## Contents

Spring Message to Our Affiliate Organizations - *Phil Berry* ................................................................. 1  
From the President - *Sherry Linn* .................................................................................................................. 2  
From the Managing Editor - *Scott W. Gillihan* ......................................................................................... 2  
Notices from NABS Affiliates ......................................................................................................................... 3  
Upcoming Events ............................................................................................................................................. 4  
NABS Grants Awarded - *Anne Sturm* ......................................................................................................... 5  
Commonsense Bluebird Management - *Allen Jackson* ............................................................................. 6  
Chickadees Raise Bluebirds in Mixed-Species Nest .................................................................................... 8  
Bluebird Habitat Selection in a Rural Setting - *Kenneth H. Glaspey* ......................................................... 9  
Red-headed Woodpecker Habitat Use and Breeding Ecology in New York State: A Preliminary Assessment - *Jacob L. Berl and John W. Edwards* ................................................................. 11  
New Study Finds High Levels of Bird Predation by Cats - *American Bird Conservancy* ..................... 15  
NABS Conference 2013 ................................................................................................................................. Insert  
Evolution of a Bluebird Feeder - *Gary Manfready* ................................................................................... 17  
Cedar Nestboxes Protect Bluebirds from Low and High Temperatures—But Not from Predators - *Leif Marking* ........................................... 20  
Master Nestbox Builder: An Interview with Fred Stille - *Tom Comfort* ................................................. 24  
BluesNews ...................................................................................................................................................... 26  
Bluebirds Everywhere ................................................................................................................................. 26  
Citizen Bird - *Mabel Osgood Wright and Elliott Coues* ......................................................................... 27  
Research Review - *Scott W. Gillihan* ......................................................................................................... 28  
Affiliates of the North American Bluebird Society ..................................................................................... 30

*Cover photo: Hungry Eastern Bluebird fledglings; Rich Phalin / iStockPhoto.com*
*Table of Contents photo: Tree Swallow; George Gentry - US Fish & Wildlife Service*
Spring Message to Our Affiliate Organizations
Phil Berry

Here we are again, Spring! I am sure all of you are ready for a productive Bluebird Season. We already have babies, but we get to live in the sunny state of Florida and our birds started nesting in early February. As I write this I understand that most of you do not have the weather that permits early nesting.

We would like to once again ask for an Affiliate of NABS to step forward and offer to host our annual meeting for 2014. We will provide all the information you need and we have people on our board who have been there to step up to the plate to help. Also a monetary stipend goes with it. A small one, but it will help with hotel guarantees, etc. I have asked several of the Affiliates to pitch in, but so far I have not had any luck.

The 2013 meeting, the 36th Annual Conference, “The Art of Bluebirding,” will be held in Aiken, South Carolina, October 3–5, 2013. I encourage everyone to register early, as there is a limit of 200 registrants. Visit the NABS website at www.nabluebirdsociety.org for information and you will be able to register with the information posted there. We will be hosted by the South Carolina Bluebird Society.

I would lastly like to encourage any Affiliates that have changed any pertinent information, such as email addresses or other contact information, to get in touch with me at pbsialia@gmail.com so I may update my records, and get the website and Bluebird updated.

And GOOD LUCK with your bluebirds this year!

Phil Berry
VP for Affiliate Relations
As I approach writing my message today, I look out at the fast-disappearing snow and dream of the return of my bluebirds. It brings to mind the anticipation many of you are also experiencing and I would like to express my appreciation for all that you do to ensure bluebirds and other native cavity-nesting birds have a “wing up” during the breeding season. From the person who is landlord to a nestbox in their yard to those who take on trails of 100 nestboxes or more, I salute you for your continued support of our feathered friends.

We may have lively discussions on the size of the floor area of a nestbox, or the type and size of the entrance, or even the overhang of the roof—but one thing we have in common is the desire to make a secure dry home for our bluebirds. Being aware of the needs in your location coupled with the knowledge of the predators that abound is paramount in being able to successfully attract and retain bluebirds. But while you are at it, don’t discourage some of the other often smaller cavity nesters—how about a nestbox built to their specifications? Whether you have chickadees, titmice, nuthatches, or other species enjoying your feeders, maybe you can consider making room for them to have a home too. After all, the problems our early bluebird pioneers (T.E. Musselman back in the 1920s and 30s, then our founder Dr. Lawrence Zeleny in the 60s and 70s) recognized and worked so hard to overcome are some of the same problems these other cavity species are also fighting though their profile is much less noted.

It is through the conservation efforts of folks like you that we are able to enjoy stable or increasing numbers within all three of our Sialia species and to see them recover in many areas where they had not been seen in decades. The research we are able to support is due to your generosity of both time and funds. Thank you to everyone for your continued support of NABS’s efforts through your membership and donations. NABS runs entirely upon your contributions and has not engaged in applying for grants or government funding to do our work.

And while on the topic of acknowledging the conservation work our members carry out—do you know of someone in your area who has dedicated their time to caretaking bluebird nestbox trails, educating others about bluebirds and the plight of our native cavity nesters, or mentoring new trail monitors? Is there someone you would like to have us recognize for their years of outstanding contribution and devotion to our cause? Please consider nominating them for a NABS award. Go to www.nabluebirdsociety.org/awards/award.htm to get the details on the various awards and the criteria for nomination. The Awards Committee, under the direction of Anne Sturm, is currently working on a new award to commemorate Barbara Chambers and we hope to have information on this award posted before the close of nominations this year. If you do not have access to the internet, please contact me and I will ensure you receive the information needed to send in your nomination. The deadline for nominations is June 30th and awards will be handed out at the NABS conference this October in Aiken, South Carolina.

Thank you all for the endless hours you put in to ensure bluebirds are here for future generations and may this be your best and most successful bluebird year ever!

Warmest wishes,
Sherry

From the Managing Editor
Scott W. Gillihan

I hope you’ll enjoy your Spring issue of Bluebird. Please remember that we all won’t always agree on the best methods to use toward conservation of cavity nesters, and what works well in one region may not work at all in another. The articles in each issue are expressions of the opinions and viewpoints of the authors, and do not necessarily represent the views of NABS, its officers, or members.

My thanks to Rhonda Rothrock, editor of the Southern Illinois Audubon Society’s newsletter, for allowing me to reprint the small item about Red-cockaded Woodpeckers (p. 26). My thanks, also, to all the writers and photographers who so generously contributed material for this issue. And thanks to Tom Comfort, whose careful editing helped smooth over some rough spots in this issue.

If you’d like to contact one of the authors or photographers, just drop me a line and I’ll forward your message. As always, please send any photos, articles, or ideas to me at NABSeditor@gmail.com or 5405 Villa View Dr., Farmington, NM 87402.
Notices from NABS Affiliates

2013 Missouri Bluebird Conference
Join other bluebird enthusiasts for this year’s conference at the beautiful Powell Gardens in Kingsville, Missouri on July 13. Scheduled speakers include:

- **Dave Tylka**, author of the book *Native Landscaping for Wildlife and People*
- **Jim Rathert**, the Midwest’s premier wildlife photographer, who will speak on wildlife photography and the remarkable influx of rare and unusual birds visiting Missouri
- **Steve Garr**, president of the Missouri Bluebird Society, who will speak on dealing with extreme heat on the nestbox trail

Additional events are scheduled for Friday, July 12th and Sunday, July 14th, including the annual Friday evening “Bluebird Banquet” plus field trips and bird walks Saturday and Sunday.

This exciting event is hosted by the Missouri Bluebird Society. See the Society’s website to download a registration form ([www.missouribluebird.org](http://www.missouribluebird.org)) or call 573-638-2473 for conference information.

---

Like us 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](http://www.facebook.com/NorthAmericanBluebirdSociety)

---

Officials of North American Bluebird Society, Inc.

**Executive Committee**
Sherry Linn - President
Phil Berry - First VP for Affiliate Relations
Jim Burke - Second VP for Community Relations
Kathy Kremnitzer - Secretary
Gwen Tietz - Treasurer

**Board of Directors**
Bob Benson
Tom Comfort
David Cook
Bernie Daniel
Jim Engelbrecht
Jim McLochlin
Farrell Roe
John Schuster
Dan Sparks
Anne Sturm
Bet Zimmerman

**Bluebird Managing Editor**
Scott W. Gillihan

**Education Committee**
Bernie Daniel, PhD - Chair
Kevin Berner
Terry Neumyer
John Schuster
Julie Zickefoose
Bet Zimmerman

**Finance Committee**
Gwen Tietz - Chair
Greg Beavers
Bernie Daniel
Jim Engelbrecht
Dan Sparks

**Grants & Awards Committee**
Anne Sturm - Chair
Greg Beavers
Kimberly Corwin
Stan Fisher
Sherry Linn

**Hotline Committee**
Bob Benson - Chair

**Journal Advisory Committee**
Tom Comfort - Chair
Vicki Butler
Bernie Daniel
Benjamin Leese
Dick Tuttle

**Membership Committee**
Sherry Linn - Chair
Marion Ball - Database Admin.
Jackie Berry
Phil Berry
Tena Taylor

**Nestbox Committee**
Bob Benson - Chair
Kevin Berner
Bernie Daniel
Kathy Kremnitzer
Myrna Pearman
John Schuster
Bet Zimmerman
Steve Eno (*ex officio*)

**Nominating Committee**
Bob Benson - Chair
Phil Berry
David Cook

**Speakers Bureau**
David Cook - Chair
Dan Sparks

**Website Committee**
Jim McLochlin - Chair
Dan Sparks

**Webmaster**
Jim McLochlin
Introduce Someone to Birds
“Pledge to Fledge” is a program of the Global Birding Initiative that encourages bird lovers to introduce someone to the world of birds. All you need to do to participate is take kids and your non-birdy friends out to see and enjoy birds. The event is officially from April 25 to April 29, but any day is a good day to help people learn to appreciate the beauty and value of birds. If you want, you can share your efforts with the world through photos, videos, and stories on the Pledge to Fledge (P2F) website and social media channels (www.globalbirdinginitiative.org/pledge-2-fledge). The website also includes helpful tips for guiding and encouraging the bird-deprived to see and appreciate birds, and information for parents and educators.

International Migratory Bird Day 2013
International Migratory Bird Day (IMBD) is an annual celebration of all birds, not just migratory species, with an emphasis on educating about conservation and taking concrete steps to promote conservation. Each year a different theme is selected to showcase different pieces of the conservation puzzle. IMBD 2013 focuses on life cycles: all aspects of a migratory bird’s life, from nesting and migration to breeding and raising young. Most importantly, it addresses the need for conservation throughout the life cycle. This year’s celebration is on May 11. Keep an eye out for events in your area, or visit the IMBD website for bird-related education materials and ideas for hosting your own event: www.birdday.org.

Southwest Birding Festival
The Ute Mountain-Mesa Verde Birding Festival is an annual event in beautiful southwestern Colorado, near the famous ancient cliff dwellings of Mesa Verde National Park. This year’s festival is May 8–12. Birding lectures and field trips are on the schedule, which can be found online at www.mesaverdecountry.com/tourism/festivals/birding/birdfest.html. But even if you can’t attend, you might want to pick up a copy of the festival’s poster, which features a gorgeous trio of bluebirds skillfully crafted by artist R. Christopher Vest. The poster is available on his website at http://rchristophervest.imagekind.com/store/gallerylist.aspx in several sizes, either framed or unframed.
The NABS Grants committee recommended supporting the following seven grant applications during the January 15, 2012 Board of Directors meeting:

Ashley Morrison, Thompson Rivers University, BC, Canada: “DO MALE MOUNTAIN BLUEBIRDS DETERMINE THE LEVEL OF PARENTAL INVESTMENT BASED ON FEMALE PLUMAGE COLOURATION?”

Jessica Fowler, Arkansas State University, Jonesboro, AR, USA: “WINTER NESTBOX USE AND ROOSTING GROUP COMPOSITION IN EASTERN BLUEBIRDS (SIALIA SIALIS)”

Rene Beamonte-Barrientos, Amando Bautista, and Margarita Martinez-Gomez, Center for Behavioral Biology, University of Tlaxcala, Mexico: “ABUNDANCE, REPRODUCTIVE ECOLOGY AND EGG COLORATION IN WESTERN BLUEBIRDS BREEDING IN THE NATIONAL PARK LA MALINCHE, MEXICO”

Eric Walters and Natasha Hagemeyer, Hastings Reserve, Carmel Valley, CA, USA: “INDIVIDUAL MOVEMENT AND SPATIAL DYNAMICS IN THE ACORN WOODPECKER”

Jacob Berl, West Virginia University, Morgantown, WV, USA: “NORTHERN NEW YORK AVIAN RESEARCH PROJECTS: RED-HEADED WOODPECKER RESEARCH AND AVIAN ROADSIDE MORTALITY”

John Bender, Seth Magle, and Mason Fidino, Urban Wildlife Institute, Lincoln Park Zoo, Chicago, IL, USA: “USING ARTIFICIAL CAVITIES TO ASSESS THE NESTING SUCCESS OF NATIVE CAVITY-NESTING BIRDS IN A HIGHLY URBAN AREA”

Megan Shave, Michigan State University, East Lansing, MI, USA: “RAPTOR ECOLOGY IN AN ORCHARD NESTBOX SYSTEM: POPULATION DENSITY AND DIET” (American Kestrel)

The North American Bluebird Society was pleased to support the worthy projects submitted in the past grant cycle. Future grant applications will be due on or before December 1st of each calendar year. The NABS Grants Committee will review the applications and provide recommendations to the Board of Directors for consideration.

From our website: “The North American Bluebird Society Grants are funded by an endowment named for our founder, Dr. Lawrence Zeleny. The Zeleny Fund was established to award educational, conservation or scientific grants or other grants which further the purpose and mission of the society: to promote the prosperity of bluebirds and other native cavity nesting species and engage in such pursuits as may be beneficial to the prosperity and well being of the three species of bluebirds and other native cavity-nesting bird species in North America. NABS contributes a portion of Life Memberships directly into the endowment and encourages further donations earmarked to the Zeleny Fund in order to help finance worthy research.”

More information regarding any of the above applications will be available on the NABS website (www.nabluebirdsociety.org) or contact a volunteer at the NABS HOTLINE: 812-988-1876 (12–3pm EST Monday–Friday).

