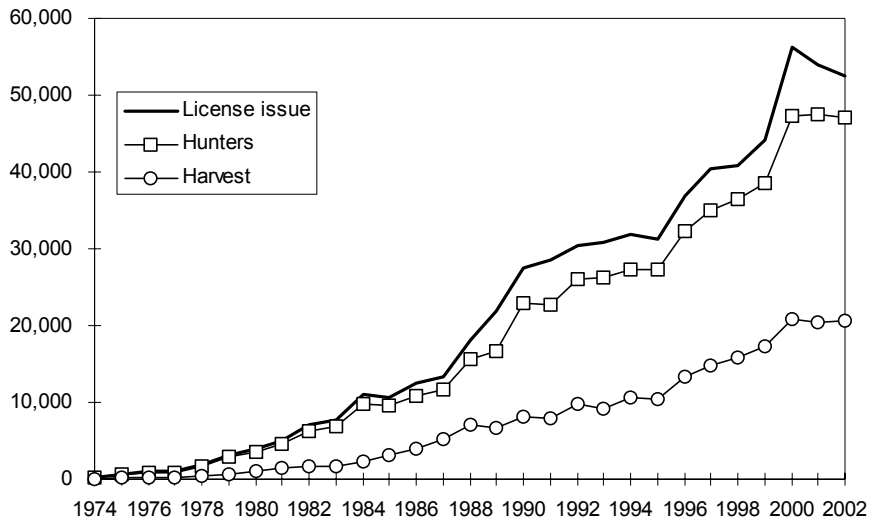


Figure 2.2 Spring turkey hunting zones, 1974 and the present.

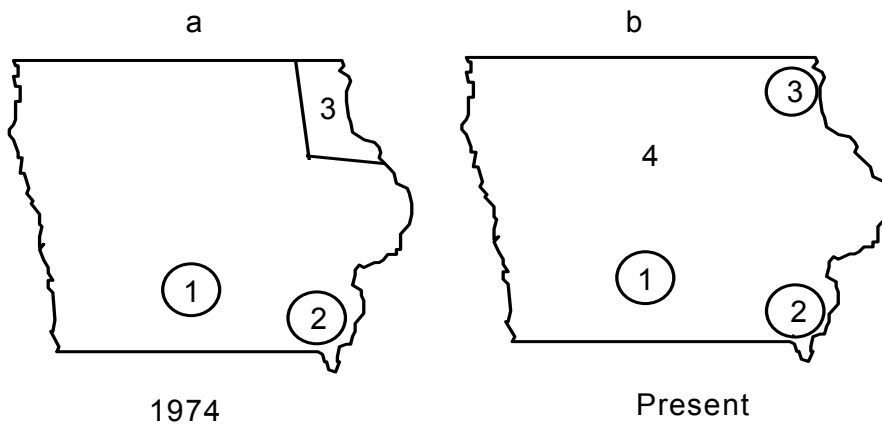


Figure 2.3 Iowa turkey harvest statewide success rates, 1974-2002.

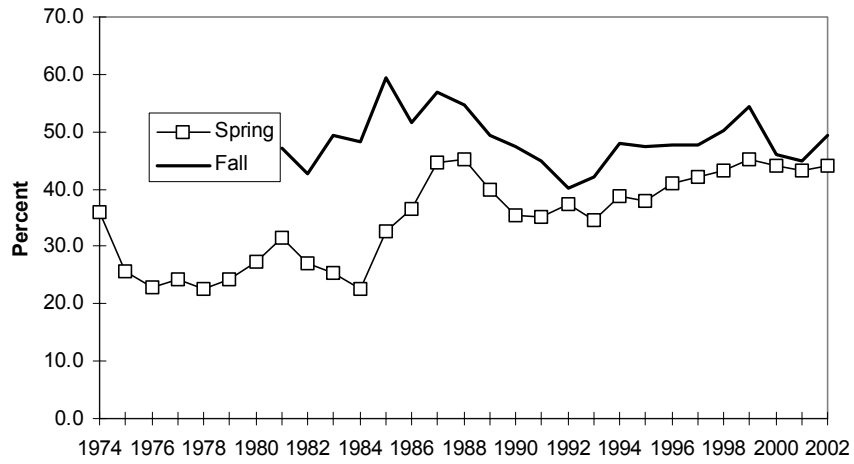


Figure 2.4 Iowa turkey brood survey statewide results, 1976-2002.

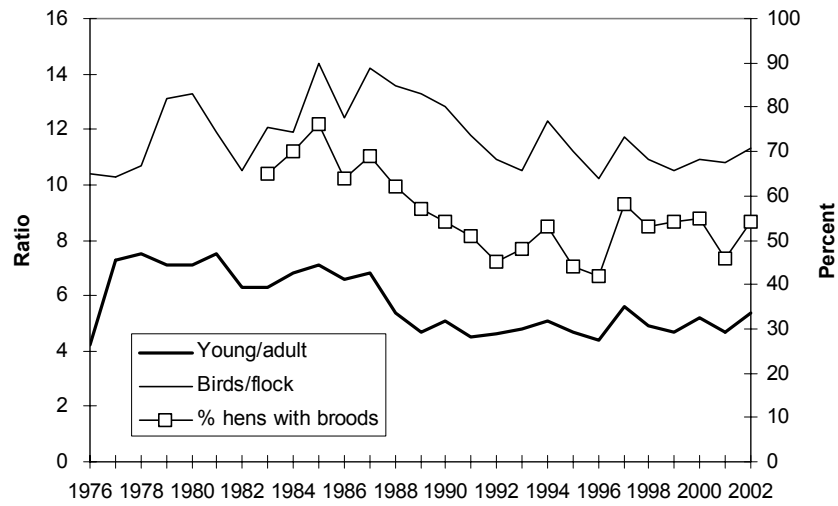


Figure 2.5 Fall turkey hunting zones, 1981 and the present.

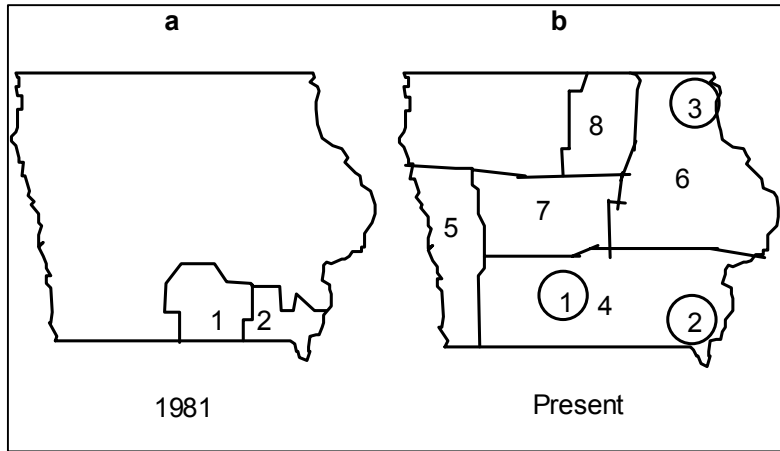
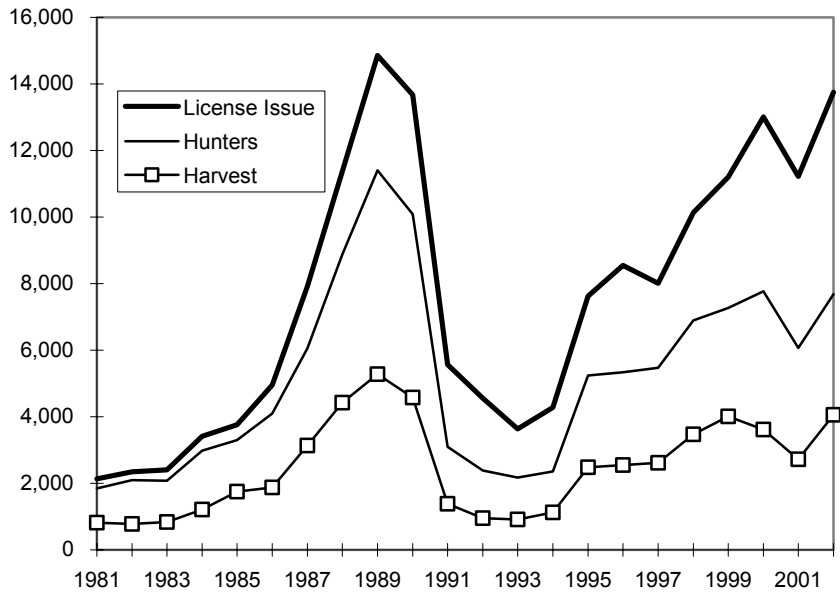


Figure 2.6 Iowa fall turkey hunting statewide estimates, 1981-2002.



FURBEARERS

According to Iowa Code 109.97, every fur dealer must report the number of raw furs purchased from Iowa trappers and hunters by May 15 of each year. Table 3.1 shows the number of raw furs purchased from the 1930-31 season through the present. This information gives a retrospective view of the status of various fur populations not only historically, but from year to year as well.

For example, the muskrat harvest data show that while muskrat harvests are very cyclic. The harvests of the 30s are not much different from the 60s, 70s, and 80s. Drought cycles can directly influenced muskrat populations and consequently harvest. During the droughts of the 30s, 50s and most recently 1988-89 and 1989-90 muskrat harvests were substantially reduced. The drought followed by extremely high water from 1990 through 1996, plus the sluggish fur markets are the main reasons why the last decade of fur harvests are the lowest since the 1960-61 season. The 1993-94 season did, however, see a 32 percent increase in the muskrat harvest while historically, the harvest was still low. The mere abundance of muskrats still allowed for this substantial increase in harvest. Because of the muskrat's prolific reproductive capability, populations responded quickly as adequate water conditions returned. In fact, 1993 brought modern day record muskrat populations back to the majority of Iowa's marshes. In 1997, after an extended high water period, "exploding" muskrat populations, and thus emergent vegetation disappeared due to muskrat "eat outs," the population has rapidly declined. In fact muskrats continue at modern day record low levels, throughout most of the marsh country in

the United States. Extended natural droughts and/or managed water level draw downs will allow marshes to revegetate and muskrats to increase accordingly. Unfortunately many of the wetland areas do not have the capability of "artificial" draw downs.

Mink harvests were higher in the 30s and 40s then remained somewhat lower in the 50s and 60s with the 1986-87 harvest similar to the 30s once again. Low numbers for both species in 1939 reflect statewide season closure except for the Mississippi River. A similar situation occurred for muskrats in 1947. Often mink harvests will parallel muskrat harvest but will lag a year or two behind muskrat harvest. That is primarily due the fact that muskrat trappers will take advantage of mink that like to prey upon muskrats when the muskrat population is high. The 1989-90 through 1991-92 mink harvest was substantially reduced due to overall lower fur values and consequently less trapper effort. During 1994-95, mink harvest increased primarily because of the fact that fur value speculation increased trapping pressure on mink because muskrats populations were so low. Recent mink harvest trends generally show declines, likely due to overall reduced trapping effort that is occurring with most furbearer species, and especially the muskrat.

Raccoons have been an interesting species with comparatively low harvests until 1967 and then noticeably increased harvests through 1986-87 when a record 390,800 raccoon were taken (Fig. 3.1). A quarter million raccoons were harvested annually for 15 years (1973-1987) and yet the population remained very high. It is likely that the high raccoon harvest has

kept raccoon populations at very healthy levels. Since 1989 the raccoon harvest has leveled off at near 100,000 pelts. This also is indicative of the suppressed raccoon fur values of the past several years. However, renewed interest and increasing pelt values were responsible for a slow increase in raccoon harvest in the late 1990s, with the 2001-02 harvest approaching 1.5 raccoon pelts.

Spotted skunk (civet cat) harvest levels indicate that their numbers dropped off substantially before the season was closed in the mid-1970s. During recent years the DNR has not received more than 1 or 2 spotted skunk reports. Since 1992 the only recent spotted skunk report the DNR has received is a roadkill in 2001 in Ringgold County. Spotted skunks should at least be considered a threatened, if not, endangered species, and perhaps even extirpated.

Red fox harvests have increased significantly since the mid-1960s, stabilizing between 12,000 and 20,000 fox pelts over the past couple of decades. The red fox population is making a very slow comeback in the modern day traditional fox areas of northwest and north-central Iowa. Active fox dens, however, are a rarity compared to the 1970s and 1980s. An outbreak of mange in the early 1980s and the suppressed fur market greatly reduced the fox population as well as the harvest during the past 6 seasons.

Similar trends occurred with coyotes, with harvest figures ranging between 6,000 and 12,000 pelts. Nearly 10,300 coyote pelts were purchased during the 1992-93 fur season. That is not a record coyote harvest, but is double the previous season. The 1994-95, 1995-96 and 1996-97 seasons showed a decrease in the coyote harvest, but the population remains high statewide. The late 1990s harvest remained fairly stable.

Beaver seasons were closed in the 1930s and early 1940s. They reopened in the mid-1940s on a restricted basis and harvest has increased in the past decade to between 6,000 and 17,000 hides. About 50 percent fewer beaver were purchased from Iowa dealers during the 1991-92 season as compared to 1987-88. There has been a somewhat increasing beaver market for the past few years but the hard work and difficult weather conditions for trapping keep the beaver harvest relatively low. Increasing interest in beaver fur did bring a noticeable increase in pelts purchased in 1992, but that increase was supplemented by beaver hides that were kept frozen from previous years and dumped on the market in hopes of capitalizing on a higher beaver pelt prices. The 1993 and 1994 beaver take decreased about 25 percent and it declined somewhat more in 1995. The beaver population is high and they continue to generate more complaints from landowners over beaver flooding and foraging on crops and blocking tiles.

Several factors need to be considered when reviewing these data. Water levels certainly affect the harvest of aquatic furbearers such as muskrats and beaver. Freeze-up and season opening dates also have some effect. Higher fur values usually mean higher harvest levels. Weather greatly impacts the harvest of many furbearing animals such as raccoon, fox, and coyotes. Mild weather and open winters are generally better for all trappers and coon hunters. Fox and coyote hunters harvest more animals when cold, snowy weather exists. Very notable to the entire furbearer season in 2000-2001 was the fact that cold weather froze marshes earlier and record cold and snows made this season one of the most difficult ever for fur pursuing enthusiasts. Weather conditions did, in fact, reduce the harvest

of most furbearer species in 2000-2001. During 2001-2002 season weather conditions were nearly the opposite of the previous winter. These warm, mild, and comparatively dry conditions were conducive to better harvests of several species. The 2002-2003 season started out very mild but turned much colder later in the season providing great opportunity for furharvesters early in the season but the later colder weather slowed furharvesting considerably. With the exception of the spotted skunk and perhaps weasel, these harvest data and other qualitative information indicate that most furbearers have adapted well to the changing environment that humans have created.

Because of the squabbles and debates that occur between hunters and trappers over their "rightful share" of the resource, the DNR in 1975 began asking fur buyers to estimate the percent of foxes, coyotes and raccoons taken by hunters versus that taken by trappers. The DNR believes the information is helpful in determining the impact of hunters and trappers on furbearer populations. The breakdown by year is shown in Table 3.2. Fox hunters historically have had greater impacts on the population in years when snow conditions make "spotting" foxes easier, while in mild open winters trappers do better. Because there are considerably more fox hunters than fox trappers, in years with more snowfall, hunters have a greater impact on the fox population than trappers. Cold and snowy weather favors the fox and coyote hunters and dry mild winter's favor trapping enthusiasts. An extensive outbreak of mange in foxes throughout the northern half of the state has greatly reduced fox numbers, and has also contributed to reduced fox harvest during the decade of the 90s and the early 2000s.

Mild open winters benefit both raccoon hunters and trappers, again because raccoon hunters outnumber raccoon trappers, they have the higher impact on the population. With the advent of the furharvester license, in 1986 it is likely that the demarcation between hunter and trapper harvests will become less distinct as one license allows them to pursue both activities.

Coyote hunters take substantially more coyotes than trappers, but this relates to the fact that there are considerably more coyote hunters than coyote trappers. Also, coyotes are certainly more difficult to trap than foxes and raccoons, thus the generally lower percentage of coyotes trapped each year as compared to those hunted. This is supported by the information on Table 3.2.

In 1978 the Iowa DNR initiated a Raccoon and Deer Spotlight Survey in an effort to establish population trend index for raccoon and deer. Table 3.3 shows the results of the survey through 1998. Based on the mean number of raccoons observed per route it appears that the raccoon population has fluctuated considerably (Fig. 3.2). Low harvests appear associated with increased raccoons observed per route the subsequent spring. The spotlight survey index of the 1990's have been the highest ever recorded since the survey began in 1978. Reduced raccoon harvest since 1987 is most likely the major reason for the record high population of recent years.

The raccoon harvest accounts for nearly 60 percent of the total fur value (Table 3.4). A record harvest of 390,000 raccoons occurred during the 1986-87 season, but, by 1989-90, over a quarter of a million less raccoons have been harvested. During the last 3 years of the 1990s the raccoon market has softened

considerably and this will likely reduce pressure on the raccoon population. However, since 2000 raccoon fur values are showing some increase.

Historically, pelt prices of mink peaked in the mid-1940s and have fluctuated since then between about \$10 and \$20 (Fig. 3.4). Red fox prices peaked in the late 1970s at about \$65. Iowa's total fur value reached a record \$15.5 million in 1979. During the past 6 years between \$1 and \$1.8 million of fur pelts have been harvested. Historical season dates are presented in Table 3.5

The European Union, EU (formerly called the European Economic Community, EEC) has threatened to discontinue the importation of furs from countries still allowing the use of leg-hold/foot-hold traps. This has been scheduled to go into effect on January 1, 1995, 1996, and again in 1997. If this actually ever goes into effect it could mean the collapse of the U.S. commercial fur harvest and trade, as we currently know it. Oriental countries such Korea and China are trying to develop a fur economy/trade and that could considerably because currently the European countries account for over 75 percent of the U.S. fur market. International trade, tariff and governmental politics will determine what ultimately happens.

In late 1997, an "understanding" was reached with the European Union, the United States and other countries involved. The European markets would remain open to the U.S. fur trade. Over the next several years the U.S. would develop scientifically based best

management practices (BMP's) for trapping animals with restraining traps. The Iowa Department of Natural Resources, in cooperation with 3 local trappers, was involved in testing 4 types of traps for raccoons in 1998. These were 1.5 coil spring with offset jaws, the #11 longspring, the #11 longspring with offset jaws, and the Tomahawk cage trap. Ohio, Wisconsin and Missouri did the same trap tests in their states.

Some controversies are now developing between the furharvester ranks and the Fur Resources Technical Committee of the International Association of Fish and Wildlife Agencies. Some of the most used traps of the past (particularly the 1 ½ coil spring trap) have not scored well under the BMP process, particularly for trapping raccoons. The self-mutilation of raccoons chewing their foot or leg when in certain foothold traps present challenges for trappers and the type of trapping systems they use. More information and research will have to occur before we can finalize the BMPs for raccoons. The BMP draft for trapping coyotes in the Eastern United States is currently being reviewed by professionals as well as the trapping public. Reception to that BMP has predominately been favorable.

While the "understanding" with the European Union is not a binding agreement, we see it as a victory for the continued legitimate use of the leg/foot hold trap into the 21st century. Hopefully the BMP process will also help us improve restraining foothold traps to allow their continued use long into the future.

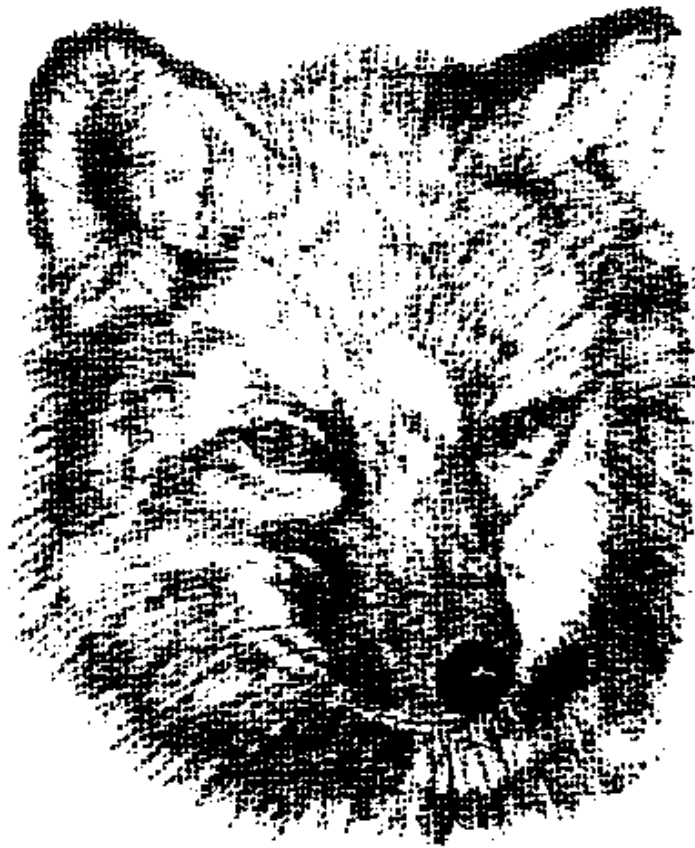


Table 3.1 Furbearer harvest in Iowa listed by species (1930-present). Data for each year includes harvest for the winter of the succeeding year, eg. 1930=1930+1931(winter).

(Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

Year	Muskrat	Mink	Skunk	Raccoon	Civet	Red	Gray	Opossum	Weasel	Coyote	Badger	Beaver
						Fox	Fox					
1977	257,237	13,037	3,588	264,367	7	22,831	1,640	36,186	36	12,011	1,900	3,432
1978	467,721	23,277	6,545	251,985		24,348	2,115	26,160	82	10,627	1,936	4,327
1979	741,403	31,270	10,022	308,277		17,629	3,093	10,978	122	7,745	3,274	12,498
1980	739,419	32,950	5,616	235,717		20,602	2,175	11,664	32	6,847	2,427	11,831
1981	521,945	28,455	1,913	291,227		22,385	1,710	18,730	16	9,860	1,946	5,705
1982	428,252	21,307	1,194	255,926		18,527	1,953	16,761	16	8,930	1,754	5,809
1983	464,793	22,245	1,152	261,875		21,257	1,185	16,179		9,636	1,298	8,563
1984	372,466	28,346	1,032	334,179		18,916	1,896	21,455		7,809	1,754	16,323
1985	254,412	17,116	1,861	270,805		16,346	1,114	16,296		7,858	975	14,931
1986	482,811	31,139	2,540	390,773		19,740	1,593	30,760		10,582	2,520	17,778
1987	515,611	27,712	1,198	307,587		19,666	1,091	27,623		10,348	1,642	13,509
1988	192,214	13,996	712	190,556		15,445	769	19,824		4,650	1,043	18,459
1989	73,415	8,293	245	118,653		13,359	374	8,114		4,073	468	8,706
1990	70,133	7,363	189	103,468		14,268	393	6,243		5,068	503	9,246
1991	91,206	8,469	211	110,342		15,463	429	7,411		5,213	572	8,943
1992	124,638	12,839	791	110,203		14,660	1,036	8,192		10,286	621	15,839
1993	163,842	13,946	643	118,463		12,986	836	6,243		7,313	571	11,788
1994	178,683	11,819	510	112,686		12,243	789	6,782		6,986	502	11,643
1995	158,241	20,392	786	118,136		14,136	948	9,781		8,462	614	10,678
1996	123,460	18,946	693	123,698		12,402	721	7,643		7,159	832	10,481
1997	113,621	16,832	649	149,492		12,896	768	6,012		6,992	796	11,122
1998	90,126	16,461	536	106,641		11,646	681	5,123		5,786	642	10,336
1999	86,998	15,931	528	101,233		11,968	631	4,649		5,231	597	10,108
2000	84,972	15,235	469	94,989		11,103	576	3,922		5,348	506	10,478
2001	78,867	14,162	398	143,206		12,349	529	3,361		6,702	487	11,287
2002	89,421	14,986	417	118,531		14,869	507	2,905		5,746	402	10,431

Table 3.2 Percentage of foxes, raccoons and coyotes purchased from hunters and trappers determined from furbuyer reports (1975-present). Data for each year includes harvest from the succeeding year, eg. 1930=1930+1931(winter).

Year	Fox			Raccoon			Coyote		
	% by trapper	% by hunter	% by unknown	% by trapper	% by hunter	% by unknown	% by trapper	% by hunter	% by unknown
1975	45	48	7	28	60	12	18	72	10
1976	55	41	4	28	66	6	28	68	4
1977	36	55	9	24	68	8	18	72	10
1978	37	58	5	31	61	8	17	74	9
1979	53	32	15	30	58	12	30	59	11
1980	66	29	5	33	60	7	33	60	7
1981	38	46	16	42	46	12	20	74	6
1982	47	45	8	35	53	12	25	69	6
1983	33	59	8	37	50	13	17	67	16
1984	49	31	20	33	41	26	26	60	14
1985	39	54	7	37	52	11	23	65	12
1986	59	35	6	46	49	5	34	62	4
1987	53	43	4	49	47	4	32	62	6
1988	58	34	8	49	46	5	30	67	3
1989	48	28	24	35	45	20	24	61	15
1990	43	46	11	38	55	7	28	66	6
1991	44	49	7	41	51	8	25	67	8
1992	40	52	8	45	50	5	36	54	6
1993	43	50	7	43	52	5	34	57	9
1994	39	55	6	44	46	10	33	59	8
1995	41	52	7	47	45	8	30	65	5
1996	44	48	8	48	48	4	32	58	10
1997	40	47	13	48	46	5	29	62	9
1998	46	48	6	46	47	5	33	63	4
1999	45	46	9	42	53	5	34	61	5
2000	34	58	8	38	46	16	31	58	11
2001	52	43	5	43	47	10	36	56	8
2002	56	38	6	48	42	10	32	59	9
Average	45.4	45.6	8.9	39.3	51.4	9.2	28.0	63.6	8.2

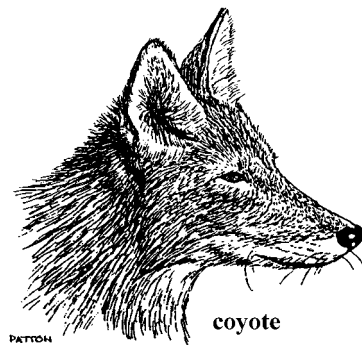


Table 3.3 Results of the Iowa raccoon spotlight survey with raccoon harvest and pelt price (1978-present). The spotlight survey is conducted in April each year. Harvest is from previous year.

Year	# Routes	Raccoon harvest	Mean # observed	Pelt Prices
1978	57	264,367	10.3	22.27
1979	83	251,985	11.2	31.18
1980	82	308,277	8.2	29.97
1981	85	235,717	8.9	21.47
1982	85	291,227	10.4	27.69
1983	84	255,926	12.8	16.54
1984	82	261,875	12.9	14.23
1985	84	334,179	11.5	18.94
1986	83	270,805	10.5	13.91
1987	80	390,773	11.3	18.22
1988	79	307,587	12.0	16.65
1989	83	190,556	14.8	7.96
1990	84	118,653	17.0	4.74
1991	86	103,468	16.7	4.62
1992	84	110,342	18.2	4.96
1993	82	110,203	21.5	5.36
1994	84	118,463	20.8	5.81
1995	89	112,686	21.1	6.89
1996	87	118,136	24.4	6.83
1997	89	123,698	23.5	8.26
1998	88	149,492	21.9	7.79
1999	88	106,641	23.3	7.21
2000	88	101,233	22.3	8.13
2001	88	94,989	24.3	9.26
2002	88	143,206	20.7	11.69
2003	88	118,531	21.1	12.16

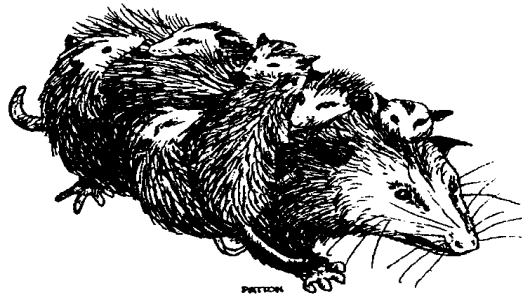


Table 3.4 Value of important furbearer species taken in Iowa (1930-present). Data for each year includes harvest from the winter of the succeeding year, e.g. 1930 = 1930 & 1931 (winter).

(Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

	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
1977	12.44	162,180	4.77	1,227,020	22.27	5,887,453	49.53	1,130,819	8,871,156
1978	14.48	337,050	4.49	2,100,067	31.18	7,856,892	64.65	1,574,098	12,516,946
1979	19.04	595,380	5.64	4,181,512	29.97	9,239,061	48.71	858,708	15,499,322
1980	18.20	599,690	5.88	4,347,783	21.47	5,060,843	42.88	883,413	11,269,768
1981	17.99	511,905	3.84	2,004,268	27.69	8,064,075	46.29	1,036,201	12,021,854
1982	11.18	238,212	2.18	933,589	16.54	4,233,016	28.85	534,503	6,235,053
1983	16.03	356,481	2.30	1,152,686	14.23	3,726,481	33.16	704,882	6,180,169
1984	14.22	403,080	2.88	1,072,702	18.94	6,329,350	25.24	477,439	8,574,748
1985	11.76	201,274	1.89	480,838	14.34	3,883,343	16.70	272,978	5,163,651
1986	20.79	647,379	3.39	1,636,729	18.22	7,119,884	20.73	409,210	10,335,629
1987	20.76	575,301	3.32	1,711,828	16.65	5,121,323	18.07	355,365	8,097,250
1988	22.06	308,751	2.05	394,038	7.96	1,516,825	12.15	187,656	2,602,695
1989	16.34	138,890	1.02	76,500	4.74	568,800	9.70	135,800	1,018,622
1990	18.26	134,448	2.08	145,876	4.96	513,201	10.22	145,898	1,074,761
1991	15.49	131,184	1.96	178,764	5.36	591,433	9.63	148,909	1,198,863
1992	19.46	249,846	1.58	196,928	6.36	700,891	8.43	123,078	1,579,821
1993	16.78	234,014	1.83	299,831	5.81	688,270	8.98	116,614	1,388,729
1994	14.13	167,003	1.95	348,432	6.89	706,686	9.86	120,716	1,409,848
1995	18.01	367,259	1.78	281,670	6.83	808,371	8.76	123,831	1,745,504
1996	19.36	336,795	1.56	182,598	8.92	1,103,386	8.43	104,549	1,661,687
1997	17.86	302,303	1.51	171,568	7.79	1,169,643	7.04	90,788	1,729,199
1998	16.05	264,199	1.66	149,609	7.21	768,882	8.21	95,637	1,203,362
1999	19.16	255,583	1.55	134,847	8.13	823,024	9.68	115,850	1,329,304
2000	15.46	235,533	2.09	177,591	9.26	879,598	9.86	109,476	1,378,689
2001	17.23	244,011	2.43	191,647	11.69	1,674,078	10.86	134,110	2,168,918
2002	14.96	244,191	1.85	165,429	12.16	1,441,37	11.36	168,912	2,069,896

Table 3.5 Iowa's furbearer seasons

(Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

YEAR	SPECIES	OPENING START TIME	____ TRAPPING ____		____ HUNTING ____	
			SEASON DATES OPENING	CLOSING	SEASON DATES OPENING	CLOSING
1996-97	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 2	Jan 31		
	be	8 a.m.	Nov 2	Apr 15		
	rf, gr	8 a.m.	Nov 2	Jan 31	Nov 2	Jan 31
	ra, op	8 a.m.			Nov 2	Jan 31
	wc	8 a.m.			Jun 15	Oct 31
	co	8 a.m.	Nov 2	Jan 31	cont open season	
	spsk, bc, ot			cont closed season		cont closed season
1997-98	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 1	Jan 31		
	be	8 a.m.	Nov 1	Apr 15		
	rf, gr	8 a.m.	Nov 1	Jan 31	Nov 2	Jan 31
	ra, op	8 a.m.			Nov 2	Jan 31
	wc	8 a.m.			Jun 15	Oct 31
	co	8 a.m.	Nov 2	Jan 31	cont open season	
	spsk, bc, ot			cont closed season		cont closed season
1998-99	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 7	Jan 31		
	be	8 a.m.	Nov 7	Apr 15		
	rf, gr	8 a.m.	Nov 7	Jan 31	Nov 7	Jan 31
	ra, op	8 a.m.			Nov 7	Jan 31
	wc	8 a.m.			Jun 15	Oct 31
	co	8 a.m.	Nov 7	Jan 31	cont open season	
	spsk, bc, ot			cont closed season		cont closed season
1999-2000	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 6	Jan 31		
	be	8 a.m.	Nov 6	Apr 15		
	rf, gr	8 a.m.	Nov 6	Jan 31	Nov 6	Jan 31
	ra, op	8 a.m.			Nov 6	Jan 31
	wc	8 a.m.			Jun 15	Oct 31
	co	8 a.m.	Nov 6	Jan 31	cont open season	
	spsk, bc, ot			cont closed season		cont closed season

Table 3.5 Iowa's furbearer seasons

(Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

YEAR	SPECIES	OPENING START TIME	____ TRAPPING ____		____ HUNTING ____	
			SEASON DATES OPENING	CLOSING	SEASON DATES OPENING	CLOSING
2000-01	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 4	Jan 31		
	be	8 a.m.	Nov 4	Jan 31		
	rf, gr	8 a.m.	Nov 4	Jan 31		
	ra, op	8 a.m.			Nov 4	Jan 31
	wc	8 a.m.	Jun 15	Oct 31	Jun 15	Oct 31
	co	8 a.m.	Nov 3	Jan 31	cont open season	
	spsk, bc, ot		cont closed season		cont closed season	
2001-02	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 3	Jan 31		
	be	8 a.m.	Nov 3	Jan 31		
	rf, gr	8 a.m.	Nov 3	Jan 31		
	ra, op	8 a.m.			Nov 3	Jan 31
	wc	8 a.m.	Jun 15	Oct 31	Jun 15	Oct 31
	co	8 a.m.	Nov 3	Jan 31	cont open season	
	spsk, bc, ot		cont closed season		cont closed season	
2002-03	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 2	Jan 31		
	be	8 a.m.	Nov 2	Jan 31		
	rf, gr	8 a.m.	Nov 2	Jan 31		
	ra, op	8 a.m.			Nov 2	Jan 31
	wc	8 a.m.	Jun 15	Oct 31	Jun 15	Oct 31
	co	8 a.m.	Nov 2	Jan 31	cont open season	
	spsk, bc, ot		cont closed season		cont closed season	
2003-2004	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 1	Jan 31		
	be	8 a.m.	Nov 1	Jan 31		
	rf, gr	8 a.m.	Nov 1	Jan 31		
	ra, op	8 a.m.			Nov 1	Jan 31
	wc	8 a.m.	Jun 15	Oct 31	Jun 15	Oct 31
	co	8 a.m.	Nov 1	Jan 31	cont open season	
	spsk, bc, ot		cont closed season		cont closed season	

SPECIES ABBREVIATIONS: mi = mink, mu = muskrat, ra = raccoon, be = beaver, ba = badger
 stsk = striped skunk, spsk = spotted skunk, op = opossum, rf = red fox, gf = gray fox
 co = coyote, we = weasels, wc = woodchuck, ot = otter, bc = bobcat

*a) During 1966-67 through the 1970-71 seasons on state game management areas and the closed-to-hunting areas of Federal Refuges, the season will open at noon the day following the close of the duck season to 12:00 midnight Feb. 28.

*b) During 1971-72 and 1972-73 seasons, Zone 1A is bounded on the east by U.S. Highway 169 from the Minnesota border to its junction with U.S. Highway 20, west on Highway 20 Highway 59, and south on 59 to the Missouri Border. Zone 2A includes the remainder of the state.

*c) During 1972-73 through 1974-75 seasons, Zone 1b is north of U.S. Highway 20, the 2nd Saturday of October through February 15 in 1973 and 1974 and January 31 in 1975. Zone 2b is remainder of state.

*d) During 1971-72 through 1978-79 seasons except for beaver water sets were permitted only during the open mink and muskrat season.

*e) During 1974-75 through 1987-88 seasons a more restrictive beaver trapping season occurred on the Federal Upper Mississippi River Refuge north of Interstate 80.

*f) Weasel season was closed during 1976-77 season; reopened 1988-89 season.

*g) Spotted skunk season was continuous closed season from 1976-77 through the present.

*h) Bobcat season officially listed as closed in 1985-86 regulations, however, it was essentially protected in prior years.

*i) Permanent woodchuck hunting rule season dates of June 15 to October 31 established with 1976-77 season.

*j) First restricted coyote trapping season.

Figure 3.1 Iowa raccoon & red fox harvest, (1930 - present)

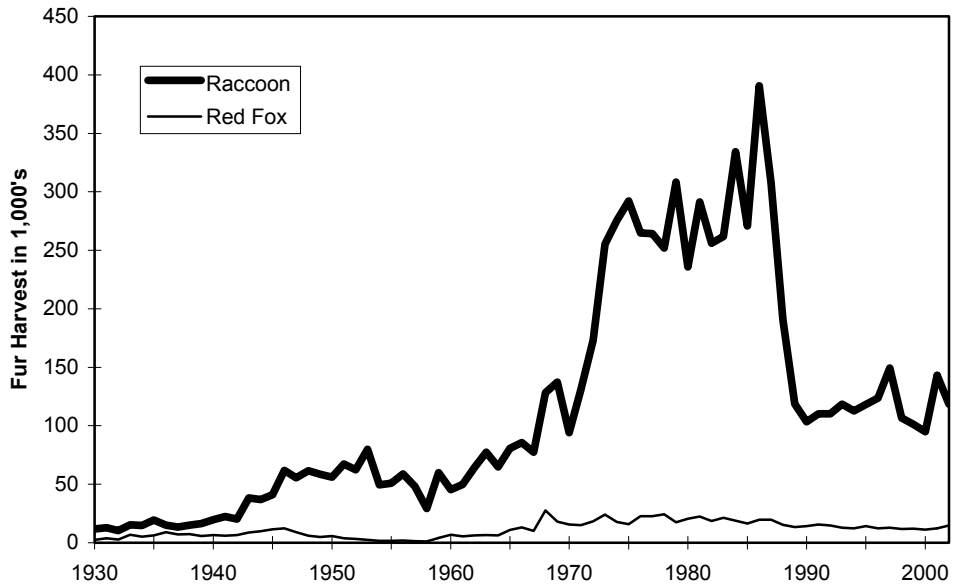


Figure 3.2 Relationship of the spotlight index and raccoon harvest.

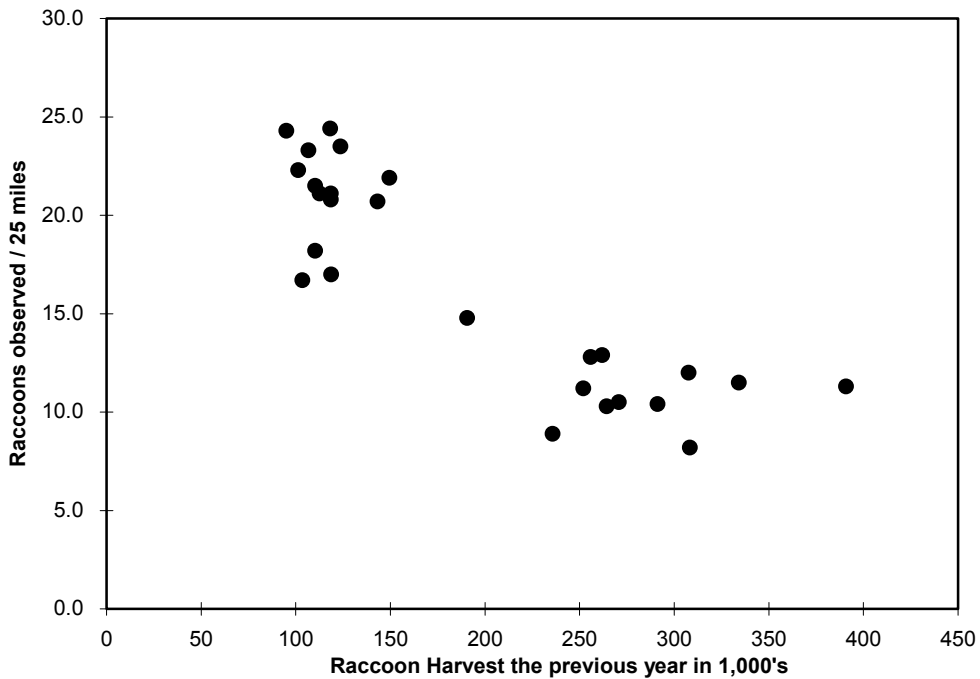


Figure 3.3 Pelt price fluctuations of important Iowa furbearers.

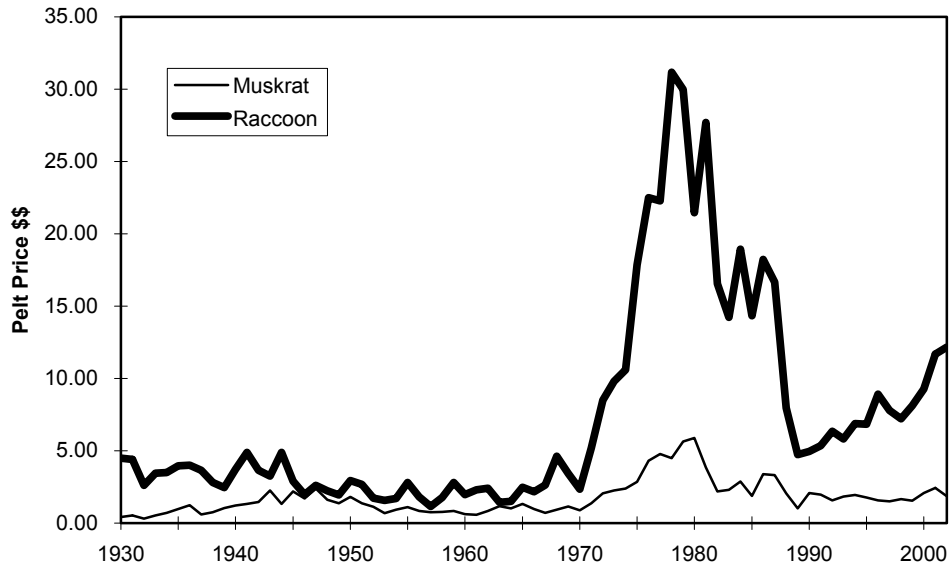
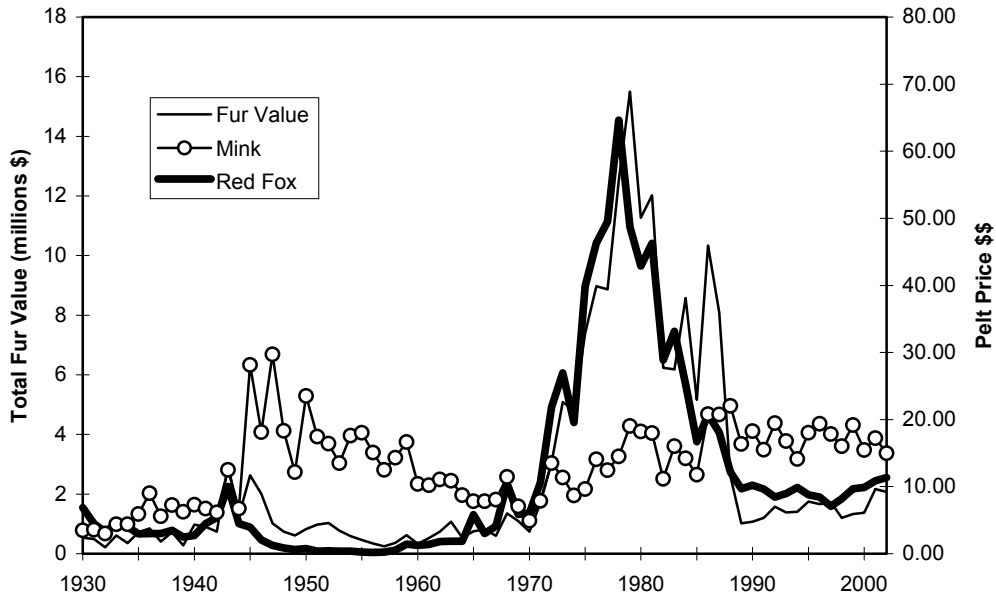


Figure 3.4 Pelt price fluctuations of mink and fox, and the value of Iowa furs.



WATERFOWL

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, Fig. 4.1). Surveys are conducted in May and early June by U.S. Fish and Wildlife Service (USFWS), Canadian Wildlife Service, provincial and state conservation agency personnel. 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 the transects. The estimates in Table 4.1 are not the entire continental breeding populations of these ducks; a portion of each population (an estimated 20% 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 stable. This stable trend, however, is the result of increasing numbers of some species (e.g., gadwall, green-winged teal, shovelers and blue-winged teal) and decreasing numbers of others (e.g., pintails and scaup). There is also a slight decreasing trend in numbers of breeding mallards, but this trend is less pronounced due to the large numbers of breeding mallards seen in the late 1990's. Despite the improvements in duck numbers in the 1990's, there are still concerns about the long-term loss of both wetland and upland habitat in the prairie pothole region and the long-term outlook for duck populations in the future.

