

**Penultimate (5<sup>th</sup>) UPDATE ~ June 21, 2021**

# **SHENANDOAH VALLEY RAPTOR STUDY AREA**

**LANCE & JILL MORROW**

## **New banders**

John Spahr, a retired pathologist and officer/member of the Virginia Society of Ornithology, has been extremely active using his new banding permit in Highland County Virginia. Between February and June he has banded 17 screech owls and 169 kestrels in nest boxes. More to follow... and we'll be sure to summarize his research on our final update.



John holding male kestrel trapped in Highland County this winter with co-researcher Patti Reum looking on.

Our other new banding permittee, Ben Spory, a Virginia Master Naturalist, has been regularly helping us with kestrels and barn owls for several years. Now that he has become a bird bander, he continues to help us within the study area and he has a couple of projects outside the study area as well. Ben has identified new barn owl nest sites south of the SVRSA and is monitoring 5 kestrel boxes south of Bridgewater in Augusta County. More than ever we appreciate Ben who has been a great help climbing up into silos and banding barn owls.



Ben with 1 of 4 young barn owls hatched on the floor of a retired silo. Note the numerous barn owl pellets littering the floor, a molted barn owl feather and shiny new bird bands on each of the owlets' legs. This site has been active every year since we began monitoring it in 2009.

Well done and thanks for all your work John and Ben!



Our papers have been published!!!

At long last (it has been about 3 years since we first submitted these barn owl papers), two of our barn owl papers have been published in Volume 91 of VSO's journal *The Raven*. One paper lists all the locations of barn owl sites within the SVRSA and makes suggestions for their improvement and the other paper we co-wrote with Mark Causey about barn owl productivity in Northern Virginia. Both are posted online at The Raven: [Current Issues Raven — VSO \(virginiabirds.org\)](https://vso.virginiabirds.org/current-issues-raven) and are also available on our Research Gate page: [ResearchGate](https://www.researchgate.net/publication/354111111)

We are also glad to have our long-term kestrel productivity paper published in the journal *Maryland Birds*. It summarizes the data we have collected on 608 kestrel nest attempts in our nest boxes within the study area from 2008 to 2020 and has several beautiful color photos! [\(17\) \(PDF\) Reproductive Parameters of American Kestrels \(Falco sparverius\) using Nest Boxes in the Shenandoah Valley of Virginia 2008-2020 \(researchgate.net\)](#)

Now for something completely different. . .

**Written and photographed by Nanette Mickle.** "I've known Lance and Jill since 2006 when they volunteered to travel to Woodbridge VA with their hounds to band the purple martins in my backyard colony.





Purple martin house and gourds with martins.



Jill banding her first purple martin (bird band code is PUMA) from a nest in Nanette's backyard.

Due in part to Morrows' mentorship, a couple of years later, I got my own banding permit and began using geolocators to track the martin's migration.



PUMA with geolocator on back and color band on leg. Aluminum bird band is on the other leg which is not visible in the photo.

Geolocators for songbirds were in their technological infancy when I began using them. They have come a long way, but the martins must still be captured upon their return from migration and the geolocator removed from the birds to download the data.

This is a short story of one such bird. Her 'name' is C850. She was banded in my colony as a 'second year' female in 2014 (which means she hatched in 2013). She is one of the rare birds which has successfully been tracked for two full migrations. As such, between captures, blood tests, feather pulls, weights and waiting for glues and nail polish to dry, she's had more than enough contact with me. She would dive-bomb me whenever I came around to do a nest check and even go as far as to warn the other birds when I came around with Sponge Bob (a long pole with a sponge at one end) which I used to trap returning geo-birds. She was one of those super tenacious birds who wouldn't stop her shrill screeching as long as she was in your hand and gave you faith that she would be sturdy enough to return home with her geolocator.

Over the past five years, I have had another such tenacious bird. It is a female Coopers hawk who has honed her skills at catching martins so well that I stopped putting geolocators on my



birds. In fact, she decimated my colony to about a third its original size. In addition to catching martins as they entered their cavities, she would perch on the gourd rack housing and wait for birds to come in to feed their young. The weights of many of the babies was so low that successful fledging was severely compromised.



