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Rich Hoeg / flickr.com

Contents

Winter Message to Our Affiliate Organizations - *Kevin Corwin* 1
From the President - *Bernie Daniel* 2
From the Managing Editor - *Scott W. Gillihan* 5
Letters to *Bluebird* 5
NABS Announcement: NABS Award Program 6
Nestbox Mysteries - Marilyn Michalski and Nancy Fraim 7
The Year of Nestbox Stealing and Survival of the Fittest - *Barbie Allen* 10
Late Eastern Bluebird Nest - *James O. Smith* 11
Cowbirds: Parasites of the Skies - *Ray Pinter* 12
The Hazardous Horse Tail Hair Tale - *Kaycee Lichliter* 15
SCBS Data Upload to Cornell NestWatch Database - *Glen Hendry* 16
Snake Encounter - *Tom Boehm* 17
Why the Cornell NestWatch Program is Valuable to NABS - *Bernie Daniel* 18
Cavity-Nesting Ducks - *Leo Hollein* 19
A Historical Loss of Bluebirds 21
Mother Nature's Wrath - *Lee Pauser* 22
Dean Rust Honored 23
NABS Education Grant Request for Proposals 24
Mountains of Information on Mountain Bluebirds 24
Bluebirds Everywhere 26
BluesNews 27
Lucy's Warbler Nestbox Requirements 27
Common Blue-Bird - *John James Audubon* 28
Photo Gallery 29
Affiliates of the North American Bluebird Society 30

Cover photo: Downy Woodpecker feasting on peanuts. Photo taken by Beau Considine (https://flickr.com/photos/beauconsidine/) and printed here under a Creative Commons license.

Table of Contents photo: Sometimes it's hard to appreciate how *tiny* the cavity-nesting Northern Saw-Whet Owl is. Here's one next to a Black-capped Chickadee for comparison. Photo taken by Rich Hoeg near Duluth, Minnesota; printed here under a Creative Commons license. More of Rich's photos can be seen at https://www.flickr.com/photos/northstarnerd/.

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The North American Bluebird Society, Inc. is a non-profit education, conservation and research organization that promotes the recovery of bluebirds and other native cavity-nesting bird species in North America.

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Winter Message to Our Affiliate Organizations

Kevin Corwin

Hello Fellow Bluebirders!

In the last issue of Bluebird we announced the NABS 2020 Conference, which will be hosted March 11–15 by Bluebirds Across Nebraska in Kearney. We have set aside a two-hour block of time specifically to visit with folks from the Affiliates, to update you on what we're currently working on to support your field work and to hear from you what you need and want from us.

If you check your listings at the back of this issue you'll see we've streamlined them by removing the physical address data and we have merged our Affiliate Rep info into each of your listings. This frees up space in *Bluebird* for the articles and pictures that make it such a great journal.

While you're back there, check the new "Nestbox Neighbor" listing on the inside back cover for the Oklahoma Bluebird Society. We thank Oklahoma for joining the group of Affiliates who provide NABS that extra support.

Please continue to encourage your members to participate in the new "Nest Quest Go" project that was written up in last quarter's *Bluebird*. It is such an easy way for folks to participate in a citizen science project that will dramatically increase the time span of nesting information available in NestWatch to researchers and scientists, and to us bluebirders. And it gives us all something to do during the cold winter months when our boxes stand empty. On the subject of NestWatch, the folks at the Cornell Lab of Ornithology are working to improve the performance of their in-the-field smart phone app for next year's nesting season. Stay tuned…

During the past few months I have visited "my" Affiliates in Manitoba, Texas, Louisiana, and two in British Columbia. The two things that really struck me are (1) how different each is in size and organization, and (2) how similar they all are in their commitment to do the best they can for "their" bluebirds. I think (2) is important, (1) is just interesting.

Thank you for all you do for our little blue friends.

From the President
Bernie Daniel

Well it is early November and winter, as in freezing temperatures and snow cover, has made its appearance in southwestern Ohio. In the recent past we've become accustomed to that stuff "happening" in the mid- to late-December time frame. Who knows what lies ahead? For sure our sun is entering the quiescent period of its new cycle (a solar cycle is typically about 11 years in duration). According to the best solar models this will be a period when solar flares (which produce the extra heat) will be at a minimum hence less warmth and solar wind will be radiated toward the earth. But many other factors also control daily temperatures and weather. For sure, I and my bluebird friends, are not big fans of frigid winter days but it is nonetheless true that those Arctic cold snaps are good for reducing the summer populations of ticks, wasps, and other undesirables like emerald ash borers. So, bring it on but with all due moderation please.

Last month a major scientific study on the status of birds in North America was published in *Science* magazine. The paper, entitled "Decline of the North American Avifauna" had 12 very distinguished authors, all noted bird authorities. The paper was short in length, only four pages, but, in my opinion, its message was positively staggering. I have copied the abstract of this paper below because I do not think I can state the message any better than the authors do:

> "Species extinctions have defined the global biodiversity crisis, but extinction begins with loss in abundance of individuals that can result in compositional and functional changes of ecosystems. Using multiple and independent monitoring networks, we report population losses across much of the North American avifauna over 48 years, including once-common species and from most biomes. Integration of range-wide population trajectories and size estimates indicates a net loss approaching 3 billion birds, or 29% of 1970 abundance. A continent-wide weather radar network also reveals a similarly steep decline in biomass passage of migrating birds over a recent 10-year period. This loss of bird abundance signals an urgent need to address threats to avert future avifaunal collapse and associated loss of ecosystem integrity, function, and services." Rosenberg et al., *Science* 366:120–124, 2019

The paper is noteworthy because the authors exhaustively scoured our continent for every major source of data on bird populations and then employed state-of-the-art methods of analysis and statistics to not only come to some profound conclusions, but also to clearly estimate the quality and reliability of the conclusions that they reached. Many families of North American birds are in serious trouble. For example, Passerellidae, the family that contains most of our New World sparrows (Song Sparrow, Chipping Sparrow, Grasshopper Sparrow, etc.) has lost ~860 million individual birds (a decline of 38%) in the last 48 years (since 1970). This big and important family of birds has 38 species and of those, 33 are in decline across North America. The family Parulidae, which contains 44 species of our wood warblers, has also declined 38% (losing ~618 million birds) and 28 of those species are in decline—some in steep decline. The family Icteridae (18 species of New World blackbirds) has declined by 44% (~440 million birds) and all but three of those species are declining in numbers. Summarizing these declines in individual birds, the study found that over 90% of the cumulative losses were absorbed by 12 bird families including the sparrows, warblers, blackbirds, flycatchers, thrushes, finches, swallows, swifts, nightjars, larkspurs, crows, and thrashers, as well as some imported nonnative families.

Bringing this story "closer to home," Turdidae (thrushes) a family of 11 species, three of which are bluebirds, is faring a little better and has declined about 10% (amounting to losses of ~114 million birds) since 1970. Of the thrushes about 55% (or six species) are in decline. By comparison to many other North American bird groups our bluebird species are generally in better shape.

As you will recall, over the last several years, I have been discussing with you the status of all three species of bluebirds. So out of curiosity I contacted the study's lead author, Dr. Ken Rosenberg at the Cornell Laboratory of Ornithology, and he was kind enough to supply me with the changes they found for the three bluebird species in their study (the actual published paper only reports the conclusions at the Family level). The Rosenberg et al. study obtained the following changes for the bluebirds:

Bluebird Populations 1970–2018		
Species	Change (%)	Change (millions of birds)
EABL	160	10.8
WEBL	45	1.9
MOBL	–15	–1.0

Data from Ken Rosenberg Ph.D., personal communication

Thus, at least two of our bluebird species are in better shape today than in 1970. However, we must keep in mind that comparisons of current populations to 1970 are not as important as knowing what is happening today—in real time—over the last decade for example.

A relatively smaller number of bird families are increasing, some perhaps surprisingly so. For example, the family Vireonidae (vireos) has increased by nearly 54% (~90 million birds) and only two of the 12 vireo species are in decline. Similarly, the family Troglodytidae (wrens, gain of 14%); Picidae (woodpeckers, gain of 19%), Sittidae (nuthatches, gain of 16%) and Polioptilidae (gnatcatchers, gain of 32%) are also doing relatively well though the reasons may not be as apparent in many cases. For still other families, the reasons that they are faring better seems more obvious. The Anatidae, a very large family, which includes over 170 species of waterfowl (e.g., ducks, geese, and swans) has gained ~35 million birds or increased by 56% and Phasianidae (12 species of quail, partridges, grouse, and turkeys) has collectively gained ~15 million birds (25%) since 1970.

I think, in addition to revelation on the bird population changes, that there are other important lessons from this monumental study. As mentioned above, two families of birds that are doing well are Anatidae and Phasianidae, both contain game birds e.g., ducks/geese and quail/turkeys, respectively. Thus, birds that are hunted annually are doing well. The reason for this is most likely because hunters are willing to pay for the privilege of hunting. Thus, with that money collected from duck stamps and hunting licenses, millions of acres of waterfowl and game bird habitat have been purchased and protected for these species by the federal and state governments. So, birds can be helped if there is a willingness to do so on the part of the public.

No one knows that last point better than we bluebirders! Certainly, our efforts have shown benefits for many cavity-nesting species including bluebirds. We spend our time and money providing safe habitat for cavity-nesting birds. Blowing our own horn? Yes! And proud to do so too!

Individuals who identify as birders and who enjoy watching birds and making life lists seem, by comparison not as willing, so far at least, to invest money into preserving their passions the same way hunters do.

One other encouraging finding in the *Science* paper is that two additional nonnative bird families are also in decline. The families Sturnidae (European Starling) and Passeridae (House Sparrow) have declined 49% (~83 million birds) and 81% (~330 million birds), respectively. But, in my opinion, even this news is sobering. What is the lesson in that observation?

If these two "pest species" are also declining might it be true that someday they'll not be as big of a problem out on nestbox trails? But from a different point of view, what does it really say when two very aggressive cavity-nesting species are declining on the continent? Is this a good sign, i.e., that we now are finding that they were not as well adapted as it seemed when their populations exploded across North America in the late 1800s and early 1900s? Or is it a bad sign, i.e., showing that humans have made things so hard on wildlife that not even these two species can make a go of it anymore?

