President Dean Sheldon reviews NABS research effort, its relationship with Kenyon College, and work on combating House Sparrows.

Executive director Lisa Bulick has high praise for NABS corporate members and others who have joined at higher levels.

A Wisconsin study suggests that single boxes should be at least 100 yards apart.

A primer on how to do battle with House Sparrows when they want to use your nest boxes.

Bases, bombs, and bluebirds. U.S. military lands provide important habitat for many bird species, including bluebirds.

Everything you need to know about design and construction of proper nest boxes for bluebirds.

Banders in Calgary track the age of birds they have captured and recaptured. Four-year-old birds are most common.

American Kestrels share territory with Eastern Bluebirds, and everyone gets along.

The annual honor roll of support for NABS and its work.

This nest box drawing comes from a booklet written by Edmund J. Sawyer and published in 1931 by the Cranbrook Institute of Sciences in Michigan. See page 9.
The Hole Thing
Dean Sheldon Jr.

For many years, NABS has made research grants available to students, scientists, and lay individuals engaged in studies on native cavity-nesting bird species. That aspect of our research program continues. However, for the 2004 nesting season, research grants will be provided for studies relating to the three species associated with the genus Sialia only.

Additionally, multiple years funding (on a year-by-year basis) will be offered for the first time. This will encourage more ambitious, long-term studies. In sum, the conventional grants will still be a part of NABS research component, albeit in relation to bluebirds only.

At its fall meeting at our Wilmot, Ohio, headquarters, the NABS board of directors approved a recommendation from the Research Committee that we undertake a "course correction" in the overall manner in which the Society conducts its research programs. A synopsis of that committee recommendation follows:

Since 1999, student researchers at the Brown Family Environmental Center (BFEC) at Kenyon College in Gambier, Ohio, have been conducting original research into bluebird breeding success, foraging, and behavior. All of this complements the long-term research goals established by the Kenyon faculty.

In addition, a community monitoring project for bluebirds has been undertaken by Dale Glass, an Ohio Bluebird Society county coordinator, on established BFEC trails. In this regard, we have seen the cooperative efforts of both the college and the community working together to strengthen bluebird conservation on this beautiful site.

Student research has been done in several areas: frequency of nest-box usage by different species, patterns of egg laying, and spatial patterns of egg-laying and brood success. Kenyon researchers also are determining whether or not there are patterns to nesting interference from House Sparrows, House Wrens, predators, or parasites.

It is with regard to the House Sparrow situation that NABS enters the research mix at Kenyon College.

In the fall of 2002, the NABS board established the Bolt Fund for the purpose of conducting research on ways to discourage the intrusion of the House Sparrow into bluebird nesting activities. In this regard, the Kenyon students will be investigating the affect of a variety of exterior nest-box colors and differing nest-box designs on BFEC trails.

Funds from this research work come from Mel Bolt through the retail sales of his in-box trap by David Magness and his Jenna Bird manufacturing/sales organization in Maryland. Magness is a former member of the NABS board of directors and is on the membership committee.

Continued on page 3
M embers are the heart of a grassroots conservation organization such as NABS, and I want to use my column in this issue to express my appreciation for the dedication and the generosity of NABS members.

The North American Bluebird Society has from its beginning been an organization of individuals engaged in hands-on conservation. Bluebird recovery is being accomplished through direct participation of bluebirders across the continent: monitoring nest boxes or trails, educating their communities, forming affiliate organizations.

Shortly after each issue of Bluebird is mailed, the renewals, new memberships, endowment fund contributions and donations start arriving in our mailbox. I am always moved by the generosity of NABS members; impressive amounts of time and money are devoted to making sure bluebirds are around for this and future generations.

Please take a look at the back of this issue of Bluebird for the Annual Support for NABS page to see the names of the individuals and businesses that have contributed beyond the standard membership dues to NABS during the 2002-03 fiscal year.

We are pleased that corporate memberships have almost doubled in the last year. Most of the NABS corporate members are stores catering to birders, though our list includes a county waste department, a power company, a golf course, and several manufacturing concerns.

If a store or business listed on our Annual Support page is in your neighborhood, please support it! You can check the NABS website for contact information on our corporate members at www.nabbluebirdsociety.org. These businesses support NABS and bluebird conservation; it’s important that we show them our appreciation.

For information about the benefits of corporate membership, contact me by phone at 888/235-1331, or e-mail at lisabulick@nabbluebirdsociety.org.

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Bluebird

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The NABS web site offers answers to many questions.

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NABS 2004 convention

The NABS Convention for 2004 will be held in Ithaca, New York, July 7 to 11. The meetings will be held at the Clarion University Inn and Conference Center, high on the hill above Cayuga Lake. The Cornell Lab of Ornithology is only a short distance from the Clarion and tours of the new $30 million visitor center are on the agenda.

The convention registration form and complete convention details can be found on the pull-out center section of this issue of Bluebird.

The Clarion University Inn will accept room reservations at any time. Address is 1 Sheraton Drive, Ithaca, NY 14850, phone 607/257-2000. Room rates are $79 per night. Please mention NABS convention for this rate.

Among the many interesting places near the convention site is the Paleontological Research Institution/Museum of the Earth. This museum was founded in 1932 by Gilbert Harris, professor of geology at Cornell, to house his collection and Wary. The new museum tells the history of the Earth and explores the geology of the northeastern United States. It includes the skeletons of the Hyde Park Mastodon and of Right Whale.

For the newest convention information, visit the web site www.NABS2006.com. Click on NABS 2004 (column on left side). You can also get more information regarding the convention by contacting Carl and Phyllis Zenger by e-mail at cpzenger@adelphia.net or by calling them at 716/434-7568. You may also contact NYSBS President David Smith, by e-mail at klip@clarifyconnect.com.

Award nominations should be sent to NABS now

The North American Bluebird Society annually makes awards for outstanding contributions to bluebird conservation. Awards will be presented at the NABS convention in July; nominations must be received no later than March 1, 2004.

If you wish to nominate an individual, a group, or someone involved in research for an award, please contact NABS board member David Cook at 664 S. 14th St., San Jose, CA 95112, e-mail justdave50@earthlink.net, or by telephone at 408/275-1492. Include your telephone number or e-mail address, please.

For individual awards, consider the ways in which nominee has publicized or aided bluebird/cavity-nester conservation. Examples might include speaking before groups; working with young people; obtaining publicity in newspapers, radio, or television; working at nature centers, workshops, or fairs; inventing or improving trap or box designs; designing and producing publications; plantings, etc.

For nomination of a group, consider workshops offered, number of boxes maintained by group members, increase in bluebird production, methods of recruiting monitors, successful fledglings, etc. Programs must have been in place for a minimum of five years.

