

Kentucky Bald Eagle Nest Monitoring Plan



Last updated March 1, 2021

Background

To monitor Kentucky's nesting Bald Eagle population, the Kentucky Department of Fish and Wildlife Resources (KDFWR) conducted aerial and ground surveys of all known nests, statewide from 1986-2019 (Figure 1). Due to a high concentration of suitable habitat, the majority of eagle nests were located in western Kentucky from 1986-2005. However, Bald Eagle nests in central and eastern Kentucky became increasingly common during 2006-2019 (Figure 2). Kentucky's nesting Bald Eagle population grew at a rapid pace during this same timeframe. In fact, the number of occupied Bald Eagle territories jumped more than 400% from 43 in 2006, to 187 in 2019 (Figure 1).

The Bald Eagle met criteria for removal from the U.S. Fish and Wildlife Service's (USFWS) Federal List of Threatened and Endangered Species and the species was delisted in August 2007. However, Bald Eagles still remain protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. To ensure the species continues to succeed, minimum levels of nest monitoring must continue until 2027 (USFWS 2009).

COVID-19 related restrictions led to a pause in Kentucky's Bald Eagle nest survey in 2020, and monitoring objectives were reevaluated that year. Bald Eagles have shown a fantastic recovery and monitoring all known nests statewide required significant effort given the growing number of nests. Considering limitations in staff time and funding, monitoring objectives were revised in 2020 to reduce the amount of time and effort spent monitoring Bald Eagles, while still maintaining a high quality dataset for the species.

The revised study design emphasizes more efficient surveys and expenditures of monitoring funds. Starting in 2021, a rotating regional subset of nests will be monitored each year instead of monitoring of all nests statewide. An analysis of Kentucky's statewide Bald Eagle nest monitoring data 1986-2019, is in progress at Eastern Kentucky University (EKU) and the preliminary results of that analysis helped guide the following study design. This analysis involved spatial habitat modelling which will direct future surveys to areas where eagles may be nesting, but have not already been discovered.

