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RECENT BALD EAGLE NEST RECORDS IN OKLAHOMA

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Lish and Sherrod (1986) reviewed the nesting history of the Bald Eagle (*Haliaeetus leucocephalus*) in Oklahoma through 1985. From 1985 to 1991, 90 nestling eagles were released by the George M. Sutton Avian Research Center (GMSARC) in eastern Oklahoma as part of a larger project to restore breeding populations in the southeastern United States (Simons et al. 1988). Numbers and locations of Bald Eagle release sites during each year were as follows: Sequoyah National Wildlife Refuge, Sequoyah County: 1985 (5), 1986 (11), 1987 (4), 1988 (11), 1989 (0), 1990 (15); Skiatook Reservoir, Osage County: 1990 (16); Canadian River, Hughes County: 1990 (15); and Fountainhead State Park, McIntosh County: 1990 (13).

Bald Eagles may become sexually mature as early as three years of age, but do not normally breed until they are at least four. The earliest probable year that birds released in Oklahoma would have been capable of breeding was 1989. In that year an unmated 1985-released male eagle built a nest in a dead tree not far from the release tower at Sequoyah National Wildlife Refuge. Because of the small number of eagles hacked into the wild during the earlier years of the restoration project, and high (but normal) first year mortality, the population of nesting eagles is expected to increase slowly before stabilizing. Table 1 is model representing the potential growth and productivity of the Oklahoma population resulting from the numbers of eagles released as given above.

OKLAHOMA BALD EAGLE NESTS

***Fig. 1:** One of five Bald Eagle nests near Eufaula Lake dam in Pittsburgh County, Oklahoma, this one located on south shore of Canadian River below the dam.* ***Fig. 2:** Winter nest at Copan Lake in Washington County, 23 December, 1992. It dwarfs a Great Blue Heron* (Ardea herodias) *standing inside. Photos taken by M. Alan Jenkins*

Table 1. Population Growth Model of Bald Eagles Released in Oklahoma.[1]

YEAR	NO. EAGLES RELEASED	NO. BREEDING ADULTS	NO. SUCCESSFUL NESTS
1985	5	0.0	0.0
1986	11	0.0	0.0
1987	4	0.0	0.0
1988	11	0.0	0.0
1989	0	0.8	0.4
1990	59	5.1	2.6
1991	0	6.2	3.1
1992	0	10.0	5.0
1993	0	9.2	4.6
1994	0	33.1	16.5

[1]The model is deterministic (trends not influenced by chance), and is based on the number of eagles released in Oklahoma by the GMSARC restoration project. It assumes no initial breeding pairs, a first year eagle survival rate of 55% of released eagles, subsequent mean annual survival rate of 90%, an age of first successful breeding of 5 years, and a mean annual fledging success rate of 1.1 young per nest.

It predicts, based on mortality and productivity rate assumptions thought to be normal for Bald Eagles, that Oklahoma should have about five successful nests in 1993 and should reach the recovery plan goal of 10 pairs (USFWS 1984) by 1994 when the large cohort released in 1990 becomes adult. This model shows only one possible trend in eagle numbers. Other factors not accounted for may exert considerable influence on the size and dynamics of the population. For example, initial pairs are not necessarily productive in their first attempts, since both are inexperienced breeders.

Although there have been no systematic surveys for nesting Bald Eagles in Oklahoma, some recent nests have come to our attention. This paper reviews the data known to us regarding Bald Eagle breeding in Oklahoma since 1985.

We use the following terminology, as defined by Postupalsky (1974) in referring to the reproductive status of eagle nests: 1) occupied nest: tended by a pair of eagles; 2) active nest: at least one egg has been laid therein; and 3) productive nest: fledged at least 1 young. Additionally, we recognize a type of occupied nest constructed by pairs of wintering eagles, probably of northern origin, then abandoned after spring migration. We term this a "winter nest." We believe that these nests are built to maintain pair bonds and perhaps to strengthen the winter territory. Although on occasion these northern birds may remain in Oklahoma and reproduce, we speculate that they usually construct another nest after migrating to their breeding ground farther north. Rarely are winter nests active or productive, and most are occupied for but a season. However, not all inactive, non-productive nests are built in winter. More research on winter nests is needed to clarify their possible functions.

Recent Oklahoma Bald Eagle nests known to us and pertinent details follow (dates of origin parenthesized):

Harkey's Island, 6.5 miles SSE of Vian, Sequoyah County (unknown). Thought to be a winter nest, disappeared in 1992, rebuilt and active in 1993, but failed (refuge personnel).