Duck populations have fluctuated substantially over time. The drought of the 1980's pushed many populations to

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

Giant Canada Goose Population

Giant Canada geese nested throughout Iowa prior to Euro-American settlement but were extirpated from most of the Midwest, including Iowa, by 1900. The giant Canada goose restoration program initiated by the IDNR in 1964 has succeeded in restoring this species to much of its former nesting range in Iowa (see Giant Canada Goose Restoration). The giant Canada goose population in Iowa has exhibited steady growth for the past 30 years (Fig. 4.2). Each summer, biologists and technicians estimate the numbers of adult Canada geese and young produced within their wildlife units. To obtain a statistically valid estimate of this population, an aerial survey is also periodically conducted. The results of the aerial survey in 2001 indicated that the population was unchanged from 2000: 53,839 (+ 9,653) in 2001 compared to 54,519 (+ 8,490) in 2000. The population estimates made by wildlife biologists have been very similar to the population estimates obtained from the aerial survey. This suggests that the biologists'

estimates accurately represented the growth rate and size of this population in past years.

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) registrants to estimate total waterfowl killed, and 2) a survey that solicits duck wings and goose tails to determine 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 1960's, years of low duck populations and restrictive 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 late summer and early fall. Duck harvests began to decline in 1985, bottoming out in 1988 and 1989. Reasons for reduced harvests included smaller fall flights, shorter seasons, reduced bag limits, fewer hunters and poor local habitat conditions. Duck harvests have increased in recent years as a result of improvements in duck numbers, liberal hunting regulations and increases in numbers of active hunters.

Iowa's Canada goose harvest was relatively constant during 1967-85, but began to increase in 1986 as a result of the increased growth of Iowa's giant Canada goose population (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 others are small Canada geese commonly called "hutchies" that nest on Baffin Island in the Arctic). The combination of restrictive hunting regulations, receding floodwaters, and large-scale participation in the Farm Service Agency's 0/92 program, resulted in a substantial decrease in Iowa's Canada goose harvest in 1993. Canada goose harvests began increasing in the mid 1990's, peaking at 61,000 in 2000. In 1996, a special 2-day September Canada goose season was implemented in north-central and northwest Iowa. During 1996-2000, the Canada goose harvest ranged from 6,300 to 16,700 during this special 2-day hunt.

The snow goose harvest in Iowa has declined since the early 1970's, despite record high numbers of light geese in the Flyway in the 1990's. Declining harvests resulted from shifting snow goose migration patterns, increased use of refuges, and large numbers of older geese in the population. By the mid 1990's, the mid-continent light goose population was severely damaging Arctic breeding habitats. To increase harvests of light geese, more liberal hunting regulations were implemented (liberal bag limits, 107-day seasons) and a conservation order was implemented to permit taking light geese after March 10. The harvest during the conservation order period in Iowa has ranged from 12,000 to 20,000 during 1999-2003. During the 1998-2002 regular light goose seasons, the harvest ranged from 600 to 15,000.

Waterfowl Seasons

Iowa waterfowlers have experienced a wide range of duck and goose seasons since the USFWS began

regulating waterfowl hunting in 1918 (Tables 4.3 and 4.4). Nearly every conceivable season-date combination has been tried in the past 80+ years. Duck hunting regulations are inherently complex because they involve many species, but the general lack of consistency in regulations, both at the federal and state levels, has made interpretation of their effects 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 generally prosper. The growing giant Canada goose population, however, has complicated traditional Canada goose harvest management. It is particularly challenging to develop hunting regulations that will increase harvests of local giant Canada geese while, at the same time, limit harvests of migrant geese from Arctic and sub-Arctic regions.

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 relationships of harvest areas to production areas. Banding of some species is at the request of the USFWS, while others are banded for in-state programs. Both state and federal personnel band ducks in Iowa, but IDNR personnel band all the Canada geese and more than 90% of the wood ducks (Table 4.5). The USFWS, in concert with the Mississippi Flyway Council, determines banding priorities. In the 1960's emphasis was placed on banding blue-winged teal to evaluate special teal seasons. Winter mallard banding was conducted in the

1970's to supplement breeding grounds bandings and examine hen mortality during spring and summer. Wood duck bandings have been used to evaluate Iowa's September duck seasons. Wood duck banding is also important to measure the effects of hunting on wood duck populations, a necessity because direct counts are not feasible for wood ducks. The IDNR has consistently cooperated with USFWS and Mississippi Flyway Council banding programs and has one of the top wood duck banding programs in the nation, having banded over 10% of all the wood ducks banded in N. Am. in the last 10 years.

Canada goose banding has increased with the growth of our local giant Canada population. Migrant Canada geese have also been banded as part of cooperative projects with other states and provinces. Canada goose banding will be increasingly important as states and the USFWS attempt to assess the impacts of special harvest regulations on giant and migrant Canada goose populations.

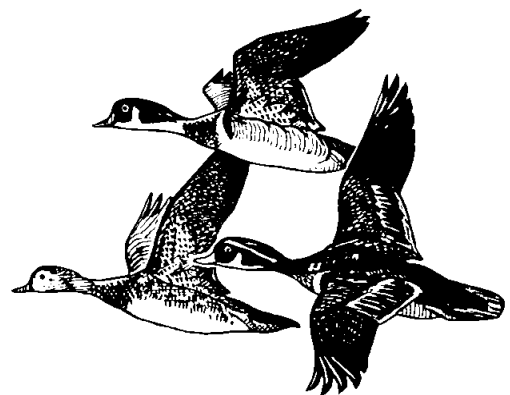


Table 4.1 Breeding population estimates for 10 species of ducks, 1955-present (in thousands).
Source is USFWS.

YEAR	MALLARD	GREEN -		BLUE -		NORTHERN SHOVELER	NORTHERN PINTAIL	RED- HEAD	CANVAS - BACK	SCAUP
		GAD- WALL	AMERICAN WIGEON	WINGED TEAL	WINGED TEAL					
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
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
<u>Percent Change in 2003 from:</u>										
2002	6%	14%	9%	15%	31%	69%	43%	13%	15%	6%
1955-02 Av.	7%	55%	-2%	48%	24%	75%	-38%	2%	0%	-29%
<u>1955-03 Statistics</u>										
Average	7,423	1,659	2,607	1,830	4,489	2,104	4,106	626	559	5,215
Maximum	10,994	3,897	3,703	3,194	7,431	4,120	9,897	1,005	849	7,932
Minimum	4,754	454	1,706	700	2,776	1,183	1,790	319	354	3,472

Table 4.2 Selected Iowa waterfowl statistics on harvest, duck stamp sales, days hunted and average seasonal bag per active adult hunter, (1961-present). Preliminary data for 2001 and 2002 based on Harvest Information Program survey. Source is USFWS.

YEAR	DAYS AND HARVEST (1,000's)								FEDERAL	AVE.	ACTIVE
	MALLARD	WOOD DUCK	B-W TEAL	G-W TEAL	ALL DUCKS	CANADA GEESE	SNOW GEESE	DAYS HUNTED	DUCK STAMPS	SEASON BAG	ADULT HUNTERS
1976	87.5	44.0	33.0	27.5	242.2	9.3	15.8	359.6	55,449	4.95	45,400
1977	138.7	37.9	17.0	38.7	280.0	7.8	29.1	407.3	57,143	5.32	46,200
1978	125.6	73.6	41.1	41.7	351.4	11.9	23.9	424.9	56,259	6.70	47,800
1979	183.3	77.8	69.2	38.0	441.0	10.0	43.2	496.7	49,845	9.49	44,400
1980	118.1	49.1	39.0	37.3	299.9	11.7	23.1	384.6	47,008	6.58	41,100
1981	130.2	54.3	34.6	27.7	301.1	10.2	23.1	371.5	41,648	7.89	35,900
1982	164.9	55.3	58.2	24.3	348.8	10.2	14.0	354.9	40,599	9.60	34,400
1983	115.2	47.3	74.0	27.8	324.2	11.5	16.5	310.4	40,381	8.49	34,000
1984	96.3	46.3	56.8	36.2	299.5	13.3	22.0	300.3	41,078	7.54	35,300
1985	62.0	37.4	41.5	22.6	199.8	10.4	8.5	241.4	33,304	6.83	27,900
1986	88.9	46.0	26.9	18.3	217.0	17.2	11.8	244.0	33,504	7.29	27,900
1987	64.8	36.1	14.2	20.1	161.1	15.1	3.6	207.0	30,248	6.04	25,500
1988	41.6	11.4	1.4	12.5	78.3	12.1	10.1	131.8	22,008	4.33	17,300
1989	32.2	17.0	2.9	17.9	87.8	20.2	4.4	127.5	21,686	4.68	16,600
1990	41.3	25.6	4.6	17.8	105.8	26.6	3.1	159.3	24,686	4.90	20,800
1991	63.1	39.4	6.6	13.3	154.2	29.3	8.1	196.7	24,989	6.78	21,400
1992	64.9	18.8	2.9	14.3	122.8	28.7	4.1	198.6	26,744	5.12	22,800
1993	52.7	22.2	4.1	7.9	100.9	17.3	9.5	176.5	25,640	4.69	21,092
1994	49.1	34.9	17.5	22.5	151.8	26.1	2.4	232.6	29,206	5.97	24,523
1995	86.1	49.2	38.9	23.7	242.3	48.0	4.6	280.2	30,282	8.19	25,792
1996	90.6	42.5	36.2	31.0	244.7	59.5	5.4	284.2	30,945	7.91	26,338
1997	71.2	52.1	54.5	32.7	272.0	52.2	15.2	338.3	36,062	8.29	30,737
1998	99.6	36.0	47.7	41.9	281.9	33.2	15.6	292.8	30,864	9.93	27,454
1999	55.9	35.8	41.9	17.4	176.7	33.0	12.5	271.9	32,419	7.17	27,024
2000	74.2	39.9	25.3	25.4	209.6	61.0	0.6	288.4	30,951	8.18	26,693
2001	117.2	45.5	49.3	29.7	296.4	58.1	5.2	203.5	32,090	11.90	25,000
2002	97.2	44.5	50.6	43.0	287.2	67.1	1.1	185.7	30,806	12.30	23,300
Percent Change in 2002 From:											
2001	-17%	-2%	3%	45%	-3%	15%	-78%	-9%	-4%	3%	-7%
1961-01 Av.	5%	20%	59%	68%	27%	246%	-94%	-40%	-25%	92%	-33%
1961-02 Statistics											
Average	92.7	37.3	32.2	26.1	228.4	20.5	17.9	306.4	40,743	6.5	34,327
Maximum	183.3	77.8	74.0	45.2	441.0	67.1	48.3	536.5	68,401	12.3	58,700
Minimum	21.3	6.8	0.4	5.6	45.1	4.3	0.6	127.5	21,686	2.1	16,600

Table 4.3 Iowa's duck and coot seasons, 1917 to present.

YEAR	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMITS		
					DUCK BAG/POSS	COOT BAG/POSS	
		NORTH ZONE (2)	SOUTH ZONE (2)				
1987	40	Sep 19-23	Sep 19-21	1/2 SR to SS	PS *ad	15 /30	
(*SH)		Oct 17 - Nov 20	Oct 24 - Nov 29				
1988	30	Oct 8 - 9	Oct 22 - 28	SR to SS	3 / 6 *ae	15 /30	*ae) Only 2 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd.
		Oct 22 - Nov 18	Nov 5 - 27				5 merg., only 1 Hm. Closed sea. on Cb.
1989	30	Oct 7 - 8	Oct 21 - 27	SR to SS	3 / 6 *ae	15 /30	
		Oct 21 - Nov 17	Nov 4 - 26				
1990	30	Oct 6 - 7	Oct 20 - 26	1/2 SR to SS	3 / 6 *ae	15 /30	
		Oct 20 - Nov 16	Nov 3 - 25				
1991	30	Oct 5 - 6	Oct 19 - 25	1/2 SR to SS	3 / 6 *ae	15 /30	
		Oct 19 - Nov 16	Nov 9 - Dec 1				
1992	30	Oct 10 - 13	Oct 24 - 30	1/2 SR to SS	3 / 6 *ae	15 /30	
		Oct 24 - Nov 18	Nov 7 - 29				
1993	30	Oct 2 - 4	Oct 23 - 29	1/2 SR to SS	3 / 6 *ae	15 /30	
		Oct 23 - Nov 18	Nov 6 - 28				
1994	40	Sept 17 - 19	Oct 1 - 3	1/2 SR to SS	3 / 6 *af	15 /30	*af) Only 2 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd, 1 Cb.
		Oct 15 - Nov 20	Oct 22 - Nov 27				5 merg., only 1 Hm.
1995	50	Sept 23 - 27	Sept 23 - 25	1/2 SR to SS	5 /10 *ag	15 /30	*ag) Only 4 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd, 1 Cb.
		Oct 15 - Nov 28	Oct 21 - Dec 6				5 merg., only 1 Hm.
1996	50	Sept 21 - 25	Sept 21 - 23	1/2 SR to SS	5 /10 *ah	15 /30	*ah) Only 4 Ma (1 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb.
		Oct 19 - Dec 2	Oct 19 - Dec 4				5 merg., only 1 Hm.
	Youth Day	Oct 5	Oct 5	1/2 SR to SS	5 /10 *ah		
1997	60	Sept 20 - 24	Sept 20 - 24	1/2 SR to SS	6 /12 *ai	15 /30	*ai) Only 4 Ma (2 Hn), 2 Wd, 3 Pt, 2 Rh,1 Bd, 1 Cb.
		Oct 11 - Dec 4	Oct 18 - Dec 11				5 merg., only 1 Hm.
	Youth Day	Sept 27	Sept 27	1/2 SR to SS	6 /12 *ai	15 /30	
1998	60	Sept 19 - 23	Sept 19 - 23	1/2 SR to SS	6 /12 *aj	15 /30	*aj) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb.
(*HIP)		Oct 10 - Dec 3	Oct 17 - Dec 10				5 merg., only 1 Hm.
	Youth Day	Sept 26	Sept 26	1/2 SR to SS	6 /12 *aj	15 /30	
1999	60	Sept 18 - 22	Sept 18 - 22	1/2 SR to SS	6 /12 *ak	15 /30	*ak) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb
		Oct 16 - Dec 9	Oct 16 - Dec 9				& 3 Sc. 5 merg., only 1 Hm.
	Youth Day	Oct 9	Oct 9	1/2 SR to SS	6 /12 *ak	15 /30	
2000	60	Sept 23 - 27	Sept 23 - 27	1/2 SR to SS	6 /12 *ak	15 /30	
		Oct 14 - Dec 7	Oct 14 - Dec 7				
	Youth Day	Oct 7 - 8	Oct 7 - 8	1/2 SR to SS	6 /12 *ak	15 /30	
2001	60	Sept 22 - 26	Sept 22 - 26	1/2 SR to SS	6 /12 *ak	15 /30	
		Oct 13 - Dec 6	Oct 13 - Dec 6				
	Canvasback	Oct. 27 - Nov 15	Nov 17 - Dec 6				
	Youth Day	Oct 6 - 7	Oct 6 - 7	1/2 SR to SS	6 /12 *ak	15 /30	
2002	60	Sept 21 - 25	Sept 21 - 23	1/2 SR to SS	6 /12 *al	15 /30	*al) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd,
		Oct 12 - Dec 5	Oct 19 - Dec 14				& 3 Sc. 5 merg., only 1 Hm. Closed sea. on Cb
	Pintail	Sept 21 - 25	Sept 21 - 23				
		Oct 12 - Nov 5	Oct 19 - Nov 14				
	Youth Day	Oct 5 - 6	Oct 5 - 6	1/2 SR to SS	6 /12 *al	15 /30	

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, 1/2 SR to SS = 1/2 hour before sunrise to sunset, 1/2 SR to 1/2 SS = 1/2 hour before sunrise to 1/2 hour before sunset, 1/2 SR to 1 SS = 1/2 hour before sunrise to 1 hour before sunset.

Shooting hours began at 12:00 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 72 hunting seasons between 1918-89.

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

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

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

SPEC. REGULATIONS: Wood duck season closed by Fed. regulation from 1918 through the 1940 season.

Canvasback and redhead season 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.

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 State Hwy 175, east to State Hwy 37, southeast to U.S. Hwy 59, south to I-80 and along I-80 to the Iowa-Illinois border.

(*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 U.S. 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 Iowa's goose seasons, 1917 present.

YEAR	GOOSE SPECIES	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMIT BAG/POSS	COMMENTS
			NORTH ZONE	SOUTH ZONE			
1993	Ca/Wf/Br	55	Oct 9 - Dec 2	Oct 23 - Dec 16	1/2 SR to SS	2 / 4 *j	
	Sn	80	Oct 9 - Dec 27	Oct 23 - Jan 10, 1994			
1994	Ca/Wf/Br	55	Oct 8 - Dec 1	Oct 22 - Dec 15	1/2 SR to SS	2 / 4 *j	
	Sn	102	Oct 1 - Dec 10	Oct 1 - Jan 10, 1995			
1995	Ca/Wf/Br	70	Sep 30 - Dec 8	Oct 14 - Dec 22	1/2 SR to SS	2 / 4 *k	*k) Bag lim.= 10 w/ only 2 Ca & 2 Wf.
	Sn	107	Sep 30 - Jan 10	Oct 14 - Jan 10, 1996			
1996	Ca	2	Sep 14 - 15	None	1/2 SR to SS	2 / 4 *l	*l) Bag lim.= 2 Ca.
	Ca/Wf/Br	70	Sep 28 - Dec 6	Oct 5 - Oct 13			
1996	Sn	107	None	Feb 24 - Mar 10, 1996 south of Interstate 80.	1/2 SR to SS	10 / 30	*m) Bag lim.= 2 Ca , 2 Wf, & 2 Br . Pos lim.= 4 Ca, 4 Wf, & 4 Br.
			Oct 19 - Dec 18				
			Oct 12 - Jan 10, 1997 Feb 22 - Mar 9, 1997				
1997	Ca	2	Sep 13 - 14	None	1/2 SR to SS	2 / 4 *l	
	Ca/Wf/Br	70	Oct 4 - Dec 12	Oct 4 - Oct 12			
1997	Sn/Ro	107	Oct 18 - Dec 17		1/2 SR to SS	10 / 30	
			Oct 4 - Dec 31				
			Feb 21 - Mar 10, 1998				
1998	Ca	2	Sep 12 - 13	None	1/2 SR to SS	2 / 4 *l	
	(*HIP) Ca/Wf/Br	70	Oct 3 - Dec 11	Oct 3 - Oct 11			
1998	Sn/Ro	107	Oct 17 - Dec 16		1/2 SR to SS	2 / 4 *m ^a	
			Oct 3 - Dec 31				
			Feb 20 - Mar 10, 1999				
1999	Sn/Ro	^b Cons. Or.	March 11-April 16, 1999		1/2 SR to SS 1/2	20 / none	
	Ca	2	Sep 11 - 12	None	1/2 SR to SS	2 / 4 *l	
1999	Ca/Wf/Br	70	Oct 2 - Dec 10	Oct 2 - Oct 10	1/2 SR to SS	2 / 4 *m	
			Oct 16 - Dec 15				
			Oct 2 - Dec 26				
1999	Sn/Ro	^b Cons. Or.	Feb 19 - Mar 10, 2000		1/2 SR to SS 1/2	20 / none	
	Sn/Ro	^b Cons. Or.	March 11-April 16, 2000		1/2 SR to SS 1/2	20 / none	
2000	Ca	2	Sep 9 - 10	None	1/2 SR to SS	2 / 4 *l	
	Ca/Wf/Br	70	Sep 30 - Dec 8	Sep 30 - Oct 15			
2000	Sn/Ro	107	Nov 4 - Dec 27		1/2 SR to SS	20 / none	
			Sep 30 - Jan 14, 2001				
			Feb 15 - April 15, 2001				
2001	Ca/Wf/Br	70	Sep 29 - Dec 7	Sep 29 - Oct 21	1/2 SR to SS	2 / 4 *m	
	Sn/Ro	107	Nov 10 - Dec 26				
2001	Sn/Ro	^b Cons. Or.	Sep 29 - Jan 13, 2002		1/2 SR to SS	20 / none	
			Feb 2 - April 15, 2002				
			Sep 28 - Dec 6	Sep 28 - Oct 20			
Nov 9 - Dec 25							
2002	Sn/Ro	107	Sep 28 - Jan 12, 2003		1/2 SR to SS	20 / none	
2002	Sn/Ro	^b Cons. Or.	Feb 1 - April 15, 2003		1/2 SR to SS 1/2	20 / none	

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

SHOOTING HOURS: SR to SS = sunrise to sunset, 1/2 SR to SS = 1/2 hour before sunrise to sunset, 1/2 SR to 1/2 SS= 1/2 hour before sunrise to 1/2 hour before sunset, 1/2 SR to 1 SS = 1/2 hour before sunrise to 1 hour before sunset.
1/2 SR to SS/1 = 1/2 hour before sunrise to sunset in all of state except SW Zone where shooting hours were 1/2 hour before sunrise to 1:00 PM until Dec. 1 in 1991 and until Nov. 29 in 1992, then 1/2 hour before sunrise to sunset thereafter. 1/2 SR to SS 1/2 = 1/2 hour before sunrise to 1/2 hour after sunset.

LIMIT: BAG = Daily bag limit, POSS = Possesion 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 state 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 U.S. Hwy 71 to I-80, west on I-80 to U.S. Hwy 59, north on U.S. Hwy 59 to State Hwy 37, then NW on Hwy 37 to State Hwy 175, and west on Hwy 175 to the Nebraska-Iowa border.

NORTH/SOUTH GOOSE ZONE BOUNDARY = a line running from the Nebraska-Iowa border along state Hwy 175, southeast to State Hwy 37, east to U.S. Hwy 59, south to I-80, and along I-80 to the Iowa-Illinois border. This was the same border used to divide the north and south duck zones in 1993.

(*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 closed by Fed. regulations 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 A conservation order was issued by the USFWS to permit the taking of light geese (snow + ross) after March 10.

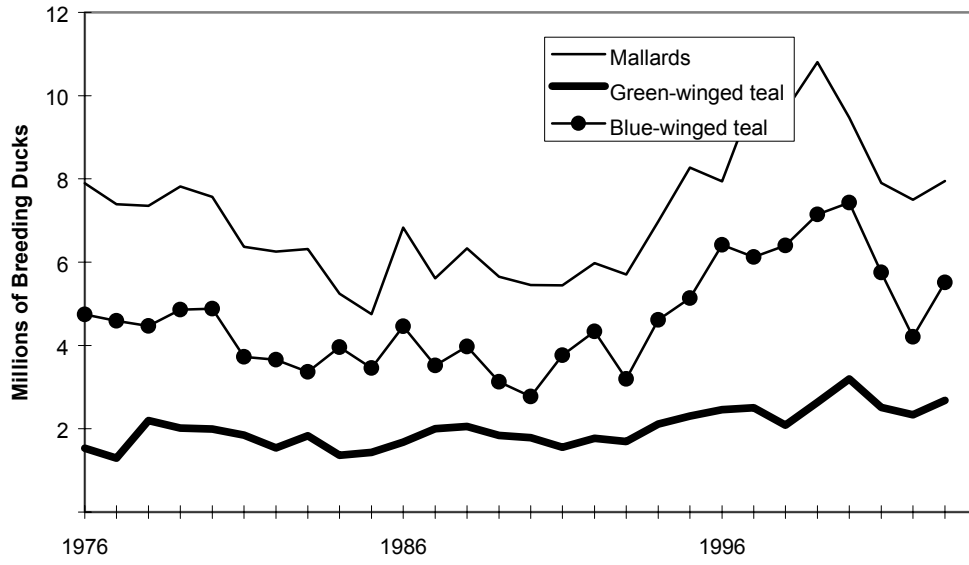
Hunters could use electronic calls and unplugged shotguns and hunt until 1/2 hour after sunset.

Hunters had to be fully licensed to hunt waterfowl in Iowa (no Fed. Mig. Bird stamp) and registered with HIP.

Table 4.5 Waterfowl banded in Iowa, 1964 to the present.
(Numbers include both state and federal bandings.)

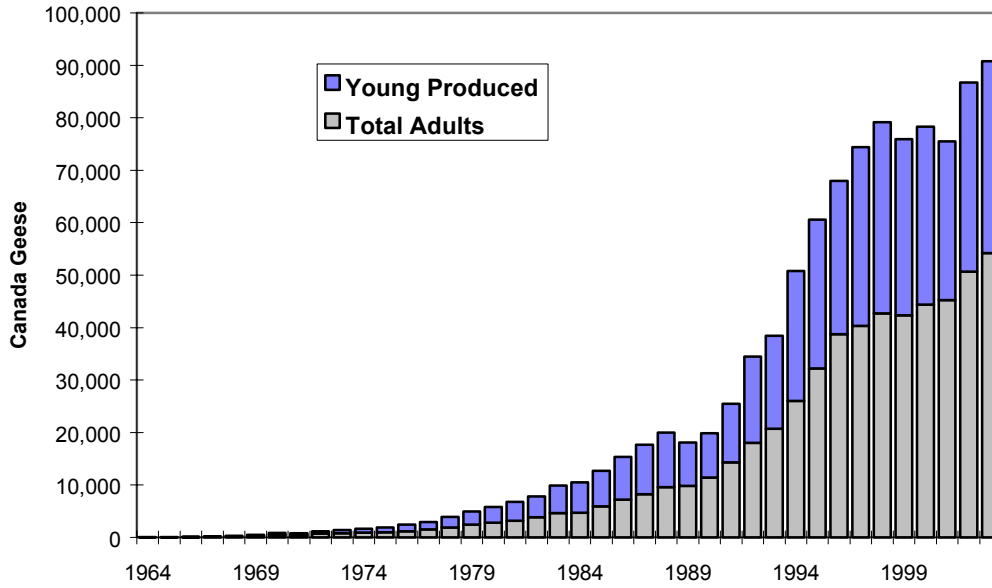
Year	Canada Geese	Mallards	Wood Ducks	Blue- winged Teal	Trumpeter Swans	Other species	Total
1964	51	440	488	6,046		273	7,298
1965	32	533	571	4,485		120	5,741
1966	61	504	564	3,836		172	5,137
1967	66	1,928	410	4,022		113	6,539
1968	91	1,809	315	3,716		63	5,994
1969	53	2,282	414	1,634		135	4,518
1970	143	2,368	935	2,649		236	6,331
1971	301	1,901	1,644	1,395		330	5,571
1972	148	672	1,381	1,000		127	3,328
1973	410	1,022	1,665	601		115	3,813
1974	268	522	1,333	638		34	2,795
1975	222	563	2,026	248		164	3,223
1976	544	3,165	1,620	334		19	5,682
1977	799	678	1,261	223		25	2,986
1978	633	4,418	1,765	1,022		98	7,936
1979	409	4,683	1,490	509		3	7,094
1980	775	2,175	1,302	1,880		85	6,217
1981	736	350	1,523	919		86	3,614
1982	975	99	2,747	26		1	3,848
1983	1,444	446	2,411	35		3	4,339
1984	1,293	110	2,489	38		6	3,936
1985	1,710	389	1,953	30		1	4,083
1986	1,847	383	2,623	18		3	4,874
1987	2,127	380	2,199	98		8	4,812
1988	2,421	349	2,115	37		2	4,924
1989	1,712	70	2,636	0		0	4,418
1990	1,556	13	1,908	64		0	3,541
1991	1,880	151	4,874	0		0	6,905
1992	2,043	392	3,776	0		13	6,224
1993	2,538	130	2,931	0		1	5,600
1994	3,737	146	3,631	0		0	7,614
1995	3,671	221	6,717	0		0	10,609
1996	3,809	263	4,188	0		0	8,260
1997	4,852	77	4,375	0		0	9,304
1998	4,462	292	4,837	0	58	0	9,649
1999	6,073	229	4,669	0	46	0	10,971
2000	2,971	133	2,380	0	90	0	5,574
2001	2,942	60	3,711	0	78	0	6,791
2002	3,479	338	3,146	207	68	0	7,238
Totals	63,284	34,684	91,023	35,710	340	2,236	227,331
10-year Average	3,853	189	4,059	21	68	0	8,161

Figure 4.1 Breeding populations of important ducks to Iowa.



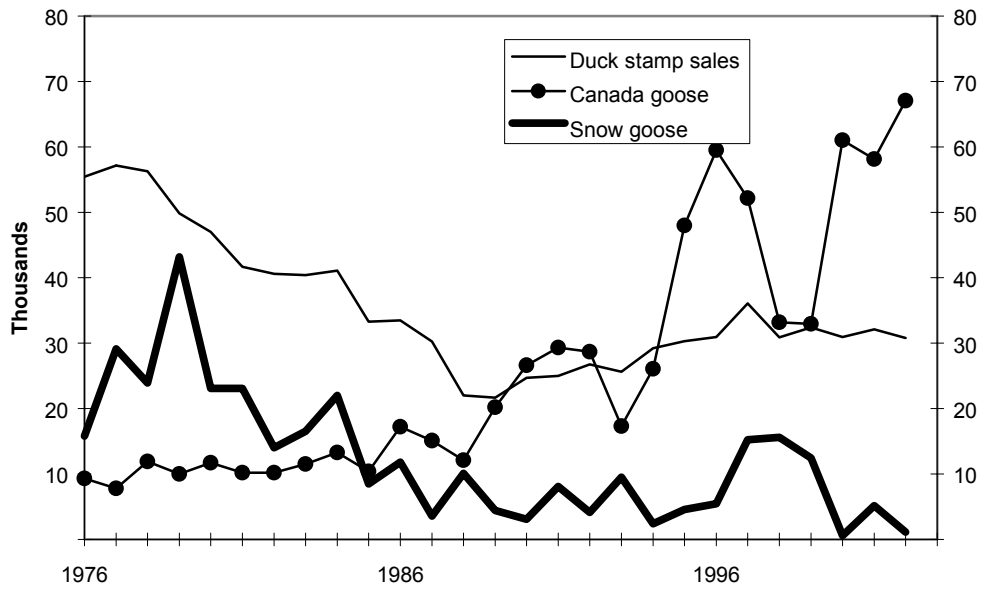
Source: USFWS

Figure 4.2 Iowa's giant Canada goose population.



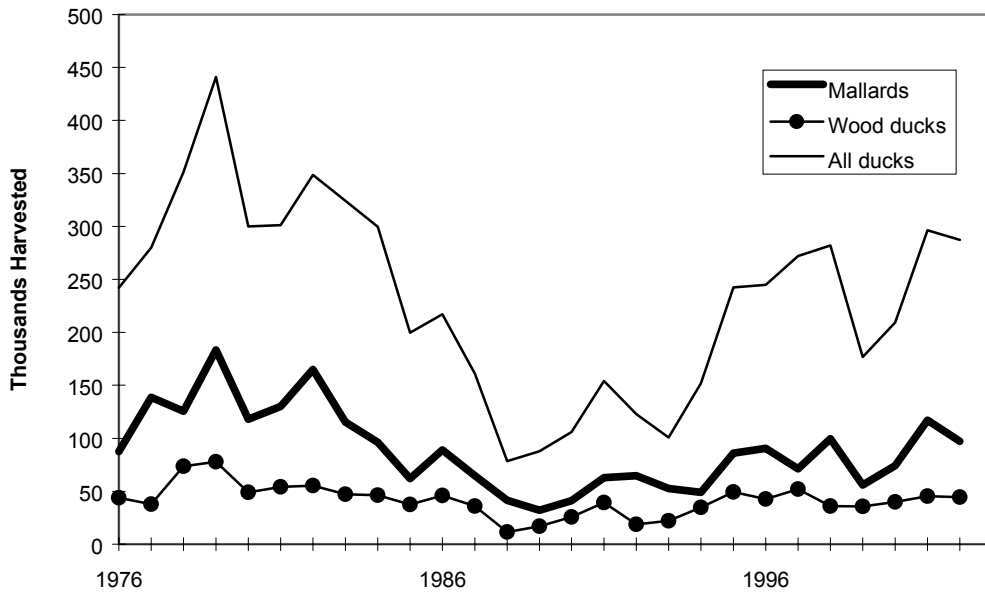
Source: Iowa DNR

Figure 4.3 Goose harvest & duck stamp sales in Iowa (1961 - present).



Source: USFWS

Figure 4.4 Duck harvest in Iowa (1961 - present)



Source: USFWS

UPLAND WILDLIFE

HISTORICAL SUMMARY OF POPULATIONS AND HARVEST

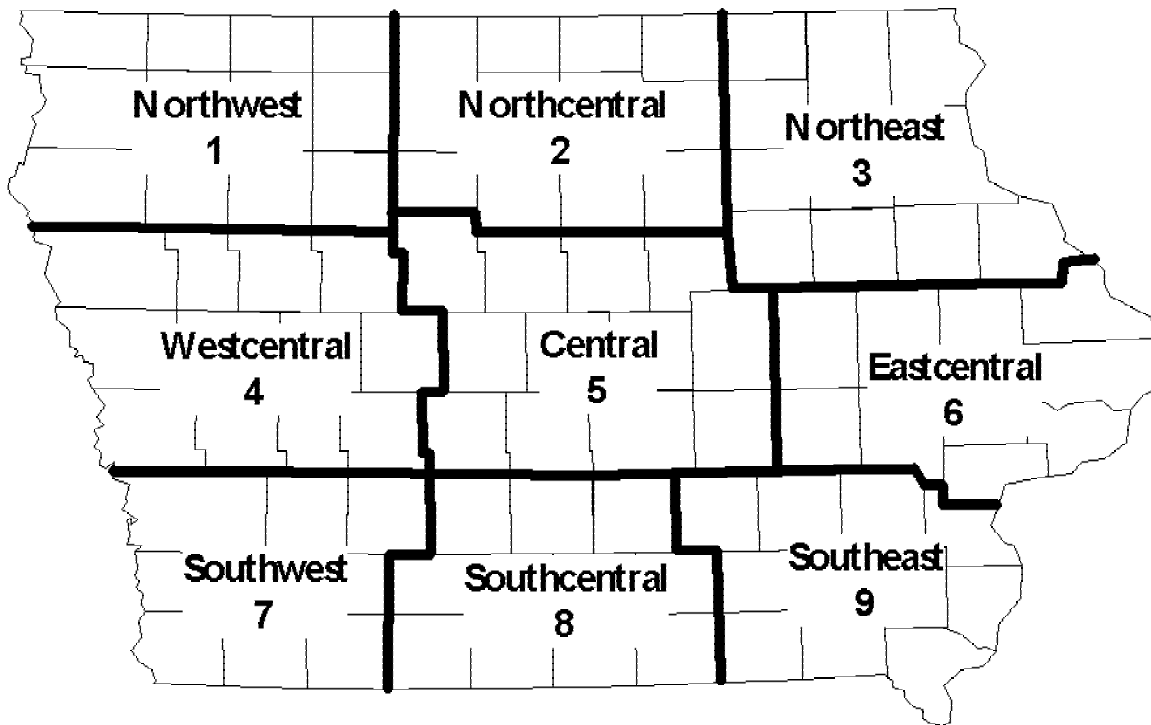


Ring-necked Pheasant

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. Pheasant were first introduced into Iowa in September of 1900 or 1901 when a severe windstorm wrecked the pens of a game breeder named William Benton of Cedar Falls releasing approximately 2,000 birds. Benton's birds spread west and north and constitute the foundation stock of Iowa's north-central counties. In 1904 an unsuccessful planting was made in Keokuk county. In 1907 a successful stocking was made in Kossuth county and in 1908 successful stockings were made in O'Brien county. Private individuals

made all of these early stockings. It is uncertain just when the state began stocking pheasants. Department records only date back to 1921, but it is certain by 1913 large state stockings were being made annually. Records show Butler county received 500 state birds in 1913 and 400 in 1915. The first state game farm was authorized in 1913, probably at Spirit Lake, because records show 200 state birds escaped from that game farm in 1915. Between 1915-18 all northeastern Iowa counties received plantings of 200-800 birds, with 1 large stocking of 2,500 at Pilot Knob State Park in Winnebago county. Stockings were usually made on timbered land leased by the state from private individuals. In 1915 the state established 2 more game farms at Clive and Lansing. Both game farms remained in operation until 1931. Between 1913-32 the state released an estimated 100,000 to 150,000 pheasants, both wild trapped and pen-raised birds. Virtually all of the original releases made in the northern half of the state were a success. Widespread abundance was first attained in Winnebago county in 1916, Dickinson in 1917, Floyd by 1919, Humboldt by 1920, Hardin and Hamilton counties by 1924, and Sac by 1927. In 1925, pheasants had become so abundant in Iowa's north-central counties that the state began to trap and gather eggs for southern Iowa. In 1925 farmers collected 60,000 wild eggs and trapped 7,000 birds from Butler and Winnebago counties. Most southern Iowa counties received large stockings in 1905-17, 1924-25, and 1928-30, but all were considered a failure. In 1905, it was generally assumed that southern Iowa had better

Figure 5.1 Survey regions for the August Roadside Survey.



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 the Des Moines Lobe landform. The early success, 1920-40's, of pheasants in north central Iowa was undoubtedly due to the abundance of grassy habitats (tame and native hay, oats, flax, and prairie pothole wetlands) interspersed with weedy crop fields. 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 1/2 hour before sunrise and ended at noon with a bag limit of 3 cocks. It appears the decision to open counties to hunting in these early years was based largely on pheasant crop depredation complaints as annual pheasant censuses, predecessor to the

August Roadside Survey, were not begun until 1935. Flush count records show 7 men flushed 850 pheasants in 5 hours in Hancock county in 1931. By 1945 most of northern Iowa was open to hunting and by 1965 all of Iowa, except a few southeastern counties, was open to pheasant hunting. The entire state was opened to hunting in 1976.

Historically (1930-50's), the NW, NC, and C regions had Iowa's highest pheasant densities (Fig. 5.1). However, intensified agriculture has led to a decline in pheasant populations since the 1960's (Fig. 5.2). Regionally, the greatest declines have occurred in the NC, C, and SW regions (Fig. 5.7). By the early 1970's southern Iowa had become the states premiere pheasant range. Populations have declined following severe winter weather in 1964-65, 1966-67, 1978-79, 1981-82 and, 2000-01 with recoveries occurring in years with milder winters (Fig.

5.2). While the number of broods sighted/30-mile route has also fluctuated with the severity of the winter (Fig. 5.3), the all-time lows recorded in 1983, 1984, 1993, and 2001 were the results of very cool, wet conditions during spring and early summer (Fig. 5.3). Observed brood sizes have declined slightly since 1962, with the 1992, 1998, and 2001 estimates (4.5-4.6 chicks/brood) the lowest ever recorded (Fig. 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 (Fig 5.7). Populations in the southern regions initially responded to CRP the same way northern and central populations did, but recently have declined. Declines in SW and SC regions, in particular, are likely related to persistent wet weather during the nesting season since 1992.

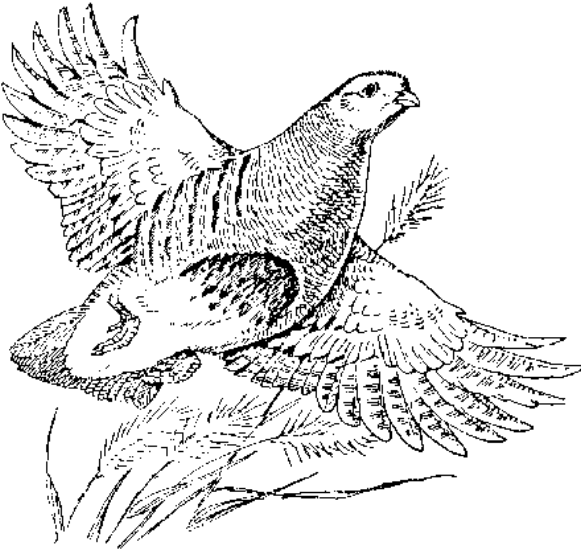
The pheasant season opens the last Saturday in October and runs through January 10th, statewide with a bag/possession limit of 3/12 roosters. Shooting hours are 8 a.m. to 4:30 p.m. Iowa's first youth pheasant season was held during the 1997-98 hunting season. Youth hunting was allowed statewide for resident hunter's 15 years or younger whom a licensed adult accompanied. The youth pheasant season opens the weekend proceeding the regular season. Bag limit is 1 rooster/day with 2 in possession after the first day.

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. However, at least initially these changes

proved to be a boom to Iowa's quail population. Between 1860-90 settlers began carving up Iowa a 1/4 section at a time, but early settlers lacked timber and wire to make fences, so they planted Osage hedges instead. Three to 6 miles of some of the finest quail cover ever grown in every 1/4 section, all within spitting distance of newly planted "weedy" grain fields. Quail populations exploded like never seen before or likely to be seen again. Quail could be found in every county, but these conditions could not last. By 1920 reports show quail populations beginning to decline as farming practices improved and hedgerows were replaced with barbed wire fence. The 1931-32 winter quail survey reported population densities of 1 quail per 20-40+ acres in the northern third of the state, 1 quail/6-20 ac. in the central third and 1 quail/1-6 ac. in the southern third of the state. Quail populations have declined steadily, both nationally and in Iowa since the 1930's. Large scale landscape changes and clean farming practices are considered the major factors in this decline. Since survey procedures were standardized in the early 1960's the mean number of quail/30 miles sighted on the August roadside survey has fluctuated over the years with significant declines occurring since 1977 (Fig. 5.6). This decline is related to losses in woody habitat and clean farming practices that have occurred since row-crop agriculture expanded in the mid 70's and early 80's (Fig. 5.8). The severe winters of 1995-96 and 2000-01 decimated populations (Fig. 5.8).

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



Gray Partridge

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

While numbers of other upland game birds have decreased over time, the number of gray partridge sighted on roadside counts had

been increasing until 1990 (Fig. 5.6a). 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 (Fig. 5.9). While losses of woody cover and nesting cover have created less favorable conditions for pheasant and quail, partridge have been more adept at coping with row-crop expansion. The statewide increase in partridge numbers between 1983-89 might be partially attributed to mild winters, drought conditions, and improved nesting conditions on land enrolled in CRP. Five wet and cold nesting seasons during the last 6 years have caused partridge numbers to decline significantly (Fig. 5.6a). Huns were imported to this country from the arid, steppe region of southeastern Europe and northern Asia, and research has shown they do not reproduce well in this country during years with wet springs.

Iowa's first partridge season was held in 11 northwestern counties in 1937-39. Standardized hunting seasons were established in 1963. Partridge season opens the second Saturday in October and runs through January 31st, statewide, with a bag/possession limit of 8/16 birds. Shooting hours are 8 a.m. to 4:30 p.m.

Eastern Cottontail

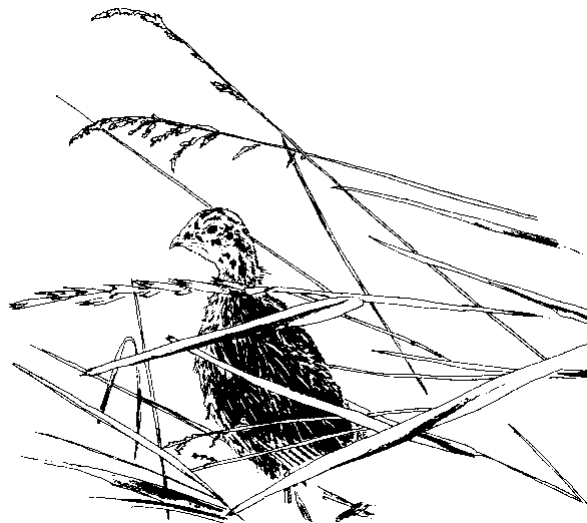
Little is known about the presettlement distribution of cottontail rabbits in Iowa. Cultivation by man no doubt favored rabbits much the same way it favored quail at the turn of the century. Cottontails prefer habitats similar to quail, favoring shrubby-grassy edge habitats. Cottontails may have up to 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 (Fig. 5.6b). Hunter interest has declined in recent years

(Fig. 5.12). Cottontails have been hunted in Iowa since settlers first arrived. The cottontail season was standardized in 1978 and opens the first Saturday in September and runs through February 28th, statewide, with a bag/possession limit of 10/20 rabbits. Shooting hours are sunrise to sunset. 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.

White-tailed Jackrabbit

Before settlement white-tailed jackrabbits could be found everywhere in Iowa, except for a few southeastern counties. They appear in greatest abundance on the glaciated soils of the Des Moines Lobe and the Missouri Loess soils of northwestern Iowa (Fig. 5.6b). 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 hare 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. Increases in the late 1980's can be attributed to increases in grass habitats from the CRP and dry springs.

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. The jackrabbit season opens the last Saturday in October and runs through December 1st, statewide, with a bag/possession limit of 2/4 rabbits. Shooting hours are sunrise to sunset. Harvests have tended to decline (Fig. 5.6b) with the decline in jackrabbit numbers and declining hunter interest.



