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DISPLACED BALD EAGLE (*Haliaeetus leucocephalus*) NESTLING SUCCESSFULLY RAISED IN FOSTER NEST

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ABSTRACT

We report on the discovery, recovery, and eventual transplant of a displaced Bald Eagle (*Haliaeetus leucocephalus*) nestling into a foster nest. A Law Enforcement Officer recovered the eaglet from the water in Clinton Lake after its natal nest had fallen from the nest tree. The officer transported the eaglet to a wildlife rehabilitation facility where it was housed and cared for over a 16-day period. During routine banding activities, a tree climber placed the recovered eaglet in the active nest of a wild pair of Bald Eagles with two eaglets of similar age and size. The foster parents cared for the transplanted eaglet almost immediately along with their two-biological offspring. Subsequently, the foster nest was destroyed by severe weather about four weeks after the foster eaglet was transplanted. The eaglets were recovered from an adjacent grass field, and the Evergy Green Team constructed an artificial nest in the tree. All three eaglets (two biological offspring of the nesting pair plus the foster eaglet) were placed in the artificial nest structure about 36 hours after the original nest was destroyed. The attending adults returned to the new nest structure, and all three juveniles eventually fledged. This was the first eaglet transplant attempt in Kansas. The attempt was successful, demonstrating that this fostering technique appears to be a viable option for keeping eaglets in the wild following nest destruction.

INTRODUCTION

In 1989, two fishermen reported the first documented Bald Eagle (*Haliaeetus leucocephalus*) nest in Kansas at Clinton Lake (Schwilling et al. 1989). In 2020, there were a record high 174 documented active eagle nesting territories in Kansas.

Between 1989 and 2020, 225 different nesting territories were documented as being active in the state. Over the last three decades of population recovery, some nesting territories have gone inactive for various reasons, including destruction of the nest structure and/or nest tree. As the Bald Eagle population continues to grow and expand in Kansas, the number of nesting territories increases, therefore, we expect increased numbers of disruptions to Bald Eagle nesting attempts when the nest or nesting tree are adversely affected by storms.

Bald Eagles typically lay 1–3 eggs, hatching occurs ~35 days after the start of incubation, and young fledge when they are 70–80 days old (Buehler 2000). The natural variability of nests containing 1–3 offspring makes it possible to add one or more displaced eaglets as fosters to an active nest containing either a single offspring or a pair of eaglets without exceeding typical parenting demands for some pairs. Parents from numerous avian groups accept non-biological offspring in their nests through various forms of intra- and inter-specific brood parasitism (Payne 1997). The decision to accept non-biological offspring involves tradeoffs between costs and benefits (Petrie and Møller 1991). The effort and risk that parents incur while caring for offspring that do not share their alleles amounts to costs in the form of misdirected parental care (Petrie and Møller 1991). These costs can result in reduced reproductive success and survival (Lank et al. 1990, Romagnano et al. 1990, Brown and Brown 1991, Sorenson 1991, Robinson et al. 1995, Payne 1997, Semel and Sherman 2001). On the other hand, the costs can also be high for rejecting non-biological offspring from the nest. Rejection may be an unfavorable choice because the risk of harm or of making a mistake and rejecting their own biological offspring is too high (Petrie and Møller 1991, Payne 1997).

Understanding these tradeoffs in the context of brood parasitism can yield insight into circumstances outside of a parasitism context that can have implications for conservation efforts. But, few fostering attempts have been documented in Bald Eagles (Postupalsky 1975, Wiemeyer 1981). The propensity of Bald Eagle parents to accept foster offspring has implications for conservation efforts and wildlife rehabilitation practices (Bird et al. 1985).

OBSERVATIONS and DESCRIPTION

On 7 April 2019, a Bald Eagle nest in the Rock Creek arm of Clinton Lake (natal nest) was dislodged from the tree by a severe storm. Local fishermen reported the incident to authorities. The nest had been in a dead standing snag tree in the lake. A Kansas Department of Wildlife, Parks & Tourism (KDWP&T), Law Enforcement Officer found and recovered two eaglets floating amid the nest debris in the lake. The officer transported the eaglets to Operation Wildlife, a wildlife rehabilitation facility in Linwood, Kansas. The eaglets were ~3 weeks of age.

One eaglet was dead on arrival at the facility. The second eaglet had consumed a large amount of water which caused respiratory distress, but had sustained no other physical injuries. Rehabilitation staff started the eaglet on a treatment of antibiotics and began standard feeding and care. To prevent imprinting on humans, staff placed

the eaglet next to a mirror and fed it with an eagle puppet for 7–10 days, after which time it began feeding on its own without human assistance. The recovered eaglet remained in the rehabilitation facility for 16 days.

