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Bluebird

Journal of the North American Bluebird Society

Summer 1999

Formerly Sialia

Volume 21, Number 3



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From the President

By Ray Harris

The passing of Art Aylesworth has removed a large piece in the mosaic of NABS. Art pioneered the bluebird recovery movement in Montana, beginning in the middle 1970s.

Separately, at the same time, Duncan Mackintosh was doing likewise in southern Alberta. Soon the paths of these two crossed and a life-long friendship was cemented. For 15 years the international boundary disappeared as Montana and Alberta worked as a single entity known as Mountain Bluebird Trails. Art and Duncan were the Johnny Appleseed men of bluebirds. Each later would become known as Mr. Bluebird Man.

I first met Art in 1982 at one of our joint regional conventions, and have regarded him as a close friend ever since. Art was a gentleman and treated all people with the utmost respect. He was polite and chivalrous. He shared his knowledge and expertise. If I could point to one thing as the legacy which Art has left it would be his passion for bluebirds and nest-box trails. When you were in his presence, you could feel that passion. He gave it to all who would receive it. We who remain are entrusted to do the same.

Farewell, Mr. Bluebird Man.

• • •

How often have you said to yourself, "Gee, I wish I had asked my grandmother or parent while they were still alive some question about an event or a relative concerning family history? With the familial continuity severed, the question(s) remain unanswered. NABS is also a family. The office of historian is charged with the responsibility of preserving a continuum of our

history, so future members may find answers which we hope will be there.

It is our responsibility to see that important events, such as newspaper stories, photos, obituaries, milestone birthdays, hard copies of web-site items, e-mails, anniversaries, and all things important to bluebirds and members are recorded. Your contributions are solicited. Be sure to give as much information as possible, such as name and address of publication, volume number and date. People in photographs should be identified from left to right. Please don't write on the photo.

Our historian is Edwina Hahn, 1328 Wynnton Road, Columbus, GA 31906-2920; e-mail <ehahn84266@aol.com>.

Edwina replaces Shirley Adams who for many years was our historian. NABS is grateful for Shirley's efforts.

• • •

I am indebted to The Bluebird Society of Pennsylvania for including me on its mailing list. It is one year old, and celebrated its first statewide bluebird conference on May 1. BSP began with 14 members in June 1998, and now has more than 300 members. Bluebird Trails and Tales, its newsletter, compares favorably in both quality and content with some of the long-established newsletters. I regret living so far away as it would be a pleasure to attend some of the state and provincial bluebird conferences and festivals.

• • •

Another newsletter which I have been receiving for many years is from the Ellis Bird Farm. Here is an

Continued on page 3

— president

interesting item which I quote.

Dr. R. H. Dykes of Prince George, B.C., writes, "I am a physician, farmer, and bird enthusiast. Whilst making rounds last year of my nest boxes, I noticed a clutch of nestlings with one egg amongst them. I quickly removed the egg from the nest as, in my experience, it could be a time bomb ready to go off. These infertile eggs act a medium for incubation of various types of viruses and bacteria. E-coli, strep and staph come to mind. If the nestlings break an infected egg and the yolk spills into the nest, the resulting infection could be lethal to the nestlings. I suggest that all sterile eggs be carefully removed from the nest."

• • •

There are many little ways we can spread the good word about NABS. May I share with you my small way? Recently I purchased a three-year subscription to this magazine, Bluebird, for a large public library in my area. Library staff members were extremely pleased to receive it, and the cost was affordable (even in Can\$). Do you have a small way to promote NABS you would like to share? My e-mail is <aharr@telusplanet.net>.

In closing I would recommend two web sites arranged by NABS members. If you have not surfed them you are in for a treat.

Try the Ellis Bird Farm at Lacombe Alberta: <<http://www.wep.ab.ca/ellisbirdfarm>>.

Also, a site by Arlene Ripley, NABS board secretary: <<http://www.nestbox.com>>.

• • •

May your bluebird nestbox trail this year be blessed with good weather, successful fledges, and be free of all those pests and critters which also like bluebirds for motives quite different from ours.

'The Bluebird Man'

Art Aylesworth passed away May 1, 1999, in Ronan, Montana. He was 72 years old, and had lived his entire life in Montana, loving all its splendors.

Besides his family, Art's great love was the Mountain Bluebird. He spent the last 25 years promoting its recovery. He headed a group of volunteers which built and gave away over 35,000 nest boxes to anyone who would put them out and monitor them. He formed the Mountain Bluebird Trails group in 1979, and was president until his death.

Art served as a director on the NABS board in 1983 and 1984, and was on the Nominating Committee until his death. Throughout the 1980s, Art and his friend Duncan Mackintosh of Lethbridge, Alberta, campaigned for a larger nestbox for Mountain Bluebirds with a 1-9/16-inch hole size, which the NABS board approved in 1992. During Montana's centennial year, 1989, he headed a group of MBT members who built a 700-mile nestbox trail across Montana from Idaho to North Dakota.

Art always was ready to discuss a technical bluebird question, but what set him apart from others was his true love, understanding, and respect for the bluebird and the world in which it lived. Visiting a bluebird trail with Art was a memorable experience for anyone who had the opportunity.

He is survived by his wife, Vivian; two sons, Ray and Dan; daughter, Lynnette; their spouses and four grandchildren. A son, Kent, preceded him in death.

Memorials may be sent to Mountain Bluebird Trails, Inc., c/o Irvine Davis, Charlo, MT 59824; St. Luke's Hospital, Ronan, MT 59864, or the charity of your choice.



Art Aylesworth

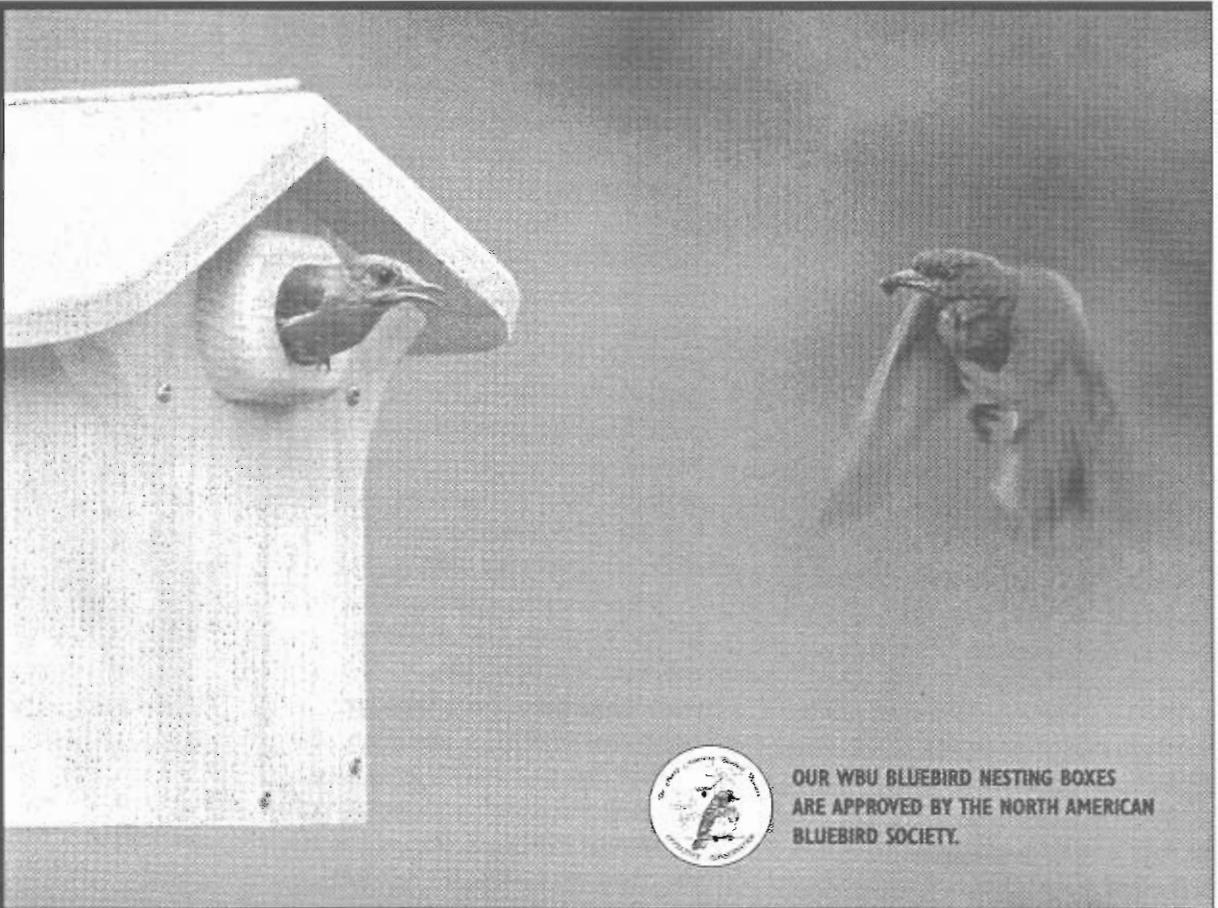
Bluebird

Published by
The North American
Bluebird Society
P.O. Box 74, Darlington, WI 53530
608/329-6403

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Bluebird/Sialia (ISSN 0890-7021) is published quarterly by the North American Bluebird Society, P.O. Box 74, Darlington, WI 53530-0074. Subscription price is included in annual membership dues. Single copies: \$2.50. Write for information about bulk quantities. Checks and money orders are made payable to North American Bluebird Society, in U.S. funds. Issues are dated Winter, Spring, Summer, and Autumn and appear approximately on the fifteenth of January, April, July, and October. Deadline for submission of material is three months prior to date of publication.

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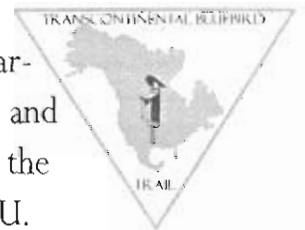
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Wild Birds Unlimited® and its over 260 Franchise stores are pleased to partner with the North American Bluebird Society in developing the new Transcontinental Bluebird Trail. We are very excited about participating in this great conservation and education effort which will help ensure that bluebirds thrive for many future generations to enjoy.

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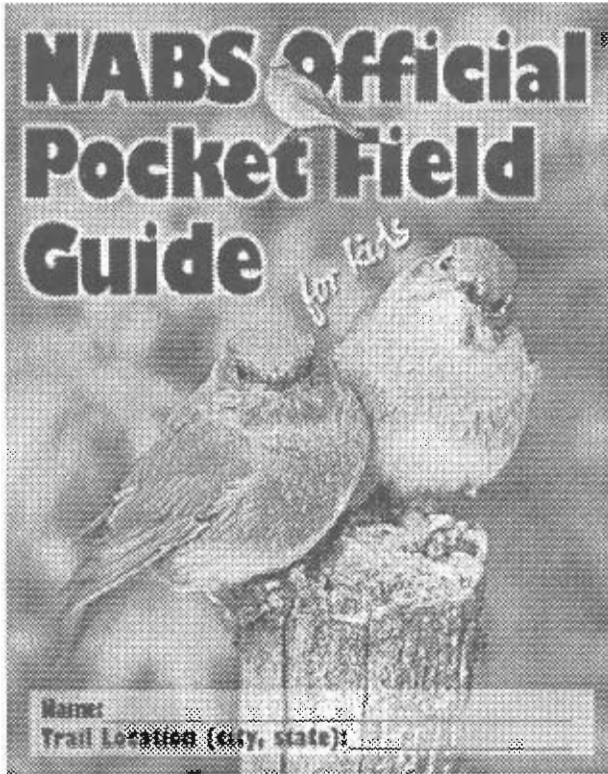
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Free booklet, poster promote bluebirds



The NABS Official Pocket Guide, for the kids.

Teaching children about bluebirds is now easier, thanks to the generous support of the Southern Indiana Gas and Electric Company (SIGECO). In partnership with NABS and the NABS-affiliated Indiana Bluebird Society, SIGECO has developed a new Bluebirding Educational Poster and Pocket Field Guide for Kids.

The free 24-by-36-inch poster and field guide are available for \$7 shipping and handling. The two-sided color poster introduces kids to bluebird conservation, and includes nest-box building plans. The field guide is designed for kids to take with them on the trail. It includes information on properly monitoring boxes and has space for recording nesting data.

The poster and field guide are part of a community-wide education program that SIGECO initiated in southern Indiana. SIGECO has been working directly with the Indiana Bluebird Society in developing a 20-box bluebird trail at its A.B. Brown Generating Station. These nest boxes are monitored by SIGECO retirees. SIGECO also has developed a curriculum for K-5 students that builds upon existing language, math, and science curriculum while educating students about the Eastern Bluebird.

