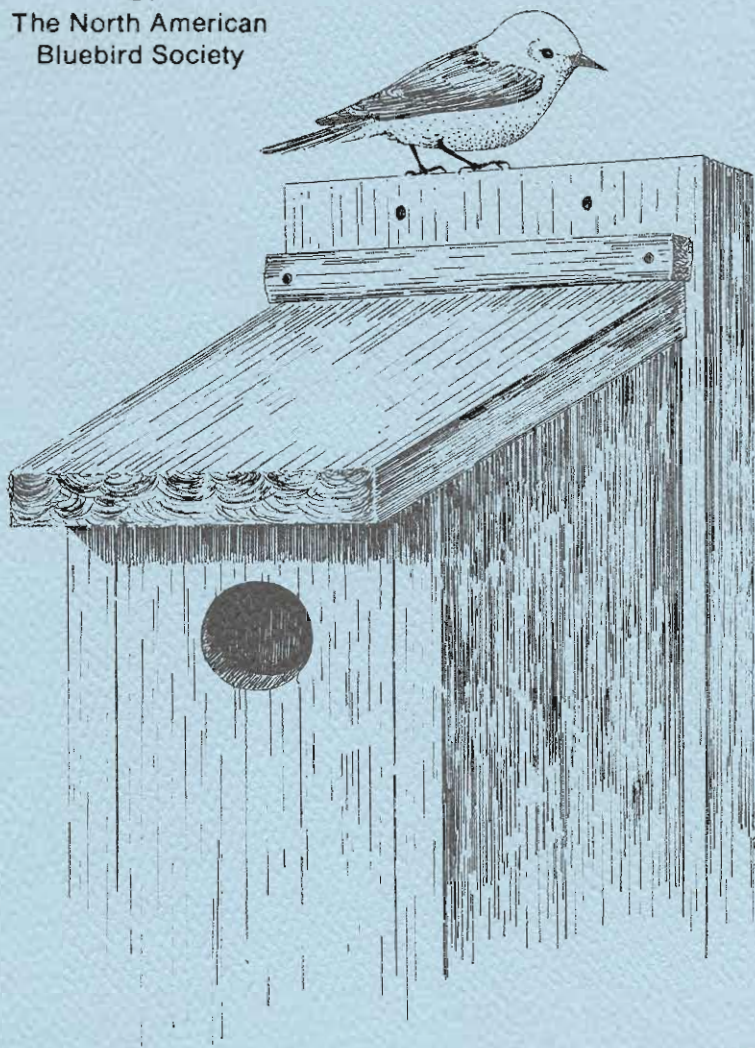


Sialia

Volume 15, Number 1
Winter 1993
Pages 1-40

The Quarterly Journal
Of
The North American
Bluebird Society



NORTH AMERICAN BLUEBIRD SOCIETY

Founder

Lawrence Zeleny

President

Charlotte Jernigan

Vice President

Thomas Tait

Treasurer

Delos Dupree

Recording Secretary

Douglas LeVasseur

Corresponding Secretary

Joseph Tait

Directors

Andre Dion 1993
Quebec

Kenneth Jankowski 1993
Indiana

Alfred Larson 1993
Idaho

Marion Liles 1993
Oklahoma

Marston Husmann 1994
Maryland

Arthur Kennell 1994
Pennsylvania

H.E. Koontz 1994
Montana

William F. Read 1994
Ontario

Richard Hjort 1995
Minnesota

Steven Parren 1995
Vermont

Hazel Skuce 1995
Manitoba

Donald E. Yoder 1995
California

Executive Director

Mary D. Janetatos

Editor

Joanna K. Solem

Sialia means bluebirds. Hence the title of this journal. Technically, *sialia* is the Latinized, neuter plural version of the Greek word *sialia*, a noun meaning a "kind of bird." Since the Eastern Bluebird was the first bluebird classified by Carolus Linnaeus (1707-1778), he gave it the species name *sialis*, though he placed it in the genus *Motacilla* which is now reserved for the wagtails. It was William Swainson (1789-1855), who, in 1827, decided that the bluebirds needed a genus of their own within the thrush family (*Turdidae*). He selected the generic name *Sialia* which he simply adapted from the species name *sialis* which Linnaeus had used. Therefore, the scientific name for the Eastern Bluebird is *Sialia sialis* (pronounced see-ahl'-ee-ah see'-ahl-iss). Similarly, the Western Bluebird and Mountain Bluebird, the two other species within the genus, were named *Sialia mexicana* and *Sialia currucoides* (coo-roo-coy-dees) respectively. Their species names are descriptive of their locations. All three bluebird species are native only to the North American continent, although each inhabits different regions generally separated by the Rocky Mountains and by altitudinal preferences.

While the adult birds all show differing plumages, the young of all three species look remarkably alike, prominently displaying spotted breasts and large white eye rings. This similarity in plumage was the principal reason the Society chose the juvenal bluebird for its logo. Since bluebirds almost always choose to raise their young in small enclosed cavities, a young bluebird sitting near a nesting box seemed to symbolize our mission. The hope of any species resides in its young. Because of bluebird nesting preferences, the survival of their young may depend on the nesting box, especially since natural cavities, for a variety of reasons, are disappearing rapidly. The theme of bluebird young nurtured in man-made structures will be a recurring one in our art and literature. We hope that this theme will remind all about the plight of the bluebird, and will stimulate action which will allow this beautiful creature to prosper.

Sialia (ISSN 0890-7021) is published quarterly by the North American Bluebird Society, Box 6295, Silver Spring, MD 20916-6295. 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 respectively. Deadline for submission of material is three months prior to date of publication; dated items only, two months.



Sialia

The Quarterly Journal
About Bluebirds

Volume 15, Number 1
Winter 1993
Pages 1-40

EDITOR
Joanne K. Solem
**CONTRIBUTING
EDITOR**
Lawrence Zeleny
ART EDITOR
M. Suzanne Probst

CONTENTS

Presidential Points	2
Charlotte Jernigan	
Field Tests of Several Styles of Bluebird Nest Boxes	3
Kevin L. Berner and Veronica A Piehles	
Question Corner	12
Lawrence Zeleny	
Bluebirds, Blowflies, and Parasitic Wasps	13
Christopher Darling and Julie Thomson-Delaney	
Prothonotary Warbler Nest Stub	17
Lawrence Sawyer	
Prothonotary Warblers Use Nest Box Inside Capital Beltway	20
John Zyla and Mike Donovan	
Netting Saves Nestlings from Snakes	22
Lynda Blair	
Bluebirds Fledge from a Sparrow's Nest	23
Joe Huber	
Sara Beth Parks—4-H Champion	24
End of the Road	25
Robert A. Stevenson	
Universal Truths Relearned at Tanglewood	26
Charles W. Abbey	
Fifteenth Annual Meeting Report	27
Mary D. Janetatos	
Awards Presented	29
Sadie Dorber	
Poetry: Mussmon	35
Bluebird Express	36
Bluebird Tales	38
Financial Statement	40

COVER

A Prothonotary Warbler considers
an empty bluebird nest box. Cover
by Art Editor M. Suzanne Probst.

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 Graefloch Road, Laurel, Maryland 20723.

Presidential Points

Charlotte Jernigan

As the incoming president of the North American Bluebird Society, my first thought is to express our appreciation to Sadie Dorber for eight years of dedicated leadership.

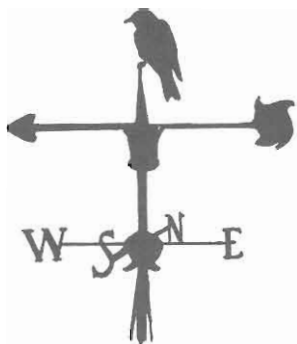
Change is a constant that spares no one, and that includes our organization. Though often resisted and seldom embraced, it is inevitable. So, from all of us, thank you, Sadie! To you we are indebted. Now the recourse left is to maintain our commitment and to insure that we continue on target.

Being a part of NABS makes us a part of a big family that is inseparable from nature. We pursue our mission with a passion that helps to alleviate pressures, and the three species of bluebirds are in the picture focused and clear. It is that attraction that brings us together every year for our annual meeting, a time when bluebirders flock together to strengthen family ties and to make new acquaintances.

Bloomington, Minnesota was the site for our fifteenth annual meeting which was very efficiently hosted by the Minnesota Bluebird Recovery Program and the Nongame Program of the Minnesota Department of Natural Resources. Dorene Scriven, Mary Ellen Vetter, and all their crew are entitled to consider a beneficial rest. Thanks for your hard work!

Friday, a cruise down the Mississippi River between St. Paul and Minneapolis took us through lock and dam number 1. On Sunday a two mile hike through Hyland Park to enjoy the results of the bluebird trails as well as the other fauna and flora spoke well for the natural beauty of Hennepin County.

On our hike, staghorn sumac and Virginia creeper were both clothed in their crimson glory. Showy goldenrod, Canada goldenrod, azure asters and white asters were at home along the trail. Black cherry trees, grey dogwood, burr oak, and aspen heralded the wind as we walked in the rain. Two tiger salamanders revealed their presence on



our path. Unlike some of us, they didn't bother to slip into rain gear. They were definitely in their element.

Enroute to Hyland Park by bus, we were absorbed in relaxed chatter when it was noted that our driver had not followed a specified route and, out of necessity, detoured near a small lake. Suddenly, people were shouting "tern, tern, tern." In his profound confusion the driver was saying, "Turn where? There's no place to turn." Six Caspian Terns flew by and were quickly gone, but our response to them stimulated curiosity in this young man.

At the picnic, Bill and I sat at a table with our two young drivers and others. One driver asked, "What's the deal about this bird that people were so excited about?" His question opened a door that any good bluebird-er tries to keep open. Here was an opportunity not only to explain something about a beautiful species, but also to talk about NABS and the bluebirds that we were seeing below a blue spruce. We were grateful for the opportunity to share with two willing listeners our reasons for being both excited and involved.

And to our guides Arden Aaenestad, Tom Holzinger, Clara Bleak, Judy Peterson, Joanne Husby, Judi Janiak, and Tiffany we say thanks for the camaraderie.

The very last bluebird that I saw in Minnesota was on top of my surprise birthday cake at the picnic. He was sweet and blue, and I'll never forget him. He was edible and, like the colors of autumn, he shared his beauty and was realistically enjoyed by those who partook. ■

Field Tests of Several Styles of Bluebird Nest Boxes

Kevin L. Berner and Veronica A. Pleines

Introduction

Bluebird enthusiasts are continually modifying conventional nesting boxes or developing new styles of boxes. These attempts to develop the "perfect nest box" are usually aimed at finding a box that is readily accepted by bluebirds (*Sialia spp.*), while being unattractive to non-native competitors and resistant to nest predators. The tests reported in this paper were conducted at three separate study areas to compare the use of several box designs or boxes with predator deterrent features by native and introduced species. This study replicates and expands on earlier work funded by NABS as reported in Berner (1990).

Conventional bluebird nest boxes are described by Zeleny (1976). Some of the boxes I tested were modifications of this design which featured either wooden predator guards of 3/4 in. (1.9 cm) or 1 3/8 in. (3.5 cm) thicknesses or "Bird Guardian" commercial plastic predator guards. Test results from boxes with these plastic guards were reported by Berner (1991). Some of the conventional boxes also had roofs which extended 5 in. (12.7 cm) beyond the entrance hole while all others had an approximately 2 in. (5.1 cm) overhang. These boxes had either 4 x 4 in. (10.2 cm) or 5 x 5 in. (12.7 cm) floors. I did not separate the box use data based on floor size, but Pitts (1988) found that bluebirds did not show a strong preference for small- vs. large-floored nesting boxes.

Peterson boxes were also used on all three study areas. These boxes are widely used in Minnesota and the surrounding region (Scriven 1989). My reviews of nest box surveys submitted to NABS indicates that this style is not as widely used outside of the north-central states as are the Zeleny boxes.

Another style of nesting box tested was the slot box. Davis (1989) found that House Sparrows (*Passer domesticus*) prefer boxes with circular entrances over those with a slot. Earlier, McComb *et al.* (1987) determined that European Starlings (*Sturnus vulgaris*) could be excluded from slot boxes by using a 1 3/16 in. (30 cm) wide opening across the box top. Tuttle (1990) observed that slot boxes were readily accepted by all common trail species in Ohio. He also noted that they are probably the most simple box style to build.

The Bermudez box was designed based on the premise that starlings and House Sparrows will avoid boxes that are shallow and have large entry holes (Bermudez unpubl. report 1989). This experimental nest box has a 2 3/4 in. (7.0 cm) round entrance with a floor only 4 inches (10.2 cm) below the entry hole. Field work by Bermudez indicated that sparrows used this box at lower rates than standard boxes.