At the beginning of the nesting season, the birds would come into their housing with a special ritual. They would shrilly squawk with something just short of the death scream. I assume this was to entice the hawk out into the open so they could see her. One or two of the martins would make a fake pass into the housing, which combined with the screeching would often make the Coopers run her first pass. The martins would scream some more and fly in a chaotic pattern in, around and thru each other with a few martins actually entering their cavities. This would commonly result in pass #2 for the Coopers. The procedure would go on for around 45 minutes, and into the dark with between 3-5 passes. I tried everything to stop her but my presence or me waving of a huge fishing net made no difference. One night, while I was on a ladder behaving like a crazy person, I could feel the wind of her wings as she swooped by.

I love hawks. Just not this one. In the beginning, when it was an occasional martin and I had plenty, I summed it up to nature's cycle. After a few years and more and more deaths, it became personal. So, with a not so heavy heart, I think she may have met her demise. Last year, she never returned from her break to incubate her eggs.

This year, my martins are back to singing and chortling on the gourd rack. No more almost-death-screams when they enter the cavities and babies are on their way to being hatched. I can once again enjoy the communal life of my colony and the joys of conducting regular nest checks.

On one particular nest check, I came upon a surprise which nearly brought me to tears. It was a bird which was still on the nest. It is not too common an occurrence because the lowering of the gourd rack gives the birds plenty of time to escape. But there it was and I picked it up to either band it or read the band to record the recapture. As I picked it up, it scolded me with a non-stop, shrill squawk. It was C850!!! This tenacious little bird had survived two geolocator tracked migrations and 5 years of Coopers hawk attacks! She is 8 years old and nesting on six eggs. In human years, she is approximately 100 years old. As I held her, and listened to her scolding, I realized something. That same shrill, just-short-of-the-death-scream squawk used to flush out the hawk, was hers.

The data I have recorded has been used in several journals such as PLOS ONE, Proceedings of the Royal Society, and the *Auk*, but here are a few fun facts based on 40 geotracked birds from my colony:

- 1) Average fall migration speed is 272 miles/day.
- 2) Craziest outlier on fall migration is A707 who travelled from Woodbridge VA to Florida (935 miles) in one day!! He rested for 12 days in Florida then flew 762 miles on the next leg!
- 3) Average spring migration speed: 365 miles/day which is 93 days faster than fall!
- 4) Average round trip migration: 8,257 miles.
- 5) Range of round trip: 7,127-10,211 miles.
- 6) Male round trip vs. female: 8,535 compared to 8,396 miles (difference of 139 miles).
- 7) Round trip miles of SY (one year old) birds vs. (ASY) older birds: 9,061 vs. 8,182 (difference of 869 miles)!

Thanks to Nanette for helping unravel the mystery of PUMA migration/breeding and for writing up a summary of her interesting research. Nowadays, most purple martins in the eastern US are produced in PUMA houses/gourds like hers.

## Recent barn owl banding adventures

With Tim Rocke's help we located a nest of 4 barn owls in a silo that we decided NOT to band due to dangerous conditions for the owls and ourselves. When this silo was retired it was about half-full of silage. Over the years the edges of silage within the silo receded from the south side of the interior wall forming a pedestal of silage inside the silo that was about 10 feet tall. The young owls were atop the pedestal and, at the time we found them, they were over 1 month old and could easily run and dive off the 10' cliff to evade capture. We feared they would have a

much tougher time getting out of the silo if we disturbed them and they ended up at the bottom of the silo so we left them alone after taking a photo. It was also dangerous for us because the 10' mound of crumbly old silage could have easily collapsed and trapped us against the side of the silo!