For research awards, briefly summarize research completed (and in progress) involving bluebirds/cavity nesters, and include bibliographic citations of articles published about bluebirds or other North American cavity nesters (copies of articles or abstracts are desirable).

Texas has some questions for you

The Texas Bluebird Society (TBS) wants a minute of your time as it prepares to host the 2006 NABS convention. Please visit www.TBS2006.com and complete the short “Pre-Convention Survey” you will find there.

“This will be of tremendous help to us as we make plans for 2006, and the results will help the affiliates who host North American Bluebird Society conventions in the future,” said TBS president Pauline Tom.

Even if you have never attended a bluebird convention and have no intention of ever attending a bluebird convention, it’s of value to know what would attract “a bluebird enthusiast,” she said.

Results of the survey will be shared with NABS and with affiliates hosting future conventions.
Western species in need of more research efforts

To the editor,

I very much appreciated the recent article entitled “Nest-site availability and selection by cavity nestling birds” by Kathryn Atiken (Fall, 2005). First, it is gratifying when researchers take the effort to report on their findings of research that was supported, in part, by NABS. Second as one who has done a good bit of fieldwork, I appreciate the efforts that are required to get the data for this study. The idea of fieldwork sounds “romantic” but it really is mostly work.

The results reported from this study were of considerable interest to me. From a more global perspective the study should serve to remind us of how very different many of the survival issues are for the two western species of Sialia (Western and Mountain bluebirds) as contrasted to the Eastern Bluebird.

Except for its consumption of winter food supplies, I do not usually think of the European Starling as being a major factor in the survival of Eastern Bluebirds. I say this because I believe that the density of nest boxes over most of the Eastern Bluebird’s range is such that much of its reproduction occurs in starling-proof, man-made cavities. In contrast, the House Sparrow is a major problem in the East. I would think that this is not the situation for the two western species where the much lower human population densities (and relatively smaller numbers of nest boxes) means that a considerably higher percentage of the reproductive activity of the Mountain and Western Bluebirds still occurs in natural cavities.

Thus, in the west the impact of the starlings on bluebird recruitment would be exerted both via its deleterious effects on the abundance of the primary cavity nesters (like woodpeckers) as well as its impacts as a direct competitor for the available cavities per se. Therefore, I think one of the observations reported in Ms. Atiken’s research, i.e., the measurable differences between starlings and Mountain Bluebirds in cavity selection (that starlings eschew the northerly and easterly-facing cavities, while bluebirds prefer them) begs more research.

I believe this article points out the fact that we need to devote much more attention to the needs of the two western bluebird species. There is no doubt that the remarkable increases achieved in both abundance and distribution for Eastern Bluebirds in the east has not been as dramatic for the western species — the Western Bluebird in particular.

I have recently downloaded all of the bluebird data from the North American Breeding Bird Survey (1966 - 2002), and have been processing it and uploading it into a geographic information system. I’m arranging it so bluebird abundance and distribution changes across North America can be plotted by five-year increments. So far, this analysis confirms the point made above.

— Bernie Daniel, Ph.D., Cincinnati, Ohio, co-chair, NABS Research Committee.

You can enter your TBT data on web site now

By Jim McLochlin

Year-end registration data entry into the Transcontinental Bluebird Trail (TBT) is open and waiting for your trail results. To enter data all you need is access to the Internet, your NABS membership number (which serves as your username and can be found on the mailing label of this magazine) and your password.

If you have never entered data into the TBT (or entered data but failed to change your password, the default is NABS). If you have changed your password and forgotten it, send an e-mail to tbt@nabbluebirdsociety.org with your NABS membership number and ask for your password.

By entering your data you not only help NABS and the bluebirds, but you also will be recording your data for ease of review and comparison. You will be able to see how your trail has done over the years or in comparison to others in your geographical area.

One feature of the TBT database is that if you include your e-mail address in your online TBT profile and you forget your password it can be e-mailed back to you automatically.

You can get to the TBT by going to www.tbt.nabbluebirdsociety.org or through the link from the NABS home page (www.nabbluebirdsociety.org). This is one of the benefits of NABS membership.

(Jim McLochlin is a NABS director, TBT chairperson, and NABS web site co-chairperson. His e-mail address is bluebirdbox@cox.net.)
Wisconsin study suggests single boxes should be at least 100 yards apart

By Joe O’Halloran

Data collected in Wisconsin in 2001 showed that a number of trails of mostly single nest boxes were producing less than 100 bluebirds per 100 boxes. Visits to some of those trails, and phone calls to monitors suggested that the problem was the crowding of the single boxes. This study was conducted by the Bluebird Restoration Association of Wisconsin (BRAW).

It became clear that a number of people were placing single nest boxes more than 100 feet apart, but less than 100 yards apart, and were calling these boxes “singles.” We saw a spacing-definition gap between what we called paired boxes (100 feet apart or less), and what we recommended as the spacing for true singles (at least 100 yards apart).

This Crowded-Singles Box Study was launched to illuminate what was happening to the bluebird productivity at nesting boxes spaced in that gap — more than 100 feet and less than 100 yards apart.

There was a second impetus for this Crowded-Singles Box Study. Between 1996 and 1998, most of the BRAW monitors switched to single boxes (more than 90 percent), and the bluebird production about doubled, from fewer boxes.

But, at that time Drs. Linda Whittingham and Peter Dunn (ornithologists at the University of Wisconsin, Milwaukee, and members of the BRAW board of directors) cautioned us that there was nothing magic about the 30 meters distance (about 100 feet) upon which we based our definition of paired boxes.

Yes, the professional literature documented that male Tree Swallows tended to reserve paired boxes within that distance for a second, simultaneous mate.

But, Drs. Whittingham and Dunn cautioned us that the male Tree Swallows could be defending boxes farther than 100 feet apart, and that the exact size of swallow territories had not yet been measured.

The goal of this study was to compare the bluebird productivity of crowded-singles boxes to that from widely spaced singles boxes, and to the productivity from paired boxes, respec-

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tively. In this report, we refer to the number of bluebirds fledged per 100 boxes (presented) as a measure of nesting-box bluebird productivity.

To create the data base for this Crowded-Singles Box Study, BRAW monitors were asked to use new forms to report the results of their 2002 data separately for a) paired boxes, b) crowded singles boxes, and c) standard singles boxes.

About seven out of 10 of all the nest boxes reported to BRAW in 2002 were reported on the new forms. There were 3,660 boxes reported for this study. There were 2,989 (82 percent of the boxes in the study) reported as widely spaced singles. Four hundred and thirty boxes (about 12 percent) were crowded-singles, and 241 boxes (about 7 percent) were paired.

The widely spaced singles had a statewide average bluebird productivity of 236 bluebirds fledged per 100 boxes presented. The crowded-singles had 135. And, the paired boxes had 123.

