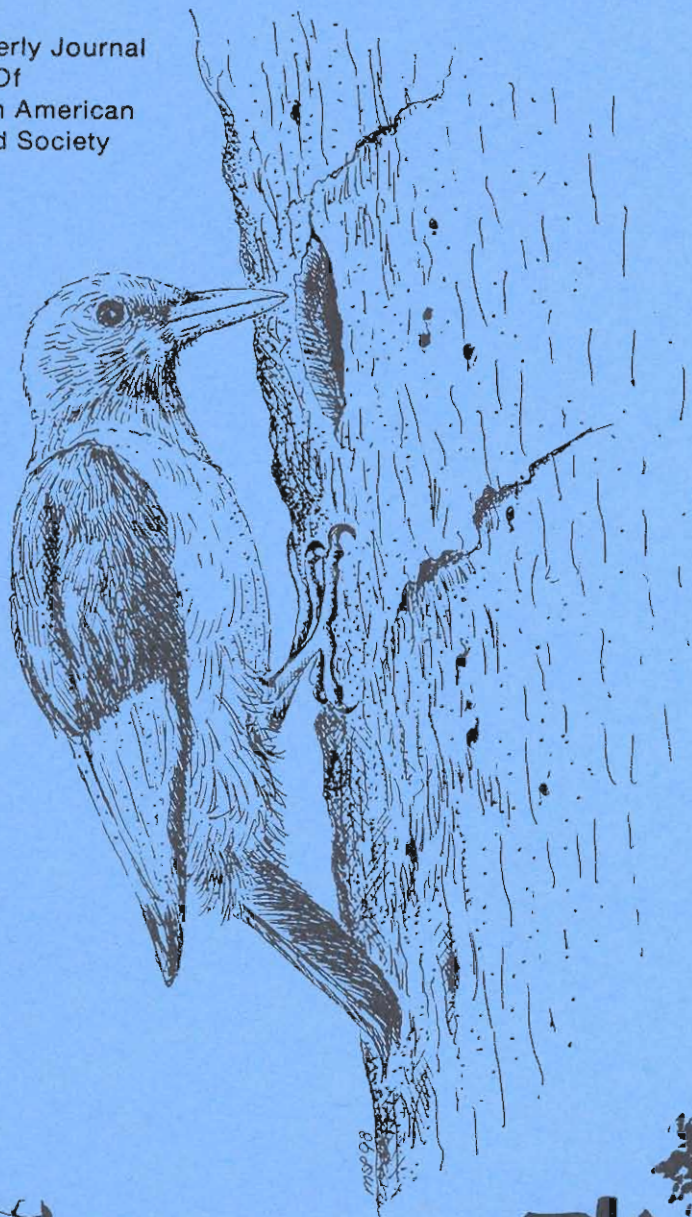


Sialia

Volume 20, Number 2
Spring 1998
Pages 41-80
Index

The Quarterly Journal
Of
The North American
Bluebird Society



NORTH AMERICAN BLUEBIRD SOCIETY

Founder

Lawrence Zeleny

President

Charlotte Jernigan

Vice President

Carol McDaniel

Treasurer

William R. Davis

Recording Secretary

Douglas LeVasseur

Corresponding Secretary

Joseph Tait

Directors

Martha Chestem 1998

Maryland

Dean E. Sheldon, Jr. 1998

Ohio

Richard Hjort 1998

Minnesota

Barbara Stinson 1998

Virginia

Steve Eno 1999

Nebraska

Edwina S. Hahn 1999

Georgia

R. David Shiels 1999

Texas

William Wheeler 1999

Tennessee

David L. Eastman 2000

New Hampshire

Ray Harris 2000

Alberta

Robert M. Niebuhr 2000

Montana

Stan Reed 2000

Arkansas

Co-Executive Directors

John D. Ivanko

Lisa Kivirist

Editor

Joanne K. Solem

Executive Director Emeritus

Mary D. Janetatos

NABS AFFILIATES

*Calgary Area Bluebird Trail Monitors
(Alberta)*

*Southern Interior Bluebird Trail Society
(British Columbia)*

California Bluebird Recovery Program

The Bluebird Project (Colorado)

Indiana Bluebird Society

Johnson County Songbird Project (Iowa)

Bluebird Association of Maine

Bluebird Recovery Program (Minnesota)

Bluebirds Across Nebraska

New York State Bluebird Society

*Schoharie County Bluebird Society
(New York)*

North Carolina Bluebird Society

Ohio Bluebird Society

Oklahoma Bluebird Society

*Hubert Prescott Western Bluebird
Recovery Project (Oregon)*

*Bluebird Restoration Association of
Wisconsin*

*Lafayette County Bluebird Society
(Wisconsin)*

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 should be made payable to North American Bluebird Society and should be in United States 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.



Sialia

The Quarterly Journal
About Bluebirds

Volume 20, Number 2

Spring 1998

Pages 41-80

Index

EDITOR

Joanne K. Solem

ART EDITOR

M. Suzanne Probst

TECHNICAL ADVISORY COMMITTEE

Kevin Berner

Carol McDaniel

Myrna Pearman

Dorene Scriven

James Walters

CONTENTS

Presidential Points	42
Charlotte Jernigan	
Causes of Nesting Failure in Cavity-nesting Birds at Yellow Creek State Park, Pennsylvania	43
Jeffrey L. Peters, Michael H. Kesner, Alicia V. Linzey and Matthew J. Barry	
Observations on Pairing Bluebird Nest Boxes	49
Kevin Berner	
Use of a Bluebird Nest Box by Red-headed Woodpeckers	51
Richard A. Sims	
1998 NABS Research Awards	52
Double Nesting by Bluebirds at Paired and Triple Box Sites	53
Bob Orthwein	
Award to Donald K. Ford	54
NABS: Taking Off	55
Myrna Pearman	
Recommended Bluebird Nest Box Specifications	58
Nesting Eastern Bluebirds	60
Hubert Brandenburg	
Floyd Kudla's Success with Hanging Nest Boxes on Urban Trails	62
Frank R. Navratil	
Exchange	63
Luring Bluebirds to the Prairie	71
Deb Kantrud	
Bluebird Express	72
Bluebird Tales	74
Lisa Kivirist and John D. Ivanko	
Georgia Couple Help Bluebirds	76
Tip and Betty Goza	
Index to Volume 19 (1997)	77

COVER

A Red-headed Woodpecker excavates a nesting site in a dead tree. Art Editor M. Suzanne Probst based her drawing on a Hubert Brandenburg photograph.

Sialia welcomes original articles, art and photographs for publication. Although this journal is named for the bluebird, material relating to all native cavity nesting species will be considered. Manuscripts should be typed neatly and double-spaced. All material submitted is subject to editing or rewriting. Submit the original manuscript plus a duplicate copy if you wish to proof the material before publication. If the article has been submitted elsewhere (or previously published) that fact must be stated at the time of submission. All manuscripts will be acknowledged. Black and white glossy photographs are preferred. Print the subject, names of individuals pictured, photographer and return address on the back of each photograph. Art is welcome and should be in black pen-and-ink. We do not assume responsibility for manuscripts, photographs or art submitted. The editor's address is 10617 Graeloch Road, Laurel, Maryland 20723.

Presidential Points

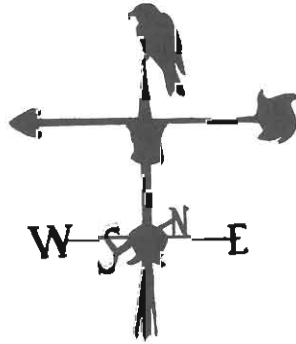
Charlotte Jernigan

Without VISION major change is never accomplished, and without steadfast leadership and sufficient support, a goal is never reached. A handful of people organized NABS, broke the ground, and with a strong and appealing message about the plight of the bluebird alerted an entire continent. The founders' zeal and enthusiasm never faltered, despite being literally buried in requests for information--because they were being encouraged by concerned conservationists who gave strength to the VISION.

These past 20 years, many individuals have remained faithful, committed members. Over the years their efforts have been successful. Today, bluebirds are on stable ground. All of you have helped to write a true story of love and devotion, but it is a story that must be told again and again. The horizon broadens; there is still a job to do. The original VISION is still with us; it is being shaped in a new mold in order to become a stronger and more versatile tool for the protection of all native cavity nesters.

Changes in the organization will not reverse what has already been achieved, nor will we forget the essential role of those early activists. We're hoping that states affiliating with NABS will help to create more good will, with ever-increasing cooperation in reaching new goals, while preserving past successes.

Because many of us live in predominantly urban and suburban environments, we need to be more aware of society's dependence on biological resources. Living creatures are a resource that play a central role in maintaining our emotional equilibrium. Who can place a price on a jaunt along a bluebird trail that also may afford one the joy of seeing a hovering kestrel or perhaps an acrobatic chickadee. Service, not self-interest, guarantees that future generations will be able to be fascinated



and awed by the activities in a nesting box.

We can continue to make a difference without getting spread too thin. A hands-on, shirtsleeves approach to reach more people will help us to stay focused on solutions in order to have an even more successful program. We, as members, are not only the beneficiaries but also the trustees of the positive results that we have obtained.

A new VISION is unfolding. The key is finding a way for each state organization to reach its potential by encouraging its members to emulate the success of others willing to share their knowledge and experience. If we are to flourish, we can do so, not as isolated individuals, but as members of a "bluebird family" stretching across the entire continent.

The bluebird is our "banner bird," and we're encouraging every state to be a standard bearer. For the critical role that you play in our success, NABS thanks you. You, as individual members, are the bedrock of our organization--and it's no secret that bluebirders are a special breed!

NABS NUMBERS

North American Bluebird Society
P.O. Box 74
Darlington, WI 53530-0074

E-mail: nbluebird@aol.com
Website:
<http://www.cobleskill.edu/nabs/>
Fax: 608-329-7057

Causes of Nesting Failure in Cavity-nesting Birds at Yellow Creek State Park, Pennsylvania

Jeffrey L. Peters, Michael H. Kesner, Alicia V. Linzey, and Matthew J. Barry

Abstract

The Eastern Bluebird is no longer regarded as being vulnerable to extinction in Pennsylvania but may be almost completely dependent on human-provided nesting sites; therefore, maintaining bluebird trails and understanding causes of nesting failure may be two important considerations in preventing its reclassification as vulnerable. Throughout the 1995 nesting season, we monitored 199 bluebird boxes at Yellow Creek State Park, Pennsylvania to determine abundance and nesting success of Eastern Bluebirds and other cavity nesters. There were 163 total nesting attempts distributed by species as follows: Eastern Bluebird 10, House Wrens 132, Tree Swallows 15, and Black-capped Chickadees 6. We detected predator activity at 76 boxes, of which 34 showed a reduction in clutch or brood size. Raccoons were the major predators responsible for 61.7% of the depredated nests and 75.4% of the depredated eggs. Ectoparasites had no detectable deleterious effects on the survival of the nestlings. Based on these results, we suggest that restricting access of predators to active bluebird boxes would enhance the recovery of the Eastern Bluebird.

Introduction

Eastern Bluebird (*Sialia sialis*) populations began declining in the late 1920s due to the elimination of dead trees, snags, and wooden fence posts that provided nest cavities and competition from secondary cavity nesters, including the introduced House Sparrow (*Passer domesticus*) and European Starling (*Sturnus vulgaris*) (Zeleny 1977). Despite widespread efforts to establish trails of artificial nest boxes throughout the Eastern United States, Eastern Bluebird populations continued to decline and, for example, were listed as vulnerable to extinction in Pennsylvania (Gill 1985). The Eastern Bluebird has since been removed from Pennsylvania's list of species of special concern (Brauning et al. 1994), although some people have suggested that the species is at risk of becoming completely dependent on human help. For this reason, maintaining bluebird trails and understanding causes of nesting failure

may be important considerations in preventing the Eastern Bluebird's return to vulnerable status in this state and possibly others.

Nest predation has been documented as a primary cause of nesting mortality in a wide variety of birds (Martin 1987 and citations therein) including cavity-nesting birds (Barry 1970, Belles-Isles and Picman 1986, Finch 1990). Raccoons (*Procyon lotor*, Berner and Maillette 1993, Davis and Roca 1995) and black rat snakes (*Elaphe obsoleta*, Hensley and Smith 1986 and citations therein, Rendell and Robertson 1990, Berner and Maillette 1993, Davis and Roca 1995) have been suggested as major predators, although unequivocal observations of such predation are rare. Small rodents, mustelids, and red squirrels (*Tamiasciurus hudsonicus*) have also been cited as potential predators of cavity-nesting birds (Finch 1990); however, studies that provide detailed evidence of predation including identification of the predator are virtually non-existent.

Ectoparasites are also thought to lower the reproductive success of birds (Barry 1970, Price 1991). For example, Eastman et al. (1989) suggested that parasitism by blowfly larvae (*Protocalliphora braueri*) affects the survival of nestlings if parasitized before six days of age, but not thereafter. A number of studies have failed to find such effects, however (Rogers et al. 1991, Roby et al. 1992, Wittman and Beason 1992).

House Wrens (*Troglodytes aedon*) may also reduce nesting success of other cavity nesters (Finch 1990, Tuttle 1991, Davis and Roca 1995). They have been known to destroy both eggs and nestlings of other cavity nesters and to build nests on top of preexisting ones. Furthermore, House Wrens build inactive "dummy" nests in otherwise available sites which may inhibit the use of these boxes by other birds.

The purpose of this study was to determine the factors that contribute to nesting failure. We hypothesized that both predation and ectoparasites would be major contributors to nesting failure, and that raccoons and snakes would be the major predators.

Methods

Study site

We conducted our study at Yellow Creek State Park (YCSP), Indiana County, Pennsylvania. The bluebird trail at YCSP is located in old fields that were cut within 6 inches (15 cm) of ground level in 1975 and are gradually being reclaimed by natural succession. The vegetation consists of heavy grass-forb cover, shrubbery, and a few large trees (Linsey and Kesner 1989). The trail consists of 199 bluebird boxes spaced approximately 200 feet (60 m) apart.

Monitoring

We checked the bluebird boxes every three to four days throughout the 1995 nesting season. During each check, we

noted whether the box was empty or occupied, the identity of any occupants, and the number of eggs and/or hatchlings present, if any. We categorized nesting attempts (one or more eggs present) as a success (at least one fledgling produced) or failure based on the criteria presented in Table 1. These criteria are based on values from the literature (Harper et al. 1994) and an analysis of data gathered during the previous ten years (Kesner and Linsey, unpubl. data). Because our criteria are conservative, some nesting attempts could not be classified as a success or failure. For example, if an Eastern Bluebird nest contained eggs followed by hatchlings for more than 15 days but fewer than 21 days, it was classified as indeterminate.

Predation

Predators were identified with the aid of carbon-coated paper. Between 16 May and 10 June, as new nesting attempts were detected, a 6 in. by 3 in. (16 cm by 7 cm) piece of wax-coated paper dusted with fine carbon powder (on the wax-coated side) was stapled to the post at about one meter height. The paper completely encircled the post. Field tests, however, indicated that juvenile white-footed mice (*Peromyscus leucopus*) had difficulty climbing the paper. Thereafter, two pieces of 3 in. (7 cm) wide dusted papers were stapled approximately 3 in. apart on the post. With the latter technique the individual papers did not completely surround the post, but left a gap of at least 3 in. which field tests indicated could serve as corridors for white-footed mice.