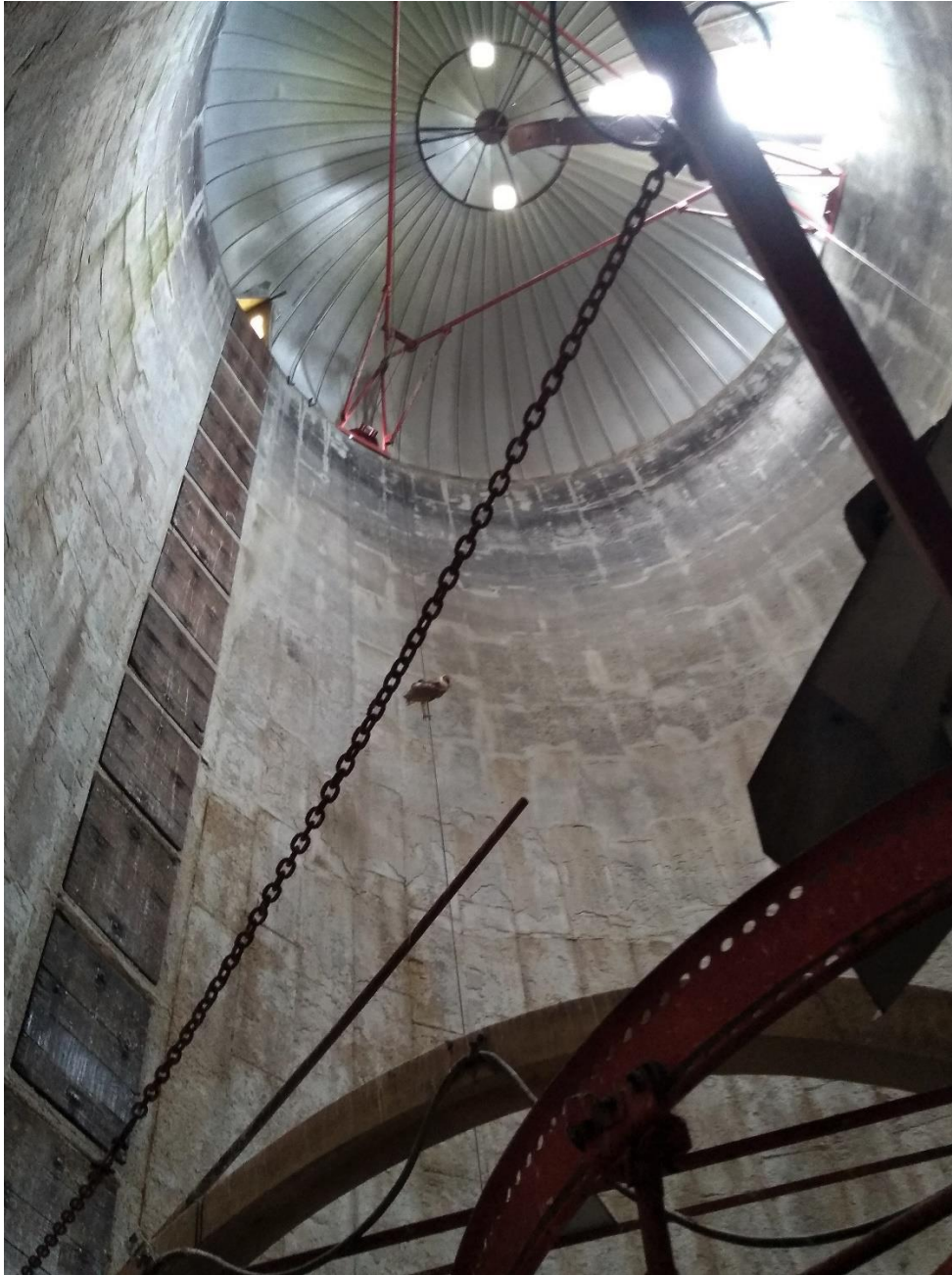


Four (minimum) young barn owls that were not banded. Thanks to Tim for the photo. The owls are on the silage pedestal that has pieces of torn black tarp. The 10' drop-off is just to the right of the largest owl (not in this photo).





Yesterday's discovery of a partial barn owl skeleton with a lock-on bird band. We had banded a 2019 nestling who apparently never fledged. Being a nerd, Jill measured the leg length from the synsacrum (pelvis) to talons at 12". You can also see the bones that form the cores of each talon which, in a living bird, are covered with blackish keratin.



This is a typical scenario for barn owls nesting in a retired silo: silage covered floor, metal equipment left inside, usually suspended from a cable going to the top and, of course, young barn owls raised within. Females are at their weakest while setting eggs for 30 days because the male owl brings in food. So, they sometimes climb “hand over hand” up the cable instead of flying out of the silo, as in the photo above. She was able to climb up and fly out the opening while we banded her chicks below.





Ben, with string of bands on his neck, and Tim holding the young barn owl for banding.





We relied heavily on Ben and Tim at this silo. The metal silo on the right is where we and John Spahr documented barn owl polygyny and co-wrote and published a paper in 2019 with Dr.

Spahr as lead author. This paper is available on our Research Gate page also: [ResearchGate](#). This silo has a lot of abandoned old dusty silage and the owls like to nest within caves in the silage. To get the 6 barn owls out for banding, Ben had to lie down with his head in the cave and herd them out with a stick he found inside the silo. After these barn owls came out of the cave, it was up to Tim to capture them so Ben could apply bird bands. Lance and Jill were outside listening to strange, muffled noises coming from the silo: barn owls screeching, bangs, scraping and voices and we had no idea they were having the time of their lives inside.