2002

August Roadside and Small Game Harvest Survey Results

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

AUGUST ROADSIDE SURVEY

The ARS is conducted each year by IDNR Enforcement and Wildlife Bureau personnel throughout the state of Iowa during the first half of August. The survey generates data from 210 30-mile routes on ring-necked pheasants, bobwhite quail, gray partridge, cottontail rabbits, and white-tailed jackrabbits. Counts are conducted on sunny, cool mornings with heavy dew. All comparisons are based on total routes run.

2001-02 Iowa Weather Summary

The winter of 2001-02 was one of the mildest in state history, a welcome relief from the brutal winter of 2000-01. Through March 1st this past winter was the 4th warmest and 15th driest in 130 years of state records. Statewide the cumulative snowfall from

December through March was 13.4 inches in 2002; this compares to +42 inches during the winter of 2000-01. The long-term (1961-90) average is 25.3 inches. Regionally the NW and SE regions recorded the most snow last winter with 17-19 inches each, while the NC and C regions recorded the least with less than 10 inches (Fig. 5.1). Survival of most upland species was much higher than normal because of the lack of snow and mild temperatures this past winter.

Conditions during the spring 2002 nesting period (April-May) were slightly wetter and cooler than normal. As a general rule, warm and drier than normal springs are conducive to good upland game reproduction, whereas cool, wetter than normal springs are detrimental to reproduction in Iowa. Statewide April-May temperatures averaged 53F or 2 degrees below normal, while precipitation averaged 7.8 inches or 0.7 inches above normal. April rainfall was near normal for all regions except the EC and SE regions, which reported rainfall about 1 inch above normal. The EC, SC and SE regions reported May rainfall 1-2 inches above normal, while other regions reported below normal to normal rainfall. In 2002, NW and NC Iowa had the best weather for nesting with less favorable conditions as you moved south and east in the state.

2002 Roadside Survey Conditions

Weather conditions during the 2002 survey were wetter, cooler, and more overcast than in 2001. Eighty-two percent of routes were started under ideal dew conditions in 2002 versus 77% in 2001. All regions reported heavy dew conditions on greater than 75% of the routes, except the SW region where only 56% of the routes were completed under heavy dew. Dew conditions were much improved in the WC and SE regions in 2002 compared to 2001. Warmer mornings with little dew tend to decrease the accuracy of the

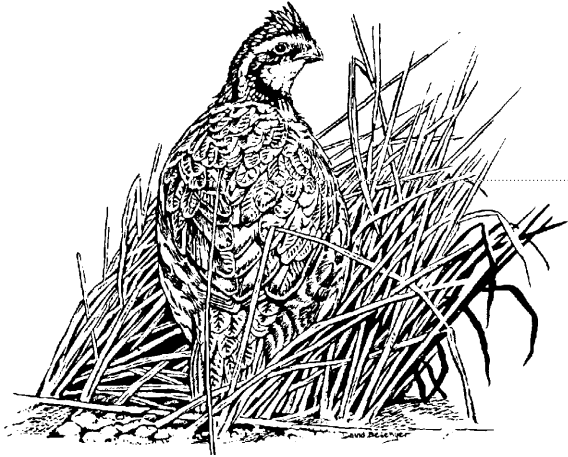
roadside index, but we are confident the numbers reported on this year's survey do represent the trends in upland game populations, with the exception of maybe the SW region.

RING-NECKED PHEASANT

Statewide. This year the statewide average is 31.8 birds/route and represents a 119% increase from the 2001 population index (Table 5.1, Fig. 5.2). In 2000 the statewide index was 34.3 birds/route. Following the severe winter of 2000-01 Iowa's pheasant population fell to a new all time low of 13.9 birds/route in 2001 (Fig. 5.2). This year's count shows the remarkable resiliency our pheasants have when Mother Nature cooperates. The population recovered from an all time low in one year. The average number of pheasants observed per route is 14% below the 10-year and 31% below the long-term averages. Populations increased 50% or more in all regions of the state this year, except the SW region (Table 5.1). Counts in the NW, NC, and C, regions are close or above their 10-year averages. Based on this year's statewide population index, Iowa pheasant hunters should harvest between 760,000 and 960,000 roosters this fall.

Most of this year's increase in pheasant numbers is directly attributable to the extremely mild winter of 2001-02. Statewide, the over winter survival of 2001 brood stock was excellent because of the lack of persistent snow cover last winter. In contrast to the winter 2000-01 when the white backdrop made the birds especially visible and snow filled most habitats, this winter's black landscape kept the birds inconspicuous with plenty of cover. Spring weather during April and May was also favorable for nesting over most of the state in 2002, particularly in northern and western Iowa (Fig. 5.7). Heavy rains in May and June in parts of NE, EC, SE, and SC regions damped the recruitment of

young. Several regions, NE, EC, SC, and SW still need another year of good weather for bird numbers to rebound to more acceptable levels (Fig. 5.7).



BOBWHITE QUAIL

Bobwhite quail numbers increased 28% statewide in 2002, but the increase was not significant (Table 5.1; Fig. 5.6a). This year's statewide index of 0.41 birds/route is 47% and 74% below the 10-year and long-term means respectively. In Iowa's primary quail range, SW, SC, and SE regions, populations increased in both the SC and SE regions (> 80%) and declined (-25%) in the SW region, although none of the changes were significant (Table 5.1). With the mild winter the decline in the SW seems somewhat suspect and the low quail numbers might be the result of poor survey conditions (lack of dew) rather than an actual decline in the population. Iowa's quail population remains in a long-term decline (Fig. 5.6a). Changing land-use, mainly intensified agriculture, is a leading factor in the decline. Unfortunately, this a trend that is likely to continue in the future, unless programs like CRP can be modified to provide for the habitat needs of quail. Only pockets of quail will likely be found across the southern 3 regions this fall (Fig. 5.8).

GRAY PARTRIDGE

Statewide Iowa's gray partridge numbers increase significantly (+55%), but in no region were the counts significantly higher (Table 5.1; Fig. 5.9). This year's statewide estimate of 2.6 birds/route is 21% below the 10-year mean and 41% below the long-mean. Regionally the NW, WC, and C reported the best partridge numbers in 2002 (Table 5.1; Fig. 5.9). Typically partridge recruitment is highest in Iowa when rainfall is below normal, so the increases observed in the northern and western regions were expected. The better partridge numbers in 2002 came from Osceola, Sioux, Cherokee, Ida, Sac, Pocahontas, Humboldt, Hamilton, Hardin, Franklin, and Grundy counties.

COTTONTAIL RABBIT

Similar to most other upland species the mild winter of 2001-02 was also good for cottontails as statewide populations increased significantly (+39%) in 2002 (Table 5.1; Fig. 5.6b). This year's population index of 5.4 rabbits/route is slightly below the 10-year mean of 5.6 and 13% below the long-term mean of 6.1 rabbits/route. Regionally rabbit numbers increased in all regions, although only the increases in the NW, NE, EC, SE were statistically significant (i.e., increased consistently across the region). Cottontail recruitment tends to be best with normal to slightly above normal moisture patterns, which likely explains the patterns seen in rabbit abundance this year. Field staff reported good rabbit numbers in Appanoose, Davis, Johnson, Keokuk, Lucas, Madison, Monroe, Ringgold, Van Buren, and Washington counties (Fig. 5.10).

WHITE-TAILED JACKRABBIT

The 2002 statewide jackrabbit index declined 50% compared to the 2001 index (Table 5.1). This years index is 57% and 84% below the 10-year and long-term averages,

respectively. Jackrabbit numbers have declined over time with the loss of their preferred habitats (i.e., small grains, pasture, hayfields) in the NW, NC, WC and C regions (Fig. 5.6b). Jackrabbit populations likely fared worse than most upland game species this past winter because they actively snow burrow and molt to a white pelage in winter, which gives them perfect camouflage on a snow white landscape, but make them highly visible during winters without snow like Iowa experienced in 2001-02. Most jackrabbits were observed in the NW, NC, and C survey regions (Table 5.1).



SMALL GAME HARVEST SURVEY

A random survey of Iowa small game hunters was conducted following the 2002-03 small game season to determine the size and distribution of Iowa's small game harvest. Survey questionnaires were mailed to 8,200 license holders. Survey participants were asked where they hunted, which species they hunted, how many days they hunted, and how many of each species they harvested.

Based on these returns 136,615 small game hunters took to Iowa's fields last fall, 1% fewer hunters than the year before (Fig. 5.11). By residency status, resident small game hunter numbers declined 6%, while nonresident small game hunters increased 22%. It is uncertain why resident small game hunter numbers declined this past year. Most of Iowa's small game populations showed nice increases in 2002 compared to the

horrendous 2001 hunting season said Bogenschutz, our pheasant counts increase over 100% last year. Bogenschutz noted that hunter numbers usually take several years to recover following a poor hunting season. Seems the word simply has to spread among resident hunters that hunting is good again, said Bogenschutz

Following 5 straight years of decline, nonresident pheasant hunters returned to Iowa last fall. According to the survey, nonresident pheasant hunter numbers increased 25% (29,757) over the 2001-02 estimate. Most of Iowa's nonresident hunters (56%) come from the surrounding states of Minnesota, Wisconsin, Missouri, Illinois, and Nebraska. The typical small game hunter reported hunting 8 days last fall. Over 50% of small game hunters reported hunting 5 days or less this past season. Most small game hunters hunted only on private land 52%, while 39% indicated they hunted a combination of public and private lands. Only 6% reported hunting exclusively on public lands, and 3% did not report where they hunted.

Ring-necked Pheasant

An estimated 127,599 pheasant hunters (54% of licensed hunters) took to Iowa's fields last fall and harvested 729,460 roosters, a 55% increase compared to 2001 harvest estimate of 470,116 (Fig. 5.6a & 5.12). Resident pheasant hunters declined 1% and non-resident hunter numbers increased 25% from last year. Resident hunters hunted an average of 8 days last fall and harvested 6 birds during the season. Nonresident pheasant hunters averaged 5 days afield and harvested 6 birds for the season. Hunter success (harvest/trip) was highest during the first 9 days of the season. Approximately 74% of the total pheasant harvest occurred in the first 31 days of the 2002 season. Ninety percent of pheasant hunters reported hunting 15 days or less and over 50% hunted 4 days or less. In

addition to the regular pheasant season, an estimated 7,424 pheasant hunters took 12,317 youth hunters (under the age of 16) hunting during Iowa's special 2-day youth pheasant season. These young hunters harvested an estimated 8,748 roosters.

For the fourth year in a row Iowa could not claim bragging rights as the top pheasant state in the nation, as South Dakota again took this honor with a harvest of 1.26 million birds in 2002-03. Over the last decade Iowa hunters have harvested an average of 1.12 million roosters during the pheasant season. Iowa's 2002 harvest estimate is 35% below the 10-year average and is the third lowest ever recorded in Iowa. Previous low's were 2001 harvest and 1984 when 724,000 birds were harvested.

Bobwhite Quail

Approximately 20,887 quail hunters (9% of licensed hunters) harvested 63,872 quail during the 2002-03 quail season (Fig. 5.6a & 5.12). This was a 98% increase from the 2001 harvest estimate of 32,226. Resident hunter numbers declined 21%, while nonresident hunter numbers increased 14% compared to 2001. Quail hunters averaged 7 days afield and harvested 3 birds for the season. Sixty-five percent of the quail harvest occurred in the first 31 days of the 2002 season. Over 90% percent of quail hunters hunted 15 days or less and over 50% hunted 5 days or less. Most of the quail harvest (45%) came from the southwest and south central regions of the state.

Gray Partridge

Some 4,417 partridge hunters (2% of licensed hunters) harvested 5,130 partridge in 2002-03 (Fig. 5.6b & 5.12). The harvest was 12% lower than the 2001-02 estimate of 5,814. This harvest estimate establishes a new all time low for partridge harvest in Iowa, breaking the low set last year. The low

harvest was attributed to a lack of hunters as population surveys showed partridge populations increased 55% last year compared to 2001. Partridge hunter numbers decline 23% this past year. It should be noted that partridge are usually harvested incidental to pheasant hunting in Iowa. Sixty percent of the partridge harvest came from the northwest and north central regions of Iowa.

Rabbits

Some 27,945 cottontail rabbit hunters (13% of licensed hunters) harvested 167,284 rabbits last fall, a 15% decline from 2001 harvest estimate (Fig. 5.6b & 5.12). Resident hunter numbers declined 25% compared to last year. This follows a 23% decline in hunter numbers reported in 2001. Nonresident hunter numbers increased 13%. The average rabbit hunter hunted 6 days and harvested 6 rabbits. Fifty percent of rabbit hunters hunted 3 days or less, while greater than 90% reported hunting 15 days or less. The 2002 estimate set another all time low for cottontail harvest in Iowa. The previous low's were set in 2001 and 1999. Population surveys showed statewide rabbit numbers increased 38% in 2002 compared to the previous year, so lack of rabbits was not the reason for a smaller harvest. Cottontail hunter numbers have declined steadily over the last several decades, corresponding with the shift from a rural to urban lifestyle in Iowa.

According to this year's survey 1,692 small game hunters also harvested 1,637 jackrabbits in 2002 (Fig. 5.6b). Less than 1% of Iowa's licensed hunters stated they hunted jackrabbits, and most of this hunting is likely incidental to other types of hunting. The average jackrabbit hunter harvested 1 jackrabbit for the season.

Table 5.1. Mean numbers of wildlife observed per 30-mile route on the August roadside survey in 2001 and 2002. Only routes run under heavy to moderate dew conditions, in both years, are used for statistical comparisons.

REGION	n	RINGNECKED PHEASANTS								BOBWHITE QUAIL		GRAY PARTRIDGE		RABBITS	
		TOTAL		HENS W/O		HENS W/		CHICKS/		TOTAL	COVEYS	TOTAL	COVEYS	EASTERN	WHITE-TAILED
		PHEASANT	COCKS	BROODS	BROODS	HENS	CHICKS	BROODS	BROOD	BIRDS	COVEYS	BIRDS	COVEYS	COTTONTAIL	JACKRABBIT
Northwest															
2002	25	46.84	3.16	2.08	4.92	7.00	36.68	7.32	5.15			6.04	0.44	2.64	0.08
2001		23.48	3.65	2.04	2.74	4.78	15.04	3.43	4.40			3.35	0.22	1.43	0.13
% CHG		99.49	-13.42	1.96	79.56	46.44	143.88	113.41	17.05			80.30	100.00	84.62	-38.46
Northcentral															
2002	25	44.00	2.72	1.40	5.24	6.64	34.64	8.04	5.03			2.04	0.12	2.24	0.08
2001		16.20	0.96	0.52	1.88	2.40	12.84	2.72	4.73			0.92	0.08	1.72	0.16
% CHG		171.60	183.33	169.23	178.72	176.67	169.78	195.59	6.34			121.74	50.00	30.23	-50.00
Northeast															
2002	18	13.61	0.72	0.67	1.28	1.94	10.94	2.39	4.71			2.94	0.33	2.72	
2001		6.17	0.61	0.22	0.56	0.78	4.78	0.94	5.44			3.44	0.22	1.33	
% CHG		120.58	18.03	204.55	128.57	148.72	128.87	154.26	-13.42			-14.53	50.00	104.51	
West Central															
2002	20	31.95	1.60	0.80	3.10	3.90	26.45	5.30	4.82			4.00	0.35	3.65	0.00
2001		9.59	1.18	0.47	1.24	1.71	6.71	1.82	3.37			3.24	0.18	2.29	0.12
% CHG		233.16	35.59	70.21	150.00	128.07	294.19	191.21	43.03			23.46	94.44	59.39	-100.00
Central															
2002	31	50.06	3.03	1.32	5.00	6.32	40.71	7.87	5.07	0.03		5.16	0.71	4.68	0.06
2001		22.93	2.00	0.69	2.52	3.21	17.72	3.41	5.05	0.10		2.59	0.21	3.00	0.07
% CHG		118.32	51.50	91.30	98.41	96.88	129.74	130.79	0.40	-70.00		99.23	238.10	56.00	-14.29
Eastcentral															
2002	19	28.74	1.58	1.53	2.89	4.42	22.74	4.00	5.90	0.32	0.00	1.32	0.05	7.00	
2001		18.82	1.12	1.18	2.06	3.24	14.47	2.65	5.76	0.94	0.06	0.94	0.06	3.65	
% CHG		52.71	41.07	29.66	40.29	36.42	57.15	50.94	2.43	-65.96	-100.00	40.43	-16.67	91.78	
Southwest															
2002	15	15.20	1.13	0.53	1.40	1.93	12.13	3.40	3.38	1.13	0.13	0.00		4.00	
2001		12.93	1.29	0.79	1.29	2.07	9.57	2.36	4.11	1.50	0.21	0.14		5.50	
% CHG		17.56	-12.40	-32.91	8.53	-6.76	26.75	44.07	-17.76	-24.67	-38.10	-100.00		-27.27	
Southcentral															
2002	22	13.05	0.45	0.32	1.14	1.45	11.14	2.05	5.54	1.00	0.18			12.14	
2001		8.45	1.10	0.50	0.85	1.35	6.00	1.45	4.42	0.55	0.05			12.55	
% CHG		54.44	-59.09	-36.00	34.12	7.41	85.67	41.38	25.34	81.82	260.00			-3.27	
Southeast															
2002	22	22.59	1.09	0.59	2.27	2.86	18.64	3.59	5.55	0.95	0.05			9.27	
2001		4.58	1.00	0.53	0.42	0.95	2.63	0.68	3.06	0.37	0.00			4.53	
% CHG		393.23	9.00	11.32	440.48	201.05	608.75	427.94	81.37	156.76				104.64	
Statewide															
2002	197	31.80	1.86	1.08	3.27	4.36	25.58	5.22	5.10	0.41	0.04	2.64	0.25	5.35	0.03
2001		14.51	1.51	0.79	1.60	2.39	10.61	2.27	4.61	0.32	0.03	1.70	0.12	3.86	0.06
% CHG		119.16	23.18	36.71	104.38	82.43	141.09	129.96	10.63	28.13	33.33	55.29	108.33	38.60	-50.00

BOLD numbers indicate a mathematically significant change from the previous year ($P < 0.10$, Wilcoxon Signed Rank Test).

Table 5.3 Small game harvest estimates from the Iowa small-game survey (1963-present).

YEAR	PHEASANT	QUAIL	COTTON-TAIL	JACK-RABBIT	SQUIRREL	HUNS	RUFFED GROUSE	DUCKS	CANADA GEESE	OTHER GEESE	RACCOON	FOX	COYOTE
1963	1,935,000	327,977	2,066,472	75,015	1,440,576	8,000					347,168	121,124	
1964	1,737,400	291,030	2,260,090	97,785	1,111,290	7,000		434,590	27,575		268,560	91,550	
1965	1,117,500	513,760	1,602,060	133,000	1,236,400	11,500		394,680	55,660		254,360	88,330	
1966	1,449,400	1,051,630	2,180,525	91,690	1,370,250	12,000		594,605	62,075		301,600	113,100	
1967	1,212,200	736,520	1,548,035	55,660	1,196,810	11,300		525,060	58,725		301,725	68,475	
1968	1,393,900	777,685	1,761,370	62,405	1,014,940	21,600		244,075	49,410		349,600	177,155	
1969	1,642,899	1,144,700	1,722,280	98,930	1,164,030	20,900	2,110	558,950	116,020		300,630	142,100	
1970	1,788,500	1,178,685	1,725,535	71,705	1,115,410	28,300	4,085	554,283	79,427		281,890	60,000	6,000
1971	1,817,000	1,037,957	1,305,083	41,468	1,172,742	31,100	3,880	560,770	87,300		617,990	45,450	6,800
1972	1,396,900	657,300	1,148,100	31,200	1,048,000	16,800	8,500	597,500	9,100	50,100	374,600	66,100	19,400
1973	1,905,086	791,242	1,424,927	30,863	1,105,271	45,284		358,955	9,823	51,051	524,496	81,344	32,408
1974	1,672,476	727,324	1,271,577	40,027	1,119,048	39,976		374,500	79,800				
1975	1,230,095	543,971	996,227	19,064	1,046,559	26,436					557,500	32,500	23,800
1976	1,425,500	1,080,500	1,136,300	20,700	1,377,500	54,800	24,400	846,300	71,100		635,400	56,800	34,800
1977	1,357,862	849,183	1,322,263	19,975	1,283,043	48,991	17,022	721,824	50,228		539,000	53,426	37,547
1978	1,428,708	660,625	856,999	26,077	815,562	108,473	9,166	701,014	23,391	40,791	396,616	60,539	28,195
1979	1,200,709	312,410	461,285	13,713	696,363	55,414	7,717	848,849	27,646	60,239	425,528	25,544	36,231
1980	1,429,617	524,450	588,363	7,932	844,999	70,764	17,305	543,282	13,984	30,149	310,414	30,825	21,401
1981	1,447,969	563,569	1,134,781	22,860	949,681	69,698	23,940	543,541	26,532	44,376	320,934	50,021	33,660
1982	972,556	302,648	712,227	5,237	759,438	52,782	9,279	659,172	25,842	24,427	381,616	43,259	31,774
1983	1,047,027	270,690	720,012	8,845	669,490	91,035	5,894	591,483	21,350	16,230	257,105	59,048	36,022
1984	724,192	190,708	636,209	6,376	529,316	33,306	13,308	626,868	29,975	31,174	295,650	22,215	25,268
1985	852,716	189,236	717,631	2,108	673,665	62,931	8,336	362,951	23,167	22,399	"-----Discontinued-----"		
1986	855,894	339,000	472,585	6,082	506,769	60,018	12,701	412,571	26,960	19,086			
1987	1,412,082	397,633	690,091	8,830	532,001	109,061	5,254	300,159	20,597	23,204			
1988	1,139,599	289,592	424,561	3,907	510,065	104,094	13,039	132,514	32,400	16,023			
1989	1,441,990	426,302	435,791	3,025	583,183	118,282	13,335	183,990	28,967	12,373			
1990	1,407,002	321,493	608,805	4,463	466,140	147,922	9,338	173,006	25,592	11,375			
1991	1,138,463	231,818	437,144	3,171	407,172	45,541	5,764	206,938	42,099	12,288			
1992	925,123	179,825	311,607	2,113	328,644	37,328	3,794	242,395	54,160	16,350			
1993	1,226,010	201,461	334,667	3,212	439,477	24,577	1,606	190,800	49,716	19,075			
1994	1,245,580	178,589	288,982	262	395,232	22,331	2,189	190,122	33,349	5,013			
1995	1,443,010	220,999	335,862	6,280	377,714	6,677	2,630	374,490	79,256	14,670			
1996	1,367,060	81,039	331,047	2,666	302,908	36,358	3,011	313,134	83,218	12,786			
1997	1,340,050	181,025	340,661	5,063	265,874	38,045	3,402	371,746	123,029	27,366			
1998	1,237,980	100,594	255,149	10,008	319,081	25,613	0	535,949	79,101	14,564			
1999 ^a	899,174	110,128	237,409	8,777	242,224	20,200	1,373	"-----Discontinued-----"					
2000 ^b	1,001,867	140,828	350,739	1,626	217,116	19,258	489						
2001	470,116	32,226	196,483	3,840	248,833	5,814	903						
2002	729,460	63,872	167,284	1,637	152,825	5,130	265						
Statistics:													
10 Year Avg.	1,096,031	131,076	283,828	4,337	296,128	20,400	1,587						
Long-term Avg.	1,286,642	455,506	887,930	26,440	750,891	43,866	7,550	449,149	47,840	25,004	382,971	70,900	26,665
Percent Change from:													
2002	55.2	98.2	-14.9	-57.4	-38.6	-11.8	-70.7						
10 Year Avg.	-33.4	-51.3	-41.1	-62.3	-48.4	-74.9	-83.3						
Long-term Avg.	-43.3	-86.0	-81.2	-93.8	-79.6	-88.3	-96.5						

^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).

Table 5.4 Sales of hunting-related licenses and stamps in Iowa (1942-present).
 (Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

YEAR ^a	FUR- HARVEST over 16	RESIDENT HUNTING	RESIDENT COMBINATION	FUR, FISH, GAME	TOTAL RESIDENT LICENSE ^b	LIFETIME HUNTING +65	NR HUNTING over 18	NR HUNTING under 18	TOTAL NR LICENSE ^c
1972		159,145	118,172		277,317			28,559	
1973		173,764	117,991		291,755			34,497	
1974		173,049	145,881		318,930			42,224	
1975		162,612	139,824		302,436			36,382	
1976		164,434	142,055		306,489			41,849	
1977		164,496	132,444		296,940			39,032	
1978		161,295	134,401		295,696			32,848	
1979	17,602	148,341	109,335		257,676			27,302	
1980	19,366	161,596	105,059		266,655			30,793	
1981	19,116	158,551	107,502		266,053			31,379	
1982	17,505	139,044	106,925		245,969			24,002	
1983	14,964	134,140	103,711		237,851			23,206	
1984	14,537	120,341	101,178		221,519			21,927	
1985	25,156	118,163	90,281		208,444			22,977	
1986	23,646	121,640	83,653	63	205,356			27,254	
1987	20,689	134,155	78,285	8,234	220,674			35,676	
1988	13,406	130,547	77,342	10,699	218,588			35,023	
1989	8,976	134,894	81,795	9,435	226,124			40,197	
1990	6,059	131,601	80,241	7,794	219,636			41,500	
1991	6,417	127,432	81,977	7,791	217,200			45,792	
1992	6,851	142,059	54,028	7,421	203,508			39,211	
1993	6,611	137,489	52,416	8,061	197,966			29,231	
1994	7,477	148,770	54,185	8,334	211,289			45,610	
1995	6,480	146,497	55,367	8,863	210,727			48,028	
1996	8,132	137,724	62,834	9,105	209,663			53,058	
1997	8,208	135,010	66,398	10,122	211,530			52,730	
1998	7,664	133,000	65,129	10,661	208,790			50,511	
1999**	"-----Discontinued-----"				206,210	2,885	42,379	2,086	44,465
2000					200,995	1,642	39,067	1,901	40,968
2001					194,051	1,515	26,748	1,090	27,838
2002					189,138	2,339	36,728	1,532	38,260

Statistics:

10 Year Avg.	204,036	2,095	36,231	1,652	43,070
Long-term Avg.	272,006	2,095	36,231	1,652	21,631

Percent Change from:

2002	-2.5	54.4	37.3	40.6	37.4
10 Year Avg.	-7.3	11.6	1.4	-7.3	-11.2
Long-term Avg.	-30.5	11.6	1.4	-7.3	76.9

^a Change to ELSI electronic licensing system in 1999. First four license types modified or eliminated under ELSI.

^b Total resident licenses is sum of resident hunt, resident combination, and fur/fish/game, until ELSI system implementation in 1999.

^c Total NR licenses combines NR over and under 18 sales after 1999 ELSI implementation for comparisons to previous years.

^{deh} Totals combine resident and non-resident sales.

^f Furharvester (over 16) sales combines discontinued furharvester (over 16) and fur/fish/game licenses, until ELSI system implementation in 1999.

^g Total furharvester licenses sales is the sum of the furharvester over and under 16 sales columns. Total does not include non-resident sales.

Table 5.4 Sales of hunting-related licenses and stamps in Iowa (1942-present).
 (Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

YEAR ^a	HABITAT STAMP ^d	IOWA DUCK STAMP ^e	FUR- HARVEST over 16 ^f	FUR- HARVEST under 16	TOTAL FUR- HARVEST ^g	HUNT PRESERVE ^h
1972		70,446				
1973		67,323				
1974		70,797				
1975		70,814				
1976		66,120				
1977		69,023				
1978		67,041				
1979	279,621	52,865	17,602	4,813	22,415	768
1980	296,667	50,202	19,366	5,529	24,895	822
1981	297,297	45,751	19,116	4,990	24,106	742
1982	269,290	44,391	17,505	4,248	21,753	751
1983	261,340	42,981	14,964	3,699	18,663	766
1984	243,154	44,445	14,537	3,329	17,866	696
1985	233,779	37,681	25,156	3,519	28,675	729
1986	236,219	40,157	23,709	3,064	26,773	882
1987	259,350	43,357	28,923	3,338	32,261	1,112
1988	257,702	34,799	24,105	2,380	26,485	1,696
1989	271,342	32,920	18,411	1,530	19,941	1,499
1990	263,530	31,468	13,853	973	14,826	1,786
1991	266,845	32,537	14,208	719	14,927	1,454
1992	247,673	34,304	14,272	793	15,065	1,810
1993	232,298	31,741	14,672	829	15,501	2,137
1994	260,815	33,232	15,811	952	16,763	1,870
1995	263,531	34,903	15,343	903	16,246	2,467
1996	265,653	43,060	17,237	1,021	18,258	2,317
1997	269,443	38,275	18,330	1,066	19,396	2,516
1998	266,519	40,349	18,325	1,078	19,403	3,107
1999**	253,943	42,588	15,804	1,004	16,808	2,772
2000	245,351	40,913	12,793	1,936	14,729	2,898
2001	237,407	40,378	14,665	658	15,323	2,963
2002	229,829	37,574	14,235	644	14,879	3,282

Statistics:

10 Year Av	252,479	38,301	15,722	1,009	16,731	2,633
Long-term .	258,692	46,208	17,623	2,209	19,832	1,743

Percent Change from:

2002	-3.2	-6.9	-2.9	-2.1	-2.9	10.8
10 Year Av	-9.0	-1.9	-9.5	-36.2	-11.1	24.7
Long-term .	-11.2	-18.7	-19.2	-70.8	-25.0	88.3

^a Change to ELSI electronic licensing system in 1999. First four license types modified or eliminated under ELSI.

^b Total resident licenses is sum of resident hunt, resident combination, and fur/fish/game, until ELSI system implementation in 1999.

^c Total NR licenses combines NR over and under 18 sales after 1999 ELSI implementation for comparisons to previous years.

^d Totals combine resident and non-resident sales.

^f Furharvester (over 16) sales combines discontinued furharvester (over 16) and fur/fish/game licenses, until ELSI system implementation in 1999.

^g Total furharvester licenses sales is the sum of the furharvester over and under 16 sales columns. Total does not include non-resident sales.

Table 5.5 Estimated hunter numbers from the Iowa small-game survey (1963-present). Prior to 1978 Canada geese = all geese.

YEAR	PHEASANT	QUAIL	COTTON-TAIL	JACK-RABBIT	SQUIRREL	HUNS	RUFFED GROUSE	DUCKS	CANADA GEESE	OTHER GEESE	RACCOON	FOX	COYOTE
1963	277,400	47,028	169,994	30,494	150,932						26,745	54,135	
1964	271,285	46,535	179,585	31,815	136,415			55,270	9,225		27,975	58,685	
1965	225,735	46,450	138,379	26,080	123,640			50,225	26,250		17,420	40,150	
1966	240,400	63,785	154,647	20,355	130,500			63,265	31,340		23,200	43,500	
1967	244,300	62,485	150,050	20,615	138,520			64,900	32,450		21,400	48,910	
1968	247,100	70,367	147,380	20,131	120,790			54,065	33,075		23,000	63,270	
1969	259,100	81,100	159,000	24,810	133,600		1,540	75,035	40,025		18,220	54,650	
1970	283,400	87,665	167,190	26,460	136,150		2,660	68,880	34,440		30,640	28,620	4,370
1971	301,150	80,250	134,470	16,326	118,059		1,663	73,196	53,826		36,140	26,740	4,700
1972	230,000	63,900	137,000	12,800	105,000	6,400	3,000	61,000	20,000		25,500	19,000	6,400
1973	307,974	106,150	201,560	23,209	159,473	22,374		63,006			44,655	59,849	34,547
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	8,198	86,763	57,598		52,097	61,874	42,721
1977	279,689	103,776	170,074	11,302	141,596	17,691	5,668	87,493	56,405		57,985	57,264	40,638
1978	270,413	101,916	142,809	14,268	120,503	34,329	8,306	82,758	36,104	33,726	46,487	56,769	40,726
1979	241,972	73,461	114,642	10,029	111,434	23,465	4,931	74,989	28,779	30,735	45,432	44,884	34,240
1980	252,440	86,816	119,901	8,526	111,425	27,554	9,281	65,206	25,348	25,441	39,900	39,666	34,125
1981	254,803	97,430	150,881	11,106	117,942	28,731	7,059	55,394	24,277	22,266	36,108	43,985	35,443
1982	214,263	68,479	118,994	4,862	105,262	21,532	8,317	56,335	27,211	22,149	33,321	39,754	32,852
1983	203,014	63,060	118,535	7,331	98,553	25,366	5,701	53,446	20,728	16,761	27,631	39,401	28,652
1984	176,312	58,630	102,993	5,543	86,380	21,179	7,573	53,187	26,681	22,702	25,977	35,144	33,322
1985	175,225	54,427	107,500	6,568	88,849	25,956	5,949	39,832	21,629	15,234	"-----Discontinued-----"		
1986	184,759	63,985	92,727	5,193	84,082	30,822	6,874	44,184	24,646	16,331			
1987	212,118	83,754	103,199	7,298	77,819	40,878	6,053	36,805	18,391	14,201			
1988	204,659	74,584	84,529	4,376	74,783	44,154	8,353	25,657	16,309	9,348			
1989	211,586	79,971	89,054	5,634	80,937	48,785	9,611	24,032	16,275	11,253			
1990	210,845	72,886	87,437	4,679	70,539	49,220	7,095	23,568	14,792	6,900			
1991	202,319	62,684	83,200	4,001	63,601	25,165	4,884	26,261	17,073	6,828			
1992	176,430	56,287	66,967	5,802	60,443	22,949	4,378	34,270	23,538	10,485			
1993	166,260	49,345	65,704	1,547	62,175	14,920	2,197	28,292	19,839	10,164			
1994	189,664	50,258	68,840	1,239	57,381	18,294	2,521	29,843	25,544	10,107			
1995	200,302	50,839	68,499	4,361	57,495	15,954	3,940	41,620	31,795	10,034			
1996	205,592	44,974	75,870	2,623	56,382	21,914	2,525	35,670	29,743	7,076			
1997	205,203	35,473	51,785	2,872	43,632	12,330	2,031	46,831	35,781	10,360			
1998	184,585	32,378	54,588	1,604	53,859	13,502	152	41,165	30,258	9,992			
1999*	181,673	41,117	50,254	2,456	46,994	11,390	1,481	"-----Discontinued-----"					
2000	167,521	39,957	46,311	1,572	35,395	6,043	960						
2001	122,906	24,591	36,125	2,933	36,760	5,757	3,227						
2002	127,599	20,887	27,945	1,692	25,482	4,417	1,060						
Statistics:													
10 Year Avg.	175,131	38,982	54,592	2,290	47,556	12,452	2,009						
Long-term Avg.	224,670	66,926	114,492	10,635	95,519	22,866	4,748	52,195	28,418	15,338	32,992	45,813	28,672
Percent Change from:													
2002	3.8	-15.1	-22.6	-42.3	-30.7	-23.3	-67.2						
10 Year Avg.	-27.1	-46.4	-48.8	-26.1	-46.4	-64.5	-47.2						
Long-term Avg.	-43.2	-68.8	-75.6	-84.1	-73.3	-80.7	-77.7						

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

Table 5.6 Iowa's ring-necked pheasant hunting seasons.

YEAR	DATES		SEASON LENGTH	SHOOTING HOURS	LIMIT - BAG/POSS		# COUNTIES OPEN
	REGULAR	YOUTH			REGULAR	YOUTH	
1946	28 OCT	17 NOV	21	1000-1600	3/6		59
1947	11 NOV	20 NOV	10	1200-1600	2/2		64
1948	11 NOV	30 NOV	20	1200-1600	2/4		68
	11 NOV	5 DEC	25	1200-1630	2/4		68
1949	11 NOV	17 NOV	7	1200-1630	2/4		11
1950	11 NOV	5 DEC	25	1200-1630	3/3		70
	11 NOV	20 NOV	10	1200-1630	3/3		13
1951	11 NOV	5 DEC	25	1200-1630	3/3		65
	11 NOV	22 NOV	12	1200-1630	3/3		27
1952	18 NOV	12 DEC	25	1200-1630	3/3		65
	18 NOV	29 NOV	12	1200-1630	3/3		27
1953	11 NOV	5 DEC	25	1200-1630	3/3		69
	11 NOV	22 NOV	12	1200-1630	3/3		23
1954	11 NOV	5 DEC	25	1200-1630	3/3		70
	11 NOV	22 NOV	12	1200-1630	3/3		22
1955	12 NOV	5 DEC	24	1200-1630	3/3		70
	12 NOV	24 NOV	13	1200-1630	3/3		22
1956	10 NOV	3 DEC	24	1200-1630	3/3		70
	10 NOV	22 NOV	13	1200-1630	3/3		22
1957	9 NOV	2 DEC	24	1200-1630	3/3		70
	9 NOV	21 NOV	13	1200-1630	3/3		22
1958	8 NOV	1 DEC	24	1000-1630	3/6		70
	8 NOV	23 NOV	16	1000-1630	3/6		22
1959	14 NOV	7 DEC	24	0900-1630	3/6		70
	14 NOV	29 NOV	16	0900-1630	3/6		22
1960	5 NOV	28 NOV	24	0900-1630	3/6		92
1961	11 NOV	15 DEC	35	0900-1630	3/6		92
1962	10 NOV	14 DEC	35	0900-1630	3/6		92
1963-64	9 NOV	1 JAN	54	0830-1700	3/9		92
1964-65	7 NOV	3 JAN	58	0830-1700	3/9		92
1965-66	13 NOV	2 JAN	51	0830-1600	2/6		92
1966-67	12 NOV	2 JAN	52	0800-1630	3/6		92
1967-68	11 NOV	1 JAN	52	0800-1630	3/6		94
1968-69	9 NOV	31 DEC	53	0800-1630	3/6		94
1969-70	8 NOV	31 DEC	54	0800-1630	3/6		94
1970-71	14 NOV	3 JAN	51	0800-1630	3/6		94
1971-72	13 NOV	2 JAN	51	0800-1630	3/6		96
1972-73	11 NOV	1 JAN	52	0800-1630	3/12		96
1973-74	10 NOV	6 JAN	58	0800-1630	3/12		96
1974-75	9 NOV	5 JAN	58	SUNRISE-SUNSET	3/12		97
1975-76	8 NOV	4 JAN	58	0800-1630	3/6		97
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

Table 5.6 Iowa's ring-necked pheasant hunting seasons.

YEAR	DATES		SEASON LENGTH	SHOOTING HOURS	LIMIT - BAG/POSS		# COUNTIES OPEN
	REGULAR	YOUTH			REGULAR	YOUTH	
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	0800-1630	3/6		STATEWIDE
1985-86		2 NOV- 5 JAN	65	0800-1630	3/9		STATEWIDE
1986-87		1 NOV- 4 JAN	65	0800-1630	3/9		STATEWIDE
1987-88		31 OCT- 3 JAN	65	0800-1630	3/12		STATEWIDE
1988-89		29 OCT- 8 JAN	72	0800-1630	3/12		STATEWIDE
1989-90		28 OCT-10 JAN	75	0800-1630	3/12		STATEWIDE
1990-91		27 OCT-10 JAN	76	0800-1630	3/12		STATEWIDE
1991-92		26 OCT-10 JAN	77	0800-1630	3/12		STATEWIDE
1992-93		31 OCT-10 JAN	72	0800-1630	3/12		STATEWIDE
1993-94		30 OCT-10 JAN	72	0800-1630	3/12		STATEWIDE
1994-95		29 OCT-10 JAN	74	0800-1630	3/12		STATEWIDE
1995-96		28 OCT-10 JAN	75	0800-1630	3/12		STATEWIDE
1996-97		26 OCT-10 JAN	77	0800-1630	3/12		STATEWIDE
1997-98 ¹	26 OCT-10 JAN / 18-19 OCT		78/2	0800-1630	3/12	1/2	STATEWIDE
1998-99	31 OCT-10 JAN / 23-24 OCT		72/2	0800-1630	3/12	1/2	STATEWIDE
1999-00	30 OCT-10 JAN / 22-23 OCT		73/2	0800-1630	3/12	1/2	STATEWIDE
2000-01	28 OCT-10 JAN / 21-22 OCT		75/2	0800-1630	3/12	1/2	STATEWIDE
2001-02	27 OCT-10 JAN / 20-21 OCT		76/2	0800-1630	3/12	1/2	STATEWIDE
2002-03	26 OCT-10 JAN / 19-20 OCT		77/2	0800-1630	3/12	1/2	STATEWIDE
2003-04	25 OCT-10 JAN / 18-19 OCT		78/2	0800-1630	3/12	1/2	STATEWIDE

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

Table 5.7 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	STATEWIDE
1965-66	6 NOV-31 JAN	86	0830-1600	8/16	STATEWIDE
1966-67	22 OCT-31 JAN	102	0800-1630	8/16	STATEWIDE
1967-68	21 OCT-28 JAN	103	0800-1630	8/16	STATEWIDE
1968-69	26 OCT-31 JAN	98	0800-1630	8/16	STATEWIDE
1969-70	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE
1970-71	24 OCT-31 JAN	100	0800-1630	8/16	STATEWIDE
1971-72	23 OCT-31 JAN	101	0800-1630	8/16	STATEWIDE
1972-73	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
1973-74	27 OCT-31 JAN	97	0800-1630	8/16	STATEWIDE
1974-75	26 OCT-31 JAN	98	SUNRISE-SUNSET	8/16	STATEWIDE
1975-76	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE
1976-77	6 NOV-31 JAN	86	0800-1630	8/16	STATEWIDE
1977-78	5 NOV-31 JAN	87	0800-1630	8/16	STATEWIDE
1978-79	4 NOV-31 JAN	88	0800-1630	8/16	STATEWIDE
1979-80	3 NOV- 6 JAN	64	0800-1630	6/12	STATEWIDE
1980-81	1 NOV-31 JAN	92	0800-1630	8/16	STATEWIDE
1981-82	7 NOV-31 JAN	86	0800-1630	8/16	STATEWIDE
1982-83	6 NOV-31 JAN	87	0800-1630	8/16	STATEWIDE
1983-84	5 NOV-31 JAN	88	0800-1630	8/16	STATEWIDE
1984-85	3 NOV-31 JAN	90	0800-1630	8/16	STATEWIDE
1985-86	2 NOV-31 JAN	91	0800-1630	8/16	STATEWIDE
1986-87	1 NOV-31 JAN	92	0800-1630	8/16	STATEWIDE
1987-88	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1988-89	29 OCT-31 JAN	95	0800-1630	8/16	STATEWIDE
1989-90	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
1990-91	27 OCT-31 JAN	97	0800-1630	8/16	STATEWIDE
1991-92	26 OCT-31 JAN	98	0800-1630	8/16	STATEWIDE
1992-93	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1993-94	30 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1994-95	29 OCT-31 JAN	95	0800-1630	8/16	STATEWIDE
1995-96	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
1996-97	26 OCT-31 JAN	98	0800-1630	8/16	STATEWIDE
1997-98	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE
1998-99	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1999-00	30 OCT-31 JAN	94	0800-1630	8/16	STATEWIDE
2000-01	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
2001-02	27 OCT-31 JAN	97	0800-1630	8/16	STATEWIDE
2002-03	26 OCT-31 JAN	98	0800-1630	8/16	STATEWIDE
2003-04	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE

Table 5.8 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	0800-1630	4/8	N. US 30
1977-78	5 NOV- 1 JAN	58	0800-1630	6/12	N. US 30
1978-79	4 NOV- 1 JAN	60	0800-1630	6/12	N. US 30
1979-80	3 NOV- 6 JAN	65	0800-1630	6/12	N. US 30
1980-81	1 NOV-31 JAN	92	0800-1630	6/12	N. I-80
1981-82	7 NOV-31 JAN	86	0800-1630	6/12	N. I-80
1982-83	6 NOV-31 JAN	87	0800-1630	6/12	N. I-80
1983-84	5 NOV-31 JAN	88	0800-1630	6/12	N. I-80
1984-85	3 NOV-31 JAN	90	0800-1630	6/12	N. I-80
1985-86	2 NOV-31 JAN	91	0800-1630	6/12	N. I-80
1986-87	1 NOV-31 JAN	92	0800-1630	6/12	STATEWIDE
1987-88	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1988-89	29 OCT-31 JAN	94	0800-1630	8/16	STATEWIDE
1989-90	7 OCT-31 JAN	117	0800-1630	8/16	STATEWIDE
1990-91	6 OCT-31 JAN	118	0800-1630	8/16	STATEWIDE
1991-92	5 OCT-31 JAN	119	0800-1630	8/16	STATEWIDE
1992-93	10 OCT-31 JAN	114	0800-1630	8/16	STATEWIDE
1993-94	9 OCT-31 JAN	115	0800-1630	8/16	STATEWIDE
1994-95	8 OCT-31 JAN	116	0800-1630	8/16	STATEWIDE
1995-96	14 OCT-31 JAN	109	0800-1630	8/16	STATEWIDE
1996-97	12 OCT-31 JAN	112	0800-1630	8/16	STATEWIDE
1997-98	11 OCT-31 JAN	113	0800-1630	8/16	STATEWIDE
1998-99	10 OCT-31 JAN	114	0800-1630	8/16	STATEWIDE
1999-00	9 OCT-31 JAN	115	0800-1630	8/16	STATEWIDE
2000-01	14 OCT-31 JAN	110	0800-1630	8/16	STATEWIDE
2001-02	13 OCT-31 JAN	111	0800-1630	8/16	STATEWIDE
2002-03	12 OCT-31 JAN	112	0800-1630	8/16	STATEWIDE
2003-04	11 OCT-31 JAN	113	0800-1630	8/16	STATEWIDE

Table 5.9 Iowa's cottontail and jackrabbit seasons.

