TRENDS IN IOWA WILDLIFE POPULATIONS AND HARVEST 2004

Iowa Department of Natural Resources
JEFFERY R. VONK, Director
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CONSERVATION & RECREATION DIVISION

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WHITE-TAILED DEER

Historical Perspective

White-tailed deer (*Odocoileus virginianus*) were reported to be 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. The harvest exceeded 100,000 for the first time ever in 1996. The harvest approached 200,000 in 2004 and the deer herd is currently estimated to be about 360,000 before the fawning season.

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

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

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 maintain these high reproductive rates until they are past 10 years of age. 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 in mid-November.

Careful management of deer populations by man has also played an important role in allowing deer numbers to return to the levels enjoyed today. Management consists primarily of regulating the doe harvest since hunting provides the major source of mortality for deer in Iowa today. 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 agricultural crops providing abundant food, densities could potentially exceed 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 severe 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.

2004-2005 Hunting Season Results

A record number of deer were killed during the 2004-2005 season. The estimated kill was 194,512 (Table 1.4) which is about 6% higher than in 2003 (Table 1.2). The previous record harvest was in 2003 when an estimated 182,856 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 7,415 or 8% over 2003. Most of the increase was due to the extra 30,500 antlerless licenses available during all seasons as well as during the January season. The estimated number of antlered deer in the harvest has stayed about the same since 2000 (Fig. 1.8).

The season framework was basically the same as last year (Table 1.1). This was the ninth year for the special January season and the 2nd year it was open in all 99 counties. 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 fourth 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. For the first time hunters in all seasons could obtain an unlimited number of antlerless licenses. 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 1,700 deer were taken on special depredation tags issued to landowners with damage problems.

Five of the top 10 counties for total kill were in the northeast corner of the state. Clayton was the top county for total kill with 8,436 deer or about 10.8 per square mile of area (Table 1.5 & 1.6). Osceola county had the lowest kill with an estimate of 190 deer or only about 1.0 deer per 2 square miles.

The relative precision of the harvest estimates from the 9 separate postcard surveys ranged from ±2% for first season

shotgun hunters to ±11% for the youth season. The relative precision for the doe harvest ranged from ±4% for first season shotgun hunters to ±20% for the youth season. A total of 50,683 license holders were sampled with 30,032 responses returned. This is a response rate of 60%.

Shotgun Season

The estimated kill during the shotgun seasons was 2% higher than the estimate for 2003 (Table 1.2). Most of the increase was due to increased number of licenses being issued. Success rates were a little lower than in 2003. This was the second year that first season shotgun hunters could purchase an antlerless license and the first year that hunters could purchase unlimited antlerless licenses for the regular deer seasons.

Antlered bucks made up about 38% of the total kill, while does made up 50% of the kill. The rest were buck fawns.

There were an estimated 79,077 hunters (paid licenses only) in the field during the first season and they killed 57,974 deer, while 56,878 hunters tagged 39,856 deer during the second season. This translates to a 70% success rate for first season hunters and 69% for second season hunters.

Does made up the largest proportion of the kill during both seasons. Forty six percent of the kill were does during the first season while does made up 56% of the deer tagged during the second season. Antlerless deer made up 57% of the kill during the first season and 70% of the kill during the second season. Hunters killed about 3% fewer antlered bucks during the shotgun seasons.

Only 13% of the paid hunters during the first shotgun season purchased at least 1 antlerless license for the shotgun season. Nearly 20% of the second season shotgun hunters purchased at least 1 antlerless license. First season hunters had an average of 1.18 paid licenses while second season hunters had an average of 1.24 paid licenses.

Hunting pressure (Fig. 1.1) was generally higher during the first season in most counties. About 58% 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 eastern and southern 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. The only exception was in the northwest corner of the state.

Does made up less than 50% 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 3.9 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 fairly effective in allowing more deer to be taken in southern and eastern Iowa (Fig. 1.5). Changes for 2004 also appear to have increased the doe harvest (Fig. 1.6) as does make up over 50% in most counties.

Bonus January Season

For the second year the special January season was held in all 99 counties

in Iowa to help reduce deer numbers. All licenses issued for this season were for antlerless deer only. A total of 23,313 licenses were issued, which is 28% more than last year. While 53% of the hunters who purchased one of these licenses reported that they actually tagged a deer only 29% of those with free licenses reported that they used them.

The kill during this season increased the total kill by 5% and doe kill by 8% statewide but the impact in some counties was much greater. The harvest increased the county kill by up to 20% and the doe kill by up to 30% in some counties in southern Iowa. Hunters reported that 81% of the deer taken were does, 14% were buck fawns and 5% were bucks that had shed their antlers. The incidental kill of these shed antlered bucks increased the number of adult bucks killed by 8/10 tenths of 1%.

Archery

A record number of deer were taken by archers in 2004. The reported harvest of 31,593 was 13% higher than the previous record kill reported in 2003 (Table 1.4). An increase in the number of licenses issued, especially hunters purchasing extra antlerless licenses were the main reason for the increase. Success rates on the regular archery licenses went from 49% in 2003 to 46% in 2004 (Table 1.2). Hunters reported that 52% of the antlerless licenses were used to tag a deer.

Nearly 30% of the bowhunters purchased at least 1 antlerless license for the bow season. This was the highest proportion for any group of hunters. Archers on average had 1.44 paid licenses per hunter.

Fifty four percent of the deer taken by archers were male and 47% were antlered bucks. Archers averaged about 18 days in the field in 2004. The average archer hunted 34 days to bag a deer.

Muzzleloader

The estimated kill during the early muzzleloader season was 11% higher than reported in 2003. Increased numbers of licenses and higher success rates were the main reason for the increase. Hunters were allowed to purchase an unlimited number of antlerless license for this season for the first time.

About 59% of hunters reported that they tagged a deer. Bucks made up 55% of the kill, with antlered bucks making up about 45% of the total (Table 1.8). Hunters averaged about 4.6 days in the field.

Twenty one percent of the paid hunters in the early muzzleloader season purchased at least 1 antlerless license for the early muzzleloader season. Early season muzzleloader hunters had an average of 1.23 paid licenses.

The kill during the late muzzleloader season was about 12% higher than in 2003. 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 issued.

Over 60% of the deer taken were does and only 24% of the deer killed during the late muzzleloader season were antlered bucks. Hunters averaged about 6 days in the field.

Forty two percent of the paid hunters in the late muzzleloader season purchased at least 1 antlerless license for the late muzzleloader season. In fact, 31% of the paid late season muzzleloader hunters only had antlerless licenses. Late season muzzleloader hunters had an average of 1.26 paid licenses.

Nonresidents

Of the 6,000 any-sex licenses issued, 3,122 or 52% went to hunters during the shotgun seasons, 2,102 or 35% to bowhunters, and 773 or 13% to late season muzzleloader hunters. An additional 2,455 antlerless licenses were issued. Of these, 1,385 went to hunters during the shotgun season, 643 went to bowhunters, 78 went to late season muzzleloader hunters and 349 went to hunters participating in the holiday season that ran from December 24 to January 2.

About 58% of the shotgun hunters, 50% of the muzzleloader hunters and 46% of the archers were successful in tagging a deer. Less than 15% of the deer killed by nonresidents with any-deer licenses were does. 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 12% higher in 2004 than in 2003. 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 90 licenses or roughly 2% of the total were issued to disabled hunters.

About half of the hunters were successful in bagging a deer. Slightly less than half 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 24 locations in 2004-2005 (Table 1.10). 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 2,484 tags were issued in depredation situations where hunters killed another 1,706 deer. This is a little higher than in 2003.

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 2004 hunting season (Jan-Mar 2005) was down about 15%. Conditions for this survey were fairly good in most areas and similar to what they were in 2004. The trend in aerial counts was up slightly over the past 3 - 5 years. There has been a lot of variability in the counts during this period.

The number of deer killed on rural highways increased by about 12% in 2004. When this number is adjusted for the increase in vehicle miles driven (kill per billion miles), the increase was 11%. In

general the trend in the number of roadkills has been slightly upward over the past 3 - 4 years.

The number of deer seen per 25 mile route on the spotlight survey increased by about 4% in 2005. 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 5 years is up as well.

Outlook for 2005

Hunters will see several changes in the 2005/2006 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 shotgun season.

The biggest changes for 2005 are designed to encourage hunters to kill more antlerless deer. Antlerless licenses will be available in every county for the fifth year and the antlerless quota was increased for some counties in the eastern and southern parts of the state. If hunters buy all of the antlerless licenses a total of 103,000 antlerless licenses could be issued for 2005 which is 19,000 more than in 2004 and nearly 80,000 more than were available in 2002.

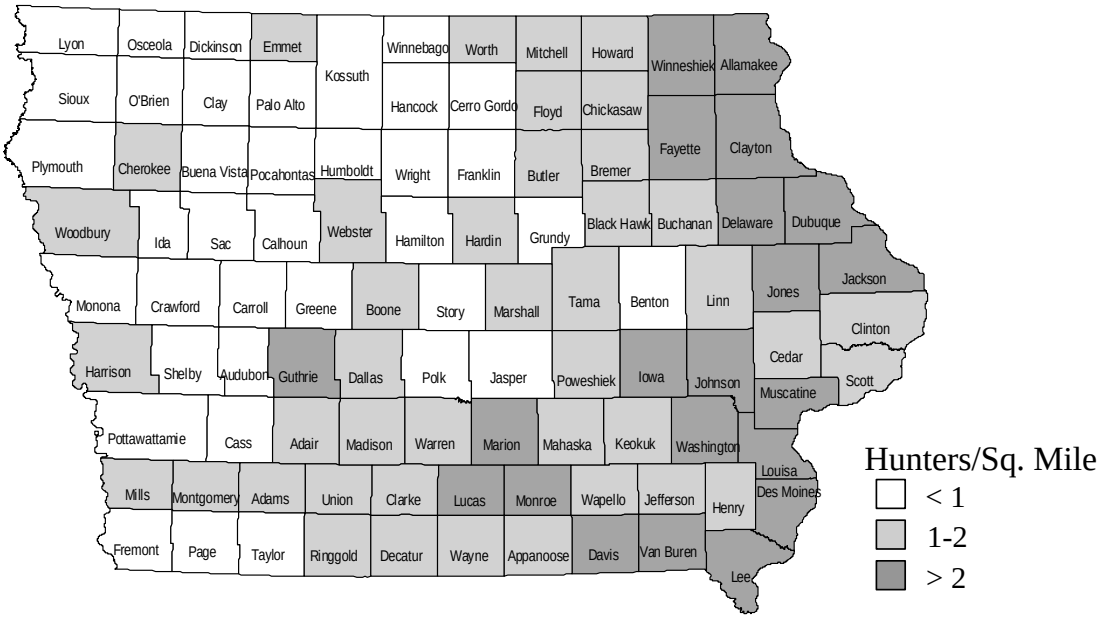
In an attempt to sell all of the licenses 2 new seasons will be added in 2005/2006. The first season will be for antlerless deer and run for 3 days beginning the Friday after Thanksgiving (Nov 25 – 27). Licenses for this season will go on sale on November 12th. All hunters are eligible for this season and all shotguns, muzzleloaders, pistols and bows that are legal in other seasons will be legal in this season. The bow season will not close. In 2004 45 counties would have sold out their antlerless quota and would not have had any licenses available.

The second new season is actually a 1 week extension to the bonus January season for the bottom 2 tiers of counties. Hunters who purchase an antlerless licenses for these counties for the bonus January season will get an extra week to hunt and centerfire rifles over .24 caliber will be legal weapons during the final week.

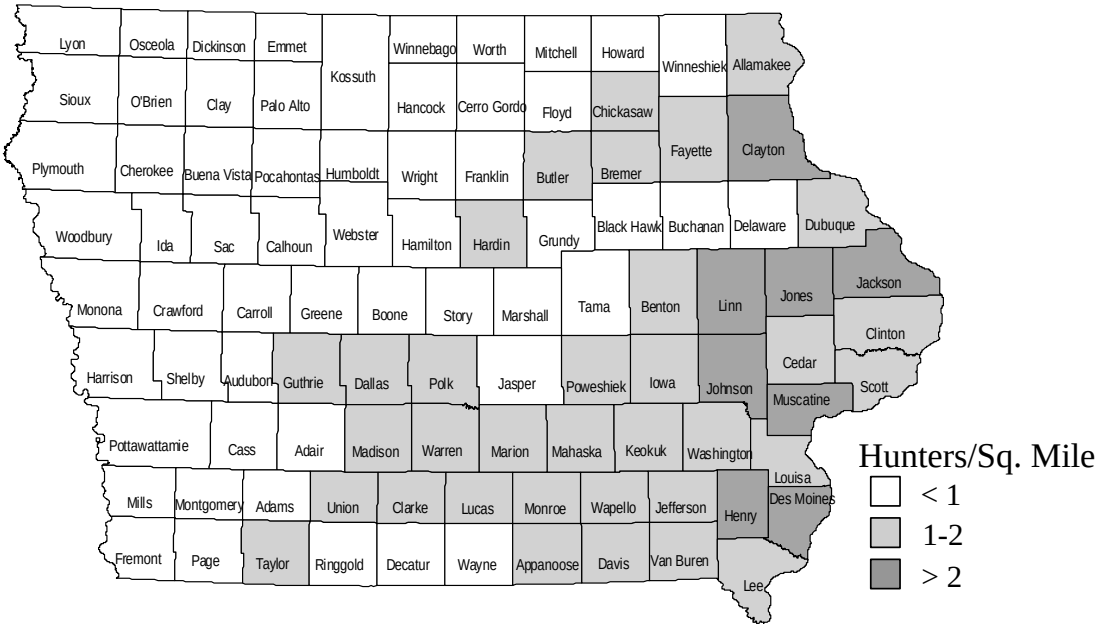
Hunters again will be allowed to obtain antlerless licenses in every season. The limit on the number of licenses a hunter can obtain is 3 before October 1 and unlimited after that date. All 99 counties will be open during the bonus January season again this year. The objective of these regulations is to bring deer numbers back to the 1995-96 target level.

White-tailed Deer
(doe)

Fig 1.1 The average number of hunters/square mile in each county during the 2004 shotgun season. Hunters with free landowner/tenant licenses are not included since their licenses were valid for both seasons.

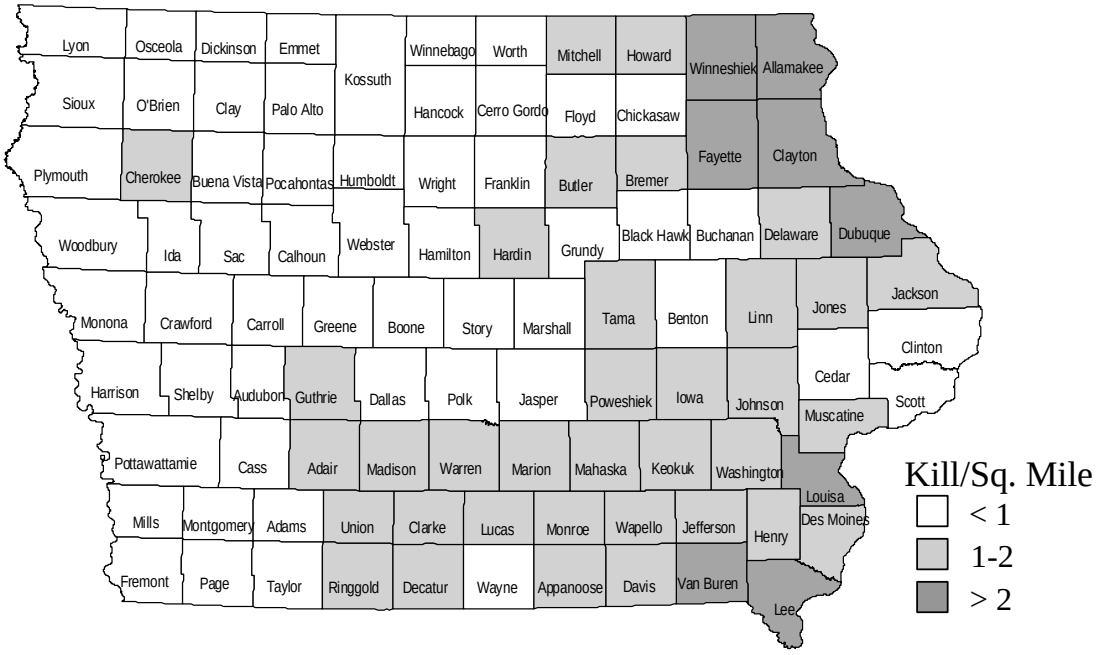


Season 1

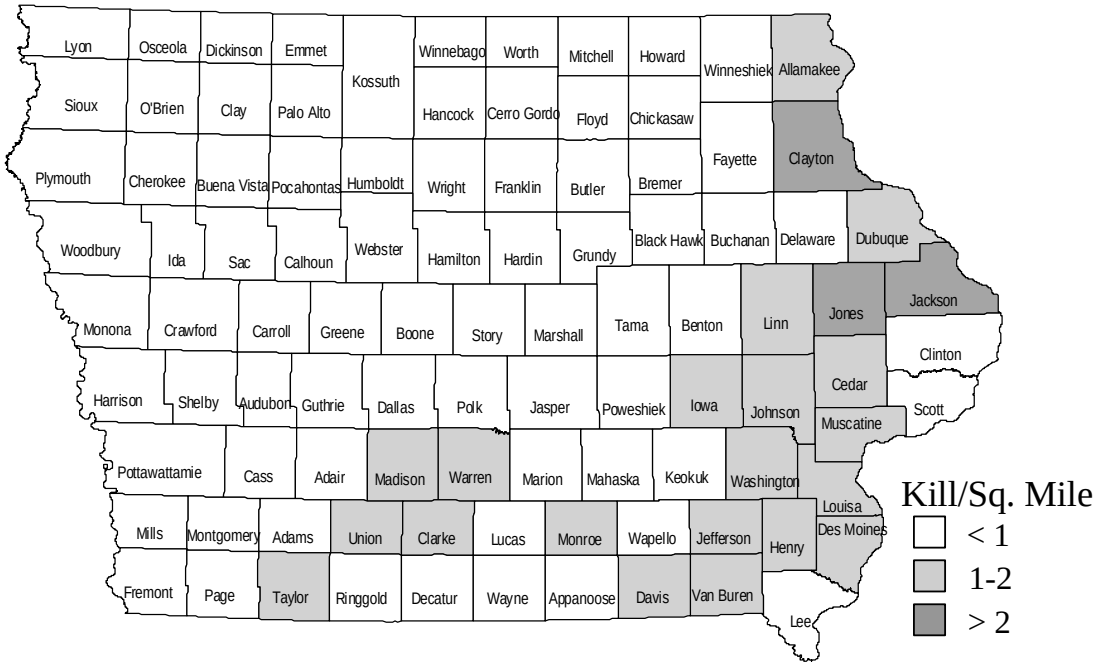


Season 2

Fig 1.2 The average number of deer killed/square mile in each county during the 2004 shotgun season. The kill by hunters with free landowner/tenant licenses was not included since their licenses were valid for both seasons.

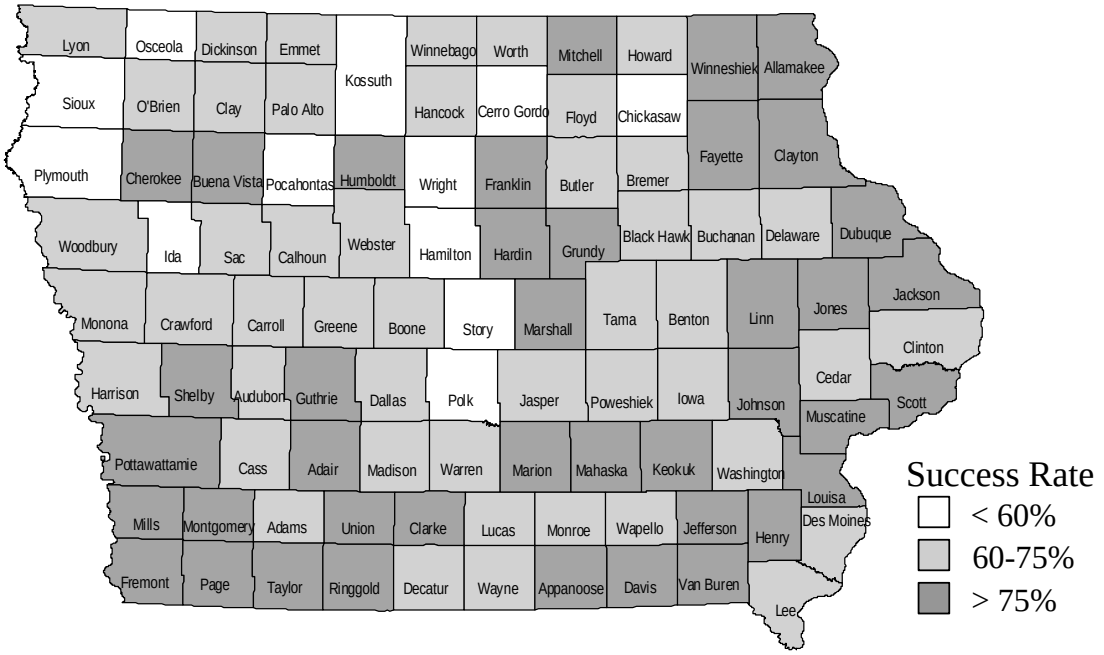


Season 1

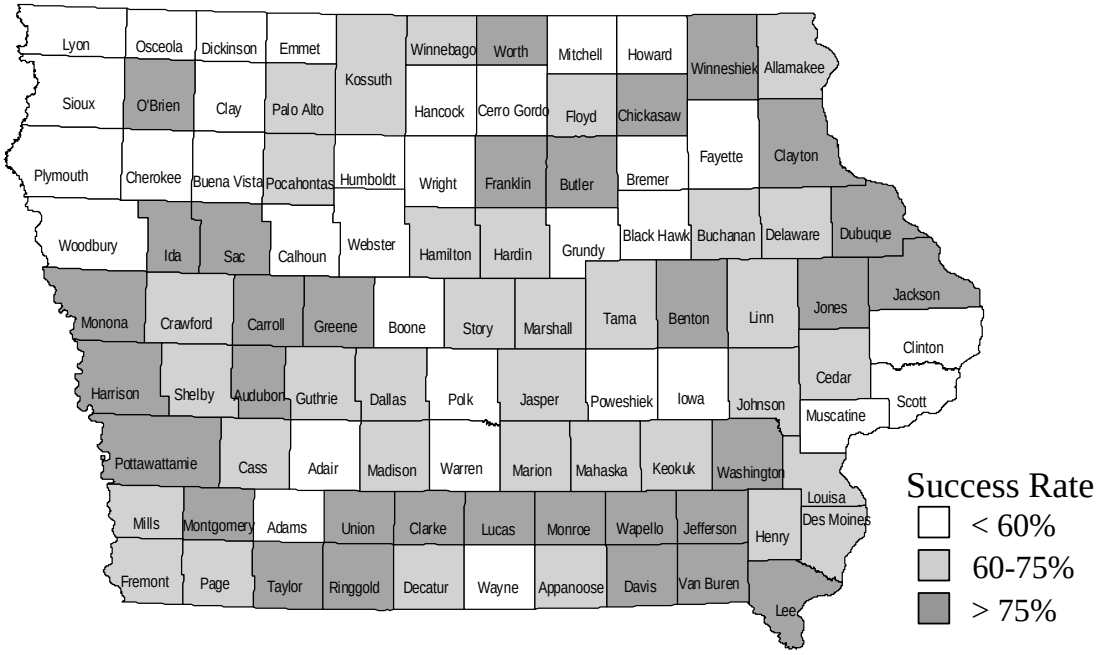


Season 2

Fig 1.3 The average success rate for hunters with paid licenses in each county during the 2004 shotgun season. Hunters with free landowner/tenant licenses are not included since their licenses were valid for both seasons.

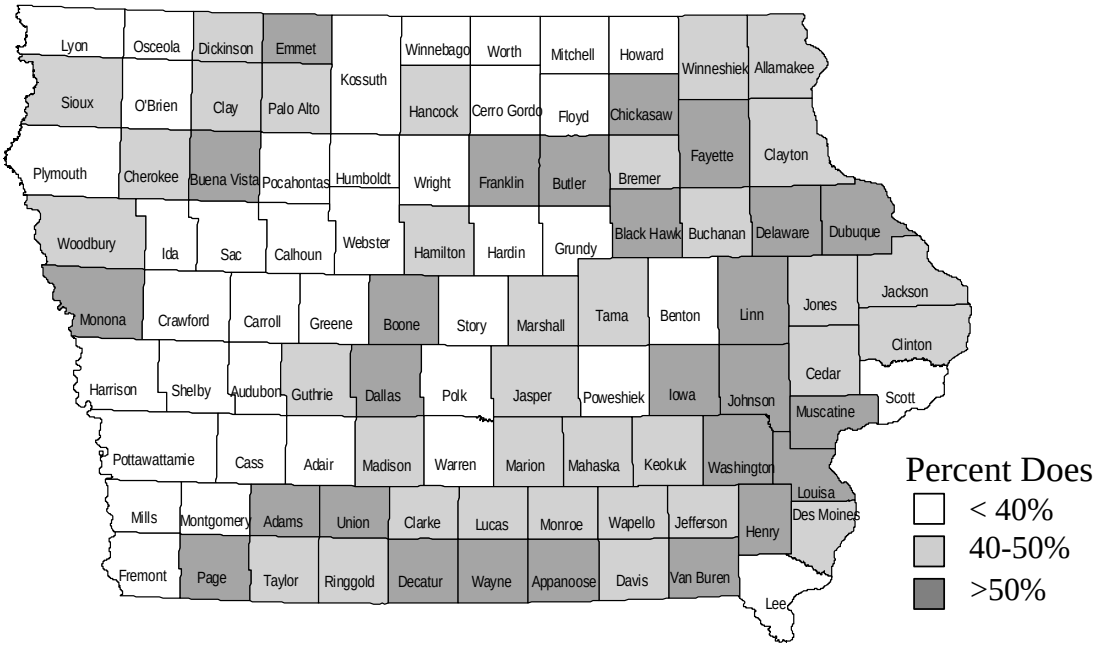


Season 1

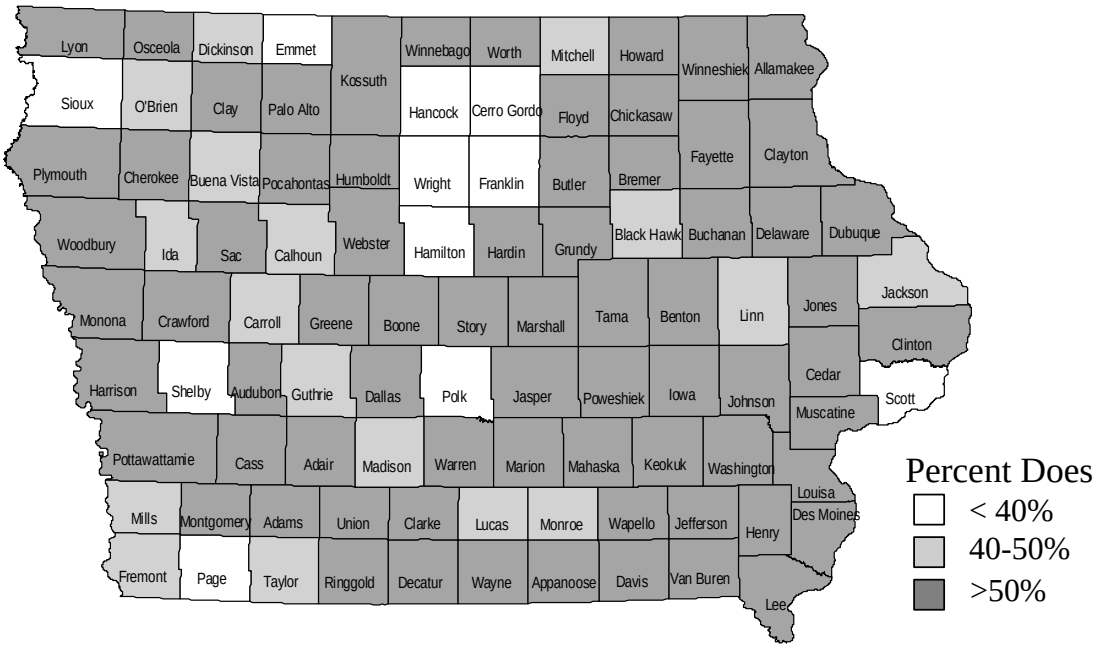


Season 2

Fig 1.4 The proportion of the harvest by hunters with paid licenses that were does during the 2004 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 2004 - 2005 deer season.

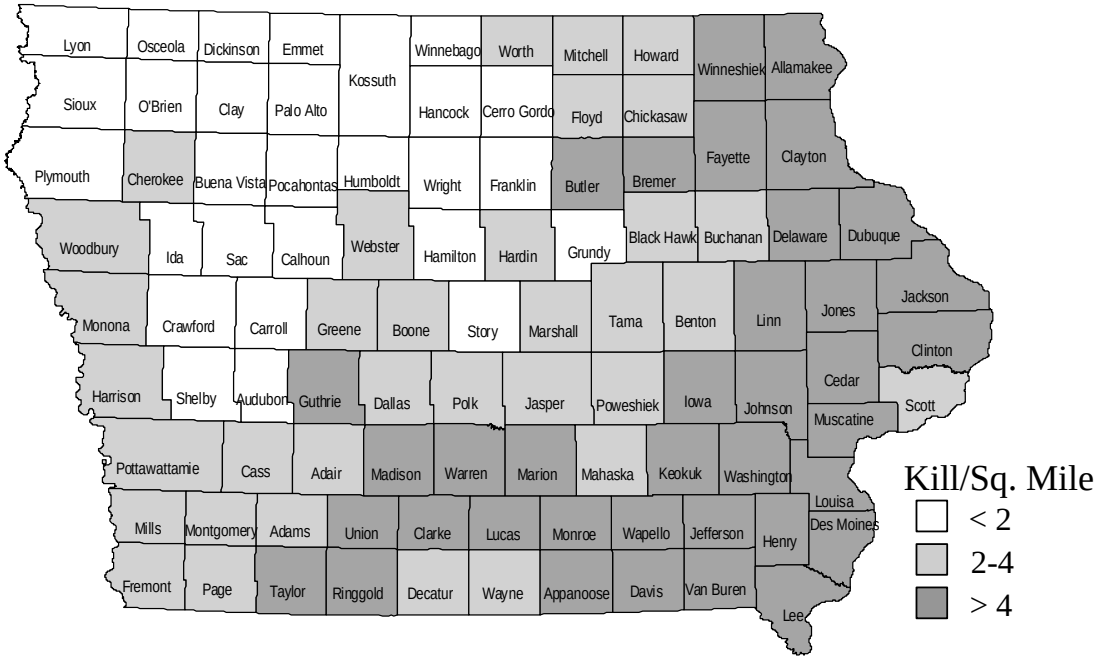


Fig 1.6 The proportion of the harvest that were does in each county during the 2004-2005 deer season.

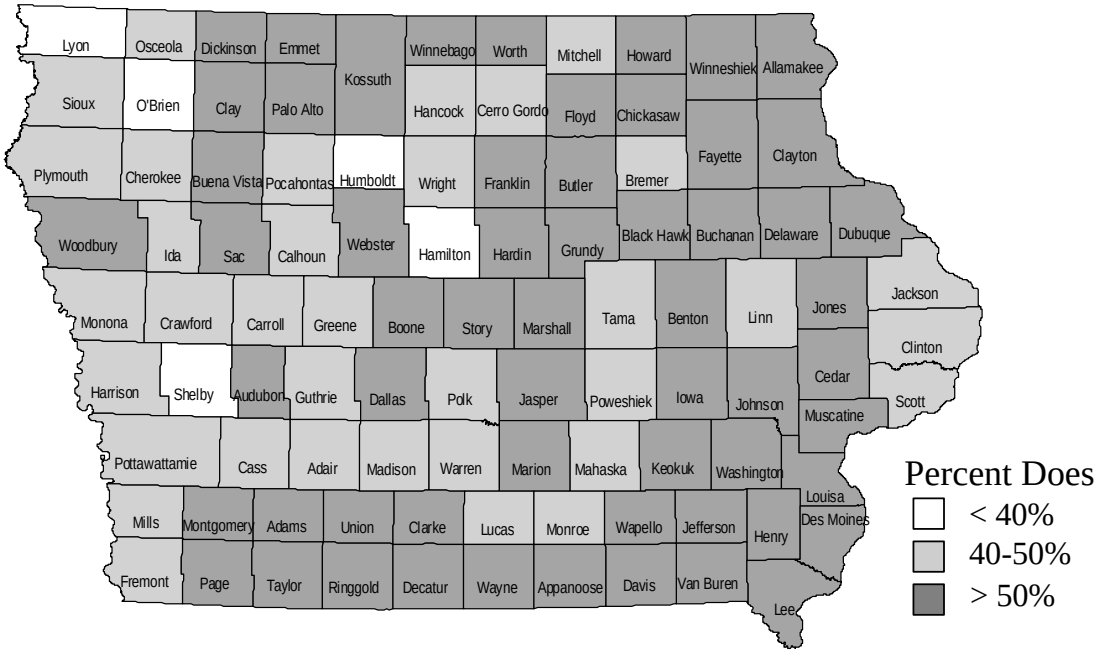


Fig 1.7 Deer population indices and correlation with simulation, 1985-present.

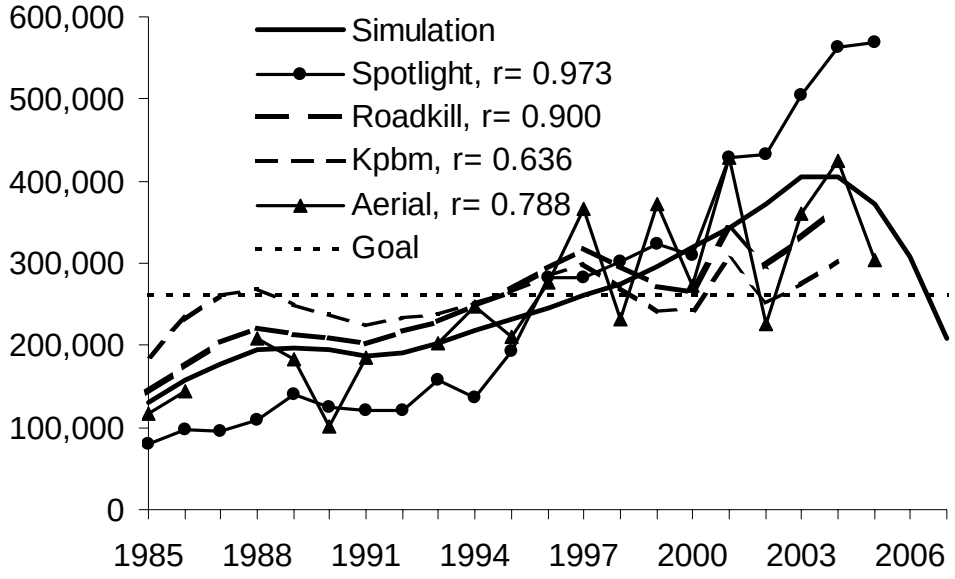


Fig 1.8 Deer population indices and correlation with simulation, 1986-present.

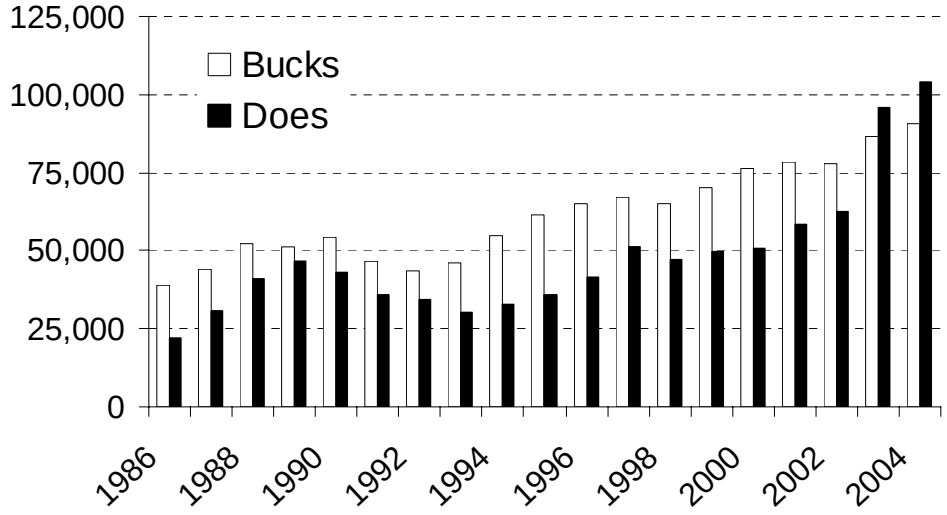
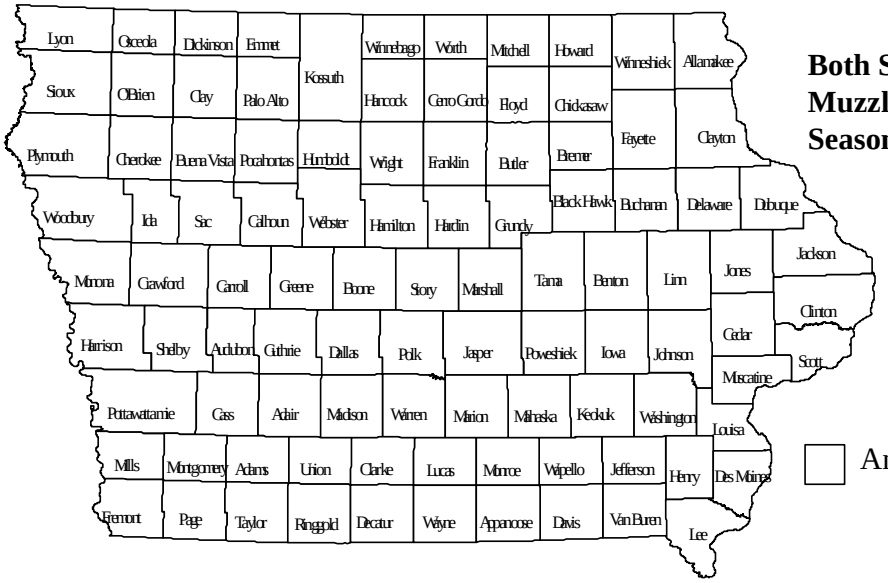
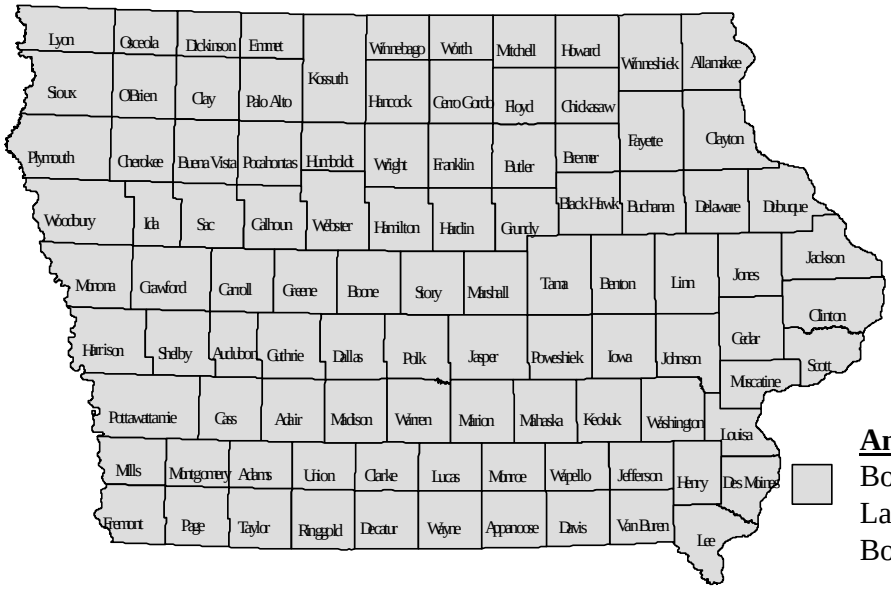


Fig 1.9 All counties were any-sex during all seasons in 2004-2005. All counties had antlerless licenses available and all counties were open for the bonus January season.



Both Shotgun and Muzzleloader Seasons

Any-sex



Antlerless Zone
Bow, Second Gun, Late Muzzleloader Bonus January also

Table 1.1 The dates, hours and zones for shotgun, archery and muzzleloader seasons (1985-present).
(Year summaries prior to the first year given are archived at http://www.iowadnr.com/wildlife/)

		Shotgun		Archery		Muzzleloader	
Year	Zones	Dates	Hours	Dates	Hours	Dates	Hours
1985	1-10 e	Dec 7-11	Sunrise to	Oct 12-Dec 6	1/2 hr before	Dec 21-27	Sunrise to
1985	1-10	Dec 14-20	Sunset		sunrise to		Sunset
1986	1-10	Dec 6-10	"	Oct 11-Dec 5	1/2 hr after	Oct 11-17	1/2 hr before
1986	1-10	Dec 13-19	"		sunset	Dec 20-Jan 4	sunrise to
1987	1-10	Dec 5-9	"	Oct 1-Dec 4 &		Oct 10-18	1/2 hr after
1987	1-10	Dec 12-20	"	Dec 21-Jan 10	"	Dec 21-Jan 10	sunset
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	1/2 hr before	Oct 1-Nov 30 &	"	Oct 13- Oct 21	"
2001	Statewide	Dec 8-16	sunrise to	Dec 17-Jan 10		Dec 17-Jan 10	"
2002	Statewide h	Dec 7-11	1/2 hr after	Oct 1-Dec 6 &	"	Oct 12- Oct 20	"
2002	Statewide	Dec 14-22	sunset	Dec 23-Jan 10		Dec 23-Jan 10	"
2003	Statewide h	Dec 6-10	"	Oct 1-Dec 5 &	"	Oct 11- Oct 19	"
2003	Statewide	Dec 13-21	"	Dec 22-Jan 10		Dec 22-Jan 10	"
2004	Statewide h	Dec 4-8	"	Oct 1-Dec 3 &	"	Oct 16- Oct 24	"
2004	Statewide	Dec 11-19	"	Dec 20-Jan 10		Dec 20-Jan 10	"

e - Unlimited bucks-only statewide begining in 1973 in all following years

f - 34 counties were any-sex during 1st season and 74 were bucks only during first 7 days of the 2nd season

g - 35 counties were any-sex during 1st season and 26 were bucks only during the first 5 days of the 2nd season

h - all counties were any-sex during both seasons

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 2004-2005 season.