The carbon-coated paper preserved marks from feet, claws, and fur of potential terrestrial predators as they climbed the posts. Field and laboratory tests showed that rain did not obscure the tracks. Papers with marks were coated with hair spray to protect the tracks and removed from the post. Likewise, papers were removed if the nest box was found empty, regardless of

whether hatchlings fledged. To allow identification of the tracks left by potential predators, several white-footed mice were forced to climb papered posts and a black rat snake was forced to crawl across carbon-coated paper. Fur and claws from a prepared skin of a raccoon were also brushed against carbon-coated papers. Museum specimens of mustelids and sciurids were consulted to aid in further identification of tracks.

Results

Species composition

The majority of nesting attempts (132 of 163) were by House Wrens. The remaining 31 attempts were distributed as follows: Tree Swallows (*Tachycineta bicolor*) 15, Eastern Bluebirds 10, and Black-capped Chickadees (*Poecile atricapillus*) 6. We saw no indication of House Wrens causing the other nesters to fail. Every time we saw a reduction in clutch or brood size we detected signs of a terrestrial predator; however, House Wrens did build extensive dummy nests (n=29). There were 27 cases in which a House Wren built a nest but never laid an egg and no other bird built on top of or replaced the nest. We had two cases in which other birds built over House Wren dummy nest, once by Tree Swallows and once by Eastern Bluebirds.

Success/failure

Of the 163 nesting attempts, 130 could be judged as a success or failure

based on our criteria (Table 1) with 72 successes and 58 failures. Fifty-four failures were due to egg loss and one was due to hatchling loss. The other three failures were due to unhatched eggs.

Predation

Of the 147 nesting attempts monitored for terrestrial predators, 76 showed signs of a potential predator visitation, but only 34 suffered actual loss of either eggs or hatchlings. The predators were identified as raccoons (61.7% of depredated nests), white-footed mice (20.6%), snakes (11.8%), and mustelids or sciurids (5.9%) (Fig. 1). Raccoons depredated significantly more nests than did other predators ($p < 0.001$, Chi-square test).

Raccoons also depredated the greatest percentage of eggs (75.4%), taking a mean of 4.55 eggs per visit. White-footed mice took significantly fewer eggs per predation (1.60, $p < 0.05$, Mann-Whitney U test), thereby contributing little to total egg loss (8.8%). Snakes and mustelids/sciurids also contributed little to overall egg loss (8.7% and 7.1%, respectively), taking 2.75 and 4.50 mean number of eggs respectively (Fig. 1), though sample sizes were too small for significant comparisons.

Parasites

To date, 43 nests have been searched for parasite loads. Parasites had no

Table 1: Criteria for success/failure judgment of nesting attempts by species.

	Eastern Bluebirds	Tree Swallows	House Wrens
Success defined as	EHDA \geq 21 HTDA \leq 8	EHDA \geq 22 HTDA \leq 8	EDHA \geq 21 HTDA \leq 8
Failure defined as	EGDA \geq 21 EMDA \leq 15	EGDA \geq 21 EMDA \leq 15	EGDA \geq 20 EMDA \leq 11

EHDA = number of days from the first day an egg was observed to the last day an egg or hatchling was observed.

HTDA = number of days that hatchlings were observed in the nest.

EGDA = number of days that eggs were observed in the nest.

EMDA = number of days from the first day an egg was observed to the day the box was discovered empty.

detectable deleterious effects on the outcome of a nesting attempt. Successful nests, in fact, had a larger number of parasites than did failed nests (Table 2), although the difference was only significant in blowfly larvae ($p < 0.01$, Kruskal-Wallis One Way ANOVA).

Discussion

In agreement with previous studies (Barry 1970, Belles-Isles and Picman 1986, Martin 1987 and citations therein, Finch 1990), we found predation was the leading cause of nesting failure. Most of the predation at YCSP, both in terms of number of nests and number of eggs, was attributable to raccoons. Likewise, raccoons were documented as major nest predators by Berner and Mallele (1993) and Davis and Roca (1995). White-footed mice impacted more nests than did snakes and mustelid/sciurids, but did not destroy the entire clutch. Since birds tended to continue their nesting attempt if partially depredated, white-footed mice were not responsible

for a large number of nesting failures. Snakes have been documented as major predators of nesting birds (Hensley and Smith 1986 and citations therein, Rendell and Robertson 1990, Berner and Mallele 1993, Davis and Roca 1995), but in our study snakes were of little threat to the survival of nestlings compared with raccoons. Likewise, mustelids and sciurids contributed little to overall nesting loss.

Parasites had no detectable deleterious effects on the survival of nestlings giving support to the conclusions of Rogers et al. (1991), Roby et al. (1992), and Wittman and Beason (1992) but disagreeing with those of Barry (1970), Eastman et al. (1989), and Price (1991). Successful nests actually had a larger load of parasites than did failed nests, perhaps due to the longer box occupancy of the former.

House Wrens did not seem to interfere with other established nesters as suggested by Finch (1990), Tuttle (1991), and Davis and Roca (1995); however, House Wrens did seem to limit the number of available nesting cavities

Figure 1: Percent of nests (solid bars) and eggs (open bars) depredated by each predator type. A total of 34 nests and 128 eggs were depredated.

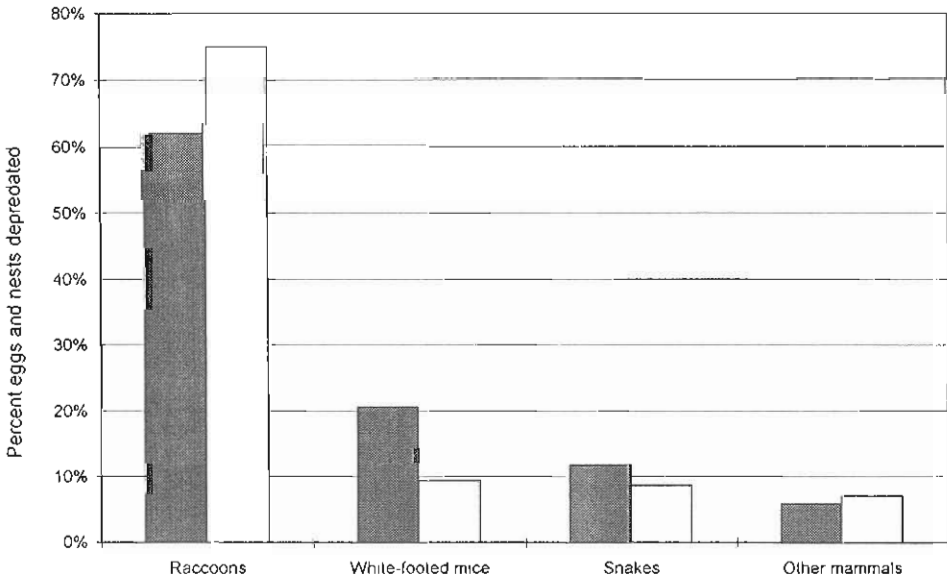


Table 2: Parasite load means with standard error in bird nests in relation to success or failure.

	Success ¹	Failure ²
Mites	2025.77 ± 1718.88	30.95 ± 11.95
Ticks	306.77 ± 140.49	12.67 ± 6.40
Blowfly larvae ³	2.95 ± 1.26	0.00

¹ Twenty-two of the 43 nests searched for parasites were judged as being successful.

² Twenty-one nests were judged to have failed.

³ Differences in loads of blowfly larvae are significant ($p < 0.01$, Kruskal-Wallis One Way ANOVA).

by building dummy nests. Dummy nests seem to inhibit other species from using the boxes. Furthermore, as suggested by Davis and Roca (1995), House Wrens may successfully outcompete other species for nesting cavities. The large number of nesting attempts by House Wrens compared to other cavity nesters in our study supports this suggestion.

Conservation Implications

To ensure continued recovery of the Eastern Bluebird, managers of bluebird trails may wish to initiate predator exclusion measures. Exclusion of predators from all nest boxes, however, may be inadvisable if it leads to increased numbers of competing species. Therefore, a better strategy may be to selectively protect established Eastern Bluebird nests by using temporary predator guards aimed primarily at excluding raccoons. Noel (1991) discussed a temporary predator guard for raccoons and cats which Palahniuk and Bakko (1995) found eliminated predator pressures from raccoons. Davis and Roca (1995) also review a variety of measures for deterring predators. ■

Acknowledgments

This study was made possible by a James L. Williams Memorial Grant from the North American Bluebird Society and a State System of Higher Education Faculty Professional Development Council Grant. We would also like to thank Thomas Rooney for his help in conducting the field work.

Bibliography

- Barry, D. 1970. The Eastern Bluebird in the Oshawa-Scugog area. *Ontario Bird Banding* 6:39-51.
- Belles-Isles, J.C. and J. Picman. 1988. Nesting losses and nest site preferences in House Wrens. *Condor* 88:483-486.
- Berner, K.L. and A.S. Mallette. 1993. 1992 nesting box report. *Sialia* 15:43-48.
- Brauning, D.W., M.C. Brittingham, D.A. Gross, R.D. Leberman, T.L. Master, and R.S. Mulvihill. 1994. Pennsylvania breeding birds of special concern: a listing rationale and status update. *Journal of Pennsylvania Academy of Science* 68:3-28.
- Davis, W.H. and P.Roca. 1995. Predators. pp. 69-82. In: *Bluebirds and Their Survival*. The University Press of Kentucky, Lexington, Kentucky. 154pp.
- Eastman, M.D., L.S. Johnson, and L.H. Kermott. 1986. Ectoparasitism of nestling House Wrens, *Troglodytes aedon*, by larvae of the blowfly *Protocalliphora braueri* (Diptera: Calliphoridae). *Canadian Journal of Zoology* 67:2358-2362.
- Finch, D.M. 1990. Effects of predation and competitor interference on nesting success of House Wrens and Tree Swallows. *Condor* 92:674-687.
- Gill, F.B. 1985. Birds. pp. 299-351. In: *Species of Special Concern in Pennsylvania*. H.H. Genoways and E.J. Brenner (eds). Carnegie Museum of Natural History, Special Publication No. 11., Pittsburgh, Pennsylvania. 430pp.
- Harper, R.G., S.A. Juliano, and C.F. Thompson. 1994. Intrapopulation in hatching synchrony in House Wrens: test of the individual-optimization hypothesis. *Auk* 111:516-524.

- Hensley, R.C. and K.G. Smith. 1986. Eastern Bluebird responses to nocturnal black rat snake nest predation. *Wilson Bulletin* 98:602-603.
- Linzey, A.V. and M.H. Kesner. 1989. Population regulation in white-footed mice (*Peromyscus leucopus*) in a suboptimal habitat. *Canadian Journal of Zoology* 69:76-81.
- Martin, T.E. 1987. Artificial nest experiments: Effects of nest appearance and type of predator. *Condor* 89:925-928.
- Noel, J. 1991. Jim Noel's cat and coon guard. *Sialia* 13:58-59.
- Palahniuk, D.P. and E.B. Bakko. 1995. Nesting activity on a box-peired trail. *Sialia* 17:3-6.
- Price, P. 1991. Forward. v-vi. In: *Bird-parasite Interactions: Ecology, Evolution and Behaviour*. J.W. Loye and M. Zuk (eds). Oxford University Press, Oxford. 406pp.
- Rendell, W.B. and R.J. Robertson. 1990. Influence of forest edge on nest-site selection by Tree Swallows. *Wilson Bulletin* 102:634-644.
- Roby, D.D., K.L. Brink, and K. Wittman. 1992. Effects of bird blowfly parasitism on Eastern Bluebird and Tree Swallow nestlings. *Wilson Bulletin* 104:630-634.
- Rogers, C.A., R.J. Robertson, and B.J. Stutchbury. 1991. Patterns and effects of parasitism by *Protocalliphora sialia* on Tree Swallow nestlings. In: *Bird-parasite Interactions: Ecology, Evolution, and Behaviour*. J.E. Loye and M. Zuk (eds). Oxford University Press, Oxford. 406pp.
- Tuttle, R.M. 1991. An analysis of the interspecific competition of Eastern Bluebirds, Tree Swallows, and House Wrens in Delaware State Park, Delaware, Ohio, 1979-1986. *Sialia* 13:3-13.
- Wittman, K. and R.C. Beason. 1992. The effect of blowfly parasitism on nestling Eastern Bluebird development. *Journal of Field Ornithology* 63:286-293.
- Zeleny, L. 1977. Nesting box programs for bluebirds and other passerines. 55-60. In: *Endangered Birds*. S.A. Temple (ed). University of Wisconsin Press, Madison. 466pp.

P.O. Box 62 (Peters)
Rock Lake, ND 58365

NABS Affiliates

Listed on the inside front cover are those organizations which have chosen to affiliate with the North American Bluebird Society. The list reflects those that had formally affiliated as of 15 February 1998. Additions will be made as they are received. For information about how your group can become an affiliate, contact NABS headquarters.

Calendar

If your organization wishes to have annual meetings or festivals listed in this calendar, please provide information to headquarters or the editor as far in advance of the events as possible.

- APRIL 18, 1998**--Minnesota Bluebird Recovery Program Annual Bluebird Conference. National Guard Training Grounds, Camp Ripley, Little Falls. Bluebird Recovery Program, Audubon Chapter of Minneapolis, P.O. Box 3801, Minneapolis, MN 55403.
- MAY 30, 1998**--North Carolina Bluebird Society Annual Convention. Southwestern Baptist Theological Seminary Cafeteria, Wake Forest. David Huffine, 7808 Bud Morris Rd., Wake Forest, NC 27587.
- JUNE 26-28, 1998**--NABS Twenty-First Annual Meeting. Regina, Saskatchewan. Contact NABS headquarters for registration material.
- SEPTEMBER 12, 1998**--Indiana Bluebird Society Annual Conference. Lafayette. IBS, P.O. Box 356, Leesburg, IN 46538.
- JUNE 17-19, 1999**--NABS Twenty-Second Annual Meeting. Great Falls, Montana. Bob Niebuhr, 373 Beth Dr., Great Falls, MT 59405.

Observations on Pairing Bluebird Nest Boxes

Kevin Berner

It has been a common practice to pair bluebird nest boxes in areas with high Tree Swallow (*Tachycineta bicolor*) densities. The theory is that by supplying a second nest site, competition between the two species is reduced. Because both species have a higher level of intraspecific than interspecific competition, the expectation is that a box pair would support both bluebirds and swallows. Box pairing is widely accepted, but little controlled research has been published documenting its benefits. Recently, the Bluebird Association of Wisconsin (BRAW) has published data indicating that box pairing actually favors swallows over bluebirds and may even reduce bluebird populations (O'Halloran 1997).

What Is a Box Pair?