On March 20, SIGECO sponsored a day-long "Conserving the Bluebird" seminar in Evansville, Indiana. Presentations were made by Jim and Ann Auer of the Indiana Bluebird Society; Dr. Wayne Davis, NABS member and long-time bluebird researcher; and Lisa Kivirist and John Ivanko, co-executive directors of NABS. A portion

of the proceeds from this event went to the Indiana Bluebird Society.

To order the Educational Poster and Pocket Field Guide set, write to NABS, P.O. Box 74, Darlington, WI 53530. Please include \$7 to cover shipping and handling. For international orders, please include \$12.



The front of the 24-by-36 inch color poster. Both sides are full of useful information.

Transcontinental Bluebird Trail begins

It's the beginning of a network of bluebird trails that will never end. Eastern Bluebirds and other native, cavity-nesting species taking residence in the Columbus, Ohio, area will soon benefit through the development of bluebird trails erected and monitored on existing rail-trails and other park areas. The project is the result of an unprecedented partnership between three non-profit conservation organizations — the Ohio Bluebird Society, Heritage Rail-Trail Coalition in partnership with the Rails-to-Trails Conservancy, Ohio Chapter, and NABS.

The 2.5-mile Heritage Rail-Trail will serve as the first of several pilot Adopt-A-Box-sponsored bluebird trails of the Transcontinental Bluebird Trail (TBT). This will launch what promises to be one of the largest coordinated grass-roots conservation efforts ever undertaken in North America. The Adopt-A-Box program was designed to offer an opportunity for individuals to directly participate in and contribute to this continent-wide conservation effort.

"This Ohio bluebird trail kicks off our continent-wide plan for establishing bluebird trails in every state and province where there is strong conservation organization support and habitat appropriate for bluebirds and other native, cavity nesters," said John Ivanko, co-executive director of the North American Bluebird Society. "We're excited by the launch of this pilot TBT bluebird trail and the level of enthusiasm and cooperation among all the organizations involved."

The NABS-initiated TBT was established to



guide continuing bluebird-trail development on the grassroots level, and to plan, develop, establish, and manage new Adopt-A-Box bluebird trails as well as inventory existing, privately managed trails.

The mission of the TBT is to promote effective bluebird conservation, provide environmental education opportunities for adults and children, conduct continent-wide research, and raise awareness of bluebird conservation and conservation issues as a whole. A link from NABS' new web site, found at www.nabluebirdsociety.org, has been created to keep track of trail developments.

The Adopt-A-Box-sponsored TBT trails in Columbus will benefit from expertise and volunteer support of the Ohio Bluebird Society and other

wildlife conservation organizations. Members of these groups will erect and monitor nest boxes, and collect nesting information.

The TBT is made possible by the generous corporate underwriting of Wild Birds Unlimited, Inc., the original and largest franchise system of backyard bird feeding and nature specialty stores in North America. To help promote trail development when the TBT is expanded across the continent in 2000, Wild Birds Unlimited stores are serving as TBT Headquarters.

"We are extremely pleased to be an active participant in the launch of the Transcontinental Bluebird Trail because our efforts will benefit bluebirds," said Doug LeVasseur, president of the Ohio Bluebird Society, an affiliate of NABS. "Our cooperative efforts will accomplish a mission much larger than any of our organizations could approach individually, and will offer an example of how diverse organizations can work together to address environmental issues and promote conservation education."

Located along the Heritage Rail-Trail and throughout The Homestead Park, the Adopt-A-Box trail will feature educational materials on the

conservation of bluebirds and other cavity-nesting bird species, as well as educational events. A half-day Bluebird Conservation Workshop took place there May 22.

The Transcontinental Bluebird Trail was designed to be self-funding through an Adopt-A-Box program. Each \$35 Adopt-A-Box

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Your houses on the TBT

If you are a member of NABS and have a bluebird trail (five or more nest boxes) that you regularly monitor which you would like listed on the TBT, please send a note to NABS' headquarters (P.O. Box 74, Darlington, WI 53530). Include your mailing address, telephone and fax numbers, and e-mail address; include a description (and detailed map) of your trail route, number of boxes, species using your boxes, and information that might help other trail managers, like a tip or piece of advice. Let us know if you are able to submit your records (bluebird fledglings, etc.) via a special web site designed to collect information on bluebird trails.

—trail

includes: an Adopt-A-Box Certificate and introductory materials on bluebirding; a web-site page devoted to the sponsor's nest box, updated with box and trail activity; a nest-box summary report at the end of the nesting season; a one-year subscription to NABS' quarterly journal, *Bluebird*; a Wild Birds Unlimited \$2 coupon offer on any Wild Birds Unlimited brand bluebird nest box at participating Wild Birds Unlimited stores; and possible opportunities to visit bluebird trails in the sponsor's area offering educational walks.

Funding supports the educational, research and management of the TBT, with \$10 funneled back to the NABS affiliates monitoring the trails to assist in their grassroots conservation endeavors.

As of the end of May, 3,058 boxes on privately managed bluebird trails, including the 1,700-box Route 20 Research Trail in New York on which the TBT is based, had been added to the privately managed bluebird trail listing on the TBT web site. Included among those listing their trails are Myrna Pearman, Joseph Therrien, Jerry Sims, Ole Loing, Isaac Franklin, Laura Meeds, Bob Walshaw, Clay Stephens, the late Art Aylesworth, Harvey Hartwig, Mark and Jean Raabe, Sam Patten, Charles Clevenger, Jim, Ann and Ashley Auer, and Dee Warenycia.

The Lafayette County Bluebird Society, a NABS affiliate, is the first to have adopted a TBT box on the Adopt-A-Box trail under development adjacent to NABS' headquarters in Darlington, Wisconsin.

New WWW address for NABS

There is a new World Wide Web address for the North American Bluebird Society. You can find the NABS site at:
<www.nabluebirdsociety.org>.

Pairing houses: How do you do the math?

By Linda Janilla

Pairing bluebird housing to prevent takeover by Tree Swallows seems to be a controversial topic.

Whenever I read pairing study results, I have a nagging question regarding the evaluation of the collected data. When a person pairs houses on a trail, in effect they are decreasing their nesting sites. Therefore, should not data analysis be done by counting the available nesting sites, not nest boxes? In essence, they are offering half of their trail to Tree Swallows. One of the housing pair is meant to be a Tree Swallow box, not a bluebird box.

For example: Alan has a 100-nest-box trail. He has paired his boxes. Each pair is 100 or more yards from the next pair. He now has 50 sites to offer nesting bluebirds.

Brenda has a 100-box trail. She does not pair. Each nestbox is 100 or more yards from the next box. She now has 100 sites to offer bluebirds.

If each gets 47 bluebird nests, should not the percent of occupancy be figured on nestbox sites? Adam has 50 sites and gets 47 nests: His nest site occupancy is 94 percent. Brenda has 100 sites and gets 47 nests: Her nest site occupancy is 47 percent.

Similarly, if one is judging fledging rates, should not the numbers be also calculated by nesting sites not box count?

Common sense tells me that when I place a pair of nest boxes, I am NOT expecting two bluebird pairs, but ONE nesting pair. Therefore, I have provided one site for bluebirds. Of course, if someone is comparing trails and then counts box numbers

instead of site numbers, an unpaired trail could appear to have a higher bluebird occupancy rate.

My personal experience: 10 years on a golf course bluebird trail of 48 houses. The first years I had unpaired boxes. I offered 48 sites. One year, one quarter, or 12, of those were occupied by bluebirds (25 percent bluebird occupancy). Tree Swallows were taking most of the boxes.

Then I paired the houses, in essence offering 24 sites. Two-thirds, or 16, houses were occupied by bluebirds. If you figure percentage on my site numbers, I had a 66.66 percent bluebird occupancy.

Many box pairs consisted of a Tree Swallow/bluebird combination. Never did I have a swallow/swallow combination. My boxes were paired 15 feet apart. Each pair was over 100 yards from the next pair. In subsequent years, the numbers were similar.

The end result for me was that pairing increased my bluebird occupancy numbers by decreasing swallow occupancy. The golf course had many ponds, and Tree Swallows were there in great numbers. The trail is on the extreme eastern edge of Minnesota.

In my backyard, I also pair boxes, and I have observed that by doing so I have ended the battles between Tree Swallows and bluebirds over a single nestbox: I normally have one bluebird pair and one swallow pair in the backyard.

(Ms. Janilla lives at 13325 4th St. N., Stillwater, MN 55082.)

Habitat differences are examined in study of Eastern Bluebird

By Victoria J. Byre and Mary Hennen

Although a number of detailed studies of the Eastern Bluebird (*Sialia sialis*) have been conducted, there still are aspects of its life history, habitat preference, productivity, and population dispersal for which more information is needed. In Illinois, for example, there are no quantitative data on life expectancy, survival rate, or mortality factors other than nest mortality. Also very little quantitative data exists on nesting success, percent of a population returning to a site, or population dispersal between nearby nesting sites.

In this paper we examine Eastern Bluebird populations in three separate and distinctly different habitats in DuPage County, Illinois. Data on nest success, productivity, nest site selection, and dispersal between sites are compared. Several management techniques also are suggested.

The study area

DuPage County, which lies approximately 27 miles (45 km) west of Chicago, is a heavily populated and rapidly developing section of northeastern Illinois.

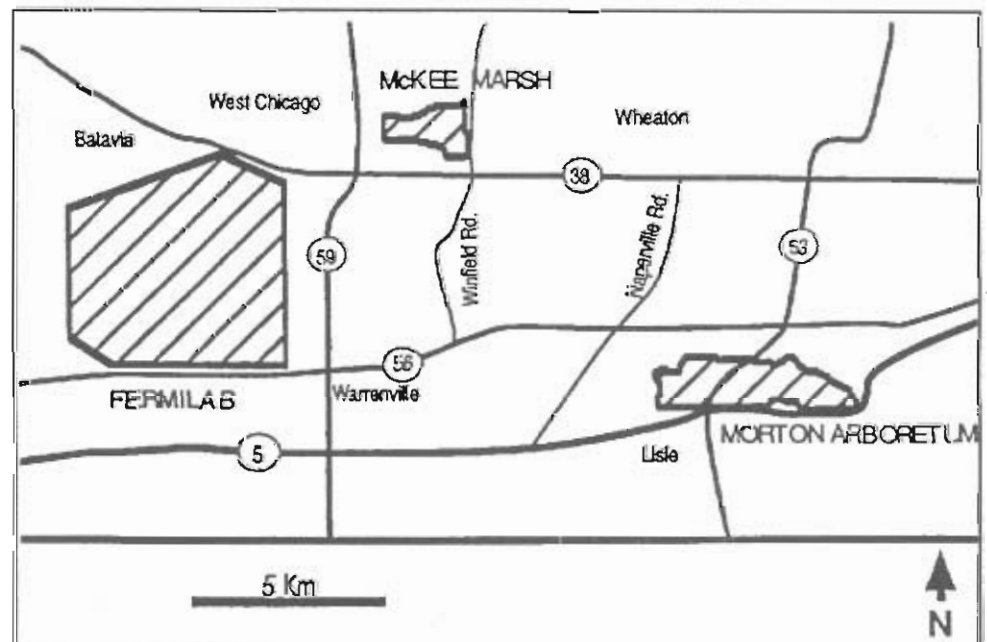
The three study areas — the Morton Arboretum in Lisle, 1,500 acres (600 ha), McKee Marsh in Winfield, 600 acres (240 ha), and Fermilab in Batavia, 6,900 acres (2800 ha) — lie along approximately the same latitudinal line, and each is separated from the next by 3 to 6 miles (6-10 km) of suburbia.

The Morton Arboretum bluebird trail, which consisted of 73 boxes by year three of the study, is located in open, savanna-type woodlands. Large oaks are the dominant trees, and the ground cover is composed of Eurasian grasses that are mowed one to three times per year.

At McKee Marsh, 5.6 miles (9 km) northwest of the arboretum the 41-box trail is in open, meadow-type grassland that borders an 80-acre (32 ha), man-made marsh. In contrast to the arboretum site, none of the boxes at McKee Marsh are under a wooded canopy; most border floodplain woodlands or wooded fence rows, and some are very much in the open,

situated in meadows on exposed hilltops.

Fermilab, a high-energy physics research laboratory, the grounds of which are designate a National Environmental Research Park, is approximately 3.5 miles (6 km) southwest of McKee Marsh. Most of the 18 bluebird boxes that exist on the site border a 10-year-old reconstructed prairie. Indian grass and big bluestem are the dominant grasses. Part of the prairie usually is burned each year in early spring or late fall. Scattered oak trees and an old apple orchard provide canopy cover for a few of the boxes. Five of the 18 boxes are located along the edge of



Location of three DuPage County, Illinois, Eastern Bluebird study sites.

an old pasture.

All three study sites had bluebird trails established four to eight years prior to this study. The boxes at all sites had been monitored only irregularly, however, and only at the arboretum site did a few pairs of bluebirds consistently fledge young.