Anne Sturm is Chair of the NABS Grants and Awards Committee.
Most people know me for my work with Purple Martins, a highly successful management program that martins thrive on in New Jersey. That management program is nothing more than following the Purple Martin Conservation Association’s recommendations at the highest level. Basically, it involves placing the right house (usually Supergourds with starling-resistant entrance holes) in the proper location, protecting them from predators and nest competitors, and checking nests to document the results. A core group of dedicated mentors advocate proper management to landlords in their respective areas. We used banding their birds as an incentive to manage properly. As landlords throughout New Jersey bought into the program, the martin population mushroomed allowing us to routinely band 8,000 martins annually.

Martin colonies are located in areas that offer good habitat for bluebirds. I noticed that most bluebird houses were not sited properly, offered little protection from predators, were not maintained or managed, and few houses met the design standards established by NABS. Bluebird management has to be a mindset—it’s no different than gardening. One doesn’t plant a seed in the ground and return in the fall expecting a bountiful harvest. Good soil, sun, fertilizer, water, and weeding are all important. The better gardener you are the better the harvest. Proper management of bluebirds may be the key to having them around for future generations to enjoy.

Ask yourself, are you really benefitting bluebirds? If you truly want to help bluebirds, concentrate on establishing bluebird trails. One person knowledgeable in proper management can make a significant difference. That is not to say that backyard bluebirders are not important— their success only adds to the formula. I like to refer to establishing trails as getting the biggest bang for the buck. Simply put, it is easier to train one person to monitor a 50-box bluebird trail than it is to train 50 people to monitor boxes in 50 backyards.

A bluebird trail can be any size, from a few boxes to however many a person wants to manage. I personally manage a trail of about 50 boxes, which I monitor on a weekly basis from April through August. Start out with fewer boxes and add more as your bluebird population increases. While I generally plan on one pair of bluebirds per three acres as the carrying capacity, I try to start out with fewer boxes. Placing an abundance of boxes only attracts nest competitors that will out-compete or adversely effect your bluebirds. You are also habituating those species to nesting in your bluebird boxes.

SET UP
The setup I prefer is a NABS-style box with specific hardware that allows me to relocate my boxes easily and with little effort. The photo below shows all the parts and the photo on the next page shows the setup installed. It is costly, about $45 per setup, but I can unscrew the box, remove the predator guard, pull the post and relocate as necessary. It is durable and extremely user friendly. More importantly, the predator guard wobbles preventing raccoons or snakes from climbing it. Waxing the predator guard periodically keeps it slippery. I’ve never had a predator climb this setup. I also use a NABS-style box mounted on ¾-inch conduit pipe but am not totally convinced this is predator proof.

SITE SELECTION
Location, location, location is the key to box placement. I look for open habitat with an overhanging branch nearby for the male to use for perching, hunting, and defending his territory. Bluebirds especially like agricultural areas where
it’s easier to find food. The box is faced to the east to catch the warmth of the morning sun and I look for structure within 100 feet for the young’s first flight. Providing shade in the afternoon cools the box during the heat of the summer. I do not pair boxes as research by the Bluebird Restoration Association of Wisconsin (www.braw.org) found pairing led to an increase in Tree Swallow numbers associated with a decrease in bluebird numbers. I had observed decreases in bluebird numbers at three sites where I paired boxes. There are many different opinions on how to manage bluebirds and pairing boxes is one of the more controversial. Wisconsin fledged over 35,500 bluebirds in 2012—no other bluebird chapter comes close to that production. I encourage adoption of BRAW’s management recommendations, developed through objective research.

MONITORING AND DEALING WITH NEST COMPETITORS

Conducting weekly nest checks is the single most important management practice. Observe, document, and let the results dictate how you manage. Most management will involve dealing with nest competitors. My most frequent problem species are House Sparrows, House Wrens, and Tree Swallows.

House Sparrows are not native to North America and must be controlled. I do not place boxes within 400 feet of livestock farms and work diligently at controlling House Sparrows by trapping and shooting. Occasionally I replace my NABS box with a slotted box, a style less preferable to sparrows.

House Wrens can be a huge problem and are considered by many as predators of bluebirds. They will dominate a box within their territory, many times destroying bluebird eggs before taking over the nest. Finding bluebird eggs on the ground in front of the box is indicative of House Wrens. House Wrens are a native species, protected under the Migratory Bird Treaty Act. The best way to deal with them is to move the box farther into the open away from their preferred habitat, which is forested/shrubby areas.

Without a doubt, Tree Swallows are my biggest headache. New Jersey has abundant wetland habitat and high numbers of Tree Swallows. I have documentation of four Tree Swallows ganging up on a male bluebird, taking him to the ground, attacking and driving him off before they drove the female away, destroyed the bluebird eggs, and built their nest on top of the bluebird nest.

I receive criticism when I refer to Tree Swallows as pugnacious, but make no mistake about it, they are a problem species to bluebirds. I’ve found dead bluebirds in a box under a Tree Swallow nest and many times have witnessed Tree Swallows driving bluebirds away from a box. Don’t get me wrong, I like Tree Swallows. I also like fox and chickens, but I do not put the two together. Try to select optimal bluebird habitat, do not pair boxes, and experiment with ways to deter Tree Swallows from using bluebird boxes. I am evaluating placing 2 x 3 inch wire around the box and placing boxes near trees in open areas, hoping to find that Tree Swallows dislike not being able to fly directly to the entrance hole or that they may avoid boxes placed near trees for fear of proximity to aerial predators.

Ken Glaspey and Ed Sheppard are helping define optimal habitat while dealing with nest competitors. They manage a 59-box trail in Greenwich, a rural agricultural area in southern New Jersey. Twenty-nine of those boxes are located on three large commercial nursery farms with plantings consisting of shrubbery and flowering trees. The nursery stock produces flowers and berries, attracting insects and providing a late season food source for birds. A drip irrigation system keeps the soil moist during the summer drought, also attracting bugs. Their boxes are placed ~200 yards apart out of sight of each other, helping reduce nest competitors. Those 29 boxes fledged 6.66 young per box in 2012! It doesn’t get any better.
SUMMARY OF 2012
In 2011, four dedicated people decided to establish the New Jersey Bluebird Society (www.njbbs.org). We are gradually making progress restoring bluebirds to more sustainable numbers. Some of the accomplishments for 2012 are listed below for my area, southern New Jersey. The results show the impact one person can generate.

Accomplishments:
• Fledged over 1,150 bluebirds in southern New Jersey in about 400 boxes.
• Banded 1,026 bluebirds (551 myself, 326 by Ken Glaspey/Ed Sheppard).
• Partnered with a sawmill, commercial nursery, and woodshop class to build 60 boxes out of Atlantic white cedar.
• Purchased an additional 50 western red cedar boxes (all 110 were erected during the season).
• Coordinated 12 existing trails.
• Established 14 new trails (3 to 25 boxes) with 13 new monitors (a 25-box trail fledged 3/box, another 13-box trail fledged 4.2/box).
• Averaged 4 young fledged per box on my trail.
• Erected single boxes at ~20 backyard sites.
• Developed informal partnerships with US Fish & Wildlife Service and New Jersey Department of Fish & Wildlife.
• Gave six presentations to the public.
• Designed and coordinated a college student’s special project about management.

Plans for 2013 include:
• Modifying and expanding existing trails.
• Establishing about eight new trails with monitors.
• Establishing a bluebird trail for special-needs children.
• Making seven presentations.
• Renewing partnership to build more boxes.
• Erecting 150 new boxes.

The program is successful because a core group of people believe in this management style. They see the results and know they are making a significant difference in their areas. Bluebirds thrive on active management; manage them that way.

Allen Jackson is a wildlife biologist retired from the US Fish and Wildlife Service. He is the vice president of the New Jersey Bluebird Society and a member of both NABS and the Bluebird Restoration Association of Wisconsin. He is a longtime member and activist in the Purple Martin Conservation Association, receiving their 2002 Landlord of the Year Award for his work with Purple Martins.

Chickadees Raise Bluebirds in Mixed-Species Nest
The article about Tree Swallows raising an Eastern Bluebird in the last issue of Bluebird (Winter 2012–13, page 17) prompted Chuck Musser to send in some photos and a video of a mixed-species nest that he found in 2002. Chuck says: “I had found two bluebird eggs in the box and about a week later I came back and there were five chickadee eggs and the chickadee took over. The chickadee hatched all of the eggs and fledged all of the young. The photo of the eggs was taken by a fellow bluebirder, Susan Renkel who came to see them. I do some research for the Bluebird Society of Pennsylvania and I found this nest in May of 2002 in one of my bird boxes that I had up at our local retirement home in Elizabethtown, PA. I don’t have written down the exact date I found the eggs but I know that they hatched on May 18, 2002.”
Bluebird Habitat Selection in a Rural Setting
Kenneth H. Glaspey

Eastern Bluebirds and Purple Martins have nested on my property since the early 1980s. When I retired in 2000 I trained under wildlife biologist Allen Jackson from Millville, New Jersey to band these two species. Since then I have banded over 740 bluebirds and 6700 martins. Over the years of banding young bluebirds, I have made some interesting observations on fledging success as it relates to habitat selection in a rural setting.

My friend Ed Sheppard and I monitor a very successful bluebird trail with nestboxes located in or just outside the township of Greenwich, Cumberland County, New Jersey. Greenwich Township (www.historicgreenwichnj.org) is a rural, agricultural area of approximately 19 square miles which is bounded on the south by the Cohansey River, on the west by the Delaware Bay, and on the north by Stow Creek. The township has many acres of salt marsh as well as freshwater streams and ponds. We are somewhat unique for a New Jersey Township in that we have no housing developments and no industrial facilities. Agricultural practices here can be broken down into grain farming and/or nursery farming. This environment presents ideal habitat for many species of birds and other wildlife.

When you look at the number of young bluebirds fledged in this area during the 2012 season, it becomes obvious that the habitat is ideal for Eastern Bluebirds. A total of 59 nestboxes were monitored in 2012 with 326 bluebirds fledged (banded) for an average (fledged/available nest boxes) of 5.53 per nest box. Even more impressive is the number fledged on the largest trail located on three nursery farms. On these three farms, 29 nest boxes fledged 193 young for an average of 6.66 per box.

In trying to analyze the 2012 numbers to see what appears to work and what doesn’t, I started by separating the locations into three general categories: Nursery Farms, Grain Farms, and Individual “Backyards.” I then looked at each of these three categories in more detail.

Nurseries have been our most productive locations for fledging young bluebirds (6.66/box). Rivendell Nursery (www.rivendellnursery.com), owned by Ted Kiefer, has been an excellent site for bluebird production. These nurseries consist of plantings of shrubbery and trees in large blocks with access lanes running throughout. Many of the shrubs and trees flower in the spring, attracting insects which provide food for the birds. In the fall many produce berries that also provide food during late fall and winter. Examples of these plants are crabapple, hawthorn, dogwood, and holly.

In addition the rows of nursery stock are irrigated with drip irrigation, keeping the soil moist during summer drought, which appears to attract crawling insects and worms, again providing a source of food. Another important factor is that the height of plants in the nursery ranges from 2 feet for small evergreens up to 10–12 feet for shade and ornamental trees. This allows us to locate the nestboxes so that they cannot be easily seen from each other. The Google Earth image below shows one of the nurseries. The yellow dots exemplify the box location pattern we use.

With this type of block layout we locate nestboxes on alternating sides of the blocks to give each nesting pair the territory they require. For example, we can place a box on the front corner of the first block then jump over to the next road and place a box on the back corner of that or the next block. On this particular farm the blocks range from 180 to 220 yards long and from 100 to 150 yards wide.

Grain farms have proven to much less productive than the other two categories. The largest trail is on
a grain farm of about 100 acres devoted to growing soybeans, wheat, and/or corn. Based on the nature of grain farming (large contiguous acres with no lanes) it is necessary to locate nestboxes along or at the end of hedgerows or in water drainage contours (when available). Hedgerows present a significant problem with competitors, primarily House Sparrows. The sparrows seem to thrive in this environment of grain fields and hedgerows of brush. These areas also provide cover for predators that discover the nestbox location. The drainage contours are a better location but keeping the surrounding grassy areas mowed is not always easy. When corn is grown it appears that bluebirds do not accept houses as readily as when wheat or soybeans are grown. This may be due to the height of the corn and less visibility of the surrounding area from the nestbox. On grain farms we averaged only 2.85 bluebirds fledged per box.

The remaining category, Individual Backyards, have also been productive. These locations may consist of a single box or up to 3-4 boxes for larger properties. In all cases these boxes are monitored religiously by the home owners, and competitors and predators are very well controlled. The individuals keep their nestboxes in good repair and regularly mow the surrounding area. Most “backyards” in our trail tend to be large because of building code requirements and the agricultural nature of the entire township. Statistics for 2012 indicate that the average for this category was 5.64 per nest box.

In each of these three categories the houses were all NABS-style boxes and mounting poles were provided with predator guards, most of which are 4-inch PVC pipe. All nestboxes had either hinged sides or tops for easy access and all nests were removed after the young had fledged.

To have a successful bluebird trail with good fledging rates, location is an extremely important factor. In the area where I live there are many wild plants to provide berries in the winter, but the concentration of cultivated berry-producing plants in a nursery appears to be a strong attractant. My experience with grain farms indicates that you can have a successful bluebird trail but much effort is required to control competitors and predators. Mentoring of home owners by providing guidance on proper nestbox design and location along with information on bluebird habits and needs can also produce very good fledging rates.

As a side note, I found it interesting that two

Ken Glaspey retired from the DuPont Company in 2000 where he was a Research Manager in Information Science. He is licensed to band Eastern Bluebirds and Purple Martins and has had both species on his property since the early 1980s. He is a member of NABS, New Jersey Bluebird Society, N.J. Audubon, and the National Wildlife Federation. In addition to birding his hobbies include fishing, gardening, and photography.
Red-headed Woodpecker Habitat Use and Breeding Ecology in New York State: A Preliminary Assessment
Jacob L. Berl and John W. Edwards

The Red-headed Woodpecker (*Melanerpes erythrocephalus*) has one of the largest breeding distributions of any woodpecker species in North America. Historically the species occurred across much of the eastern United States, ranging from Florida to Canada, and west to the Rocky Mountains (Smith et al. 2000). Red-headed Woodpeckers are known to occupy diverse habitat types, and are typically found in relatively open habitats, such as oak and pine savanna, agricultural woodlots, and bottomland hardwoods. Although widely distributed, this species has seen sharp population declines across much of its range over the past 40 years (Sauer et al. 2011). Breeding Bird Survey (BBS) data reports an annual range-wide population decline of nearly 3%, invoking its listing as a “Watch List Species” by the National Audubon Society and Partners in Flight (Rich et al. 2004).