After that exhausting chore we found 2 more sites that looked suitable for barn owls so asked for permission to check the 2 retired silos. Both had fresh barn owl sign but no sign of breeding owls so we closed some bottom doors hoping that would entice them to nest on the floor in the future.



This is an old, retired hay dryer which, at first glance, looks like a silo. It has long been occupied by barn owls and we installed a nest box there about 10 years ago. The walls are made of



perforated metal which allows hay to be dried and cattle have access to it through feeding ports in the bottom.



Looking up inside the hay dryer. The bottom of our nest box is barely visible on the upper right (it looks a bit more orange than the other wood). Red arrow is touching it.



Inside this 24' diameter hay dryer there is a 5' x 5' square wood structure rising up through the center with lots of doors (presumably to adjust air flow). Ben climbed up the iron ladder on the right to investigate the nest box. Ben decided it was too awkward to band the 4 owlets at the box, so he secured himself with a climbing harness then loaded the chicks into a bag and lowered them down to Jill for banding. It worked out great because the owls were young enough that they let Jill band them without removing them from the bag (see photo below). Then we found out the new owners were planning on demolishing the hay dryer an adjacent silo soon! We explained that it would be best to wait until the owls are fledged in a couple months – but not sure we got through to them. By showing them the birds nesting on their land, we try to educate and engage the landowners because the birds' fate ultimately depends on it.



### Follow-up on various situations

The study area has had many kestrel boxes taken over by squirrels. This year 3 of 80 available boxes were used by fox squirrels. The photo below is an example of young fox squirrels who took over a box for almost 2 months.



This box, #122, was used by kestrels as soon as the squirrels left around 4/17/2021. The female kestrel had been using this same box for 3 years in a row and was forced to wait around for the squirrels to leave before she could commence with this year's brood.

All of the fox squirrels that were raised this year in 3 of our kestrel nest boxes fledged successfully with the last box vacated around 20 April. Probably hopped away through the field to be caught and eaten by a redtail hawk.



After squirrels vacated nest boxes, kestrels moved in and raised chicks in one box, starlings used one box and the third is still vacant. It is relatively rare to have a vacant box in the SVRSA, but we have seen it a few times when a single male kestrel with no mate defends the box against starlings.



Remember this adult female kestrel with the scabby belly? As far as we knew, she only laid 2 eggs this spring. When we returned to band the chicks, we saw an adult female kestrel near the box and presume it was she. Inside the box we found she was able to hatch one of the eggs into a healthy 16-day old female. The unhatched egg was still in the box. This mother's band # is now on our "most wanted" list, i.e., those kestrels that we want to recapture to see if they've healed from injuries that we noted when first handled. If we ever capture her again, we will be reminded to check her belly for scar tissue.

The "most wanted" list also includes a male kestrel who survived electric shock injuries. We first captured him in a healthy state in a box which produced 5 nestlings. The next year we recaptured him in the same box with black toes (see below). Despite his injuries, he successfully fledged 4 kestrels from the box. One of his babies survived and was recaptured as a 2-year-old breeding in the Luray valley in Roger Jones/Alan Williams boxes!





He has not been recaptured since this photo was taken and, frankly, we are not surprised, as we expected him to lose some of his talons or toes. The paper we had published on this bird is on our Research Gate page as well: [\(16\) \(PDF\) American Kestrel Surviving with Electric Shock Injuries \(researchgate.net\)](#)

And, one more example of birds we keep track of is a female kestrel who had a lot of feather damage from a flame (see photo below). While she was terribly handicapped due to damaged flight feathers, she attempted to nest but failed. The next spring, we recaptured her in a different box and, after consulting our list of most wanted band numbers, we noted that her feathers had molted normally and she was 100% again. However, she failed again due probably to a black snake eating her eggs.



The paper we had published on this bird is on our Research Gate page as well: [\(16\) \(PDF\) A Burned American Kestrel Breeding in Virginia's Shenandoah Valley \(researchgate.net\)](#)

#### Another lost box lid

On 4 June we pulled up to box # 165 and saw it too had lost its lid. We forced ourselves to put up the ladder and look inside to verify that this nest had failed. Jill almost fell off the ladder in surprise as she looked in to see 5 healthy kestrel nestlings looking up at her! As we were banding them a bird watcher pulled up to watch what we were doing. It is remarkably rare when folks to stop to see what we are up to.