YEAR	DATES	SEASON LENGTH	SHOOTING HOURS	LIMIT - BAG/POSS		AREA OPEN
	COTTONTAILS / JACKRABBITS			COTTONTAILS	JACKRABBITS	
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		STATEWIDE
1965-66	12 SEP-21 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1966-67	10 SEP-19 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1967-68	15 SEP-17 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1968-69	14 SEP-16 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1969-70	13 SEP-15 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1970-71	12 SEP-28 FEB	170	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1971-72	11 SEP-29 FEB	171	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1972-73	9 SEP-28 FEB	173	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1973-74	8 SEP-28 FEB	174	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1974-75	7 SEP-28 FEB	175	SUNRISE-SUNSET	AGGREGATE - 10/NONE		STATEWIDE
1975-76	6 SEP-28 FEB	176	SUNRISE-SUNSET	AGGREGATE - 10/NONE		STATEWIDE
1976-77	11 SEP-28 FEB	171	SUNRISE-SUNSET	AGGREGATE - 10/NONE		STATEWIDE
1977-78	3 SEP-28 FEB	179	SUNRISE-SUNSET	AGGREGATE - 10/NONE		STATEWIDE
1978-79	2 SEP-28 FEB/4 NOV-7 JAN	180/65	SUNRISE-SUNSET	10/NONE	3/6	STATEWIDE
1979-80	1 SEP-29 FEB/3 NOV-6 JAN	182/65	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1980-81	6 SEP-28 FEB/1 NOV-4 JAN	176/65	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1981-82	5 SEP-28 FEB/7 NOV-3 JAN	177/58	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1982-83	4 SEP-28 FEB/6 NOV-2 JAN	178/58	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1983-84	3 SEP-29 FEB/5 NOV-18 DEC	180/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1984-85	1 SEP-28 FEB/3 NOV-16 DEC	181/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1985-86	31 AUG-28 FEB/2 NOV-15 DEC	182/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1986-87	30 AUG-28 FEB/1 NOV-14 DEC	183/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1987-88	5 SEP-29 FEB/31 OCT-13 DEC	178/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1988-89	3 SEP-28 FEB/28 OCT-10 DEC	179/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1989-90	2 SEP-28 FEB/29 OCT-11 DEC	180/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1990-91	1 SEP-28 FEB/27 OCT-9 DEC	181/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1991-92	31 AUG-29 FEB/26 OCT-8 DEC	183/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1992-93	5 SEP-28 FEB/31 OCT-6 DEC	177/37	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1993-94	4 SEP-28 FEB/30 OCT-5 DEC	176/37	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1994-95	3 SEP-28 FEB/29 OCT-4 DEC	177/37	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1995-96	2 SEP-28 FEB/28 OCT-1 DEC	178/35	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1996-97	7 SEP-28 FEB/26 OCT-1 DEC	174/37	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1997-98	1 SEP-28 FEB/25 OCT-1 DEC	181/38	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1998-99	1 SEP-28 FEB/30 OCT-1 DEC	181/33	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1999-00	1 SEP-28 FEB/30 OCT-1 DEC	181/33	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2000-01	1 SEP-28 FEB/28 OCT-1 DEC	181/35	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2001-02	1 SEP-28 FEB/27 OCT-1 DEC	181/36	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2002-03	1 SEP-28 FEB/26 OCT-1 DEC	181/37	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2003-04	1 SEP-28 FEB/25 OCT-1 DEC	181/38	SUNRISE-SUNSET	10/20	2/4	STATEWIDE

1963-1977 SEASONS AND LIMITS ARE AN AGGREGATE OF COTTONTAILS AND JACKRABBITS.

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

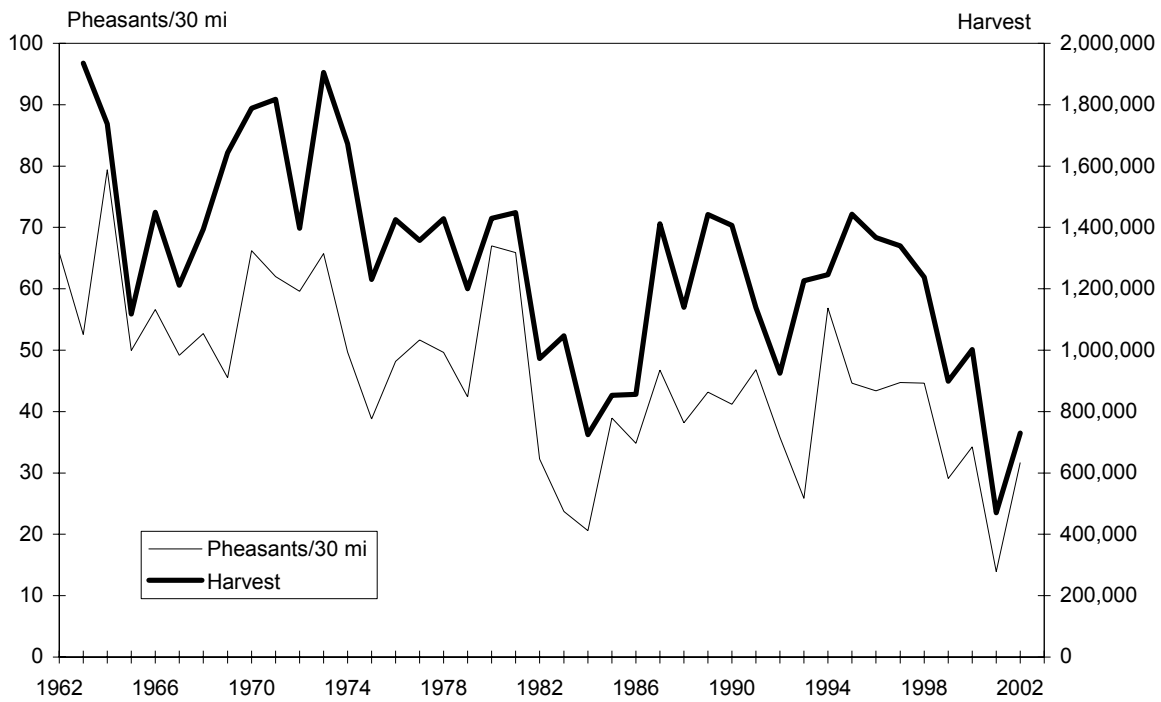


Figure 5.3 Statewide trends in pheasant broods and average brood size from August roadside survey

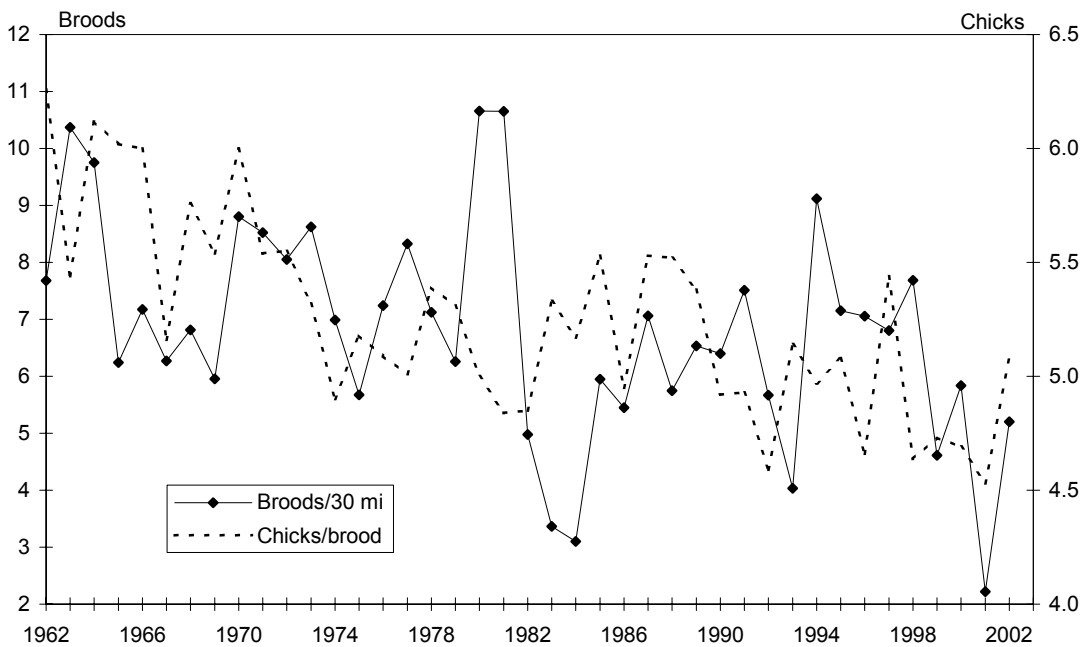


Figure 5.4 Statewide sex ratio and estimated cock harvest from winter pheasant surveys

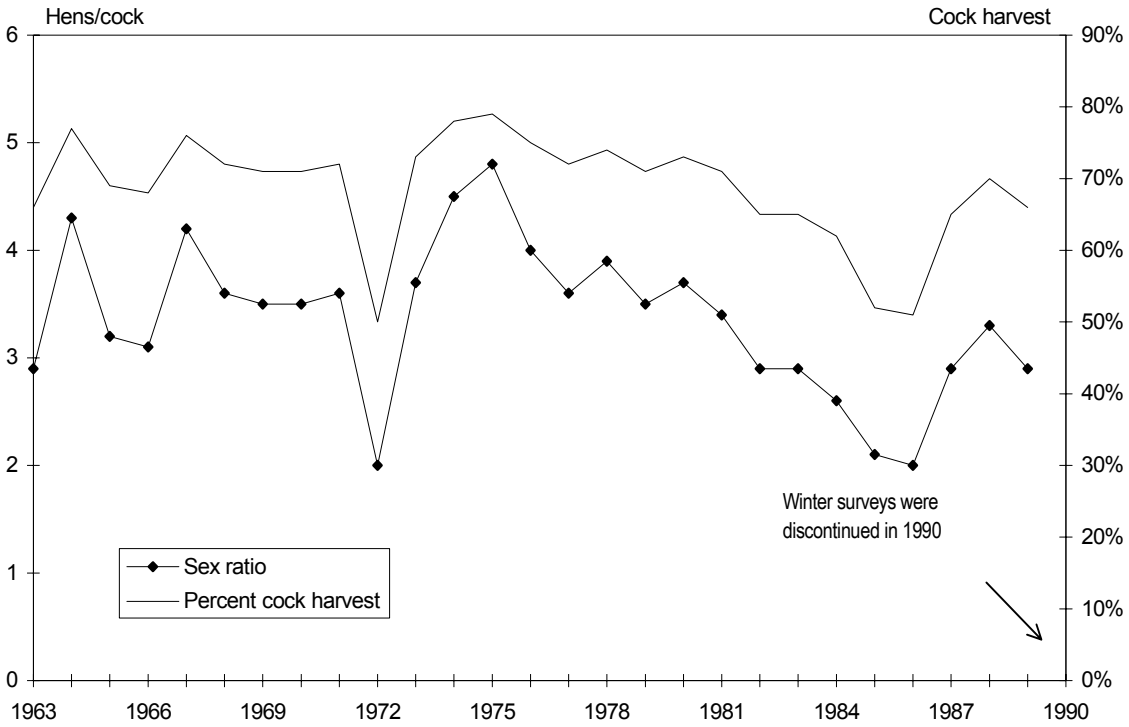


Figure 5.5 Statewide trends in pheasant hens with and without broods from August roadside survey

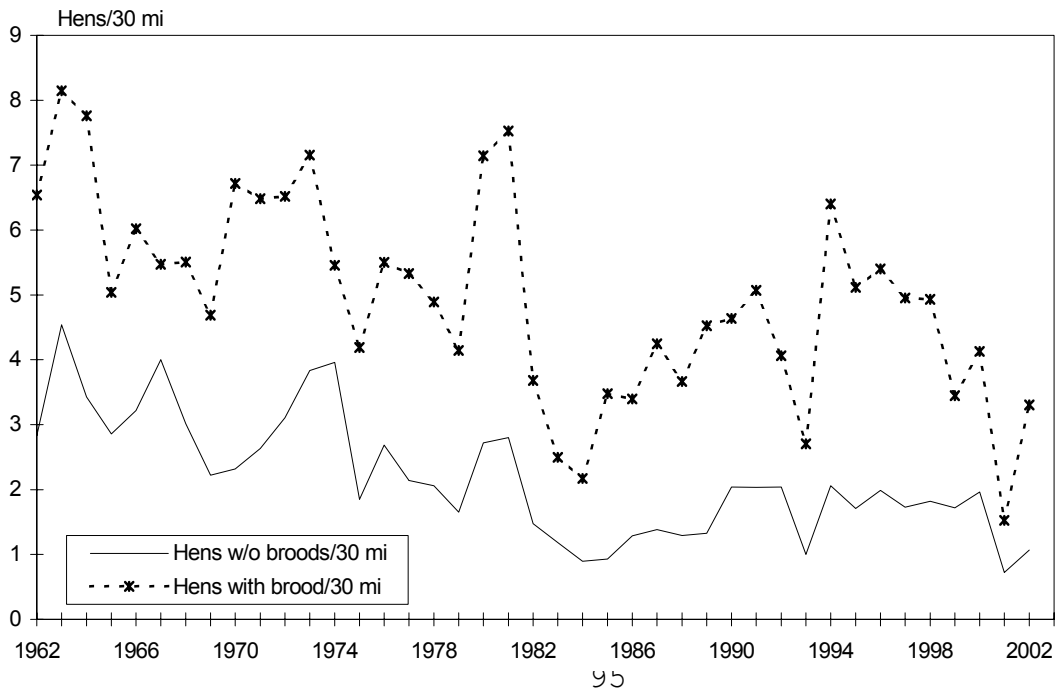


Figure 5.6a Statewide trends in small game harvests and August roadside survey counts

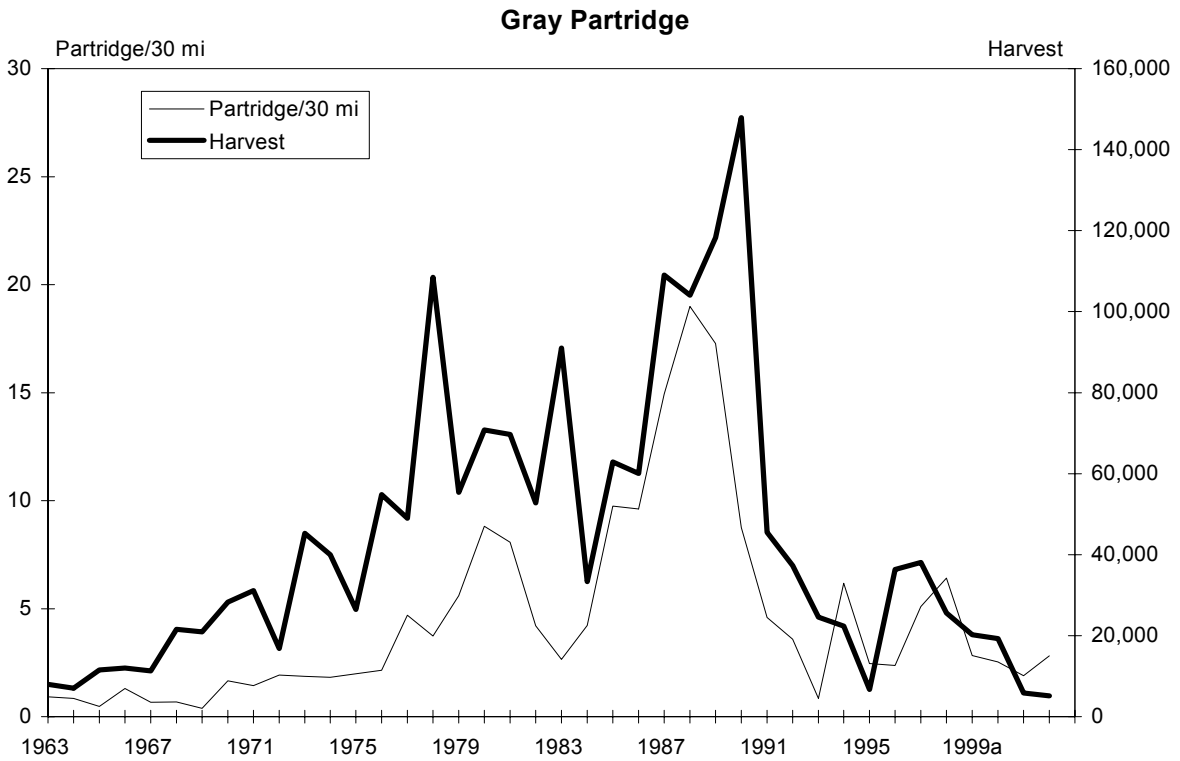
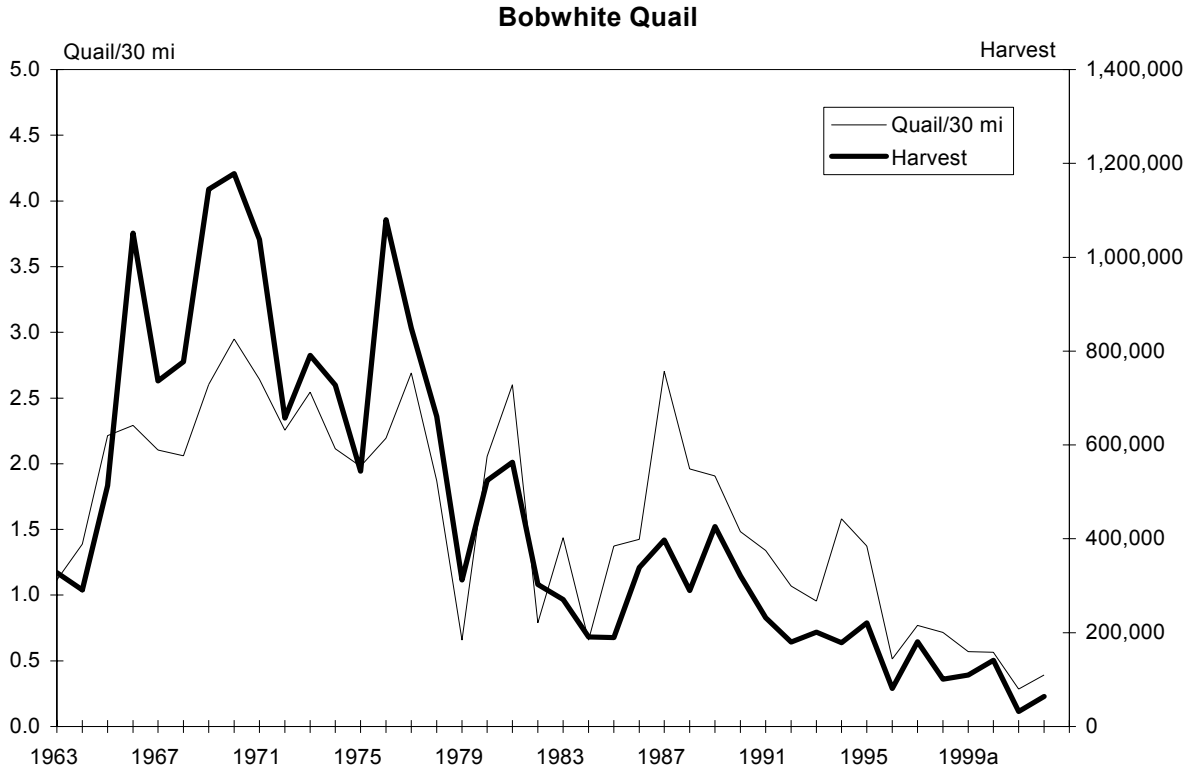
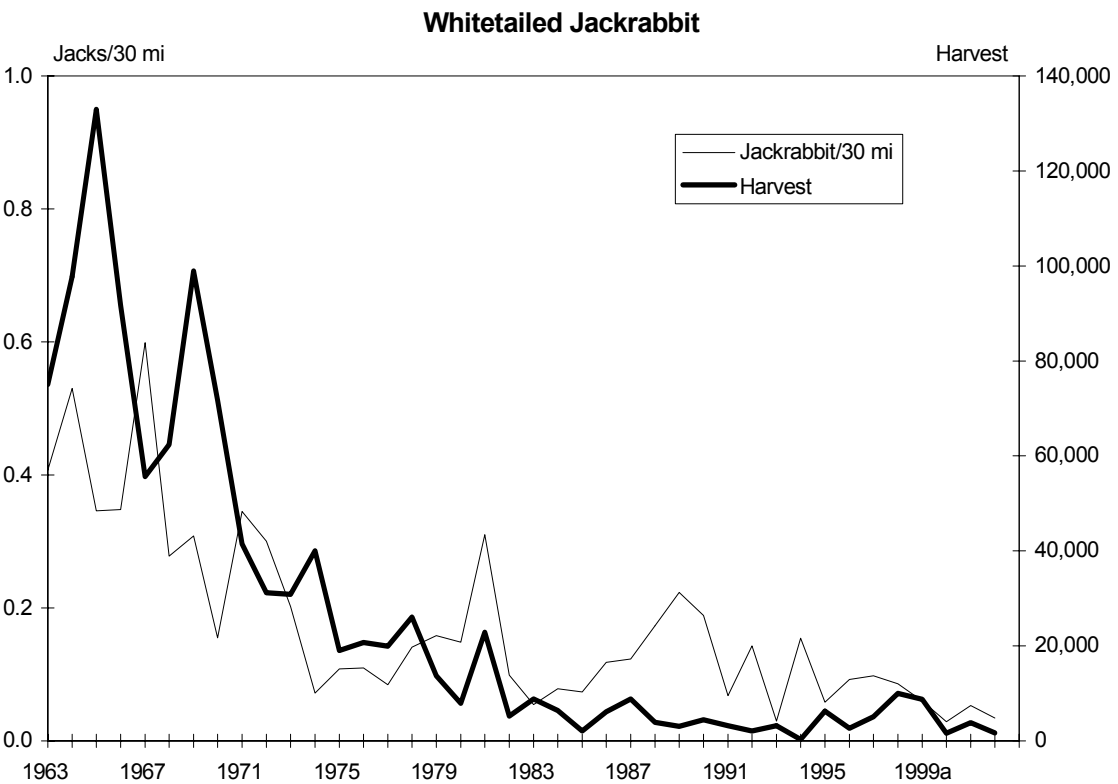
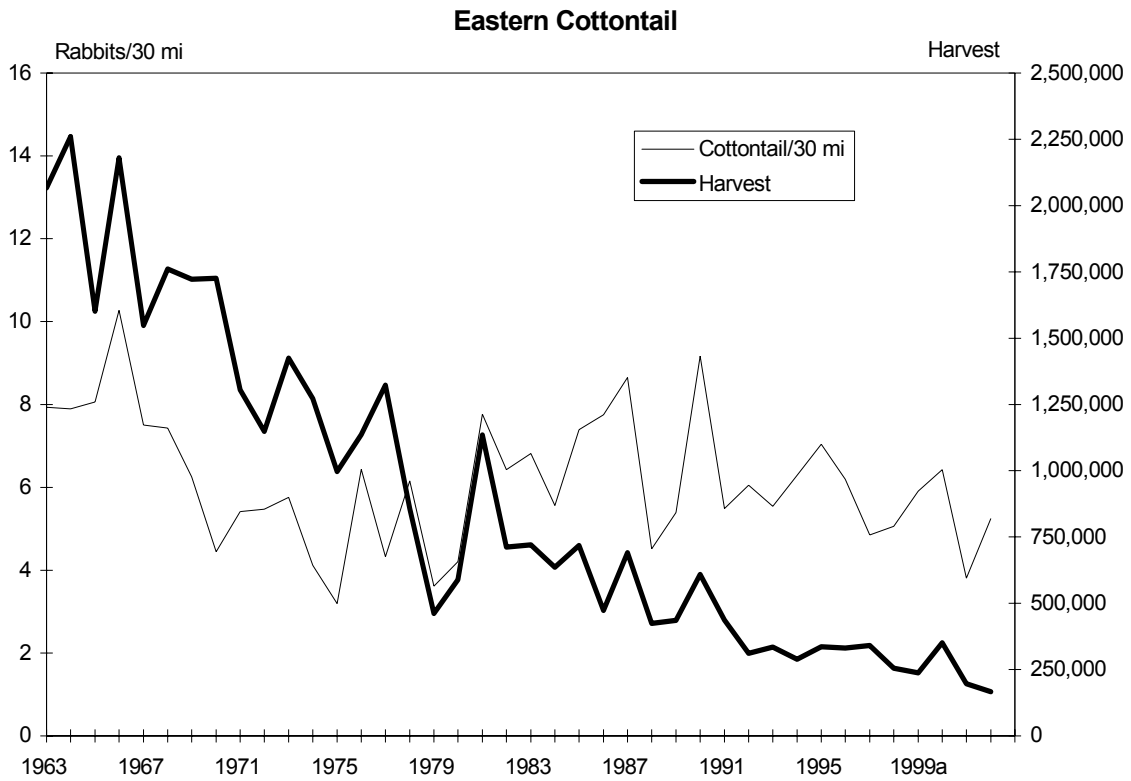
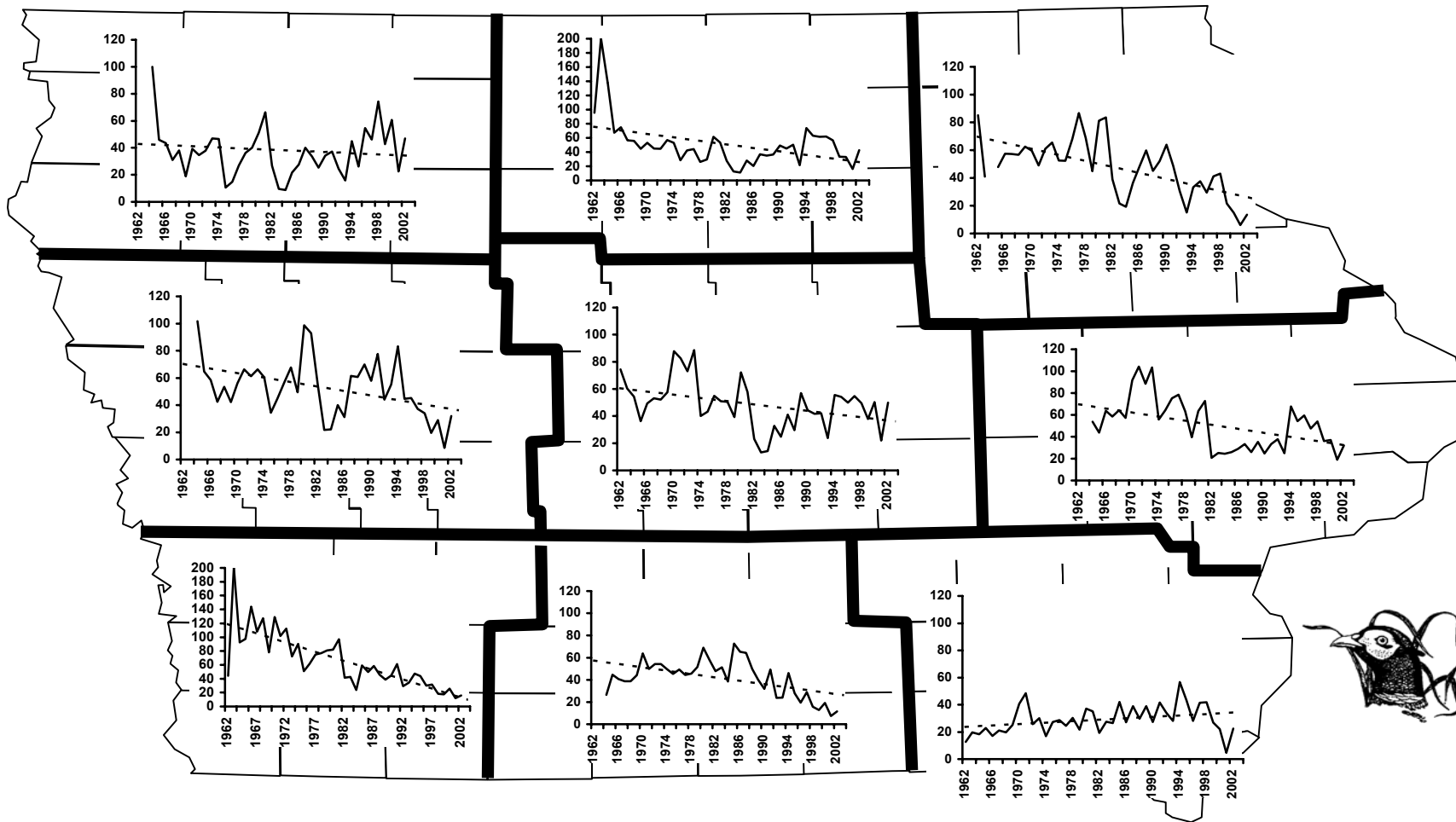


Figure 5.6b Statewide trends in small game harvests and August roadside survey counts





Legend
 — Mean pheasants counted/30-mile survey route
 - - - Long-term trend

Figure 5.7 Regional trends in ring-necked pheasant numbers from the August roadside survey (1962-present).

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

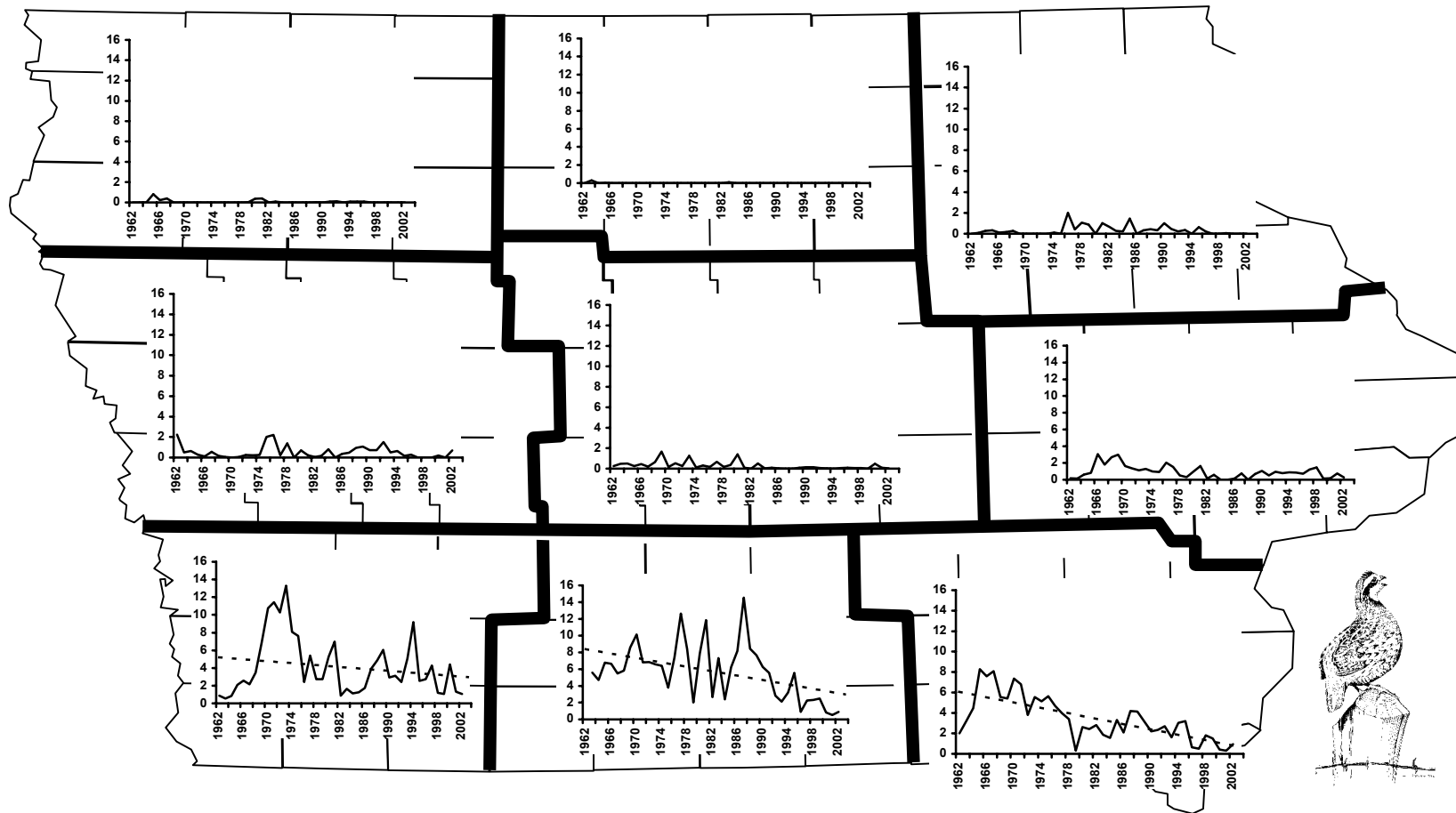
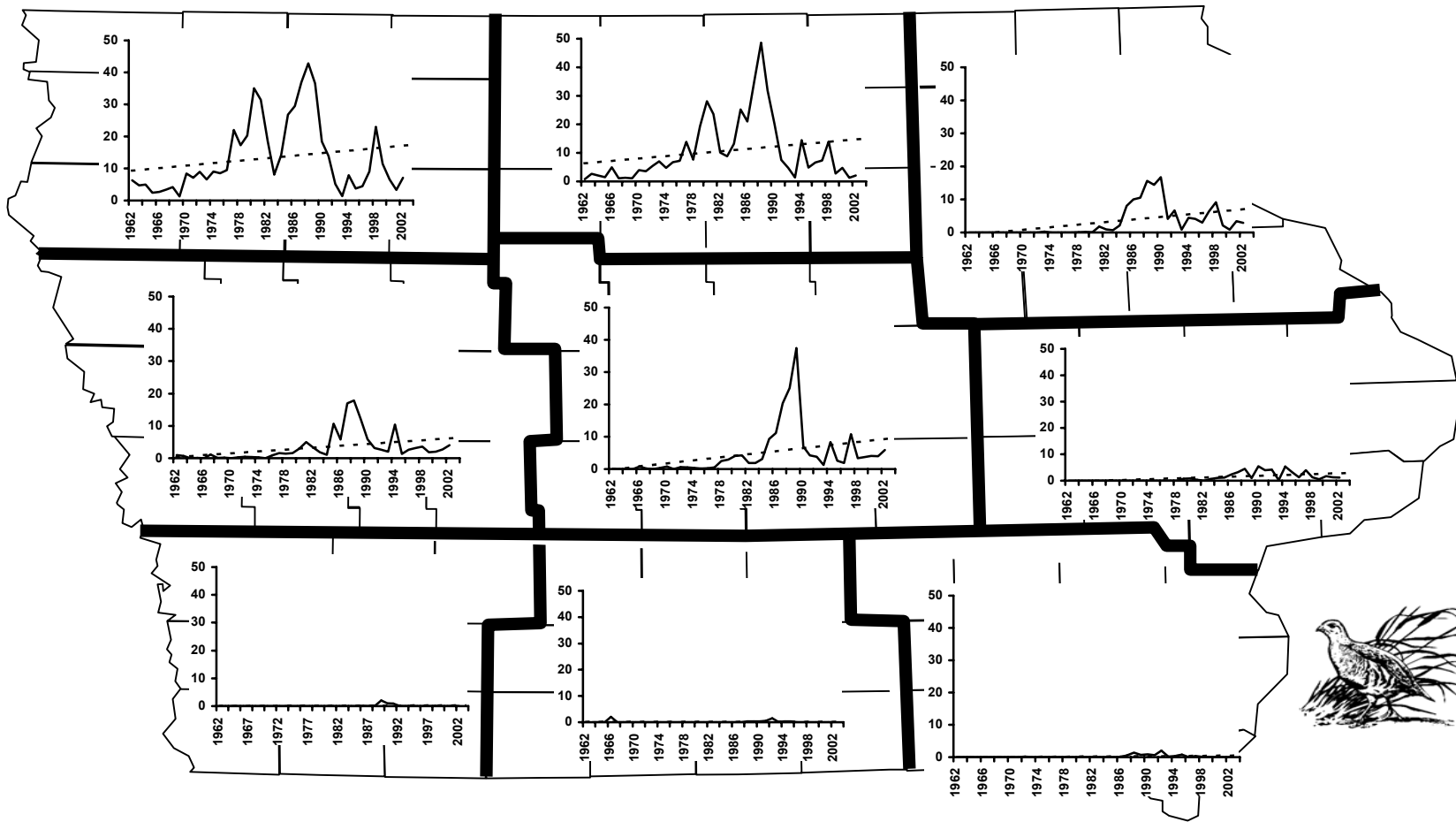


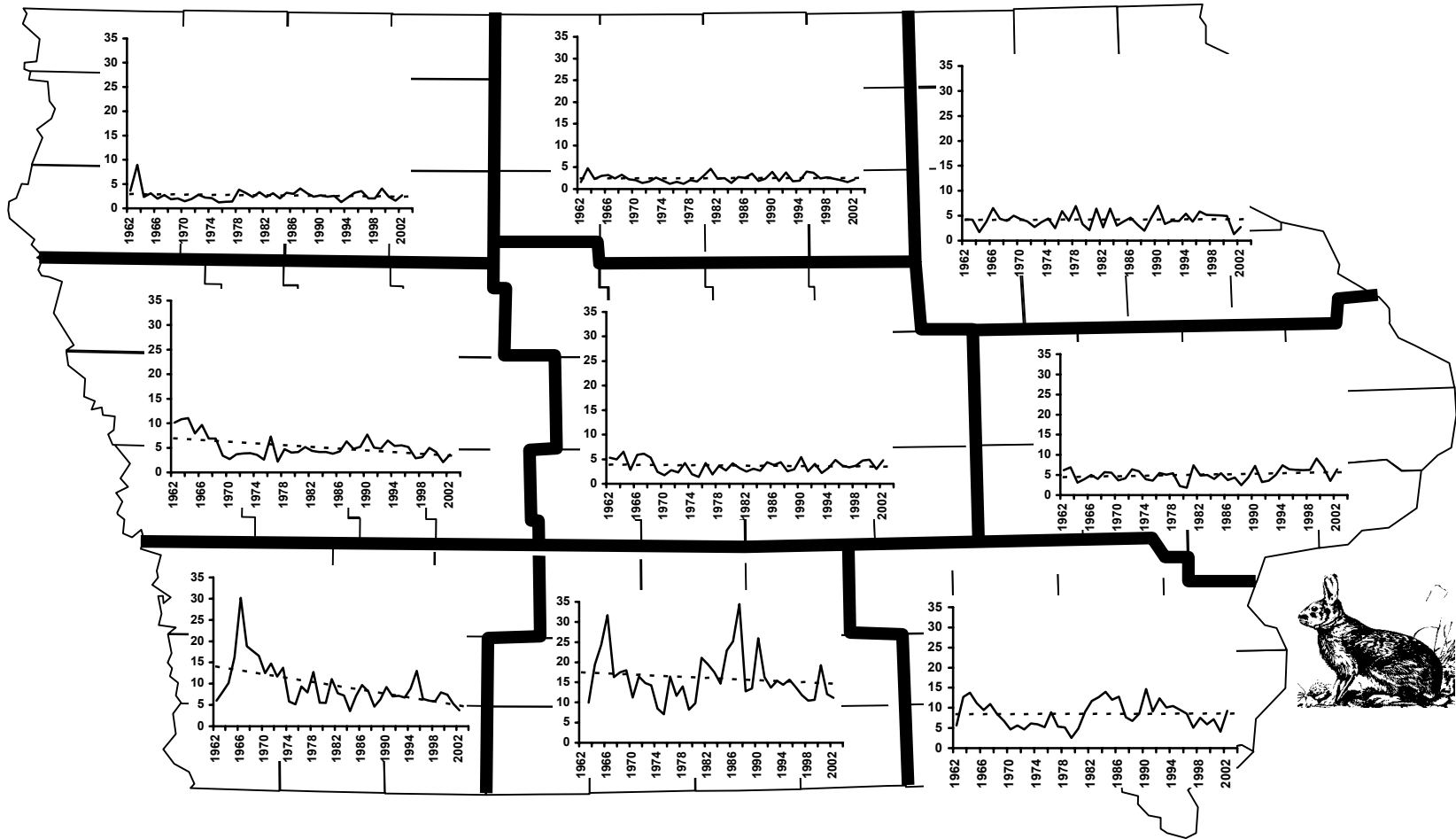
Figure 5.8 Regional trends in bobwhite quail numbers from the August roadside survey (1963-present).



Legend

- Mean partridge counted/30-mile survey route
- - - - Long-term trend

Figure 5.9 Regional trends in gray partridge numbers from the August roadside survey (1962-present).



Legend
 ——— Mean rabbits counted/30-mile survey route
 - - - - - Long-term trend

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

Figure 5.11 Sales of Iowa hunting licenses

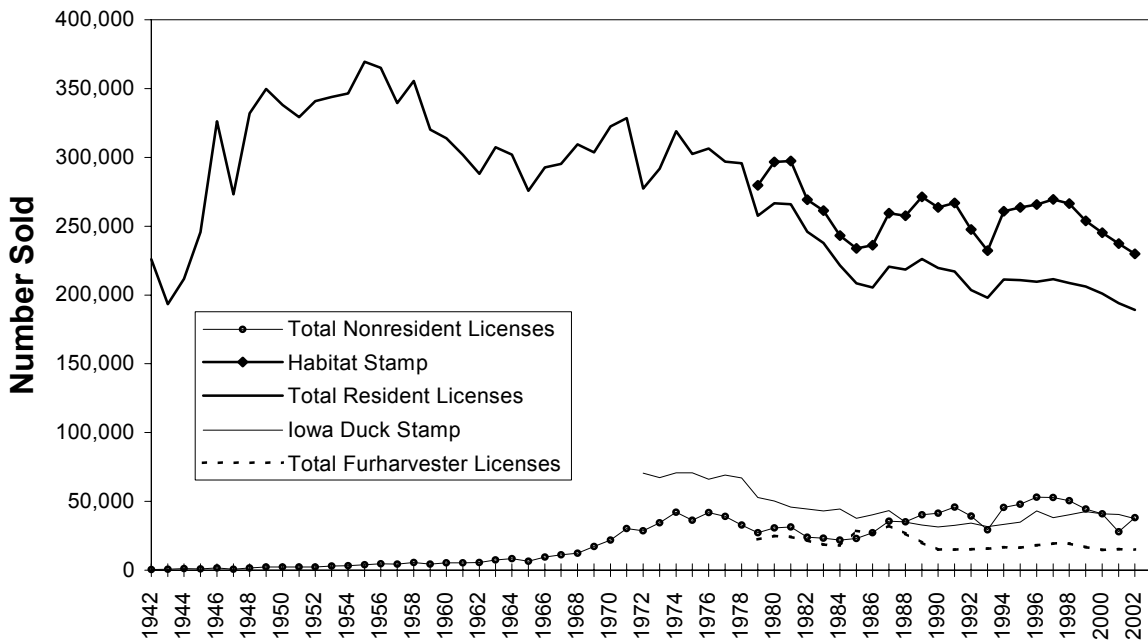
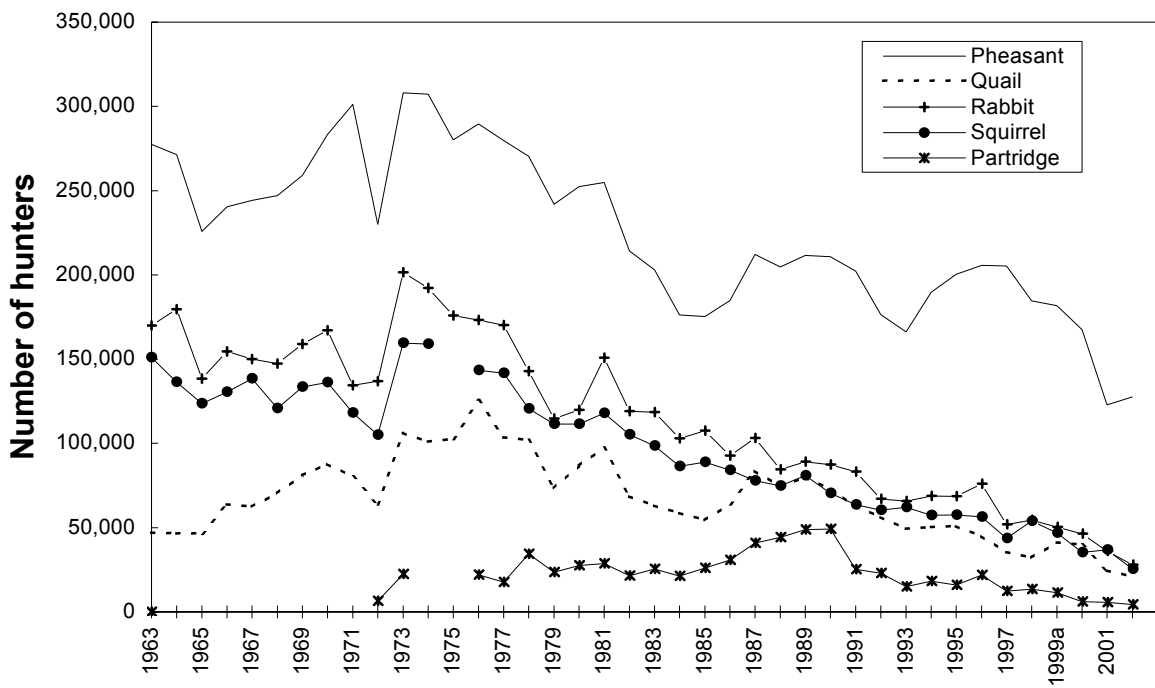


Figure 5.12 Estimated number of Iowa small-game hunters



PEREGRINE FALCON RESTORATION

The peregrine falcon (*Falco peregrinus*) was extirpated as a breeding bird from the eastern U.S. by 1964. In the Midwest, peregrines formerly nested on cliffs along Lake Superior, Lake Michigan and the upper Mississippi River, plus suitable palisade areas. The upper Mississippi River area was the major historic nesting area for peregrines in the Midwest, with an estimated historic population of 30 – 35 pairs (Tordoff 1986). Most of Iowa's historic peregrine nesting occurred on the Mississippi River bluffs of northeastern Iowa in Allamakee, Clayton, Dubuque, and Clinton counties (Anderson 1907, Allert 1939, Pierce 1940), but nesting also occurred on the palisades of the Cedar River in Linn and Johnson counties (Bailey 1918) and along the Cedar River in Black Hawk County (Anderson 1907). A nest was also reported at the mouth of Beaver Creek in Polk County (DuMont 1931). Prior to reintroduction, the last documented nests were noted in 1955 and 1956 at two of six eyries in Allamakee County (Berger and Mueller 1969), although there were reports of a nest with two eggs in Allamakee County in 1964 and a nest with downy young at Blackhawk Point, Allamakee County in 1967 (Roosa and Stravers 1989). Pesticides, specifically DDT, were the primary cause for the dramatic decline in the peregrine population. Until 1998, the peregrine falcon was a federally and state listed endangered species. The bird was federally delisted in 1998, but remains on the state endangered species list.