In New York State, declines of 8.8% annually have been reported, constituting the greatest rate of decline for any state within the range of Red-headed Woodpeckers (Sauer et al. 2011). This decline is corroborated by New York State Breeding Bird Atlas data, which recorded Red-headed Woodpeckers in over 70% fewer survey blocks during the 2000–2005 survey compared to 1980–1985 (McGowan and Corwin 2008). This drastic decline resulted in the Red-headed Woodpecker being listed as a New York State “Species of Greatest Conservation Need.”

Red-headed Woodpeckers are sparsely distributed in the northeastern United States (Spiering 2009). When present, they are typically found in small numbers (a few pairs) in distinct and isolated habitat patches, such as beaver ponds, remnant oak savanna, or other habitats characterized by abundant snags and open understory. A small population of at least 9–15 adult pairs regularly breeds on Fort Drum Military Installation, in northern New York State. Despite its small size, this population likely represents one of the largest breeding populations in New York State, and occurs at the northern limit of the species’ distribution. Beginning in early May 2012, a field study was initiated with the objectives to quantify the 1) nest-site selection, 2) habitat use at multiple spatial scales, and 3) reproductive success and nest survival of the Fort Drum Red-headed Woodpecker population.

METHODS
Fort Drum is a large (43,442 ha) U.S. Army installation located in northwestern New York State. Fort Drum provides nesting habitat for over 140 bird species, many of which are listed by New York State as endangered, threatened, or of special concern (Bolsinger and Rainbolt 2006). From early May to August 2012 we conducted surveys recording the abundance and distribution of Red-headed Woodpeckers to identify individual breeding territories. Once territorial pairs were located, intensive nest searching was conducted to locate individual nest cavities and subsequently monitor nests to evaluate survival and productivity. We monitored nests every 3–4 days using a wireless video camera affixed to a 50-ft telescoping fiberglass pole.
headed Woodpecker nest-site selection and habitat use at multiple spatial scales. Therefore, we recorded vegetative measurements at nest-sites as well as randomly located sites throughout the study area. This study design allows for analytical assessment of ‘selected’ versus ‘available’ vegetation plot data.

PRELIMINARY RESULTS
We located 15 Red-headed Woodpecker territories during the 2012 field season, with the majority of territories found in areas dominated by oak savanna (i.e., grasslands interspersed with sparse patches of red and white oak). We identified nest trees for 14 of 15 territories. Red and white oak were important nest tree species, comprising 63% and 21% of the nests, respectively. Less than half (n = 8) of the nests were located in snags, while the remaining nests (n = 11) were located in dead portions (typically limbs) of otherwise live trees. Overall, there was a high degree of variability in nest sites, with cavities located 3–15 m above ground, in both snags and live trees, and in limbs and trunks of trees.

We monitored 22 nesting attempts, representing 14 first-nest attempts and 8 re-nest attempts, during the 2012 field season. Of the 22 nesting attempts we monitored, only 16 could be inspected using the wireless camera affixed to a telescoping pole (i.e., usable for calculating daily survival rates); the remaining nests could not be inspected due to cavity height (>13 m) or cavity obstruction. Fifteen of 22 nesting attempts monitored failed before fledging young (apparent failure rate = 68%). Calculation of daily nest survival rate using the Mayfield method (Mayfield 1961) estimated very low reproductive success for the population (DSR = 0.959 ± 0.01 standard error; cumulative nest success = 16.24 %) in 2012. Predation was the major cause of nest failure (apparent predation rate = 76%), although there was little evidence to suggest the type of nest predator (i.e., mammalian, reptilian, or avian). One nest failed due to exposure, and two nests failed due to apparently infertile eggs. In almost all cases, once nests failed the adult pair would attempt to re-nest in either the same cavity or excavate a new cavity in a nearby tree. The high predation rate of nests is initially startling, especially for a cavity-nesting species, which are typically thought to have increased nesting success due to the advantage of nest concealment, although it is difficult to ascertain specific mechanisms of failure.

DISCUSSION
At first glance, the Fort Drum Red-headed Woodpecker population appears to be highly dependent on oak savanna habitats to accommodate their nesting and foraging requirements, as nearly all territories were located in this habitat type. Red-headed Woodpeckers utilize a diversity of foraging methods that includes aerial flycatching (Smith et al. 2000). The Fort Drum population may respond well to oak savanna habitats because they offer a combination of nesting substrate (e.g., abundant snags) and foraging habitat (i.e., open understory and abundant insects). Unfortunately, oak savanna is a very rare habitat type in the northeastern U.S., and is decreasing due to changes in land use and disturbance regimes. This reduction of available habitat may be a potential factor leading to the decline of this species in the Northeast (Smith et al. 2000). As reported previously, the observed nesting success is seemingly low and of particular interest in this breeding population. Population growth (or decline) results from the combination of several demographic parameters (e.g., adult survival and productivity), yet in short-lived species, productivity is often considered an important factor influencing population dynamics.
If Red-headed Woodpeckers are experiencing below-replacement rates of productivity, this factor alone may be a potential cause of population decline.

The extreme paucity of information on Red-headed Woodpecker breeding ecology and habitat selection in the northeastern portion of its range is surprising, particularly given the observed population declines. More study of demographic parameters (e.g., adult survival) and habitat selection (e.g., in different habitat types and spatial scales) is certainly warranted. In order to develop conservation strategies for this species in the Northeast, management guidelines should be based on rigorously tested scientific data. Thus, the ultimate goal of this project (continuing through the 2013 summer field season) is to provide resource managers with the first quantitative assessment of Red-headed Woodpecker breeding ecology and habitat selection in the Northeast.

ACKNOWLEDGMENTS
Partial funding for this project was provided by the New York State Bluebird Society, in partnership with the North American Bluebird Society, and we are most grateful for their support of the project.

LITERATURE CITED
Nature's Way

The Industry Leader
Producers of Live Food Totally Pest Free!

ATTRACTION WILD BIRDS WITH OUR ORGANIC MEALWORMS!

Free Brochure on Request
1-800-318-2611 • FAX (513) 738-4667
info@thenaturesway.com
P.O. Box 188, Ross, OH 45061-0188
www.thenaturesway.com

“Feeding live insects to the wild birds in my yard has helped me build a special bond with individual birds.”

–Julie Zickefoose
Vehicle/Property Donation Program

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

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

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

New Study Finds High Levels of Bird Predation by Cats
American Bird Conservancy

A new peer-reviewed study published in January and authored by scientists from two of the world’s leading science and wildlife organizations has found that bird and mammal mortality caused by outdoor cats is much higher than has been widely reported, with annual bird mortality now estimated to be 1.4–3.7 billion and mammal mortality likely 6.9–20.7 billion individuals.

The study, which offers the most comprehensive analysis of information on the issue of outdoor cat predation, was published in the online research journal Nature Communications and is based on a review of 90 previous studies. The study was authored by Dr. Peter Marra and Scott Loss, research scientists at the Smithsonian Conservation Biology Institute, and by Tom Will from the U.S. Fish and Wildlife Service’s Division of Migratory Birds.

The study’s estimate of bird mortality far exceeds any previously estimated U.S. figure for cats. In fact, this magnitude of mortality may exceed all other direct sources of anthropogenic bird and mammal mortality combined. Other bird mortality sources would include collisions with windows, buildings, communication towers, vehicles, and pesticide poisoning.

The study estimated that the median number of birds killed by cats annually is 2.4 billion and the median number of mammals killed is 12.3 billion. About 69% of the bird mortality from cat predation and 89% of the mammal mortality was from un-owned cats. Un-owned cats are defined to include farm/barn cats, strays that are fed but not granted access to human habitations, cats in subsidized colonies, and cats that are completely feral.

Native species make up the majority of the birds preyed upon by cats. On average, only 33 percent of bird prey items identified to species were non-native species in 10 studies. Studies of mammals in suburban and rural areas found that 75–100 percent of mammalian prey were native mice, shrews, voles, squirrels, and rabbits, all of which serve as food sources for birds of prey such as hawks, owls, and eagles.

The study charges that, “Despite these harmful effects, policies for management of free-ranging cat populations and regulation of pet ownership behaviors are dictated by animal welfare issues rather than ecological impacts. Projects to manage free-ranging cats, such as Trap-Neuter-Return (TNR) colonies, are potentially harmful to wildlife populations, but are implemented across the United States without widespread public knowledge, consideration of scientific evidence, or the environmental review processes typically required for actions with harmful environmental consequences.”

American Bird Conservancy president George Fenwick said, “The carnage that outdoor cats inflict is staggering and can no longer be ignored. This is a wake-up call for cat owners and communities to get serious about this problem before even more ecological damage occurs.”
Great selection, low price, and unbeatable quality.

Phone orders please call 800-222-3563.
Fax orders to 888-222-3563.
We accept Visa, MasterCard, and Discover.

For additional information or to place an order through our website, please visit www.grubco.com. Buy from us with confidence!

Grubco’s bluebird feeders are available in two versions; cedar and recycled plastic. The recycled feeder is made from recycled milk jugs. Keep any unwanted birds out. The holes are sized and located specifically for bluebirds. Whichever feeder you decide to use, you will join thousands of happy bluebird feeder users.
Welcome to Aiken, South Carolina – A charming town filled with smiling faces and beautiful places. Aiken is a historic town that has maintained the good life for over 175 years thanks to residents, civic leaders, developers, and corporations who take pride in their town. Walk our lovely downtown streets divided by lush landscaped parkways with intersections graced with fountains and flowers. Be amazed by the beautiful historic churches and Winter Colony “cottages.” Marvel at the natural canopy over South Boundary Road formed by Live Oak trees over 100 years old. Take a walk in Hitchcock Woods, a 2100-acre urban forest with 70 miles of trails. To enter the Woods you must be on foot or horseback—no wheeled vehicles permitted. Drive the clay/sand roads, unpaved on purpose, in the equestrian district to see beautiful horses and equine facilities. Slow down when you encounter horses and riders—they have the right of way. Enjoy a wide variety of southern and international cuisine at chef-owned restaurants and cafes. Our sidewalks aren’t just for walking. There are numerous places to sit outside and eat, drink fresh roasted coffee, savor afternoon tea and sweets, enjoy a cold drink, or just relax. Be prepared to have total strangers engage you in conversation. Do make time to visit our sophisticated clothing boutiques, gift shops, art galleries, equine stores, antique shops, and more. Vehicle parking in Aiken is free. Our tap water from deep artesian wells is delicious.

The theme of the conference is “The Art of Bluebirding” – Not only will you be enlightened about bluebirds and other cavity nesters, you will also learn about and be able to interact with some of the other wildlife species that dwell in bluebird habitat. An added bonus to the 36th Annual Conference is the numerous opportunities you will have to acquire wildlife art through door prizes, drawings and auction. Aiken has a very talented group of artists who are donating paintings, prints, pottery, ceramics, stained glass, photographs, wood carvings, quilts, and more.

We have an exciting program planned for you – Eight tours and field trips to select from on Thursday and ten speakers Friday and Saturday who will cover a variety of interesting and fascinating topics. Tours and field trips will depart from the Hilton Garden Inn. Daytime presentations will be held at the beautiful Aiken Center for the Arts. Lunches Friday and Saturday will be at the charming Newberry Hall. Dinner Thursday and Saturday nights will be at the elegant Woodside Plantation County Club. We have two outstanding after-dinner speakers. Do not miss any of these meals. There will be many opportunities for special door prizes. You will have Thursday lunch and Friday night dinner on your own to dine with bluebird friends you have made over the years. A list of restaurants will be included in your registration packet.

For more information and/or answers to questions contact:
Jim Burke, 803-644-0235, jimburke271@gmail.com
Jack McGrath, 803-649-6708, mcgrathjtl@attlobc.net
South Carolina Bluebird Society: www.southcarolinabluebirds.org

Aiken, SC: www.aikenis.com
Aiken County Historical Museum: www.aikencountyhistoricalmuseum.org
Aiken Thoroughbred Racing Hall of Fame & Museum: www.aikenracinghalloffame.com
Equine Rescue of Aiken: www.aikenequinerescue.com
Hitchcock Woods: www.hitchcockwoods.org
National Wild Turkey Federation’s Winchester Museum: www.nwtf.org
North American Bluebird Society: www.nabluebirdsociety.org
Phinizy Swamp Nature Park: www.naturalsciencesacademy.org
Savannah River Ecology Laboratory: www.srel.edu
Silver Bluff Audubon Center & Sanctuary: www.sc.audubon.org/silver-bluff-audubon-center-and-sanctuary
Advance Registration is required. Deadline for conference, tours, meals and hotel reservations is September 1, 2013 except as noted below. Save $10 per person off registration fee of $60 when you register before June 1, 2013. Maximum attendees is 200.

Payment by check or money order payable to the South Carolina Bluebird Society and mail with registration form to South Carolina Bluebird Society, P.O. Box 5151, Aiken, SC 29804-5151

PAYMENT TERMS: Full payment is due at the time of registration. There is a $20 charge for returned checks. Registration will not be accepted without payment. We will send you a confirmation within 2 weeks.

CANCELLATION POLICY: All cancellations must be in writing. Cancel before June 1, 2013 for a full refund. Cancel by August 1, 2013 for half of your total fee. No refund if cancelled after September 1, 2013. Changes to tour reservations must be made no later than September 1, 2013.

REGISTRATION ON DAY OF EVENTS: Walk-In registration is available for conference meetings and presentations. Tours and field trips are available if space permits. Meals must be paid in advance and require a conference registration.

HOTEL ROOM RESERVATION: Call the Hilton Garden Inn, 350 East Gate Dr., Aiken, SC 29803 at 803-641-4220 and tell them you are with the Bluebird Society Conference. Your special rate of $99 + tax for single or double occupancy is good for 2 days pre/post the conference dates. On-site parking and breakfast are free.