Season	License Type	Licenses Issued	Number of Hunters	Harvest	Success Rate
REGULAR GUN					
Paid	Season 1	71,455	70,812	49,283	70%
	Antlerless	13,074	12,813	8,691	68%
	Season 2	48,057	46,920	32,427	69%
	Antlerless	15,211	14,842	7,429	49%
	Nonresident	4,507	4,337	2,515	58%
	Total	152,304 (+ 8%)*a*	149,723 (+10%)	100,345 (+ 1%)	
Landowner	Any sex	45,406	38,785	22,561	58%
	Antlerless	8,276	5,494	3,772	69%
	Total	53,682 (+ 3%)	44,279 (+ 8%)	26,333 (+ 4%)	
GUN SEASON TOTAL		**205,986 (+ 7%)**	**194,002 (+10%)**	**126,678 (+ 2%)**	**65%**
MUZZLELOADER					
Early	Paid	7,510	7,185	4,340	60%
	Antlerless	2,378	2,272	1,249	55%
	Landowner	3,237	2,026	1,229	61%
	Total	13,125 (+10%)	11,483 (- 1%)	6,818 (+11%)	59%
Late	Paid	13,800	13,308	6,648	50%
	Antlerless	12,760	11,647	6,090	52%
	Landowner	2,677	1,695	812	48%
	Nonresident	851	697	350	50%
	Total	30,088 (+22%)	27,347 (+24%)	13,900 (+12%)	51%
MUZZLELOADER TOTAL		**43,213 (+18%)**	**38,830 (+16%)**	**20,718 (+12%)**	**53%**
JANUARY SEASON					
	Paid	14,182	12,509	7,455	60%
	Landowner	9,131	5,242	2,608	50%
	Total	**23,313 (+28%)**	**17,751 (+58%)**	**10,063 (+51%)**	**57%**
HOLIDAY ANTLERLESS		**349**	**329**	**102**	**31%**
YOUTH	Paid	3,978	3,948	2,066	52%
	Landowner	304	262	91	35%
	Disabled	90	82	40	49%
	Total	**4,372 (+12%)**	**4,292 (+15%)**	**2,197 (+16%)**	**51%**
ARCHERY	Paid	41,321	39,092	17,964	46%
	Antlerless	20,268	18,984	9,951	52%
	Landowner	5,804	4,538	2,110	46%
	Nonresident	2,745	2,588	1,020	39%
ARCHERY TOTAL		**70,138 (+11%)**	**65,202 (+17%)**	**31,045 (+13%)**	**48%**
TOTAL *b*		**353,172 (+10%)**	**326,207 (+13%)**	**194,512 (+ 6%)**	

a - the numbers in parentheses are the percent change from 2003-2004

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 (1985 - 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/)

	Regular Gun			Muzzleloader				Grand
Year	Paid	Landowner	Total	Early	Late	Total	Archery	Total
1985	82,218	20,674	102,892		1,522	1,522	22,830	127,244
1986	84,858	25,432	110,290	2,246	1,973	4,219	26,521	141,030
1987	91,804	26,780	118,584	3,091	2,710	5,801	28,910	153,295
1988	101,338	28,002	129,340	3,565	3,618	7,183	30,020	166,543
1989	107,171	33,798	140,969	5,995	12,201	18,196	34,745	194,611
1990	106,781	27,106	133,887	6,602	15,949	22,551	35,217	192,551
1991	100,587	30,834	131,421	7,064	11,458	18,522	33,359	184,041
1992	100,461	30,084	130,545	8,280	10,978	19,315	34,165	186,436
1993	96,577	21,887	118,464	7,306	8,926	16,232	30,938	168,017
1994	102,773	22,809	125,582	8,113	9,737	17,850	34,222	180,525
1995	101,053	18,157	119,210	7,193	8,059	15,463	34,434	177,441
1996	106,746	28,080	134,826	8,806	11,820	20,626	36,351	202,834
1997	109,169	24,423	133,592	8,979	15,049	24,028	37,106	211,118
1998	114,358	25,960	140,318	9,504	12,721	22,225	39,506	223,419
1999	113,695	31,196	144,891	10,246	13,260	23,506	43,687	233,690
2000	113,728	32,116	145,844	10,279	15,242	25,521	44,658	229,800
2001	128,041	38,820	166,861	10,037	18,751	28,788	52,002	265,939
2002	118,973	42,989	161,962	9,807	19,479	29,286	51,534	265,185
2003	136,810	52,148	188,958	11,907	23,905	35,812	60,320	322,096
2004	147,797	53,682	201,479	13,125	29,237	42,362	67,393	353,172

Table 1.4 Historical data on deer harvest by license type (1985-present). Totals include IAAP harvest, special management unit hunts, nonresidents and youth.

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

	Regular Gun			Muzzleloader				Grand
Year	Paid	Landowner	Total	Early	Late	Total	Archery	Total
1985	32,613	5,344	37,957		457	457	5,805	44,219
1986	41,352	10,378	51,730	349	728	1,077	9,895	62,702
1987	53,230	10,270	63,500	1,509	1,027	2,536	9,722	75,758
1988	66,757	13,298	80,055	1,835	1,294	3,129	9,897	93,756
1989	67,606	12,963	80,569	2,619	3,715	6,334	11,857	99,712
1990	69,101	9,095	78,196	2,819	5,884	8,703	10,146	98,002
1991	56,811	11,575	68,386	3,120	2,766	5,886	8,807	83,635
1992	50,822	10,453	61,275	3,316	3,231	6,564	8,814	77,684
1993	52,624	8,354	60,978	2,219	2,883	5,102	9,291	76,430
1994	59,054	8,735	67,789	2,610	3,196	5,806	12,040	87,231
1995	65,206	7,917	73,123	2,831	3,408	6,363	13,372	97,256
1996	71,577	10,896	82,473	2,895	4,558	7,453	12,314	107,632
1997	77,169	10,588	87,757	4,062	5,508	9,570	14,313	118,404
1998	73,165	9,989	83,154	4,448	5,343	9,791	12,302	112,608
1999	74,362	12,966	87,328	5,277	5,329	10,606	15,266	121,635
2000	77,743	13,189	90,932	4,585	5,936	10,521	17,727	126,535
2001	82,721	14,801	97,522	4,593	7,320	11,913	18,798	136,655
2002	77,940	18,932	96,872	5,091	7,772	12,863	20,703	140,490
2003	96,757	25,353	122,110	6,155	12,049	18,204	26,486	182,856
2004	97,830	26,333	124,163	6,818	13,550	20,368	30,025	194,512

Table 1.5 Harvest estimates and ranking for each season by county for total kill during the 2004-2005 deer season.

	Harvest							Rank						
	Paid	Muzzleloader				Non-		Paid	Muzzleloader				Non-	
County	Shotgun	Early	Late	Archery	Youth	resident	Total	Shotgun	Early	Late	Archery	Youth	resident	Total
Clayton	4,577	265	309	1,054	92	138	8,436	1	1	3	2	1	7	1
Van Buren	2,182	101	258	896	34	221	5,241	5	11	9	3	24	2	2
Allamakee	2,635	105	302	316	29	273	4,403	2	9	5	31	31	1	3
Linn	2,055	147	280	1,065	4	28	4,348	9	3	7	1	79	45	4
Dubuque	2,613	131	135	612	49	18	4,278	3	6	42	8	14	59	5
Jackson	2,331	88	153	478	49	72	3,989	4	15	28	14	15	15	6
Winneshiek	2,144	86	242	343	63	56	3,947	7	16	11	27	7	22	7
Johnson	2,077	173	339	628	88	49	3,912	8	2	2	7	2	25	8
Fayette	2,042	145	258	650	51	23	3,894	10	4	8	5	13	52	9
Davis	1,590	103	150	357	9	59	3,576	12	10	29	25	60	21	10
Jones	2,150	74	228	315	30	47	3,483	6	25	12	32	28	27	11
Washington	1,615	66	224	373	64	36	3,194	11	34	14	24	6	34	12
Iowa	1,426	52	200	456	85	31	2,980	18	44	15	17	4	42	13
Appanoose	1,268	79	394	273	59	160	2,979	24	20	1	41	9	5	14
Clinton	1,304	72	171	839	39	17	2,972	21	27	22	4	20	64	15
Delaware	1,133	137	300	522	85	50	2,971	34	5	6	12	3	23	16
Guthrie	1,497	76	183	284	28	78	2,732	15	22	19	38	33	14	17
Lee	1,539	130	136	193	42	26	2,669	13	7	40	58	17	47	18
Cedar	1,291	60	160	523	22	68	2,632	22	39	24	11	43	16	19
Madison	1,428	73	124	192	6	139	2,599	17	26	43	59	67	6	20
Marion	1,520	92	148	382	54	25	2,546	14	13	31	22	11	48	21
Monroe	1,217	30	303	430	30	161	2,543	29	65	4	18	27	4	22
Warren	1,280	78	155	477	53	45	2,540	23	21	27	15	12	29	23
Keokuk	1,125	75	146	406	58	36	2,511	35	23	35	21	10	35	24
Butler	1,159	53	159	475	5	38	2,489	33	42	26	16	74	33	25
Muscatine	1,350	85	189	340	15	18	2,477	20	17	17	28	50	60	26
Henry	1,485	56	165	355	16	35	2,451	16	41	23	26	49	38	27
Tama	1,252	68	251	332	11	22	2,420	27	30	10	29	53	54	28
Taylor	1,236	23	99	144	0	202	2,406	28	78	59	74	93	3	29
Louisa	1,413	39	141	234	35	23	2,383	19	51	37	48	23	53	30
Wapello	1,050	67	119	331	29	13	2,369	40	33	45	30	30	69	31
Benton	1,086	66	226	571	10	38	2,343	37	35	13	10	59	32	32
Ringgold	1,167	29	96	284	0	79	2,306	32	67	61	39	86	13	33
Des Moines	1,253	50	107	242	6	33	2,204	26	46	51	43	63	39	34
Jasper	907	115	136	220	39	17	2,158	49	8	41	52	21	65	35
Pottawattamie	1,260	97	195	314	0	21	2,131	25	12	16	33	83	56	36
Lucas	1,191	31	100	212	20	98	2,126	30	63	57	54	44	9	37
Clarke	952	36	85	298	11	18	2,109	45	56	64	36	54	61	38
Jefferson	1,102	8	141	260	11	47	2,085	36	94	38	42	55	28	39
Hardin	1,056	68	147	279	17	32	2,033	39	31	34	40	47	41	40
Dallas	1,016	66	179	415	35	12	1,989	41	36	20	20	22	71	41
Woodbury	977	29	160	591	0	25	1,966	44	68	25	9	82	49	42
Decatur	944	27	79	121	0	82	1,944	46	71	67	78	94	12	43
Mahaska	1,182	15	73	239	0	33	1,917	31	88	70	44	87	40	44
Wayne	674	18	143	185	1	111	1,871	65	85	36	62	81	8	45
Chickasaw	872	75	101	187	20	10	1,796	51	24	55	61	45	76	46
Adair	924	32	101	226	6	27	1,772	47	60	56	51	65	46	47
Bremer	753	64	70	512	61	28	1,763	56	37	72	13	8	43	48
Union	885	20	138	87	30	48	1,755	50	82	39	82	29	26	49
Poweshiek	1,076	72	38	83	47	24	1,754	38	28	85	84	16	50	50

Table 1.5 *(cont.)* Harvest estimates and ranking for each season by county for total kill during the 2004-2005 deer season.

	Harvest							Rank						
	Paid	Muzzleloader				Non-		Paid	Muzzleloader				Non-	
County	Shotgun	Early	Late	Archery	Youth	resident	Total	Shotgun	Early	Late	Archery	Youth	resident	Total
Monona	1,004	48	120	311	0	96	1,751	42	48	44	34	84	10	51
Howard	679	82	86	233	26	35	1,745	64	18	63	49	34	36	52
Marshall	924	31	100	168	23	24	1,697	48	64	58	69	41	51	53
Page	810	43	113	205	0	67	1,676	54	50	46	56	90	18	54
Boone	604	68	148	188	40	62	1,663	69	32	32	60	18	20	55
Scott	655	24	41	636	6	3	1,649	66	75	83	6	61	92	56
Floyd	790	61	112	237	29	10	1,635	55	38	47	46	32	75	57
Harrison	990	30	149	182	26	66	1,629	43	66	30	65	35	19	58
Buchanan	702	59	107	420	16	3	1,615	58	40	50	19	48	90	59
Mitchell	840	49	43	154	31	42	1,497	53	47	82	70	26	30	60
Black Hawk	580	82	75	307	81	4	1,497	71	19	69	35	5	84	61
Adams	622	29	174	238	5	88	1,479	68	69	21	45	75	11	62
Webster	741	91	76	210	6	18	1,475	57	14	68	55	66	63	63
Montgomery	691	10	185	229	0	50	1,446	61	92	18	50	88	24	64
Cherokee	869	32	32	183	11	18	1,414	52	61	89	64	56	62	65
Mills	648	46	90	296	0	20	1,360	67	49	62	37	85	58	66
Fremont	684	24	112	179	23	35	1,318	63	74	49	66	40	37	67
Polk	594	23	71	380	6	9	1,277	70	79	71	23	62	78	68
Cass	692	15	80	116	12	68	1,255	60	89	65	80	51	17	69
Greene	570	72	60	236	6	3	1,220	73	29	74	47	64	93	70
Franklin	701	25	112	52	0	42	1,109	59	73	48	88	97	31	71
Crawford	690	14	66	149	0	13	1,054	62	90	73	73	92	70	72
Worth	438	32	148	153	5	28	991	76	62	33	71	77	44	73
Wright	392	52	54	205	0	22	953	83	45	77	57	91	55	74
Buena Vista	401	20	45	185	24	7	935	81	83	81	63	38	81	75
Story	577	26	46	171	5	4	901	72	72	80	67	76	87	76
Cerro Gordo	367	38	102	130	5	4	887	89	52	54	76	78	88	77
Kossuth	535	13	97	152	25	11	859	74	91	60	72	37	73	78
Plymouth	396	37	107	134	6	3	856	82	54	52	75	68	94	79
Lyon	369	34	20	45	26	11	824	88	59	94	92	36	72	80
Hamilton	386	21	16	115	6	20	799	84	81	97	81	70	57	81
Audubon	330	16	59	86	0	7	791	90	87	75	83	95	82	82
Sac	410	28	36	125	34	7	787	78	70	86	77	25	80	83
Hancock	410	53	55	17	18	0	750	79	43	76	97	46	96	84
Humboldt	374	18	24	213	0	3	735	87	86	92	53	89	95	85
Palo Alto	377	37	79	120	6	0	710	86	55	66	79	69	97	86
Clay	378	36	104	39	11	10	702	85	58	53	93	57	77	87
Carroll	324	19	35	171	40	7	690	92	84	87	68	19	79	88
O'Brien	445	24	20	59	12	6	680	75	76	95	87	52	83	89
Shelby	428	21	39	49	24	4	590	77	80	84	91	39	85	90
Sioux	406	36	27	52	6	14	586	80	57	91	89	72	68	91
Emmet	329	9	33	24	23	14	525	91	93	88	94	42	67	92
Winnebago	259	24	49	74	0	11	440	94	77	78	85	96	74	93
Dickinson	227	38	47	49	0	0	414	95	53	79	90	98	99	94
Grundy	292	3	12	14	3	0	408	93	96	98	98	80	98	95
Calhoun	189	3	12	69	6	17	369	97	97	99	86	71	66	96
Ida	216	1	23	18	0	4	347	96	99	93	96	99	89	97
Pocahontas	146	3	19	19	11	3	231	98	98	96	95	58	91	98
Osceola	88	4	30	6	6	4	190	99	95	90	99	73	86	99
Total	97,830	5,351	12,226	27,404	2,197	3,987	194,512							

Table 1.6 Harvest estimates by county for total kill during the 2004-2005 deer season.

County	Hunters	Antlered Bucks	Does	Button Bucks	Total	Percent of kill: Does	Percent of kill: Antlered Bucks	Hunters/ Sq. Mile	Kill/ Sq. Mile
Adair	2,701	779	811	182	1,772	46%	44%	4.75	3.11
Adams	1,894	600	775	104	1,479	52%	41%	4.45	3.47
Allamakee	6,957	1,775	2,314	314	4,403	53%	40%	10.94	6.92
Appanoose	4,276	1,027	1,672	280	2,979	56%	34%	8.18	5.70
Audubon	1,328	355	404	32	791	51%	45%	2.96	1.77
Benton	3,503	798	1,288	257	2,343	55%	34%	4.88	3.26
Black Hawk	2,622	536	778	183	1,497	52%	36%	4.62	2.64
Boone	3,074	483	994	186	1,663	60%	29%	5.36	2.90
Bremer	3,076	790	829	144	1,763	47%	45%	7.01	4.02
Buchanan	2,600	593	905	117	1,615	56%	37%	4.58	2.84
Buena Vista	1,413	286	583	66	935	62%	31%	2.47	1.63
Butler	3,924	1,001	1,272	216	2,489	51%	40%	6.74	4.28
Calhoun	582	163	156	50	369	42%	44%	1.02	0.65
Carroll	1,102	295	342	53	690	50%	43%	1.92	1.20
Cass	1,941	519	563	173	1,255	45%	41%	3.47	2.25
Cedar	3,967	998	1,458	176	2,632	55%	38%	6.78	4.50
Cerro Gordo	1,927	368	389	130	887	44%	41%	3.35	1.54
Cherokee	2,069	675	704	35	1,414	50%	48%	3.61	2.47
Chickasaw	2,992	565	1,068	163	1,796	59%	31%	5.92	3.56
Clarke	3,138	726	1,166	217	2,109	55%	34%	7.31	4.92
Clay	1,474	252	420	30	702	60%	36%	2.59	1.23
Clayton	11,504	2,770	4,658	1,008	8,436	55%	33%	14.77	10.83
Clinton	5,020	1,216	1,410	346	2,972	47%	41%	7.24	4.29
Crawford	1,740	510	448	96	1,054	43%	48%	2.43	1.47
Dallas	3,469	757	1,029	203	1,989	52%	38%	5.81	3.33
Davis	5,007	1,160	1,989	427	3,576	56%	32%	9.84	7.03
Decatur	3,039	559	1,116	269	1,944	57%	29%	5.73	3.67
Delaware	4,261	1,062	1,646	263	2,971	55%	36%	7.45	5.19
Des Moines	3,695	785	1,140	279	2,204	52%	36%	9.06	5.40
Dickinson	807	159	235	20	414	57%	38%	2.12	1.09
Dubuque	6,664	1,360	2,416	502	4,278	56%	32%	10.89	6.99
Emmet	1,179	196	310	19	525	59%	37%	2.99	1.33
Fayette	6,122	1,225	2,357	312	3,894	61%	31%	8.41	5.35
Floyd	2,497	508	876	251	1,635	54%	31%	4.96	3.25
Franklin	1,714	369	596	144	1,109	54%	33%	2.92	1.89
Fremont	1,893	655	567	96	1,318	43%	50%	3.61	2.52
Greene	2,022	476	560	184	1,220	46%	39%	3.55	2.14
Grundy	645	184	221	3	408	54%	45%	1.29	0.81
Guthrie	4,095	1,109	1,307	316	2,732	48%	41%	6.87	4.58
Hamilton	1,525	485	274	40	799	34%	61%	2.64	1.38
Hancock	1,446	210	345	195	750	46%	28%	2.54	1.32
Hardin	3,051	849	1,053	131	2,033	52%	42%	5.32	3.54
Harrison	2,727	653	792	184	1,629	49%	40%	3.92	2.34
Henry	3,644	682	1,433	336	2,451	58%	28%	8.28	5.57
Howard	2,799	549	976	220	1,745	56%	31%	5.94	3.70
Humboldt	1,173	404	283	48	735	39%	55%	2.70	1.69
Ida	749	147	165	35	347	48%	42%	1.74	0.81
Iowa	4,698	1,004	1,595	381	2,980	54%	34%	8.04	5.10
Jackson	5,453	1,567	1,966	456	3,989	49%	39%	8.47	6.19

Table 1.6 (*cont.*) Harvest estimates by county for total kill during the 2004-2005 deer season.

County	Hunters	Antlered Bucks	Does	Button Bucks	Total	Percent of kill: Does	Antlered Bucks	Hunters/ Sq. Mile	Kill/ Sq. Mile
Jasper	3,430	724	1,276	158	2,158	59%	34%	4.67	2.94
Jefferson	2,786	671	1,199	215	2,085	58%	32%	6.39	4.78
Johnson	6,759	1,083	2,361	468	3,912	60%	28%	10.92	6.32
Jones	5,025	917	2,026	540	3,483	58%	26%	8.59	5.95
Keokuk	3,785	845	1,366	300	2,511	54%	34%	6.54	4.34
Kossuth	1,812	327	465	67	859	54%	38%	1.85	0.88
Lee	4,364	904	1,344	421	2,669	50%	34%	8.28	5.06
Linn	6,347	1,638	2,086	624	4,348	48%	38%	8.85	6.06
Louisa	3,426	612	1,464	307	2,383	61%	26%	8.50	5.91
Lucas	3,344	889	944	293	2,126	44%	42%	7.71	4.90
Lyon	1,589	457	309	58	824	38%	55%	2.70	1.40
Madison	4,429	996	1,230	373	2,599	47%	38%	7.85	4.61
Mahaska	2,888	791	912	214	1,917	48%	41%	5.05	3.35
Marion	4,224	834	1,292	420	2,546	51%	33%	7.45	4.49
Marshall	2,454	576	882	239	1,697	52%	34%	4.28	2.96
Mills	1,940	581	638	141	1,360	47%	43%	4.34	3.04
Mitchell	2,223	702	614	181	1,497	41%	47%	4.76	3.21
Monona	2,715	841	850	60	1,751	49%	48%	3.88	2.51
Monroe	3,513	1,051	1,232	260	2,543	48%	41%	8.08	5.85
Montgomery	1,990	537	766	143	1,446	53%	37%	4.72	3.43
Muscatine	4,191	735	1,465	277	2,477	59%	30%	9.46	5.59
O'Brien	1,236	378	250	52	680	37%	56%	2.15	1.18
Osceola	795	78	90	22	190	47%	41%	2.00	0.48
Page	2,528	626	877	173	1,676	52%	37%	4.73	3.13
Palo Alto	1,142	291	373	46	710	53%	41%	2.04	1.27
Plymouth	1,894	311	408	137	856	48%	36%	2.19	0.99
Pocahontas	557	115	102	14	231	44%	50%	0.96	0.40
Polk	2,928	588	565	124	1,277	44%	46%	4.93	2.15
Pottawattamie	3,529	953	1,036	142	2,131	49%	45%	3.66	2.21
Poweshiek	3,034	833	838	83	1,754	48%	47%	5.15	2.98
Ringgold	3,033	746	1,397	163	2,306	61%	32%	5.64	4.29
Sac	1,280	325	406	56	787	52%	41%	2.21	1.36
Scott	3,326	680	785	184	1,649	48%	41%	7.33	3.63
Shelby	1,178	354	185	51	590	31%	60%	2.01	1.01
Sioux	1,445	297	270	19	586	46%	51%	1.89	0.77
Story	1,981	372	464	65	901	51%	41%	3.49	1.59
Tama	3,877	1,039	1,203	178	2,420	50%	43%	5.38	3.36
Taylor	3,010	792	1,359	255	2,406	56%	33%	5.70	4.56
Union	2,398	657	931	167	1,755	53%	37%	5.64	4.13
Van Buren	6,839	1,413	3,162	666	5,241	60%	27%	14.04	10.76
Wapello	3,554	768	1,294	307	2,369	55%	32%	8.13	5.42
Warren	4,877	1,211	1,017	312	2,540	40%	48%	8.53	4.44
Washington	4,512	817	1,927	450	3,194	60%	26%	7.94	5.62
Wayne	3,174	517	1,127	227	1,871	60%	28%	5.97	3.52
Webster	2,631	622	771	82	1,475	52%	42%	3.66	2.05
Winnebago	1,004	189	226	25	440	51%	43%	2.50	1.10
Winneshiek	5,426	1,257	2,158	532	3,947	55%	32%	7.89	5.74
Woodbury	3,396	606	1,163	197	1,966	59%	31%	3.90	2.26
Worth	1,502	366	513	112	991	52%	37%	3.76	2.48
Wright	1,795	494	396	63	953	42%	52%	3.11	1.65
Total	306,114	69,600	103,785	21,127	194,512	53%	36%	5.46	3.47

Table 1.7 A summary of archery season dates, hours, success rates and other information (1985 - 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
1985	Oct 12-Dec 6	sunrise to	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 &	after sunset	68	35		Added late season.
	Dec 21-Jan 10	"				
1988	Oct 1-Dec 2 &	"	71	35	16	
	Dec 19-Jan 10	"				
1989	Oct 1-Dec 1 &	"	73	36	20	Bonus 2nd tag for antlerless deer
	Dec 18-Jan 10	"				statewide
1990	Oct 1-Nov 30 &	"	65	32	19	Bonus tag for antlerless early or
	Dec 17-Jan 10	"				anysex late,statewide
1991	Oct 1-Dec 6 &	"	73	28	17	Bonus tag for antlerless deer available
	Dec 23-Jan 10	"				only in zones 3a,4a,5a and 6. $25 fee.
1992	Oct 1-Dec 4 &	"	69	28	15	Bonus tag for antlerless deer available
	Dec 21 -Jan 10	"				only in bonus antlerless zone if no gun tag.
1993	Oct 1-Dec 3 &	"	73	32	17	Bonus tag for antlerless deer available
	Dec 20-Jan 10	"				only in bonus antlerless zone if no gun tag.
1994	Oct 1-Dec 2&	"	77	37	16	Bonus tag for antlerless deer available
	Dec 19-Jan 10	"				only in bonus antlerless zone if no gun tag.
1995	Oct 1-Dec 1&	"	76	39	17	Bonus tag for antlerless deer available
	Dec 18-Jan 10	"				only in bonus antlerless zone if no gun tag.
1996	Oct 1-Dec 6&	"	78	37	16	Bonus tag for antlerless deer available
	Dec 23-Jan 10	"				only in bonus antlerless zone if no gun tag.
1997	Oct 1-Dec 5&	"	71	42	17	Bonus tag for antlerless deer available only in
	Dec 22-Jan 10	"				bonus antlerless zone. Could get firearm license also.
1998	Oct 1-Dec 4&	"	76	34	15	Bonus tag for antlerless deer available only in
	Dec 21-Jan 10	"				bonus antlerless zone. Could get firearm license also.
1999	Oct 1-Dec 3&	"	79	37	16	Bonus tag for antlerless deer available only in
	Dec 20-Jan 10	"				bonus antlerless zone. Could get firearm license also.
2000	Oct 1-Dec 1&	"	80	44	17	Bonus tag for antlerless deer available only in
	Dec 18-Jan 10	"				bonus antlerless zone. Could get firearm license also.
2001	Oct 1-Nov 30&	"	75	37	17	Bonus tag for antlerless deer available in every county.
	Dec 17-Jan 10	"				Could get firearm license also.
2002	Oct 1-Dec 6 &	"	66	39	17	Bonus tag for antlerless deer available in every county.
	Dec 23-Jan 10	"				Could get firearm license also.
2003	Oct 1-Dec 5 &	"	54	44	18	Bonus tag for antlerless deer available in every county.
	Dec 22-Jan 10	"				Could get firearm license also.
2004	Oct 1-Dec 3 &	"	54	46	18	Bonus tag for antlerless deer available in every county.
	Dec 20-Jan 10	"				Could get firearm license also.

Table 1.8 A summary of muzzleloader season dates, hours, success rates and other information (1985 - present).

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
1985	Dec 21-27	Sunrise to Sunset	44	34	4	2000 A-S Quota. $20 fee.
1986	Oct 11-17	1/2 hr	100	17	4	2500 B-O Quota.
	Dec 20-Jan 4	before	43	40	6	Unlimited A-S Quota.
1987	Oct 10-18	sunrise	55	52	8	3000 A-S Quota
	Dec 21-Jan 10	to	46	42	6	Unlimited A-S Quota.
1988	Oct 15-23	1/2 hr after	55	55	4	3500 A-S Quota
	Dec 19-Jan 10	sunset	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 also.
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 12- Oct 20	"	65	56	4	7500 license quota, no counties buck only
	Dec 23-Jan 10	"	41	46	6	Antlerless in all counties, no counties buck-only.
2003	Oct 11- Oct 19	"	54	55	4	7500 license quota, no counties buck only
	Dec 22-Jan 10	"	37	51	6	Antlerless in all counties, no counties buck-only.
2004	Oct 16- Oct 24	"	55	58	5	7500 license quota, no counties buck only
	Dec 20-Jan 10	"	37	48	6	Antlerless in all counties, no counties buck-only.

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

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

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 2004-2005.

Area	Weapon	Licenses	Hunters	Harvest
Lake Panorama	Archery	200	137	51
Ledges State Park	Shotgun	50	50	42
Lake of Three Fires	Shotgun	45	30	25
Kent Park	Shotgun	100	77	37
Coralville, City of	Archery	400	162	107
Johnson County Zone	Archery & Firearm	500	244	175
Black Hawk County Zone	Archery	306	163	76
Smith Wildlife Area	Shotgun	8	5	4
Lake Manawa State Park	Archery	37	26	13
Viking Lake State Park	Shotgun	45	45	34
Elk Rock State Park	Shotgun	50	28	22
Scott County Park	Shotgun	75	75	53
Linn County Zone	Archery & Firearm	500	269	165
Squaw Creek Park	Archery	150	86	35
Marion, City of	Archery	125	51	56
Backbone State Park	Shotgun	120	119	80
Polk County Zone	Archery & Firearm	500	491	297
Dubuque County Zone	Archery & Firearm	400	227	139
Iowa Army Ammunition Plant	Archery & Firearm	1000	634	336
Iowa Army Ammunition Plant (Perimeter Zone)	Archery & Firearm	400	106	62
Springbrook State Park	Firearm	20	19	11
Lake Darling State Park	Firearm	200	112	80
Pine Lake State Park	Firearm	50	48	20
Green Valley State Park	Firearm	50	48	40
Lake Keomah State Park	Archery	50	20	13
DeSoto National Refuge	Archery & Firearm	70	45	30
Depredation & Shooting Permits	Archery & Firearm	3,248	2,484	1,706
Total		8,699	5,801	3,709

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 saw timber and 20% are in pole timber (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/mi^2 of timber per season.

2005: Iowa's 31th modern spring hunting season recorded the second largest number of turkeys harvested, with license sales the second most also (Table 2.1 and 2.3). This was the seventeenth year the entire state was open to spring turkey hunting (Table 2.11). The 35-day season (11 April through 15 May, 2005) 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 52,783 resident shotgun licenses issued. An additional record number (3,952) of 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-eight percent of the hunters were successful in harvesting a gobbler in 2005 (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. 2.4). Declines observed in spring hunter success rates during 1983 and 1984 (Fig. 2.4) can be partially explained by poor brood production during the summers of 1982 (Fig. 2.10). Similarly, the decline in hunter success rates between 1988 and 1993 may be explained by 6 years of poor brood production starting in 1988. The success rates over the last five years averaged 46.0%.

This was the sixteenth spring that non-residents were allowed to hunt turkeys in Iowa. Quotas in zones 4 (all seasons), and zone 5 (season 4) were filled in 2005. Ninety-nine percent of the non-resident hunters that were issued a license actually hunted and they harvested an estimated 1,187 wild turkeys (Tables 2.2 and 2.3). Non-residents were more successful than residents in harvesting a spring gobbler (56.0% versus 47.5%, 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 over-harvesting hens, carefully controlled fall hunts began in 1981 on an experimental basis. These hunts occurred in portions of southern Iowa,

which had established, stable turkey populations. Fall turkey hunting has changed dramatically since the initial experimental 1981 season. The area encompassed by fall hunting zones has increased from 2 small zones in southern Iowa during 1981 to 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/mi^2 of forest on the southern Iowa Stephens Forest study area and region-wide densities of at least 40-50/mi^2). A cool wet spring in 1981 led to essentially no recruitment just prior to the first fall season. A large carryover of adults from previous successful hatches meant that hunters had high success rates in the fall of 1981, but harvested almost no juvenile turkeys. A slightly better hatch in 1982, coupled with the reduction in available adult turkeys, led to proportionally more juveniles in the bag in 1982, but the harvest and

success rates were reduced. A good hatch in 1983, produced more juveniles in the bag and an increased harvest, suggesting populations were recovering from a 2-year depression. Another good hatch in 1984 resulted in even more juveniles in the bag and again an increased harvest. Fall 1985 was similar to 1984. The greatest effect was felt in southern Iowa where spring weather was least favorable in both 1981 and 1982. Indications of over-harvest on popular public hunting areas 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 below the levels observed in the mid-1980's.

2004: Wild turkey brood production was below the 10-year average in 2004 (Tables 2.9 and 2.10). However, turkey hunter success rates increased to slightly in 2004 (Table 2.8). 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 2004, zones remained the same as 1999-2003, but quotas increased by 1,000 in Zone 4, 50 in Zone 5, 200 in Zone 7, and 75 in Zone 8 (Fig. 2.5b). Shotgun license issue (paid and free combined) decreased slightly from the 2003 level to 13,221 for the 54-day season that ran from 11 October through 3 December 2004 (Table 2.12). Over 49% of the shotgun licenses were issued free to landowners. An additional 1,549 archery-only licenses were issued for a season that ran from 1 October through 3 December, 2004 and 20 December, 2004 through 10 January, 2005. Only 8,718 shotgun hunters actually hunted for turkeys during fall 2003, but this was a record number of active hunters (Table 2.6). Thirty-seven of the active hunters harvested a turkey. Hunter success rates varied from 14% in zone 3 to 53% 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/mi^2 of forest as determined from empirical population data gathered from Stephens State Forest (IDNR, unpubl. data). In 1986, only 4 counties sustained > 4 hunters/mi^2 of forest, combined with turkey harvests of > 2/mi^2 of forest. In 1987, with the large increase in licenses issued, 12 counties had both hunter densities > 4, and turkey harvest > 2/mi^2 of timber (out of 43 counties with reporting hunters). The high seasonal hunter densities were somewhat reduced by a 28-day season during 1987. No more than 34% of the hunters and 39% of the eligible hunters (those who had not yet bagged a turkey) were afield on any day. The opening 2 days and 4 weekend days were the most popular hunting days. There were no evident relationships between daily hunting pressure and daily success rates. To reduce daily hunter densities, hunter interference rates and increase fall recreation days, the 1988 fall season was extended to 49 days (October 10 - November 27). However, a large increase in licenses issued in 1988 increased the number of counties exceeding allowable harvest and hunter density values to 16 (out of 53 counties with reported turkey harvest). Another record license issue in 1989 resulted in 24 counties (of 49 counties with reported turkey harvest) exceeding >4 hunters, and >2 turkeys harvested/mi^2 of timber. Fewer licenses were issued in 1990 and correspondingly only 16 counties exceeded hunter and harvest rate maximums. Due to continued poor brood production, both hunter numbers and harvest was dramatically reduced during 1991 - 1993 and increased only slightly throughout 1994-2000, but decreased slightly in 2001. Unfortunately, the present management concern is how to maintain turkey numbers instead of the enviable situation of being concerned about hunter densities.

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 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 1976-2004 are summarized in Tables 2.9 and 2.10.

2004: Statewide: Wild turkey poult production per hen deceased during 2004 (54.5 poults/hen) from 2003 (5.0 poults/hen) based on 4,517 observations statewide (Tables 2.9 and 2.10; Fig. 2.4). However, the percent of hens with broods increased from the 2003 estimates (Table 2.10), but still 3% below the 10-year average. Average turkey flock size also decreased in 2004 (Table 2.9).

Northeast Region: The northeast region's production index was lower than the 10-year average for poults/hen, and 17% lower for hens seen with poults. Birds/flock also decreased by 24% from the previous year, but was 21% below the 10-year average. However, this region still continues to maintain relatively high turkey numbers when compared to other areas of the state.

Southern Region: The southern region's poult/hen ratio was below the 10-year average, but an increase (3%) of poults seen with hens was recorded, which was 22% higher than the 10-year average. However, the number of birds/flock decreased to 10% below the 10-year average.

Central Region: The number of poults/hen, the percent of hens with brood, and the number of birds per flock both decreased in 2004 in the central region from the values observed in 2003, and were lower than the 10-year average. However, the percent of hens seen with broods were 3% above the 10-year average.

Western Region: In 2003, the western region experienced a slight decrease in the poult/hen ratio, but experienced a 30% increase in birds/flock from 2003 and a 6% increase in the percent of hens seen with brood.

East-Central Region: The east-central region data indicated a 16% decrease in the poult/hen ratio over 2003, but an increase of 11% for hens seen with broods over 2003. Fewer birds/flock were observed in 2004 over 2003.

Northwest Region: This region experienced reduced turkey reproduction with 19% fewer hens seen with broods, and a 4% decrease in poults seen with hens compared to the previous year. The number of birds observed per flock were also down by 15% from 2003.

North-Central Region: The number of birds per flock and the number of poults/hen decreased by 14% in the north-central region over 2003 levels, and 5% below the 10-year average. The percent of hens with broods had also decreased by 8% in this region compared to the previous year and the 10-year average.

Youth Turkey Season

Iowa's first ever youth spring turkey season has held in April 8-10, 2005. During the 3 day season, 12-15 year olds were allowed to participate with an accompanied licensed adult (adult licensed for one of the regular seasons). A total of 1,307 youth purchased licenses for the season. Eighty-three percent of the licensees were males, with 13-year olds purchasing the most licenses for each age class.

Since the inception of ELSI (Electronic Licensing System of Iowa) in 2001, hunter age and gender has been recorded. Over the past 5 years, youth spring turkey hunters have increased every year. Since 2002, youth hunters (6-15) have increased 9% each year, while the total number of turkey licenses issued has remained the same (Fig. 2.7). During the past 5 years, male youth turkey hunter numbers peaked at age 15 while female numbers peaked at age 13.

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Figure 2.1 Iowa spring turkey hunting statewide estimates, 1974-2005.

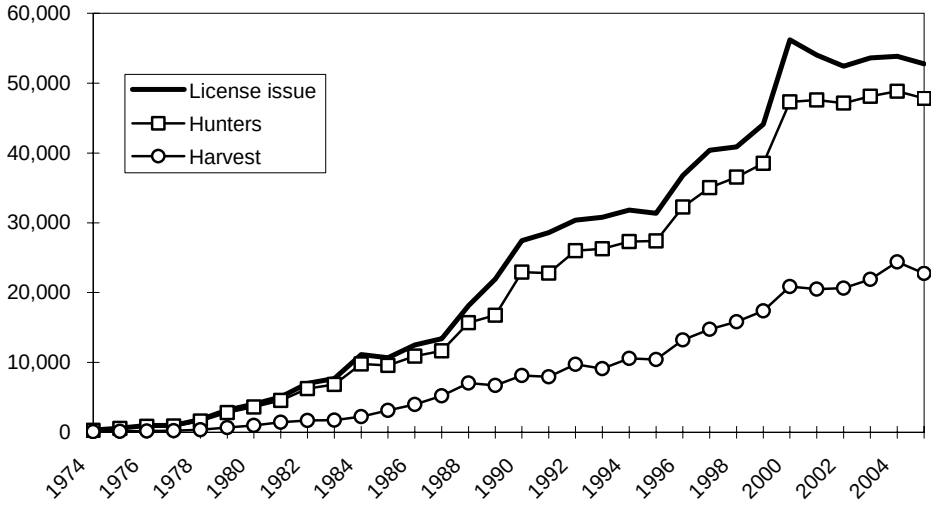


Figure 2.2 Spring turkey hunting zones, 1974 and the present.

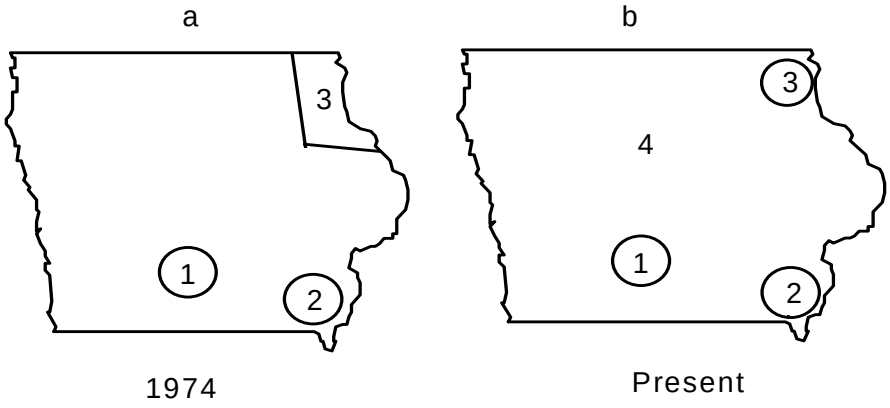


Figure 2.3 Iowa turkey harvest statewide success rates, 1974-2005.