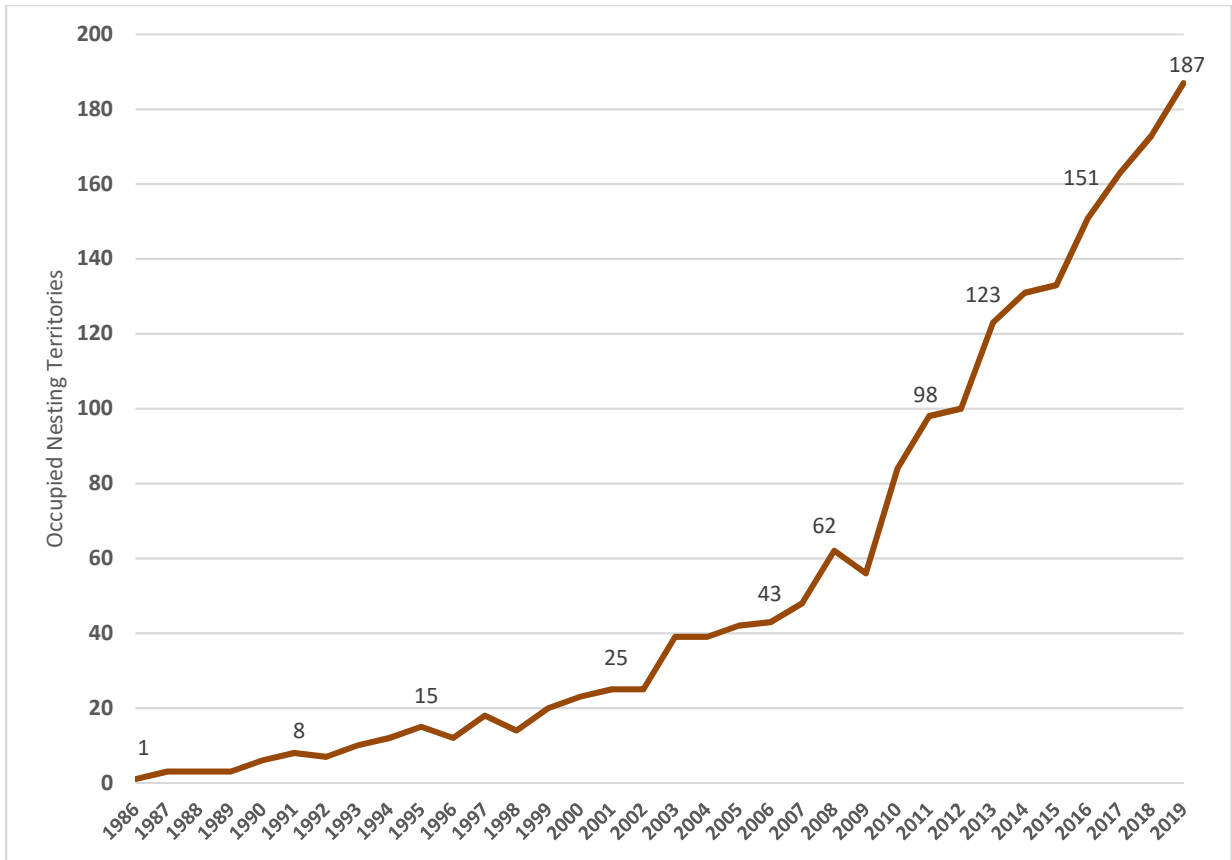


Figure 1. Occupied nesting territories for Bald Eagles in Kentucky 1986–2019.

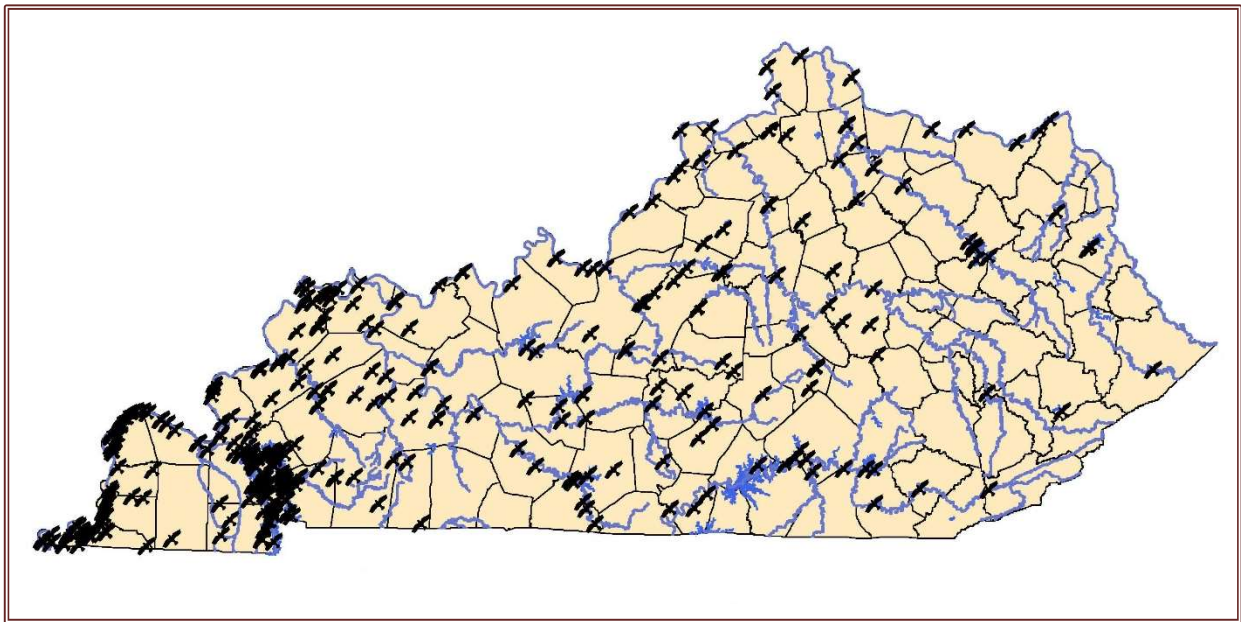


Figure 2. Intact Bald Eagle nests in 2019.

Revised Survey Effort- Goals and Objectives

- Maintain a statewide map and database for intact Bald Eagle nests in Kentucky.
- Monitor the number of occupied Bald Eagle nests within rotating regions.
- Contribute data to the USFWS for post-delisting endangered species monitoring.

Revised Methods

From 1986-2019, KDFWR conducted aerial surveys of known Bald Eagle nests (west of Frankfort) in March. Nests that could not be covered during the aerial survey (e.g. eastern Kentucky) were checked in late winter or early spring by boat and ground. Starting in 2021, one of three regions will be surveyed via helicopter for Bald Eagle nests each year (Figure 3). Regions will be rotated so that a different region is surveyed each year and the same order will be maintained throughout the duration of the project.

Regions were delineated with the following considerations: KDFWR Wildlife Regions, EKU habitat modelling results, known nest density, flight time and annual budget consistency. The resulting three regions are as follows: Western Kentucky (27 counties), Central Kentucky (46 counties), and Eastern Kentucky (47 counties). Known nests will be checked during the survey and suitable habitat where no nests have previously been documented (as identified by EKU's recent modelling effort) will be searched when feasible. Surveys will start with the Central Kentucky Region in 2021.