In a sense the findings of the Rosenberg et al. study could be expected. If you are a student of anthropology and archeology you might be aware that about 50,000 years ago *Homo sapiens* somehow managed to reach the continent of Australia. At the time those early humans arrived in "the land down under" there were nearly 30 species of animals (mostly marsupials) that weighed over 100 pounds (including a 500 pound marsupial lion!). But within a few thousand years of human arrival the fossil record shows that all but one of those large species had become extinct. This pattern has been repeated many times throughout early human history. The record seems clear—our species is a living wrecking ball. Members of our Society, our Affiliates, and thousands of other bluebirders, are trying to push things the other direction!

I wonder how many of our members participate in the eBird monitoring program that is run out of the Cornell Laboratory of Ornithology (https://ebird.org/home)? In case some of you don't know it, I'll mention that eBird is one of the world's largest "citizen science projects" dealing with birds.

More than 100 million bird sightings are contributed by its members each year via the internet and mobile phones! Anyone can sign up and begin adding their own bird sightings to the worldwide database. The eBird database is rapidly becoming a powerful scientific tool for assessing bird population status and a useful supplement to existing bird information. The eBird program often provides a unique perspective. For example, the common assumption has traditionally been that about 90–95% of EABL are in the USA with 5–10% in Canada. However, looking at the eBird data suggests that the actual distribution might be closer to 85% USA, 10% Mexico/Central America, and 5% Canada. The Breeding Bird Survey (BBS) is not conducted south of the US southern borders so heretofore those birds were not assessed.

FYI: The newest NABS Fact Sheet entitled "Eastern Bluebird Nestling Growth Chart" with 31 full-color images will hopefully be ready in time for the new nesting season!

I hope some (many?) of you are making plans to attend the NABS 2020 Conference on March 11–15, 2020, in Kearny, Nebraska. The event is being hosted by Bluebirds Across Nebraska and they know how to do the job right—it will be a great conference and it would be wonderful to see you there!

Now it is time to dig in for the winter season—did you winterize your nestboxes!?!

Bernie

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From the Managing Editor

Scott W. Gillihan

I hope you'll take the time to read carefully Bernie Daniel's *From the President* entry in this issue. He highlights the recent findings of an astonishing loss of birdlife in North America over the last 50 years. In that time, we have lost **30%** of our birds. We're not talking about exotic species in faraway places—these are the birds that live around our homes and work places and in the parks and natural areas we visit. These are not rare species with narrow habitat requirements—these are the common birds we know and love. As Michael J. Parr, President of American Bird Conservancy and co-author of the bird study, said, "The global wildlife crisis has arrived in our backyards."

These disturbing findings about birds come on the heels of a World Wildlife Fund study that showed that populations of vertebrates (fish, reptiles, amphibians, mammals, and birds) had declined by an average of nearly **60%** just since 1970. Other studies have found equally staggering losses of insect populations. None of this is normal, nor is it irreversible. We can all take steps to reduce our consumption, reduce pesticide use, plant native species, and keep cats indoors. You can find more information about this issue, and *specific steps* that you can take to help, at websites such as https://www.3billionbirds.org/, https://abcbirds.org, or https://www.birds.cornell.edu.

My thanks to Mary Mason, Ralph Stemp, Joan Watroba, Bet Zimmerman Smith, and all of the writers and photographers who contributed material to this issue, and to the sponsors, advertisers, and Affiliates. As always, my thanks to you, the members of NABS, for your hard work and dedication to the conservation of bluebirds and other native cavity nesters.

Please send any letters, photos, articles, or ideas to me at NABSeditor@gmail.com or 5405 Villa View Dr., Farmington, NM 87402.

Membership Renewal

Is this your last Journal? Please check your mailing label for membership expiration date.
If renewing through PayPal, remember you can use either your credit card or your PayPal account.

Letters to *Bluebird*

To the Editor:

I have built and given over 500 bluebird houses to NABS of Indiana affiliates Brown County Bluebird Club and Hendricks County Bluebird Society. These were made of western cedar and aluminum nails. I'm enclosing a picture [at right] taken by Cindy Breedlove that shows the houses work. I'm 97 years old and still making bluebird houses.

Yours truly,

Wilbur Asher
Mooresville, Indiana

NABS Announcement: NABS Awards Program

A reminder to our members and others who are interested. Each year NABS presents an array of awards to deserving individuals, groups, or organizations who have distinguished themselves in the art and science of bluebirding and the preservation of our native cavity-nesting species. Awards are offered in several areas. A complete description of the NABS awards can be found on our website: http://www.nabluebirdsociety.org/awards/

Please find the appropriate award for your intended nominee. Then on a separate sheet, explain why you are nominating this person, group, or organization for the indicated award.

The nominee's accomplishments/work should be described in as much detail as you wish and be sure to include the time period of these achievements. Please include all information relevant to the description of your selected award category. You can also include the names and contact information for others who are able to provide supporting details about your nominee and their accomplishments.

NABS will provide registration and banquet tickets for the awardee and a guest of his/her choice to attend the awards event. Recipients must provide their own transportation to the conference. If you happen to know of an individual or organization that would provide travel assistance for the nominee, please let NABS know: Contact the NABS Awards Committee chairperson regarding travel arrangements and all other questions if your nominee is selected.

Completed Nomination packages should be mailed (in triplicate) to the address below and postmarked no later than May 1st each year:

NABS Award Committee
Kathy Kremnitzer
19305 Deer Path
Knoxville, MD 21758

The NABS Awards Categories

Nora and John Lane Bluebird Conservation Award can be awarded for lifetime achievements in bluebird conservation including some or all of the following activities: erecting and maintaining nestbox trails, introducing new generations to bluebirds, making presentations on bluebirds to youth, adults, and wildlife organizations at all levels; working with schools and communities to present programs relating to bluebird and habitat conservation for all native cavity-nesting birds; serving with distinction for many years as an Officer or Board member of NABS or a NABS Affiliate, and representing bluebirds and the bluebirding movement with State and Federal governmental organizations.

Barbara Chambers Memorial Award can be awarded for work spanning at least two decades of mentoring and educating people of all ages regarding native cavity-nesting bird species, e.g., erecting new nestbox trails, reviving old ones with new monitors; introducing new people to bluebirds, making presentations to youth and adults; working with schools to present programs relating to bluebird and habitat conservation for all native cavity-nesting birds; acting as a liaison or support person for NABS with handling queries or problems bluebirders have on their trails.

Bluebird Research Award can be awarded to individuals or groups of individuals accomplishing significant laboratory or field research that advances the scientific database on bluebirds or other native cavity-nesting species and/or for the preparation/ presentation of scientific articles and publications that advance public knowledge of bluebirds and other native cavity-nesting species

Mary Janetatos Distinguished Service Award can be awarded to individuals who have devoted at least a decade of effort in serving NABS in its mission either as a member of the Board of Directors, an Officer, the chair of a NABS committee, or in a function that is vital to the operation of NABS (e.g., mail operations, website management, or direction of NABS's public face such as social media).

Bluebird Conservation Awards can be awarded to individuals, groups, or organizations that have distinguished themselves in a new program or effort that advances our understanding by successfully presenting artificial nesting opportunities to native cavity-nesting species. Such efforts can be practical (development of new field techniques) or theoretical and educational.

President's Award can be awarded by the president of NABS to any individual who has been judged to have made a long term or recent contribution to the art and science of bluebirding.

Nestbox Mysteries

Marilyn Michalski and Nancy Fraim

When we monitor nestboxes, we often encounter puzzling sights. We may find a different number of eggs than we had seen previously. If the egg numbers go up, we are happy. But if the egg numbers go down, we wonder what caused the disappearance. Or worse, how could three nestlings in a nestbox—too young to fledge—have vanished? Although we can make educated guesses regarding what happened, we do have a way to get accurate answers: We can put in a RING camera system.

Small in size, the RING camera is installed inside a modified nestbox underneath the roof. When connected to a WiFi signal, the nestbox interior can be displayed on an iPhone or computer. At the urging of my friend and fellow bluebirder Nancy Fraim, I purchased this camera and a solar panel to charge it. I've learned more from the camera than I thought possible. The RING system shows all activity inside the nestbox, which the owner can watch as "live-action" video. This article describes several events in which the RING camera provided answers.

FIRST CASE:

We know that only female bluebirds incubate eggs. Wrong! We found that the male bluebird can incubate eggs almost as well as the female. A pair of Eastern Bluebirds, in their fourth year of nesting in my yard, had two nesting failures in April and May. Neither of these clutches was viable; after 25 days I opened one of the eggs to find only albumen and yolk. Although this pair finally abandoned these nests, they refused to give up. We watched the female construct a third nest inside a box equipped with a RING camera. She laid three white eggs (her usual color) and began

Male and female bluebird on the nest at night

incubation. The RING camera soon showed the male bluebird sitting on top of the eggs (photo #1.) We watched him settle over the eggs almost every day. Their clutch successfully hatched and fledged three Eastern Bluebirds. We think it's plausible that the male's incubation helped the eggs reach maturity.

SECOND CASE:

In a nestbox located in Downingtown, Pennsylvania, where another RING camera was installed, we witnessed a horrific attack. At 11 p.m. on July 10, 2019, the homeowner got an "action alert" signal. She watched in anguish as a flying squirrel killed two bluebird nestlings. A third nestling, who hid in a corner of the nestbox, survived. Because northern flying squirrels are endangered in Pennsylvania, we could not harm them, but we had to prevent the squirrel from entering the nestbox again.

We removed the dead nestlings and bagged them for disposal away from the nestbox. We did not want any odors to attract other flying squirrels, who sometimes feed on carrion. We then put the surviving nestling into a clean bluebird nest—and returned it to the nestbox.

Male bluebird on top of eggs

11 p.m. on July 10, 2019: Flying squirrel attacking nestling inside nestbox

We considered several actions: Should we transfer the nestling to another nestbox, with healthy nestlings of the same age? No, because the parent birds were alive and well. We know avian parents will feed their brood, even if there is only one.

