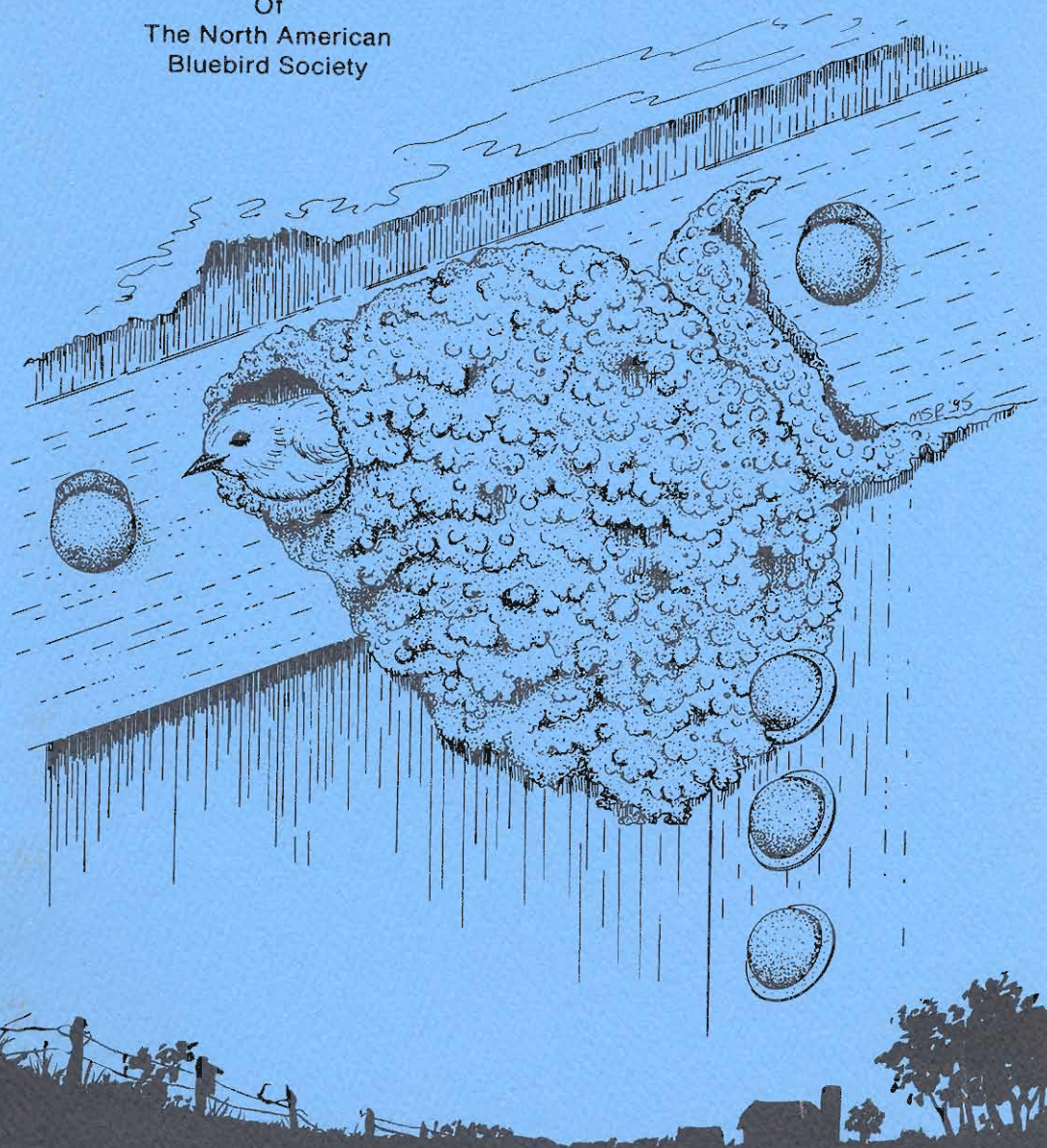


Sialia

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Autumn 1995
Pages 121-160

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Of
The North American
Bluebird Society



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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-ah'-ee-ah see'-ah-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. 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.

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Sialia

The Quarterly Journal
About Bluebirds

Volume 17, Number 4
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EDITOR

Joanne K. Solem

ART EDITOR

M. Suzanne Probst

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COVER

A female Eastern Bluebird peers from a Cliff Swallow's mud nest beneath a bridge. See article on page 123. The drawing is 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 Graeioch Road, Laurel, Maryland 20723.

Presidential Points

Charlotte Jernigan

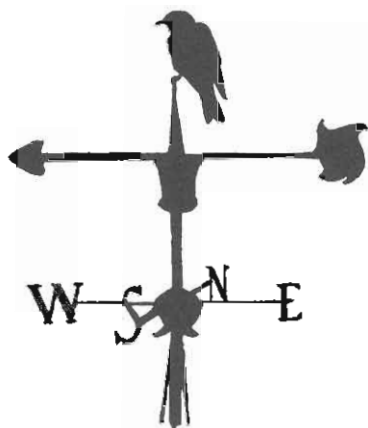
Every organization has legendary figures or heroes who help shape it and breathe life into it. Dr. Larry Zeleny was a gift of inspiration and an example of the difference that one person can make. It is with great regret that we record his passing in May.

He helped frame the guiding principles of NABS that continue to this day. The baseline values embodied by Larry continue to guide us. The natural world and all its inhabitants, including the bluebird, are deep in his debt.

NABS was invited to participate in the tenth anniversary celebration of the North Carolina Bluebird Society. It was a powerful reminder that efforts being made for the conservation of cavity nesting birds are effectively on course. Obviously, progress through the years has stirred deep resolve in the North Carolina organization and galvanized their energies and talents.

On 29 April 1995 people from five states were welcomed to Weymouth Woods which is a visitor center in Southern Pines. It was a perfect spot and a perfect day for old friends and new to get together and bolster spirits. It just seemed to be the glue that perennially keeps everyone intact. Under the able leadership of President Chuck Bliss the schedule of events steadily unfolded, and programs and awards were highlights of the day. Jack Finch amused us with his way of presenting information, demonstrating with his displays. Lin Webb showed his excellent video of life on the inside of a bluebird box which took many, many hours of film and patience to capture. Awards were presented to several members and to an Eagle Scout; drawings for door prizes constituted the "finale."

I want to thank the North Carolina Bluebird Society for their inspiration, for



their wonderful hospitality, and also for the gift of a lovely pottery bowl that will be enjoyed always with fond memories.

North Carolina is home to the Red-cockaded Woodpecker which was included on the Federal Endangered Species list in 1970 and is still there. This species depends on old, mature pines for nesting cavities, and must also have a sufficient number of trees available for foraging. Georgia and Oklahoma also have colonies of these birds which are subjects of research and study.

Strategic plans for the protection and recovery of the Red-cockaded have been implemented in all three states. Prescribed fire is used to maintain low ground vegetation; the cavity trees are carefully protected from the burning by removing brush ahead of time. Metal restrictor plates are installed over cavity entrances to protect the birds from other competing wildlife species. In some areas, where a sufficient number of suitable trees are not mature enough, man-made artificial cavities are installed and used until trees get old enough. Sometimes juvenile Red-cockadedes are moved to single-bird groups to create breeding pairs.

This species has a social system that centers around a family unit called a "group." The family may have as many as nine birds, but only one breeding pair.

(Continued on page 152)

Successful Nesting of Eastern Bluebirds in Cliff Swallow Nests on Bridges

Harmon P. Weeks, Jr.

While conducting research on Eastern Phoebes (*Sayornis phoebe*), I visited bridges at three to four day intervals for several summers on Crane Naval Surface Warfare Center (CNSWC), Indiana, a 250 km² limited-access military base. On 20 April 1987, a female Eastern Bluebird (*Sialia sialis*) flew from beneath bridge 1876 at my approach. This is a single-span, concrete bridge through which flows a permanent, spring-fed creek. At the time, this bridge had active Eastern Phoebe, Barn Swallow (*Hirundo rustica*) and Cliff Swallow (*Hirundo pyrrhonota*) nests as well as several unoccupied Barn Swallow and Cliff Swallow nests from previous years. I did not usually examine Cliff Swallow nests, but a search on that day revealed that one of the old nests, located at a height of 9.84 ft. (3 m) and 6.56 ft. (2 m) from the north edge of the bridge, facing north, had been lined with grass typical of Eastern Bluebird nests and contained four bluebird eggs. This nest was the westernmost of two old Cliff Swallow nests built touching one another; it had a well-preserved protruding neck typical of this species' nests. The adjacent nest had a broken neck and somewhat enlarged entrance. These eggs hatched on 28 April and young fledged on 12 May. During the last 10 days of April, the bridge was under repair with much human activity for at least eight hours a day.

On 1 June 1987, a bluebird clutch was begun in the easternmost of the two nests after it was lined with typical Eastern Bluebird nesting material. The 5-egg clutch was complete on 5 June and hatched on 17 June. By the time the last young fledged on 2 July, the opening of the nest had been more enlarged through wear and breakage. Considerable nest lining material was added in mid-July and a third clutch begun on 21 July. This 3-

egg clutch hatched on 5 August 1987 and all apparently successfully fledged shortly after 18 August. Although the female was not marked, her behavior and movement patterns from the nest were identical for all three attempts, suggesting the same bird was involved.

In the 1988 nesting season, at least two successful fledgings occurred from the same nest in which the last two 1987 fledgings occurred: a 5-egg clutch begun on 6 April which fledged on 12 May and a 4-egg clutch begun on 10 June which fledged shortly after 1 July. Later 1988 checks at this site were not possible. Between the fledging of the first and beginning of the second attempt, the female was mist-netted beneath this bridge and banded with a U.S. Fish and Wildlife Service (USFWS) band. In 1989 this bird used the same nest for a 5-egg clutch begun on 16 May; 4 young fledged successfully on 17 June. No earlier attempt was noted in 1989 and no examinations after this fledging were possible in 1989.

No investigation of possible Eastern Bluebird activity at this bridge was conducted in 1990, but in 1991 sporadic data revealed at least one attempt. A bluebird lined a third abandoned Cliff Swallow nest (located under the central part of the bridge facing south) in mid-June and laid the first of a 4-egg clutch on 17 June. She incubated regularly through the end of June, and evidence indicated a successful fledging took place in late July. The identity of this bird was not established, i.e., no band was ever seen, although its presence was possible. Bluebirds have continued to nest beneath the bridge annually through 1994.