In an effort to guide recovery of the peregrine falcon to the eastern U.S., an Eastern Peregrine Recovery Plan

(EPRP) was developed. The overall goal of this plan was to establish a viable peregrine falcon population consisting of 175 breeding pairs, which is half of the pre-pesticide population. For each region of the eastern U.S., EPRP set a goal of 20-25 breeding pairs. Iowa falls under the Midwestern and Great Lakes regional plan (MGLRP). As part of the MGLRP, Iowa set a goal of establishing 5 breeding pair by the year 2000 with an ultimate goal of 10 breeding pair for a viable population. To achieve this goal, the Wildlife Diversity program planned to release 55 peregrines in the first 5 years. The “magic number” of birds released to get one breeding pair return is about 13. A maturing bird is expected to return to a release site within 2-3 years after release and establish a territory within that area. As a result, no release site will be used for more than 2 years to avoid confrontations with adult falcons and hack birds.

Iowa's Peregrine Falcon Restoration project began in 1989 with the release of 10 (2F,8M) birds in Cedar Rapids from the Telecom USA building. There was one mortality during this first release when a bird collided with a building. Releases continued for the second year at the Cedar Rapids release site with 13 falcons (3F,10M) in 1990. Two of these birds, 1 male and 1 female, died as a result of collisions with buildings. During the 1990 hacking process a subadult male (T6?- apparently from 1989 C.R. release) showed up in Cedar Rapids and regularly interacted with hacked birds.

In 1991, a second release site was selected for the third year of the project. A total of 19 birds (8F,11M)

were released in 1991 at the First Baptist Foundation of the Elsie Mason Manor in Des Moines. Similar to the 1991 Cedar Rapids release, a subadult male (T93-from 1990 Cedar Rapids release) appeared for a brief period of time. Little to no aggressive interactions were observed between this subadult and the hacked falcons. During 1991, peregrines were observed in Cedar Rapids, Davenport and Keokuk; however, no nests were located. A second release was not attempted at the Des Moines site during 1992 because two falcons attempted to nest on the American Republic Insurance building. The female (R13 – Kansas City 1991) laid 5 eggs total. One egg rolled off the alcove ledge and another was cracked. The 3 remaining eggs were laid in a different alcove and never incubated. The male at this site was X20 from the 1990 Cedar Rapids release. This was the first nesting attempt in Iowa in nearly 30 years.

Elsewhere in the state during 1992, falcon pairs established two additional territories. A male falcon in Cedar Rapids successfully attracted a mate in mid-May, but it was too late in the season for breeding. The pair engaged in courtship flights and investigated the nest box on the Firststar Bank building, but did not actually attempt to nest. In the Quad Cities, a pair appeared to be incubating eggs under the Centennial Bridge; however, there were no observations of feeding in late-June. The site was investigated in September, but no eggs, egg fragments, dead young or even a definitive nest site was found.

The third release site chosen for releases in 1992 (the 4th year of the project) was Davenport. However, the arrival of a falcon pair precluded this site

from release since the territorial adults could potentially harm the young hacked birds. As a result, 8 birds (2F,6M) were released from the Laurel Building in Muscatine during 1992. A male Cedar Rapids bird (T95 – 1990) appeared after the hacked birds fledged. T95 engaged in mock combat with the young and occasionally harassed them at the hack site, but he did not harm any of the young. Of the 8 birds released at Muscatine, 2 died, both males.

In 1993, there was much falcon activity across the state. We had 2 successful peregrine falcon nests in Iowa. The falcon pair returning to the American Republic Insurance building was the same male (X20) and female (R13) who attempted to nest in 1992. Shortly after their return, the male (X20) was found decapitated after a three-bird territorial dispute. The “winning” male did not remain in the area. The female (R13) eventually mated successfully with a third male, T93 (from 1990 Cedar Rapids release), that came to Des Moines. This pair successfully hatched and raised 3 young. In early July, one of these young was found dead in the air conditioning unit of the American Republic Insurance Building.

The second successful nest occurred in Cedar Rapids. The male was identified as X64 (Des Moines – 1991) and the female as R49 (Des Moines – 1991). This pair laid 4 eggs and hatched 2. Of the two young, one died of exposure from stormy weather. The Iowa Falconer’s Association donated a young male to foster into the nest. The adults accepted the “implant” along with the remaining female chick. Both young fledged successfully from the nest.

A third nesting occurred in Iowa during 1993 at the Centennial Bridge in

Davenport. A pair was observed demonstrating nesting behavior, but that soon changed about the time young should hatch. Closer observation of the nest site did not reveal young or eggs, however, a possible scrape was located along with falcon prey remains. A decomposed body of a female falcon (W24 – Kenosha, WI) was found trapped in the I-beam of the bridge. It is possible that this bird was the nesting female. Once she became trapped, the male abandoned the nest and attracted a new female (R95 – Colonnade, MN). By this time, it was too late in the season for nesting.

At Muscatine, a single male (C/M – Muscatine, 1992) returned to the site, but did not attract a mate. Because of the return of this bird, a second release was not made at this site.

During 1994, two falcon pairs nested successfully, marking the second year in a row for nest success. The birds at Firststar Bank in Cedar Rapids were the same, R49 and X64. They laid and hatched 4 eggs (2F,2M), but one female died soon after hatching. Another chick was treated for trichomoniasis (Frounce) and released. All three young fledged successfully. The second successful nest was at the same site in Des Moines – the American Republic Insurance building. This pair was also the same birds from 1993, R13 and T93. Their first nesting attempt on the eastside of the building was unsuccessful as one egg rolled off the ledge and the other 2 eggs were abandoned. The birds moved to the west side where they laid and hatched three young (1F,2M), all of which fledged successfully. The young female later died as a result of a collision with a building and one young male died of unknown causes. There was no known nesting attempts at either

Davenport or Muscatine, however, a bird was observed during the winter at the Centennial Bridge in Davenport.

The original goal established by EPRP of 20-25 nesting pair was met and replaced with a new regional goal of 40 territorial pairs. This new goal was met and surpassed in 1993. By 1994, the midwestern region had 61 territorial pairs with 41 successfully nesting. As a result of meeting the regional goal, many states tapered off falcon releases. However, Iowa's goal of establishing 5 nesting pairs by the year 2000 did not look promising without further releases. Furthermore, many did not consider the midwestern population recovered since there was very little nesting on natural eyries aside from cliffs in northern Minnesota and Michigan.

In order to address the need for more releases in Iowa, a Peregrine Falcon Recovery Team (PFRT) was formed to continue releases with the hope of establishing a sustainable peregrine population that requires little or no maintenance or manipulation. The (PFRT) hoped to continue urban releases in strategic locations along the Mississippi and inland along known flyways. The group would also evaluate the possibility of releasing birds along the cliffs of NE Iowa.

The 2 falcon pairs in Cedar Rapids and Des Moines nested successfully once again in 1995, marking the third consecutive successful nesting season in Iowa. The Cedar Rapids pair produced four eggs and hatched three young (1F,2M). All three young fledged successfully. One male was later found dead as a result of a collision. The Des Moines pair laid four eggs and hatched three females, all of which fledged successfully.

Iowa has been able to maintain

its two nesting falcon pairs in Des Moines and Cedar Rapids. Regionally during 1996, there were 87 territorial pairs of which 45 nested successfully. The Cedar Rapids pair (still the same male and female) again produced 3 birds (1F,2M), one egg did not hatch. All 3 birds fledged successfully. The Des Moines pair hatched 3 young, but one mysteriously disappeared leaving only 2 males to fledge successfully. This year marked the start of additional falcon releases with the hopes of achieving the goal of 5 breeding pair by the year 2000. The Peregrine Falcon Recovery Team, who generated the funding and volunteers to conduct the releases, spearheaded these releases. Mason City released 7 birds total (3F,4M), two of which (both females) came from Iowa City during the hacking process. Iowa City was in the process of hacking 3 birds (2F,1M), when a wild peregrine showed up at the release site and killed the male. The two remaining females were transported to Mason City to fledge for safety of the birds. There were no releases at Burlington due to mortality prior to placing the birds in the hack box.

The falcon project met with mixed success in 1997. Both falcon pairs returned to nest in Cedar Rapids and Des Moines, however, the Des Moines pair exhibited problems. The female laid her eggs in an alcove on the American Republic Insurance Building that did not have pea gravel in the bottom, so the eggs got wet. We put gravel in, but it was too late. The female abandoned the eggs. She did, however, lay 2 eggs in another alcove and 1 in yet another. To facilitate incubation, we moved the lone egg in with the 2, but later one was kicked out of the scrape, one was cracked and the other was

abandoned. Two of the 6 eggs were sent for analysis to try and provide answers for the aberrant behavior of the Des Moines female. On the bright side, the Cedar Rapids pair laid 4 eggs and successfully fledged 2 (both males). Elsewhere in the state, the PFRT continued releases at the Mason City site with 3 young (1F,2M), one of which died from injuries received after colliding with a fence. Iowa City did not release birds in 1997, but Bob Anderson started his efforts of releasing birds on the natural eyries of NE Iowa. He released 4 birds in 2 batches of two (2F,2M) at a hack site situated on the cliffs overlooking the Iowa River near Bluffton. Two of the birds were equipped with radio transmitters, but were not tracked successfully for very long due to the topography interfering with the transmission of the signals.

Things were back on track for 1998. Both falcon pairs nested successfully in Cedar Rapids and Des Moines. The Des Moines pair produced 3 young (1F,2M) as did the Cedar Rapids pair (2F,1M). There was no evidence of additional eggs in Des Moines, however, there were 5 eggs in Cedar Rapids. As for other releases in the state, Mason City concluded its final peregrine release in 1998, sending off 15 falcons (4F,11M) without a hitch and Louisa had its first release with 4 young (3F,1M). Bob Anderson continued his cliff-site releases in 1998. However, he changed the release site from Bluffton to Effigy Mounds National Monument. The latter location is an exceptional bluff overlooking the Mississippi River. Two pseudo-rocked hack boxes were mounted on the bluff face. A total of nine birds (5F,4M) were released from the sight. Radio transmitters on the birds indicated no mortality up to dispersal.

Unfortunately, two of the Effigy Mounds birds died during the spring of 1999 due to a possible collision and a drowning.

The Peregrine Falcon Recovery Project had a slight change in direction during 1997. The decision was made to no longer allow urban releases, except for two grandfathered sites that already had the steps in motion for 1998 releases. Those grandfathered sites were Mason City and Louisa. The Mason City site releases were completed with the hacking of 15 falcons in 1998, and Louisa continued releases through 2000. The reasoning behind this decision was that the transition of falcons nesting in urban areas to natural cliff sites was not occurring as originally thought. In fact, some studies indicate that urban birds may actually be hindering wild nesting since falcons attract falcons. In an effort to return falcons to their historic nesting eyries in Iowa, the Iowa DNR has prioritized cliff-site releases.

Falcon production had mixed success again in 1999. On a down note, the Des Moines pair did not produce any young. The American Republic Insurance Building, where the birds nest, was getting a new roof. Rainy weather pushed construction into peak nesting time, causing too much disturbance for the breeding adults. Cedar Rapids was still a production stronghold with 3 young fledging in 1999. On a positive note, 1999 produced Iowa's third nesting falcon pair at a power smokestack in Lansing. The adults, both from Minnesota successfully produced 3 young (1F,2M). Falcons have been sighted in Mason City, but no nest attempts were documented.

Release efforts continued in Iowa during 1999. Louisa released 8 birds in their second release year. The Raptor Resource Project, headed by Bob

Anderson, was awarded a grant by the Iowa DNR to continue release efforts at Effigy Mounds National Monument. He released 9 falcons in 1999. Bob was also granted a FWS permit to take chicks from smokestack nests and release them at cliff sites along the Mississippi River. A new cliff release site was added in 1999. This site, at Eagle Point Park in Dubuque, is also along the Mississippi River. Two rock-lined hack boxes were placed on a bluff overlooking the river. Volunteers released 21 falcon chicks (5F,16M) in 1999 from this site.

In 2000, for the first time in at least 3 decades, wild peregrines were produced on Mississippi River cliffs. At Queen's Bluff, in southeastern Minnesota, 1 young fledged successfully from parents which had been released in Iowa. The female was hacked from Mason City in 1998, and the male was hacked from Effigy Mounds in 1998. In all, there were 5 pairs of peregrines at cliff-sites along the Mississippi River. Thanks to efforts by Bob Anderson, the same pair that nested in 1999 in a nest-box at the Alliant Energy power plant smokestack near Lansing, now nested in a nest-box at a nearby cliff, where peregrines historically nested. They fledged 4 young (3M,1F), but the young female died post fledging. It is worth noting that, according to Bud Tordoff (Tordoff et al 2000), "these were the first young peregrines known to fledge from a cliff nest in the Mississippi River valley since the extirpation of the original population by DDT in the 1950s and 1960s."

Urban nest sites were also successful in 2000. At the American Republic Building in Des Moines, 9-year-old female 13R, nesting here for the eighth year, paired again with 10-year-old male 93T, his seventh year at the

site. They produced 4 eggs and fledged 2 male young. In Cedar Rapids at the Firststar Bank nest site, a 2-year-old female, *S/*5 (fledged in Des Moines in 1998) replaced female R49. She mated with 11-year-old male 64X, here for the eighth year. They produced 4 eggs and fledged 4 young (3M,1F). Besides the 3 successful nests, there was also a peregrine pair reported in April at the smokestack nest box at the Louisa Mid-American power plant. Also reported was a 1999 Louisa released male (wearing black/green band) frequenting the MidAmerican Energy Co. building in Davenport, and a peregrine with a gold band on the right leg and a red/black band on the left leg was reported in Burlington on July 1 by Conservation Officer, Don Simonson.

Mississippi River peregrine releases continued in 2000, with 19 falcons hatched at the Dubuque cliff site and 6 male peregrines hatched at the Louisa power plant site. All told, there were 164 peregrines hatched from Iowa release sites from 1989-2002. Eighty-four of these birds were released along the Mississippi River, and 62 peregrines were released off limestone bluffs.

Year 2001 saw 5 Iowa peregrine territories. The same returning nesting pairs were identified at Des Moines, Cedar Rapids, and Lansing. The Des Moines pair produced 4 eggs and fledged 3 young (2M,1F). The young female later died after colliding with a window. There were 3 eggs laid and 3 young females fledged at Cedar Rapids. The Lansing pair attempted to nest unsuccessfully on a cliff, and finally laid 4 eggs (which did not hatch) in a nest box. An unidentified pair of peregrines attempted to nest beneath the Centennial Bridge in Davenport. The female is a sub-adult wearing a black/green band,

and it is not known if the male is banded. Young falcons were heard food-begging beneath the bridge, but it is not known if any young fledged successfully (unverified report indicated two). A fifth pair of falcons held a nesting territory at the Louisa Generating Station smokestack nest-box. The female hatched in 1999 from a smokestack box in Minneapolis, and the male has not been identified. The stage is set for 5 nesting pairs in 2002.

In 2002 six falcon territories were reported with five sites successfully fledging young. At Cedar Rapids four-year-old female *S/*5, nesting here for the third time, and thirteen-year-old male 64X (identified previously as 64T), here for the tenth year, produced four eggs, hatched three and fledged two females and a male.

The Des Moines pair once again laid three eggs on the eastside of the American Republic Insurance bldg. However, the eggs disappeared as hatch date drew near. In late June an egg was discovered on the westside of building which hatched. A lone male was banded July 30 and successfully fledged in early August.

The Lansing cliff site was active in 2002 where the same pair successfully fledged two young, a male and a female. The adult female X/*D, fledged in 1998 at NSP Sherco, Becker, Minnesota and here for the first time, paired with five-year-old male *T/M, nesting here for the fourth year. The falcon box on the bluff, across from the Alliant Energy plant placed by Bob Anderson was a suitable backdrop as historic falcon banders gathered to assist and witness event. It had been 44 years since Dan Berger, Jack Oar, Jim Grier, Jack Oberg, Dave Seal, and Chuck Sindelar banded falcons at historic eyries. This year they were

assisted by Dave Kester, banding two young (1F,1M) at the site.

In the Quad Cities the pair that previously occupied the Centennial Bridge nested in a falcon box placed by falconer, Tom Deckert. Three-year-old female 8/*E, hacked in 1999 at Muncie, Indiana paired with three-year-old male P/D, hacked in 1999 at Dubuque, Iowa. The MidAmerican Energy staff, Joe Bannon and Dave Sebben hosted three young, two females and a male in downtown Davenport. All successfully fledged with minimal intervention from humans.

A new falcon site came on line this year. A box affixed to the smokestack of the Louisa Generating Station near Muscatine was used. MidAmerican Energy staff headed by Jim Haack had released 18 young at the site from 1998-2000. The female, Z/V, fledged in 1999 at NSP Riverside, Minneapolis, Minnesota. The tiercel has not been identified. Three eggs were laid, two hatched, and one young male successfully fledged.

A sixth falcon territory occurred at the Holnam Cement Plant at Mason City. Falconer Lowell Washburn who hacked 25 young from the site between 1996 – 1998, reported a male was seen intermittently throughout the summer.

Also in 2002 eight young falcons were hacked at the Duane Arnold nuclear facility near Palo, Iowa. Bob Anderson with Raptor Research Project coordinated the placement of four young. Meanwhile four young at a smokestack box near Alma, Minnesota were stranded when an untimely death of the adult male occurred at that site. Plus, the female was discovered injured and unable to provide for young. The four were relocated to the Palo site and

all eight successfully fledged, due to efforts spearheaded by Bob Anderson.

In 2003 there were seven territories in Iowa. Mason City territory at Holnam Plant was inactive, but two new territories occurred in Iowa. Falcon activity was noted at nestbox at Alliant Plant near Chillicothe in Wapello Co. An adult peregrine was observed and a scrap was created in nestbox. At Quad Cities under I-80 bridge, a fledgling falcon was photographed and according to falconer Lowell Washburn an eyrie was presumed to have occurred under bridge. Adults were not identified at either site.

At Des Moines same adults fledged four young from second, NW alcove of American Republic building. At Cedar Rapids same adults fledged four young. At Louisa female Z/V and unknown male fledged three young.

Near Lansing the wild pair attempted to nest on a natural ledge. Two young hatched but had disappeared by banding time. Falconers Bob Anderson and Dave Kester believed raccoon predation destroyed nest. Raccoon sign was observed in area and access by land was possible.

Quad Cities female 8/*E and unidentified male produced four young under Centennial bridge. Young were relocated to natural bluff near Bluffton and hacked by Bob Anderson. All four survived and were observed throughout summer.

Iowa falcons produced at least 16 young this year making it a banner year for falcon production.

LITERATURE CITED

- Allert, O. P. 1939. Notes on certain raptors in Allamakee, Clayton, and Dubuque counties, Iowa. *Iowa Bird Life* 9:34-36.
- Anderson, R. M. 1907. The birds of Iowa. *Proc. Davenport Acad. Sci.* 11:125-417.
- Bailey, B. H. 1902. The duck hawk--(Falco peregrinus anatum)--in Iowa. *Proc. Iowa Acad. Sci.* 10:93-98.
- Bailey, B. H. 1918. The Raptorial Birds of Iowa. *Iowa Geological Survey Bull. No. 6.* 238pp.
- Berger, D. and H. C. Mueller. 1969. Nesting Peregrine Falcons in Wisconsin and adjacent areas. Pp. 115-122 in J. J. Hickey, ed. *Peregrine Falcon populations: their biology and decline.* Univ. of Wis. Press, Madison. 596pp.
- DuMont, P. A. 1931. *Birds of Polk County, Iowa.* Des Moines: Des Moines Audubon Society, 72pp.
- Keyes, C. R. 1906. Prolific duck hawk. *Auk* 23:99-100.
- Pierce, F. J. 1940. Kentucky warbler Carolina wren, and duck hawk in Allamakee County. *Iowa Bird Life.* 10:27.
- Redig, P. T. and H. B. Tordoff. 1994. Midwest Peregrine Falcon restoration, 1994 report. *Univ. of Minn.* 76pp.
- Roosa, D. M. and J. Stravers. 1989. Nesting of Raptors Uncommon in Iowa: Summary and New Records. *Jour. Iowa Acad. Sci.* 96(2):42-49.
- Tordoff, H. B. 1986. A Peregrine Falcon life table. *Natural History Leaflet. No.3.* Bell Museum of Nat. Hist. 4pp.
- Tordoff, H. B., M. S. Martell, P. T. Redig, and M. J. Solensky. 2000. Midwest Peregrine Falcon Restoration, 2000 Report. Bell Museum of Natural History, Minneapolis, Minn. 47pp.

Table 6.1. Peregrine falcons released in Iowa as part of the Midwestern Peregrine Recovery Project.

(Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

Year	Location	USFWS #	Color Band	Sex	Comments
2000	Louisa	1807-77704	G/T	M	
2000	Louisa	2206-47604	07/H	M	
2000	Louisa	2206-47605	08/H	M	
2000	Louisa	2206-47606	09/H	M	
2000	Louisa	2206-47628	10/H	M	
2000	Louisa	2206-28925	N/N	M	
2000	Dubuque	1807-53920	3/*V	F	
2000	Dubuque	1807-53921	1/*P	F	
2000	Dubuque	1807-53922	4/*V	F	
2000	Dubuque	1807-53923	7/*1	F	
2000	Dubuque	1807-53932	0/*A	F	
2000	Dubuque	1807-53933	4/*B	F	
2000	Dubuque	2206-28909	K/B	M	
2000	Dubuque	2206-35847	N/P	M	
2000	Dubuque	--	--	-	Rehab bird
2000	Dubuque	--	--	-	Rehab bird
2000	Dubuque	2206-35848	S/E	M	
2000	Dubuque	2206-35849	U/W	M	
2000	Dubuque	2206-35850	00/H	M	
2000	Dubuque	2206-47622	01/H	M	
2000	Dubuque	2206-47623	03/H	M	
2000	Dubuque	2206-47624	02/H	M	
2000	Dubuque	2206-47625	04/H	M	
2000	Dubuque	2206-47626	05/H	M	
2000	Dubuque	2206-47627	06/H	M	
2002	Palo	1807-77717	6/*3	F	
2002	Palo	2206-62813	60/K	M	
2002	Palo	2206-62803	61/K	M	
2002	Palo	2206-62812	62/K	M	
2002	Palo	1807-91977	46/B	F	Wild bird from Alma
2002	Palo	1807-91978	47/B	F	Wild bird from Alma
2002	Palo	2206-47682	19/M	M	Wild bird from Alma
2002	Palo	2206-47683	20/M	M	Wild bird from Alma
2003	Bluffton	2206-69873	69/P	M	Wild bird from Centennial Bridge
2003	Bluffton	1807-62159	43/E	F	Wild bird from Centennial Bridge
2003	Bluffton	1807-62160	44/E	F	Wild bird from Centennial Bridge
2003	Bluffton	1807-62161	45/E	F	Wild Bird from Centennial Bridge

Table 6.2 Young peregrine falcons produced from Iowa nesting pairs.

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
2000	Lansing	1807-77669	3/*7	F	6*/V Minneapolis '97	T*/M Prairie Isle MN '97	Found dead inside smokestack
2000	Lansing	2206-28979	K/D	M	6*/V Minneapolis '97	T*/M Prairie Isle MN '97	
2000	Lansing	2206-28980	G/D	M	6*/V Minneapolis '97	T*/M Prairie Isle MN '97	
2000	Lansing	2206-28981	M/C	M	6*/V Minneapolis '97	T*/M Prairie Isle MN '97	
2000	Cedar Rapids	1807-34737	1/*9	F	*S/*5 Des Moines 1998	X64 Des Moines '91	
2000	Cedar Rapids	1807-34738	2/*T	M	*S/*5 Des Moines 1998	X64 Des Moines '91	
2000	Cedar Rapids	2206-62744	21/H	M	*S/*5 Des Moines 1998	X64 Des Moines '91	
2000	Cedar Rapids	2206-62745	20/H	M	*S/*5 Des Moines 1998	X64 Des Moines '91	
2000	Des Moines	2206-62746	22/H	M	R13 Kansas City 1991	T93 Cedar Rapids 1990	
2000	Des Moines	2206-62746	22/H	M	R13 Kansas City 1991	T93 Cedar Rapids 1990	
2001	Des Moines	1807-35917	55/A	F	R13 Kansas City 1991	T93 Cedar Rapids 1990	Died after window collision
2001	Des Moines	2206-62842	19/K	M	R13 Kansas City 1991	T93 Cedar Rapids 1990	
2001	Des Moines	2206-62843	20/K	M	R13 Kansas City 1991	T93 Cedar Rapids 1990	
2001	Cedar Rapids	1807-35918	56/A	F	*S/*5 Des Moines 1998	X64 Des Moines '91	
2001	Cedar Rapids	1807-35919	57/A	F	*S/*5 Des Moines 1998	X64 Des Moines '91	
2001	Cedar Rapids	1807-35920	58/A	F	*S/*5 Des Moines 1998	X64 Des Moines '91	
2002	Quad Cities	2206-47678	12/M	M	8/*E Muncie, IN 1999	P/D Dubuque 1999	
2002	Quad Cities	1807-91965	35/B	F	8/*E Muncie, IN 1999	P/D Dubuque 1999	
2002	Quad Cities	1807-91966	36/B	F	8/*E Muncie, IN 1999	P/D Dubuque 1999	
2002	Cedar Rapids	1807-91959	28/B	F	*S/*5 Des Moines 1998	X64 Des Moines '91	
2002	Cedar Rapids	1807-91958	29/B	F	*S/*5 Des Moines 1998	X64 Des Moines '91	
2002	Cedar Rapids	2206-47671	05/M	M	*S/*5 Des Moines 1998	X64 Des Moines '91	
2002	Louisa G. Station	2206-47673	06/M	M	Z/V Riverside, MN 1999	?	
2002	Des Moines	2206-47673	07/M	M	R13 Kansas City 1991	T93 Cedar Rapids 1990	
2002	Lansing bluff	2206-62877	16/M	M	6*/V Minneapolis '97	T*/M Prairie Isle MN '97	
2002	Lansing bluff	1807-91975	44/B	F	6*/V Minneapolis '97	T*/M Prairie Isle MN '97	

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
2003	Cedar Rapids	220-649456	83/M	M	S*/5*	64X	
					Des Moines '98	Des Moines '91	
2003	Cedar Rapids	220-649457	84/M	M	S*/5*	64X	
					Des Moines '98	Des Moines '91	
2003	Cedar Rapids	220-649458	85/M	M	S*/5*	64X	
					Des Moines '98	Des Moines '91	
2003	Cedar Rapids	987-40129	01/D	F	S*/5*	64X	
					Des Moines '98	Des Moines '91	
2003	Louisa	987-40130	07/D	F	Z/V	Unknown	
					Riverside, MN '99		
2003	Louisa	987-40131	08/D	F	Z/V	Unknown	
					Riverside, MN '99		
2003	Louisa	220-649459	86/M	M	Z/V	Unknown	
					Riverside, MN '99		
2003	Des Moines	987-40141	92/B	F	R13	93T	Found dead in July at 801 Grand
					Kansas City '91	Cedar Rapids '90	
2003	Des Moines	987-40142	93?b	F	R13	93T	
					Kansas City '91	Cedar Rapids '90	
2003	Des Moines	2206- 494468	14M	M	R13	93T	
					Kansas City '91	Cedar Rapids '90	
2003	Des Moines	2206- 494468	15N	M	R13	93T	
					Kansas City '91	Cedar Rapids '90	
2003	Quad Cities	1807-62159	43/E	F	8/E*	Unknown	Hacked at Bluffton
					Muncie, IN '99		
2003	Quad Cities	1807-62160	44/E	F	8/E*	Unknown	Hacked at Bluffton
					Muncie, IN '99		
2003	Quad Cities	1807-62161	45/E	F	8/E*	Unknown	Hacked at Bluffton
					Muncie, IN '99		
2003	Quad Cities	2206-69873	69/P	M	8/E*	Unknown	Hacked at Bluffton
					Muncie, IN '99		

Figure 6.2. Young Peregrine falcons produced from known Iowa nesting pairs 1993 - Present.

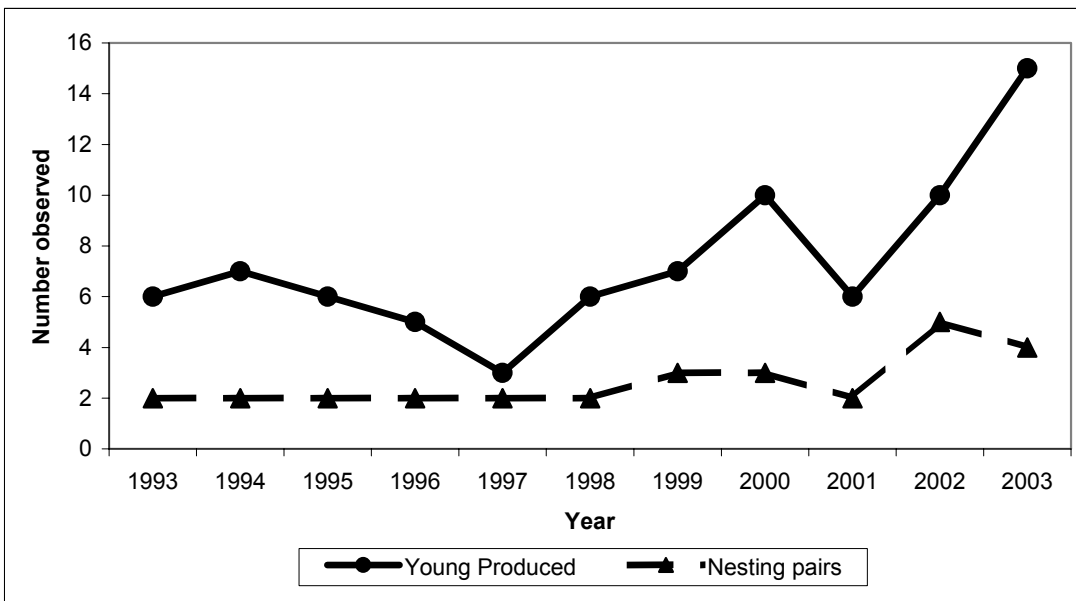


Table 6.3. Evidence of nesting and survival of released or hatched Iowa peregrine falcons.

Year Hatched	Release Site	Band #	Sex	Comments
1989	Cedar Rapids	V52	F	Nested in Winnipeg, ('91-2001)
1989	Cedar Rapids	T63	M	Nest attempt in Cedar Rapids ('92)
1989	Cedar Rapids	V81	F	Nested in Minneapolis (1991-1994)
1989	Cedar Rapids	T64	M	Nesting in Cedar Rapids since 1993
1990	Cedar Rapids	V93	F	Killed by another peregrine in Minneapolis July '91
1990	Cedar Rapids	X20	M	Nested in Des Moines in '92; Killed by another peregrine in Des Moines in 1993.
1990	Cedar Rapids	T93	M	Spent summer 1991 in DSM. Nested in St. Louis in '92; Nesting in Des Moines (1993-2001).
1990	Cedar Rapids	T94	M	Nested in Sherburne Cty, MN ('92-'93); also mated w/F in Monticello, MN in '93
1990	Cedar Rapids	T95	M	Observed at Muscatine hack site in '92
1990	Cedar Rapids	V81	F	Nested in Hennepin Cty, MN ('91-'94)
1991	Cedar Rapids	R49	F	Nested in Cedar Rapids (1993-1999).
1991	Des Moines	R33	F	Nested at Woodmen Tower in Omaha, NE in 1992-1993; killed by PF 3/29/94.
1991	Des Moines	R28	F	Nested in Topeka, KS in '93 – '94
1991	Des Moines	R47	F	At Perry Lake, KS Oct. '91; dead in Topeka, KS 6/93.
1992	Muscatine	C/M	M	At Muscatine nestbos in May '93; dead near East Chicago, IN 4/19/96.
1992	Muscatine	2/3	F	Nested in St. Louis in '93 -'94
1992	Muscatine	2/2	F	Nested in La Crosse, WI in '93, observed unpaired in same location in '94
1994	Cedar Rapids	K/*6	M	Died from window collision in Chicago, IL June 1996.
1994	Cedar Rapids	E/C	F	Nested at Redwing, MN in 1995
1994	Des Moines	M/*6	F	Caught 30 km south of Mexico City, Mexico on 3/15/95.
1996	Mason City	*5/T	F	Nested on Dairyland Powerplant stack at Alma, WI (1997-2001).
1998	Mason City	*7/K	M	Nesting in Rochester, MN in 2000
1998	Mason City	*3/*5	M	Nesting in LaCrosse, WI in 2000
1998	Mason City	*C/*P	F	Nesting on Queen's Bluff, MN in 2000-2001
1998	Effigy Mounds	*E/W	M	Nesting on Queen's Bluff, MN in 2000-2001
1998	Des Moines	*S/*5	F	Nesting at Cedar Rapids Firststar Bank (2000-2001)
1999	Effigy Mounds	X/B	F	Nesting at LaCrosse, WI in 2000

Year Hatched	Release Site	Band #	Sex	Comments
1999	Louisa	??	M	Reported by Tom Deckert on Mid-American Energy bldg., Spring 2000
1999	Cedar Rapids	*E/*V	F	Seen by Steve Dinsmore at power plant S. of Council Bluffs 5/11/2000. Nesting on Woodman Tower, Omaha, NE in 2001.
1999	Dubuque	G/V	M	Nesting at Cassville, WI smokestack box in 2000
1999	Cedar Rapids	*E/*W	F	Nesting on bluff at Maiden Rock, WI in 2000
1999	Dubuque	P/D	M	Nesting on MidAmerican Energy bldg. In Quad Cities
1999	Dubuque	G/V	M	Nesting at Cassville, WI smokestack box in 2000

* Indicates number or letter is horizontal on band
Dual color bands for young are black over red, with black listed first (1993-1999); black over green (2000-2001 & some 1999).

RIVER OTTER RESTORATION

1800

Prior to Iowa settlement, the river otter was common along major rivers and streams throughout the state. However, otter populations were reduced by a combination of factors including unregulated trapping, stream pollution, and agricultural activities. By the early 1900s there were few otter sightings on Iowa's interior streams. The species was extirpated from most of the state, except for a small remnant otter population along and adjacent to the Mississippi River in northeastern and east central Iowa.

1985

Efforts to restore the river otter to other parts of Iowa began in 1985 when 16 otters (8F,8M) from Louisiana were released at the upper end of Red Rock Reservoir in Marion County. These otters were obtained through a three-way trade in which Iowa DNR provided wild turkeys to Kentucky who, in turn, bought 16 otters from Louisiana, at \$400 each, to be released in Iowa. Two turkeys were traded for each otter received. Each otter was tagged in both ears and on the webs of both hind feet for future identification. Radio transmitters were implanted in the otters at Red Rock to monitor movements, mortality, and habitat use.

1989-90

After the apparent success of the initial release, additional otters were released at sites throughout Iowa (Fig. 7.1). Otters were obtained through the same 3-way trade mentioned earlier until 1989. In 1989, the Mitchell County Conservation Board and local schools provided the funds to purchase 8 animals. In 1990, 38 additional otters were released on the Cedar River in Mitchell County as well as on the Winnebago River in Cerro

Gordo County. These releases were funded through local fund-raising efforts and T-shirt sales from the Iowa Trappers Association, Furtakers of Iowa, ISU Fisheries and Wildlife Biology Club and the Iowa DNR.

Between 1985 and 1990, 222 otters were released at 11 sites (Table 7.1). To help reduce trapping mortality, at each release site a portion of the stream was closed to trapping within 10 yards of a beaver lodge or den, because these areas were commonly used by otters. In 1997, this restriction was deemed outdated and, consequently, removed. However, many trappers voluntarily maintained the 10-yard rule while trapping.

1997

Two additional sites received otters in 1997. Indian Creek Nature Center in Linn County provided funding for 17 animals, and Chichaqua Wildlife Area in Polk County where the Polk CCB provided funding for 10 animals. Two release sites were added in 1998, both in Cedar Falls. The Black Hawk CCB provided funds for 12 animals. Half were released on the Cedar River at Hartman Reserve Nature Center and the remaining 6 were released on the other side of the Cedar River at George Wyth State Park. In 1999, no animals were purchased from Louisiana for release. From 1985-1999, 261 Louisiana River Otters have been released into Iowa's rivers and lakes.

1999-2000

Otter populations in several localized sites across the state are experiencing roadkills and incidental trappings. The Iowa DNR wanted to determine the viability of these localized "hot spots" by trapping some of the animals and monitoring the population

changes at both site of capture and the site of release. In 1999, 5 otters were translocated from the Des Moines River in Boone County to Peterson Pits along the Skunk River in Story County. An additional 3 otters were translocated from the Little Sioux River in Buena Vista County to the Boyer River in Sac County.

2000-2001

During the fall and winter of 2000-2001, 5 additional otters were released to Buena Vista County Boyer River Site. Five were captured and released on the East Nishnabotna River near Audubon. Three were captured and released at Miami Lakes in Monroe County. Two were released on Cedar Creek east of Albia. During the fall and winter of 2001-2002, 5 more otters were captured and released on the East Nishnabotna River near Audubon. The Iowa River Greenbelt Trust also funded the release of 11 river otters to the Iowa River at the Hardin City Access near Steamboat in 2000-01. The DNR delisted the river otter from the threatened list in 2001.

2001-2002

In 2001-02, a record 32 additional river otters were trapped and released at other sites across the state. (Table 7.1)

2002-2003

In 2002-2003, only 11 otters were translocated to other parts. This was surprising, as the trapping conditions early in the season were relatively mild. I do not think the lower numbers are indicative of reduced otter population but rather a reduction of effort on the part of our contract trappers.

During the winter of 2000-2001, otter teeth and otter reproductive tracts have been collected from nearly 150 river otter carcasses to determine population age structure and reproductive potential.

of Iowa otters. Evaluation of these and continued collections will take place in 2001-2004. The documentation request for a river otter season has currently been requested from the Scientific Authority of the U.S. Fish and Wildlife Service. Our goal is to have a limited river otter harvest season by no later than 2005.

Otter releases have been monitored by searching for tracks, mudslides, snow slides, and by soliciting observations from DNR and CCB personnel, and the public. Thus far, the results are encouraging; otters have been observed at all release sites and in 95 counties across the state. Reproduction has been documented in over 75 of Iowa's 99 counties (Figure 7.1). Major mortality causes are incidental trapping and roadkills. The goal of the otter restoration project is to have statewide distribution and ultimately some type of regulated otter harvest season.

As the otter population increases, we are beginning to get a few otter depredation complaints, particularly in farm ponds. Some fishery interests are also showing concern of otter depredation of certain fish species on certain localized rivers and streams.

Areas in southern Iowa have apparently benefited from otter releases in Missouri. Areas in southern Minnesota are benefiting from Iowa releases. Nearly everyone closely associated with furbearer resources in Iowa believe the Iowa River Otters are doing extremely well.

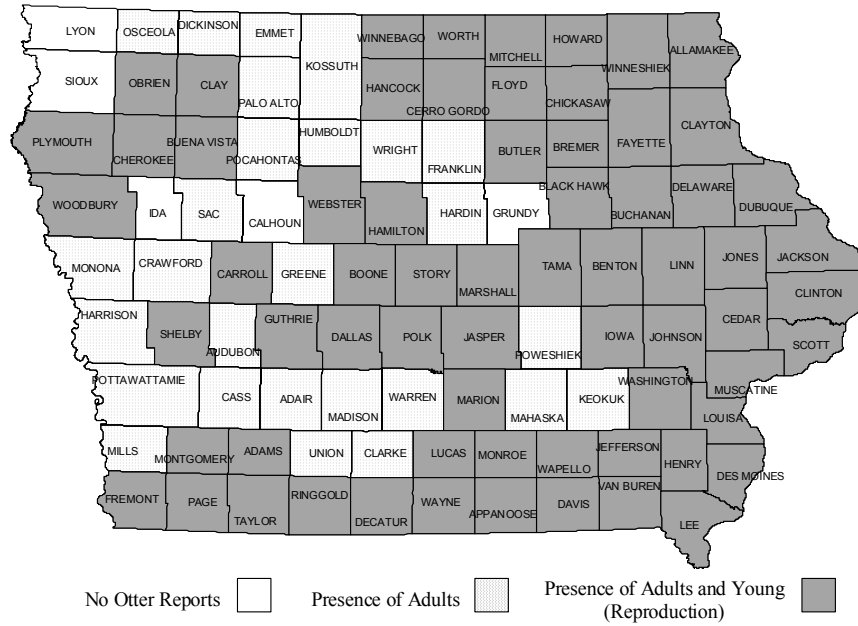
Table 7.1 River otter release sites in Iowa, 1985 – present.

Year	Male	Females	County	Nearest Town	River / Areas
1985	8	8	Marion	Runnells	Red Rock Reservoir
1986	10	10	Tama	Chelsea	Otter Creek WMA
1986	10	10	Hamilton	Stratford	Boone River
1986	10	10	Guthrie	Guthrie Center	Springbrook Park
1987	10	10	Clay	Peterson	Little Sioux River
1987	10	10	Lucas	Russell	Rathbun Reservoir
1988	10	10	Bremer	Tripoli	Sweet Marsh WMA
1988	10	10	Linn	Waubeeek	Wapsipinicon River
1988	10	10	Montgomery	Morton Mills	Nodaway
1989	5	3	Mitchell	Otranto	Cedar River
1990	7	8	Mitchell	Otranto	Cedar River
1990	13	10	Cerro Gordo	Mason City	Winnebago River
1997	9	8	Linn	Cedar Rapids	Indian Creek
1997	6	6	Polk	Chichaqua	Skunk River
1998	7	5	Black Hawk	Cedar Falls	Cedar River
1998-1999*	5 sex unknown		Story	Ames	Peterson Pits
1998-1999	3 sex unknown		Sac	Reiff Park	Boyer River
1999-2000	5 sex unknown		Sac	Reiff Park	Boyer River
1999-2000	5 sex unknown		Audubon	Audubon	E. Nishnabotna River
1999-2000	3 sex unknown		Monroe	Miami Lake	Miami Lake
1999-2000	2 sex unknown		Wapello	Cedar Creek	Cedar Creek
2000-2001	5 sex unknown		Audubon	Audubon	E. Nishnabotna River
2000-2001	11 sex unknown		Hardin	Steamboat Rock	Iowa River
2001-2002	3 sex unknown		Hardin	Steamboat Rock	Iowa River
2001-2002	2 sex unknown		Clayton	Eldorado	Turkey River
2001-2002	4 sex unknown		Pottawattamie	Oakland	W. Nishnabotna River
2001-2002	2 sex unknown		Marion	Hamilton	North Cedar Creek
2001-2002	2 sex unknown		Cass	Atlantic	E. Nishnabotna River
2001-2002	5 sex unknown		Poweshiek	Brooklyn	English River
2001-2002	14 sex unknown		Worth	Northwood	Shellrock River
2002-2003	2 sex unknown		Pottawattamie	Avoka	W. Nishnabotna River
2002-2003	9 sex unknown		Grundy	Grundy Center	Blackhawk Creek

GRAND TOTAL of Males and Females = 345

*Coincides with the capture of otters to translocate during the succeeding trapping seasons.

