



BLUEBIRD

JOURNAL OF THE NORTH AMERICAN BLUEBIRD SOCIETY



SPRING 2020
VOL. 42 No. 2



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Cover photo: Just a hint of spring in this photo of an Eastern Bluebird taken by NABS member Bonnie Bell along the C & O Canal at Sycamore Landing near Poolesville, Maryland.

Table of Contents photo: A Hooded Merganser hen tries to keep her brood together in Redmond, Washington. Photo by Mick Thompson (<https://flickr.com/photos/mickthompson/>); Creative Commons license.



BLUEBIRD

Bluebird/Sialia (ISSN 0890-7021) is published quarterly by North American Bluebird Society, Inc., P.O. Box 7844, Bloomington, IN 47407

Printed by Sutherland Companies
Montezuma, IA

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Subscription is included with membership in NABS. Write for information about bulk quantities. Make checks and money orders payable to NABS in U.S. funds.

Issues are dated Winter, Spring, Summer, and Fall, and appear approximately on the 15th day of January, April, July, and October, respectively. Submissions are accepted continuously and published as space and editorial constraints allow.

Letters to the editor and articles in this publication express the opinions and/or positions of the authors. Submissions may be edited for length and content. Published articles do not necessarily represent the opinions and positions of the Officers, Directors, or other representatives of NABS.

General questions may be addressed to info@nabluebirdsociety.org or call **513-266-4381** between noon and 8 p.m. EST. Please leave a message if no answer, or send a text message any time. Visit us on Facebook at <https://www.facebook.com/NorthAmericanBluebirdSociety/>

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.

www.nabluebirdsociety.org

Spring Message to Our Affiliate Organizations

Kevin Corwin

Hello Fellow Bluebirders!

Wow! It's hard to believe we've had the NABS Affiliate Rep's program in place for two years already! It is my fervent hope that we have helped each of you in some significant way. Please remember you don't have to wait till we come to you; if you have a suggestion about how we might better serve you, or if you're facing challenges that we might be able to help you solve, please don't hesitate to drop your Affiliate Rep an email and let him/her know what you're thinking. Your Rep's contact info is included within your Affiliate listings on Pages 30-32 of this issue.

By the time you read this the NABS/BAN joint conference will be in the rear-view mirror. I hope many of you had the opportunity to participate in it. We were especially excited to have Robyn Bailey, the NestWatch Project Leader at the Cornell Lab of Ornithology, attend and speak about the benefits of using NestWatch as our data repository. If your organization is still collecting its own data and managing its own database, and not forwarding information to NestWatch, I urge you to spend some serious time and effort in learning about the benefits you can accrue from shifting the onus of managing your organization's data to NestWatch. Even if you just find a way (and the folks here at NABS and at the Cornell Lab will work very hard to help you) to forward your data to them after you've collected and compiled it for your purposes, you'll be doing so much more for science and the birds than by keeping it to yourself.

I will be retiring from the NABS Board when my term expires next September 30. I'm announcing it early because I want you to step forward and replace me. I can tell you firsthand that serving on the NABS Board will broaden your knowledge in so many ways you never could have dreamed possible. You don't have to wait until I'm gone or until we have our elections, we can appoint you to the Board any time and that will give you plenty of time to get up to speed. Contact our Board President, Bernie Daniel, at email Bdaniel@NABluebirdSociety.org

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

From the President

Bernie Daniel

So far this year we really have not paid our winter dues. Except for a few brief cold snaps, it has been mild (mostly 30s) where I live in the southwestern corner of Ohio. I sure hope that we are not forced to pay this debit back with an unseasonably cold, snowy, slushy, windy spring that limits insects and is hard on adult and nesting bluebirds!

But whatever the weather, we know that the bluebirds and other cavity-nesting birds will be here and ready to start the new breeding season—the cycle of life continues. If you are like me, you are thinking about what you might do differently (and better) this year on the nestbox trail. I have some boxes that need a fresh coat of exterior grade white latex paint, and some that need new heat shields (½-inch polystyrene wall insulation). You can buy enough of the polystyrene sheeting to shield 10 nestboxes for a few dollars (e.g., at Home Depot). If you just cut it to match the roof, glue it on with Titebond III (a waterproof wood glue), and then paint it with a couple of layers of the white latex paint it will stand up to the weather for 5 years minimum—even longer if you repaint every few years! But best of all it greatly reduces the amount of heat that soaks into the box through the roof on a hot sunny day. It can make the difference between eggs/nestlings surviving and not.

I hope all our members like the “centerfold” in this spring *Bluebird*. The Board and officers are pleased to provide you with your own personal copy of our newest NABS Fact Sheet entitled “Eastern Bluebird Nestling Growth Chart.” This new publication is a result of the hard work of our Education committee. This a good example of the kinds of things we do on our NABS committees. I certainly wish more of our members would be willing to commit a bit of their knowledge, talents, and time to help us make more worthy projects like this happen. Yes, it is very important to work on that nestbox trail but there are other things like these projects that are also necessary if we are to make a holistic effort to help save our bluebirds and other native cavity nesting species.

Using the images in this new Fact Sheet it should be easy to estimate the age of your Eastern Bluebird nestlings. We have printed 10,000 copies of this new publication and members can download additional copies from the website also. This Nestling Growth

chart was made possible via a NABS Joseph A. Kujanik Education Grant awarded to Professor Laura Palmer at the Pennsylvania State University Department of Biology. Dr. Palmer obtained all the permits needed to handle wild bird nestlings and then collected all the images herself from a nestbox trail near the University. She also wrote the detailed descriptions that accompany each photograph. The Fact Sheet design was created by the NABS Education Committee.

We are hoping to get images of Western Bluebird nestlings this summer so we can do a similar Fact Sheet for that species. If we get the images of the WEBL nestlings would any of you members who live out there in their part of the world like to join the Education Committee and help develop the new growth chart for that species? If so, please contact us! There is already a good set of daily growth images for Mountain Bluebird nestlings available in the Mountain Bluebird Trail Monitoring Guide written by Myrna Pearman (that publication is available for a modest fee from The Ellis Bird Farm, Inc. (please contact: myrnap@ellisbirdfarm.ab.ca).

Here is another example of NABS committee work in action! On the NABS website (you do visit the NABS website, don't you?!) you will find the results of a new project recently completed by the NABS Nestbox Committee. The Nestbox Committee took another look at our long-standing set of plans for the NABS East-West Side Opening Nestbox and have made some important improvements to its design. The new, improved box, called the “NABS 2020 Bluebird Nestbox,” is two inches taller, and features a larger, overhanging roof and a recessed bottom. If you add the recommended vent holes near the top, floor drains, and put some kind of heat shield on the roof you will have a GREAT bluebird nestbox that is also quite easy to build and acceptable for nearly any environment or habitat. Please take a look at this new design, and if you are interested in nestbox reviews and nestbox design, consider joining the NABS Nestbox Committee. We know there are many great ideas out there in the membership that we have not thought of, so please consider giving NABS a helping hand.

And speaking of help, here is an area where we could really use some assistance: One of our current

Fact Sheets describes mealworms and how to feed them to bluebirds (<http://nabluebirdsociety.org/PDF/NABSFactsheetMealworms.pdf>). This document has not been updated for about 8 years and probably needs a refresh. I know we have members who are heavily engaged in feeding mealworms to their bluebirds. Certainly, many of you have gained a lot of new ideas on feeding mealworms. If you are one of those could you agree to review our current Mealworm Fact Sheet and then make recommendations to us on how we might update the Fact Sheet and improve it? If so please let us know and we'll will send a hard copy or electronic copy (e.g., .doc or .pdf) for you to review and make recommendations for creating an improved Fact Sheet!

Also, in this issue you will notice that I wrote a short piece on climate change and its possible relation to bluebird populations. I hope the members find it informative and interesting. Today, we hear a lot of discussion and speculation about climate change and how it might affect our lifestyles and the world we live in. Of course, any climate change will also affect living conditions for wildlife as well and bluebirds are no exception. In fact, wildlife is, without a doubt, much more susceptible to environmental changes than humans. I would guess that the concept of climate change *per se* is not controversial, and most likely a substantial majority of individuals acknowledge that the earth's climate has been constantly changing over its billions of years. But these days there is considerable debate over what might be causing the climate to change. The sharpest part of the debate involves determining whether human activities (e.g., energy production or transportation) are responsible for at least some of that changing climate. Fortunately, we can discuss the *effects* of climate change and what might (or might not) happen to wildlife without becoming embroiled in the debate over the factors that might be causing these changes.

With that caveat in mind, my purpose for writing the article was to make our members aware of work the National Audubon Society (Audubon) is doing on trying to predict the effects of a changing climate on bird migration and breeding patterns and ultimately on bird populations themselves. Audubon scientists have initiated a program named Survival by Degrees. As part of this program, Audubon scientists designed a model to predict what changing climates (e.g., temperature, precipitation) might do to alter the winter and breeding ranges of North American

birds. I have looked at the model's predictions for the Eastern Bluebird and have presented some of these conclusions in the paper on page 11. I intend to cover the analogous predictions for the Western and Mountain Bluebirds in the summer issue. Of course, any member feed back on this article would be appreciated.

On a closely related topic our readers will note that we have invited Kathy Dale, Director of Science Technology, and her staff at Audubon to discuss the "Survival by Degrees" report with us and tell us how NABS members can participate by submitting information about their bluebird observations (see page 14) to Audubon through the Climate Watch program. Climate Watch is a citizen science project that is designed to collect data on bluebirds and nuthatches during two periods each year: late winter (January to February) and early summer (May to June). The data collected is then used to help determine whether the predictions of the Survival by Degrees model are occurring. I urge you to read Kathy's article and learn how to participate in this important scientific effort if you can.

Just an additional comment to avoid any confusion. The Audubon Climate Watch is a different program than the Cornell NestWatch program. The goals of the two programs are different. But both are important citizen science programs, and both depend on information about bluebirds! Participating in the data collection efforts for these two programs is another outstanding way we can help bluebirds.

Also, in this issue you will find a list of all 196 NABS Life Members (both living and past)! We think we have everyone but if you are a NABS life member and your name is not on that list please contact us so that we can resolve the discrepancy! In the next issue we will publish a list of NABS charter members.

NABS has a cell phone! I want to make sure that you all noticed the information near the bottom of the left-hand side of page 1. You will see that NABS now has an official cell phone that can be used to communicate with us. The number is 513-266-4381 and is available for voice conversations between noon and 8 pm (EST). If there is no answer, please leave a detailed message and we will get back with you. A text can be sent at any time.

And, on the topic of communication, I would like to inform the membership that at our January meeting the Board approved a proposal to invest in

a communications software system called Constant Contact. This is a system that will permit NABS to efficiently communicate with members via email when the need arises. For example, each year we spend a considerable sum of money sending first class letters to remind some members that their subscriptions have expired. If we had the email address of those members, we could notify them of the expired membership at essentially no charge thus saving money for NABS programs devoted to bluebirds. So, we encourage members to provide us with a working email address when you renew your subscription. And we can assure you that this new program will be used very sparingly and will *not* be used to send any kind of solicitations or any information not pertaining to NABS (see page 10).