Although data are, in general, more sketchy from other bridges, several more

nesting attempts by Eastern Bluebirds in Cliff Swallow nests have been encountered. A female flushed from a Cliff Swallow nest on 25 April 1988 at bridge 1873 (nest 8.2 ft. [2.5 m] high and 6.56 ft. [2 m] from the south edge of the bridge, facing south), a small bridge very much like bridge 1876 located 2.24 miles (3.6 km) to the west. A pair had been observed at this bridge on 15 April. This nest was abandoned after a single egg disappeared on about 28 April. No other bluebird activity has been observed at this bridge. The other verified attempt was in a quite different situation. As part of an attempt to examine nest building energetics in Cliff Swallows, about 50 clustered nests from the previous year were removed on 17 April 1989 from one side of a large, overwater span of bridge 1877, located 0.62 miles (1.0 km) east of the original bridge. One of these nests at a height of 14.76 ft (4.5 m), nestled in a cluster of others, contained an Eastern Bluebird nest with four fresh eggs. The nest cluster was, unfortunately, removed before the bluebird nest was found. Bluebird activity was evident at this bridge later in 1989 and in 1990, 1991, and 1992; only sporadic checks of nests were made.

Multiple use of nests by individuals and conspecifics is not at all uncommon. There are likewise many observations of species that normally build their own nests using abandoned nests of other species (Finch 1982, McNair 1984, Skutch 1976:128-129), including occasional implausible instances (Hammerson and Lapin 1980, Petit and Petit 1988). Many secondary cavity nesters, including the Eastern Bluebird, use nest cavities created initially by other species, usually woodpeckers; thus, it is not overly surprising that the Eastern Bluebird would use a Cliff Swallow nest, given the opportunity. Bent (1949) reported that Eastern Bluebirds have used Cliff Swallow nests but gave no details. Newforth (1986) recorded a single use by Eastern Bluebirds of a Barn Swallow nest under a garage eave. The retort-shaped nest of the Cliff Swallow reportedly has been used for

nesting by several other species, including House Sparrows (*Passer domesticus*) (Krapu 1986), House Wrens (*Troglodytes aedon*) (Gutzwiller and Anderson 1986), and Eastern Phoebe (personal obs.) and for nonbreeding season roosting by other species of birds and mammals (Sooter *et al.* 1954, Tinkle and Patterson 1965). The most interesting aspects of my current observations are that 1) Eastern Bluebirds searched beneath bridges for nest sites, 2) an apparent high degree of success resulted from these attempts, and 3) the behavior appears not to be an isolated occurrence and may be becoming established, possibly through imprinting.

The CNSWC is more than 75% wooded but has a substantial amount of bluebird habitat along mowed roadsides that are over 27.35 yds. (25 m) wide on one or both sides of some major highways. However, the area has no agriculture, no fences with posts suitable for nest sites, no residences except in a central administrative/residential complex, and essentially no songbird nest boxes. Thus, the only potential nest sites are in natural cavities along these roadside edges, suggesting that nest sites might be limiting. The bridges where Eastern Bluebirds have been found using Cliff Swallow nests are all of concrete and two of the three, including the original, are small enough that the bird would have to go beneath the bridge to see the abandoned Cliff Swallow nests. The initial discovery of the Cliff Swallow nests in 1987 may have been incidental to feeding or other behaviors and not been the product of active searching. The subsequent reuse and expansion of the behavior to other nearby bridges suggest strongly that imprinting has led to a cohort that actively searches bridges as potential nest sites. I feel confident that this behavior did not occur prior to 1987, since I have made detailed observations at all bridges since 1970. Because most birds were not marked, however, it is impossible to say that birds using other bridges in subsequent years were progeny of the original 1987 nesting episodes.

Once established, use of bridges as nest sites has probably been reinforced by the high degree of nesting success enjoyed by these Eastern Bluebirds. Peakall (1970) indicated that average nesting success of Eastern Bluebirds varied regionally from 52 to 78%. Success of other species nesting under these same bridges is quite high with Eastern Phoebes averaging 65% success (Weeks 1979) and Barn Swallows and Cliff Swallows over 80% (unpubl. data). Because Cliff Swallow nests typically last several years under concrete bridges and Cliff Swallow occupancy is sporadic, many empty nests are available at most bridges for potential use. Nest site competition, here at least, should be minimal since several typical secondary-nesting competitors are essentially absent, e.g., House Wrens and House Sparrows.

A potential negative factor that I have not yet observed in Eastern Bluebird nesting attempts is ectoparasite infestations of nests and young, one of the costs associated with use of previously-occupied nests (Barclay 1988). Cliff Swallow nests are notorious for the ectoparasite fauna they contain, which often results in reduced fitness of adults and young, nestling mortality, and colony abandonment or sporadic occupancy (Brown and Brown 1986). Northern fowl mite (*Ornithonyssus sylviarum*) infestations are very common and second broods of Cliff Swallows often suffer appreciable mortality as a result. The outsides of almost all abandoned Cliff Swallow nests under these bridges are considerably stained with the black excrement of these parasites. I did not observe any mortality or even discomfort activity in young bluebirds in these nests, even when the same nest was used for sequential broods. Whether this was serendipitous or a function of species-specific risk is unknown. ■

Acknowledgments

I would like to thank the command and personnel of Crane Naval Surface Warfare

Center, especially Lynn Andrews, for their cooperation in this and other studies I have conducted on that installation. They have made working there a pleasure. Thanks as well to Theresa R. Koloszar and Sally S. Weeks, who assisted in observations. This is Journal Paper No. 13170 from the Purdue Agricultural Experiment Station.

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Dept. of Forestry and Natural Resources
Purdue University
West Lafayette, IN 47907

Hole Size: A Problem Solved

Don Yoder

In the opinion of several qualified bluebirders the standard 1 1/2 inch (38.1 mm) entrance hole for nesting boxes is too small for the Mountain, and some Western, Bluebirds (*Sialia currucoides* and *mexicana*, respectively). Making the hole 1/16 inch (1.5875 mm) larger became a problem since drills of that dimension seemed non-existent. What could I do?

The challenge has been met by at least three means:

1. Any decent hardware store can supply expansion bits for a hand brace in a couple of sizes, adjustable to an infinite number of settings with a screwdriver, limited only by the length of the cutting blade. While this tool will do the job, it is too slow for production of box fronts if large numbers are required.

2. Some retailers should be able to supply a hole cutter, pictured in Figure 1. The angled, reversible blade can be adjusted to an infinite number of settings;

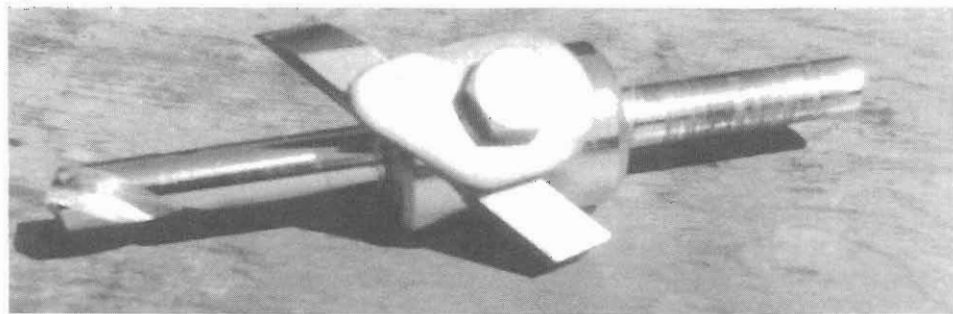
it is locked in place with a small crescent wrench.

3. Last and best for real production is one of the well-known Forstner drills, available in 1/16 inch (1.5875 mm) increments from Woodworker's Supply, Casper, WY 1-800-645-9292. Catalogue no. 828-937, page 139 in the November 1994 catalogue; 3/8 inch (9.5 mm) shaft; \$16.95 + \$5.45 shipping and handling, VISA welcome. This and no. 2 above are drill press tools and make clean holes.

For the thousands of boxes already on trails, try a piece of 40-grit aluminum oxide sandpaper, contact-cemented to a wooden cylinder smaller than the opening to be enlarged. It is a real labor of love to be completed along with your winter box cleanout and maintenance. ■

2021 Ptarmigan Drive, #1
Walnut Creek, CA 94595

Figure 1. Hole Cutter



Memorial Gifts

Each year the spring issue of *Sialia* carries a list of memorial gifts which have been received by the North American Bluebird Society during the preceding year. Contributions can be made as general donations to the Society or can be specified for research, education, or gift memberships.

Computer Exchange

A forum for birding exists on the Hobbies Bulletin Board on Prodigy Online Services. I am the leader for the forum. I can be reached at 10907 Pt. Vashon Dr., Vashon Island, WA 98070 or at (206) 567-4896.

--James Callan

COMPARISON OF USE OF SEVERAL STYLES OF NEST BOXES BY CAVITY NESTING BIRDS: AN UPDATE

Kevin L. Berner

Introduction

For the last seven years I have been field testing several styles of bluebird nest boxes to identify the preferences of local cavity nesting birds. In earlier studies I identified the vulnerability of nests and nestlings to raccoon predation in standard (NABS) style boxes of varying dimensions (Berner *et al.* 1990). Boxes with modifications that deterred predation were field-tested for acceptance by bluebirds (Berner 1990, Berner and Pleines 1993). Several alternative styles of boxes were also tested. This paper reports the results of the 1993-1995 field seasons and summarizes all work since 1989.

Study Area

The habitats of the New York Power Authority's (NYPA) Blenheim-Gilboa Pumped Storage Power Project, State University of New York (SUNY) Cobleskill, and Myers Road study sites were described in Berner (1990) and Berner and Pleines (1993). All of these sites had equal numbers of North American Bluebird Society (NABS), Peterson, slot, and PVC boxes. The SUNY site also had Seneca boxes in 1993 and 1994. Following several years of limited mowing on the Blenheim-Gilboa site, the area was thoroughly and regularly mowed during the summers of 1993-1995 maintaining high quality bluebird habitat.

Two small new research sites were developed in 1994 to compare Peterson boxes which had been the most preferred box by bluebirds in my earlier research (Berner and Pleines 1993) and the newly developed tree branch box (Zuern 1994). The Cobleskill Cemetery trail has been in existence for approximately 10 years and has been used by bluebirds each year. Boxes were at the edge of the cemetery adjacent to pasture and crop land. In 1994, the trail was modified to include four pairs of boxes with one Peterson and tree branch box in each pair. The farm that my wife and I recently purchased had

bluebird boxes, but the former owner had not actively monitored them. I placed six Peterson/tree branch pairs on the site in the spring of 1994.