How individuals "pair" boxes varies widely. The BRAW study considers a pair to be boxes that are within 100 ft. (30.4 m) of each other. Most literature would consider boxes at this distance to be independent, not paired. Tree Swallows readily nest simultaneously at sites 100 feet apart. A more common practice is pairing boxes from 5-25 ft. (1.5-7.6 m) apart. Boxes can even be paired on the same mounting post such as a pipe or a telephone pole. I have most of my boxes paired at 5-10 ft. (1.5-3.0 m) intervals, a few back to back on telephone poles, and typically have Tree Swallows in nearly every pair. My bluebird pairs rarely nest in a site without swallows nesting adjacent to them. I have also occasionally observed swallows nesting in both boxes within a pair.

Pairing vs. Spacing

I believe that it is important to clarify the difference between pairing of boxes and spacing between boxes. I would only consider a "pair" to be boxes up to 25 ft. apart from each other, beyond which point they would function as independent "sites." Bluebirds rarely nest within 100 yards (91.0 m) of other bluebirds, while swallows are much more accepting of other swallows. In sites where I have

supersaturated an area with boxes, swallow numbers have increased while bluebird numbers have not. This is a result of the swallows' greater tolerance of other swallows and the smaller territories that they defend. The swallow could almost be considered a colonial nester due to its tolerance of other swallows at high densities. At any sign of disturbance at a swallow nest site, every swallow within hearing range comes to investigate and harass the intruder. This mobbing could cause a bluebird pair to abandon a potential nest site. As a result, high densities of boxes and, thus, high densities of swallows, appear to favor swallows over bluebirds. In my opinion, box spacing is far more critical to bluebirds than box pairing.

To maximize bluebird productivity, box densities should be minimized. I have consistently observed higher box occupancy rates by bluebirds in areas with lower box densities. However, if only one box is at a "site," swallows may often occupy that site first making it unavailable for bluebird use. With paired boxes, bluebirds are nearly guaranteed an available nest box even if swallows are already present. I believe that favorable "sites" should be identified for bluebird use. Placing box pairs at those sites will allow a higher percentage of those sites to produce bluebirds than if only one box were present. My goal

would be to maximize the number of "sites" which could potentially be occupied by bluebirds, not to maximize rates of box usage as suggested by O'Halloran (1997). Without pairing, many sites where swallows establish territories would be completely unavailable to bluebirds and of no value to them.

Do Tree Swallows and Bluebirds Compete?

Competition exists when the niches of two species overlap. Both swallows and bluebirds obviously are dependent on cavities for nesting, but otherwise they are different in many of their survival strategies. Bluebirds feed on ground-dwelling insects while swallows feed on insects in the air. Given places to nest, they can coexist within an area quite effectively. It may even be beneficial for bluebirds to have swallows nearby to warn them of potential predators or danger. Box pairing allows the advantages of coexistence while reducing competition for nest places.

Other Advantages of Pairing

In areas with House Sparrows (*Passer domesticus*) box pairing may reduce the chance of sparrows destroying a bluebird nest. A sparrow may be more likely to kill established bluebirds (or swallows) at a single box than if an empty paired box exists nearby. If a sparrow begins a nest in an empty paired box, a trail monitor could remove the sparrow before it interferes with the nest of a native species.

Conclusion

I believe that in areas of high Tree Swallow densities close pairing of nest boxes with the pairs widely spaced is the best management strategy for bluebirds. This strategy should result in the highest rates of "site" occupancy. While pairing obviously reduces the potential rate of box occupancy, this is less critical than having the site used. With unpaired

boxes, if swallows occupy the site before bluebirds locate it, the site is then completely unavailable to bluebirds. Box pairing is not a threat to bluebirds; instead, it maximizes the potential for them to use a site. I would recommend pairing boxes 5-10 ft. apart to minimize, but not eliminate, swallows' use of both boxes within a pair simultaneously. In 1977, I had swallows simultaneously using both boxes of a pair in five of my 48 sites. In one study area I greatly reduced the number of boxes at the site from previous years. Large numbers of birds returning to this site from previous years found an unexpectedly low number of nest sites with the result that in several cases swallows nested in both boxes within a pair. I would expect that increasing distances between boxes would increase the probability of swallows using both, certainly boxes placed at 100 ft. intervals should be expected to frequently result in increased swallow use of both boxes. Bluebirds on my trails do not hesitate to nest on the opposite side of a telephone pole from a Tree Swallow, so they can be very tolerant of a close neighbor, particularly with the visual barrier of the pole.

Regional variations may exist in how bluebirds and swallows interact. If so, different management strategies may be needed. In New York state, Tree Swallows are abundant. In 1977, 43 of 48 box pairs on my trail were used (nest built and at least one egg laid) by swallows. Without pairing, many of those sites would be unavailable for bluebirds. In areas of few or no swallows, box pairing may indeed be a "waste" of boxes. ☐

Literature Cited

O'Halloran, J. 1977. BRAW's 1996 season box-pairing update. *Wisconsin Bluebird*. 12(1):1-3.

Associate Professor Kevin Berner, SUNY-Cobleskill, is the Research Committee Chairman for the North American Bluebird Society.

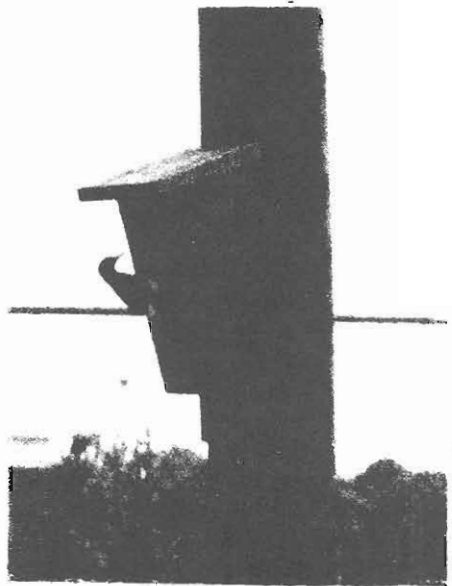
Use of a Bluebird Nest Box by Red-headed Woodpeckers

Richard A. Sims

I established a bluebird nest box trail on the campus of Jones County Junior College in Ellisville, Mississippi in 1993. The trail contains a variety of box styles, including three Peterson boxes that contain oval entrance holes that measure 2.25 inches by 1.38 inches (5.7 cm x 3.49 cm). In mid-March 1997, a pair of Eastern Bluebirds (*Sialia sialis*) constructed a nest in a Peterson box, and the female had laid one egg by 29 March. On 12 April, the egg was gone, the nest was disturbed, and I noticed a Red-headed Woodpecker (*Melanerpes erythrocephalus*) enlarging the entrance to the box. I removed the box from the utility pole on which it was mounted and replaced the front panel containing the entrance hole to prevent European Starlings (*Sturnus vulgaris*) from using the box. A few days later, I replaced the box on the utility pole. The woodpeckers' assault on the entrance hole continued, and by 22 May the width had been enlarged to 1.98 inches (5.0 cm). The height was unaltered. The box contained four woodpecker eggs. On several occasions I observed adult woodpecker activity around the box (Fig. 1). Three of the eggs hatched and two young successfully fledged on 6 July 1997. On

17 July the box contained four more woodpecker eggs, but the nest was eventually abandoned by the adults. ■

Biology Dept., Jones County Junior College
900 S. Court St.
Ellisville, MS 39437



Photograph by Richard A. Sims

Fig. 1. Red-headed Woodpecker feeding young in a Peterson nest box on the campus of Jones College Junior College, Ellisville, Mississippi.

TWENTY-FIRST ANNUAL MEETING OF THE NORTH AMERICAN BLUEBIRD SOCIETY

The Twenty-first Annual Meeting of the North American Bluebird Society will be held in Regina, Saskatchewan, June 25-28, 1998.

Saskatchewan bluebirders are sponsoring the meeting.

1998 NABS RESEARCH AWARDS

The North American Bluebird Society is pleased to announce the results of its fifteenth annual research grant's program. The following individuals are recipients of the 1998 research awards. All are student grants this year.

Pamela Freeman, North Dakota State University

Title: Analysis of Variation in Barred Owl Vocalizations

Michael Husak, Mississippi State University

The Maybelle F. Vassbinder Memorial Award

Title: Comparative Niche Structure and Function of Red-bellied and Golden-fronted Woodpeckers

Keith Kimmerle, Mississippi State University

Title: The Effect of Habitat Quality on Avian Recruitment in Fragmented Habitats

Hugh Powell, University of Montana

The James L. Williams Memorial Award

Title: Factors Affecting Black-backed Woodpecker Distribution Across a Recent Stand-replacement Burned Forest Patch

Isabella Scheiber, University of Albany (SUNY)

Title: Female Choice and the Mating System of a Population of House Wrens, a Monomorphic Passerine

Dawn Wilkins, Mississippi State University

Title: The Winter Foraging Ecology of Yellow-bellied Sapsuckers in Central Mississippi

Larry Wood, University of Georgia

The Betty H. McIlwain Award

Title: Density and Turnover Rates of Cavities and Their Effect on the Breeding Biology of the Prothonotary Warbler

NABS RESEARCH COMMITTEE

The North American Bluebird Society is most grateful to the Research Committee members for their efforts in choosing the recipients of the annual research grant awards. Each committee member reads and evaluates each grant application. Awards are made after careful review and are a pooled consensus. The Research Committee consists of Chairman Kevin Berner, Dr. Jeffrey Brawn, Dr. George Hurst, Dr. Theodore Gutzke, and Dr. Michael Losito.

Individuals wishing to endow a named grant can do so as a one-time donation, on an annual basis, as a memorial to loved ones, or as a planned bequest. If you are interested in helping to further bluebird and other cavity-nester research, please contact NABS Executive Directors, P.O. Box 74, Darlington, WI 53530.

Double Nesting by Bluebirds at Paired and Triple Box Sites

Bob Orthwein

Tree Swallows first nested on my trail near Perryville, Ohio, in 1976 and I had two successful nests. In 1977, Tree Swallows nested 50 miles south of my trail and Richard M. Tuttle recorded his first Tree Swallow nest near Delaware, Ohio. Tree Swallows are now nesting in southern Ohio and Dr. Wayne H. Davis had his first Tree Swallow nest near Lexington, Kentucky in 1987.

Beginning in 1979 I started to "pair" my boxes with the two boxes spaced 7 yards (6.4 m) apart so bluebirds and Tree Swallows would not compete for the same box.

When no box-hunting House Sparrows arrive on the scene, paired boxes have worked well for me with bluebirds and Tree Swallows nesting side by side. After the paired boxes were in place, I found that when House Sparrows would move into a paired box site, they would almost always nest in the empty box without usurping [the] nesting bluebirds' [box] 7 yards away. House Sparrow problems occurred when bluebirds were nesting in one box and Tree Swallows in the other paired box. When a box-hunting male sparrow arrives on the scene, it usually evicts or kills the nesting bluebird or Tree Swallow.

Ten years ago I started experimenting with triple boxes using three boxes of the same type, 5 to 7 yards (4.8-6.4 m) apart, at my worst sparrow-infested sites--one box for bluebirds, one for Tree Swallows, and one for incoming box-hunting House Sparrows. By acting quickly against the sparrows, properly monitored triple boxes have eliminated House Sparrow attacks on bluebirds and swallows (Orthwein 1995, 1996).

Over the years, on rare occasions, I have had the same bluebird pair build complete nests, and sometimes even lay

eggs, in paired boxes. I also had titmice do this on one occasion.

In 1995, one bluebird pair completed two nests and laid three white eggs in one box and two white eggs in the other paired box 7 yards away. The three eggs were incubated and hatched, but the two eggs did not hatch.

This year, at a triple box site, bluebirds built two complete nests and laid three blue eggs in one box and two blue eggs in the adjacent box 7 yards away. Only three eggs hatched. Another bluebird pair built two complete nests at a paired box site and laid all five eggs in one box. All five hatched and fledged. A raised-roof triple box site had a completed pine needle nest with four eggs that hatched. Another raised roof box 6 yards (5.5 m) away had a half-completed pine needle nest with no eggs.

All double nesting occurrences were at sites where the paired or triple boxes were identical in design and color. I have painted some of my boxes a light tan and left the adjacent box the original light green. No double nesting has yet occurred at these sites. The double nestings at triple box sites have always been in the two closest boxes.

Apparently, the nesting instincts of some bluebirds haven't equipped them to cope with identical nesting boxes 5 to 7 yards apart. Most bluebirds adapt to multiple nesting box sites; double nesting is not a common occurrence, but it does happen. Double nesting during the critical nesting season is a waste of the birds' valuable energy and time. If eggs are laid in both boxes, it reduces the number of young fledged.

To avoid double nesting occurrences, I plan to paint one of my paired boxes a light earth tone tan and leave the other a light earth tone green. At triple box sites,

I will paint the center box tan and leave the other two boxes green. With unpainted boxes, the front of one box could be painted green.

In addition to color differences, entrance hole differences may be used to avoid double nesting. Recent research done by Dr. Davis indicates that bluebirds and House Sparrows prefer different types of entrance holes (Davis 1997). Entrance hole differences seem to make it more likely that sparrows may use one box and bluebirds another. Knowing the type of entrance holes preferred by House Sparrows and bluebirds could make sparrow control efforts more effective at paired and triple box sites. ■

Literature Cited

- Davis, W.H. 1997. Notes from Kentucky. *Bluebird Monitor* 10(2):5 [Summer 1997].
Orthwein, B. 1995, 1996. Triple box locations save bluebirds and Tree Swallows from House Sparrow attacks. *Bluebird Monitor* 9(2):4 [Summer 1995]; 11(5):4 [Spring 1996].

2384 Johnston Rd.
Columbus, OH 43220

This article was reprinted from the Bluebird Monitor 11(2):8 [Autumn 1997] the newsletter of the Ohio Bluebird Society. Because Monitor volume numbers are scrambled, the season and year are provided in brackets in the above references.



Donald K. Ford (left), October 1997, receives recognition for his decade of volunteer service at Avon Park Air Force Range, Florida. Presenting awards from the National Military Fish and Wildlife Association and the United States Air Force is Paul Ebersbach, Director of National Resources, Avon Park Air Force Range. Mr. Ford was recognized for work in cataloguing the flora, studying the birds, and establishing a successful bluebird nest box program at the Range. He recruited volunteers who helped erect more than 100 nest boxes which are carefully monitored. When raccoons and snakes proved troublesome, Mr. Ford found a solution. Citrus growers, who were phasing out 20 foot irrigation pipes, were asked to donate them. The pipes were cut in half and the boxes mounted on the pipes. The trail has produced at least 500 bluebirds each year for the last five years. --1032 East Cornell St., Avon Park Air Force Range, FL 33825

NABS: Taking Off

Myrna Pearman

NABS has recently enjoyed a heightened profile among wild bird store franchise operators, as well as bird box manufacturers, distributors, and retailers across North America. This is because we had a booth at the recent Birdwatch America Trade Show, held in Atlanta, Georgia, 10-13 January. Steve and Cheryl Eno (Bluebirds Across Nebraska) were instrumental in arranging for the booth, which was generously donated by Mr. Ray David, trade show organizer. Kevin Berner, Research Committee Chairman from New York, Edwina Hahn, NABS board member from Georgia, and I, Technical Advisory Committee Chair from Alberta joined Steve and Cheryl.