Thus, the boxes reported as crowded singles, as well as the boxes reported as paired, produced only a little more than half as many bluebirds per 100 boxes presented. (57 percent or less) compared to widely spaced standard singles, on statewide average.

Compared to recent year's results, the bluebird productivity of the widely spaced singles boxes reported in this study show was unexpectedly high. We believe this is because the new reporting form does not require the monitor to lump together the data from what we call crowded-singles boxes into the same column with the widely spaced boxes.

For example, in Year 2001, data from all the singles boxes (from both widely spaced and crowded boxes combined) were still being lumped together and reported in one column. As a result, those generic singles boxes averaged 198 bluebirds fledged per 100 boxes, and the paired boxes averaged 129.

It should be noted that the type of nest box used by each monitor is not identical in each spacing category.

However, in this study, a similar bluebird productivity pattern was observed when comparing just the Peterson box-type in each spacing category. For example, on a statewide basis, widely spaced single Petrons had a bluebird productivity of 269, and the crowded-singles had a bluebird productivity of 164. West zone widely spaced Petrons had a bluebird productivity of 315 bluebirds fledged per 100 boxes, and the crowded-singles Petrons there had 188. The East Zone widely spaced single Petrons had a bluebird productivity of 205, and the crowded-singles had 127.

There are some sharp differences in perception among some bluebird communities about the difference in bluebird productivity of paired and single boxes. This study helps explain why.

The data shows that if a comparison were to be made between the bluebird productivity of paired boxes and single boxes spaced-apart between 100 feet and 300 feet, not much difference in box productivity is observed between them. The large difference in bluebird productivity appears only in the comparison between paired boxes and widely spaced single boxes (100 yards apart, or more).

It should be mentioned that this study does not establish the extent of a male
Tree Swallow's territory. It does reflect the picture provided by Drs. Whittingham and Dunn that the area of the male Tree Swallow's territory very likely extends beyond the previously documented 100 feet (30 meters).

Summary
In 2002 in Wisconsin crowded single bluebird nest boxes were little more than half as productive of bluebirds as widely spaced singles boxes, on statewide average. The data also showed that crowded single boxes, on average, had about the same bluebird productivity as paired boxes, on statewide average. For the Peterson box, the most widely used box type in Wisconsin, crowded single bluebird productivity was only about 61 percent of that of widely spaced single Petesons, on average statewide.

We believe this study confirms the validity of what BRAW and its monitors and others have been advising for years, namely — space your bluebird nest boxes as singles boxes at least 100 yards apart.

(This article is an adaptation of the report first published in the Wisconsin Bluebird, Spring Issue, 2003. Page 13. My thanks to all those Wisconsin monitors who presented data used in this study.)

(Joseph O' Halloran is chairman of the Bluebird Restoration Association of Wisconsin Data Collection and Analysis Committee. He can be reached by e-mail at JOEOHALLOR@aoa.com.)

This diagram shows you how to construct the nest box shown on our cover. The drawings come from a 1931 pamphlet entitled "Bird Houses" by Edmund J. Sawyer. It was published by the Cranbrook Institute of Sciences in Bloomfield Hills, Michigan. The author at that time described this as "the best and most simple form of artificial nesting site." With dimensions appropriate to the species, he wrote, "this is the most generally attractive type of house for all species excepting Purple Martin. It is the type especially suited for the chickadee, nuthatch, and Tufted Titmouse." As the drawing shows, a section of log was cut, then split vertically. The nesting cavity was hollowed from both halves, which then were joined and kept closed by a peg arrangement. The box could be opened for examination by manipulating the pegs. An entrance hole was created. The box in the drawing was mounted by returning the cut log section to the stub from which it came.
Primer on House Sparrow control

Do you have House Sparrow problems? Are these pests, not native to North America, taking nest boxes you hoped would provide nesting sites for bluebirds of other native bird species?

The North American Bluebird Society has information on House Sparrow control. There are options available when dealing with sparrow problems. Given the widespread problems caused by House Sparrows, NABS believes it is the responsibility of every nest-box trail operator to ensure that no House Sparrows fledge from their boxes. It is better to have no nest box than to have one which fedges sparrows.

House Sparrows are very abundant in North America, and perhaps the most widely distributed bird species on the planet. House Sparrows are not actually sparrows, but are Old World Weaver Finches, a family of birds noted for their ingenious nest-building abilities.

House Sparrows were introduced into North America from England in the 1850s on the mistaken premise that they would help reduce crop insect pests. At first, the new immigrants welcomed this little bird of their homeland. Within 25 years, however, they realized the seriousness of their mistake: the House Sparrow population had increased at an explosive and alarming rate, and the birds were causing extensive damage to crops and fruit trees. They were also taking over the nesting sites of native cavity-nesting birds.

The breeding season for House Sparrows begins early in the spring or even in midwinter, and each pair may produce up to four broods a season. The male House Sparrow's bond with his nest site is stronger than his bond with a mate. He may lose a mate, but he won't give up his nest site.

Although they usually prefer to nest in a cavity, House Sparrows will settle for any nook or cranny they can find. They will also occasionally nest in coniferous trees and in the nests of Cliff Swallows and Northern Orioles.

The male constructs a bulky, dome-shaped nest of coarse grasses, weeds, hair, and feathers. The female lays three to five white-brown speckled eggs and incubates for 11 to 14 days. The young sparrows fledge after 14 to 16 days. These birds are not migratory, but flocks of birds move about within an area of a mile or two.

House Sparrows are primarily seedeaters, although they eat some insects during the summer. They will also dine on garbage. Feedlots and farmsteads are particularly attractive to sparrows as they provide an abundant source of food, as well as shelter and plenty of nesting sites.

Control of sparrows on a bluebird trail can be either passive (taking preventative measures when placing the box to deter sparrow use) or aggressive (taking measures after the box is in place and sparrows are using it).

**PASSIVE CONTROL**

Box location is the most crucial factor in controlling sparrows on a bluebird trail. The House Sparrow's Latin name, *Passer domesticus*, aptly describes its preferred nesting habits — around houses. Avoid placing boxes near farmsteads, feedlots, barns, old outbuildings, etc. Boxes placed in or around villages, towns or cities will likely be claimed by House Sparrows. If sparrows do take up residence, one option is to relocate the box to a site further away from human occupation.

Sparrows may avoid a nesting site if the box is placed too low to the ground (three to five feet). However, since boxes placed this low run the risk of being raided by raccoons, cats, or other climbing predators, this is a feasible option only where there are no climbing predators.
Plugging the entrance hole — Plugging the entrance hole of a box taken over by sparrows will prevent the male from using that specific box, and might even encourage him to move elsewhere. Some bluebird trail operators plug the entrance hole at the end of the nesting season and leave it plugged until the bluebirds arrive in the spring. This will prevent sparrows from roosting in the box during the winter, and then staking an early claim in the spring.