The PVC box, developed by Gilbertson (1991) is constructed from a 4 in. (10.2 cm) diameter PVC pipe with a wooden floor and is covered by a flat wooden roof. He feels that this box design has great potential for providing bluebird nesting opportunities while being shunned by House Sparrows. These boxes can be mounted on 1/2 inch (1.3 cm) electrical conduit and rebar.

Study Areas

I have used one of the study areas, the New York Power Authority (NYPA) Blenheim-Gilboa Pumped Storage Power Project, for research since 1989. The site, described in detail in Berner (1990), is within a large plantation of uniformly spaced northern white cedars (*Thuja occidentalis*). Prior to 1990, this site had been kept in an early suc-

cessional stage through occasional cutting of hay; however, during the summers of 1990-1992, little hay was harvested and much of the area became poor bluebird habitat by early summer due to the dense growth of grasses 3 ft. (91 cm) or taller.

A second study area was developed in 1990 on the State University of New York (SUNY) Cobleskill College of Agriculture and Technology campus by expanding an existing nest box trail. Boxes were located on the campus farm and the adjacent recreation complex. The farmlands included pastures used by cattle and horses, intermingled with corn and alfalfa fields. The recreation complex abuts the campus farm and contains large open areas of grassy ski slopes and lawns.

A third study site was developed in 1991 on another trail that had existed for approximately 10 years in the Myers Road area east of Cobleskill, New York. All three trails are within Schoharie County where bluebirds exist in some of the highest densities found in the state.

Methods

Equal numbers of either four or five types of nest boxes were placed along each trail. Boxes were monitored weekly from early April to late August. Nearly all nestling Tree Swallows (*Iridoprocne bicolor*) and Eastern Bluebirds (*Sialia sialis*) as well as some adults were banded. All boxes at the NYPA site were mounted on metal pipes. During 1989 boxes at the SUNY site were mounted on either fence posts or pipe, but by 1991 all boxes had been mounted on pipe except one pair placed on a utility pole. All of the Myers Road boxes except two pairs were mounted on pipe. The pipes were heavily coated with automotive grease to deter raccoon predation, since raccoon populations in the county are currently extremely high.

1990 Field Work

NYPA site

There were 13 boxes each of five styles at the NYPA site in 1990 for a

total of 65 boxes. The box styles consisted of conventional boxes with 3/4 in. wooden predator guards, 1 3/8 in. wooden predator guards, 3/4 in. wooden predator guards and 5 in. roof overhangs, and Bird Guardians which included tail braces. The remaining 13 boxes were Peterson boxes, the fifth style of box tested.

Sixty nesting attempts were made at the NYPA site by native species of cavity nesting birds in 1990. A nesting attempt was defined as constructing a nest and laying at least one egg. No nest boxes were used by non-native House Sparrows. Eight nesting attempts were made by bluebirds, five in Peterson boxes, two in boxes with the thick 1 3/8 in. wooden guard, and one in a long-roofed box.

Tree Swallows used all styles of boxes at the NYPA site in their 35 nesting attempts, with the greatest use of the conventional boxes with 3/4 in. and 1 3/8 in. wooden guards with short roof overhangs. House Wrens (*Troglodytes aedon*) made 17 nesting attempts using all styles of boxes. Many of the House Wren nests were constructed late in the season after the peak of bluebird and swallow nesting. Eleven of the 13 boxes with Bird Guardians were unused by any species for the entire breeding season. (See Table 1.)

SUNY site

The SUNY site had 32 boxes in 1990 with eight boxes each of conventional boxes with 3/4 in. wooden guards, 5 in. roof overhangs with the same size guards, and Bird Guardians. There were also eight Peterson boxes.

Twenty-five nests were attempted by four species on the SUNY study area in 1990. Bluebirds, which have only recently begun to occupy the campus property, attempted two nests in boxes with 3/4 in. guards and one additional nest was documented in a Peterson box.

Swallows were much more abundant than bluebirds at the SUNY site and they dominated Peterson boxes, using them for seven of their 14 nesting attempts. They also used each of the other box styles at least twice. House Wrens are uncommon on the

Key to all tables:

BB: Eastern Bluebird
TS: Tree Swallow
HW: House Wren
HS: House Sparrow
HF: House Finch

"attempt" = at least
one egg laid

Table 1. Number of nest boxes used by box type and species at the NYPA site in 1990.

Box style (13 each)	No. of attempts				No. boxes never used
	BB	TS	HW	Tot	
3/4" wooden grd.	0	12	3	15	1
1 3/8" wooden grd.	2	11	2	15	2
Extended roof w/ 3/4" wooden grd.	1	4	4	9	5
Bird Guardian	0	2	2	4	11
Peterson	5	6	6	17	2
TOTAL	8	35	17	60	21

SUNY site due to the lack of brushy areas near the nest box trail and nested only twice, in long-roofed boxes. House Sparrows made six nesting attempts, half of which were in Peterson boxes. They attempted to use all box types except the long-roofed boxes.

Ten of the 32 boxes on this trail were not used by any species. Five of these boxes had "Bird Guardians." None of the eight Peterson boxes were unused. (See Table 2.)

1991 Field Work

NYPA site

Due to the low level of acceptance of boxes with "Bird Guardians" in 1989 and 1990 (Berner 1991), the 13 boxes with Guardians at the NYPA site were replaced by slot boxes in 1991. Each of the slot boxes at the NYPA site and the other research sites had a 2 x 4 block in the bottom making the box more shallow which Davis (1992) had suggested to discourage House Sparrows. My slot boxes were deeper by design than those used by Davis, so that even with the 2 x 4 block inserted they were 5 in. (12.7 cm) to the floor from the bottom of the slot. All other styles used in 1990 were retained at this site. Unfor-

tunately during the summer, maintenance staff mowed only narrow strips along each of the three rows of nest boxes leaving the bulk of the grasses too tall to provide quality bluebird habitat.

Five of the seven bluebirds nesting at the NYPA site were in Peterson boxes. While bluebird activity was high early in the nesting season when the grasses were short, most bluebirds abandoned the area by midsummer. One of the two pairs of birds that remained nested immediately adjacent to a lawn area at the Visitor's Center.

Swallows on the site had numerous nestings in all box styles except the slot boxes which they used for only one nesting. They used the other types for between six and nine attempts. House Wrens showed the highest use of slot boxes (five attempts) and used all other styles for two nestings each. Overall the Peterson boxes were used the most and were least frequently vacant. Slot boxes were the boxes least used by any species. (See Table 3)

SUNY site

I replaced the "Bird Guardian" boxes with slot boxes at the SUNY trail in 1991. I also added Bermudez boxes to this trail. There were eight

Table 2. Number of nest boxes used by box type and species at the SUNY site in 1990.

Box style (8 each)	No. of attempts				Tot	No. boxes never used
	BB	TS	HW	HS		
3/4" wooden grd.	2	2	0	2	6	3
Extended roof w/ 3/4" wooden grd.	0	3	2	0	5	2
Bird Guardian	0	2	0	1	3	5
Peterson	1	7	0	3	11	0
TOTAL	3	14	2	6	25	10

Table 3. Number of nest boxes used by box type and species at the NYPA site in 1991.

Box style (13 each)	No. of attempts				Tot	No. boxes never used
	BB	TS	HW	HS		
3/4" wooden grd.	0	8	2		10	4
1 3/8" wooden grd.	0	9			11	3
Extended roof w/ 3/4" wooden grd.	2	6	2		10	5
Peterson	5	9	2		16	1
Slot	0	1	5		6	7
TOTAL	7	33	13		53	20

boxes of each of five styles: 3/4 in. wooden guards with either long or short roofs, Peterson, slot, and Bermudez.

Bluebirds attempted eight nestings, five of them in Peterson boxes, with one each in three other box styles. Sparrows destroyed the bluebird eggs of two attempts in slot and Bermudez boxes

Tree Swallows used all styles of nest boxes except the slot boxes on the SUNY trail, with highest use of Peterson boxes, followed by the conventional boxes with both roof lengths, then Bermudez boxes. Only four wren attempts were made and no box preferences were obvious. House Sparrows attempted four nests, three of which were in slot boxes. No Peterson box went unused on this site in 1991, while at least three of each of the other styles did. A pair of House Finches success-

fully nested in a Bermudez box. (See Table 4)

Myers Road site

The Myers Road site consisted of private lands in a rural area of crop lands as well as active and abandoned dairy farms. This site first served as a research trail in 1991 and had six boxes each of five box styles: conventional boxes with 3/4 in. predator guards, Peterson, slot, Bermudez, and PVC boxes. This was the only study area where PVC boxes were tested in 1991.

Five of nine bluebird nesting attempts on the Myers Road trail were in Peterson boxes, three were in slot boxes, and one was in a PVC box. Tree Swallows were the most common species, nesting 11 times and using all styles of boxes, with the highest number of attempts in standard boxes.

Table 4. Number of nest boxes used by box type and species at the SUNY site in 1991.

Box style (8 each)	No. of attempts					Tot	No. boxes never used
	BB	TS	HW	HS	HF		
3/4" wooden grd.	1	4	0	1	0	6	3
Extended roof w/ 3/4" wooden grd.	0	4	1	0	0	5	3
Peterson	5	6	1	0	0	12	0
Slot	1	0	2	3	0	6	4
Bermudez	1	2	0	0	1	4	4
TOTAL	8	16	4	4	1	33	14

Table 5. Number of nest boxes used by box type and species at the Myers Road site in 1991.

Box style (6 each)	No. of attempts					Tot	No. boxes never used
	BB	TS	HW	HS			
3/4" wooden grd.	0	4	0	0		4	2
Peterson	5	3	1	0		9	1
Slot	3	1	0	2		6	3
Bermudez	0	2	1	0		3	3
PVC	1	1	2	0		4	3
TOTAL	9	11	4	2		26	12

Wrens attempted four nests in three different box styles. House Sparrows attempted only two nests, both in slot boxes. Overall the Peterson boxes received the highest level of use on this trail in 1991. (See Table 5)

1992 Field Work

Between 1989 and 1991, bluebirds showed little preference among the various modifications of conventional nesting boxes. Since studies I had done earlier indicated that longer-roofed boxes were better able to protect bluebird nests from raids by raccoons (Berner *et al.* 1990), and that longer roofs did not appear to discourage bluebird use (Berner 1990), I placed long roofs on all standard boxes. I have observed many bluebird boxes with wooden predator guards which were still raided by raccoons. My captive

raccoon tests also indicated that these guards provide minimal protection from raccoons (Berner *et al.* 1990). In order to determine whether the strong preference by bluebirds for Peterson boxes in 1990 and 1991 was due to less thickness of wood over the entry holes, I eliminated all wooden guards from all standard boxes in 1992. Each study area had conventional boxes with long roofs but no predator guard, slot boxes, and Peterson boxes. The SUNY and Myers Road areas also had Bermudez boxes. Slot widths on some 1991 boxes had changed from their original sizes during their initial season due to drying and warping of the wood. The slot widths were carefully monitored in 1992 to ensure that the recommended widths were maintained. The blocks at the base of the slot boxes were removed on all study sites creating a 6 1/2 in. (16.5 cm) deep box.

Lithium automobile grease was applied liberally to most of the pipe mounts to keep raccoons from climbing the poles. PVC boxes were mounted on electrical conduits and coated with carnauba wax at the NYPA and SUNY sites. On all sites grass was hand clipped periodically around the base of each pole to keep it from wiping off the grease.

NYPA site

By 1992, lack of mowing had reduced the area of suitable habitat at this site. Therefore, I decreased the size of the study area and reduced the number of research boxes from 65 to 44, leaving 11 each of four styles. The box styles were changed from a semi-random order to a systematic sequence of styles to eliminate potential problems of interpreting data if some areas were mowed and others were not. The NYPA was again only able to mow strips adjacent to the nest box rows and therefore nesting densities of bluebirds rapidly decreased as the grass height increased. Unlike most previous years, in 1992 Peterson boxes were not the dominant box used by bluebirds at the NYPA, in fact they were the only style not used. Instead three boxes of each of the PVC and long-roof design were used by bluebirds along with two additional slot boxes. Three of the first five clutches of bluebird chicks died during one week of unseasonably cold and wet weather in May. Only the pairs nesting closest to the Visitor's Center lawn re-nested, with

the others abandoning the more remote sites possibly due to the tall grasses.

Tree Swallows were less affected by the increasingly tall grasses probably because of their aerial feeding habits. Twenty-four nesting attempts were made by swallows. The most commonly used box types were Peterson and long-roofed boxes, followed by slot boxes. Just two attempts were made in PVC boxes. House Wrens made three of their five attempts in slot boxes, which may have been the easiest style of box to bring sticks into. Overall, the long-roofed boxes were most used and PVC boxes the least used by all species combined. (See Table 6)

SUNY site

The SUNY site had eight boxes each of the five different styles. Bluebirds made 10 nest attempts, four in Peterson, and three each in PVC and slot boxes. No bluebirds used long-roofed or Bermudez boxes.