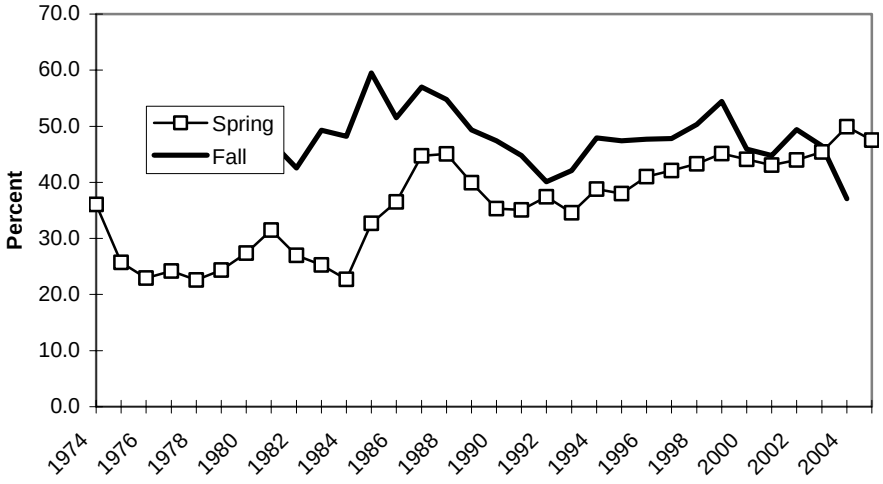


Figure 2.4 Iowa turkey brood survey statewide results, 1976-2004.

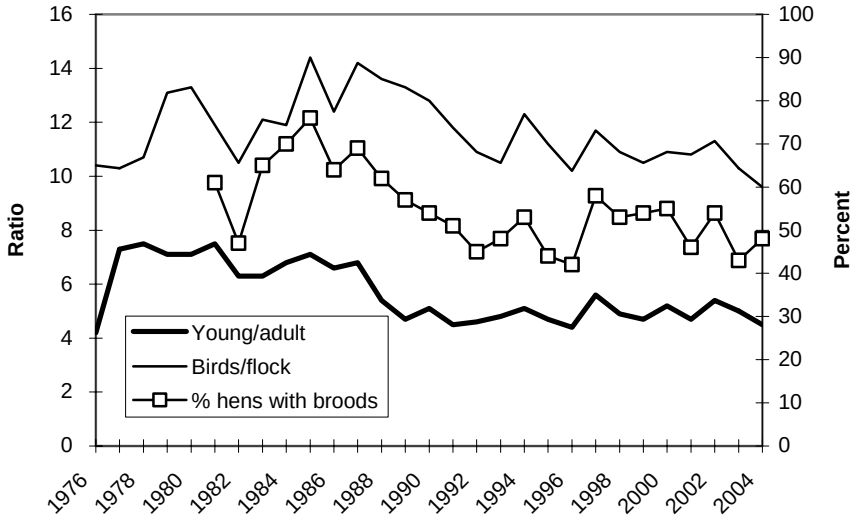


Figure 2.5 Fall turkey hunting zones, 1981 and the present.

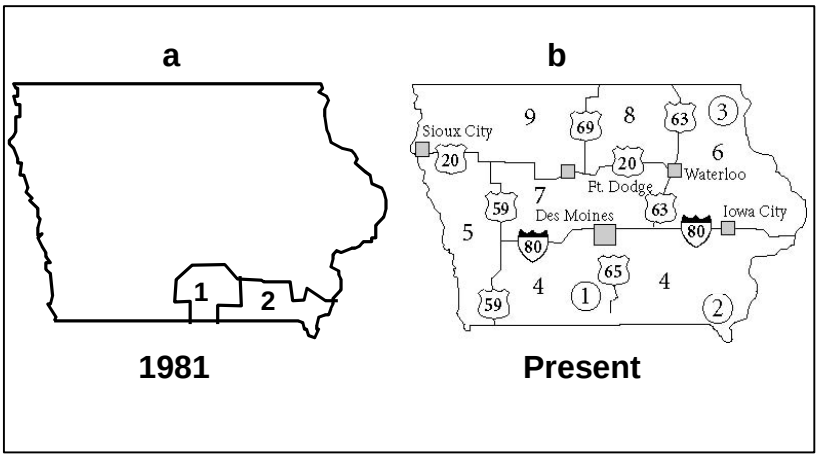


Figure 2.6 Iowa fall turkey hunting statewide estimates, 1981-2004.

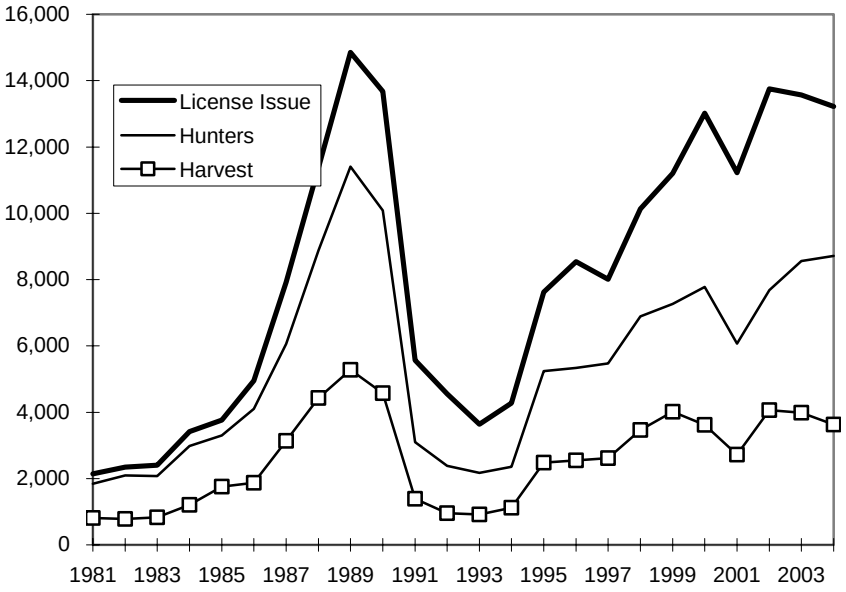


Figure 2.7 Iowa spring turkey license issue, 2001-2005.

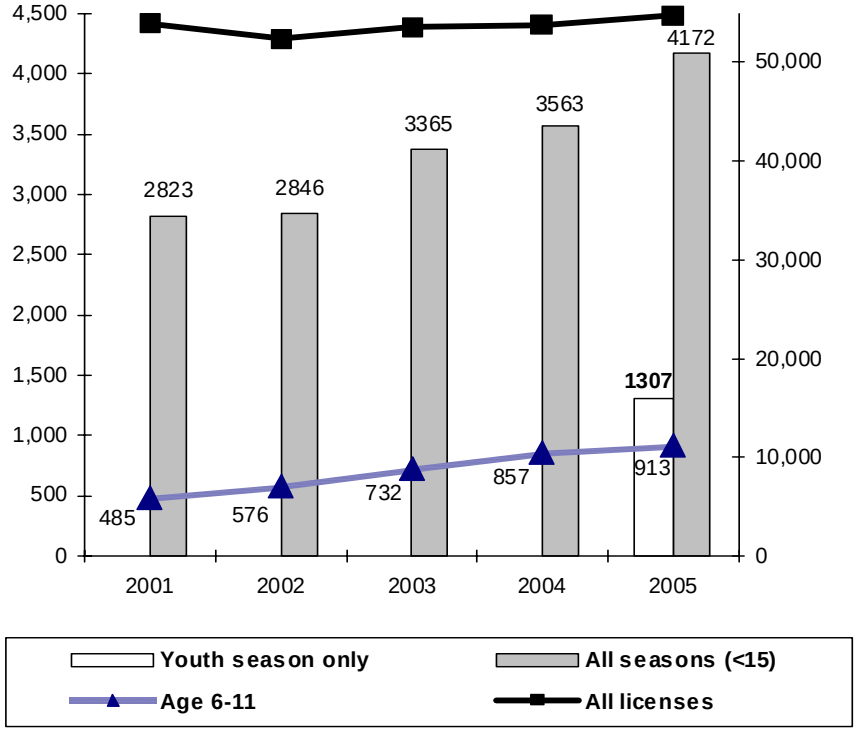


Table 2.1 Number of Iowa spring turkey-hunting licenses issued by zone, 1974-present.
Archery-only licenses included in totals licenses (not in resident total). Free landowner licenses included in

	ZONE					BOW	RESIDENT	NON-	TOTAL
YEAR	1	2	3	4	5	ONLY	TOTAL	RESIDENT	LICENSES
1974	105	113		82		-	300		
1975	168	184		248		-	600		
1976	143	273		558		-	974		
1977	235	276		494		-	1,005		
1978	280	323		1,212		-	1,815		
1979	195	298		2,662		-	3,155		
1980	195	225	357	3,227		-	4,004		
1981	195		420	4,374	67	-	5,056		
1982			297	6,592	135	-	7,024		
1983			300	7,231	165	-	7,696		
1984	259	416	325	9,849	277	-	11,126		
1985	259	449	320	9,379	277	-	10,684		
1986	273	493	339	11,032	356	-	12,493		
1987	289	507	357	11,828	404	-	13,385		
1988	268	471	324	16,438	632	-	18,133		
1989	268	505	338	20,091	736	-	21,938		
1990	261	500	322	25,331	1,030	-	27,444	184	28,658
1991	262	505	322	26,399	1,115	-	28,603	306	30,024
1992	260	487	320	28,220	1,083	-	30,370	445	31,898
1993	260	500	320	28,646	1,060	-	30,786	585	32,431
1994	262	508	324	30,714	-	-	31,808	602	32,410
1995	260	500	320	30,269	-	-	31,349	955	32,304
1996	260	487	302	35,740	-	-	36,789	1,124	37,913
1997	261	501	320	39,314	-	-	40,396	1,346	41,742
1998	260	500	320	39,783	-	-	40,863	2,005	42,868
1999	260	500	320	43,008	-	-	44,088	1,999	46,087
2000	257	392	242	55,290	-	-	56,181	2,013	58,194
2001	104	148	108	53,635	-	2,206	53,995	2,012	58,213
2002	121	207	158	51,940	-	2,491	52,426	1,944	56,861
2003	129	215	134	53,144	-	3,032	53,622	2,079	58,733
2004	132	191	128	53,404	-	3,472	53,855	2,133	59,460
2005	127	154	138	52,364	-	3,952	52,783	2,150	58,885

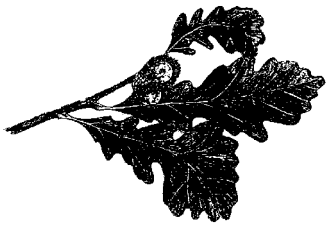


Table 2.2 Number of estimated active Iowa spring turkey hunters by zone 1974-present.
Archery-only licenses not surveyed.

	ZONE					RESIDENT	NON-	TOTAL
YEAR	1	2	3	4	5	TOTAL	RESIDENT	ACTIVE
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	23,109
1991	234	477	289	20,905	868	22,773	273	23,046
1992	200	351	213	24,321	919	26,004	418	26,422
1993	124	391	197	24,648	888	26,248	542	26,790
1994	157	365	217	26,561	-	27,300	527	27,827
1995	113	331	211	26,734	-	27,389	881	28,270
1996	178	331	169	31,591	-	32,269	1,057	33,326
1997	152	356	210	34,314	-	35,032	1,229	36,261
1998	174	395	226	35,759	-	36,554	1,858	38,412
1999	139	336	179	37,873	-	38,527	1,803	40,330
2000	183	287	159	46,705	-	47,334	1,841	49,175
2001	75	103	92	47,327	-	47,597	1,822	49,419
2002	70	136	93	46,685	-	47,116	1,796	48,912
2003	100	157	107	47,755	-	48,119	1,939	50,058
2004	76	172	87	48,507	-	48,842	2,004	50,846
2005	115	124	105	47,461	-	47,805	2,120	49,925

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

	ZONE					RESIDENT	NON-	TOTAL
YEAR	1	2	3	4	5	TOTAL	RESIDENT	HARVEST
1974	41	31		30		102		
1975	29	41		69		139		
1976	38	37		119		194		
1977	60	53		102		215		
1978	54	72		240		366		
1979	55	41		592		688		
1980	50	43	35	860		988		
1981	49	40	58	1,267	25	1,439		
1982	75	112	48	1,411	39	1,685		
1983	76	113	38	1,469	33	1,729		
1984	32	83	40	2,015	51	2,221		
1985	29	138	67	2,831	62	3,127		
1986	49	183	75	3,570	97	3,974		
1987	83	198	114	4,667	147	5,209		
1988	79	151	86	6,493	250	7,059		
1989	49	133	42	6,264	211	6,699		
1990	48	148	106	7,452	363	8,117	74	8,191
1991	58	144	78	7,414	274	7,968	128	8,096
1992	37	71	31	9,348	255	9,742	151	9,893
1993	26	97	39	8,638	293	9,093	217	9,310
1994	57	81	32	10,428	-	10,598	229	10,827
1995	20	81	32	10,275	-	10,408	459	10,867
1996	49	77	36	13,078	-	13,240	544	13,784
1997	8	68	28	14,647	-	14,751	605	15,356
1998	15	73	46	15,676	-	15,810	938	16,748
1999	30	71	28	17,231	-	17,360	930	18,290
2000	37	60	24	20,759	-	20,880	970	21,850
2001	34	49	29	20,383	-	20,495	941	21,436
2002	39	68	17	20,538	-	20,662	1,061	21,723
2003	51	46	29	21,743	-	21,869	1,172	23,041
2004	30	65	31	24,254	-	24,380	1,224	25,604
2005	35	61	49	22,586	-	22,731	1,187	23,918

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

	ZONE					RESIDENT	NON-
YEAR	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
2003	51.0	29.2	27.1	45.5	-	45.4	60.4
2004	39.5	37.8	35.6	50.0	-	49.9	61.1
2005	30.4	49.2	46.7	47.6	-	47.5	56.0

Table 2.5 Number of licenses issued to Iowa fall turkey hunters by zone, 1981-present.
In 1984 and 2001-2004 landowners were not broken-down by zone but do appear in the total.
No non-resident licenses issued for fall turkey during 1991-2004.

	ZONE								RESIDENT	NON-
YEAR	1	2	3	4	5	6	7	8	BOW	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
2003	50	50	50	3,502	450	2,402	201	75	1,674	13,566	0
2004	49	44	50	3,301	503	2,060	400	150	1,549	13,221	0

Table 2.6 Number of estimated active turkey hunters in Iowa fall turkey seasons by zone, 1981-present. Same problem for 1984 and 2001-2004 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 1991-2004.

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

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.

				ZONE							RESIDENT	NON-
YEAR	1	2	3	4	5	6	7	8	UNK	BOW	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	
2003	11	6	10	1,284	273	1,030	62	28	373	?	3,981	
2004	8	7	4	988	194	602	96	60	338	?	3,626	

Table 2.8 Success rate (to harvest 1 bird) of active Iowa fall turkey hunters by zone, 1981-present. Bow hunt not included in mean. Same comment for 1991-94 as in Table 2.6.

	ZONE									RESIDENT	NON-
YEAR	1	2	3	4	5	6	7	8	BOW	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	
2003	84.3	55.6	65.9	47.3	71.0	52.1	42.8	44.8	?	46.5	
2004	50.0	30.0	13.6	39.2	53.0	36.9	31.3	49.5	?	37.1	

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.

	NORTHEAST		SOUTHERN		CENTRAL		WESTERN		EAST-CENTRAL		NORTH-WEST		NORTH-CENTRAL		STATEWIDE	
YEAR	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
2003	5.1	11.4	5.2	11.1	4.9	10.3	5.1	11.0	5.1	11.9	5.2	13.5	4.9	10.0	5.0	10.3
2004	4.3	8.7	4.7	9.3	3.8	8.1	5.0	14.3	4.3	8.7	5.0	11.5	4.2	8.3	4.5	9.6
10-year avg.	4.8	11.1	5.1	10.3	4.6	9.6	5.0	12.6	4.8	10.9	4.8	12.0	4.4	9.1	4.9	10.7
10 year % change	-11	-21.5	-8	-9.7	-18	-15	-0.2	13.9	-10.4	-20	4.6	-4.2	-5.19	-8.39	-8.35	-10.6
1 year % change	-16	-23.7	-9.6	-16	-22	-21	-1.96	30	-15.7	-26.9	-3.8	-15	-14.3	-17	-10	-6.8

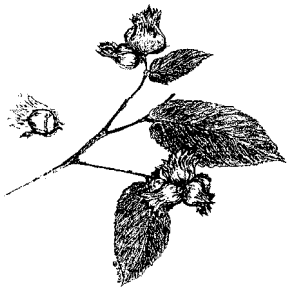


Table 2.10 Iowa wild turkey brood survey results by region for reports and percent hens with broods, 1976-present. #=total reports and %=% hens with broods.

	NORTHEAST		SOUTHERN		CENTRAL		WESTERN		EAST-CENTRAL		NORTHWEST		NORTH-CENTRAI		STATEWIDE	
YEAR	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1976			78													
1977			98													
1978			77	80												
1979			170	80												
1980			142	57												
1981	65	65	194	57											259	61
1982	118	62	163	60	31	42	10	23							322	47
1983	117	75	148	69	34	67	40	57	77	46					416	65
1984	106	78	134	78	13	84	41	54	76	53					370	70
1985	133	81	229	82	42	94	47	57	165	65					616	76
1986	191	74	236	63	42	55	65	64	137	55					671	64
1987	266	77	353	61	79	78	70	72	138	71					906	69
1988	379	72	394	45	138	79	90	69	278	60					1,279	62
1989	364	72	408	54	92	38	137	46	303	54					1,304	57
1990	421	66	257	46	38	59	118	38	303	49	18	46	28	14	1,183	54
1991	368	57	418	47	78	40	105	46	346	55	22	46	9	35	1,346	51
1992	344	59	431	44	49	28	68	25	387	44	18	5	9	14	1,306	45
1993	265	48	290	45	37	67	75	47	330	47	12	64	28	44	1,037	48
1994	403	53	425	49	56	61	95	62	338	56	35	42	36	46	1,388	53
1995	325	57	385	35	175	28	146	40	319	53	24	58	28	80	1,403	44
1996	425	48	428	38	134	25	68	43	371	46	37	43	68	48	1,531	42
1997	310	59	589	67	67	64	141	60	356	51	27	28	82	39	1,572	58
1998	474	59	783	49	76	37	158	48	504	53	49	78	97	61	2,141	53
1999	411	52	805	60	62	54	188	60	517	49	45	57	86	35	2,114	54
2000	293	53	759	56	74	50	210	59	350	51	41	84	59	53	1,786	55
2001	429	67	803	41	73	47	228	44	486	39	61	65	105	38	2,185	46
2002	563	64	853	51	157	56	200	57	675	45	86	71	153	77	2,742	54
2003	1230	51	2930	39	344	49	581	52	1467	39	116	70	368	53	7,142	43
2004	735	46	1792	50	184	47	464	55	1005	44	75	59	262	49	4,517	48
10-year avg.		55.6		48.6		45.7		51.8		47.0		61.3		53.3		49.7
10 year % change		-17		2.9		2.8		6.2		-6.4		-3.75		-8.1		-3.4
1 year % change		-11		22		-4.3		5.5		11		-18.6		-8.2		10.4

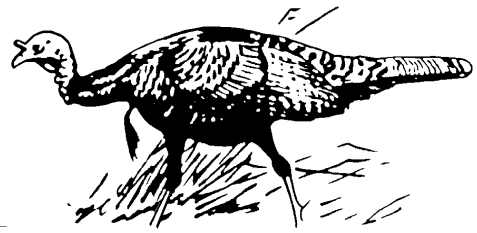


Table 2.11 Iowa's Spring turkey hunting seasons, 1974-present.

	BAG	POSSESSION	SEASON						SEASON	#	# SQ.	
YEAR	LIMIT	LIMIT	Youth	1	2	3	4	SPLITS	LENGTH	ZONES	MILES	MAJOR RULE CHANGES
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 1-5	25			
				26 APR-02 MAY	03 MAY-09 MAY	10 MAY-20 MAY		ZONES 6-8	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 1-5	25			MUZZLELOADER LEGAL, W. IOWA OPEN,
				17 APR-23 MAY	24 APR-30 MAY	01 MAY-11 MAY		ZONES 6-9	25	9	12,942	STEPHENS SF SPECIAL ZONE
1981	1	1/LICENSE		14 APR-20 APR	21 APR-28 APR	29 APR-10 MAY			27	9	21,873	YELLOW RIVER SF SPECIAL ZONE,
												2ND CHOICE ON APP, 2 LICENSES AVAILABLE
1982	1	1/LICENSE		13 APR-19 APR	20 APR-27 APR	28 APR-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
2003	1	1/LICENSE		14 APR-17 APR	18 APR-22 APR	23 APR-29 APR	30 APR-18 MAY		35	4	56,043	
2004	1	1/LICENSE		12 APR-15 APR	16 APR-20 APR	21 APR-27 APR	28 APR-16 MAY		35	4	56,043	
2005	1	1/LICENSE	8 APR-10 APR	11 APR-14 APR	15 APR-19 APR	20 APR-26 APR	27 APR-15 MAY		38	4	56,043	YOUTH SEASON ADDED

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

YEAR	BAG LIMIT	POSSESSION LIMIT	SEASON	SEASON LENGTH	# ZONES	# SQ. MILES	MAJOR RULE CHANGES
1981	1	1/LICENSE	21 OCT-01 NOV	12	2	4,032	$15 FEE
1982	1	1/LICENSE	19 OCT-31 OCT	13	2	5,254	1 GUN & 1 BOW, UNLIMITED BOW PERMITS IN SPRING ZONES
1983	1	1/LICENSE	18 OCT-30 OCT	13	2	5,254	HUNTER SAFETY REQUIRED IF BORN AFTER 1 JAN 1967
1984	1	1/LICENSE	16 OCT-28 OCT	13	3	13,685	DECOYS LEGAL; WESTERN, CENTRAL & NE IOWA OPEN
1985	1	1/LICENSE	15 OCT-27 OCT	13	3	13,685	$20 FEE
1986	1	1/LICENSE	14 OCT-26 OCT	13	6	21,575	STEPHENS & SHIMEK SF SPECIAL ZONES, STATEWIDE BOW SEASON
1987	1	1/LICENSE	12 OCT-08 NOV	28	7	21,575	2 LICENSES POSSIBLE, YELLOW RIVER SF SPECIAL ZONE
1988	1	1/LICENSE	10 OCT-27 NOV	49	7	25,402	
1989	1	1/LICENSE	09 OCT-26 NOV	49	7	29,610	NONRESIDENTS ALLOWED
1990	1	1/LICENSE	15 OCT-30 NOV	47	7	39,191	
1991	1	1/LICENSE	14 OCT-30 NOV	48	2 OF 7	9,060	LICENSES ISSUED FOR ZONES 3 & 6 ONLY (NE IOWA), $22 FEE
1992	1	1/LICENSE	17 OCT-29 NOV	44	2 OF 7	9,060	LICENSES ISSUED FOR ZONES 3 & 6 ONLY (NE IOWA)
1993	1	1/LICENSE	11 OCT-28 NOV	49	2 OF 7	9,060	LICENSES ISSUED FOR ZONES 3 & 6 ONLY (NE IOWA)
1994	1	1/LICENSE	10 OCT-30 NOV	52	2 OF 7	9,060	LICENSES ISSUED FOR ZONES 3 & 6 ONLY (NE IOWA)
1995	1	1/LICENSE	16 OCT-30 NOV	46	7	39,191	
1996	1	1/LICENSE	14 OCT-30 NOV	48	7	39,191	
1997	1	1/LICENSE	13 OCT-30 NOV	49	7	39,191	
1998	1	1/LICENSE	12 OCT-30 NOV	50	7	39,191	
1999	1	1/LICENSE	11 OCT-30 NOV	51	8	44,056	ZONE 8 ADDED, $22.50 FEE
2000	1	1/LICENSE	16 OCT-30 NOV	46	8	44,056	
2001	1	1/LICENSE	15 OCT-30 NOV	47	8	44,056	
2002	1	1/LICENSE	14 OCT-30 NOV	48	8	44,056	$23 FEE
2003	1	1/LICENSE	13 OCT-5 DEC	54	8	44,056	
2004	1	1/LICENSE	11 OCT-3 DEC	54	8	44,056	

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 cyclic, the harvests of the 1930s are not much different from the 1960s, 1970s, and 1980s. Drought cycles directly influenced muskrat populations and consequently harvest. During the droughts of the 1930s, 1950s 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 reduced fur market are the main reasons why the last 9 years of harvest 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. Low populations of muskrats have now occurred for over a decade and most professionals have no clue why their numbers remain at record low levels. Extended natural droughts and/or managed water level draw-downs will allow marshes to re-vegetate and muskrats should increase accordingly. We have not seen the right type of extended drought, so perhaps when the “right” drought does occur muskrat populations will respond on marshes. Unfortunately many of the wetland areas do not have the capability of “artificial” draw-downs. Habitat changes and reduced water quality will likely keep muskrats on those marshes without draw down capability at low levels. Stream and river valley corridors will likely continue to have low muskrat populations because of deteriorating habit and declining water quality.

Mink harvests were higher in the 1930s and 1940s then remained somewhat lower in the 1950s and 1960s with the 1986-87 harvest similar to the 1930s 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. 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 10 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 many 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 fur harvesters early in the season but the later colder weather slowed fur harvesting 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.

There appears to be a declining trend in the pelts harvested in nearly all species except for raccoon which tends to be the 'bread and butter' species for furharvesters. It will be interesting to see if the declining trends continue. Raccoon pelt values still account for over 60% of the total value of furs purchased in Iowa.

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 1990s and the early 2000s. Although expected, it does not appear that the red fox will be able to make a very high comeback because of the persistence of mange and the currently ever present coyote population.

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 present. 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. Recent

years have shown a slow declining trend in raccoon numbers according to the raccoon-deer spotlight survey. In 2005 there were 21.1 raccoons observed per raccoon spotlight survey while in 2004, 20.9 were observed. If the spotlight survey is a true indicator of population trends, then the raccoon population has been fairly stable for the past several 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 significant 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 developing a fur economy/trade and that could help considerably because currently the European countries account for over 75 percent of the U.S. fur market. International trade, fur fashion trends, 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. Several BMP studies are complete and results are being periodically published. Iowa will partake in a BMP effort to check the efficiency of 1 ½ coil spring and 110 Conibear traps for primarily mink and muskrat trapping.

The Department of Natural Resources is also developing parameters for a restricted river otter and bobcat harvest season.

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 available and is being distributed

nation wide. Reception to that BMP has predominately been favorable. Drowning sets are not considered “humane” and that has been very frustrating for trappers as well as some professionals.

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. The BMP process should be in the waning stages of its research efforts and time will tell how well the trapping public will accept the results.

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 Fox	Gray Fox	Opossum	Weasel	Coyote	Badger	Beaver
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
2003	54,919	10,711	842	177,315		10,608	365	6,184		8,178	912	8,591
2004	45,516	11,662	930	179,185		7,122	198	5,858		5,197	761	6,221

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).

	Fox			Raccoon			Coyote		
Year	% 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
2003	52	44	4	49	43	8	35	58	7
2004	49	45	6	43	49	8	32	60	8
Average	46.2	47.2	8.6	40.0	50.7	9.2	28.5	63.2	8.2

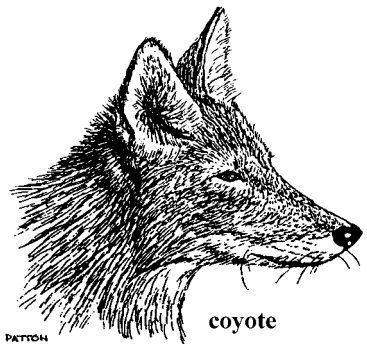


Table 3.3 Results of the Iowa raccoon spotlight survey with raccoon harvest and pelt price (1978-present). The spotlight survey is conducted in April each year. Harvest is from previous year.

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
2004	88	177,313	20.8	10.11
2005	88	179,185	21.1	9.62

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
2003	10.51	112,573	2.06	113,133	10.11	1,792,655	19.16	203,441	2,589,802
2004	10.27	119,769	1.85	85,115	9.62	1,723,760	14.68	104,551	1,965,131

Table 3.5 Iowa's furbearer seasons
(Year summaries prior to the first year given are archived at http://www.iowadnr.com/wildlife/)

			TRAPPING		HUNTING	
		OPENING START	SEASON DATES		SEASON DATES	
YEAR	SPECIES	TIME	OPENING	CLOSING	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	
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	

Table 3.5 Iowa's furbearer seasons
(Year summaries prior to the first year given are archived at http://www.iowadnr.com/wildlife/)

			____TRAPPING____		_____HUNTING_____	
		OPENING START	SEASON DATES		SEASON DATES	
YEAR	SPECIES	TIME	OPENING	CLOSING	OPENING	CLOSING
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	
2004-2005	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 6	Jan 31		
	be	8 a.m.	Nov 6	Jan 31		
	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	Jun 15	Oct 31
	co	8 a.m.	Nov 6	Jan 31	cont open season	
	spsk, bc, ot		cont closed season		cont closed season	
2005-2006	mi, mu, ra, we, sk, ba, op	8 a.m.	Nov 5	Jan 31		
	be	8 a.m.	Nov 5	Jan 31		
	rf, gr	8 a.m.	Nov 5	Jan 31	Nov 5	Jan 31
	ra, op	8 a.m.			Nov 5	Jan 31
	wc	8 a.m.	Jun 15	Oct 31	Jun 15	Oct 31
	co	8 a.m.	Nov 5	Jan 31	cont open season	
	spsk, bc, ot, gwo		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, gwo = gray wolf

*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)

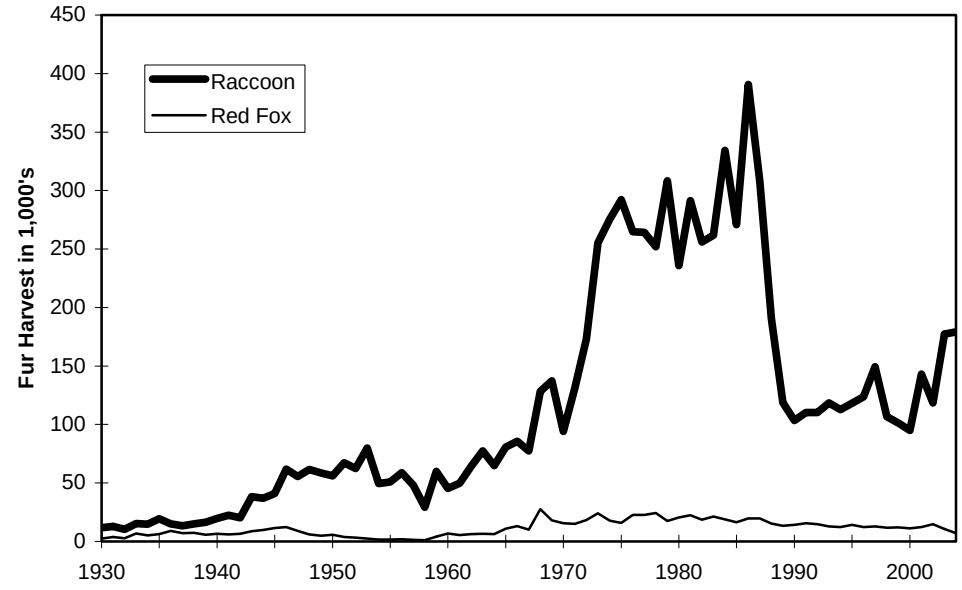


Figure 3.2 Relationship of the spotlight index and raccoon harvest.

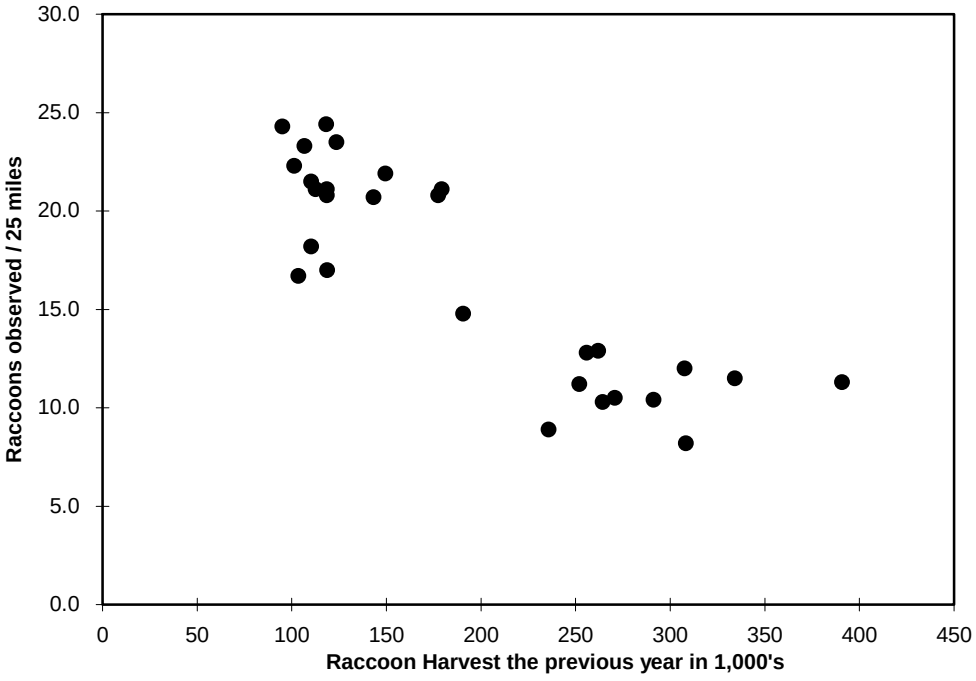


Figure 3.3 Pelt price fluctuations of important Iowa furbearers.

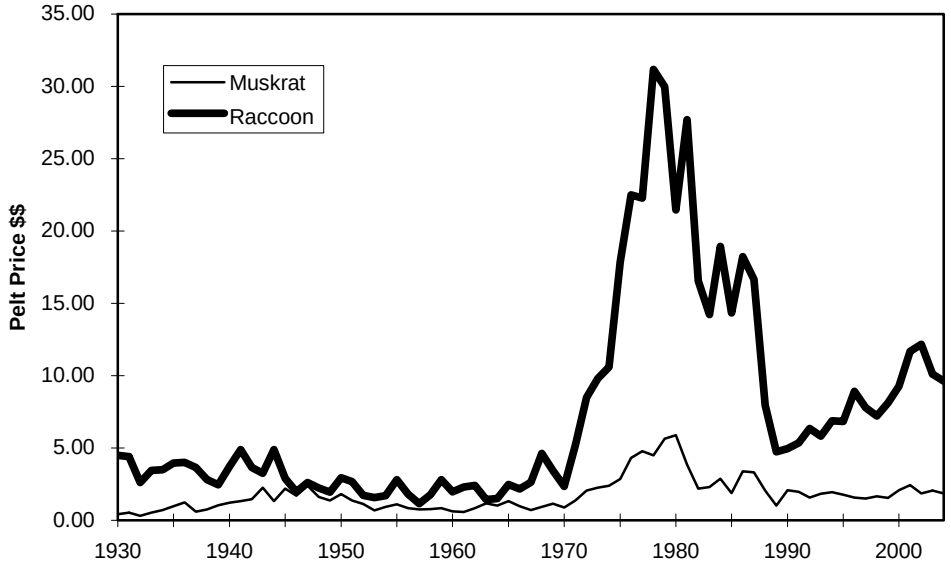
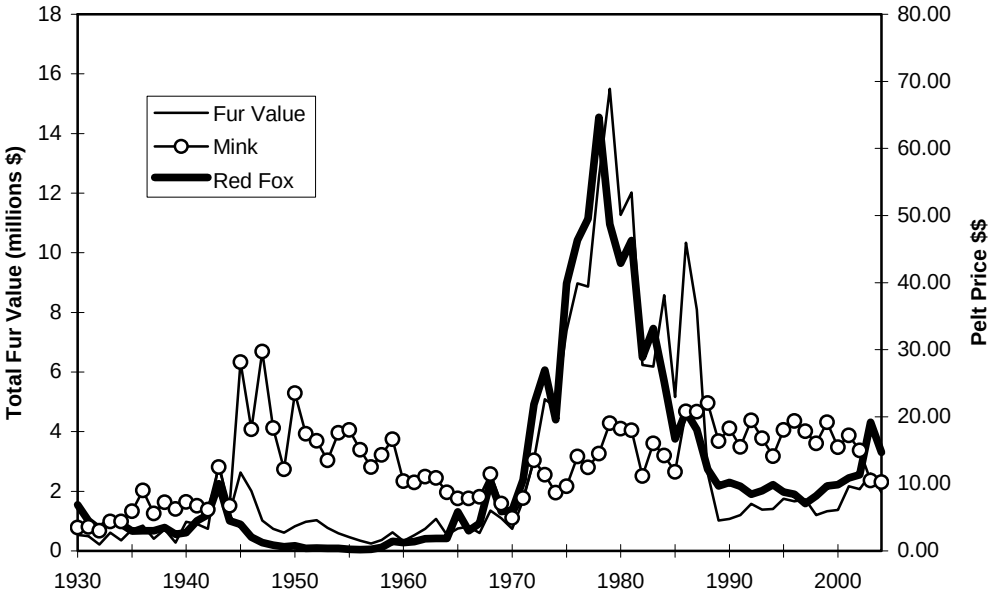


Figure 3.4 Pelt price fluctuations of mink and fox, and the value of Iowa furs.



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 reasons related to nutritional deficiencies on migration areas. Duck populations will continue to fluctuate in the future as the numbers of wetlands on the landscape in north-central North America rise and fall with 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 2000 and 2001 indicated that the spring population was just about 55,000. The results of the aerial survey conducted in 2005 indicated that the population was about 91,000. Prior to 2005, the population estimates made by wildlife biologists were very similar to the population estimates obtained from the aerial surveys. This suggests that the biologists' estimates accurately represented the growth rate and size of this population for most of the 20th century.

Waterfowl Harvests

Waterfowl harvests and hunter activity in Iowa are estimated annually by the USFWS (Table 4.2). Harvest estimates are calculated by combining the results of 2 surveys: 1) a survey of randomly selected hunters from the Harvest Information Program (HIP) 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 August and September. 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 67,100 in 2002 and 70,300 in 2004. 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 32,000 during 1999-2005. During the 1998-2004 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. The general lack of consistency in regulations, however, 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 goose 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.

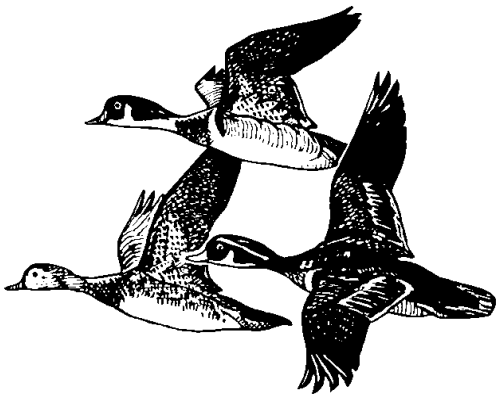


Table 4.1 Breeding population estimates for 10 species of ducks (in thousands). Source: USFWS.

YEAR	MALLARD	GAD-WALL	AMERICAN WIGEON	GREEN-WINGED TEAL	BLUE-WINGED TEAL	NORTHERN SHOVELER	NORTHERN PINTAIL	RED-HEAD	CANVAS-BACK	SCAUP
1971	9,306	1,603	3,281	1,881	4,607	2,005	5,874	534	444	5,063
1972	9,255	1,621	3,172	1,895	4,277	2,441	7,018	551	426	7,932
1973	8,060	1,247	2,864	1,936	3,334	1,624	4,351	498	617	6,222
1974	6,681	1,592	2,665	1,840	4,968	2,006	6,583	627	504	5,720
1975	7,494	1,641	2,692	1,667	5,829	1,962	5,878	829	591	6,427
1976	7,894	1,245	2,476	1,536	4,747	1,756	5,475	668	610	5,779
1977	7,396	1,312	2,560	1,291	4,589	1,475	3,935	637	667	6,247
1978	7,353	1,561	3,286	2,194	4,471	1,978	5,106	738	369	5,936
1979	7,816	1,751	3,087	2,019	4,861	2,386	5,382	695	573	7,540
1980	7,570	1,391	3,558	1,994	4,884	1,902	4,514	753	727	6,314
1981	6,367	1,402	2,924	1,851	3,726	2,325	3,472	596	610	5,918
1982	6,254	1,637	2,440	1,543	3,657	2,141	3,709	617	510	5,468
1983	6,313	1,517	2,606	1,836	3,366	1,870	3,506	709	523	7,136
1984	5,247	1,532	2,987	1,361	3,956	1,620	2,969	673	520	6,909
1985	4,754	1,304	2,040	1,435	3,459	1,697	2,511	579	373	5,038
1986	6,836	1,540	1,732	1,682	4,463	2,118	2,737	560	437	5,204
1987	5,613	1,311	1,982	2,003	3,518	1,951	2,629	502	451	4,837
1988	6,331	1,349	2,194	2,058	3,975	1,680	2,011	441	436	4,684
1989	5,650	1,416	1,974	1,843	3,128	1,540	2,113	511	478	4,344
1990	5,452	1,672	1,860	1,790	2,776	1,759	2,257	481	539	4,294
1991	5,444	1,584	2,254	1,558	3,764	1,716	1,803	446	491	5,255
1992	5,976	2,033	2,208	1,773	4,333	1,954	2,098	596	482	4,639
1993	5,708	1,755	2,053	1,695	3,193	2,047	2,053	485	472	4,080
1994	6,980	2,318	2,382	2,108	4,616	2,912	2,972	654	526	4,529
1995	8,269	2,836	2,615	2,301	5,140	2,855	2,758	889	771	4,446
1996	7,941	2,984	2,273	2,459	6,416	3,449	2,736	834	849	4,250
1997	9,940	3,897	3,118	2,507	6,124	4,120	3,558	918	689	4,112
1998	9,640	3,742	2,858	2,087	6,399	3,183	2,521	1,005	686	3,472
1999	10,806	3,236	2,920	2,631	7,150	3,890	3,058	973	716	4,412
2000	9,470	3,158	2,733	3,194	7,431	3,521	2,908	926	707	4,026
2001	7,904	2,679	2,494	2,509	5,757	3,314	3,296	712	580	3,694
2002	7,504	2,235	2,334	2,334	4,207	2,138	1,790	565	487	3,524
2003	7,950	2,549	2,551	2,679	5,518	3,620	2,558	637	558	3,734
2004	7,425	2,590	1,981	2,461	4,073	2,810	2,185	605	617	3,807
2005	6,755	2,179	2,225	2,157	4,586	3,592	2,561	592	521	3,387
Percent Change in 2005 from:										
2004	-9%	-16%	12%	-12%	13%	28%	17%	-2%	-16%	-11%
1955-04 Av	-9%	30%	-14%	17%	2%	70%	-37%	-5%	-7%	-35%
1955-05 Statistics										
Average	7,410	1,688	2,587	1,849	4,483	2,147	4,038	625	559	5,151
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	3,387

Table 4.2 Selected waterfowl harvest and hunter activity estimates for Iowa. Source is USFWS.
Data for 2001-04 is based on the Harvest Information Program and is preliminary.