Because the eaglet needed extended care at the rehabilitation facility and it was logistically difficult to rebuild an artificial nest platform in the standing snag over water, the recovered eaglet could not be returned to its biological parents. While the eaglet was recovering at the rehabilitation facility, a team of biologists developed a plan to return the eaglet to the wild. The US Fish and Wildlife Service (USFWS) in Manhattan, Kansas, obtained permission from the Regional Office to place the recovered eaglet in a foster nest. The biologists evaluated candidate nesting territories based on the following criteria: a willing landowner, accessibility of the nest by a tree climber and/or large equipment, the number and age of eaglets in the nest, and the distance between natal and foster nest locations.

The selected nesting territory was located on private land and had a willing land owner. The nest tree had been climbed in previous years for eaglet banding activities. The foster nest contained two eaglets that were ~1 week older than the foster bird. Finally, the foster nest was the closest active nesting territory to the natal nest location, just 2.6 km away. The foster nest was attended by a pair of eagles that established their territory in 2011 and had successfully produced young every year since. This territory was the fourth Bald Eagle nesting territory established at Clinton, Lake. The attending adult female is a product of a Clinton Lake nesting territory located only ~7 km from the territory she later established with her mate. She was banded with a purple visual identification band (8B) as a nestling by the USFWS on 9 May 2005. The attending male at the foster nest had no identifying markers.

On 22 April 2019, the eagle banding team measured, weighed, and banded the recovered eaglet as part of the Kansas Bald Eagle Banding Program implemented by the USFWS (USGS permit #22532). Based on measurements (Bortolotti 1984, Stalmaster 1987), it was determined the eaglet was a female, and fitted with US Geological Survey band #0709-08278, and a purple visual identification band with silver alpha-numeric characters 00/K. A tree climber placed the newly banded eaglet in a foster nest. The banding team also measured, weighed, and banded the two biological offspring already in the nest (purple visual identification bands 03/K and 04/K). Based on measurements, it was determined both biological offspring were males (Bortolotti 1984, Stalmaster 1987). For the next 10 days a group of volunteers observed the foster nest 5–8 times per day, for 30-120 min sessions, to monitor whether the foster eaglet (00/K) was receiving and consuming food. Volunteers observed all three eaglets being fed by the adults 3 to 4 hours after being banded and placed back into the nest.

Four weeks later, between sunset on 20 May and sunrise on 21 May, the foster nest was blown out of its nest tree by a severe storm. Authorized volunteers recovered all three eaglets on the morning of 21 May in an adjacent grass field. A volunteer transported the recovered brood (now ~9-10 weeks old) to Operation

Wildlife where staff examined them and found all three eaglets to be in good health. On 22 May, the Evergy Green Team constructed an artificial structure in the foster nest tree. The attending adult eagles remained in the nesting territory and observed the construction from a distance of about 0.15 kilometers. All three nestlings were placed into the artificial nest structure at ~1400 on 22 May along with three large fish carcasses to provide food for the eaglets. The adults returned to the nest tree at ~1600 and entered the artificial nest structure with the three eaglets before sunset on the same day. On 23 May, volunteers observed the attending pair of adult eagles actively feeding all three eaglets. All three juveniles fledged from the artificial nest structure between 4 and 13 June.

DISCUSSION

Research studies have demonstrated that avian parents will sometimes accept and raise foster nestlings under both artificial contexts (Holcomb 1979; Bird et al. 1985) as well as naturally occurring brood parasitism (Petrie and Møller 1991). Bald Eagles are not known to participate in any form of brood parasitism, and few attempts of artificial fostering circumstances have been documented in the literature. Wiemeyer (1981) describes one series of attempts where 12 Bald Eagle captive-hatched nestlings were placed in 12 active wild nests at 2.5–6 weeks of age. In this study, 11 of the 12 fostered eaglets were accepted in their foster nests and survived to advanced stages of development or fledging. In addition, Postupalsky (1975) had success fostering 9-week-old eaglets into two different nests in 1974. These studies both limited fostering attempts to nests with <3 biological offspring present. The outcomes of these attempts along with our own, indicate that Bald Eagle parents will accept foster nestlings up to the normal maximum brood size for the species.

Our attempt was the first time a displaced eaglet has been placed in a foster nest in Kansas. In an outcome consistent with other Bald Eagle fostering attempts (Postupalsky 1975, Wiemeyer 1981), the foster parents in our study readily cared for the foster eaglet and raised it successfully. Our attempt at introducing a foster eaglet into an active nest was followed by the unexpected added challenge of the foster nest being destroyed by severe weather. The attending adults at the foster nest stayed in the vicinity and quickly returned to caring for all three nestlings after the construction of an artificial nest and subsequent return of the young.

In recent years, our team of eagle nest watch volunteers documented an increase in the number of Bald Eagle nests destroyed by severe weather. The nest support structure generally fails during severe weather when the eyrie is saturated with heavy rainwater and there are powerful wind gusts. As the Bald Eagle population continues to expand in Kansas, we expect fallen nests and nest trees to become increasingly common. When eaglets survive the fall of the nest uninjured, the fostering technique implemented in this instance appears to be a viable option for keeping eaglets in the wild. In addition, when the nest tree is accessible with heavy equipment, the construction of an artificial nest structure is a feasible alternative for returning the eaglets for their parents to raise.

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