Tree Swallows nested 14 times, selecting Peterson boxes most frequently. Some nesting attempts were made in each of the other styles except PVC boxes. House Wrens selected long roof, Peterson, and slot boxes for their seven nesting attempts. House Sparrows nested in two Peterson and two slot boxes. When combining the use of all species, the Peterson boxes were the most used boxes by a wide margin, and none of them remained empty for the entire breeding season. Slot boxes had the second highest use

Table 6. Number of nest boxes used by box type and species at the NYPA site in 1992.

Box style (11 each)	No. of attempts				No. boxes never used
	BB	TS	HW	Tot	
Extended roof w/ no guard	3	8	1	12	2
Peterson	0	9	0	9	2
Slot	2	5	3	10	3
PVC	3	2	1	6	6
TOTAL	8	24	5	37	13

and next lowest vacancy rate. (See Table 7)

Myers Road site

There were six boxes of each of the five box styles on the Myers Road trail in 1992. Bluebirds made seven of their 11 nests in Peterson boxes, with two additional nests each in slot and PVC boxes.

Tree Swallows attempted six of their 13 nesting attempts in long-roofed boxes, with one to three attempts in each of the other designs. House Wrens split their six attempts among all types except the long-roof boxes. House Sparrows were rare on the trail and attempted to use just one slot and one Peterson box. A pair of House Finches nested twice in a Bermudez box. When combining all species' use, Peterson boxes were used twice as

many times as any other box style while no Peterson box went unused for the entire summer. No long-roofed box was unused but each one was used only once while most Peterson boxes were used for multiple nestings. (See Table 8)

Predation

Raccoon predation on the NYPA trail had been very high in 1988. Poles were greased in 1991; however, wind-blown tall grasses removed much of the grease. In addition, after thin strips were mowed along each row of boxes that summer, raccoons had an easy time locating boxes and climbing the now lightly greased poles. In a one and a half week period 24 swallow nests were destroyed by raccoons. Predation was not a significant problem at the other study sites.

Table 7. Number of nest boxes used by box type and species at the SUNY site in 1992.

Box style (8 each)	No. of attempts				Tot	No. boxes never used
	BB	TS	HW	HS		
Extended roof w/ no guard	0	2	4	0	6	4
Peterson	4	6	2	2	14	0
Slot	3	3	1	2	9	1
PVC	3	0	0	0	3	5
Bermudez	0	3	0	0	3	5
TOTAL	10	14	7	4	35	15

Table 8. Number of nest boxes used by box type and species at the Myers Road site in 1992.

Box style (6 each)	No. of attempts				Tot	No. boxes never used
	BB	TS	HW	HS		
Extended roof w/ no grd.	0	6	0	0	6	0
Peterson	7	3	1	1	12	0
Slot	2	1	2	1	6	3
PVC	2	2	2	0	6	1
Bermudez	0	1	1	0	2	3
TOTAL	11	13	6	2	34	4

In 1992, poles on all areas were very heavily greased, or in the case of the PVC mounts at NYPA and SUNY, treated with carnauba wax. Only one NYPA box was raided by raccoons. It had been knocked over by a mower and had lost its coating of grease before being put back up. One box on the Myers Road trail was raided by raccoons which climbed up an adjacent woven wire fence and reached the roof without touching the pole. Periodic trimming of the grass in a 2-3 foot radius around the poles appeared to help maintain heavy coatings of grease of most poles. No PVC box with carnauba wax on the pole was disturbed.

Discussion

The combined results of the four years of research described here and in Berner (1990) indicate that species' acceptance and use of various styles of nesting boxes varies greatly. When given a choice of box styles, each species will choose some types over other types. While a preference may exist, a less desirable box style will probably be used when it is the only type available to a pair of birds.

Table 9 summarizes my four years of research. It has both raw data on number of nesting attempts as well as the expected number of attempts for every 100 boxes in the field. This type of calculation makes comparisons between box types easier. It appears that the most preferred box type for bluebirds is the Peterson box, which was used for 44 nesting attempts for every 100 boxes in the field. PVC and slot boxes had the next greatest attraction for bluebirds. All of the standard boxes had relatively low levels of use when alternative boxes were available. I would discourage the use of Bermudez boxes and the Bird Guardian for bluebird management.

Tree Swallows appear to be willing to use most box styles, particularly any standard or Peterson box. Slot boxes and Bermudez boxes still had fairly high levels of use, but were chosen considerably less frequently

than the two styles mentioned above. The two boxes with at least some non-wood component, the PVC and the Bird Guardians, appear to be the least attractive nesting alternatives for the swallows.

House Wrens exhibited a relatively narrow range of use levels, not showing a marked preference or avoidance of any box style. House Sparrows were not a serious competitor on any study area, possibly due to not being allowed to nest successfully on any of the study areas for several years. Slot boxes, proposed as a sparrow-resistant box, actually had the highest level of sparrow use in this study, followed by Peterson boxes. No sparrows nested in PVC boxes, but it is unknown whether this suspicious species would become more tolerant of this style box over time, as has been suggested. None of my Bermudez boxes were used by sparrows even though several were placed in areas of high sparrow density. Still, this box appears to have limited potential due to the bluebirds' avoidance of it.

I feel that heavy coats of grease or a slick coating of carnauba wax can provide a very high level of protection against predation by raccoons. Keeping raccoons from getting to the box at all is superior to allowing them to get to the box and then relying on some modification to restrict their entry. Their harassment alone may cause birds to abandon the box.

Future Work

I plan to continue this research with minor modifications to reduce the problems of small sample size and year to year variation. Next year I will eliminate the Bermudez box, as I have already done with the Bird Guardian, due to its low level of use by bluebirds. I would encourage others to conduct similar controlled tests on their trails to confirm or refute my research results. ■

Acknowledgements

The establishment of the NYPA trail

Table 9. Total number of observed attempted nests for each species and the predicted number of nesting attempts/100 nest boxes in parentheses. Data combined for 1989-1992.

Box style	No. boxes	No. attempted (No. expected/100 boxes)			
		BB	TS	HW	HS
3/4" wooden grd.	61	4 (7)	36 (59)	7 (12)	3 (2)
1 3/8 wooden grd.	39	3 (8)	27 (69)	7 (18)	0 (0)
Extend. roof + 3/4"	55	8 (15)	25 (46)	10 (18)	0 (0)
Extend. roof no grd.	25	3 (12)	16 (64)	5 (20)	0 (0)
Bird Guardian	34	0 (0)	5 (15)	4 (12)	1 (3)
Peterson	73	32 (44)	49 (67)	13 (18)	6 (8)
Slot	52	11 (21)	11 (21)	13 (25)	8 (15)
Bermudez	28	1 (4)	8 (29)	2 (7)	0 (0)
PVC	31	9 (29)	5 (16)	5 (16)	0 (0)
TOTAL	398	42	131	48	12

and travel money to the study sites in 1990 was supported by a grant from NABS. NABS also purchased some of the PVC boxes. Graduate Research Initiative grants from SUNY Cobleskill were used to supply materials to build research boxes and to pay student assistants in 1991. Students from the SUNY Cobleskill Fisheries and Wildlife Technology program built many of the research boxes, modified the SUNY and NYPA trails, and repaired damaged existing boxes each spring of the study. A grant from the Bluebird Recovery Program of Minnesota covered my travel to the three research areas and additional miscellaneous expenses including purchase of PVC boxes in 1991 and 1992. Barbara DiCocco and John Hamor of the NYPA assisted by providing logistical support throughout the study. A private donor who prefers to remain anonymous has made generous contributions each year to my research, allowing me to cover expenses beyond my other grants. I would also like to thank my wife, Nancy Niles, for her assistance in trail monitoring and in reviewing this manuscript.

Literature Cited

- Bermudez, B.A. 1989. Development of a House Sparrow/starling proof nest box design that is acceptable to native cavity nesters. Unpublished report to NABS. 10pp.
- Berner, K.L., D. McGettigan, and S. Krieger. 1990. Testing a raccoon's ability to raid a nest box. *Sialia* 12:83-87.
- Berner, K.L. 1990. Field tests of predator-deterrent nest box devices for acceptance by cavity nesting birds. *Sialia* 12: 123-128.
- Berner, K.L. 1991. Field tests of the "Bird Guardian" commercial predator guard. *Sialia* 13:14-19.
- Davis, W.H. 1989. House Sparrows prefer a circular entrance. *Sialia* 11:8-10.
- Davis, W.H. 1992. Tests of the shallow slot box. *Sialia* 14:63-64.
- Gilbertson, S.L. 1991. New PVC house attracts bluebirds, not sparrows. *Sialia* 13: 93-97.
- McComb, W.C., W.H. Davis, and P.N. Allaire. 1987. Excluding starlings from a slot-entrance bluebird nest box. *Wildlife Society Bulletin* 15:204-207.
- Pitts, T.D. 1988. Effects of nest box size on Eastern Bluebird nests. *Journal of Field Ornithology*. 59:309-313.
- Scriven, D.H. 1989. *Bluebirds in the Upper Midwest: A Guide to Successful Trail Management*. Audubon Chapter of Minneapolis, Minneapolis, Minn. 178pp.
- Tuttle, R.M. 1990. Details for a front opening nest box with a slot entrance. *Sialia* 12:13-17.
- Zeleny, L. 1976. *The Bluebird: How You Can Help Its Fight for Survival*. Indiana Univ. Press, Bloomington. 170pp.
- State University of New York
Cobleskill, NY 12043

QUESTION CORNER

Lawrence Zeleny



A Brown-headed Cowbird was successfully raised by Eastern Bluebirds in a bluebird nesting box with a standard 1 1/2 inch entrance. This occurred in Cherokee County, in the extreme southeastern part of Kansas during July 1992. Do you have any statistics or information regarding how often this has been reported?

Lawrence Herbert
Joplin, Missouri

I have no information on how often this happens but believe it is rather rare. Since I started working with bluebirds in 1918, I have encountered this only once. In that instance, two cowbirds and no bluebirds were fledged from the nest.

Is there any evidence of House Wren predation of House Sparrow or Tree Swallow nests? I observed House Wren predation of Carolina Wren eggs in a nest in a hanging flowerpot.

Bob Early
Hummelstown, Pennsylvania

I strongly suspect that House Wrens would prey on House Sparrows and Tree Swallows nesting in nesting boxes in the same way that they do with bluebirds. I have no proof, however, since on my own bluebird trail I destroy any sparrow eggs before the wrens get around to it.

My experience with Tree Swallows has been too small to be of any significance.

A female bluebird in one of my boxes built a nest and laid her first egg on the 18th of May, early in the morning. Two more eggs were laid the mornings of the 19th and 20th. It appeared that she then began setting. At 7:30 p.m. on the 20th she was still setting. The next morning my wife looked in again and there were four eggs. Could the bluebird have laid two eggs on the same day?

George N. Lumsden
Fairfax, Virginia

I presume that it is possible for a bluebird to lay two eggs in one day. The eggs are usually laid roughly 24 hours apart.

In the case cited, there seems to be no reason to believe that the bluebird laid two eggs in one day. The last egg of the clutch was probably laid early in the morning on May 21. Bluebirds often, and according to T. David Pitts usually, begin incubation on the day before the last egg is laid. ■

Karen Blackburn's New Address

Observations concerning bluebirds and plantings should be directed to Karen Blackburn. Her new address is 185 Mica Hill Rd., Durham, CT 06422.

Bluebirds, Blowflies, and Parasitic Wasps

Christopher Darling and Julie Thomson-Delaney

Although 70 percent of all described animal and plant species are found in a narrow belt around the equator, you do not have to venture into areas of pristine tropical forest to find and study new species or to discover the remarkably complex interactions between species. This can often be accomplished in your own backyard if you look closely at the smaller forms of life.

If nothing else, biodiversity concerns insects, and to a lesser extent, flowering plants. Of the 1.4 million species known to science, about 750,000 are insects and about 250,000 are flowering plants. Current estimates place the number of species inhabiting the planet at somewhere between 5 and 30 million, a degree of uncertainty that is sad testimony to a lack of basic understanding of the world around us. And as the exploration of biodiversity continues, the representation of insects will increase dramatically. Today, it is rare to add to the register of approximately 9000 species of birds, but the discovery of new insect species is commonplace in North America.

It is important to realize that the multitude of insect species is not one of nature's follies. Each species functions as an integral part of biological communities. But because of the small size of most insects, their roles are unappreciated if even contemplated. It is rather ironic that the survival of the orangutan in Sumatra and Borneo may be dependent upon species of tiny wasps, each specimen less than a millimeter in length. Why? Because wasp pollinators are essential to the fig crop, and figs are a major food source for orangutans. It is also ironic that the health and welfare of the Eastern Bluebird, one of the most cherished species

of songbird in North America, is intertwined with the furtive ways of another species of minute wasp.