Nest box designs being tested

The NABS style boxes that I used in 1993-95 had either a 4 in. x 4 in. (10.2 cm x 10.2 cm) or 5 in. x 5 in. (12.7 cm x 12.7 cm) floor. All roofs extended 5 in. (12.7 cm) beyond the front of the box because my earlier tests indicated that this would reduce raccoon predation (Berner *et al.* 1990). I also eliminated all wooden predator guards over the entrance hole because I found them to be ineffective at preventing raccoon predation in the field and in tests with my captive raccoons. I did not distinguish between different floor sizes of NABS boxes. Pitts (1988) found that Eastern Bluebirds (*Sialia sialis*) did not show a preference for either 4 in. x 4 in. or 5 in. x 5 in. boxes. In contrast Lumsden (1986) found that bluebirds preferred 4 in. x 4 in. boxes over 6 in. x 6 in. (15.3 cm x 15.3 cm) boxes, while Tree Swallows (*Tachycineta bicolor*) had the opposite preference.

The Peterson boxes were all constructed according to Peterson's design specifications (Grooms and Peterson 1991). These boxes were

wedge-shaped and had a 1 3/8 in. by 2 1/4 in. (2.9 cm x 5.7 cm) oval entrance. This box is strongly recommended by the Bluebird Recovery Program in Minnesota and is most widely used in the north-central states.

The PVC boxes in my test were all constructed by Steve Gilbertson of Minnesota. The exact construction specifications were described in Gilbertson (1991 and 1993).

The slot box design has been recommended by Davis (1989) as a design preferred by bluebirds that is also avoided by House Sparrows (*Passer domesticus*). The slot boxes had a slot height of 1 1/8 in. (2.9 cm), slot width of 5 1/2 in. (14.0 cm), box depth from floor to entrance of 5 in. (12.7 cm), and floor size of 4 in. x 5 1/2 in. (10.2 cm x 14.0 cm).

The Seneca boxes were a horizontal nest box design 12 in. (30.5 cm) deep with the floor only 1 in. (2.5 cm) below the entrance hole. These boxes were made by Charles Rouse of Marsh Creek

Bird Company in Geneva, New York. The intent of the deep horizontal design is to deter predation due to the long reach from the entrance hole to the back of the box where most birds make their nests.

The tree branch bird house design is very similar in overall dimensions to the Seneca box. The box dimensions and rationale for this box were described in Zuern (1994). I first tested this design in 1994.

Methods

At each study area equal numbers of several nest box types were placed in the field and monitored weekly from mid-April to mid-August. All nest boxes were placed in pairs approximately 5-10 ft. (1.5 - 3.0 m) apart to minimize competition with Tree Swallows. For predator protection most PVC boxes were mounted on 1/2 in. (1.3 cm) electrical conduit coated with carnauba wax. Some PVC and most other boxes were mounted on metal water pipe with the pipes liberally



Photographs by Kevin Berner

The New York Power Authority's Blenheim-Gilboa Pump Storage Power Project field test site.

Table 1. Number of nesting attempts by species and box style at Blenheim-Gilboa from 1993-1995.

Box style	No. of boxes	No. of nesting attempts				No. boxes never used
		EB	TS	HW	Total	
NABS	42	20	21	7	48	9
Peterson	"	6	37	6	49	3
PVC	"	7	18	9	34	16
Slot	"	1	24	5	30	16

Key to all tables:

Species: EB - Eastern Bluebird
 TS - Tree Swallow
 HW - House Wren
 HS - House Sparrow

coated with axle grease. Four pairs of boxes were mounted on utility poles. A total of 158 boxes were monitored in 1993 and 1994 and 148 were studied in 1995.

Results

Blenheim-Gilboa study site

In 1993, four of the nine bluebird nesting attempts at the Blenheim-Gilboa site were made in Peterson boxes. A "nesting attempt" in this study was defined as a bird constructing a nest and laying at least one egg. Bluebirds used all the box styles except the slot box. Tree Swallows used Peterson and slot boxes most frequently.

Prior to the 1994 nesting season, most of the remaining older and highly weathered NABS style boxes were replaced with new pine boxes made with planed lumber. These boxes received unusually high levels of use with eight of the 11 bluebird attempts being in NABS boxes with the remaining attempts being split between PVC and slot boxes. Tree Swallows used most of the Peterson boxes and some of each of the three other designs. House Wrens (*Troglodytes*

aedon) were present in smaller numbers and used all boxes at relatively equal levels. Only one Peterson box went unused for the entire summer of 1994.

In 1995, 10 of 14 bluebird nesting attempts were in the NABS boxes with two each in Peterson and PVC boxes. Swallows nested 13 times in Peterson boxes, eight times in PVC and seven times each in the remaining two box types. House Wrens nested in nearly equal numbers of times in all boxes.

Over the 1993-1995 period on this site bluebirds nested in far more NABS boxes than in any other style, while swallows most frequently selected Peterson boxes. (See Table 1.) Peterson boxes were the least likely to be vacant all summer throughout the three study years.

All numbers in the table, including the number of boxes are combined for all three years.

SUNY Cobleskill study site

Five of the six bluebird attempts in 1993 were found in Peterson boxes with the remaining nest found in a slot box. Tree Swallows also selected the Peterson box most often but made heavy use of slot and Seneca boxes as well. All swallow nests in the Seneca boxes had the nest cup at the very back of the box, reducing their vulnerability to predation by raccoons. Overall, the Peterson boxes had the highest rates of use with far more

Table 2. Number of nesting attempts by species and box style at SUNY Cobleskill from 1993-1995.

Box style	No. of boxes	No. of nesting attempts					Total	No. boxes never used
		EB	TS	HW	HS			
NABS	30	2	10	4	1	17	16	
Peterson	"	6	25	3	1	35	2	
PVC	"	3	3	4	0	10	20	
Slot	"	4	14	3	0	21	14	
Seneca	20	0	11	2	4	17	7	

of each of the other box designs remaining vacant all summer.

Bluebird use of nest boxes at the SUNY Cobleskill site was very low in 1994 for unknown reasons. Only four nesting attempts were made, two each in PVC and slot boxes. Very early in the spring two apparent bluebird nests had been started in Peterson boxes, but both were abandoned before any eggs were laid. I suspect that both nests may have been disturbed by people. Tree Swallows used the Peterson boxes very heavily; House Wren use was light and fairly evenly distributed among all box styles. Again the Peterson box was the least often left unused.

After all the older NABS boxes were replaced at the NYPA site in 1994, bluebirds seemed to prefer these newer boxes. In 1995, I replaced all the older NABS boxes at my SUNY site with new boxes to see if they would follow that same pattern. Unfortunately, bluebird numbers remained low on the campus with only two nesting attempts being made in the NABS boxes and one each in Peterson, PVC, and slot boxes. I removed all of the 10 Seneca boxes because they had never been used by bluebirds. In the process I shuffled other boxes to eliminate five of the sites which seemed to be most attractive to House Wrens. Nine out of 19 Tree Swallow attempts were in Peterson boxes.

In each of the three study years on the SUNY site, Peterson boxes had the greatest number of nesting attempts overall and were the least likely to remain vacant. Only two Peterson boxes in the three years went unused all summer. Peterson boxes were more likely to be used by bluebirds and swallows than any other style. (See Table 2.)

Myers Road study site

Six of the 10 bluebird nesting attempts in 1993 were in the Peterson boxes. The heaviest swallow use was divided among NABS, Peterson, and slot boxes. One House Finch (*Carpodacus mexicanus*) pair nested successfully in a Peterson box. Overall the Peterson boxes had the highest levels of use and none were unused.

Bluebird use was highest in Peterson boxes on this trail again in 1994 with five of 12 attempts being in these boxes. PVC and slot boxes were each used three times by bluebirds. Swallows used NABS and Peterson boxes most while House Sparrows made three attempts in a NABS box. No Peterson box was left vacant all summer.

In 1995, I replaced all of the NABS boxes on this study area with boxes like those at the NYPA and SUNY sites. Twelve of the 16 nesting attempts by bluebirds were in the eight Peterson

Table 3. Number of nesting attempts by species and box style at Myers Road from 1993-1995.

Box style	No. of boxes	No. of nesting attempts					No. boxes never used
		EB	TS	HW	HS	Total	
NABS	24	3	16	1	6	26	5
Peterson	"	23	11	8	0	42	0
PVC	"	5	12	7	0	24	6
Slot	"	7	4	6	4	21	11

boxes. The other three designs each had only one or two bluebird nesting attempts. Tree Swallows nested seven times in PVC boxes, six times in NABS boxes, three in Peterson boxes and twice in slot boxes.

Over the three year period 23 of 38 bluebird nests were in Peterson boxes on the Myers Road study area. Swallows and House Sparrows used the NABS boxes most frequently. No Peterson box was unused in any of the three years. (See Table 3.)

Cobleskill Cemetery and Berner/Niles Farm sites

Between these two sites all of the six bluebird nesting attempts in 1994 were in the Peterson boxes, with none in the tree branch boxes. Tree Swallows nested in the Peterson boxes six times and tree branch boxes three times. Overall, the Peterson boxes were used twice as often as the tree branch boxes and none of them went unused.

In 1995 a similar pattern prevailed with

all six bluebird nests being documented in the Peterson boxes. Swallows used Peterson boxes for eight of their 10 nesting attempts. Wrens used tree branch boxes four times and Peterson boxes three times.

Combining the 1994 and 1995 years the Peterson boxes showed much higher levels of use at these two sites, with none being empty in either year. Eight tree branch boxes went unused for an entire summer. (See Table 4.)

Summary of all sites between 1989 and 1994

When all the data from this and my previous studies are combined, bluebirds show a strong preference for Peterson boxes, although the Blenheim-Gilboa site strongly went against this trend during two of the six years that Peterson boxes were present. For every 100 Peterson boxes placed in the field, I would expect 39 nesting attempts by bluebirds. The next highest level of use would be found in PVC boxes where 19 attempts would be

Table 4. Number of nesting attempts by species and box style at Cobleskill Cemetery and Berner/Niles Farm from 1994-1995.

Box style	No. of boxes	No. of nesting attempts				No. boxes never used
		EB	TS	HW	Total	
Peterson	20	12	14	7	33	0
Tree Branch	"	0	5	9	14	8

expected in 100 boxes. Slot and NABS boxes followed with 16 nests expected/100 boxes. The NABS boxes included several roof sizes and variations in thickness or presence of wooden predator guards, but use between these types did not vary greatly. Excluded from this calculation are NABS boxes with "Bird Guardian" commercial predator guards which I described in Berner (1991). I never had any bluebirds use any boxes with these guards. I have had no bluebird nesting attempts in either of the horizontal nesting boxes (Seneca or tree branch) design; however, the number of these boxes in the field is smaller than all other designs.