Moody Landing, 5 miles SSW of Vian, Sequoyah County (1991). A winter nest, disappeared in 1992 (refuge personnel).

Oolagah, 3 miles SE of Oolagah, Rogers County (unknown). Dilapidated and unoccupied in 1990, probably a winter nest (Jim Moreland).

Kaw City, 5 miles W of Shidler, Osage County (1991). Occupied in 1992, but disturbed by nearby plowing. Active in 1993, failed (Betsy Stewart, Judy Lorg and Ron Folks).

Caney River, 4 miles NNW of Copan, Washington County (1991). Occupied by adult pair in 1991, unoccupied in 1992 and 1993; apparently a winter nest (Charles A. Roberts and Ray DeMent).

Guthrie, 2.5 miles N of Guthrie, Logan County (1991). Occupied in 1991 and 1992. One member of pair immature in 1991. Nest had fallen out of the tree by 1993, no replacement nest was found (Pat Ratliff).

Moxley Ranch, 15 miles SW of Ardmore, Love County (ca. 1987). Two alternate nests, reported to have produced two young in 1991, but none in 1992 or 1993 (Larry Forsythe and Jontie Aldrich).

East Bressie, 8.5 miles SE of Marland, Noble County (ca. 1985). Fledged two young in 1991, three in 1992 and two in 1993 (Betsy Stewart, Judy Lorg and Ron Folks).

Eufala Dam, 13 to 14 miles E of Eufala in Haskell and Muskogee counties (unknown). Four alternate nests in this group, none productive for certain; however, we only became aware of them in 1992. Two nest appear to be quite old. In 1993 one nest was missing, a new one was constructed nearby. A third nest may have held young, but this was not verified (Mike Dumford).

Stidham, 10 miles NW of Eufala, McIntosh County (1992). Occupied in 1992 when adults defended against human intruders; possibly active, but was not productive. In 1993 a second alternative nest was found nearby, neither nest productive (Stuart Woods).

Briartown, 6 miles NW of Stigler in Muskogee County (1992). Occupied in 1992, but productive status unknown. Produced one young in 1993 (Stuart Woods).

Sequoyah National Wildlife Refuge, 5.5 and 6 miles SW of Vian in Sequoyah and Haskell counties (1989). One nest (Sandtown Bottom) built in 1989 by GMSARC-released male eagle A-03 near the hack tower. In 1990 he paired with A-48, and they built a new nest nearby, which was occupied in 1991, 1992 and 1993. Observations of 24-hour incubation behavior by U. S. Fish and Wildlife Service personnel in 1992 and 1993 led them to believe that this nest held an unknown number of eggs which apparently did not hatch.

Tamaha, 7.5 miles SSW of Vian in Haskell County (1990). The first successful nest of GMSARC-released eagles in Oklahoma, it fledged two young in 1991, but was subsequently blown out of the tree. A new one was built nearby in 1992, but no young produced that year or in 1993 (Hutchie Weeks and Ron McGuire).

Of these nests, the Sequoyah National Wildlife Refuge, Harkey's Island and

Tamaha nests are known to have been occupied by eagles released by GMSARC. Adults at the East Bressie nest were not banded, and probably were not released by GMSARC. Adults at other nests have not been observed closely enough to determine whether or not they were banded.

With resumption of Bald Eagle nesting in Oklahoma, the status of this species should be changed to "permanent resident" in the eastern part of the state. Summer sightings there should not be considered as worthy of new state records, but merely as uncommon.

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GENERAL NOTES

Sora impaled on barbed wire fence.—While driving between roadside nest study plots in tallgrass prairie country approximately 3 miles south of Foraker, Osage County, Oklahoma, on 21 May 1992, my crew (Mark E. Weaver, Greg C. S. Um, Bob L. Williams and Brian K. Muzny) and I discovered a bird hanging from the top strand of a barbed wire fence. Suspecting that it had been placed there by a Loggerhead Shrike *(Lanius ludovicianus)*, we stopped to investigate. Impaled through the carpal region of the left wing, probably the result of a collision with the fence, was a Sora *(Porzana carolina)*. the unfortunate bird had been dead for perhaps a day, and was still in fairly good condition. This discovery prompted me to investigate other accounts of fence-related avian injuries.

Undoubtedly, bird-fence collisions occur much more frequently than the few