Bluebirds, with their striking plumage and gentle disposition, have charmed birdwatchers for generations. But populations have declined by as much as 90 percent over the past 50 years and the species is currently designated as rare by the Ontario Ministry of Natural Resources. Their decline has caused not only a public outcry but the establishment of legions of devotees determined to revive the species. The reasons for the decline in numbers are undoubtedly complex but most certainly relate to human manipulation of both the physical and biological environment.

Bluebirds build their nests in preformed cavities such as holes in dead trees. Intense competition for nesting sites is considered to be one of the major factors limiting population size. Another cavity nester, the House, or English, Sparrow, was introduced into North America in 1851. The great growth of the sparrow population, together with the clearing and management of wood lots, is thought to be a major contributor to the plight of the bluebird. An obvious solution to what appeared to be a straightforward problem was the provision of more nest sites, but like so many other quick-fix solutions that come from rapid assessments, it failed to take into account both the diversity and complexity of ecological interactions.

Clubs and societies were established and thousands of nest boxes were set up in fields and windrows to provide suitable nesting sites. (The Canadian record may well belong to Henry Metke, who singlehandedly built and established more than 1000 nest

boxes in and around Kelowna, British Columbia.) The nest boxes were designed with entrance holes of a size meant to discourage other tenants. In addition, regular "trap lines" of nest boxes were established so that the boxes could be easily checked for squatters, especially the dreaded House Sparrows, which, when found, were unceremoniously evicted. The growth and development of the baby birds were frequently monitored. However, this hands-on approach soon revealed another competitor, one that would not be so easily dispatched.

Much to their horror, bluebird managers would often find large grub-like parasites attached to the nestlings, or large numbers of fly maggots in unsuccessful nests. These maggots were the immature stages of *Protocalliphora*, a highly specialized group of blowflies that feed exclusively on the blood of birds. Like many parasites, these usually do minimal damage to healthy hosts, but death of the nestlings has been reported in times of food shortage or if the parasite load in a given nest is extremely high.

Needless to say, the existence of these blood-sucking parasites elicited an immediate and expected response: they must be eliminated. But as the history of attempts to eradicate insect pests has shown, this would not be an easy task. Insect populations are remarkably resilient. Nevertheless, the first reaction was to call out the chemical artillery.

War was to be waged on the blowflies, but this gut response was tempered by the increased awareness of the effect of insecticides on vertebrates—in this case the bluebirds. A safe insecticide had to be found. Rotenone-based flea powders were soon selected and the painstaking task of dusting the nestlings began.

There were major problems with this approach. In practice, only specific bluebird nests could be treated, and although individual nestlings may have benefited from this attention, nothing was done to limit blowfly populations in natural nest sites or in un-

monitored nest boxes. This completely reactive approach also did not address the cause of the problem, the resident population of blowflies. The approach was conceived in the total absence of information about the biology of blowflies. A wiser reaction would have been to conduct detailed biological studies to evaluate the situation and to formulate an appropriate management plan.

For years it has been known that many species of flies, including *Protocalliphora*, are attacked and killed by parasitic wasps. Most species of wasps attack while the flies are in the vulnerable pupal or resting stage, between the maggot and adult stages. Species of *Nasonia* are the most commonly encountered. With their brilliant iridescent metallic colors, these very small insects (approximately three millimeters in length) are aptly named "jewel wasps."

The females locate the host, drill a hole through the tough outer covering of the pupa, paralyze it, and then lay eggs on the surface of the developing fly. The eggs hatch and the voracious wasp larvae quickly consume the host, then pupate themselves inside the protective pupal case. When development is complete, a new generation of jewel wasps emerges from the pupae, mates, and begins the cycle anew. Development is very rapid and the generation time can be as short as 10 days during the dog days of summer. The parasites are gregarious and many wasps, a preponderance of them females, emerge from a single host. The fall generation of wasp larvae enters a diapause, or a hibernation-like state, and overwinters within the blowfly pupal case.

But what species, if any, of parasitic wasps are present in natural nests and in nest boxes? Do these wasps control blowfly populations? Are bluebirds more heavily parasitized by blowflies in nest boxes or in natural nests? These were important questions because it was certain that the insecticide dusting procedure would also kill parasitic wasps, removing them as potential checks and balances of blowflies.

To answer these questions a biological study was initiated by the Royal Ontario Museum's Department of Entomology. Its purpose was to gather as much natural history information as possible concerning the biological community of bluebirds, blowflies, and parasitic wasps. This was facilitated by a collaboration with Dr. Raleigh Robertson of Queen's University, whose long-term studies of bird ecology are conducted at the university's biological station in Chaffey's Locks, Ontario. Extensive grids of nest boxes have been established for studies of the reproductive biology of Tree Swallows and bluebirds, which provide important ecological information on blowflies and jewel wasps. The approach in the first year of study was to collect the contents of nest boxes in the late summer, after the birds had fledged, and to look for evidence of blowfly infestation.

Many empty blowfly puparia were found, an indication that the flies had completed their life cycle and had left the nest box to overwinter in the leaf litter or some other protected sites. But closer examination revealed that some of the puparia were not actually empty but were, instead, filled with many small larvae. These pupae were brought back to the Museum and after a couple of months in the refrigerator—a simulation of a rather brief and mild winter—were allowed to continue their normal course of development. Most of these puparia gave rise to jewel wasps of the genus *Nasonia*. Although this is one of the most commonly collected and studied species of parasitic wasp in the world, virtually all studies have been confined to the laboratory and very little is known about the role of *Nasonia* in nature, or of its effect on blowfly populations.

With our preliminary data we approached World Wildlife Fund Canada. This led to financial support from the Endangered Species Recovery Fund to conduct the background studies needed for developing an integrated blowfly management plan. Thanks to their generosity, field studies were in-

itiated during the spring and summer months of 1988 and 1989 to examine the ecological interactions of blowflies and *Nasonia* and to determine whether it would be possible to manipulate the relationship in the bluebird's favor.

Bluebirds can produce two broods of young in a season and our first important piece of information was that the spring and summer nests are not equally parasitized by blowflies and parasitic wasps. There is a preponderance of blowflies in the spring. Ninety percent of all nests contain blowflies and more than 150 blowfly maggots can be found in a single nest. However, the infestation rate by blowflies increases only slightly as the bluebird breeding season progresses.

Populations of *Nasonia*, on the other hand, seem to build slowly throughout the season. Only about half of spring bluebird nests with blowflies contain wasps, and only about two percent of the blowfly pupae are parasitized. The situation is very different by July, when virtually all nests with blowflies are parasitized by *Nasonia* and about 60 percent of the blowfly pupae are killed by parasitic wasps. Blowflies do better in the spring and the jewel wasps do better in the summer, which suggests that the ability to overwinter may be an important factor in the ecological dynamics of the system.

By late summer blowflies have emerged from all the unparasitized pupae, and they overwinter as adult flies, most likely in the leaf litter. But parasitized blowfly pupae, each containing dozens of *Nasonia* larvae, remain in the nest. The *Nasonia* larvae spend the winter months in the blowfly puparium and resume development the following spring. One explanation for the different seasonal patterns exhibited by the blowflies and the wasps is that the wasp larvae experience high levels of mortality during the winter, resulting in the low numbers found during the spring.

There is one aspect of nest box management that perhaps works against successful overwintering by the jewel wasps. Many managers rou-

tinely clean out their nest boxes in the fall, sprucing up the digs for next year's returning bluebirds. The used nesting material is either discarded or swept onto the ground, a practice that destroys the *Nasonia* larvae that would normally overwinter in the blowfly pupae. Unfortunately the *Nasonia* population that has been built up from its humble beginnings in the spring is decimated by this practice, and so there are fewer wasps for the next year's assault against the blowflies.

There does appear to be one way to improve bluebird nest boxes. Hardware cloth platforms installed beneath the nesting materials reduce not only the level of blowfly infestations (from 87 to 32 percent of nests) but also increases the percentage of blowflies in a nest that are killed by *Nasonia* (from 28 to 69 percent). Why this happens is unclear; it is not known if it is the result of changes in attack rates or of the survival rates of the blowflies and parasitic wasps.

One of the most exciting aspects of this research was the discovery of two new species of *Nasonia* from North America. One species comes from the east and the other from the west. Both have been collected only from birds' nests and appear to be exclusively parasites of *Protocalliphora* blowflies.

The behavioral interactions of these species of *Nasonia* are extremely complex and are virtually unexplored. What is known is that the species have very different life histories, but both can be reared out of the same blowfly puparium. When more fully understood, these additional species will provide new biological agents that can play a part in the management plan for bluebirds.

What can be learned from such a study? First, unexplored biodiversity is everywhere, even in the fields and hedgerows of southern Ontario, and that biodiversity is crucial for sustaining life. Second, biodiversity involves more than names and data in museum collections, databases, catalogues,

and checklists. The world is an interacting network of species and processes, many of which are yet to be discovered, and most of which are yet to be understood. Finally, it is not surprising that many of our attempts to manipulate systems that we do not fully understand do more harm than good. If we cannot effectively manipulate populations of a few species confined to nest boxes, then what hope is there for developing effective conservation strategies or a sustainable means of utilizing rainforests, the most complex ecosystems on Earth? To attempt to perform such tasks without a full understanding of what species exist in the environment and how they interrelate is arrogance of epic proportion. ■

Royal Ontario Museum
Department of Entomology
100 Queen's Park
Toronto, Ontario
Canada M5S 2C6

Bluebird Boosters

Appearing on the inside back cover is a list of those individuals 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. We thank the individuals, organizations, and businesses for their generosity.

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

All contributions are tax deductible. Mail your check to NABS Boosters, P.O. Box 6295, Silver Spring, MD 20916-6295.

Prothonotary Warbler Nest Stub

Laurance Sawyer

In addition to the bluebird, another cavity nester in need of help has recently come to my attention. It is rare, elusive, and in dire need of housing. Besides all that, it is one of our most beautiful woodland dwellers: the Prothonotary Warbler.

On my sister, Hope's, wildlife refuge in New Jersey, a pair of these warblers searched for a nesting cavity. Much of the land is swampy with a few fine pools surrounded by shrubs and shaded by trees—an ideal habitat. There seemed to be no satisfactory homesite for the couple.

Hope alerted me to their need, even drawing a fine sketch of what she considered to be an ideal Prothonotary Warbler house. It would fake a leaning dead branch, broken off just above a woodpecker hole with a cavity of sufficient depth to foil a marauding raccoon.

While I was busy with this order, the birds' search continued. By the time I completed my unique house and sent it to her, the warblers were already established in one of my regular log bluebird boxes along a trail in the woods. Eggs were being incubated which hatched soon after the new special cavity was ready. Next year there will be three of these newly designed houses in place. They will probably be located leaning over one or more of the pools. Perhaps some *Sialia* readers will get a yen to attract these lovely birds along some swampy woodland waterway.

The outside log shell of poplar simply fits down over the cavity log. It lifts off for inspection and removal of the old nest or debris of

any sort. The inner (cavity) log is of red cedar heartwood. Two lag screws secure the inner log to the host tree. I have also made two stubs using cedar for the whole house with no bark attached—the dead branch effect. The logs are hollowed out on my "woodpecker" lathe. Even then, it's a ten hour job. It is hard to make a good fit with the host tree.