Study methods

Only Peterson-style nest boxes, separated by a distance of at least 55 yards (50 m) and usually greater than 100 yards (90 m) (except for a few placed within 10 to 20 feet (3-6 m) of another box to reduce tree swallow competition) were used at all three study sites. Thirty-one boxes were added to the arboretum site at the beginning of the second year of the study, and three more were added at the start of the third year. The number of boxes at the other two sites was kept virtually constant during all three years of the study. Most boxes were mounted on either smooth metal poles or steel fence posts (T-posts). A few boxes at the Fermilab site were attached to trees. By the end of the second year of the study approximately 90 percent of the 130 nest boxes were protected with at least one type of predator guard, usually either a heavy coating of grease on the pole, a wire cat and coon guard, or both.

Throughout the nesting period (April to mid-August) from 1989 through 1991, all boxes were monitored a minimum of one to two times per week. Species use was

determined by presence of adults or characteristics of nests or eggs. A nest was defined as a box containing at least one egg, and a successful nest had at least one fledged young.

House Wrens were discouraged from nesting in the bluebird boxes by placing the boxes away from shrubby, brushy areas and thickets. Tree Swallow competition was

reduced by placing an additional nest box within 10 to 20 feet (3-6 m) of each of the nest boxes that was favored by the swallows.

House Sparrows, in the few instances in which they attempted to nest, were discouraged by removing the nesting material immediately. Wasps and their nests were removed from in or under the nest boxes, and, where wasps were a persistent problem, petroleum jelly was applied to the inside roof of the box discouraged them from attaching their nests.

Bluebird nest and egg characteristics, including laying and hatching dates, clutch size and color, length and width of eggs, number of nestlings and fledglings, and presence of ectoparasites such as blowfly larvae were recorded.

Bluebird nestlings were banded when 8-12 days old with a standard aluminum U. S. Fish and Wildlife Service size 1B band and a unique combination of one to three plastic, butt-end type, color leg bands. Adult bluebirds, which were banded in a similar manner, were captured in mist nest or usually in the nest box either by placing a hand over the

A nest was defined as a box containing at least one egg, and a successful nest had at least one fledged young.

entrance hole or by using a cardboard "trap door" that had been taped to the inside top of the entrance hole and propped up with a stiff grass stem. The trap door, which was tripped when an adult bird entered the box, flapped down over the entrance hole, trapping the bird inside.

To minimize possible desertion of

the territory or nest, adults were not captured until the latter stages of the nesting cycle. Most captures took place near the end of incubation or when very young (one day to five days old) nestlings were present. Banding was not attempted in rainy weather or when the temperature was below normal, and nests were never disturbed for more than 10 minutes at any one time. Adults were banded whenever possible, especially at the Morton Arboretum site, but priority was placed on banding all nestlings at each study site. Individual bluebirds, identifiable by their color bands, were observed with binoculars and spotting scopes to document behavior and dispersal to new sites.

Nest-box characteristics and the habitat surrounding each nest box were assessed to try to determine significant nest site selection factors and relevance to nesting success. Fifteen variables were measured at each nest box during 1990 and some again during 1991. Measurements were taken by a single observer within a five-day period during the nesting season. Entrance hole length

and width, and height from the ground to the bottom rim of the hole were measured with a tape measure. The direction each box faced was determined with a hand-held compass. Distance to nearest perch and nearest closed canopy cover were

measured with a surveyor's measuring wheel, as were distances to the nearest water, road, and building. Distances over 110 yards (100 m) were estimated by pacing. Height of the grass within a 10-foot (3 m) radius of each box was estimated by standing a tape measure parallel to three to five representative stems, measuring the heights in their natural

positions, then averaging the results. The density of the grass within this same area was estimated as sparse (up to 50 percent bare ground), high (thick carpet with little or no bare ground visible), or medium (between the two extremes). Dominant grasses were estimated by visual inspection of grasses within the 10-foot (3 m) radius. A larger area, 110-yard (100 m) radius, around each box was rated as to general habitat type: savanna, consisting mostly of large trees such as oaks; widely scattered deciduous trees or orchards; tree-lined fence row along grassland or pasture, or grassland within 55 yards (50 m) of woodlands; open grassland.

The results

Bluebirds nested at all three study sites during each year of the study. The Morton Arboretum site consistently had the highest percentage of box use by Eastern Bluebirds and the highest productivity as measured by number of young fledged per successful nest. The Fermilab site was consistently the least productive.

Of 208 bluebird nests attempted in the study area during 1989-1991, 149 (72 percent) were successful in that at least one young fledged. Eighty-five percent of the successful boxes were mounted on round metal poles and were equipped with at least grease as a predator deterrent. Annual variation in success ranged from 66.7 percent (1990) to 78.3 percent (1989). An average of 3.9 eggs was laid per nest, and an average of 3.5 young were fledged per successful nest. For all seasons and study areas combined, approximately 65 percent of the eggs laid resulted in fledged young.

When comparing the three study areas, differences in nest success and productivity become apparent. Over

the three-year nesting period, bluebirds at the Morton Arboretum site had an average success rate of 76.6 percent (nests which fledged at least one young), and an average of 68.2 percent of the eggs laid resulted in fledged young. The bluebird nests at the McKee Marsh site, on the other hand, had an average success rate of

Tree Swallow competition was a cause of bluebird nest failure only at McKee Marsh site where boxes were situated in much more open habitat than at the other two sites.

63.5 percent and only 56.6 percent of the eggs laid resulted in fledged young. The Fermilab site had too few bluebird nests to make valid comparisons.

During the first year of the study, House Wrens were the major known cause of bluebird nest failure, resulting in a 6.7 percent loss of bluebird eggs. This rate dropped to 3.0 percent during the second year and rose to 4.7 percent during the third year. House Wren competition was most prominent at the arboretum site which has a greater abundance of the brushy, shrubby habitat that the wrens prefer.

During the second year of the study, predation by raccoons became the major known cause of nest failure. Raccoons caused no loss of eggs at any of the sites in 1989, but were responsible for a 10.7 percent loss of bluebird eggs during 1990. At McKee Marsh during that year, 25 percent of the bluebird eggs were lost to raccoons. With the installation

or application of anti-predator devices, the overall failure due to raccoons dropped to 4 percent in 1991.

Tree Swallow competition was a cause of bluebird nest failure only at McKee Marsh site (11.5 percent egg loss in 1990), where boxes were situated in much more open habitat than at the other two sites. The placement of a second nest box within 10 to 20 feet (3-6 m) of a box at which bluebird and Tree Swallow competition was occurring almost always resulted in successful nestings by both species, one in the original box and one in the new one. In one instance, however, Tree Swallows nested in both boxes at a distance of only 8 feet (2.5 m) apart, a rare occurrence for such a

territorial species.

Human interference with nests or young was not a major factor until the third year of the study, but did cause 7.4 percent of the eggs to fail that year, mainly from vandalism to occupied nest boxes.

Unknown causes of failure include such factors as infertile or abnormal eggs, faulty incubation, unexplained abandonment of eggs or young, unexplained disappearance of one or both adults, and fluctuations in food supplies and weather conditions. Most of these factors are extremely difficult to verify, hence the large percentage of unknown causes of failure each year.

Banding

Forty-five adult Eastern Bluebirds (36 females and nine males) and 579 nestlings were banded during the course of the study. Forty-seven of these (three adult females and 44 nestlings) were banded in 1988 before the formal initiation of the study (with USFWS bands only) at

the Morton Arboretum site.

Thirty-eight individuals or 8.6 percent of the 444 bluebirds banded from 1988 through 1990 returned to the study sites for one or more years (birds banded in 1991, of course, could not be included in this data). Thirty (19.4 percent) of the bluebirds (23 nestlings and seven adults) banded in 1989 returned in 1990, 1991 or both. Seven of the nestlings that returned as adults to nest on the study sites in 1991 had been banded in 1989 and were not in evidence at any of the sites during 1990. All seven of the year-old, banded male nestlings that returned to nest at the Morton Arboretum in 1990 were paired with unbanded females. And, although all but seven (17 out of 24) of the adult females and all nestlings at the Morton Arboretum were banded in 1990, 18 of the 29 females nesting there in 1991 had no bands.

Five bluebirds had a consecutive three-year history, and five bluebirds had a three-year history but with the middle year missing. Seventeen bluebirds returned for two consecutive years during the study. A few individuals returned to the same box from which they were fledged or in which they had raised young the previous year, but most birds moved to other boxes within the same study area from one year, or even from one brood, to the next.

While most of the returns were seen at the same site at which they had been banded, there was evidence of interaction between the three study areas. A female bluebird banded as a nestling at Fermilab in 1989 nested at the arboretum in 1990, and a male banded as a nestling at the arboretum in 1989 nested at McKee Marsh in 1990. Also, two males banded as nestlings from the

same nest at McKee Marsh in 1989 returned in 1991 after a year spent elsewhere, one to Fermilab and one to the arboretum.

Management recommendations

During our study, the number of Eastern Bluebird nesting pairs increased from 11 in 1988, before regular monitoring began, to a peak of 49 in 1990. The number dropped to 42 in 1991, despite a slight increase in the number of boxes available. Also, despite an almost constant number of boxes available from 1989 through 1991, the number of nests peaked at 87 in 1990, up from 46 the year before, but dropped slightly to 75 in 1991. These preliminary results help confirm the assumption that availability of suitable nesting cavities is but one of the many interdependent and complex factors involved in Eastern Bluebird population dynamics.

Seventy-nine percent of the bluebird nesting activity took place at the Morton Arboretum where the habitat consists of open grassy areas

tum, 27.5 inches (70 cm) at McKee Marsh and Fermilab. The preference for shorter grass was strengthened when the hole height also was considered. The mean hole height 67 inches (171 cm) for the arboretum was higher than that found at the other two sites (49 inches [124 cm] for McKee Marsh and 60 inches [152 cm] for Fermilab).

Our results concur with past studies of bluebird habitat, confirming the Eastern Bluebird's preference for open areas with scattered trees and sparse or relatively short herbaceous vegetation. The importance of short grass or sparse vegetation to effective foraging by bluebirds may be the key factor in this habitat preference, more important, for example, than entrance hole height or the grass height to entrance height ratio.

Competition from other cavity nesting species is a factor that can greatly influence bluebird nesting success and one that can never be completely eliminated. Although

House Wren competition for nest boxes was reduced by placing the boxes away from the shrubby areas preferred by the wrens, wrens were still a major cause of bluebird nest failure during all three years of the study. Because House Wrens are smaller than bluebirds, there is little that can be done to make a bluebird nest box wren-proof and still acceptable to bluebirds.

Several hole designs and wren guards have been tried on bluebird boxes, and a wren guard designed by H. S. Pollick was tried on several of our boxes. Results of our tests and those of others show that wrens still easily were able to gain access to nest boxes to build nests or to

Our results concur with past studies of bluebird habitat, confirming the Eastern Bluebird's preference for open areas with scattered trees and sparse or relatively short herbaceous vegetation.

with scattered trees and shrubs.

The variable that figured predominantly in the majority of use-versus-no-use cases was grass height. In every use-versus-no-use situation, mean grass height was shorter for the use category; the grass height averaged 24 inches (62 cm) at the arbore-

Nest boxes always should be mounted at least 51 inches above the ground ...

destroy bluebird eggs. Hence, the only at least partially effective way to reduce competition from House Wrens (the birds, their nests and eggs are protected under the Migratory Bird Treaty Act) is by trial and error: relocate the nest boxes used by wrens, usually to more open areas, until they find them unacceptable.

Boxes placed in open areas should be monitored closely for Tree Swallow competition. If a second box is expediently placed within 10 to 20 feet (3-6 m) of the contested box, the chances of having both species nest successfully will be increased.

The fact that raccoon-caused nest failures rose from 0 percent in 1989 to 10.7 percent in 1990 may represent learned behavior by the raccoons. By using several anti-raccoon management techniques — mounting houses on smooth metal poles, greasing the poles with white lithium grease, and attaching wire guards to the fronts of the boxes — overall egg loss due to raccoons was reduced to 4 percent the following year. It is safe to assume that eventually a raccoon will find and try to investigate any nest boxes in its territory. Precautions taken to prevent them from successfully gaining access initially will save much time and effort later, as raccoons are very persistent once they have found a food source. Nest boxes always should be mounted at least 51 inches (1.3 m) above the ground on smooth round poles on which is applied a liberal coating of grease at least 20 inches (0.5 meter) from top to bottom (from one foot above ground to within one foot of the box; carnuba car wax may be a less messy alternative). In high-risk areas, an

anti-predator device also should be attached below or onto the front of the nest box. The Noel cat and coon guard is highly recommended. The "bird guardian," a tube-like commercially available predator guard that fits over the entrance hole, has not proved satisfactory.

Human-caused nest failures best can be prevented by strategic placement of the nest boxes, especially away from frequently used paths or roads, and through informative signage and public education.