	DAYS AND HARVEST (1,000's)								FEDERAL	AVE.	ACTIVE
		WOOD	B-W	G-W	ALL	CANADA	SNOW	DAYS	DUCK	SEASON	ADULT
YEAR	MALLARD	DUCK	TEAL	TEAL	DUCKS	GEESE	GEESE	HUNTED	STAMPS	BAG	HUNTERS
1971	160.9	59.3	49.6	26.6	376.2	10.4	46.1	536.5	68,401	6.3	58,700
1972	171.8	39.3	31.2	23.9	344.5	5.0	39.3	513.8	57,907	6.4	50,800
1973	99.9	31.0	18.5	18.1	211.9	11.6	32.5	401.1	57,196	3.9	48,700
1974	106.1	46.7	26.0	24.0	238.0	7.7	45.1	450.6	60,446	4.3	51,600
1975	117.4	57.5	51.0	38.6	313.6	13.5	41.2	446.1	58,791	5.9	49,700
1976	87.5	44.0	33.0	27.5	242.2	9.3	15.8	359.6	55,449	5.0	45,400
1977	138.7	37.9	17.0	38.7	280.0	7.8	29.1	407.3	57,143	5.3	46,200
1978	125.6	73.6	41.1	41.7	351.4	11.9	23.9	424.9	56,259	6.7	47,800
1979	183.3	77.8	69.2	38.0	441.0	10.0	43.2	496.7	49,845	9.5	44,400
1980	118.1	49.1	39.0	37.3	299.9	11.7	23.1	384.6	47,008	6.6	41,100
1981	130.2	54.3	34.6	27.7	301.1	10.2	23.1	371.5	41,648	7.9	35,900
1982	164.9	55.3	58.2	24.3	348.8	10.2	14.0	354.9	40,599	9.6	34,400
1983	115.2	47.3	74.0	27.8	324.2	11.5	16.5	310.4	40,381	8.5	34,000
1984	96.3	46.3	56.8	36.2	299.5	13.3	22.0	300.3	41,078	7.5	35,300
1985	62.0	37.4	41.5	22.6	199.8	10.4	8.5	241.4	33,304	6.8	27,900
1986	88.9	46.0	26.9	18.3	217.0	17.2	11.8	244.0	33,504	7.3	27,900
1987	64.8	36.1	14.2	20.1	161.1	15.1	3.6	207.0	30,248	6.0	25,500
1988	41.6	11.4	1.4	12.5	78.3	12.1	10.1	131.8	22,008	4.3	17,300
1989	32.2	17.0	2.9	17.9	87.8	20.2	4.4	127.5	21,686	4.7	16,600
1990	41.3	25.6	4.6	17.8	105.8	26.6	3.1	159.3	24,686	4.9	20,800
1991	63.1	39.4	6.6	13.3	154.2	29.3	8.1	196.7	24,989	6.8	21,400
1992	64.9	18.8	2.9	14.3	122.8	28.7	4.1	198.6	26,744	5.1	22,800
1993	52.7	22.2	4.1	7.9	100.9	17.3	9.5	176.5	25,640	4.7	21,092
1994	49.1	34.9	17.5	22.5	151.8	26.1	2.4	232.6	29,206	6.0	24,523
1995	86.1	49.2	38.9	23.7	242.3	48.0	4.6	280.2	30,282	8.2	25,792
1996	90.6	42.5	36.2	31.0	244.7	59.5	5.4	284.2	30,945	7.9	26,338
1997	71.2	52.1	54.5	32.7	272.0	52.2	15.2	338.3	36,062	8.3	30,737
1998	99.6	36.0	47.7	41.9	281.9	33.2	15.6	292.8	30,864	9.9	27,454
1999	55.9	35.8	41.9	17.4	176.7	33.0	12.5	271.9	32,419	7.2	27,024
2000	74.2	39.9	25.3	25.4	209.6	61.0	0.6	288.4	30,951	8.2	26,693
2001	117.2	45.5	49.3	29.7	296.4	58.1	5.2	203.5	32,090	11.9	25,000
2002	97.2	44.5	50.6	43.0	287.2	67.1	1.1	185.7	30,806	12.3	23,300
2003	101.7	38.6	30.1	29.4	248.9	55.5	14.4	187.1	Not avail.	11.0	22,500
2004	54.7	52.9	28.5	16.8	184.5	70.3	1.0	203.0	Not avail.	9.0	20,400
Percent Change in 2004 From:											
2003	-44%	19%	-44%	-61%	-36%	5%	-9%	9%		-27%	-12%
1961-03 Av.	-41%	42%	-12%	-35%	-19%	242%	-94%	-34%		38%	-41%
1961-04 Statistics											
Average	92.0	37.7	32.1	25.9	227.8	22.5	17.5	301.3	40,743	6.7	33,742
Maximum	183.3	77.8	74.0	45.2	441.0	70.3	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.

YEAR	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMITS DUCK BAG/POSS	LIMITS COOT BAG/POSS	
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	
2003	60	Sept 20 - 24	Sept 20 - 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 11 - Dec 4	Oct 18 - Dec 13				& 3 Sc. 5 merg., only 1 Hm.
	Pintail	Sept 20 - 24	Sept 20 - 22				
		Oct 11 - Nov 4	Oct 18 - Nov 13				
	Canvasback	Oct 18 - Nov 16	Oct 25 - Nov 23				
	Youth Day	Oct 4 - 5	Oct 4 - 5	1/2 SR to SS	6 /12 *ak	15 /30	
2004	60	Sept 18 - 22	Sept 25 - 26	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 12				& 3 Sc. 5 merg., only 1 Hm.
	Pintail	Sept 18 - 22	Sept 25 - 26				
		Oct 16 - Nov 9	Oct 16 - Nov 12				
	Canvasback	Oct 23 - Nov 21	Oct 23 - Nov 21				
	Youth Day	Oct 2 - 3	Oct 9 - 10	1/2 SR to SS	6 /12 *ak	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 occuring 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 nickle 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.

YEAR	GOOSE SPECIES	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMIT BAG/POSS	COMMENTS
			NORTH ZONE	SOUTH ZONE			
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	1/2 SR to SS	2 / 4 *m	*m) Bag lim.= 2 Ca , 2 Wf, & 2 Br .
				Oct 19 - Dec 18			Pos lim.= 4 Ca, 4 Wf, & 4 Br.
	Sn	107	Oct 12 - Jan 10, 1997		1/2 SR to SS	10 /30	
			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	1/2 SR to SS	2 / 4 *m	
				Oct 18 - Dec 17			
	Sn/Ro	107	Oct 4 - Dec 31		1/2 SR to SS	10 /30	
			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	1/2 SR to SS	[a] 2 / 4 *m	
				Oct 17 - Dec 16			
	Sn/Ro	107	Oct 3 - Dec 31		1/2 SR to SS	20 /none	
			Feb 20 - Mar 10, 1999				
	Sn/Ro	[b] Cons. Or.	March 11-April 16, 1999		1/2 SR to SS1/2	20 /none	
1999	Ca	2	Sep 11 - 12	None	1/2 SR to SS	2 / 4 *l	
	Ca/Wf/Br	70	Oct 2 - Dec 10	Oct 2 - Oct 10	1/2 SR to SS	2 / 4 *m	
				Oct 16 - Dec 15			
	Sn/Ro	107	Oct 2 - Dec 26		1/2 SR to SS	20 /none	
			Feb 19 - Mar 10, 2000				
	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	1/2 SR to SS	2 / 4 *m	
				Nov 4 - Dec 27			
	Sn/Ro	107	Sep 30 - Jan 14, 2001		1/2 SR to SS	20 /none	
	Sn/Ro	[b] Cons. Or.	Feb 15 - April 15, 2001		1/2 SR to SS 1/2	20 /none	
2001	Ca/Wf/Br	70	Sep 29 - Dec 7	Sep 29 - Oct 21	1/2 SR to SS	2 / 4 *m	
				Nov 10 - Dec 26			
	Sn/Ro	107	Sep 29 - Jan 13, 2002		1/2 SR to SS	20 /none	
	Sn/Ro	[b] Cons. Or.	Feb 2 - April 15, 2002		1/2 SR to SS 1/2	20 /none	
2002	Ca/Wf/Br	70	Sep 28 - Dec 6	Sep 28 - Oct 20	1/2 SR to SS	2 / 4 *m	
				Nov 9 - Dec 25			
	Sn/Ro	107	Sep 28 - Jan 12, 2003		1/2 SR to SS	20 /none	
	Sn/Ro	[b] Cons. Or.	Feb 1 - April 15, 2003		1/2 SR to SS 1/2	20 /none	
2003	Ca	15	Sep 1 - 15 in metro zones [c]		1/2 SR to SS	3 / 6 *n	*n) Bag lim.= 3 Ca.
	Ca & Br	70	Sep 27 - Dec 5	Sep 27 - Oct 19	1/2 SR to SS	2 / 4 *o	*o) Bag lim.= 2 Ca & 2 Br .
				Nov 8 - Dec 24			Pos lim.= 4 Ca & 4 Br.
	Wf	86	Sept 27 - Dec 21	Sept 27 - Dec 21		2 / 4	
	Sn/Ro	107	Sep 27 - Jan 11, 2004		1/2 SR to SS	20 /none	
	Sn/Ro	[b] Cons. Or.	Jan 12 - April 15, 2004		1/2 SR to SS 1/2	20 /none	
			NORTH ZONE	SOUTH ZONE			
2004	Ca	15	Sep 1 - 15 in metro zones [c]		1/2 SR to SS	3 / 6 *n	*n) Bag lim.= 3 Ca.
	Ca	2	Sep 11-12	None	1/2 SR to SS	2 / 4 *l	
	Ca & Br	60	Sep 25 - Oct 3	Oct 2 - 10	1/2 SR to SS	2 / 4 *o	*o) Bag lim.= 2 Ca & 2 Br .
			Oct 16 - Dec 5	Oct 30 - Dec 19			Pos lim.= 4 Ca & 4 Br.
	Wf	86	Sept 25 - Dec 19	Oct 2 - Dec 26		2 / 4	
	Sn/Ro	107	Sep 25 - Jan 9, 2005		1/2 SR to SS	20 /none	
	Sn/Ro	[b] Cons. Or.	Jan 10 - April 15, 2005		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 sunris 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.

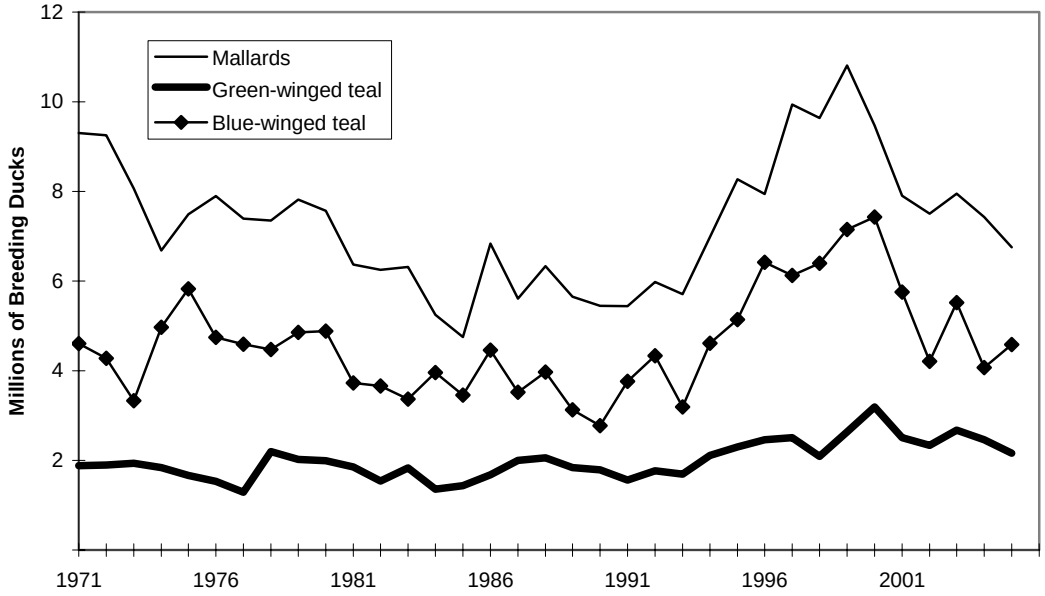
[a] The daily limit was 2 Canada geese through Oct. 31 and 1 thereafter except in the south zone where it was 2 after Nov. 30.

[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. (Numbers include both state and federal bandings.)

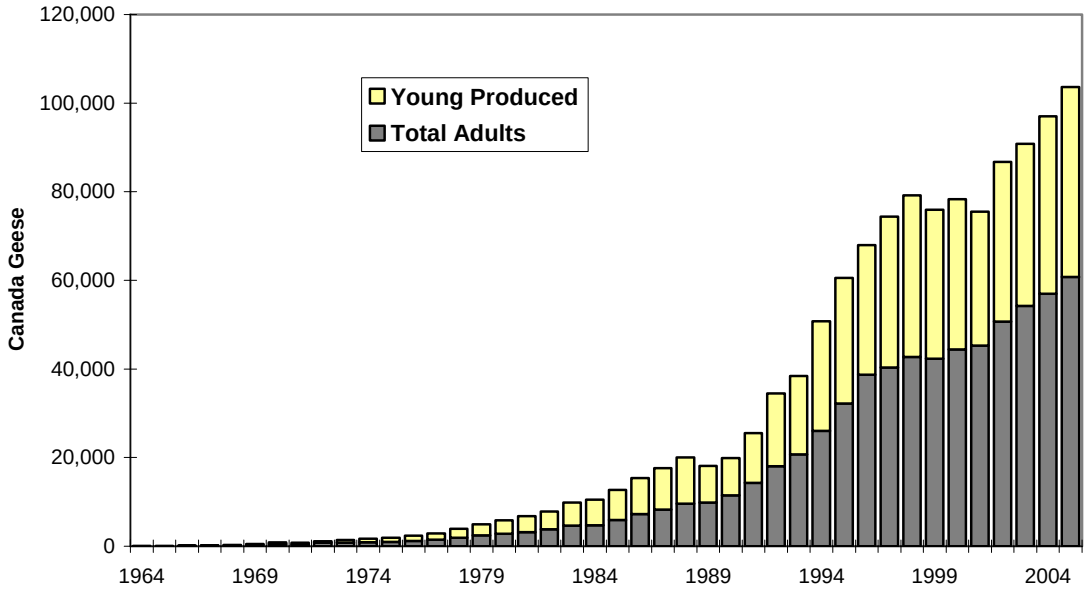
Year	Canada Geese	Mallards	Wood Ducks	Blue-winged Teal	Trumpeter Swans	Other species	Total
1964	51	440	488	6,046		273	7,298
1965	32	533	571	4,485		120	5,741
1966	61	504	564	3,836		172	5,137
1967	66	1,928	410	4,022		113	6,539
1968	91	1,809	315	3,716		63	5,994
1969	53	2,282	414	1,634		135	4,518
1970	143	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
2003	4,066	259	4,048	0	87	0	8,460
2004	3,338	143	4,769	0	91	0	8,341

Figure 4.1 Breeding populations of important ducks to Iowa.



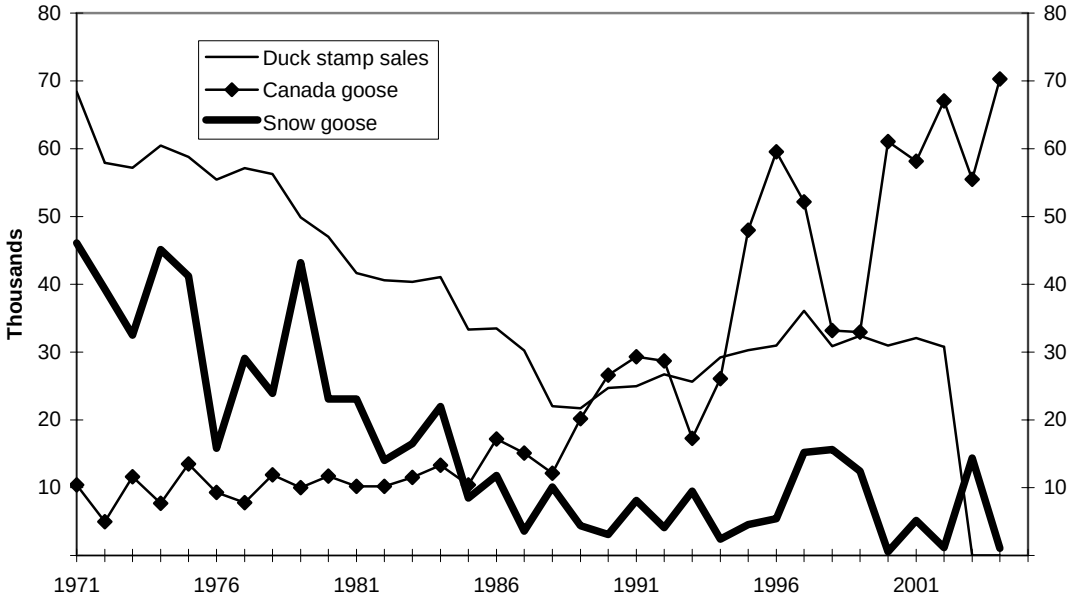
Source: USFWS

Figure 4.2 Iowa's giant Canada goose population.



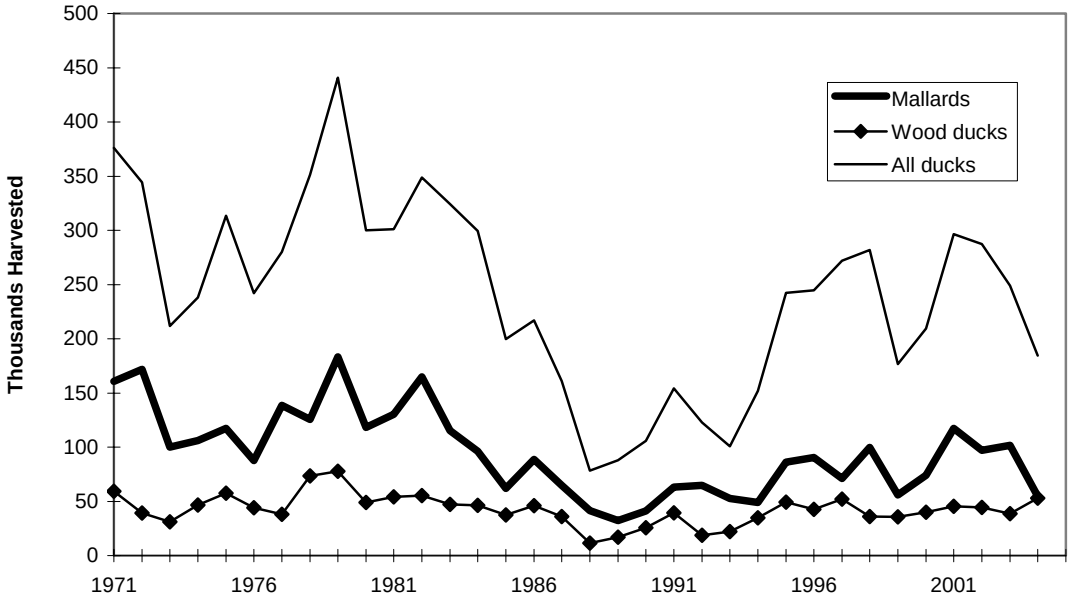
Source: Iowa DNR

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

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

August Roadside Survey is conducted each year by 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.

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

The data from these 2 surveys form the basis for historical information on upland game populations in Iowa and are summarized in the historical text and tables. Both surveys have been conducted annually since 1962. The annual August roadside survey report can be found on the DNR's website at www.iowadnr.com. The results of the annual small game harvest survey can be found at the end of this report.

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 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.

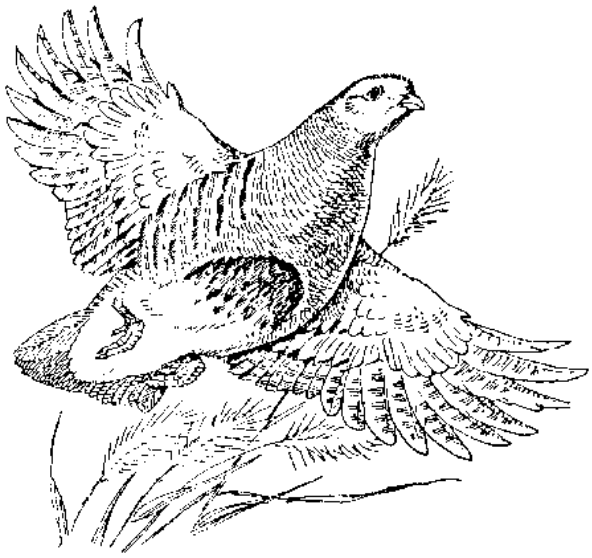
Populations have declined following severe winter weather in 1964-65, 1966-67, 1978-79, 1981-82, and 2000-01 with recoveries occurring in years with milder winters (Table 5.1). While the number of broods sighted/30-mile route has also fluctuated with the severity of the winter (Fig. 5.3), the all-time lows recorded in 1983, 1984, 1993, 1999, and 2001 were the results of very cool and/or wet conditions during spring and early summer (Table 5.2; Fig. 5.3). Observed brood sizes have declined slightly since 1962, with the 2004 estimate of 4.1 chicks/brood the lowest ever

recorded (Table 5.2; 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 (Table 5.10). 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 (Table 5.10).

Bobwhite Quail

Our native bobwhite was probably never very abundant on Iowa's virgin prairie; most populations were likely restricted to the prairie-timber edges of Iowa. Early settlement changed Iowa's landscape forever. 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 ever 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. However, quail populations have declined steadily, both nationally and in Iowa since the 1930's. Large scale landscape changes and clean farming practices are considered the major factors in this decline. Since survey procedures were standardized in the early 1960's the mean number of quail/30 miles sighted on the August roadside survey has fluctuated over the years with significant declines occurring since 1977 (Fig. 5.6). This decline, along with the severe fluctuations in SW and SC Iowa in recent years, are related to losses in shrubby habitat and clean farming practices that have occurred since row-crop agriculture expanded in the mid 70's and early 80's (Fig. 5.8). Similar to pheasants, quail numbers have declined sharply following harsh winters in 1964-65, 1966-67, 1978-79, 1981-82, and 2000-01 (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. (Table 5.11).



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. 5.6). Not only had the mean number partridge per 30-mile route increased statewide, but partridge populations had expanded their range from the NW and NC regions to all other regions of the state by 1986 (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. 5.6). Huns were imported to this country from the arid, steppe region of southeastern Europe and northern Asia, and research has shown they do not reproduce well in this country during years with wet springs.

Iowa's first partridge season was held in 11 northwestern counties in 1937-39. 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. (Table 5.12).

Eastern Cottontail

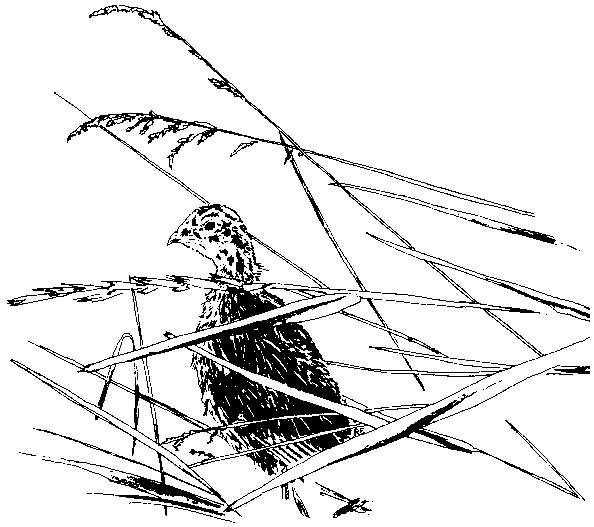
Little is known about the presettlement distribution of cottontail rabbits in Iowa. Cultivation by man no doubt favored rabbits much the same way it favored quail at the turn of the century. Cottontails prefer habitats similar to quail, favoring shrubby-grassy edge habitats. Cottontails may have up to 6 litters a year in Iowa and reproduce best during warm moderately wet springs. Numbers of cottontail rabbits observed on the August roadside survey have fluctuated with

changing land use and weather conditions (Fig. 5.6). 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 (Table 5.13). The rule regarding the opening day of the cottontail season was changed in 1997 to open the 1997-98 season on Sept. 1st. This change in date allows inclusion of the Labor day weekend in all years.

White-tailed Jackrabbit

Before settlement white-tailed jackrabbits could be found everywhere in Iowa, except for a few southeastern counties. They appear in greatest abundance on the glaciated soils of the Des Moines Lobe and the Missouri Loess soils of northwestern Iowa. They are most at home on the wide-open expanses of prairie/wetland/pasture habitat types, although moderate cultivation favors the species. Dry growing seasons appear conducive to 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 (Table 5.13). Harvests have tended to decline (Fig. 5.6) with the decline in jackrabbit numbers and declining hunter interest.



2004 Small Game Harvest Survey Results

A random survey of Iowa small game hunters was conducted following the 2004-05 small game season to determine the size and distribution of Iowa's small game harvest. Survey questionnaires were mailed to 8,205 license holders. Survey participants returned 3,432 usable questionnaires for a response rate of 42%. Based on these returns 142,484 small game hunters took to Iowa's fields last fall, a 7% decrease in hunter numbers compared to the year before. By residency status, the number of resident small game hunters was similar to last year, while the number nonresident small game hunters declined 5%. Nonresident small game hunter numbers fell from 45,090 in 2003 to 43,000 in 2004. Hunters from 40 different states visited Iowa last fall to pursue small game.

According to the survey, Iowa had 31,009 nonresident pheasant hunter numbers this past year compared to 33,414 in 2003. Iowa's peak year for nonresident pheasant hunters was 1997 with 50,349. Most of

Iowa's nonresident hunters (56%) come from the surrounding states of Minnesota, Wisconsin, Missouri, Illinois, South Dakota, and Nebraska. Two states, Minnesota and Wisconsin account for 36% of Iowa's nonresident pheasant hunters.

The typical small game hunter reported hunting 9.5 days last fall. Over 75% of small game hunters reported hunting 10 days or less this past season. Most small game hunters hunted only on private land 45% or they hunted a combination of public and private lands 45%. Only 6% reported hunting exclusively on public lands, and 5% did not report where they hunted.

Ring-necked Pheasant - An estimated 130,582 pheasant hunters (54% of licensed hunters) took to Iowa's fields last fall and harvested 756,184 roosters, a 30% decline compared to 2003 harvest estimate of 1,080,466 (Tables 5.6, 5.9; Fig. 5.2, 5.12). The number of resident and nonresident pheasant hunters declined 8% and 7% respectively. Resident hunters hunted an average of 7.5 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/day) was highest during the first 9 days of the season. Approximately 71% of the total pheasant harvest occurred in the first 31 days of the 2004 season. Ninety percent of pheasant hunters reported hunting 15 days or less and over 50% hunted 4 days or less. Over 75% of the total pheasant harvest came from the northern two-thirds of Iowa, and resident hunters accounted for 78% of the total harvest. In addition to the regular pheasant season, an estimated 5,680 pheasant hunters took 10,336 youth hunters (under the age of 16) hunting during Iowa's special 2-day youth pheasant season, this compares to 12,445 in 2003. These young hunters harvested an estimated 5,376 roosters, -52% fewer than 2003.

For the sixth year in a row Iowa can not claim bragging rights as the top pheasant state in the nation, as South Dakota again took this honor with a harvest of 1.6 million birds in 2004-05. Over the last decade Iowa pheasant hunters have harvested an average of 1.03 million roosters during the pheasant season. This past seasons harvest estimate was -27% below the 10-year average, and -40% below the historical average of 1.27 million roosters (Table 5.6).

Bobwhite Quail - Approximately 22,336 quail hunters (9% of licensed hunters) harvested 68,256 quail during the 2004-05 quail season. This is a -40% decrease from the 2003 harvest estimate of 114,067 (Tables 5.6, 5.9; Fig. 5.6). Resident hunter numbers decreased -14%, while nonresident hunter numbers increased 5% compared to 2003. Quail hunters averaged 7 days afield and harvested 3 birds for the season. Sixty percent of the quail harvest occurred in the first 31 days of the 2004 season. Over 90% percent of quail hunters hunted 15 days or less and over 50% hunted 4 days or less. Most of the quail harvest (77%) came from the southern and east central regions of the state.

Gray Partridge - Some 4,537 partridge hunters (2% of licensed hunters) harvested 12,535 partridge in 2004-05 (Tables 5.6, 5.9; Fig. 5.6). Hunter numbers were up 12% while harvest was 53% higher than 2003 estimate. Resident hunters accounted for 87% of the total partridge harvest. The average partridge hunter spent 10 days pursuing partridge and harvested 3 birds for the season.

Rabbits - Some 32,195 cottontail rabbit hunters (13% of licensed hunters)

harvested 259,327 rabbits last fall, a 6% increase over the 2003 harvest estimate (Tables 5.6, 5.9; Fig. 5.6). Total rabbit hunter numbers increased 2% compared to last year, but resident hunter numbers were stable, while out of state hunter numbers increased 38%. The average rabbit hunter hunted 9 days and harvested 8 rabbits. Fifty percent of rabbit hunters hunted 3 days or less, while greater than 90% reported hunting 15 days or less. Resident rabbit hunters accounted for 97% of the total cottontail harvest. Sixty-five percent of the reported cottontail harvest came from eastern third of the state.

According to this year's survey 600 small game hunters also harvested 151 jackrabbits in 2004. Only 0.4% of Iowa's licensed hunters stated they hunted jackrabbits, and most of this hunting is likely incidental to other types of hunting. Most of the jackrabbit harvest occurred in the northern third of Iowa.

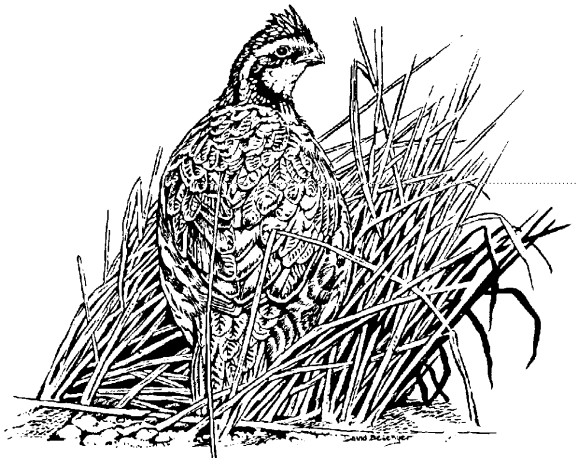


Table 5.1. Mean number of pheasants counted/30-mile route on the August roadside survey regionally and statewide (1962-present). Severe winter weather preceded the August counts in 1965, 69, 75, 79, 82, and 01. Abnormally wet weather occurred during the 74, 83, 84, 93, 99 and 04 nesting seasons. Winter sex ratio and cock harvest data are statewide estimates. Sex ratio counts were done the year succeeding the year listed.

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

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE	SEX[a] RATIO	COCK[b] HARVEST
1980	51.2	61.7	81.2	98.7	72.2	63.5	82.1	68.9	37.2	67.0	3.7	73%
1981	66.4	53.5	83.6	92.9	57.8	72.9	97.1	57.8	35.2	65.9	3.4	71%
1982	26.7	27.9	38.9	55.5	23.1	20.9	41.6	47.7	19.3	32.3	2.9	66%
1983	9.6	12.8	21.7	21.6	13.3	25.3	42.6	51.1	27.5	23.7	2.9	66%
1984	8.8	11.1	19.2	22.1	14.4	24.5	23.8	38.5	26.4	20.6	2.6	62%
1985	21.6	28.0	36.4	40.0	32.7	26.0	59.2	72.6	42.0	38.9	2.1	52%
1986	27.5	20.4	48.2	31.2	24.8	29.0	49.7	65.2	27.2	34.8	2.0	50%
1987	40.2	36.8	59.7	61.4	41.1	33.2	58.5	64.2	39.0	46.8	2.9	66%
1988	33.6	35.0	45.1	60.8	29.6	26.0	45.7	49.8	29.8	38.1	3.3	70%
1989	25.3	36.5	52.1	69.9	57.1	35.3	38.6	40.0	39.0	43.2	2.9	66%
1990	34.3	49.4	63.9	57.9	44.3	24.7	44.5	31.7	27.3	41.2	5.5	82%
1991	37.3	45.3	48.8	77.6	41.6	33.3	61.2	49.4	41.6	46.8	Discontinued	
1992	24.4	50.5	30.5	44.0	42.1	37.8	29.4	23.6	34.2	35.8		
1993	15.8	21.4	15.2	55.2	23.8	25.0	34.3	24.0	28.1	25.9		
1994	45.0	74.1	33.3	83.3	55.6	67.8	47.3	46.0	56.7	56.9		
1995	26.0	63.2	37.6	44.7	54.3	54.3	43.7	27.8	43.2	44.6		
1996	54.7	61.8	29.5	45.2	49.8	59.4	29.8	19.5	28.2	43.4		
1997	46.1	62.0	41.2	37.3	54.7	47.4	31.7	28.8	41.3	44.8		
1998	74.2	56.7	43.1	33.9	49.6	53.9	18.1	15.7	41.7	44.6		
1999	42.7	33.6	21.6	19.5	37.9	36.0	17.5	12.9	27.0	29.1		
2000	60.6	33.3	14.9	29.0	50.3	37.0	25.5	19.3	22.0	34.3		
2001	22.4	16.0	6.2	8.4	22.0	19.0	12.0	7.3	4.6	13.9		
2002	47.0	42.9	13.6	32.0	49.9	32.0	15.7	11.7	22.6	31.7		
2003	81.2	67.3	20.7	36.1	61.2	35.6	29.3	21.8	28.2	44.9		
2004	54.4	34.4	19.0	21.5	35.6	24.4	24.9	19.6	24.4	29.7		
Statistics:												
10 Year Avg.	50.9	47.1	24.7	30.8	46.5	39.9	24.8	18.4	28.3	36.1		
Long-term Avg	39.1	41.4	37.0	47.2	41.6	37.8	40.1	36.6	31.8	39.2	3.1	66%
Percent Change from:												
2003	-33.0	-49.0	-8.2	-40.2	-41.8	-31.3	-15.0	-10.4	-13.5	-33.9		
10 Year Avg.	6.8	-27.1	-23.4	-29.9	-23.4	-38.8	0.3	6.1	-13.9	-17.7		
Long-term Avg	39.2	-17.0	-48.8	-54.3	-14.3	-35.4	-38.0	-46.5	-23.2	-24.1		

[a] Hens per cock.

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

Table 5.2. Mean number of broods counted/30-mile route and chicks/brood observed on the August roadside survey, regionally and statewide (1962-present). Severe winter weather preceded the August counts in 1965, 69,75,79, 82, and 01. Abnormally wet weather occurred during the 83, 84, 93, 99 and 04 nesting seasons.

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

	NORTH WEST		NORTH CENTRAL		NORTH EAST		WEST CENTRAL		CENTRAL		EAST CENTRAL		SOUTH WEST		SOUTH CENTRAL		SOUTH EAST		STATEWIDE	
	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD
YEAR																				
1980	8.1	4.9	9.4	5.2	12.1	5.2	16.6	4.9	11.3	5.0	9.9	4.8	13.5	4.5	11.6	5.3	5.8	5.2	10.7	5.0
1981	11.4	4.4	8.7	4.9	11.2	5.4	15.5	4.8	10.0	4.6	11.5	5.0	16.9	4.4	8.8	5.2	5.5	4.7	10.7	4.8
1982	4.4	4.3	4.1	5.3	6.2	4.9	8.9	4.7	3.6	5.6	3.0	4.5	6.9	4.3	6.8	5.4	2.9	4.2	5.0	4.9
1983	1.6	4.7	1.9	4.9	3.1	5.2	2.8	4.9	1.8	5.4	3.6	5.4	5.9	5.3	7.5	5.9	3.8	5.8	3.4	5.3
1984	1.3	5.9	1.5	5.7	2.8	5.3	3.5	5.2	2.3	5.0	3.6	5.1	3.6	4.4	5.8	5.2	4.1	4.8	3.1	5.2
1985	3.5	5.4	4.2	5.3	4.9	6.1	5.8	5.3	5.4	5.5	3.9	5.4	8.9	5.7	12.2	5.3	5.7	6.1	6.0	5.5
1986	3.9	5.9	2.9	5.0	7.1	5.5	5.6	3.8	4.1	4.7	4.9	4.4	8.1	4.9	10.3	5.3	3.8	4.9	5.4	5.0
1987	5.8	6.2	5.0	6.2	8.5	5.8	9.3	5.1	6.3	4.9	4.8	5.6	9.9	5.0	10.5	5.4	5.7	5.4	7.1	5.5
1988	5.3	5.1	5.0	5.6	5.8	6.6	9.7	5.1	4.0	6.1	3.5	5.8	7.8	4.9	8.5	4.9	4.3	5.5	5.7	5.5
1989	3.8	5.2	5.0	5.9	8.2	5.1	10.9	5.3	8.1	5.4	5.5	5.4	6.9	4.6	6.5	5.2	5.5	5.9	6.5	5.4
1990	5.2	5.0	6.9	5.4	9.6	5.4	9.8	4.5	6.6	4.9	3.9	4.7	7.3	4.9	5.8	4.4	4.1	5.2	6.4	4.9
1991	5.8	4.7	6.4	5.4	7.7	5.4	12.5	4.8	7.1	4.3	4.9	5.0	11.5	4.2	7.9	5.1	6.6	5.2	7.5	4.9
1992	4.3	4.0	7.1	5.6	4.6	4.9	6.9	4.4	6.8	4.4	5.7	5.2	5.1	4.1	4.2	3.9	5.6	4.7	5.7	4.6
1993	2.4	4.8	3.4	5.4	2.3	4.9	8.9	5.1	3.8	5.2	3.6	5.4	5.8	4.3	3.7	5.5	4.2	5.2	4.0	5.1
1994	7.5	4.6	11.2	5.5	5.7	4.5	14.2	4.5	9.4	4.8	10.0	5.4	8.9	4.1	6.8	5.4	8.7	5.4	9.1	5.0
1995	4.8	4.6	10.1	5.0	5.7	5.4	8.1	4.5	9.4	4.5	7.4	6.1	7.3	4.6	4.3	5.5	6.1	5.6	7.2	5.1
1996	9.1	4.6	9.6	5.0	4.8	4.5	7.4	4.6	8.5	4.9	8.9	5.6	5.6	4.0	3.7	3.7	4.0	4.8	7.1	4.7
1997	6.8	5.7	9.1	5.1	6.7	5.1	5.9	5.0	8.6	5.1	7.0	5.4	5.7	3.7	3.8	6.9	6.1	6.3	6.8	5.4
1998	14.1	4.2	9.6	4.7	6.7	5.4	6.1	4.7	8.3	4.6	8.8	5.2	4.3	3.2	2.7	4.3	6.3	5.1	7.7	4.6
1999	7.2	4.5	5.5	4.1	3.5	4.6	3.5	4.2	6.1	4.6	4.7	5.8	3.1	3.8	1.9	5.2	4.1	5.9	4.6	4.7
2000	11.3	4.7	5.5	4.9	2.4	4.7	4.7	5.3	8.8	4.2	5.7	5.2	4.4	4.3	3.5	3.7	3.3	5.2	5.8	4.7
2001	3.3	4.6	2.7	4.6	0.9	5.4	1.6	3.2	3.3	4.9	2.9	5.6	2.3	3.8	1.2	4.4	0.7	3.4	2.2	4.5
2002	7.4	5.1	7.8	5.0	2.4	4.7	5.3	4.8	7.9	5.0	4.5	5.9	3.5	3.4	1.8	5.5	3.6	5.5	5.2	5.1
2003	13.9	4.5	10.3	5.4	4.1	3.7	5.6	5.4	10.3	4.6	5.6	5.3	4.7	4.9	3.5	4.6	4.1	5.3	7.3	4.9
2004	9.5	4.1	6.0	4.0	2.7	4.5	4.1	3.4	6.2	4.1	3.5	5.0	4.8	3.7	3.4	4.4	4.6	4.2	5.2	4.1
Statistics:																				
10 Year Avg.	8.7	4.7	7.6	4.8	4.0	4.8	5.2	4.5	7.7	4.7	5.9	5.5	4.6	3.9	3.0	4.8	4.3	5.1	5.9	4.8
Long-term Avg.	6.5	4.9	6.3	5.2	5.6	5.1	7.7	4.7	6.7	4.9	5.6	5.3	6.9	4.4	5.9	5.0	4.8	5.2	6.2	5.0
Percent Change from:																				
2003	-31.5	-8.6	-41.9	-26.6	-33.3	21.0	-26.0	-36.0	-39.3	-11.8	-38.2	-6.0	1.8	-24.2	-1.1	-3.8	12.9	-20.8	-29.4	-14.8
10 Year Avg.	8.6	-12.6	-21.7	-16.4	-32.5	-5.9	-20.8	-23.8	-19.6	-11.9	-41.2	-9.9	4.2	-5.4	15.5	-8.7	7.7	-18.3	-12.7	-13.4
Long-term Avg.	46.7	-16.2	-6.0	-22.6	-51.7	-11.8	-46.5	-26.9	-7.4	-16.2	-38.7	-6.0	-31.2	-14.5	-41.4	-12.5	-3.2	-19.1	-17.0	-16.8

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

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

	QUAIL PER ROUTE										JACK-
YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE	**RABBITS STATEWIDE**
1980	0.36	0.00	0.00	0.68	1.39	1.00	5.27	7.88	2.61	2.05	0.15
1981	0.40	0.00	1.00	0.21	0.10	1.64	7.00	11.84	2.43	2.60	0.31
1982	0.00	0.00	0.67	0.05	0.00	0.14	0.87	2.64	2.83	0.79	0.10
1983	0.08	0.08	0.28	0.16	0.50	0.57	1.64	7.32	1.87	1.44	0.05
1984	0.00	0.00	0.22	0.80	0.03	0.00	1.13	2.40	1.57	0.66	0.08
1985	0.00	0.00	1.44	0.00	0.10	0.00	1.27	6.24	3.30	1.37	0.07
1986	0.00	0.00	0.00	0.37	0.03	0.14	1.73	8.16	2.09	1.42	0.12
1987	0.00	0.00	0.33	0.47	0.00	0.74	3.93	14.52	4.17	2.70	0.12
1988	0.00	0.00	0.44	0.94	0.00	0.00	4.87	8.46	4.13	1.96	0.17
1989	0.04	0.00	0.33	1.06	0.10	0.70	6.07	7.67	3.17	1.91	0.22
1990	0.00	0.00	1.00	0.72	0.13	1.04	2.93	6.25	2.21	1.48	0.19
1991	0.08	0.00	0.47	0.72	0.13	0.52	3.13	5.54	2.33	1.34	0.07
1992	0.12	0.00	0.22	1.50	0.07	0.96	2.43	2.83	2.71	1.07	0.14
1993	0.00	0.00	0.37	0.50	0.03	0.78	5.07	2.13	1.61	0.96	0.03
1994	0.08	0.00	0.00	0.65	0.00	0.87	9.19	3.21	3.04	1.58	0.15
1995	0.08	0.00	0.63	0.17	0.06	0.86	2.53	5.54	3.22	1.37	0.06
1996	0.08	0.00	0.21	0.28	0.09	0.71	2.73	0.88	0.65	0.51	0.09
1997	0.00	0.00	0.00	0.00	0.07	1.24	4.27	2.25	0.50	0.77	0.10
1998	0.00	0.00	0.00	0.00	0.07	1.48	1.20	2.30	1.81	0.72	0.09
1999	0.00	0.00	0.05	0.00	0.00	0.13	1.07	2.50	1.50	0.57	0.06
2000	0.00	0.00	0.00	0.20	0.47	0.17	4.40	0.83	0.41	0.57	0.03
2001	0.00	0.00	0.00	0.00	0.09	0.76	1.31	0.50	0.32	0.29	0.05
2002	0.00	0.00	0.00	0.70	0.03	0.27	1.06	0.88	0.96	0.39	0.03
2003	0.00	0.00	0.00	0.00	0.22	0.14	3.27	3.92	1.36	0.89	0.03
2004	0.00	0.00	0.50	0.05	0.19	0.55	2.19	2.64	3.19	0.93	0.03
Statistics:											
10 Year Avg.	0.02	0.00	0.14	0.14	0.13	0.63	2.40	2.22	1.39	0.70	0.06
Long-term Avg.	0.05	0.00	0.33	0.41	0.16	0.62	3.22	4.77	2.16	1.21	0.10
Percent Change from:											
2003					-14.2	300.7	-33.0	-32.7	133.9	5.4	0.0
10 Year Avg.	-100.0		259.2	-67.6	45.8	-13.7	-9.0	18.7	129.2	33.3	-42.8
Long-term Avg.	-100.0	-100.0	52.8	-89.0	20.7	-11.5	-32.1	-44.7	47.7	-23.0	-67.8

Table 5.4 Mean number of gray partridge counted/30-mile route on the August roadside survey, regionally and statewide, (1963-present). Approximately 20 routes were added statewide in 1972.