Rt. 1, Box 385A
Ringgold, GA 30736

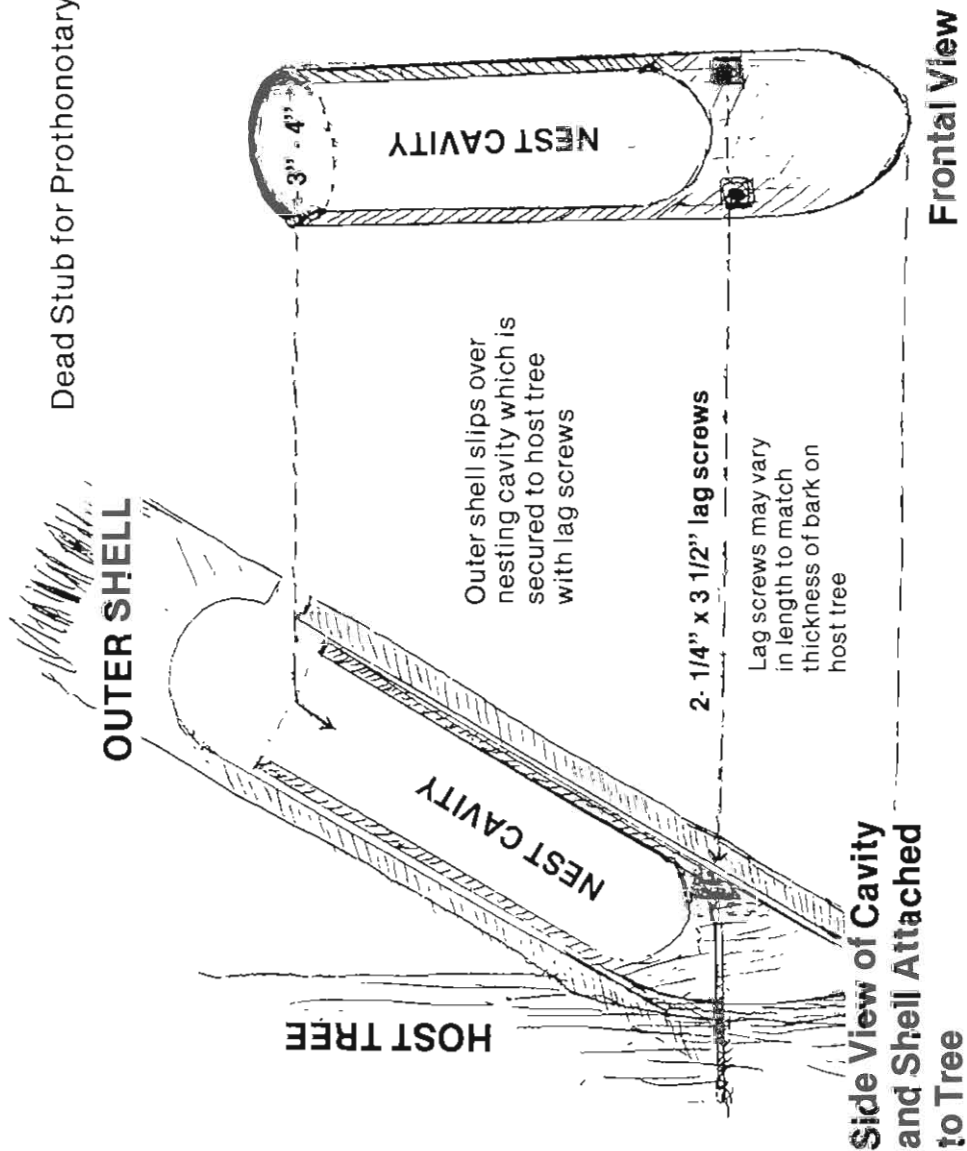
Diagram and photographs on following pages.



Photograph by Laurance Sawyer

Prothonotary Warbler stub with Eastern Bluebird at entrance feeding young. In this instance, the bark-covered outer log is poplar.

Dead Stub for Prothonotary Warblers





Prothonotary Warbler at entrance to a conventional Laurance Sawyer bluebird house where a pair nested at his sister's New Jersey home before Sawyer's new nest stub had been completed.



Photograph by Laurance Sawyer

Cedar dead stub Prothonotary Warbler cavity created by Laurance Sawyer and mounted in his yard. White-breasted Nuthatch is shown at the entrance.

Prothonotary Warblers Use Nest Box Inside Capital Beltway

John Zyla and Mike Donovan

In the Summer 1989 issue of *Sialia* 11(3):96, Rich Dolesh brought attention to the newly constructed nest box trail "inside the beltway" at Ft. Lincoln Cemetery and Colmar Manor Community Park in Colmar Manor, Maryland. The beltway (Rt. 495/95) surrounds the Washington, D.C. metropolitan area including suburban areas in Maryland and Virginia. This new trail provided the boxes in which the first Eastern Bluebirds (*Sialia sialis*) inside the beltway were recorded in recent times.

This summer the trail provided another first. In June 1992, a pair of Prothonotary Warblers (*Protonotary citrea*) took up residence in a bluebird box approximately 1/4 mile from the Washington, D.C. line. This is about 4.5 miles inside the beltway in Prince George's County, Maryland.

This spring an additional 63 boxes were placed at Fort Lincoln Cemetery and another 50 boxes in nearby Colmar Manor Park (Dueling Creek Natural Area) in an effort to increase the local bluebird population. Volunteers and staff were enlisted to monitor all 115 boxes weekly from April to August. One of these, box no. 26, stands a foot above water in a swampy area dominated by black willows (*Salix niger*) and river birch (*Betula niger*). This site is only 100 yards from the Anacostia River. It was in this box that the warblers took up residence.

Since five of the boxes were in high water (beyond hip boot level) they were not checked manually, but were observed for activity once a week, until some type of activity was noted.

Breeding activity was as follows:

9 May 1992-Male Prothonotary Warbler observed entering and exiting box no. 26 by Bud Shepperd and Prince George's Audubon Society May Count group.

13 May 1992-Box observed from



Prothonotary Warbler at nest box at Dueling Creek Nature Area, Colmar Manor, Maryland.

shore by Mike Donovan. After 2 hours, no activity noted. (Female probably incubating or laying eggs).

22 May 1992-No activity noted.

3 June 1992-Box checked manually by Kevin Beale, Director at 30th Street Nature Center and John Zyla. Five young (few days old) Prothonotary Warblers observed. Eyes closed. Nest was so high, you could see the young by looking through the entrance hole.

5 June 1992-Both the male and female were observed bringing food to the 5 young. Photographs were taken. Black snake observed in neighboring box. Removed after eating 3 Tree Swallow chicks.

10 June 1992-Adults observed removing fecal sacs and arriving approximately every 4 to 5 minutes and departing in 2 to 3 seconds.

12 June 1992-Five fledglings with yellowish-green feathers about ready to fledge. Photographs taken.



Prothonotary Warbler young in nest box at Dueling Creek Natural Area, Colmar Manor, Maryland.

13 June 1992-Nest empty. All five young had fledged successfully.

Much to our dismay, the warblers did not use the box again. After two weeks, the nest was removed. The 5" x 5" box had inside what looked like a Tree Swallow nest with feathers, a House Wren nest with sticks, followed by a very small cup-like nest the warblers had constructed. The nest edge was right at the entrance hole, so that the young might have rolled out if the nest box had been shaken. Information as to whether the warblers use the same nest for the second brood or whether they require an empty box was limited. If any one has information on second clutches, please contact me. Our new trail also fledged 28 bluebirds, 28 Tree Swallows, 11 Carolina Wrens, 5 Tufted Titmice and 51 House Wrens. Next year? We are hoping that a Great Crested Flycatcher will take up residence. ■

John Zyla, 935 Oxley Drive, Mechanicsville, MD 20659; Mike Donovan, 4114-54th Street, Bladensburg, MD 20710

Correction: Wonewok Conference Centre

The material presented in the

Autumn 1992 issue of *Sialia* (14:133-139) was intended solely as informational. The only individuals who are eligible to join or participate in 3M's bluebird program are those who have been corporate guests at the Centre.

Minnesota, Wisconsin, and Iowa all have extremely active and well-organized bluebird programs. Residents of the Upper Midwest are encouraged to join their respective state bluebird organizations. Report nesting results directly to those state organizations.

—J. Solem, ed.

Historian's Request

Please send newspaper and magazine articles about bluebirds to Historian Jane Williams, Box 123, Ware Neck, VA 23178. Be sure name and address of publication, volume and date are included. Photographs of members engaged in publicizing bluebirds or those documenting some unusual occurrence are also welcome. They will be added to scrapbooks which are a permanent record of activity on behalf of bluebirds and other cavity nesters.

Netting Saves Nestlings from Snakes

Lynda Blair

One of our bluebird boxes is mounted on a satellite dish pole. At one time we were having a lot of difficulty with House Sparrows so I called the bluebird troubleshooter for our area, Ron Kingston of Charlottesville, Virginia. After giving me some great advice about the sparrows, we talked a little about snakes. Although I had never had a snake successfully climb the pole and get into the box, I have had them try which was a great source of worry to me. Ron suggested fashioning a skirt made of garden netting to encircle the pole. I used Ross' garden netting, doubled it over, and gathered it like a ballet dancer's tutu, using a piece of thin florists' wire for support. I made the skirt about two feet long and used sufficient netting to allow it to stand out good and stiff.

I had no trouble with snakes that year, but this summer, perhaps due to all the rain we have had, there seemed to be more than the usual number of snakes. The photograph is of the second snake of the summer which was attracted by the peeping of the five nestlings in the box. He must have been entwined in the netting for quite some time because he had pulled it down quite close to the ground. I usually keep the tutu about two feet off the ground about one foot below the bottom of the box. We were able to save the snake. We took it, netting and all, to a wooded area where my husband painstakingly cut him free of the mesh. The next brood of nestlings in the box attracted another snake, even larger this time. We were out of town at the time so, unfortunately, the snake died. Our babies were

saved, however. It was interesting to note that the parents continued to feed the nestlings, even though there was a snake just below the box. ■

6024 Wensleydale Dr.
New Kent, VA 23124



Photograph by Lynda Blair

Snake entangled in netting below bluebird nest box.

(BEAR—Continued from page 25)

house punching holes in the sky with my 12-gauge. As for Buddy, he took one look and left on a dead run. I don't know whether it was the noise or the wild apparition in a red nightshirt, with flying tails, that convinced him to leave.

I turned and glanced at the window. There stood my wife convulsed with laughter. "My kingdom for a video camera," she gasped.

Buddy hasn't returned, but I don't believe I scared him that badly. Rumor has it that a bear raided a neighbor's chicken yard in broad daylight and his career came to an inglorious finale.

"Sic transit gloria mundi." ■

11043 Willow River Rd.
Gheen, MN 55740

Bluebirds Fledge from a Sparrow's Nest

Joe Huber

House Sparrows had nothing to do with raising these bluebirds, but a sparrow's nest was used to replace an infested bluebird nest.

After making the rounds monitoring my bluebird nest boxes, I returned home to check the progress of a bluebird nest in my backyard.

The week before there had been 5 seven-day-old bluebirds in the box. This time when the top was removed there were 2 young bluebirds huddled high up in one corner of the nest and 3 dead young in the bottom. One had been dead for several days while the others seemed to have died more recently.

Immediately, I realized that blowfly larvae were the trouble. The one young that had been dead the longest felt like an ice cube to the touch. No wonder the live birds were trying to stay up off the nest.

After a quick trip to the house, I returned and removed the live birds one at a time placing them in the bottom of a grocery bag on top of a towel.

Because this nest box was a dual-opening type, it had a hinged front that opened and hung below the box which made nest removal easy. I then dug into another bag which contained two House Sparrow nests which had been removed from boxes on my bluebird trail. Using the top section of one of these nests, a new flattened nest was formed for the bluebirds. The young were then placed back into the box and the box closed while the adult bluebirds waited for me to finish.

As I entered a nearby screened porch, the adult bluebirds resumed

feeding the young. A few minutes later the female entered the box to remove a fecal sac so I knew it was back to business as usual.

Just five days later I was able to watch the nestling bluebirds fledge while sitting on this same screened porch. This was day 19 in the nest.

This again proves the importance of monitoring nest boxes on a regular weekly schedule.

There are still plenty of people that are afraid to touch a nest box once bluebirds are nesting for fear of scaring them away. That just doesn't happen. If bluebirds do abandon a nest, it is likely for unseen reasons such as predators at or near the box for too long a time or the death of one of the adult birds. Just because there are two bluebirds still in the area doesn't mean they are both the original pair.

When you monitor, take a closer look than I did the week before I found the dead nestlings since blowfly larvae can be spotted on the birds. This was my first known loss to blowflies, but fortunately I knew what to do from reading publications such as this one. Perhaps most or even all of the nestlings could have been saved if the nest had been replaced a week earlier.

I had a ready-made nest to use, but you can make your own with dry grass if you ever need to. It does not have to be as neat as the ones the birds make. ■

1720 Evergreen Court
Heath, OH 43056

Sara Beth Parks Is a Riley County 4-H Fair Champion for Bird (and Bluebird) Project



Sara Beth Parks, 8, a third grader at Woodrow Wilson Elementary School, Manhattan, Kansas, in 1992 submitted a book project for the Riley County 4-H Fair. She received a purple champion ribbon and a plaque from the Flinthills Chapter of Quail Unlimited for best of class in the Birds Around You 4-H project.

Her book indicated that she had identified birds in her yard, fed them at six feeders, made field trips to several good birding areas, and listed the species identified. Her main concentration, according to her own description, was Eastern Bluebirds. She built a nest box with her father's help and had two nestings. She built a second box which she used to present a project talk at a club meeting. Sara included photographs documenting her work with bluebirds, added a bibliography, and finished her book with acknowledgements to her father and to her teacher, Mrs. Deb Falk. ■

End of the Road

Robert A. Stevenson

Robert Stevenson here concludes his bear saga (Sialia 13:135-136 and 14:103-105).

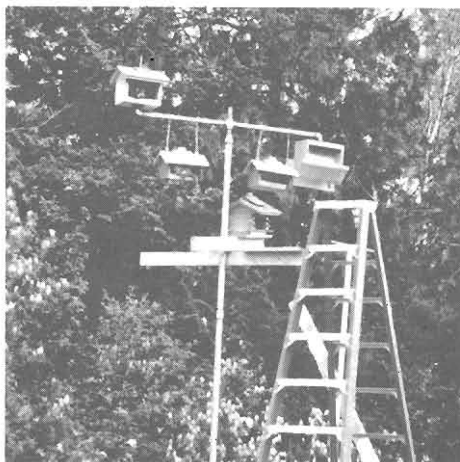
Late April and time to close my bluebird boxes. Our birds generally arrive the middle of May. All routine, except in box 12, a mother squirrel was nursing her brood. Box 12 is a piece of hollowed log with a removable roof so I leave the lid on over winter. Strangely enough the swallows, bluebirds, and squirrels all prefer this box over the ones made of lumber.

