

# NEBRASKA'S

## *Threatened and Endangered Species*



*Bald Eagle*

NEBRASKA GAME AND PARKS COMMISSION

# Bald Eagle — An endangered species

## Status

Historically, the bald eagle (*Haliaeetus leucocephalus*) was found in all 50 states except Hawaii and nested in 45 of the 48 contiguous states. In the late 1800s, the bald eagle was a common breeding bird along the Missouri River Valley in Nebraska. Migrant and wintering bald eagles were uncommon throughout the state, but wintering populations varied, as they do today, depending on the severity of the winter and availability of food.

In the late 19th century, it gradually became obvious that nesting populations were being seriously reduced across the country. Land development destroyed habitat as settlers moved into the wild, remote realm of the bald eagle, and the suitability of both breeding and wintering areas was seriously degraded. Mortality from trapping and shooting, especially as firearms became more numerous and efficient, accelerated the precipitous decline.

In the 20th century a new, more serious threat appeared. Decimation of bald eagle populations by pesticides and other environmental contaminants was far more insidious than anything biologists had yet witnessed. By the mid-1960s, the

decline in breeding bald eagles exceeded 50 percent in some areas and approached 100 percent in extreme cases. In addition, nesting failures of 55 percent to 96 percent were found for the remaining nesting pairs.

Protection for the bald eagle came slowly. Not until 1940, when the Bald Eagle Act was signed, was the killing of bald eagles in the lower 48 states prohibited. In Alaska, a bounty was in effect from 1917 to 1945 and again from 1949 to 1953. More than 100,000 eagles were killed, each pair of feet bringing from 50 cents to \$2. Finally, in 1953, the Territorial Bald Eagle Bounty Law was repealed in Alaska, making the indiscriminate killing of bald eagles illegal.

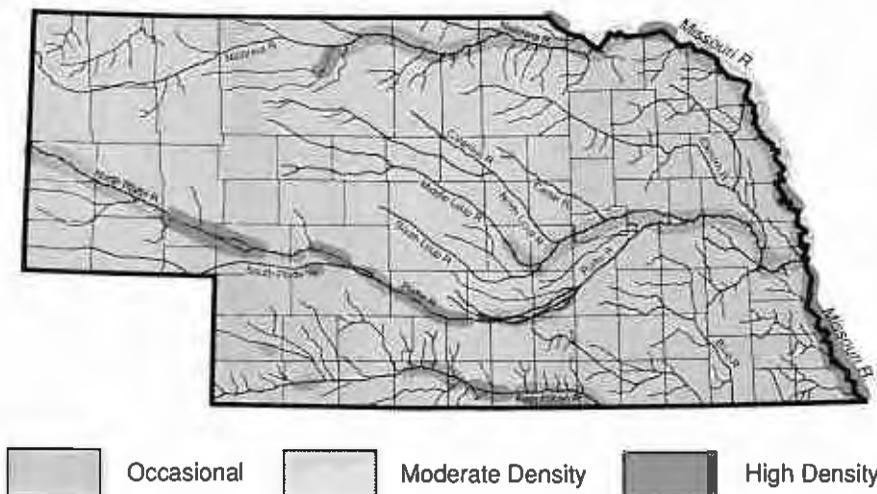
In the early 1970s, the use of several organochlorine pesticides, including DDT, was banned in the United States. The Endangered Species Act of 1973 created additional framework for future protection of the bald eagle and its habitat and provided for fines of \$10,000 to \$20,000 and/or imprisonment of one to two years for the killing or sale of bald eagles. The bald eagle was listed as endangered under the Nebraska Nongame and Endangered Species Conservation Act concurrent with its listing under the Federal Act in 1978.

The current minimum estimate of bald eagle nesting pairs in the lower 48 states is 2,600. A recent estimate of wintering populations in the 48 contiguous states is 13,500.