While a number of Eastern Bluebird returned to their previous year's nesting areas the following year, a surprisingly large number of unbanded adult birds appeared each spring, despite the fact that all nestlings and most adult females — the majority of which nested successfully — were banded at each study site during previous years. This finding is somewhat contrary to a study done by B. C. Pinkowski in which the number of Eastern Bluebirds nesting in an area gradually increased after the initial provision of nest boxes, apparently because young birds that were reared in the area were returning there to breed, and adults that were successful in the area were returning there for subsequent nestings. While our bluebird population also increased quite dramatically, many of the birds were new to each site each year and took advantage of the abundance of nest boxes provided. This high turnover rate was surprising and certainly would not have been suspected had the banding study not been done.

Preliminary banding returns also indicate that a large number of nestlings from our study areas spent their first adult summer somewhere

other than their hatching site, then returned to their hatching side during their second adult year to nest. Whether these two-year-olds nested somewhere else during their first summer is unknown. Our banding returns also show that local bluebird populations do intermix. Areas of higher productivity, such as the Morton Arboretum site, may provide a source of birds for areas of lower productivity, such as the McKee Marsh and Fermilab sites. Likewise, areas of higher-quality habitat may draw birds to them from less suitable areas.

Many factors are involved in the ultimate size and stability of a local Eastern Bluebird population. The availability of suitable nesting cavities is certainly a major factor, but food supply, predators and competitors, habitat characteristics, and local and regional weather conditions also are important factors that influence size and success of local populations. It seems likely that if good quality habitat within the Eastern Bluebirds' nesting range contains properly monitored nest boxes bluebirds eventually will colonize the area, provided the regional population base is sufficiently high. These local areas, especially those which provide predator-proof nesting boxes, can aid in increasing the Eastern Bluebirds' nesting success.

ACKNOWLEDGMENTS

We wish to thank the administrations and staffs of the three study areas for allowing us to conduct bluebird studies on their sites and for aiding us with equipment and labor! Thanks especially to Dick Wason (deceased) and Chris Whelan of the Morton Arboretum, Dan Ludwig of the DuPage County Forest Preserve, Rudy Dörner of Fermilab and Ed Miller of Governor's State University. Jeff Hardt put in uncountable hours monitoring bluebird boxes especially at the Morton Arboretum and McKee Marsh sites, and Joan Harmet put in many hours of data entry. Ron Olsen and his DuPage County Boy Scout Troop constructed a large number of nest boxes for us. This study was funded in part by the Chicago Academy of Sciences and by a grant from the North American Bluebird Society.

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(Editor's Note: A longer technical version of this article appeared in Meadowlark, A Journal of Illinois Birds, Vol. 7, No. 3. The map and photos used here appeared with that article and are reproduced with permission. Ms. Byre can be reached at the Oklahoma Museum of Natural History, University of Oklahoma, 1335 Asp Ave., Norman, OK 73019; Ms. Hennen at the Chicago Academy of Sciences, 2001 N. Clark St., Chicago, IL 60614.)

Banding report offers insight into dispersal

Banding bluebirds and recording information about such birds as they are recaptured can offer insight into longevity and movements of these species. Here are highlights of the 1998 Calgary, Alberta, bluebird trail banding report.

Banding totals for 1998 included 2,478 Mountain Bluebirds (146 adults and 2,332 young) and 2,129 Tree Swallows (256 adults and 1,873 young). Although adult bluebirds banded were nearly the same as 1997 (143), young banded were much higher than 1997 (1,392), reflecting a sharply increased number of second broods in 1998. Tree Swallows banded were down slightly from the 2,331 banded in 1997.

One particular Tree Swallow captured in 1998 first was banded as a fledgling in 1989 by George Loades, making this bird nine years old. This is the second year in a row that a Tree Swallow banded by George has made it to that age. The record for longevity of Tree Swallows is 11 years, that bird found at Long Point, Ontario.

George Loades recaptured a six-year-old bluebird, first banded as an adult in 1993, which has been found in the same nest box since that year, and a five-year-old bluebird which has been recaptured in the same nest box since 1994.

Perhaps the most interesting recovery of the year was of a bluebird banded by Ralph Herdman of Lethbridge near Carmangay on May 25, 1998, and found dead in August in the yard of Reijo Malmquist northwest of High River. This bird had moved about 55 miles (89 km) northwest of its banding location since it fledged.

George Loades recaptured 56 bluebirds and 61 Tree Swallows in 1998. The largest percentage of recaptures were of birds banded the previous year (1997). In general, George found that birds banded as young in 1997 did not seem to disperse as much as usual. For example, he reported a bluebird and a Tree Swallow banded as young in 1997 which returned to the same nest box in 1998 where they were banded. This is a first for Calgary Area Bluebird Trails. Of birds he banded as young in 1997 and recaptured in 1998, five bluebirds (of 17) and five Tree Swallows (of eight) were within 1.2 miles (2 km) of their nesting location. In general, young bluebirds and Tree Swallows have been found to disperse over three miles (five km) from their nesting sites.

Two birds captured by cats were turned in to the Rockyview Wildlife Rehabilitation Centre near Madden. The first was an injured male bluebird caught by a cat and recovered by a farmer near Millarville. The bird was taken to the Rockyview Wildlife Centre near Madden where it eventually succumbed to puncture wounds. The second was found near Carstairs with puncture wounds and a fractured right wing. This bird had to be euthanized.

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"The best value in birding today!"

Carla McRee of Lockhart, Texas, recently asked other members of Bluebird-L, the e-mail bluebird chat group, about placement of nest boxes in pasture land. She wrote, "How many bluebirds would be likely to nest on our 100 acres? Would it be better to spread houses over this 100 acres or to put houses up where a person has seen bluebirds frequently.

Carolyn Hall of Basset, Nebraska, provided this answer. "I have friends who live east of Valentine, Nebraska, who have 120 acres of pasture including a creek canyon with large pine trees and assorted deciduous trees," she said. "They have 83 nest boxes scattered all over the pasture, some in the canyon (with some House Wren problems) but most scattered around the rim of

the canyon within 100 yards of the trees. When I rode with them to check their boxes last year in May, they had 82 nests of eggs. I haven't seen their 1998 totals, but it had to be over 600 bluebirds fledged. These nests were all Eastern Bluebirds."

Ted Ossege of Cincinnati, Ohio, asked whether House Sparrows will avoid Gilbertson PVC boxes." I have heard they will sometimes begin to

build a nest in a Gilbertson box, but rarely, if ever, actually complete the nest and lay eggs in such a box," he said.

The answer came from **Kevin Berner**, NABS research chair. "I tested Gilbertson PVC nest boxes against standard boxes, Peterson boxes, slot boxes, and some other styles for quite a few years," Mr. Berner wrote. "Only once did a House Sparrow build a nest in any of these boxes and eggs were never laid in that box. My observations were that House Sparrows strongly preferred the wood boxes over PVC."

Q: Do bluebirds have a sense of smell?

A: Most birds are equipped with an adequate or even well-developed sensory apparatus for perceiving odors, says Christopher Leach in his book *The Birdwatcher's Companion*. They do not depend on their sense of smell as much as mammals do, however.

Q: Can or should one use treated lumber for construction of nesting boxes?

A: While nesting boxes built of treated lumber (treated with chemicals to retard decay) might last a long time, the toxic substances in such wood are potentially harmful to the birds. It is best to not use such material.

Q&A

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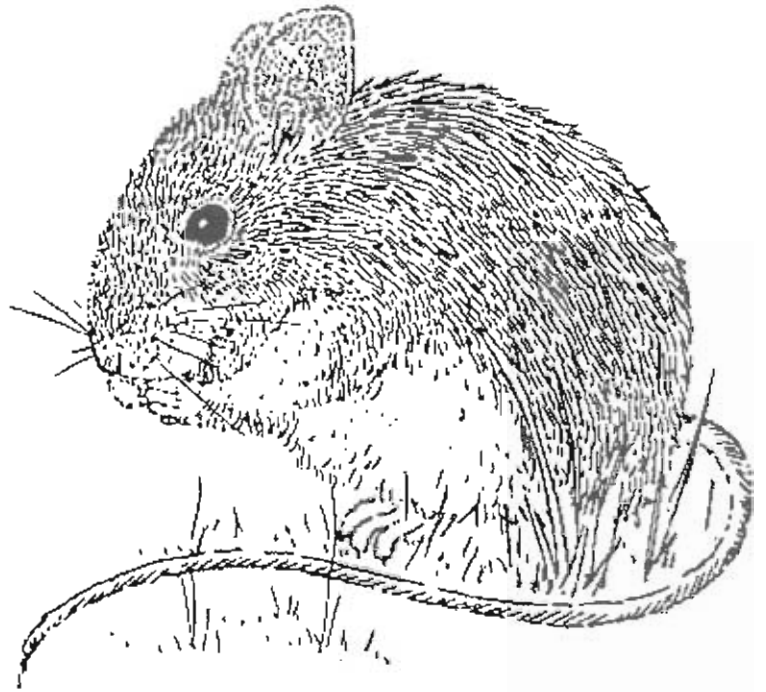
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Hantavirus

This isn't a common nest-box problem, but if you encounter signs of rodents, take precautions



Hantavirus is an uncommon but serious disease contracted by exposure to the droppings of several common rodents. Most of us do not have to clean many nest boxes before encountering rodent signs. It is a good idea to be aware of hantavirus and the precautions which can help prevent getting it.

The virus is carried by Deer Mice, White-footed Mice, Cotton Rats, and Rice Rats. These rodents, one or more of them found almost everywhere in North America, shed the virus in their urine, droppings, and saliva.

Hantavirus received its first significant publicity in 1993 during an outbreak in the southwestern part of the United States. Investigating the disease, medical experts determined that hantavirus has been present here since 1959.

Cases of the disease — 211 in all — have been recorded in all states west of the Mississippi River except Missouri and Arkansas, and in Minnesota, Wisconsin, Illinois, Indiana, New York, Pennsylvania, Rhode Island, West Virginia, Virginia, North Carolina, and Florida. Forty-

three percent of the persons who caught the disease died.

According to the Centers for Disease Control of the U.S. Department of Health and Human Services, from which the information in this article comes, humans acquire the virus mainly by breathing air contaminated with it. You do not want to stir up rodent droppings or nesting materials.

The virus also can be contracted through a rodent bite, although this is a rare means of transmission, and by contaminating your fingers, then touching your nose or mouth. Food contaminated by rodents also might make you sick. You cannot get hantavirus from other animals or from persons.

Early symptoms of the disease include fatigue, fever, and muscle aches, especially in the thighs, hips, back, and sometimes the shoulders. There also may be headache, dizziness, chills, nausea, vomiting, diarrhea, and abdominal pain. As the disease progresses, coughing and shortness of breath will occur. It appears that symptoms develop between one and five weeks after exposure. The disease requires

medical treatment.

How do you prevent hantavirus?

- Put on latex gloves before cleaning up rodent infestations in your nesting boxes or elsewhere.
- Don't stir up dust by sweeping or vacuuming droppings, urine, or nesting materials.
- Instead, thoroughly wet the contaminated areas with liquid to deactivate the virus. It is best to use a solution of one and a half cups of household bleach in one gallon of water. (Avoid getting this on your clothing or other items that might be damaged.)
- When everything is wet, take up contaminated materials with a damp cloth, then mop or sponge the area with disinfectant. Most general-purpose disinfectants and household detergents are effective, the CDC says.
- Spray dead rodents with disinfectant, then double bag them in plastic, along with all cleaning materials, and bury or burn.
- Disinfect your gloves before you remove them; use disinfectant or soap and water. After taking off your gloves, thoroughly wash your hands with soap and water.

Comparing natural and artificial cavities

There have been many studies on the breeding ecology and behavior of cavity-nesting birds, in part because many species will readily use nest boxes. The willingness of the birds to use boxes makes finding and monitoring large numbers of nests easy, both of which are hard to do when working with birds using natural cavities. The results of two recent studies suggest that some caution is appropriate when interpreting the results of nest-box studies.

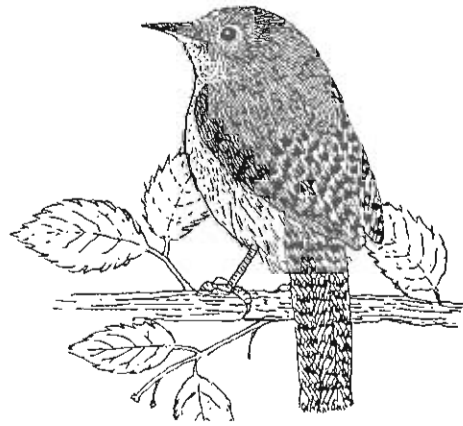
Beth J. Christman and Andre A. Dhondt ("Nest Predation in Black-capped Chickadees: How Safe Are Cavity Nests?" *The Auk* 114:769-773) reported on the outcome of 21 chickadee nests in natural cavities. The predation rate of nests in the study was very high (62 percent), but within the range reported for other studies.