At the same meeting the Board decided to raise the subscription rates for some memberships. The "Subscribing Household" membership will be raised from \$30 per year to \$35 and the "Subscribing Individual" to \$25 per year from the current \$20. We never like to raise the cost of NABS membership, but this rate change is our first in 18 years. It was necessary because the cost of printing and mailing *Bluebird* has increased significantly over those nearly two decades. Our goal is to make sure that membership fees, at a minimum, fully cover the cost of *Bluebird*. This way any additional revenues taken in can be used to fund our programs in research, education and conservation. These changes will take effect on April 1, 2020.

Let me close with this comment, a caution, and a request.

I believe the last five years have been pretty good ones for NABS. We have significantly solidified our financial position and our Society has grown to approximately \$300K in total assets. Our grants program has been expanded and we now award grants for education and conservation projects as well as research. Over the last four years, we have made a concerted effort to reach out to and to work with the NABS Affiliates and this program continues to gain momentum. We have refocused and expanded our research grants program to include grants for education and conservation projects as well as research. This year three of our four research grants had a connection with one of our NABS Affiliate organizations! It should be noted that one of our Affiliates, the New York State Bluebird Society, also contributes funds to the research grants program. We have updated many of our Fact Sheets and have

even added a new one this year. And we are not stopping there! We have plans for updating other Fact Sheets and creating at least one new one again this year. Last summer we entered a formal working relationship with the Cornell NestWatch program, and we are supporting additional efforts at Cornell to expand their historical database on bluebirds. And isn't it safe to say that our journal, *Bluebird*, has never been better? It seems to me each new issue tops the previous one. And let's not forget that the NABS website was completely redesigned last year and is easier to use and has many new and useful features. Our Facebook page is closing in on 10,000 followers with over 4,000 posts! All of this is a result of very hard work by the NABS Board and Officers, the members of our committees, our Editor, and Webmaster. With our NABS 2020 Conference in March I think 2020 will be another fine year for our Society. To keep the NABS ship upright and sailing smooth we will have to maintain strong leadership from our Board and Officers. We need to start planning for this right away. That was the, rather long, comment! Smile.

My caution is to remind our members that most of our Officers and a many of our Board members have now served many consecutive years. I believe that this might be my seventeenth consecutive year on our Board and sixth as an Officer. I think that at least a few of the other Board members have served as long or longer. We need to find, from our ranks, other NABS members willing to step up to the plate to lead our conservation organization. If we cannot then one of two things will happen. Either other individuals outside of our Society will assume the leadership positions and set different policies, or NABS, after over four decades of serving bluebirds and native cavity-nesting species, could go the way of the Passenger Pigeon and the Ivory-billed Woodpecker!

So, my request is that more members consider joining the effort and getting involved with the workings of your Society. The time for "kicking the can down the road" has long passed. If you have any questions about serving on the Board or our committees please call the NABS cell phone and let's talk!

All the best to everyone on your nestbox trails in 2020!

Bernie



From the Managing Editor

Scott W. Gillihan

A study just published in the scientific journal *Frontiers in Psychology* concludes that spending time in nature benefits children and society in multiple ways. According to a summary of the study by CNN:

The researchers found [that] children who felt connected to nature—feeling pleasure when seeing wildflowers and animals, hearing sounds of nature—engaged in altruism, or actions that helped other people. These children actively cared for the environment by recycling, reusing objects and saving water. They were also more likely to say they believed in equality among sexes, races and socioeconomic conditions. Finally, these children scored high on a happiness scale, too.

Get your kids and grandkids outside—it’s good for all of us!

My thanks to Jack Forbes and Kristen Miller, who sent me information about cavity-nest predators (see my request for information in the Fall 2019 issue, p. 27, or contact me directly), and all of the writers and photographers who contributed material to this issue. Also, my thanks to the sponsors, advertisers, and Affiliates. And as always, my thanks to the members of NABS, for your hard work and dedication to the conservation of bluebirds and other native cavity-nesting birds.

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

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NABS 2020 Research Grants Program

In early January the Grants committee held a conference call and agreed to fund four of the research proposals submitted for this year. As in past years NABS partnered with one of our Affiliates, the New York State Bluebird Society, for this research grants program. By pooling our resources with NYSBS we can fund more projects of course.

Three of the four grants awarded this year will be for projects doing research on bluebirds. The fourth grant is to a project that deals with efforts to conserve the smallest cavity-nesting bird in North America, the Lucy's Warbler. In addition, three of the grants have direct links to NABS Affiliates.

The winners of grants for this year program, with the grant name, principal investigator, and institution, are shown below.

Project Title: Mountain Bluebird Nestbox

Monitoring Project of Jackson Hole

Principal Investigator: Kate Gersh

Institution: Jackson Hole Wildlife Foundation,
WY

This project is a study of the reproduction and migration of Mountain Bluebirds on the Elk Ridge Reserve, an area that has lost much of its aspen forests, which was the traditional habitat for bluebirds.

Project Title: Should I stay or should I go?

How migratory strategies and natal dispersal decisions structure Eastern Bluebird populations in a developed landscape

Principle Investigator: Jennifer Mortensen, Ph.D.,

Institution: Department of Biological Sciences,
University of Arkansas

Project will study the seasonal migration dynamics of the several Eastern Bluebird populations which have different migration strategies, using stable isotope analysis.

Project Title: Microbial partners: The gut

microbiota and its effects on developmental immunity to nest parasites in Eastern Bluebird nestlings

Principal Investigator: Jessica Gutierrez

(Academic Advisor: Sarah Knutie)

Institution: Department of Ecology and
Evolutionary Biology, University of Connecticut

This project examines the relationship between gut microflora, antibodies, and Eastern Bluebird nestling growth and survival.

Project Title: Secret Lives of Lucy's Warblers—A
Breeding Biology Camera Study

Principle Investigator: Olya Phillips

Institution: Tucson Audubon Society, AZ

This project examines the life history of Lucy's Warblers examining different nestbox designs and looking at nesting patterns and predator issues in order to facilitate their reproduction.

It should be noted that the Jackson Hole Wildlife Foundation and the Tucson Audubon Society are NABS Affiliates and that the Bella Vista Bluebird Society is collaborating with the project at the University of Arkansas. We are very pleased with this year's program and we thank everyone who submitted a proposal. Special thanks also to the grants committee for reading and evaluating all the submitted projects. The winning investigators were mailed grant checks from NABS and NYSBS in the first week of February 2020.

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



Volunteer Opportunities with the NYSBS (New York State Bluebird Society)

The NYSBS began in 1982 and has helped to restore the nesting population of the Eastern Bluebird across the state. We are an affiliate of the North American Bluebird Society (NABS) and support research studies by partnering with NABS on funding for ornithological grants. We have established 2 main educational Bluebird trails; the Rt 20 Trail that runs from East to West across the center of New York and the Rt 11 Trail that runs from North to South (Canada to Pennsylvania). We also conduct several educational programs throughout the state to improve nesting success of bluebirds and other cavity nesting species.



Editor for Bluebird News (quarterly NYSBS newsletter)

We need a person who has knowledge of bluebirds and prior experience on editing/correcting submissions by email and hard copy. The *Bluebird News* is a critical publication for outreach and education to our members and thereby impacts the population health of the Eastern Bluebird and other native cavity nesting birds. This person will work in conjunction with other members to produce a quality and informative newsletter. Attendance at NYSBS Board meetings (twice/year) is helpful in learning NYSBS concerns and upcoming programs and activities. Interested persons should contact current editor Martha Moran to discuss the details of what is involved. newseditor@NYSBS.org

State Bluebird Coordinator

This key position works directly with people in supervisory roles (Area and County Coordinators) and Bluebird Ambassadors who monitor nestboxes and participate in educational programs. To facilitate communication this person updates a listing of NYSBS volunteers by county showing name, address, phone # and email address. This person also requests needed educational resources (brochures & fact sheets) to supply to those doing outreach and educational presentations. Attendance at NYSBS Board Meetings is highly recommended and ideally this person will become a member of the NYSBS Board. Interested persons should contact NYSBS President Sarah Hodder to learn more about this position. President@NYSBS.org 607-242-8807

Mark Your Calendars: NYSBS Annual Conference on Saturday October 17th

This year's event will be in Ithaca, New York, at the Cornell Laboratory of Ornithology. We will be featuring NABS President Bernie Daniel as keynote speaker. Bernie will be speaking on the apparent stagnation of Eastern Bluebird population growth and the possible role of the declining numbers of insects, the continued influence of House Sparrows, the number of bluebirders, and climate change in the changing fortunes of bluebirds. We will also hear Heather William (SUNY Buffalo) describe the results of her three-year nestbox parasite ecology study with Eastern Bluebirds, Purple Martins, and Tree Swallows. Come early and enjoy a walk in Sapsucker Woods with a Cayuga County Bird Club guide. Admission is free and all are welcome. Specifics will be in the Summer issue of *Bluebird*.



A Slick Solution to House Sparrows in Nestboxes

Facundo Fernandez-Duque

For most people in the bluebird community, it's a real pleasure to watch our local birds nest and raise their young right before our eyes. However, this becomes impossible when House Sparrows keep occupying the nestboxes. Aside from depriving us of the beauty of bluebirds and swallows, House Sparrows frequently outcompete and physically hurt native birds. On a nationwide scale this can have a big impact and cause the birds we love to decline in numbers. So, what can we do to deter House Sparrows and help our local birds?