Many nests have been built and attended by bald eagles in Nebraska since the mid-1980s, but no eggs are known to have been laid. The first documented successful nesting and fledging of young bald eagles in Nebraska since the late 1800s occurred in Sherman County in 1992. Bald eagles nested in Douglas County in 1991, but no young survived to fledging. In 1993, six bald eagle young were fledged from two nests, one in Scotts Bluff County, the other in Sherman County. Two additional nests adjacent to Nebraska's eastern border were active in 1993, and one fledged two young. Based on the growing population of eagles nationwide and the increasing number of adult bald eagles observed outside the wintering period in Nebraska, additional undetected or unreported nesting attempts are probably occurring in the state.

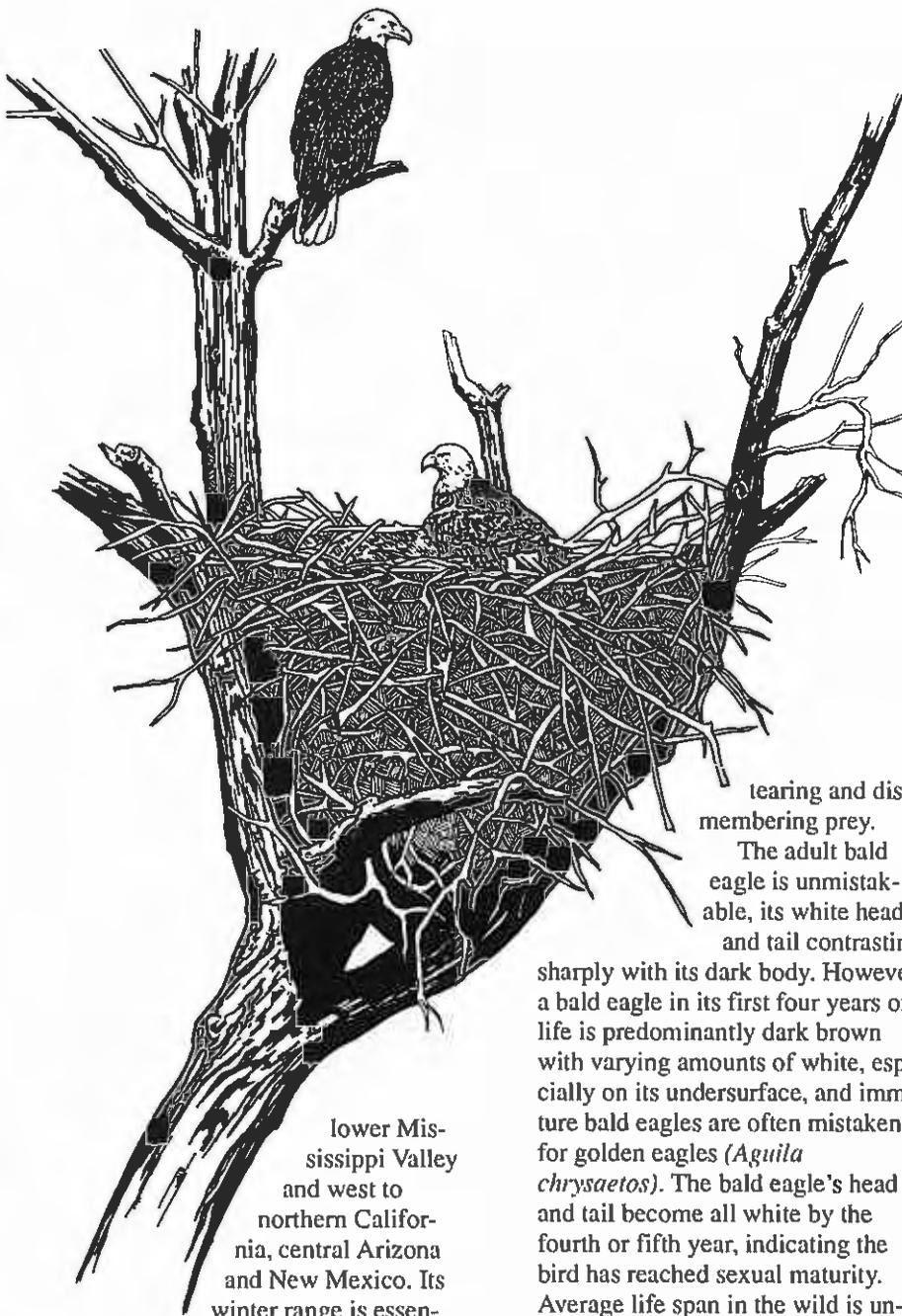
Nebraska's wintering bald eagle population is highly variable, ranging from 409 in 1984 to 1,292 in 1992. An average of 714 bald eagles have been counted in Nebraska during the annual midwinter surveys for the 1980-1993 period.