This trade show, one of only two held annually in North America, was attended by approximately 170 exhibitors and 800 to 1,000 buyers. Products and services ranged from a myriad of different bird boxes and feeders to newsletter-writing services, giftware, and state-of-the-art video technology.

NABS' eye-catching booth featured a beautiful banner, several sample boxes, our new display, and lots of literature. We owe a debt of gratitude to Nebraska wildlife artist, Deb Gengier-Copple, for generously donating the banner to NABS—it is spectacular! The new oak display board, which was generously donated to NABS by Connie Conover, is also very attractive. I produced the photo and text panels for the display with the help of John and Lisa at headquarters. Edwina assisted with the logistics of setting up the booth (and kept us entertained with her wonderful Georgia accent!). Although not part of the committee, Dave Titterington of Nebraska greatly assisted us by photocopying all the handouts (several thousand copies in all) at no charge.

The purpose for attending the trade show was two-fold: (1) to disseminate

accurate information about nest box design, construction, and monitoring; and (2) to publicize NABS. I am pleased to report that we succeeded on both fronts.

Our presence at the show was well publicized because Bill and Sandy Seibert (coordinators of the independent wild bird retailers association) arranged for Kevin to give a presentation on nest box design and current research. Kevin's informative and entertaining presentation, which was given on Sunday morning before the show opened, was well-attended and very well received. His presentation not only generated a lot of interest in NABS, it prompted retailers to more carefully examine the nest boxes on display at the show.

At least one of us remained in the NABS booth throughout the show to chat with buyers, retailers, and others who stopped by. The level of interest was very high, and we were kept busy explaining the merits of well-built nest boxes, as well as promoting NABS. We were also proactive in our approach, as we introduced ourselves to each nest box manufacturer and distributor in attendance. By the end of the show, we had spoken with more than 20 manufacturers and distributors, as well as hundreds of retailers.

One of our goals at the trade show was to launch a program whereby NABS will "approve" well-designed and constructed boxes. We were able to "test market" this program by circulating among the booths, checking the boxes on display. Manufacturers whose boxes measured up to the NABS standard (as per a fact sheet produced by Berner, Eno, Pearman and others) were offered small "NABS-Approved" stickers to affix on their boxes.

Our other goal at the Birdwatch America Trade Show was to encourage



North American
Bluebird Society
Approved.

manufacturers and retailers to include information sheets and a NABS brochure in each "approved" nest box that they manufacture or sell. Original sheets will be provided by NABS; the manufacturer or the retailer will be responsible for duplication and enclosure.

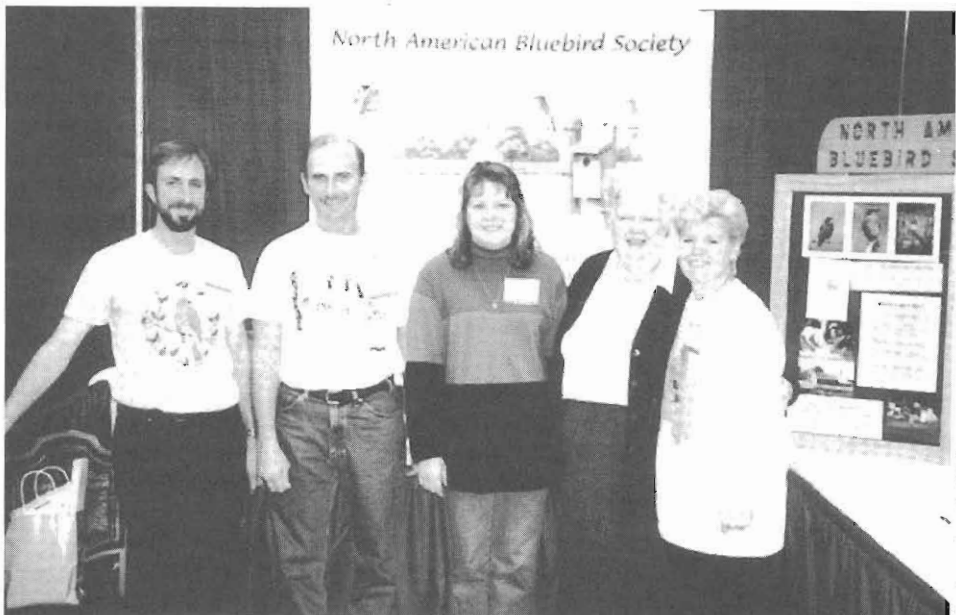
Without exception, we were accepted with enthusiasm by all levels of business. Manufacturers were eager to construct proper boxes--and to have those boxes endorsed by NABS. Retailers were anxious to sell proper boxes, and to disseminate accurate information about both boxes and trail monitoring to their customers. Since the NABS sticker lends credibility to the product, both the manufacturer and retailer were quick to recognize that this will translate into greater consumer confidence and, ideally, increased sales. By including an information sheet with each box, we can

be confident that accurate information will reach the consumer. The inclusion of a NABS brochure will introduce us to potential members all across the continent.

At the time of writing, NABS headquarters has been contacted by several trade show participants. While the details of the resulting partnerships have yet to be finalized, it appears that we are now working hand-in-hand with many of the movers and shakers in the industry. We will keep you updated on this exciting new direction in future "Taking Off" columns.

We hope that "Team Atlanta" will have the opportunity to return next year. By then, we should be in a position to evaluate how effective our campaign has been, as we will have the opportunity to get direct feedback from buyers, distributors and manufacturers.

Although most of us attended at significant personal expense, we are confident that our involvement with Birdwatch America has been--and will continue to be--of great benefit to our beloved bluebirds. ■



NABS representatives at Birdwatch America Trade Show, 10-13 January 1998, Atlanta, Georgia: Kevin Berner, Steve Eno, Cheryl Eno, Edwina Hahn, and Myrna Pearman.



Photograph by Myrna Pearman

Steve Eno (right) discusses nest box design with an exhibitor at Birdwatch America Trade Show, Atlanta, Georgia.



Photograph by Cheryl Eno

Myrna Pearman and Steve Eno (second and third from left) share bluebird nest box features with visitors to the NABS booth.

The "Recommended Bluebird Nest Box Specifications: North American Bluebird Society" on the following two pages were distributed at the Birdwatch America Trade Show. They are a summary of essential nest box qualities. NABS members are encouraged to distribute these specifications to interested individuals and to check local retail establishments to be sure boxes sold meet these minimum standards.

RECOMMENDED BLUEBIRD NEST BOX SPECIFICATIONS

North American Bluebird Society

Materials:

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

Entry holes:

- Eastern Bluebirds use 1 1/2 inch round holes, 1 3/8 x 2 1/4 inch vertical oval holes, or 1 1/8 inch horizontal slot entrances
- Western and Mountain Bluebirds use 1 9/16 inch round openings
- where the ranges of these species overlap, use 1 9/16 inch round openings
- oval holes should only be used in Eastern Bluebird boxes with moderate to small dimensions to reduce the possibility of starling use

Floor sizes:

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

Access:

- it is imperative that all bluebird nest boxes open readily from the top, side, or front to facilitate box monitoring and cleaning
- if box sides or front pivot to allow access to the box, they should do so at as high a point as possible to ensure that the contents of tall nests can be observed without the door obstructing your view
- a screw or angled nail in a pre-drilled hole should be provided to ensure that mammalian predators cannot readily open the nest box

Colors:

- natural wood is acceptable
- if painted or stained, use light colors to minimize having the box overheat during warm weather in areas where overheating is likely

Water-resistance/drainage:

- drainage holes must be provided in the box bottom to allow any rain entering the box to drain from the box and to provide air circulation to keep nesting material dry
- the box should be watertight
- the roof should provide sufficient overhang beyond box entrance or vent holes to minimize possibility of rain entering these openings
- the roof should cover top edge of the box back unless other features eliminate any possibility of rain entering the joint between back and roof of box even if the wood warps

Heat/cold protection:

- vents providing cross ventilation should be present near the box peak. These openings should be protected from rain by having the box roof overhang a sufficient amount to minimize precipitation entering the box.
- dark colors should be avoided to minimize overheating
- it should be possible to plug or cover vent holes during cold weather periods early in the nesting period
- long roof overhangs minimize the possibility of sun, rain, or snow entering the box

Predator deterrence:

- the box should be easy to mount on a predator-resistant post in areas with raccoons or cats
- a 5 inch roof overhang above the entrance hole reduces the possibility of raccoon or cat predation
- wooden guards placed over the entry hole are not effective in eliminating raccoon predation
- very deep tunnel-like predator guards deter bluebird use
- boxes mounted on heavily greased pipes or on waxed metal electrical conduits will deter many climbing predators
- mounting boxes less than 5 feet from the ground increases the opportunities for climbing or jumping predators to raid the nest
- wooden posts, ungreased pipes, PVC pipes are readily climbed by nest predators such as raccoons

Mounting:

- boxes should be designed so that they may readily and securely be mounted on a support post such as water pipe or electrical conduit
- fence posts are acceptable mounts in areas where raccoons are rare
- having the back extend beyond the main box body below or above the box will allow you to attach the box with screws, nails, pipe clamps, wires, or u-bolts

Perches:

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

Inner Walls:

- interior walls should not be painted or stained
- the front wall below the entrance hole should feature a rough surface to facilitate chicks climbing to the entry hole

Parasite control:

- nest boxes with raised screen floors may reduce blowfly infestations but this has not been proven conclusively
- rotenone should never be applied to the interior of nest boxes as it is counter-productive in controlling blowflies

For further information/membership contact:

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

e-mail: nabluebird@aol.com

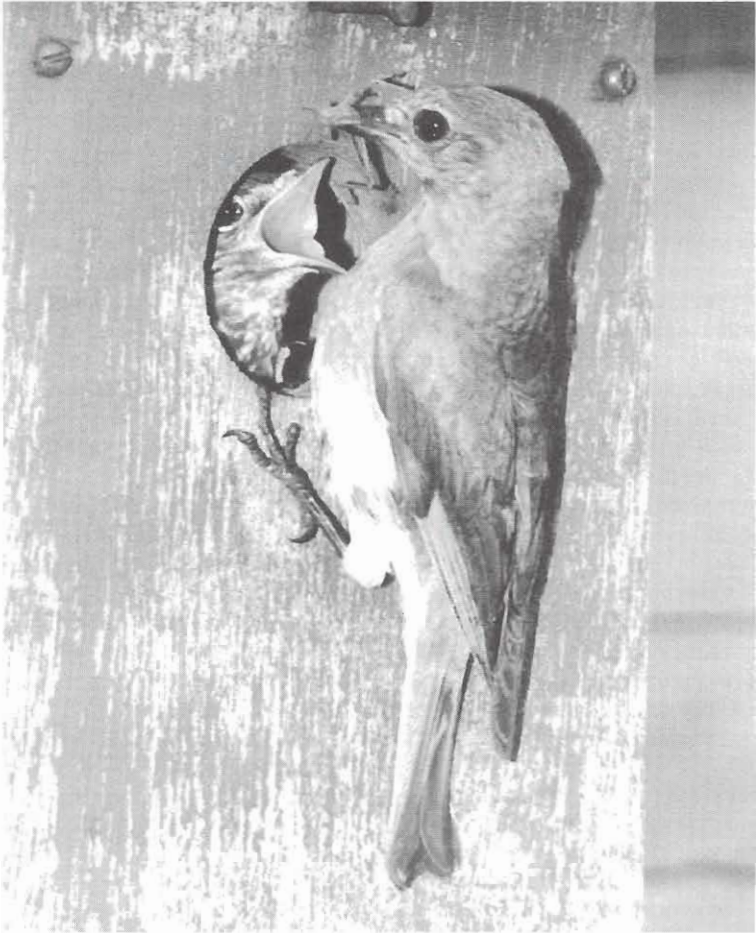
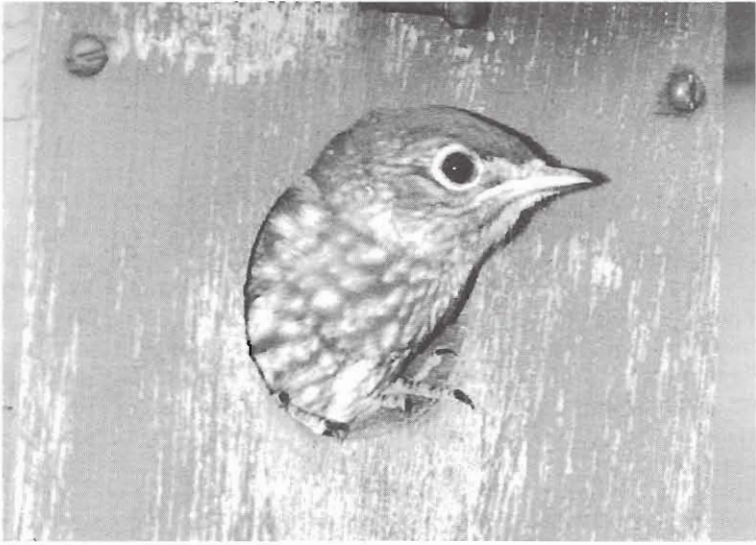
Website: <http://www.cobleskill.edu/nabs/>

FAX: (608) 329-7057

Nesting Eastern Bluebirds

Hubert Brandenburg, of Hagerstown, Maryland, spent hours under his camouflage sheet last summer photographing bluebirds. He says he was "either struggling to control the flapping of the sheet in the breeze or sweltering in full sun. Sometimes in the field I ask myself: 'Why did I start this hobby?' Then I am rewarded occasionally by a few good pictures and I know the answer to my question." These images were taken 16 and 17 July 1997 at two different boxes. Below: a male with food for his brood. Opposite page, above: a well-developed nestling checks the world outside his nest box. Mr. Brandenburg's patience was rewarded when he finally caught an open-mouthed nestling at the entrance with the female prepared to feed it a grasshopper.





Floyd Kudla's Success with Hanging Nest Boxes on Urban Trails

Frank R. Navratil

Cook County, Illinois, is where the city of Chicago is located. More than five million people live in the area. The Palos and Sag Valley divisions of the Cook County Forest Preserve District are on the southwest side of the county. This is where Floyd Kudla hangs his bluebird boxes. His partner, John Malloy, helps monitor the trail.

Floyd was influenced by Dick Purvis's *Sialia* article (18(2):48) about success with hanging boxes in urban settings. Dick, in turn, picked up the idea from Roger W. Thompson (14(2):69-70). During the latter part of the 1996 breeding season, Floyd tried hanging some wooden boxes modified with wire hangers. Although he did not keep records, the success he had with these boxes prompted him to plan to change his trails completely to hanging boxes in 1997. His main concern was the weight of wooden boxes.