We moved the nestbox and its post farther away from a nearby tree to reduce the flying squirrel's access to the box. We know that active nestboxes can be moved 10 or 12 feet away from their original positions; bluebird parents will make the adjustment.

Should we attach a Noel guard? No, this guard had never been installed on the box, so we weren't sure how the parents would react to it. Sometimes a Noel guard threatens adult birds and leads to their abandoning the nest. We know of cases in which bluebird eggs perished when this device scared away the parents. Using the Noel guard should be a "last resort" if adult birds are not accustomed to it.

Instead, we installed a wren guard. This had been done earlier, when eggs were laid. It had been removed when the nestlings were eight days old—halfway to fledging. When the surviving nestling got ready to fledge, we removed the guard. Happily, the wren guard thwarted the squirrel, and our nestling fledged safely!

THIRD CASE:

During the night of July 18, 2019, a RING camera showed a raccoon taking newly hatched bluebirds out of a nestbox. This was a terrifying sight—watching the hand of the raccoon reach into the nestbox and grab hatchlings, killing two of them. One of the babies survived, as it got pushed into a corner of the nestbox.

The next morning we found the lone hatchling still alive. We removed bits of shell from its body. Then we installed a Noel guard over the opening of the box.

Arm of raccoon digging into nest, searching for eggs and nestlings. Note the typical tearing-up of nestbox material.

Sadly, the parent bluebirds were unable to maneuver through the guard and abandoned the box. By the time we removed the Noel guard, the parents had left the area.

We decided to take out the hatchling and feed it. We gave it mealworms cut in small segments. This is not a pleasant process, but we wanted to keep the hatching alive. We found a nestbox 15 miles away which had hatchlings of approximately the same age. Unfortunately, before we could transfer the hatchling to the active nest, it died.

FOURTH CASE:

In March a pair of Black-capped Chickadees started a nest inside a RING-equipped nestbox. We watched in awe as the female brought bits of moss and fur into the nestbox. She was more active than we thought possible, spending many hours a day tucking moss into different sections of the floor. She spun around in her nest many times, as if she were a perfectionist. We watched for a week as she arranged and rearranged nesting material. Her dedication and sense of purpose exceeded every concept we had of nest construction. Finally, she began laying eggs—a total of 6. Both male and female chickadees incubate eggs, and both tucked themselves into the nestbox at night. The feeding of nestlings was surprising and entertaining—as tiny bits of insects were pushed into the mouths

Hand of raccoon reaching into nestbox

Six chickadee nestlings—close to fledging

of hatchlings. In addition, we were startled by the vigor with which the parents jammed their beaks underneath the nestlings to retrieve fecal sacs. Five of the six fledged. One died of natural causes.

FIFTH CASE:

Thanks to sharp images from a RING camera, we were able to detect the appearance of ants inside one of our nestboxes. Images of ants crawling up the sides of the nestbox are unwelcome sights at any time, whether we see them in person as we monitor, or on our computers and iPhones if RING is installed. With this knowledge we were able to treat the nestbox and eliminate the ant infestation—a threat to hatchlings. We put Terro underneath the nestbox on the underside of the floor. Chemicals should NEVER be put inside a nestbox. A new product from Terro is a small packet of insecticide that we taped to the underside of the nestbox floor. This packet eliminates the need to put liquid Terro on cotton and tape it under the nestbox. The main ingredient of Terro is borax, a safe chemical when used as directed.

Another way to deter ants is to spread diatomaceous earth on the ground at the bottom of the post. The use of this powdery material is effective against ants. Dean Rust, in his book *The Beloved and Charismatic Bluebird* encourages the use of this material.

CONCLUSION:

A RING camera will provide essential information. Without the camera we would not have known what kinds of events caused the demise of some baby birds. Because we knew what had occurred, we were able to take preventive actions to insure the life of the surviving nestlings. We regard the RING camera as a valuable instrument in bluebird work, especially monitoring.

Left photo shows the nestbox with its ring solar panel on top, facing south. Right photo shows nestbox interior, with the ring stick-up cam installed.

EDUCATIONAL BENEFITS

The RING camera system is an excellent educational tool. Nancy Fraim and Ken Leister have installed RING cameras inside bluebird nestboxes located on the grounds of a few Chester County schools (Pennsylvania). Students are introduced to bluebirds, monitoring, and nestbox care—prior to the installation of the RING camera. This camera brings live action views (nest-building, egg-laying, and nestling feeding) into classrooms where they can be viewed on the Smartboard, iPad, or computer in each classroom. Young students learn about, and enjoy watching, Eastern Bluebirds at work, in real time. For this to work a WiFi signal is necessary, and the signal must reach the nestbox. Since many school districts have this technology, views of Eastern Bluebirds at work in their nestboxes are now possible.

RETIREMENT COMMUNITY BENEFITS

We have also regaled the residents of a retirement community with the joys of bluebird activity in a nestbox, via a RING camera and a WiFi signal. Since many senior citizens are using iPhones, they have access to exciting views of bluebirds in action. We remind our readers that, once a RING camera is installed in a nestbox, a Wi-Fi signal is required for successful views inside that box.

COST: The RING camera costs $200 ($150 on sale), and the Solar Panel costs $49.

For more information about equipment, see the **website www.ring.com**. For details regarding setup or box design contact Nancy Fraim at **nancyfraim@comcast.net** or Ken Leister at **kenapeg@aol.com**.

NOTE: For those unable to utilize RING cameras, we recommend the use of the following websites to access information on threats to Eastern Bluebirds: **www.sialis.org** and **www.thebsp.org**
On the sialis website, go to "Predator ID": **http://sialis.org/predatorid.htm**

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This article originally appeared in the Bluebird Society of Pennsylvania newsletter. It is reprinted here with permission.

The Year of Nestbox Stealing and Survival of the Fittest

Barbie Allen

As a veteran nest box monitor, I really realize the value of weekly monitoring and good record keeping. Everyone knows there is competition for nestboxes, but until this year I never realized how much stealing of nestboxes does occur. I monitor 250 boxes in five counties in northeastern Wisconsin, checking the boxes weekly.

This year I have been amazed at what I saw from week to week. So many of the nestboxes had different species of birds with either nests and egg removal or nest stealing occurring. In mid May, I was very happy to see an Eastern Bluebird nest with one egg. When I returned the following week, the bluebird's egg was gone and there were three Tree Swallow eggs in the nest. The following week, the Tree Swallow's eggs and nest were gone and were replaced by sticks from an evicting House Wren.

In Brown County where we have an extensive House Sparrow problem, the House Sparrows are always trying to evict any other bird, often killing the adult bird, eggs, and chicks. Weekly monitoring and active trapping keeps sparrows to a minimum. To date, no House Sparrow has successfully fledged any chicks on my trails but this has only happened due to close weekly monitoring. The Black-capped Chickadee seems to have the hardest time retaining a nestbox. Even using hole reducers, the wrens get in and take over many nestboxes. I had eight Black-capped Chickadee nests but only five nests fledged chicks.

Parkway Golf Course in Oconto County had wet cold conditions right before the 4th of July that didn't affect the bluebird chicks who were further along in development, but Tree Swallow chicks had a drastic mortality rate. I lost 17 Tree Swallow chicks in four nestboxes. After cleaning out the nests and dead chicks, three pair of Tree Swallows had successful second broods, which is something you rarely see with Tree Swallows. Oconto County also had a tornado in July with many downed trees. Unfortunately I had four bluebird chicks that perished in the storm near White Potato Lake.

My bluebird numbers were a little down this year especially my second batch numbers. Again at Parkway Golf in Oconto County after a first brood fledged, the bluebirds' nestbox was taken over by a House Wren. The bluebird tried to evict the wren and actually used the wren's stick and small cup nest and started a second brood (see photos). Eventually the wrens won out evicting the bluebirds and destroying the bluebird's eggs. I normally have 1–2 pair of wrens at Parkway Golf but this year it seemed like so many more as the results were devastating to the bluebirds. Twelve bluebirds' nests were taken over by wrens destroying 15 bluebird eggs in July. Only three of the ten pair of bluebirds had successful second broods. I also experienced the same wren problems at the Woods Golf Course in Brown County where I had no successful second broods after a record number of first brood bluebirds.

As bluebird monitors we know that a bad year does occur, but we still have to look at the positive. I had 243 bluebirds and 516 Tree Swallows fledge and I was able to track so much invaluable information. We all need to continue our efforts and try to recruit our successors to ensure bluebirds' continued survival. Here's to 2020!!

Late Eastern Bluebird Nest

James O. Smith

The last Eastern Bluebird nest here on our Homer, Illinois, farm fledged September 17, 18, or 19 this year. Usually, not much happens after mid-August, but this year there were four bluebird eggs in a box on August 28. On September 15, there were four well-feathered young in the box. I was going to check the nest the next day when the female came to scold me immediately; to prevent the young from fledging too early, I left them be. I did not check on the nest again until September 21 when it was empty.

I had never before had any bluebirds fledge this late in the season. In the past, most late nests were abandoned. The nestbox was located in the middle of a small hay field, where hay had been cut and baled three times earlier in the season. Small grasshoppers were abundant all over the field, and that resulted in plenty of food for the young birds. I cannot answer as to whether this was a fourth time or because the wet, cool spring nests were abandoned. Maybe the plentiful supply of grasshoppers had something to do with it.

Lots to Like on Facebook!

Great friends, great photos, great videos, and great information are all waiting for you on the NABS Facebook page. Stay connected with NABS members and other bluebird enthusiasts at **www.facebook.com/NorthAmericanBluebirdSociety**

Cowbirds: Parasites of the Skies

Ray Pinter

Cowbirds are the only obligate brood parasites in the North American bird world. *Molothrus ater*, the ubiquitous Brown-headed Cowbird, lays its eggs in other birds nests, depending on the host bird to foster its young. Its original geographic range was restricted to the Great Plains where it followed the herds of grazing animals, feeding on the clouds of insects kicked up by their hooves. It never inhabited the forests of North America, but with the growth of cities, and clearings for agriculture, it has expanded its range to open breaks and forest edges, and can now be found in every U.S. state and most of Canada. It is a short-distance migrant, traveling no farther than 100–500 miles south of its breeding range to spend winters in the southeastern U.S. During mild winters they need not go any farther south than Illinois or Indiana.