In early May the swallows arrived and I made my first monitoring tour. A few nests were started but disaster awaited at old number 12. The box was demolished and, of course, the squirrels were gone. Buddy Bear had struck again!

A couple of weeks later he began to visit my feeders. (You will remember that my new feeder pole has the first cross bar at ten feet.) The feeder from the very top was lying on the ground. Again Buddy had shaken the pole so violently that the feeder screws broke off. He was, however, unable to bend the two inch pipe. Now, I know there will be some skeptics about what happened next and I don't blame them. I swear it is true.

Each time after filling my feeders I move my twelve foot step ladder far enough away so the squirrels can't climb to the feeders. That morning the ladder had been pushed close to the pole. Buddy then climbed the ladder and tore one feeder from the crossbar which is ten feet from the ground. (His claw marks were evident in the bar.) I wonder from what circus he escaped. Since then I take the ladder down each time after use.

First week in June, 4:30 a.m. I am awakened by a racket seemingly from the living room. Upon investigating I find a window screen missing. It is on the ground along with the molding that retained it. The work of a bear I surmise. There is no animal in sight, probably frightened away when the screen



Photograph by Robert Stevenson

This is the sight that greeted me one early June morning. The bear had shaken the pole so violently that the feeder which is normally mounted in the top center had fallen off. The top right feeder had loosened and rotated below the pipe mount, and the feeder at the left of the lower crossbar is missing. Claw marks on the bar indicate the bear tore it off.

fell. 5:30 a.m., the noise again. I quickly jump from bed and rush to the scene. (We have bird feeders hanging in front of the window; one is missing.) I push the sliding window open and there below is Buddy lapping up sunflower seeds. I lean out the window and ask, "Are you enjoying your breakfast?" A casual glance at me and he continues his meal. I yell and wave my arms; he rises and walks across the driveway where he stands looking at me. An ordinary bear should have run.

This calls for more drastic action. I rush to my gun cabinet, grab my shotgun and stuff in a handful of shells, rush out the back door and gallop screaming around the corner of the

(Continued on page 22)

Universal Truths Relearned at Tanglewood

Charles W. Abbey

A thorough survey of bluebird nesting boxes erected at Tanglewood Park, Clemmons, North Carolina, was initiated by the author in consort with (then) Park Assistant Manager Ron Linville in the latter months of 1985.

Apparently an effort in support of the Eastern Bluebird had been attempted at Tanglewood some years prior to 1982 in which boxes, constructed of various materials and of several designs, had been placed and perhaps monitored, and then neglected. No written record of the activity was uncovered in Tanglewood files. No one had touched the boxes since the trail had been abandoned.

The initial sampling of the abandoned park trail disclosed that approximately half of the more than 30 boxes we found were occupied (or had been occupied) by House Sparrows. The other half of the boxes were full of nesting material of various species.

Many of these nesting boxes were found on tall poles, 10 to 15 feet above ground level, a few were clustered in threes, many were in proximity to various outbuildings, while others were discovered here and there. Altogether, the project seemed to have had an interesting start, but lacked the continuing care necessary for bluebird success.

Consultation with representatives of the newly-formed North Carolina Bluebird Society (NCBS) in 1986 determined that the trail would likely benefit in the following ways: 1) modify the box-site criteria, 2) lower the mounting height of the nest boxes and 3) clean and check the boxes on a regular basis.

All of these recommended strategies were initiated or accomplished prior to the start of the 1987 nesting season by the author, Bill Heath, and Pat Ober, all of the area.

The results were immediate and obvious. Carefully following the three strategies of site selection, height reduction, and regular monitoring provided nest locations for the bluebird; it has also seemingly reduced local House Sparrow populations.

On the Tanglewood Park Trail in the years 1986 through 1988 House Sparrow nesting in bluebird boxes was on the order of just under 20 percent of all boxes used by nesting birds. In subsequent years by following the adopted strategies, the attempted use of nest boxes by House Sparrows has been reduced to fewer than 4 percent. This suggests that of 100 boxes monitored, only four have even SEEN a House Sparrow.

It is our view that aggressively following the careful selection of a site not friendly to the House Sparrow, along with establishing boxes for bluebird at heights between 36 inches and 50 inches, and a fairly ruthless program of House Sparrow removal can have a long-term lasting effect on the failure of House Sparrows and the subsequent success of Eastern Bluebirds.

All of the foregoing probably is not amazing news to those who have been helping the bluebirds for more than a few years, but it is, at least in our area, a substantiation of the advice upon which we began the revitalization of this trail.

Today the Tanglewood Park Trail consists of over 100 nesting boxes well-monitored by Ober and Abbey. Production seems acceptable and results are reported annually.

Residents of the area who once were heard to say, "Naw, there ain't no bluebirds around here!" now have nesting boxes of their own. ■

3626 Tanglebrook Trail
Clemmons, NC 27012

Fifteenth Annual Meeting Report

Mary D. Janetatos

The Fifteenth Annual Meeting of the North American Bluebird Society was held September 11-13, 1992 at the Wyndham Gardens Hotel, Minneapolis, Minnesota. Approximately 300 people attended from 26 states, five Canadian provinces, and Bermuda.

Friday afternoon a Mississippi River cruise was enjoyed by attendees aboard the *Jonathan Padelford*. Mark Cleveland, naturalist with Fort Snelling State Park, was the commentator who pointed out the historic as well as environmental features of the trip. Those attending watched in fascination as the huge boat entered the lock which was then filled with water to permit the boat to exit to another section of the river. The weather was crystal clear and the air cool under the warm sun. The generous buffet lunch completed a delightful afternoon.

During an evening reception, Animal Adventures allowed close-up looks at a variety of animals, some local, for an appreciative audience.

The paper session on Saturday was monitored by Keith Radel and began with a warm welcome by Mary Ellen Vetter who chairs the Minnesota Bluebird Recovery Program. The Minnesota Nongame Wildlife Program was ably and aptly described by Carrol Henderson, its supervisor. Having originated the program in Minnesota, he was able to guide the audience through its many facets, with the clear emphasis placed on the Bluebird Recovery Program. This program utilizes the distinctive Peterson nest box and has access to public lands throughout the state. So close is the cooperation between the two entities that the "hats" sometimes interchange, but no one is keeping track, and the bluebirds surely thrive.

The "Indirect Effect of a Mosquito Abatement Program on Tree Swallow Breeding" was discussed by Michael DeJong of the University of St. Thomas.

Since mosquitoes make up a large portion of the diet of Tree Swallows, they suffered a decrease in their numbers when the abatement program was in progress. This points to the need for great caution in chemical control of insect populations.

After a coffee break, the attendees were given a "world premier" of a fine bluebird film: "Backyard Blues" by producer Boz Metzdorf, of Birds Eye View Productions. The artistry with which this film was made should make it one of the outstanding items in any collection of bluebird videos. This video is the third part of a trilogy on bluebirds and portrays many different varieties of nest boxes, as well as unique scenes such as bluebirds at a window feeder, babies fledging from the nest, and juveniles frolicking at the bird bath. The video can be ordered from Birds Eye View Productions, 3060 So. St. Croix Trail, Afton, MN 55001.

Following the lunch break, President Sadie Dorber convened the business meeting which included election of the slate of officers and directors as presented by the Nominating Committee.

With Gerhard Alexis as monitor, the afternoon session began with "Acceptance of Several Nest Box Designs by Cavity Nesting Birds" by Kevin Berner, faculty member at State University of New York, Cobleskill as well as chairman of the Research Committee. He updated his ongoing research on nest box use. Among his findings was a preference by bluebirds for the Peterson box (the triangular box designed by Dick Peterson of Brooklyn Center, MN). The shallow experimental Bermudez box which had been used by House Finches was also shown. This box is not recommended for bluebirds.

Carol Fiedler talked about "Bluebird and Tree Swallow Population Trends in Central Minnesota." Her ongoing study of 175 boxes begun in 1965

has shown a marked decline in fledglings. Fortunately, not all trails in that area have shown the same trend.

Greg Butcher, of the Cornell Laboratory of Ornithology, spoke of the "Reproductive Success of Eastern Bluebirds in Agricultural Habitat." The Laboratory of Ornithology has collected nesting data for many years from cooperators throughout the country. The data base now contains more than 300,000 cards of which about 35,000 are those of the Eastern Bluebird, more than those of any other species. The speaker analyzed some of this material for his presentation.

"Preventing the Preventable: Lyme Disease" was a gripping presentation by Jo Ann Heltzel who suffered for six

years because the disease had been misdiagnosed. Dr. Heltzel's fact-filled half hour alerted bluebird monitors (or anyone who spends time outdoors) to the dangers of Lyme disease and protective methods to reduce the possibility of contracting it.

Saturday evening there was a social hour before the banquet at which Boz Metzdorf provided background music. Those attending the banquet received as favors refrigerator magnets cleverly constructed of cedar in the shape of a Peterson nest box. Each came complete with a bluebird at the entrance. They had been made and donated by Robert Stevenson of Gheen, Minnesota—certainly a major



Photograph by Shirley Adams

Newly-elected NABS President Charlotte Jernigan, Wagoner, Oklahoma, with outgoing President Sadie Dorber, Vestal, New York.

undertaking! This was another example of the kindness and dedication of our Minnesota hosts. Awards were presented, after which "The Voyageur" entertained the group with an enlightening glimpse into the life of the early fur trappers of the area.

The optional field trips on Sunday

morning to Minnesota River Valley National Wildlife Refuge and Hyland Regional Park completed the scheduled activities. With the completion of a memorable Fifteenth Annual Meeting, we can now anticipate assembling in 1993 at Callaway Gardens, Pine Mountain, Georgia. ■

Awards Presented

The North American Bluebird Society annually recognizes individuals and groups who have made major contributions to bluebird conservation. The following award plaques were presented on 11 September 1992 at the Fifteenth Annual Meeting in Minneapolis, Minnesota.

Bluebird Restoration Association of Wisconsin (BRAW)

Theodore Gutzke

Joe Huber

Al Perry

Dick Peterson

John Rogers

Jennifer Jones

Bluebird Restoration Association of Wisconsin (BRAW)-Group Award

BRAW was started in 1986 through the efforts of Delores and Ernie Wendt and the cooperation of the Wisconsin Department of Natural Resources. The organization has a membership of approximately 1,500 with coordinators in each county. Each new member receives an introductory booklet that contains all the information necessary for new bluebirders. The first week in April is declared "Bluebird Week in Wisconsin" by the governor of the state. BRAW is a very active organization in the bluebird movement.

Theodore Gutzke, Medicine Lake, Montana-Research Award

Tedd became a member of NABS in 1978 and served on the Board of Directors. He served as chairman of the Research Committee for five years. While serving as research chairman, Tedd developed the Research Grant Program that provides funding for research about bluebirds and other cavity nesting birds. This brought credibility to the organization with participation from professional biologists and ornithologists. Tedd began the Research Series publication and authored the first bibliography on bluebirds. He initiated an Eastern Bluebird management program at Great Swamp NWR in New Jersey, which drew hundreds of visitors each year to view this rare bird. This helped change the thinking of refuge managers from just managing game birds to the importance of non-game birds as well. He has developed similar management programs at other refuges and provided technical advice to refuges nationwide on bluebird management. Tedd has applied his research for many years and published numerous technical papers and articles concerning bluebirds.

Joe Huber, Heath, Ohio-Individual Award

Joe's first experience with nesting bluebirds started in 1968 when bluebirds nested in a newly erected martin house. During the next few years, he added bluebird nesting boxes to his lawn and to lawns of the surrounding neighborhood. Joe's trail was and still remains an attraction to sparrows, but his continuous trapping

program has resulted in a successful bluebird trail. In 1973, he started experimenting with traps inside nesting boxes and, also, different box placement. The nesting box located on the back of his mailbox, just 27 inches from the ground, was the sparrows' favorite. He still traps more sparrows in this low box than in any other. By 1974, Joe had improved his in-box trap; it is the trap that we bluebirders now refer to as the Huber trap. He has received over 3,000 letters requesting information on building a box trap—he answers every one. Joe was a charter member of NABS. He continues to stress that trapping does make a difference.