Tree Swallows showed a strong preference for the Peterson boxes with 72 nesting attempts expected for every 100 nest boxes. NABS and Seneca boxes received the next highest levels of use with 55 nests expected for every 100 boxes. Slot, tree branch, and PVC were less frequently used by swallows.

House Wrens used tree branch boxes heavily, but this apparently high use is based on only 10 boxes/year over a two year period. Little preference was shown by wrens for any other box style.

House Sparrow use of nest boxes is of great concern to bluebird enthusiasts. I usually do not have a significant problem with House Sparrows on any of my trails. While both Seneca boxes and slot boxes have been promoted as being avoided by sparrows, I found them to be used by sparrows at higher rates than my other boxes. No sparrow ever laid eggs in any of my PVC boxes, but one nest was built in a PVC box on the Myers Road trail in 1995 before being abandoned for a paired slot box (See Table 5.)

Schoharie County Bluebird Society surveys

In 1994, surveys of the Schoharie County Bluebird Society (SCBS) asked members who had both NABS and Peterson style nest boxes for information on usage of both styles of boxes. Respondents observed more than twice as high rates of use for Peterson boxes as NABS boxes. Tree Swallows also used Peterson boxes at a higher rate than NABS boxes. House Wrens used the NABS boxes at higher rates. (See Table 6.) Numerous conversations with SCBS members indicate that they have observed a preference by bluebirds for Peterson boxes.

Table 5. Number of nesting attempts by species and box style from 1989-1995. The numbers in parentheses represent the number of nesting attempts that would be expected for every 100 nest boxes.

Box style	Total no. of boxes 1989-1995	No. nesting attempts (No. of nesting attempts/100 boxes)			
		EB	TS	HW	HS
NABS	276	43 (16)	151 (55)	41 (15)	10 (4)
Peterson	189	73 (39)	136 (72)	37 (20)	7 (4)
PVC	127	24 (19)	38 (20)	26 (20)	0 (0)
Slot	148	23 (16)	53 (36)	27 (18)	12 (8)
Seneca	20	0 (0)	11 (55)	2 (10)	4 (20)
Tree Branch	20	0 (0)	5 (25)	9 (45)	0 (0)

Table 6. Use of NABS and Peterson boxes as reported by members of the Schoharie County Bluebird Society in 1994.

Box style	No. of boxes	No. nesting attempts (No. of nesting attempts/100 boxes)		
		EB	TS	HW
NABS	366	64 (17.5)	132 (36.1)	66 (18.0)
Peterson	194	78 (40.2)	93 (47.9)	17 (8.8)

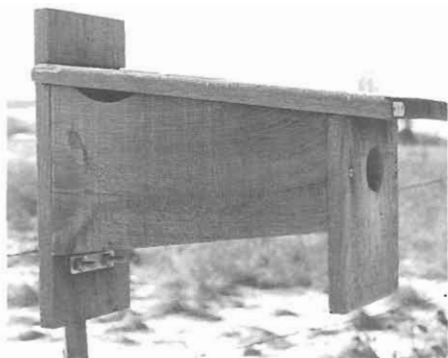
Discussion

Six years of field tests and Schoharie County Bluebird Society members' data strongly indicate that bluebirds and swallows prefer Peterson boxes. These boxes have been used at far higher rates than any others when the two species were given a choice. This does not mean that the same birds would not use other box styles if a Peterson box was not available. I have not attempted to determine why they select the Peterson box; however, I plan to do so in 1996. Davis (1995) found that the oval entrance hole, not the box shape is the feature that bluebirds seem to select for. The fact that Peterson boxes are consistently occupied and rarely vacant for the entire breeding season indicates that the birds see some advantage to this style. An advantage that I have observed is that the downward sloping design tends to result in much drier nests after rainfall. Concern has been expressed that European Starlings (*Sturnus vulgaris*) can enter the oval entry hole in Peterson boxes (Davis and Kalisz 1995, Kriedler pers. comm.) I observed no evidence whatsoever of this happening at any Peterson box, although two Peterson boxes were observed with starling nests and eggs by another bluebird within Schoharie County in a box that met Peterson's specifications.

Relative to House Sparrow deterrence I have found the PVC box to be the most promising design. No other box has been tested as much without having any use by sparrows. After the equivalent of 127

boxes being out for one year, none had completed sparrow nests with eggs nor been the site of sparrow destruction of any other species' nest. Davis (1994) also found that House Sparrows avoided PVC boxes which he paired with slot boxes with varying slot widths. I would highly recommend this box to anyone with sparrow problems.

Although the tree branch boxes were new and limited in number, they did not show much immediate promise for widespread acceptance by bluebirds, at least when Peterson boxes were available as an alternative. Some people feel that new boxes should not be expected to be heavily used when first introduced. In contrast, I observed heavy use of Peterson boxes immediately after their placement in the field. In other tests within Schoharie County in 1994, nine tree branch boxes were paired with a variety of other nest box designs. Bluebirds only nested in a tree branch box one time while three nesting attempts by bluebirds were made in boxes with which the tree branch boxes were paired (Therrien pers. comm. 1994). House Sparrows did initiate a nest in one of my tree branch boxes, but they abandoned it before laying any eggs. Based on the House Sparrow use of the Seneca boxes which are very similar, I would not expect tree branch boxes to deter House Sparrows from nesting. I found the tree branch boxes to be extremely difficult to monitor and clean due to their very constricted internal dimensions and the small rear-opening door. The small size made banding both chicks and adults very difficult. I would recommend that



Seneca nest box used in author's field tests.



Tree branch box, one of six styles tested at New York research sites.

individuals who make this box design have the tops, not the backs open. The Seneca boxes are designed in this manner facilitating box cleaning, monitoring, and bird banding.

Raccoon populations within Schoharie County have been decimated, but not eliminated, in the last several years due to the rabies virus. I have had great success in reducing raccoon predation by using very heavily greased mounting pipe. The only two nest boxes which had raccoon predation in the last three years were close enough to other fences that raccoons were able to climb them to gain access to the nesting boxes without climbing through the grease. None of my PVC boxes that were mounted on waxed electrical conduits have ever been destroyed by raccoons.

Speaking with bluebird enthusiasts at NABS meetings and reading various state bluebird newsletters I see House Wrens causing more and more problems for bluebirds. Wrens, unlike House Sparrows, are a protected native species. The consensus among many people is that wrens are using nest boxes farther and farther away from the dense shrubby areas that they traditionally used. Wrens

will often remove bluebird eggs from nest boxes (Zeleny 1976). I lost two bluebird nests at my home property, three bluebird and two swallow nests at Blenheim-Gilboa, one swallow nest at SUNY Cobleskill, and two bluebird nests on my Myers Road trail to wren predation in 1994. In 1995, among all of my study areas, wrens destroyed five bluebird, one chickadee, and seven swallow egg clutches. My research indicates that wrens will readily accept all of the box styles that bluebirds will use. Further research is needed to identify ways to minimize competition between these two species. ■

Acknowledgments

Partial funding for this research was provided by the Bluebird Recovery Program of Minnesota and NABS. Some boxes used in this research were donated by Steve Gilbertson, Charlie Rouse, Frank Zuern, and Herman Bressler. The Winnebago Audubon Society and the Butte des Morts Women's Club supported some of my travel expenses in 1994 due to the encouragement of Frank Zuern. Nathan Favreau, a SUNY Cobleskill Fisheries and Wildlife Technology student, provided field assistance in 1994. Pat Kennedy and Scott Samolis, also SUNY students, provided field assistance in 1995. My wife, Nancy Niles reviewed drafts of this manuscript.

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Testing the Features of the Peterson Box

Wayne H. Davis

Bluebirds like the box designed by Richard Peterson of Minneapolis. In tests of a variety of boxes over several years Kevin Berner found that bluebirds used more of the Peterson boxes than any other style (Berner and Pleines 1993). We found that when boxes were placed side by side on the same post, bluebirds had a strong preference for the Peterson over our slot boxes (Davis and Kalisz 1995). Palahniuk and Bakko (1995) also found that bluebirds preferred the Peterson boxes when paired with slot boxes.

The Peterson box has several unique features. The back is vertical and the front slopes. The floor is tiny, but the birds can choose the area available for the brood by varying the depth of the nesting material. The entrance is a vertical slot rounded at top and bottom. The rather large roof slants forward and shades the entrance from the afternoon sun.

Which of these features do bluebirds find so attractive? Is it a certain feature or

the combination that they like? In an attempt to answer these questions, I decided to test the features one at a time.

During the fall of 1993 I erected 150 boxes at the University of Kentucky agricultural research farms at Lexington. Boxes were placed in good bluebird habitat at least 0.1 mile (160 m) apart. All were my standard slot entrance boxes with floors 4 x 4 inches (10 x 10 cm) and depth of 5 inches (12.5 cm). The entrances are 4 inches wide and 1 1/8 in. (29 mm) high. At alternate sites I mounted the boxes so that they tilted forward 27 degrees to match the front slope of the Peterson box. Boxes were monitored weekly from April through August 1994. A box was recorded as used if it contained a nest and one or more eggs.

Eastern Bluebirds (*Sialia sialis*) used 31 of the slanting boxes and 26 of the controls. House Sparrows (*Passer*

domesticus) used 43 of the slanting boxes and 40 controls. These small differences are not significant and are probably due to chance.

For the next season I decided to test the Peterson entrance. I made 50 boxes with standard Peterson fronts with entrances 2 1/4 inches (55 mm) high and 1 3/8 inches (35 mm) wide. As a Peterson front is only 3 1/2 inches (9 cm) wide, the floors were 3 1/2 x 4 inches, somewhat smaller than my controls. Depth below the entrance was 5 inches. In the fall of 1994 I placed these boxes on the University farms, alternating them with my standard slot entrance controls. I monitored the boxes weekly from April through 19 May, by which time differences were obvious.

Bluebirds used 20 of the experimental boxes and nine of the controls, whereas House Sparrows used 10 experimental boxes and 25 controls. Tree Swallows (*Tachycineta bicolor*) used three experimental boxes and one control, whereas House Finches (*Carpodacus mexicanus*) used one experimental box. Sixteen of the experimental boxes and 15 controls had received no eggs when checked on 19 May. Using these data, Dr. Zakkula Govendarjulu, of the Statistics Department of the University of Kentucky, ran a chi-square test for me and determined that the differences are significant, $P < 0.01$.