RESPONSIBILITIES: The South Carolina Bluebird Society (SCBS) or the North American Bluebird Society (NABS), or any suppliers shall not be held liable for personal injury, death, property damage or accident, delay or irregularity arising out of any act or omission of these suppliers. SCBS, or NABS is acting as a mere agent for suppliers in selling travel-related services or in accepting reservations or bookings for services that are not directly supplied by air or ground transportation, hotel accommodations, meals, tours, etc. SCBS or NABS therefore, shall not be responsible for breach of contract or any intentional or careless actions or omissions on part of such suppliers, which result in any loss, damage, delay, or injury to you or your travel companions or group members unless the term “guaranteed” is specifically stated in writing on your tickets, invoice, or reservation itinerary. We do not guarantee any of such suppliers’ rates, bookings, reservations, connections, scheduling, or handling of personal effects. SCBS or NABS shall not be responsible for any injuries, damages, or losses caused to any traveler in connection with terrorist activities, social or labor unrest, mechanical or construction failures or difficulties, diseases, local laws, climatic conditions, criminal acts or abnormal conditions or developments, or any other actions, omissions, or conditions outside SCBS or NABS control. Traveler assumes complete and full responsibility, and hereby releases the agents from any duty of checking and verifying any and all passports, visa, vaccination, or any other entry requirements of each destination, and all safety and security condition at such destinations, during the length of the proposed travel. By embarking on his/her travel, the traveler voluntarily assumes all risks involved in such travel, whether expected or unexpected. Traveler is hereby warned of such risks and is advised to obtain appropriate insurance coverage against them. By making a deposit for the conference hotel, the tour, air, or boat, traveler acknowledges and accepts these responsibilities and terms and conditions outlined herein. Not responsible for lost/stolen items.

Very Important Information:
1. Red-cockaded Woodpecker (WCW) Habitat Field Trip: The WCW Habitat is located in the Savannah River Site (SRS) a 198,000 acre property owned by the United States Department of Energy. SRS is a nuclear site with strict security and safety requirements. The field trip will be limited to the first 23 people who register for it. You will be required to submit personal information to be issued a Security Badge. For each US Citizen, we will need Full Name as it is on their driver's license, confirmation of US Citizenship (yes or no), Social Security Number, Phone Number and Home Address. For Foreign Nationals, we will need Passport numbers, green card numbers, Visa Numbers, last five years of employment and photo copies of Passport and Visa info. You might also be required to wear a hard hat during portions of the field trip. If so, one will be provided for you. Please contact SCBS by phone or email if you want to participate in this field trip and we will provide you the necessary Personal Data Form. Persons registering for this field trip must submit their full Conference Registration and Personal Data Form no later than August 1st. Persons registering for this field trip should also select an alternate (“A”) trip or tour in the event all spaces are filled by the time we receive your registration. Please place your registrant # (1 or 2) and the letter “A” in the space provided for tours/field trips on the registration form to indicate your alternate choice.

2. Couples registering for different field trips/tours: Please indicate on the Registration Form which Registrant is going on which trip/tour.

3. Golf: Persons interested in playing golf please contact us and we'll get you tee times and fees.
Wednesday, October 2nd

3:00 pm–8:00 pm: **Registration and Welcome in the Hilton Garden Inn Lobby**
Please pick up your welcome packets and meet your hosts for this exciting conference. Enjoy a drink at the No-Host Bar, ask questions, and let us know how we can help you! If you arrive late in the evening, not to worry! We will have your packet for you when our Registration Desk opens again at 7:30 am Thursday.

2:00 pm–5:00 pm: **NABS Board Meeting**
This meeting of the NABS Board of Directors is open to anyone interested in attending. Aiken Center for the Arts Conference Room, 122 Laurens St., SW, Aiken, SC 29801.

Thursday, October 3rd – A Day of Interesting and Exciting Tours & Field Trips
7:30 am–8:00 pm: **Registration and Information Desk – Hotel Lobby**

7:30 am–Noon: **Red-cockaded Woodpecker Habitat Field Trip**
**Tracy Grazia and Tal Mims, wildlife biologists,** will lead a tour of Red-cockaded Woodpecker (RCW) habitat at the Savannah River Site (SRS). The SRS is owned by the US Department of Energy; site natural resources are managed by the USDA Forest Service-Savannah River (USFS-SR), through an Interagency Agreement. The RCW is an endangered species endemic to the Southeastern US, and USFS-SR employs various habitat and population management techniques to aid in its recovery. We hope to catch a glimpse of this elusive woodpecker while we discuss the techniques used to enhance open pine tree stands, including prescribed fire. Tal Mims will demonstrate the installation of an artificial cavity insert, and you will have the opportunity to view the inside of a cavity using a wireless camera system. Participants must adhere to strict security and safety requirements. **Participants must submit conference registration and personal data forms no later August 1st. See previous page for details.** Note: This field trip is limited to the first 23 to register.

8:30 am–Noon: **Hitchcock Woods Field Trip**
**Botanist Dr. Harry Shealy and geologist Dr. Walt Kubilius** will lead a field trip through Hitchcock Woods, a 2100-acre longleaf pine forest located in the middle of Aiken. Established in 1939 by Thomas and Louise Hitchcock for the use and enjoyment of the people of Aiken and the state of South Carolina, this urban forest is managed as a functioning forest by the board of trustees of the Hitchcock Foundation. The primary users are pedestrians and equestrians with access to 70 miles of trails; there are no public roads. Dr. Shealy will discuss the native flora of the area, the longleaf pine, and the efforts to restore the forest to a longleaf pine/wiregrass ecosystem similar to what the first Europeans would have encountered in the coastal plain of South Carolina. Dr. Kubilius will focus on the geology, especially at the Chalk Cliffs, an exposed outcrop of sediments which were deposited during the Eocene Epoch, 40 million years ago. The South Carolina Bluebird Society established a 16-nestbox trail in the Woods in 2011; trail monitors conduct their weekly nestbox inspections on horseback. Wear comfortable clothing. Relatively easy walking. **Limited to 25 participants.**

9:00 am–Noon: **Experience Aiken Trolley Tour**
Enjoy Aiken’s grace, charm, and elegance during this 3-hour guided tour aboard our “climate controlled” trolley. On the tour, you’ll see and hear about Historic Homes and Churches, Equestrian Sites (stables, world famous thoroughbred training track, polo fields and steeplechase track), Civil War’s Battle of Aiken, Live Oak Tree canopy on South Boundary Road, and guided walks through Hopelands Gardens, the Thoroughbred Racing Hall of Fame & Museum, Aiken County Historical Museum located in Banksia, a former Winter Colony mansion, and the Aiken Train Museum. **Limited to 25 participants.**

8:30 am–Noon: **Silver Bluff Audubon Center & Sanctuary (Audubon Important Bird Area)**
**Paul Koehler, Center & Sanctuary Director,** will lead this informative field trip. Nestled along the Savannah River, Silver Bluff is 3250 acres of upland pine forests, hardwood bottomlands, open fields, ponds, and streams that support a variety of wildlife, including over 200 species of birds such as Wood Storks, Bald Eagles, Great Blue Herons, and Wood Ducks. Other wildlife species that might be observed include quail, turkey, coyote, deer, fox, alligator, river otter, beaver, muskrat, bobcat, and fox. The property has a rich history including visits by Spanish and English explorers, an 18th century trading post, a Revolutionary War skirmish, a southern plantation, and a hunting preserve. Silver Bluff is a working demonstration of sustainable forest management, while maintaining aesthetics and diverse & abundant wildlife populations. **Limited to 25 participants.**

1:00 pm–4:00 pm: **Experience Aiken Trolley Tour**
(See description of morning tour above.) **Limited to 25 participants.**
1:00 pm–4:00 pm: National Wild Turkey Center & Winchester Museum
Since 1973, the NWTF and its volunteers, partners, and sponsors have worked for the conservation of the Wild Turkey and preservation of our hunting heritage. Before the NWTF was established, there were only about 1.3 million Wild Turkeys throughout North America. Today we have more than 7 million birds. The amazing comeback story unfolds through exciting displays in the museum including 3-D dioramas depicting the five Wild Turkey subspecies and the ocellated species in their natural habitats. An action-packed video highlights America’s largest resident game bird and the conservation methods and people who have lifted it from the brink of extinction. A virtual reality theater takes visitors deep in a spring forest at dawn, mixing the sounds of nature with early morning calls of Wild Turkeys flying down from their roosts. Limited to 25 participants.

1:00 pm–4:00 pm: Equine Rescue of Aiken
Jim Rhodes, Managing Director, will lead your tour of this spectacular facility. We were race horses, show horses, event horses, trail horses, draft horses, polo ponies, saddlebreds, barrel racers, broodmares, foals, donkeys, mini horses, and “backyard pets.” When we were no longer useful, many of us were abused, abandoned, neglected, unwanted, unloved. Some of us were destined for slaughter. Equine Rescue of Aiken at Haven Hills Farm was established in 2006 to lovingly rehabilitate us. Now we have food, water, and veterinary care. We live on a beautiful 80-acre farm of rolling hills and pastures in board fenced paddocks with shelters. We are safe and well cared for while waiting to be adopted. Those of us who are too damaged or too infirm to be adopted have a permanent home at Haven Hills Farm. We love to have visitors! Limited to 25 participants.

1:00 pm–4:00 pm: Phinizy Swamp Nature Park (Audubon Important Bird Area)
Phinizy Swamp Nature Park, along with the Phinizy Swamp Wildlife Management Area, has been designated an “Important Bird Area” by the Audubon Society. This designation was the result of years of careful bird censuses by both state and wildlife departments and local Audubon members documenting the high diversity of birds in this area. On any given day at Phinizy Swamp Nature Park, birders are sure to catch glimpses of an astonishing array of song birds, wading birds, birds of prey, waterfowl, and many other types of birds—making the Nature Park the perfect place for birding enthusiasts to wander! Limited to 25 participants.

5:45 pm: Buses Depart Hotel for Woodside Plantation Country Club
Casual attire is appropriate, but no denim clothing allowed. Collared shirts required for men, jackets optional.

6:00 pm–9:00 pm: Welcome Dinner
Guest Speaker: Elliott Levy, Executive Director, Aiken County Historical Museum – Historical Perspective of Aiken and the Central Savannah River Area
Welcome to Aiken County, a very remarkable place. Why? Here are just a few reasons: The most expensive clay pottery ever made in the US. The first compulsory school system in the US for mill workers’ children. The winter home of the American aristocracy. Home of the greatest polo player ever. Site of the former Hampton Terrace Hotel—“The Most Magnificent Winter Resort in the World” and the largest wooden building in the world in 1903. The inspirational location and people for The Great Gatsby and God’s Little Acre. Home to both the Savannah River Site, the 198,000-acre location that changed the world, and The Wilcox, one of the “50 Best Small Hotels in the U.S.” What an amazing part of the country! You need to hear the details and much more.

Friday, October 4th
7:30 am–8:00 pm: Registration and Information Desk – Hotel Lobby & Aiken Center for the Arts (ACA)
8:15 am: Buses Depart Hilton Garden Inn for Aiken Center for the Arts
8:30 am–4:45 pm: Silent Auction Items and Birds & Butterflies Nature Store Open in ACA Classroom (upstairs)
9:00 am–10:00 am: Affiliate and NABS Member Forum: How Nonprofits Can Help Conserve Wildlife Habitat – Dr. Harry Shealy, Professor of Biology, University of South Carolina-Aiken
Anyone who has ever tried to protect a species knows that you must have suitable habitat. Whether it is a plant, insect, bird, or elephant, you must have habitat that is protected and sustainable. In this state, this country, and in the world, there are many organizations dedicated to saving habitat and biodiversity. Most of them are called nonprofits. Dr. Shealy will offer a brief overview of a few of these groups and how they can help bluebird restoration. It sounds cliché, but this talk is really about how to “Think Globally and Act Locally.” This session is intended for the Affiliates and NABS board members to exchange ideas and learn how to build their organizations and the role NABS can take. All NABS and Affiliate members are welcome.

10:00 am–10:30 am: Break
10:30 am–Noon: **Bluebirds, Reptiles and Amphibians Have a Lot in Common** – Dr. Whit Gibbons, Professor Emeritus of Ecology, University of Georgia, and Head of the Environmental Outreach and Education program at the Savannah River Ecology Laboratory (SREL)

Like all other forms of wildlife, bluebirds must eat, and occasionally get eaten by, other animals. Insects are expected to become meals for these birds, but so are certain vertebrates—salamanders, lizards, and tree frogs are all known prey of bluebirds. So are small snakes, but some large climbing constrictors are awesome bluebird predators. This will be a close-up, hands-on (literally, if you choose) look at some of the reptiles and amphibians that could become a meal, or vice versa, for bluebirds in the Southeast. Live specimens of local salamanders, frogs, lizards, and snakes will be part of this program on one aspect of a bluebird’s life cycle.

**Noon–2:00 pm:** **Lunch at Newberry Hall and Stroll around Downtown Aiken**

Don’t miss out on a great lunch and drawings for many unique door prizes. Must be present to win.

2:00 pm–3:00 pm: **Imported Fire Ant Biology, Management and More** – Vicky Bertagnolli, Horticulture Extension Agent and Master Gardener Coordinator, Clemson University

Although most fire ant species do not bother people and are not invasive, *Solenopsis invicta*, known in the US as the red imported fire ant (or RIFA) is an invasive pest. The RIFA was accidentally introduced into the US aboard a South American cargo ship that docked at Mobile, Alabama, in the 1930s, and came to infest the southern and southwestern US. Fire ants often attack and kill birds and small mammals. Their painful sting can be deadly to sensitive humans. Fire ants cause serious medical, economic, and ecological problems costing billions of dollars a year. Talking points will include the history of imported fire ant infestations in the US and beyond, identification, basic biology and morphology, and effective management strategies.

3:00 pm–3:15 pm: **Break**


Tracy Grazia will discuss the status and biology of the federally endangered Red-cockaded Woodpecker (RCW). The RCW is endemic to the open mature pine tree ecosystems in the southeastern US. RCWs play a vital role in these pine ecosystems because they are the only species to excavate cavities in live pine trees. They are considered a keystone species because these cavities increase the species richness of the pine forests. Twenty-seven different species of birds, mammals, and herpetofauna benefit, using their cavities for nesting or roosting. Discussions will include habitat and population management techniques, as well as the ongoing RCW recovery efforts at the Savannah River Site, which is owned by the Department of Energy.

4:15 pm–4:45 pm: **Break**

4:45 pm–5:45 pm: **NABS Annual Membership Meeting** – All NABS members are encouraged to attend this meeting to ratify the August 15th election results and receive reports on the activities of the past year. This is an opportunity to hear plans for the upcoming year and give feedback or ask questions of the Board.