Al Perry, Boise, Idaho-Individual Award

In 1976, Al read an article about the loss of natural nesting sites for bluebirds and spent the next four years erecting 350 nesting boxes in the Ouyhee Desert for the Mountain Bluebird. His present trail consists of 384 nesting boxes spread out over 95 miles. Mountain Bluebirds occupy nearly 100% of these boxes each year. Al was one of the first people to realize that the Mountain Bluebird had difficulty in entering the 1 1/2 inch entrance hole. Enlarging the entrance increased his box usage dramatically. Al was recently named Non-game Conservationist of the year by the Idaho Wildlife Federation. Someone wrote on one of his nesting boxes, "God bless Al Perry." His quick response was, "It must have been a bluebird that left that message, I can't think of anyone else." (Some of this information is from *Idaho Wildlife News*.)

Dick Peterson, Brooklyn Center, Minnesota-Individual Award

Some 30 years ago, Dick realized that the bluebird population was reaching a very low ebb. At this time, he decided to build and erect nesting boxes for bluebirds and to keep close observation of the activity in and near the boxes. This led to the Peterson nest box design that we're familiar with today. His good management of the trail led to continual success, which greatly influenced his enthusiasm for helping bluebirds. A full page article in 1982 in the *Minneapolis Tribune* led to the formation of the Bluebird Recovery Program. Dick attributes much of his love for the out-of-doors to his mother who always spent a great deal of time teaching him the functions of nature in relation to man's responsibility to properly manage it. Ron Schara, Outdoor Columnist for the *Star Tribune*, said of Dick, "I'm not sure he actually understands the impact he's had, not only on bluebirders, but on the lives of folks who seek a relationship with nature." "Indeed, Dick has made an unusual mark." "And one more thing, House Sparrows and starlings probably regret the day they decided to invade north Minneapolis."

John Rogers, Brewerton, New York-Individual Award

John's interest in bluebirds started when he was in his teens. He manages a trail of 455 boxes in Upstate New York. John was one of the founders of the Upstate New York Bluebird Society and served as secretary/treasurer for several years. He also served on the Board of Directors for the NABS. He continues to make endless contributions and provides support to both organizations. Along with being a banker and Christmas tree farmer, he manages a heavy schedule of slide shows and field trips to his trail.

Jennifer Jones, Kalona, Iowa-Certificate of Appreciation

Jennifer manages a bluebird trail on the golf course in Kalona, which she started as a 4-H project at the age of ten. Her photographs, slides, and nesting box display received a blue ribbon at the Iowa State Fair. This display also features a nest identification game that Jennifer created for young children. She now speaks to youth groups and other clubs about her work with bluebirds and has become a very convincing voice for bluebird conservation around her community. ■

—Sadie Dorber



Photograph by Shirley Adams

Dick Peterson, Brooklyn Center, Minnesota, was given an individual award for bluebird conservation. His wife, Vi, is shown with him.



Photograph by Shirley Adams

Dick Tuttle, Delaware, Ohio, accepts an individual award on behalf of Joe Huber, Heath, Ohio.



Photograph by Shirley Adams

Theodore Gutzke, Medicine Lake, Montana, accepts the NABS Research Award from Sadie Dorber.



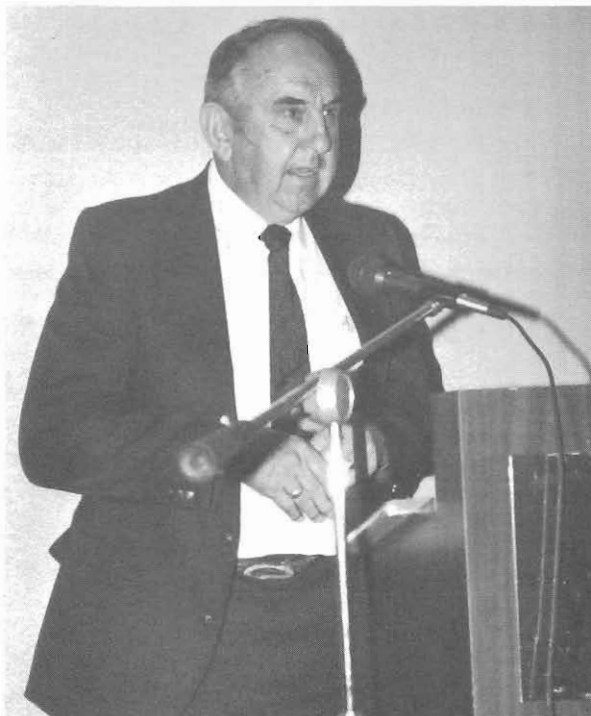
Photograph by Shirley Adams

John Rogers, Brewerton, New York, receives an award for bluebird conservation from Sadie Dorber.



Photograph by Shirley Adams

Jennifer Jones, Kalona, Iowa, is presented a Certificate of Appreciation by Sadie Dorber.



Photograph by Shirley Adams

Art Aylesworth, Ronan, Montana, accepts an individual award on behalf of Al Perry, Boise, Idaho.



Photograph by Shirley Adams

Delores and Ernie Wendt, Rice Lake, Wisconsin, accept the bluebird conservation group award on behalf of BRAW (Bluebird Restoration Association of Wisconsin).

Box Does Double Duty

The box shown in the photograph has been popular with two species of cavity nesting birds. Eastern Bluebirds used it for roosting during two different winters. The 12 inch (30.5 cm) high box has inside dimensions of 6 x 6 inches (15.2 cm). During the spring of 1992 Northern Flickers enlarged the 1 1/2 inch (3.8 cm) entrance hole to 2 3/4 inches (7.0 cm) by 1 13/16 inches (4.6 cm) and nested. The male is shown feeding one of the three nestlings. Note the light area on the front of the box where the pointed tail feathers of the adults rubbed the surface.

—Ron Kingston



Photograph by Ron Kingston

Peanut Butter Balls

I see bluebirds at my window,
And I can hear their hungry calls,
“Will you please? Oh yes, will you please,
Make us more peanut butter balls?”

One look at the empty feeder,
And I know what my day will be.
It'll be peanut butter balls
For as far as the eye can see!

So the cooking and the cleaning,
Will have to wait another day.
My bluebirds are most important—
That's the way it's going to stay!

When I look back to my window,
Not only are my bluebirds there,
But titmice, wrens and chickadees—
There are hungry birds everywhere!

So I gather the lard, flour,
Cornmeal and peanut butter, too.
And with so many mouths to feed,
Only the biggest bowl will do.

As I begin to dip and mix,
Even more birds swoop from the trees!
They watch with eager excitement—
“Aw, some more peanut butter, please.”

After the mixing and kneading
Of this fine peanut butter dough,
I shape each ball like a small pea—
This size is best, I've come to know.

Now I'm off to fill the feeder,
To the tune of such cheerful calls,
And pretty wings all a-flutter;
“Thanks for the peanut butter balls!”

—*Debbie Mussmon*

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:

After reading "Bluebird Journal" (14(3):105-110) I just had to write and say how much I enjoyed the story. I couldn't help but laugh as I was reminded of my first experience with bluebirds in 1987. My trail is on the back side of our farm, so I had to drive to watch the pair of bluebirds. I spent so much time watching them and looking in the box that when the bluebirds abandoned the nest, I was afraid I had bothered them. They did not nest again until '89. I had learned my lesson well and only checked every few days. I have had Tree Swallows since '88 and now have five pairs.

My son started with four boxes as a 4-H project and now has 20 boxes. He will graduate from Iowa State University in December. He still enjoys watching bluebirds and helping me with the trail.

Sharon Laub
1846 B Ave.
Rippey, IA 50235

Dear Editor:

This is in response to Wayne Davis' article "Myths at the Bluebird Box [?]" in the Autumn 1992 issue of *Sialia*.

For the past 18 years, I have always monitored my boxes containing nesting bluebirds right up to the last day of fledging and have never lost a chick yet. So many things can happen between 12 and 18 days such as parents abandoning a nest for some reason. Such nestlings can be saved if found in time.

I think it also has a lot to do with what type of box a person is using. I have always used a front-opening box. When I open a box I slide my hand up along the nest to prevent any chick from falling out; I can control the door with the other hand. If I open the door up wide, the hole disappears under the roof. Chicks can't fly out as they can when using a side-opening box.

I have had the same experience and agree with Keith Kridler that chicks will "scrunch down and resist being removed from a box" right up to the last day.

Lillian Lund Files
Windswept Acres
Tyngsboro, MA 01879

Dear Editor:

The Hot Springs Village Audubon Society has 164 boxes on five golf courses and more than 500 boxes on residential property in the Village. These boxes have been monitored weekly during the nesting season since 1982. This year we recorded 805 fledglings. This experience should qualify us to respond to Wayne Davis' article.

In all of this monitoring, some 30,000 over a ten year period, we have experienced but one event that could be called premature fledging. We confirm Davis' statement that, after seven days of age, when their eyes are open, their normal reaction to the opening of the box, is to remain motionless, even to the day of fledging. Box size may have

an effect on any premature fledging that may occur. We determined years ago that the 4 x 4 inch box is inadequate for five or more young. Our 5 x 5 inch boxes are used before any of the few remaining 4 x 4's.

Of the 15 or more Peterson boxes in the Village, we have yet to observe one being used by bluebirds. They would perhaps be used if so many of our standard front-opening boxes were not available.

We have also tested the slotted boxes. For two years, two of the three boxes had sparrows in them, and we usually do not have any sparrow problem.

Wayne Tice
6 LaCoruna Way
Hot Springs Village, AR 71909

Dear Editor:

In the last year or so, I have been trying to make as many boxes as possible and also to try to find out how many bluebirds fledged in this area by asking friends and acquaintances.

My boxes are made on the pattern of the Bowater boxes with a lid that opens.

A friend of mine who lives on a farm has allowed me to start a bluebird trail. Presently, we have 15 boxes there and are hoping to have between 175 and 125 boxes there next year.

This year I have accounted for 55 boxes in this area and 116 bluebirds fledged.

Bo Gregory
Route 1, Box 121N
Waterloo, SC 29384

Dear Mr. Barber:

Thank you for your informative article in the Winter 1992 *Sialia*. I was particularly interested in the part that dealt with raccoon predation. This is a subject of real interest to bluebirders in our area. Without adequate raccoon control most of us end up feeding raccoons.

I do not like PVC guards—raccoons can "tension climb" PVC pipe with the minimal claw grip they can get with their small, sharp claws. We've had

better luck with galvanized stove pipe.

I strongly disagree with the use of grease (or any other tacky or smelly substance) on poles. Besides creating a mini-oil spill at the base of each pole, any foreign smell is going to attract raccoons to the nest site. And while it may repel some raccoons, you're always going to find *one or more who'll go right through it*. We should do nothing to attract predators to a nesting box.

Jim Walters
2511 Hwy 1 SW
Iowa City, IA 52240

Dear Editor:

Thank you for *Sialia*. I wouldn't want to be without it!

Alvin J. Ratzlaff
P.O. Box 2604
Spartanburg, SC 29304

(BOOSTERS—Continued from inside back cover)

Curt Sutliff
Mr. & Mrs. G.J. Tankersley
Richard F. Taylor
Richard & Linda Taylor
Robert Teetshorn
David L. Tobia, Jr.
Frederick H. Wendte
Sue Wells
Barbara Whitney
Robert H. Williams
Ruth Willis
Fred & Jean Wishneski
Jeannie Wright

Nesting Bluebird

Douglas Allara, D.V.M., Family
Raymond L. Allison Family
Lewis O. Campbell Family
Ann C. Cannon Family
Alan & Janet Curry Family
Robert H. Gardner
Betty Hamon Family
Vivian Harrell Family
Daniel Jaskowiak Family
Art & Eleanor Kennell Family
Margaret Lippert
Thomas C. Matsko Family
Dr. & Mrs. John Milne
Ernest R. Ruterma Family
R. David Shiels Family
Wilma R. Tillman Family
Cheryl Smith Tolley Family
Robert W. Schwindler Family
David & Sharon Ward Family
David & Janice Ziglin Family

Bluebird Tales

Mary D. Janetatos

Reunions with seasoned bluebirders, meeting novices to bluebirding, experiencing the thrill of a warm welcome, and enjoying the numerous media items—all of these are the pleasures of a NABS annual meeting. They were all in evidence at the Fifteenth Annual Meeting held in Bloomington, Minnesota, which was hosted by the Minnesota Bluebird Recovery Program and the Minnesota Department of Natural Resources Nongame Program.

There was the joy of reunion with many attendees including newlyweds **Kevin and Nancy Berner** of Cobleskill, NY; **Jack and Ruby Finch** of Bailey, NC; **Bob and Lois Roger** of Rockford, OH; **Dick Tuttle** of Delaware, OH; and from Dayton, OH, **Joan Lackey and Bill Davis**. **Christine Ammons** and her mother, **Alla Briscoe**, both of Union Mills, NC, had lunch with me and mentioned the possibility of a bluebird trail at the Soldiers' Home in Washington, DC, where their brother (uncle) is now residing.

Dorene Scriven of Minneapolis, MN (a board member whose term expired at the annual meeting), was a major architect of the meeting along with **Mary Ellen Vetter** of Brooklyn Park, MN. The excellent turnout for the meeting spoke volumes about the publicity efforts of their committee.