Data from earlier monitoring showed a continuous trend. For example, on 7 April, bluebirds had eggs in five experimental boxes and two controls, whereas House Sparrows had eggs in six controls, but none of the experimentals. Adding these

data to the House Sparrow starts and nests showed sparrow activity in 20 controls and 13 experimentals. Thus, for actual usage, the sparrows added to their controls but used fewer experimentals. There were plenty of both types of boxes available for both species when serious nesting began.

Discussion

Entrance preference studies have given strange results. With boxes placed side by side, bluebirds prefer a slot entrance to the standard circular hole (McComb *et al.*, 1987) whereas House Sparrows prefer the round hole (Davis 1989). Now I find that sparrows prefer the slot to the Peterson entrance, and bluebirds prefer the latter. The Peterson entrance is definitely something worth considering when building new boxes. ■

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To rent or purchase the bluebird slide show, write to the following address: NABS Slides, P.O. Box 6295, Silver Spring, MD 20916-6295. Please allow one to two weeks for delivery and, if possible, specify several dates for rental.

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Jon E. Boone 122, 156
Suzanne Pennell 158

Bluebird Nest Boxes: Unusual Designs

Ronald A. Bittner

I started operating a bluebird trail in the Abernethy area in 1984, and have been using paired nest boxes since 1988 to reduce competition between Tree Swallows [*Tachycineta bicolor*] and Mountain Bluebirds [*Sialia currucoides*]. Paired nest boxes have worked well, but I had previously wondered if competition could be reduced through nest box design. If two styles of boxes were provided, one favored by bluebirds and one by swallows, this would reduce competition. In order to test the nest box preferences of swallows and bluebirds, 10 different styles of nest boxes were built. Four were fairly conventional boxes, but with varying dimensions; they will be referred to as standard boxes. The other six were quite unusual in that they had more than one entrance; they will be called test boxes. There have been several boxes of each style used, for a total of 66. Data will be presented which show that bluebirds have favored the test boxes, and swallows the standard boxes.

This experiment started with the assumption that standard boxes are the best choice for swallows. Some other design would be sought that would appeal to bluebirds. The considerations that went into the design will now be discussed. Bluebirds have two nesting characteristics which are rarely, if ever, shared by swallows. Firstly, bluebirds do not always nest in a cavity. Occasionally, they select a more open environment such as a ledge on the exterior or interior of a building. Therefore, the test boxes were designed to be less confining, by having entrances on two, three or four sides, and by using wide slots instead of round holes. Secondly, bluebirds sometimes choose a nest site where they must fly upward through an opening to reach the nest. I once observed a bluebird flying upward through a large hole in the soffit of a building, apparently going to a nest.

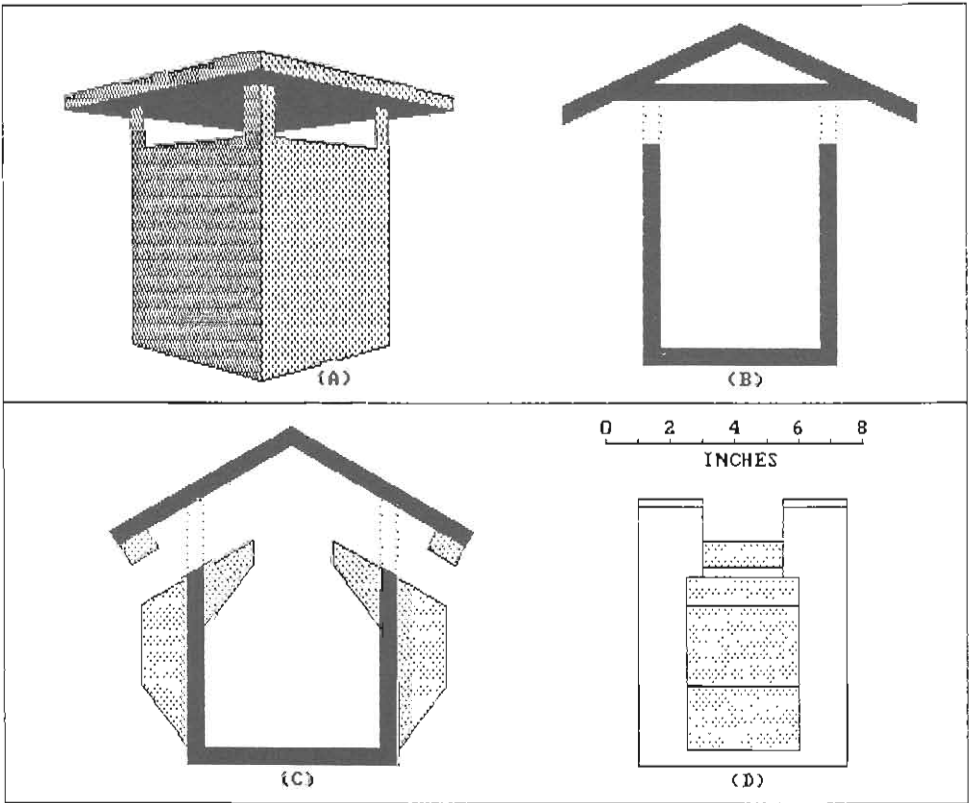
On another occasion, a bluebird nested in a farm implement where it had to fly upward through a five-inch square hole to reach the nest. In the test boxes this factor was approximated by concealing the entrances under the overhanging roof.

The first test boxes were built in 1987. They were remodelled in 1989; the reason will be discussed later. They had entrances on all four sides, and cottage style roofs overhanging the entrances. They are illustrated in the upper half of Figure 1. The corner view shows that the boxes were very open. The sloping roof is omitted for simplicity. The cross section shows how the roof partly concealed the openings. A photograph of one of these boxes appeared in an earlier *Blue Jay*. Results with these boxes were encouraging and led to the construction of boxes with three openings and two openings. Most of these boxes were readily accepted by bluebirds.

Nesting results are presented in Figure 2. The upper part of the figure shows the 10 nest box styles. The first four are standard boxes, and the last six are test boxes. The earliest test design is called style 10 in this illustration. The lower part of the figure gives the results. Bluebird occupancy rate is given by the length of the checked bar, and the swallow rate by the length of the striped bar. The white bar represents other species or unused boxes. It can be seen that bluebirds have generally favored the test boxes and swallows the standard boxes. Do bluebirds like the test boxes because of the extra openings or the concealed openings? This experiment does not provide a definite answer, but suggests that both factors contribute.

The illustrations discussed so far show the boxes as first constructed. They have since been modified at least twice, in an attempt to overcome predation problems. Raccoon predation in 1989 resulted in

Figure 1. Top: experimental bluebird box with four entrances; (A) corner view without sloping roof; (B) cross section with roof. Bottom: bluebird nest box with two entrances; (C) front view cross section; (D) side view without roof.



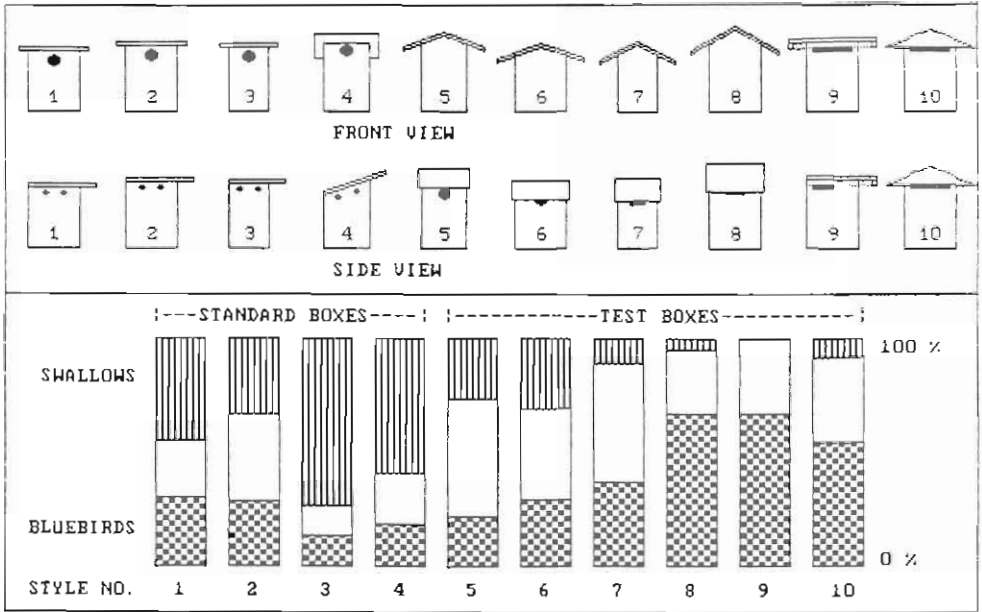
bluebird and swallow losses of 75%, and in 1990 losses of 50%. It should be noted that losses were equally severe in the standard and test boxes. It was apparent that something should be done to make all the boxes safer. Since this would be a difficult task for boxes with many openings, styles 9 and 10 were converted to two openings from three and four respectively. At the same time, various pieces were added to the inside and outside of all the boxes in the hope that they would prevent raccoons reaching down to the nests. There was no raccoon predation in 1991 and 1992, but it is not known if this was due to the modifications to the boxes or to the lack of raccoon activity.

In addition to the box factors discussed so far, two other factors, size and depth,

were tested. Size refers to the inside floor dimensions and ranged from 4.5 to 5.5 inches. Depth is the inside measure from the bottom of the entrance to the floor. This ranged from 5.5 to 7.0 inches. Bluebirds have favored the larger size, and swallows the smaller size. Depth was not a significant factor for either species within the range tested.

One of the most successful test boxes is style 8. The lower part of Figure 1 shows a box which is similar to the remodelled version of style 8. Sloping entrance passages are created by blocks added to the interior and exterior of the side walls. The strips attached to the edges of the roof control the size of the entrances which are 1.25 inches deep. The entrance passages are wide and

Figure 2. Bluebird and swallow occupancy rates for 10 nest box styles, based on 81 bluebird and 101 swallow nestings from 1988 to 1992.



deep enough to allow easy access by a bluebird once it is past the restriction. The slopes and length of the passages might prevent a predator reaching down to a nest. This type of nest box might interest birders who have tried unsuccessfully to attract bluebirds, or who have experienced raccoon predation in their boxes. ■

Box 97
Abernethy, Saskatchewan
Canada SOA OAO

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(TALES--Continued from page 159)
IN, wrote, kindly asking about my health following my August 1994 automobile accident, as did many other NABS members. (To all, I convey my heartfelt thanks for your concern and your prayers; my healing is virtually complete and my energy has returned, thank God!) Lurton needed some brochures for a bluebird display at the local Fayette County Free Fair booth of the Future Farmers of America.