5:45 pm: **Load Buses and Return to Hotel**

6:00 pm: **Dinner on your own with bluebird friends** (see list of restaurants in your registration packet)

**Saturday, October 5th**

7:30 am–Noon: **Information and Registration Desk** – Hotel Lobby & Aiken Center for the Arts

8:15 am: **Buses Depart Hilton Garden Inn for Aiken Center for the Arts**

8:30 am–4:00 pm: **Silent Auction Items and Birds & Butterflies Nature Store Open in ACA Classroom (upstairs)**

9:00 am–10:00 am: **The Night Life of Eastern Bluebirds** – Dr. T. David Pitts, Professor of Biology, University of Tennessee-Martin

A bluebird spends half its life in darkness. What does it do at night? What does it not do? Where is the best place to spend the night? Humans are visually oriented, so it is no surprise that most bluebird research deals with events and behaviors that happen during daylight hours. But Nature does not relax selection pressure at sundown. For example, parasites may be more active at night and mortality due to predators often occurs at night. Fortunately, bluebirds are not defenseless; they have behavioral and physiological adaptations to promote their survival. However, nestlings, fledglings, and adults differ in how they deal with certain challenges. Dr. Pitts will compare roosting behaviors of different ages and sexes of bluebirds and discuss constraints and consequences of the variations. Why not put on your Night Vision goggles, turn on your imagination, and tune in?
10:00 am – 10:30 am: Break

10:30 am – 11:30 am: Managing Challenges: House Sparrows, House Wrens and Paper Wasps – Bet Zimmerman, Certified Environmental Professional
An estimated 55–84% of Eastern Bluebird nesting attempts fail. This slide show tackles three common problems that can significantly decrease the odds that native birds will successfully fledge from your nestboxes. House Sparrows are probably the #1 avian enemy of bluebirds. This prolific pest will quickly take over a trail if left unmanaged. House Wrens are native, but can also wreak havoc. In one study, this aggressive, territorial species destroyed 20% of chickadee nests. Unfortunately, some controls that work well against House Sparrows (e.g., Sparrow Spookers) have no effect on House Wrens. Paper Wasps are a third nuisance that can leave you with a bird-less box. Practical, proven techniques to deter all three culprits will be reviewed.

11:30 am – 1:00 pm: Lunch at Newberry Hall and Stroll around Downtown Aiken
Don’t miss out on a great lunch and drawings for many unique door prizes. Must be present to win.

1:00 pm – 2:00 pm: The Red-headed Woodpecker – Mark Vukovich, Wildlife Biologist, USDA Forest Service-Savannah River
This presentation will focus on the general research findings of a three-year study of the Red-headed Woodpecker, a Partners in Flight Watch List species, on the Savannah River Site. The study was a part of a long-term study encompassing the use of coarse woody debris, particularly snags, by bird communities within a loblolly pine forest. Snags were experimentally created in a loblolly forest to assess their use by woodpeckers over time. Researchers captured and attached radio transmitters to woodpeckers so they could closely monitor individual movements in experimental areas. A wide variety of Red-headed Woodpecker nesting ecology aspects like nest-site characteristics, survival, home range, food habits, and fall movements will be discussed.

2:00 pm – 2:15 pm: Break

2:15 pm – 3:15 pm: The Ecology of Breeding Wood Ducks – Robert Kennamer, Research Professional, University of Georgia, Savannah River Ecology Laboratory (SREL)
Robert’s presentation will cover the natural history of North America’s most colorful waterfowl species, the Wood Duck. He has spent 30+ years studying the breeding ecology of Wood Ducks using more than 275 nestboxes at the US Department of Energy’s 310 square-mile Savannah River Site (SRS) in South Carolina. During that time, the researchers working with Robert have noted more than 48,000 eggs in nestboxes among the lakes, black water streams, Carolina bays, and other protected wetlands of the SRS. Robert will discuss rates of nestbox use, timing of nesting, female quality, clutch/egg sizes, incubation behavior, population dynamics, and nest success rates. He will also discuss the Wood Duck’s nest competitors and predators, including rat snakes, which commonly inhabit the same environments as Wood Ducks in South Carolina.

3:15 pm – 3:45 pm: Pick up Silent Auction Items

4:00 pm: Load Buses and Return to Hotel

6:15 pm: Buses Depart Hotel for Woodside Plantation Country Club
Casual attire is appropriate, but no denim clothing allowed. Collared shirts required for men, jackets optional.

6:30 pm – 9:30 pm: Awards Dinner & Keynote Speaker
NABS Awards Presentations
2014 NABS Conference Overview
Connectivity in Nature – Rudy Mancke, Naturalist-in-Residence, University of South Carolina
Naturalist, environmentalist, and PBS personality Rudy Mancke shares with earlier naturalists like John Muir the philosophy that "When we try to pick out one thing by itself, we find it hitched to everything else in the universe." Rudy’s 46 years of studying and observing the natural world have given him vast knowledge of the inner workings of different ecosystems and how each thing is connected to the whole. His presentation will serve as a summary of the many examples of connectivity in nature that we have observed or heard about these past three days.

Sunday, October 6th
Post-conference fellowship with a fond goodbye and a safe migration in the hotel lobby.
Advance registration is required. Deadline for conference, tours, meals and hotel reservations is September 1, 2013. Save $10 per person off registration fee of $60 when you register before June 1, 2013. 200 people are our maximum.

Payment by check or money order payable to the South Carolina Bluebird Society and mail with registration form to South Carolina Bluebird Society, P.O. Box 5151, Aiken, SC 29804-5151.

Note: Please review the Very Important Information portion of the Registration Requirements of this packet before completing your registration.

Your name as you want it on your badge (PLEASE PRINT)

REGISTRANT #1 __________________________________________________________________________

ADDRESS: ______________________________________________________________________________

CITY______________________________________________________ STATE_______ZIP______________

PHONE: DAY ___________________ EVE_______________________ CELL_________________________

EMAIL_________________________________________

AFFILIATE/CLUB MEMBERSHIP/NA ______________________________________________________

REGISTRANT #2 __________________________________________________________________________

ADDRESS: ______________________________________________________________________________

CITY______________________________________________________ STATE_______ZIP______________

PHONE: DAY ___________________ EVE_______________________ CELL_________________________

EMAIL_________________________________________

AFFILIATE/CLUB MEMBERSHIP/NA ______________________________________________________

Can we use your name, and contact information in a roster which we will include in a conference packet for all who register? YES__________  NO_________  Name only? YES_______ NO_________

I/We have received the terms of payment, cancellation and responsibilities regarding the 36th Annual North American Bluebird Society Conference for October 3th – 5th, 2013 in Aiken, SC. Please confirm the following for registrants indicated above on the following page.
Registration Form
36th Annual North American Bluebird Society Conference
October 3th - 5th, 2013

Today’s Date_________________

Registrant #1___________________________________Registrant #2_________________________________

CONFERENCE ATTENDANCE

____1 Day Only @ $40      Which Day________ # PEOPLE______ X $40 = $________
____3 Days @ $60     Dates_____________ # PEOPLE______ X $60/$50 = $________

$50 if before June 1st, 2013

FIELD TRIPS, TOURS AND MEALS

THURSDAY 10/3/2013

___ Red-cockaded Woodpecker Habitat
    7:30 am- Noon
    #______  X $25  =  $________

___ Hitchcock Woods
    8:30 am-Noon
    #_____        Free

___ Experience Aiken Trolley Tour
    9:00 am-Noon
    #______        Free

___ Silver Bluff Audubon Center & Sanctuary
    8:30 am-Noon
    #______        Free

    LUNCH BREAK ON YOUR OWN WITH BLUEBIRD FRIENDS

___ Experience Aiken Trolley Tour
    1:00 pm-4:00 pm
    #______        Free

___ Equine Rescue of Aiken
    1:00 pm-4:00 pm
    #_____        Free

___ National Wild Turkey Center Winchester Museum
    1:00 pm-4:00 pm
    #_____  X $15  =  $________

___ Phinizy Swamp Nature Park
    1:00 pm-4:00 pm
    #______        Free

___ Southern Welcome Dinner
    6:00 pm-9:00 pm
    #_____  X $30  =  $________

FRIDAY 10/4/2013

___ Lunch at Newberry Hall & Explore Downtown Aiken
    Noon-2:00 pm
    #_____  X $16  =  $________

    DINNER ON YOUR OWN WITH BLUEBIRD FRIENDS

SATURDAY 10/5/2013

___ Lunch at Newberry Hall & Explore Downtown Aiken
    11:30 am-1:00 pm
    #_____  X $14  =  $________

___ Awards Dinner
    6:30 pm-9:30 pm
    #_____  X 40  =  $________

    TOTAL PAYMENT  $_________

Check or money order made payable to: South Carolina Bluebird Society
Mail to: South Carolina Bluebird Society, P.O. Box 5151, Aiken, SC 29804-5151
Evolution of a Bluebird Feeder
Gary Manfready

From a quick search of the Internet, it sometimes may appear there is absolutely not another new idea that can be developed for bluebird housing and feeding. After many years of trial and error we enthusiasts of Sialia sialis seem to have exhausted possibilities. To this, I say I think not, there are yet many avenues of opportunities to investigate for enhancing this little bird’s extended survival. Recently I have turned my attention to feeding issues, if they can be considered issues. As I attempt to draw the birds to my area by providing mealworms I am finding that I have a large population of other insectivorous birds ready to swoop in and take over the mealtime offerings. I am not against feeding other bird species, and I do this on a regular basis with other feeders and other offerings. I would like to find a way to slowly draw down those competitors for the mealworms until I have a bluebird population receiving the bulk of what I offer.

I have gone through several iterations of feeder design over the years. Each design has offered advantages and disadvantages that could never have been realized until the design was placed into service. Through these experiences I have discovered a few important concerns. I began with simple open platforms and feeding dishes placed on poles. This is indeed a simple and effective way of providing an “all call” to mealworms. I was somewhat successful in attracting a small number of bluebirds. What I eventually wound up doing was providing an easy meal for all birds looking for a larvae handout. Eventually my bluebirds quit visiting and probably moved on to less dense feeding opportunities.

At this point I reviewed some of the designs for restricted feeders. In this category were several variations on a theme that restricted access to the mealworms to bluebirds. I built and experimented with the typical “house” design that had holes at each end with the same dimensions as the nest box apertures. Mine also had the transparent plastic sidewalls. Sure enough, after coaxing the bluebirds back into the neighborhood with a little mealworm scattering around the feeder, they found the house and attempted feeding by entering. The poor little birds would enter and then panic when they found that the plastic wall was not an easy egress! I saw so many birds in such a state of disarray that I took the box down rather than send them into some psychological disorder.

I quickly erected a hopper feeder while I did some further research into design alterations. I was again back to feeding every bird in the neighborhood. So be it, until I could find another style to build and try out. I discovered a modified platform feeder design that provided easy access through all four sides. This feeder had an adjustable roof that could be raised and lowered to provide a taller or shorter passageway through the sides. I believed I had found my answer! After a visit to my woodworking shop I swapped this feeder for the hopper. After collecting observations over several months I was encouraged that, when the top was raised to a maximum opening size, the birds were comfortable visiting to feed. I progressively lowered the top to begin my restricted feeding program. This indeed slowed down the larger birds. It did not stop some others. Some demonstrated their extreme flexibility and contorted in ways I did not imagine a bird could do. In addition to this, I discovered two problems. The supporting posts were not very durable and the moving of the roof was very hard on the design. I found myself repairing the supporting posts more than once.

This brings me to the topic of this article, the current design attempt and what I hope to be my efficiently working feeder. I have designed a hybrid version of several existing styles found through my searches. It has many of the advantages found in previous designs as well as alterations that I trust will overcome the problematic design flaws of past attempts. I will spend the remainder of this article on the design, building, and hopeful outcomes of the design initiatives.
I am most partial to red cedar lumber so for this project my wood choice is cedar. I have had great success with cypress in the construction of feeders and nestboxes. I discovered that cedar, being a softer wood, was easier to "work" in the construction of this feeder design. It is lighter as well and much easier to support on the mounting pole. I used the standard ¾-inch thickness. The only wood I have used that is not cedar was used in the construction of the "floor" and support mechanism under the floor. The floor is made of ½-inch birch plywood. The support under the floor that provides a means of attaching the feeder to the mounting pole is made of 2x10 inch pine lumber cut so there is a ½-inch overlap from the floor above. I will discuss this component later in the article. Borrowing from the platform feeder plan, I built the base to be 10 x 12 inches. I found that this size was more amenable to stability on the pole mounting device that underlies the base. I also layered this base with a ⅛-inch polycarbonate sheet to facilitate cleaning the base once in a while.

The sides are constructed from a modified "entrance hole" design found in many "house" type feeders. After my fiasco with neurotic bird activity I knew I had to design the feeder to allow rapid escape, yet restrict entrance to bluebird-sized creatures. I also wanted to provide an aesthetic appearance for the human eye. The simple double arch provides for both requirements. It is crucial that the center height of the double arch be no higher than 1¾ inches measured from the inside floor of the base. This open design provides a less constricted feeling when a bird is on the platform. It is also easier for the bird to target the highest point and escape rapidly. I provided this design to all four sides. The total height as measured to the middle of the side piece went through a series of design changes. I began by using 1x6 inch dimension lumber. This gave the inside clearance from base to top (discussed next) of just under 5 inches (dimension lumber is less than the stated value). I found this to be a bit constricted for feeding episodes. The birds tend to rise up while feeding and the roof clearance was a bit too short for this behavior. I changed the sides to a 1x8 inch dimensional lumber. This provided for a nominal clearance of 7 inches in the middle of the feeding base, a much better environment.

If you look closely at the diagram for a typical side component you will notice the upper edge is not parallel to the lower edge (it does not create a rectangular side). I created a slight arch on the upper edge for several reasons. I wanted to appeal to aesthetic design by repeating the arch design of the opening. Even more important was a functional reason which I will discuss below. This arch also facilitates water runoff more efficiently. It is enough to shed water but not too much to restrict the bending of the roof covering. To arch the wood I dropped 1 inch in height on each end from the center. Once I created a smooth curved template on ¼-inch Masonite, I transferred that to the wood. This template will make construction of subsequent feeders a much easier task. After cutting this arc using a band saw I then scribed a line 6 inches from the bottom and cut the top section loose. This is done for the two opposing sides with the arch and the two sides that are perpendicular to the arched sides. To provide some ventilation I drilled three holes into each side arch. This allows plenty of air circulation when the top is in place.

The cut portions were then glued and nailed together to create a "top." To allow this top to remain in place when used, one hole on each of the two flat sides were drilled to accommodate a 4-penny nail. I cut the heads of the nails off and inserted them into the holes. The nails were cut to a length that fit the depth of the drilled holes.
The addition of a roof for the feeder provides for protection from rain and in some way high winds. It also restricts access to other birds when in place. In the platform feeder mentioned earlier, the top was made of wood. I decided to incorporate a clear plastic top so that the birds could see the food from the air and also to create an open feeling when they are feeding under the roof. I chose a flexible type of polycarbonate sheeting ¼ inch thick so bending it is easy. I predrilled four holes into the corners and secure it using small round-headed brass screws. I then added holes to the top center areas and along each lower side. The additional screws secure the entire top into a rigid durable design.