Wintering Distribution of Bald Eagles in Nebraska



## Description

There are two subspecies of the bald eagle: the southern bald eagle (*Haliaeetus leucocephalus leucocephalus*) and the northern bald eagle (*Haliaeetus leucocephalus alascanus*). The northern bald eagle's breeding range spans the northern two-thirds of the continent, including Nebraska. Recent information indicates that the northern subspecies winters from its breeding territories south through Oklahoma, Texas, Florida, New Mexico and Arizona. The southern bald eagle nests primarily in the estuarine areas of the Atlantic and Gulf coasts, the



lower Mississippi Valley and west to northern California, central Arizona and New Mexico. Its winter range is essentially the same.

The female northern bald eagle is larger than the male, averaging 10 to 14 pounds. Males generally weigh 8 to 10½ pounds. The size difference allows the pair to exploit different size prey. The bald eagle stands 2½ to 3 feet tall with an impressive 6½- to 7½-foot wingspan. Their keen eyesight is eight times more powerful than a human's. The bright yellow feet of adults are strong, unfeathered and equipped with long, sharp, black talons for penetrating and grasping prey. The powerful, bright yellow, hooked bill is used for

tearing and dismembering prey.

The adult bald eagle is unmistakable, its white head and tail contrasting sharply with its dark body. However, a bald eagle in its first four years of life is predominantly dark brown with varying amounts of white, especially on its undersurface, and immature bald eagles are often mistaken for golden eagles (*Aquila chrysaetos*). The bald eagle's head and tail become all white by the fourth or fifth year, indicating the bird has reached sexual maturity. Average life span in the wild is unknown, but 30 years is a reasonable estimate of potential longevity under natural conditions. Eagles have been known to survive in captivity for nearly 50 years.

## Habits

Bald eagles that have nested tend to stay on or near their nesting localities year round if food is available and the weather tolerable. Bald eagles from the northern states usually migrate in winter, going south as far as necessary to find adequate food and shelter.

Bald eagles winter throughout most of the country, but they are most abundant in the West and Midwest. Bald eagles wintering in Nebraska are thought to originate primarily in the central provinces of Canada and the Great Lakes states. Migrant and wintering eagles begin arriving in Nebraska in early to mid-October and leave the state for northern breeding areas by late March. Adult migrants tend to winter repeatedly in the same area, but remain mobile when seeking food during changing winter conditions.

Winter night roosting occurs at sites where large numbers of eagles customarily congregate. Eagles usually begin arriving at the communal roost within the last two hours of daylight. They arrive as singles or as small disconnected groups sometimes travelling more than 10 miles from a feeding site. The first arrivals choose favorite trees and perches in the roost. Much vocalization occurs as new birds arrive and vie for favored perching positions. Before sunrise, eagles begin leaving the roost site for favorite feeding sites. Some communal roost sites in Nebraska are used by 100 to 200 bald eagles.

## Reproduction

Bald eagles nest near rivers, lakes or reservoirs, selecting sites free from disturbance. Nests are placed high in large trees near water. In the Midwest, cottonwood trees are usually used, but coniferous trees are most often selected in more northerly breeding areas. The most successful nests typically are situated below the top crown of a live tree, where the young are sheltered from the elements and the parent birds have easy aerial access. A nearby snag or open canopy tree that offers a commanding view of the area is also a requisite.

