

Delaware Kestrel Partnership 2018 Nest Box Monitoring End-of-Season Report

INTRODUCTION

In response to state-wide and regional declines, the Delaware Kestrel Partnership (DKP) aims to create American Kestrel nesting habitat by installing and monitoring nest boxes to document and assess nesting activity, productivity and success of breeding populations of this state-endangered raptor throughout Delaware. DKP thanks you for your cooperation and support in allowing our program to utilize your lands for our efforts.

2018 SEASON SUMMARY

Each year our monitoring program learns more about our nest boxes and about Delaware's American Kestrel population. This knowledge helps to inform nest box placement and monitoring methods for future breeding seasons. To prepare for the 2018 nesting season, DKP was hard at work over the fall and winter months installing new nest boxes, relocating existing nest boxes to more suitable habitat, and making retrofits to all nest boxes in an attempt to provide better nesting opportunities for potential breeders. DKP also installed predator guards on all nest boxes, except those which could not accept a guard (e.g. boxes on buildings.)



During the 2018 breeding season, DKP monitored a total of 72 nest boxes across the state. This includes nine new installations, 15 nest boxes inherited from other programs and two nest boxes that were removed based on location and inability to monitor the nest box. Currently, 53 nest boxes are located in New Castle County, 14 nest boxes in Kent County, and five nest boxes in Sussex County. With 74% of nest boxes located within New Castle County, DKP continues to aim to expand the nest box program to attain state-wide coverage.

Overall, a total of seven nest boxes were active this year and egg laying occurred in six of those seven boxes (86%). In total, 30 eggs were laid, with 4.3 eggs laid per active box. Six of the seven active sites were also active the previous year. The seventh site had only been installed since December of 2017.

Of the seven active nest boxes observed this year, two did not produce any chicks. DKP hypothesizes that one of the nest boxes experienced predation in the egg laying phase, prompting the nesting pair to abandon the site. The other site showed promise, with evidence of an actively breeding pair and use of the nest box as a perch for hunting, but the pair elected not to use this site to nest for reasons unknown.



A total of five nesting pairs produced 21 chicks (3 chicks/active nest box). Of those 21 nestlings, DFW outfitted 15 chicks (eight female, seven male) with a USGS aluminum band, took morphometric measurements, and collected a feather sample from one individual of each brood to send to the American Kestrel Genoscape Project (<https://fullcyclephenology.com/>). One chick was not old enough to accept a USGS band. A brood of five hatchlings were not present inside its nest box at the time of banding. They may have been victims of predation. Through post-banding monitoring, DKP confirmed likely fledging of all 16 young from the four successful boxes.

In addition to nestlings, six adult female Kestrels were captured in their nest boxes and banded this season. One of the adult birds was already banded. Using the band information, we were able to determine that this female was just over a year old and came to Delaware after being banded in Hunterdon, New Jersey the previous year.



NEW THIS YEAR

In addition to monitoring breeding activity and banding American Kestrel nestlings, DKP also opportunistically captured and banded adult American Kestrels breeding in the nest boxes. DKP joined up with New Jersey Department of Environmental Protection to gain hands-on experience safely capturing breeding adults in their nest boxes. Capturing and banding breeding adults provides an increased opportunity to re-capture (and learn about) banded individuals over the course of their life.



The Brandywine Zoo also produced a clutch of captive bred Kestrels from a pair living at the Zoo. This clutch of 5 chicks was released at Middle Run via hacking. There are currently no available protocols for hacking American Kestrels, though there are some for similar species (Mauritius Kestrels *Falco punctatus*, Eurasian Kestrels *Falco tinnunculus*, Peregrine Falcons *Falco peregrinus*) that were used to model our methods. The purposes of this hacking is to experiment with best practices and protocols in the case that this species may need reintroduction from extirpated territories as we continue to see declines across North America.



DKP also abated European starlings found in the nest boxes in efforts to provide optimal nesting conditions. American Kestrels can and will sometimes evict starlings from nest boxes on their own, but controlling for this invasive species both contributed to minimizing the starlings' potential impact to native species and hopefully made the nest boxes more appealing. Tri-State Bird Rescue and Research, Inc. and Dr. Erica Miller provided training support for proper abatement techniques to field staff and volunteers.

THANK YOU!

DKP would like to thank all of our landowners for allowing us to access and utilize their properties, our volunteers for their hard work collecting data, Hodgson Vo-Tech High School and Mr. Tucci and his carpentry classes for building over 80 American Kestrel nest boxes over the last few years, Bill Pitts of New Jersey Department of Environmental Protection and Dr. JF Therrien of Hawk Mountain Sanctuary for training our team in capture techniques, the Sussex Bird Club for their donation of a go-pro unit and accessories, the Fresno Chaffee Zoo and International Association of Avian Trainers and Educators for their supporting grants, as well as all DKP partners for their continued support and assistance in this program.