Before the 1997 nesting season, Frank and I designed a 4 in. (10 cm) diameter PVC box inspired by the Gilbertson slot-entrance PVC box. The entrance on the box we produced is a 1 1/2 in. (3.8 cm) diameter round hole; the cavity depth is 6 in. (15 cm). A plastic screening material is secured below the entrance on the inside using Liquid Nails® adhesive to provide footholds for the birds. Boxes are hung 15 to 20 ft. (4.6-6.1 m) above the ground using a telescoping aluminum pole patterned on Purvis's design (19(4):143-145). Our basket is a round plastic Tupperware® container.

The boxes are located in heavily used public areas, places where pole-mounted bird boxes would be torn down within days. The sites vary from open to wooded surroundings. Fifty-seven

hanging bird boxes were scattered among the following locations: Buttonbush Slough, Pioneer Woods, McClaughry Springs Woods, Swallow Cliff Woods, Maple Lake, Bullfrog Lake, and Spears Woods. These hanging boxes are not immune to vandalism. Eleven boxes were lost during the 1977 season. We believe that some were knocked down by strong winds and picked up innocently.

The 1997 breeding season started with a cold, wet spring followed by a cold summer. Despite the weather, the bluebirds flourished in the treetops. Floyd's totals for the 46 hanging boxes remaining were 138 bluebird eggs laid (56 lost) and 82 fledged (67 banded).

In contrast, my friend, Al Swale, and I also monitor bluebird trails in Cook County. Our trails are located on three golf courses and in two prairie preserves. For us 1997 was disastrous. Of 65 pole-mounted and 10 hanging nest boxes, only five nests were established, 21 bluebird eggs were laid (11 lost), and 7 Eastern Bluebirds fledged (4 banded). This contrasts sharply with 1996 when 14 nests were established and 33 bluebirds fledged.

John Skach is our resident licensed bander. He has loved and pursued birding his entire life. When it came to the subject of hanging bluebird boxes, however, he was a "doubting Thomas." Eventually, John went with Floyd a few times to band young bluebirds. And he became a believer! If John is convinced of the effectiveness of hanging bluebird boxes, then they really do work. Besides, Floyd's success in this urban area speaks for itself. ■

2323 S. 14th Ave.
N. Riverside, IL 60546

Exchange

This feature extracts items from the newsletters of cavity nester organizations and the periodic reports of groups with bluebird or cavity nester projects. Please be sure this editor and NABS are on your mailing list. We want to include your material. Names followed by an asterisk indicate NABS affiliates.

ALBERTA--Calgary Area Trails, 1997 Results

As usual, weather was a major factor in nesting success. Several weeks of favorable May temperatures encouraged bluebird nesting; a record snowfall 19-21 May followed by four days of rain caused widespread abandonment of Mountain Bluebird nests. The percentage of unhatched eggs in 1997 was a high 20.2% with some trails suffering losses of one-third of eggs laid. Bluebirds fledged totalled 3,778 from 2,942 boxes. The number fledged per box continued the gradual decline of the last few years to set a new record low of 1.28.

The number of Tree Swallows fledged hit an all-time high of 8,036. The number fledged per box continues to show a gradual increase to this year's 2.73. Large clutches of Tree Swallow eggs were not unusual. George Loades had 63 boxes with 7 eggs, 11 boxes with 8 eggs, 3 boxes with 9 eggs (8 fledged in each), and 1 box with 10 eggs (8 fledged). Jean Dunn had 1 box with 9 eggs and 2 boxes with 8 eggs. Horst and Val Grothman reported a clutch of 8 eggs with all fledging.

House Wren nests were down 8% from 1996 and down 31% from the highest year (1995).

Conscientious bluebirders found a solution to a problem. Five newly fledged bluebirds were found wet and cold on a deck. Monitors took the birds to friends hoping to incorporate the fledglings into a nest with same-age birds. The rescued birds did not take to remaining in the box, however, so they were removed to a greenhouse on the property. The owners hand-fed them mealworms hourly (at considerable expense) and released them when the nestlings in the nearby box fledged. This plan worked well. The parents of the newly fledged birds adopted the rescued bluebirds. Mealworms continued to supplement the diet of the 11 young--a helpful assist to the male who was feeding all the fledglings alone while the female began a second nesting.

Stan and Marie Palmer had a dark royal or navy blue male Mountain Bluebird use one of their boxes. He mated with a normal-colored female. The young produced were darker than usual. The male had no noticeable red, so it was not a Western Bluebird. Donna Shaw, assisted by George Loades, put up a bluebird trail display at the Nose Creek Museum in Airdrie. Dianne Leonhardt found at least a dozen small freshwater snail shells in a Tree Swallow nest.

Don and Dolores Parkhill reported a box which had a bluebird nest with 2 eggs on the bottom, then a swallow nest with 6 eggs, and finally a wren nest on top. They also reported two other wren nests built over Tree Swallow nests. Isabelle Orr and Susie Spent reported a three-layer bluebird nest. Dick Graham also had a box with three bluebird nests; the bottom one had 7 eggs, the second 4, and the top one 3 eggs.

Don Stiles paired 8 of his regular boxes with other regular boxes which used oval Peterson-style holes and another 8 with open-style boxes designed by Ron Bittner of Abernathy, Saskatchewan. In nearly every case, the bluebird used the new styles of boxes rather than the regular ones. In two cases, starlings used oval-holed boxes (1 1/8" x 2 1/4"); however, they did not return after being removed. (Stiles will double-check the oval hole sizes.)

Sharon Burns and Anne Weerstra reported Black-capped Chickadee nests on their trails as did Bob Derbowka who had 2 nests. Jean Moore had chickadees successfully nest in her backyard. Gordon Zieffle had a White-breasted Nuthatch nest in one of his boxes--a first on the Calgary area trails.

Kay Morck passed away on 26 November 1997. Her involvement as a bluebird trail monitor dated to 1980. Originally she monitored the Hartell Loop, more recently she was responsible for 18 boxes northwest of Black Diamond.

George Loades has made (and continues to make) a significant contribution to Calgary bluebird success. Since 1985 he has built 2,500 boxes for cavity-nesting birds. They are distributed, free, to Calgary trail monitors. The wood, hardware, and paint is donated by the Sarcee Fish and Game Association. George gives an average of 22 presentations about cavity-nesting birds each year to school classes, youth groups, seniors, and clubs.

In 1977, 1,509 Mountain Bluebirds and 2,350 Tree Swallows were banded. A band recovery was made between Manitoba and Alberta which was a first. Also, a Tree Swallow banded 8 July 1995 southwest of Cochrane, Alberta, was recovered in a mist nest in northeastern California on 12 April 1997. Of 16 previous recoveries of migrating swallows which had been banded in Alberta, all had flown in a southeasterly direction.

A Tree Swallow banded as a nestling by George Loades in 1988 was recaptured by Marijke Jalink-Wijbrans making it 9 years old, a record on Calgary area trails.

--*Calgary Area Bluebird Trails**

---*Ellis Bird Farm Newsletter*, Fall 1997

Canada has its own Purple Martin organization! The Purple Martin Conservancy was founded by Del and Debra McKinnon in 1995. For information, contact Purple Martin Conservancy, 24 Willow Lee Estates, Mulhurst Bay, AB. T0C 2C0

The newsletter has been redesigned and a new logo developed by Gary Ross. The talented Red Deer artist generously donated his services.

Louis Bell of Donaldia used to see huge flocks of bluebirds (upwards of 600 at one time) in early September along a coulee near Meeting Creek. In 1974, Highway 53 was constructed through the coulee; Louis reports that the number of birds has declined yearly since that time. Currently, no fall flocks of bluebirds are seen in that coulee.

Unlike the Calgary area, birds here were in the early stages of incubation when the May snowstorm hit so nests were not abandoned. Ellis Bird Farm enjoyed a record year. In nests in which at least one young hatched, 4.6 nestlings and 4.5 fledglings was the average reported.

Ron Bittner, of Abernathy, Saskatchewan, reported that 1997 was only a fair year for his trail. The Tree Swallows have increased so that now they occupy one box at almost every site. He has never had swallows in both boxes of a pair when the boxes are spaced 33 ft. (10 m) apart. Bluebird occupancy rate of test boxes was 27% compared to 11% of standard boxes. An average of 4.58 fledged per test box, while only 3.6 young fledged per standard box.

The Ellis Bird Farm 1997 High School Scholarship was awarded to Tawyna Copland of Lacombe Composite High School.

--*Ellis Bird Farm, Ltd.*

---*MOUNTAIN BLUEBIRD TRAILS SOCIETY Newsletter*, Fall 1997

Allan Kuzyk's summary report showed a sharp drop in most categories--except in the number of sterile eggs and of Tree Swallow nests. A total of 4,050 bluebirds fledged from the 1,162 boxes used; unfortunately, 1,014 unhatched eggs were recorded, mostly due to wet June weather. Tree Swallow *nests* were at a new high of 1,053, though the number *fledged* was not listed. In the 18 years this group has compiled data for boxes in southwestern Alberta, a total of 60,899 Mountain Bluebirds have fledged.

--*Mountain Bluebird Trails Society*

CALIFORNIA--*California Bluebird Recovery Program*

This state organization received some fine publicity when *The Sunday Times* of 9

November 1997 published "For the bluebirds" with two colored photographs. The article described trails in Wildcat Canyon Regional Park above Berkeley and a proposed trail at Black Diamond Mines Regional Preserve in Antioch. The main article is accompanied by one featuring an interview with Don Yoder, founder of the California Bluebird Recovery Program. Currently 180 volunteers throughout the state are monitoring 2,400 nest boxes.

*--California Bluebird Recovery Program **

---*Modoc Record*, October 23, 1997

A brief newspaper article pictured Fred Lesan with some of his handiwork. Fred made and distributed bluebird boxes for the third, sixth, seventh, and eighth grade students at Surprise Valley Elementary School. He plans to make boxes for the remainder of the students. The boxes are made from scrap wood.

INDIANA--*Bluebird Flyer*, Autumn 1997

The Indiana Bluebird Society's first annual conference was held 11 October 1997 at Quaker Haven Camp with 75 people in attendance. Raffle items raised \$329. Featured speakers included Chris J. Slabaugh, Sr., Dr. Wayne Davis, and Dean Sheldon. A business meeting held during the conference resulted in the election of the following officers: President Jim Auer, Vice President Chris Salberg, and Secretary/Treasurer Ann Auer.

Pat and Larry Hunter, of San Pierre, reported that they started using spray-on lithium grease on their mounting poles and found it worked better than the silicone spray they had been using. Joseph Bontrager, of Ligonier, found that using slot boxes in open areas allowed kestrels to raid boxes.

Herman Yoder, of Shipshewana, is sadder but wiser after the experience he relates. The problem with the 'coon was really bad. He went along my trail like checking my traps. First hit was on a wooden post with no guard (I had only one). Next, he got the ones with aluminum flashing around the posts (18"). Finally, after I greased or went to conduit pipe he got one on a steel post and barbed wire fence. I thought that one had been safe. After I got them all on conduit pipe, the raids completely stopped. It was devastating, but well worth the lesson.

The date for the annual conference is 12 September 1998 in Lafayette, Indiana.

The official address of the Indiana Bluebird Society is P.O. Box 356, Leesburg, IN 46538.

*--Indiana Bluebird Society **

---Year End Report, 1997

The American Bird Conservation Association (ABCA) promotes the conservation and management of all native bird species. Purple Martins and Eastern Bluebirds receive the greatest attention.

Martin Lehman addresses ways of "Helping Bluebirds" to increase the ratio of successfully fledged birds. Among the things he suggests are predator guards, sparrow control, pairing boxes, inserting a clean nest when nestlings are seven or eight days old to discourage blowflies, and feeding mealworms. He points out that boxes placed in pastures with cattle and horses usually don't stand a chance from the rubbing, but boxes in sheep pastures are among the most used. His final warning is absolutely true: "whether you have one nest box or a hundred, please monitor and keep records. Erect only the number of boxes you have time to take care of."

The number of fledged bluebirds reported from 1997 was 1,711; Tree Swallows 2,465. (This includes a number of individuals who report their totals to state organizations.)

Because there are separate and active Purple Martin societies in both the United States and Canada, *Sialia* avoids overlap. We cannot resist, however, alerting readers to some parallel problems which plague both species. Unlike most correctly built bluebird boxes which exclude starlings, the larger martin requires an entrance that, in its present configuration, can be entered by both European Starlings and House Sparrows. Efforts are being made to find a way to prevent starling entry into nest compartments. Entrance hole shape research is promising. Chris J. Slabaugh, Sr., of Nappanee, Indiana, describes in detail his preliminary efforts to design an entrance hole to thwart starlings. In "Round Entrance Holes for Purple Martins: Obsolete" he describes his success with a horizontal oblong entrance. His initial tests of an oval 3" x 1 1/4" entrance 1 1/2" above the porch floor were successful in allowing martins to enter while excluding starlings. He points out these results are preliminary; more martin landlords will be evaluating this entrance in 1998.

--American Bird Conservation Association

MINNESOTA--BLUEBIRD NEWS, November 1997

The 1997 Bluebird Directory has been mailed to all who reported. Minnesotans reported 8,166 boxes, 2,470 successful bluebird broods, 12,681 eggs, 10,842 hatched, and 10,058 fledged. Editor Dorene Scriven notes that though there were 8% fewer boxes reported from the state, there were only 3% fewer broods. Of particular interest was the fact that there were 1% more eggs, 1% more eggs hatched, and 2% more bluebirds fledged. This may be an indication of a trend that slowly is showing the positive effects of better understanding of box mounting, box pairing, and predator control. The summary form requested comments on pairing of boxes. More than 90% of reporters endorsed its potential advantages.

Steve Mortensen, of Leech Lake, brought monofilament line research to Scriven's attention several years ago. Those who tried it in order to prevent House Sparrow use of feeders had mixed results. Likewise, using the line in front of bluebird boxes was reported as unsuccessful in warding off sparrows. Bruce Cords, of Eagan, uses 1/8"-1/4" nylon cord (not fishing line) in front of his bluebird box entrances. So far, the sparrows have stayed away.

Jeff Smith, who monitors 26 boxes at the Minnesota Landscape Arboretum in Chanhassen, tried using pine needles in a nest with four nestling infested with blowflies. The blowflies were not fazed.

In Benton County, Mike Fulford had two bluebirds and three Tree Swallows fledge from the same box (raised by Tree Swallows).

Dick Hjort, of Chisago City, makes a strong case for putting on a bluebird program or a workshop without expensive equipment--even if you dislike speaking before a group. He suggests using props such as House Sparrow nests and eggs, which are legal to possess. In order to get around the prohibition of using bluebird or Tree Swallow nests, eggs, or feathers, he suggests making a nest out of grass and, for a swallow nest, adding a few white chicken feathers. If you're shy? "They are only interested in the fact that you are a BLUEBIRDER, so get on with your story." Dick Hjort and Ryan Otterson were pictured in the *Post Review* of North Branch as they helped residents of Green Acres Care Center build nest boxes. In other publicity, according to the ABC newspaper in that area (5 Sept. 1997), Vern Emmans is the Bluebird Man of Anoka. He has boxes in Anoka and Coon Rapids.

