

## BALD EAGLE RESTORATION

### HISTORICAL REVIEW

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

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

### RECENT IOWA NESTING RECORDS

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

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

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

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

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

## **PRODUCTION OF EAGLE YOUNG**

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

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

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

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

## **STREAMS WITH NESTS**

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

### **Preferred nest trees:**

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

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

## **RECOVERY EFFORT**

### **Bald Eagle Nest Survey:**

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

### **Midwinter Bald Eagle Survey:**

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

## **DISCUSSION**

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

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

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

## **THE FUTURE**

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

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

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

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

**Bald Eagle Appreciation Days:**

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

**ACKNOWLEDGMENTS**

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

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

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

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

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

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

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

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

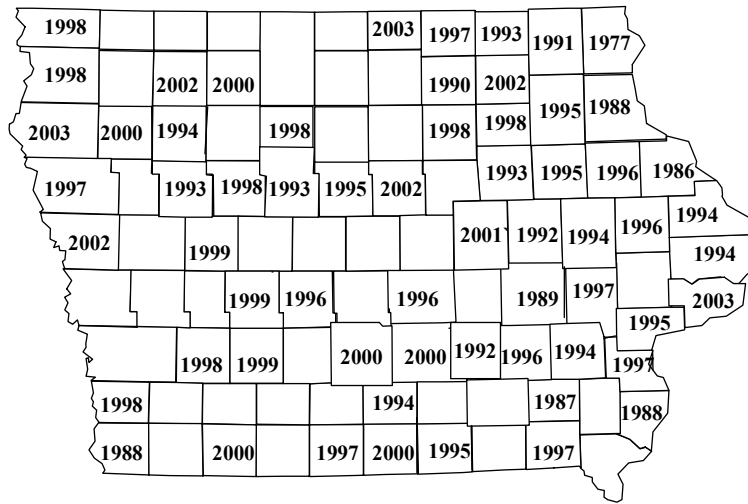


Figure 15.1. First year in which a bald eagle nest was reported for 63 counties, 1977 through 2003.

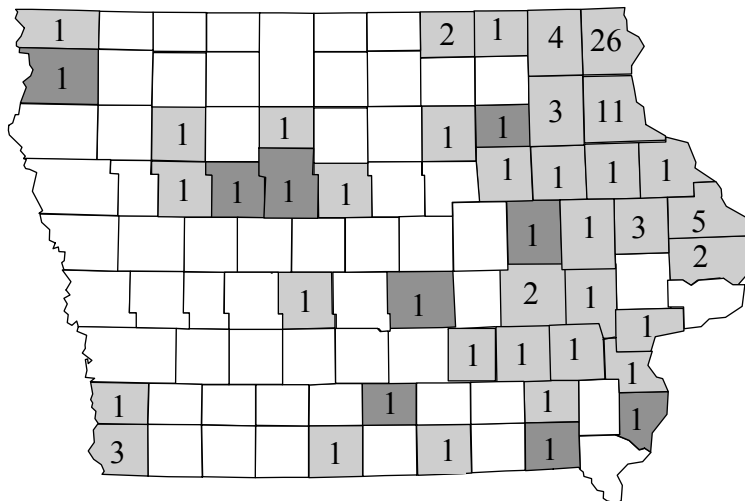


Figure 15.2. 33 counties in which 84 active Bald Eagle nests were found in 1998 (light gray shading), and 9 counties with inactive nests (dark gray shading)

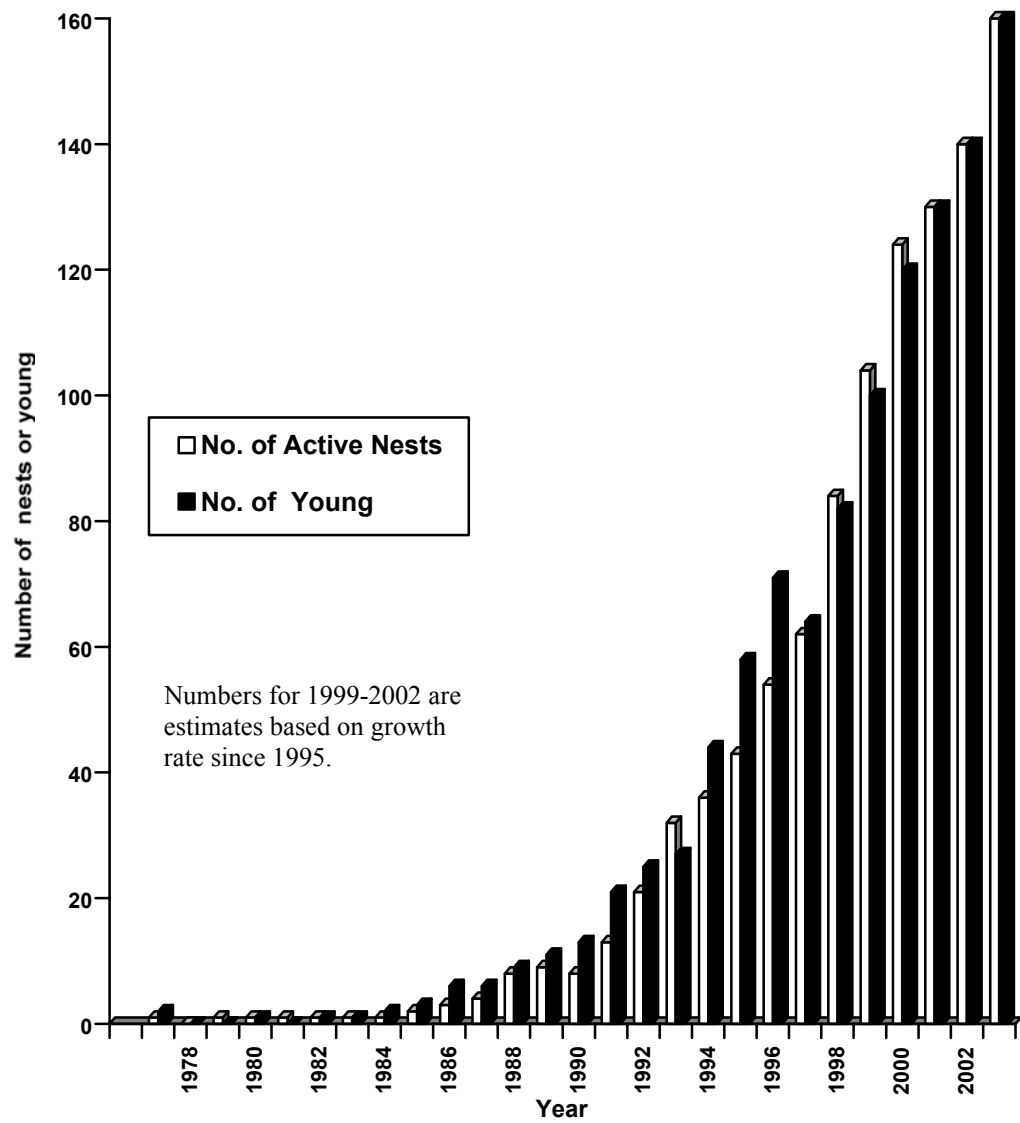


Figure 15.3. Number of Bald Eagle active nests and young produced in Iowa, 1977 through 2003.

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