It is believed that the cowbird's wandering lifestyle, being a hindrance to the raising of their own young, led them to adopt their parasitic nature as a survival mechanism. But, in a *what came first the chicken or egg* controversy among ornithologists, did cowbird parasitism allow them to follow the grazing animal herds, or did the parasitism develop more recently as a result of their following the herds? Dr. Arthur A. Allen, founder of the Cornell Lab of Ornithology, in his classic 1930 book (revised 1961), *The Book of Bird Life*, believes the latter theory. "In the history of birds this parasitic habit is a comparatively recent development. Were it older, the responses of all individuals of each species of parasitized bird would be more uniform. When sufficient time has elapsed for an instinct to have developed…each species (would react) uniformly to the intrusion of the cowbird's egg." He gives the example of the vireo as a bird having different responses to the foreign egg; some individual vireos will bury the cowbird egg in the bottom of the nest and some will let the cowbird egg hatch and rear it as if it were one of its own.

The Cowbird is a prolific breeder and egg-layer, producing up to three dozen eggs per season which it lays in the nests of more than 220 different species of birds. It usually lays just one egg in any one nest and, at the same time, removes one of the host bird's eggs. But, because it is such a fruitful bird, it will parasitize many nests at the same time, laying one egg per day for 6 consecutive days, distributing them over a fairly large area. It may then wait a few days before starting the process over again. A recent finding shows that individual females specialize in parasitizing a particular host species. They seem to prefer open-cup nests over nests in cavities but can and will squeeze into the 1.5 inch bluebird box opening. The oval entrance hole provides easier access than the round one.

What gives the cowbird nestling such an advantage over the host bird's nestlings is its rapid development and large size. It has an extremely short incubation period, just 11 days, so it hatches at least a few days before the host bird's eggs. It then gets more of the food because of its larger size. Its mouth is a very deep pink color, which indicates to the host parent that it needs food. The picture on page 13 shows the dramatic differences of the size and color of the open mouths between a cowbird and bluebird nestling.

What is the overall impact of the cowbird to our other native birds? Because of its relatively recent expansion into other birds' territories, it has an evolutionary advantage over them because these

newly encountered species have not had the time necessary to evolve strategies to deal with this parasitism. Other grassland bird species co-evolving with the cowbird in their historical range had developed competitive strategies to maintain their population. The fragmentation of America's forests has left the native birds of these altered niches at the peril of this brown-headed menace.

Some birds of the forest edge habitats, such as Kirtland's Warbler, have seen huge population drops because of the cowbirds' intrusion into their territory. The Kirtland's Warbler population in Michigan has recently been stabilized by the elimination of tens of thousands of cowbirds. A special depredation control permit was needed for this program since the cowbird is a native bird and protected by the federal Migratory Bird Treaty Act of 1918.

In a 2006 University of Florida study headed by avian ecologist Jeff Hoover, it was found that cowbirds may "punish" host birds who reject their eggs by destroying the entire nest and all the host bird's eggs. His research pertained to the Prothonotary Warbler, a secondary cavity–nesting bird found predominantly in swamp bottomlands or riverways with lots of dead standing trees. I encourage anyone with an interest in the cowbird's fascinating relationship with a cavity-nesting bird to view the findings of this study as reported in *Science Daily* (https://www.sciencedaily.com). The article is titled, "Mafia Behavior in Cowbirds." I will report just a brief summary of the findings. The study found that when a cowbird laid an egg in the nest box of a Prothonotary Warbler, and the host bird chose to eject this egg, 56% of the time the cowbird would return to destroy the warbler's nest. If the warbler accepted the cowbird egg the nest would rarely be disturbed. Furthermore, according to Hoover, "the accepting warblers in our study produced more of their own offspring, on average, than those where we ejected cowbird eggs." This retaliatory behavior of cowbirds ransacking their hosts' nests encourages warblers to raise the cowbirds' offspring. And there is additional evidence that other species that accept cowbird eggs and willingly become surrogate parents may do so as a defense against total nest destruction.

So, it seems that the Prothonotary Warbler's developed response to a cowbird egg in its nest is to let it be, and rear it as one of its own. I have found this to be the case with most other cavity-nesting birds. As concerned bluebird monitors, what can we do to lessen the impact of the cowbird egg in one of our nestboxes? Taking a cue from the warblers in Hoover's study, it's probably best to let nature take its course. The Eastern Bluebird population has recovered nicely thanks to organizations like NABS, and it is now considered a species of least concern in North America. Even if one could legally remove the cowbird egg from the bluebird nest, severe repercussions from the female cowbird could be the result.

Recently, my own yard afforded an example of how a "let it be" strategy is oftentimes the best decision. On May 13 I discovered a cowbird egg (see photo on page 12) with five bluebird eggs in my NABS box

with an oval entry hole. I decided to let nature take its course and observe and document the results. The cowbird egg hatched on May 25 and, three days later, three of the five bluebird eggs hatched. Every time I opened the box to check on the mixed brood the large cowbird chick was front and center with its huge gaping mouth (see photo on page 13). The cowbird chick fledged on June 4, just ten days after hatching. Two of the three bluebird chicks survived and fledged a full 10 days after the cowbird on June 15. I removed the two unhatched bluebird eggs from the box but left the relatively clean nest in place. The bluebird pair returned for a second nesting with five eggs laid by June 30 and all five chicks fledged successfully on July 31 with no cowbird interference this time. If I or the host birds had tampered with the cowbird egg during the first nesting, and the female cowbird had returned to "exact its vengeance," it not only could have destroyed the bluebirds' first brood but the bluebirds most likely would never have attempted a second nesting in this box. So, overall the results were successful for this box (seven bluebirds fledged) despite the meager first nesting output.

The origin of the Brown-headed Cowbird's genus name, *Molothrus*, is considered by most sources to be a misspelling of the Greek *Molorbus*, meaning a greedy beggar, vagabond, tramp; certainly a definition which fits this parasitic rascal to a tee. But lest we be too anthropomorphic in denigrating this native bird, *Molothrus ater* is an amazing example of the power of evolution by natural selection. Despite its occasional interference in the bluebird's nest cycle, it should not be scorned for the development of these "evil" traits. Instead, its parasitism may be appreciated as a brilliant evolutionary adaptation to its former nomadic lifestyle. But, I will still always cringe when finding one of their speckled eggs mixed in with the beautiful blue ones. It's hard to just let it be.

Vehicle/Property Donation Program

If you have a car, truck, motorcycle, RV, boat, or even an airplane that you no longer need, NABS would like to receive it as a tax-deductible charitable donation.

To donate, simply call this toll-free number: **866-244-8464**. Our agents will have your vehicle, boat, RV, etc. picked up and taken to a facility where it will be evaluated by experts. A determination will be made regarding what should be done to maximize its selling price, thereby resulting in significantly higher value than it might otherwise generate so you will receive the maximum tax benefit allowable by U.S. law. For tax purposes you, the donor, will receive a formal Certificate of Donation complying with all State and Federal requirements for authenticating your donation to NABS, an IRS 501(c)(3) tax-exempt charity.

pony rojo / Flickr.com

Thank you for supporting the conservation of bluebirds and other native cavity nesters!

The Hazardous Horse Tail Hair Tale

Kaycee Lichliter

One evening as Glenny Comer and I were monitoring boxes on the bluebird trail at the University of Virginia's Blandy Experimental Farm, Glenny had exited from the vehicle to look in a box as I waited with the trail book to record his findings. I watched him as he peered into the box. He hesitated, looked intently, and was silent. To me, time just stops while waiting for a verdict, or a surprise, or the go-ahead on something fun; I think I was holding my breath too! Then Glenny yelled for me to hurry, come and look!

As I peered into the box, I heard screaming. Now, I've never heard a bluebird scream and didn't know they could, but that's how I describe what I heard. The box held three baby bluebird chicks, one of which was in the back corner, head buried in grass, upside-down, with its feet sticking up in the air. Well, we'd never seen anything like this before! I told Glenny to hold out his hands and I quickly retrieved the chick in distress. Taking it from the box I found it to be entangled in horse tail hair! Instantly this took me in memory back to bird banding and the challenge of untangling birds from the mist nets. I unwound the hair from the chick's tiny wings, feet and legs and gently placed it in Glenny's big warm hands. I proceeded to remove the two remaining chicks one at a time from the box, remove the horse tail hair from their little bodies, and place them in Glenny's hands.

As Glenny safely held the chicks, I took a closer inspection of the nest. The parent bluebirds had used horse tail hair to line their nest cup! I removed the hair lining of the cup, leaving a perfectly round soft nest cup of grass and replaced it back in the nest box. Then one by one each chick was replaced safely in the nest. When parent birds return to their nest to feed their chicks, they aren't selective in who they feed, giving equal amounts of food in rotating turns—they just shove the food in the first open begging mouth. So, I strategically placed our distressed little chick on top of the pile and up front so it would hopefully get the next food delivery. We closed the box, moved from the area and documented our findings and activity.

Being the worrywart that I am, I returned to the box the next day to find all three chicks alive and doing well! All inspections up until the "critical nesting period," the timeframe when the chicks are old enough to jump from the nest but not old enough to fly, found them to be in good condition. After the critical nesting period was over and the birds were predicted to have fledged from the nest, the box was again monitored. Sadly, one chick was found deceased; however, happily, two were presumed to have fledged.

Although the outcome of this nesting attempt was somewhat disappointing, that's the way it happened, so that's the way the story is told. There are several points to glean from this tale. One, with our bluebird chicks, everything doesn't always work out how we hope but we always strive for the best. Two, if you monitor nests, especially near where horses are kept, please note if horse tail hair is added to nests and remove it if possible. I partially attribute the survival of the two chicks in this story to close monitoring and removal of the tail hair. Three, birds will do the craziest things! For example, we've found toxic cigarette butts in nests of Tree Swallows, birds that normally add white feathers to their nest cup linings. So, as we have learned that birds will sometimes add odd items to their nests that they find close by in the environment, let's work together for a cleaner environment for the health and safety of our birds and other wildlife.