--The Bluebird Recovery Program*

MISSOURI--BLUEBIRDS FOREVER, Winter 1997

Several unusual bluebird nesting sites are described. One was in a steel post

supporting a satellite receiving dish. Someone had cut a 1 1/2" x 2" opening in the pipe to house the wiring, but then taped the wires to the outside leaving the pipe empty. A House Wren used the site in 1996. The sticks apparently were wedged so firmly in the pipe that during last year's breeding season bluebirds were able to build on the wren nest base. The second unusual site was in a gourd attached to a post in a half barrel of flowers about three feet above the ground.

The flyer summarizing accomplishments for 1997 listed the following items: placed more than 1,200 nesting boxes, most of which went to Jasper and Newton counties; made educational presentations to 1,800 people (school children and adults); distributed 6,000 pieces of literature to people in 14 states; constructed 160 boxes in seven school workshops; and mailed 500 box plans and instructions to people in 15 states.

--Project Bluebird

---Cash-Book Journal

A "Potpourri" column by Joyce H. Peerman featured Richard Lewis' bluebirding efforts. He has been putting out boxes for more than 10 years. He has interested his brother, Truman, in the project. Together, they care for eight miles of trails. Records indicate more than 500 bluebirds have fledged from these boxes. Richard has built hundreds of cedar boxes. He is now building them with hinged bottoms to make cleaning easier. He has donated boxes to the Cape County Park, Jackson City Park, and Trail of Tears State Park.

MONTANA--*Mountain Bluebird Trails, Annual Report 1997*

Art Aylesworth notes that this was an unusual year. Nesting started on time, but cold, wet weather delayed egg laying. Incubation was late and the number of unhatched eggs in nests was high. A total of 11,987 Mountain Bluebirds and 2,393 Western Bluebirds were fledged in western Montana, Idaho, Washington, and Nevada.

The organization has a new logo designed by Dave Maloney of Great Falls, Montana. He also painted a picture of a Mountain Bluebird and shared the income with Mountain Bluebird Trails.

--Mountain Bluebird Trails

NEBRASKA--*Bluebirds Across Nebraska Newsletter, Fall 1997*

Membership in Bluebirds Across Nebraska (BAN) stands at 411. The county coordinators under Dwane Zimmerman's direction are effective in expanding BAN's reach. The newest aid for each coordinator is an informational poster framed by Connie Conover.

Steve Eno's "Presidential Points" makes an excellent case for changing a bluebird trail. Renovation of a trail can be necessary for any number of reasons. Following are some possible reasons why a trail may need reworking.

1. Good bluebird habitat may have become good wren habitat because of maturing trees and shrubs.
2. Boxes constantly used by sparrows should not be ignored. Trap regularly; better yet, move the boxes.
3. Boxes too close together should be moved, especially if one of two boxes in a row has never been occupied.
4. If a box has not been used for three to five years, relocate it.
5. If the Tree Swallow population is high, consider pairing boxes at 15 to 25 feet.
6. Prevent raccoon predation by greasing poles or using a Noel guard.
7. Replace and repair boxes. Perhaps add some different recommended box designs.

Steve Gilbertson, Minnesota designer of the PVC box, warns that it is important to put scratch marks below the entrance hole on the inside of the box. These can be made with

any sharp object. The scratches provide footholds for Tree Swallows who otherwise might not be able to exit the box, especially in the spring when they may be weakened by migration and/or adverse weather conditions.

More than 30 volunteers made it possible for BAN to staff a booth at the 1997 state fair. The Applejack Celebration in Nebraska City on 20-21 September garnered 12 new members. Again, volunteers made it possible.

The county coordinator for Cedar County, Lawrence Fuchs, was featured in an article in the *Laurel Advocate* 13 August 1997. He has been an enthusiastic bluebird for 15 years but credits BAN's "born-again bluebirders" with teaching him a great deal. Another feature article detailed the bluebird work of Ron Ritterbush, Sr. of Cozad. This one was in the *Tri-City Trib* 31 July 1997 emphasizing his work with the I-80 trail in Dawson County. Several BAN meetings also had newspaper coverage.

Wachiska Audubon's bluebird trails showed a nice increase in 1997, from 379 bluebirds fledged in 1996 to 471 in 1997. Trail renovation was probably a major factor in the increased production. A total of 802 Tree Swallows were fledged in 1997.

--*Bluebirds Across Nebraska* *

NEW YORK--BLUEBIRD BOOSTER, Fall 1997

Schoharie County reported its second driest June in the last 125 years, and July's rainfall was 89% below normal. This dry weather may have reduced the food available for second nestings.

Editor Kevin Berner addresses "Box Spacing" in an article. More boxes do not necessarily result in more bluebirds. Especially in the presence of Tree Swallows, more boxes will not improve bluebird production. In 1997, he greatly reduced the density of boxes at the New York Power Authority (NYPA) and SUNY Cobleskill study areas. He spread these boxes widely along Rt. 10 north of Cobleskill and on Warnerville Hill. The number of bluebirds fledged rose from 57 in 1996 to 107 in 1997. The level of bluebird nesting at the NYPA and SUNY sites remained at the same level in 1997 with far fewer boxes, but the boxes that were moved were far more productive. These results convinced him that one should select large blocks of ideal habitat and place just one box pair in that area. Swallows are still present at a majority of the sites, but now more bluebirds are nesting next to swallows. He has also gotten into the habit of removing any box that is used by House Sparrows or House Wrens.

Kevin passes along a way to frustrate House Sparrows which was suggested to him by Montana bluebird, Art Aylesworth. In winter, if boxes attract House Sparrows, try covering the entrance with a solid piece of wood with a 1 1/2 inch black circle painted on it. Throughout the winter the sparrow may repeatedly check this apparent hole and be frustrated by it. Once bluebirds return, remove the block of wood. By that time, the sparrow may have lost interest in that cavity.

--*Schoharie County Bluebird Society* *

NORTH CAROLINA--BLUEBIRD NOTES, November 1997-January 1998

The county coordinator program was expanded in 1997 so now there are coordinators in 19 counties. The annual convention in Wake Forest was so successful that the 1998 meeting will be held in the same location on 30 May 1998. Connie Toops, author of *Bluebirds Forever*, will be the featured speaker.

The 1997 nesting results are detailed in this issue. Of 1,328 boxes, 863 were used by bluebirds and 4,549 bluebirds fledged.

The editor has provided a corrected address for the Society's website: <http://www.pagesz.net/~lhoyt/ncbs.pl>

--*North Carolina Bluebird Society* *

---*BLUEBIRDS*, December 1997/January 1998

The one year anniversary meeting was held on 27 September 1997 in Forest City, North Carolina. Featured speaker was Christine Ammons, vice president of the North Carolina Bluebird Society. She spoke about feeding bluebirds in winter.

Lois Cole and James Rabb addressed the Bostic Town Council with a short program about the declining bluebird. The Council agreed to buy four Jack Finch boxes which the petitioners agreed to install and monitor. A total of nine bluebirds fledged from the boxes in 1997.

Christopher Green received a \$100.00 grant from the North Carolina Bluebird Society to purchase mounting poles for boxes. Although he has been using galvanized pipe, he found recently that conduit was cheaper and just as effective. Last fall Christopher, along with Lorene Dodson and Brenda Jones gathered more than 22 pounds of dogwood berries to feed bluebirds during the winter.

--*Rutherford County Bluebird Club*

OHIO--*Bluebird Monitor*, Winter 1997

Joan Davis' report of the special tenth anniversary meeting 17-18 October 1997 thanks the many individuals who made the celebration so successful. Darlene Sillick, assisted by Dick Tuttle, Bob Orthwein, Sharon Kramb, Dean Sheldon, and Joan and Bill Davis, orchestrated a memorable event at Ohio Wesleyan University. Among the presenters were Dick Tuttle, Bob Orthwein, and Dr. Wayne Davis. Charlie Bombaci described a Prothonotary Warbler project and Ken Feckner of the Purple Martin Conservation Association, spoke about ways to attract Purple Martins. Author and artist Julie Zickefoose was the featured speaker after the banquet. The NABS Board met Friday evening and stayed to participate in the Ohio meeting on Saturday. The raffle/auction brought in \$834.

A highlight of the tenth annual meeting was the presentation of the Blue Feather Award to Bob Orthwein.

Dean Sheldon's column features "A Christmas Story" which involved the loss of four eggs, the death of a female with young in the nest, transfer of motherless young to eggless nest, and their eventual fledging. A happy ending.

Allen Bower, of Britton, Michigan, details his experiences with Northern Flickers nesting in a box in his yard. Although he has had success, it has been possible only through extreme vigilance to prevent European Starlings from usurping the cavity. In 1997, flickers succeeded in fledging five young.

Bob Orthwein describes an experimental box designed for Carolina Wrens that can be placed under a roof. This bird's insect diet and attractive song make it an attractive cavity nester. Although related to the House Wren, Carolina Wrens do not share the habit of destroying other birds' eggs or young.

An article by Mark H. Mohr and another by William R. Davis both make the same point in slightly different ways. Bill says, "Go out and meet the people! Listen to them tell you their bluebird stories!" Mark's way of putting it is to "devote your time and energy to getting other people hooked on bluebirding!" Either way, it can't be said too many times. Personal contact is the way to enlist more enthusiastic bluebirders.

--*Ohio Bluebird Society**

OKLAHOMA--*The Hole Story*, Autumn 1997

The Oklahoma Bluebird Society's (OBS) organizational meeting was held on 16 August 1997 at the home of the founder, Charlotte Jernigan, in Wagoner, Oklahoma. The following officers were elected: President Norma Streater, Vice President Jeri McMahon,

Treasurer Pat Long, and Secretary Mark Weathers. The new organization has affiliated with NABS. The Oklahoma Department of Wildlife Conservation gave the group a booth in the wildlife building at the state fair in Tulsa, which provided good exposure. OBS will also be present at the spring Home and Garden Show.

A major article by Mark Weathers is devoted to a description of the Oklahoma Department of Wildlife Conservation's Wildlife Diversity Program. This program for state residents provides homeowners information and recognition for creating "wildscapes" by providing food, water, and cover for wildlife. Qualifying landscapes receive a numbered certificate and a weatherproof sign. A small fee is assessed.

—*Oklahoma Bluebird Society**

ONTARIO--*Ontario Eastern Bluebird Society Newsletter*, Fall 1997

The 1996 nest box report is included. A total of 4,611 Eastern Bluebirds were fledged from 5,718 boxes based on 92 reports. Both the number of reports and the number of boxes increased from 1995 totals. Banding for the 1996 season was 605 bluebirds and 1,572 Tree Swallows. Weather-related causes were named for 36.4% of lost eggs or nestlings on 44 survey forms; raccoons were judged to cause 15.9% of losses; and House Sparrows were named in 20.5% of causes. March, April, and May were colder than usual which delayed first nestings. This delay proved advantageous. Fledged young per pair was 4.56, the same as 1995, indicative of a highly successful nesting season.

This newsletter includes a question concerning American Kestrel nest box location in relation to a bluebird trail. Ron Rohrbaugh, of Cornell's Laboratory of Ornithology, provides some insight on kestrel food items. In winter, mammals and birds are major prey items; however, in summer both males and females shift their diet to insects. Birds and mammals occupy a much smaller percentage of kestrels' diets in the breeding season. Most bird remains the researcher has found in kestrel nests have been House Sparrows. Kestrels only aggressively defend the area within 100 yards of a nest. He suggests keeping bluebird boxes 150 yards from kestrel boxes.

Annette Page summarizes "The Status of the Red-headed Woodpecker in Canada." Breeding Bird Survey (BBS) data were the primary source of information used by the Committee on the Status of Endangered Wildlife in Canada. BBS data indicate this species has undergone a decline in numbers throughout its range in North America, particularly in the last 15 years. These woodpeckers declined significantly in Ontario (where a large proportion of the Canadian population is found) between 1967 and 1994 (5.9% per year) and between 1980 and 1994 (11.3% per year). The Red-headed Woodpecker was assigned a status of Vulnerable in Canada for the following reasons: significant decline in North American breeding range, "the Canadian population is small and susceptible to problems such as habitat loss due to forest destruction, removal of dead trees and branches, and intensive agricultural practices, and, the population is under pressure from European Starling competition and increased road traffic." (The article was extracted from *Wildlife Watchers*.)

Material taken from *The Canadian Breeding Bird Survey, 1966-1994* by C.M. Downes and B.T. Collins shows trends for some cavity-nesting species. Progress notes of the Canadian Wildlife Service also include the period 1980-1997. Figures are the mean annual percentage change in bird population. Eastern Bluebird: (1966-1994) 2.0%; (1980-1997) 4.5%; Mountain Bluebird: 0.4%, 5.3%; Purple Martin: 2.0%, 1.5%; Tree Swallow: 0.7%, -0.9%.

—*Ontario Eastern Bluebird Society*

OREGON--*Western Bluebird Newsletter*, November 1997

Each year has seen increases in area bluebird numbers. The group banded 939

nestlings and 53 adult bluebirds for a total of 992. This is an increase of 338 over last year. A mild winter and a good carryover of breeding birds were helped by expanded monitor coverage. The judicious use of mealworms during the traditional late May cold spell was also a factor in increased production. Teresa Slate, Carol Pattee, and Grace Francis were all instrumental in saving broods of bluebirds by finding foster bluebird homes.

*--Hubert Prescott Western Bluebird Recovery Project**

Luring Bluebirds to the Prairie

Deb Kantrud

Justin Hoff loves birds. He always has. He remembers scoldings from his dad when birds distracted him from chores.

In the last 10 years, his passion has burned to bring bluebirds to the wooded draws around Richardton, [North Dakota].

Hoff, 43, noticed his first bluebird in the area in 1986. Records document it as the first Eastern Bluebird sighted in the county in years.

With one viewing, he was hooked.

"In 1987, I made two crude bluebird boxes out of scrap lumber and put them close to the area where I saw the male Eastern Bluebird," he said.

"Much to my surprise, the bluebird nested and successfully fledged five young. The following year I added a few more boxes and had a few more pairs nest successfully."

Even more surprising was the establishment of Mountain Bluebirds in Stack County. They had been known to nest only in the Killdeer Mountains, the Badlands, and the Turtle Mountains, Hoff said.

He recorded the first sighting of Mountain Bluebirds migrating through the area in the early 1960s. It wasn't until 1992 that he had his first Mountain Bluebird nest. Since then, he has documented 346 Mountain Bluebird fledglings.

In 10 years, he has counted more than 1,000 bluebirds fledged. He has gradually increased the number of nesting boxes to 110.

Tree Swallows also first appeared in the Richardton area in 1992, he said. Tree Swallows prefer similar nesting to bluebirds and often compete for the same boxes. To overcome that problem, Hoff mounts pairs of boxes between 10 and 40 yards apart.

Hoff's extraordinary success is the result of dedication. Once a week, from early April until mid-August, Hoff checks each bluebird box. If the birds have left the nest, he empties the box so another pair can nest again.

"My success is due to many factors," he said: "first, the grace of God who has given me the interest in birds and the physical capabilities to do this, a loving and understanding wife and family, the good fortune to live in an ideal bird habitat, and gracious landowners."