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

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE
1980	35.04	28.08	0.11	3.00	4.03	0.82	0.00	0.00	0.00	8.81
1981	31.44	23.60	1.78	5.00	4.19	0.32	0.00	0.00	0.00	8.08
1982	18.48	10.16	0.94	3.37	1.87	0.00	0.00	0.00	0.00	4.21
1983	8.04	8.88	0.72	1.84	1.87	0.65	0.00	0.00	0.00	2.65
1984	14.16	13.24	2.11	1.05	3.03	1.05	0.00	0.00	0.00	4.22
1985	26.84	25.23	8.06	10.68	9.26	1.18	0.00	0.00	0.00	9.75
1986	29.48	21.04	10.00	5.79	11.13	2.41	0.13	0.00	0.00	9.62
1987	36.88	35.08	10.56	17.00	20.32	3.17	0.00	0.00	0.61	14.93
1988	42.84	48.65	15.61	17.83	25.07	4.48	0.20	0.38	1.39	19.00
1989	36.54	31.82	14.39	12.06	37.48	0.96	2.07	0.38	0.70	17.27
1990	18.40	20.12	16.68	5.89	6.93	5.52	1.00	0.38	0.88	8.75
1991	13.88	7.52	4.16	3.17	4.23	4.00	0.87	0.54	0.58	4.59
1992	5.15	4.76	6.67	2.61	3.77	4.17	0.07	1.46	2.05	3.58
1993	1.33	1.39	0.84	2.00	1.19	0.17	0.00	0.13	0.17	0.85
1994	7.92	14.48	4.47	10.41	8.29	5.39	0.13	0.29	0.35	6.17
1995	3.72	4.86	4.11	1.28	2.52	3.18	0.00	0.29	0.78	2.47
1996	4.42	6.64	3.00	2.61	1.81	1.24	0.00	0.00	0.00	2.37
1997	9.00	7.33	6.47	3.16	10.77	3.95	0.00	0.00	0.36	5.10
1998	23.00	13.96	9.17	3.58	3.36	1.24	0.07	0.00	0.05	6.42
1999	11.41	2.75	2.11	1.84	3.68	0.52	0.00	0.00	0.09	2.83
2000	6.54	4.75	0.90	2.05	4.00	1.74	0.00	0.00	0.00	2.53
2001	3.23	1.30	3.44	2.75	3.94	1.33	0.13	0.00	0.00	1.90
2002	7.04	2.04	2.94	4.00	5.88	1.23	0.00	0.00	0.00	2.82
2003	6.77	3.04	3.20	1.50	7.00	0.13	0.00	0.00	0.00	2.76
2004	7.77	2.30	1.90	0.86	3.25	1.00	0.00	0.04	0.00	2.12
Statistics:										
10 Year Avg.	8.3	4.9	3.7	2.4	4.6	1.6	0.0	0.0	0.1	3.1
Long-term Avg.	16.4	13.7	5.4	5.0	7.6	2.0	0.2	0.2	0.3	6.2
Percent Change from:										
2003	14.8	-24.4	-40.6	-42.4	-53.6	681.3				-23.2
10 Year Avg.	-6.3	-53.1	-49.0	-63.4	-29.7	-35.7	-100.0	20.6	-100.0	-32.2
Long-term Avg.	-52.5	-83.3	-64.6	-82.8	-57.0	-49.9	-100.0	-74.2	-100.0	-65.5

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

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

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE
1980	2.3	3.0	2.1	4.2	4.2	1.8	5.5	9.8	4.9	4.2
1981	3.4	4.6	6.4	5.2	3.2	7.4	11.1	21.1	9.0	7.8
1982	2.4	2.3	2.7	4.4	2.5	4.9	7.7	19.5	11.7	6.4
1983	3.1	2.5	6.4	4.2	3.1	5.0	7.2	17.6	12.7	6.8
1984	2.0	1.4	3.0	4.2	2.6	4.0	3.5	14.7	14.0	5.6
1985	3.2	2.7	3.9	3.8	4.4	5.5	7.1	22.9	12.0	7.4
1986	3.0	2.6	4.6	4.3	3.8	3.8	9.7	25.2	12.7	7.7
1987	4.1	3.5	3.2	6.3	4.4	4.3	8.1	34.4	7.7	8.6
1988	3.1	1.8	2.0	4.8	2.6	2.5	4.6	12.8	6.7	4.5
1989	2.4	2.4	4.6	5.2	2.9	4.3	6.3	13.5	8.5	5.4
1990	2.7	3.9	7.0	7.7	5.5	7.3	9.2	26.0	14.7	9.2
1991	2.4	1.8	3.4	5.1	2.5	3.3	7.0	16.3	9.1	5.5
1992	2.6	3.8	4.0	4.8	4.1	3.6	7.1	13.7	12.4	6.0
1993	1.3	1.8	3.9	6.5	2.2	5.0	6.7	15.4	10.1	5.5
1994	2.2	1.9	5.4	5.4	3.3	7.4	8.9	14.4	10.4	6.3
1995	3.2	4.0	3.8	5.5	4.8	6.5	13.0	15.7	9.5	7.0
1996	3.6	3.7	5.8	5.2	3.7	6.3	6.4	13.8	8.5	6.2
1997	2.1	2.4	5.2	2.9	3.4	6.2	6.0	11.8	5.1	4.9
1998	2.0	2.7	5.1	3.1	3.7	6.3	5.8	10.4	7.5	5.1
1999	4.1	2.3	5.1	5.0	4.7	9.1	7.9	10.6	6.0	5.9
2000	2.4	2.0	4.9	4.2	4.9	6.9	7.4	19.3	7.2	6.4
2001	1.6	1.6	1.3	2.1	3.0	3.5	5.3	12.0	4.1	3.8
2002	2.7	2.2	2.7	3.7	4.8	6.5	3.8	11.2	9.3	5.3
2003	5.0	3.9	5.7	6.9	8.3	8.0	9.1	21.4	11.0	8.8
2004	3.0	3.3	5.7	4.2	3.9	6.1	8.7	24.9	14.6	8.1
Statistics:										
10 Year Avg.	3.0	2.8	4.5	4.3	4.5	6.5	7.3	15.1	8.3	6.1
Long-term Avg.	2.8	2.7	4.3	4.7	3.9	5.4	7.3	17.1	9.6	6.3
Percent Change from:										
2003	-39.5	-15.1	0.0	-39.5	-52.4	-23.7	-4.2	16.0	32.9	-8.3
10 Year Avg.	1.0	18.4	25.7	-2.0	-13.1	-6.1	18.6	64.7	76.5	31.4
Long-term Avg.	7.5	22.1	31.9	-11.8	1.9	13.2	18.7	45.2	52.7	27.4

Table 5.6 Small game harvest estimates from the Iowa small-game survey (1963-present).

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

YEAR	PHEASANT	QUAIL	COTTON-TAIL	JACK-RABBIT	SQUIRREL	HUNS	RUFFED GROUSE	DUCKS	CANADA GEESE	OTHER GEESE	RACCOON	FOX	COYOTE
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	27,356			
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						
2003	1,080,466	114,067	243,699	738	202,729	8,204	1,083						
2004	756,184	68,256	259,327	151	233,530	12,535	152						
Statistics:													
10 Year Avg.	1,032,537	111,303	271,766	4,079	256,283	17,783	1,331						
Long-term Avg.	1,103,647	228,802	449,245	5,168	446,324	49,100	6,336	366,058	43,121	19,627	313,144	41,074	29,625
Percent Change from:													
2003	-30.0	-40.2	6.4	-79.5	15.2	52.8	-86.0						
10 Year Avg.	-26.8	-38.7	-4.6	-96.3	-8.9	-29.5	-88.6						
Long-term Avg.	-31.5	-70.2	-42.3	-97.1	-47.7	-74.5	-97.6						

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

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

Table 5.7 Mean number of hens with broods and hens without broods counted/30-mile route on the Iowa August roadside survey, regionally and statewide, (1962 - present). Severe winter weather preceded the August counts in 1965, 69,75,79, 82 and 01. Abnormally wet weather occurred during the 83, 84, 93, 99 and 04 nesting seasons.

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

	NORTH WEST		NORTH CENTRAL		NORTH EAST		WEST CENTRAL		CENTRAL		EAST CENTRAL		SOUTH WEST		SOUTH CENTRAL		SOUTH EAST		STATEWIDE	
	HENS W/O	HENS WITH	HENS W/O	HENS WITH	HENS W/O	HENS WITH	HENS W/O	HENS WITH	HENS W/O	HENS WITH	HENS W/O	HENS WITH	HENS W/O	HENS WITH	HENS W/O	HENS WITH	HENS W/O	HENS WITH	HENS W/O	HENS WITH
YEAR	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS	BROODS
1980	2.6	5.3	2.8	6.2	2.8	9.4	2.9	10.5	3.6	8.6	2.4	8.2	4.5	7.7	2.4	5.8	0.9	3.8	2.7	7.1
1981	3.1	8.0	2.2	5.4	3.3	9.6	2.9	10.0	2.9	6.8	3.3	9.9	4.5	10.7	2.4	6.4	1.4	3.6	2.8	7.5
1982	1.4	2.8	1.4	3.2	1.5	5.1	2.4	6.3	1.0	2.3	1.5	2.3	2.2	5.0	1.2	5.4	1.2	2.5	1.5	3.7
1983	0.9	0.8	0.8	1.1	1.3	2.0	1.3	1.8	0.6	1.5	1.0	2.7	2.3	5.1	2.0	6.1	1.3	2.8	1.2	2.5
1984	0.3	0.9	0.7	0.8	1.2	1.9	0.8	2.0	0.7	1.5	1.0	2.9	0.7	2.1	1.9	4.8	0.9	2.7	0.9	2.2
1985	0.4	1.8	1.0	2.4	1.1	2.8	1.2	4.0	0.9	2.8	1.0	2.7	0.9	5.5	1.2	6.3	0.8	3.9	0.9	3.5
1986	0.5	2.2	1.0	1.8	1.4	4.2	0.8	3.3	1.1	2.5	1.3	3.5	1.7	4.5	2.0	6.5	1.8	2.9	1.3	3.4
1987	1.1	3.0	1.0	3.4	1.6	3.6	1.1	6.1	1.4	4.4	1.3	3.2	1.3	5.9	2.2	6.1	1.4	3.6	1.4	4.2
1988	1.1	3.2	0.8	3.0	2.3	4.4	1.4	5.1	0.8	2.8	1.4	2.3	1.5	5.3	1.2	5.2	1.7	3.1	1.3	3.7
1989	0.8	2.9	1.4	3.5	0.9	6.4	2.5	7.1	1.4	5.6	1.0	3.5	1.1	4.5	1.3	4.0	1.7	4.2	1.3	4.5
1990	1.6	4.0	2.2	5.4	2.3	7.2	3.0	6.8	2.8	5.4	2.2	2.5	1.6	5.2	1.2	3.3	1.4	3.0	2.0	4.6
1991	1.9	4.4	2.0	5.0	2.5	5.2	2.7	7.9	2.0	4.5	2.7	3.2	3.1	6.9	1.3	5.4	0.9	4.8	2.0	5.1
1992	1.3	3.2	1.7	5.3	1.8	3.2	3.6	4.7	2.5	4.6	1.9	4.1	3.9	3.9	1.1	3.4	1.7	3.6	2.0	4.1
1993	0.8	1.5	1.3	2.1	0.9	1.4	1.4	6.1	0.8	2.8	1.4	2.3	1.2	4.2	0.6	2.3	0.7	3.0	1.0	2.7
1994	0.8	5.8	2.5	7.3	1.2	3.9	4.1	9.2	2.0	6.3	3.1	8.0	1.8	5.0	1.1	5.0	2.3	7.0	2.1	6.4
1995	1.2	3.2	2.2	7.6	1.2	3.8	2.5	4.9	1.9	6.6	2.6	5.5	1.6	5.8	0.5	3.0	1.6	4.8	1.7	5.1
1996	1.9	7.0	2.7	7.7	1.8	3.8	2.9	6.0	2.2	5.8	1.9	7.1	1.4	4.1	1.3	2.5	1.6	3.4	2.0	5.4
1997	1.6	4.3	2.0	7.1	1.2	5.2	1.7	3.8	2.5	7.1	2.4	5.0	1.4	4.4	1.0	2.2	1.3	4.2	1.7	5.0
1998	1.9	7.3	2.1	6.6	1.7	4.9	1.2	4.3	2.4	5.8	1.5	5.4	1.6	2.0	0.9	1.5	2.6	4.8	1.8	4.9
1999	3.2	5.5	2.8	3.9	0.8	2.8	1.1	2.3	1.9	4.5	2.5	4.0	0.6	2.2	0.4	1.5	1.0	2.9	1.7	3.5
2000	3.6	7.3	2.9	4.0	0.8	1.7	1.8	3.3	2.1	6.3	2.6	4.4	1.2	3.1	1.0	2.5	0.7	2.4	2.0	4.1
2001	1.8	2.6	0.5	1.9	0.2	0.6	0.4	1.1	0.6	2.4	1.2	1.9	0.7	1.2	0.4	0.7	0.5	0.4	0.7	1.5
2002	2.0	4.9	1.4	5.1	0.7	1.3	0.8	3.1	1.3	5.1	1.5	3.4	0.5	1.6	0.4	1.0	0.6	2.3	1.1	3.3
2003	3.5	10.1	2.7	7.4	0.7	2.6	1.4	3.9	2.5	7.0	1.9	3.7	0.5	2.5	0.4	2.1	1.0	2.7	1.8	5.0
2004	5.0	7.0	3.5	4.6	1.1	2.4	1.4	3.0	1.7	4.2	0.8	3.2	1.6	2.9	0.8	2.0	0.8	2.8	1.9	3.7
Statistics:																				
10 Year Avg.	2.6	5.9	2.3	5.6	1.0	2.9	1.5	3.6	1.9	5.5	1.9	4.4	1.1	3.0	0.7	1.9	1.2	3.1	1.6	4.1
Long-term Avg.	1.8	4.4	1.8	4.5	1.5	4.0	1.9	5.1	1.8	4.7	1.8	4.2	1.7	4.4	1.2	3.8	1.3	3.4	1.6	4.3
Percent Change from:																				
2003	42.9	-30.2	28.7	-37.2	57.1	-9.6	3.3	-23.3	-32.1	-40.4	-57.2	-13.6	234.7	16.5	81.8	-1.9	-23.8	3.0	10.8	-25.9
10 Year Avg.	94.4	18.8	52.7	-17.2	6.8	-19.1	-6.4	-15.9	-10.7	-24.1	-56.7	-26.9	41.9	-3.6	12.7	8.0	-34.3	-8.5	18.6	-10.9
Long-term Avg.	182.9	61.3	90.9	3.5	-24.2	-40.8	-25.1	-40.7	-2.1	-11.2	-54.8	-24.0	-9.7	-35.4	-34.0	-46.2	-39.7	-17.3	19.1	-13.4

Table 5.8 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/)

	RESIDENT									NON-RESIDENT					
					FURHARVESTER					HUNTING					
YEAR[a]	HUNTING	COMBINATION	FUR/FISH GAME	FUR over 16	over 16[b]	under 16	TOTAL[c]	RESIDENT TOTAL[d]	LIFETIME over 65	over 18	under 18	TOTAL LICENSE[e]	HABITAT STAMP[f]	IA DUCK STAMP[g]	HUNT PRESERVE[h]
1980	161,596	105,059		19,366	19,366	5,529	24,895	266,655				30,793	296,667	50,202	822
1981	158,551	107,502		19,116	19,116	4,990	24,106	266,053				31,379	297,297	45,751	742
1982	139,044	106,925		17,505	17,505	4,248	21,753	245,969				24,002	269,290	44,391	751
1983	134,140	103,711		14,964	14,964	3,699	18,663	237,851				23,206	261,340	42,981	766
1984	120,341	101,178		14,537	14,537	3,329	17,866	221,519				21,927	243,154	44,445	696
1985	118,163	90,281		25,156	25,156	3,519	28,675	208,444				22,977	233,779	37,681	729
1986	121,640	83,653	63	23,646	23,709	3,064	26,773	205,356				27,254	236,219	40,157	882
1987	134,155	78,285	8,234	20,689	28,923	3,338	32,261	220,674				35,676	259,350	43,357	1,112
1988	130,547	77,342	10,699	13,406	24,105	2,380	26,485	218,588				35,023	257,702	34,799	1,696
1989	134,894	81,795	9,435	8,976	18,411	1,530	19,941	226,124				40,197	271,342	32,920	1,499
1990	131,601	80,241	7,794	6,059	13,853	973	14,826	219,636				41,500	263,530	31,468	1,786
1991	127,432	81,977	7,791	6,417	14,208	719	14,927	217,200				45,792	266,845	32,537	1,454
1992	142,059	54,028	7,421	6,851	14,272	793	15,065	203,508				39,211	247,673	34,304	1,810
1993	137,489	52,416	8,061	6,611	14,672	829	15,501	197,966				29,231	232,298	31,741	2,137
1994	148,770	54,185	8,334	7,477	15,811	952	16,763	211,289				45,610	260,815	33,232	1,870
1995	146,497	55,367	8,863	6,480	15,343	903	16,246	210,727				48,028	263,531	34,903	2,467
1996	137,724	62,834	9,105	8,132	17,237	1,021	18,258	209,663				53,058	265,653	43,060	2,317
1997	135,010	66,398	10,122	8,208	18,330	1,066	19,396	211,530				52,730	269,443	38,275	2,516
1998	133,000	65,129	10,661	7,664	18,325	1,078	19,403	208,790				50,511	266,519	40,349	3,107
1999*	"----------Discontinued----------"				15,804	1,004	16,808	206,210	2,885	42,379	2,086	44,465	253,943	42,588	2,772
2000					12,793	1,936	14,729	200,995	1,642	39,067	1,901	40,968	245,351	40,913	2,898
2001					14,665	658	15,323	194,051	1,515	26,748	1,090	27,838	237,407	40,378	2,963
2002					14,235	644	14,879	189,138	2,339	36,728	1,532	38,260	229,829	37,574	3,282
2003					13,753	651	14,404	193,279	1,772	43,145	1,951	45,096	240,527	35,746	3,173
2004					13,906	701	14,607	190,154	1,786	41,159	1,847	43,006	235,336	34,611	3,254
Statistics:															
10 Year Avg.					15,439	966	16,405	201,454	1,990	38,204	1,735	44,396	250,754	38,840	2,875
Long-term Avg.					17,320	1,982	19,302	215,255	1,990	38,204	1,735	37,510	256,194	38,735	1,900
Percent Change from:															
2003					1.1	7.7	1.4	-1.6	0.8	-4.6	-5.3	-4.6	-2.2	-3.2	2.6
10 Year Avg.					-9.9	-27.4	-11.0	-5.6	-10.2	7.7	6.5	-3.1	-6.1	-10.9	13.2
Long-term Avg.					-19.7	-64.6	-24.3	-11.7				14.7	-8.1	-10.6	71.3

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

[b] Furharvester (over 16) sales is the sum of discontinued fur(over 16) and fur/fish/game licenses, until ELSI system implementation in 1999.

[c] Total furharvester sales is the sum of the furharvester over and under 16 sales columns. Total does not include non-resident sales.

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

[e] For comparisons to previous years total NR licenses is sum of non-resident over and under 18 sales after 1999 ELSI implementation.

[fgh] Numbers represent combined resident and non-resident sales.

Table 5.9 Estimated hunter numbers from the Iowa small-game survey (1963-present). Prior to 1978 Canada geese = all geese.

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

YEAR	PHEASANT	QUAIL	COTTON-TAIL	JACK-RABBIT	SQUIRREL	HUNS	RUFFED GROUSE	DUCKS	CANADA GEESE	OTHER GEESE	RACCOON	FOX	COYOTE
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[a]	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						
2003	142,233	24,895	31,600	326	27,863	4,054	930						
2004	130,583	22,336	32,195	600	29,302	4,537	273						
Statistics:													
10 Year Avg.	166,820	33,745	47,517	2,104	41,316	9,990	1,658						
Long-term Avg.	188,116	54,402	77,425	4,190	66,133	21,816	4,497	40,084	23,677	13,560	32,587	39,590	32,879
Percent Change from:													
2003	-8.2	-10.3	1.9	84.0	5.2	11.9	-70.6						
10 Year Avg.	-21.7	-33.8	-32.2	-71.5	-29.1	-54.6	-83.5						
Long-term Avg.	-30.6	-58.9	-58.4	-85.7	-55.7	-79.2	-93.9						

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

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

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

YEAR	DATES REGULAR / YOUTH	SEASON LENGTH	SHOOTING HOURS	LIMIT - BAG/POSS REGULAR	LIMIT - BAG/POSS YOUTH	# COUNTIES OPEN
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
2004-05	30 OCT-10 JAN / 23-24 OCT	73/2	0800-1630	3/12	1/2	STATEWIDE

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

Table 5.11 Iowa's Bobwhite quail hunting seasons.

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

YEAR	DATES	SEASON LENGTH	SHOOTING HOURS	LIMIT BAG/POSS	AREA OPEN
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
2004-05	30 OCT-31 JAN	94	0800-1630	8/16	STATEWIDE

Table 5.12 Iowa's Hungarian partridge hunting seasons.

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

YEAR	DATES	SEASON LENGTH	SHOOTING HOURS	LIMIT BAG/POSS	AREA OPEN
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
2004-05	9 OCT-31 JAN	115	0800-1630	8/16	STATEWIDE

Table 5.13 Iowa's cottontail and jackrabbit seasons.

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

YEAR	DATES COTTONTAILS / JACKRABBITS	SEASON LENGTH	SHOOTING HOURS	LIMIT - BAG/POSS COTTONTAILS	LIMIT - BAG/POSS JACKRABBITS	AREA OPEN
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
2004-05	1 SEP-28 FEB/30 OCT-1 DEC	181/33	SUNRISE-SUNSET	10/20	2/4	STATEWIDE

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

Figure 5.1. Survey regions for the August Roadside Survey.

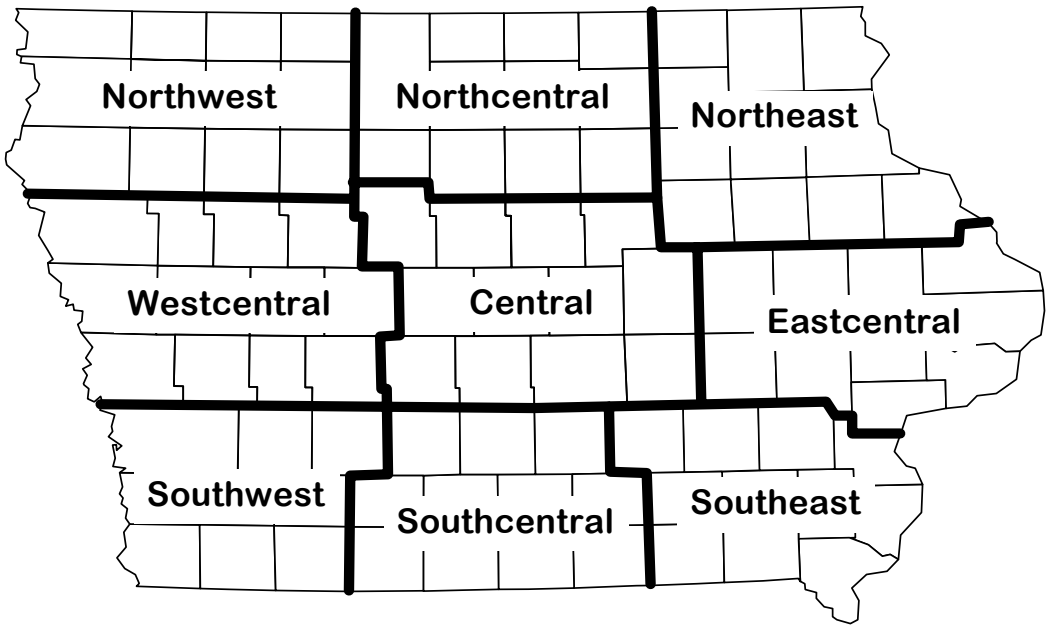


Figure 5.2 Statewide trends in pheasant harvest and August roadside survey counts

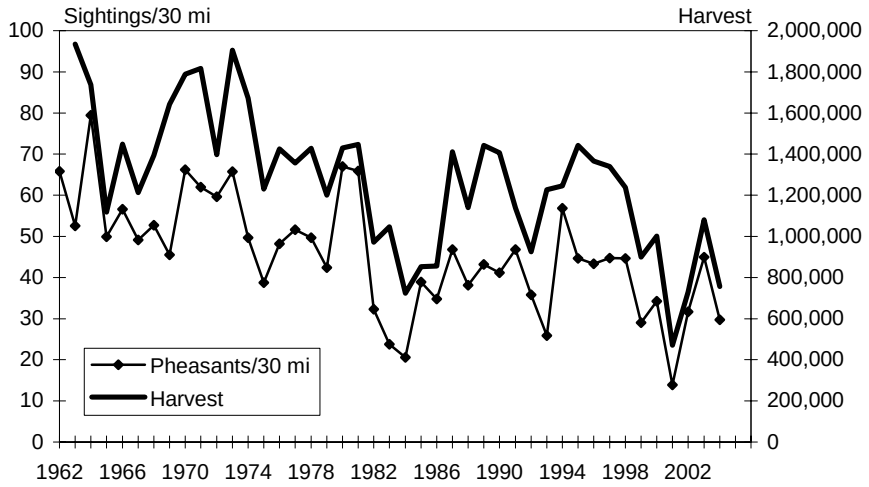


Figure 5.3 Statewide trends in pheasant broods and average brood size from August roadside survey

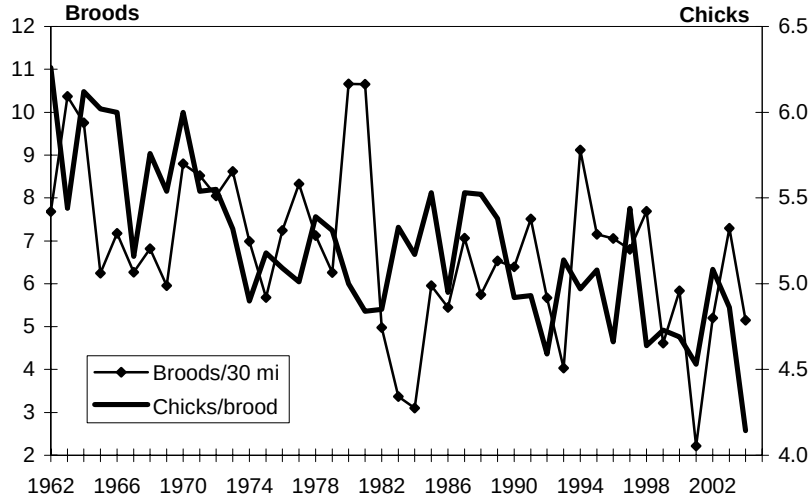


Figure 5.4 Statewide sex ratio and estimated cock harvest from winter pheasant surveys

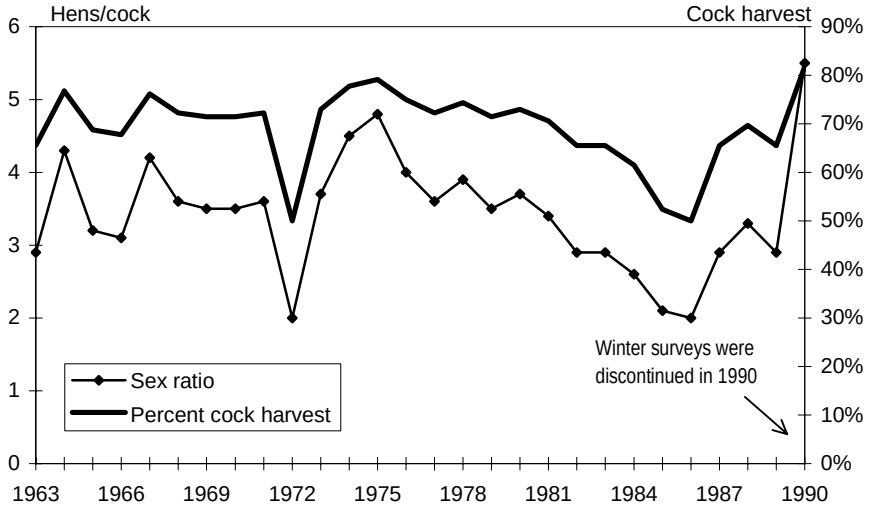


Figure 5.5 Statewide trends in pheasant hens with and without broods from August roadside survey

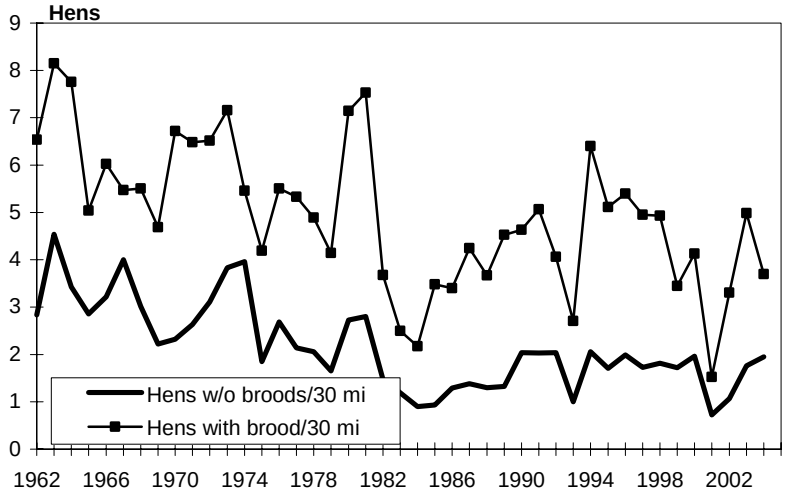
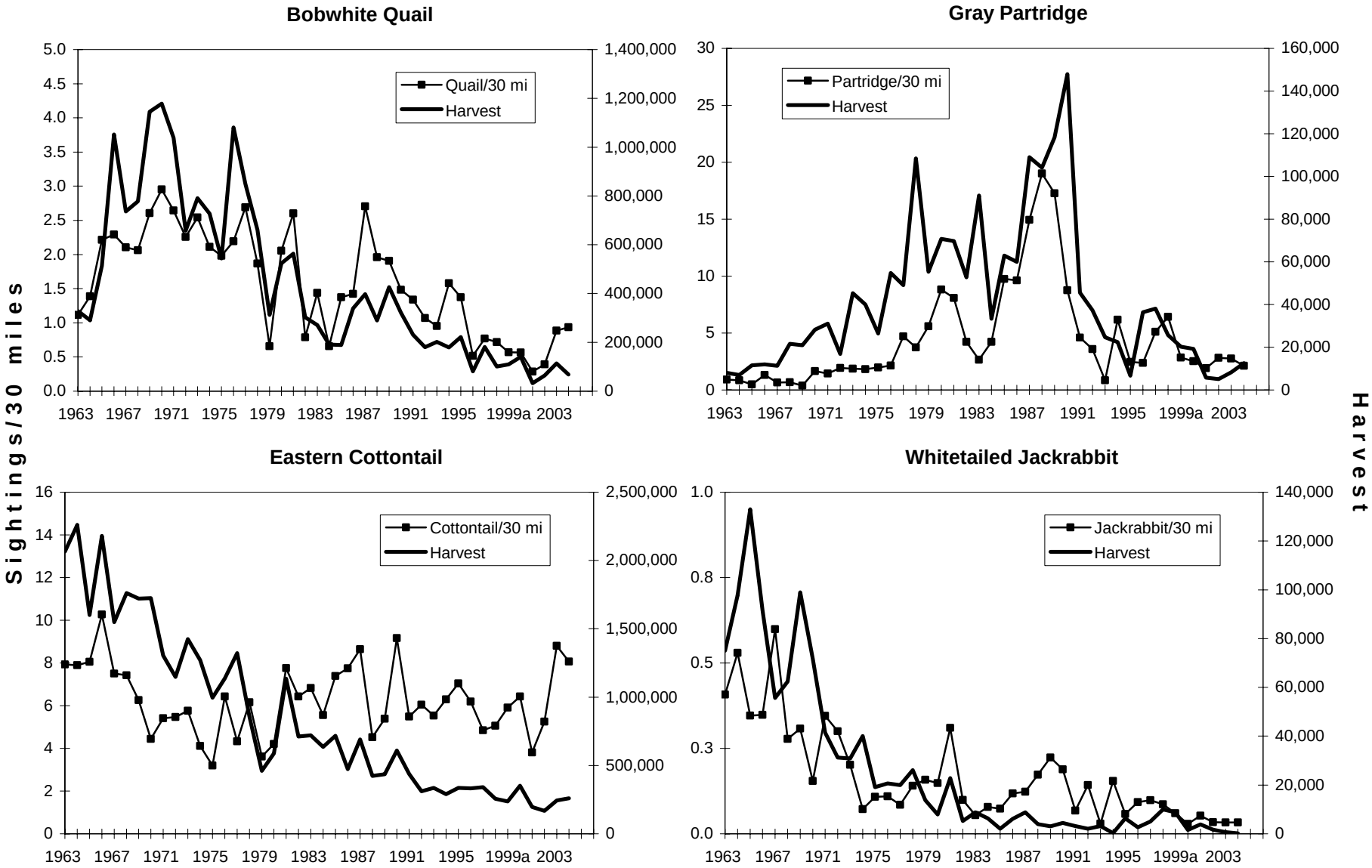


Figure 5.6 Statewide trends in small game harvests and August roadside survey counts



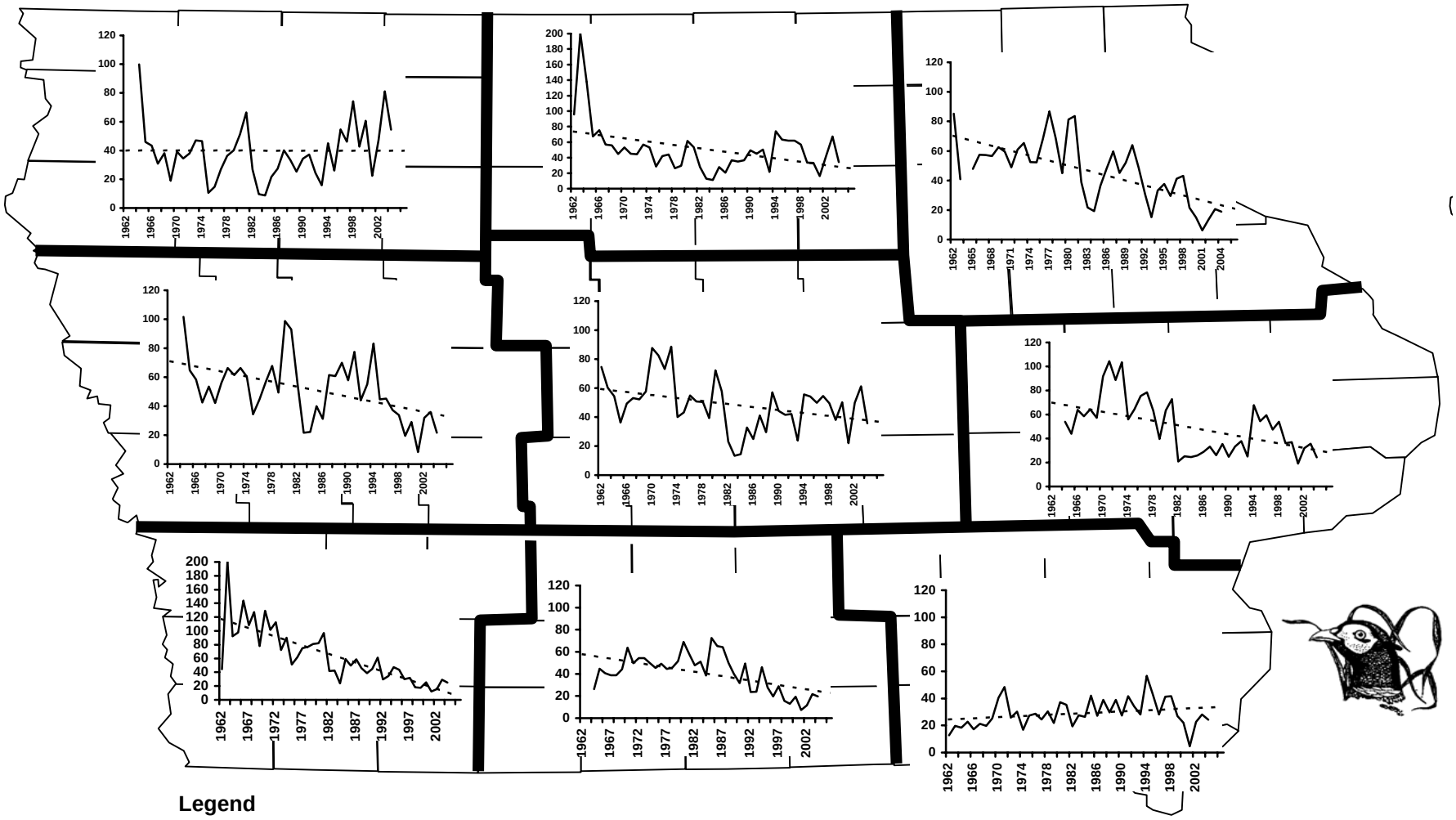


Figure 5.7 Regional trends in ring-necked pheasant numbers from the August roadside survey (1962-present).