With so many dedicated bluebirders out there carrying forward Larry Zeleny's dream, the bluebird can only continue to thrive on a continentwide basis. In closing, a small incident related to me at Larry's

funeral seems appropriate.

Paul Jung, Bowie, MD, veteran birder and past NABS board member, described a Christmas Bird Count in Prince George's County for which he was the compiler. Larry Zeleny was a participant in Paul's count party. At some point during the day, Larry, hearing a bluebird's winter call, said to Paul, "Bluebird over there." As Paul remembers it, a novice counter with them said, "How would he know?" How, indeed, ma'am; he wrote the BOOK! May God richly bless you, dear Larry! ■

Correction

We regret misspelling Peter Eiger's name on page 92 of the Summer 1995 issue.

Cavity Nester License Plates

Any other cavity nester boosters out there using vanity plates to advertise their enthusiasm? Send us a photo if you can or, if that isn't convenient, drop us a postcard indicating the state and the exact spelling of what appears on your license plate(s). We'll continue to print them from time to time. Send to Sialia, 10617 Graeoch Rd., Laurel, MD 20723.



Marion and Ruth Dykstra of Bussey, Iowa display their loyalty on a blue and white Iowa plate.



Elsie K. Eitzroth of Corvallis, Oregon has the Latin genus name for bluebirds on a handsome commemorative plate. Elsie says BLU-BRD was never available on the regular plate.



Don Yoder of Walnut Creek, California's SIALIA 1 plate is attached to a yellow '79 Honda hatchback "in great shape and recognized all over our valley of 8500 people."



Don Wolff of San Francisco, California sent in a photograph of the plate on his wife, Joanie's, car. It is one of the most unusual spellings yet. Owaissa was the word for bluebird in the language spoken by the Konkapot American Indian tribe in New England. Owaissa was also the name of a girl's camp Joanie attended in Monterey, Massachusetts many years ago. Don notes that there is an Owaisa license plate in Massachusetts on the car of Roberta Weiss who also attended the camp. Her plate lacks one "s" because of a six letter limitation. Don is the San Francisco chair of the California Bluebird Recovery Program and Joanie has been a NABS member for years.

1996 Awards for Bluebird Conservation

The North American Bluebird Society annually makes awards for outstanding contributions to bluebird conservation. If you wish to nominate an individual, a group, or someone involved in research for an award, please provide the following information.

INDIVIDUAL

1. Name, address, county, state, telephone number
2. Affiliation(s) with bluebird group(s) or other bird or conservation societies with bluebird programs. Describe the individual's involvement and activities.
3. Number of years active with bluebird/cavity nester conservation (minimum of seven years necessary)
4. If nominee has a trail, describe its location, when established, number of boxes, production, record-keeping techniques, etc.
5. Describe any ways in which nominee has publicized or aided bluebird/cavity nester conservation. Examples might include (but are not limited to) speaking before groups; working with young people; obtaining publicity in newspapers, radio, or television; working at nature centers, workshops, or fairs; inventing or improving trap or box designs; designing and producing publications; plantings, etc.
6. Anything else you feel is relevant to understanding the outstanding commitment to bluebird/cavity nester conservation of the nominee.

GROUP

1. Complete name, address, location, current president or other officer or contact (for governmental agency)
2. Specific information about the bluebird program: printed information (enclose samples), workshops, number of boxes, increase in bluebird production, methods of recruiting monitors, successful fledgings, etc. (Program must have been in place for a minimum of five years.)

RESEARCH

1. Name, address, telephone number, academic affiliation
2. Briefly summarize research completed (and in progress) involving bluebirds/cavity nesters
3. Bibliographic citations of articles published about bluebirds or other North American cavity nesters (copies of articles or abstracts are desirable)

Send all nominations to President Charlotte Jernigan, R.R. 2, Box 434-B, Wagoner, OK 74467 by 1 March 1996. ■

Bluebird Trails at Fort Sill, Oklahoma Military Installation

Kevin McCurdy, Glenn Stillman and Gertrude Stillman

Description of Area

Fort Sill, Oklahoma is a many faceted place. It is approximately 95,000 acres, 23 miles in length and 8 miles in width. It is placed where east meets west, has a boundary with the Wichita Mountain National Wildlife Refuge and is the home of the Field Artillery. It has a growing mesquite population and a large tract of tall-grass prairie. The six trails cover three vegetation types: mesquite savanna, riparian, and transition zone (riparian/cross timbers). The main trail of 73 boxes in three different locations is mainly in mesquite savanna. The area is heavily used by military troops. The other trails are placed in a manicured riparian bottom next to an elementary school (six boxes), a riparian habitat mixed with garden plots (10 boxes), and transition zone (six boxes) next to Fish and Wildlife offices.

History

Fort Sill established its first bluebird trail approximately ten years ago with the help of an Eagle Scout. This trail was placed in the mesquite savanna on the West Range. As the years progressed two trails were added in the housing area of Fort Sill.

One group of boxes was established in 1993 as a National Wildlife Week project for a fifth grade class at Geronimo Road Elementary School. During the school year the class maintains the trail. The children have taken ownership responsibility; in other words, don't mess with their boxes. When school is out, Fish and Wildlife staff maintain the trail. The 1993 nesting season was only marginally successful. The 1994 season brought great results. Ten bluebirds and five House Wrens were fledged. One nest was abandoned and one nest of hatchlings died of exposure (rain and wind).

A Girl Scout troop (Fort Sill #4) helped establish a trail in the garden plots on the base. The boxes mainly held wasps early in the nesting season. House and Carolina Wrens were the only birds which nested in

the boxes. Five House Wrens fledged while someone vandalized the Carolina Wren nest by taking the eggs. In 1995 we hope bluebirds will begin using the boxes.

Fort Sill has developed a tradition of using nesting boxes to increase the number of bluebirds and cavity nesters. Wood Duck, Barn Owl, and American Kestrel boxes have been placed with some success. The establishment of the trails has been successful because of volunteer labor. Individuals have spent countless hours building, erecting, and cleaning the trails plus keeping track of the needed information for Fish and Wildlife

When trails were first started, all boxes were wooden (cedar and plywood). Presently, the trails contain a mixture of 6 inch PVC and wood boxes. PVC was originally used because of its low maintenance value. The box itself is six inches in diameter and a foot in length with a wood bottom plus a PVC cap. The caps are relatively expensive at \$10.00 a cap; however, over the life of the box, they are cheaper than wood.



Photograph by Kevin Tucker

PVC nest box with Eastern Bluebird at Fort Sill, Oklahoma.

Some of the boxes (wood and PVC) are mounted on 2 inch PVC pipe with pipe angle cut to secure the pole from moving on the fence (T) post. The top of the box is secured to the pipe by a bolt and the bottom is fastened to the pipe by electrical wire. The nesting success rate has not changed. This arrangement allows for removal when prescribed burning is being done and provides a predator guard as well.

PVC boxes have not caused a decline in the bluebird nesting success. Nesting success has been around 80% with a low of 65% and a high of 85%. There is no statistical difference between wood and PVC nesting success. Although it appears that Red-bellied Woodpeckers and Great Crested Flycatchers will not use PVC, in

1993, a Red-bellied Woodpecker nested in a wood box and fledged two young. The Great Crested Flycatcher averages two nests a year raising around seven young birds in wood boxes. During the last two years, more white bluebird eggs have been seen than before. In 1994, 12 white eggs were laid. Some nests have both white and blue eggs in them.

The policy at Fort Sill is to let any cavity nester nest in our boxes except European Starlings and House Sparrows which are promptly disposed of. Through the years, we have had various wrens, Tufted Titmice, Carolina Chickadees, Great Crested Flycatchers, and a Red-bellied Woodpecker nest in the boxes, and, of course, bluebirds.

1994 Nesting Season Results

1994 was not a very good year for any cavity nester on Fort Sill. Various factors played a role in the success of the nesters. A major problem was two severe thunderstorms that roared through various areas of the post. The most severe was a storm that packed 80 plus mph winds that took more than 50 hatchling bluebirds. To make it worse, the temperature dropped into the high 30's. The bluebirds lost came out of PVC boxes. This is due to the fact that no wooden boxes were in use in the early nesting season. The loss cut our production for about two to three weeks. Another storm hit late in the season and took another four hatchlings in the housing area.

Other problems that arose were the increase in Brown-headed Cowbird parasitism and House Sparrow nests. One House Sparrow nest had five eggs in it

before it could be destroyed. Twenty-three cowbird eggs were taken out of 14 nests. Three nests were abandoned due to cowbird parasitism. Cowbirds are known to be a problem for other birds on Fort Sill.

On the good side, many species of birds did fledge. Bluebirds fledged 127, Tufted Titmice raised one, Great Crested Flycatchers got off five young, and House Wrens fledged 35. Fort Sill has an abundance of wrens. For bluebirds the percentage of fledged to eggs laid was not good: 65% fledged in 1994 compared to a high of 85% in 1993. The low percentage was mainly due to bad weather during the early nesting season. ■

Fort Sill Natural Resources Division
DEQ Bldg. 1450
Fort Sill, OK 73503

NORTH AMERICAN BLUEBIRD SOCIETY RESEARCH GRANTS

The North American Bluebird Society announces the thirteenth annual grants-in-aid for ornithological research directed toward North American cavity nesting species with emphasis on the genus *Sialia*. Single or multiple awards may be made within the following three categories.

Bluebird Research Grant--Available to student, professional, or individual researchers for a suitable research project focused on any of the three species in the genus *Sialia*.

General Research Grant--Available to student, professional, and individual researchers for a suitable research project focused on a North American cavity nesting species.

Student Research Grant--Available to full-time college or university students for a suitable research project focused on a North American cavity nesting species.

Further guidelines and application materials are available upon request from Kevin L. Berner, Research Committee Chairman, State University of New York, Cobleskill, NY 12043. Completed applications must be received by 1 December 1995; decisions will be announced by 15 January 1996.

North Carolina Bluebird Society Celebrates Tenth Anniversary



Linda Phillips, Founder North Carolina Bluebird Society (NCBS); Charlotte Jernigan, President North American Bluebird Society, and Bea Mansfield, first president of NCBS.



Roger Williams (left) receives bluebird box and certificate in recognition of bluebird conservation in Burke County. Holding box is Charlotte Jernigan, NABS President. Making the presentation is Chuck Bliss, President of NCBS (right).

