

# FINAL Report

## Shenandoah Valley Raptor Study Area

### August 2, 2024

#### We are *DONE* with the 2024 kestrel breeding season

This year was a bit disappointing for kestrels - and barn owls too. Lance and I installed 3 new kestrel nest boxes early in the spring, and 2 were occupied by kestrels. It took 29 days from installation to getting the first egg for one of the boxes! The other new box was occupied 46 days later, and the third wasn't used by kestrels at all, just starlings and bluebirds.

We also began monitoring another nest box that had been installed (very high on a pole) by somebody else. We asked around and eventually tracked down the owner and got permission to band the young. This brood of 5 babies was extremely hungry. At the time, we were fortunate to have a road-killed fledgling grackle on us to feed the young kestrels. In spite of the supplemental food, the owner reported 1 of 5 chicks had disappeared from the nest box (presumably died and was eaten by siblings).

Although the study area had a few more nest boxes this year (86) than in previous years, 3 boxes were taken over by fox squirrels who continued occupying boxes after April 1<sup>st</sup>; thus, the number of AVAILABLE boxes this year was 83. Kestrels used 71 of the available boxes this year, making 75 nest attempts.

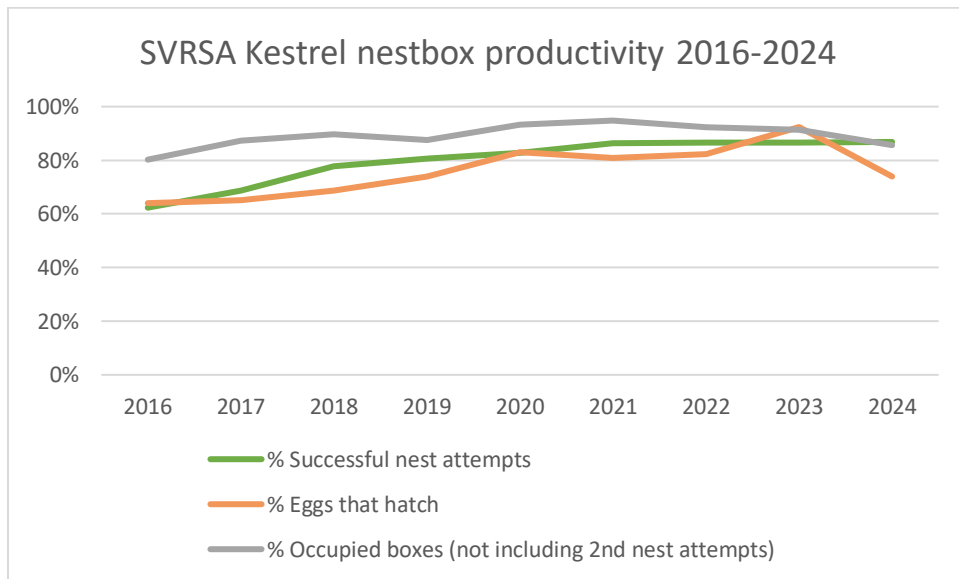


While banding a late clutch in box # 68 in late July, we invited this passing boy to see what we were doing, and he asked Jill to take this photo. It is nice when people take an interest in our research!

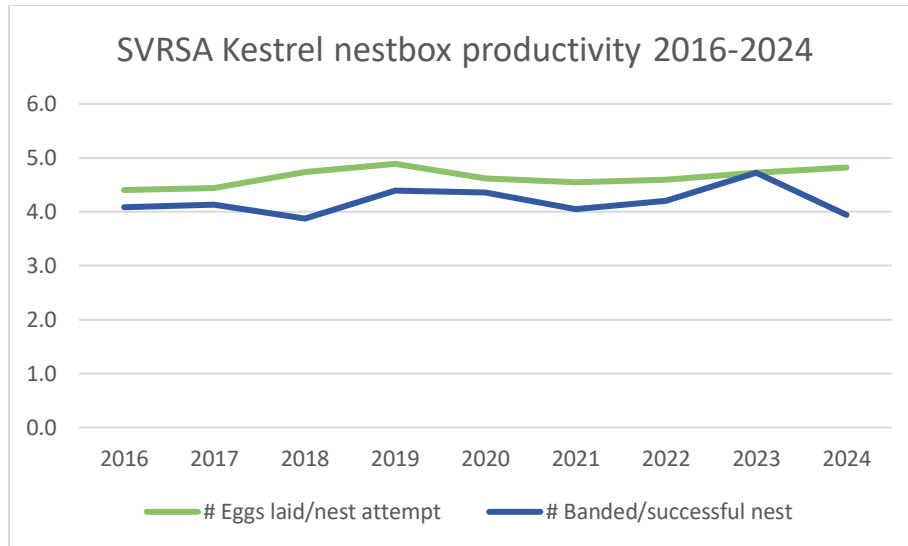
As of late July, 12 of 83 available boxes (14.5%) were never occupied by kestrels in 2024. Of these 12 boxes, 9 boxes (75%) had starling nest attempts, 2 (17%) had Eastern Bluebirds, and 2 boxes had NOTHING AT ALL (which is very unusual)! The numbers 9 + 2 + 2 don't add up to 12 because one of our newly installed boxes had a starling (that we removed) followed by a bluebird nest attempt.