Use of Gilbertson PVC boxes — Although Gilbertson PVC boxes are not 100 percent sparrow resistant, House Sparrows seem to be reluctant to use them. If PVC boxes are paired with a wooden box, sparrows tend to choose the wooden box. If you are trying to attract bluebirds in an area where you suspect sparrow problems, it might be wise to start off with the PVC box.

Eliminating feeding and nesting sites — Problems on a nest box trail can be reduced if the overall, local House Sparrow population can be reduced. This can be achieved by taking control measures at bird feeding stations (use of sparrow-proof feeders; avoiding cheap, mixed bird seed that contains a high percentage of filler grains, such as milo, millet or cracked corn; or use of monofilament line around seed feeders), as well as scaling up all potential winter roosting and summer nesting sites.

AGGRESSIVE CONTROL

Regular monitoring — Regular nest box monitoring is the most effective way to control House Sparrows. If sparrow nests are regularly removed, no young will fledge from the box. However, the male will tenaciously defend his box, and will usually keep rebuilding his nest. He will also drive off any other bird that might express an interest in the box. Therefore, it is important to eliminate the male. This is usually accomplished using an in-box trap.

In-box trapping — Three traps that work well are the basic Huber-style, the Gilbertson universal trap, and the Van Ert trap.

Do not set an in-box trap until a sparrow has laid claim to that box. Once he has claimed it, he will not allow any other species inside. The male sparrow will be more likely to enter the box if a small amount of nesting material is left in the bottom or tucked in the entrance hole. However, be careful that the nesting material does not interfere with the trap. The trap must be checked at least every two hours because there is the remote possibility that a bluebird or other native cavity-nester may have entered the box.

To remove a trapped House Sparrow from a box, place a clear garbage bag over the entire box, closed tightly at the bottom, and remove the trap with the bag still over the box. Once the trap is removed, the sparrow will fly into the bag. This is a much easier method than trying to reach into the box and catch the sparrow by hand.

Since House Sparrows are classified as pests and are not protected by federal law, they should be quickly and humanely dispatched as soon as they are captured. Do not consider relocating the bird, as this just relocates the problem. The dead sparrows can be frozen and given to raptor recovery centers to feed their injured raptors.

Multi-bird trapping — There are several ways to trap a large number of birds.

Ground traps: These traps are easy to construct, and can hold a large number of birds. Approximately 10 birds should be kept in the cage of the trap at all times to act as decoys. These decoys can be attracted into the trap by baiting them with white feathers, grain, bread scraps, white proso millet, mixed bird seed or cracked corn in it. A small mirror placed in the bait compartment of the trap helps to lure the sparrow in. Food, water, and shelter must be provided at all times.

Since sparrows are gregarious, the success of cage traps depends on the birds being attracted to the food and to each other. For this reason, the trap works least effectively in areas with a high initial population. Used continuously once the population is under control, its effectiveness, though varied throughout the course of the year, is usually consistent. These traps are especially effective during the winter, and when juvenile birds are abundant in mid-summer.

Cage traps: Basically, these consist of nest boxes atop a wire cage. The nest box has a hinged floor, which tips the bird down into the cage below.

Drop traps: These simply drop down over a flock of feeding sparrows, can also be used once the sparrows are coming into an area regularly to feed.

The Cedar Valley Live Trap. This is a Repeatable trap that has a small "catcher" area that opens through a one-way trap door to a large holding pen. This permits the capture of a large number of birds.

IMPORTANT. All multi-bird traps must be checked daily to ensure that the trapped sparrows have adequate food, water, and shelter, and in case a native sparrow or other songbird becomes trapped. Native birds should be released immediately. The male House Sparrow is very easy to identify, but the females are quite similar to some species of native sparrows and to female House Finches. Check a bird book if necessary.

(This material was taken from the NABS web site, a source of much helpful information about bluebirds. Go to www.nabbluebirdsociety.org.)
Bases, bombs, and bluebirds

By Chris Eberly

Twenty-five million acres of land, much of it undeveloped, is managed by the United States Department of Defense (DoD). This land is often used as a safety or security buffer. Some of it also contains bluebird nest boxes. A surprising number of bluebirds and other cavity-nesters are raised on these acres, often in proximity to hardware not associated with bluebirding.

A total of about 1,800 Eastern Bluebird boxes are documented on 26 military sites (two sites in the west are not included in this summary). Individual sites had anywhere from 10 to 400 boxes. Eleven of these sites had data of fledglings, which ranged from only one year to more than 20.

For the period 1990 through 2003, these 11 sites fledged over 24,000 bluebirds! This averaged out to 313 bluebirds fledged per year for each site, or even more specifically, 2.98 bluebirds per box at each site each year (all clutches combined).

Doing some extremely advanced extrapolations, if this average held at the other 15 sites, too, for the period 1990 to 2003, these 26 military sites would have fledged roughly 74,000 bluebirds. Throughout the Americas, habitats that host high-priority and federally listed bird species are becoming increasingly threatened by development. Military installations often exist as oases of habitat in the midst of fragmented and developed landscapes.

The DoD Partners in Flight program in compiling data on grassland and other habitat types found on military lands throughout the country. Among species of interest, bluebirds were among those that we had not previously documented in detail. The information presented here about bluebirds is only a first cut at obtaining a better understanding of their presence on military lands.

Volunteers keep bluebird trails running at many military sites. (Other sites appropriate for bluebirds do not have anyone available to monitor nest boxes. Volunteer opportunities are available. I had the opportunity to talk with several bluebirders that I would describe as extremely dedicated and enthusiastic.)

Bill Davis now maintains the trail on Gator Lakes Golf Course on Elgin Air Force Base in Florida. Bill, recipient of the John and Norah Lane Award for Bluebird Conservation at the March 2003 NABS meeting, and Lt. Col. Ed Goetz (ret.) cruise the trail in a golf cart. They’ve made friends with many golfers, but are still wary of the alligators they occasionally encounter along the way.

NABS Board member Tena Taylor alerted me to the dedication of 81-year-old Sarah Willis, who managed 78 boxes at Camp McCain in Mississippi for 11 years. Sarah, who recently retired from her duties, received the national Environmental Volunteer Award from the Army National Guard. Shirley Halk talks passionately about the 196 boxes she maintains at Fort Indianton Gap in Pennsylvania. The site produces an average of 800 bluebirds a year, highest of any site for which I received data.

And Willie Williams talks about the 62-mile trail at Avon Park Air Force Range in Florida. Don and Clarise Ford started the trail in 1991, which now has 100 boxes. Don’s work with the trail was so highly regarded that a memorial was erected to his honor after his passing. I hope to present a few site profiles in future issues of Bluebird to highlight the work of a number of these dedicated individuals.