Kaycee Lichliter is Shenandoah Audubon Blandy Bluebird Trail Manager and Shenandoah Audubon Conservation Chair & Treasurer.

This article originally appeared in Oak Leaf, *newsletter of Shenendoah Audubon. It is reprinted here with permission.*

SCBS Data Upload to Cornell NestWatch Database

Glen Hendry

The South Carolina Bluebird Society (SCBS) was established in Aiken, SC, on October 19, 2010. It is the first NABS Affiliate to be organized in South Carolina. As of the 2019 season, SCBS has installed and is monitoring over 1,400 Eastern Bluebird, Wood Duck, Eastern Screech-Owl, and American Kestrel nestboxes on more than 85 trails across South Carolina and Georgia.

At the beginning of each season (typically January or February), SCBS conducts monitoring training for its members and will also travel to member locations to provide this training. The SCBS has provided a trail monitoring form that can be used to gather trail data on a weekly basis. This data can be emailed to our database guru throughout the breeding season (typically March through September in the GeorgiaLina area) or can be provided in hard copy format at the end of the season.

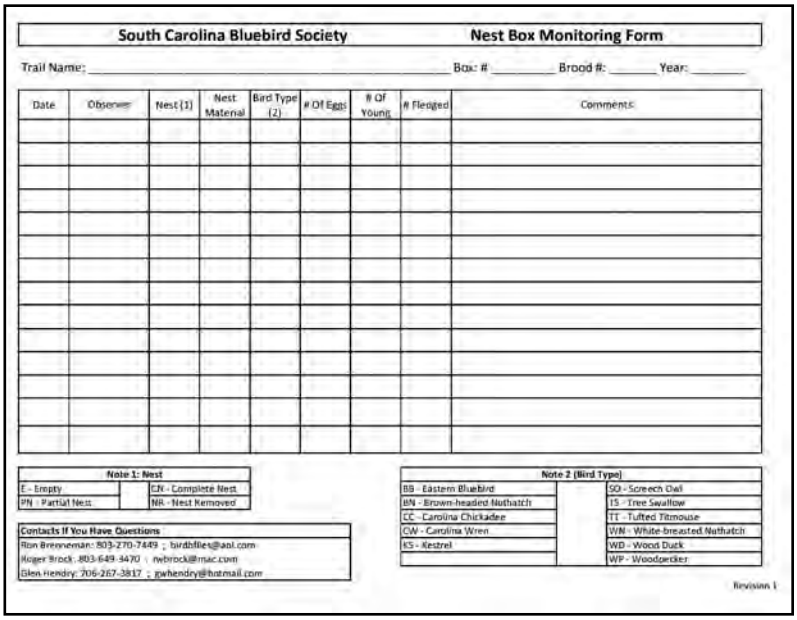
The data is then loaded into a Microsoft Excel spreadsheet. Not only do we gather data from our official trails, but we ask our members to provide their data from boxes they may have at their homes (i.e., backyards). The Excel spreadsheet is electronically linked to a Microsoft Access database for reporting purposes. The data fields populated in this spreadsheet are:

- Trail Name or Homeowners Name (backyard boxes)
- Trail or Backyard Designation
- Geographic Area
- Observation Year
- Box #
- Brood #
- Date Completed Nest Observed
- Bird Type
- Date Eggs Observed
- # of Eggs Laid
- # of Eggs Hatched
- # of Unhatched Eggs
- # of Birds Fledged
- Date Fledged
- Nest Lost to Predator (Y/N)
- Type of Predator (If known)
- Egg Color (For Bluebirds only)

In addition to the main spreadsheet for trail monitoring data, we maintain a second spreadsheet that tracks the trail name, number of boxes, type of box (i.e., Eastern Bluebird, Wood Duck, Eastern Screech-Owl, American Kestrel, Other), as well as the trail monitor's contact information.

Since the trail monitoring form records all findings, we record when nests have been abandoned and when nests have been robbed by a predator. We also record clutch size and egg fertility rates and white vs. blue egg counts for bluebirds. We can see where we have problem areas due to predation and try to take appropriate action; however, a six- to seven-foot-long black rat snake can best most of our predator guards.

We were contacted by the Cornell NestWatch folks to see what we could do to get our data into their national database. After a year of collaborative efforts with Robyn Bailey (NestWatch project leader at the Cornell Lab of Ornithology) and the prompting of our former SCBS president and Second Vice President for Community Relations and Chairman of the NABS Membership Committee, Jim Burke, we finally have a successful upload of our data into the NestWatch database. They bulk-uploaded a whopping 5,864 nest records for our data from 2013 through 2018. We take the data from our master Excel spreadsheet and provide that to Robyn. In addition, we obtained GPS coordinates for the trails / individual boxes. In some cases, we used a central location for a trail and in other cases we used specific locations for each box. We have a large trail in Hitchcock Woods in



South Carolina Bluebird Society — **Nest Box Monitoring Form**

Trail Name: _____ Box: # _____ Brood #: _____ Year: _____

Date	Observer	Nest (1)	Nest Material	Bird Type (2)	# Of Eggs	# Of Young	# Fledged	Comments

Note 1: Nest		
E - Empty		CN - Complete Nest
PN - Partial Nest		NR - Nest Removed

Note 2 (Bird Type)		
BB - Eastern Bluebird		SO - Screech Owl
BN - Brown-headed Nuthatch		TS - Tree Swallow
CC - Carolina Chickadee		TT - Tufted Titmouse
CW - Carolina Wren		WN - White-breasted Nuthatch
KS - Kestrel		WD - Wood Duck
		WP - Woodpecker

Contacts If You Have Questions

Ron Breeneman: 803-270-7449 ; birdsflies@aol.com

Roger Brock: 803-649-3470 ; rwbrock@mac.com

Glen Hendry: 706-267-3817 ; gwhendry@hotmail.com

Revision 1

The monitoring form with data fields.

Aiken. This trail contains 101 bluebird houses and 12 screech owl boxes. It takes 4–5 hours to monitor all of the boxes using a 4-wheel-drive Gator. Since this trail is so spread out, we obtained GPS coordinates for each box.

Each year we will provide the NestWatch folks with a fresh download of data and an update on any new trails that start up. As we reach out to more folks across the two-state area, we add more trails on an annual basis. We get several requests from Garden Clubs and other civic minded groups to provide educational seminars and training. It is easy to get "Bluebird Fever."

Snake Encounter

Tom Boehm

I live in central Virginia (Charlottesville) where a pair of Eastern Bluebirds can have three broods in one season. The first nest is completed in mid-March and the female typically lays five eggs. The second nest is in mid-May where she lays four eggs. The third nest is finished around the end of June to mid-July where three eggs are laid. If all goes well, a pair of bluebirds can produce 12 offspring a season.

I have several birdhouses around my property and the bluebird box in the backyard has a camera with audio capability. This makes monitoring the activity inside the nestbox very easy without disturbing the birds. The box is mounted on a 1½-inch diameter metal pole and the entrance hole is five feet off the ground.

For my 2014 season all was going well until the third brood. The female completed the nest when a House Wren showed up and took interest in the nestbox. The bluebirds kept chasing it away every time it came close to the box. One day I saw the wren enter the box and the male bluebird went in after it. The wren made a quick escape and I didn't see it again. The female bluebird laid the first egg.

The following day the egg was gone; I'm not sure what happened to it. The female laid two more eggs and started to incubate them. Both eggs hatched and the two babies were getting bigger each day and then it happened.

As I was having breakfast before work, it was just starting to get light outside and I could see a bluebird hovering in front of the nestbox. It would not land on the box but kept hovering in front of the entrance hole and then fly to a nearby dogwood tree. It did this several times so I turned on the camera to see what was wrong. It was still too dark for the camera to send a clear picture; the audio worked but I didn't hear a thing. The sun was starting to light up the backyard and I could barely make out the inside of the nestbox. In a few minutes it was bright enough to see, oh no, SNAKE!

I got some duct tape and went outside to the nestbox and covered the entrance hole. I unbolted the box from the pole and placed the whole box inside of a large cage. I reached my hand inside of the cage and unlatched the front door of the nestbox. A blacksnake (ratsnake) spilled out into the cage. I could see two bumps in the snake's body—it ate both baby birds. I felt sick. I was trying to provide a safe place for bluebirds to nest and raise their young but instead I provided a restaurant for snakes.

The damage was done so I decided to take some pictures to document the whole episode. As I was taking pictures the snake realized it had been caught and became agitated. It regurgitated the baby birds. I took the snake out to a wooded place about six miles from my house and let it go. As much as I dislike snakes, they do have a purpose in the ecosystem, just not around my house.

Lessons learned:

- Blacksnakes are excellent climbers; they seem to know when baby birds are getting ready to fledge.
- The snake attacked at night in the rain. Maybe it's easier to climb a pole when it's wet.
- Always provide a snake guard for your birdhouses.
- You may go years without having a snake problem, and then it happens. Better to be safe than sorry!

Why the Cornell NestWatch Program is Valuable to NABS

Bernie Daniel

Over the last several years NABS has been urging our members to report their nestbox data to the Cornell Laboratory of Ornithology NestWatch program. Now we have yet another example of why it is in our best interest to participate in NestWatch. Very recently, Reneé Carleton, Professor of Biology at Berry College, and her colleagues released the results of a 7-year study documenting the effects of drought on Eastern Bluebird (EABL) reproductive success. The Berry College scientists first documented which regions of the eastern part of the USA were experiencing drought (or dry) conditions. For this determination they used results from the North American Drought Monitor and Vegetation Greenness Index. Then they turned to NestWatch and downloaded the bluebird reproduction data from these dry areas and compared it with those results from areas not experiencing drought conditions. NestWatch provided the investigators with records from over 26,000 EABL nests! The researchers found that drought conditions, even severe ones, did not influence the average clutch size—so even in the driest conditions the females laid the same numbers of eggs. But the dry conditions did have a negative effect on the number of eggs that hatched and the number of nestlings that fledged. The more severe the drought conditions fewer number of eggs hatched and fewer nestlings eventually fledged the nest. Thus, in drought conditions, EABL parents produced fewer nestlings and fewer surviving offspring—and this gets worse as it gets drier. Some climate researchers are forecasting that more areas will experience drought conditions in eastern North America in the future so studies like this one, made possible by NestWatch, can provide us with the kinds of information we may well need in future years. Please consider participating in the NestWatch data collection next season.