Figure 7.1 Status and distribution of river otters in Iowa as of 2002.



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-grain fields, hayfields, pasture, and native prairie, which provided ideal habitat conditions (Ehresman, 1996). During the late nineteenth century, prairie chickens were the most abundant gamebird on Iowa prairies. Hunting and trapping them for food and market were very important to settlers. Bags of 25 to 50 a day were common, and some hunters took up to 200 per day.

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

As agricultural land use intensified, populations of prairie chickens started to decline. By the 1930's, most prairie chickens found in the northwestern part of the state were migrant winter flocks. Small numbers continued to nest along the northern, northeastern, and southern borders of the state. By the 1950's, the only known nesting prairie chickens were in Appanoose, Wayne, and Ringgold Counties in southern Iowa. The last

verified nesting prior to reintroduction attempts was in Appanoose County in 1952 (Stempel and Rodgers 1960).

RESTORATION

First Reintroduction Attempt

In the early 1980's, the Iowa Conservation Commission, now the Iowa Department of Natural Resources (IDNR), attempted to restore prairie chickens to west central Iowa. The IDNR 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 8.1). The release site was located in the Loess Hills east of Onawa, Monona County (Fig. 8.1). 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 mixed. A large number of chickens were observed in the release area the following day; however, sightings thereafter were sporadic and often at a distance from the release area. During 1980, reliable sightings were reported both near the release area and up to 19 miles away. The KFGC was unable to secure additional birds for stocking in 1981; however, observations continued. In 1981, single birds occurred near the release area and groups of birds were reported 20 and 60 miles from the release site. No spring leks were located in the 2 years following the release, and no reproduction was reported.

Following mild winters in 1981

and 1982, KFGC personnel decided to attempt a different trapping approach. Chickens were rocket-netted on leks in April as they displayed. This trapping method proved successful, and 48 chickens were transported to Iowa for release at the same area in the Loess Hills in 1982. Rather than simply turning the birds loose from transport crates, as was done during the first release, the birds were banded and put in a large holding pen with separate cells for each sex. The objective was to give the chickens a chance to settle down after transport and to acclimate to the new area. Males were held overnight and released the next morning. Females were released 24 hours later. 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 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. The release was made by slowly raising the pen door from a distant location. Most males simply walked out of the pen, moved randomly about for a few minutes, and then wandered near the females' side of the pen. They remained there for 15 to 45 minutes before walking or flying off. Females were released under similar conditions the following morning. Most walked from the pen and flew short distances to taller grass cover.

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. The birds appeared to prefer the level valley to

the hilly region 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, IDNR, *pers. comm.*).

Second Reintroduction Attempt

1987-1989 Stockings: In 1987, the IDNR made a second restoration attempt. The release site was on the Ringgold Wildlife Area located two miles north of the Missouri border in Ringgold County in south central Iowa (Fig 8.1). Wildlife personnel considered this region to be the best potential prairie chicken habitat in Iowa. 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. It was hoped that these changes would again provide suitable habitat for prairie chickens. A major change was restoration of around 200 ha of prairie on the Ringgold Wildlife Area. Other changes were better pasture management by some area farmers and the Conservation Reserve Program (CRP). CRP converted thousands of hectares of cropland into a diversity of mostly undisturbed grasslands for at least 10 years.

The birds for this reintroduction were again obtained from Kansas through a three-way trade in which IDNR 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 sharp-tailed grouse (Rodgers 1987). A total of 254 prairie chickens were translocated to the Ringgold Wildlife Area from Kansas during 1987, 1988, and 1989 (Table 8.1).

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

No prairie chickens were released in 1990 or 1991. Reproductive conditions for gallinaceous birds were poor in this area throughout that time; however, brood sightings were made each year. By 1991, prairie chickens appeared to be firmly established on the 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: Based on the success of the Dunn Ranch, the IDNR continued the restoration program with more translocations from Kansas. An agreement with KDWP allowed IDNR 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 (Fig. 8.1). The Mount Ayr site is 28 km northwest and the Kellerton site is 24 km northeast of the Ringgold Wildlife Area. The Mount Ayr site was dropped in 1993, and the Orient site was added. Orient is 90 km northwest of the Ringgold Wildlife Area. All of the sites contained high quality grasslands and open landscapes. Most 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 8.1). Gentle releases were made onto either artificial leks or actual leks.

Subsequent Stocking:

No additional stockings were anticipated following releases in 1994. However, while live trapping Sharp-tailed Grouse for IDNR's restoration project in the Loess Hills, South Dakota Game Fish and Parks (SDGFP) employees incidentally trapped three prairie chickens in 2001. Rather than release these birds at the trap site, SDGFP offered them to IDNR. The offer was accepted, and 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) has been reintroducing prairie chickens in north central Missouri since 1993. Approximately 100 birds have been 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.*).

There were sightings of prairie chickens immediately south of the Iowa border in the spring of 1998, and it is probable that adjacent areas in Iowa have prairie chickens as a direct result of Missouri's stocking efforts. Jeff Telleen and Bruce Fistler picked up a road-killed prairie chicken in Monroe County just south of Melrose on June 7, 1998. The bird was not banded and was mostly likely a pioneering bird from one of Missouri's latest releases. Thunderbird Lake, Missouri, is the release site closest to Melrose. Missouri's releases at Thunderbird Lake are very close to the Iowa border and may act as repayment for Iowa's 1987 releases that reestablished birds on the Dunn Ranch (Larry Mechlin, MDC, *pers. comm.*).

BOOMING GROUND SURVEY

Methods

Attempts are made each spring by IDNR 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 month of April. Leks sites are glassed or flushed to determine the number of booming males. New leks are located by driving gravel roads and stopping

periodically to listen for booming. Because of the large area of potential habitat and limited manpower, the number of booming males observed is considered minimal. It is highly probable that a number of booming grounds have not been located. MDC personnel make similar counts on and around the Dunn Ranch, where the birds are part of the same regional population.

Results

1995: The number of booming grounds increased from three in 1994 to seven in 1995 with 40 males present (Table 8.2). These seven lek sites are found in five different counties. Two of these counties are release site counties (Ringgold, Adair). The lek sites in Adams, Decatur, and Union Counties are birds pioneering new areas. Adult males have a strong affinity for established leks, whereas young males may actively look for new areas to establish a lek. Young females may also wander in the spring in search of a lek. A mosaic of leks across a large area may prove to be an important component of prairie chicken biology.

1996: In the spring of 1996, six leks from 1995 still showed some activity. Note in table 8.2 that 18 males were observed on four leks, but no legal description was taken. The number of booming males declined 38% from 40 to 25 birds (Table 8.2). Similar to prairie chickens, pheasant numbers in the southern pasture region declined 31% during this same time. Nesting conditions during the spring and summer of 1995 were abnormally wet. Southern Iowa experienced rainfall totals for April and May 6 inches above normal. This likely reduced nest success in 1995, leading to the reduced number of booming males in 1996.

1997: Only Ringgold and Decatur Counties had active leks during the spring of 1997, which is a significant decrease from the five counties with active leks in 1996. The decline in lek sites may have been a result of land coming out of CRP. One lek site in Adair County was plowed in 1996. There was still activity at this site in 1996: however, no birds were observed booming at this location in 1997. In addition to Adair, there were observations of non-booming chickens in Adams, Warren, and Union Counties during spring 1997. Warren was a new county for prairie chicken reports and is somewhat isolated from source populations. This may be indicative that more birds are out there than are being reported.

Final counts showed the number of booming males had declined even further in 1997 (-28%), with 18 males counted on four active leks (Table 8.2). Another abnormally wet spring in 1996, combined with the loss of CRP, contributed to decreasing prairie chicken numbers. Rainfall across the prairie chicken restoration area averaged 5 inches above the long-term average. Pheasant counts across southern Iowa also declined >30% during this time. The decline in booming males could again be attributed to poor reproductive success during 1996, with the loss of several leks sites in Adair County aggravating the problem of poor recruitment.

1998: Department personnel observed booming activity in Adair, Decatur, and Ringgold Counties in 1998. Forty-three males were observed on nine leks (Table 8.2). This represents a 139% increase in the number of booming males and a 125% increase in active leks over 1997. Upland bird nesting conditions

greatly improved across southern Iowa in 1997, as evidenced by a 60% increase in pheasant numbers during 1997. Mel Moe reported the first prairie chicken brood on June 6, 1998: a brood of 12 in Section 33, Monroe Township, Ringgold County

1999: Department personnel observed booming activity in Adams, Decatur, and Ringgold Counties in 1999. Thirty-nine males were observed on eight leks (Table 8.2). This represents a 9% decrease in the number of booming males and 11% decrease in active leks over 1998. Due to the abnormally wet nesting season in south central Iowa last year, pheasant counts were at an all time low for the region. The fact that prairie chicken numbers remained essentially unchanged from 1998 is a very positive sign for Iowa's population. The location of known active leks is shown in Figure 8.2.

2000: Booming prairie chicken males were observed in Decatur, Ringgold, and Wayne Counties in 2000 (Table 8.2). This was the first time a lek was recorded in Wayne County. Forty-four males were active on six booming grounds. This was the highest number of booming males recorded in Iowa and the highest total number of males per lek. The number of booming males increased 13% over 1999, but the number of active leks decreased from eight to six (-25%). The six-year mean total number of booming males is 34.8; therefore, the number observed in 2000 is 26% above the mean. The same trend was observed for total number of males per lek; 7.3 is 28% above the six-year mean of 5.7. Known active lek locations are shown in Figure 8.2.

2001: Booming activity was

observed by department personnel again in Decatur, Ringgold and Wayne Counties in 2001 (Table 8.2). Birds were active on seven booming grounds, an increase of one site (16.6%) from the previous year. However, the number of booming males dropped to 28 in 2001, a 36.4% decline from 2000 and a 16.7% decline from the seven-year mean total of 33.6. The 2001 mean of four males per lek represented a 45.2% decline from 2000. Known active lek locations are shown in figure 8.2.

2002: As in 2001, seven active leks were observed in 2002; however, during 2002 DNR personnel witnessed the direct loss of one lek in Ringgold Co. (69N, 29W, Sec 3) due to row crop conversion from CRP. During 2002, three new leks were found in Wayne and Ringgold counties, and 4 males were observed booming on a lek that had been vacant for four years in Decatur county. The number of booming males declined for a second year to 22, bringing the long-term average to 37.0 birds (Table 8.2). Males per lek declined to 3.1 booming males/lek. The number of booming males and mean males per lek was below eight year means though the total number of leks was virtually unchanged (Table 8.2). There were no releases nor translocations of prairie chickens done in 2002.

2003: Three new locations were noticed again this year (Table 8.2). There was a gain of two leks from 2002 to nine for 2003, which is above the long-term average (Table 8.2). Males per lek increased from 3.1 in 2002 to 3.6 in 2003. The number of booming males increased from 22 to 32 (Table 8.2). Current and prior lek locations are shown in Figure 8.2.

DISCUSSION

Prairie chicken reintroduction efforts initiated in Iowa in 1987 and in Missouri in 1993 have resulted in a small, somewhat stable population of prairie chickens across a wide area of southern Iowa and northern Missouri. Large areas of habitat in this area still lack prairie chickens, and additional stocking may help fill in the gaps and augment existing local populations. Proposed stockings in Iowa would include releasing additional hens onto all known booming grounds and establishing new release sites in suitable habitat.

Pasture and hay are still primary land uses in this region. This land use, coupled with an increase in lands enrolled in recent CRP programs, should assure adequate grassland habitat for several years. A positive aspect of recent CRP programs was the emphasis on establishing cover beneficial to wildlife instead of grass monocultures. The Wildlife Habitat Incentives Program (WHIP) of the USDA also targets improvement of prairie chicken habitat in south central Iowa and should be beneficial to improving prairie chicken populations. IDNR - Private Lands personnel indicate priority points are not considered if landowners introduce cool season grass or tree plantings in certain areas. Also, landowners are encouraged to practice mid-contract management practices required to incorporate disturbances of some sort that can be beneficial. Intensive management of large blocks of grassland by public agencies will help ensure adequate habitat into the future. The Ringgold Wildlife Area has 300 ha which is managed as grasslands with open landscapes. Although no booming grounds have been located on this area in recent years, broods have been sighted nearly every summer.

Kellerton Bird Conservation Area/Grand River WHIP Update

A model for landscape-level grassland bird conservation was developed by research biologists in the Midwest and serves as the basic design for Partners in Flight (PIF) grassland Bird Conservation Areas (BCA). The Kellerton Bird Conservation Area (KBCA) was formally designated in 2001 and is PIF's first attempt to put the habitat objectives of the Dissected Till Plains Bird Conservation Plan into action. The KBCA is a 10,000-acre area of public and private lands located in extreme south central Iowa.

In 1998, the KBCA consisted of 70% grassland, 25% cropland, and 5% woodland. At least three current or recently used booming grounds are located within the boundaries. All the land was privately owned, and the grasslands were either pasture, hayfields, or land entered in CRP. Within this 10,000-acre area, a contiguous block of 2,100 acres of grassland was identified as a priority acquisition tract. The total estimated cost of this acquisition based on 1998 prices was \$2,000,000. For this reason, acquisition of the 2,100-acre core area was proposed to occur in increments.

A 680-acre parcel was the first desired purchase aimed to protect Iowa's largest greater prairie chicken lek. The cost was \$530,000. Unfortunately, the IDNR could not move quickly enough to acquire the 680 acres, and the land was bought by Kellerton Farms, a corporate farming group. However, because of a slump in commodity prices, Kellerton Farms decided to offer the property to the IDNR. The IDNR acquired the initial 680-acre KBCA tract in December 1998. The IDNR, the National Fish and Wildlife Foundation, Pheasants Forever, Iowa

Audubon, and numerous private donations provided funds for the initial acquisition. An additional 58-acre tract was acquired in 2001, bringing public lands in KBCA to 738 acres.

In 2001, two broods of prairie chickens, with at least a dozen young per brood, were observed 1.5 miles north of the core public lands, and within the larger designated KBCA.

In addition to the proposed 2,000 acre publicly-owned core area, IDNR and the Natural Resource Conservation Service (NRCS) promote conservation efforts on nearby private land. WHIP and CRP programs can be used to enhance wildlife management on an additional 2,500 acres of land within the KBCA by encouraging farmers to use rotational grazing, cutting trees, and planting native grasses. IDNR's Upland Wildlife Biologist and Area Wildlife Manager work with local NRCS staff to promote WHIP and CRP among area farmers, with emphasis specifically given to the aforementioned land practices. Approximately 100 acres has been improved under WHIP in 2001-2002, employing tree removal, local ecotype prairie seedings and prescribed burning.

The KBCA is the first grassland implementation of the PIF-BCA concept in the country. Wildlife Biologist Mel Moe implemented a management plan that includes a viewing area for prairie chickens. An old Osage orange hedge row was cut in the spring of 1999 to open the vista of the new area, and a viewing platform and spotting scope were added in 2000. Large portions of the area continue to be managed for native grasses. Approximately 100 acres of cropland were converted to mixed native seedings in 2000 and 2001, with additional conversions planned for the future.

In addition to the KBCA

acquisition, the Missouri Nature Conservancy (TNC) purchased the 2,200-acre Dunn Ranch in the spring of 1999. The MDC also acquired Pawnee Prairie, a large grassland tract west of the Dunn Ranch. The Missouri TNC and MDC may create the second BCA in the country with these acquisitions.

Acquisition of core grasslands in Iowa and Missouri has led to the development of the Grand River WHIP project. Under the original PIF-BCA concept, approximately 2,500 of private grasslands must also be manipulated to

benefit grassland birds. The Grand River WHIP project is a joint proposal between the IDNR, MDC, and NRCS to target \$6 million dollars over 5 years into the 70,000-acre core area surrounding the KBCA and Dunn Ranch grasslands. The funding will be used to assist producers implement rotational grazing systems, seed pastures to native species, and remove trees. Funds can also be used to supply materials for fencing and watering systems. The project is contingent upon Congress reauthorizing WHIP in the Agriculture Appropriations bill.

LITERATURE CITED

- Christisen, D. M. 1985. The greater prairie chicken and Missouri's land-use patterns. Terrestrial Series No. 15. Missouri Department of Conservation. Jefferson City. 51 pp.
- Ehresman, B. L. 1996. Greater Prairie-Chicken. Pages 130 -131 *in* L. S. Jackson, C.A. Thompson, and J. A. Dinsmore, editors. The Iowa Breeding Bird Atlas. University of Iowa Press, Iowa City, Iowa, USA
- Rodgers, R. 1983. Evaluation of the re-establishment potential of sharptailed grouse in western Kansas. Federal Aid Project No. W-23-R-20, Study No. 18, Job Q-1, Kansas Fish and Game Commission. Pratt. 7pp., mimeo.
- Stempel, M. E., and S. Rodgers, Jr. 1961. History of prairie chickens in Iowa. Proceedings of the Iowa Academy of Science 68:314-322.

Table 8.1. Dates, numbers, and locations of greater prairie chicken releases in Iowa, 1980-2001.

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 (IDNR trapping crew)	Mount Ayr, Ringgold Co., Price Twp., Sec. 13. ³
April 1992	31Γ 20E	KDWP (IDNR trapping crew)	Kellerton, Ringgold Co., Athens Twp., Sec. 8. ⁴
April 1992	9Γ 9E	KDWP (IDNR trapping crew)	Ringgold Wildlife Area, Ringgold Co., Lotts Creek Twp., Sec. 24. ²
April 1993	13Γ 33E	KDWP (IDNR trapping crew)	Kellerton, Ringgold Co., Athens Twp., Sec. 8. ²
April 1993	24Γ 24E	KDWP (IDNR trapping crew)	Orient, Adair Co., Lee Twp., Sec. 36. ⁵
April 1994	10Γ 17E	KDWP (IDNR trapping crew)	Kellerton, Ringgold Co., Athens Twp., Sec. 8. ⁴
April 1994	31Γ 34E	KDWP (IDNR trapping crew)	Orient, Adair Co., Lee Twp., Sec. 36. ⁵
April 2001	1Γ 2E	SDGFP	Kellerton, Ringgold Co., Athens Twp., Sec. 16. ⁴

* KFGC = Kansas fish and Game Commission, KDWP = Kansas Department of Wildlife and Parks, SDGFP = South Dakota Game Fish and Parks Department, IDNR = Iowa Department of Natural Resources.

¹⁻⁵ Release sites indicated on county map (Figure 8.1)

Table 8.2. Location and number of greater prairie chickens observed on active leks in Iowa, 1995-2003.

County	Township Name	Legal Description			Number of Booming Males ^a								
		Twp.	Rge.	Sec.	1995	1996	1997	1998	1999	2000	2001	2002	2003
Adair	Orient	74N	31W	3	8	4	<u>2</u>						
Adair	Orient	74N	31W	11	3		<u>3</u>						
Adair	Lee	75N	31W	26				1					
Adams	Union	72N	32W	24	1				3				
Decatur	High Point	69N	24W	1				8					
Decatur	High Point	69N	24W	2	5	3	4 ^b					4	
Decatur	High Point	69N	24W	11				1	1				
Decatur	Franklin	70N	25W	9				2					
Decatur	Franklin	70N	25W	20	2	<u>2</u>	1						
Decatur	Garden Grove	70N	24W	36				10	6	7	4		3
Ringgold	Athens	68N	28W	4	14	18 ^c	8	5	5	3	1	2	
Ringgold	Athens	68N	28W	16	7		5	12	11	14	11	10	10
Ringgold	Athens	68N	28W	17									5
Ringgold	Athens	68N	28W	2								1	
Ringgold	Athens	68N	28W	20									2
Ringgold	Poe	68N	29W	?					2				
Ringgold	Rice	68N	30W	24				1					
Ringgold	Rice	68N	30W	13							3	2	1
Ringgold	Liberty	69N	29W	3					4		5		4
Ringgold	Liberty	69N	29W	10						8			
Ringgold	Monroe	69N	28W	2							1		
Ringgold	Monroe	69N	28W	12						7			4
Ringgold	Monroe	69N	28W	28					7				
Ringgold	Monroe	69N	28W	33				3					
Ringgold	Monroe	69N	28W	15								1	
Ringgold	Monroe	69N	28W	22									1
Union	Spaulding	73N	31W	?	<u>1</u>								
Wayne	Jackson	68N	21W	18						5	3		2
Wayne	Jackson	68N	21W	14								2	
Total Booming Males ^d		mean=	36.4		40	25	18	43	39	44	28	22	32
Total Active Leks		mean=	7.8		8	3	5	9	8	6	7	7	9
Total Males/Lek		mean=	5.6		5.0	8.3	3.6	4.8	4.9	7.3	4.0	3.1	3.6

^a underlined numbers indicate birds were observed, but not booming.

^b Four males were confirmed booming, but may be as many as 7.

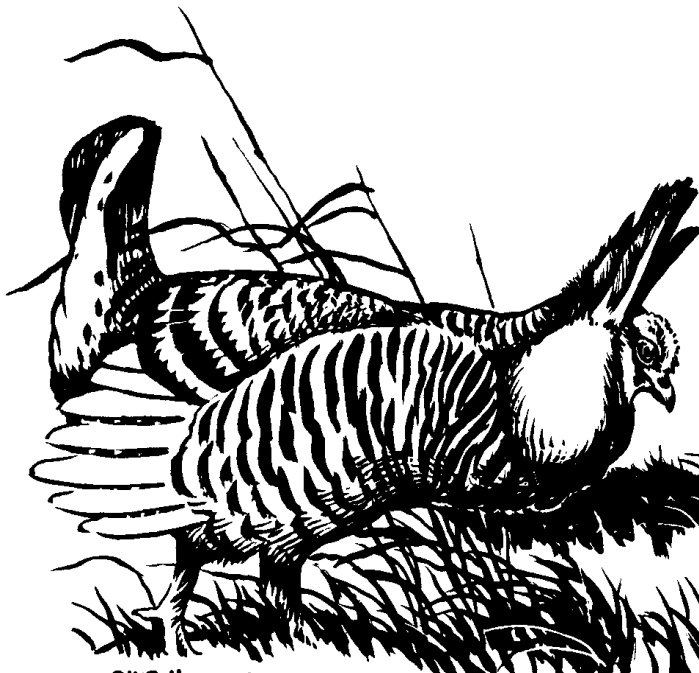
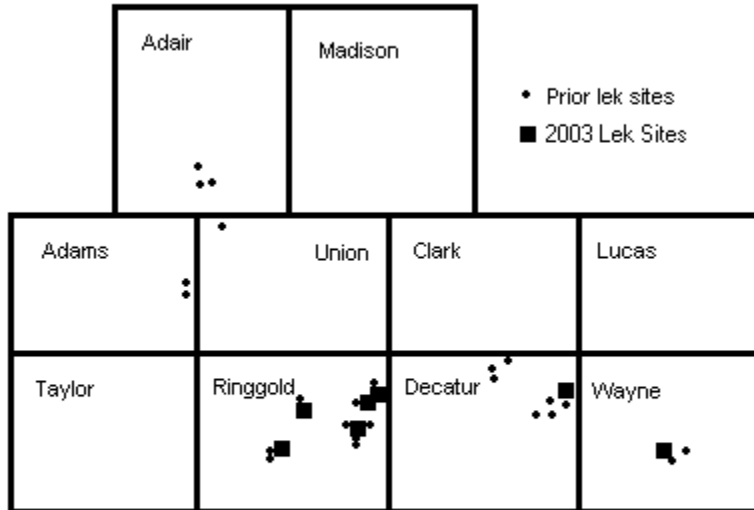
^c Total of 18 males observed on 4 leks but no legal descriptions reported.

^d Males not observed booming are not included in totals.

Figure 8.1 Location of release sites and total number of prairie chickens released in Iowa, 1980-2001.



Figure 8.2. Locations of past and active prairie chicken leks in Iowa.



RUFFED GROUSE RESTORATION

Ruffed grouse (*Bonasa umbellus*) were found nearly statewide in Iowa during the mid-19th century but deforestation and grazing of timber caused a dramatic decline of grouse populations (Klonglan and Hlavka 1969). Ruffed grouse had disappeared from southwest Iowa by 1900 and further population declines occurred in the south and east-central portions prior to the 1920's.

Grouse were restricted to their present range in the northeast 6 counties by 1930 (Fig. 9.1). Between 1930 and the early 1960's there was an increase in available and potential grouse habitat in southern and eastern Iowa primarily from secondary succession of private forests and the acquisition and removal of state lands from grazing.

1962 & 1965

Initial attempts by the Iowa Department of Natural Resources (IDNR) to restore extirpated ruffed grouse populations in southeast Iowa were in 1962 and 1965 with the release of 7 and 12 grouse, respectively (Table 9.1). The grouse were captured in northeast Iowa and released into Shimek State Forest (release site #1a,b Fig. 9.2). The last documented sighting of a grouse associated with these releases was in 1969 (IDNR, unpubl. data).

1971 & 1972

An intensified second attempt to restore grouse in southern Iowa occurred nearly 10 years later, in 1971 and 1972. The Lick Creek Unit of Shimek State Forest received 43 grouse trapped in northeast Iowa in 1971 and Stephens State Forest received 40 grouse from northeast Iowa in 1972 (Table 9.1). Additionally, 9 grouse were released at Ledges State Park in central Iowa. Little and Sheets (1982) evaluated the Shimek State Forest release 7 years post-release and

concluded that there was potential for restoring ruffed grouse to southern Iowa. Natural events (windthrow, fire, and tree diseases) provided sufficient early seral stage habitats to maintain the grouse at low densities despite little or no forest management for grouse. There were no post-release observations of grouse associated with the Ledges State Park release and this stocking is assumed to have failed.

1979 & 1980

Potential habitat in east-central Iowa that would expand the existing grouse distribution was stocked during 1979 and 1980. Forty grouse were caught in northeast Iowa and moved 3 counties south and released on a state-owned wildlife management area (WMA), release site #3.5. Limited information exists on the outcome of this release, although a banded grouse released in 1979 was harvested during the 1983 hunting season.

1982 & 1983

Although the potential for a successful restoration program in southern Iowa had been documented, it wasn't until 1982 that a third release of ruffed grouse occurred. A wildlife trade in 1982 and 1983 allowed the IDNR to acquire 224 Michigan ruffed grouse which were released at 1 north-central and 3 southern sites, release sites #4, 5, 6, and 7, respectively (Fig. 9.2 and Table 9.1). Twenty-one grouse at Sand Creek WMA and 17 grouse at the Whitebreast Unit of Stephens State Forest were marked with radio transmitters and monitored sporadically. Radio-marked grouse survived poorly at both sites. Surviving, radio-marked grouse at Sand Creek moved considerable distances, apparently not preferring the habitat at the release site (IDNR, unpubl. data).

1985

Restoration continued in 1985 with the release of 33 northeast Iowa grouse in Jones County at the periphery of their current range (release #8, Fig. 9.2).

1986

In spring 1986, 22 drumming count surveys of the 1982-83 release sites found 9 males and 43 drumming count survey routes conducted at the 1971-72 release sites found 4 males. In 1986, encouraged by at least marginal success of the 1982-83 releases, the IDNR released another 208 grouse into 4 units of Stephens State Forest (release sites #5, 7, 9, and 11) and surrounding private land (release site #10). The grouse were from 3 sources, 41 from northeast Iowa, 136 from Indiana and 31 from Wisconsin. Sex ratio of the grouse released was unfortunately male dominated (1.6 males:1 female).

1987

In 1987 the IDNR supplemented the 1986 releases with 199 additional grouse onto the same units of Stephens State Forest and nearby private lands (release sites #13 and 16). Five new sites in major timber areas (release sites #12, 14, 15, 17, and 18) also received grouse. In total, 405 grouse were released, 66, 131, and 208 from northern Iowa, Indiana, and Wisconsin, respectively. Primary goals of the 1987 releases were to increase the number of females at the Stephens State Forest release sites and to start restoration efforts at the 5 other sites.

1988

Grouse restoration efforts during 1988 resulted in the release of 163 grouse at 6 new sites (sites #19 - 24) and 2 sites that had received grouse in 1987. Grouse for the 1988 releases came from 3 sources, 42 grouse from northeast Iowa, 53 from Indiana, and 68 from Wisconsin. Fifty-three grouse were released onto 5 private land sites in Lucas and Monroe counties near Stephens State Forest and 1 unit

of Stephens State Forest. Two sites that received grouse in 1987, #12 and 18, received 104 additional grouse in 1988 to complete the stocking at these sites. One site in northeast Iowa, site #24, received 6 grouse that were "not suitable" for shipment to other restoration sites.

1989

Eighty-seven grouse released in 1989 were put at 3 new southern Iowa sites (sites # 25, 26, and 27). These sites are just now becoming acceptable grouse habitat and fortunately are located between other previous release sites. This string of releases across the southeast portion of Iowa was made in hope that established and dispersing birds would start encountering each other.

1990

Completion of interstate wildlife trades limited the number of grouse available for release in 1990. However, 72 ruffed grouse were released at 3 different sites (site #27, 28, and 29). Grouse from Indiana were used to complete a state land stocking (site #27), which was started in 1989, and a stocking on private land within the same drainage (#28). Eighteen Wisconsin grouse were used to stock site #29 in Lee County, not far from the initial 1962 release.

1998

During spring 1998, the IDNR conducted drumming surveys for presence/absence of grouse on or near all but 2 of the past release sites in southern and southeastern Iowa. Grouse were found on 16 sites in Lucas, Clark and Monroe counties. Grouse were absent on 11 sites including sites in Decatur (Sand Creek WMA), Lee (Shimek State Forest) and Monroe (Tyrone WMA) counties.

1999

In 1999, 15 grouse (10 males, 5 females) were captured in northeast Iowa and released in the Amana Colonies in Iowa County (site #30). The success of this transplant is still being evaluated.

2000

Releases of ruffed grouse ceased in 2000.

FUTURE

Unfortunately, it may be futile to continue to attempt to re-establish grouse in southern and southeastern Iowa since the conditions that caused initial declines of grouse populations still exist and may actually be becoming more unfavorable. The IDNR has released grouse into the "best" grouse habitat available in southern and southeastern Iowa, yet it may not be suitable for long-term survival of re-introduced grouse. Drumming counts with less than 1 drumming male per 30 acres indicates poor habitat in Minnesota (G.

Gullion, pers. commun.). Even with all the restoration efforts completed thus far, the best drumming male density documented in a recently stocked state forest unit has been only 0.3 male per 30 acres (1 male/95 acres). Drumming counts in northeast Iowa in the mid-1960's gave density estimates of over 4 males/100 acres. Without a more intensive conversion of mature (maturing) forest stands in southern Iowa to early second growth stands with 3000-6000 stems/acre, additional releases can not be justified.

HUNTING SEASONS

Although limited in distribution the existing populations in northeast Iowa have persisted and provided limited hunting opportunity. The first modern-day hunting season was in 1968, after a 44-year continuously closed season (Table 9.2). Current hunting season format was established in 1981 and has varied only to assure the season opens on a Saturday.

Table 9.1 Ruffed grouse restoration efforts for Iowa, 1962-present.

SITE	YEAR	GROUSE	COUNTY	LOCATION AND SITE NAME	MALE	FEM	UNK
NUMBER STOCKED	SOURCE	STOCKED					
1A	1962	NE IOWA	LEE	SHIMEK SF			7
1B	1965	NE IOWA	LEE	SHIMEK SF			12
1C	1971	NE IOWA	LEE	SEC 16, T-67N R-07W LICK CREEK UNIT	26	17	
2	1972	NE IOWA	BOONE	LEDGES STATE PARK	4	5	
3	1972	NE IOWA	LUCAS	STEPHENS SF	25	15	
3.5	1979	NE IOWA	JACKSON	SEC 8, T-86N R-04E BIG MILL WMA	9	7	
	1980	NE IOWA	JACKSON	SEC 18, T-86N R-04E BIG MILL WMA	13	11	
4	1982	MICHIGAN	HAMILTON	SEC 30, T-89N R-26W BOONE FORKS	17	27	10
5A	1982	MICHIGAN	MONROE	1000 ACRE UNIT	27	24	
6	1982	MICHIGAN	DECATUR	SAND CREEK WMA	23	11	
7A	1983	MICHIGAN	LUCAS	WHITEBREAST UNIT	42	39	3
8	1985	NE IOWA	JONES	SEC 28, T-85N R-04W ANAMOSA	16	17	
5B	1986	IA/WI/IN	MONROE	SEC 20, T-73N R-19W 1000 ACRE UNIT	44	27	
7B	1986	IA/IN	LUCAS	SEC 04, T-71N R-23W WHITEBREAST UNIT	32	18	
7C	1986	IA/IN	LUCAS	SEC 34, T-72N R-23W WHITEBREAST UNIT	15	8	
9	1986	INDIANA	LUCAS	SEC 26, T-72N R-23W LUCAS UNIT	6	5	
10	1986	INDIANA	LUCAS	SEC 19, T-72N R-22W PRIVATE	24	7	
11A	1986	WISCONSIN	LUCAS	SEC 35, T-73N R-20W CHARITON UNIT	4	10	
11B	1986	WISCONSIN	LUCAS	SEC 26, T-73N R-20W CHARITON UNIT	5	3	
12	1987	WISCONSIN	DES MOINES	SEC 18, T-69N R-03W AMMO PLANT	47	29	4
13	1987	WISCONSIN	LUCAS	SEC 36, T-72N R-20W PRIVATE	12	10	1
14	1987	NE IOWA	HANCOCK	SEC 03, T-97N R-23W GABRIELSON WMA	21	19	
15	1987	NE IOWA	WINNESHIEK	SEC 06, T-98N R-10W CARDINAL MARSH	2	4	
16	1987	INDIANA	MONROE	SEC 16, T-72N R-19W PRIVATE	16	11	
17	1987	WIS./IOWA	BREMER	SEC 11, T-92N R-12W SWEETS MARSH WMA	29	19	6
18	1987	WISCONSIN	CEDAR	SEC 12, T-82N R-01W MASSILLON	11	15	
	1987	IND/WIS	LUCAS/MONR	LUCAS - MONROE CO.	79	68	2
19	1988	INDIANA	LUCAS	SEC 04, T-72N R-20W PRIVATE	5	4	
20	1988	INDIANA	LUCAS	SEC 03, T-72N R-20W PRIVATE	3	5	
21	1988	INDIANA	LUCAS	SEC 07, T-72N R-20W CEDAR CREEK UNIT	5	5	
22	1988	INDIANA	LUCAS	SEC 09, T-72N R-20W PRIVATE	7	5	
23B	1988	INDIANA	MONROE	SEC 17, T-72N R-19W PRIVATE	7	4	
24	1988	NE IOWA	WINNESHIEK	SEC 33, T-100N R-7W S. BEAR CREEK WMA	6	0	
12	1988	WISCONSIN	DES MOINES	SEC 18, T-69N R-03W AMMO PLANT	32	36	
18	1988	NE IOWA	CEDAR	SEC 12, T-82N R-01W MASSILLON	27	9	
25	1989	WISCONSIN	HENRY	SEC 36, T-70N R-05W GEODE STATE PARK	29	21	
26	1989	NE IOWA	CLARKE	SEC 17, T-71N R-24W PRIVATE	15	10	
27	1989	NE IOWA	MONROE	SEC 03, T-71N R-18W TYRONE UNIT	6	6	
	1990	INDIANA	MONROE	SEC 03, T-71N R-18W TYRONE UNIT	11	18	
28	1990	INDIANA	MONROE	SEC 14, T-71N R-18W PRIVATE	11	14	
29	1990	WISCONSIN	LEE	SEC 04, T-69N R-05W PRIVATE	8	10	
30	1999	NE IOWA	IOWA	SEC 24, T-81N R-10W AMANA COLONIES	10	5	
					731	578	45

Table 9.2 Ruffed grouse hunting seasons, 1856-present.

YEAR	SEASON DATES	BAG LIMIT *	SEASON LENGTH	SHOOTING HOURS
PRE-1856	Continuously open	None	365	None
1856-1878	16 July-31 January	None	200	None
1878-1904	16 July-31 January	25/none**	200	None
1904-1923	1 November-15 December	25/none**	45	None
1924-1967	##Continuously closed##	---	0	---
1968	01 November-17 November	2/4	17	8:00 a.m.-4:30 p.m.
1969	31 October-29 November	2/4	30	8:00 a.m.-4:30 p.m.
1970	31 October-29 November	2/4	30	8:00 a.m.-4:30 p.m.
1971	30 October-28 November	2/4	30	8:00 a.m.-4:30 p.m.
1972	21 October-1 December	2/4	42	8:00 a.m.-4:30 p.m.
1973	20 October-25 November	2/4	37	Sunrise-Sunset
1974	12 October-6 December	3/6	56	Sunrise-Sunset
1975	11 October-4 January 1976	3/6	86	Sunrise-Sunset
1976	09 October-1 January 1977	3/6	85	Sunrise-Sunset
1977	08 October-1 January 1978	3/6	86	Sunrise-Sunset
1978	14 October-8 January 1979	3/6	87	Sunrise-Sunset
1979	13 October-6 January 1980	3/6	86	Sunrise-Sunset
1980	11 October-11 January 1981	3/6	93	Sunrise-Sunset
1981	10 October-31 January 1982	3/6	114	Sunrise-Sunset
1982	09 October-31 January 1983	3/6	115	Sunrise-Sunset
1983	08 October-31 January 1984	3/6	116	Sunrise-Sunset
1984	13 October-31 January 1985	3/6	111	Sunrise-Sunset
1985	12 October-31 January 1986	3/6	112	Sunrise-Sunset
1986	11 October-31 January 1987	3/6	113	Sunrise-Sunset
1987	10 October-31 January 1988	3/6	114	Sunrise-Sunset
1988	08 October-31 January 1989	3/6	116	Sunrise-Sunset
1989	07 October-31 January 1990	3/6	117	Sunrise-Sunset
1990	13 October-31 January 1991	3/6	111	Sunrise-Sunset
1991	12 October-31 January 1992	3/6	112	Sunrise-Sunset
1992	10 October-31 January 1993	3/6	114	Sunrise-Sunset
1993	09 October-31 January 1994	3/6	115	Sunrise-Sunset
1994	08 October-31 January 1995	3/6	116	Sunrise-Sunset
1995	14 October-31 January 1996	3/6	110	Sunrise-Sunset
1996	12 October-31 January 1997	3/6	112	Sunrise-Sunset
1997	04 October-31 January 1998	3/6	120	Sunrise-Sunset
1998	03 October-31 January 1999	3/6	121	Sunrise-Sunset
1999	02 October-31 January 2000	3/6	122	Sunrise-Sunset
2000	07 October-31 January 2001	3/6	117	Sunrise-Sunset
2001	06 October-31 January 2002	3/6	118	Sunrise-Sunset
2002	05 October-31 January 2003	3/6	119	Sunrise-Sunset

* = Daily bag and possession limits.

** = No bag limit was in effect for hunting on one's own land.

Figure 9.1 Ruffed grouse distribution in Iowa, 1992.

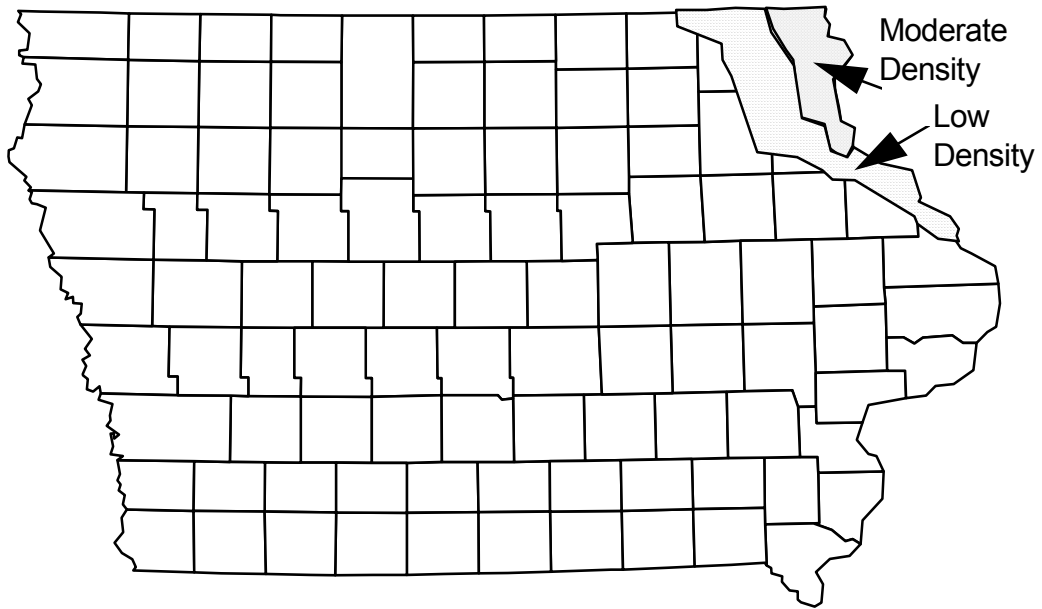
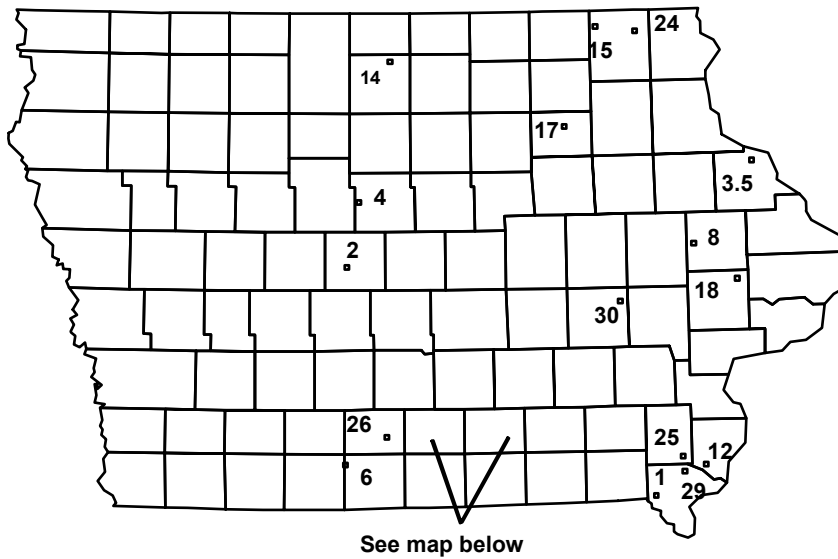
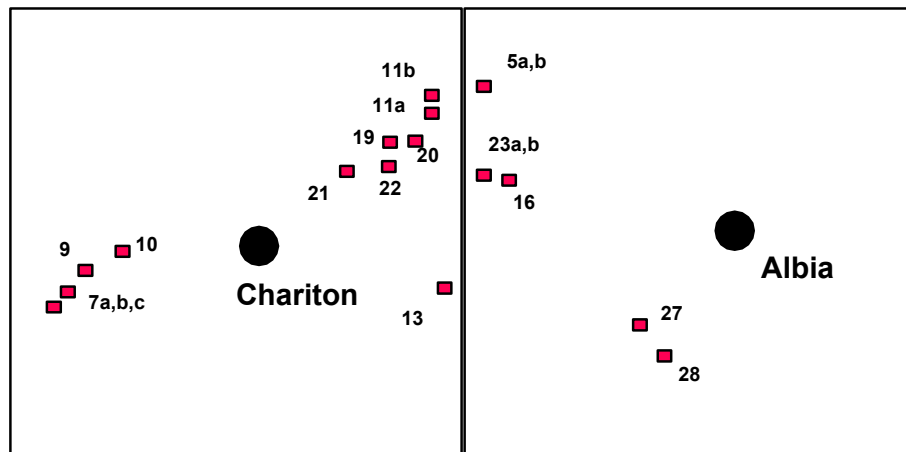


Figure 9.2 Ruffed grouse restoration sites in Iowa, 1962-present



Lucas County

Monroe County



LITERATURE CITED

Klonglan, E. D., and G. Hlavka. 1969. Recent status of ruffed grouse in Iowa. Proc. Iowa Acad. Sci. 76:231-240.

Little, T. W., and R. Sheets. 1982. Transplanting Iowa ruffed grouse. Proc. Iowa Acad. Sci. 89:172-175.

WILD TURKEY RESTORATION

The Eastern wild turkey was found throughout Iowa when the first settlers crossed the Mississippi River in the 1830's. Oak-hickory forests covered nearly 7 million acres and settler's records indicate turkeys occurred wherever timber existed. Turkeys may not have been as numerous in Iowa as in their primary range east of the Mississippi River, but they were plentiful enough to be used as table fare and appeared in markets for 50 cents apiece.