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

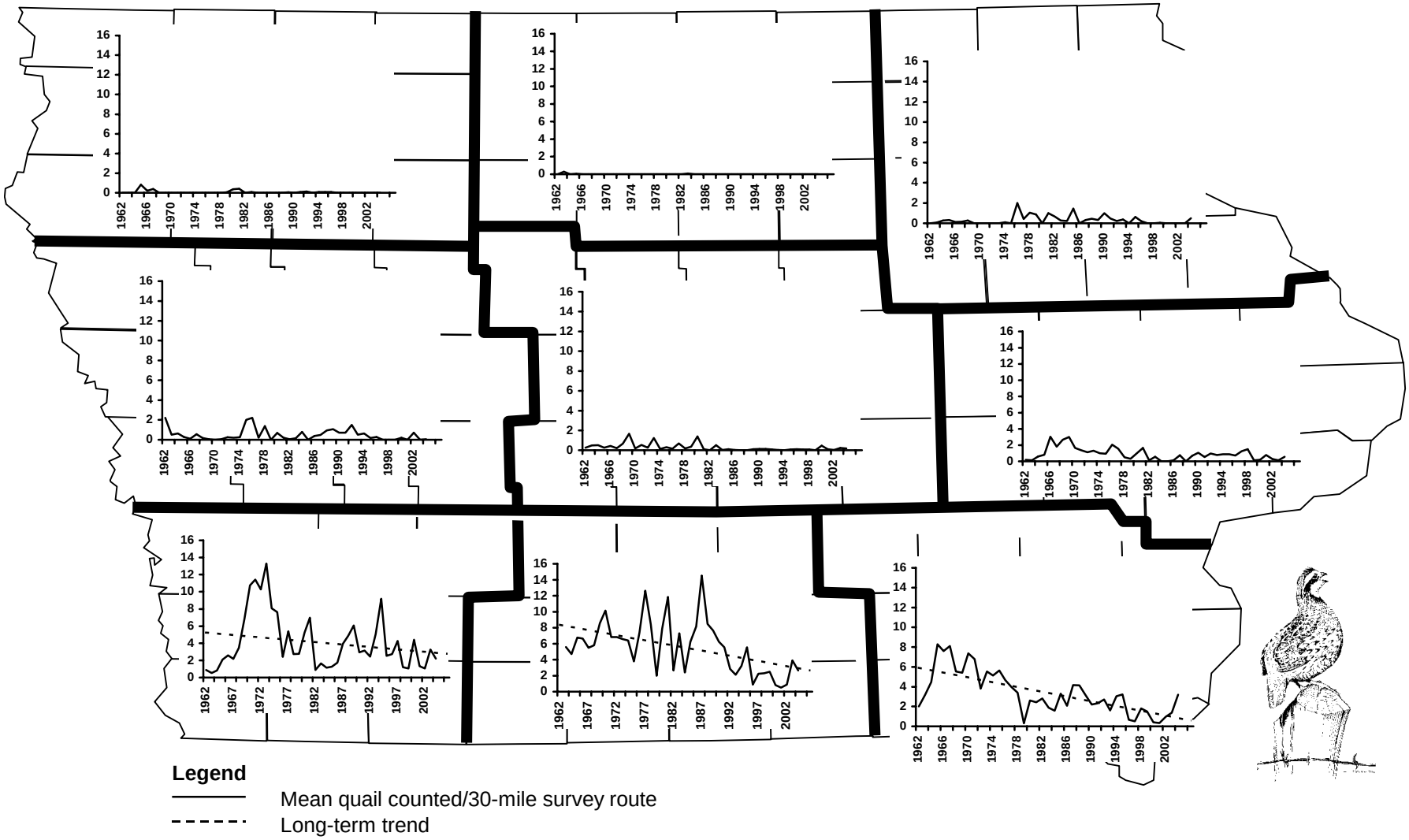


Figure 5.8 Regional trends in bobwhite quail numbers from the August roadside survey (1962-present).

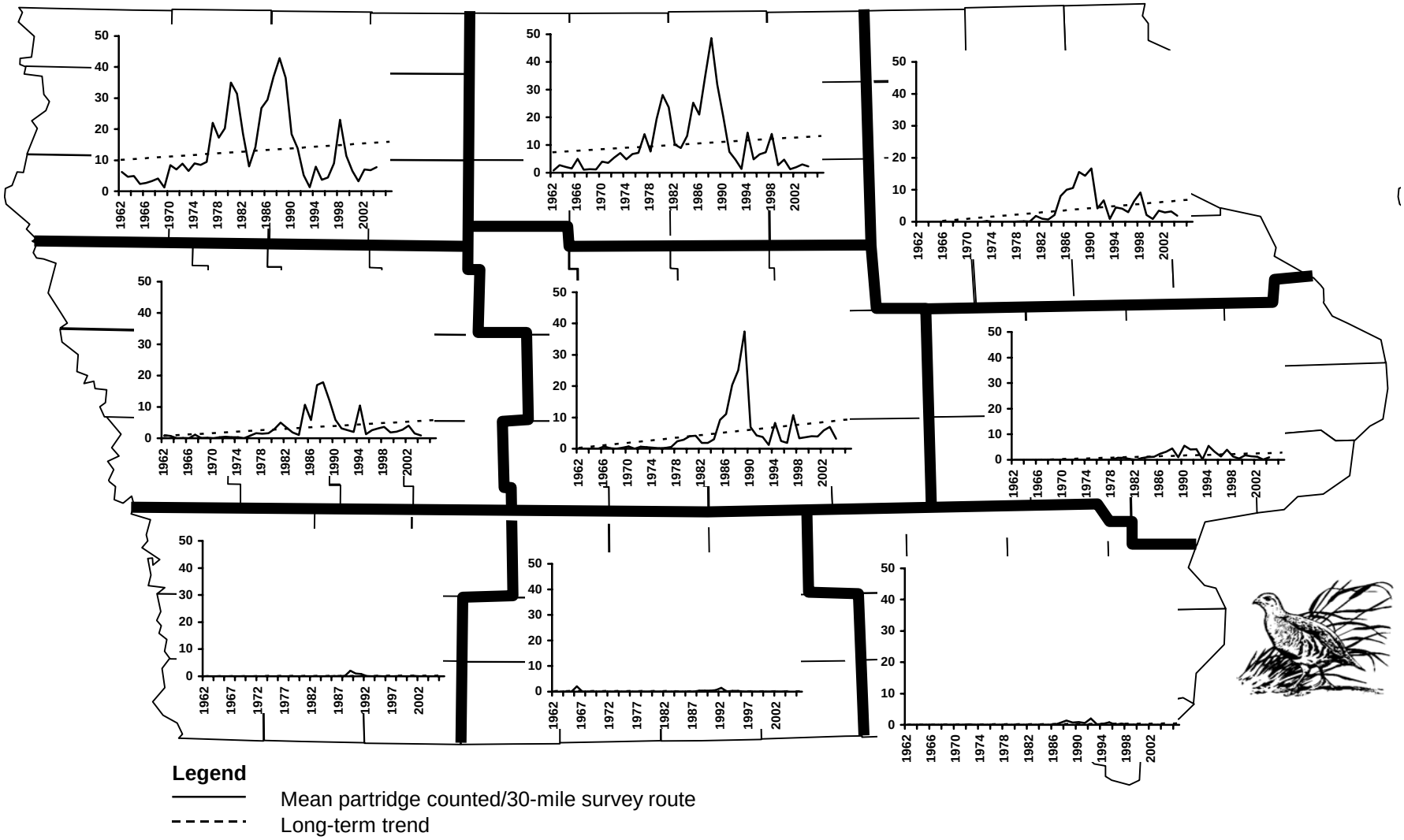


Figure 5.9 Regional trends in gray partridge numbers from the August roadside survey (1963-present).

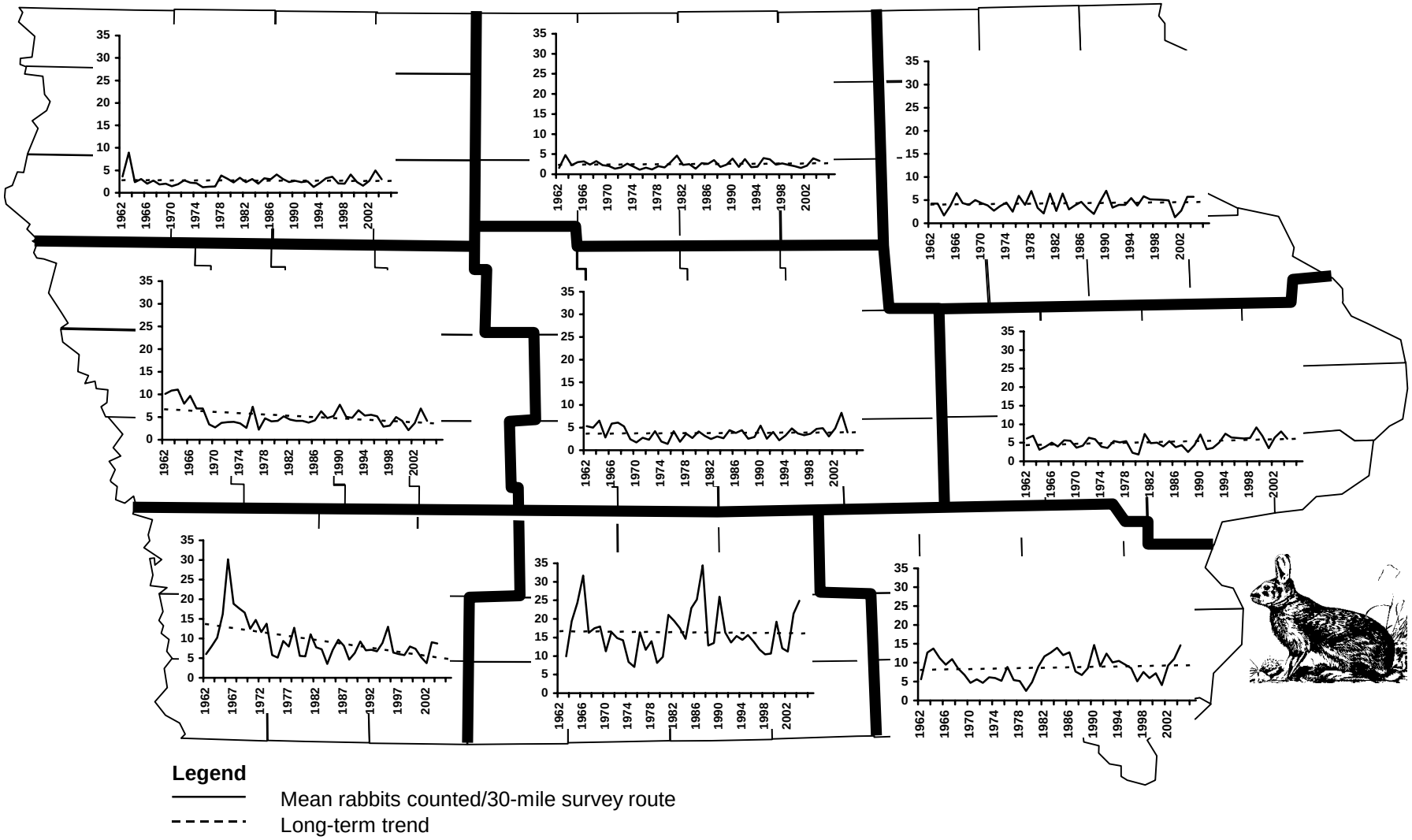


Figure 5.10 Regional trends in cottontail rabbit numbers from the August roadside survey (1962-present).

Figure 5.11 Sales of Iowa hunting licenses

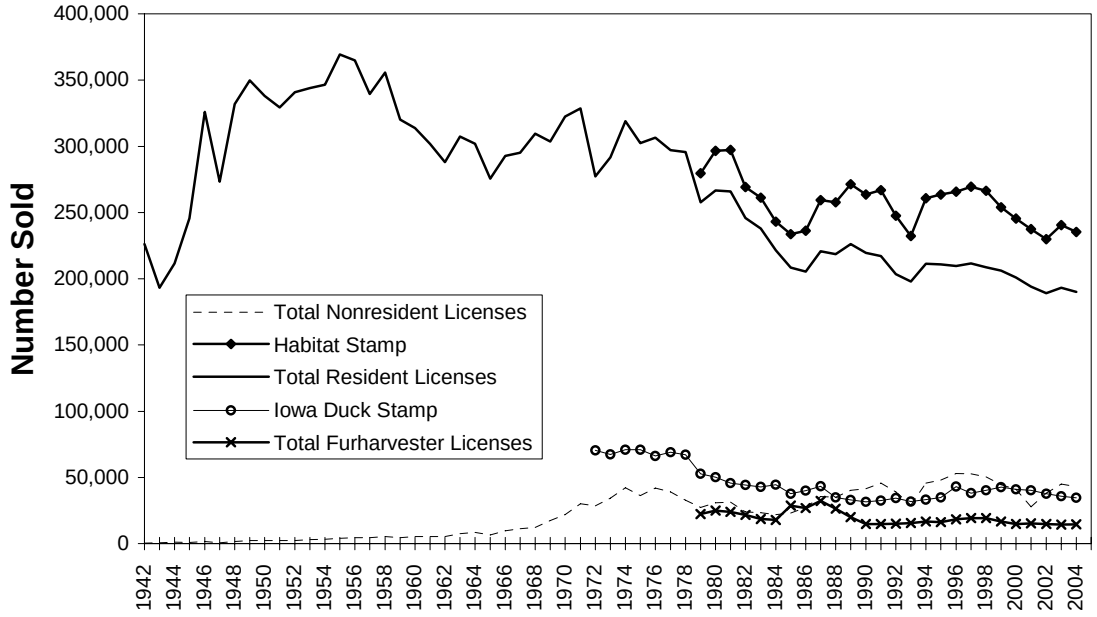
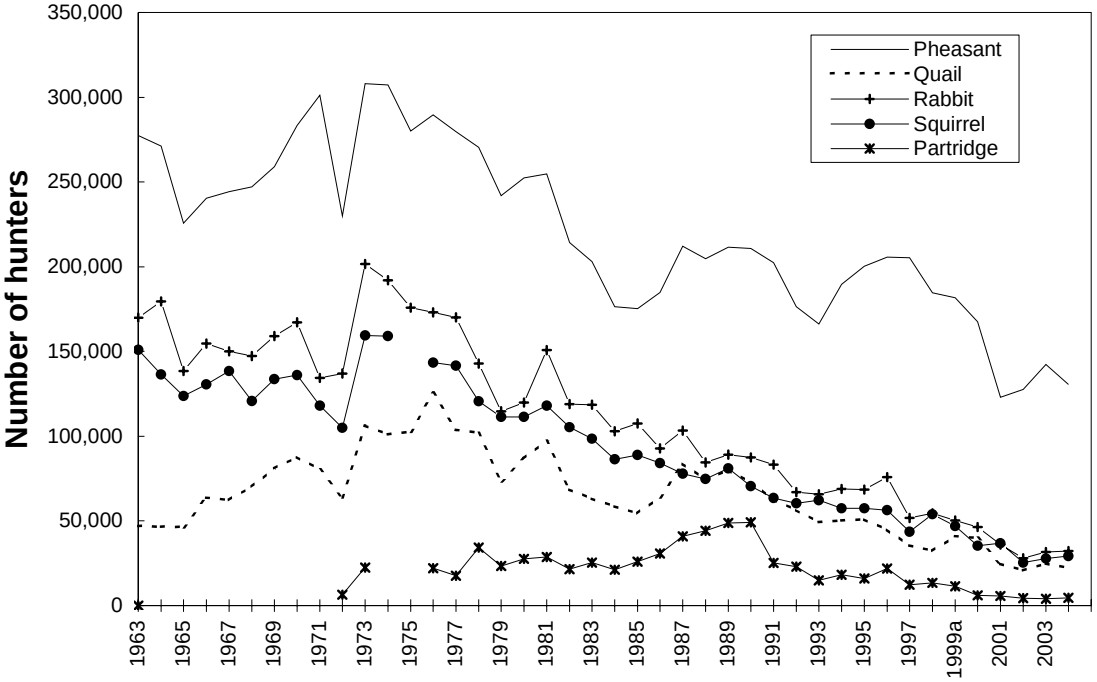


Figure 5.12 Estimated number of Iowa small-game hunters



WILDLIFE RESTORATIONS

2004-2005 ACTIVITIES

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 1990) 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 trichonomoniasis (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 east side 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 were 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 psuedo-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 Firstar 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 Mid-American 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 hacked at the Dubuque cliff site and 6 male peregrines hacked at the Louisa power plant site. All told, there were 164 peregrines hacked 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 one). A fifth pair of falcons held a nesting territory at the Louisa generating plant 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 east side of the American Republic Insurance bldg. However, the eggs disappeared as hatch date drew near. In late June an egg was discovered on the west side 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.

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 Insurance building 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. The female Z/V fledged in 1999 at NSP Riverside, Minneapolis, Minnesota. The tiercel has not been identified. 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.

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.

In 2004, Bob Anderson reported the pair at Lansing cliff, Allamakee County, hatched young but none were present at banding. A second, wild nesting pair was reported downstream by Dave Kester, on a Mississippi River cliff at Waukon Jct., Allamakee County. There were 2 eggs but no young produced. Female at this site was identified as Lora (48/E), hatched at Xcel Energy, Monticello, MN in 2003. Male is two-year-old 19/M Dairyland Cooperative at Alma, Wisconsin 2002. Anderson believed only male was incubating.

A scrape was present at nest box on smokestack at Alliant Energy Plant at Chillicothe, Wapello County, but no young produced. Two unidentified peregrines occupied site.

Danny Akers, a reliable birder, reported a peregrine pair copulating about one mile southwest of Guttenberg, Clayton County, on April 18, but despite subsequent searches in the area, no eyrie was discovered.

At state Capitol bldg in Des Moines female 39/E, NSP Riverside, Minneapolis 2003, has paired with 93T and is actively defending site from intruders.

At American Republic Insurance bldg. at Des Moines, Polk Co. Iowa, female 8/*T (produced three young) (Colonnade bldg. 2002) here for her first nesting attempt paired with fourteen-year-old male 93T (produced 27 young), his twelfth year at this site. Four eggs were laid and three males fledged. One immature male, D/06, was retrieved dead from collision with Ruan bldg. in July.

At Louisa Generating Plant, Louisa County, Jim Haack, Mid-American Energy, reports that five-year-old female Murphy Z/V(produced eight young), here for fourth year, and an unidentified male fledged four, three males and a female. Female 62/D recently was trapped inside a building and died of apparent heat exhaustion.

At US Bank bldg at Cedar Rapids, Linn Co. Iowa, six-year-old female ***S/ ***5 (produced 13 young) nesting here for fifth time and 13 year-old male 64X (produced 36), here for 12th year, produced four eggs, hatched four, and fledged three, one male and two females. Female 63/D was found dead. It was feared no young survived at this site as shortly after fledging, adults were sighted repeatedly but no young were seen.

At Davenport, Scott County, a pair once again nested at Centennial Bridge on eastern section of middle span. Three young were reported before fledging, but neither adult was identified. Also, no activity was reported at 2003 territory at I80 Bridge near Bettendorf.

It appears there is a new territory at Burlington, Des Moines County, beneath another Mississippi River Bridge. Former falconer, Lee Eberly, reported at least one, and possibly two peregrines were seen flying to and from under the bridge in mid-June, and vocalizations were heard 4 or 5 times. There has been peregrine activity noted at this site in the past. No peregrines were identified, and it is unknown if there was an active nest.

In summary, young fledged was down from 16 in 2003 to 13 in 2004 at four successful sites. There was evidence of peregrine territorial activity at ten sites.

In 2005 ten territories had seven successful fledgings with 21 young produced. At Firstar Bank (US Bank), Cedar Rapids, Linn County, Iowa, Jodeane Cancilla, Macbride Raptor Project, reports that seven-year-old female *S/*5 (produced 16 young), nesting here for the sixth year, and two-year-old male 78/E (produced 3), here for his first nesting, produced four eggs, hatched all four, and fledged three young, two males and a female.

American Republic, Des Moines, Polk County, Iowa. 15-year-old male 93T (31 young), his 13th year at this site, paired for the second year with four-year-old female Ellie b/g 8/*T, fledged in 2001 at Colonnade, Minneapolis, Minnesota. They produced four eggs, four were banded, and fledged three young, two females and one male. One male was found dead, having fallen from eyrie. On July 22, female 8/*T was found with a wing injury that precludes further flying, although she lives on in captivity. Male 93T has sired 31 young in his long career here.

MidAmerican Energy Corporate Headquarters, Davenport, Scott County, Iowa. Dave Sebben reports two six-year-olds, female 8/*E, fledged at Muncie, Indiana, in 1999, paired with male P/D, fledged at Dubuque, Iowa, in 1999, produced one young. It was banded but died when hit by a car after fledging.

At Louisa, Louisa County, Iowa, Jim Haack, MidAmerica Energy, reports that an unidentified female and an unidentified male, both banded, fledged four young, two males and two females. This is the fourth year of successful nesting at this site.

Leo's Bluff, Waukon Junction, Allamakee County, Iowa. This is second year for this cliff site**.** Dave Kester and Bob Anderson report that two-year-old female Lora 48/E paired with three-year-old Brady 19/M, both here for the second year, and

nested a half mile upstream from the 2004 site. They fledged two young, one each sex, from a cliff with no nest box, the first such cliff nest in Iowa in over 40 years.

Alliant Energy Lansing / Lansing cliff, Lansing, Allamakee County, Iowa. Bob Anderson, Raptor Resource Project, and Dave Kester report that an unidentified adult female with a b/r band paired with eight-year-old male Alpha *T/M (produced 14 young), nesting here for the seventh year. The site has had an interesting history. Falcons were first attracted to nest in a box on a nearby stack, where they fledged young in two seasons. The stack box was then removed and a box placed on the nearby cliff. Young were fledged in 2002. However, in 2003 and 2004, the falcons used a ledge instead of the box and lost their young to raccoon predation. This year, Kester and Anderson placed a new box on the stack, from which five young peregrines were fledged, three males and two females.

Alliant Energy Plant, Chillicothe, Wapello County, Iowa, Judi Johnson reports six-year-old female Z/V (produced 10 at Louisa and Chillicothe) and an unidentified male, judged by plumage to be two years old, produced four eggs and fledged two young. Female Z/V has relocated to this site from Louisa Generating Plant.

I80 Bridge, Quad Cities, Scott County, Iowa. had peregrine activity again this year. An adult pair is on site, but no young were found. A nest tray was installed under the bridge on Iowa side of center span of bridge. This bridge is 12 miles upstream from Centennial Bridge.

Mississippi bridge, Burlington, Des Moines County, Iowa. John Rutenbeck reports seeing and hearing two peregrines flying under the bridge in mid-June. Peregrine activity has been noted here in past years. There was no proof of a nest this year.

State Capitol, Des Moines, Polk County, Iowa, female Fast Track b/g 39/E, fledged in 2003 at NSP Riverside, Minneapolis, Minnesota, here in 2004 and early spring this year, was not seen through the nesting season. Adult male, T93, from downtown nest site has been soaring and perching on west side of Capitol, throughout summer.

Seven successful sites produced 21 young in 2005. There were three additional sites with peregrine pairs for a total of ten territories this year.

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

Year	Location	USFWS #	Color Band	Sex	Comments
1989	Cedar Rapids	81622146	Y90	M	
1989	Cedar Rapids	81622160	T61	M	
1989	Cedar Rapids	81622161	T62	M	
1989	Cedar Rapids	81622162	T63	M	
1989	Cedar Rapids	81622163	T64	M	
1989	Cedar Rapids	81622164	T65	M	
1989	Cedar Rapids	81622165	T66	M	
1989	Cedar Rapids	81622166	T67	M	
1989	Cedar Rapids	87742570	V53	F	Died - collision
1989	Cedar Rapids	98720914	V52	F	
1990	Cedar Rapids	1807-29412	V81	F	
1990	Cedar Rapids	1807-29413	V82	F	Died - collision
1990	Cedar Rapids	1807-29423	V93	F	Killed by PF in 1991
1990	Cedar Rapids	2206-13819	T93	M	
1990	Cedar Rapids	2206-13820	T94	M	
1990	Cedar Rapids	2206-13821	T95	M	
1990	Cedar Rapids	2206-13822	T96	M	
1990	Cedar Rapids	2206-13823	T97	M	
1990	Cedar Rapids	2206-13825	T99	M	
1990	Cedar Rapids	2206-13826	X03	M	Died - collision
1990	Cedar Rapids	2206-13827	X04	M	
1990	Cedar Rapids	2206-13835	X17	M	
1990	Cedar Rapids	2206-13836	X20	M	Killed – fight w/ PF in ‘93
1991	Des Moines	1807-29450	R28	F	
1991	Des Moines	1807-29451	R29	F	Died in chimney
1991	Des Moines	1807-29455	R33	F	Killed by PF in 1994
1991	Des Moines	1807-29461	R40	F	
1991	Des Moines	1807-29467	R47	F	Died in ’93 – unknown
1991	Des Moines	1807-29468	R48	F	
1991	Des Moines	1807-29469	R49	F	
1991	Des Moines	1807-29472	R52	F	
1991	Des Moines	2206-13715	Z12	M	
1991	Des Moines	2206-13723	Z23	M	Died – collision
1991	Des Moines	2206-13724	Z24	M	Died – collision
1991	Des Moines	2206-13725	Z25	M	Suspect dead
1991	Des Moines	2206-13872	X59	M	
1991	Des Moines	2206-13873	X62	M	Died – unknown
1991	Des Moines	2206-13874	X63	M	Euthanized - collision
1991	Des Moines	2206-13875	X64	M	Tiercel at Cedar Rapids
1991	Des Moines	2206-13876	X65	M	Suspect dead
1991	Des Moines	2206-13884	Z05	M	
1991	Des Moines	2206-13900	Z07	M	
1992	Muscatine	1807-34867	2-Feb	F	

Year	Location	USFWS #	Color Band	Sex	Comments
1992	Muscatine	1807-34868	3-Feb	F	
1992	Muscatine	2206-18428	CH	M	
1992	Muscatine	2206-18430	CM	M	Died in ’96 - unknown
1992	Muscatine	2206-18431	CN	M	
1992	Muscatine	2206-18433	CR	M	Died – powerline
1992	Muscatine	2206-18434	CS	M	Died – injury
1992	Muscatine	2206-18435	CT	M	
1993	No releases	--	--	--	
1994	No releases	--	--	--	
1995	No releases	--	--	--	
1996	Mason City	2206-35803	P*/X	M	
1996	Mason City	2206-35804	P*/W	M	
1996	Mason City	2206-35805	P*/S	M	
1996	Mason City	2206-35807	P*/U	M	
1996	Mason City	1807-53901	5*/T	F	Relocated from Iowa City
1996	Mason City	1807-53902	5*/U	F	Relocated from Iowa City
1996	Mason City	1807-53905	5*/S	F	
1996	Iowa City	2206-35806	P*/T	M	Killed by wild peregrine
1997	Mason City	1807-53912	G*/8*	F	
1997	Mason City	2206-35822	H*/E	M	Died - collision
1997	Mason City	2206-35823	R*/Y	M	
1997	Bluffton	1807-53912	4*/G	F	
1997	Bluffton	1807-53913	7*/M	F	
1997	Bluffton	2206-35824	R*/W	M	
1997	Bluffton	2206-35825	9/P*	M	
1998	Effigy Mounds	1807-53924	R*/9*	F	
1998	Effigy Mounds	1807-53925	R*/5*	F	
1998	Effigy Mounds	1807-53926	R*/6*	F	
1998	Effigy Mounds	1807-53927	R*/7*	F	
1998	Effigy Mounds	2206-35835	5*/G	M	
1998	Effigy Mounds	2206-35836	E*/W	M	
1998	Effigy Mounds	2206-35837	E*/U	M	Died – collision?
1998	Effigy Mounds	2206-35838	H*/Y	M	
1998	Effigy Mounds	1807-61977	C*/E*	F	Died - drown
1998	Louisa	1807-53917	H/7	F	
1998	Louisa	1807-53928	R*/8*	F	
1998	Louisa	1807-53929	C*/K*	F	
1998	Louisa	2206-28908	H*/T	M	
1998	Mason City	1807-53916	*7/K	M	
1998	Mason City	2206-35721	*M/B	M	Rehab bird from Michigan
1998	Mason City	2206-35760	7*/3*	M	Rehab bird from Rockwell
1998	Mason City	2206-35831	*H/U	M	
1998	Mason City	2206-35832	*H/P	M	
1998	Mason City	2206-35833	*H/R	M	
1998	Mason City	2206-35834	3*/4*	M	
1998	Mason City	2206-28904	D*/U	M	
1998	Mason City	2206-29805	D*/T	M	

Year	Location	USFWS #	Color Band	Sex	Comments
1998	Mason City	2206-29806	D*/S	M	
1998	Mason City	2206-29807	3*/5*	M	
1998	Mason City	1807-61906	*5/M	F	Rehab bird from Michigan
1998	Mason City	1807-69756	*E/R*	F	Rehab bird from Chicago – reband (old P/D 2206-35707)
1998	Mason City	1807-53930	C*/M*	F	
1998	Mason City	1807-53931	C*/P*	F	
1999	Effigy Mounds	2206-35839	C/Y	M	
1999	Effigy Mounds	2206-35840	E/Y	M	
1999	Effigy Mounds	2206-35841	E/K	M	
1999	Effigy Mounds	2206-35842	D/E	M	
1999	Effigy Mounds	2206-35843	D/T	M	
1999	Effigy Mounds	2206-35844	D/P	M	
1999	Effigy Mounds	2206-35846	E/S	M	
1999	Effigy Mounds	1807-53918	X/B	F	
1999	Effigy Mounds	1807-53919	W/Y	F	
1999	Dubuque	--	--	-	Rehab bird
1999	Dubuque	1807-77707	*E/*X	F	
1999	Dubuque	1807-77708	*E/*Y	F	
1999	Dubuque	1807-77709	Z/*K	F	
1999	Dubuque	1807-77710	2/*L	F	
1999	Dubuque	2206-28920	M/K	M	
1999	Dubuque	2206-28922	P/D	M	
1999	Dubuque	2206-28923	P/Y	M	
1999	Dubuque	2206-28924	*3/*Y	M	
1999	Dubuque	2206-47607	H/P	M	
1999	Dubuque	2206-47608	G/V	M	
1999	Dubuque	2206-47610	M/D	M	
1999	Dubuque	2206-47611	L/X	M	
1999	Dubuque	2206-47612	R/S	M	
1999	Dubuque	2206-47613	N/V	M	
1999	Dubuque	2206-47614	U/E	M	
1999	Dubuque	2206-47615	N/B	M	
1999	Dubuque	2206-47616	U/Z	M	
1999	Dubuque	2206-47617	R/X	M	
1999	Dubuque	2206-47618	G/H	M	
1999	Dubuque	1807-53946	I/*B	F	
1999	Louisa	--	--	-	Rehab bird
1999	Louisa	--	--	-	Rehab bird
1999	Louisa	2206-47619	H/M	M	
1999	Louisa	2206-47620	M/U	M	
1999	Louisa	2206-28917	3*/*8	M	
1999	Louisa	2206-28918	9*/A*	M	
1999	Louisa	2206-28919	3*/U*	M	
1999	Louisa	1807-53945	P*/1*	F	
2000	Louisa	1807-77704	G/T	M	

Year	Location	USFWS #	Color Band	Sex	Comments
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	“
2003	Bluffton	1807-62160	44/E	F	“
2003	Bluffton	1807-62161	45/E	F	“

Table 6.2 Young peregrine falcons produced from Iowa nesting pairs.

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
1993	Cedar Rapids	2206-18514	0/2	M	-	-	Foster from breeder
1993	Cedar Rapids	Unbanded			R49 Des Moines ‘91	X64 Des Moines ‘91	Died
1993	Cedar Rapids	2206-18557	2/B	M	R49 Des Moines ‘91	X64 Des Moines ‘91	
1993	Des Moines	1807-49715	7/3	F	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1993	Des Moines	1807-49716	7/4	F	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1993	Des Moines	2206-18556	2/A*	M	R13 Kansas City 1991	T93 Cedar Rapids ‘90	Died
1994	Cedar Rapids	1807-49787	E/C	F	R49 Des Moines ‘91	X64 Des Moines ‘91	
1994	Cedar Rapids	2206-25422	L/6*	M	R49 Des Moines 1991	X64 Des Moines ‘91	
1994	Cedar Rapids	2206-25423	K/6*	M	R49 Des Moines 1991	X64 Des Moines ‘91	
1994	Cedar Rapids	Unbanded	-	F	R49 Des Moines 1991	X64 Des Moines ‘91	Died
1994	Des Moines	1807-49788	E/D	F	R13 Kansas City 1991	T93 Cedar Rapids ‘90	Died - collision
1994	Des Moines	2206-25419	M/6*	M	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1994	Des Moines	2206-25420	P/6*	M	R13 Kansas City 1991	T93 Cedar Rapids ‘90	Died-unknown
1995	Cedar Rapids	1807-53830	E/X	F	R49 Des Moines 1991	X64 Des Moines ‘91	
1995	Cedar Rapids	1807-53829	3/U*	M	R49 Des Moines 1991	X64 Des Moines ‘91	
1995	Cedar	2206-	3/V*	M	R49	X64	Died -

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
	Rapids	25460			Des Moines 1991	Des Moines ‘91	collision
1995	Des Moines	1807-53827	A/L*	F	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1995	Des Moines	1807-53828	D/H	F	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1995	Des Moines	1807-53832	D/T	F	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1996	Cedar Rapids	1807-53959	Y*/3	F	R49 Des Moines 1991	X64 Des Moines ‘91	
1996	Cedar Rapids	2206-35884	E*/4	M	R49 Des Moines 1991	X64 Des Moines ‘91	
1996	Cedar Rapids	2206-35885	T*/A	M	R49 Des Moines 1991	X64 Des Moines ‘91	
1996	Des Moines	2206-35886	T*/B	M	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1996	Des Moines	2206-35887	T*/C	M	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1997	Cedar Rapids	7206-35749	Z/4	M	R49 Des Moines 1991	X64 Des Moines ‘91	
1997	Cedar Rapids	2206-35750	Y/8	M	R49 Des Moines 1991	X64 Des Moines ‘91	
1997	Des Moines	None	--	--	R13 Kansas City 1991	T93 Cedar Rapids ‘90	
1998	Cedar Rapids	1807-69736	S/4	F	R49 Des Moines 1991	X64 Des Moines ‘91	
1998	Cedar Rapids	1807-69737	E/V*	M	R49 Des Moines 1991	X64 Des Moines ‘91	Injured - Topeka
1998	Cedar Rapids	1807-69738	S/3	F	R49 Des Moines 1991	X64 Des Moines ‘91	
1998	Des Moines	2206-41002	S/5	F	R13 Kansas City	T93 Cedar Rapids	

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
					1991	‘90	
1998	Des Moines	2206-41003	E/X	M	R13 Kansas City	T93 Cedar Rapids	
					1991	‘90	
1998	Des Moines	2206-41004	E/Y	M	R13 Kansas City	T93 Cedar Rapids	Euthanized – extensive Frounce
					1991	‘90	
1999	Cedar Rapids	1807-61965	F*/U*	F	R49 Des Moines	X64 Des Moines	
					1991	‘91	
1999	Cedar Rapids	1807-61966	E*/W*	F	R49 Des Moines	X64 Des Moines	
					1991	‘91	
1999	Cedar Rapids	1807-61983	E*/V*	F	R49 Des Moines	X64 Des Moines	
					1991	‘91	
1999	Des Moines	None	--	--	R13 Kansas City	T93 Cedar Rapids	Constructio n at nest site interferred
					1991	‘90	
1999	Lansing	1807-69782	Z/D	F	6*/V Minneapolis ‘97	T*/M Prairie Isle MN ‘97	
1999	Lansing	2206-41087	E/H	M	6*/V Minneapolis ‘97	T*/M Prairie Isle MN ‘97	
1999	Lansing	2206-41088	V/B	M	6*/V Minneapolis ‘97	T*/M Prairie Isle MN ’97	
2000	Lansing	1807-77669	3/*7	F	6*/V Minneapolis ‘97	T*/M Prairie Isle MN ’97	Found dead inside smokestac k
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	X64 Des Moines	
					1998	‘91	
2000	Cedar Rapids	1807-34738	2/*T	M	*S/*5 Des Moines	X64 Des Moines	

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
					1998	‘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	X64 Des Moines	

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
					1998	‘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	
2003	Cedar Rapids	220-649456	83/M	M	S*/5* Des Moines ‘98	64X Des Moines ‘91	
2003	Cedar Rapids	220-649457	84/M	M	S*/5* Des Moines ‘98	64X Des Moines ‘91	
2003	Cedar Rapids	220-649458	85/M	M	S*/5* Des Moines ‘98	64X Des Moines ‘91	
2003	Cedar Rapids	987-40129	01/D	F	S*/5* Des Moines ‘98	64X Des Moines ‘91	
2003	Louisa	987-40130	07/D	F	Z/V Riverside, MN ‘99	Unknown	
2003	Louisa	987-40131	08/D	F	Z/V Riverside, MN ‘99	Unknown	
2003	Louisa	220-649459	86/M	M	Z/V Riverside, MN ‘99	Unknown	
2003	Des Moines	987-40141	92/B	F	R13 Kansas City ‘91	93T Cedar Rapids ‘90	Found dead in July at 801 Grand
2003	Des Moines	987-40142	93/B	F	R13 Kansas City ‘91	93T Cedar Rapids ‘90	
2003	Des Moines	2206-494468	14M	M	R13 Kansas City ‘91	93T Cedar Rapids ’90	
2003	Des Moines	2206-494468	15N	M	R13 Kansas City ‘91	93T Cedar Rapids ‘90	
2003	Quad	1807-	43/E	F	8/E*	Unknown	Hacked at

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
	Cities	62159			Muncie, IN ‘99		Bluffton
2003	Quad Cities	1807-62160	44/E	F	8/E* Muncie, IN ‘99	Unknown	Hacked at Bluffton
2003	Quad Cities	1807-62161	45/E	F	8/E* Muncie, IN ‘99	Unknown	Hacked at Bluffton
2003	Quad Cities	2206-69873	69/P	M	8/E* Muncie, IN ‘99	Unknown	Hacked at Bluffton
2004	Cedar Rapids	220669895	D/04	M	*S / *5 Des Moines ‘98	64X Des Moines ‘91	
2004	Cedar Rapids	180762140	63/D	F	*S / *5 Des Moines ‘98	64X Des Moines ‘91	dead
2004	Cedar Rapids	180762141	64/D	F	*S / *5 Des Moines ‘98	64X Des Moines ‘91	
2004	Louisa	220669892	D/01	M	Z/V Riverside, MN ‘99	Unknown	
2004	Louisa	180762139	62/D	F	Z/V Riverside, MN ‘99	Unknown	dead
2004	Louisa	220669893	D/02	M	Z/V Riverside, MN ‘99	Unknown	
2004	Louisa	220669894	D/03	M	Z/V Riverside, MN ‘99	Unknown	
2004	Des Moines	220669897	D/05	M	8/*T Colannade ‘02	93T Cedar Rapids ‘90	
2004	Des Moines	220669896	D/06	M	8/*T Colannade ‘02	93T Cedar Rapids ‘90	dead
2004	Des Moines	220669898	D/07	M	8/*T Colannade ‘02	93T Cedar Rapids ‘90	
2004	Quad Cities						Report of three young
2004	Quad Cities						No other details
2004	Quad Cities						
2005	Louisa	168701918	P/43	F			
2005	Louisa	168701919	P/44	F			

Year	Location	USFWS#	Young	Sex	Falcon	Teircel	Comments
2005	Louisa	220672229	C/60	M			
2005	Louisa	220672230	C/61	M			
2005	Quad Cities	168701901	N30	F	8/*E Muncie, IN ‘99	P/D Dubuque, ‘99	Died at fledging
2005	Des Moines	168701902	N31	F	8/*T Colannade ‘02	93T Cedar Rapids ‘90	
2005	Des Moines	168701903	N32	F	8/*T Colannade ‘02	93T Cedar Rapids ‘90	
2005	Des Moines	220672211	C25	M	8/*T Colannade ‘02	93T Cedar Rapids ‘90	
2005	Des Moines	220672212	C43	M	8/*T Colannade ‘02	93T Cedar Rapids ‘90	Died prefledging
2005	Chillicothe	220672213	C44	M	Z/V Riverside, MN ‘99		
2005	Chillicothe	168701904	N33	F	Z/V Riverside, MN ‘99	unk	
2005	Lansing	1687-01931	P/79	F	T*/M		
2005	Lansing	1687-01932	P/80	F	T*/M		
2005	Lansing	2206-72205	C/74	M	T*/M		
2005	Lansing	2206-72206	C/75	M	T*/M		
2005	Lansing	2206-72207	C/76	M	T*/M		
2005	Waukon Jct. Leo’s Bluff	1687-01935	P/83	F	48/E	19/M	
2005	WJ Leo’s Bluff	2206-72210	C/79	M	48/E	19/M	

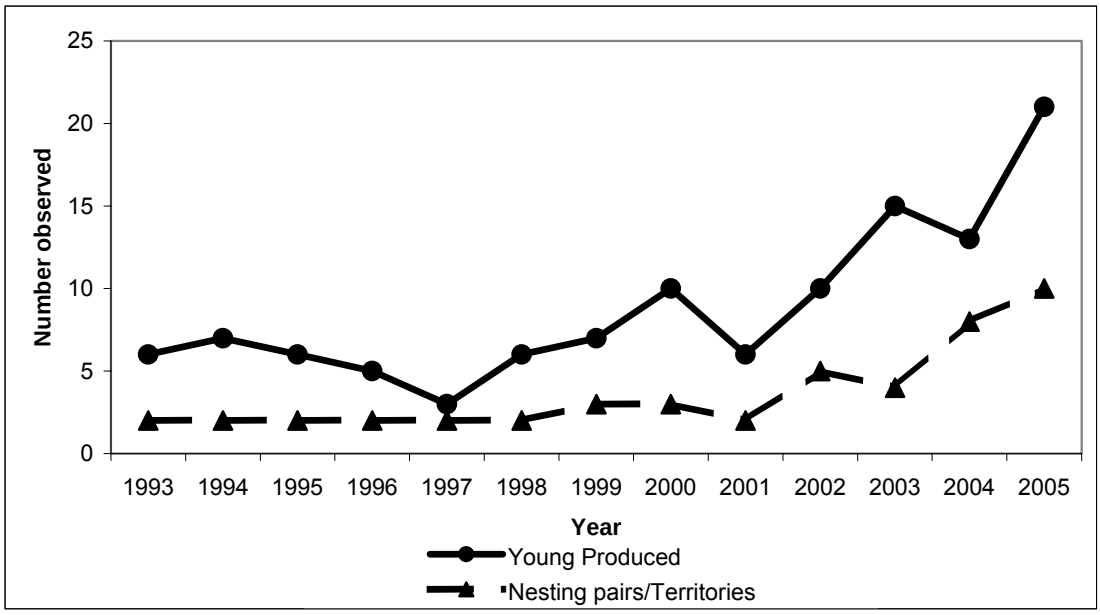
Dual color bands for young are black over red, with black listed first (1993-1999); black over green (2000-2001 & some 1999).