Cavity-Nesting Ducks

Leo Hollein

Most people who monitor bluebird boxes are most interested in bluebirds and other species that nest in their boxes. However, a variety of about 40 species from nearly every bird family use nestboxes in North America. These species range from the diminutive Prothonotary Warbler (*Protonotaria citrea*) to larger hawks, ducks, and owls. Purple Martins (*Progne subis*) in the Eastern United States exclusively use nesting cavities provided by humans. Cavity nests provide some protection both from the weather and from predation. Cavity-nesting birds tend to take longer brooding their eggs before they hatch, and feeding their young before they fledge, than birds that use open nests.

The Great Swamp National Wildlife Refuge (Refuge) in New Jersey has about 200 Wood Duck (*Aix sponsa*) nestboxes that are being actively maintained and monitored. Figure 1 is a typical Wood Duck nestbox mounted on a metal post with a conical predator guard. The entrance hole is about seven feet above ground. These boxes are usually located inside the treeline near open water. The box is positioned so

Figure 1. Typical Wood Duck box with predator guard. *Photo by Leo Hollein.*

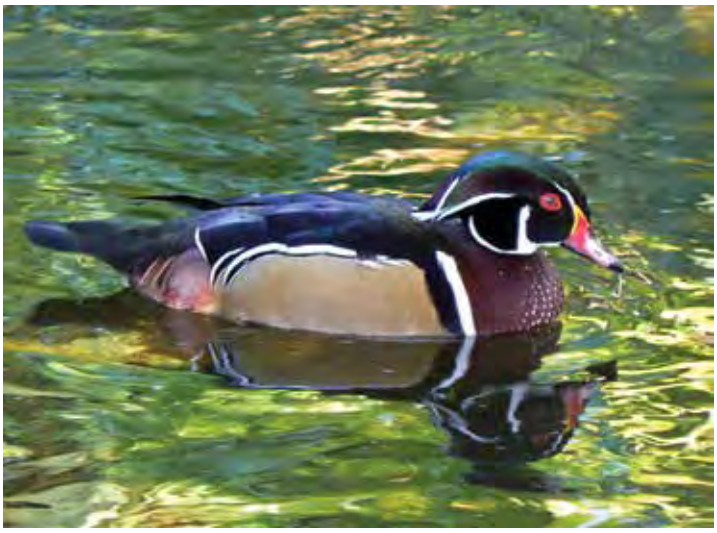


Figure 2. Male Wood Duck in breeding plumage. *Photo by Leo Hollein.*

that there is an open flightway to the entrance hole. As expected, Wood Ducks are the primary nesters in the boxes. However, Hooded Mergansers (*Lophodytes cucullatus*) are another cavity-nesting duck that breeds in the Refuge and nests in the duck boxes. The other nesting ducks in the refuge use open-top nests located on or close to the ground.

WOOD DUCKS RETAIN THEIR WILDNESS

Wood Ducks are not susceptible to taming. They retain the shy and secretive characteristics of their breed. They prefer wooded wetlands and migrate to the southern half of the United States for the winter. Wood Ducks are small and weigh about half as much as Mallards. The crested drake Wood Duck in breeding plumage (Figure 2) is a strikingly beautiful multi-colored bird. The hen is drab but has a distinctive large white eye patch. Wood Ducks in spring can occasionally be seen perching high on tree branches as they seek a nesting cavity.

Hen Wood Ducks begin laying large clutches of about a dozen eggs in early spring. In New Jersey, only a single clutch is raised. If the first clutch fails, the ducks may renest. The hen begins in March laying an egg a day until the clutch is complete. The hen is on her own and does all of the incubating for about four weeks until the fully feathered precocial (capable of feeding themselves) chicks hatch. The nestlings stay in the box for just one day. The hen exits the box and calls the young from the ground; the nestlings fledge

Figure 3. Hen Wood Duck brooding eggs. *Photo by Leo Hollein.*

by jumping out of the box. The hens are single moms that select the nest site, brood the clutch, coax their new hatchlings out of their cavity nest, and shepherd their young until they are able to fly in about two months. The drake's primary mission is to woo the hen and fertilize the eggs.

Wood Duck boxes are cleaned and inspected once a year from late November through January. By examining the contents of the box it is possible to determine the number of eggs, if any. Ducklings that hatched are indicated by a membrane separated from the egg shell. Duck membranes are much thicker than chicken egg membranes. Duck membranes protect the egg in event the eggshell is cracked by frigid temperatures, as ducks begin laying eggs in March. The contents of the boxes are emptied after inspection and a six-inch layer of fresh wood shavings is added to support eggs. Wood Ducks do not make nests. The hens add their down feathers to the nest (see Figure 3). They cover their eggs with the down to retain heat when they leave the box to eat.

Figure 4. Male Hooded Merganser in breeding plumage. *Photo by Doug Greenberg* (https://flickr.com/photos/dagberg)

FEW HOODED MERGANSERS NEST IN THE REFUGE

Hooded Mergansers nest in wooded swamps that are typical of the Refuge. They are rare nesters in New Jersey. The book *Birds of New Jersey* (1) indicates that the Refuge is close to the southernmost location in New Jersey where Hooded Mergansers are confirmed nesters. Hooded Mergansers migrate through the Refuge in the spring and fall when their numbers peak. Some may remain through the winter if the weather is mild and open water is common.

Figure 4 is photo of a male Hooded Merganser in breeding plumage. The male is striking in appearance. It has a crest that it can raise to display its namesake white hood. The female is drabber but also has a crest that can be raised. It has a dark eye, unlike the bright yellow of the male.

Hooded Mergansers are much less common than Wood Ducks in the Refuge. On average about four Hooded Merganser nests per year are found when inspecting and cleaning the nest boxes. Adult Wood Ducks are primarily vegetarian. Hooded Mergansers feed on aquatic life. They require a larger area to ensure they and their offspring can find sufficient live food. Wood Ducks are slightly larger than Hooded Mergansers.

WOOD DUCK AND HOODED MERGANSER EGGS DIFFER IN SIZE/SHAPE

Hooded Merganser eggs are larger, rounder, and thicker than Wood Duck eggs. Since they feed on aquatic life, their diet is much richer in calcium hence the more substantial eggs. Hen Hooded Mergansers often lay their eggs in other females' nests as do Wood Ducks. I assume the strategy is to increase the chances of having some of their eggs fledge. Nests of either duck with one or two eggs from the other species have been found. Figure 5 is a Hooded Merganser nest. There is a smaller tanner more oblong egg that was laid by a Wood Duck. The center egg is a black Hooded Merganser egg. On several

Figure 5. Hooded Merganser nest with Wood Duck egg. *Photo by Leo Hollein.*

occasions I have observed a black egg in a Hooded Merganser nest. This is the first egg of the clutch. Subsequent eggs are whiter and eventually become pure white. The black egg is fertile and is as likely to hatch as the others in the clutch.

WOOD DUCK POPULATION HAS BENEFITED FROM NESTBOXES

The New Jersey Wood Duck population was decimated and nearly extirpated in the early twentieth century due to habitat loss and unregulated market hunting (2). The harvesting of mature hardwood forests reduced available nesting cavities. The Migratory Bird Treaty Act of 1918 that regulated hunting, and the introduction of artificial nestboxes, enabled the remnant Wood Duck population to rebound to the current robust levels. Manmade nestboxes have been important in the recovery of both Eastern Bluebird and Wood Duck populations.

(1) Walsh, J., V. Elia, R. Kane, and T. Halliwell. 1999. Birds of New Jersey. New Jersey Audubon Society, pp. 160–161.

(2) Walsh, J., V. Elia, R. Kane, and T. Halliwell. 1999. Birds of New Jersey. New Jersey Audubon Society, pp. 120–122.

A Historical Loss of Bluebirds

Writing in the *Journal of the Elisha Mitchell Scientific Society* in 1917, C. S. Brimley documented the loss (and near loss) of various wildlife species in North Carolina since the arrival of Euro-Americans. Among the casualties: gray wolf, bison, and elk, and the birds Long-billed Curlew, Golden Plover, Carolina Parokeet, and Passenger Pigeon—all victims of relentless persecution by humans throughout their range. John James Audubon himself witnessed the slaughter of an estimated 48,000 Golden Plovers by hunters one day near New Orleans. At a communal nesting site in Michigan, approximately 50,000 Passenger Pigeons were killed per day over the course of several months for their meat.

Fortunately, bluebirds were never subjected to that sort of massacre at the hands of humans. Mother Nature, however, can be harsh, and natural events can sometimes wipe out large numbers of birds. Regarding the Eastern Bluebird, Brimley wrote:

> Up to February, 1895, the bluebird was a common resident throughout the State, but in the first week of that month there came a period of sleet and snow which encased the bird's usual winter food (berries of various kinds) in a glittering sheet of ice, and the bluebirds, unable to obtain food, perished by the thousands, and so complete and universal was the destruction that for some years afterwards it was quite an event to see a bluebird. Slowly, however, the species regained its numbers, and now is, so far as we can judge, about as common as formerly.

Nature is resilient. Take heart if your local bluebird population is hit with a sudden weather-induced loss. The North Carolina bluebird population bounced back and yours will too.

Allen McGregor / flickr.com

Mother Nature's Wrath

Lee Pauser

An unusual late storm had passed through when I awoke on May 20th with trepidation as to what I might find as I monitored nestboxes on my largest trail at Cinnabar Hills Golf Club, San Jose, California. The club has become my Tree Swallow factory at which hundreds of nestlings fledge every season, and I knew I had hundreds of nestlings in my nestboxes.