Before assembly of the entire feeder I prepared the base to accept the pole stand. I use ¾-inch galvanized electrical conduit. I attach this pole to the feeder with a ¾-inch compression fitting. This fitting must be securely attached to the feeder. To do this I cut a 2x4 section of lumber to a length of 3¾ inches so the finished dimension creates a square. After finding the center of by drawing diagonal lines I drill a 1¾-inch hole 1/3 of the way into the lumber. Turning the piece over, I then drill the same size hole 1/3 through leaving 1/3 of the wood. I then drill a 1⅛-inch hole the remainder of the way through. This allows the insertion of the compression fitting to a depth where I can apply the “nut” to tighten the fitting into the wood. The surface that will contact the bottom of the feeder base is flush. The surface that will accept the post extends far enough to secure that nut after the pole is inserted. This finished piece is then secured to the base by centering it, glue, drill, counter sink and plugging the holes. It makes for a nice appearance.

Assembly of the sides to each other and the bottom to the sides is done by applying high quality glue and clamping the sides together. I predrilled all holes and countersunk them with a ⅜-inch bit. Using a 1-inch wood screw has worked well for me. I then prepare "plugs" for the holes with a ¾-inch plug maker that fits into my drill press. I like the appearance of the finished product with the plugs. It seems to accentuate the overall appearance. The base is then glued, drilled, and plugged in the same fashion.

I do not like to paint my products. I tend to leave the attractive cedar grain free to be admired. I do apply several coats of linseed oil which seems to repel water very well and provides a subtle sheen to the wood. Application of oil every once in a while keeps the wood in very good shape. I purchased a clay pot saucer to hold the mealworms. It fits nicely onto the floor and keeps the worms in place.

So now I wait. The feeder has been erected and I am collecting data while making observations regarding the effectiveness of this latest feeder design. At this stage I am leaving the top off to entice the bluebirds to feed freely along with all others. Soon I will place the arched roof in place and see if they will continue to access the mealworms through the restricted entrances. Should you decide to build one, I would be very interested in hearing from you regarding the success (or lack thereof) for feeding bluebirds.

**Gary Manfready is an assistant professor of biology at Troy University in Dothan, Alabama. He has been researching bluebirds for many years and maintains over 60 nestboxes. Every January he presents a "bluebird workshop" at a local culture center.**
Cedar Nestboxes Protect Bluebirds from Low and High Temperatures—But Not From Predators

Leif Marking

SUMMARY: Cold temperatures in spring in Wisconsin are often responsible for egg hatching failure and mortality of nestlings inside nestboxes. Heat cycles in summer can drive temperatures to 100°F or more and threaten mortality of nestlings inside boxes. Temperatures were recorded inside occupied nestboxes in order to recognize conditions that threaten survival. Freezing cold conditions in boxes were recorded on April 10 and 11, but incubating female bluebirds protected the vulnerable eggs. Vented boxes at all three test sites were cooler than the ambient temperature of up to 106°F by an average of about 5°F. Non-vented boxes offer more protection to eggs and nestlings during spring cold cycles, while vented boxes provide more protection to nestlings during summer heat cycles. The convertible NABS-style boxes were ideal for demonstrating their flexibility and efficiency for protecting bluebird eggs and nestlings during low and high temperatures.

INTRODUCTION

The Eastern Bluebird breeds throughout the states east of the Rocky Mountains, and its range extends north to the Canadian provinces and south to the Gulf of Mexico (Zeleny 1976). Therefore bluebirds experience a wide variety of temperature and climate conditions. Nesting activities naturally occur earlier in the warmer southern regions and later in the northern states where cold temperatures often persist in April and sometimes in May. In Wisconsin, cold spring temperatures are often responsible for egg hatching failure and mortality of nestlings inside nestboxes. Then, at that same latitude, heat cycles in summer can drive temperatures to 100°F or more, which can threaten heat mortality inside the nestboxes (Zeleny 1968).

Marking, Craig, and Koperski (2006) reported results on effects of shade, insulation, and reflective materials on temperatures in cedar nestboxes. Their results suggest that the standard non-vented NABS-style cedar box offers protection from early spring cold temperatures, while the vented box was cooler during cold cycles and significantly cooler during heat cycles. Shade, insulation, and reflective treatments did not significantly decrease temperatures during heat cycles, although slight differences were observable. Furthermore, brown-colored paint increased box temperatures significantly over the standard box; dark colors should never be used on bluebird boxes. They also concluded that non-vented boxes are satisfactory in northern latitudes, but vented boxes are preferred in hotter climates.

Then Marking, Craig, and Koperski (2008) further investigated different-sized shade treatments combined with venting and non-venting of NABS-style bluebird houses. The shade treatments decreased the temperatures only slightly during the four hottest days of July and August; the average decrease was 4.2°F for the standard vented box and 4.8°F for the box with 24 square inches of shade. The vented boxes were consistently cooler than non-vented boxes by an average of about 2°F and were as much as 6°F cooler than ambient during heat cycles in July and August. During the April 16 cold cycle all boxes (vented and non-vented) remained 2–3°F warmer than ambient temperature, and during June heat cycles all boxes remained approximately 3°F cooler than ambient temperature.

The 2008 temperature study by Marking, Craig, and Koperski (2010) demonstrated that the internal temperatures of vented boxes in summer heat were consistently cooler than both ambient air and non-vented boxes. By contrast, in the cold of spring, the vented box temperatures closely followed the ambient air temperatures while the non-vented boxes were sometimes cooler than ambient air and vented nestboxes during warming periods due to their insulating characteristics. In Wisconsin the non-vented boxes are desirable in the early spring when cold temperature can be accompanied by extended periods of wind and rain, but there are some situations where vents would be desirable, especially during summer heat cycles.

To my knowledge there has not been any research reported on temperatures inside boxes occupied by nesting bluebirds. We have experienced some heat mortality with ambient temperatures around 100°F in the past. That suggests that in the presence of older nestlings the inside temperatures could increase by as much as six or seven degrees, and a vented box in this situation may save the nestlings from heat mortality.

So in 2010 Marking, Craig, and Koperski (2011) designed a study to monitor, compare, and report temperatures inside occupied boxes, non-vented non-occupied boxes, vented non-occupied boxes, and ambient temperature. Interestingly, 16-day nestlings contributed over 14 degrees inside the box while the ambient temperature was 79°F. Younger nestlings contributed much less to temperatures inside nestboxes. In non-occupied boxes, vented boxes were cooler than ambient temperature of 101°F by an average of more than 10°F. None of the nestboxes were occupied during that August heat cycle.
Three heat peaks and one cold cycle occurred during the 2011 nesting season (Marking and Koperski 2012). With ambient temperature of 99°F the presence of five 9-day nestlings contributed about 6°F to the standard non-vented box. Younger nestlings also contributed temperature to their boxes, but to a lesser degree. Ambient temperatures of 100°F and higher would most likely become lethal in non-vented boxes if the nestlings were two or three days from fledging. Vented boxes at all three test sites were cooler than the ambient temperature of 100°F by an average of nearly 8°F, and cooler than non-vented control boxes by an average of 4.7°F. The convertible NABS-style boxes were ideal for demonstrating their usefulness and efficiency in protecting bluebird eggs and nestlings during low and high temperatures.

During the 2012 nesting season temperatures were recorded inside occupied boxes at three sites. Concurrently, ambient temperatures were recorded at each site as in previous studies.

MATERIALS AND METHODS
Nestboxes were constructed from western red cedar lumber that was ⅞ inches thick and rough on one side. The boxes were constructed as convertible standard non-vented boxes, but were vented on July 1 to offer relief from heat cycles in July and August. They were mounted on 7-foot steel T-type fence posts covered with 5-foot sections of 1½ inch PVC pipe for predator control as standard procedure. Houses were mounted to the posts facing east with a single U-bolt. Temperatures were recorded hourly from April 1 to August 31 in all houses with HOBO Pendent Temperature Data Loggers (Onset Computer Corporation). The ambient temperature was recorded similarly in a 3-inch by 12-inch PVC open-ended pipe mounted vertically at the same height as prescribed by the National Weather Service. This ambient temperature setup immediately became a useful perch for the attending adults. This study was conducted in western Wisconsin near the city of La Crosse. Three bluebird-friendly sites near the farmstead were selected for location of the boxes.

The hourly temperature data graphs display peak cold cycles, such as in April, and peak heat cycles, such as in June, July, and August. The minimum and maximum ambient temperatures recorded during those cycles were used to compare temperatures in occupied boxes.

RESULTS
Site 1 (box number 6) was located over 200 yards south of the farmstead. On April 10 the temperature dipped to 26°F (Table 1), which would likely freeze unattended bluebird eggs. Five eggs hatched before the end of April, but eleven days later a predator had removed the nestlings. In June five more eggs hatched and four of them fledged successfully. In July three more nestlings fledged successfully despite three heat cycles with ambient temperatures peaking at 106.8°F. Remarkably, the temperatures inside the vented boxes remained under 102°F despite the presence of three bluebird eggs or young nestlings.

Site 2 (box number 8) was south and downhill over 200 yards from the farmstead. On April 5 there were
Table 1. Temperature (°F) and contents of bluebird nestboxes at three sites, April–August 2012.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Occupants</th>
<th>Ambient</th>
<th>Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Apr</td>
<td>6:00 AM</td>
<td>4 BB eggs</td>
<td>25.8</td>
<td>26.0</td>
</tr>
<tr>
<td>27 May</td>
<td>2:00 PM</td>
<td>none</td>
<td>91.2</td>
<td>89.4</td>
</tr>
<tr>
<td>30 Jun</td>
<td>2:00 PM</td>
<td>none</td>
<td>98.1</td>
<td>95.2</td>
</tr>
<tr>
<td>4 Jul</td>
<td>2:00 PM</td>
<td>none</td>
<td>106.8</td>
<td>101.9</td>
</tr>
<tr>
<td>17 Jul</td>
<td>2:00 PM</td>
<td>3 BB eggs</td>
<td>106.4</td>
<td>100.5</td>
</tr>
<tr>
<td>23 Jul</td>
<td>1:00 PM</td>
<td>3 BB eggs</td>
<td>104.1</td>
<td>100.9</td>
</tr>
<tr>
<td>1 Aug</td>
<td>3:00 PM</td>
<td>none</td>
<td>96.2</td>
<td>91.8</td>
</tr>
<tr>
<td>30 Aug</td>
<td>2:00 PM</td>
<td>none</td>
<td>96.6</td>
<td>92.0</td>
</tr>
<tr>
<td>11 Apr</td>
<td>7:00 AM</td>
<td>5 BB eggs</td>
<td>24.7</td>
<td>29.1</td>
</tr>
<tr>
<td>27 May</td>
<td>2:00 PM</td>
<td>3 BB eggs</td>
<td>93.9</td>
<td>89.9</td>
</tr>
<tr>
<td>30 Jun</td>
<td>2:00 PM</td>
<td>5 BB eggs</td>
<td>98.3</td>
<td>96.9</td>
</tr>
<tr>
<td>4 Jul</td>
<td>2:00 PM</td>
<td>none</td>
<td>106.6</td>
<td>103.5</td>
</tr>
<tr>
<td>17 Jul</td>
<td>2:00 PM</td>
<td>none</td>
<td>105.6</td>
<td>99.3</td>
</tr>
<tr>
<td>23 Jul</td>
<td>1:00 PM</td>
<td>none</td>
<td>105.6</td>
<td>97.3</td>
</tr>
<tr>
<td>3 Aug</td>
<td>1:00 PM</td>
<td>none</td>
<td>99.3</td>
<td>96.6</td>
</tr>
<tr>
<td>30 Aug</td>
<td>2:00 PM</td>
<td>none</td>
<td>99.9</td>
<td>96.2</td>
</tr>
<tr>
<td>11 Apr</td>
<td>6:00 AM</td>
<td>5 BB eggs</td>
<td>25.8</td>
<td>27.5</td>
</tr>
<tr>
<td>27 May</td>
<td>2:00 PM</td>
<td>none</td>
<td>91.8</td>
<td>89.0</td>
</tr>
<tr>
<td>30 Jun</td>
<td>2:00 PM</td>
<td>5 BB 4-day</td>
<td>96.9</td>
<td>91.6</td>
</tr>
<tr>
<td>4 Jul</td>
<td>2:00 PM</td>
<td>5 BB 8-day</td>
<td>105.6</td>
<td>101.9</td>
</tr>
<tr>
<td>17 Jul</td>
<td>2:00 PM</td>
<td>none</td>
<td>105.6</td>
<td>97.3</td>
</tr>
<tr>
<td>23 Jul</td>
<td>1:00 PM</td>
<td>none</td>
<td>101.7</td>
<td>94.3</td>
</tr>
<tr>
<td>3 Aug</td>
<td>2:00 PM</td>
<td>3 BB eggs</td>
<td>96.2</td>
<td>92.5</td>
</tr>
<tr>
<td>30 Aug</td>
<td>2:00 PM</td>
<td>none</td>
<td>95.4</td>
<td>91.1</td>
</tr>
</tbody>
</table>

five eggs under incubation on the nest; all hatched by April 20. The incubating female apparently prevented the eggs from freezing on April 11 when the temperature dipped to 24.7°F (Table 1). These hatchlings disappeared by April 27, likely by a predator. By the end of May five more eggs were present. Those eggs were warm to the touch for four weeks, but did not hatch. The eggs were apparently infertile so they were removed. The adult bluebirds remained in the area, but did not attempt another nesting. The predator had perhaps upset the bluebird’s reproductive cycle. Again the temperatures in the vented boxes remained cooler than ambient in all cases.

Site 3 (box number 9) was north of the farmstead about 150 yards. On April 12 there were five eggs on the nest; they hatched about April 24. The five nestlings were healthy and growing on April 27, but they were gone on May 4. The adult bluebirds re-nested quickly and had five eggs by May 18. Those eggs disappeared within a week, likely taken by a predator. On June 15 five more eggs had been laid. They hatched by June 26 and were present on July 4. However on July 13 they were all dead and deteriorated to the extent that causes were not readily detectable. Then on July 27 the adults had re-nested and laid three eggs. This fourth nesting attempt fledged three nestlings on August 26. The presence of five 8-day nestlings did not contribute appreciable heat to the vented box despite ambient temperature of 105.6°F (Table 1).