In addition to bluebirds, nest boxes successfully fledged many other species, including Brown-headed Nuthatch, Carolina and Black-capped

Over 24,000 bluebirds have been fledged on U.S. military land since 1990. Volunteers are needed at some sites.
chickadee, Carolina and House wren, Tree Swallow, Tufted Titmouse, Great-crested Flycatcher, several woodpecker species, and, of course, the occasional House Sparrow. They also host deer mice, ants, wasps, bees, and flying squirrels.

Many sites install nest boxes for other species, including Purple Martin, Wood Duck, American Kestrels, screech-owls, bats, swallows, chickadees/titmice, and quite a few Prothonotary Warbler boxes.

Military lands represent an incredible diversity of habitats — from mountain forests and meadows to coastal beaches and cliffs — and they harbor exceptional biological diversity due to the wide range of training environments and strategic locations required to ensure the defense of our country.

Although DoD-managed lands represent only about three percent of the total federal land inventory, their lands and waters are home to more than 300 federally listed threatened and endangered species. According to Peter Brice, head of DoD’s conservation program, “DoD’s natural resource management challenge is to guarantee continued access to our land, air, and water for realistic military training and testing, while ensuring that the resources entrusted to its care remain healthy and available for use by future generations of humans and non-humans alike.”

Realistic training of our armed forces requires the use of air-to-ground ordnance, tracked vehicles, ship-to-shore ordnance, and amphibious assault maneuvers that can take a toll on the environment. However, this training also provides the buffers that are rich in biodiversity.

The DoD Partners in Flight program (web address www.dodpif.org) offers a coordinated framework for incorporating the goals and objectives of the national Partners in Flight bird conservation strategy into natural resource management plans at each military installation.

The military benefits from having open grassland areas for weapons testing, parachute drop zones, landing zones, engineering training sites, and maneuver areas, for example. Not surprisingly, these same lands provide significant habitat for grassland bird species.

In fact, an analysis conducted by the Center for Conservation Biology at the College of William and Mary found that the best and most extensive grassland habitats in the state of Virginia are on military lands. Throughout the country, military training requirements create expansive early successional (grassland) habitats not found elsewhere.

Direct avian mortality from training activities is surprisingly minimal. In a three-year study (2000-2002) on Fort McCoy, Wisconsin, 272 nests of grassland birds were monitored. Of the 152 nests that failed, 125 failed due to predation, and only six (2.2%) due to disturbance from military activities.

Across the U.S., over 90 percent of native grasslands have been lost. Much of these occurred in Great Plains, where Eastern Bluebirds likely increased in the early 1900s in response to human-induced increases in trees on former grasslands.

In Wisconsin, oak savannas, which gave way to open prairie-like vegetation, covered about 20 percent of the state at the time of European settlement. However, over the past 150 years, all but 400 of the original estimated 630,000 acres of prairie have disappeared!

Fort McCoy is a 60,000-acre military base in west central Wisconsin. Dense forests and semi-open woodlands cover about 47,000 acres. However, it is the 10,000 acres of sand prairie and

Continued on page 14
bases

Continued from page 13

grasslands that deserve special attention. Sixty-five percent of the permanent grassland and barrens in Wisconsin that exist as large blocks occur here. Sixteen grassland-associated bird species breed here, including eight species of management concern.

As you might expect, bluebirds thrive here. From 1979 through the early 1990s, over 100 bluebird boxes were maintained and monitored. Although the number is now around 62, these boxes are still maintained and are quite productive. At Fort McCoy and other military installations, availability of volunteer help often limits the number of boxes maintained.

Some 450 miles to the southwest, the 100,000-acre Fort Riley sits at the edge of what used to be 56 million acres of tallgrass prairie in Kansas. The fort’s 50,000-acre block of tallgrass is now considered the largest contiguous tract remaining.

Were it not for the military training mission that requires large, open lands, one of the best habitats for Henslow’s Sparrow and other prairie species may well have suffered the same fate as so much of the historic tallgrass prairie. Although I don’t have the specific numbers yet, bluebirds are common breeders on Fort Riley.

In some cases, public access is available to view bluebirds and other wildlife. In other cases, access is limited to prearranged visits. One way to obtain access is to volunteer to help with a site’s bluebird trail! There are many opportunities to become involved and play a key role in the success of bluebird nest boxes on military lands.

If there is a military, Army Corps or National Guard site near you, consider contacting the natural resources or environmental staff to inquire about bluebird boxes on the site. Contact the DoD Partners in Flight office (see contact info at end) if you have questions about an installation, or have the installation staff contact me about bluebirds on their installation.

In addition, there often are opportunities to educate people on a base about bluebirds through programs for kids and adults. Who knows, you might end up with a lot of eager helpers and a successful bluebird trail.

Field work on military bases can offer unique opportunities! This photo was taken at Ft. McCoy in Wisconsin. (Photo by Susan Vos.)

(Chris Eberly is Program Manager for the Department of Defense Partners in Flight program. He handles non-game bird issues for military lands throughout the U.S., covering landbirds, waterbirds, and shorebirds. He is a former president of the Oconee Rivers Audubon Society in Athens, Georgia, where he helped maintain that group’s bluebird trail in the State Botanical Gardens. He can be reached at ceberly@dodspif.org or 540/253-5675.)

A membership in NABS makes a wonderful GIFT

You give a lifetime of pleasure when you introduce someone to bluebirds
Nest-box design and construction
NABS offers directions on how to do it correctly

Here are bluebird nest-box specifications. This information comes from the website of the North American Bluebird Society. You can learn more about nest boxes and bluebirds by visiting www.nabbluebirdsociety.org.

Materials:
- 3/4 inch wooden boards or PVC pipe with attachable wooden roofs are commonly used for bluebird boxes. Peterson boxes often use 2 x 4 inch boards.
- Do not use pressure treated wood because they include toxic compounds.
- Paper milk carton style or corrugated cardboard boxes are unacceptable.
- Woods such as redwood and cedar are long-lasting even when left natural.

Entry Holes:
- Eastern Bluebirds use 1-1/2 inch round holes, 1-3/8x2-1/4-inch vertical oval holes, or 1-1/8-inch horizontal slot entrances.
- Western and Mountain Bluebirds use 1-9/16-inch round openings.
- Where the ranges of the species overlap use 1-9/16-inch round openings.
- Oval holes should only be used in eastern bluebird boxes with moderate to small dimensioned boxes to reduce the possibility of starling use.

Floor Sizes:
- Eastern Bluebirds: floors in wooden boxes should be approximately 4x4 inches or 5x5 inches (Peterson style boxes are somewhat smaller), floors of circular boxes (such as PVC pipe) should be approximately 4 inches in diameter.
- Western or Mountain Bluebird boxes should be at least 5x5 inches or 5-1/2 x5-1/2 inches to accommodate larger clutch sizes.