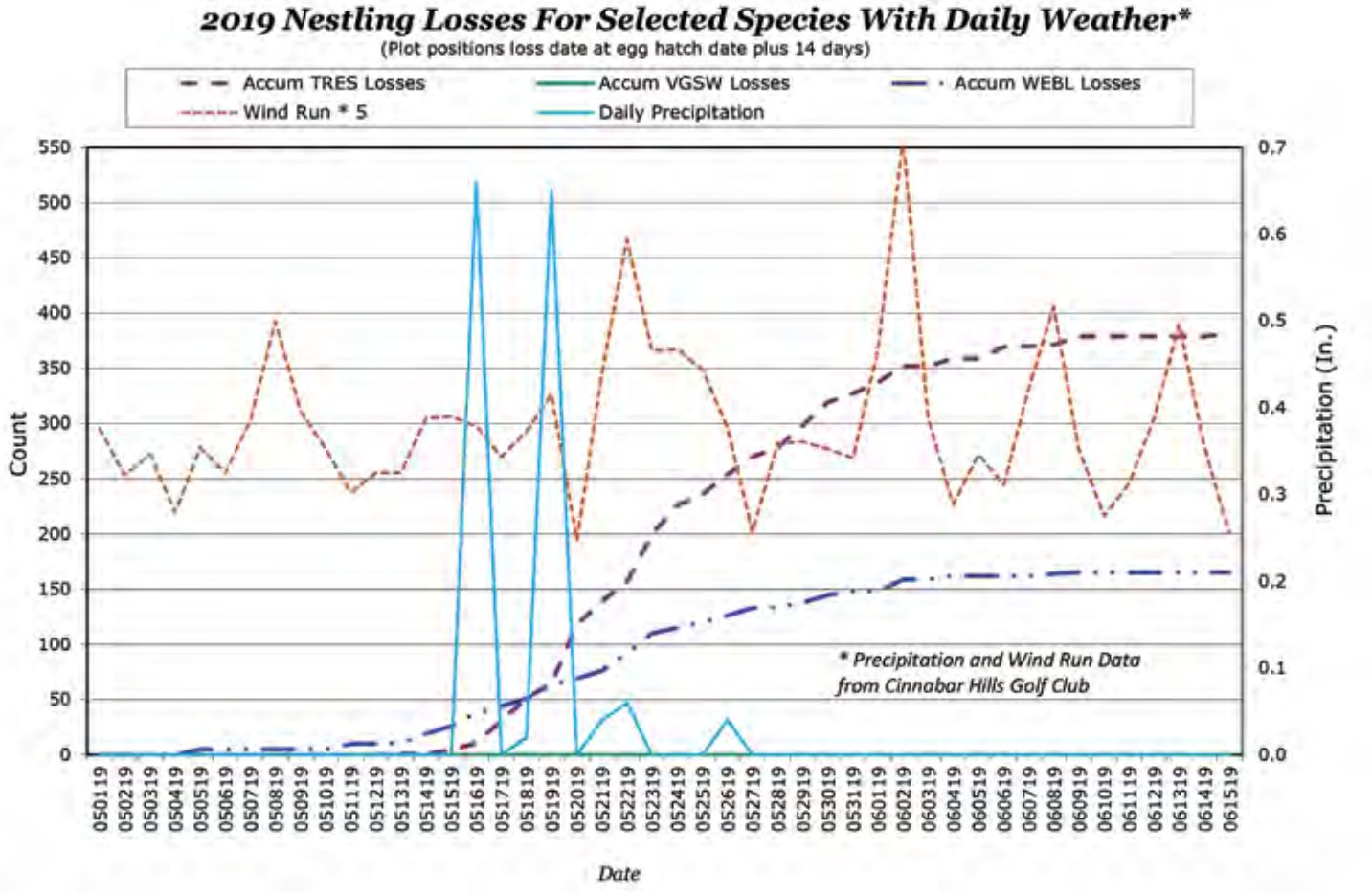
My fear of what I may find is based on several previous season's weather-related disasters due to late May/early June storms that had passed through, and afterwards my finding above-normal nestling losses.

Thanks to the club's Superintendent, Brian Boyer, who provided me with the club's weather station data, I was able to determine that the club had received 1.33 inches of rain in the four days preceding May 20th. In those same four days the average Wind Run was 59.34 with the highest reading being 65.28 (Wind Run is measurement of the "amount" of wind passing the station during a given period of time).

I have blamed these disasters on the storm's combined wind and rain, but had not before been able to quantify both. During inclement weather the insects stay down, and the Tree Swallow adults can't forage by picking the insects out of the air. As a result they can't feed their nestlings, and possibly themselves. At such times the nestlings may be left alone to die of hypothermia as the adults forage.

My fear of what I might find was unfortunately validated. On May 20th while going from box to box I found over 250 dead Tree Swallow nestlings—most often entire clutches were dead. Although some nestlings were still alive, they appeared so weakened that I didn't expect to find them alive during my next visit. Between May 20th and May 29th I found a total of 276 dead Tree Swallow nestlings.

I created the accompanying graph hoping to better show how weather can negatively affect nesting success for not only Tree Swallows (TRES), but for comparison purposes Western Bluebirds (WEBL) and Violet-green Swallows (VGSW).



In explaining the graph be aware that I don't record the exact date nor age of the lost nestlings, but instead calculate the loss date as their estimated hatch date plus 14 days. As a result, the accumulated nestling losses plot is the least accurate by date, although accurate in total numbers. Also, the actual Wind Run value was multiplied by five in order to be on a similar scale with the nestling numbers. What part of the day the wind was blowing is important (daylight), but, besides being unavailable, would be more difficult to factor in.

Note the steep increase in Tree Swallow nestling losses after the rains subsided which is not evident with Western Bluebird losses as they can still forage on the ground. Violet-green Swallows suffered no losses as none of their eggs had yet hatched.

More rain fell after May 20th, and the winds continued. The Wind Run on June 2nd was 111.6. Despite the weather, by my next visit many of the affected Tree Swallows had built new nests, and some had even begun laying their second clutch of eggs. Bless their little hearts.

All three late storms that I've experienced in 18 seasons of monitoring have caused havoc resulting in above-normal nestling deaths. After one late storm I found a dead bluebird juvenile on the ground near the nestbox, so the storms affect not just nestlings, but fledglings also. This season's storm was particularly intense dropping significant rainfall accompanied by high winds, and was long in duration. I fear that with climate change these unusual late storms will become the norm.

Dean Rust Honored

Dean Rust, President of the Bluebird Society of Pennsylvania, was recently honored with the NABS President's Award. His award letter from NABS president Bernie Daniel reads:

> This award is bestowed upon someone in the bluebird community who has made a difference in our long lasting struggle to ensure that all three species of bluebirds, as well as other native cavity nesting birds continue to thrive on this continent and that they will always be here to amaze and delight future generations of Americans long after we are gone. Your exemplary leadership of the Bluebird Society of PA and your authorship of the outstanding book, ***The Beloved and Charismatic Bluebird*** are only two examples of this lasting contribution that you have made and continue to make to the cause. It is with pleasure that I bestow this award on behalf of the entire Board and membership of the North American Bluebird Society on you in appreciation for all you have done for our little blue fellow travelers on this earth.

Dean said: "I had been invited to present a bluebird program on September 28th during the Fall Annual Conference of the New York State Bluebird Society in Binghamton, New York. Today I got a huge suprise presentation of a 2019 NABS President's Award by Bernie Daniel. Jim Engelbrecht presented it after my bluebird presentation. Along with it was a gorgeous framed watercolor of a pair of Blues in a rural farm barn scene. I still am in shock!!"

NABS Treasurer Jim Engelbrecht (left) presents the NABS President's Award to Dean Rust

This article originally appeared in the Bluebird Society of Pennsylvania's newsletter. It is reprinted here with permission.

NABS Education Grant Request for Proposals: Western Bluebird Growth Chart

NABS is interested in hearing from experienced bluebirders who work with Western Bluebirds and who also have photography and bird handling skills. NABS would like to award an education grant to at least partially cover the cost of photographing Western Bluebird (WEBL) nestlings on every day of their development (from hatching to fledging) to provide the images needed for the construction of a Nestling Growth chart for that species. Ideally, the awardee would photograph the whole clutch in the nest and also a nestling in hand for each day starting from Day 0 (day of hatching) to approximately Day 15. As an example of the kind of photography desired, observe these images of Eastern Bluebird nestlings (below), showing both the individual nestling in hand and in the clutch on Day 3. These are images that were used to build a growth chart for that species.

The individual responding to this request would be responsible for knowing the recommended and safe methods of handling wild birds and also for obtaining any required local or federal permits for handling them.

Images submitted to NABS under this grant would become NABS property; however, the photographer may also use those images obtained for their own purposes as long as those uses do not conflict or run counter to the NABS application of the images in a Western Bluebird Growth Chart.

General guidelines for submitting education grants to NABS are provided on our website (**http://www.nabluebirdsociety.org/grants/**) and specific questions about the submission of a proposal can be directed to **bdaniel@cinci.rr.com**

Mountains of Information on Mountain Bluebirds

Rob McKay / Bigstock.com

Drs. L. Scott Johnson (Towson University) and Russell D. Dawson (University of Northern British Columbia) have recently published a complete summary of the known biology of the Mountain Bluebird. This "species account" is part of the *Birds of North America Online* series published by the Cornell Lab of Ornithology in conjunction with the American Ornithological Society. According to the series editor, Dr. Paul Rodewald, the series "provides encyclopedic coverage of the biology of North American breeding birds, with species accounts written by recognized experts," and the authoritative text is supplemented with images, sounds, video, maps, and data. In compiling the Mountain Bluebird account, Drs. Johnson and Dawson pulled information on the species from more than 800 publications dating back to the late 1700s. You can access this account (as well as accounts for all other bird species breeding in North America) for a mere $5 US/month at this website:

https://birdsna.org/Species-Account/bna/support/subscribe

Bluebirds Everywhere

"**Bluebirds Everywhere**" is a feature that celebrates the widespread and creative uses of bluebird images and the word "bluebird" itself. We invite you to submit your own images and ideas—simply email them to **NABSeditor@gmail.com** or mail them to NABS Editor, 5405 Villa View Dr., Farmington, NM 87402. Let's see what bluebirds you can find!

Gwen Martin, co-president of the Prescott Bluebird Recovery Project (PBRP) in Oregon, provided this tidbit: "Oregon winery Sokol Blosser offers a wine named Bluebird Sparkling Cuvée. Sokol Blosser is a long-time supporter of PBRP. Western Bluebirds love to nest in vineyards, and PBRP has numerous vineyards and wineries that host our boxes." Visit sokolblosser.com for more information and a closeup of this wine's bluebird label.