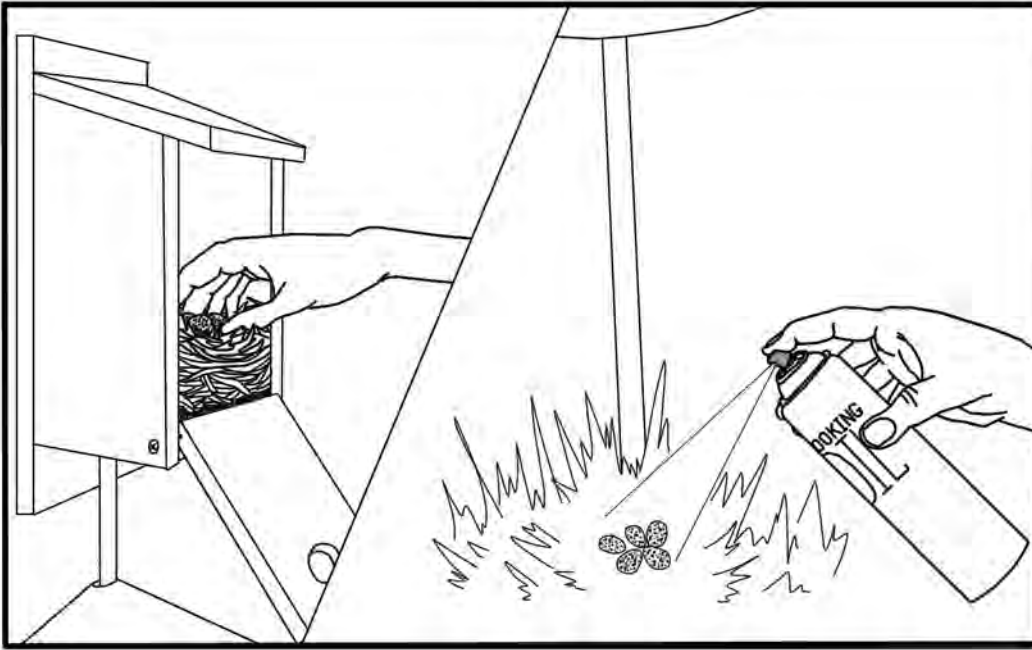
In the past, people have tried many things to stop House Sparrows, including nestbox alterations, nest destruction, egg removal, egg swapping, and even euthanizing the adults. Unfortunately, each technique has its drawbacks. Nest alterations have proven ineffective as House Sparrows tend to be very flexible in their selection of nestboxes. More direct control methods, such as nest and clutch destruction,

may seem like a good idea but can actually backfire and hurt the native birds. House Sparrows that have their nest or eggs destroyed frequently may abandon the nestbox and take over a different (occupied) one. Since they are dominant over most of the native cavity nesters, this usually means they will destroy and remove anything in the box (including incubating female bluebirds—see photo). Swapping the real eggs of a House Sparrow with fake wooden eggs has recently become popular. Although this method is promising, it is limited by the time and effort required to fool the House Sparrows. Egg swapping requires you to obtain realistic fake eggs (which can be fairly expensive depending on how many you need), swap them for real eggs, and regularly check to ensure the adults haven't laid new eggs. Occasionally, the adults will discard the wooden eggs, which means that you will have to replace them. Finally, some nestbox owners do trap and destroy the adult House Sparrows. Although this certainly has the most direct impact, recent surveys suggest that a majority of nest box monitors are not euthanizing birds (Larson et al. 2016, Bailey et al. 2020).



Eastern Bluebird killed by a House Sparrow.
Photo by Facundo Fernandez-Duque

Although egg swapping seems like a practical strategy to me, I am a college student and can't afford to undertake this method. However, as a young ornithologist and nature enthusiast, I felt a need to limit the damage done by invasive species. Therefore, I sought to find a more cost-effective and easier option that would still allow me to help my local feathered friends. Working with professionals from the Cornell Lab of Ornithology's NestWatch project, we designed a study to test the effectiveness of a method usually applied to larger birds: egg oiling. This technique is commonly used on larger birds (e.g., geese, gulls, ibises) that are overpopulated or considered a pest. Egg oiling involves the application of a natural oil (usually vegetable, canola, or mineral oil) to a clutch of eggs early in the incubation process. The oil halts the egg development without alerting the adults to this change. As a result, the adults continue to incubate the clutch and waste their opportunity to breed without raising any young. Several years of this technique may decrease the population because there are no new chicks to replace the adults. However, to the best of our knowledge, there have been no studies to determine if this can be applied to small cavity-nesting birds. Given that sprayable vegetable oil is readily available and very cheap, we designed a



Remove the House Sparrow eggs from the nestbox; place them on the ground; spray with vegetable oil; put the eggs back in the nest. *Illustration by Holly Faulkner.*

study to see if this could be a cost-effective, easy, and public-friendly House Sparrow management method.

In the summer of 2018, we monitored roughly 80 nestboxes in Ithaca and Lansing, New York, for signs of House Sparrow activity. When a House Sparrow started a clutch in one of the nestboxes, it was assigned as either control (not oiled) or treatment (oiled with sprayable vegetable oil from the local grocery store). We wanted to see how vegetable oil could affect the number of House Sparrow eggs that hatched, the number of chicks fledged, the incubation time, and the number of renesting attempts by the adults. We oiled 44 clutches of House Sparrow eggs by carefully removing the eggs from the nest, placing them together on the ground at the foot of the nest box, spraying the clutch for 2 seconds and returning the eggs to the nest. Of those 44 nests, none of the eggs hatched which also meant that no young fledged from those nests. The time spent incubating, measured by monitoring activity and testing the warmth of the eggs, was almost twice as long for eggs that were oiled than for eggs that weren't oiled (about 19 days rather than about 10 days). In an extreme case, one female House Sparrow incubated the oiled eggs for 44 days! This study showed that oiling eggs was successful at preventing eggs from hatching, preventing any chicks from fledging, and doubling the time spent incubating (Fernandez-Duque et al. 2019). However, this was only one season of study with one population, so more work still needs to be done to conclusively state that this method works everywhere (that's where readers can help by sharing

their experiences!). These preliminary results point to sprayable vegetable oil as a promising House Sparrow management tool.

Concerns and FAQs

Egg oiling could harm native birds, so we recommend that it only be used by knowledgeable people. To help you deploy this method safely and efficiently, here are some FAQs to guide you:

1. I think I have House Sparrows in my nestbox, but they're never in the box when I check it. How can I confirm it's them?

It's absolutely crucial to know which species is nesting in your box before considering oiling. Luckily, cavity-nesting birds have very distinct nests which allows us to identify the bird even when the adults aren't around. There are many helpful online resources to identify birds' nests, and NestWatch has created a handy pocket guide for less than \$10 (<https://www.acornnaturalists.com/nests-eggs-all-about-birds-pocket-guider.html>). You'll especially want to focus on learning the eggs and nests of native birds with similar-looking eggs (e.g., wrens, chickadees, nuthatches, and titmice).

2. I oiled the eggs, but three weeks later they laid more eggs in with the old ones. How can I tell them apart?

The honest answer is, I don't know. But luckily, we don't need to know! Once the second clutch is complete, you can take all the eggs out and oil them all; this will prevent any of them from "slipping through" and hatching.

3. I have been oiling for half the summer, and the House Sparrows are still there. What should I do?

Egg oiling doesn't immediately get rid of the House Sparrows in your box; the idea is to reduce their presence in the long run. This study only tested the effectiveness of oil on the eggs, which was successful, but we did not test whether it would cause a decline in House Sparrow populations in the long term. There are several factors that could render egg oiling ineffective at reducing House Sparrow populations. One example is that House Sparrows could be coming in from a different population that is not being

managed. Another potential problem is that House Sparrows could be nesting in other places that aren't being managed (e.g., buildings, natural cavities, traffic lights), allowing the population to remain stable. In either case, we hope that after a couple of seasons of nest failure, they will at least learn that our nestboxes are not good places to reproduce and leave them for the native birds.

4. Does the oil damage the feathers of the birds?

Although the House Sparrows might get a bit of nontoxic oil on their belly feathers, our primary concern is to protect the native birds. As for the oil getting on the feathers of the native birds, there aren't any research studies that have looked at this yet. However, from this study and my experiences, I think that the oil we are applying is unlikely to have a negative effect on the feathers of any native birds that might happen to enter a sparrow-occupied nestbox. For starters, we apply a miniscule amount (roughly 0.8 mL) that just coats the outside of the egg, not enough to drip off. This is done on the ground rather than in the nest material. On the off chance that a native species were to enter a treated nest box, it would be unlikely to come into contact with the eggs and much less likely to sit on them.

I invite you to share your experiences with egg-oiling and any questions you may have with NestWatch staff by emailing nestwatch@cornell.edu.

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NABS Notice – Constant Contact Program

If you are a NABS member reading *Bluebird* and you did **not** get an email on February 18th with a splash screen like that shown below, it means that we probably do not have an email address on file with your membership or the address we have on file is no longer valid. Please send your current email address to Jim Burke (Chair of the NABS Membership Committee) at jburke@nabluebirdsociety.org

This is the splash screen for the NABS Constant Contact software. If you give NABS a valid email address, we can now contact you electronically with important or timely information (e.g., expiration of membership) when necessary. In addition, you can renew your membership with a mouse click. Of course, NABS will use this new system sparingly and only for important announcements. Rest assured that your email like your address will never be released by NABS to anyone for any reason.

A New Way of Communicating with Members

At a recent meeting, the Board approved a proposal to invest in a communications software system called Constant Contact. This is a system that will permit NABS to efficiently communicate with members via email when the need arises. For example, each year we spend a considerable sum of money sending first class letters to remind members that their subscriptions have expired. If we had the email address of those members we could notify them of the expired membership at essentially no charge thus saving money for NABS programs devoted to bluebirds. So we encourage members to provide us with a working email address when you renew your subscription.

Bernie Daniel
President, North American Bluebird Society

How Will Climate Change Affect Eastern Bluebirds?

Bernie Daniel, Ph.D.

The topic of climate change comes up frequently in our lives. Hardly a day goes by that someone does not claim that some happening is a result of climate change. Some of these claims contradict each other and it is difficult for the public to sort out or understand for certain what is fact, what is opinion, and which of these matters deserve our consideration. Likewise, the term “climate change” can mean different things to different individuals. One definition that I think could be useful is to contend that climate change describes alterations in the average weather conditions, such as temperature and rainfall in a region over an extended period of time (e.g., decades or centuries). Likewise, I believe that most individuals accept the premise that the earth’s climate does change because there are many lines of solid evidence that over its 4.5 billion years the earth’s climate has been altered many times. These climate changes have resulted in completely different landscapes and associated plant and animal populations (e.g., the Triassic period, and age of the dinosaurs). So, while we know that there is intense and ongoing debate about the causes and potential effects of climate change on the human condition it is not necessary to deal with that topic here.

One measure of climate change is the alteration of the average ambient temperature. Many contend that the planet is warming now at an unusually rapid rate and that this will have serious consequences for humans and all other living things on Earth including birds. For the purpose of this discussion we don’t have to accept or reject that contention. But we can assume

for now that, regardless of the reason or the rate, the ambient temperature is rising and then ask, if that is so, what does that change portend for birds—or specifically bluebirds?

The National Audubon Society (Audubon) has engaged some scientists and modelers to ask just that question—namely what will happen to birds if the average ambient temperature rises? To this end Audubon has developed a program entitled Survival by Degrees and an associated model designed to predict how the environment across different regions of the North American landscape will respond to changing climate (temperature, precipitation, etc.) and then how those changes will diminish or enhance different regions for a particular bird species of interest. Perhaps giving a specific example of such a question might help the reader understand this concept better. So, we might ask: If the average temperature in the woody grassland savannas of North Carolina were to increase by 1.5°C (2.7°F) how would that change the region’s potential to serve as breeding or wintering habitat for the Eastern Bluebird (EABL)? The same question could be asked for the other parts of the traditional EABL range.

Now some specifics on how the Survival by Degrees models work. The Audubon scientists who developed it initially evaluated 40 environmental and climate variables that would change with increasing average temperature. Then each of those variables was tested for its importance on rendering a particular region/area more or less suitable as habitat for each

Table 1. Survival by Degrees Model Variables: EABL range predictions.