Nests are huge, constructed of large sticks and lined with softer material such as leaves and grasses upon which one to three dull-white

eggs are laid. Nests are re-used and new material is added each season, creating structures as large as seven to eight feet across and sometimes more than 12 feet deep.

Bald eagles establish lifelong pair bonds, both birds returning to the same nesting area year after year. If one member of the pair is lost, a new mate will be sought.

Nesting activities begin in mid- to late March in Nebraska, with egg laying occurring in late March to early April. Both adults contribute to egg incubation, the female primarily during the daytime and either adult during the night. While the female is incubating, the male provides her with food at the nest.

In mid-May, the eggs hatch. The smoke-gray, downy young are entirely dependent on the adults, and at least one adult is in constant attendance at the nest until the young are about 15 days old. Both adults provide food as the young continue to grow and the natal down is replaced with the juvenile feathers. Fledging (first flight from the nest) takes place at 10 to 11 weeks; however, the young remain near the nest and are dependent on the adults for food for another six weeks.

Life is hazardous for young eagles after they leave the care of the adults. Survival information is limited, but scientists generally agree that only one-third of the fledglings survive the first year.

## Food

Most people envision this majestic bird skimming along the surface of a lake or river and suddenly snatching an unsuspecting fish. Bald eagles frequently feed this way, but also are quick to exploit more easily obtained food sources. Fish are the bald eagle's primary source of food, but the fish need not be alive to attract an eagle's attention. Winter die-offs of shad or alewife at some of Nebraska's lakes and reservoirs provide readily available forage. Water-

fowl are another important source of winter food.

When severe winter weather causes a previously reliable food source to become unreliable, bald eagles hunt uplands for birds or mammals, or they scavenge. If severe conditions persist, eagles concentrate in the few remaining open-water areas or migrate farther south.

## Habitat

Nesting or wintering bald eagles are found in close association with water. Rivers, lakes or reservoirs that provide a reliable food source and isolation from disturbing human activities are preferred. Large trees and snags along shorelines provide feeding and loafing perches and potential nest sites. Larger stands of mature trees that are free from disturbance

provide adequate perches, protection from the winter elements and are needed for communal winter roosting.

During the fall and spring migration, when most water areas are ice free and milder weather conditions predominate, bald eagles may be seen along virtually any waterway or impoundment in Nebraska. During the critical wintering period (December 15 to February 20), eagles are usually forced to concentrate in areas where waters remain free of ice and food is available.

## Limiting factors

The bald eagle has no known natural enemy. The nationwide decline of bald eagles that took place from the 1940s into the early 1970s was a result of contaminant buildup in the environment related directly to





Fish are a primary food of bald eagles. White head and tail mark adult birds.

the agricultural and industrial use of pesticides and chemicals. Contaminant residues, especially from DDT, were found in adult birds, eggs and nestlings as well as in the eagles' food sources. Contaminants in adult bald eagles result in abnormal breeding behavior, thin eggshells and dead embryos within the eggs. Other pesticides, such as Dieldrin and Endrin, were implicated most often in acute poisonings, those resulting in immediate death of individual birds.

Lead poisoning from the ingestion of spent lead shot has been identified as a serious mortality factor in waterfowl. Eagles have died from lead poisoning after feeding on dead or crippled waterfowl and ingesting lead pellets imbedded in the waterfowl's flesh or gizzard. Eagles also accumulate toxic levels of lead directly from contaminated flesh.

Habitat destruction and human-related disturbance of wintering and nesting eagles is continuing. Land-use changes and activities that adversely alter historical/traditional roost sites still occur. Intensive grazing of roosting and nesting tree areas can prohibit the natural regeneration of tree groves that would ensure future use of these sites. Bank stabilization

activities along Nebraska rivers often require tree removal, which may eliminate valuable feeding and loafing perches.

Reduced or altered river flows as a result of diversions and dams can severely affect the ability of the aquatic system to attract wintering waterfowl or to support an adequate fishery for nesting or wintering eagles.