Sandra Folzer of Philadelphia and Mansfield, Pennsylvania, shared this image of "our favorite plates. We have 4 plates and a small serving dish I have gradually collected. They are old. On the back it says Derwood W.S. George 144A." Does anyone know more about these plates?

Kathy Miller says, "On a recent trip to Kansas City, Missouri, we had a delicious curry at the upscale Blue Bird Bistro. They describe themselves as 'MidAmerican Artisan Cuisine' - organic - all-natural - sustainable - local." And who could resist walking through that bright yellow door?

Jeri Edwards saw this delivery truck in California, and sent along a photo for us. Blue Bird Bakeries of Thomasville, Georgia, produces a line of snack items (think donuts and cupcakes, and something called a Red Velvet Bingle, which has something of a cult following online). These products are baked, apparently, by this smiling, winking bluebird. Or not.

BluesNews

Tin Men Welcome

Some of our readers may remember the BluesNews piece about Blue Bird Hardware & Seed of Mobile, Alabama (*Bluebird*, Fall 2018). The company had gone belly up, but their old building (on the National Register of Historic Places) was being renovated to house small businesses. The first was a pizza place, followed by a couple of local health-related businesses. Now comes word that the newest tenant will be something called Strong Arm Axe Throwing. Apparently, axe throwing (indoors!) is now a thing. Think of it like bowling but with a razor-sharp deadly instrument. Actually, it's supposed to be a lot of fun and a good workout. More information is at the Strong Arm Axe Throwing Facebook page.

coconinoco / Flickr.com

Either Way, it's a Cavity Nester

Earlier this year the Maine legislature confronted a challenging legal matter of great importance. Back in 1927, the state's leaders named the chickadee as the official state bird. Problem is, there are *two* chickadee species in Maine—Black-capped and Boreal—but the 1927 legislature did not specify which species should be honored. Fast-forward to 2019, when legislators introduced a bill to make the law more specific by finally picking a species. After what must have been some very interesting debate, the bill was unanimously killed in committee without a selection being made. The state bird remains the "chickadee."

Lucy's Warbler Nestbox Requirements

Many bluebirders are aware that the Prothonotary Warbler will nest in cavities. But did you know that North America is home to another cavity-nesting warbler? The Lucy's Warbler will nest in natural cavities, but it does not have a long history of using nestboxes.

Recently, the Cornell Lab of Ornithology removed Lucy's Warbler from a standardized "small songbird" box plan. It was replaced with a new and different plan that features a more species-specific design that is almost triangular in shape and better suits the needs of this small desert-dwelling warbler. Perhaps it is because Lucy's Warblers are desert-dwellers, or perhaps because the intersection between the warbler's habitat and crowded human habitation is historically recent, that Lucy's Warblers are relative newcomers to the nestbox world. We still have a lot to learn about how they co-habit within human-altered environments.

The Tucson Audubon Society has been making inquiries into this subject for a few years now and with a number of alternative nestbox models. The new triangular design is the result of real progress. Tucson Audubon is engaged in ongoing efforts to determine if the species will continue to respond well to the new nestbox design.

If you are lucky enough to live within the range of the Lucy's Warbler (American Southwest), or are just curious about the species and the new nestbox design, additional information is available on the Tucson Audubon website: **http://tucsonaudubon.org/lucys-warblers-and-nestboxes/**

This article originally appeared in a slightly different form in the Birding Community E-bulletin (https://www.refugeassociation.org/birding-community-e-bulletin). *It is reprinted here with permission.*

Tim Boyer / Flickr.com

Common Blue-Bird

John James Audubon

Editor's note: *What did one of our most celebrated early ornithologists think of the Eastern Bluebird? In 1840–1844, John James Audubon published his 7-volume* Birds of America. *In the following excerpts from Volume 2, the artist/scientist displays his admiration for bluebirds.*

This lovely bird is found in all parts of our country, and is generally a permanent resident of the Southern States. It adds to the delight imparted by spring, and enlivens the dull days of winter. Full of innocent vivacity, warbling its ever pleasing notes, and familiar as any bird can be in its natural freedom, it is one of the most agreeable of our feathered favourites. The pure azure of its mantle, and the beautiful glow of its breast, render it conspicuous, as it flits through the orchards and gardens, crosses the fields or meadows, or hops along by the road-side. Recollecting the little box made for it, as it sits on the roof of the house, the barn or the fence-stake, it returns to it even during the winter, and its visits are always welcomed by those who know it best.

When March returns, the male commences his courtship, manifesting as much tenderness and affection towards his chosen one, as the dove itself. Martins and House Wrens! be prepared to encounter his anger, or keep at a respectful distance. Even the wily cat he will torment with querulous chirpings, whenever he sees her in the path from which he wishes to pick up an insect for his mate.

The Blue-bird … forms its nest in the box made expressly for the purpose, or in any convenient hole or cavity it can find, often taking possession of those abandoned by the Woodpecker. The eggs are from four to six, of a pale blue colour. Two and often three broods are raised in the year.

The food of this species consists of coleoptera, caterpillars, spiders, and insects of various kinds, in procuring which it frequently alights against the bark of trees. They are also fond of ripe fruits, such as figs, persimons, and grapes, and during the autumnal months they pounce on grasshoppers from the tops of the great mullein, so frequent in the old fields. They are extremely fond of newly ploughed land, on which, especially during winter and early spring, they are often seen in search of the insects turned out of their burrows by the plough.

The song of the Blue-bird is a soft agreeable warble, often repeated during the love-season, when it seldom sings without a gentle quivering of the wings. When the period of migration arrives, its voice consists merely of a tender and plaintive note, perhaps denoting the reluctance with which it contemplates the approach of winter.

This species has often reminded me of the Robin Redbreast of Europe, to which it bears a considerable resemblance in form and habits. Like the Blue-bird the Redbreast has large eyes, in which the power of its passions are at times seen to be expressed. Like it also, he alights on the lower branches of a tree, where, standing in the same position, he peeps sidewise at the objects beneath and around, until spying a grub or an insect, he launches lightly towards it, picks it up, and gazes around intent on discovering more, then takes a few hops with a downward inclination of the body, stops, erects himself, and should not another insect be near, returns to the branch, and tunes his throat anew. Perhaps it may have been on account of having observed something of this similarity of habits, that the first settlers in Massachusetts named our bird the Blue Robin, a name which it still retains in that state.

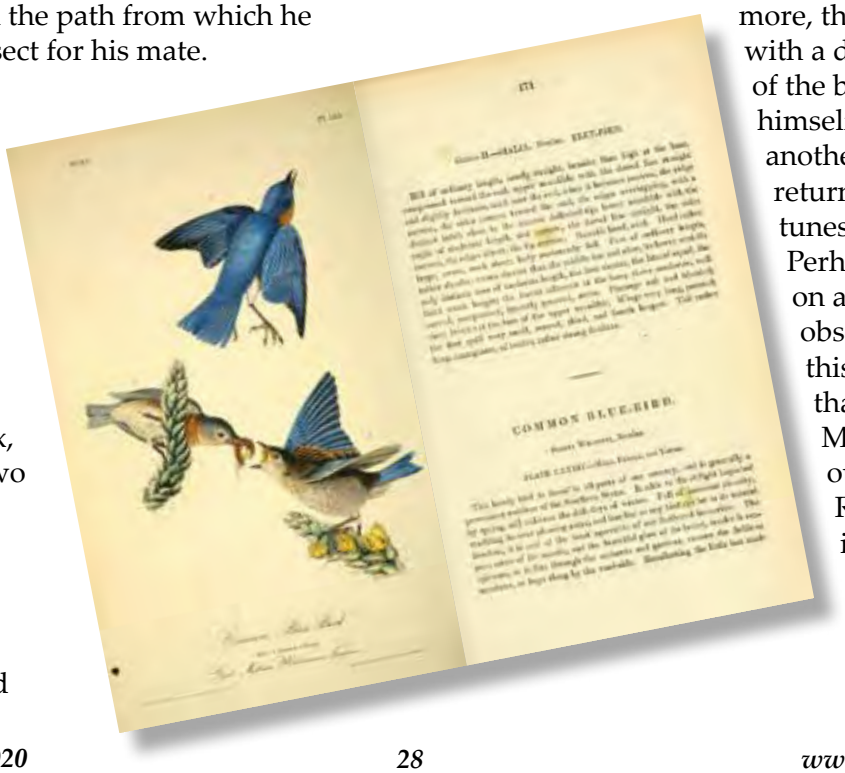


Photo Gallery

Jeri Edwards submitted this image of a Western Bluebird from the Central Coast of California. He's focused intently on *something*—probably his dinner!

Mmm...that's good pokeweed! Mary Havian Santangelo took this photo of a hungry Eastern Bluebird in Effingham, Illinois. The berries of pokeweed are **poisonous** to humans but an important native food source for bluebirds and other fruit-eating birds.

Our "Photo Gallery" only showcases photographs of cavity nesters, but we made an exception in order to show this beautiful artwork by Rose Legge. Rose says she created this piece "to express my love for the bluebirds and their cycle of life." She and her husband monitor bluebirds in the Castle Rock, Colorado, area.

It's hard not to smile when you see a nuthatch, with their herky-jerky movements and frenetic activity. Here's a Brown-headed Nuthatch by Laura Wolf, printed here under a Creative Commons license. You can see more of Laura's photographs at https://flickr.com/photos/laurawolfartist/.

Affiliates of the North American Bluebird Society

The North American Bluebird Society serves as a clearinghouse for ideas, research, management, and education on behalf of bluebirds and other native cavity-nesting species. NABS invites all state, provincial, and regional bluebird organizations to become NABS Affiliates in a confederation of equals working together in a partnership in international bluebird conservation. No cost is associated with affiliating with NABS. Your affiliated organization will be listed on the NABS website and in *Bluebird*. To find out more about becoming a NABS Affiliate please contact Kevin Corwin at **KCorwin@nabluebirdsociety.org**. If your organization is listed below, please review your listing to ensure it is current and send any changes to Kevin. Thanks!

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