Here is a summary for 2024 kestrel productivity, as compared to long-term averages from the previous 8 breeding seasons in the SVRSA (2016-2023):

- Kestrels laid at least 1 egg in 71/83 boxes = 85% occupancy, 3% lower than the long-term average. The gray line on the graph below shows relative occupancy rates over the past 9 years.
- There were the same number of nest attempts as last year but we had lower productivity this year due to a poor hatch rate. The orange line on the graph below shows the decrease in hatch rate this year. Of 366 kestrel eggs, only 271 hatched (74%), and 11 of the chicks did not survive to banding age - so only 260 kestrel nestlings were banded this season.



- Probably the best measure of kestrel productivity is the number of kestrels banded per successful nest (navy blue line on graph below): this year it was 3.9, compared to the long-term average of 4.2 (so down 7% for 2024). The green line is # of eggs per nest attempt, which has been relatively steady over the past 9 years. Compared to last year's record high total of 307 kestrels banded, gross kestrel productivity went down 15% in a single year.



- There were only 4 second nesting attempts in failed boxes this year; and all but 1 succeeded in producing nestlings. The unsuccessful 2<sup>nd</sup> nest attempt ended when the adult female, a known 7-year-old bird hatched in the SVRSA in 2017, died in a nestbox! It seems that 7 years is the age



limit for females to breed in the study area, as we have never recaptured any older than 7. Below is the female that died in the box on a late clutch. Remember how hot it got this July and, we all hear that older individuals are more susceptible to heat stress. Just saying...

It seemed like a “less than optimal” year for barn owl productivity also. This year we recorded 40 nestlings in 10 active sites. Several owl clutches had unhatched eggs, corresponding with the poor hatching rate of kestrel eggs this year. Below is an unhatched barn owl egg that had a nearly fully developed embryo.

Under optimal conditions barn owls can produce huge numbers of fledglings, but they only averaged 4 fledglings per successful nest this year. Several young barn owls were underweight at the time of banding. Unsurprisingly, two silo owners who checked their broods reported that some banded young owls died before fledging. We suspect the vole population is low this year, causing baby barn owls’ starvation.



## Ben Spory's Banding Activities ~ by Ben Spory

Of the 5 kestrel boxes I am monitoring south of Bridgewater, 4 of 5 were occupied by kestrels this breeding season. Three of the boxes produced a total of 15 young. In the 4th kestrel-occupied box I captured a female kestrel and I noticed that she was already banded. After reporting the band to Bird Banding Lab, I found out that she had been banded as a nestling 2 years ago in one of Alan Williams' boxes near Luray. Unfortunately, she abandoned this box with 4 eggs. Stats for the Bridgewater kestrel boxes: 80% occupancy, 75% success, and an outstanding average of 5.0 young per successful box!



Ben Spory assessing health of an adult female kestrel captured in a Bridgewater nestbox.

I also identified and surveyed 10 new potential barn owl sites without success, but I was able to band 3 of 4 (one was too young/small to band) young barn owls at a regular nesting site just west of Harrisonburg. Thanks to all the wonderful help from: Jonathan Drescher-Lehman, Martha Wyse, and Chris Lehman, all of whom also help me operate the Saw-whet banding station at

Highland Retreat near Bergton. Fingers crossed for a good Saw-whet owl banding season this November!



Jonathan Drescher-Lehman holding an adult kestrel near nestbox at a freshly cut hayfield.



Chris Lehman reaching for nestling kestrels in bucket awaiting bands.



Martha Wyse learning how to band under Ben's direct supervision. She also took the time to come over to the SVRSA and help us out too.



## HIGHLAND COUNTY BANDING SUMMARY ~ by John Spahr

### AMERICAN KESTRELS

We had an 81% occupancy (59 of 73 boxes) with clutch initiations. Hatched nestlings survived to banding age in 43 boxes (59%); but, at least 5 boxes were, for various reasons, not revisited to band the nestlings. I presume that most nestlings survived. The average brood size at banding was 4.2. Twelve of the boxes had evidence of predation, complete or partial loss of eggs or nestlings in 11 boxes and a dead female another box. Two of these failed boxes had second clutches with nestlings that survived to banding age.

Overall, in Highland County we banded 204 kestrels this season: 178 nestlings (81 male, 79 female plus 18 too young to determine sex) and 26 adults (19 Female, 7 Male). We also recaptured 25 adults that were previously banded by us in the prior 3 years. There were no “immigrant kestrels”, aka “foreign recaptures” banded by someone else in another location.

### EASTERN SCREECH OWLS

I banded 15 adult screech owls this winter/ spring, 6 of which were in boxes installed for kestrels! I think the owls like day-roosting in these sun-exposed kestrel boxes because of the warmer microclimate. There were no recaps. There were 3 boxes with successful nesting, which is about average for this county. However, the total number of nestlings was higher than normal. This year's three successful boxes yielded clutches of 6, 5 and 4, all appeared healthy at banding. In prior years most boxes had 3, with a few at 2 or 4. I think I disrupted a potential nesting in another box, where I found both male and female roosting together (15 April). I banded the male. The female was banded in the same box back in February. She had a large incubation patch. After examining her, I placed her back in the box, but she exited and flew into a nearby tree. I checked back twice within the next two weeks and found neither owl.



This young screech owl jumped out of the box as I showed up to band the youngsters in June. We caught the owl, banded it and replaced it in the box with its banded siblings.

In a recent memo to all bird banders in North America, USGS wrote:

“If you discuss or share your banding projects to any public platform or social media, please indicate all banding, marking, and sampling is being conducted under a federally authorized Bird Banding Permit issued by the U.S. Geological Survey.”

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