Access:
- It is imperative that all bluebird nest boxes open readily from the top, side, or front to facilitate box monitoring and cleaning.
- If box sides or front pivot to allow access to the box, they should do so at

Continued on page 16
— nest boxes

Continued from page 15

as high a point as possible to ensure that you can observe tall nests without the door obstructing your view.

• A screw or angled nail in a pre-drilled hole shall be provided to ensure that mammalian predators cannot readily open the nest box.

Colors:

• Natural wood is acceptable.

• If painted or stained, use light colors to minimize having the box overheat during warm weather in areas where overheating is likely.

Water-resistance/drainage:

• With the exception of the Peterson box, drainage holes must be provided in the box bottom to allow any rain entering the box to drain and to provide air circulation to keep nesting material dry.

• The box should be water-tight.

• The roof should provide sufficient overhang beyond box entrance or vent holes to minimize possibility of rain entering these openings.

• The roof should cover top edge of the box back unless other features eliminate any possibility of rain entering the joint between back and roof of box even if the wood warps.

Heat/cold protection:

• Vents providing cross ventilation should be present near the box peak. These openings should be protected from rain by having the box roof overhang a sufficient amount to minimize precipitation entering the box.

• Dark colors should be avoided to minimize overheating.

• It should be possible to plug or cover vent holes during cold weather periods early in the nesting period.

• Long roof overhangs minimize the possibility of sun, rain, or snow entering the box.

Predator deterrence:

• The box should be easy to mount on a predator-resistant post in areas with raccoons or cats.

• A 5-inch roof overhang above the entrance hole reduces the possibility of raccoon or cat predation.

• Wooden guards placed over the entry hole are not effective in eliminating raccoon predation.

• Boxes mounted on heavily greased pipes or on waxed metal electrical conduits will deter many climbing predators.

• Mounting boxes less than 5 feet from the ground increases the opportunities for climbing or jumping predators to raid the nest.

• Wooden posts, ungreased pipes, short PVC pipes are readily climbed by nest predators such as raccoons.

Mounting:

• Boxes should be designed so that they may readily and securely be mounted on a support post such as water pipe or electrical conduit.

• Fence posts are acceptable mounts only in areas where raccoons are rare.

• Having the back extend beyond the main box body below or above the box will allow you to attach the box with screws, nails, pipe clamps, wires, or u-bolts.

Perches:

• Perches should never be used on any bluebird boxes because they are not needed by bluebirds and only facilitate harassment by non-native species such as House Sparrows.

Inner walls:

• Interior walls should not be painted or stained.

• The front wall below the entrance hole should feature a rough surface to facilitate chicks climbing to the entry hole.

Parasite control:

• Nest boxes with raised screen floors may reduce blowfly infestations but this has not been proven conclusively.
Banders track age of Mountain Bluebirds

By Don Stiles

What is the longevity of the bluebirds and Tree Swallows that we find in our nest boxes?

Five-year-old Mountain Bluebirds and Tree Swallows are recaptured by bird banders in the Calgary area in most years. We say recapture because a band must be applied a first time to establish a reference point to be consulted when future captures are made.

We find that four-year-old birds are much more common, which suggests that four years is a reasonable life expectation for the bluebirds and swallows using our nest boxes.

Every year since 1996, bird banders in the Calgary area have captured an eight- or nine-year-old Tree Swallow. The record for longevity for Tree Swallows reported to the bird banding office in Laurel, Maryland, is a bird 11 years old, found at Long Point, Ontario.

For Mountain Bluebirds, the oldest bird recaptured was six years old, and the last one of these was in 1998. However, we have learned that other places in Alberta have records of older bluebirds recaptured.

Southern Alberta Mountain Bluebird Trails from Lethbridge, Alberta, has a record of a seven-year-old Mountain Bluebird. Ellis Bird Farm has records of two Mountain Bluebirds eight years old, one banded as a youngster, the other as an adult. The adult could have been older then eight.

I began banding Mountain Bluebirds and Tree Swallows on my bluebird nails in 1981. There are 39 active banders working with me. Some band only a few birds each year, and some band only Mountain Bluebirds.

The one who bands the most birds each year is George Loades, who began banding in 1986. His average number of birds banded per year (from his 350 nest boxes) from 1996 to 2000 was 777 Mountain Bluebirds (60 adults and 717 young) and 754 Tree Swallows (87 adults and 667 young). The adults we band are primarily females because they are easy to capture when they are brooding their eggs. Males are occasionally caught when they go in to feed the young.

(Don Stiles, 20 Lake Wapiti Rise SE, Calgary, AB T2J 2M9. Don is the Master Permittee for banders on Calgary Area Bluebird Trails.)

This cavity-nester thwarts cowbird

By Douglas R. Wood

Although Brown-headed Cowbirds rarely parasitize cavity-nesting species, Prothonotary Warblers are frequently a host to cowbird eggs. In June 2003, I observed an unusual response to cowbird parasitism of a Prothonotary Warbler nest at the Tishomingo National Wildlife Refuge in south-central Oklahoma. The warblers buried the cowbird egg within the nest.

Monitoring a nest with four Prothonotary Warbler eggs, I noticed a Brown-headed Cowbird egg in the clutch after the third egg was laid. The host warblers initially accepted the cowbird egg into their clutch, but five days later the cowbird egg disappeared. I assumed the warblers had removed it.

Eight days after hatching, removing the chicks for banding, I found the cowbird egg buried under the nest material. The egg clearly was buried. It contained a partially developed embryo.

Of the 40 Prothonotary Warbler nests I monitored, only one was parasitized by cowbirds. Cowbirds were abundant throughout the study site.

Prothonotary Warblers accept cowbird eggs but often abandon that nest. This pair buried the cowbird egg, and continued incubating, producing a successful clutch without re-nesting.

The following literature was used in preparation of this article:


(Douglas R. Wood, Southeastern Oklahoma State University, 1405 N. 4th Ave., PMB 4068, Durant, OK 74701-0609, 580/745-2272; fax 580/745-7459; e-mail duwood@ososu.edu.)
American Kestrels share trail with bluebirds

By John Hickerson

In 2003, I had the fortunate opportunity to study American Kestrels nesting among Eastern Bluebirds. The bluebird population was that of a 138-acre farm — the one on which I live — and the study involved only one event of kestrel nesting amidst the farm’s 14 or so nesting pairs of bluebirds.

This event and its effects on the bluebird population were closely monitored, and no evidence was seen to suggest that the kestrel nesting adversely affected the nesting success of the bluebird population.

The following is summarized from my observations.