The predator that removed eggs and nestlings in the study boxes was identified at box number 7 located at the farmstead. A motion camera revealed that a raccoon climbed the PVC predator guard using its foot pads and pressure rather than claws (Marking 2012). Raccoons leave little or no sign on the predator guard, the box exterior, or from destruction of the nest.

DISCUSSION
The habitat surrounding each site was similar in respect to food availability and ample perches for hunting food items. All the sites have been successful in recent years for bluebird reproduction; hence all three sites readily attracted them to the boxes provided. Elevation and structures present perhaps created only minor differences in results at the three sites.

Three heat cycles in July, with temperatures reaching about 106°F, is unusual for Wisconsin, yet higher temperatures have been recorded. The National Weather Service reported the warmest spring on record for Wisconsin and multiple heat records were reported in summer. The five dead nestlings at site 3 on July 13 could have perished from extended heat exposure, but there is no evidence that the box temperature reached 107°F, considered the lethal temperature for eggs and nestlings.

Although there were no advanced nestlings in the boxes during the heat cycles, five 8-day nestlings at site 3 contributed some temperature to the box with the ambient temperature of 105.6°F. However, the maximum temperature inside the vented box was recorded at 101.9°F, so the reason the nestlings perished is unknown.

Our previous temperatures studies and our present study demonstrate that standard non-vented bluebird boxes are preferable in Wisconsin in spring and early summer because of the adverse weather conditions that are expected as normal for this latitude. The cedar boxes in this study insulate the interior to both cold and heat so the ⅛-inch thick cedar material is ideal for construction of these NABS-style boxes.

Constructing the boxes to be converted to vented boxes on site as needed by simply lowering each side panel would be particularly helpful as temperatures...
approach 100°F or greater while inside the box there are nestlings nearing the fledging stage. Our local Brice Prairie Conservation Association constructs all its boxes for members’ use and for sale to be converted as needed to vented boxes. The material cost is the same, although this procedure requires six screws to fasten the sides and a few more minutes to drill the pilot holes needed in the conversion process.

Our data demonstrated that vented boxes at all three test sites maintained temperatures that were cooler than the ambient temperatures during the heat cycles. These ½-inch vents on both side panels under the roof actually exhaust the heat similar to the action provided by chimneys. The space above the entry serves as an attic to collect the rising heat, and air currents enhance the exhausting character of the vents.

CONCLUSIONS

• Freezing temperatures occurred in April and could have hindered egg viability, but incubating females prevented egg mortality.
• The 2012 nesting season was the warmest spring on record in Wisconsin, and multiple summer heat records were reported locally.
• Five 8-day nestlings survived ambient temperature of 105.6°F for a day, but perished during the prolonged heat cycle for reasons unknown.
• Vented boxes at all three test sites were cooler than the ambient temperature of up to 106°F by an average of over 5°F.
• Ambient temperatures of 100°F and higher would most likely become lethal in non-vented boxes if the nestlings were two or three days from fledging.
• The convertible NABs-style boxes demonstrated their flexibility and efficiency in protecting bluebird eggs and nestlings during low and record high temperatures.

REFERENCES

Leif Marking is a retired U.S. Fish & Wildlife Service employee who now devotes much of his time as the Bluebird Project Manager for the Brice Prairie Conservation Association, monitoring 195 nestboxes. As a board member of the Bluebird Restoration Association of Wisconsin, he serves as the Nestbox Design Chairman. He is also a member of NABS and the Minnesota Bluebird Recovery Program.

You can view a short video describing Leif’s experiences with a nestbox predator at http://youtu.be/vT8d3cqxiFo

Bug. It’s What’s for Dinner.

Bill Duyck documented the nesting cycle of an Eastern Bluebird brood from hatching to fledging, including these images of feeding time. Yum!
Fred Stille was recommended to me when Dan Sparks and I needed help drawing the plans for the new XBox nestbox. Fred’s CAD skills, woodworking knowledge, and profound patience led to our considerable success in sharing these and many other worthy nestbox plans. Fred worked diligently refining his new website (www.nestboxbuilder.com) and we are all pleased with how well viewers have responded to his many plans, articles, and woodworking tips. Fred is a NABS member and a fan of native cavity-nesting birds.

Have you always lived in Georgia?
Yes—native born. I live in Waleska, a small town in north Georgia, with my wife, Brenda and my youngest son, Eric. My eldest son, Fred Jr., fledged a number of years ago.

What got you interested in building nestboxes?
In my early youth, I spent a great deal of time on a small farm owned by my grandparents. My grandfather loved nature and birds in particular, and always had gourds up for Purple Martins. But his favorite bird was the Wood Duck. Each winter he would cobble together a few boxes for them, each panel hand-sawn from recycled barn wood.

Although watching him build those Wood Duck boxes certainly had an impact on me, my real motivation for building nestboxes would not come until fifty years later, when we moved into our new home. The previous owners had placed a nestbox in the backyard. One day a pair of bluebirds sailed into the yard—the first ones I’d seen in decades—and began investigating the box. The birds seemed frustrated and we soon learned why—the entry was too small.

My son and I drilled the hole to 1½”, and the female soon began nest building. While the pair successfully raised their first brood, I researched nestboxes and discovered that everything that could be wrong with a nestbox was wrong with this one: it lacked an access panel, had no ventilation, and virtually no roof overhang. Worst of all it was nailed to the trunk of a tree. I vowed to build a proper nestbox for the next season, and properly mount it.

I finally settled on three plans—a NABS, a Peterson, and a Gilwood—and built one of each. I would mount them in early spring and let the birds decide which they preferred. That winter lingered longer than I had patience for, so I built other nestbox designs to help pass the time. The bluebirds returned to our yard in late March and nested again. The female investigated each box thoroughly and finally made a decision (the Gilwood), although the process seemed comically agonizing for her.

Hosting bluebirds is enough reward in itself, but observing them successfully raise their family in a nestbox I had built added another dimension. I was now hopelessly and wonderfully hooked on my new hobby.

What motivated you to start a website for nestbox builders?
I knew I was helping bluebirds by putting up nestboxes, but I wanted to do more. In researching nestboxes, finding the various designs proved to be a time consuming process, as the plans were scattered over many sites. I felt it would be helpful to create a central source for plans as well as providing a site where new designs, or modifications to existing ones, could be published. And by including a photo and description of each box, the site would be useful to anyone, not just to those who build their own boxes.

Your website includes several subjects besides nestbox plans and building tips, what other features have you included in the website?
My original vision for Nestboxbuilder was to be a source for plans, but since a successful nestbox is part of an overall system, a site with just plans would tell only half the story. Because proper mounting, predator controls, and monitoring are equally as important as the box design itself, I felt compelled to include basic tutorials on those topics, along with articles of general interest. Although the site’s name might imply it’s strictly for builders, I hope the site will prove valuable to anyone interested in hosting native cavity-nesters.
Do you have some favored designs or features for nestboxes that you are experimenting with? During the “Period of Urgency”—that time surrounding the discovery that bluebirds were in steep decline—new nestbox designs began to appear at a rapid pace. Several of these designs became classics and may well endure for decades, as they continue to provide safe homes for cavity-nesters. In my opinion, however, we simply have too many plans for a single species. Many are quite similar to each other, but with different names, and some of those old nestbox designs are outdated, retaining features that are no longer needed.

I am currently working on a standardized series of nestbox designs, adaptable to the builder’s regional needs and preferences, all from a minimal number of core plans with similar construction. Floor size, entry-to-floor distance (drop), and ventilation area could be changed at the builder’s discretion by simply varying key dimensions.

How often will you add new plans and birding information to the website? I’m planning on major updates twice a year, but I’m not limited to that. As new plans, articles or other pertinent information become available, I will update the site immediately. In future releases I would like to expand the site to include nestboxes for other species, as we’ve done in the newest release with the Spartan plan for Kestrels.

People are going to want to share their ideas with you. How should they contact you? Just go to the Contact Us page on the site where my email address is listed. I welcome suggestions, plans, articles, or tips anyone would like to share.

Fred’s website is www.nestboxbuilder.com

MEALWORMS!!!

Special pricing for NABS members!!!

Supply Bluebirds With the Best Tasting and Highest Quality Mealworms!!
Guaranteed Live Delivery & Same Day Shipments

**Bassett’s Cricket Ranch, Inc.**

1-800-634-2445  www.bcrcricket.com  info@bcrcricket.com
Protection for Red-cockaded Woodpeckers
A recent legal settlement will mean more protection for Red-cockaded Woodpeckers on Mississippi’s Noxubee Wildlife Refuge. The rare birds, once common in the southeastern US but now endangered, depend on old trees in longleaf pine forests. Over the past few years, logging on the Noxubee refuge—including logging inside woodpecker habitat—has increased, hurting the birds. As a result, two environmental organizations and a longtime volunteer at the refuge filed a lawsuit. A federal judge approved a settlement that requires the US Fish & Wildlife Service to prepare a new management plan that provides more protection for the woodpeckers. Any new logging in the birds’ habitat will have to wait for that plan. More information is available at www.biologicaldiversity.org. Photo courtesy Jim Hanula - USFWS.

Controversial Recovery Plan for Mexican Spotted Owl
The US Fish & Wildlife Service has published the final draft of its recovery plan for the Mexican Spotted Owl, a cavity-nesting species of the American Southwest. The plan is controversial because it supports logging, thinning, and other forest management activities that could be harmful to the owls and their prey. The species was listed as Threatened in 1993 under the Endangered Species Act. A federal judge concluded in 2011 that without owl monitoring data, the agency was unable to prove the species was not being harmed by proposed logging projects. The court found that the Forest Service had not been monitoring the species’ population. Conservationists now question whether conducting forest restoration within and around occupied sites (called Protected Activity Centers) to protect Mexican Spotted Owls from the impacts of wildfires should be the management priority. Instead, the groups say, fuel treatments and thinning should be conducted near homes.

Bluebirds Everywhere

“Bluebirds Everywhere” is a feature that celebrates the widespread and creative uses of bluebird images and the word itself. We invite you to submit your own images and ideas — simply e-mail 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!

NABS member Marion Ball submitted this photo of a miniature Blue Bird Pears railroad car. She explains: "We visited Lauritzen Gardens in Omaha, Nebraska to see their Christmas display. This spectacular exhibit includes a 20-foot-tall poinsettia tree, beautifully decorated holiday trees, antique sleighs, and several model trains. Several lines are whistling and whirring on more than 300 feet of track through the spectacular floral display and around dozens of miniature Omaha landmark structures—all constructed of natural materials."

The Bluebird Rose is a popular cut flower for weddings that use lavender in the color scheme. When fully open, the blossom is star-shaped, with a light fragrance and high petal count. If you search for this among nursery listings, do not confuse it with ‘Mr. Bluebird,’ which is an heirloom miniature rose of a very different color. Photo by ButterflySha – flickr.com.
Citizen Bird
Mabel Osgood Wright and Elliott Coues

[Editor’s note: This is a chapter on bluebirds reprinted from Citizen Bird: Scenes from Bird Life in Plain English for Beginners, a children’s book published in 1897. Wright was an author of nature-themed books and a novelist, while Coues was an early ornithologist and one of the founders of the American Ornithologists’ Union. The book featured illustrations by Louis Agassiz Fuertes, one of the pre-eminent artists of birds in America—the illustration from the Bluebird chapter is reprinted below.]

It will be difficult for you to mistake this little blue-coat for any other bird. He is “true blue,” which is as rare a color among birds as it is among flowers. He is the banner-bearer of Birdland also, and loyally floats the tricolor from our trees and telegraph wires; for, besides being blue, is he not also red and white?

To be sure, his breast is perhaps more brown than red, but when the spring sun shines on his new feathers, as he flits to and fro, it is quite bright enough to be called red. All sorts and conditions of people love and respect the Bluebird; all welcome him to their gardens and orchards. The crossest old farmer, with his back bent doubly by rheumatism, contrives to bore some auger holes in an old box and fasten it on the side of the barn, or set it up on the pole of his hayrick; while the thrifty villager provides a beautiful home for his blue-backed pets—a real summer hotel, mounted on a tall post above a flower-bed, with gables and little windows under the eaves.

Why does this bird receive so much attention? There are many others with gayer plumage and more brilliant songs. It is because the Bluebird is gentle, useful, brave, and faithful under adversity, while he and the Robin are the first two birds that children know by name. We must live in a very cold, wind-swept part of the country not to have some of these birds with us from March until Thanksgiving day, and then, when a week has passed and we have not seen a single one, we say winter has come in earnest. When weeks go by and our eyes grow tired of the glare of the snow, or our hearts discouraged at the sight of bare lifeless trees and stretches of brown meadow—suddenly, some morning, we hear a few liquid notes from an old tree in a sunny spot. All eagerness, we go out to see if our ears have deceived us. No, it is a Bluebird! He is peeping into an old Woodpecker’s hole and acting as if he had serious thoughts of going to housekeeping there, and did not intend waiting to move in until May-day either. When you see him you may know that, though there is still ice on the water-trough and on the little streams, spring is only around the corner, waiting for her friend, the sun, to give her a little warmer invitation to join him in their old, old play of turning the sluggish sleeping brown earth into a wonderful green garden again.

As a Citizen the Bluebird is in every way a model. He works with the Ground Gleaners in searching the grass and low bushes for grasshoppers and crickets; he searches the trees for caterpillars in company with the Tree Trappers; and in eating blueberries, cranberries, wild grapes, and other fruits he works with the Seed Sowers also.

So who would not welcome this bird, who pays his rent and taxes in so cheerful a manner, and thanks you with a song into the bargain? A very few straws are all that he asks for his housekeeping, and every time he promises a meal for his household, scores of creeping, crawling, hopping garden enemies are gobbled up. Then he, modest little fellow that he is, comes to the roof of the shed and murmurs his thanks for your hospitality, as if you and not he had done the favor; he continues to whisper and warble it all the way down the meadow until, having caught another grasshopper, his mouth is too full for singing.
You Scratch My Back, ...

Anyone who watches nature shows is familiar with the mutual grooming done by chimpanzees and other primates. Picking bugs out of your neighbor’s fur is a great way to strengthen social bonds, and it helps that they reciprocate by cleaning that spot on your back that you can’t quite reach.

Birds that live in extended social groups do something similar. The Brown-headed Nuthatch, for example, lives in family groups of up to five birds. The group usually includes a dominant breeding pair and non-breeding helpers, often juveniles from a previous clutch. Members of these family groups groom each other, preening the feathers of the head, neck, wings, and back. And the grooming does not occur just between the breeding pair; non-breeders groom breeders, breeders groom non-breeders, and non-breeders groom other non-breeders.