The election at the annual meeting resulted in a new president for **Sadie Dorber**, Vestal, NY, was stepping down after eight years. Sadie has steered the society in an efficient and dedicated manner. She now assumes chairmanship of two committees: Nominating Committee and Education Committee. She and her husband **Malcolm** can now intensify grandparenting their two-year-old granddaughter.

Dick and Marlys Hjort attended—certainly “seasoned” bluebirders. Besides their fine bluebird items offered for sale, they have finally convinced us Easterners of the correct spelling of



their hometown: **Chisago** City, MN! Dick was elected to the NABS board along with **Steve Parren** of Hinesburg, VT; **Hazel Skuce** of Brandon, Manitoba; and **Don Yoder** from Walnut Creek, CA.

Newly-elected President **Charlotte Jernigan** of Wagoner, OK, and her husband **Bill** had arrived early in the week of the meeting. They got some hiking in while walking from their hotel to the new Mall America. I believe they'd agree that a bluebird trail it ain't!

Among those missing from the meeting (and missed) were Founder **Larry Zeleny** of Hyattsville, MD and **Norah Lane**, a founding director. In both cases, their health did not permit them to attend.

The beautifully assembled scrapbooks for 1991 and 1992 were eagerly perused by attendees. **Jane Williams'** labor of love resulted in a fascinating chronicle of bluebirding. Send Jane YOUR clippings: Jane Williams, Box 123, Ware Neck, VA 23178.

Helen Nelson of Buffalo, MN, spoke for the rest of us when she wrote, as she sent in her membership dues, “We recently attended the NABS conference in Bloomington, MN, and were very interested in all the presentations.”

Among the many fine exhibits was the one featuring the distinctive Peterson nest box with one of its chief crafters, **Dave Ahlgren** of Stillwater, MN—who pilots aircraft for Northwest Airlines in his off-hours from bluebirding. Dave's wife, **Jan**, played a major role in preparing for the convention and carry-

ing out details.

I must confess to some missed opportunities. I lost track of the couple who had the beautiful bluebird patches. We met briefly on the *Jonathan Padel-ford* sternwheeler and never again. And **Don Grussing** of Minnetonka, MN, did not appear in time for me to shake hands with him. Don is of *How to Control House Sparrow* fame, having written that fine piece of "bluebird assistance" back in 1980. Since I had to leave the meeting before it was over, I know I missed others including **Dick** and **Vi Peterson**, Brooklyn Center, MN, of Peterson nest box fame.

Jean Perkins of Boseman, MT, was presiding over her table of fine art wares when I proudly became the owner of her lovely pillow showing the three bluebird species. **Mark and Jean Raabe** of Alexandria, VA, along with nephew **Mark Raabe II**, and Jean's mother, **Elizabeth Anderson** of Madelia, MN, stopped at the NABS exhibit table while I was giving Treasurer **Chuck Dupree** of Elkridge, MD, a brief respite.

Seeing **Grant and Enid Riggle** of Harrisonburg, VA, brought back memories of the 80,000 letters NABS received in 1979 after the *Parade* article—letters which the Riggles helped answer. Other past board members who attended were **John Rogers** of Brewerton, NY, and **Art Aylesworth** and his wife, **Vivian**, of Ronan, MT.

Phyllis and Dick Williams (D.V.M.) of East Moline, IL, voiced a caution about bluebird box monitoring: Monitors should carefully cleanse hands and arms after checking nest boxes. **Bill Wheeler**, Lafayette, TN, wondered if I truly remembered him or if I needed the name tag. I will admit to the "grandmother's memory lag" but yes, Bill, I did remember YOU!

Often bluebirders get involved when they retire, as **Joseph A. Kujanik** of Gary, IN, has done. After retiring from the Northern Indiana Public Service Company, he has devoted an increasing amount of time to birds. This keeps the saw working overtime in his basement.

At the NABS office there have been milestones passed. The joyful one was the celebration of 50 years of married life by office volunteers **Wally** and **Katie Knapp** of Silver Spring, MD. They began helping as correspondence volunteers just after the *Parade* avalanche of mail. Their good-natured faithful work has resulted in an astounding amount of assistance. Since they have retired, we miss their cheerfulness and their prodigious output! **Mary Lowe Beard** of Silver Spring, MD, who passed away September 17, 1992, also helped at the office. We miss the fun times we enjoyed with her as we merrily answered the mail.

Dwight Kahlo, III of Wilton, CT, reported in late summer. "I have had bluebird houses on my property for six years and they have been occupied each year. This year was the greatest year to date. Two houses with a total offspring of 13; one double and a single. I wanted to share my joy with those who may appreciate it the most!"

John Casadla of Vineland, NJ, a biology teacher at Vineland High School, has received a \$1000.00 grant from Playtex Corp. to build bluebird boxes—he promised to give one or two to NABS. He will be using lumber from inexpensive sources and the manual arts department will construct the boxes. Will the boxes s-t-r-e-t-c-h while U w-a-t-c-h?

Joan Cooper, Frederick, MD, had a nest of bluebirds which succumbed to wren predation. Her six year old granddaughter Kari painted a picture for her of bluebirds in flight, "to make me happy again and it surely did!"

Here's hoping many of you read the fine article on Larry Zeleny's bluebirding in the September/October 1992 issue of *Bird Watcher's Digest* entitled "The Bluebird Man" by **Lola Oberman**. It was a faithful tribute to a man whose love for the bluebird encompasses a long life and who inspires those he meets with the zeal to help one of God's most beautiful creatures as much as they can.

May he and his bluebirding cooperators have many more happy bluebirding seasons! ■

North American Bluebird Society, Inc.
Statement of Cash Receipts and Disbursements
November 1, 1991 through October 31, 1992

Cash Balance November 1, 1991		\$17,405.04
Add:		
Cash Received		
Sale of <i>Sialia</i> Magazine	\$25,926.00	
Sale of boxes, books, stationery, etc.	39,368.85	
Contributions	17,182.89	
Membership Dues	28,835.77	
Sales Tax Collected	343.07	
Annual Meeting	700.00	
		112,356.58
		129,761.62
Less:		
Cash Disbursements		
<i>Sialia</i> Magazine	22,274.21	
Boxes, books, stationery, etc.	30,663.01	
Educational material	11,321.59	
Membership fulfillment	12,393.26	
Research	8,090.10	
Salaries	16,165.00	
Expense accounts	1,186.09	
Office supplies	709.15	
Maryland sales tax remitted	338.13	
Rent	8,400.00	
Federal Withholding tax	1,542.00	
State Withholding tax	1,252.42	
FICA	3,771.55	
Unemployment tax	417.11	
Bank charges	212.20	
Transferred to savings account	1,831.33	
		120,567.15
Cash Balance October 31, 1992		9,194.47
Assets:		
Checking account (Citizens Bank & Trust)	9,194.47	
Savings account (Maryland National Bank)	5,720.94	
Value of Inventory	23,759.54	
Investments-Dean Witter Reynolds	22,160.04	
Market value 9-30-92		
Net Worth		60,854.99

Respectfully submitted,

Delos C. Dupree, Treasurer NABS

Art Credits

Jon E. Boone: 2, 36
Suzanne Pennell: 12, 38

BLUEBIRD BOOSTERS

Life Members

Stan Bleszinski
Lillian Lund Files
Mrs. Irene S. Frantz
Clark W. Hart
Fred A. Huntress, Jr.
Charlotte Jernigan
Keith Kridler
Dr. Eugene I. Majerowicz
Barbara L. Matlock
Laura Nielsen
Katrina Renouf
John H. Rogers
Lawrence Zeleny

Mountain Bluebird

Robert M. Collins
Elizabeth Crispin
Donna R. Hagerman
Robert M. Niebuhr

Western Bluebird

Donald Yoder

Eastern Bluebird

Sarkis Acopian
Robert E. Ahearn, M.D.
Ellsworth Amidon
Raymond Arendt
Kay Asaki
Mrs. Nancy Baron
Harry Bibb
Judy Bland
Alfred M. Boehly
Phillip J. Boldue, Jr.
Warwick Bonsal, Jr.
M. Esther Bower
Mrs. Hilda E. Bretzloff
Lyllia Bryant
Martha Chestem
Donald R. Collins
Mrs. Coleman Donaldson
Mrs. Leslie Douglas
Downing Ruritan Club
Haskell Duncan
Mr. & Mrs. Dixon Evander
Dorothy M. Evans
C.M. Franck
Pat Givens
T.E. Gurley
Mrs. Edwina Hahn
Erna Hassebrock
L. Edward Haws, Jr.
Bryan C. Hebbeler
International Business Machines
Mrs. R.L. Ireland, III
Kenneth W. Jacobs, Jr.
Mary D. Janetatos
Mrs. R.N. Jespersen
Mr. G. Dwight Kahlo, III
Mary P. Kassenbrock
Pauline R. Kasserman
Robert & Grace Kocher
Cathryn H. Kurtagh
Joan Lane

Ron Ligon
Aletha J. Lindstrom
Walter M. Little
William Logan
Neal Lowen
Mrs. George Luce
Mr. Estel E. Ludlow
Dawn H. MacLaren
Jane Matthews
Conn M. McConnell
Richard McGovern
Mrs. Betty McIlwain
Bruce McNaughton
Betty J. Meeks
William & Susan Mitchell
Dr. & Mrs. John Mulliner
Roger Peloquin
Perfect Seedbed Co.
Nancy M. Peterle
Rosemary Z. Rittler
Marvin & Mary Rubin
James W. Shields
Yvonne G. Shore
Chris Thoma
Diana Wege
Nancy L. Weiss, M.D.
Mrs. Ethel Wells
Mrs. James L. Williams
Robert D. Williams, M.D.
Ruth Wills
Ms. Betty M. Wise

Fledgling Bluebird

Mrs. Shirley Adams
Donald F. Anderson
John F. Anderson
Terry Andrews
Sonus Manus Austin
Gray Baird
Brenda Baldwin
Mrs. Henry N. Barkhausen
Dorothy A. Battle
Hans Beacham
Bella Vista Bluebird Society
H.J. Blair
Charlene Bofinger
George Boos
Dr. Robert J. Bradley
Coburn Britton
Robert J. Brown
Deb Burrus
Bruce Carlson
Eclesia J. Cestone
Martha Chestem
Mrs. Dwight Colimus
Ann T. Croot
Edward & Helen DePaoli
Mrs. Diane T. Desibur
Andre Dion
Ann Donaldson
Duncan Mills Restorations
Ms. Lois Fleming
Jacqueline S. Fonticella
Forest Garden Club
Mr. & Mrs. K.H. Freeman
Dee Friar
Bill Garner

Joseph C. George
GFWC Berwyn Woman's Club, Inc.
Linda R. Gilchrist
B.A. Goggans
George Gurda
Miss Frances Hanes
Gerald L. Hartley
Mr. & Mrs. George Harmon
Dana L. Heisey
John R. Holm
H.E. Hosley, III
Charles Huthmacher
Barbara R. Irwin
Pamela Isdell
Grace & Jill Ise
Larry & Betty Jernigan
Robert & Grace Kocher
Frank H. Krull
Dorothy A. Lamoureux
Mildred E. Lanford
John Larson
Kenneth G. Lehnert
Mrs. Marty V. Leonard
Dr. & Mrs. Cameron Lewis
William Logan
Dwight E. Lowell
Ida V. Loyd
Madeline Maxeiner
Chris McCabe
J. McNamara McCarthy
Amy R. Mitchell
Barbara Moore
Kenneth M. Nagler
Sue Holly Newman
James B. Niederauer
Mrs. George P. O'Neil
George P. O'Neil
Harry B. O'Rear
Lee & Carol Palmer
CWE Paine
Alvin L. Pelletreau
George S. Prentice
Maria P. Quinn
Laura Rainero
Gayle C. Reddick
Grant C. Riggle
Lois M. Roberts, M.D.
Roger E. Roberts
Col. W.R. Robertson
Mr. & Mrs. V. Rodeberg
Julius Rosenwald II
Jacqueline Russell
Todd Ryker
Carl J. Sagmuller
Frank B. Schley, Jr., M.D.
Robert A. Schoentag, M.D.
Carolyn A. Schwab
Gretchen N. Schwartz
Gretchen C. Scott
Mrs. E.B. Sheaff
Glenn H. Sikes
John W. Skooglund
Mrs. Susan L. Sloan
Margie & Martin Smith
Mary Clark Stambaugh
Dr. Lester D. Stephens
Margaret R. Stewart

(Continued on page 37)

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. Add \$2.00 per year for Canada and Mexico and \$3.00 per year for other countries (surface mail). U.S. funds only, please. Amounts over \$6.00 are tax deductible.

**Address:
North American Bluebird Society
Box 6295
Silver Spring, MD 20916-6295**