Bluebird Exchange

This feature extracts items from the newsletters of bluebird organizations and the periodic reports of groups with bluebird or cavity nester projects. Please be sure this editor or NABS is on your mailing list. We want to include your material!

ALBERTA--Mountain Bluebird Trails Society, Conference Announcement

The Eighth Biennial Mountain Bluebird Trail Conference will be held at Lethbridge, Alberta on 5, 6 and 7 July 1996. The conference has been scheduled immediately before the Calgary Stampede to accommodate travelers who might wish to attend both events. Excellent speakers and exhibitors are planned. For further information, write to Bob Harrison, Secretary, Mountain Bluebird Trails Society, 1725 Lakeside Road South, Lethbridge, Alberta, Canada T1K 3G9.

--Bob Harrison, Secretary *MBTS*

IOWA--WINGS..., Spring 1995

Four articles in this issue address the use of Iowa's roadsides. According to this material, Iowa is the most altered state in the nation [in terms of land use] and Rhode Island is the only state which has less public land than Iowa. Iowa has a lower percentage of its land in natural areas than any other state and the more than 600,000 acres along its roadsides is more than all city, county, and state parks combined.

In order to address these astonishing statistics and to consider how best to manage the roadsides (which are currently heavily sprayed or mowed), a group of citizens has formed the Iowa Roadside Coalition.

Bernie Knight highlights some roadside birds in "Are You Listening to Our Roadside Songsters???" Rob Boute in "Roadsides for Wildlife" argues for an enlightened use of roadsides including the following two single guidelines: delay mowing until 1 August allowing most bird nestlings to fledge and leave grass at least 10 inches tall during fall mowing to ensure early spring nesting cover.

Russ Bennett, roadside vegetation manager for Johnson County Secondary Roads Department, lists 20 reasons for *not* mowing roadsides. These reasons range from savings in cost, labor, and equipment to positive aids to species, water, and land.

For further information about the Iowa Roadside Coalition, contact Jim Ouigley, 2012 Union Road, Iowa City, IA 52240.

Peter Veronesi is the author of "Nest Predation: A Practical Science Experience for Students." It details an activity he uses as a teaching device for junior high school students. He describes the steps that can make this a fine exercise to illustrate forest fragmentation and predation. Math and social science can be worked into the regular schedule.

--Johnson County Songbird Project

MAINE--DOWNEAST BLUEBIRD, Spring 1995

Bluebirds overwintered in several areas. The most arresting observation was that of Sandy Paige who saw three males and two females feeding on mountain ash berries in Rangeley. Spring bluebirds tended to be a week or more early.

The Davis, Kalisz, Wells article "Eastern Bluebirds Prefer Boxes Containing Old Nests" in the spring 1994 issue of the *Journal of Field Ornithology* is summarized.

The death of Adrien (Bud) Knowlton of Pittston, an active BAM volunteer who had made more than 300 nest boxes is noted.

The annual meeting is set for 17 June at the Cooperative Extension Service Office in Ellsworth. Planning for 1995-1996 will take place. Sam Hopkins will present a 20 minute

video he produced entitled "A Basin of Life" describing watershed protection in the Union River region.

An initial statewide census of bluebird nesting results is detailed. The 12 biophysical regions fledged at least 529 Eastern Bluebirds. This provides a baseline number and will help BAM to judge when publicity and outreach are needed.

--Bluebird Association of Maine

MASSACHUSETTS, RHODE ISLAND, CONNECTICUT--Bluebird Monitor, June 1995

We welcome to "Bluebird Exchange" the Tri-State Bluebird Society, a new organization covering the New England states of Massachusetts, Rhode Island, and Connecticut.

This is the initial issue of this society's newsletter. Hank and Joyce Coleman are the founders of this bluebird effort. It is listed under Massachusetts because that is the location of its mailing address. Since the grand opening of their headquarters in March, the group has grown to more than 100 members. Hank lists a number for information: (800) 769-2473. The first bluebird workshop is planned for 15 June at Seekonk, Massachusetts.

Well-known bluebirder and past-president of NABS, Lillian Lund Files, authors a column "Ask Lillian." She answers frequently-asked questions succinctly.

--Tri-State Bluebird Society

MINNESOTA--Bluebird News, May 1995; July 1995

The Fourteenth Annual Bluebird Conference of the Bluebird Recovery Program (BBRP) will be held in Mendota Heights 9 September.

The 1995 BBRP Research Grants were awarded to the following individuals: Charles Martin, South Paris, Maine, for a school-community bluebird project; Professor Neal Mundahl, Winona State University for continued research on thermal comparisons in PVC and wooden bluebird nest boxes; Associate Professor Kevin Berner, State University of New York at Cobleskill, study of habitat-related solutions to wren/bluebird competition and predation; and Keith Kadel, Faribault, study of the effectiveness of semi-open nest box designs in deterring wren usurpation.

A summary of Kevin Berner's updated research comparison of nest box styles over the past six years is highlighted. See article on page 127 in this issue for the complete article.

An article about Allen Bowers' success with flickers is included.

An interesting historical note about Quaker farmers in Chester County, Pennsylvania, who were known as "bluebird potters," was passed along by Don Beimborn. These farmers "potted" in the winter season, during the nineteenth and early twentieth centuries. The name "bluebird potters" arose from the connection with the return of the bluebirds at about the time kilns were being filled with a winter's worth of pots for firing. Prior to the Civil War, the smoke from the kilns also served as beacons for fleeing slaves who were aided by sympathetic Quakers.

Dave Ahlgren, of Stillwater, has produced an incredible 35,000 Peterson nest boxes for bluebirders across the country.

Bob Orthwein, of Columbus, Ohio, suggested trying some raised-roof nest boxes as a possible means to discourage House Sparrows. More important was his discovery that House Wrens didn't nest in this style which could be particularly significant to bluebirders. In damp spring weather a temporary sliding roof is added but removed as the season progresses making it cooler than any regular design in hot weather. Bob has also had success with triple boxes where swallows and House Sparrows may be bluebird competitors.

The April 1995 issue of *National Wildlife* reports that Clemson researchers are using European Starlings as study subjects in six states to determine pesticide effects on songbirds, including bluebirds.

Dr. Wayne Davis's 1994 and 1995 results of experiments with Peterson oval entrance and Kentucky slot boxes found that the oval entrance of the Peterson box was the feature that differentiated bluebird preference for that opening. See article on page 135 of this issue of *Sialia*.

--*Bluebird Recovery Program*

MISSOURI--Missouri Department of Conservation letter

The Missouri Department of Conservation has developed materials to aid Missouri teachers and youth leaders teach about state birds, conservation, endangered species, backyard habitats, etc. Handsome color posters, lesson plans, activity books, and fact sheets are among the items available. For a list of materials and prices, contact Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102-0180.

--*Missouri Department of Conservation*

NEBRASKA--*Bluebirds Across Nebraska Newsletter*, Spring 1995, Summer 1995

Mary Zimmerman terms mealworms "candy" for bluebirds. She details the experience of Julie Milota, of Papillion, who has achieved excellent results photographing bluebirds by luring them with mealworms. A commercial source is listed as well as directions for raising them.

A grant of \$5,300 was awarded to Bluebirds Across Nebraska (BAN) from the Nebraska State Lottery Environmental Trust. This allowed 325 nest boxes to be built and distributed during March and April. BAN also received a grant for \$500 from the Nebraska Game and Parks Commission which enabled it to conduct workshops last spring. Funds came from the nongame income tax checkoff. Slides, videos, and other teaching aids were purchased.

BAN's educational committee presented workshops in March and April in Grand Island, Omaha, Crete, Lincoln, Norfolk, and Talmage. More than 160 people participated.

BAN's first annual conference was held 1 April 1995 at Mahoney State Park. Approximately 100 people attended. President Steve Eno presented the Bluebird of the Year Award to Connie Conover.

Information booths were staffed at the Spring River Conference in Kearney, Earth Day at Antelope Park, and Spring Affair in Lincoln.

In the interest of increasing bluebird production, BAN has planned a competition for next year among the counties of the state. In 1996 the county recording the largest percentage increase in bluebirds fledged will receive a free picnic open to all bluebirders reporting in that county. Directory reporters attending will receive a free bluebird box.

Both Sanford Downs and Steven Eno reported problems with the Tree Branch Box (TBB). Downs found it expensive and time-consuming to build, Eno paired seven with a like number of Peterson boxes. All TB Boxes were occupied by sparrows or wrens.

The Summer issue includes reports from trails operated by members of Wachiska Audubon and Omaha Audubon.

--*Bluebirds Across Nebraska*

NEW HAMPSHIRE--undated mailing received July 1995

Bruce Burdett, who has put up bluebird boxes in New Hampshire since 1989, decided to expand his efforts in 1995 to establish a statewide network. In March 1995 he mailed packets of bluebird information to 110 New Hampshire conservation chairmen. That initial mailing elicited 13 responses. Fortunately, he also sent a letter to the editor of a few newspapers offering a free suggestion sheet to anyone interested. Requests began coming from all over the state as well as from Vermont and Maine. Mid-season he sent a letter to

another eight editors (selected to fill in geographic gaps in his responses) and has distributed more than 400 information packets.

--*The Great New Hampshire Bluebird Conspiracy*

NEW YORK *Bluebird News*, Spring '95

Bluebirds shared billing with Bald Eagles at the Spring Meeting on 6 May 1995 at Seneca Falls, New York.

To further expansion of the Route 20 Research Trail Project, the New York State Bluebird Society (NYSBS) launched an adopt-a-box program (\$10.00 donation) so that even residents of New York City could participate. The trail is now complete in Schoharie County and is approximately 60% finished in Schenectady County. Work in other areas is also progressing. All boxes will be painted a golden pine color. Donors will receive a certificate, a tag will be placed on the box with the name requested, and a report will be mailed at the end of the nesting season.

Membership in the NYSBS topped 1,000 for the first time in its history. Significant strides in restoring the bluebird population in New York has meant that it is likely that the New York State Department of Environmental Conservation will remove the bluebird from its "Special Concern" list later this year. This newsletter, like many others in the last year, summarizes the Davis, Kalisz and Wells' article in the Spring 1994 issue of the *Journal of Field Ornithology*. Most bluebirders are becoming aware of the possible value of delayed box cleaning to maximize *Nasonia* wasp emergence to keep blowfly populations down.