Variable name	Variable type	Variable importance	
		Breeding	Winter
Climatic moisture deficit	Climate	1.8	4.6
Degree-days < T (see below)	Climate	1.6	25.9
Mean annual precipitation	Climate	18.4	12.4
Mean warmest month temperature	Climate	25.4	14.2
Number of frost-free days	Climate	2.7	9.3
Precipitation as snow	Climate	22.4	20.1
Summer heat-moisture index	Climate	18.5	n.a.
Anthropogenic land use	Environment	0.1	5.9
Topographic roughness	Environment	7.4	5.8
Vegetation type	Environment	2.6	1.8

bird species of interest. That is to say if a variable changes in response to the temperature, how will that change make the region more or less suitable as EABL habitat? Eventually the scientists selected 7 climate and 3 environmental variables that appeared to have the greatest influence on the quality of bird habitat, and these 10 variables are shown in Table 1.

Table 1 lists the 10 temperature sensitive variables that are used in the Audubon Survival by Degrees model. The table also gives the weighting factors (or the relative importance) of each of these variables as a factor influencing the suitability of a region to serve as EABL habitat (the larger the number the more influential the variable). The variable weights (or importance) would be different or unique for each bird species. For the degree-days, $T = 0^{\circ}\text{C}$ for the breeding season model and $T = 5^{\circ}\text{C}$ for the wintering season.

Thus, the mean annual precipitation, the mean temperature of the warmest month, the percent precipitation as snow, and the summer heat/moisture index (i.e., “mugginess”) are all variables that change with temperature and in turn seem to be the most influential in establishing a suitable breeding range for EABL.

Figure 1 shows the Survival by Degrees model predictions for the EABL breeding and wintering ranges under our current climate conditions. It should be apparent that the model calculates a reasonably accurate representation of the current EABL breeding and wintering ranges. One interpretation of this observation could be that the model has been well calibrated for estimating environmental and climate conditions that would support EABL for both reproduction and wintering needs.

Figure 2 shows how the model predicts how EABL breeding habitat will be altered if the ambient temperature becomes warmer by either 1.5°C (2.7°F)



Figure 1. The yellow shaded areas are the National Audubon Society Survival by Degrees model predictions for the which parts of North America are suitable as EABL breeding habitat (left panel) and wintering habitat (right panel) assuming our present-day climate conditions.

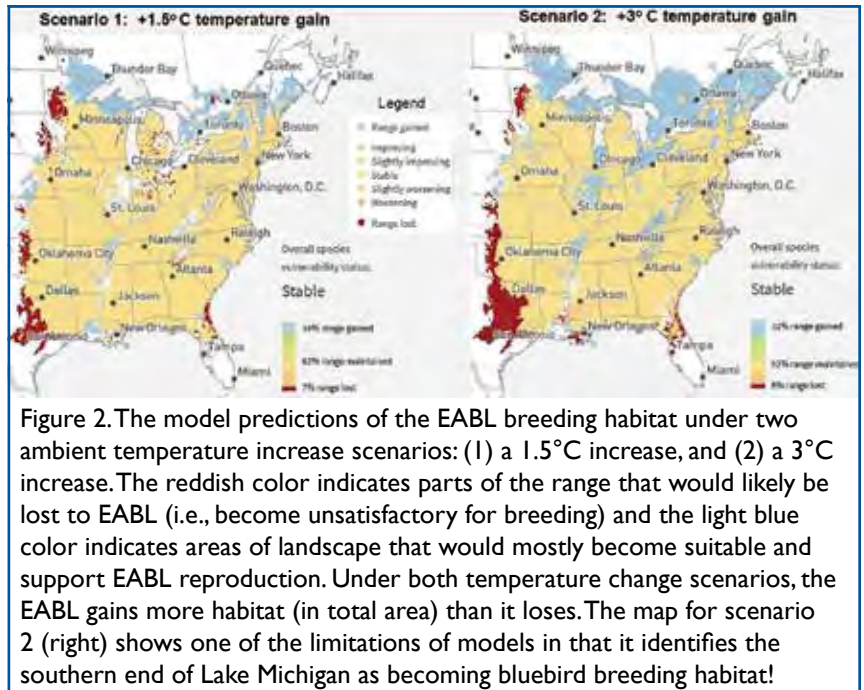


Figure 2. The model predictions of the EABL breeding habitat under two ambient temperature increase scenarios: (1) a 1.5°C increase, and (2) a 3°C increase. The reddish color indicates parts of the range that would likely be lost to EABL (i.e., become unsatisfactory for breeding) and the light blue color indicates areas of landscape that would mostly become suitable and support EABL reproduction. Under both temperature change scenarios, the EABL gains more habitat (in total area) than it loses. The map for scenario 2 (right) shows one of the limitations of models in that it identifies the southern end of Lake Michigan as becoming bluebird breeding habitat!

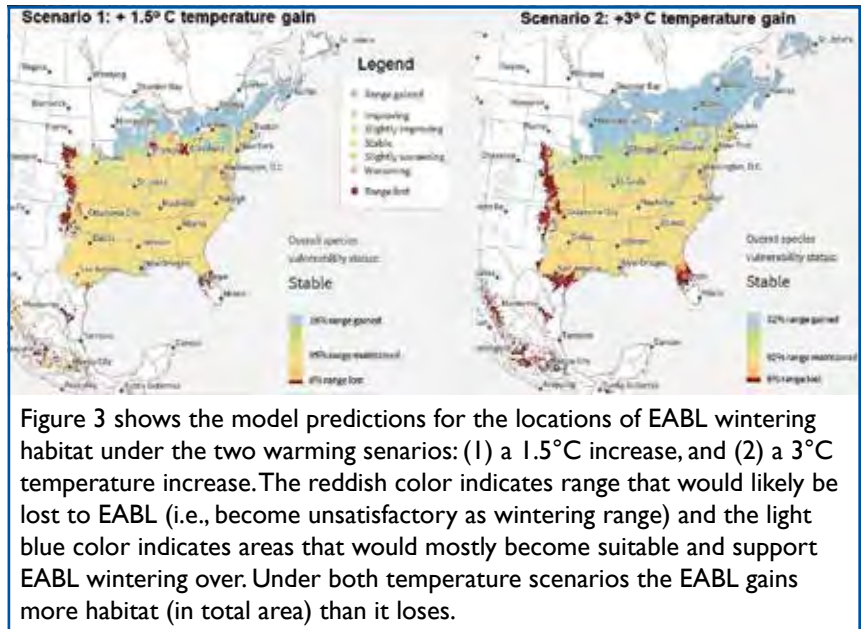


Figure 3 shows the model predictions for the locations of EABL wintering habitat under the two warming scenarios: (1) a 1.5°C increase, and (2) a 3°C temperature increase. The reddish color indicates range that would likely be lost to EABL (i.e., become unsatisfactory as wintering range) and the light blue color indicates areas that would mostly become suitable and support EABL wintering over. Under both temperature scenarios the EABL gains more habitat (in total area) than it loses.

or 3.0°C (5.4°F). Perhaps surprisingly, under both warming scenarios the EABL is predicted to gain more breeding range (light blue area) in the northern edges of the current range than it would lose (dark red area) from the southern and western parts. Specifically, in the warmer climate scenarios the EABL is projected to lose 7–8 % of its range (mostly in Texas, Oklahoma, and western Minnesota) but gain an additional 16–32% of breeding range on the northern edge (e.g., Manitoba, Michigan, northern Minnesota, New Brunswick, Ontario, Quebec, and Wisconsin). One notes that there are some possibly implausible predictions by the model as well. For example, under scenario 1 the model predicts some EABL breeding range loss in central Minnesota and eastern South Dakota and Iowa, which is for some reason recovered again under the even warmer scenario 2. There are other similar examples shown in these maps.

Figure 3 shows the Survival by Degrees predictions for changes to the EABL wintering range under the same two warmer temperature scenarios. The predictions for the winter range are similar to those shown previously for the breeding range. The model predicts that warming will induce losses of wintering habitat in Mexico and Central America and along the southwestern edge of the range in the US (e.g., Kansas, Nebraska, Oklahoma, and Texas). Central Florida and parts of central Texas would also be lost according to the model, especially for the warmer (scenario 2) predictions. But the species would acquire more wintering habitat in the northern edge of its range in the USA (e.g., northern Minnesota, Michigan, Pennsylvania, New York, and Maine, and southern Canada). In summary, the EABL is predicted to lose 6–8% of part of its current wintering range but that would be offset a gain of 18–32% in other areas under the warmer conditions.

Overall, the Audubon Survival by Degrees model lists the EABL as “Stable” in the face of these two warming scenarios. Thus, it forecasts a stable or even possibly improved situation for the EABL (both breeding and wintering ranges) under the two increased ambient temperature conditions considered. In fact, based on area, the EABL is predicted to gain both breeding and wintering season habitat. The model predicts that a much larger section of the northeastern USA and southeastern Canada would be populated by the EABL all year.

Some additional points about this climate modeling information are worth considering: (1) While these predictions are encouraging for the EABL we must keep in mind that they are only predictions and they will have to be verified by field observations. (2) It seems unclear at this point if other features of the regions where the EABL is expected to gain habitat would also change in other ways necessary to support bluebirds. For example, would spring and summer insect supplies also be adequate in these areas? (3) These very encouraging predictions for the EABL are not found for the two western bluebird species and some other cavity-nesting species as well.

Regarding the first point above, Audubon is currently supporting a community (or “citizen”) science project called Climate Watch. This program employs volunteers to collect field observations of birds to help verify the predictions of the model. Elsewhere in this issue (page 14) is an article from Audubon explaining the Climate Watch project and detailing how NABS members and other bluebirders can help collect data on bluebirds and other species for this program.

As to the third point mentioned above, the Summer issue of *Bluebird* will have an article that deals with the Survival by Degrees predictions of these increased ambient temperature scenarios on the breeding and wintering ranges of the Mountain and Western Bluebirds.

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The author thanks Kurt Hagemester, Richard Blaine, Brooke Bateman, and Sarah Saunders for helpful discussions in the preparation of the manuscript for this article.

Audubon's Climate Watch

Audubon's Climate Watch Team

Audubon's 2019 climate change report, "Survival by Degrees: 389 Species on the Brink," reveals that up to two-thirds of North American birds are vulnerable to extinction due to climate change. Bernie Daniel's article on the science behind this report can be found on page 11. Audubon scientists modeled over 600 species of birds to project how each species' range will shift as climate change and other climate change-related threats advance across the continent. The result: 389 species are at risk.

For example, the beautiful Mountain Bluebird is vulnerable because in the vast majority of its summer range, the climate conditions that this bird needs—temperature, amount of rainfall, and other environmental factors—will shift northward and eastward. This bird may be able to move into new areas over time, or it may struggle to adapt.

The Western Bluebird is moderately vulnerable in its summer range and highly vulnerable in its winter range, with predictions that it could lose up to 64% of its range in winter under the 3°C increase in global warming scenario. Threats from wildfires impact their habitat and spring heat waves impact nesting young.

To test these model predictions, Audubon developed Climate Watch, a community science effort which aims to document species' responses to climate change and test Audubon's climate models by having volunteers in the field look for birds where Audubon's climate models predict they will be in the 2020s. This information helps Audubon target our conservation work to protect birds. Currently, the program is focused on 12 species, including the three species of bluebird, four species of nuthatch, American Goldfinch, Lesser Goldfinch, Painted Bunting, Eastern Towhee, and Spotted Towhee.