Uncontrolled hunting and habitat loss led to the elimination of turkeys from Iowa. By 1956, the primitive forests had been reduced to only 2.6 million acres and most likely a majority of the remaining forest was badly mismanaged through overgrazing. Turkeys were eliminated from some northeast Iowa counties by 1854, only 20 years after the first settlers arrived, and turkey populations were badly depleted in southern Iowa by 1900. Rugged topography protected some timbered parcels in northeast and south-central Iowa from mechanized clearing and turkeys may have survived had indiscriminate hunting been controlled. Unfortunately, hunting was not controlled and the last wild turkey harvested was in Lucas County in 1907. The last verified sighting of a wild turkey was in 1910, also in Lucas County.

1920-38

As with many other midwestern states, the initial attempts to restore turkeys to available habitat were made with pen-reared turkeys. Although records are incomplete, they do show at least 6 releases made at several scattered locations across the state between 1920-38. All releases are assumed to have

failed and by 1960 there were still no wild turkeys existing in Iowa.

1960-66

In the 1950's the rocket net, a new capture technique, was developed and allowed state agencies to capture and transplant native wild turkeys. The Iowa Department of Natural Resources (IDNR), encouraged by success in other states with transplanted wild stock, attempted releases of non-Eastern subspecies in the 1960's. Thirty-nine Rio Grande turkeys from Texas were released in Allamakee County (release site A, Table 10.2) in 1960-61. Thirteen Merriam's turkeys were released in Lucas County and 8 Merriam's turkeys were released in Monona County in 1966 (releases B and C, respectively). Both subspecies failed to establish thriving populations or expand their distribution. Neither subspecies was adapted to Iowa's climate or habitat and experienced poor survival and no brood production.

1966

Eleven wild turkeys caught in Missouri in 1966 were the first Eastern subspecies released in Iowa. They were released into Iowa's largest contiguous remaining timber block (Shimek State Forest, release site #1). Reproduction and poults survival of these turkeys was excellent and winter flock size increased dramatically reaching 400-500 turkeys by 1974.

1968

The success of the Shimek Forest release led to a second stocking of another 19 Missouri turkeys (Eastern subspecies) into Stephens State Forest (SSF). The

turkeys did equally well in SSF and grew to a 400-500 bird flock by 1974. Within 3 years, turkeys at both forest sites began expanding onto adjacent private forests and by 1971 it was obvious that this was the correct subspecies to be used for all future restoration attempts.

1969

In 1969, 10 supposedly Eastern lineage turkeys from North Dakota were released along the Upper Iowa River (release site D). Although the turkeys survived and reproduced their population growth was minimal compared to the turkeys released in Shimek and Stephens Forests.

1971

In 1971, 10 additional North Dakota turkeys were released in Yellow River State Forest (release site E). The combined population growth of the turkeys from the 1969 and 1971 releases reached only 140 turkeys by 1974 and then declined. Apparently these turkeys were better adapted to North Dakota's open brushy habitat and were unable to adapt to Iowa's oak-hickory forest.

1972-2000

Turkey numbers had grown rapidly enough at Shimek and Stephens Forests that by the winter of 1971-72 the IDNR was able to trap turkeys in-state and transplant to other potential habitats. Since 1965, 3,583 Eastern wild turkeys have been trapped and released at 260 different sites scattered across the state. Generally, turkeys have been released at the rate of 10 hens and 3 adult gobblers per site. Table 10.1 summarizes turkey releases by county including the 5 unsuccessful initial attempts (denoted by A - E on Table 10.2). Table 10.2 lists each release chronologically and the site

numbers correspond to the numbers on Figure 10.5.

OUT-OF-STATE SHIPMENTS

Eastern turkeys adapted so well to habitat conditions in Iowa that by 1980 the DNR decided to start trading turkeys for other extirpated wildlife. Since 1980, 7,501 Iowa turkeys have been traded for prairie chickens, ruffed grouse, river otters, habitat monies, and sharp-tailed grouse with 11 states and 1 Canadian province. Table 10.3 summarizes wild turkey trades from 1980-2000. No out-of-state-shipments have occurred since 2001.

FUTURE

The restoration of wild turkeys in Iowa is complete. Almost all suitable habitat has received at least 1 release of Eastern wild turkeys and all (since 1965) have been successful. Any additional releases will be coordinated by district management biologists within their own district. Most sites that will be stocked are very small parcels of timber or are marginal habitat. The goal now is to maintain and to wisely manage existing turkey populations.

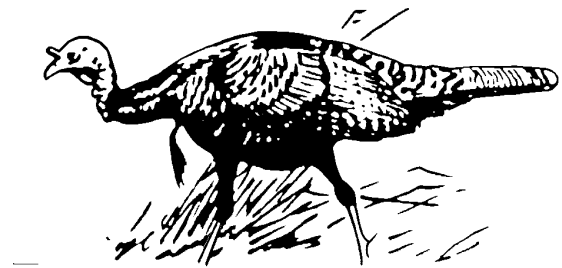


Table 10.1 Wild turkey releases in Iowa, 1960-Present.

COUNTY	TOTAL				COUNTY	TOTAL			
	RELEASES	HENS	TOMS	BIRDS		RELEASES	HENS	TOMS	BIRDS
ADAIR	3	31	11	42	JEFFERSON	1	10	2	12
ADAMS	5	39	19	58	JOHNSON	10	46	45	91
ALLAMAKEE	9	102	33	135	JONES	2	17	10	27
APPANOOSE	2	10	10	20	KEOKUK	6	47	30	77
AUDUBON	1	10	4	14	KOSSUTH	1	10	2	12
BENTON	2	15	6	21	LEE	3	20	10	30
BLACK HAWK	2	15	15	30	LINN	2	21	10	31
BOONE	4	33	21	54	LOUISA	5	43	21	64
BREMER	3	23	9	32	LUCAS	6	31	29	60
BUCHANAN	3	28	11	39	LYON	2	21	5	26
BUTLER	2	20	18	38	MADISON	4	39	18	57
CEDAR	6	23	27	50	MAHASKA	1	10	8	18
CERRO GORDO	1	7	8	15	MARION	6	47	40	87
CHEROKEE	1	8	4	12	MARSHALL	3	30	15	45
CHICKASAW	2	13	10	23	MILLS	2	20	6	26
CLAY	1	10	3	13	MITCHELL	3	29	16	45
CLAYTON	5	49	16	65	MONONA	4	33	13	46
CLINTON	5	53	20	73	MONROE	4	42	18	60
CRAWFORD	2	17	6	23	MONTGOMERY	1	10	4	14
DALLAS	6	72	30	102	MUSCATINE	2	25	6	31
DAVIS	3	29	18	47	PAGE	3	32	12	44
DELAWARE	2	20	6	26	PALO ALTO	2	20	6	26
DES MOINES	6	19	26	45	PLYMOUTH	2	20	6	26
DICKINSON	1	10	5	15	POLK	4	29	19	48
DUBUQUE	4	40	16	56	POTTAWATTAMIE	3	29	10	39
EMMET	6	48	34	82	POWESHIEK	4	28	14	42
FAYETTE	2	20	9	29	RINGGOLD	2	16	16	32
FLOYD	4	41	21	62	SAC	3	28	25	53
FRANKLIN	2	16	9	25	SHELBY	1	10	9	19
FREMONT	2	21	7	28	STORY	2	20	9	29
GREENE	2	20	10	30	TAMA	2	16	10	26
GUTHRIE	5	56	24	80	TAYLOR	1	11	2	13
HAMILTON	1	13	6	19	UNION	2	10	2	12
HANCOCK	2	20	9	29	VAN BUREN	2	13	11	24
HARDIN	3	32	11	43	WAPELLO	2	21	10	31
HARRISON	4	40	13	53	WARREN	7	59	34	93
HENRY	3	32	23	55	WASHINGTON	8	71	31	102
HOWARD	3	27	21	48	WEBSTER	1	11	2	13
HUMBOLT	1	11	3	14	WINNEBAGO	2	20	13	33
IDA	1	10	3	13	WINNESHIEK	6	46	36	82
IOWA	3	24	13	37	WOODBURY	3	29	5	34
JACKSON	7	64	20	84	WORTH	1	11	4	15
JASPER	6	49	42	91	WRIGHT	1	10	3	13
TOTAL						270	2351	1227	3578

Table10.2 Turkey release sites in Iowa, 1960-present.

(Year summaries prior to the first year given are archived at <http://www.iowadnr.com/wildlife/>)

SITE #	RELEASE SITE NAME	COUNTY	RELEASE DATE	SECT	TWNSHP	RANGE	SPECIES	SOURCE	HENS	TOMS	TOTAL
232	SHAMBAUGH	PAGE	97-JAN	34	68N	37W	EASTERN	V. B., HOWARD, WINN, FAY	10	6	16
233	PRAIRIE GOLD WILDLIFE AREA	PALO ALTO	97-FEB	1	96N	33W	EASTERN	DES M, JACK, FAY, WINN, BUCH	10	3	13
234	ACKLEY	FRANKLIN	97-FEB	35	90N	19W	EASTERN	JACK, DES M, BUCH, FAYETTE	6	3	9
235	RED BIRD FARMS	JOHNSON	98-JAN	25	79N	7W	EASTERN	UNKNOWN	0	1	1
236	IAAP	DES MOINES	98-JAN	2	69N	4W	EASTERN	LEE	0	3	3
237	SWEET MARSH	BREMER	98-JAN	21	93N	12W	EASTERN	CLAYTON	0	1	1
238	OWENS GROVE	CERRO GORDO	99-JAN	31	96N	19W	EASTERN	JACKSON, CLAYTON	7	8	15
239	STANSKY	WASHINGTON	99-JAN	30	77N	7W	EASTERN	CLAYTON, LEE	0	5	5
240	HAWKEYE	JOHNSON	99-JAN	28	80N	7W	EASTERN	LINN, WINNESHIEK	8	11	19
241	PERRY	BENTON	99-JAN	23	85N	12W	EASTERN	CLAYTON, DAVIS, IOWA	5	3	8
242	RED ROCK HEADQUARTERS	MARION	99-JAN	4	76N	20W	EASTERN	CLAYTON, DAVIS	3	4	7
243	INDIANOLA ACRES	WARREN	99-JAN	14	76N	24W	EASTERN	CLAYTON, DAVIS	6	3	9
244	WATER WORKS PARK	POLK	99-JAN	4	78N	24W	EASTERN	CLAYTON	10	5	15
245	TOOLESBORO	LOUISA	99-JAN	10	74N	2W	EASTERN	HENRY	11	7	18
246	BELL	WASHINGTON	99-JAN	12	75N	8W	EASTERN	HENRY, LEE	23	5	28
247	BLACK HAWK CREEK GREENBELT	BLACK HAWK	99-JAN	14	88N	14E	EASTERN	BUTLER, CLAYTON	4	9	13
248	EAST NODAWAY	ADAMS	00-FEB	19	71N	35W	EASTERN	DELAWARE, JACKSON, CLAYTON	13	3	16
249	BOONEVILLE	DALLAS	00-FEB	30	78N	26W	EASTERN	IOWA, DELAWARE, LINN	12	3	15
250	IOWA ARMY AMMUNITION PLANT	DES MOINES	00-JAN	2	69N	3W	EASTERN	DES MOINES	0	5	5
251	BRUSH CREEK	DES MOINES	00-FEB	16	68N	3W	EASTERN	DES MOINES	0	1	1
252	INGHAM HIGH	EMMET	00-JAN, 00-FEB	12	98N	33W	EASTERN	FAYETTE	5	5	10
253	MOOREHEAD PARK	IDA	00-JAN, 00-FEB	10	87N	40W	EASTERN	LINN	10	3	13
254	PICYUNE CREEK	JOHNSON	00-JAN, 00-FEB	19	78N	6W	EASTERN	DES MOINES, JACKSON, CLAYTON	9	3	12
255	HIGHWAY V45	KEOKUK	00-FEB	14	76N	12W	EASTERN	CEDAR, LINN, ALLAMAKEE, CLAYTON	7	4	11
256	ROCK CREEK DRAINAGE	KEOKUK	00-FEB	29	76N	12W	EASTERN	ALLAMAKEE	8	3	11
257	MIDDLE TARKIO RIVER	PAGE	00-FEB	6	70N	37W	EASTERN	DELAWARE, DES M, JACK, CLAYTON	12	3	15
258	NORTH HINTON	PLYMOUTH	00-JAN, 00-FEB	5	90N	46W	EASTERN	LINN, CEDAR	10	3	13
259	DAVIS CREEK DRAINAGE	WASHINGTON	00-JAN, 00-FEB	6	76N	6W	EASTERN	DES MOINES, CLAYTON	10	4	14
260	NORTH WEST CHESTER	WASHINGTON	00-FEB	29	76N	8W	EASTERN	ALLAMAKEE, CLAYTON	8	3	11
261	RUSS WILDLIFE AREA	WINNEBAGO	00-FEB	35	98N	25W	EASTERN	CLAYTON, LINN	10	6	16
262	WICKERSHAM FMA #2	MARSHALL	01-FEB	24	83N	19W	EASTERN	LINN	0	5	5
TOTAL									2351	1232	3583

Table 10.3 Wild turkeys shipped out-of-Iowa, 1980-99.

YEAR	# HENS	# TOMS	TOTAL RECEIVING TURKEYS	STATE	IOWA RECEIVED
1980-81	41	9	50	KANSAS	Prairie Chickens (102)
1981-82	0	0	0		
1982-83	16	8	24	MICHIGAN	Ruffed Grouse (139)
1983-84	46	15	61	MICHIGAN	Ruffed Grouse (83)
1984-85	24	8	32	KENTUCKY	River Otters (16)
	11	3	14	ONTARIO	No Trade
1985-86	102	45	147	KENTUCKY	River Otters (60)
	12	5	17	ONTARIO	River Otters
1986-87	34	12	46	INDIANA	Ruffed Grouse (136)
	85	19	104	KENTUCKY	River Otters (40)
	6	13	19	MICHIGAN	Prairie Chickens (29)
1987-88	38	12	50	INDIANA	Ruffed Grouse (131)
	61	20	81	KENTUCKY	River Otters (60)
	17	7	24	MICHIGAN	Prairie Chickens (123)
	236	68	304	TEXAS	HABITAT \$ (150,000)
1988-89	12	4	16	ILLINOIS	HABITAT \$ (8,000)
	38	12	50	INDIANA	Ruffed Grouse (107)
	156	47	203	KENTUCKY	HABITAT \$ (100,000)
	99	25	124	MICHIGAN	Prairie Chickens (102)
	337	88	425	TEXAS	HABITAT \$ (212,000)
1989-90	141	51	192	KENTUCKY	HABITAT \$ (100,000)
	9	4	13	S. DAKOTA	Sharp-tailed grouse (36)
	216	53	269	TEXAS	HABITAT \$ (134,500)
1990-91	294	85	379	KENTUCKY	HABITAT \$ (189,500)
	139	48	187	TEXAS	HABITAT \$ (88,500)
1991-92	19	28	47	KENTUCKY	HABITAT \$ (23,500)
	203	25	228	TEXAS	HABITAT \$ (143,000)*
1992-93	156	50	206	KENTUCKY	HABITAT \$ (103,000)
	19	2	21	MICHIGAN	HABITAT \$ (10,500)
	120	31	151	N. CAROLINA	HABITAT \$ (75,500)
	15	5	20	S. DAKOTA	Sharp-tailed grouse (40)?
	321	80	401	TEXAS	HABITAT \$ (300,500)**
1993-94	161	49	210	KENTUCKY	HABITAT \$ (105,000)
	0	4	4	MICHIGAN	HABITAT \$ (2,000)
	317	83	400	TEXAS	HABITAT \$ (200,000)
1994-95	297	104	401	TEXAS	HABITAT \$ (193,750)
	130	42	172	KENTUCKY	HABITAT \$ (78,000)
1995-96	83	26	109	LOUISIANA	HABITAT \$ (54,500)
	300	104	404	TEXAS	HABITAT \$ (202,000)
	66	26	92	KENTUCKY	HABITAT \$(46,000)
1996-97	458	140	598	TEXAS	HABITAT \$(299,000)
	30	8	38	WASHINGTON	HABITAT \$(19,000)
1997-98	269	75	344	TEXAS	HABITAT \$(172,000)
	76	24	100	WASHINGTON	HABITAT \$ (50,000)
1998-99	198	25	223	TEXAS	HABITAT \$(111,500)
	12	4	16	OKLAHOMA	HABITAT \$ (8,000)
	46	15	61	S. DAKOTA	Sharp-tailed grouse
1999-00	290	73	363	WASHINGTON	HABITAT \$(181,500)
	45	16	61	S. DAKOTA	Sharp-tailed grouse
TOTAL	5801	1700	7501		

* Includes \$29,000 from Texas for turkeys shipped to Texas from Wisconsin for pheasants shipped to Wisconsin from Iowa.

** Includes \$100,000 from Texas for Wisconsin turkeys.

TRUMPETER SWAN RESTORATION

Prior to the settlement of Iowa, trumpeter swans nested throughout the state. However, wetland drainage and unregulated hunting of trumpeters soon brought their demise. Prior to 1998, the last wild nesting trumpeter swan in Iowa occurred in 1883 on the Twin Lakes Wildlife Area southwest of Belmond, Iowa in Hancock County. In 1998, three cygnets hatched from a wild nesting trumpeter pair in Dubuque County. This pair hatched 5 in 1999, 5 again in 2000, 4 in 2001, and 5 in 2002.

In 2000, a second pair nested on a Winnebago County Conservation Board wetland (Russ Tract at Thorpe Park) 7 miles west of Forest City. This pair had 5 eggs. Unfortunately none hatched. We did, however, add a sixth egg and it hatched providing this pair with a young cygnet to help bond the pair to the wetland nest site.

Trumpeter swans were first given nationwide protection in 1918 when the United States, Canada, and Mexico signed the International Migratory Bird Treaty. A nationwide swan count in the early 1930s showed that only 69 existed in the continental United States with all those occurring in Red Rock Lakes National Wildlife Refuge in southwest Montana.

In 1993, the Iowa Department of Natural Resources developed a plan to restore trumpeter swans to the state. Our goals are to: (1) establish 15 wild nesting pairs to the state by the year 2003 and (2) use the swans to promote the many values of wetlands not only for wildlife habitat but for water quality and flood reduction.

Iowa swans are being obtained from zoos, private propagators, other state swan projects, and any other sources that might have swans available. The DNR has obtained trumpeter swans from 25

different states. We are also establishing flightless breeder pairs at appropriate sites, the young of which will be allowed free flight. Fifty-five partnership breeding pair sites are established. All trumpeter swans released in Iowa will be marked with plastic green or red neck collars and leg bands, as well as, U.S. Fish and Wildlife Service bands. The plastic neck and leg bands are marked with alpha letters F, H, P, J, C, T, and numbers 00 through 99.

We are trying to obtain as much outside funding as possible and we are the fortunate recipients of \$165,000 in memory of David A. and Robert Luglan Sampson, formerly of Webster City. Numerous individuals, organizations, and corporations have contributed significant smaller dollar amounts. Considerable soft match in-kind contributions have also been made and are estimated at over \$350,000.

Table 12.1 and Fig 12.2 show the trumpeter swans released and release sites in Iowa since 1994. Seventy-six swans were released throughout Iowa in 2003. After five years of migration observations, most migrating Iowa swans that migrate are wintering in northeast and east central Kansas and northwest and west-central Missouri. One Iowa trumpeter swan did winter as far south as Oklahoma during the winter of 1998-99. Also, one swan wintered near Heber Springs, Arkansas in 1999-2000. During the 2002-2003 winter 2 swans released at Hottes Lake near Spirit Lake, migrated to Lubbock, Texas (the southernmost migration) and spent the winter there. One of those returned to Iowa at Pickeral Lake in Buena Vista County and perhaps the other one as well because it had lost its neck collar in Texas. These are possibly the first

known, or at least the first of very few interior swans to migrate to Texas since before the 1880's. In 2001, the swans that nested at Union Slough NWR and Mallard Marsh wintered in southwest Arkansas. The mild winter of 2001-2002 indicated that swans did not need to move as far south as they had in normal winter conditions. Also in 2001-2002, a record 25 free flying trumpeter swans from Iowa, Minnesota, and Wisconsin wintered near Woolstock, Iowa. During 2002-2003 an estimated 75 to 100 trumpeter swans wintered in the state. If swans can find open water during the winter, many of them will remain throughout the state of Iowa. We have 6 wintering sites developing, including Mason City, Atlantic, Woolstock, Webster City, Waterloo and the lower reaches of the Des Moines River in southeast Iowa. Table 12.2 shows the location and number of trumpeter swans that have been banded on these wintering sites. These "winter" sites have provided many additional people the opportunity to view this "charismatic-mega."

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 1300 miles. 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 metal USFWS leg bands. This does create problems analyzing both movements and mortality of Iowa Trumpeter Swans.

A review of the last 7 years of swan sightings indicates, most areas of the state are now seeing swans at sometime during the year. This is another indication

that the restoration effort, although slow, is moving forward. During 2002, 27 of our partnership pairs' nests hatched, producing 127 young. Eleven additional nests failed to hatch and about 3 dozen of the 127 cygnets have died of various causes. The invasion of West Nile Virus into Iowa had us cautiously concerned, but at this point we have not seen any impact of this virus in trumpeter swans. We continue to obtain several cygnets from a few other states and zoos across the nation, including 2 new zoos—the National Zoo in Washington D.C. and the Great Plains in Sioux Falls, South Dakota. Unless we have unfortunate luck, we should be able to release nearly 90 swans during the spring of 2004. The DNR is excited about the future of trumpeter swans in the state.

Known mortality to date includes the following: 22 have died in power line collisions, 36 were shot, 5 died of apparent malnutrition, and 20 died of unknown causes. Several other mortalities have likely occurred from completely unknown causes as we have not had many mortality reports from unmarked swans. Mortality rates are somewhat higher than anticipated and will likely slow our trumpeter swan restoration efforts. Iowa currently has the dubious distinction of having the highest shooting mortality of any state in the Midwest. We hope that with enough publicity, on the swan poaching in Iowa and with additional enforcement efforts and public scrutiny, we will see the illegal shooting greatly reduced. Shooting trumpeter swans will cost \$1500 in liquidated damages, court costs, and perhaps hunting license revocation.

A major milestone was reached in 1998, 1999, and again in 2000, when the first and second free-flying trumpeters nested in Iowa since 1883. Four free

flying females have bonded and mated with 5 captive/pinioned males and have produced eggs. Besides these, we apparently have several pairs of Iowa swans nesting in Southern Minnesota and Wisconsin. The one near Mankato, MN and the one near Potosi, WI are the southern most nesting swans in the respective states. At least one Iowa bird, a male, was part of a nesting pair on the north shore of Lake Ontario. In 2001, 9 trumpeter swan nest attempts occurred in Iowa. Six of these hatched and produced 19 young. Seventeen of these were surviving as of September 1, 2001. High mortality of adults from illegal shootings had us greatly concerned during the past 2 years that we would not have very many wild nesting swans during the springs of 2002 and 2003. However, in 2002, we had 8 nest attempts in Iowa and 2 Iowa pairs nesting on the Wisconsin side of the Mississippi River. Figure 12.2. shows wild trumpeter swan nest attempts in 2001 and 2002. In 2003, we had 13 trumpeter swans nest attempts in Iowa and the same 2 Iowa pair nesting on the Wisconsin side of the Mississippi River producing a record 44 young in the wild. Figure 12.3. Since 1998, 36 trumpeter swan nests have occurred in Iowa, 32 of which hatched at least one egg.

In 2003, 13 wild trumpeter swans nested in Iowa plus the same two nested on the Wisconsin side of the Mississippi River. We now have wild trumpeters nesting in the above listed counties as well as the additional counties of Dickinson, Hamilton, Hancock, and Ida. *After 120 years of absence, trumpeters have returned to nest on the last historical nesting site on the East Twin Wildlife Area in Hancock County.* The attached

figure shows wild trumpeter nesting attempts in Iowa.

At least 6 “traditional” migrational/wintering sites are developing in Iowa, holding Iowa, Wisconsin and Minnesota swans providing the public with exciting viewing opportunities of free flying trumpeter swans. Iowa released swans commonly winter in Iowa, Missouri, Kansas, Illinois and Nebraska. As the opportunity presents itself, we are attempting to band some swans on winter sites. To date, Iowa released swan have been sighted in 15 states and the Province of Ontario, Canada.

Support for Iowa’s Trumpeter Swan Restoration Program has been phenomenal. Consumptive and non-consumptive users have rallied behind the effort with a powerful passion to bring this charismatic-mega fauna back to the landscape and skies of Iowa.

Organizational support includes: Iowa Wildlife Federation, Ducks Unlimited, Pheasants Forever, Iowa Natural Heritage Foundation, Iowa Wild Turkey Federation, Waterfowl Association of Iowa, ISU Trumpeter Swan Committee, Iowa Trapper’s Association, Iowa Furharvesters, Buena Vista County Trumpeter Swan Restoration Committee, Des Moines, Cedar Rapids, and Northern Iowa Prairie Lakes Audubon Chapters, Iowa Association of Naturalists, The Izaak Walton League, North American Sheep Foundation, ISU Fisheries and Wildlife Biology, Furharvesters, and Environmental Council Chapters, Iowa Wildlife Rehabilitators Association, U.S. Fish & Wildlife Service, and several other entities.



Table 12.1. Trumpeter swans released in Iowa, 1994 - present.

Site	Year	Area	County	Males	Females	Total
1	1994	Ventura Marsh	Cerro Gordo	Unk.	Unk.	4
2	1995	Kattleson's WPA	Dickinson	5	5	10
3		Jim Foreman's	Dubuque	2	2	4
2	1996	Kattleson's WPA	Dickinson	7	4	11
4		Union Slough NWR	Kossuth	5	5	10
5		Spencer	Clay	3	1	4
6		Anderson Lake	Hamilton	2	2	4
7		Harold Brun's	Lee	0	2	2
1	1997	Ventura Marsh	Cerro Gordo	3	6	9
2		Kattleson's WPA	Dickinson	3	5	8
8		Lost Island Marsh	Palo Alto	4	4	8
9		Eagle Lake	Hancock	4	4	8
10		Goose Lake	Greene	1	1	2
2	1998	Kattleson's WPA	Kossuth	5	3	8
4		Union Slough	Kossuth	5	5	10
5		Spencer	Clay	1	2	3
6		Anderson Lake	Hamilton	3	3	6
11		Bill Colwell	Black Hawk	1	3	4
12		Goose Lake	Clinton	1	5	6
13		Bjorkboda Marsh	Hamilton	1	1	2
14		Cheever Lake	Emmet	4	4	8
15		Cone Marsh	Louisa	3	3	6
16		Don Holzer	Dubuque	2	1	3
3		Jim Foreman	Dubuque	0	1	1
2	1999	Kattleson's WPA	Dickinson	3	3	6
4		Union Slough NWR	Kossuth	2	2	4
18		Green Island	Jackson	3	3	6
19		Henry Bohlen	Des Moines	1	1	2
20		Union Hills	Cerro Gordo	3	3	6
21		Myre Slough	Winnebago	3	3	6
22		East Twin Lake	Hancock	3	3	6
23		Mallard Marsh	Cerro Gordo	3	3	6
2	2000	Kattleson's WPA	Dickinson	6	6	12
4		Union Slough NWR	Kossuth	2	4	6
11		Bill Colwell	Black Hawk	3	7	10
12		Goose Lake	Clinton	2	4	6
14		Cheever Lake	Emmet	2	4	6
16		Don Holzer	Dubuque	2	1	3
23		Mallard Marsh	Cerro Gordo	1	1	2
24		Cherokee County	Cherokee	2	1	3
25		Little Storm Lake	Buena Vista	1	1	2
26		Four Mile WPA	Emmet	2	4	6
27		Joice Slough	Worth	3	3	6
28		Lake Sugema	Van Buren	5	2	7
29		Muskrat Slough	Jones	3	3	6
30		Pickeral Lake	Clay	4	3	7
31		Pin Oak Bottoms	Lucas	1	1	2
32		Rock Creek	Clinton	3	3	6
33		Thorpe Park	Winnebago	1	0	1
2	2001	Kattleson's WPA	Dickinson	5	3	8

Site	Year	Area	County	Males	Females	Total	
11	2001	Bill Colwell	Black Hawk	2	2	4	
13		Bjorkboda Marsh	Hamilton	1	1	2	
15		Cone Marsh	Louisa	2	2	4	
20		Union Hills	Cerro Gordo	3	3	6	
24		Cherokee County	Cherokee	1	2	3	
30		Pickeral Lake	Clay	2	2	4	
31		Pin Oak Bottoms	Lucas	1	1	2	
33		Thorpe Park	Winnebago	1	1	2	
34		Big Wall Lake	Wright	4	1	5	
35		Dick Block	Clinton	1	1	2	
36		Blue Wing Marsh	Palo Alto	4	2	6	
37		Colyn Marsh	Lucas	2	2	4	
38		Crawford Creek	Ida	2	2	4	
39		Dunbar Slough	Greene	1	0	1	
40		East Slough	Emmet	5	1	6	
41		Killen Wetland	Steele, MN	1	1	2	
42		Kiowa Marsh	Sac	3	1	4	
43		Lake Wapello	Davis	1	1	2	
44		Kirby Roberts	Calhoun	1	2	3	
45		Princeton WMA	Scott	3	4	7	
46		Buena Vista WMA	Scott	1	1	2	
47		2002	Amana Forestry	Iowa	3	1	4
49			Big Mill Pond WMA	Jackson	1	1	2
50			Center Lake	Dickinson	1	1	2
51			Clark Lake	Cerro Gordo	1	1	2
52			Virgil Cole's WRP	Van Buren	2	2	4
40			East Slough WMA	Emmet	2	2	4
22			East Twin Lake	Hancock	1	1	2
53			Elmer Kattleson	Clinton	0	2	2
2			Kattleson's WPA	Dickinson	3	3	6
54			Hurstville Marsh	Jackson	1	1	2
17			Duane Kennedy	Dubuque	1	1	2
43			Lake Wapello	Davis	1	1	2
55			Lizard Lake	Pocahontas	1	1	2
23			Mallard Marsh	Cerro Gordo	1	1	2
56			New Hartford	Butler	1	0	1
57			Ralph Steines Marsh	Clinton	1	1	2
32			Rock Creek Park	Clinton	0	1	1
58			Smith Slough	Clay	2	2	4
59			South Twin Lake	Calhoun	3	2	5
33			Thorp Recreation Area	Winnebago	1	1	2
60			Richard Baack Wetland	Cerro Gordo	1	1	2
4			Union Slough NWR	Kossuth	2	2	4
1		Ventura Marsh	Cerro Gordo	1	1	2	
61		White's Pond	Clinton	2	0	2	
6		2003	Anderson Lake	Hamilton	1	1	2
62	Anderson Wildlife Area		Montgomery	1	1	2	
63	Artesian Marsh		Carroll	1	1	2	
11	Beaver Valley Wetland		Blackhawk	2	2	4	
49	Big Mill Pond WMA		Jackson	0	2	2	
34	Big Wall Lake		Wright	1	1	2	
13	Bjorkboda Marsh		Hamilton	1	1	2	

Site	Year	Area	County	Males	Females	Total
57		Robert Boock, Jr.	Clinton	1	1	2
32		Bulgers Hollow	Clinton	1	1	2
51		Clark Lake	Cerro Gordo	0	2	2
15		Cone Marsh	Louisa	2	1	3
24		Cherokee County	Cherokee	0	4	4
39		Dunbar Slough	Greene	1	1	2
64		Eagle Lake	Kossuth	1	1	2
40		East Slough WMA	Emmet	0	2	2
32		Gomer's Marsh	Clinton	0	2	2
65		Gordan's Marsh	Hamilton	1	1	2
18		Green Island	Jackson	1	1	2
2		Kettleson's WPA	Dickinson	1	2	3
44		Kirby Roberts	Calhoun	2	0	2
43		Lake Wapello	Davis	3	2	5
66		Negus Rec. Area	O'Brien	1	1	2
60		Paul Willis Wetland	Cerro Gordo	1	1	2
30		Pickeral Lake	Clay	3	1	4
67		Preparation Canyon	Monona	1	0	1
57		Ralph Steines Marsh	Clinton	1	1	2
60		Richard Baack Wetland	Cerro Gordo	1	1	2
68		Rush Lake WMA	Palo Alto	1	1	2
58		Smith Slough	Clay	1	1	2
59		South Twin Lake	Calhoun	1	1	2
20		Spillman's WMA	Cerro Gordo	0	2	2
20		Union Hills	Cerro Gordo	2	2	4
Grand Total						496

The 1994 Ventura Marsh swans escaped captivity.

Table 12.2. 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	1
1998	Holzer's Pond	Dubuque	2	1	3
1999	Mason City	Cerro Gordo	3	2	5
2000	Holzer's Pond	Dubuque	2	1	3
2000	Mason City	Cerro Gordo	2	2	4
2000	Stark/Nessa Quarry	Hamilton	2	0	2
2001	Dunbar Slough	Greene	1	0	1
2001	Kennedy's Pond	Dubuque	1	1	2
2002	Holzer's Pond	Dubuque	3	1	4
2002	Schildberg Gravel Quarry	Cass	1	4	5
2002	East Twin Lake	Hancock	2	0	2
2003	Schildberg Gravel Quarry	Cass	2	2	4
Grand Total					36

Figure 12.1. Trumpeter swan release sites, 1994 - present. Numbers are referenced in Table 12.1

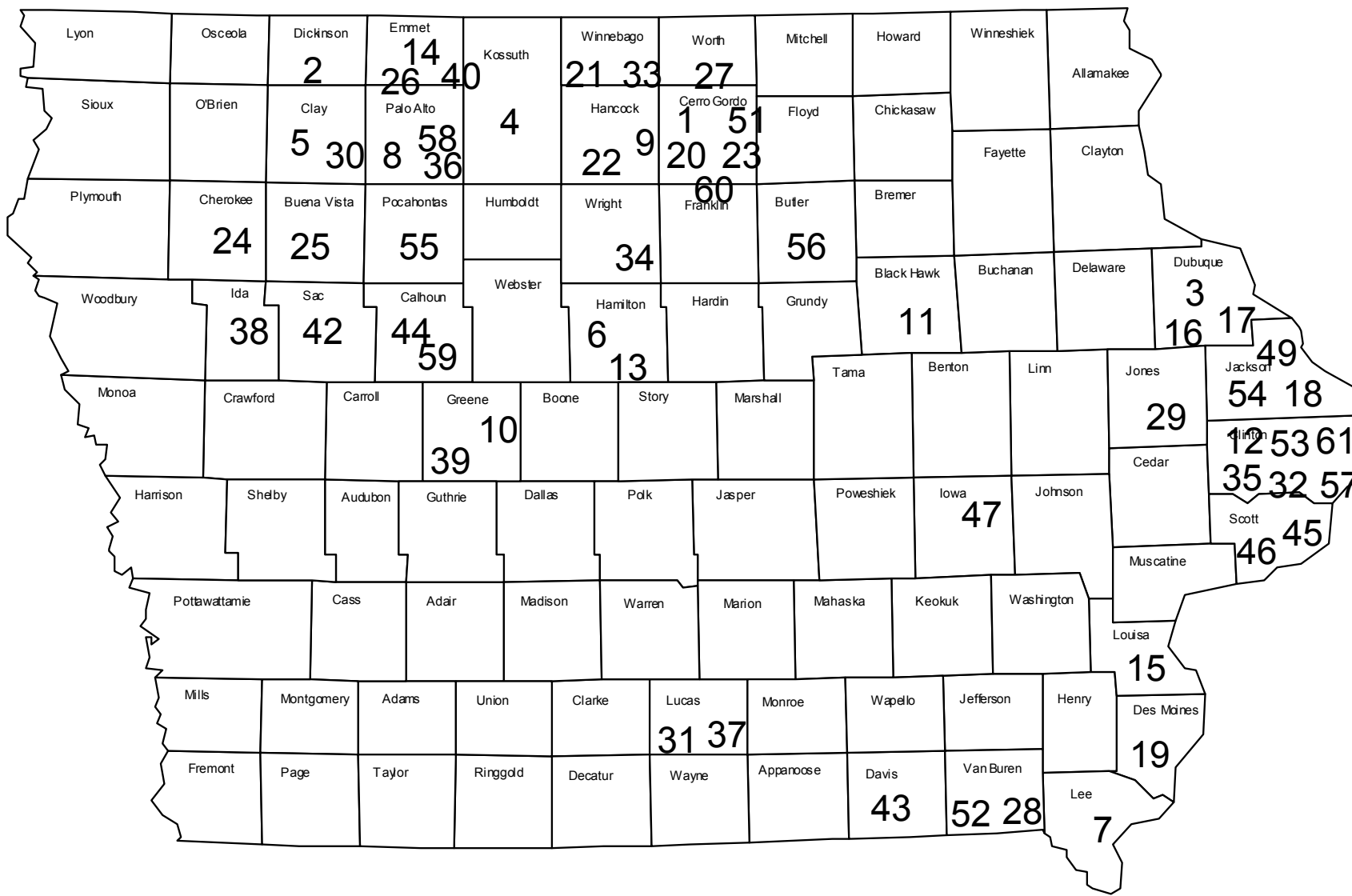
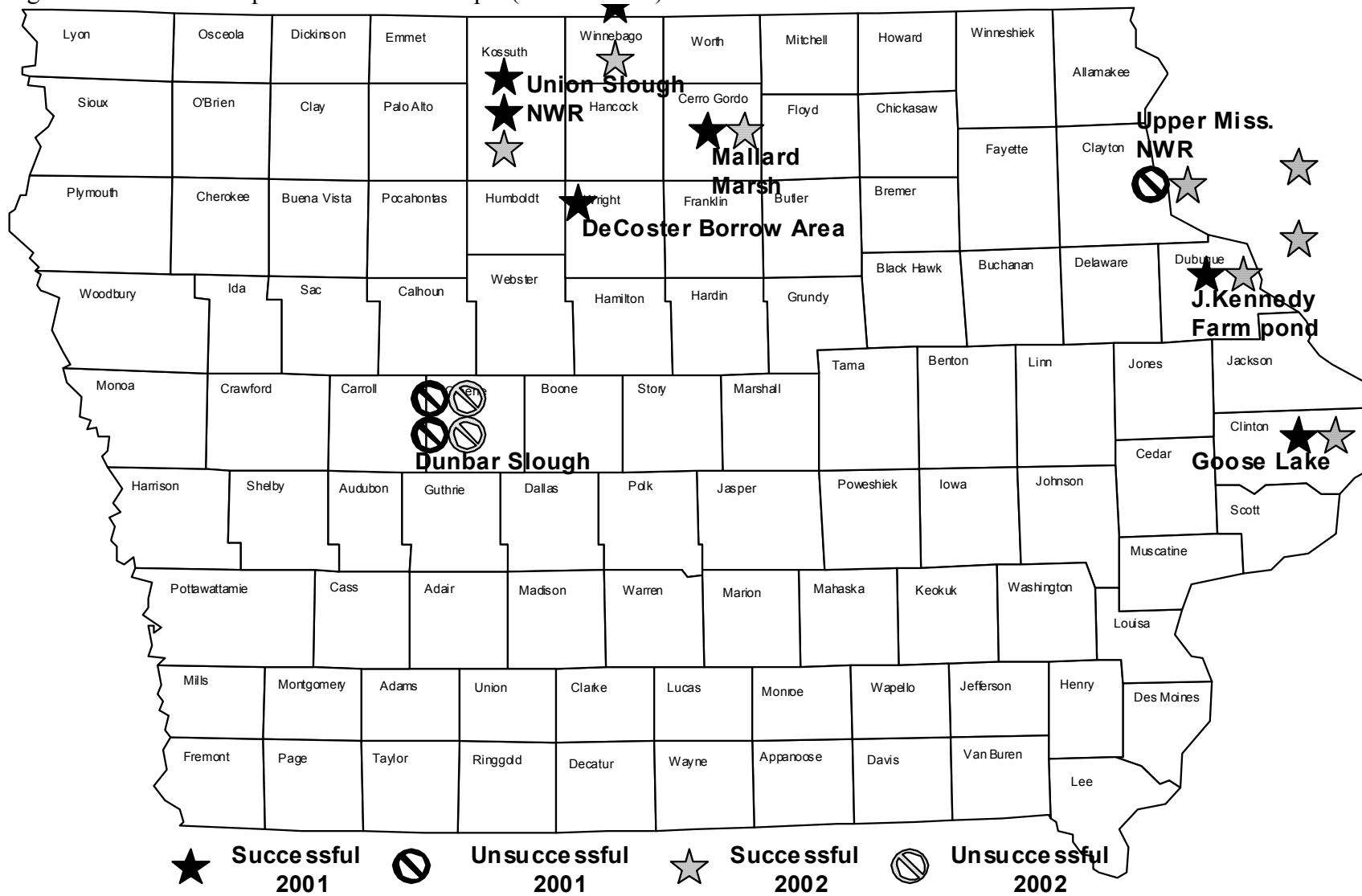


Figure 12.2 Wild Trumpeter swan nest attempts (2001 & 2002).



OSPREY RESTORATION

Osprey, commonly called the fish hawk or fish eagle, is neither a true hawk nor eagle. Ospreys are cosmopolitan and occur worldwide with the exception of Antarctica. The species is of ancient lineage and presently is classified near the kite family. There are four subspecies presently recognized, two occurring in North America, P.H. carolinenses and P.H. ridgwayi. Ridgwayi is found in the Bahamas and Caribbean, while carolinensis is the Midwestern species. Carolinensis is migratory in its northern range and resides in south Florida and possibly part of the Gulf coast and northwest Mexico.

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

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

With construction of lakes by Department of Natural Resources and reservoirs by U.S. Army Corps of Engineers, potential osprey habitat exists

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

The Iowa Department of Natural Resources has assisted conservation partners with technical assistance, encouragement, and fish to successfully release ospreys in Iowa. The Macbride Raptor Project located near Coralville Reservoir has spearheaded this work. Beginning in 1997 four or five young ospreys have been released annually at their facility. Since that time, personnel at the Hartman Reserve Nature Center in Cedar Falls initiated a release at their facility in 1998. Staff of Boone County Conservation Board and Polk County Conservation Board coordinated a release at Saylorville Reservoir in 2000. The U.S. Army Corps of Engineers has provided distinguished service for releases at Coralville and Saylorville Reservoir respectively. Assisted by literally hundreds of volunteers, these conservation organizations have devoted their efforts to bring ospreys to Iowa as a nesting species. A four-year minimum commitment of releasing ospreys is required at each site. Project fundraising

is the responsibility of the conservation organizations doing the releases.

Ospreys cost about \$500 per bird.

In Iowa, ospreys have two bands, a silver U.S. Fish and Wildlife Service band and a numbered, **lavender** band on separate legs. Forty-eight ospreys have been released at the three sites since 1997.

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

In 2002 the Spirit Lake pair nested on a platform at the outdoor classroom area of Spirit Lake school. Tim Waltz with Big Sioux Wildlife unit coordinated the pole/platform placement at the school. In early July a single egg was discovered by Ed Heidenbrink and Don Poggensee, but no young were produced at the site. Also on a pole/platform near Cayler Prairie a nest was constructed at that site.

At Coralville reservoir a nest was constructed by A5 (Macbride 1998) and an unbanded female, but apparently no eggs were laid. These birds were joined by H2 (2000 Saylorville) feeding young hacked birds. Four Wisconsin osprey were placed at the site. However, two

young died from heat stress prior to release.

At Saylorville a pair of wild birds E4 (Hartman 2000) and E1 (Macbride 2000) appeared at the site, strafing released birds and causing excitement. Five additional osprey were hacked from the site.

At Hartman Reserve Nature Center four additional Osprey were hacked in 2002.

In 2003 the Spirit Lake pair successfully nested at the outdoor classroom of spirit lake Middle School. One chick was banded July 10, 2003 the first Osprey chick to be banded in Iowa since European settlement of the area. The adult female was banded B/T and released in 1997 near Minnetonka, Minnesota by the Minnesota DNR. The heritage of the adult male is unknown.

Also in 2003 three Osprey chicks were produced at Macbride Recreational Area near Coralville Reservoir. The Macbride Raptor Project observed that the male, A5, was released from their facility in 1998. The female, H2, was released at Saylorville Reservoir by Polk County Conservation Board in 2000.

Fourteen additional Osprey are were released at Hartman Reserve Nature Center near Waterloo/Cedar Falls, Don Williams Lake by Boone County Conservation Board, and Saylorville Reservoir by Polk County Conservation Board. Hopefully those Osprey will prosper and banding young will occur at their sites in 2004.

This project is in keeping with the IA DNR mission to protect, propagate, increase, and preserve the wildlife of the state (Section 456A.23, Code of Iowa, 1997). Establishing as Osprey population will improve the state's wildlife diversity and increase the public's appreciation of wetland

ecology. There is a goal of five nesting pairs with the potential for another five

breeding pairs located in the state by 2006.