Table 6.3. Evidence of Nesting and Survival of Peregrines hatched in Iowa.

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)
1991	Des Moines	X64	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	3-Feb	F	Nested in St. Louis in '93 -'94
1992	Muscatine	2-Feb	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).
1996	Cedar Rapids	*Y/3		Nesting at WEPCO Valley Power Plant, Milwaukee, WI this was a new site in 2001

1998	Mason City	*7/K	M	Nesting in Rochester, MN in 2000, killed by car 2001
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 Firstar Bank (2000-2001)
1999	Effigy Mounds	X/B	F	Nesting at LaCrosse, WI in 2000
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
2003	Des Moines	19K	M	Nesting on Capitol at Lincoln, Nebraska

Figure 6.1. Young Peregrine falcons produced from known Iowa nesting pairs 1993 - Present.



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 release 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 of town. 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.

2003-2004

In 2003-2004 we discontinued translocation of River Otters within the state. A concerted effort was made to collect otter teeth from all remaining river otter carcasses within the state to determine the population, age, and reproduction of Iowa otters. Pooling this data with previous collections should give us an adequate sample to develop a population model and population estimate of Iowa's River Otters.

2005

A river otter habitat model for Iowa has been developed from Iowa GIS information. These are important steps in meeting the requirements of the Scientific Authority of the Fish and Wildlife Service before Iowa is allowed a regulated River Otter harvest season. Nearly 100 otter teeth and reproductive tracts have been collected to further add evidence to the validity of a regulated river otter season. Our goal is to have this season by no later than 2006. A river otter harvest management plan has been developed from all data gathered. Initial seasons will be conservative, and all Iowa otters will be required to be tagged within 48 hours of capture.

Otter releases have been monitored by searching for tracks, mud-slides, 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 all 99 counties across the state. Reproduction has been documented in over 85 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 in most portions of the state.

As the otter population increases, we are receiving more otter depredation complaints, particularly on 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.

The Scientific Authority and a group of fur technical resource professionals are currently working on a protocol to streamline all requests made to establish river otter harvest seasons. The goal is to have this new protocol in place by January 1, 2006.

Suggestions for possible River Otter harvest are shown in Appendix 1.

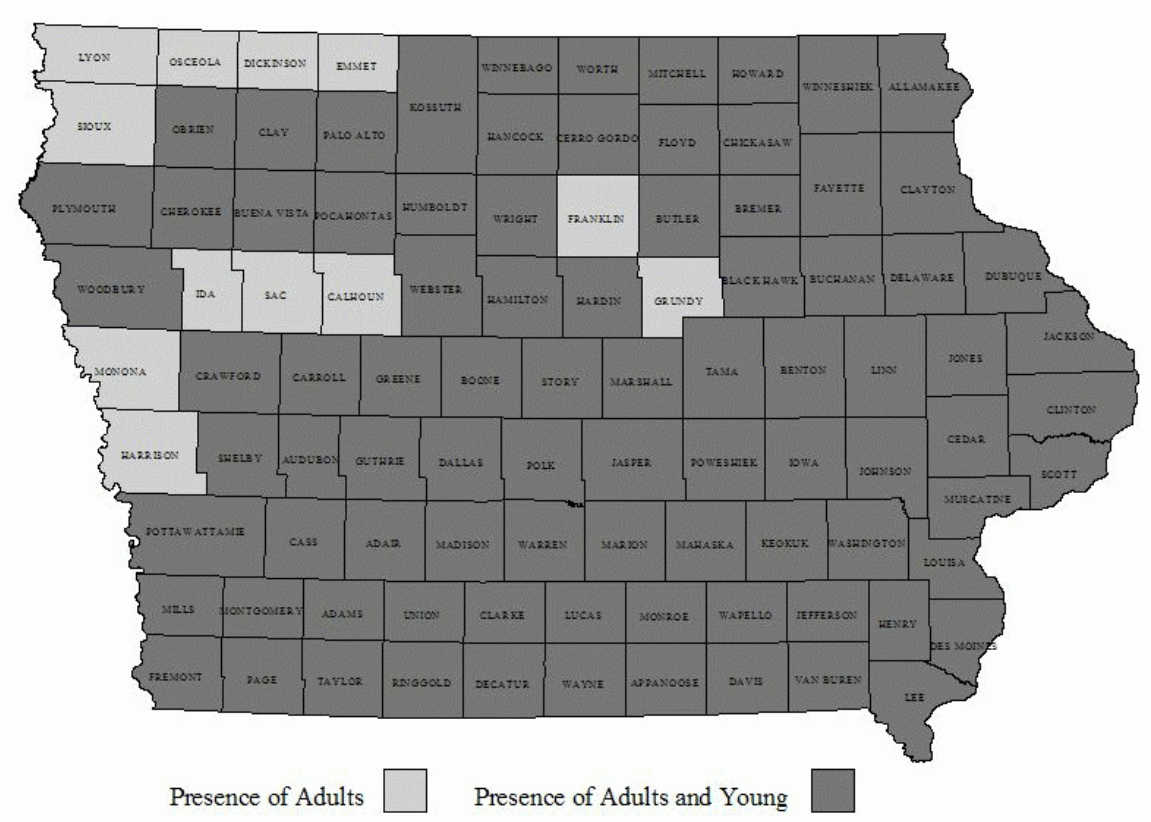
Table 7.1 River otter release sites in Iowa, 1985 – present.

Year	Males	Females	County	Nearest Town	River / Area
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	Waubeek	Wapsipinicon River
1988	10	10	Montegomery	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. No otters were translocated during the winters of 2003-2005.

Figure 7.1 Status and distribution of river otters in Iowa as of 2005.



Appendix 1 - Suggested parameters for a River Otter Harvest Season—2006-2007

(1) Conservative seasons will occur during the first years. Only a portion of the state will be open to trapping the first year, hoping additional portions of the state will open up until a statewide season is possible.

(2) A trapping harvest quota of (300, 350, or 400) river otters in the area of the state that is open. A portion of the state will be closed during the first few years.

(3) A season bag limit of 2 or 3 otters per trapper (trapping license)

(4) All river otters harvested will be required to have either a Fish & Wildlife CITES tag or an Iowa River Otter Harvest within 48 hours of the time of capture.

(5) Trappers will be able to/ must pick up tags from designated DNR personnel via the DNR Tele-Check or electronic licensing system within 48 hours of capture.

(6) River Otter opening season date would be on the same opening as all other trapping seasons (the first Saturday of November) and close January 31
of the following year or close earlier if the harvest quota is reached earlier.

(7) River Otters trapped outside the open season and in closed areas of the state would be relinquished to the Iowa DNR for fur salvage and parts collections.

(8) A sample of Iowa River Otter reproductive tracts and teeth will be collected annually. This will hopefully be adequate for assessing the population status and trends of River Otter in IA.

(9) The Archer Survey will provide additional data on River Otter populations.

(10) Depredating River Otter can be taken under Iowa code 218A.87.
Shooting by shotgun would be the recommended method of removal as it is the quickest and most efficient method of removal. Trapping would also be allowed but non-targets would be taken.

(11) 481A.87. Paraphrased--Except as otherwise provided …….for the protection of a person or public or private property with prior permission of a duly appointed representative of the commission.

If prior permission is impractical or impossible to obtain and the fur-bearing animal represents a threat to…the fur-bearing animal may be taken without prior permission.

…All parts thereof taken shall be relinquished to a representative of the commission.

Additional Suggested Options to Contemplate from the State Wildlife Bureau Meeting
August 29-31,2005

One suggestion is to hold a lottery prior to the season to issue river otter harvest season tags in the area of the state that is open. A second suggestion is to issue so many tags to the wildlife unit in the open area and issue them as otters are captured in that area. I would recommend that we do whatever idea is the most efficient and least costly administratively.

A third suggestion is to delineate harvest zones by county or watershed. I do not believe that most furhavesters would readily be able to identify accurately where they were when a River Otter was trapped while on their trap line.

Regardless, several public informational meetings/hearings will be held before the River Otter Harvest season is fine-tuned.

GREATER PRAIRIE CHICKEN RESTORATION

HISTORICAL REVIEW

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

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

As agricultural land use intensified, populations of prairie chickens started to decline. By the 1930's, most prairie chickens found in the northwestern part of the state were migrant winter flocks. 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 sharptail grouse (Rodgers 1987). A total of 254 prairie chickens were translocated to the Ringgold Wildlife Area from Kansas during 1987, 1988, and 1989 (Table 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: This year personnel witnessed a direct loss of one lek in Ringgold Co. (69N, 29W, Sec 3) from previous years due to CRP conversion to rowcrop, but yet maintained seven active leks as in 2001. This is the third year for Decatur, Ringgold, and Wayne counties. Three new locations were found. However, the number of booming males fell again this year (21.4%) to 22, bringing the mean total to 37.0 (Table 8.2). This also continues a two year trend of declining males per lek to 3.1 in 2002. This year the number of leks is near average, but the count of booming males and mean males per lek is below the eight year mean at 59.5% and 52.5% respectfully. Current and prior lek locations are shown in figure 8.2. There were no releases or relocates 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 average to date by 15.3% (Table 8.2). This year yielded the most positive observation by matching the most leks observed since 1998. Also males per lek increased from 3.1 in 2002 to 3.6 in 2003, and total booming males showed increases of 10 from 22 to 32, making this the fifth most since 1995 (Table 8.2). Current and prior lek locations are shown in figure 8.2.

2004: Only one new location was noticed this year (Table 8.2). There was a loss of three leks from 2003 to six for 2004, which is below the average to date by 21% (Table 8.2). For the first time since reporting in 1995, only two counties are reported with active leks. Total booming males is among the lowest in record since 1997 (Table 8.2). However, males per lek continues to show steady numbers in recent years with 3.7 in 2004. Despite the large amount of spring rain in 2004, biologists still received reports of large broods. Current and prior lek locations are shown in figure 8.2.

2005: Two new lek locations were noted this year (Table 8.2). However, there was a reduction in total number of leks from six in 2004 to five this year. In 2005, there were once again 3 counties reporting active leks, which is up one county from last year. Total booming males was 24, which also is up from 22 last year (Table 8.2). Males per lek was the highest it has been since 2000, with 4.8 males per lek seen. Weather conditions were favorable for nesting this season, and broods have been reported. 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 a high sign-up 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. The TNC continues to be a cooperator in purchasing nearby grassland management areas.

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. As of 2003 the DNR portion of the Kellerton Area consists of 1060 acres of land in the process of being restored to tallgrass prairie.

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. Area biologists work closely with landowners and implement WHIP, and CRP programs in and around the area. 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, planting native grasses, and prescribed burning. Currently, the Landowner Incentive Program (LIP) within IDNR is providing much of the assistance to area landowners

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. Area cropland has been converted as mixed native seedings. The year 2004 marked an inaugural Greater Prairie chicken public viewing event for the Kellerton Bird Conservation Area.

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.

Acquisition of core grasslands in Iowa and Missouri has led to the development of the Grand River WHIP project, however this was not approved by Congress in the Agriculture Appropriations bill. 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 was 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 would be used to assist producers to 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. In 2003 an inventory of the prairie remnants in the area was conducted and provided to IDNR and TNC.

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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 2 E	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, 1995-2005.

		Legal Description			Number of Booming Males[a]										
County	Township Name	Twp.	Rge.	Sec.	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Adair	Orient	74N	31W	3	8	4	2								
Adair	Orient	74N	31W	11	3		3								
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	Grand River	69N	27W	22											3
Decatur	Franklin	70N	25W	9				2							
Decatur	Franklin	70N	25W	20	2	2	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			3
Ringgold	Athens	68N	28W	16	7		5	12	11	14	11	10	10	11	11
Ringgold	Athens	68N	28W	8										3	
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	1	
Ringgold	Liberty	69N	29W	3					4		5		4	2	
Ringgold	Liberty	69N	29W	10						8					
Ringgold	Monroe	69N	28W	2							1				
Ringgold	Monroe	69N	28W	12						7			4	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		
Ringgold	Tingley	70N	29W	34											5
Union	Spaulding	73N	31W	?	1										
Wayne	Jackson	68N	21W	18						5	3		2	1	2
Wayne	Jackson	68N	21W	14								2			
Total Booming Males[d]		mean=	30.6		40	25	18	43	39	44	28	22	32	22	24
Total Active Leks		mean=	6.6		8	3	5	9	8	6	7	7	9	6	5
Total Males/Lek		mean=	4.8		5.0	8.3	3.6	4.8	4.9	7.3	4.0	3.1	3.6	3.7	4.8

[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.

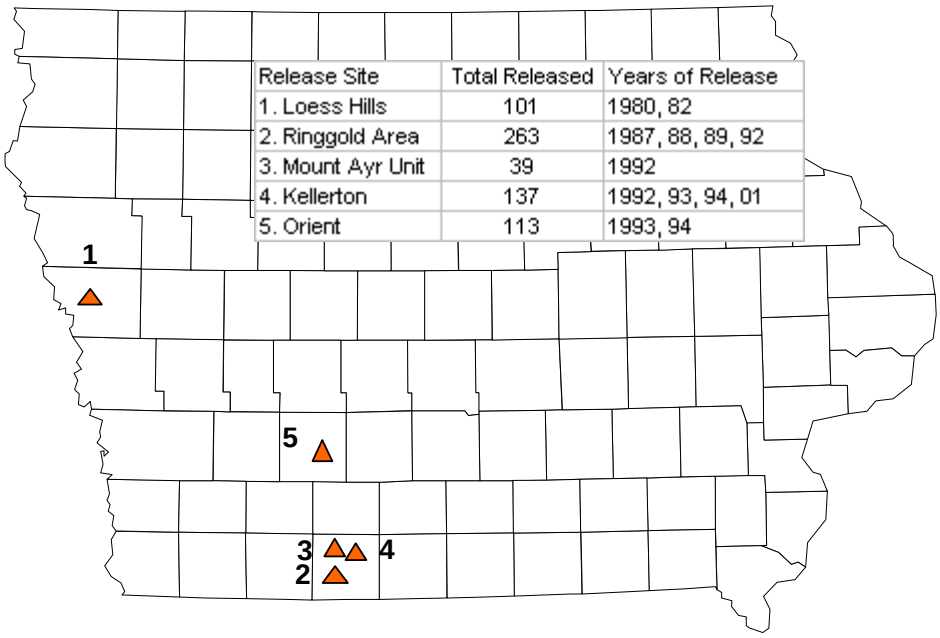


Figure 8.1 Location of release sites and total number of prairie chickens released in Iowa, 1980-2001.

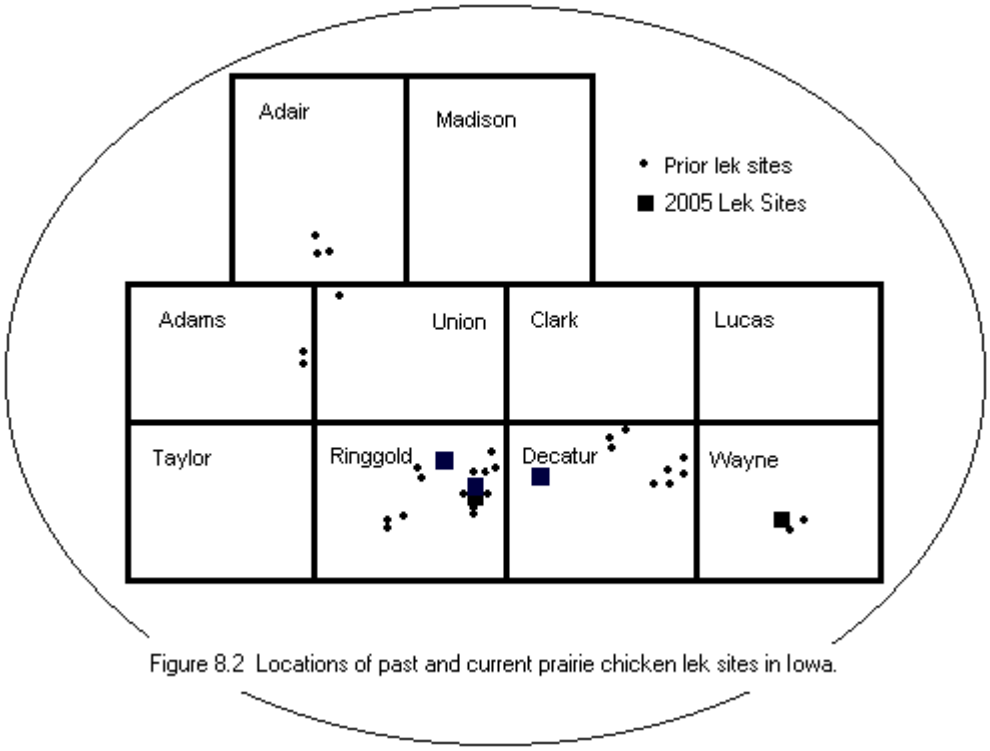


Figure 8.2 Locations of past and current prairie chicken lek sites in Iowa.

SHARP-TAILED GROUSE RESTORATION

Both Sharp-tailed grouse and prairie chickens (prairie grouse) were present in great numbers when the first settlers arrived in western Iowa. They provided a valuable food source until by the early 1900's, their numbers declined as a result of market hunting and habitat loss. Agricultural development and an eastern market for "prairie grouse" caused near decimation of the population by the 1940's.

In the late 1970's, interest developed in restoring both species to western Iowa. Wild-trapped prairie chickens were obtained from Kansas and released in the Loess Hills in 1980 and 1982. The releases failed to establish prairie chickens in their former range in the Loess Hills. After two unsuccessful prairie chicken releases, it was determined that sharp-tailed grouse would be a better candidate for restoration in the Loess Hills, because their behavior and habitat requirements are better adapted to the mix of grassland, brush and agricultural land in western Iowa. CRP acres enrolled in the late 1980's placed more and more acres in permanent grassland, increasing the likely survival of the sharp-tailed grouse in western Iowa.

In 1990, 19 sharp-tailed grouse were obtained from South Dakota and released in the Loess Hills. The birds scattered widely, and by the second year following release, they had vanished. A second attempt involved the release of 150 birds in 1995 and 1996. Birds from the second release survived through 2000, with documented reproduction, and establishment of a traditional lek. Following the apparent success in 2000 establishing a small breeding population, 100 more birds were received from South Dakota the winter of 2001 in order to bolster the number of birds and genetic diversity of the restored population. Birds obtained from South Dakota were held in pens until they became reproductively active. Releases were made in April on a site where birds in the reintroduced birds had established a lek. In 2001, it was hoped that the population would increase in size and begin to colonize in other areas of western Iowa.

In 2004, IDNR biologist Ed Weiner and professional wildlife photographer Roger Hill observed 6-7 males on 4 leks and had confirmed sightings of 3 different sharp-tail broods.

In 2005, biologist Ed Weiner reported that the Sharp-tail population in Woodbury County was small but persistent. "We did have one sighting of 3 chicks and two hens this summer, and three single bird sightings earlier in the year in areas where birds have not been seen before. Only two birds were observed on previously occupied dancing grounds this spring. It appears

that our population is hanging on, but not thriving. We will continue to obtain birds from SD when possible, and release them in the same vicinity. Radio marking and tracking released birds is a future goal that would help in determining how they disperse, and the location of previously undiscovered dancing grounds that might be active."

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. The first modern day hatch of three wild trumpeter swan cygnets occurred in 1998 in Dubuque County. This pair hatched 5 in 1999, 5 again in 2000, 4 in 2001, 5 in 2002 and 4 in 2003.

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 original goal was to establish 15 wild nesting pairs to the state by the summer of 2003. Our updated goal is to have 25 wild nesting pairs in Iowa by 2006. Our 2nd goal is to use the swans to promote the many positive values of wetlands not only for wildlife habitat for many rare and endangered species, but for water quality and flood reduction.

Iowa swans are being obtained from 26 different states, from zoos, private propagators, other state swan projects, and any other sources that might have swans available. We have continued establishing flightless breeder pairs at appropriate sites, the young of which the DNR releases for free flight. Fifty-eight partnership breeding pair sites are currently established. All trumpeter swans released in Iowa are marked with plastic green or red neck collars and leg bands, along with U.S. Fish and Wildlife Service metal leg bands. The plastic neck and leg bands are marked with alpha letters F, H, P, J, C, T, and numbers 00 through 99. Many of the early FWS leg bands were made of soft metal and several of these dropped off. In 2004 we began using lock-on aluminum FWS leg bands.

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 $400,000. The Trumpeter Swan Program was also awarded a State Wildlife Grant (SWG) in 2004.

Table 12.1 and Fig 12.1 show the number of trumpeter swans released and their release sites in Iowa since 1994. Seventy swans were released throughout Iowa in 2005. Seventy-seven swans were released throughout Iowa in 2004. After

six years of migration observations, most migrating Iowa swans are wintering in northeast and east central Kansas and northwest and west-central Missouri. One Iowa trumpeter swan wintered as far south as Oklahoma during the winter of 1998-99. Also, one swan wintered near Heber Springs, Arkansas in 1999-2000. During the winter of 2002-2003, 2 swans released at Hottes Lake near Spirit Lake, Iowa, migrated to Lubbock, Texas (the southern most migration) and spent the winter there. These are possibly the first known, or at least the first of very few interior swans to migrate to Texas since the 1880's. In 2001, the swans that nested at Union Slough NWR and Mallard Marsh wintered in southwest Arkansas. In the winter of 2003-2004, a record 35 free flying trumpeter swans wintered near Webster City, Iowa. An estimated 75 to 100 trumpeter swans wintered in the state in 2003/2004. If swans can find open water during the winter, many of them will remain throughout the state of Iowa. "Traditional" swan wintering sites are developing in Iowa. During the winter of 2004-2005, 15 trumpeters staged and spent a portion of their winter at private partner Bob & Mary Boock's property near Wheatland in East Central Iowa. Twenty-four swans staged and spent most of the winter on a rock quarry pit in Atlantic in south west Iowa on Bill Beemer's at ??? on private partner site near Webster City. Sixty-one trumpeters swans spent the winter and another dozen tagged on that area before moving further south. These "winter" sites have provided many people the opportunity to view this "charismatic-mega fauna."

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 9 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 2004, 30 of our partnership pairs' nests hatched, producing nearly 150 young. Ten additional nests failed to hatch and about 4 dozen of the 150 cygnets have died of various causes. The invasion of West Nile Virus into Iowa had us cautiously concerned, but at this point we have seen little impact on the 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 2006. The DNR is excited about the future of trumpeter swans in the state.

Unfortunately, the Iowa swan program experienced unusually high mortality in the fall of 2003. There were 10 confirmed swan shootings, 2 confirmed, 2 suspected/unconfirmed shootings in Iowa. There were 6 confirmed shootings of Iowa swans out-of-state, (1 in Wisconsin, 5 in Texas). A $17,000 fined was charged to four men in connection with the family group of 5

Iowa swans shot in Texas. There were six power line collisions and 4 cases of lead poising.

Known mortality to date includes the following: 38 have died in power line collisions, 56 have been shot, 8 died due to lead poisoning, 5 due to apparent malnutrition, 8 to disease and 25 died of unknown causes. Several other mortalities have likely occurred from unknown causes. Mortality rates are somewhat higher than anticipated and will likely slow trumpeter swan restoration efforts, although our nest attempts are still showing sizable increases. Iowa currently has the dubious distinction of having the highest shooting mortality of any state in the Midwest. We hope that with increased publicity, additional enforcement efforts and public scrutiny, we will see the illegal shooting greatly reduced. Shooting trumpeter swans results in a citation of $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. Five free flying swans have bonded and mated with 5 captive/pinioned swans 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. In 2003, we had 13 wild 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. In 2004, we had 4 new wild nesting pairs in Iowa, with a total of 14 wild trumpeter swans nest attempts in Iowa, 9 were successful. Figure 12.2. Heavy rains in May flooded out at least 1 and possibly 3 additional trumpeter swan nests. Several additional Iowa released Trumpeter were reported nesting in MN and WI this year. A pair of Iowa trumpeter swans nested unsuccessfully near Chillicothe, MO., giving hope that swans will nest on some farm ponds and perhaps our restoration efforts will spill over into Missouri. This pair has successfully hatched 3 cygnets near Dawn, MO, a few miles from their unsuccessful of the previous year. Since 1998, 50 trumpeter swan nests have occurred in Iowa, 41 of which hatched at least one egg. Also see the attached addendum for a fact sheet review of Iowa's up-to-date Trumpeter Swan Restoration successes.

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	Kettleson's WPA	Dickinson	5	5	10
3		Jim Foreman's	Dubuque	2	2	4
2	1996	Kettleson'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		Kettleson'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	Kettleson'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	Kettleson'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	Kettleson'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	Kettleson'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 Kettleson	Clinton	0	2	2
2		Kettleson'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

Site	Year	Area	County	Males	Females	Total
13	2003	Bjorkboda Marsh	Hamilton	1	1	2
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	2	1	3
64		Eagle Lake	Kossuth	1	1	2
40		East Slough WMA	Emmet	0	2	2
32		Gomer's Marsh	Clinton	0	2	2
65		Gordon'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
69		Cummings Orchard	Warren	4	1	5
6	2004	Anderson Lake	Hamilton	1	1	2
70		Archer/Dole Wetland	Appanoose	1	1	2
62		Anderson Wildlife Area	Montgomery	1	1	2
71		Barringer Slough	Clay	1	1	2
11		Beaver Valley Wetland	Blackhawk	2	2	4
49		Big Mill Pond WMA	Jackson	1	1	2
34		Big Wall Lake	Wright	1	1	2
13		Bjorkboda Marsh	Hamilton	1	1	2
1		Blue Wing Marsh	Cerro Gordo	1	1	2
36		Blue Wing Marsh	Palo Alto	1	1	2
72		Bruegmann Area	O'Brien	1	1	2
51		Clark Lake	Cerro Gordo	1	1	2
73		Couny Home Farm	Winnebago	2	0	2
74		Crystal Lake	Clinton	1	1	2
75		Goose Lake	Kossuth	1	1	2
76		Gordon Garrison	Emmet	1	1	2
65		Gordon's Marsh	Hamilton	1	1	2
18		Green Island WMA	Jackson	1	1	2
77		Hidden Valley	Floyd	1	0	1
2		Kettleson's WPA	Dickinson	1	1	2
43		Lake Wapello	Davis	1	1	2
78		Morman Trail Lake	Adair	3	1	4
12		Pete Clausen's Wetland	Clinton	1	1	2
30		Pickeral Lake	Clay	2	0	2
60		Richard Baack Wetland	Cerro Gordo	1	1	2

Site	Year	Area	County	Males	Females	Total
32	2004	Rock Creek	Clinton	4	3	7
68		Rush Lake WMA	Palo Alto	1	1	2
33		Thorpe Rec. Area	Winnebago	1	1	2
20		Union Hills	Cerro Gordo	2	2	4
1		Ventura Marsh	Cerro Gordo	0	1	1
61		White's Pond	Clinton	0	1	1
6	2005	Anderson Lake	Hamilton	1	1	2
62		Anderson WMA	Montgomery	2	2	4
79		Artesian Marsh	Ida	0	2	2
11		Beaver Valley	Blackhawk	1	1	2
49		Big Mill Pond WMA	Jackson	1	1	2
13		Bjorkboda Marsh	Hamilton	0	2	2
72		Bruegmann Area	O'Brien	0	2	2
80		Buckshot Lake WMA	Appanoose	2	1	3
81		Cardinal Marsh WMA	Winneshiek	1	1	2
82		Chichaqua WMA	Polk	1	1	2
83		Chuck Lenze Wetl.	Dallas	3	1	4
51		Clark Lake	Cerro Gordo	1	1	2
73		Couny Home Farm	Winnebago	1	1	2
38		Crawford Creek	Ida	1	1	2
74		Crystal Lake	Clinton	1	1	2
40		East Slough	Emmet	0	2	2
84		Goberson's Wetl.	Ida	1	1	2
32		Gomer's Marsh	Clinton	2	2	4
10		Goose Lake	Greene	1	1	2
75		Goose Lake	Kossuth	1	1	2
65		Gordon's Marsh	Hamilton	1	1	2
18		Green Island	Jackson	1	1	2
84		Hendrickson Marsh	Story	1	2	3
77		Hidden Valley	Floyd	1	1	2
2		Kettleson's WPA	Dickinson	1	1	2
85		Lake Anita	Cass	2	2	4
43		Lake Wapello	Davis	1	3	4
86		Lakin Slough	Guthrie	1	1	2
87		Larry Conmy Wetl.	Jones	2	0	2
8		Lost Island Marsh	Palo Alto	1	1	2
88		Otter Creek WMA	Tama	0	4	4
30		Pickeral Lake	Clay	1	3	4
31		Pin Oak Bottoms	Lucas	1	1	2
57		Ralph Steines Marsh	Clinton	1	1	2
68		Rush Lake WMA	Palo Alto	1	1	2
89		Simonsen's Pond	Ida	1	1	2
90		Sunken Grove WMA	Pocahontas	2	2	4
91		Severe Wetland	Floyd	6	7	13
92		Three Mile Lake	Union	2	2	4
1		Ventura Marsh	Cerro Gordo	1	1	2
93		Walker Slough	Wright	0	2	2
94		Wildwood Acres	Jones	1	1	2
					Grand Total	**692**

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
2004	Schildberg Gravel Quarry	Cass	5	7	12
2004	Beemer's Pond	Cass	3	5	8
2005	Stark/Nessa Quarry	Hamilton	5	0	5
				Grand Total	**61**

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

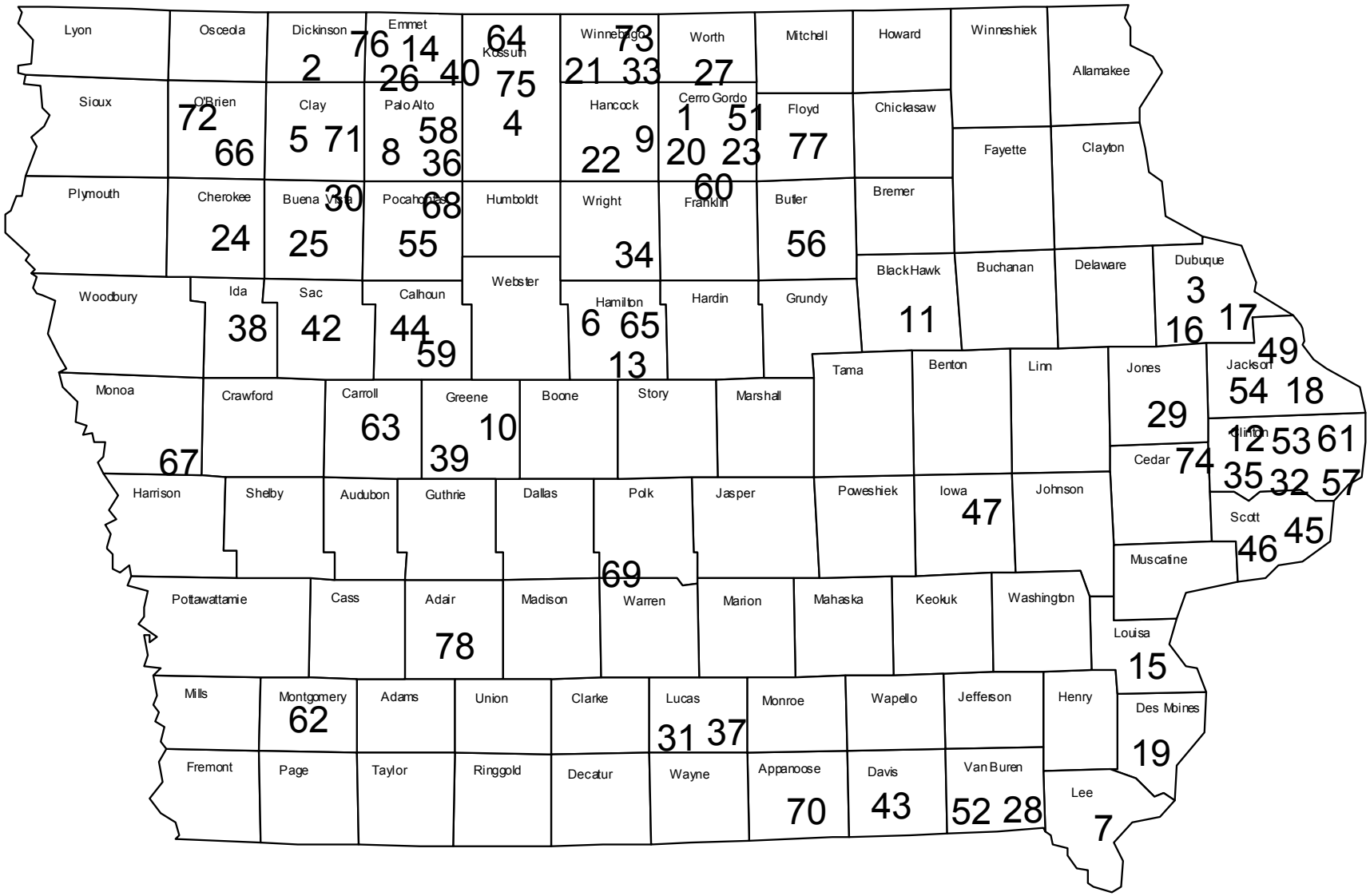


Figure 12.2 Wild Trumpeter Swan Nest Attempts in 2005.

Green / Grey = Successful Attempt Red / Black = Unsuccessful Attempt

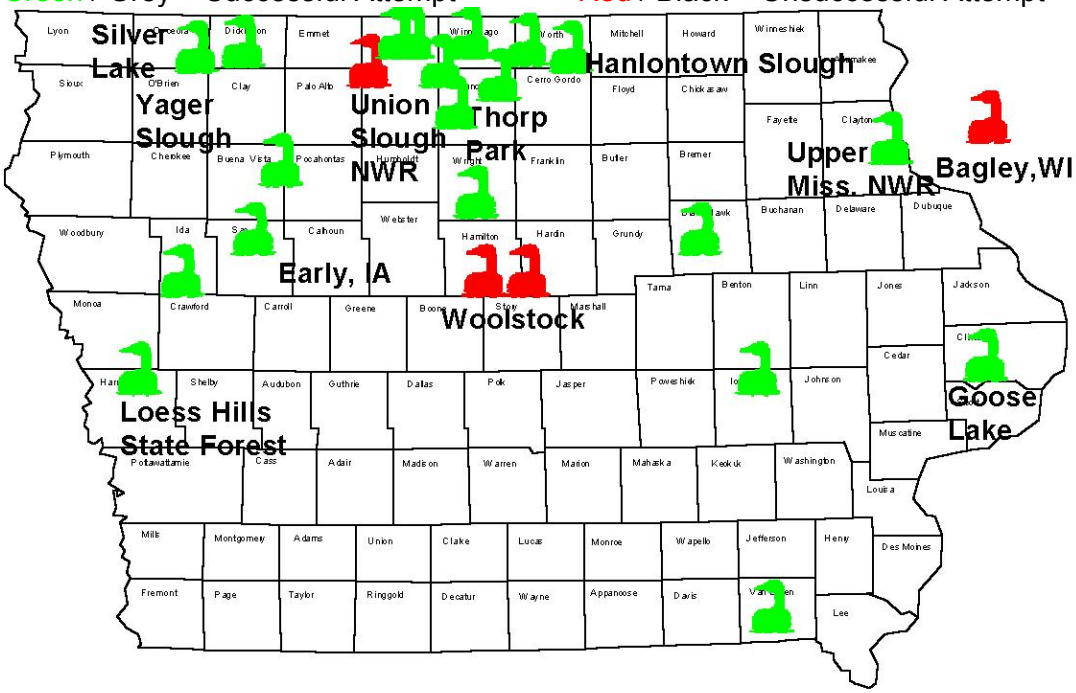
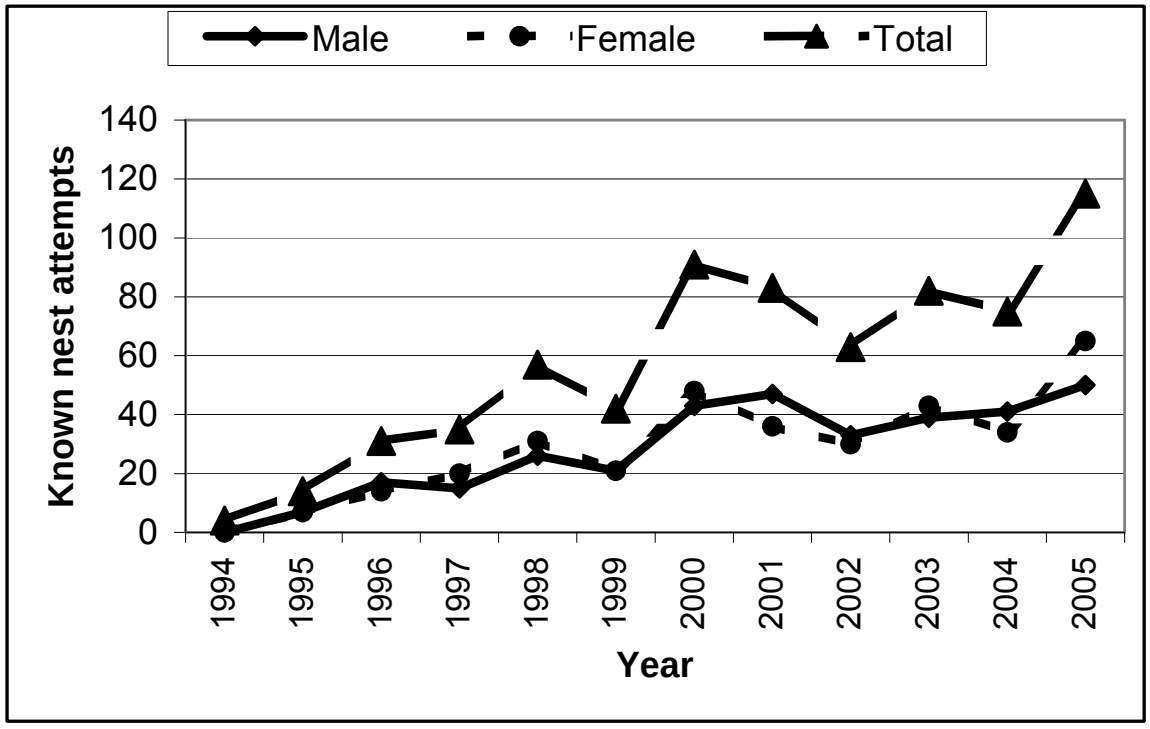


Figure 12.3 Number of known Wild Trumpeter Swan nesting attempts 1998 – 2005.



OSPREY RESTORATION

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

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

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

With construction of lakes by Department of Natural Resources and reservoirs by U.S. Army Corps of Engineers, potential osprey habitat exists that was previously not available. There are numerous osprey summer sightings in Iowa, but apparently these young, non-breeding ospreys return to northern areas for mating and nesting. Despite this population growth, ospreys have demonstrated little breeding range expansion. Minnesota and Wisconsin DNR officials suggest that ospreys, in our lifetime, do not readily pioneer new breeding ranges. Instead they experience suppressed reproduction as density of breeders 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 until 2002. Personnel at the Hartman Reserve Nature Center and volunteers in Cedar Falls initiated a release at their facility in 1998. Staff of Boone County Conservation Board and Polk County Conservation Board with volunteers coordinated a release at Saylorville Reservoir in 2000. Boone Co. staff and volunteers began releases at Don Williams Lake in 2003. Wickiup Hill in Linn Co. and Clear Lake were added in 2004. The U.S. Army Corps of Engineers has provided distinguished service for releases at Coralville and Saylorville Reservoir respectively. Assisted by literally hundreds of volunteers, these conservation

organizations have devoted their efforts to bring ospreys to Iowa as a nesting species. A four-year minimum commitment of releasing ospreys is required at each site. Project fundraising is the responsibility of the conservation organizations doing the releases. Ospreys cost about $500 per bird.

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

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

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. It was 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. In 2003, 77 Osprey were relocated to Iowa with four wild-produced chicks.

Spring 2004 brought four nesting attempts at three sites in Iowa. At Red Rock Reservoir, unit biologist, Chuck Kakac, reported two young fledging from remote nest observed from Runnels overlook.

Unfortunately, three nest attempts failed due to extreme climatic conditions. At Macbride the nest that was successful in 2003 blew down in high winds. Male A8 (Macbride 1998) was identified at this nest. A second

nest at Macbride was constructed and occupied by an unidentified pair. At Spirit Lake Outdoor Classroom same pair attempted to nest again. Birder, Ed Thelen, observed male Osprey carrying something from nest then dropping it. He discovered a newly hatched chick, dead. At Saylorville an unidentified Osprey pair built nest on a platform at west-end of Mile Long Bridge during summer.

Two new release sites were established in 2004. Volunteers at Clear Lake constructed a release tower at Iowa Regular Baptist Camp along north shore of Clear Lake. Linn County Conservation Board staff and volunteers at Wickiup Hill coordinated a release. Both sites released five Ospreys from Chippewa Flowage region near Hayward, Wisconsin. Also an additional rehabbed Osprey from Wisconsin was released at Wickiup Hill.

Boone County Conservation staff and volunteers placed five Wisconsin Ospreys at Don Williams Reservoir. And volunteer staff at Hartman Reserve Nature Center placed four Wisconsin Ospreys at their site. Polk County Conservation staff and volunteers placed five Minnesota Ospreys at their site at Jester Park on banks of Saylorville Reservoir.