**Nesting Territoriality**
- At no time were kestrels seen to be aggressive towards bluebirds or other small birds.
- Kestrels avoided use of bluebird territories where confronted by aggressive bluebirds.
- Kestrel aggression against hawks, especially against Sharp-shinned and Cooper’s Hawks, was undoubtedly of benefit to the bluebird population.

**Social Behavior**
- Throughout kestrel nesting, there was very little behavioral activity involving bluebirds.
- Bluebirds were seen to nest in proximity to the kestrels, and in one instance, a bluebird pair selected a nest-box and constructed a nest while kestrels perched atop.
- Postfledging behavior of the kestrels included perching on bluebird nest-box mounting poles and along fences and tree-rows used by the bluebirds, such activity was without loss to bluebird nesting, and without interaction or predatory attack.

**Kestrel Diet**
- Evidence of the kestrels’ diet included remains of mice, grasshoppers and dragonflies, and the remains of only one small passerine.

**Trail’s Success**
- Bluebirds nested at 86 percent (20/23) of the sites available to them. In comparison, the average for previous years (1997-2002) combined is 81 percent (145/170).
- The overall nesting success (number of fledged/number of eggs) for the bluebird population was 50 percent (66/132). This, though somewhat lower than the trail’s average of 60.3 percent.
(707/1,173) for previous years (1997-2002) combined, was still within the range (42-75 percent) of those previous years.

Conclusion
The American Kestrels and the Eastern Bluebirds shared habitat, territories and even the same perches without noticeable harm to one or the other. The kestrels obviously benefited from the management of bluebird habitat, while the bluebirds undoubtedly gained some benefit from the nesting territoriality of the kestrels. The relationship between the two species could, therefore, best be described as mutually beneficial.

(John R. Hickerson can be reached at 15 Slate Pencil Hill Rd., Newton, NJ 07860.)


Building a kestrel nest box
Nest boxes for kestrels can easily be constructed from dimensioned lumber, 2x10 or 2x12 inch. Boxes should have a three-inch entrance hole, and a hole-to-floor depth of 16 inches or so. Use of a three-inch hole will exclude Wood Duck competition. The box floor should be covered with a two-inch depth of wood shavings to cushion and insulate the eggs.

Boxes should be mounted at a minimum height of 10 feet, and oriented against entry of prevailing rains.

In-box starling traps (Van Et) should not be used, according to kestrel expert and author John A. Smallwood, Ph.D, who says that use of such traps could easily injure kestrels.

Nest of kestrels may be monitored, even frequently, up until the 22nd day of nesting development.

Bluebirds in Yonkers
For the first time in at least 50 years, Eastern Bluebirds this summer successfully nested in Yonkers, New York. At least two fledglings were raised in a nest box placed and monitored by the Hudson River Audubon Society.

Joe O'Connell and wife Ellen chaired the chapter's initial Bluebird Committee and built about 60 bluebird houses for the project. "We are very fortunate that Westchester County maintains a commitment to preserving and protecting open space that provides the habitat needed by this native species," said Mr. O'Connell.
Bluebird News from Shore to Shore

Keith Kridler, co-founder of the Texas Bluebird Society and co-author of the book The Bluebird Monitor's Guide, was honored at the Gulf Coast Bluebird Symposium in Beaumont, Texas, with presentation of the "Cornerstone Award." The award was created to honor Keith for his work for bluebirds in Texas.

Fifty-four nest-box monitors in Calgary, tending 3,570 boxes, had 4,913 bluebirds fledged in 2003, along with 9,052 Tree Swallows. The first figure is near the group's 10-year average, the second figure much higher than average. Percent of fledglings to eggs was steady in the 80 percent range, according to a report from member Don Stiles.

Also in the Calgary area, bander Jack Borno has recaptured a Mountain Bluebird in the same nest box for five years. The bird was first banded as an adult, in 1999.

Judy and Bob Peak of Kentucky were honored recently with two awards, the Forest Service Chief's 2003 Volunteer of the Year honor and the 2003 Director's Exemplary Volunteer Service award. They were recognized for the time they have dedicated to the Land Between The Lakes bluebird trail. For 13 consecutive years, Bob and Judy have maintained over 150 nesting boxes.

Members of the Brice Prairie Conservation Association in Onalaska, Wisconsin, reports 2,001 bluebirds fledged in 2003, a new record for the group. The increase is attributed to placement of 200 new nest boxes, recruitment of new trail masters, and by relocation of boxes that experienced problems the year before.

Mountain Bluebird Trails has received an $8000 grant from the Montana Department of Fish, Wildlife, and Parks. The funds will be used to educate youth and landowners about the conservation of bluebirds and other cavity nesters and to purchase nest-box materials.

Ron (grandpa) and Adam (grandson) Lynch fledged 87 Mountain Bluebirds and 21 Ash-throated Flycatchers from their trail of 34 nest boxes south of Burley, Idaho.

Red-headed Woodpeckers and Northern Flickers are on the decline in Wisconsin, according to a recent analysis of breeding bird survey information. Both species show declines of from four to five percent per year. Downy, Hairy, Red-bellied, and Pileated woodpeckers show increases, as does Yellow-bellied Sapsucker. The surveys are taken each spring by volunteers who drive established routes and count birds seen and heard. The numbers can be regarded as a rough indicator of the species' status.

Bluebirds Across Nebraska (BAN) soon will have an educational brochure on American Kestrels. It will contain basic information on the birds, nest boxes the species will use, monitoring of boxes, and a description of the Interstate 80 kestrel-box trail system. Deeny Cradick, chair of the 1-80 program for BAN, is in charge of the brochure effort. Ten more kestrel boxes were to be added to the trail this past fall.

Unhatched and possibly infertile eggs sometimes are found in nest boxes. Keith Kridler of Texas offers insight in answer to a question about three batches of unhatched eggs in one nest: In many bird species the females often will mate with other males to give themselves a better chance for some of the eggs in a clutch to prove fertile. A monogamous bird can lose an entire breeding season if her mate is infertile. There are many reasons for a single clutch of eggs not to hatch, but if all three clutches fail to hatch, put the blame on the male.

Chickadees are take-charge birds. A note on the Wisconsin e-mail list for birders gave this example. The writer was doing wildlife surveys in California. Birds used two watering spots. One pool was dominated by Lark Sparrows, the other by Mountain Chickadees. The Lark Sparrows allowed chaos, said the reporter, with Scrub Jays constantly chasing off smaller birds. At the chickadee pool, however, all was well. When jays came to cause trouble, the chickadees chased them away, allowing all birds to drink.

Herb Eighmy of Manhattan, Montana, delayed some work on his house for one week after carpenters putting up sheetrock discovered a bluebird nest with five young birds. The nest would have been disturbed had work continued, so they waited for the birds to fledge.
Also in Montana, state highway 434 between Wolf Creek and highway 200 will be named the Tom and Pat Malsko Highway to honor the couple for 40 years of care for nest boxes along that stretch of road.