He has given away 60 boxes in attempts to get others started. He also has spoken to youth groups and given presentations for the state Game and Fish Department. He would like to see others establish bluebird trails and would like to see an "Adopt-a-Bluebird" project started to keep the birds in the area.

He cannot imagine a summer without the thrill of bluebird eggs and the air full of hovering bluebirds. ■

This article is reprinted, in a slightly abbreviated form, from a July 1997 edition of the Minot Daily News, Minot, North Dakota. It is used with permission. Justin Hoff received a NABS award for bluebird conservation at the annual meeting in Newport Beach, California, 17 May 1997.

BLUEBIRD EXPRESS

SIALIA welcomes the correspondence of its membership. Bluebird Express should become a forum for all who are interested in communicating their ideas and actions concerning bluebird conservation. We will attempt to publish a wide range of views in a responsible manner. Keep your letters coming!



Dear Editor:

Enclosed is a copy of a letter I recently sent to Orvis. When I saw the catalog and read what was said about the bluebird, I could not help but respond!

Dear Headquarters:

On page 4 of your Spring 1998 Orvis Clothing and Gifts catalog there are two items depicting bluebirds. They are very attractive and I was delighted to see the bluebird featured.

In most descriptions you speak of the "comeback to the farmlands and backyards" and the "triumphant symbol of its return." I could not let the opportunity pass to say that a great deal of the credit for saving the bluebird and fostering the bluebird population increase is due to the North American Bluebird Society. This dedicated organization has worked nonstop to stimulate action which will allow this beautiful creature to prosper. The North American Bluebird Society has done, and continues to do, a wonderful job.

Sincerely yours,
William M. Williams
1903 Mistywood Lane
Denton, TX 76201

Dear Editor:

I live in the northwest section of Berks County, Pennsylvania. About six weeks ago a man that lives approximately 2.5

miles from me died of hantavirus. They are not sure where he contracted the rodent-carried virus, but he had been hunting in the southeastern part of Berks County.

Prior to his death I had been cleaning out and repairing my 172 bluebird boxes. At least 30 of them were occupied by deer mice. My houses are side-opening and I use a putty knife to clean them. We had a lot of wind and no matter how careful you are the nest dust blows into your face.

The newspaper article stated that this is the first known case of hantavirus in Pennsylvania. It also stated that the disease is fatal in half the cases. I cannot visualize myself wearing a respirator, goggles, and latex gloves to clean my bluebird boxes.

I decided that to have mouse-free boxes it was necessary to take steps. All boxes should be placed on one inch metal posts with conical mouse guards on each one. Place the posts where there is no chance for brush or briars to grow during the nesting period. Do not put boxes on wooden fence posts near pastures.

What do other bluebirders do who live in areas where hantavirus is a definite problem?

Dean A. Boyer
1040 Kersher Ave.
Leesport, PA 19533

Dear Editor:

My husband and I will soon mark our first anniversary of active and avid bluebirding and wanted to share our experiences.

In December 1996, we moved into a new home that overlooks the number two tee on a golf course. With the wide open spaces on the course, we thought our yard might be prime bluebird territory. We put up our first box near the end of January 1997 and the very next day a beautiful pair of bluebirds came calling. We watched their courtship unfold and nest building commence.

In May, four eggs hatched and the babies fledged later that month. After they left, we cleaned the box in case the pair wanted to use it again. In June, they quickly prepared for a second family. This second brood of four fledged during the third week in July.

After each brood fledged, we did not see them again for about two weeks. The parents did a good job of concealing their young in the tall pines in our backyard. The first brood helped with the second brood.

As we learned more about bluebirds, we added items to the backyard habitat that we knew they would like. My husband installed a bluebird feeder and built a predator baffle for it. We keep it stocked with mealworms. After several weeks of investigation, the bluebirds would eat the worms off the tray of the feeder but would hesitate about going inside. How can you get the birds to enter? If anyone has any experience with this, we would love to learn about it. We may be spoiling our birds, but we also place mealworms on the floor of our patio--and our feathered friends love this "alfresco dining." They view the worms from their railing perch, which in turn affords us a great view of the birds.

Barbara Marshall
1354 Links Road
Surfside Beach, SC 29575

Dear Editor:

The Junior Girl Scout troop of which I am a leader learned about the plight of the Eastern Bluebird and decided to establish a bluebird trail. They chose the property of the church in which they hold their weekly meetings. The congregation was delighted and the pastor donated two of the three boxes. Through videos, worksheets, books, and activities they prepared themselves for the responsibility of monitoring the boxes and recording their observations. During one of the meetings in late April, we erected the three boxes.

Much to the girls' delight, a nest was found in one of the boxes during their next meeting. As the spring progressed, the bluebirds cared for and raised their young. They started out with four eggs, but only three hatched. Then a cold, wet week hit. Two of the baby birds fledged leaving behind one that had not survived the weather conditions.

After removing the old nest from the box, another nest with four eggs appeared the next week. The girls set up a schedule to monitor the box during the summer months and all four of the babies were successfully raised.

The boxes have been cleaned out and repaired. The returning Girl Scouts are telling the new girls about the events of the spring and summer. They are the teachers now.

Being responsible for the bluebird trail has brought many rewards and much learning to our troop. Not only are the girls participating in a service project to better their environment, but they are learning valuable lessons in responsibility and volunteerism.

Our survey has been sent in separately. Teaching the girls that documentation and record keeping are important in monitoring the environment was part of this project, too.

Sandy Lockerman
3830 Lexington St.
Harrisburg, PA 17109

Bluebird Tales

Lisa Kivirist and John D. Ivanko

The weather may have been cold the last couple of months in many parts of the continent, but NABS members have been keeping warm with lots of activity.

While the wind was howling outside at NABS' new home in Darlington, Wisconsin, there was a flurry of stamp sticking and envelope sealing going on inside. A big bluebird thanks to a host of folks in the Darlington community for volunteering to help prepare the Winter *Sialia* mailing. Hats off to **Lucille Taylor**, **Harvey Hartwig**, **Bob Clayton**, **Glenn Winslow** and **Marjorie Bucher** for their efforts. The **Boy Scouts (Darlington Pack 125, Den 2)**, **Lucky Clover Leaves 4-H Club** and the **Cornerstone Christian School** also all contributed their time and energy to successfully send out the first *Sialia* from the new Wisconsin headquarters.

Thanks to the **First National Bank** at Darlington, NABS also has a "Main Street" presence through an attractive window display developed for a presently vacant office space. A Peterson nest box, photos of bluebirds and general information on bluebird conservation and how to contact NABS completes the colorful display. Why not a window area in your community, too? Many businesses welcome the opportunity to support such educational efforts; often, all it takes is someone asking.

All across the country "Bluebird Days" have become an annual event (not that we're surprised). **Judy Brummett** of Maxey House State Park in Paris, Texas, **Effie Fox** of the Fauquier Outdoor Lab in Warrenton, Virginia, and **Denise Gibbs** of Black Hill Visitor Center in Boyds, Maryland, have each inquired about more nest box plans and brochures from headquarters, not to mention the popular NABS Bluebird or Luther Goldman Cavity Nesting Slide Programs available for rental.



The Montgomery County Department of Parks and Planning has begun to implement an exciting demonstration habitat project for berry-eating birds under Denise Gibbs' direction. Funding was a \$5,000 grant from the Maryland Ornithological Society (MOS) as a part of the late NABS' Founder **Dr. Larry Zeleny's** bequest to MOS. Several hundred trees, shrubs, and vines will be planted on three acres at Agricultural History Farm Park near Derwood. Relatively large specimens will be used in an attempt to prevent deer from eating them. Planting day is 26 April and helpers are welcome (machines will dig planting holes). Bluebird boxes will be erected in the vicinity of the plantings. On-going interpretive programs, signage, and self-guiding brochures will aid landowners. The demonstration site will be dedicated as the Lawrence Zeleny Bluebird Conservation Area. If interested in assisting with planting, monitoring, or as a graphic artist, contact Denise at 301-916-0220.

On the bluebird trail front, **Charlie Carey** of Hudson, New Hampshire, passed along the news that he had fledged more than 60 bluebirds over the last five years on his 500 acre farm. "We're doing our part," says Charlie.

Frances Sawyer sent NABS an e-mail about an incident that happened to her last spring. She had put up a nesting box in front of the Cofer Library in Tucker, Georgia, about two years ago and was

eagerly checking for signs of nesting. To her surprise, she found a beautiful nest of pine straw topped with five or six pieces of colored Easter grass. Later, she spoke with the librarian, a bluebirder, who laughed and told her that the children had an Easter egg hunt there the weekend before. To her knowledge, this was one of the few accounts of Mama Bluebird building an Easter nest! "It's just a reminder that libraries with some open areas are a great place to put up nesting boxes," writes Frances. "It gives many people a chance to observe the bluebirds who might not see them otherwise. Children, especially like to watch the library bluebirds." NABS' new e-mail address is "nabluebird@aol.com".

Calls have come in to HQ from across the country asking, "What's going on? We still have bluebirds! They should have left for the South months ago, but we're happy they stayed." Folks down South have also called wondering where their winter residents were to be found. Blame it on the El Nino effect. The unseasonably warm weather in the North seems to have delayed the decision for many bluebirds to migrate South since warmer temperatures have resulted in food still being available. Many happy northern landlords have put out mealworms or suet, making sure the birds don't go hungry and attempting to bribe the bluebirds to stay around a little longer to brighten the gray days of winter. Given the interest in mealworms, perfect for such an occasion, NABS will now be selling mealworms for \$9.95 per 1,000 plus \$5.00 shipping and handling. Just send a note, check, and address (not p.o. box) indicating where mealworms should be sent (presently available in U.S. only) to NABS new address in Darlington, Wisconsin.

Robert Bradley of Charlottesville, Virginia, writes that his latest project was building 20 bluebird boxes for WVPT, a local PBS radio station, to use in their December bird conservation program, "Birdwatch Marathon," which aired on 13 December 1997. Robert also

donates 20 nest boxes each April to the station for its fundraising efforts; with each box he donates or gives as a gift, he includes a NABS brochure. "In the past," writes Robert, "when someone would ask me how much I wanted for the bluebird house I had just given them, I'd just pass on an envelope of your literature and tell them I didn't want anything, but would appreciate their joining NABS instead." Robert has given three times, we think, with each nest box: once to the bluebirds; secondly, to supporting public radio and their educational efforts; and thirdly, to helping NABS support its mission of helping others learn about the joys of bluebirds and good bluebirding.

Finally, **Alice Nemitsas** of the Frederick County Bureau of Parks and Recreation in Walkersville, Maryland, called concerning what had become a regular incident in their parks: nest box vandalism. For others hoping to deter such incidents, public education remains the best long-term deterrent to such behavior. In some cases, local media might be quite receptive to doing an article on bluebird conservation to help explain why bluebird nest boxes are so important to bluebird survival. Posting a notice on the actual nest boxes is also possible. One example, developed by (and adapted from) the NABS affiliate, Bluebird Restoration Association of Wisconsin (BRAW), follows:

Federal law prohibits the taking, possession, or destruction of any migratory bird, nests, or their eggs. Persons committing these crimes may be charged in federal court of a Class B misdemeanor and if convicted can be sentenced to 6 months in jail, or \$5,000 fine or both.

Moving the nest boxes that are most tampered with is another relatively easy option. Regulation and enforcement, while successful in sometimes catching the vandal(s), rarely resolves the problem in the long run and can escalate the situation. ■

Georgia Couple Help Bluebirds

Tip and Betty Goza

As Co-Publicity Chairmen for Bluebirds Over Georgia, we would like to share a project we have been engaged in the last two years resulting from an idea picked up from *Sialia*. We have built 351 bluebird nesting boxes with third, fourth, and fifth graders, Girl and Boy Scouts, senior groups, and 4-H clubs. These groups are eager not only to hear about bluebirds, but to assemble their own boxes. We are convinced this is the best way to get positive results. Based on our experiences of the last two years, here are some "tips from Tip."

1. Use a simple functional nest box for youngsters to assemble. I use a design with a flat, slanted roof. Gable roofs are too difficult for youngsters.
2. Ask a local fence company to donate aged 1 x 6 in. cedar fence boards for the sides and roof. Use the widest boards for roof overhang.
3. There is a 4 in. picket fence board made which saves ripping and makes the front, back, and bottom of one box design I use.
4. Ask local hardware stores to donate 1 5/8 in. galvanized, outside deck screws and cordless screw drivers. Children and seniors love these electric tools. An adult should pre-drill the holes with a 7/64 in. or a 9/64 in. drill bit.
5. Start sawing up kits during the winter and assemble them in January.
6. Because the time with school groups is limited to less than two hours, last year I started pre-assembling the bottom and one side of the box because this is the most difficult and time-consuming step.
7. If you are a gifted carpenter, but not a speaker, get a friend to speak. Either role is rewarding.
8. Have NABS headquarters provide their brochure and make this available for possible future members. We also lend

the NABS video to groups so they can review it, if desired, before the actual box construction.

9. It is much easier to give boxes away than sell them; however, you must sell some to cover expenses and buy items that are not donated. Your generosity and the resulting publicity end up being rewarded and the project becomes self-sustaining.

10. The most responsive age groups are grandparents (seniors) and children. Most of those in between are busy making a living.

11. With a class average of 24, you will need six adult helpers (three adults pre-drilling the holes for a group of eight and the other three adults helping to hold the boards until students screw the pieces together.)

These tips have worked for us; in fact, we have more requests for programs than we can fulfill. ■

4057 Linda Lane
Lilburn, GA 30047

Back Issues Needed

The following issues of *Sialia* are in short supply. If there are any listed that you do not intend to keep, please mail them to headquarters. For tax purposes they can be treated as a donation to a non-profit organization to the extent allowed by law. Please send listed issues only: volume 1 (numbers 1,2,3,4); volume 3 (2,4); volume 4 (2); volume 9 (1,2); volume 10 (1,2); and volume 17 (1,2,3,4).

Send any of the issues listed above to NABS, P.O. Box 74, Darlington, WI 53530-0074.