2019 PREPARATION

Following the 2018 breeding season, DKP has begun and will continue to coordinate with landowners to alter, relocate, or remove nest boxes based on information collected throughout the current and previous breeding seasons. The nest boxes will remain open year-round, unless a landowner specifically requests that they are closed, to allow for American Kestrels to investigate potential nesting sites; Over-wintering Kestrels may roost in these nest boxes during the off season and it may take several years for a Kestrel breeding pair to utilize a nest site. Note that although some of these nest boxes have been installed for several years, it may take several years for Kestrels to become established in the boxes.

DKP is also interested in identifying new sites to install nest boxes, and in particular we hope to increase the number of boxes in Kent and Sussex Counties.



American Kestrel Partnership of The Peregrine Fund, Delaware Division of Fish and Wildlife,
Delaware Division of Parks and Recreation, Delaware Nature Society, Delaware Zoological Society,
Delmarva Ornithological Society, Tri-State Bird Rescue and Research

ONGOING FUTURE PROGRAM GOALS

In 2018, our team attended a training workshop on Motus radio technology. Motus is a collaborative radio station network organized by Bird Studies Canada which utilizes “nanotags,” very small tracking devices that can be applied to a variety of migratory species. The DKP is exploring the possibility of installing 1-2 Motus receiver stations in New Castle County, which, combined with the two stations in lower Delaware, would give coverage of most of the state. Nanotags could be applied to American Kestrels banded in Delaware and would provide us data on dispersal and migratory behavior of birds banded in Delaware.

Additionally, we hope to gain experience with trapping Kestrels outside of nest boxes in 2019 so that we may begin to capture and band adults outside of nesting season. This work will help to continue to fill gaps in Kestrel biology, particularly because it is critical that survival rates outside of nesting season need to be better understood.



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Delaware Kestrel Partnership 2018 End of Season Report Data

Nest Box summaries by landowner

Summaries

Federal and State Lands

American Kestrel Nest Box Summary:	2017	2018
Nest boxes on State/Federal Lands:	16	27
Nest boxes installed for the 2018 Breeding Season:	8	6
American Kestrel sightings:	21	33
American Kestrel nesting attempts documented:	2	1
Eggs laid	4	5
Chicks hatched	4	5
Successful nesting attempts documented:	1	0
Number of American Kestrel chicks banded	4	0*
Number of American Kestrel Adults banded	0	1
Number of American Kestrels banded:	4	1

**predation event occurred after chicks hatched*

Universities

	2017	2018
Nest boxes on University land:	4	5
Nest boxes installed for the 2018 Breeding Season:	0	1
American Kestrel sightings:	23	30
American Kestrel nesting attempts documented:	2	2
Eggs laid	5	10
Chicks hatched	5	5
Successful nesting attempts documented:	1	1
Number of American Kestrel chicks banded	5	4*
Number of American Kestrel Adults banded	0	2
Number of American Kestrels banded:	5	6

**one chick was not banded due to age/size*

Private Landowners

American Kestrel Nest Box Summary:	2017	2018
Nest boxes on Private Lands:	6	7
Nest boxes installed for the 2018 Breeding Season:	2	2
American Kestrel sightings:	7	6
American Kestrel nesting attempts documented:	3	0



Municipal Landowners

American Kestrel Nest Box Summary:	2017	2018
Nest boxes on Municipal Land:	7	7
Nest boxes installed for the 2018 Breeding Season:	3	0
American Kestrel sightings:	0	0
American Kestrel nesting attempts documented:	0	0

Private Organizations

	2017	2018
Nest boxes on Private Organization Land:	19	33
Nest boxes installed for the 2018 Breeding Season:	1	9
American Kestrel sightings:	59	52
American Kestrel nesting attempts documented:	4	3
Eggs laid	8	15
Chicks hatched	8	11
Successful nesting attempts documented:	2	3
Number of American Kestrel chicks banded	0	11
Number of American Kestrel Adults banded	0	3
Number of banded American Kestrels Hacked:	n/a	6
Number of American Kestrels banded:	8	20

Grand Total

	2017	2018
Nest boxes monitored:	52	79
Nest boxes installed for the 2018 Breeding Season:	14	18
American Kestrel sightings:	110	121
American Kestrel nesting attempts documented:	11	6
Eggs laid	17	30
Chicks hatched	17	21
Successful nesting attempts documented:	4	4
Number of American Kestrel chicks banded	9	15
Number of American Kestrel Adults banded	0	6
Number of banded American Kestrels Hacked:	n/a	6
Total Number of American Kestrels banded:	17	27