North American birds will see their historical ranges (which are the places that are suitable based on climate and vegetation biome for each species of bird) shrink, shift, or expand in the coming decades, but whether or not birds are able to shift or expand into new areas will depend on whether appropriate habitat and food sources are present. Think about the Mountain Bluebird. Will this beautiful bird be able to shift east and northward to find its preferred habitat?

Climate Watch provides Audubon scientists with data

on the current distribution of the 12 target species that can be used to validate and refine our models for where these species' ranges will shift under the effects of climate change. As we ground-truth these models and confirm and improve their accuracy, we will use them to identify areas of high climatic suitability (both now and in the future) for target species and to inform on-the-ground conservation decisions.

Climate Watch surveys are designed specifically to answer questions about the detectability and abundance of target species within areas projected to experience changes in climate suitability. This means that surveys are often set in areas where target species don't yet occur, but climate change analyses suggest they might be shifting into. The surveys are set up to directly test the models for each species from the "Survival by Degrees" report, at a fine-scale resolution, with a structured protocol so that data are collected to help calculate detection, occupancy, and abundance estimates. It also allows us to hypothesize test how climate change is affecting these birds in the near term. Data from other programs, such as eBird, are less structured and do not allow for as rich an analysis but are often included to complement our detailed Climate Watch dataset.

The Climate Watch count periods occur two times each year (January 15–February 15 and May 15–June 15) in order to be comparable to other seasonal surveys happening during the same time, as well as year to year. We selected these time periods to better capture target species as close to their true wintering or breeding grounds as possible for most of the country. Other long-running data sets such as Audubon's Christmas Bird Count and the USGS Breeding Bird Survey and Climate Watch data are needed together to improve our body of knowledge about how birds are affected by climate change.

The survey protocol involves conducting 12 stationary point counts for 5 minutes each, and all within one 10 by 10 km square that is mapped across North America with the change in climate suitability from the original models. Volunteers can choose one, or more, species of the 12 as their "target" species. Then looking at the online prediction maps for that species, the volunteer can plan which squares they wish to claim for their surveys, and then plan where to conduct each of the 12 surveys within that square.

On their chosen count day within the 30-day window, the 12 surveys are all done within one morning.

In choosing a square and where to survey, volunteers are guided by our online materials and select the best habitat for their chosen target species for their survey locations. A full protocol manual is available online, as are all of the online tools for planning.

Many organized groups are involved in this effort and this can make planning and learning easier. Audubon chapters and centers are involved, as are some birding clubs. So if your bluebird group is near an Audubon chapter, reach out to get involved. Or form your own group effort to cover areas not already being surveyed. Audubon and the Climate Watch team would welcome the involvement of dedicated bluebird enthusiasts!

Find out more about this program on Audubon's Climate Watch website:

<https://www.audubon.org/conservation/climate-watch>

Want to become a group coordinator for Climate Watch? Learn about that here:

<https://www.audubon.org/news/coordinator-resources-climate-watch>

Want to participate on your own in an area with no coordinated groups? Learn about that here:

<https://www.audubon.org/news/participant-resources-climate-watch>

What to know what we've learned through Climate Watch so far? Learn more here:

<https://www.audubon.org/climate-watch-results>

Learn about Audubon's groundbreaking birds and climate report, "Survival by Degrees: 389 Species on the Brink" here:

<https://www.audubon.org/climate/survivalbydegrees>

Questions? Contact us at climatewatch@audubon.org

The First Bluebirds

Katharine Lee Bates (1859–1929)

The poor earth was so winter-marred,
Harried by storm so long,
It seemed no spring could mend her,
No tardy sunshine render
Atonement for such wrong.
Snow after snow, and gale and hail,
Gaunt trees encased in icy mail,
The glittering drifts so hard
They took no trace
Of scared, wild feet,
No print of fox and hare

Driven by dearth
To forage for their meat
Even in dooryard bare
And frosty lawn
Under the peril of the human race;
And then one primrose dawn,
Sweet, sweet, O sweet,
And tender, tender,
The bluebirds woke the happy earth
With song.

From <https://mypoeticside.com/poets/katharine-lee-bates-poems>: "Katharine Lee Bates will be best remembered for the inspirational American anthem 'America the Beautiful' which she wrote in 1893 having been inspired by the magnificent views from Pikes Peak in Colorado... Her words were set to music most famously by Samuel A. Ward and have been sung with great patriotic fervour ever since."

List of All NABS Life Members (living and past)

Sarkis Acopian	Georgia Hariton	Kevin Joseph McCarthy	Mary Ellen Sigmond
Dharma Alagerantnam	Clark Hart	James McLochlin	Steve Simmons
Madison Alderson	Mike & Kathy Hartke	Steve Melcher	Shirley Singleton
William Bahr	John Hartrampf	John Mendyka	Alan & Alice Sior
Linda Baldauski	Joan Heilman	Anne Messinger	Susan Sloan
Virginia Banks	Thomas Henry	Charles Meyer	Dennis Smith
Nancy Baron	Kathy & Clay Hodge	Thomas Meyer	Tom Smith
Mary & Rooney Baxter	Traci Hoffman	Julie Milota	Southern Interior
Alan Beattie	Paul Hoopes	Royal Montgomery	Bluebird Society
Bonnie Bell	Richard Hospers	Martha & Susan Moran	Gary Springer
Clarence Boone	Shirley & Fred Huntress	Frank Moss	Ron & Nancy Stegens
Jeff Boyd	Wanda Hutter	Ken & Sharon	Sheryl Struse
Randy Brimm	Pamela Isdell	Mountcastle	Anne Sturm
Niles Brown	Mary Janetatos	Martha Mullin & Tom	Maynard Sumner
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Jim & Sharon Burke	R. Jespersen	Helen Munro	Shelly Sutley Volk
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Vicki Butler	Roger Jones	Gwen Newton-Denton	Thomas Tait
William Carmines	Catherine Katz	Laura Nielsen	Greg & Terry Tellier
Monty Carter	Ali & Margery Keskin	Wendy Nuetzel	Eleanor Terzia
Charlie Chambers	Bill Keyes	Paul Oettel	Robert Thiebaut
Mark Christ	Janet King	Thomas O'Neil	Ron & Pauline Tom
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James Davis	Howell	Janice Petko	Gene Wasserman
Richard Davis	Ken Kleinpeter	Beverly Phifer	Rhonda Watts
Wayne Davis	Grace Kocher	Mary Phillips	Martin Wenz
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Ann Earley & Bob Siemer	William Lehl	Tom & Jennifer	Patrick Smith
Stanley Fisher	Doug & Ethel-Marie	Rentenbach	
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Mahlon Gingerich	Amy & Bryan Marr	Glenn Savage	
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Dennis Groeneveld	Barbara Matlock	John Schuster	
Donald Gunter	Vicki May	Lorne Scott	
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Jean Hamilton	Gordon McCall	Marsha Sergi	



NABS Factsheet

Eastern Bluebird Nestling Growth Chart

There are many reasons that a bluebird trail manager wants to know the age of the chicks in a nestbox. For example, it is inadvisable to open a nestbox for routine monitoring after the chicks are 12 – 13 days old due to the risk of premature fledging. Likewise, bird banders need to know the age of the chicks before banding. This chart can be used to estimate the age of Eastern Bluebird (EABL) nestlings. Typically, EABL young hatch about 14 days (13 – 15 days) after the female starts incubating the clutch. If one counts the day of hatching as “Day 0” then one can expect the birds to fledge (i.e., leave the nest) on Day 16 – 17. (Rarely early as 15 or late as 18 days) This chart shows the typical appearance of EABL nestlings from Day 0 to Day 15. There is a brief description of the nestling’s appearance provided for each day. No “in-hand” image of “Day 0” nestling was attempted for this photo series. Please note these images were obtained by a scientist who had obtained the federal and state permits allowing her to handle wild birds. Handling of wild bird nestlings without such permits is a violation of Federal regulations and should not be attempted. It should also be noted that these images show nestlings apparently receiving adequate nutrition from the parents and developing at a normal rate. Under less ideal conditions (wetness, drought, or cold) a shortage of insects could result in poorer nutrition and possibly retard nestling development.



DAY 0 (hatch day): coral-pink skin; eyes sealed shut; sparse, downy tufts that may appear moist; wings are naked nubs; unhatched eggs may be present.



DAY 1: Downy tufts along the head, spine, and wing; floppy necks.



DAY 2: Downy tufts still apparent; beginning to see dark pin feathers forming along the trailing edge of the wing.





DAY 3: Pin feathers are evident in the wing; and beginning to develop along the spine and the top of the thigh; the ear openings are noticeable.



DAY 4: Pin feather tips begin to emerge from the wing; pin feathers are visible along the spine and top of the thigh.



DAY 5: All feather tracts are visible; pin feather tips begin to emerge from the head, wing, and thigh; tail feathers begin to emerge.



DAY 6: Feather sheaths are evident on the wing; pin feathers tips begin to emerge from the spine, lower leg, and the area surrounding the chest and abdomen.



DAY 7: The nestlings may appear to squint or blink; feathers continue to emerge.



DAY 8: The eyes open – a good sign of normal growth and development.



DAY 9: The nestlings are more alert; feathers are mostly free of sheaths on the thigh and areas surrounding the chest and abdomen; bare skin patches are still visible.



DAY 10: Nestlings can crawl; the feathers mostly free of sheaths on the head, spine, and lower leg; feather sheaths disintegrate from the wing.



DAY 11: Feather sheaths continue to disintegrate, including the tail feathers; may notice white "dandruff" on nestlings or in the nest, due to feather sheath disintegration.



DAY 12: The nestlings are almost fully feathered, and the gray breast spots are evident.



DAY 13: Feather sheaths gone; evidence of the white eye ring; the wing feathers can be used to sex (males-bright blue; females-dull blue-gray). *Avoid opening nest boxes after this day as nestlings could fledge prematurely!*



Length ~ 9 cm (~3.5 in.)

DAY 14: Nestlings active and vocal; white eye ring more pronounced.



DAY 15+: Sleeker, more streamlined appearance; few, if any down feathers remain. Body length is 9 – 10 cm (3.6 – 3.9 in) *Fledging usually occurs between Days 15 - 18.*

The images and descriptions for this Growth Chart were created by Laura Palmer, Ph.D. (Pennsylvania State University, Department of Biology) under the auspices of a North American Bluebird Society (NABS) Joseph A. Kujanik Education grant. This document is an example of the how the NABS uses its member-derived resources to educate the public on the basics of successfully monitoring nestboxes for bluebirds. NABS also provides Fact Sheets on other aspects of bluebirding e.g., building/mounting nestboxes, as well as detailed information on how to monitor nestboxes and how to cope with problems one typically encounters (e.g., predators, competitors, heat, rain and cold) on a bluebird trail. Individuals who join NABS receive copies of all NABS Fact Sheets, as well as our full-color, quarterly journal, *Bluebird* which is filled with tips and stories from other bluebirders as well as updates on research and other items of interest to nestbox trail monitors.