In an attempt to discover why some nests were more vulnerable to predation, the authors assessed a variety of nest characteristics. Unlike some other studies, nest height was not found to be a factor. The authors did discover, however, that circumference of the nest tree at the height of the cavity, thickness of the nest wall, and softness of the wood were important factors. Nests in larger trees, with thicker walls, and that were excavated from harder wood were substantially more likely to be successful. One reason may be that the primary agents of predation were large mammals, such as skunks and raccoons, which had to enlarge the nest entrance to reach the contents.

Christman and Dhondt point out that many studies of nest success in chickadees and other cavity nesters come from nest-box studies, in which these factors are controlled and may not accurately mirror conditions in natural cavities.

Kathryn L. Purcell, Jared Verner, and Lewis W. Oring ("A Comparison of the Breeding Ecology of Birds Nesting in Boxes and Tree Cavities," *The Auk* 114:646-656) compared laying dates, nest success, clutch size, and productivity in four species of birds. They used data from nest boxes and from natural cavities on their study site in California.

The four species were Western Bluebird, Plain Titmouse, House Wren, and Ash-Throated Flycatcher. The big winner was Western Bluebird, which benefited most from the



use of nest boxes. The birds had lower predation rates and greater nesting success in boxes than in natural cavities, and they produced slightly more young, although there was no real difference in clutch size or in the number of eggs that hatched. A potentially significant factor was the egg-laying date; bluebirds initiated nesting an average of 18 days earlier in boxes than in natural cavities.

The other bird that seemed to benefit from nest-box use was the House Wren, which laid more eggs and fledged more young in boxes than in natural cavities and had a slightly higher overall rate of success.

Plain Titmice had slightly lower predation rates and fledged slightly more young, but overall nesting

success was not significantly different. There was no apparent benefit to Ash-throated Flycatchers in using nest boxes.

One possible cause of the difference in results between cavity nests and box nests may be the size of the nest cavity. Boxes had larger nest areas, perhaps contributing to larger clutches in some of the species, especially the smaller ones.

The authors suggested that the results indicate that caution is needed when comparing the results of nest studies using cavities and nest boxes and that conclusions about nesting success and behavior resulting from nest-box studies may not always reflect the situation in birds nesting in cavities.

They also point out that little is known about the effect of nest boxes on the population dynamics of birds and that more study is needed. For example, it has been pointed out that in some areas cavities are limited and competition for sites is intense. One reason that House Wrens may have benefited from boxes in this study is that they arrive after the resident species have begun breeding and the number of cavities available is limited.

In addition, if species such as Western Bluebirds (which initiate nesting early) are benefiting significantly from the placement of large number of boxes, how is the increased number of bluebirds affecting the population of other species? The placement of an important resource into a bird community may have consequences that ripple out to other species, perhaps negatively, but little research has been done on the subject.

(This article appeared in The BWD Skimmer, February 1998. It is used with permission.)

Nesting over previous nests

A study several years ago by Wayne Davis of Kentucky appeared to indicate that bluebirds preferred to nest in a box which contained the remnants of an old bluebird nest.

A more recent study concludes that the return of bluebirds to nest boxes, both in the same and subsequent nesting seasons, depends more on whether bluebirds had previously raised successful broods in those nest boxes than the simple presence of an earlier bluebird nest.

The new study was conducted by bluebird researchers Patricia Gowaty and Jon Plissner. They published their findings in the summer 1997 issue of "The Journal of Field Ornithology."

According to the results of their work, if the nests were successful, 56 percent of bluebirds returned to the nesting site the next year. If the nesting was not successful, only 15 percent of the previous year's birds returned. In the same nesting season, 72 percent of individual bluebirds stayed at their original nest site when the boxes were cleaned; the balance nested in boxes with old nests or failed to re-nest.

The study concluded that there was no significant difference in bluebird usage, both in the same and following years, between cleaned and uncleaned nest boxes. Rather, the difference in usage depended on previous nesting success. The research did not reveal any difference in predation or nestling health when uncleaned nest boxes were reused.

(This article was adapted from information appearing in the Spring/Summer 1998 issue of Bluebird News, the newsletter of the New York State Bluebird Society.)

Window kills: A solution

By Dick Hjort

It was July 27, 1997, and another Rose-breasted Grosbeak hit our back windows and died. The day before a young one did the same, and the day before that it was a Red-bellied Woodpecker — three window kills in three days. Even though this was the season the young ones are learning of perils, this number was too high.

Shall we move all the feeders? We have five in the backyard, some out as much as 50 feet. We have a walkout with windows 12 feet off the ground. Mesh all the windows? Put up more Mylar ribbons? We use one-inch wide ribbons, two per window pane, tied with a short piece of string so they spin, and thumb-tacked to the soffit; a pull-tab from a milk jug stapled to the bottom of the ribbon gives it some weight. This has worked somewhat well. Silhouettes of hawks on the glass don't work at all, and neither do glass prisms to reflect light, or closed curtains. Our window kill normally was about one a month. But now three birds in three days!

My wife, Marlys, saddened by this, was looking out at our feeding

area. "We are doing this all wrong," she said. We must change the flight pattern. If anything frightens the birds off the feeders, they go straight into the windows. Turn all the feeders so, instead of the open sides facing the house (so we can see them the best), the birds are directed towards the woods when they fly. Put a hanging mesh barrier in front of any we can't turn, like the tube feeders."

Now, with all this in place, we watched and waited. The birds flew off only towards the woods.

As the weeks turned into months of no window kills — oh, we had a few light hits, but no injuries — we were delighted. We had only one window kill that next year: A young American Redstart flew from the wood's edge, and died at the window.

By changing the way our backyard feeders were oriented and putting up screens, we went from 12 to 16 kills a year to only one. We're hoping this will continue.

(This article first appeared in Bluebird News, Bluebird Recovery Program, Minneapolis, Minn. It is used with permission.)

A trick with sheet-metal predator guards

While investigating the advantages of silicone over lithium grease on new installations of sheet-metal pole sleeves and seeking a less costly alternative to anodized or painted aluminum, I discovered a hybrid result which might prove effective in both of these areas, as well as for identifying predation attempts.

Exposure of the aluminum (sheet metal) to the smoke of burning acetylene (without the oxygen) produces a blackened appearance. This effect is easily obtained quickly.

The blackened sheet metal is then sprayed with silicone. The silicone-

coated carbon is water resistant, yet the slightest actual contact by a finger, a claw, a feather, or even a hair leaves an identification mark.

The result offers the advantages of blackened sheet metal, and, in the event of failed renewal, perhaps better snake and rodent protection than aging or dried lithium.

The application should be done prior to nesting or between nestings because of the possible health hazards to nesting birds from the use of silicone and acetylene.

— John Hickerson, Newton, N. J.



Letters to the editor



To the editor,

My what a beautiful magazine we have ended up with, an improvement over the old one. Everyone involved really needs to be congratulated.

I am especially interested in the experimental bluebird houses built by Musselman. I went through six years out here in the West trying to figure out what in the world was wrong when we couldn't get bluebirds in our nest boxes. As I look at this stack of boxes, I suspect that this man was going through some of the same types of problems that I was having. My friend Duncan Mackintosh in Canada was experimenting the same way.

Once we found out what our nest boxes needed for Mountain Bluebirds, things turned around real quick for us, and I wonder if it was the same for him.

We had three men, who now are in their 90s, who were putting up nest boxes for our birds out here, but with very limited success. However, we indeed may be indebted to them for the effort they made to keep some birds on the land until we could come along and give a big assist.

— Art Aylesworth, Ronan, Montana

(Editor's note: Mr. Aylesworth sent this letter a few weeks before his death. His obituary is on page 3.)

We welcome your letters. Please include your name and address. Send letters to Jim Williams, Editor, Bluebird Magazine, 5239 Cranberry Lane, Webster, WI 54893.

To the editor,

Just a line to let you know how pleased I am with the new Bluebird magazine. It is outstanding and a real plus for us bluebird lovers. I am 78 years old and only have six nest boxes in a local apple orchard. I started about six years ago and have fledged 36 blue angels to date.

— Ken Johnson, Moneon, Massachusetts

To the editor,

Congratulations on your new, improved and expanded magazine. We all appreciate your skillful dedication.

I noticed in the Letters to the editor the tip of Mike Swanson of North Aurora, Ill., on how to easily remove rebar firmly anchored in the ground.

My question is, do any of your readers know of a device to remove steel stakes (T-bars) embedded in clay soil? A light, portable one, I mean, not the hydraulics of a tractor.

The name and address of a supplier would be appreciated, or maybe a drawing from which I could fabricate one.

One of the many virtues of the Gilbertson-PVC design is its lightness and ease of installation or removal. However, I have Peterson boxes, as well, and relocating one that is on a T-bar that has been in the ground for years is a mighty big job. Any help out there?

—David T. Hampton, Toronto, Ontario

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Screech-owls use nest boxes

By Tracey L. Kast

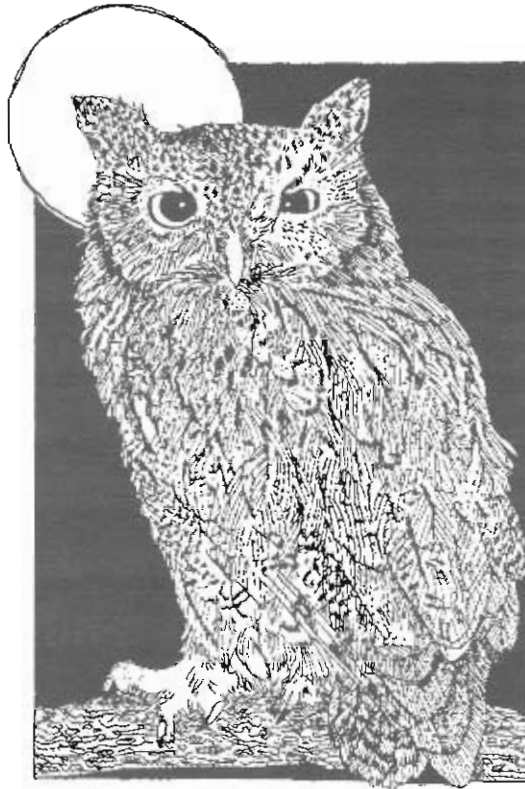
When most people think about birds nesting in their backyard nestbox, bluebirds, swallows, or wrens probably come to mind. But screech-owls also use nest boxes.

These owls use cavities for nesting, roosting, and storing food during winter. Because they do not excavate their own cavity, instead adopting natural cavities or abandoned woodpecker holes, the size of screech-owl populations in some regions is dictated by the number of available cavities. As forests are cut, the number of natural cavities decreases and the importance of supplying artificial cavities — nest boxes — increases.

Eastern (*Otus asio*) and Western screech-owls (*Otus kennicottii*) are small owls, about eight-and-one-half-inches tall, that closely resemble each other. They formerly were classified as one species. Eastern Screech-Owls, found from east of the Rocky Mountains to the Atlantic Ocean, have three color morphs — rufous, gray, and brown — that occur throughout the range. Western Screech-Owls, which inhabit the western coast of the continent, are usually gray, although some individuals along the northwest coast are brownish.

Screech-owls live in a variety of forested areas, preferring woodlands interspersed with open clearings, meadows, and fields, which they need for hunting. They also inhabit wetlands, orchards, suburban parks and gardens, and towns. The western species also is found in deserts.

These owls have the most varied diet of any North American owl, feasting on insects, crayfish, earthworms, and all classes of vertebrates, including songbirds, fish, amphibians, and small mammals such as



shrews, rabbits, bats, and rodents. Screech-owls cache uneaten prey in cavities.

Female screech-owls select a nest site from the cavities on the male's territory. Western Screech-Owls also nest in Saguaro cactus cavities. Both species use nest boxes, and they select boxes as often as they choose natural cavities for their nest sites.

Screech-owls do not build nests; instead, they form a depression of the fur and feathers of the prey they have eaten in the cavity. Eastern Screech-Owls lay three to four eggs in a clutch, and Western Screech-Owls lay two to five eggs.

The incubation period is 26 to 30 days for Eastern Screech-Owls and 21 to 30 days for Western Screech-Owls. Only the female incubates the young, but the male delivers food to her throughout this period and for the first two weeks after the young hatch. Both parents then care equally for the young, protecting them and

providing food.

After about 28 days, the young leave the nest, but they can only climb and hop from branch to branch. They become completely independent eight to 10 weeks after leaving the nest. Screech-owls raise one brood per breeding season.

Screech-owls do not migrate; they maintain home ranges throughout winter.

You can provide nest sites for screech-owls by putting up nest boxes. Screech-owls use the same type of box used by American Kestrels. The box should have a three-inch entrance hole and the following approximate dimensions: an eight-by-nine-inch floor and an interior height of 16 inches. Add two to three inches of wood shavings to provide material on which the female can lay her eggs. Attach the box to a tree or post at a forest edge adjacent to fields or wetlands. Boxes should be placed 10 to 30 feet off the ground and, if possible, under a tree limb. Monitor the box regularly to ensure the box is not vulnerable to predators and has not been taken over by European Starlings.