Helicopter surveys will occur in mid-March (during the incubation/early nestling period) to keep data comparable to past efforts. As in the past, the status of each nesting territory will be determined as "occupied" or "unoccupied". A territory will be deemed "occupied" if it contains a nest which was recently built or maintained by eagles, adult birds were seen at a nest or there was evidence of reproduction (incubation, eggs or chicks observed) during the breeding season (USFWS 2009, Slankard 2019).

Monitoring efforts will focus on confirming nest status each year. Since this aspect of the nest monitoring has been very consistent through the recovery of this species, most longer-term analyses are likely to be based on this parameter. Although nest success was previously monitored and reported, since 2017, monitoring efforts have not focused on nest success. Monitoring for nest success (i.e. young fledged) is more costly and time-intensive and the growing number of nests presents a real challenge for collecting this data. Nest success may still be monitored at select locations where volunteers or staff members are interested in doing so and this information will continue to be recorded in KDFWR's database. However, given the likelihood of sparse nest success data, we do not plan to report totals for nest productivity and success to prevent their misinterpretation.

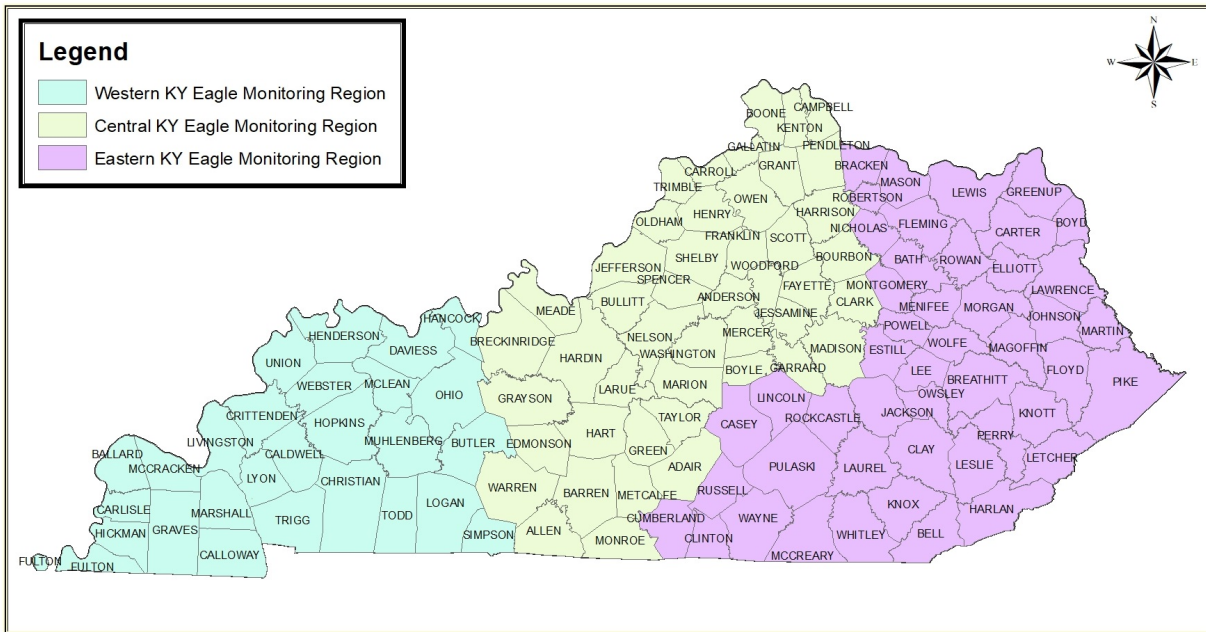


Figure 3. Bald Eagle nest monitoring regions. Regional monitoring will start with the Central Kentucky region in 2021.

Expected Benefits and Deliverables

The aforementioned methods should allow KDFWR to accomplish monitoring objectives, while minimizing the resources required for Bald Eagle nest monitoring. Costs and staff time needed to execute this project will be about 50% of previous levels. In addition, although each nesting territory will be checked once every three years, the new study design will likely result in better knowledge of the nesting distribution of Bald Eagles statewide. In the past, flight surveys only covered the western portion of the state and revised methods will allow for flight surveys in areas never before surveyed by air.

Data will be stored in the same database as past monitoring data and recorded similarly for easy comparisons. A report containing project results will be compiled and released publicly each year. Each report will contain regional data from recent years, as well as a summary of historic data. The number of known nests monitored for occupancy, as well as the number of new nests discovered will be also be reported to monitor the growth and stability of the population.

Literature Cited

Slankard, K. 2019. 2019 Bald Eagle Nesting Activity in Kentucky. Unpublished report. Kentucky Department of Fish and Wildlife Resources, 1 Sportsman’s Lane, Frankfort, KY.

USFWS. 2009. Post-delisting Monitoring Plan for the Bald Eagle in the Contiguous 48 States. p. 75. Department of the Interior, Washington D.C., USA.