Initially, it was thought that this mutual grooming was strictly hygienic—the birds were just helping to preen areas that were hard for an individual to reach (such as the head and neck). But because the preening includes areas of the wings and back, which an individual could easily reach on his or her own, it’s now believed that the grooming performs the same function as in primates: it strengthens social bonds within the group and reduces aggressive behavior.


Should Fathers Feed Their Sons Less, to Lessen Competition with Them Next Year?

Let’s face it: life can be tough for bluebirds. Mates may be scarce, nest sites may be scarce, food may be scarce. Individuals that are able to outcompete their fellow bluebirds will win the battles for mates, nest sites, and food every time. For a male bluebird, the competition is tough enough already; why should he go out of his way to raise big, strong sons who might compete with him in future years? Why not skimp on feeding the boys, and focus instead on raising healthy daughters, who won’t grow up into competitors?

A study conducted about 20 years ago found that Eastern Bluebird fathers did just that: they fed daughters more than sons, and fathers with female-dominated broods spent more time feeding them than did fathers with male-dominated broods. However, a recent study found no such feeding bias. Fathers (and mothers) fed sons and daughters at equal rates. And broods dominated by one sex were not fed any less than broods dominated by the other sex. The current thinking is that, because bluebirds are not very likely to return to their hatching territory to breed in future years, it’s unlikely that a father will compete with his sons, so there’s no reason to skimp on feeding the boys.


Avian Malaria...in the Arctic

Malaria is a disease most commonly associated with the warmth and humidity of the Tropics. But it can be found farther north, provided the temperatures are warm enough year-round for the disease-causing parasite (the protozoan *Plasmodium* spp.) to complete its annual life cycle. Now, for the first time, avian malaria has been found above the Arctic Circle.

The *Plasmodium* parasite was detected in samples taken from non-migratory, resident species (including the cavity-nesting Boreal Chickadee and Black-capped Chickadee), which shows that the birds weren’t infected while spending the winter in a warm tropical jungle. Instead, with a warming climate, the parasite has moved steadily northward, and is now infecting boreal and arctic birds. These northern bird species...
have never been exposed to *Plasmodium* and, as a result, do not have any immunity to its effects. Avian malaria attacks the red blood cells and internal organs such as the liver and brain, and is often fatal to birds that lack immunity.

A similar scenario has unfolded in Hawaii. Since the inadvertent introduction of avian malaria there, the native birds have declined precipitously. According to the American Bird Conservancy, “Hawaii’s native birds succumbed quickly because they have no resistance to the disease. Avian malaria has contributed to the extinction of at least 10 native bird species in Hawaii, and threatens many more.”

Hopefully, arctic and boreal bird species will not suffer the same fate.


www.abcbirds.org/conservationissues/threats/disease/avian_malaria.html

**Who’s Braver: Titmouse or Chickadee?**

Small birds often react to the presence of an avian predator by “mobbing” it: they approach as closely as they dare, and scold it using short, sharp call notes. The noise attracts other small birds, who join in, harassing the predator until it finally leaves.

Two researchers in Kentucky were curious about the differences in mobbing behavior of small birds. Which species will approach a predator the closest? And why would those birds take more risks than other birds?

Using stuffed owls and hawks, presented one at a time, they recorded the mobbing responses of Tufted Titmice and Carolina Chickadees. The titmice approached the predators more closely and stayed close longer than did the chickadees. Apparently, since hawks and owls don’t capture very small birds, the titmice (being slightly larger than the chickadees) are in more danger, so they are willing to take greater risks to drive away a predator. Chickadees are brave in their own right, but they have no need to take unnecessary risks.


**What’s Bugging Your Bluebirds?**

Bluebirds, like virtually all organisms, are sometimes afflicted with parasites. In recent years, buffalo gnats have been particularly troublesome in some areas, to the distress of bluebird monitors. But parasites are part of the natural cycle of life, and no amount of preventive care or treatment will ever eliminate them.

For example, a recent study took an in-depth look at Eastern Bluebird parasites and diseases. Examinations of adults, nestlings, and nests revealed all manner of bugs: 15 species of ticks, lice, mites, nematodes, cestodes, flies, and protists, among others. One bird tested positive for both West Nile Virus and an encephalitis virus. In all, about 1 in 6 birds hosted at least one macroparasite (i.e., large enough to be visible with the naked eye), and fully half of the birds hosted at least one microparasite. Nearly all of the adult birds hosted feather mites, and half of the nests housed nest mites. Mind you, these were not dirty, neglected birds—they were housed in well-managed nestboxes, carefully tended by experienced monitors.

By adding their findings to those of earlier published reports, the authors expanded the list of parasites known to infest Eastern Bluebirds to nearly 70 species. Fortunately, although unpleasant, parasites rarely kill their host. Nature has provided organisms with remarkable powers of resistance and recovery. Parasites may weaken bluebirds for a time, but they generally recover.

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 all 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 all working together toward a common goal, a further partnership in international bluebird conservation. No cost is associated with affiliating with NABS. Your affiliated organization will be recognized and listed on the NABS website and in Bluebird. If your organization has a newsletter, please forward a copy to our headquarters. To find out more about becoming a NABS affiliate, read our Affiliate Letter. Notice: If you are listed below, please check listing to see if it is current. If not, please contact web@nabluebirdsociety.org and NABSeeditor@gmail.com with correct information.

**Alberta**

**Calgary Area Nestbox Monitors**
Ron Reist
5720 59 Ave.
Olds, Alberta T4H 1K3 - CANADA
403-556-8043
rreist1@shaw.ca
www.canadiannaturenetwork.ca

**Ellis Bird Farm, Ltd.**
Myrna Pearman
PO Box 5090
Lacombe, AB T4L-1W7 - CANADA
403-885-4477
403-887-5779
mpearman@telus.net
www.ellisbirdfarm.ab.ca

**Mountain Bluebird Trails Conservation Society**
Gwen Tietz
P.O. Box 401
Lethbridge, AB T1J-3Z1 - CANADA
403-317-1252
gwen.tietz@gmail.com

**Bermuda**

**Bermuda Bluebird Society**
Stuart Smith
#2 Up and Down Lane
Paget DV 03
Bermuda
441-777-9856
smitty@ibl.bm
www.bermudabluebirdsociety.com

**British Columbia**

**Southern Interior Bluebird Trail Society**
Sherry Linn
18588 Old Richter Pass Rd
Osoyoos, BC V0H-1V5 - CANADA
250-495-7891
goldstrm@vip.net
www.bcbluebirds.org

**California**

**California Bluebird Recovery Program**
Dick Blaine
22284 N. De Anza Circle
Cupertino, CA 95014
408-257-6410
dick@theblaines.net
www.cbrp.org

**Palos Verdes South Bay Audubon Society**
Nancy Feagans
2010½ Pullman Lane
Redondo Beach, CA 90278
310-483-8192
nancy@pvsb-audubon.org
www.pvsb-audubon.org

**Southern California Bluebird Club**
Jo-Ann Coller
18132 Larkstone Dr.
Santa Ana, CA 92705
www.socalbluebirds.org

**Colorado**

**Colorado Bluebird Project**
Audubon Soc of Greater Denver
Kevin Corwin - 720.482.8454
9308 S Wadsworth Blvd
Littleton, CO 80128
303-973-9530
303-973-1038 f
bluebirdproject@denveraudubon.org
www.denveraudubon.org/conservation/bluebird-project/

**Florida**

**Florida Bluebird Society**
Bill Pennewill
P.O. Box 1086
Penney Farms, FL 32079
floridabluebirdsociety@yahoo.com
www.floridabluebirdsociety.com

**Idaho**

**Our Bluebird Ranch**
Leola Roberts
152 N 200 E
Blackfoot, ID 83221
208-782-9676
Rocky Mountain Blues
David Richmond
HC 67 Box 680
Clayton, ID 83227
208-838-2431
fowest@custertel.net

Illinois
East Central Illinois Bluebird Society
Loren Hughes
1234 Tucker Beach Rd
Paris, IL 61944
217-463-7175
lghughes@joink.com

Jo Daviess County BBRP
Dick Bach
9262 Fitzsimmons Rd.
Stockton, IL 61085
815-947-2661
kiritemoa@mwci.net
www.jdcf.org/guardians

Southern Illinois Audubon Society
Laraine Wright
P.O. Box 222
Carbondale, IL 62903-0222
618-457-8769
www.siaudubon.org

Indiana
Brown County Bluebird Club
Dan Sparks
PO Box 660
Nashville, IN 47448
812-988-1876
360-361-3704 f
bdbluebirds@yahoo.com

Hendricks County Bluebird Society
Karen Smith
7369 Caldwell Lane
Avon, IN 46123
317-513-6403
Karen12208@aol.com
www.hendricksbluebirsociety.info

Indiana Bluebird Society
Ken Murray
PO Box 134
Rensselaer, IN 47978-0134
219-866-3081
lbs07@rhsi.tv
www.indianabluebirdsociety.org

Iowa
Bluebirds of Iowa Restoration
Jaclyn Hill
2946 Ubben Ave
Ellsworth IA 50075-7554
515-836-4579
jaclynhill@netins.net

Iowa Bluebird Conservationists
Jerd Getter
PO Box 302
Griswold, IA 51535
712-624-9433 h
712-527-9685 w
jgetter@hotmail.com

Johnson County Songbird Project
Jim Walters
1033 E Washington
Iowa City, IA 52240-5248
319-466-1134
james-walters@uiowa.edu

Kentucky
Kentucky Bluebird Society
Philip Tamplin, Jr.
26 Poplar Hill Rd.
Louisville, KY 40207
502-895-4737
ptamplin@aol.com
wwwbiology.edu/kbs

Louisiana
Louisiana Bayou Bluebird Society
Evelyn Cooper
1222 Cook Rd
Delhi, LA 71232
318-878-3210
emcooper@hughes.net
www.labayoubluebirdsociety.org

Maine
Mid-Coast Audubon Society
Joseph F. Gray
35 Schooner Street #103
Damariscotta, ME 04543
207-563-3578
clmjmm@ll.net
www.mbluebirdsociety.org

Maryland
Maryland Bluebird Society
Kathy Kreminitzer
19305 Deer Path
Knoxville, MD 21758
301-662-7818
Griffin459@myactv.net
www.mdbulebirdsociety.org

Michigan
Michigan Bluebird Society
Kurt Hagemeister
PO Box 2028
Ann Arbor, MI 48106-2028
734-663-9746
810-736-8713 f
khagemeister@michiganbluebirds.org
www.michiganbluebirds.org

Minnesota
Bluebird Recovery Program
Audubon Chapter of Minneapolis
Keith Radel & JENean Mortenson
P.O. Box 984
Faribault, MN 55021
507-332-7003
khagemeister@michiganbluebirds.org
www.mbluebirdsociety.org

Missouri
Missouri Bluebird Society
Steve Harr
P.O. Box 105830
Jefferson City, MO 65110
573-638-2473
steve@birds-i-view.biz
www.missouribluebirds.org

Montana
Mountain Bluebird Trails, Inc.
Tom Anderson
5532 Sandhill Road
Lewistown, MT 59457
406-535-2132
sandhill@midrivers.com
www.mountainbluebirdtrails.com

Nebraska
Bluebirds Across Nebraska
Derry Wolford
705 9th Ave
Shenandoah, IA 51601
info@bbne.org
derrywolford@hotmail.com
www.bbne.org

New Hampshire
NH Bluebird Conspiracy
Bruce Burdett
5 Upper Bay Rd
Sunapee, NH 03782-2330
603-763-5705
blueburb@myfairpoint.net

New Jersey
New Jersey Bluebird Society
Frank V. Budney
173 Carolyn Road
Union, NJ 07083-9424
908-687-2169
www.njbbs.org
A great big THANK YOU to these NABS Sponsors!

Our sponsors support the work of NABS through an annual contribution

<table>
<thead>
<tr>
<th>Level</th>
<th>Sponsorship Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Silver Level</strong> (at least $1,000)</td>
<td>Terry &amp; Vicky Larkin</td>
</tr>
<tr>
<td><strong>Bronze Level</strong> (at least $500)</td>
<td>John Langley</td>
</tr>
<tr>
<td><strong>True Blue Level</strong> (at least $250; available only to NABS Affiliates)</td>
<td>Southern California Bluebird Club, NYS Bluebird Society, Texas Bluebird Society, Virginia Bluebird Society</td>
</tr>
<tr>
<td><strong>Nestbox Neighbors</strong> (at least $100; available only to NABS Affiliates)</td>
<td>East Central Illinois Bluebird Society, Missouri Bluebird Society, North Carolina Bluebird Society, Florida Bluebird Society</td>
</tr>
</tbody>
</table>
Renew Today!  Give a friend the gift of bluebirds!

Date _________________

☐ New Membership  ☐ Renewal  ☐ A gift subscription from: _______________________________ for:

☐ 1 Year  ☐ 2 Years  ☐ 3 Years  ☐ 4 Years

<table>
<thead>
<tr>
<th>Membership Level</th>
<th>Household</th>
<th>Single Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscribing</td>
<td>$30</td>
<td>$20</td>
</tr>
<tr>
<td>Supporting</td>
<td>$50</td>
<td>$40</td>
</tr>
<tr>
<td>Contributing</td>
<td>$85</td>
<td>$75</td>
</tr>
<tr>
<td>Guardian</td>
<td>$110</td>
<td>$100</td>
</tr>
<tr>
<td>Life</td>
<td>$500</td>
<td>$500</td>
</tr>
</tbody>
</table>

☐ Organization $50
☐ Small Business $50
☐ Corporation $125

A+ (for Affiliate members only)  ☐ $15

Name of Affiliate organization: ____________________________

NOTE: Multiple years are not available for “A+” — this membership type must be renewed annually.

Additional Donation
☐ $30  ☐ $50  ☐ Other __________

☐ Check enclosed (in U.S. funds)
☐ Visa  ☐ MasterCard

Card # __________________________

Last 3 digits on reverse side: ____________

Expiry: _______ Signature: _______________________________

Total amount paid/charged to credit card: ________________

We do not share or sell NABS’s membership list. $10.00 of each annual membership is designated for subscription to Bluebird, the quarterly journal. The remaining portion of payment is a contribution. Payment must be in U.S. funds.

Mail to: NABS Treasurer, P.O. Box 7844, Bloomington IN 47407

An online membership form with payment through PayPal is available online at www.nabluebirdsociety.org