For more information on providing nest boxes for screech-owls, contact the Cornell Nest Box Network, toll free 800/843-2473, or write The Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14850. The lab can be contacted by e-mail at <cornellbirds@cornell.edu>. Information on membership in the Cornell Lab also is available.

(This article appeared in the August 1998 issue of Birdscape, published by the Cornell Laboratory of Ornithology, and is used with permission. It has been edited for use here.)

Bluebird News from Shore to Shore

Breeding bird survey figures from **Nebraska** show upward population trends seven species of cavity-nesting birds: Eastern Bluebird, Bank and Tree swallows, Hairy Woodpecker, Wood Duck, Tufted Titmouse, and House Wren. Eleven species show downward trends: Red-bellied and Red-headed woodpeckers, Northern Rough-winged Swallow, Northern Flicker, White-breasted Nuthatch, Chimney Swift, American Kestrel, Black-capped Chickadee, Great Crested Flycatcher, and House Sparrow. This information was printed in the Winter 98-99 issue of the Bluebirds Across Nebraska newsletter.

Bluebirds Across Nebraska began tracing the success of its nest-box program in 1989 when 1,136 bluebird fledglings were counted. That number had climbed to 5,236 by 1997 and flew to 8,658 in 1998. Important to the growth was a grant to BAN of \$10,000 from the Nebraska Environmental Trust Fund, due in large part to the efforts of BAN member Larry Fletcher. Much of the grant money was used to buy wood to make nest boxes which were distributed throughout the state.

The **Indiana Bluebird Society** reports 1,480 member nest boxes in 1998, producing 3,386 fledged bluebirds.

Tony Nagel in Indiana had a problem with House Sparrows moving into a nest box occupied by Eastern Bluebirds. He took the bluebird nest and its two eggs and moved them to another nest box 125 feet away while the parent bluebirds watched. "The bluebirds promptly took over and moved in," he reported in a story in the **Indiana Bluebird Flyer**.

The **Ellis Bird Farm, Lacombe, Alberta**, will present a one-day bluebird festival Saturday, July 17. It plans a full day of activities, beginning with a pancake breakfast and including presentation of the Blue Feather Award to a deserving Alberta bluebirder. Contact the farm for details, phone 403/346-2211, e-mail <mpearman@ccinet.ab.ca>.

Ruth Carelock of North Carolina had a Mountain Bluebird build a nest in one of her nesting boxes during the 1998 nesting season. The bird did not lay eggs. Elsewhere in the state, **Shirley Currin** had most persistent bluebirds. They nested four times in the same box, losing five eggs to snakes the first time, abandoning the next batch of four eggs, but successfully fledging from a third set of five eggs and a fourth set of four. The latter nine eggs, incidentally, all were white instead of blue.

The **Hot Springs (Arkansas) Audubon Society** has published a fine booklet entitled *Bluebirds: A Plan for Survival*. It is a primer for bluebirders, 28 pages of sound information including a set of nest-box plans. The booklet sells for \$4, proceeds to be used by the society. Members maintain 200 bluebird boxes on six area golf courses.

In **Humboldt, California, David and Susan Hagemann** are building 100 bluebird nesting boxes to be given to neighbors. That note appears in the Winter 1998-99 issue of *Bluebirds Fly*, published by the **California Bluebird Recovery Program**. It also contains an item from **Peter Triem of Ventura** on reactions of various species of cavity-nesting birds to examination of the nest box they are using. Ash-throated Flycatchers will abandon a box upon

examination, he said. He has observed similar behavior by Western Screech-Owls. Barn Owls, Mr. Triem reports, have been known to destroy their own eggs or cannibalize their young if the nest is disturbed before the young are over three weeks old.

Nebraska bluebirders can tell at a glance if the nest box on that post belongs to a member of the state bluebird group, **Bluebirds Across Nebraska**. BAN has designated a particular paint color (Lowell, 35B-2T, Ace Hardware stores) as its color, suggesting that members who paint their nest boxes use it.

In **New York**, the Route 20 trail of bluebird nest boxes that began in Schoharie County now extends across the state from Massachusetts to the Pennsylvania border. The trail contains 1,300 nest boxes, all stained the same golden pine color. This report comes from the Spring 1999 issue of the **Schoharie County Bluebird Society** newsletter, *Bluebird Booster*.

Joseph Kujanik writes to tell us of his bluebirding efforts. From his home in **Gary, Indiana**, he converts discarded wooden pallets and old fence boards to bluebird nest boxes. His activities have been the subject of several newspaper stories, recounting for readers the joys of bluebirding. He has step-by-step instructions for dismantling pallets and plans for the houses which then can be built from the salvaged lumber. You can reach him at 2249 Crest Road, Gary, IN 46408.

Using surplus wooden pallets, inmates in 10 **North Carolina** prisons will build nest box kits to be given to elementary-school children who will assemble the houses and

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Joe Kujanik with some of the bluebird nest boxes he built in 1995 with lumber salvaged from old pallets. He says most of the boxes were given to people who contacted him after reading about bluebirds in newspaper stories about his activities. Other boxes were given to the Gary, Indiana, parks department.

— news

create trails at their schools. This note is from the **North Carolina Bluebird Society's** Bluebird Notes.

The **Prescott (Oregon) Bluebird Recovery Project** has a new web site. The address is <www.pacifier.com/~bluebird>.

Also in **Oregon**, the first Champoeg Bluebird Festival was held June 19 at Champoeg State Heritage Area. A nest-box trail is located in the park, seven pairs of Western Bluebirds fledging 47 youngsters from 11 clutches in 1998.

While Eastern Bluebirds fared well in **Maine** in 1998, Tree Swallows took a hit, according to an article in *Downeast Bluebird*, the newsletter of the **Bluebird Association of Maine**. A wet June is thought to have contributed to a poor nesting year for the swallows, the second in a row for a species that usually nests only once each season.

Enos honored in Nebraska

Cheryl and Steve Eno received the 1999 Nebraska Outstanding Wildlife Conservation Award in April at the annual banquet of the University of Nebraska Wildlife Club.

Steve is a NABS director, chairperson of its Nestbox Approval Committee, member of the Technical Advisory Committee and Team Atlanta. Cheryl is chairperson of the NABS Awards Committee.

"This quiet, marvelous couple was greatly responsible for the formation of the Bluebirds Across Nebraska organization six years ago," said Ray Harris, NABS president. "Since its inauguration, BAN has increased bluebird fledglings 539 percent. NABS is extremely proud of this recognition of Steve and Cheryl," Ray said.

Help with study of nest predation by flying squirrels

A study of nest predation by flying squirrels is being undertaken by a Florida man. He is asking for information on such predation from persons who maintain nesting boxes.

Karl E. Miller of the Department of Wildlife Ecology and Conservation at the University of Florida writes, "I am collecting information on the propensity of flying squirrels (*Glaucomys* spp.) to act as nest predators, especially on nests of cavity-nesting birds. Reports in the literature are few, so I'd be grateful if anyone can share incidents that document predation by flying squirrels.

"Regional or local publications, other obscure published reports, or unpublished information or data regarding predation by flying squirrels would be appreciated. Please specify the habitat studied, whether natural nests or nest boxes, whether it was predation on nestlings or only on eggs, and method used to attribute predation to flying squirrels," he said.

Send information to Karl E. Miller, Department of Wildlife Ecology and Conservation, University of Florida, P.O. Box 110430, Gainesville, FL 32605. His e-mail address is: <karlos@gnv.ifas.ufl.edu>.

'98: Spectacular for bluebirds

Compiled by Conley C. Black

Last year was spectacularly successful for bluebirds. The mild El Nino weather allowed more birds than usual to overwinter in the north, and those that remained began nesting much earlier in the spring. High summer temperatures on the southern plains and heavy rains along the West Coast caused problems in some areas. Favorable conditions, however, prevailed across most of the continent, and a **record high 128,816 fledged bluebirds** were counted by persons submitting reports to us, eclipsing the old mark of 112,227 established in 1994.

Monitors counted 29 cavity-nesting species in 1998, two more than in 1997. Red-breasted Nuthatch, Red-headed Woodpecker, Acorn Woodpecker, Downy Woodpecker, and Barn Owl were added to the list, while Pygmy Nuthatch, Red-bellied Woodpecker, and Brown-headed Cowbird were dropped. Also interesting was the high number of Eastern Bluebirds fledged at the western limit of their range in Alberta, Colorado, Montana, and Wyoming.

Contributing to the 18th annual survey were 440 monitors, 205 more than in 1997. No reports were received from Arizona, Manitoba, Nevada, New Brunswick, Prince Edward Island, or Quebec. Bluebirders in these areas are encouraged to participate in the 1999 survey.

East

Joe Swinik of Seymour, Conn., fledged 228 bluebirds, 86 Tree Swallows, 13 Black-capped Chickadees, and 13 Tufted Titmice. **Don Tilly** fledged 82 bluebirds at the Woodbury Country Club and **George Clark** fledged 6 bluebirds, 4 Tree

Swallows, and 5 House Wrens near Canterbury. **Barbara Fraser's** trail at the Winterthur Museum and Gardens in Wilmington, Del., produced 94 bluebirds and 61 Tree Swallows.

Joanne Williams fledged 17 bluebirds in Weirsdale, Fla., and **Phillip Rhinesmith** fledged 16 in Pasco County. **Willie Williams** assumed responsibility for **Don Ford's** trails on the Avon Park Bombing Range, and fledged 577 bluebirds there. **Brenda Wrape** fledged 106 bluebirds near Rock Spring, Ga., and **Byron Feimster** fledged 44 bluebirds and 9 kestrels near Baxley. **Lisa Paige** of Pittsboro, Maine, fledged 13 bluebirds, 41 Tree Swallows, and 5 Black-capped Chickadees.

Jerry Newman of Rising Sun, Md., fledged 292 bluebirds, 11 Tree Swallows, and 4 Black-capped Chickadees. **MSG Edward Oakes** fledged 153 bluebirds from 68 boxes on Andrews Air Force Base. Hollis and Mary Shenk discovered a dead bird with a leg band in one of their boxes near Highland.

Bluebirders who recover a band should call the Bird Banding Laboratory at 1-800-327-BAND with details.

John Bowe of Florence, Mass., produced 42 bluebirds, 142 Tree Swallows and 5 Black-capped Chickadees from 111 boxes. **Wilho Aalto** fledged 39 bluebirds near Westminster, and **Clyde Gurney** fledged 19 near Rockland. In New Hampshire, **Don Powers** fledged 1 bluebird and 5 Tree Swallows in Derry, and **Chris Carr** fledged 4 Tree Swallows near New Boston.

John Hickerson of Newton, N.J., fledged 107 bluebirds and 82 Tree Swallows from 56 boxes. **Thomas Mulvey** banded 63 bluebird fledglings in Ocean County. **Fred Akers**

of Newtonville fledged 7 bluebirds, 7 Black-capped Chickadees, and 7 White-breasted Nuthatches.

New York's **Waterman Bird Club** fledged 741 bluebirds, 374 Tree Swallows, 122 House Wrens, and 22 Black-capped Chickadees; **Dorcas Brower** compiled the report. **David and Mary Hofer** of East Concord fledged 203 bluebirds, 206 Tree Swallows, 8 House Wrens, and 6 Black-capped Chickadees from 123 boxes. **Dolores Hawkins** fledged 76 bluebirds near Otisville. **Paul Wilson** fledged 68 near Pulaski, and **Richard Fischer** fledged 44 near Ithaca. **Susan McCutcheon** submitted a report for the **New York State Bluebird Society**, which fledged 4,912 bluebirds from 4,401 boxes.

The **North Carolina Bluebird Society** produced 6,384 bluebirds. **Mark Oakley** fledged 552 near Westfield, **Peter Van Duser** fledged 183 near Clemmons, and the **Stowe Botanical Gardens** banded 73 bluebirds, 3 Carolina Wrens, and 13 Carolina Chickadees. **Harald and Monika Nocke** of Berwick, Nova Scotia, fledged 5 Eastern Bluebirds in the Anapolis Valley. Harald says this was the first confirmed nesting in that area since 1988.

The **Bluebird Society of Pennsylvania** produced 1,108 bluebirds, 695 Tree Swallows, 11 Black-capped Chickadees, 92 House Wrens, and 12 Tufted Titmice. **Jane Pietsch and Diane Barbin** submitted the group's report. **John and Mary Shannon** of Coatesville fledged 108 bluebirds, 62 Tree Swallows, 11 House Wrens, 29 Carolina Wrens, and 19 Black-capped Chickadees. **Scott Somershoe** produced 98 bluebirds in Lancaster County, and **Daryl Garland** fledged 72 near Warfordsburg. The **Pennsyl-**
Continued on page 23

vania Department of Conservation and Natural Resources produced 1,576 bluebirds in Pennsylvania State Parks. More than 26,000 have fledged on park lands since the program began in 1981.

