3rd Update on the Shenandoah Valley Raptor Study Area May 17, 2023

Greetings, raptor fans! After an extremely busy April and early May, we have documented 74 kestrel nest attempts in the 81 available SVRSA nest boxes (91% occupancy). Last year we had a 93% occupancy rate - so we are on track, given that the vast majority of kestrels have already attempted to nest by now (see graph below). Of the 74 female kestrels laying eggs in our boxes, we've managed (with lots of help) to capture 68 females to date (91.9%). We are still trying to capture the last few holdouts. Some of these birds flush out of the box as soon as they hear an unexpected sound. It is best to try to catch these "flighty" kestrels on a windy day so our approach with the plug is not so obvious. Below is the graph of where we are in the egg-laying stage based on recent history.



The breeding female kestrels that we've caught so far consist of:

- 24 unbanded "wild" birds, (ranging in MINIMUM age of 1 to 2 to who knows - since we cannot tell how old they are once they grow adult plumage at 2) = 35%
- 28 recaptured previously wild birds (ranging in MINIMUM age between 2 and 7 years old) = 41%
- 14 recruits from SVRSA boxes (ranging in age between 1 and 7 years old) = 21%
- 2 foreign yearling kestrels (one from PA and the other from Zig's box in Bridgewater) = 3%.

Remarkably, the average age of the recruited females is 3.7 years old which equals with the average **minimum** age of the recaptured previously wild birds at 3.8 years old! Anyone with knowledge of population dynamics care to comment?

In addition, we serendipitously caught 8 male kestrels inside boxes. One male kestrel was caught twice in the same box incubating 5 eggs. He had been banded as a SVRSA nestling in 2020 so he is now a 3-year-old recruit. Unfortunately, he has some serious injuries to his legs and feet - which may be why he has been relegated to incubating eggs rather than hunting for the family like most male kestrels.



His right leg appears to have sustained a serious fracture that is healing at an unnatural angle. His right foot is nonfunctional – except, possibly, to stand on (if he can tolerate the pain). The other foot has problems too: left inner toe (nearest the camera) is frozen in a "closed" position so it's of no use catching prey, the left middle toe is nonfunctional - possibly due to a clipped or injured tendon (a clue is that the talon is excessively long, as it is not being used and worn down properly); but the left outer toe and back hallux are functional (they can grip your finger). So, this male is quite handicapped, and it will be interesting to see if the pair can support their brood to fledging age.



To our delight and surprise, on May 10th we found this fence-mounted kestrel box occupied by a female kestrel on 5 eggs. This female was captured previously in a nearby (standard height) kestrel box WITHOUT eggs on April 27th. She abandoned that higher box for this lower box. We hope this year at least 1 of our 4 fence-mounted kestrel boxes will produce young. At present, we have had 3 fence-mounted boxes occupied by kestrels: 1 has already failed (a 1 egg

clutch that we found abandoned and cracked in half), and the 4th box is still vacant although we had captured a female inside it too without eggs. She also moved to a different box (standard height) to lay a full clutch of eggs. So, one female caught in a high box with no eggs went to a low box and laid 5 eggs while another female went from being captured in a low box with no eggs to a high box where she laid 5 eggs. So unpredictable...

Kestrel Nest Failures & Successes

So far this season we have had a couple of known and suspected nest failures. The aforementioned female that abandoned her lone kestrel egg in a fence box. Another potential failure is a female caught in a different box with 1 egg; she abandoned it to lay a full clutch in the box next door. Aside from that, it appears this year we've only had one kestrel nest box near Bridgewater that has been depredated, probably by starlings. When we caught that female on 3 kestrel eggs in Bridgewater box # 423 last month, the box had no bedding (a hallmark of starling activity). So, as our protocol calls for, we added more bedding and rearranged her 3 eggs atop it. However, we suspect starlings returned and destroyed the kestrel nest in this case since the kestrel eggs were gone and the bedding had been removed again.

Unusually, we've found no black snakes killed on the road this season and no evidence of kestrel nest depredation from black snakes either. Noticeably fewer snakes around our house too.

Predictably, the killdeer nest at the pharmacy drive thru has failed. No birds or eggs in sight.



This is not a good sign! Kestrel eggs are scattered which usually happens in a failed nest. In an active nest box, the eggs are found in a neat array, see below.



This is an unusual 6-egg clutch which is arranged so a kestrel can attempt to incubate it. Fun fact: most American Kestrel clutches over 5 eggs have lower hatchability because (we presume) the physical size of the female's brood patch is too small to properly incubate more than 5 eggs. We've had a couple of 7-egg clutches over the years and most of these only hatch 3 eggs (less than 50%) – compared to the overall hatch rate of 73% on the average clutch size of 4.2 eggs!