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.

www.nabluebirdsociety.org

<https://www.facebook.com/NorthAmericanBluebirdSociety>



Eew – Fecal Glue

Bet Zimmerman Smith

After an extended period of cold, rainy New England weather, I found an Eastern Bluebird nest in the condition shown in the photo. This used nest, constructed of pine needles, was sopping wet, black, stinky, and looked like a tar pit. Some of the fecal material was white (a typical fecal sac) and the rest of the goo was black.

The nest was in a Gilwood box that had contained six nestlings, all of which fledged successfully, although one was a runt and fledged at least a day later than the others.

I had been offering supplemental mealworms, as I often do for bluebirds that nest in my yard. Some mealworms were stuck in the goo, probably dropped by the parents during feeding. However, I have never seen this glop in a nest for other broods fed mealworms.

Normally on my trail, a bluebird nest post-fledging is spotless on top, and looks almost unused with the exception of being flattened. Bluebirds usually continue removing fecal sacs until fledging occurs. This is in contrast to the tarry mess I usually find in a Tree Swallow nest post-fledging. Tree Swallows stop removing fecal sacs 4–8 days before fledging, so there is generally a build-up.

A fecal sac is a sort of contained, white “birdie diaper” that comes out immediately after each baby is fed. The baby actually sticks its rump up in the air, “offering” it to the parent for removal. These fecal sacs are typically removed from the nest by the adults and dropped some distance away, sometimes in a single dumping area. Tree Swallows sometimes drop sacks over water (or into a nearby swimming pool), probably to avoid attracting predators.

I had stopped opening this box after Day 12 to avoid premature fledging, and then we had a nor’easter. I did observe the parents actively feeding the nestlings, and assumed all was well. However, I am lucky that no

babies got pushed into this mess by larger siblings, as they might have gotten stuck in it. The waste can build up into a cement-like substance that can prevent a nestling from fledging. I wonder if these birds fledged sooner than they should have (leaving the runt, which was not well-feathered, to fledge a day or two later) to escape.

Some people don’t believe that “fecal glue” exists at all. Having seen it firsthand, I believe. Theories on what cause it include the following.

- The build-up occurs when parents are under stress—e.g., a single parent frantically trying to feed a clutch (especially a large one as was the case here) and/or spending so much time trying to find food that they cannot attend to removing fecal sacs.
- Severe diarrhea. This may occur in bluebird babies fed earthworms, and can result in dehydration and death. The young baby birds’ undeveloped stomachs apparently can’t handle earthworms because of the dirt castings in the worms’ gut. Earthworms may be used as a source of food by bluebird parents during bad weather, when nothing else is available. Keith Radel believes earthworms break down the fecal sac. (Diarrhea might also occur from feeding excessive amounts of fruit.)
- A small nestbox floor size may aggravate the problem, as the excrement is more concentrated.

(A Gilwood box, which seems to be preferred by bluebirds, only has a 3.5 × 4.25 inch floor.)

- Some people report that this is more common in second or third broods.

If during nestbox monitoring you find babies stuck in fecal glue, gently rinse off the poop with warm water (if it’s on the feet, soak them in a small container of warm water) and use Q-tips to gently clean off the rest.



Do NOT offer earthworms to bluebirds to feed their nestlings. They can make a messy nest. Instead, if food supplies are extremely scarce, consider offering some mealworms, homemade suet, or fruit. Photo by Bet Zimmerman Smith.

Maine Nestbox Monitoring Project: 2019 Year-End Report

Glen Mittelhauser and Logan Parker

Each breeding season, Maine experiences an influx of migratory breeding birds, many of which utilize cavities in which to nest. Many of these species will readily take to artificial nestboxes in lieu of naturally occurring nest sites, presenting a unique opportunity to observe breeding success or failure. This willingness to inhabit artificial cavities is also of conservation significance as some species suffer declines attributed to increased competition for suitable nest sites. Threats such as invasive species, habitat destruction, and climate change all present challenges for cavity-nesting species, which demand monitoring efforts with a focus on conservation. Despite some cavity-nesting species being listed as of conservation concern in Maine, there has not been a comprehensive effort to monitor specifically cavity-nesting breeding birds in Maine. To address this gap in knowledge, the Maine Natural History Observatory (MNHO) initiated a nestbox monitoring effort throughout Maine in the spring and summer of 2019 in partnership with the Maine Department of Inland Fisheries and Wildlife's Maine Bird Atlas project, a comprehensive, five-year, volunteer-driven atlasing effort.

2019 Project Summary

In the spring of 2019, MNHO launched a statewide nestbox monitoring project. The goal of this project was to build and distribute a number of nestboxes to volunteer monitors throughout Maine. The impetus for this project was two-fold: (1) the project aimed to provide suitable nesting sites for cavity nesting birds, and (2) the project would support the ongoing Maine Bird Atlas project by helping to confirm breeding for cavity-nesting species. During this first field season,

the project was focused primarily on three focal species: American Kestrel, Eastern Bluebird, and Northern Saw-whet Owl. The project was fortunate to have received generous support from the North American Bluebird Society and the Hammond Lumber Company.

A combination of MNHO staff and volunteers met in early spring to construct nestboxes designed specifically to accommodate the three focal species. A total of 29 bluebird boxes and 30 kestrel/owl boxes were constructed. Additionally, a handful of box construction kits were assembled for volunteers interested in putting the boxes together themselves. MNHO staff created a series of monitoring handbooks, which were distributed to volunteer monitors receiving boxes and volunteers who sought to participate in the project using their own boxes. These handbooks detailed when and where the nestboxes should be deployed, monitoring protocols, and species profiles for the target bird species. Boxes were distributed to volunteers by project staff and the Maine Bird Atlas regional coordinators throughout the spring.

A total of 59 MNHO-built nestboxes were delivered to project monitors during the 2019 field season. An additional seven nestboxes were monitored by project volunteers who either already owned or built their own boxes during this first field season. Breeding was confirmed for American Kestrel, Eastern Bluebird, Black-capped Chickadee, Tree Swallow, and House Wren.

The project's launch was promoted through a variety of channels including social media, the MNHO

Summary of nestboxes deployed and details on breeding status.

Species	# of target boxes deployed in 2019	# of boxes with confirmed breeding in 2019
American Kestrel	20	1
Eastern Bluebird	31	6
Northern Saw-whet Owl	11	0
Black-capped Chickadee	0*	1
Tree Swallow	1*	8
House Wren	1*	3

*Although not a designated focal species, boxes created for Eastern Bluebird were suitable for use by other cavity-nesting songbirds.



Northern Saw-whet Owl/American Kestrel boxes prepared for deployment.

website, and Maine Bird Atlas training workshops. Nestboxes were distributed to project volunteers either at Atlas workshops or were delivered to volunteers by MNHO staff. The distribution of boxes throughout the state was dictated by volunteer interest. Volunteers who received boxes were instructed to deploy their box according to the habitat and nest cavity requirements of the bird species of interest. Nestboxes were distributed within 11 of Maine's 16 counties.

Future Directions

Future directions for the project include expanding the volunteer effort into other parts of the state with limited to no volunteer coverage. Additionally, the project will expand the list of focal species to include other cavity-nesting species. Priority species for 2020 include Tree Swallow, Barn Swallow, and Cliff Swallow — all aerial insectivores that are experiencing declines throughout their breeding ranges. Early indicators point to a similar decline taking place for some of these species in Maine when comparing data collected during the first Maine Breeding Bird Atlas (1978–1983) and that which has been collected for the Atlas that is currently underway. Provisioning these species with suitable nesting boxes or structures will serve the dual purpose of providing additional nesting sites while also allowing volunteer monitors to more easily confirm breeding for these species.

While many nestboxes were distributed during the 2019 field season, not all boxes were deployed by volunteers in time for the arrival of migratory cavity nesters. This was particularly true in the case of Northern Saw-whet Owls, which nest in Maine from late winter to early spring. Low numbers of confirmations were thus anticipated for the 2019 field season. Now that most of the available boxes have been distributed to volunteers, they can be deployed earlier during the 2020 field season ahead of the arrival of these species to their breeding grounds.

Acknowledgments

MNHO would like to thank NABS (Art Aylesworth Conservation Grant) and the Hammond Lumber Company for their generous support of Maine's cavity-nesting bird species. Their support greatly enhanced the capacity of the Maine Nestbox Monitoring Project to reach volunteers and provide suitable nesting cavities throughout the state. MNHO would also like to thank all of the 2019 project volunteers for assisting with nestbox construction and for their dedicated monitoring efforts.



Eastern Bluebird eggs in a box deployed in Hancock County, Maine.



Eastern Bluebird nestlings.

A Different View of Bluebird Ranges: The Cornell eBird Program

Bernie Daniel, Ph.D.

We have all seen and used the colored-coded range maps that show bird distributions over the landscape. Probably the ones that we are most familiar with are the small maps that accompany the images and the life history accounts of each species in birding field guides (e.g., *Peterson's Guide to North American Birds*). In addition, almost any web page these days that is devoted to a particular bird species will show a range map along with other information. Range maps are vital because they tell you where you might be able to find a bird. No point in going to Kansas to see a Western Bluebird (WEBL) for example—the range maps show that they are not, typically at least, found there. But if you go one state west, to Colorado, you might well see a WEBL if you are in the right location!

Of course, most birds typically move or migrate during the year so to be complete a map needs to show both the spring/summer (breeding) range as well as the autumn/winter (nonbreeding) range(s). All three species of bluebirds are “short-distant migrants” meaning they do not leave the continent in the winter season but typically move a few hundred miles in response to weather and other seasonal changes.

Initially, these range maps were drawn based on the expert opinions and the field work of birders. These early maps were, at best, only reasonably accurate. Later, as more formal bird surveys became available, depictions of bird distributions as shown on range maps became more accurate as they were based on recorded field observations. A couple of decades

ago one North American birder's field guide started using survey data from the North American Breeding Bird Survey (BBS) and the Audubon Christmas Bird Count (CBC) to construct range maps for the breeding and wintering seasons respectively resulting in quite accurate range maps.

However, with the advent of the eBird program in 2002 we now have access to even more detailed range maps for all North American birds, including bluebirds. If you do not know about it, eBird is the world's largest biodiversity-related, citizen science project, with over 100 million bird sightings reported every year by volunteer participants all over the globe. The eBird program was created and is managed by the Cornell Lab of Ornithology.

The eBird reports are used to document bird distribution, abundance, habitat use, and trends of birds throughout the world. Participants (typically birders) submit to the eBird website the records of



Figure 1. Map showing the raw data for locations of over 40,000 Eastern Bluebird observations reported to eBird over the 2006–2017 time period. The darker the purple shade the greater the number of birds reported for that block or location.