Although it has been illegal to shoot bald eagles since 1953, shooting remains a major cause of death. In spite of the substantial fines and



Immature plumage lasts 4 to 5 years.

jail time that can be assessed to a convicted offender, several eagles killed by gunshots are discovered and reported to the Nebraska Game and Parks Commission each year.

Electrocution through contact with powerlines is another direct cause of bald eagle mortality in Nebraska and throughout the country. In the first four years of Nebraska's Raptor Electrocution Prevention Program, cooperators documented nearly 45 electrocuted golden and bald eagles.

These factors together generally do not limit bald eagle populations nationwide. However, in Nebraska, as in many other states with small or recovering nesting populations, the loss of a single bird could set back recovery of the state's population by years.

## Management and Outlook

Even before 1978, when the bald eagle was added to Nebraska's endangered species list, annual surveys were conducted by biologists to keep track of Nebraska's wintering eagle populations. Efforts also have been made to identify and protect essential wintering habitat and associated traditional roosting sites. River flows critical to fish and waterfowl, and thus to bald eagles, are being protected through a consultation process that requires a guarantee that no proposed project will adversely affect the endangered bald eagle or its habitat. In-stream flow legislation also allows the Game and Parks Commission to further protect valuable river flows.

Bald eagle nest-building activities are monitored to assess the outcome of such efforts. If needed, a disturbance-free buffer zone is established around a nest to increase chances of success. Landowners and neighbors are asked to cooperate in protection efforts. Active nest sites are monitored to determine productivity.

In conjunction with our effort to

protect habitat for eagles in Nebraska, we are attempting to reduce direct losses of eagles. Most sites where electrocutions have been recorded have been altered, and plans to identify and modify problem power lines are being drafted. New line-construction plans are reviewed to ensure that they meet recommended standards to prevent electrocutions.

Reported eagle deaths or injuries are investigated to determine their causes. Those resulting from illegal activities are investigated further for possible prosecution.

Since 1985, Nebraska has required the use of nontoxic shot for waterfowl hunting. Nontoxic shot is also required on certain public areas where waterfowl, and thus eagles, concentrate. This undoubtedly has helped reduce the incidence of lead poisoning in bald eagles.

Bald eagle populations have responded favorably to the ban on DDT and other organochlorine pesticides. An increase in breeding pairs and nesting success has been observed since the mid-1970s. However, the problem of pesticide and chemical contamination may still be the major limiting factor affecting bald eagle populations. The use of many environmental contaminants is regulated in the United States and Canada, but deaths still occur, including three bald eagles that died from organophosphate poisonings in Nebraska during the winter of 1992-93. The causative compounds iden-



Where food is plentiful, so are wintering bald eagles.

tified were Fenitrothion and Terbufos, two commonly used agricultural insecticides. Close monitoring of eagle mortality and populations is needed to quickly identify any new problems that arise.

A common observation throughout the country is that bald eagle populations seem to be increasing and moving toward recovery. The outlook for the bald eagle population in Nebraska is also good. Wintering populations have exceeded 1,100 birds in three recent winters, and nesting attempts seem to be on the increase. We view these events with guarded optimism, keeping in mind the potential limiting factors and, more important, maintaining a watchful vigil for new or

developing factors that might hinder recovery. The road to recovery is rough, but the excitement and joy of viewing a pair of bald eagles tending young at a nest or a concentration of wintering eagles sitting on the ice among flocks of wintering waterfowl make it all worth enduring.

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Note: New data on the occurrence and distribution of this species are being collected constantly, and some of the information in this publication may be outdated. It should be used for a general understanding of the status of this species in Nebraska and not as the sole source of locational information for any report, project, regional/local planning, or environmental impact assessment. For current information on this or other threatened and endangered species, or for additional copies of this publication, contact the Wildlife Division, Nebraska Game and Parks Commission, P.O. Box 30370, Lincoln, NE 68503.



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Nongame Wildlife Tax Checkoff Fund



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