Index to *Sialia* Volume 19 (1997)

- awards: Eaton Award to Kevin Berner, photo, 101; NABS, presentation photos, 33-35, 150-153; NABS conservation, description, 142; NABS research, 62, 146; Wildlife Society to NY bluebirders, photo, 24-25
- Aylesworth, Art, at NABS meeting, photo, 148
- Barker, Margaret A., article on Cornell Nest Box Network, 76
- Beaver, Jonathan, bluebirding activities, awards, photo, 114-115
- Beaver, Wendy, article on son's trail and activities, 114-115
- Berner, Kevin: article on awards to NY bluebirders, 24-26; at NABS meeting, photo, 32; 1996 nesting box report, 95-98; receives Eaton Award, photo, 101; Research Committee excerpt on box styles, 69
- birdfeeding in winter, 5-7
- Bittner, Ronald A., article on experimental nest boxes, 92-94
- bluebird boxes. *See* nest boxes
- bluebirders, "Bluebird Nut" characteristics listed, 71
- Bluebird Express, 36-37, 72-73, 116-117, 154-155
- bluebird organizations, building membership in, 100-101
- bluebirds: deaths from tubes used as tree shelters, 4; family's experiences in attracting "Mommy's" birds, 113-114; in heated birdbath, photos, 21; with food, photos, 61; trapped inside house, set free, photo, 66; *see also* Eastern Bluebirds; Mountain Bluebirds; Western Bluebirds
- Bluebird Tales, 38-39, 74-75, 118-119, 156-159
- bluebird trails. *See* nest box trails
- boxes. *See* nest boxes
- Brandenburg, Hubert, photos of bluebirds with food, 140-141
- Briggs, Ray, receives award, photo, 25
- Cartwright, Larry, article on Prothonotary Warbler trails, 43-48
- cavity nesters: Cornell Nest Box Network, 76; success with Orange County, CA trail, 143-145; woodpecker and bluebirds, photos, 60-61; *see also* bluebirds
- Chambliss, Campbell G., receives award, photo, 34
- Clodfelter, Ruby, poem, 80
- conservation awards, NABS, 142
- Cornell Nest Box Network, 76
- Davis, Bill: article on membership building, 100-101; at NABS meeting, photo, 151
- Davis, Joan, article on membership building, 100-101
- Davis, Wayne H., article on nest box entrances, 48-49
- Dupree, Betty, at NABS meeting, photo, 32
- Eastern Bluebirds: with food for young, photos, 60-61, 140-141; *see also* bluebirds
- Ellifritt, Hobart H., award to, 150
- Eno, Steve, article on paired boxes, 63-64
- Estock, Jill, poem, 27
- European Starlings: nest-site competition with flickers, 83-91; passage through various hole sizes, table, 125-131
- Exchange, information from other newsletters, 13-19, 50-59, 102-110, 132-139
- feeding birds in winter, 5-7
- Fleming, Janet L., article on titmice collecting hair, 3
- flickers. *See* Northern Flickers
- Funkhouser, Glenn E., Treasurer's Report, 40
- German School, bluebird projects, photo, drawing, 22-23
- grants. *See* awards

- Hall, Dorothy, poem, 160
- Harmet, Joan, at NABS meeting, photo, 151
- Harwood, Frederick C., article on "Mommy's" bluebirds, 113-114
- Hill, James R. III, at NABS meeting, photo, 32
- Hjort, Marlys and Richard, receive award, photo, 34
- Hoepfner, Marcy, on bluebird scooter, photo, 99
- Hoff, Justin, receives award, photo, 150-151
- Hollister, Barbara, poem, 80
- House Finch alert, 73
- Hubert Prescott Western Bluebird Project, award to, 153
- index to Volume 18 (1996) of *Sialia*, 77-79
- Ingold, Danny J., article on starling-flicker competition for nest sites, 83-91
- Janetatos, Mary D.: article on NABS headquarters and staff changes, own farewell as Executive Director, 123-124; *Bluebird Tales*, 38-39, 74-75, 118-119, 156-159; presents NABS awards, photos, 34-35; report on NABS Nineteenth Annual Meeting, 28-32; report on NABS Twentieth Annual Meeting, photos, 147-153; thanks NABS volunteers, photo, 70-71
- Jernigan, Charlotte: presents awards, photos, 151; Presidential Points, 2, 42, 82, 122
- Johnston, Patricia, award to, photo, 152
- Kingston, Ron: presents award, photo, 34; *Speakers' Bureau Report*, 8-12
- Lapin, John J., award to, 151
- Lehmann, David M., article on starling passage through hole sizes, photo, 125-131
- Letters to the Editor, 36-37, 72-73, 116-117, 154-155
- LeVasseur, Doug: article on trail registration, 67-68; at NABS meeting, photo, 31
- license plate, photo, 69
- Lowery, Mark, presents award, photo, 25
- McDaniel, Carol and John, at NABS meeting, photo, 32
- McDonough, Edgar I., poem, 120
- McGowan, Brenda, award to, photo, 152
- McKeever, Kay, at NABS meeting, photo, 31
- membership building in bluebird organizations, 100-101
- memorial gifts to NABS, 65, 145
- Moore, Denise R., 1996 nesting box report, 95-98
- Mountain Bluebirds: depicted on patch, 67; experimental nest boxes, 92-94; *see also* bluebirds
- NABS. *See* North American Bluebird Society
- nest boxes: and competition between starlings and flickers for nest sites, table, figure, 83-91; Cornell Nest Box Network citizen-science project, 76; experimental double-entrance, figure, 92-94; hanging, with lifter, diagram, 144; milk carton, diagram, 47; nesting attempts for each style box compared, 69; Peterson entrance, results compared with slot entrance, table, 48-49; pine straw drape from box entrance, photo, 20; starling passage through various hole sizes, photos, table, 125-131; tree-branch box with predator baffle and side-opening option, figure, 111-112; *see also* nest box trails
- nest box trails: cavity nester success in CA, 143-145; at GA Youth Home, photo, 146; 1996 survey report, tables, 95-98; paired boxes' effect on Tree Swallows, 63-64; for Prothonotary Warblers in VA, 43-48; trail registration, 67-68; young boy's on Corps of Engineers park, 114-115; *see also* nest boxes

- nesting boxes. *See* nest boxes
- newsletters of cavity nester organizations, excerpts from, 13-19, 51-59, 102-110, 132-139
- North American Bluebird Society (NABS): affiliates sought, 124; awards presentations, photos, 33-35, 150-153; Financial Statement, 40; headquarters and staff changes, 123-124; memorial gifts to, 65, 145; Nineteenth Annual Meeting Report, photos of participants, 28-32; research awards, 62; research grants, 146; Speakers' Bureau Report, 8-12; Twentieth Annual Meeting, photos of participants, 147-153; volunteers thanked, photos, 70-71
- Northern Flickers, nest boxes and starling competition, reproduction success, 83-91
- Ohio Bluebird Society: membership building, 100-101; trail registration, 67-68
- Orthwein, Robert E., award to, 153
- Paul Anderson Youth Home trail, photo, 146
- Pearman, Myrna, receives award, photo, 35
- poetry by: Ruby Clodfelter, 80; Jill Estock, 27; Dorothy Hall, 160; Barbara Hollister, 80; Edgar I. McDonough, 120
- Presidential Points, 2, 42, 82, 122
- Prothonotary Warblers, VA trail program, photos, 43-48
- Purvis, Dick: article on CA cavity nester trail, 143-145; at NABS meeting, photo, 148
- Raabe, Mark, at NABS meeting, photo, 31
- Read, Bill, at NABS meeting, photo, 31
- Red-bellied Woodpecker, photo, 61
- research awards, 62, 146
- schoolchildren, German School's bluebird projects, photo, 22-23
- Scriven, Dorene, article on tree tubes that kill birds, 4
- Sheldon, Dean E. Jr., article on winter feeding, 5-7
- Sialia*: index to Volume 18 (1996), 77-79; Technical Advisory Committee established, 2
- Speakers' Bureau Report, 8-12
- starlings. *See* European Starlings
- swallows. *See* Tree Swallows
- Therrien, Joe, receives award, photo, 25
- titmice. *See* Tufted Titmice
- trails. *See* nest box trails
- Tree Swallows, effect of paired boxes, 63-64
- tubes as tree shelters, bird deaths from, 4
- Tufted Titmice, collect hair for nests, photo, 3
- Western Bluebirds: Orange County, CA trail, 143-145; *see also* bluebirds
- Wildlife Society, awards to NY bluebirders, 24-26
- Williams, Bill, item on trapped bluebird, 66
- winter birdfeeding, 5-7
- Yoder, Donald, receives award, photo, 152-153
- youth home establishes trail, photo, 146
- Zuern, Frank, article on tree branch box, 111-112

Bluebird Trails on Golf Courses

NABS is considering the possibility of publishing a brochure describing how to establish a bluebird trail on a golf course. We would like to hear about any experiences you may have had with nest boxes on golf courses. Your comments and suggestions will help us decide the type of information that should be included or whether a brochure is even feasible. References to articles relating to this subject would also be valuable. Direct your material to Executive Directors, NABS, P.O. Box 74, Darlington, WI 53530.

NABS SLIDE PROGRAM

The NABS bluebird slide program is available for rental at \$10.00 or for purchase at \$75.00 plus \$7.50 shipping and handling. The program consists of 110 collated, plastic-framed 35 mm slides and a printed script (no slide tray). If a cassette narration is desired, add \$10.00 plus \$1.50 shipping and handling to the purchase price.

To rent or purchase the bluebird slide show, write to the following address: NABS Slides, P.O. Box 74, Darlington, WI 53530. Please allow one to two weeks for delivery and, if possible, specify several dates for rental.

BLUEBIRD BOOSTERS

Appearing on the inside back cover is a list of those individuals and groups who have made a financial commitment to bluebirds and cavity nesters over and above their annual dues. Such support is essential in maintaining a stable dues structure and provides funding for special projects. We thank the individuals, organizations, and corporations for their generosity. We are especially grateful for the long-term support symbolized by those who have become Life Members.

You, too, can become a Bluebird

Booster. For a donation of \$25.00 per single issue or \$75.00 per four issues, you can be designated as an Eastern, Western, or Mountain Bluebird Booster (choose one); for \$15.00 per issue or \$50.00 per four issues, be a Fledgling Booster; \$10.00 per issue or \$25.00 per four issues makes you a Nestling Booster.

All contributions are tax deductible to the extent allowed by law. Mail your check to NABS Boosters, P.O. Box 74, Darlington, WI 53530.

Historian's Request

Please send newspaper and magazine articles about bluebirds to Historian Shirley Adams, 3484 Torch Club Rd., Alton, IL 62002. Be sure name and address of publication, volume and date are included. Photographs of members engaged in publicizing bluebirds are always welcome. These items will be added to scrapbooks kept as a permanent record of activity on behalf of bluebirds and other native cavity nesting birds.

CORRECTION

In the article entitled "An unusual cavity nest for the Eastern Bluebird in Oklahoma" 20(1):15-16, the senior author's name was misspelled. The correct name is Hope R. McGaha.

We regret the error.

<p>Art Credits</p> <p>Jon E. Boone 42, 72 Suzanne Penneil 74</p>
--

BLUEBIRD BOOSTERS

LIFE MEMBERS

Charlotte Jernigan
Clark W. Hart
Katrina Renouf
Mrs. Irene S. Franz
John H. Rogers
Barbara L. Matlock
Lawrence Zeleny
Dr. Eugene Majerowicz
Lillian Lund Files
Stan Bleszinski
Laura Nielsen
Keith Kridler
Fred A. Huntress, Jr.
Gerald Edward Martin
Dr. Bill Keyes
Thomas J. O'Neil
Elizabeth Crispin
Dr. Robert F. Giddings
Haskell A. Duncan
T.L. Sanderson, M.D.
Mrs. William G. Lehr
Mark Ross
Stephen J. Garr
Lorne Scott
Sarkis Acopian
Clarence "Bud" Boone
Kevin Joseph McCarthy
Miss Georgia Hariton
Peter D. VanDuser
George K. Freeland, Jr.
Gertrude Dunn Davis
Eleanor G. Terzia
Leo F. Terzia, Jr.
William L. Carmines
Dr. Wayne H. Davis
Edwina Hahn
The Krusos Foundation, Inc.
Rhonda C. Watts

WESTERN BLUEBIRD

Marjorie S. Samples

MOUNTAIN BLUEBIRD

Donna R. Hagerman
Carol & George Harmon

EASTERN BLUEBIRD

Augusta Bird Club
Linda G. Baldausk
Nancy Baron
Gary Black, Jr.
Bluebird Festival Committee
Bowater
Coburn Britton
A. Bruno
Lydia Bryant

William L. Carmines
Mary L. Contakos
G.R. Cook
Forest Garden Club
Patrick Givens
Gerald L. Hartley
Houston Forest Products
Pamela Isdell
Mrs. K.W. Jacobs, Jr.
Larry & Betty Jernigan
Pauline R. Kasserman
Joan Lane
Alethe J. Lindstrom
William Logan
Mrs. F. Leslie Long
Mrs. George Luce
McDuff Designs, Inc.
Audrey McGinnis
Richard McGovern
Douglas R. & Bonnie R. Merritt
George P. O'Neil
Mark & Jean Raabe
Rosemary Z. Rittler
Marvin & Mary Ruben
Ruritan Club
Mrs. Elmer B. Sheaff
Mr. & Mrs. John Schier
Susan L. Sloan
Mr. & Mrs. W.L. Sullivan
David Tobias
Stephen S. Thompson, Jr.
Russ Valentine
Wills Point Wilderness Society
Michael O. Willson

FLEDGLING

Wilho Aalto
Thomas & Virginia Boschen
Mrs. C.W. Bowers
Jane H. Brown
Martha Chestem
G. R. Cook
Mr. & Mrs. James Davis
Peter Desposito
Donna R. Hagerman
Betty Harmon Family
Dan Heisey
James Hood
Barbara Ridder Irwin
Mary D. Janetatos
George & Michelle Laiacona
Dorothy Lamoureux
Susy & Jack Ledgerwood
Martha Leonard
Margaret Lester
Mr. & Mrs. Doug LeVasseur
Judy Lietzau
Marie Mausteller
Cheryl Miller

Jack Moltenbrey
Barbara Moore
Leland Moss
P.P. Olson
Grant Riggle
Dr. William K. Roth
Chester & Ruth Schmidt
Gretchen N. Schwartz
Dean E. Sheldon, Jr.
Stanley Silsby
Pat Soehnen
Bill Soranno & Mary Penn
Mark Wallace
Jim Walters
Robert Williams

NESTLING

Ellsworth Amindon
Jack Bartley
Ann & Marty Bambrick
Edith & Alan Bernstein
Charlene Bofinger
Donna Bretz
EE & I Bureau State Parks (PA)
Charlotte Corkran
Mrs. Joseph Coyne
Kristine Crutch
Philip Davidson
Brenda Eastlake
Harry Eichbaum
Theodore L. Felsentreger
E. Hassebrock
G. Pepper Holland
Mrs. Robert Holland
Pamela Hugill
Barbara Inzana
Dr. Gerald Kauffman
Kingsley Kelly
Amy Kurland
Jerry Lint
Barbara Mandot
John McCall
Daniel McGuiness
Robert Montgomery
Robert Neibuhr
Carol Norman
Chris Salberg
Santa Clara Valley Audubon Society
James Shields
John C. Smith
Tom & Norma Smith
Mr. & Mrs. Wayne Spiggle
Dr. Lester Stephens
Wayne Svaboda
Mrs. Gamett Tunstall
Nancy Weber
Susan Weil
Judy Whelan
William Wilcox
Richard Wilcox

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 humankind.

Membership: Student (under 21) \$10.00; Senior (over 60) \$10.00; Regular \$15; Family \$25; Sustaining \$30; Supporting \$50; Contributing \$100; Corporate \$100; Donor \$250; Life \$500. Three year rates: Student and Senior \$28.50; Regular \$42.00. Add \$2.00 per year for Canada and Mexico and \$3.00 per year for other countries (surface mail). U.S. funds only, please. In Canada, please use Canadian postal money order in U.S. funds. Do not use checks. Amounts over \$6.00 are tax deductible.

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