A total of 25 Ospreys were placed at five sites in 2004.

Spring 2005 brought five known nesting attempts in Iowa. Unidentified pairs carried sticks and made nest attempts at Saylorville, Hartman Reserve Nature Center, Don Williams and Lake Macbride. A second nesting pair at Macbride fledged two young.

A total of five Ospreys came to Iowa from Minnesota and nineteen more were relocated from Wisconsin.

At Hartman a wild nesting pair appeared to be incubating but no hatching was noted. Four additional Wisconsin Ospreys were released.

At Don Williams a wild nesting pair carried sticks throughout summer but did not incubate. Five additional Ospreys were relocated from Minnesota.

At Clear Lake five additional Ospreys were relocated from Wisconsin.

At Linn County's site at Wickiup Hill Conservation board staff and volunteers released five additional Ospreys from Wisconsin.

A new site was constructed at Red Rock Reservoir by Marion Co. Conservation Board, DNR Parks, and Newton Correctional facility personnel. Five Ospreys were relocated from Wisconsin.

Since 1997 129 Ospreys have been released at seven sites. Eight wild Ospreys have been produced in Iowa.

A 2002 female from Saylorville, J4, paired with an unidentified male in the Twin Cities. A nest was constructed and the female was apparently incubating, but the male disappeared. This nest failed due to poor incubation. A replacement male was at this nest site later in the summer.

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 an 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 Proj.	608-48727	Lavender	
		608-48728		
		608-48729		
		608-48730		
		608-48735		
1998	Macbride Raptor Proj.	608-48745	A8	nested at Macbride 2004
		608-48746	A6	
		608-48747	A5	Returned to Coralville 2001
		608-48748	A7	with two other adults, one banded- unidentified, other adult unbanded
	Hartman Reserve	608-48741	A1	
		608-48742	A2	
		608-48743	A3	
		608-48744	A4	
1999	Macbride Raptor Proj.	788-23203	C1	
		788-23205	C3	
		788-23207	C5	
		788-23208	C6	
	Hartman Reserve	788-23204	C2	
		788-23206	C4	
		788-23209	C7	
		788-23210	C8	
2000	Macbride Raptor Proj.	788-23212	E1	
		788-23217	E6	
		788-23218	E7	
		788-23220	E0	
	Hartman	788-23213	E3	
		788-23214	E2	Fracture wing in box, released MRP after rehab.
		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	788-23236	A9	
		788-23235	C0	
		788-23237	C9	
		788-23238	E9	
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	

Year	Location	USFWS #	Color Band	Comments
2002	Hartman	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	
2004	Hartman Reserve	788-49525	P4	
		788-49528	R1	
		788-49529	R2	
		788-49532	R5	
	Saylorville	788-49541	T3	
		788-49542	T4	
		788-49543	T5	
		788-49544	T6	
		788-49545	A0	
	Wickiup Hill	788-49523	P5	
		788-49524	P8	
		788-49526	P7	
		788-49527	P9	
		608-48749	P6	
	Don Williams	788-49534	R7	
		788-49537	R0	
		788-49530	R3	
		788-49536	R9	
		788-49533	R6	wing injury/broken bone, rehabbing at Kay Neumann's
	Clear Lake	788-49535	R8	found dead at Worth County Lake
		788-49539	T1	
		788-49540	T2	
		788-49538	T0	
		788-49531	R4	
2005	Clear Lake	788-49561	XO	
		788-49540	V8	
		788-49538	X9	
		788-49531	X2	
		788-49531	T9	
	Hartman Reserve Nature Center	788-49553	U2	
		788-49554	U3	
		788-49552	U1	
		788-49558	U7	

Year	Location	USFWS #	Color Band	Comments
2005				
	Red Rock	788-49565	X4	
		788-49549	T7	
		788-49564	X3	
		788-49566	X5	
		788-49573	Y4	
	Linn County	788-49555	U4	Lake
		788-49557	U6	
		788-49556	U5	
		788-49562	X1	
		788-49560	U9	
	Boone County	788-49568	X7	
		788-49569	X8	
		788-49570	X9	
		788-49571	Y0	
		788-49572	Y1	
	2003 wild produced (green USFWS band)	7878-40808	P0	Spirit Lake B, female B/T Minnetonka , MN 1997
		788-40809	P1	Macbride adult female H2 (Saylorville 2000)
		788-40810	P2	Adult male A5 (Macbride 1998)
		788-40811	P3	
	2004 two unbanded young at Red Rock			
	2005	788-40812	Y2	Macbride, adults unknown
		788-40813	Y3	

SANDHILL CRANE STATUS 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.

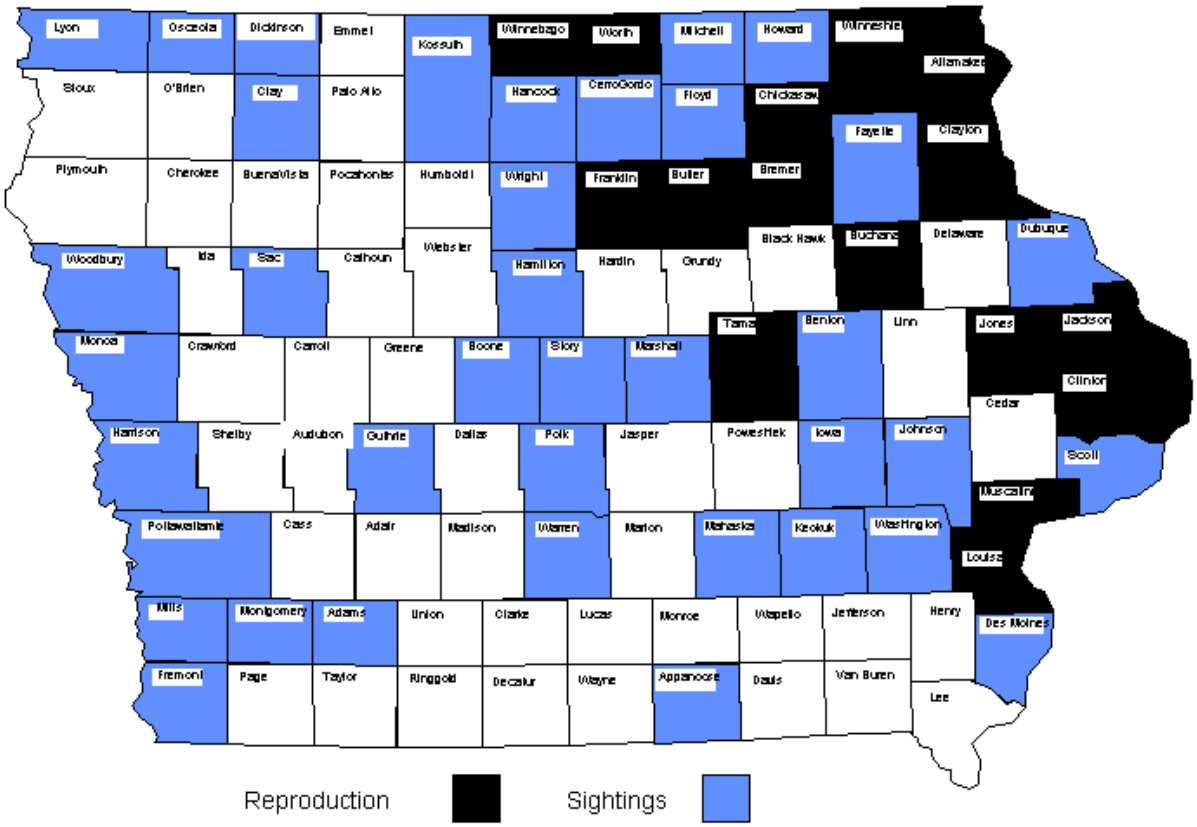
In 2003 unison calling between adults increased to 27 pairs around the state. There were 95 known sightings and fifteen documented young around the state. Dr. Jim Dinsmore provided a sightings file that included a number of counties where cranes were seen in recent years.

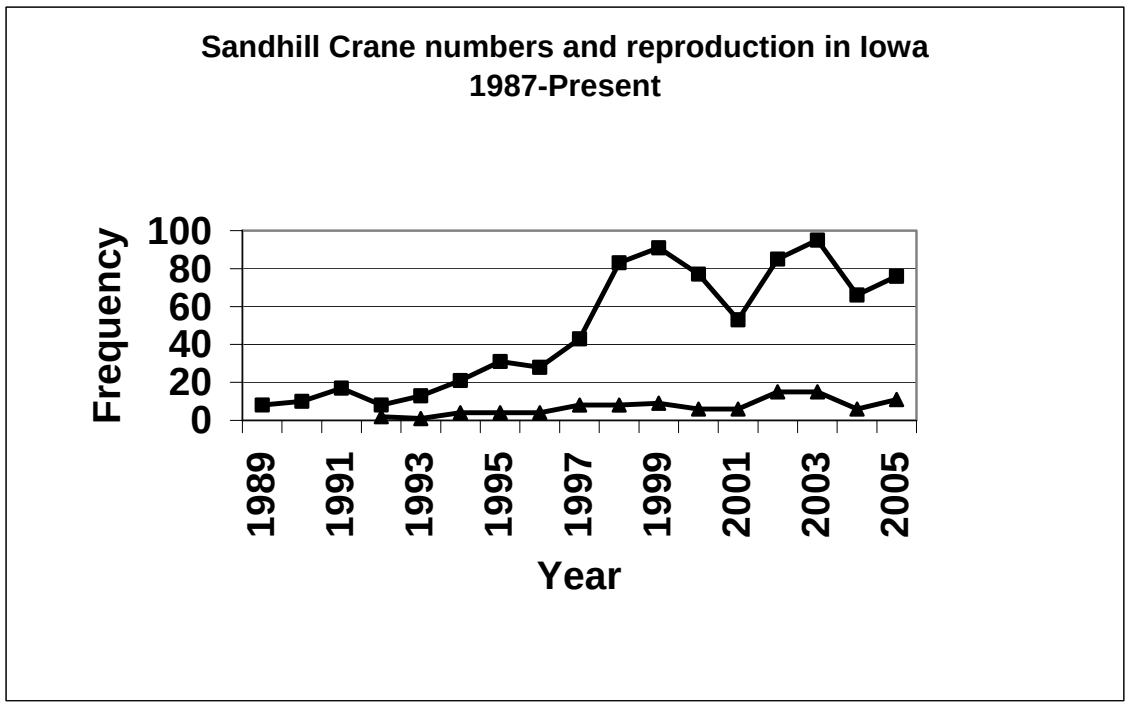
In Boone County a nesting pair had wintered at a farmstead south of Madrid. The pair performed nesting courtship displays and created a nest in the farmyard. Two eggs were laid in the spring. In April the nest and eggs were destroyed. Raccoons or dogs were suspected. In June a Sandhill Crane carcass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

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

Exciting news in 2005 includes successful nesting of cranes in Winnebago County. CCB Director, Robert Schwartz, reported a colt at Hogsback Wildlife Area. Also DNR Biologist, Bill Ohde, reported a new pair at Wiese Slough in Muscatine County that produced one young. Ric Zarwell, in Allamakee Co., reported four pairs with four young. Across the state 20 pairs were reported with nine pairs that successfully reproduced 11 young. Including Winnebago and Muscatine Counties, Sandhill Cranes have now been reproduced in 16 counties.

Sandhill Cranes in Iowa, 2005




Sandhill Crane numbers and reproduction in Iowa
1987-Present
Frequency
100
80
60
40
20
0
1989
1991
1993
1995
1997
1999
2001
2003
2005
Year

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.

MORE RECENT IOWA NESTING RECORDS

As improbable as it seemed, the bald eagle did nest in Iowa again. The first nest noted in over 70 years was located near New Albin on the Mississippi River floodplain in 1977 (Roosa and Stravers 1989). Two young were produced that first year (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 2004, eagles have been reported nesting in 67 counties (Figure 15.1). Adams, Henry, Poweshiek, Ringgold, and Shelby counties are the most recent additions. Additional counties with eagle nests documented now include Polk, Marshall, Story, and Kossuth, so that by July, 2005 there are 71 counties that have documented eagle nesting (Figure 15.1).

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 1999-2005. The number of new eagle nests reported has averaged about 20 nests per year since 1999. In 2004, at least 28 new nests were documented, with an estimated 175 total active eagle nests. During 2005, an additional 25 new nests were reported, and it was estimated that there were 190 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.

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

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.

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)	

PREFERRED NEST TREES

Another aspect of bald eagle nesting which is of importance is the 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.

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

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 1983-2004 (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. Cold winter weather again forced eagles south into Iowa during this last winter, and the 2004 survey results documented 4,432 bald eagles along Iowa's rivers; particularly along the Mississippi River. Milder weather conditions during the January, 2005 survey resulted in eagles being more spread out, and a reduced total (from 2004 count) of 3,164 bald eagles was tallied. 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 2500 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 has benefitted 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 that 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 2004 had at least 175 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 20,000 and 25,000 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, continue to help with winter eagle surveys, and provide information that better helps the different agencies protect and manage for this species.

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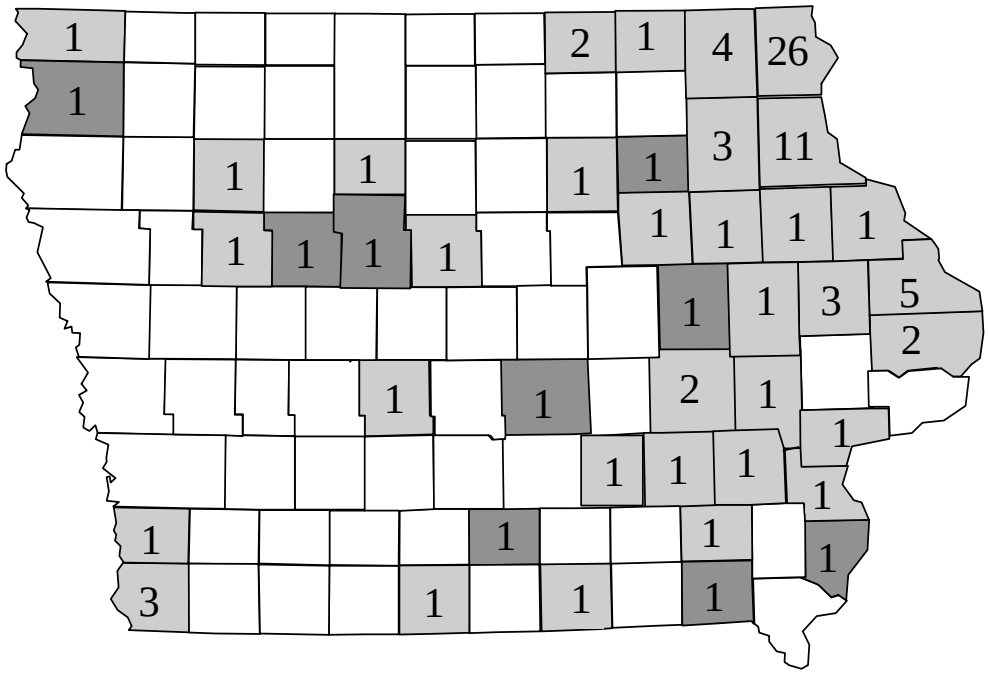


Figure 15.2. 33 counties in which 84 active Bald Eagle nests were found in 1998 ( ), and 9 counties with inactive nests ( )

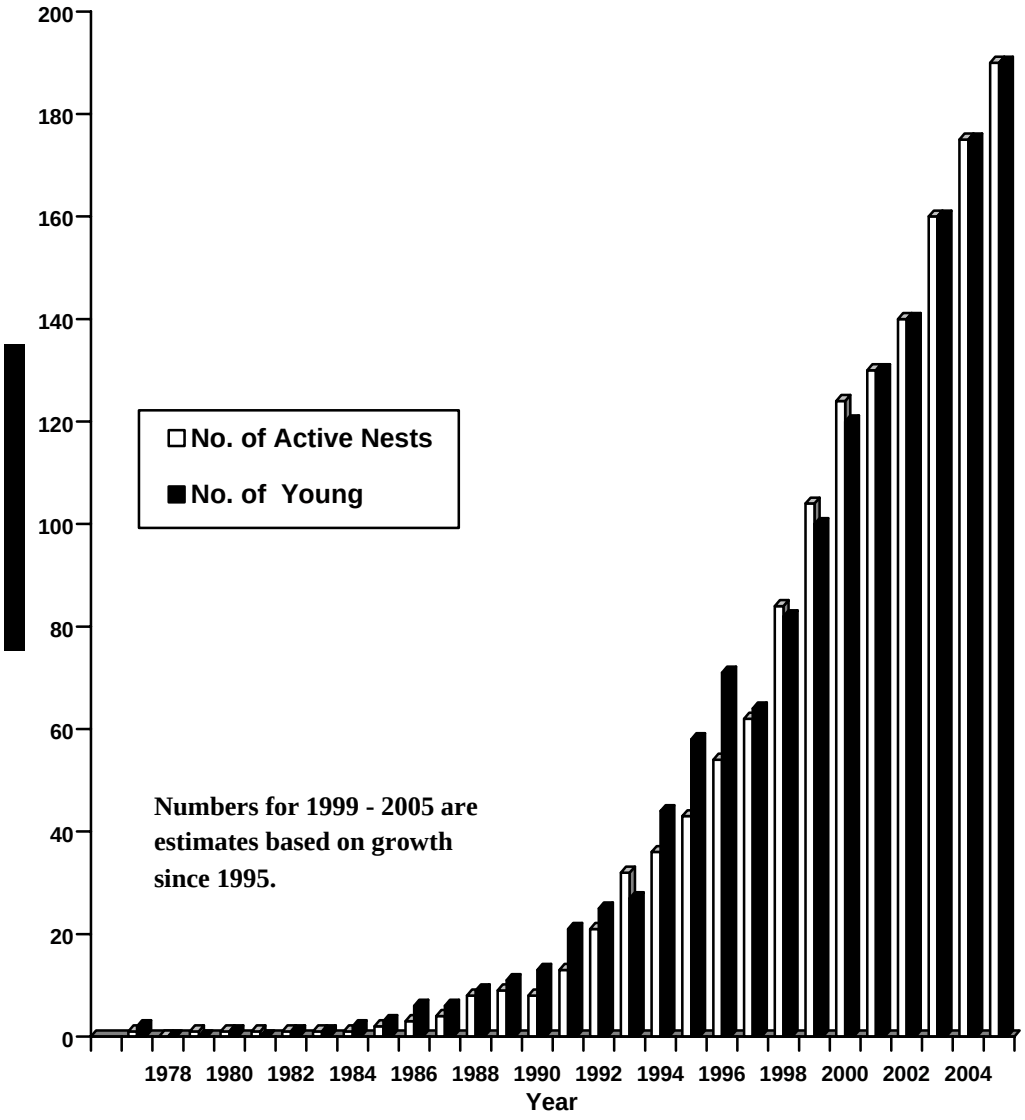


Figure 15.3. Number of Bald Eagle active nests and young produced in Iowa, 1977 through 2005.

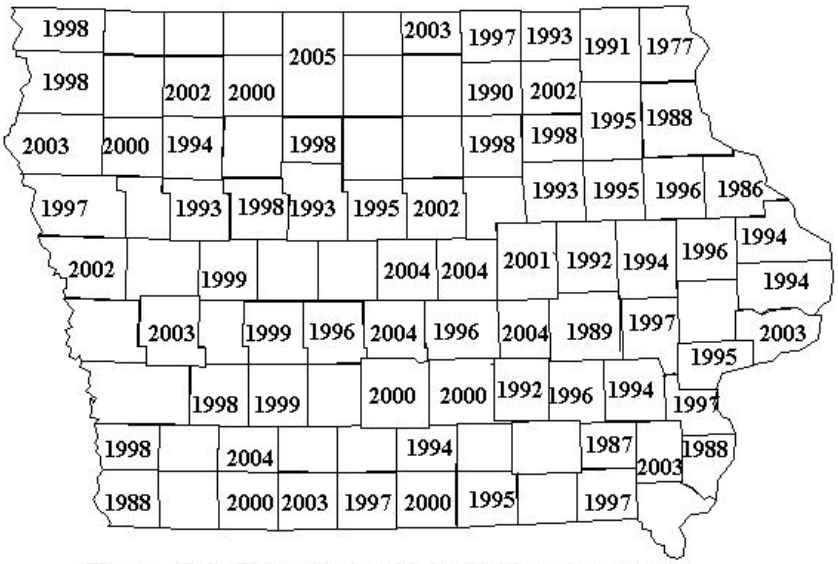
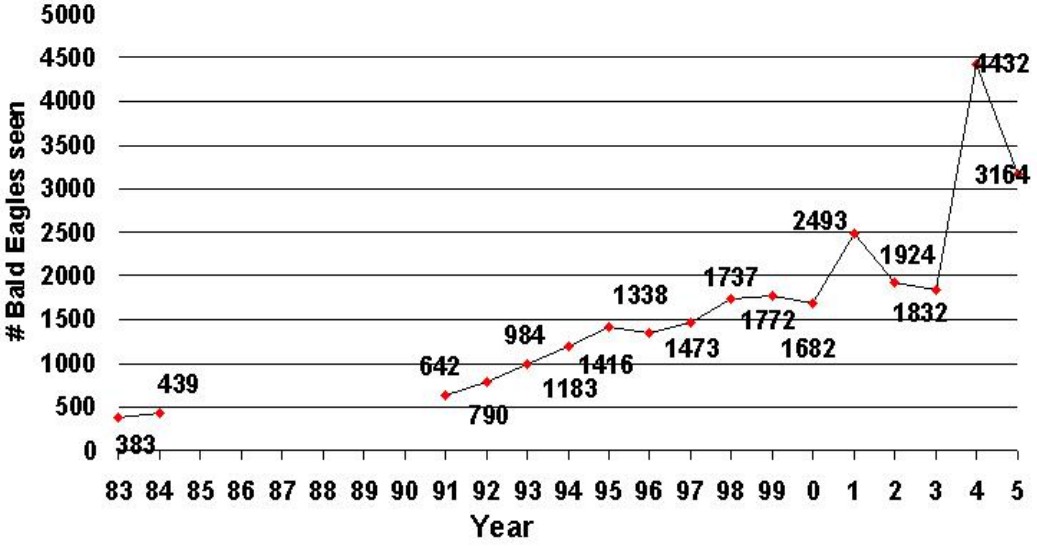


Figure 15.1. First year in which a bald eagle nest was reported for 71 counties, 1977 through 2005.

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



BOBCAT STATUS IN IOWA

(BY RON ANDREWS)

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/cougar. By the late 1800's, 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 showed, at that time, 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. And update of this information needs to be made to determine how many more counties have documented the presence of bobcats. Nebraska, Kansas, and Missouri show similar bobcat expansion and increases near Iowa's southern and western borders. In fact, Missouri now has a bobcat harvest season in the northern portion of their state.

Dr. Jim Pease, Extension Wildlife Specialist, at Iowa State University, has worked 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 was completed in September, 2003.

The Iowa DNR delisted the bobcat from threatened status in September 2003. They are, however, given complete protection at the present time.

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 will have bobcats present within the next 5 years.

The Iowa DNR and Iowa State University are conducting a research study to monitor bobcat's movements, mortality, habitat use and demographics in south-central Iowa. The DNR's Forest Game Biologist, Todd Gosselink, is the project leader. Dr. Bill Clark, ISU professor and graduate student, Stephanie Koehler, represent the University component. A summary of the results to date is attached. The information collected from this study will be very helpful in determining when we might have a regulated harvest on bobcats, which I would project to be the fall of 2006, at the earliest.

The bobcat population increase and expansion has been phenomenal during the last 15 years. Iowa's bobcat population is healthy enough and that is why they have

been delisted from threatened status. Even though the bobcat is 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.

Parameters are being developed for establishing a restricted bobcat harvest season during the next couple of years.

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 bobcats and Iowa wildlife: A COUNTRY SO FULL OF GAME by Dr. James J. Dinsmore

IOWA DNR AND IOWA STATE UNIVERSITY - BOBCAT STUDY IN SOUTH CENTRAL IOWA

(BY TODD GOSSELINK)

In the fall of 2003, Iowa State University and the Iowa Department of Natural Resources initiated a 3-year study on bobcat ecology in Iowa. The study is being funded by the federal State Wildlife Grants, which receives its funding from off-shore oil-drilling royalties along the U.S. coast. The study is using radio-telemetry to radio-tag and monitor bobcats in south central Iowa. Goals of the project include: distribution and density of bobcats throughout Iowa, habitat selection and spatial use, population monitoring techniques, mortality causes and survival rates, genetic analysis, and diet analysis of bobcats in Iowa. Here are some summaries of the studies findings thus far:

- 46 bobcats have been radio-tagged since March 2003 in Warren, Marion, Clarke, Lucas, Monroe, Decatur, Appanoose, and Davis counties. The majority were captured incidentally by local trappers.
- Average weight for adult females was 17 lbs and adult males were 24 lbs. The largest males weighed 32 lbs.
- 4 mortalities have been recorded: 2 roadkill, 1 predator, and 1 accidental trap.
- Annual survival rate of male bobcats is 87%, and females are 84%.
- Population growth of bobcat in Iowa is estimated at 11% a year, based on age structure of 265 bobcat carcasses.
- During the summer, adult male home ranges averaged 44 mi^2 and adult females averaged 8 mi^2.
- During the winter, adult male home ranges averaged 36 mi^2 and adult females averaged 12 mi^2.
- During the summer, bobcats selected forested areas 45% of all locations, with less selection preference for grassland and row crop habitats.
- Since Fall of 2003, > than 380 bobcat sightings have been reported across Iowa.
- Since 2002, 265 bobcat carcasses (roadkill and incidentally trapped) have been turned in.
- Juvenile male bobcats dispersed up to 80 miles (straight-line distance), and juvenile females dispersed 12 miles (straight-line distance).

2 ½ - 3 inches (Bobcat track)

MOUNTAIN LION (COUGAR) STATUS IN IOWA

The mountain lion/cougar (or puma, panther, and various other names) is the largest of the three wildcats documented in Iowa. The lynx and the bobcat were the other two. They probably occurred throughout the state, but nowhere in great numbers. The last historical record of a mountain lion/cougar in Iowa appears to be near Cincinnati, Iowa in Appanoose County, where one was shot in 1867.

Since the mid-1990's, the DNR has received several reports of large "cat" like sightings that lead some to believe that "free ranging" mountain lions/cougars may again be occurring in some portions the state. These "free ranging" mountain lions could be either escapees, or released animals, under private ownership or animals moving in from western and southern states. THE IOWA DNR **HAS NOT 'STOCKED' OR INTRODUCED MOUNTAIN LIONS INTO THE STATE NOR IS THERE ANY CONSIDERATION OF DOING SO.** Southeast South Dakota, eastern Nebraska, northeast Kansas, and northern Missouri have reported increased mountain lion sightings during the past 5+ years.

Figure 1 is a map showing reported observations that appear to be credible, confirmed mountain lion/cougar tracks, 3 visual sightings, a road-kill near Harlan, which could possibly indicate that a very few wild mountain lions have roamed into the state. The road-killed animal in Jasper County was not reported to the DNR until after the roadkill near Harlan. This animal was exhumed and a close inspection of the remains showed the animal had been de-clawed, indicating that it must have been a captive animal at one time. The confirmed sighting in Ringgold County was observed by DNR personnel, and mountain lion scat was collected at that observation site. Two other visuals, one in Harrison County and one in Fremont County appear to be valid sightings. We have several instances of deer hunters seeing partially eaten deer covered by grass and other debris. This is somewhat typical of how mountain lions cache their prey but some bobcats will similarly cover their prey although older deer (those seen while hunting) would not necessarily be a prey target for most bobcats.

In November 2004, a confirmed photo of a mountain lion was taken near Albion in Marshall County on a trail master motion sensitive camera. In spite of the many other photos supposedly of Iowa mountain lions circulating the internet, this photo is the only validated photo of a free ranging Iowa mountain lion.

In November 2003 a mountain lion was shot in Sioux County near Ireton, Iowa. In January 2004, a mountain lion was shot near south of Chariton, Iowa in Wayne County. DNA testing to determine origin of these two animals has been completed and early results indicate that they are of North American origin. Theory has it that the only legal source of captive mountain lions/cougars should show DNA of South American origin, although more study is necessary before that theory can be substantiated. In February 2004, Dale Garner, DNR administrator, confirmed a mountain lion track south of Lucas in Lucas County. There have been numerous reports in 2005, but none officially validated.

Currently the mountain lion has no legal status in the Iowa Code, thus they are not given any sort of protection by Iowa law. The DNR requested that the 2002 legislative session consider legislation to designate the mountain lion as a furbearer, thus allowing the DNR to properly manage this species should their numbers increase. It was

also requested that indiscriminate killing of these animals should not be allowed unless they are about to cause damage or injury to property or persons. The legislation passed the Senate with little controversy, knowing full well that the House would not consider the issue. During the 2006 legislative session, an effort will be attempted to give both the mountain lion and the black bear some type of legal status. "Politics" could make this legislation difficult but we hope to build a coalition to help get this enacted.

Professor James Mahaffy of Dordt College has created a website (http://defender5.dordt.edu/~mahaffy/mtlion/mtlionshort.htm) listing his assessment of mountain lion sightings in Northwest Iowa. He has recorded several sightings along the Big Sioux and Doon Rivers and into the eastern edge of South Dakota. Numerous other mountain lion sightings have been generated from these reports. We attempted to map only those most credible reports. However, since the spring of 2002, we have received so many reports, which agency personnel and others believe to be credible, that it is becoming increasingly difficult to sort out which reports are reliable. Over 700 mountain lion sightings have been reported since 2000. Tracks, photos, video or other evidence is necessary before we can officially place them on our map. Although the DNR does not advocate indiscriminate killing of mountain lion, another road-kill, shooting, or a clear photo or video would help add credibility and confidence to all the mountain lion sightings that we are currently receiving.

Poor quality mountain lion sighting videos from Harrison, Taylor, and Fremont Counties still make it difficult to definitely determine whether these are actually mountain lion sightings but some DNR personnel believe they are. We have very little evidence of livestock depredation due to mountain lions/cougars. We have had reports of horses with claw marks (scratches) on the hind flank and a few reports of sheep and other livestock that some property owners believe were taken by mountain lions but validation of these are difficult. However, mountain lion researchers believe that white-tailed deer and other wild animals are the preferred prey.

Even so, predators are generally opportunists and if hungry they will take what is readily available. We have had at least 3 reports (1 in Carroll, 1 in Harrison County, and 1 in Polk County) from people who believe that they have seen mountain lion cubs. At this point most DNR personnel are skeptical of those reports. And of 3 killed in Iowa and othere in the Midwest, they have all been reproductively immature males.

Credible mountain lion sightings and tracks are important to the DNR. Two excellent websites to help with mountain track identification are http://www.bear-tracker.com/cougar.html and http://www.geocities.com/Yosemite/9152/cougar.html. It is important to remember that all cat tracks are round is shape, with 4 toes and a heal pad that has 3 posterior lobes. Adult mountain lion tracks are 4 inches or larger in diameter, where as bobcat tracks are nearer to the 2 1/2 to 3 inch range. All cats have retractable claws, thus the tracks they leave show no claw marks except in unusual circumstances.

When possible plaster casts of suspected tracks will aid greatly in their identification.

We will continue to monitor and attempt to sort and map reliable sightings, but because there are so many mountain lion sightings based on poor visuals and so few tracks found, they are increasingly difficult to substantiate.

SAFETY ISSUES:

The good news is that lions generally avoid humans. People are more apt to be killed by a dog than a mountain lion. Some safety do's and don'ts can be found at the Mountain Lion Foundation of Texas website, (http://www.mountainlions-texas.org/be_lion_safe.htm).

Here are some suggestions in the remote chance you have a mountain lion encounter:

(1) If small children are present, or if there are several people in your group, gather everyone very close together. Mountain lions are not predators of large groups.

(2) Maintain eye contact if you sight a lion. Lions prefer to attack from ambush and count on the element of surprise.

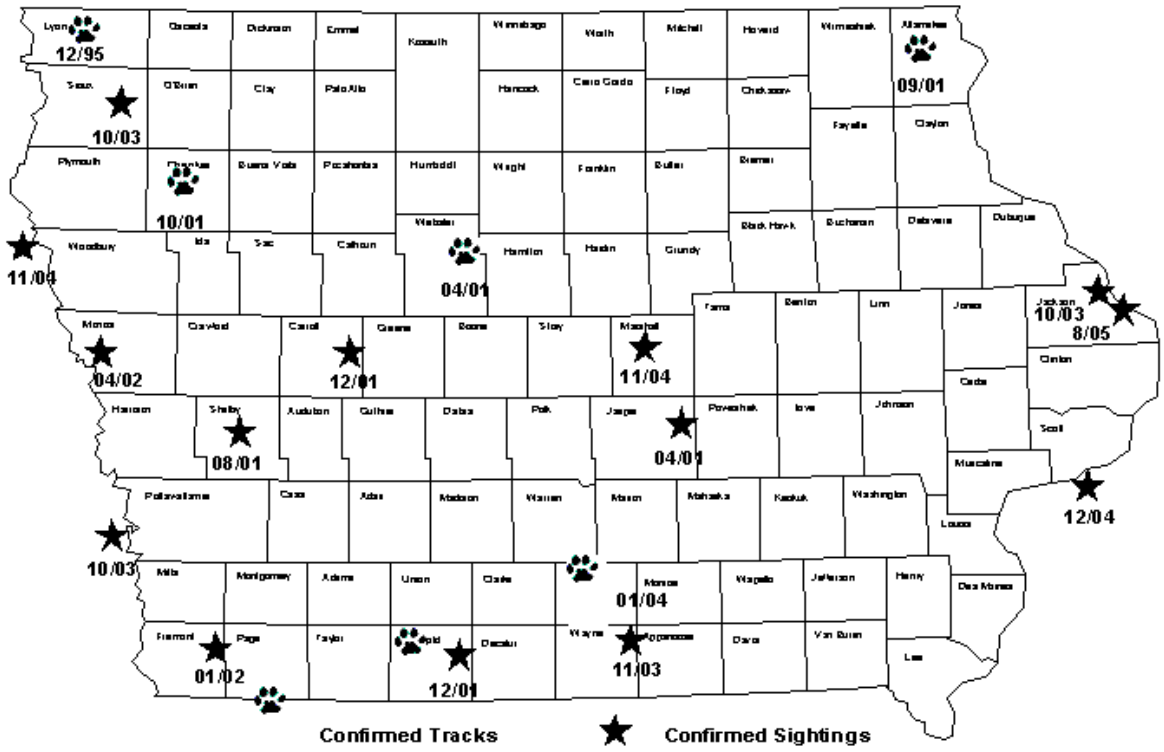
(3) Hold your ground, wave, shout and attempt to look larger. Spread your jacket, coat or shirt above you head. Don't run, as running stimulates the predator reflex (just like dogs) to pursue anything that runs away.

In the past 110 years 66 people have been attacked by mountain lions, resulting in 61 injuries, 19 of which were fatal, and one occurred in Iowa.

4 inches

Figure 17.1 Confirmed Mountain Lion Reports 1995-2005

(Numerous additional sighting have been reported, but are not mapped because of less than credible information)



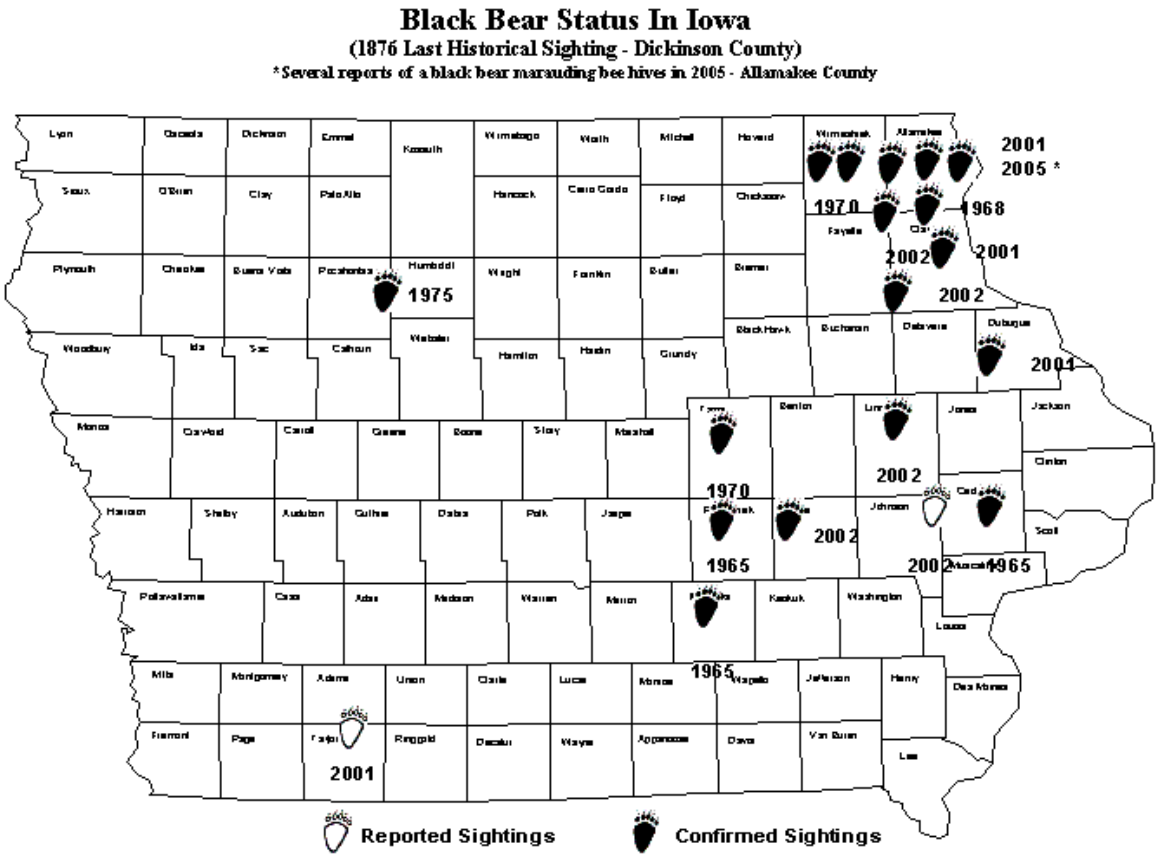
BLACK BEAR STATUS IN IOWA

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 historical bear sighting in the 1800s was one found near Spirit Lake in 1876. In the 1960s, black bear reports begin to occur in the state. Several of these reports were from captive bears that were either turned loose or were escapees. In the 1990s through the present, we began to field more reports of what appeared to be wild free ranging 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. In 2003 and 2004, no reliable sightings have been reported. However during the spring and summer of 2005, the Iowa DNR received its first modern day black bear depredation complaint. In Allamakee County, a black bear reportedly was marauding several beehives in a few scattered locations foraging on both the bees and the honey. Black bear sightings are usually more reliable than mountain lion sightings because they do not necessarily flee when sighted, the tracks are very distinct, and they are not readily mistaken for other animals. Black bears, like mountain lions, have no legal status in Iowa, however the DNR is currently considering legislation to give both species legal status in the Iowa Code. This would allow appropriate wildlife management to occur.

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".

Figure 18.1 Black Bear Sightings in Iowa 1965-2005.



GRAY WOLF (TIMBER WOLF) STATUS IN IOWA

Two large wolf-like mammals were frequently encountered by early settlers in Iowa. There are no known specimens preserved in museums from the state. Historians usually did not distinguish between the gray (timber) wolf, *Canis lupus* and the coyote, *Canis latrans* often called the "prairie wolf." Both species were greatly persecuted and only the coyote still occurs and thrives in the state.

Two different subspecies of gray wolf occurred in Iowa. The Great Plains wolf (a name that causes considerable confusion because the coyote which was often given a similar name, (the prairie wolf) was found over the western two-thirds of the state. The Great Plains Wolf followed the bison herds, feeding on the stragglers from the herd as well as other prey (Dinsmore, 1994). The other subspecies was the gray (timber) wolf found primarily in eastern Iowa, especially in the wooded northeastern corner of the state. Gray wolves were likely extirpated by the late 1800s. Bowles (1971) regards the last valid wolf record to be from Butler County in the winter of 1884-85. A timber wolf taken Shelby County in 1925 appeared to be wild, but it also could have escaped from captivity before being shot. Gray wolves often fed on the domestic animals that settlers brought to Iowa, and there are numerous reports of them killing chickens, pigs and sheep in Iowa. Gray wolves were fully protected in all the 48 states in August of 1974 under the Endangered Species Act (ESA) of 1973. In 1978, they were reclassified from endangered to threatened under the ESA in Minnesota. They are currently being considered for removal from the Endangered Species List. The US Department of Interior's Fish and Wildlife Service administers the ESA. Each state also has its categories for species of special concern.

Under the Iowa Code, the gray wolf is designated as a furbearer with protected status. In recent years Minnesota wolves have been edging southeastward long the Mississippi River towards Iowa. In the mid-1990s occasional lone wolves were appearing in the Winona, Minnesota region, approximately 75 miles from the Iowa border.

On November 15, 2002, a wolf was shot in Houston County, Minnesota, which is adjacent to Allamakee County, Iowa, the northeastern most county of the state. Rodney Rovang, manager of the Effigy Mounds National Monument near Marquette, Iowa indicates that he has observed occasional wolf tracks in and near Allamakee County over the past decade. Two known wolf-like animals were taken during the past year in Sioux and Guthrie County.

In October of 2000, a radio collared wolf from Michigan was shot and killed near Kirksville, Missouri. This animal traveled over 600 miles and could have actually moved through a portion of Iowa before being killed in Missouri. Kirksville is located about 50 miles south of Bloomfield, IA.

In the likelihood that more wolves will appear in the state, an Iowa wolf draft management plan has been created and reviewed by the Commission. It will be revised and serve as guide as to how the DNR should respond as wolf numbers increase and human/wolf encounters occur. Figure 1 shows the few documented wolves that have been seen in Iowa during the past decade.

Figure19.1 Gray (Timber) Wolf Status in Iowa