Rodger Booth of West Greenwich, R.I., fledged 7 bluebirds. **Barb Wheeler** of Shannock fledged 10, and **Raymond Marr** of Pawtucket fledged 263 bluebirds and 5 Purple Martins. **Barbara Halvorsen** fledged 193 bluebirds, 4 Carolina Wrens, 15 Carolina Chickadees, 5 Brown-headed Nuthatches, and 5 Great-crested Flycatchers on Hilton Head Island, S.C. **Lex Glover** of Columbia fledged 113 bluebirds, **J. D. Murray** of Lexington fledged 70, and **George Sample** of Saluda fledged 48. **Steve Parrin** produced 43 Tree Swallows and 6 Black-capped Chickadees near Hinesburg, Vt.

The **Virginia Bluebird Society** fledged 849 bluebirds. **Robert Hammond** of Earlyville produced 1,058 bluebirds, 308 Tree Swallows, 51 House Wrens, 6 Carolina Wrens, 113 Black-capped Chickadees, 13 Tufted Titmice, 4 White-breasted Nuthatches, and 103 Purple Martins. The eight cavity nesting species fledged on Bob's trail were the most reported by an individual for the season. **Klytia Salcedo** fledged 33 bluebirds near Fairfax Station, and 24 more were fledged by residents of the **Fairfax Retirement Community**.

Central

Jerry Sims of Lacey's Spring, Ala., fledged 105 bluebirds, 10 Carolina Wrens, 26 Carolina Chickadees, and 45 Tufted Titmice. **Phillip Davidson** of Birmingham fledged 7 bluebirds, **Milton McArthur** of Gadsten fledged 9, and **Laura Meeds** fledged 163 near Anniston.

In Arkansas, the **Bella Vista Bluebird Society** fledged 1,253 bluebirds, and the **Hot Springs**

Audubon Society fledged 496 bluebirds, 55 Carolina Chickadees, 43 Tufted Titmice, and 57 Brown-headed Nuthatches. **Ed Swain** produced 31 bluebirds near Jacksonville.

The **Bluebird Recovery Program of JoDavie County, Ill.**, produced 1,465 bluebirds. **James Smith** fledged 273 bluebirds near Homer, and **Deborah Burrus** of Arenzville produced 111. First time monitor **Cheryl Miller** of Manteno fledged 10 bluebirds, 8 Tree Swallows, 30 House Wrens, and 5 Black-capped Chickadees.

The **Indiana Bluebird Society** produced 3,386 bluebirds. **Lum and Meriam Bourne** fledged 437 bluebirds, 111 Tree Swallows, 65 House Wrens, and 6 Black-capped Chickadees. **Merlin Lehman** produced 29 Wood Ducks. **Eric Uebelhor** of Ferdinan eliminated his cat and coon problems when he adopted a hanging-box system.

**Bella Vista, Ark.,
Bluebird Society
fledged 1,253
bluebirds**

John Carter fledged 117 bluebirds in Des Moines, Iowa, but his Purple Martin house was unsuccessful. **Marcia Eller** fledged 56 bluebirds near Radcliffe, and **Jacob Gilliam** fledged 4 near Norwalk.

Volunteers in the **Kansas Wildlife Department's Bluebird Program** fledged 3,845 bluebirds, 55 Black-capped Chickadees, 95 Tree Swallows, 276 House Wrens, 13 Carolina Wrens, 72 Bewick's Wrens, and 11 Tufted Titmice. **James Fitzgerald** of Topeka fledged 172 bluebirds and 32 Bewick's Wrens, and **Leona Smith** of Paola fledged

26 bluebirds and 10 Carolina Wrens. **Frank and Bethany Bidinger** produced 500 Purple Martins.

Bob and Judy Peck of Henderson, Ky., continued their good work at the Land Between the Lakes NRA, producing 867 Eastern Bluebirds, 91 Carolina Chickadees, 9 Tufted Titmice, and 3 Prothonotary Warblers. **Ted Ossege** fledged 43 bluebirds and 6 Tree Swallows in Campbell County. **Earl Boggs** reported that bluebirds in the Nicholasville area seldom use open-top boxes. **Gene Waddle** of Corbin produced 17 bluebirds, and **Jean Smith** fledged 4 near Ashland.

James Dean of Marion, La., fledged 1,015 bluebirds, 36 Carolina Wrens, 96 Carolina Chickadees, and 4 flycatchers. **Sheryl Vaughn** fledged 5 bluebirds near St. Tammany.

The **Michigan Nestbox Network** fledged 2,067 bluebirds, 1,828 Tree Swallows, 470 House Wrens, and 394 Black-capped Chickadees. **Greg Miller** of Honor produced 207 bluebirds, and **Beryl Rigel** fledged 47 near Three Rivers. **Carol Fitzpatrick** of Oxford, in what surely must be a record, fledged 9 Tree Swallows in a single brood.

The **Bluebird Recovery Program of Minnesota** fledged 10,730 bluebirds. **David and Carol Fiedler** of Buffalo produced 305 bluebirds and their first-ever Great Crested Flycatchers. **Merrill Frydendall** fledged 54 bluebirds near Mankato, and **Len and Mary Suttinger** fledged 30 in Olmstead County. **Richard and Marlys Hjort** of Chisago City hosted two Little Brown Bats in one of their Peterson boxes.

Danny Moss of Cleveland, Miss., fledged 107 bluebirds, 11 Carolina Wrens, 9 Carolina Chickadees, and 5 Red-headed Woodpeckers. **Howard Malone** lost a number of eggs during a late summer heat wave, but still fledged 55 bluebirds near Marion.

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There were two reports from Missouri. **John Halpin** fledged 72 bluebirds, and **Gloria Poole** produced nine.

Bluebirds Across Nebraska members produced 8,646 Eastern Bluebirds. **Gordon Hopp** of Unadilla fledged 430 bluebirds, 39 Tree Swallows, and 6 Black-capped Chickadees; Gordon lost a box, 4 eggs, and an adult bluebird to a lightning strike. **Connie Finley** of Nebraska City produced 132 bluebirds, but lost several boxes to Bumble Bees. **Leanne Manning** fledged 10 bluebirds near Crete.

Robert Rager of Rockford, Ohio, fledged 276 bluebirds. The Dawes Arboretum fledged 260 bluebirds, 277 Tree Swallows, 6 House Wrens, and 10 Carolina Chickadees. **Svante Humbla** fledged 27 bluebirds near Cincinnati, and **John and Hope Richardson** fledged 73 near Columbus. **Anne Sander** of Carroll monitored a female bluebird with only one leg; the bird had a difficult time entering and exiting the box, but still managed to produce 2 fledglings.

The **Oklahoma Department of Wildlife's Nestbox Project** produced 4,159 bluebirds, 214 Carolina Chickadees, 164 Tufted Titmice, 35 Carolina Wrens, 60 Bewick's Wrens, 19 Great-crested Flycatchers, 21 House Wrens, and 4 White-breasted Nuthatches. **Robert Rabel** of Wyandotte believes entrance visibility is important, so he outlines the entrances of his boxes with black paint; Robert fledged 244 bluebirds with this system. **William and Veda Beck** of Bristow fledged 209 bluebirds, and **Pat and Chet Long** fledged 177 near Grove.

Joe Kral fledged 73 bluebirds, 1,046 Tree Swallows, 78 House Wrens, and 37 Black-capped Chickadees near Guelph, Ontario, and **Norman Shantz** fledged 121 bluebirds and 8 Black-capped Chickadees near Kitchener. The **Ontario East-**

ern Bluebird Society produced 5,828 bluebirds from 6,468 boxes. **Bill Read** submitted the group's report.

R. H. Hudgins of Obion, Tenn., produced 1,371 bluebirds and 1 Red-headed Woodpecker. The **Owl's Hill Nature Center** fledged 59 bluebirds,

**R. H. Hudgins
of Obion, Tenn.,
reported 1,371
fledged bluebirds**

11 Carolina Wrens, 5 Tufted Titmice, and 70 Carolina Chickadees. **Melody Young**, in her first year of trail monitoring, lost several eggs and nestlings to House Sparrows, but successfully fledged 8 bluebirds near Henderson. **Michael Jinks** of Morristown fledged 110 bluebirds and 13 Tree Swallows, **Alma Crass** of LaFollette fledged 60 bluebirds, and **Glenn Marshall** of Jonesborough fledged 15 bluebirds and 9 Purple Martins.

The **Wildwood Bluebird Trail** in Village Mills, Texas, fledged 406 bluebirds, 4 Carolina Wrens, 142 Carolina Chickadees, and 67 Tufted Titmice. **Leland Moss** fledged 33 bluebirds near Scroggins, and **Anna Spaulding** fledged 8 in Burseson. The **Lower Trinity Valley Bird Club** fledged 410 bluebirds, 3 House Wrens, 74 Carolina Wrens, 15 Tufted Titmice, and 3 Prothonotary Warblers. Students at the **CHARIS School** in Dayton fledged 38 bluebirds as a class project.

Gordon Cook of Martinsburg, W.V., fledged 8 bluebirds, and **Robert Nicewarner** of Inwood fledged 3.

Terry Glanzman of Mondovi, Wis., fledged 1,755 bluebirds from

368 boxes. **Catherine Croke** of Grand Marsh fledged 44 bluebirds, 20 Tree Swallows, 26 House Wrens, and 26 Black-capped Chickadees. **Kenneth Jacobs** of Hartford fledged 91 bluebirds, and **Martin Murphy** fledged 47 bluebirds and 20 Tree Swallows near Ferryville.

West

The **Ellis Bird Farm** web site indicates 13,334 Mountain Bluebirds, 5 Western Bluebirds, and 4 broods of Eastern Bluebirds fledged in Alberta. **Carol Porter** of Medicine Hat lost 46 eggs to weasels, but still fledged 292 Mountain Bluebirds. **Kathleen Williams** of Edmonton fledged 202 Mountain Bluebirds, 1,031 Tree Swallows, and 25 House Wrens. **Donald Stiles** reported that 5,466 Mountain Bluebirds and 7,330 Tree Swallows fledged in the Calgary area. Don reported that good weather allowed many pairs to rear second broods, producing a higher-than-average count.

The **Bluebird Survival Program of Vernon, B.C.**, produced 318 Western Bluebirds, 135 Mountain Bluebirds, 1,343 Tree Swallows, 46 Violet-green Swallows, 26 Black-capped Chickadees, 44 Mountain Chickadees, and 4 Red-breasted Nuthatches. The group increased occupancy rates by relocating unused boxes during the early portion of the season. **Sandy Proulx** of Quesnel fledged 622 Mountain bluebirds despite losing some boxes to Black Bears.

The **California Bluebird Recovery Program** produced 5,227 Western Bluebirds, 160 Mountain Bluebirds, 2 Acorn Woodpeckers, 4 Downy Woodpeckers, 562 Ash-throated Flycatchers, 2,008 Tree Swallows, 324 Violet-green Swallows, 445 House Wrens, 55 Bewick's Wrens, 627 Oak Titmice, 83 Mountain Chickadees, 66 Chestnut-backed Chickadees, 126 White-breasted
Continued on page 25

Nuthatches, 6 Barn Owls, 40 kestrels, and 1,591 Wood Ducks. **Woody and Jane Morf** fledged 145 Western Bluebirds near Diamond Bar, and **Malcolm King** fledged 103 near Ukiah. **Charles Welch** of Alturas observed an instance of cavity competition between Western and Mountain bluebirds. The Mountain Bluebirds eventually drove the Western pair away.

The **Colorado Bluebird Project** produced a total of 1,422 Eastern, Mountain, and Western Bluebirds. **Sherry Chapman** submitted the group's report. **Karen Metz** of Franktown fledged 7 Western Bluebirds and 3 Eastern bluebirds. **David Richmond** fledged 6 Mountain Bluebirds, 14 House Wrens, 4 Black-capped Chickadees, and 4 Mountain Chickadees near Clayton, Idaho.

The late **Art Aylesworth** reported 14,870 Mountain Bluebirds, 2,697 Western Bluebirds, and 8 Eastern Bluebirds fledged from 5,300 boxes on **Montana Mountain Bluebird Trails**. **Rob Spencer** fledged 743 Mountain Bluebirds and 8 Eastern Bluebirds near Great Falls; Rob reported the westernmost Eastern Bluebirds for 1998. **Jean Perkins** fledged 189 Mountain Bluebirds, 8 Violet-green Swallows, 18 House Wrens, and 10 Mountain Chickadees near Bozeman.

Chris Grondahl reports that volunteers cooperating with the **North Dakota Game and Fish Department** fledged 2,149 bluebirds, 980 Tree Swallows, 317 House Wrens, and 8 Black-capped Chickadees from 2,430 boxes.