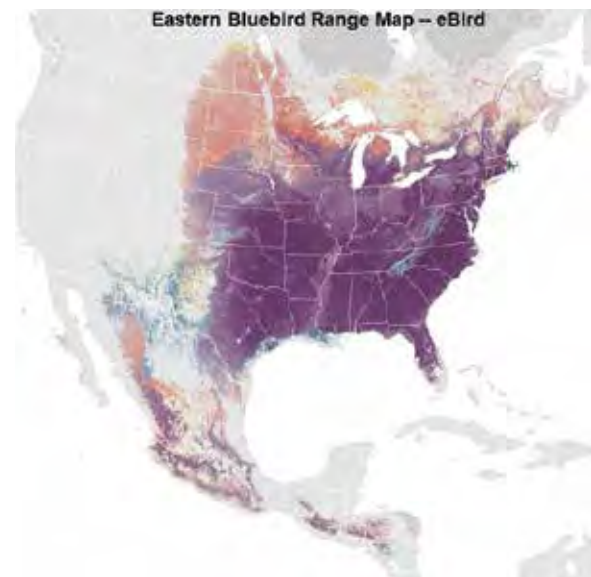


Figure 2. Range map for the EABL based on eBird observations. The purple-shaded areas represents those places where the bird is seen year around; the red-shaded areas are places where the bird is seen in the breeding season; the blue-shaded areas are places the bird is seen in the wintering season; and yellow areas are places the bird is seen during migration, i.e., moving from breeding to winter grounds or the reverse. A darker shade of color indicates a higher density of birds. The eBird program defines the EABL breeding season as May 17 to August 31 and the wintering season as December 7 to March 1.

birds they have seen including information such as when and where they made the observations. These observations are entered into a geographic information system, which then creates maps of each species' range and distribution over that range. Figure 1 illustrates a plot of the raw data for the reported observations of the Eastern Bluebird (EABL) during the 2006–2017 period. These observations are processed using statistical analysis and a Geographic Information System, which facilitates the construction of a detailed EABL range map.

Figure 2 shows the resulting range map for the EABL. There are many noteworthy features about this map. For one thing, it shows that EABL can be seen in more locations than seen on typical range maps. For example, the eBird map indicates during the breeding season EABL are observed in southern Alberta and Saskatchewan, eastern Montana, Wyoming, Colorado, and New Mexico. They can be found year round as far south as Mexico and large parts of Central America including Guatemala, Honduras, and Nicaragua. During the wintering season EABL are observed as far west as central Arizona. The map also indicates that EABL winter, but do not breed, in the higher elevations of the Appalachian mountain range.

The WEBL range map (Figure 3) produced by eBird observations also reveals many interesting details about the species' distribution. For example, the map shows WEBL are present year round in most of California (except in the Great Central Valley) and around the Four Corners area (i.e., intersection of Utah, Colorado, Arizona, and New Mexico). Populations of WEBL spend winters in the northern Mexican states of Sonora, Chihuahua, and Coahuila. They also breed and winter in central Mexico including the states of Durango, Zacatecas, Nayarit, San Luis Potosi, and surrounds. It seems clear that sub-populations of EABL and WEBL both breed in the same area in Mexico. It would be interesting to know if there is hybridization occurring there.

Figure 4 shows the range map for the Mountain Bluebird (MOBL) that is generated from the eBird observations. The resulting map is in very good agreement with that which is produced with the data collected in the BBS and CBC. During the breeding season the MOBL have been observed in Colorado, Idaho, Utah, Wyoming, Montana, Oregon, and Washington and in the provinces of Saskatchewan, Alberta, British Columbia, and even in the Yukon Territory. MOBL are found year round in the higher elevations of California, southern Wyoming, much of



Figure 3. Range map for the WEBL based on eBird observations. The purple-shaded areas represents those places where the bird is seen year around; the red-shaded areas are places where the bird is seen in the breeding season; the blue-shaded areas are places the bird is seen in the wintering season; and yellow areas are places the bird is seen during migration, i.e., moving from breeding to winter grounds or the reverse. A darker shade of color indicates a higher density of birds. The eBird program defines the WEBL breeding season as April 26 to September 9 and the wintering season as December 14 to February 8.

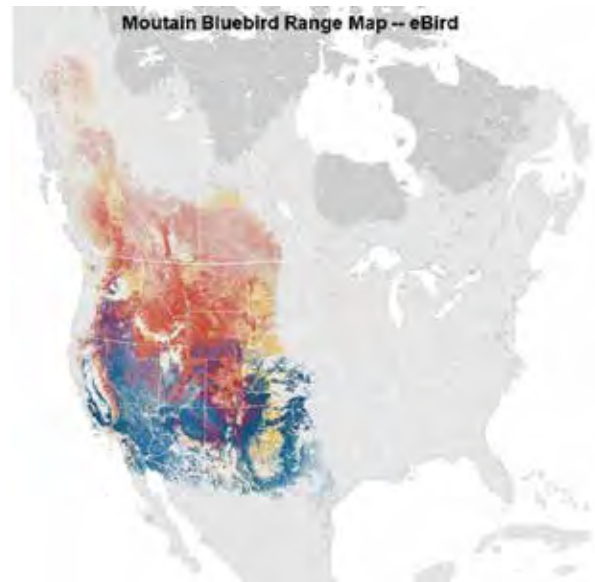


Figure 4. Range map for the MOBL based on eBird observations. The purple-shaded areas represents those places where the bird is seen year around; the red-shaded areas are places where the bird is seen in the breeding season; the blue-shaded areas are places the bird is seen in the wintering season; and yellow areas are places the bird is seen during migration, i.e., moving from breeding to winter grounds or the reverse. A darker shade of color indicates a higher density of birds. The eBird program defines the MOBL breeding season as May 3 to August 31 and the wintering season as December 7 to February 15.

Colorado, and northern Arizona and New Mexico. However, in contrast to the other two species the MOBL does not venture very far past the US southern border in the winter.

I believe that these eBird maps offer a fresh, high-resolution insight into the breeding and wintering

ranges of bluebirds. It would be interesting to hear comments from our members about these relatively new range maps. If anyone wants to view these maps go to <https://ebird.org/explore> then click on “Species Maps” and finally, enter the common name of the bird you are interested in.

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!



Nancy Fraser (Prescott Bluebird Recovery Project) recently traveled to Egypt to see “a 1500–1700 burial ground for kings, queens, priests, and other notables, in an area we now know as the Valley of the Kings. It was here that King Tut’s tomb was discovered and artifacts toured the world in an amazing exhibit.” Nancy was also able to take in the view from a hot air balloon, *and* to take pictures of a “Blue Bird” balloon. What a great experience!



One wonders how many Bluebird Cafes there are in the world – ??? NABS President Bernie Daniel found this one in Hopland, California, about 100 miles north of San Francisco.



Railroad drumheads were illuminated signs displaying a train’s name, attached to the rear of the last car. The naming was done for marketing purposes—according to the National Railroad Museum (where this photo was taken), “Celebrities often posed and had pictures taken near the signs. Those pictures promoted that particular train as a celebrity’s favorite train—which was essentially an endorsement of its service.” We have no other information about this BlueBird train, but it certainly would have been popular with NABS members! Photo by Chad Davis (<https://flickr.com/photos/146321178@N05/>).

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What's for Dinner?

Bet Zimmerman Smith

Study of this bird's food habits shows that the bird deserves man's friendship for economic as well as sentimental reasons.
- Frank G. Ashbrook, *The Green Book of Birds of America*, 1931

What bluebirds eat depends in part on what is available.

Back in the day when bluebirds were more plentiful and permits weren't needed to dissect them, people analyzed the contents of their stomachs to figure out what they were consuming.

They learned that on average, about 68% of a bluebird's diet is made up of insects: grasshoppers, crickets, katydids, beetles, spiders, and caterpillars (Beal 1915). In colonial times, farmers recognized this and put up nestboxes around their fields to control pests.

During nesting season, the proportion of insects in the food bluebirds collect is probably significantly higher than 68%. That is because their growing young need lots of protein.

One researcher found that bluebird parents primarily fed their nestlings caterpillars (32.4%) followed by Orthoptera like grasshoppers (25.6%) and spiders (11.3%) (Pinkowski 1978). Occasionally, larger nestlings are fed earthworms, however this may cause severe diarrhea.

Bluebirds also eat ants, wasps, bees, flies, myriapods, angleworms (Oligochaetes), snails, sow bugs (Isopoda), black olive scales (Homoptera), moths, weevils and termites (Gowaty and Plissner 2015).



A juvenile (male) bluebird picks off some ripe pokeweed berries. My husband tried to get me to pull up these "weeds," but I showed him this photo in my defense. *Photo by David Kinneer.*

Prey is usually spied from a perch and then caught on the ground. Occasionally, bluebirds catch insects in flight, especially when it is warmer and flying insects are abundant. Mountain Bluebirds tend to "hover-forage" more than Western or Eastern Bluebirds.

The rest of a bluebird's diet is mostly small fruit, e.g., flowering dogwood, holly, mulberry, wild grape, Virginia creeper, pokeweed, and viburnum, gleaned from plants or foraged on the ground. (Although they will eat the fruit of multiflora rose and Japanese honeysuckle, these are invasive species, and should be eradicated.)

Rarely, bluebirds may eat vertebrates like small snakes, salamanders, tree frogs, and lizards (Gowaty and Plissner 2015). There is even an observation of a bluebird eating a shrew (Pinkowski 1974). Larger prey (e.g., vertebrates) or insects with hard exoskeletons may be bashed and beaten against the ground or a perch before consumption.

Bluebirds rarely eat birdseed, although they will occasionally take shelled sunflower, safflower, and peanut chips/nut meats. If bluebirds are seen at a bird feeder, they may also be seeking out insects/larvae in the seed, or dried fruits or nut meats mixed with seed. If you find seeds in a nestbox, it's because seeds in



David Kinneer

fruit passes through their system undigested.

Bluebirds may also eat suet. I find homemade, crumbly-style peanut-butter suet is preferred over store-bought mixtures. See Sialis.org/suet.htm for recipes.

Bluebirds do love mealworms, but overfeeding them can cause calcium deficiency. So, if you do offer mealworms:

- Do it as an occasional treat, or during bad weather or to assist a widowed parent.
- Limit quantities to no more than 15 mealworms per day, per bird.
- Grind up leftover dried eggshells and sprinkle on the worms to add calcium.
- Avoid feeding “Superworms” (raised on hormones) or dried mealworms from China, as they offer no moisture to baby birds (plus, who knows what foods or additives they were raised on).
- Don’t put feeders too close to nestboxes as they can attract competitors.
- Read more about feeding mealworms at www.Sialis.org/feeder.htm

The best thing you can do to help bluebirds have a healthy, varied diet is to:

- Plant native fruit-bearing vines, shrubs, and trees to help bluebirds have a varied diet, and to assist when insects are scarce. Choose plants that produce berries throughout the seasons. Native plants also support insects, including

caterpillars that make a juicy meal for nestlings.

- Avoid using pesticides (which kill bugs and can hurt or kill birds).
- Place nestboxes in the right habitat for hunting. Eastern Bluebirds prefer semi-open grassland habitat, such as mowed meadows, large lawns, cemeteries, orchards, roadsides, and areas with scattered trees and short ground cover. Areas with fence lines, some medium-sized trees, or telephone lines provide perches for hunting and nest-guarding. Western Bluebirds tend not to favor large, open meadows.