Bluebirders in Bella Vista, Arkansas, fledged 1,420 Eastern Bluebirds in 2002, just below the record they set the year before. Since the program began in 1979, the trails in this area have produced 23,495 bluebirds. An additional 819 bluebirds were reported for 2002 from neighborhood trails and individual boxes. This report comes from Jim Janssen, who guides the program.

Over 14,600 birds fledged from nest boxes maintained by members of the California Bluebird Recovery Program in 2002. Almost half of those were Western Bluebirds. In all, 19 species of birds used the nest boxes.

A $4,000 gift recently was received by the Mountain Bluebird Trails Conservation Society in Alberta. It came from the Shell Canada Community Service Fund. The gift recognized the contributions of Max Goodfellow, Jim Huber, Clyde Brown and Fred Wishneski as bluebird nest-box monitors. The money will be used to purchase computer equipment to be used in the group’s bird-banding efforts.

This past year, Mountain Bluebird Trails members helped Mountain Bluebirds fledge 3,529 birds.

In Ohio, Mary Ellen and Mel Bolt were presented the Blue Feather Award given annually by the Ohio Bluebird Society for outstanding contributions to bluebird conservation.

One of the exciting things about monitoring bluebird boxes is that you never know what you will find when opening them. My most unusual discoveries occurred several years ago. As I was removing an old House Wren nest from one of my nesting boxes, something came out with the nest and attached itself to my T-shirt. Because it was brown and furry, I thought it was a mouse.

I remained calm and stood very still. Not until it flew off silently into the woods, did I realize that it was a brown bat. I think it was startled as I was, if not more so.

Since that incident, I have twice found a bat roosting in one of the empty nesting boxes in late summer. Both times the bat was hanging upside down on the inside of the door of the box. I quickly took a few pictures and very gently closed the box. Bats are amazing creatures, and it was a thrill to be able to see them up close.

— Janice Petko, Canton, OH

This spring one of my 35 houses was nearly full of dead leaves, and as this is often the mark of a Tufted Titmouse nest I reached into the leaves to feel for eggs. Something kicked my hand out of the way. It was a mother flying squirrel! Fortunately, she had not bitten me, but just told me to get the heck out of there!

Checking carefully, I found that she had two small babies with eyes still closed. Before my next nest-check, she had moved them somewhere else.

This was an unusual encounter and quite a thrill, as flying squirrels are rare here in northeast Oklahoma, and being generally nocturnal are not often seen.

— Bob Walshaw, Coweta, Oklahoma

Years of outdoor living had conditioned me to anticipate the unexpected, but this particular morning yielded no clue of the dramatic episode to come. While monitoring some nest boxes adjacent to a stone wall, I almost collided with a large Red Fox coming through the wall’s entrance, with a plump rabbit in his mouth. The fox stood majestically, seemingly unperturbed by my presence. No more than six feet separated us, but there was an aura of mutual trust and tolerance. After a time, the fox departed toting his prize.

— Robert A. Benson, Stoughton, Mass.

Write to us about your adventures

Have you ever met a bluebirder who did not have a good story to share? This is your chance to share with other readers of this magazine. Tell us a short story the chosen subject. Please limit your story to no more than 250 words.

- Spring 2004 — People you have met on the trail. Deadline Jan. 31
- Summer 2004 — Weather adventures.
- Fall 2004 — Tricks of the trade.
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The North American Bluebird Society gratefully acknowledges its members who contribute to NABS via annual financial gifts above and beyond their membership dues. Every donation plays an important part in supporting the continent-wide bluebird conservation, education, and research efforts of NABS. NABS is privileged to include the following individuals, corporations and foundations among the organization’s most valuable financial supporters. The following list recognizes contributions of $55 or more made this past fiscal year, Nov. 1, 2002, through Oct. 31, 2003. Please consider joining this list of supporters by making an additional donation using the form on the back of Bluebird or sending your donation with a note that includes your name and address. Thank you for your continued support.

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22
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<table>
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<td>Don &amp; Lillian Stokes</td>
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<td>TBT Trails Signs for Nest Boxes</td>
<td>NABS</td>
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### OTHER SOURCES OF BLUEBIRD RELATED ITEMS

In order to make bluebird nest boxes and related items available to NABS members at the lowest possible cost, we have listed the names of reliable suppliers who sell quality goods at reasonable prices. Contact these suppliers directly: do not send orders to NABS. These companies do not take credit cards. Visit our website [www.nabbluebirdsociety.org](http://www.nabbluebirdsociety.org) for photos of items listed here.

#### Nest Boxes, Nest Box Kits, Bluebird Feeder – from Ahlgren Construction Inc.

- **Pentagon Nest Box – Kit Form:** Solid Cedar with Hardboard Sides, $10.00 + $8.00 Shipping, $18.00 (ship EA $18.00)
- **Pentagon Nest Box – Assembled:** Solid Cedar with Hardboard Sides, $12.00 + $8.00 Shipping, $20.00 (ship EA $20.00)
- **NABS Style Box – Kit Form:** Solid Cedar, side opening, bottom hinged, $10.00 + $8.00 Shipping, $18.00 (ship EA $18.00)
- **NABS Style Box – Assembled:** Solid Cedar, side opening, bottom hinged, $12.00 + $8.00 Shipping, $20.00 (ship EA $20.00)
- **Nest Predator Guard:** Wire CatCoon Guard, $6.00 + $6.00 Shipping, $12.00 (ship EA $12.00)
- **Nest Guard for Peterson Boxes:** Wire CatCoon Guard w/ Adapter, $6.00 + $6.00 Shipping, $12.00 (ship EA $12.00)
- **Jail Style Mailbox Feeder:** Solid Cedar with Bowels, $12.00 + $7.00 Shipping, $19.00 (ship EA $19.00)

Send check or money order to Ahlgren Construction Inc., 12989 Onegwie Ave. N., Stillwater, MN 55082. Cannot ship to a post office box, must have a street address. Cannot ship outside USA. MN residents add 6.5% sales tax. To receive these special prices, put "NABS DISCOUNT" on your order.

#### Gilberston PVC and Gilwood Boxes

- **Gilberston PVC Nest Box:** PVC Box, Cedar Roof, $12.00 + $7.00 Shipping, $19.00 (ship EA $19.00)
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#### Cedar Valley Ground Sparrow Trap

- **Repeating Sparrow Trap:** Large Wood and Wire Trap, $25.00 + $10.00 Shipping

Send check or money order to: Allen Cedar Works, 3364 Pennington Ave. S., Aitkin, MN 56431. Cannot ship to a post office box. Orders must include phone number – required by Fed Ex. Cannot ship outside USA. MN residents add 6.5% sales tax. To receive this special price, put "NABS DISCOUNT" on your order.
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