Oregon's Prescott Bluebird Recovery Program fledged 1,046 Western Bluebirds, 570 Tree Swallows, 991 Violet-green Swallows, 172 House Wrens, 7 Bewick's Wrens, 76 Black-capped Chickadees, 10 Chestnut-backed Chickadees, 18 White-breasted Nuthatches, and 4 Red-

breasted Nuthatches; **Marilynne Keyser** is the new compiler for that group. **The Audubon Society of Corvallis** fledged 452 Western Bluebirds and recorded its first-ever House Finch nest in 1998. **Charlotte Corkran** fledged 365 Western and Mountain bluebirds in Grant and Wheeler counties, and **Don McCartney** fledged 49 Western Bluebirds and 16 Mountain Bluebirds near Bend.

Helen Crotty of Sandia Park, N.M., fledged 13 Western Bluebirds, 8 Violet-green Swallows, and 9 Ash-throated Flycatchers from 18 boxes.

Jeff Schulz of White, S.D., fledged 232 Eastern Bluebirds and 200 Tree Swallows, and **Les Bowman** fledged 25 Mountain Bluebirds, 49 Tree Swallows, and 10 Violet-green Swallows near Nemo.

Bill Anaka fledged 731 Mountain Bluebirds, 9 Eastern Bluebirds, 632 Tree Swallows, and 34 House Wrens near Canora, Saskatchewan, and **Ron Bittner** fledged 170 Mountain Bluebirds and 176 Tree Swallows

Charlotte Corkran
fledged 365 Western
and Mountain bluebirds

near Abernethy.

The **Utah Mountain Bluebird Trail** produced 43 Mountain Bluebirds, 138 Tree Swallows, and 5 Black-capped Chickadees.

Bill and Edith Ryan fledged 173 Western Bluebirds, 5 Mountain Bluebirds, 8 Tree Swallows, 53 Mountain Chickadees, and 4 Ash-throated Flycatchers near Yakima, Wash., and **Richard Layman** of Selah fledged 40 Mountain Bluebirds. The **Yakima Valley Audubon Society** fledged 347 Western Bluebirds and 141 Mountain Bluebirds.

Donna Knudson of Buffalo, Wyo., fledged 9 Mountain Bluebirds, 14 Tree Swallows, and 4 House Wrens from 11 boxes; Donna lost a brood of Eastern Bluebirds to bad weather in June, but another attempt was apparently successful because she saw a family group later in the fall. **The Tongue Ranger District of the Bighorn National Forest** fledged 226 Mountain Bluebirds, 17 Tree Swallows, and 4 House Wrens.

Final Remarks

I am indebted to the compilers of the state and provincial reports who responded to my requests for information and made their work available to me. Thank you. Thanks also to everyone who monitored boxes and submitted reports. Only a few individuals can be recognized in print, but each report, large or small, is valuable to our understanding of bluebird populations and conservation efforts. Generally the top producers in each state or province are recognized, as are some who submitted interesting observations or technical tips. If I get several reports from one area, I try to mention different folks each year. There are no definitive selection criteria, but reports received before Jan. 1 have a much better chance of being published than those received after that date. If you submit

reports to another organization, please note that fact on the NABS form so that I don't count you twice. And finally, I apologize for any errors in the manuscript; my eyes aren't what they used to be.

40 plans for nesting structures

Plans for construction of nest boxes and nest platforms are not hard to find. Plans that work and are easy to construct can be more difficult to locate. There is a book that solves that problem.

It is titled "Woodworking for Wildlife," authored by Carrol L. Henderson, supervisor of the nongame wildlife division of the Minnesota Department of Natural Resources and published by that agency.

The 112-page book contains plans for nest structures for 40 species of birds and five species of mammals. Each plan is clearly presented and described, accompanied by fine color photographs of the intended occupants.

"I went to a number of people for the information in this book," said the author. "I wanted to work with people who understood both the biology of the species and carpentry. They had to know both," he said. Mr. Henderson also built each of the structures himself before attempting to tell us how to do it.

The book opens with general instructions and pointers on house and platform construction, a serious discussion of what to do and what not to do. Most plans are what the author calls "one-board designs," using one piece of lumber to build the box or platform.

There is a chapter on nest-box pest problems and control.

Each of the species for which box plans are presented is discussed in detail, making you familiar with the bird or mammal and its special needs. All are illustrated with good photos.

You will find plans not only for common cavity nesters like bluebirds and Tree Swallows, but also plans for

structures serving the needs of Burrowing Owls, Barn Owls, and seven other owl species, American Kestrels, Common Loons, Great Blue Herons, Black and Forster's terns, and Cliff Swallows.

Mammals covered are bats, raccoons, three species of squirrels, and two species of mice.

The final portion of the book offers detailed and well-drawn plans for construction of the boxes and platforms. The Peterson bluebird house is among the plans. There is a

plan for a winter-roosting box for small birds.

The book is one of the best-selling wildlife books in the country, proceeds from its sale benefiting nongame wildlife programs in Minnesota. It is available through the mail with a telephone order. Call Minnesota's Bookstore toll-free, 800/657-3757. Price of the book is \$9.95 plus \$3.00 shipping (and tax if you are a Minnesota resident).

— *Jim Williams*

Mouse trap captures House Sparrows

Looking for ideas on how to trap the House Sparrows that compete for your bluebird nest boxes?

Tina Phillips, Cornell Lab of Ornithology staffer who handles the Cornell Nest Box Network, recently shared this information on Bluebird-L, the e-mail chat line for bluebirders.

"I had a phone call recently from a woman in Maine who has found a type of mouse trap to work very effectively in trapping sparrows in her bluebird boxes," Ms. Phillips said. "The trap is called the Victor Glue Mouse Trap. It contains a viscous-type material that she places inside the box. It is small, very inexpensive, and reusable. You can find it in hardware stores," she said.

Ms. Phillips explained that the Maine woman placed the trap inside the box, then waited for a sparrow to enter. "It immediately gets stuck onto the goo," she said. The bird is then removed using the basic banding hold. She brings the sparrows to her local animal rehabilitation center to be used as feed. She puts the trap back in the box if other sparrows are present.

You must be attentive and watch

what species of bird is going into the box, Ms. Phillips said. This is not the kind of trap that you put in and then not check for several hours. You need to be willing to make sure it is a sparrow that enters the box and not a more desirable species.

Dean Sheldon, NABS board member from Ohio, offered these comments on the trap:

"I've used this method of trapping errant sparrows for 10 years and find it very effective," he said. "If you leave the trap in long enough you can get a 'double header' (i.e., both birds of the pair).

"One trap cut in half will give you twice as much trap for the buck," said Mr. Sheldon.

"Watch the box from a distance close enough to scare off any bluebirds which happen by," Mr. Sheldon said. He emphasized that you CAN-NOT put the trap in place and walk away. The obvious could happen.

North American Bluebird Society

Affiliate Organizations

The North American Bluebird Society serves as a clearinghouse for ideas, research, management, and education on behalf of bluebirds and other native cavity-nesting species. NABS invites all state, provincial, and regional bluebird organizations to become NABS affiliates in "a confederation of equals all working together toward a common goal ... a partnership in international bluebird conservation." No cost is associated with affiliating with NABS.

Alberta

Calgary Area Bluebird Trail Monitors
c/o Don Sules
20 Lake Wapta Rise SE
Calgary Alberta T2J 2M9

Ellis Bird Farm, Ltd.
Box 5090, LaCombe Alberta T4L 1W7

British Columbia

Southern Interior Bluebird Trail Society
P.O. Box 494, Oliver BC V0H 1T0 Canada

Manitoba

The Friends of the Bluebirds
3011 Park Ave.
Brandon, Manitoba, Canada R7B 2K3

Ontario

Ontario Eastern Bluebird Society
2-165 Green Valley Drive
Kitchener, Ontario, Canada N2P 1K3

Arkansas

Bella Vista Bluebird Society
c/o Jim Janssen, president
27 Britten Circle, Bella Vista AR 72714

California

California Bluebird Recovery Program
2021 Ptarmigan Drive, #1
Walnut Creek CA 94595

Colorado

The Bluebird Project: The Denver Audubon Society & The Colorado Division of Wildlife
6060 Broadway, Denver CO 80216

Georgia

Bluebirds Over Georgia
5858 Silver Ridge Dr.
Stone Mountain GA 30087

Illinois

JoDaviess County Bluebird Recovery Program
15 Cedar Rim Trail, Galena IL 61036

Indiana

Indiana Bluebird Society
P.O. Box 356, Leesburg IN 46538

Brown County Bluebird Society
P.O. Box 660
Nashville IN 47448

Iowa

Johnson County Songbird Project
1033 E. Washington, Iowa City IA 52240-5248

Maine

Bluebird Association of Maine
c/o Lisa Paige
RFD 4, Box 7600, Gardiner ME 04345

Minnesota

Bluebird Recovery Program of Minnesota (BBRP) Audubon Chapter of Minneapolis
P.O. Box 3801, Minneapolis MN 55403

Montana

Montana Bluebird Trails
P.O. Box 794, Ronan MT 59864

Nebraska

Bluebirds Across Nebraska
P.O. Box 67157, Lincoln NE 68506

New York

New York State Bluebird Society (NYSBS)
15 Bridle Lane
Dryden NY 13053
c/o Rich Wells, President
9141 Cattaraugus Street
Springville NY 14141

Schoharie County Bluebird Society
c/o Kevin Berner
State University of New York
Cobleskill NY 12043

North Carolina

North Carolina Bluebird Society
P.O. Box 4191, Greensboro NC 27404

Rutherford County Bluebird Club
P.O. Box 247, Ellenboro NC 28040

Ohio

Ohio Bluebird Society
c/o Doug LeVasseur
20680 Township Road #120
Senecaville OH 43780

Oklahoma

Oklahoma Bluebird Society
c/o Mark Weathers
5656 S. 161st W. Ave., Sand Springs OK 74063

Oregon

Hubert Prescott Western Bluebird Recovery Project, c/o Patricia Johnston
7717 S.W. 50th, Portland OR 97219

Audubon Society of Corvallis
P.O. Box 148, Corvallis OR 97339

Pennsylvania

Bluebird Society of Pennsylvania
PO Box 267, Enola PA 17025

Virginia

The Virginia Bluebird Society
c/o Julie A. Kutruuff / Anne Little
3403 Carly Lane, Woodbridge VA 22192

Washington

Cascade Bluebird and Purple Martin Society
3015 Squaticum Parkway, Suite 250
Bellingham WA 98225

Wisconsin

Bluebird Restoration Association of Wis.
6612 Akron Avenue, Plainfield WI 54966

Lafayette County Bluebird Society
14953 Highway 23, Darlington WI 53530

Recent articles about cavity nesters

Here are recently published articles concerning species of birds which use cavities for nesting.

• Hooge, P.N., M.T. Stanback and W.D. Koenig. 1999. Nest-site selection in the Acorn Woodpecker. *Auk* 116:45-54

• McCarty, J.P. and A.L. Secord. 1999. Nest-building Behavior in PCP-contaminated Tree Swallows. *Auk* 116:55-63

• Barber, C.A. and R.J. Robertson. 1999. Floater males engage in extrapair copulations with resident female Tree Swallows. *Auk* 116:264-269.

• Gill, F.B., B. Slikas and D. Agro. 1999. Speciation in North American chickadees: II. Geography of mtDNA haplotypes in *Poecile carolinensis*. *Auk* 116:274-277.

Send stories

Bluebird, as did its predecessor *Sialia*, relies on stories, articles, and photographs from you. The most interesting items used in this magazine are the ones you provide. We also welcome your letters. Please include your name and address on all communications. Stories and articles are best submitted via e-mail, on computer disk (Macintosh compatible), or typewritten (double-spaced, please).

Send submissions to:

Jim Williams
c/o Bluebird
5239 Cranberry Lane
Webster, Wisconsin 54893
E-mail <twojays@win.bright.net>.

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Research contributions

I wish to contribute an additional \$_____ to help fund research on bluebirds and other cavity nesters.

For memberships outside the U.S., please pay by VISA/MC or by Postal Orders made in U.S. dollars; add \$4 to cover international postage.

Send completed form and payment to:

**North American Bluebird Society
P.O. Box 74, Darlington, WI 53530**

\$6 of each member's dues is designated for subscription to Bluebird, publication of NABS.

The mission of NABS

Founded in 1978, the North American Bluebird Society is an incorporated non-profit organization determined to increase the populations of the three species of bluebirds on this continent. Inasmuch as the populations of these birds have diminished due to the maladroit actions of human beings, as well as natural disasters, the primary objective of the society is to educate all who will listen about the importance of preserving these singular creatures in their native environment. Toward this end, the society will work within the bounds of effective conservation to study those obstacles impeding bluebird recovery, to publish results of those studies, to promote ideas and actions which might reduce the effect of those obstacles, and to obtain a more complete knowledge about bluebird ecology in the hope of learning more about the ecology of mankind.



Summer 1999 BLUEBIRD (formerly Sialia)

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