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Bet Zimmerman Smith is a Board and Life Member of NABS, and has a 50-nestbox bluebird trail in NE Connecticut, and also maintains an educational website at www.Sialis.org

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pony rojo / Flickr.com

What's Old is New Again

Bet Zimmerman Smith

There are plenty of benefits to being a member of the North American Bluebird Society (NABS.) You are reading one right now — our quarterly *Bluebird* journal.

But you also get access to lots of cool historical information found in the earlier version of the journal, which was called *Sialia*. (*Sialia* is the genus name for bluebirds [pronounced see-AL-ee-a.]

The first journal was printed shortly after NABS was formed (March 1978) in the Winter of 1979. [If you know anyone who has a copy, we would love to borrow it!] Jim McLochlin and I scanned in all the old journals he had accumulated, and posted them on the NABS website at <http://www.nabluebirdsociety.org/publications/> for your reading pleasure.

These first issues were from back in the days before the Internet existed, when people used to write letters to each other. These journals are full of treasures—it's amazing what you can learn from the “old-timers.”

I picked one *Sialia* journal at random from four decades ago. Here were some of my “finds”:

- An article entitled “Using Public Lands to Recruit Bluebirders” by Dick Tuttle mentioned Delaware State Park, which I recently visited on my way to Virginia for a wonderful annual bluebird conference. The article noted there were NO bluebirds in the park in 1978, and no bluebird nestboxes until 11 Campfire Girls from Columbus, Ohio, donated 16 on July 6, 1977, to help their mascot, the bluebird. A day after putting the nestboxes out, a House Wren started a nest in one and laid eggs three days later. In 1978, they had their first bluebird nesting.
- Another article, “The Flicker’s Compulsion to Excavate,” by Hubert Prescott argued with an article in an earlier issue that claimed that putting chips in the bottom of a nestbox might deter woodpeckers from damaging the wooden walls of boxes. Prescott found flickers in Washington were not deterred by coarse sawdust or woodchips. A box half full of sawdust was completely emptied by a pair of flickers in two days after which they proceeded to chisel. He found tightly packing coarse sawdust in flicker boxes satisfied them — by the

time the flickers had removed the bulk of it, the female was ready to settle down to business.

- In the letters section, someone from Alabama wrote in asking if they could buy bluebirds or eggs. (Nope.) Another wanted to know how to protect bluebirds from their cat. Or which berry-bearing plants had fruit that lasted through the winter. A man from Pennsylvania wrote in that “I can remember as a boy in the mid-fifties [1950s] having bluebirds in our back yard. Our home had been built in an old apple orchard and the trees abounded with bluebirds. One by one the trees died and were removed till now only one or two remain. The area has been continuously built up and the bluebirds have disappeared.” Another wrote that he used to live on a farm in Illinois from 1906 until 1926, next to an apple orchard. “One year the people who owned the orchard had a machine brought in to dust the orchard with an insecticide of some sort. [Probably DDT] It killed Father’s bees. The bluebirds also disappeared.”
- There was also a detailed article on the results of a research project studying endoparasitism in Western Bluebirds, poetry, and much more.

Another article covered a topic bluebirders are energetically STILL arguing about today! I’ve re-typed the article in its entirety from *Sialia*, Vol. 2, No. 2, Spring 1980 (article begins on the opposite page). Unfortunately the technology we used years ago to scan in the old journals is not machine-readable or searchable. But the PDF files online still make great reading material, especially in those boring months in between quarterly NABS *Bluebird* journals!



Which Nesting Box Should I Use?

Top Opening – Front Opening – Side Opening

George N. Grant

Reprinted from the Spring 1980 issue of Sialia (see article on opposite page)

The standard top opening nesting box design is the one for which the Society has been disseminating plans. It has also sold many boxes based on this pattern. Over the years it has proven to meet all the criteria for proper design and construction for bluebirds as well as a number of other species.

One aspect of this particular nesting box needs further examination, that is the means for opening it for inspection and cleaning. The main advantage to the top opening style is the fact that the box can be opened at any time during the nesting cycle to check the conditions within the box. So long as nestlings are not touched or handled there is little fear of them leaving the box prematurely. With the front or side opening boxes it is advisable that they not be opened after the twelfth day for fear the young may fledge at too early a stage. Even if captured and placed back in the box, they will only leave again. Generally speaking, young birds that depart the nest prematurely seldom survive. There is less chance of adult birds escaping a top opening box if you wish to catch them for banding or to examine their band. One can also easily capture House Sparrows if one is attempting to remove them. The top opening box is almost a must for those who are working with wrens. Because wrens normally fill their boxes with sticks, it is almost impossible to check their nests in other than top opening boxes. Considering these advantages there is a strong case for the top opening box.

They do, however, have some disadvantages, and in some parts of the country are not at all popular. The northern states, where Tree Swallows may take over a substantial number of boxes, are one of those regions where top opening boxes do not enjoy popularity for reasons I will detail.

When bluebirds fledge, the nest is usually clean of most fecal material; it is normally a relatively clean and simple task to reach in and pull out the used nest. Even a twiggy wren nest is fairly easy to remove if one exercises caution for the thorns such a nest may contain. Tree Swallows present a different

story. In most cases the nest itself is coated with fecal material as are the walls of the box. It is very difficult as well as time consuming to get these boxes reasonably clean. During wet weather when the nest is damp, the job becomes almost impossible, to say nothing of the unpleasant aspects of the chore. Young Tree Swallows generally remain in the nest 21 to 24 days. The parents are, in most cases, quite lax in nest sanitation the last few days the young are in the nest. They concentrate on feeding by flying to the entrance to fill whatever mouth is waiting at the hole.

Tree Swallows, like Purple Martins, depend on flying insects to feed nestlings. During periods of extended cold rainy spells, the birds are extremely vulnerable; thus, in many nests each year, all of the young may die from exposure or starvation. In certain years the mortality may range as high as 50% or more. (The mortality rate for first broods of bluebirds in the North may exceed 30% due to inclement weather.) Because Tree Swallows only have one brood a year, they sometimes have as many as six to eight young. Even in good weather one or more of the weaker siblings may perish. Removing dead birds that



An example of the muck left behind in a Tree Swallow nest.
Photo by Bet Zimmerman Smith.

may have been in the nest several days is extremely unpleasant especially when coupled with a wet nest and excessive fecal material. No wonder top opening boxes are often ignored after the initial nesting by those who erected them. If left uncleaned the boxes are unavailable for subsequent nesting attempts.

When I first started helping the bluebird, I made about two dozen top opening boxes according to the prescribed plans. After cleaning out a few of the nests (some containing dead birds) I vowed I would not do it again. Most of those original boxes have been replaced or modified. Most other trail operators in the area feel the same way. With a front or side opening box it is a quick and easy matter to clean out the nest and its contents scraping the sides and bottom of the box with a spatula or putty knife. For trail operators the time it takes to inspect or clean a box is an important consideration. Since nesting boxes are usually cleaned only twice a year, one way to clean top opening boxes containing dead birds or filthy nests is to remove them from their mount and turn them upside down. [Note from Bet: These days we recommend cleaning out the box after each brood has fledged.] Boxes that are wired to posts are easily and quickly removed to accomplish this.

Last year for local birders I made top opening boxes with either a removable bottom or a bottom that pivoted down for easier cleaning. When they wanted more boxes they came back and specified front opening ones. Unfortunately, this style of box is usually more difficult and more time consuming for the average person to build.

In this area, thanks to the *Parade* article and other publicity, many persons are attempting “bluebirding” for the first time. Most are building top opening boxes which I feel is a mistake. What should be a delightful experience for many of these enthusiastic newcomers may prove to be a distasteful chore and destroy their interest in helping bluebirds, particularly if they are not successful in attracting birds the first year.

The front or side opening box has other important advantages. Whereas the top opening style is easy for most adults to inspect at the recommended height of three to five feet to the bottom of the box, the preferred four and five feet is too high for shorter adults and children to check. It is certainly impractical for most trail operators to carry something to stand on. A lone low nesting box in a cattle pasture is sure to be used as a rubbing post. With a side or front opening box, one can place the box higher (out of reach of the cattle) and still inspect it without the need of a stepladder. The side opening box also has the advantage of being easier to check for heavy blowfly infestation in the nesting material. Side openings may occasionally be more convenient for other reasons. Opening a box from behind a fence without having to cross the fence would be such an instance. A disadvantage of the front opening box is that a thick predator guard around the entrance hole may prevent the front from opening properly. For that reason, a side opening might be preferred. [Note from Bet: It’s also an issue if you have attached a Noel guard to the entrance hole.]

It should be the aim of the Society to promote the best possible box design in order to increase the nesting chances of bluebirds. The merits of various models as well as individual and regional conditions should also be considered. As the central educator and coordinator of bluebird efforts, the North American Bluebird Society should strive to make all of the facts known so that members of interested parties can choose the type of nesting box which will best suit their needs. [Note from Bet: The NABS style box is in the process of being redesigned. NABS started offering plans for side-opening boxes at the time this article was printed.]



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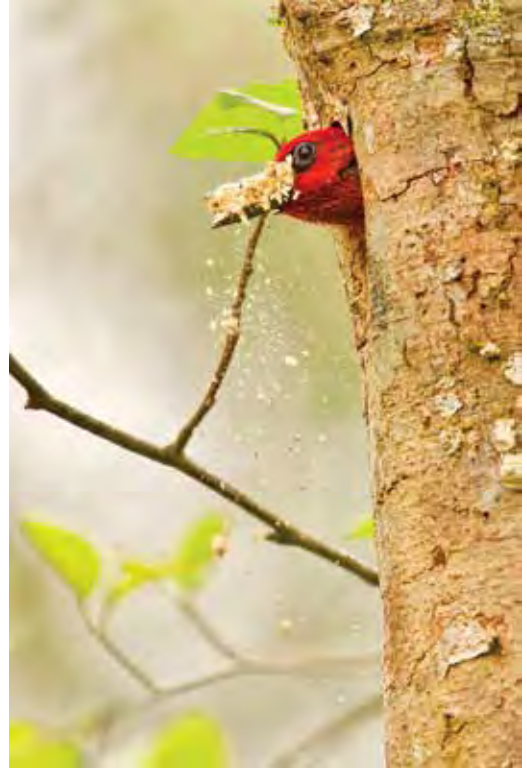
Is this your last Journal? Please check your mailing label for membership expiration date.

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Photo Gallery



Before we forget completely about winter, here is a hardy group of Eastern Bluebirds about to take the Polar Bear Plunge. Actually, NABS Life Member Janice Petko, who took this picture in Canton, Ohio, says the birds were only there for a drink, not a dunk.



Spring-cleaning time! This Red-breasted Sapsucker in British Columbia is preparing a cavity for this year's brood. *Photo by Nicole Beaulac (<https://flickr.com/photos/nicolebeaulac/>) and printed here under a Creative Commons license.*



Watch out, House Sparrows—this bluebird knows kung fu! Or maybe he was just scratching. Hard to tell. *Photo by Tom Murray (<https://flickr.com/photos/tmurray74/>) and reproduced here under a Creative Commons license.*



Here's a hole-hogging Tree Swallow waiting for lunch. *Photo by Patrick M.L. Smith of Woodstock, Connecticut.*

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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