## Update on kestrel condos



We have 3 sets of back-to-back boxes (a set is 2 boxes on the same pole, as in photo above). Kestrels used one box at each of the 3 sites and starlings snuck into the opposite boxes at 2 sites to lay one egg each. At the third site, the unoccupied box had starlings and a Northern flicker fighting over it. But the kestrels kept them all out and fledged 4 nestlings.

At one site the kestrel chose to nest in the box that faces south. We found 2 dead kestrel chicks inside. We estimate they died when they were about 9 days old – perhaps from too much heat buildup. After this first nest failure, we spotted a female kestrel hanging around the boxes about 3 weeks later so opened them up to find 3 new kestrel eggs in the north facing box. Not sure if this second attempt is by the same adult female because we have not captured her yet. The other 2 back-to-back boxes produced 2 and 4 kestrels each (and no starlings). This has been an interesting experiment. To reiterate 100% of the kestrel condos have had kestrels occupy them.



## Finding a small bird leg bone with a bird band

On 6/17/2021 we were checking the back-to-back kestrel box where the first nest attempt failed and Jill noticed a leg bone with a band lying atop the debris in the south-facing box where the 2 dead chicks were found earlier. It was a small passerine leg (just a dry bone) with a size 1 band. Once we got back to the home computer, we determined it was NOT one of our bands. So, Lance called some people who he knew banded passerines locally, but no one claimed it. So, Jill reported it online and got back a request for more information because they did not consider it credible. The band was flattened and photographed and emailed so we could get the original banding report from the Bird Banding Lab.



From Bird Banding Lab records: band # 2401-42923 was placed on a Grasshopper Sparrow on 11/17/2019 near Naples, Florida, USA; unknown sex, hatched in 2019 or earlier. Needless to say, we were flabbergasted! The box where the leg/band was found is 875 miles NNE of Naples in a straight line (as the sparrow flies). The leg bone was dry and brittle so it may have been inside the box for more than one season. It is like finding arrowheads, new ones surface each time the field is plowed... Anyhow, it is exciting for us to recover someone else's band (not so exciting for the grasshopper sparrow though).

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## “Clover”, the Chocolate Kestrel

In mid-June we took Clover (our mutant “brown” kestrel taken for falconry) out to fly free for the first time (and, foolishly, without telemetry). We were impressed at how well she could fly, and she ended up atop a retired silo. Clover is trained to come to us for a food reward when we whistle. When Jill whistled while offering food, Clover came down so we fed her up and took her home that night. The next evening, we did the same routine, but it was windy and she flew 200’ high, drifted downwind and was quickly out of sight! We looked and called for her until dark (about 2 hours) to no avail and went home without Clover. The next morning Lance returned and called/searched for a couple hours but there were kestrels everywhere and none of them came to him in response to the food whistle.

Later that evening after had we checked a kestrel box and were returning home; we heard the distinctive sound of a young kestrel calling for food. We stopped and Lance jumped out of the truck and whistled. Clover flew to him from about 40 yards and landed on Lance’s head then jumped down to his hand where she expected food. She had hanging out with Carl, our neighbor, who was tending his garden. He got to experience the “thrill” of having a bird land on his head and beg for food. Clover seemed none worse for wear after her adventure and was hungry after being lost and on her own for about 22 hours.





Now we are taking her out for training flights with radio telemetry so we can track her down if she gets lost. Unfortunately, we are not seeing any grasshoppers or dragonflies for her to chase. Also, no cicadas here either. Young kestrels probably rely heavily on insects while learning to hunt to sustain themselves after fledging. We'll try a couple different fields but have little hope of finding a place that is chock-full of kestrel prey. No wonder only 5-10% of kestrels survive their first year.

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### Birds banded so far in 2021:

American Kestrels	290 in SVRSA (of which 254 are nestlings) +169 banded by John in Highland County = 459 total
Barn Owls	8 in SVRSA + 26 banded by Ben south of SVRSA
Screech Owls	9 in SVRSA + 17 banded by John in Highland County
Eastern Bluebirds	35
Tree Swallows	8

Once we finish all the boxes and everyone is banded this year, we will issue a final update. Stay tuned...

We are in desperate need of **50** new kestrel nest boxes and **100** new bluebird boxes. If anyone knows of Boy/Eagle Scouts in need of project, bird clubs, retirees with woodworking skills, etc. please let us know and we will provide blueprints. Call 540-896-6553 or email: [saltlick2003@gmail.com](mailto:saltlick2003@gmail.com)

Feel free to share or have anyone who wants to be added to the list send us an email: [saltlick2003@gmail.com](mailto:saltlick2003@gmail.com)

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