Here's a typical 5 egg clutch with a male for size reference. Remember the female is slightly larger than the male and she does most of the incubation.

We do a mini-health assessment on every kestrel we handle. The most important factor we check is the weight of the kestrel. Years of experience holding wild kestrels lets us know if the kestrel is thriving or starving. It is most helpful to feel the "keel" or sternum of the kestrel to see if it's pectoral muscles are normal or not. We do not actually weigh the birds because it is nearly useless data, as mass depends greatly on the last time the kestrel ate and defecated. The state of the keel is more indicative of the long-term health of the kestrel than the actual mass. Our next assessment involves looking for injuries, especially on the legs and feet. As most of a kestrel's body is covered with feathers, it is more difficult to assess any injuries that may be masked by plumage. The eyes are checked, along with the beak, cere, and feather condition. Any missing feathers or obvious injuries are noted for future reference and to put on the "most wanted" list. Nestling kestrels are checked for problems with incompletely swallowed food items which happens

pretty often! Sometimes a bone or bunch of feathers catches on the gape (mouth) of the kestrel resulting in a situation where it cannot ingest the food and/or make a casting. Both these situations can be lethal to the chicks. At times, the problem can be resolved during banding by removing the stuck food item. We also check our boxes at about 6 weeks after banding them to verify that all banded babies have fledged. On average, 98% of banded chicks do fledge.



Sweet success! These are from one of the earliest clutches of the 2023 season. These 5 vibrant young kestrels are at the ideal age for banding. To date, we've banded 12 male and 11 female kestrel nestlings with **many** more to follow... haven't even hit the hump yet! Peak clutch initiation date is April 6, add 9 days to lay a clutch of 5 at rate of 1 every other day, add 30 days incubation, and add 16 days for babies to grow to the ideal banding age which means peak should occur around May 31st.

Barn Owls



Lovely clutch of 6 barn owl eggs with a molted BO feather!

We have been fairly lax this year in checking barn owl nest sites. In spite of this, we have managed to band 10 young barn owls in 2 breeding sites, both in unused silos. A couple more barn owl broods will be banded in June - but it's not a "blockbuster" year for barn owls for some reason. It looks like many suitable barn owl nest sites that were active in the past don't have barn owls this year. This happened in 2010 after a terribly harsh winter with high barn owl winter mortality but this past winter wasn't very bad, so there must be another reason for the current barn owl paucity. We'll know more once the breeding season is over.



Corine jumped into the first silo on May 5th and expertly captured each of the 5 barn owlets, holding them steady while Jill placed bands on their legs. Photo by Robert Gettleman.

We've switched from lock-on barn owl bands recently to "butt-end" bands which are much smoother and easier to work with. Decades ago, the bird banding lab (BBL which is part of USGS) decided that all raptorial birds needed lock-on bands so they couldn't be removed by the "stronger" raptors. See the 3 types of bands on BBL's page: <u>About Federal Bird Bands | U.S. Geological Survey (usgs.gov)</u>

However, placing lock-on bands required a lot more time and effort with no discernable benefit to bird or the bander. We can find no evidence of birds removing leg bands except for parrots and cardinals. So, I obtained permission to switch to the easy and quick butt-end bands for our raptor research. Also, BBL has allowed butt-end bands for other raptors such as the saw-whet owls who get special narrow butt-end bands. Win-win and we like it!



Jill holding a young barn owl that has just been banded and is about to be returned to the silo. Photo by Robert Gettleman.



Lance assessing a young barn owl. Photo by Robert Gettleman.

Screech Owls

Just for a hoot (pun intended), we checked a box in the Dayton Arboretum and found an adult gray phase Eastern screech owl with **at least** 2 large fluffy owlets. The adult is alarmed and has her "ears" extended away from her head (far left). We didn't band them because the box is in a large sycamore tree over a stream. We didn't want anyone (including us) falling into the water below. Also, the bottom of the box was ready to drop out, so we did not disturb these guys any longer than it took to take a photo with the endoscope.



Our plan is to remove the old decaying box and replace it after these owls fledge.

Thanks to our helpers!

As always, we like to acknowledge everyone who helps us in the field: Tim Rocke, Robert Gettleman, Corine Hagan, Ariel Derby, Jennifer Westoff, Abbie Oscar, and Stephen Maxwell.

Anyone who's interested can go to our Research Gate page to read any of our published papers: <u>ResearchGate</u>

Feel free to forward to friends and let them know we will add them to our email listif they contact us: Lance & Jill Morrowsaltlick2003@gmail.com

If you want to be removed from our updates, please contact us at above email.