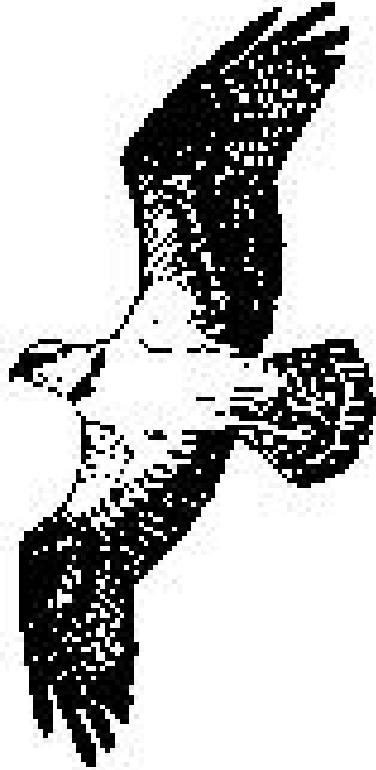


Table 13.1. Osprey releases in Iowa 1997 - Present.

Year	Location	USFWS#	Color Band	Comments
1997	Macbride Raptor Project	608-48727		
		608-48728		
		608-48729		
		608-48730		
		608-48735		
			Lavender bands	
1998	Macbride Raptor Project	608-48745	A8	
		608-48746	A6	
		608-48747	A5	Returned to Coralville 2001 with two other adults, one banded- unidentified, other adult unbanded
		608-48748	A7	
	Hartman Reserve Nature Center	608-48741	A1	
		608-48742	A2	
		608-48743	A3	
		608-48744	A4	
1999	Macbride Raptor Project	788-23203	C1	
		788-23205	C3	
		788-23207	C5	
		788-23208	C6	
	Hartman Reserve Nature Center	788-23204	C2	
		788-23206	C4	
		788-23209	C7	
		788-23210	C8	
2000	Macbride Raptor Project	788-23212	E1	
		788-23217	E6	
		788-23218	E7	
		788-23220	E0	
	Hartman reserve Nature Center	788-23213	E3	Fracture wing in box, released MRP after rehab.
		788-23214	E2	
		788-23215	E4	
		788-23216	E5	
		788-23219	E8	
	Saylorville - Polk & Boone Co.	788-23223	H0	
		788-23225	H1	
		788-23222	H2	
		788-23224	H3	
		788-23221	H4	
2001	Macbride Raptor Project	788-23228	H6	
		788-23229	H7	
		788-23232	K0	
		788-23234	K2	
	Hartman Reserve Nature	788-23227	H5	
		788-23230	H8	
		788-23231	H9	
		788-23233	K1	
	Saylorville	788-23223	H0	
		788-23225	H1	
		788-23222	H2	
		788-23224	H3	
		788-23221	H4	

Table 13.1. Osprey releases in Iowa 1997 - Present.

Year	Location	USFWS#	Color Band	Comments	
2002	Macbride	788-23243	K3		
		788-23245	K5		
		788-23246	K6	Died heat stress	
		788-40802	J3	Died heat stress	
			788-40844		Rehabbed bird from Raptor Center
	Hartman	788-23244	K4		
		788-23247	K7		
		788-23250	K9		
		788-23248	K8		
	Saylorville	788-23241	J4		
788-23242		J5			
788-23249		J1			
788-40801		J2			
788-40803		J0			
2003	Hartman	788-49506	J6		
		788-49507	J7		
		788-49508	J8		
		788-49509	J9		
	Don Williams	788-49519	N9		
		788-49510	N0		
		788-49511	N1		
		788-49512	N2		
		788-49513	N3		
	Saylorville	788-49514	N4		
		788-49515	N5		
		788-49516	N6		
		788-49517	N7		
		788-49518	N8		

SANDHILL CRANES IN IOWA

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

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

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

however, nesting populations increased in the northern states, and a few migrating sandhills were seen in Iowa.

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

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

In 2002, Sandhill Cranes were observed in four new sites. Reports were received of cranes sited in Clinton and Chickasaw County. Allamakee County picked up another site where young were produced and in western Iowa, young were produced in Woodbury County. Cranes have been included in bird counts in at least 16 counties during the year.

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

In Boone County a nesting pair had wintered at a farmstead south of Madrid. The pair performed nesting courtship displays and created a nest in

the farmyard. Two eggs were laid in the spring. In April the nest and eggs were destroyed. Raccoons or dogs were suspected. In June a Sandhill Crane carcass was discovered in the vicinity of the nest near powerlines. The fate of this unconventional pair is unknown.

Figure 14.1 Iowa counties with sightings and known reproduction of Sandhill cranes 1987-2003.

Sandhill Cranes in Iowa, 2003

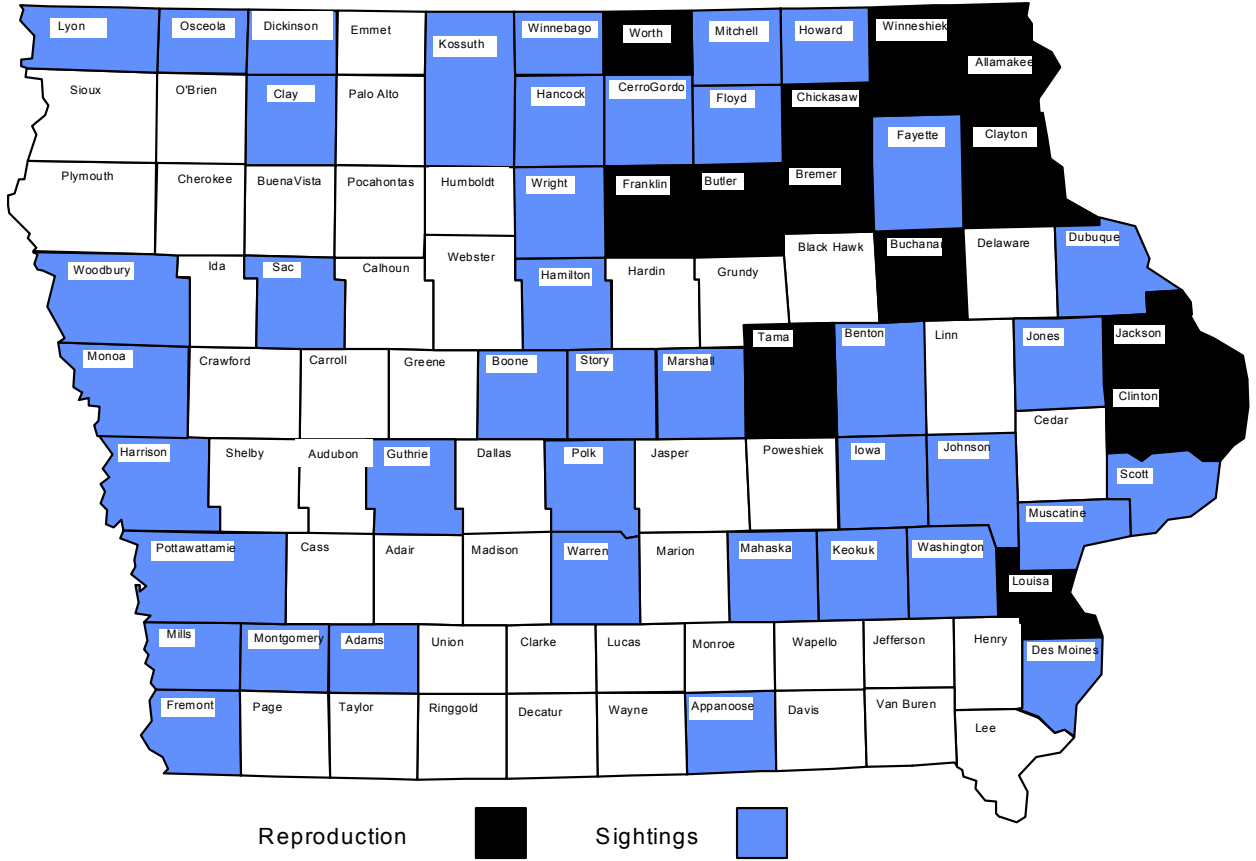
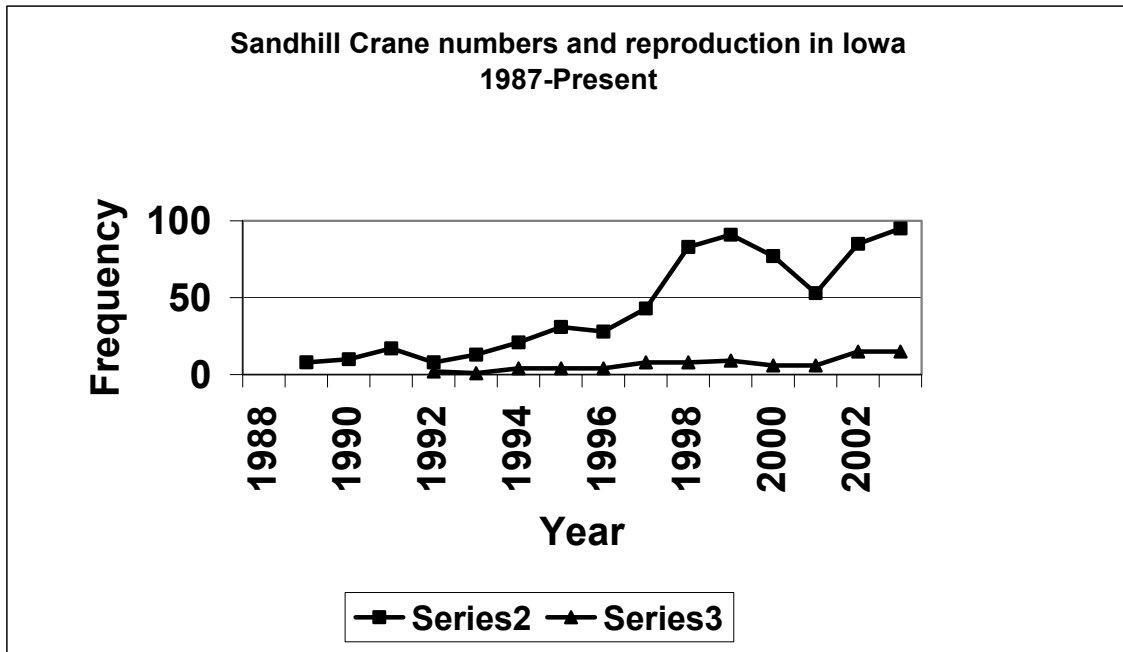


Figure 14.2 Number of Sandhill cranes observed during April surveys and independent reports of reproduction.



BALD EAGLE RESTORATION

HISTORICAL REVIEW

When Euro-Americans first arrived in Iowa, it is likely that bald eagles nested throughout the state, particularly in the wooded edges of rivers, streams, and fish infested lakes. As forests were cut and the woodland habitat occupied by eagles was altered, eagle numbers declined. Direct persecution (mostly shooting) and changes in eagle habitat, particularly nesting habitat, appear to have eliminated the bald eagle as an Iowa nester by the early 1900s. Early records for the bald eagle in Iowa do not give us a good idea of how many nests there once were for this species, but we do know that eagles were “formerly common in Iowa and frequently nested in favorable localities” (Anderson 1907). Certainly early records reflected that notion, since there were records for nests in many counties throughout the state. There were four nests recorded for Allamakee County by Ellison Orr, with the last known active nest in 1864 (Allert 1939, Orr 1937). Spurrell (1917) reported that the last known active nest in Sac County was in 1871. At a long-occupied nest near Rowan in Wright County, the adult eagles were killed and two young were taken from the nest in May 1877 (Birdsall 1915). Perhaps the last nest documented near the turn of the century was in Jasper County in 1905, where two young eaglets were taken from a nest near Kellogg (Anderson 1907).

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

RECENT IOWA NESTING RECORDS

As improbable as it seemed, the bald eagle did nest in Iowa again. The first nest noted in over 70 years was located near New Albin on the Mississippi River floodplain in 1977 (Roosa and Stravers 1989). Two young were produced that first year (Table 15.1), but it was not until 1980 that another eaglet was produced from that nesting territory. In 1984, Dinsmore et al. (1984) considered the bald eagle a rare summer resident. It was in 1985 that a second Iowa eagle nest appeared, just three miles downstream from the first. That nest produced three young. During 1986, a third nesting territory appeared in Allamakee County on the Mississippi River, and a fourth occurred in Jackson County. The first documented nest away

from the Mississippi River was found in 1987 along the Skunk River near Coppock in Jefferson County (Table 15.1). The following year there were eight active nests reported. Two more new nests were discovered away from the Mississippi River, one in Allamakee County and one in Fremont County near Forney's Lake. A new nest was also found in Clayton County along the Mississippi River, and a nest in a huge cottonwood tree was reported by towboat captain, Pat Flippo, for Des Moines County near the mouth of the Skunk River.

As part of the USF&WS regional plan for bald eagle recovery, in 1981 Iowa established a goal of 10 active Bald Eagle nests by the year 2000 (Grier 1988). This goal was surpassed in 1991 when the number of active nests jumped to 13 (Table 15.1). Nest numbers climbed to 21 in 1992: Allamakee County now had 11 active nests; Clayton County had three; Jackson County had two; and five additional counties -- Jones, Benton, Iowa, Mahaska, and Winneshiek -- each now held one nest. Iowa's steady upward nesting trend continued. In 1993, the 32 active nests recorded quadrupled the number of nests found just five years earlier. During 1994, nesting progressed westward in the state into Blackhawk, Howard, Webster, Sac, and Buena Vista counties (Figure 15.1). Nesting pairs also continued to establish themselves in the southeastern portion of the state and frequented Linn, Clinton, Washington, and Lucas counties.

Each year more eagle pairs continued to adapt to Iowa's fragmented and highly used landscape. In 1995, the number of active nesting pairs climbed to 43 (Table 15.1), and eagle pairs had now nested in 23 counties on 14 river

systems. The largest boost in eagle nesting numbers occurred during 1998, when 84 active nests were recorded in 33 counties. This increase of 22 nests from 1997 followed a mild winter in which a record of 1,737 bald eagles was tabulated in January 1998 during the Midwinter Bald Eagle Survey (Ehresman 1998). It appeared that some eagle pairs opted to nest in areas in which they were wintering, particularly in western Iowa. Nests were reported in eight new counties in 1998 and included Lyon, Sioux, Mills, Calhoun, Humboldt, Butler, Bremer, and Buchanan counties. With this latest tally, eagles had now nested in 42 counties (Figure 15.2) in association with 30 rivers and creeks (Table 15.2). The number of eagle pairs continued to grow, and by 2003, eagles have been reported nesting in 63 counties. Hardin, Worth, Plymouth, and Scott counties are the most recent additions.

PRODUCTION OF EAGLE YOUNG

As the number of active nests increased from 1977 to 1998, so did the number of young produced each year (Table 15.1). From zero to three eaglets were produced for each of the years from 1977 through 1985. For the next several years, a slow but steady increase in the number of nests occurred until 1990, when seven of the eight active nests successfully fledged 13 youngsters. For several years, there was an increase of about seven active nests per year, and in 1995, 58 young fledged from 31 successful nests. A significant increase was seen in the number of eaglets produced during the next year (Figure 15.3). Then, in 1997, a drop in the number of eagle young produced was noted, even though the number of active

nests increased. Eagle pairs were back on track production-wise in 1998, and 47 successful nests fledged at least 82 young. There were 15 nests for which the nesting outcome was unknown in 1998, so it is likely that there were a number of fledglings that went unrecorded. For the years 1999-2001, recording eagle nesting activity for every nest became less of a priority for the Iowa Department of Natural Resources (IA DNR). Records were still kept for all nests reported, with an emphasis placed on documenting new eagle nests. However, data for nest activity and nest success is not nearly as complete as for years prior to 1999. Projected eagle nest numbers (based on number of new nests reported each year and average nest increase rate since 1995) is shown in Figure 15.3 for 1999-2003. The number of new eagle nests reported has averaged about 15 nests per year since 1999. In 2003, at least 23 new nests were documented, and there were an estimated 160 total active eagle nests.

Iowa eagles are very productive. Beginning in 1985, from the first time that there were at least two nests known, the average number of young per successful nest has never fallen below 1.5 eaglets (Table 15.1). The average for this same category for all 22 years is 1.7 young per successful nest. This compares well to data from four districts of the Upper Mississippi River National Wildlife and Fish Refuges. On the Mississippi River from 1986 through 1997, the number of young per active nest with known production averaged 1.4 eaglets (Nelson 1998). Iowa production is also higher than a compilation of several studies which indicated that a successful nest, on average, produced 1.6 eaglets (Stalmaster 1987). Of further interest is

the fact that 13.6% of Iowa nests produced three young each. This is a high percentage if one considers that, according to Stalmaster (1987), for 3,893 occupied nests throughout North America in the 1960s and 1970s, only two percent produced three young each. In 1996 alone, 10 of the 40 (25%) successful Iowa nests produced three young each.

STREAMS WITH NESTS

Iowa Bald Eagles have nested along 30 different rivers and creeks since 1977, and 29 of those riparian corridors held active nests in 1998 (Table 15.2). The Mississippi River is still by far the most important waterway in Iowa to the survival of the Bald Eagle. It contained 32 active nests in 1998. Next in importance were the Upper Iowa and Cedar rivers with six nests each and the Missouri River with four nests. All other waterways held three or fewer nests, with the majority having one nest each. It will be interesting to see which river systems might gain in importance to nesting eagles in future years.

Preferred nest trees:

Another aspect of bald eagle nesting which is of importance is the type of trees in which these majestic birds choose to nest (Table 15.3). Nest trees are typically stout for their height and have large crowns with an open canopy. The large crown provides an optimum site to build a large nest, and the open canopy allows these birds with seven-foot wingspans to land and take off without being impeded. The nest tree is usually alive, but the top of the tree is often dead or dying. Nest tree data presented here are from 1998 only, but they include both active and inactive

Iowa nests. Data were not included for nests located on the Mississippi River floodplain in northeastern Iowa. It appears that the favored tree used for nesting in Iowa is the cottonwood (*Populus deltoides*). White pine (*Pinus strobus L.*) was next in importance. Perhaps the white pine would be even more significant as a nest tree if it were more abundant and if it occurred naturally in places other than northeastern Iowa. In Chippewa National Forest in northern Minnesota, the white pine is the favored nest tree holding 53% of all nests (Mathisen 1983). Several types of oak trees (*Quercus sp.*) contained a significant portion of Iowa's eagle nests. Since oak trees, in general, are more abundant on upland sites, it might be that, as eagles nest away from river bottomlands, there will be an increase in use of these trees as nest sites.

RECOVERY EFFORT

Bald Eagle Nest Survey:

The Iowa Conservation Commission's (ICC), now IA DNR, first effort to enhance bald eagle recovery was the purchase of the property, near New Albin, where the first eagle nest in 70 years occurred. As eagle nests increased, IA DNR staff kept records of these nests to monitor nesting success. Until about 1995, most eagle nests reported on private land were visited by Wildlife Bureau staff in order to establish a good relationship with eagle nest landowners and assure the security of each nest site. Similarly, USF&WS employees have documented records for bald eagles nesting within the Mississippi River floodplain since the first Iowa nest was confirmed in 1977.

Midwinter Bald Eagle Survey:

Beginning in 1983, ICC staff cooperated on a national Midwinter Bald Eagle Survey to assess the health of the greater bald eagle population. In cooperation with the National survey coordinator, USGS Raptor Research and Technical Assistance Center in Boise, Idaho, IA DNR Wildlife Diversity Staff continue to coordinate this survey today. Data from this survey indicate a dramatic increase in Iowa winter bald eagle numbers from 1983-2003 (Figure 15.4). An especially high count (2,493) during the winter of 2001 was related to harsh weather conditions and the subsequent concentration of eagles in count areas of the Mississippi River. Very mild winter conditions during surveys conducted in 2002 and 2003 are reflected in lower count numbers, which are still higher than any year prior to 2001. Winter survey data is used for evaluating the delisting of bald eagles in the United States, and information derived from this survey across the country has been used for the upgrade of the bald eagle national status from Endangered to Threatened in 1995.

DISCUSSION

Undoubtedly there are several reasons why nesting Bald Eagles have staged a comeback in Iowa. One reason for the recovery may be related to this species' ability to pioneer into suitable nesting habitat. This was not only true of Iowa's first nest in seven decades, which appeared in Allamakee County, but it also became obvious in 1987 when a pair of eagles nested in Jefferson County along the Skunk River. It was further evidenced in 1988 when an eagle pair nested in extreme southwestern Iowa in Fremont County near the Missouri River. Another key element helping

eagle recovery appears to be Iowa's close proximity to one of the more stable nesting populations of bald eagles in the continental United States. Three states to the north, including Minnesota, Wisconsin, and Michigan, presently have a combined total of approximately 2000 nesting pairs, which is about one-third of all nesting eagles in the lower 48 states. There is little doubt that Iowa's eagle population is benefitting from its neighbor states to the north. Even in 1998, when eagle nests occurred in 42 counties, over half of all Iowa's eagle nests could be found in four counties in the northeastern corner of the state (Figure 15.2).

An unanticipated factor that has helped bald eagle numbers recover is their adaptability. It appears that eagles nesting in the Mississippi River floodplain may be somewhat tolerant of boat traffic (McKay et al. 1995). Other instances indicate that some eagles are more tolerant of disturbance than others. There are now numerous nests located within several hundred yards of buildings, roads, and farm fields. One nest along the Upper Iowa River in Howard County is only about 100 yards from the bedroom window of very interested eagle nest watchers. The nest is located across the river and, so far, human activities have not negatively affected the nest's success. Grier (1988) explained that eagles' ability to tolerate human activity and nest close to buildings has . . . "broadened their amount of available habitat and living space."

THE FUTURE

Although the outlook for Iowa's eagle population is favorable, there are still factors which affect eagle numbers. Unmanaged logging continues to pose a

threat to eagles, and the removal of large, mature cottonwoods along Iowa streams will limit where eagles can nest and find foraging perches.. Two central Iowa eagle winter roost sites have been severely logged within recent years, and fewer eagles are being seen at both of these sites. Logging in the vicinity of eagle nests also can affect the nesting outcome. Even though there are strict federal laws protecting eagle roost and nest sites against disturbance during their occupancy, cutting of roost trees of bald eagles during the time of year that eagles are not using them is not prohibited.

Lead poisoning is still a concern, as several eagles are found in Iowa each year, either dead or suffering from this problem. Five out of eight bald eagles found sick in Iowa and brought to wildlife rehabilitators between November 1998 and January 1999 suffered from lead poisoning. Where this lead is coming from is yet to be determined.

Despite current problems that face the bald eagle, its numbers continue to recover. In 1963, an Audubon Society survey found only 417 remaining bald eagle nests in the continental United States. It was a species headed for extinction. In 2000, that number was over 6,500 active nests. Although the bald eagle is still listed as an Iowa endangered species, it soon will be removed from the Iowa Endangered/Threatened Species list. Iowa, which had no nests for over 70 years, in 2003 had at least 160 active nests. The enforcement of protective laws and a change in the public's attitude toward eagles have helped bring back this species.

Bald Eagle Appreciation Days:

Iowa DNR staff have been involved with promoting the appreciation of bald eagles since helping establish the first event in Keokuk in 1985. There are presently at least 13 Bald Eagle Appreciation Days held in Iowa each winter to celebrate the existence of eagles, and between 12,000 and 15,000 people gather at these events annually. With the continuation of public support for bald eagle recovery, this bird's population should continue to increase.

ACKNOWLEDGMENTS

Our thanks to the many Iowans who have watched over our eagle nests, helped with winter eagle surveys, and provided information that better helps the different agencies protect this species.

LITERATURE CITED

- Allert, O. P. 1939. Notes on certain raptors in Allamakee, Clayton, and Dubuque Counties, Iowa. *Iowa Bird Life* 9:34-36.
- Anderson, R. M. 1907. The birds of Iowa. *Proceedings of the Davenport Academy of Science* 11:125-417.
- Birdsall, B. P. 1915. History of Wright County, Iowa: Its people, industries, and institutions. B. F. Bowen and Company, Indianapolis, Indiana. 1061pp.
- Broley, C. L. 1958. The plight of the American Bald Eagle. *Audubon* 60:162-171.
- Carson, R. L. 1962. *Silent Spring*. Houghton Mifflin Co., New York.
- Dinsmore, J. J., T. H. Kent, D. Koenig, P. C. Petersen, and D. M. Roosa. 1984 *Iowa Birds*. Iowa State University Press, Ames. 356pp.
- Ehresman, B. L. 1998. The recovery of the Bald Eagle as an Iowa nesting species. *Iowa Bird Life* Vol 69(1): pp. 1-12.
- Grier, J. W. 1988. Northern states Bald Eagle recovery team report. *Report of Raptor Research Foundation*, Minneapolis, Minnesota.
- McKay, K. J., J. W. Stravers, and U. Konig. 1995. Report assessing the impacts of human activity on Bald Eagle reproductive success along the Upper Mississippi River during the 1994 breeding season. *Technical Report: U. S. Fish and Wildlife Service Upper Mississippi River Fish and Wildlife Refuge*. McGregor, Iowa. 51pp.
- Mathisen, J. E. 1983. Nest site selection by Bald Eagles on the Chippewa National Forest. Pp. 95-100 in D. M. Bird, ed. *Biology and Management of Bald Eagles and Ospreys*. Harpell Press, St. Anne de Bellevue, Quebec.
- Nelson, E. 1998. 1997 Bald Eagle production on the refuge. *U. S. Fish and Wildlife Service Memorandum*.
- Orr, E. 1937. Notes on the nesting of the Bald Eagle in Allamakee County, Iowa. *Iowa Bird Life* (7):18-19.
- Roosa, D. M. 1977. Endangered Iowa birds: (An annotated list of endangered, threatened, extirpated or 'status undetermined' birds of Iowa). *Special report of the Preserves Board* No. 4.
- Roosa, D. M., and J. Stravers. 1989. Nesting of raptors uncommon in Iowa: Summary and new records. *Journal of the Iowa Academy of Science* 96(2):41-49.

Spurrell, J. A. 1917. Annotated list of water birds, game birds, and birds of prey of Sac County, Iowa. *Wilson Bulletin* 29:141-160.

Stalmaster, M. V. 1987. *The Bald Eagle*. Universe Books, New York. 227pp.

Table 15.1. Annual Bald Eagle production for Iowa from 1977 through 1998.

Year	No. of Active Nests	No of Successful Nests	No. of Nests with 3 Young	No. of Known Young	No. of Young/Successful Nest	No. of Counties With Active Nests
1977	1	1	0	2	2.00	1
1978	0	0	0	0	0	0
1979	1	0	0	0	0	1
1980	1	1	0	1	1.00	1
1981	1	0	0	0	0	1
1982	1	1	0	1	1.00	1
1983	1	1	0	1	1.00	1
1984	1	1	0	2	2.00	1
1985	2	1	1	3	3.00	1
1986	3	3	1	6	2.00	2
1987	4	3	1	6	2.00	3
1988	8	6	0	9	1.50	6
1989	9	7	1	11	1.57	5
1990	8	7	2	13	1.86	6
1991	13	9	4	21	2.33	8
1992	21	14	2	25	1.79	8
1993	32	18	0	27	1.50	13
1994	36	24	2	44	1.83	16
1995	43	31	5	58	1.87	16
1996	54	40	10	71	1.78	20
1997	62	42	1	64	1.52	26
1998	84	47	5	82	1.75	33
Totals	386	257	35	447	1.74	42

Table 15.2. 30 rivers and creeks associated with Iowa Bald Eagle nest sites in 1998

Name of river or creek	Number of active nests	Name of river or creek	Number of active nests
Mississippi River	32	North Raccoon River	1
Upper Iowa River	6	Raccoon River	1
Cedar River	6	Little Sioux River	1
Missouri River	4	Rock River	1
Yellow River	3	Boone River	1
Turkey River	3	Grand River	1
Volga River	3	Chariton River	1
Iowa River	3	English River	1
Maquoketa River	2	Robert's Creek	1
North Fork Maquoketa River	2	Buck Creek	1
Skunk River	2	Canoe Creek	1
Wapsipinicon River	1	Lytle's Creek	1
Shell Rock River	1	Bear Creek	1
Des Moines River	1	Whitewater Creek	1
East Branch Des Moines River	1	Crooked Creek (not active in 1998)	

Table 15.3. Tree species used by Bald Eagles for nest sites in Iowa (from 1998 data)*

Species	No. of Active Nests	No. of Inactive Nests	Total Nests	Percent of Total Nests
Cottonwood	33	11	44	67.7
White Pine	7	2	9	13.8
Oak (sp.)	3	4	7	10.8
Ash (sp.)	1	1	2	3.1
Big Tooth Aspen	2	0	2	3.1
Silver Maple	1	0	1	1.5
Totals	47	18	65	100

*Does not include nests on the Mississippi River in northeastern Iowa

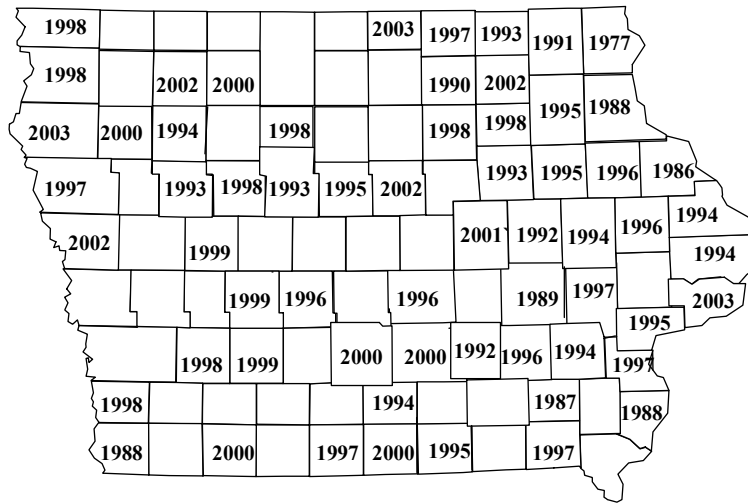


Figure 15.1. First year in which a bald eagle nest was reported for 63 counties, 1977 through 2003.

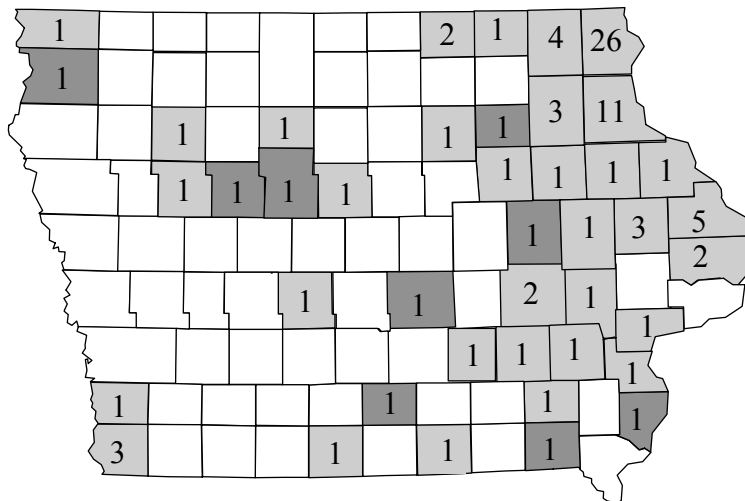


Figure 15.2. 33 counties in which 84 active Bald Eagle nests were found in 1998 (□), and 9 counties with inactive nests (■)

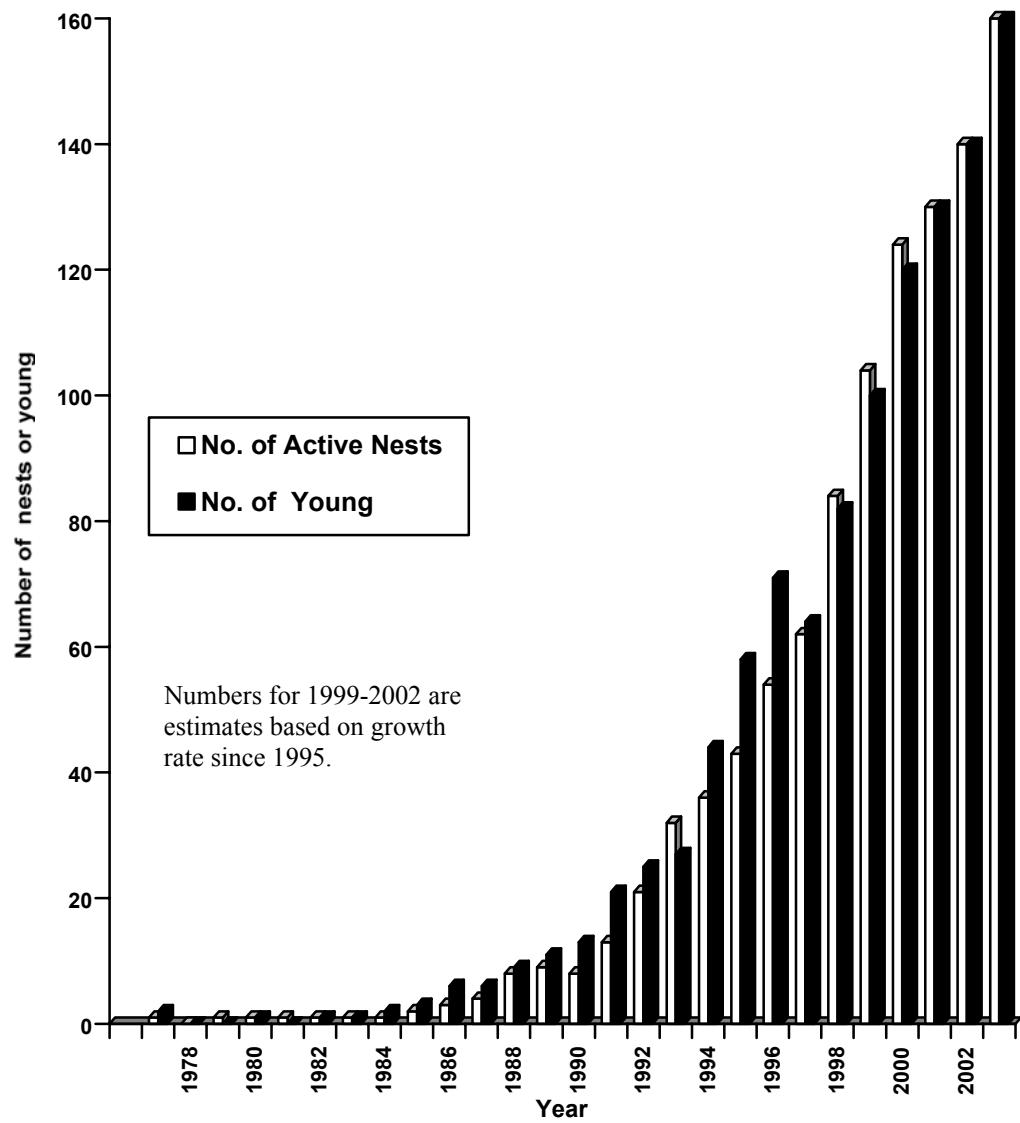
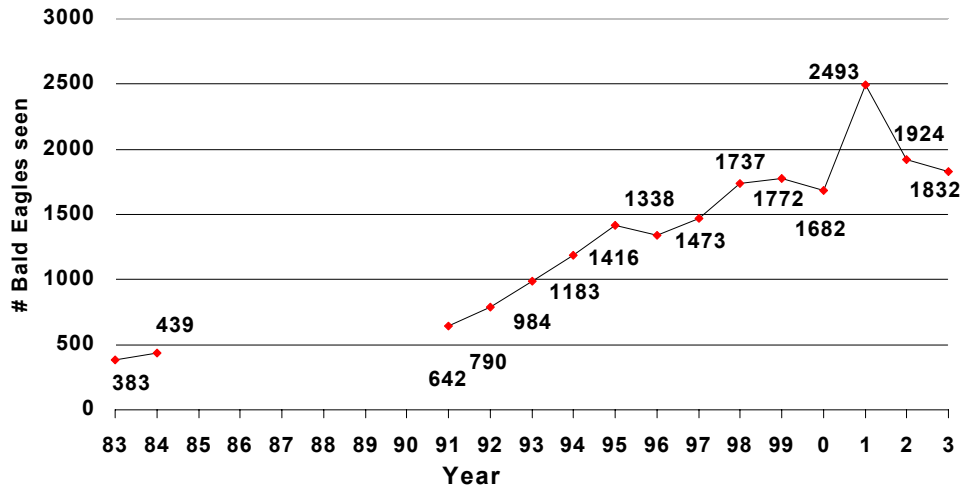


Figure 15.3. Number of Bald Eagle active nests and young produced in Iowa, 1977 through 2003.

Figure 15.4 Number of Bald Eagles seen during Iowa mid-winter survey 1983-Present



BOBCAT STATUS IN IOWA

Prior to settlement, bobcats were found throughout Iowa. Historically they were the most abundant of Iowa's three native cat species - the bobcat, lynx and mountain lion. By the late 1800s historical records mention little of bobcats in Iowa.

In the 1930's and 1940's small numbers of bobcats were reported in all corners of Iowa, although they were most numerous in the northeast corner of the state. Between the 1940's and mid-1980's bobcats were infrequent in the western, southern and eastern portions of Iowa.

During the past decade and a half a number of bobcat sightings, roadkills, and occasional trapped bobcats have occurred. In 1999, Pat Schlarbaum, DNR Wildlife Diversity Technician, mailed out an informal questionnaire to County Conservation Boards across the state.

In early 2001 a second, more detailed questionnaire, was sent to a larger sample of outdoor professionals. Figure 13.1 shows that 71 counties now have known bobcats present within their boundaries. Several other counties probably have bobcats present but they have not been officially confirmed. Thus far, in 2003, the only new county with known bobcat presence is Linn County. Nebraska, Kansas and Missouri show similar bobcat expansion and increases near Iowa's southern and western borders.

Dr. Larkin Powell, Biology professor at the University of Nebraska (formerly of Loras College of Dubuque), has been working with an Honor's student to develop a bobcat habitat model for Iowa. We are anxious for that report but he has not provided it to us to date.

Dr. Jim Pease, Extension Wildlife

Specialist at Iowa State University, is also working with graduate student, Anne Avery, on a more elaborate survey of bobcat sightings and the public's perception of predators in the state. Her M.S. thesis should be completed by September, 2003.

The Iowa DNR currently plans to delist the bobcat from threatened status by September 2003.

Reproductive and population age structure data is being collected from all bobcat carcasses obtained from road killed and incidentally trapped animals. We will continue to monitor the increase and modern day expansion of bobcats in Iowa. I would predict that if the bobcat population continues to expand and increase in numbers, some portions of all Iowa counties could have bobcats present within the next 5 years.

The Iowa DNR is currently conducting a research study to monitor bobcat movements, habitat use and demographics in south-central Iowa. A small sample of bobcats will be captured and neck collared with GPS and standard radio tracking devices during 2003. After evaluating the success of this effort, the project will be expanded, over the next few years. An ISU graduate student, under Dr. Bill Clark, will be involved with the study beginning in the fall of 2003. Two bobcats have been collared with a GPS and standard radio, respectively.

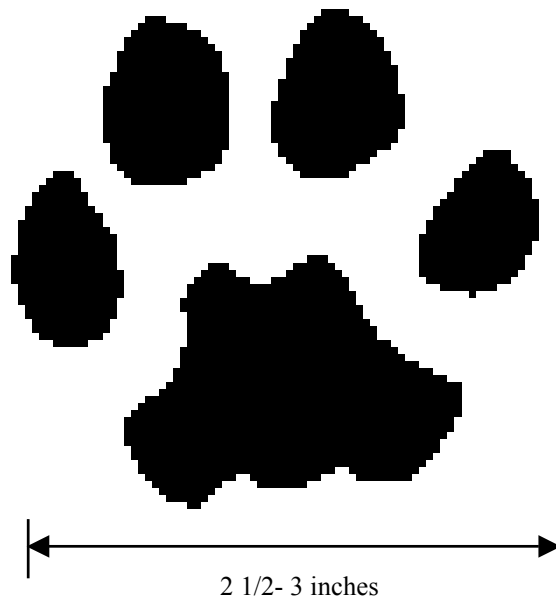
The bobcat population increase and expansion has been phenomenal during the last 15 years. Iowa's bobcat population is healthy enough to delist from its current threatened status. When

delisted the bobcat will still be protected with a closed season for a few years. Additional study and research should tell when the bobcat population is high enough to sustain a regulated harvest season. Be assured that such a harvest will be closely monitored to allow for a healthy, sustainable bobcat population to remain in Iowa. If I were to predict when a potential harvest season might occur, given the current rate and expansion of the bobcat population, it would not be before 2006 or 2007.

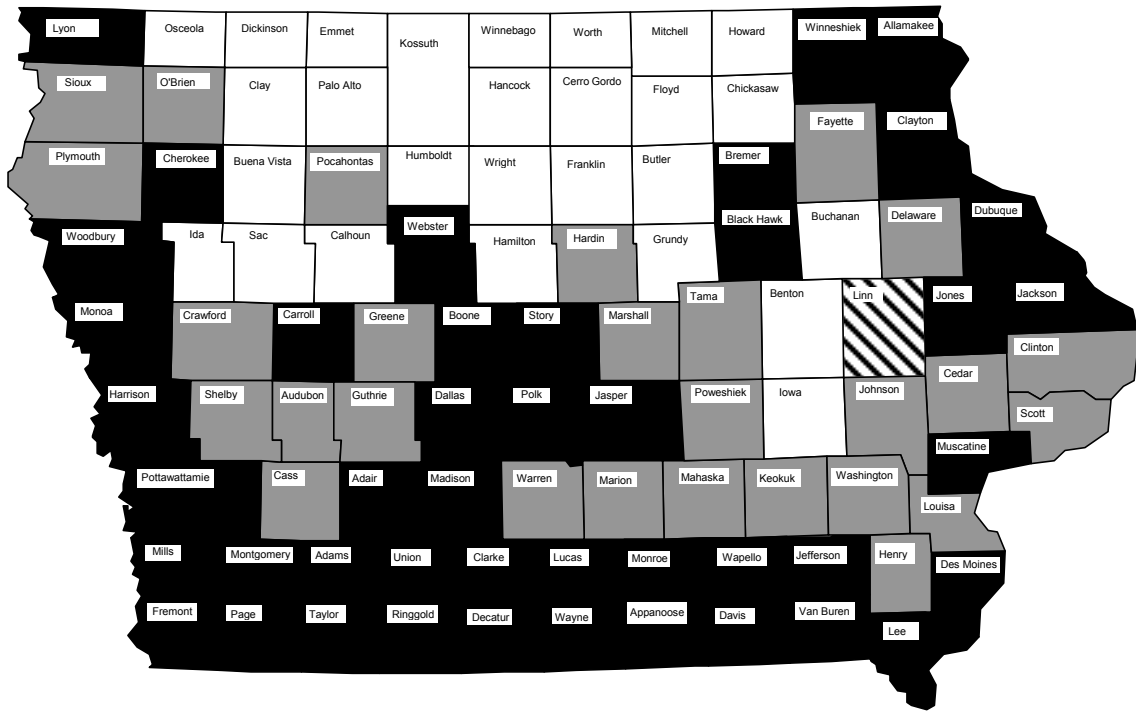
Two websites to help with identification of bobcat tracks, listen to a bobcat growl, and a wealth of other information are: <http://www.bear-tracker.com/bobcat.html> and <http://www.geocities.com/Yosemite/9152/bobcat-trackers.html>.

Must reading for all interested in wildlife:

Dinsmore, James J. 1994. A country so full of game, the story of wildlife in Iowa. University of Iowa Press, Iowa City. Pp. 249.



16.1. Iowa counties with Bobcat sightings.



1999 - 2000 ■ 2000 - 2002 ■ 2003 ▨

BLACK BEAR STATUS IN IOWA

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, bear numbers declined rapidly in many areas, and bears 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 that 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 and harass and kill livestock and because they were valuable both as food and for their hides. Several 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 forty-eight Iowa counties, two-thirds of them from counties in the eastern half of Iowa. The last recorded bear in the 1800s was one found near Spirit Lake in 1876. In the 1960s, black bear reports begin to reoccur in the state. Several of these reports were from captive bears that were either turned loose or were escapees. In the 1990s thru the present, we began to field more reports of what appeared to be wild free ranging bears in the state. Currently, the nearest established wild populations of black bears are in Wisconsin, Minnesota, and southern Missouri. These populations are expanding their range

towards Iowa from both the north and south. Figure 18.1 shows the most recent sightings of bears in Iowa. During 2002, there were at least 5 different fairly reliable Black Bear sightings. Thus far in 2003, no reliable sightings have been reported. Black bear sightings are usually more reliable than Mt. Lion sightings because they do not necessarily flee when sighted, the tracks are very distinct, and they are not readily mistaken for other animals.

Much of the historical information in this report was paraphrased from Dr. James J. Dinsmore’s book “A Country So Full Of Game—The Story Of Wildlife in Iowa”.