--*New York State Bluebird Society*

---*Bluebird Booster*, Spring 1995

Kevin Berner reports the 1994 survey results with a total of 1,682 bluebirds fledging successfully. Mild spring weather pushed this total to the second highest number of successful nests since surveys were begun in 1985. With 6,035 fledged in the state, Schoharie County accounted for 28% of the total. Top producers in the county were Joe Therrien (159), Dan Schuppel (95), Joe Brown (88), and Kevin Berner (70). Tree Swallow fledging topped all previous years with 2,484. Nest box preferences in this county indicated both bluebirds and Tree Swallows favored the Peterson box with bluebird preference particularly strong.

--*Schoharie County Bluebird Society*

NORTH CAROLINA--*BLUEBIRD NOTES*, June 1995

Most of this issue is devoted to the North Carolina Bluebird Society's tenth annual convention in Southern Pines. NABS President Charlotte Jernigan was the featured speaker. Individuals given special recognition include Roger Williams, John Oakley, and Norman Whitesell.

Evelyn Hill, of Eagle Springs, NC, wrote to *Sialia* to correct the recipe for Wild Animal (Clinic's) Famous Winter Pudding which, when printed in the March 1995 issue of *Bluebird Notes* contained two errors. The original recipe was furnished by Eloise Job of Fayetteville, NC. It is a hit with bluebirds as well as with tilmice, chickadees, goldfinches--even cardinals, thrashers, and mockingbirds. The corrected recipe is as follows: In a large saucepan bring 2 quarts of water and 1 cup of margarine to a boil. Slowly stir in 4 cups of grits. Cook on low heat until mixture thickens. Remove from heat. Add 1 cup of peanut butter. Serve in log feeders or clay saucers.

--*North Carolina Bluebird Society*

OHIO--*The Dawes Arboretum Newsletter*, March 1995

A box preference study was conducted in 1994 using 108 boxes of six styles (three entrance types) at 88 sites (20 were paired). The type of entrance hole was correlated to

average bluebird fledglings per box. Peterson oval entrances were the most successful with 3.1; slot entrances averaged 2.28, and round holes averaged .94 bluebird fledglings per box. Round hole boxes were much more attractive to Tree Swallows with this style recording the highest success rate of 3.5 fledged swallows per box. The Dawes Trail fledged 189 bluebirds and 263 Tree Swallows.

The newsletter also featured articles highlighting the life history of the bluebird, ways to feed bluebirds in winter (especially through the use of landscape plantings), and trail tips for monitors.

--*The Dawes Arboretum*

----*Bluebird Monitor*, Summer 1995

The board of the Ohio Bluebird Society (OBS) has recently decided to emphasize county bluebirding efforts and reorganize from the five districts they have been using. Bill Davis has agreed to serve as the state representative of the county coordinators. He is still in need of volunteers to serve as county coordinators.

The OBS board also adopted a plan to rotate the annual fall convention among the five districts. This would enable more OBS members to become directly involved with a meeting and might interest more members of the public in bluebirding.

Bob Orthwein describes his success in House Sparrow-infested areas with three boxes seven yards apart. This provides one box for bluebirds, one for Tree Swallows, and one for the sparrows. He makes plain, however, that allowing the sparrows to put nesting material in the third box simply gives monitors the chance to trap the sparrows. Under no circumstances should they be allowed to hatch and fledge young. The Huber in-box live trap is his trap of choice. Neither bluebirds nor Tree Swallows have been killed by sparrows or their nests usurped in the past eight years at any of his triple box sites.

Dr. Wayne Davis reviews some solutions to raccoon predation problems. As with most aspects of bluebirding, there is no one solution to the problem. Research has demonstrated that the basic wooden entrance predator guard is ineffective, although slanting the entrance hole up as Don Wilkins does may have merit. The Noel wire guard has had mixed success, especially if attached before incubation begins which may cause nest abandonment by bluebirds. Dick Tuttle's liberal coating of grease is effective for him as is Steve Gilbertson's polished metal conduit. Davis notes that the Zuern tree branch box is particularly safe from raccoon predation. It is perhaps a reasonable box choice where it is not possible to mount boxes on individual posts or conduit. In 1994 Davis tests of Zuern and Peterson boxes mounted on power poles, the shallow Peterson boxes were frequently raided by raccoons. The only bluebird nests destroyed in Zuern boxes were those in which nests had been built in front of the baffle.

--*Ohio Bluebird Society*

OKLAHOMA--*Watchable Wildlife News*, Spring 1995

Almost 600 Oklahomans have purchased the new Wildlife Conservation License Plates which feature either a white-tailed deer or a Scissor-tailed Flycatcher. Most of the annual fee goes toward the Nongame Wildlife Program.

--*Oklahoma Nongame Program*

ONTARIO--*Bluebird Report* for 1994

Hazel Bird reports that an analysis of the last 10 years of bluebird nestings has seen a startling drop from 81 in 1985 to 23 in 1994. The major cause of the decline in nestings appears to be loss of suitable habitat. The number one threat is the ongoing, uncontrolled proliferation of Scotch pine (an introduced species).

--*Willow Beach Field Naturalists*

OREGON--*Western Bluebird Newsletter*, April 1995

Monitors are warned to be sure to caulk the ventilation slots on nest boxes in case of cold, wet spells early in the breeding season.

Thirteen additional volunteers were added to the group of trail monitors this year. This makes the largest and most complete crew to date.

Readers are warned that noises in the chimney are possibly Vaux's Swifts. Although hollow trees are the preferred nest sites, the species is, fortunately, adapting to chimneys.

Dave Fouts is working to bring Purple Martins back to the area.

Jean and Harold Zodrow had three successful bluebird broods in the same box in 1994. The female laid seven eggs in each clutch, fledging 19!

--Hubert Prescott *Western Bluebird Recovery Project*

TENNESSEE--Cross Country National Wildlife Refuge, 14 July 1995 letter

The Third Annual Stewart County Tennessee Earth Camp was a great success with a larger than expected response. Sponsors were the Fish and Wildlife Service, National Park Service and Agricultural Extension Service. Presenters included individuals from universities in Tennessee and Kentucky, wildlife biologists, foresters, and other professionals versed in environmental conservation issues. Strong local support provided approximately 60 adult and teen helpers daily.

We "wish to thank you for your contribution of educational and informational materials."

--Jim Wigginton, *Refuge Manager*

WISCONSIN--*WISCONSIN BLUEBIRD*, Spring 1995

The 1994 nest box summary of the Bluebird Restoration Association of Wisconsin (BRAW) was based on 352 reports. The good news was that the 5,738 boxes which reported (a 13% increase) had an 85% increase in bluebird production from 3,476 in 1993 to 6,436 in 1994. Tree Swallows used 2,093 boxes and fledged 8,023 birds. Three tables compare bluebird results in 16 different box styles. Because of widely divergent numbers of boxes, one must be cautious in drawing conclusions; no one box topped more than a single table. The top three boxes in each table are listed in rank order. Table 2--Birthrate (number fledged per observed nesting bluebird): PVC 2.52, Tuttle 2.18, Peterson 2.06; Table 3--Average Number of Bluebirds Fledged from Box: Tuttle 2.2, Peterson 2.0, Parkinson-Slot 1.5; Table 4--Bluebird Use of Nest Boxes by Box-Type (percent of bluebirds fledged from eggs): Parkinson-Slot 90.9, Parkinson 90.7, and PVC 89.6.

Carol McDaniel's "County coordinators column" focused on ways to make BRAW more visible. Among the many good ideas were these: provide seed stores and nature stores with brochures to include with each bluebird box sold; place brochures at court houses and visitor information centers, work with extension agents and 4-H programs; and place displays in store windows, libraries, schools, and health food stores.

--*Bluebird Restoration Association of Wisconsin*

{POINTS--Continued from page 122}

The others are the current year's offspring. Young males from previous years may assist by helping to incubate eggs and feed the young. (Young females do not remain in the group.) The breeding male sits on the eggs at night; incubation lasts about 10 to 12 days.

This little woodpecker is slightly larger than a bluebird, and is easily distinguished

from other woodpeckers by its prominent white cheek patches. The "helpers" are usually the sons of the breeding male, and after he dies, the oldest helper often inherits his breeding status.

If you ever have the opportunity to visit a colony of these intriguing birds, consider yourself blessed. What I have reported here merely scratches the surface. ■



STATE OF MARYLAND
OFFICE OF THE GOVERNOR

PARRIS N. GLENDENING
GOVERNOR

June 26, 1995

North American Bluebird Society
Attn: Charlotte Jerwigan, President
Box 6295
Silver Spring, Maryland 20916-6295

Dear Friends:

It was with much sadness that I learned of the death of Dr. Lawrence Zeleny. I knew Larry as a friend, a neighbor and as a tireless advocate for the North American Bluebird.

Larry profoundly affected the lives of many people. His dedicated efforts, along with others who shared his awareness for the value of our native wildlife, are directly responsible for the preservation and restoration of this species in Maryland. Because of this work, future generations will have the opportunity to enjoy and love bluebirds as much as he did.

On behalf of the citizens of Maryland, I salute the contributions of Dr. Lawrence Zeleny, and the North American Bluebird Society, to the citizens of the State of Maryland.

Sincerely,

A handwritten signature in cursive script that reads "Parris N. Glendening".

Parris N. Glendening
Governor

Late Doctor's Bluebird Preservation Efforts Continue to Soar

Richard J. Dolesh

When I first met Dr. Larry Zeleny in the mid-1970's, he was already retired, and had that certain perspective on life that comes with seven decades. I was a new park naturalist who was young, brash and hard-charging about conservation and the protection of wildlife. Twenty years after I met him, I bid him farewell on a beautiful spring day full of promise, and of hope. He died recently at age 91, leaving such a marvelous legacy that it is difficult to fathom just how he was able to make the phrase "effective conservation" a watchword for tens of thousands of people who are volunteering substantial time every year for the preservation of bluebirds.

When I first met Dr. Zeleny he was part of a triumvirate--Dr. Zeleny, Mary Janetatos (now the executive director of the North American Bluebird Society) and the amazing Chuck Dupree (one of the most enthusiastic appreciators of nature I have ever met). Larry, Chuck, Mary and a handful of others traveled the highways and byways of Maryland, Virginia and neighboring states, proselytizing for the cause of bluebird conservation. Bluebirds in the mid-Atlantic--and for that matter throughout North America--were in trouble, and Larry, Mary and Chuck were on a mission to save them.

Even though I thought I knew it all back then, I was very impressed with Dr. Zeleny's thoughtful, careful, scientific manner. First and foremost, he was a scientist. Given his career as a biochemist for the U.S. Department of Agriculture at the Beltsville Agricultural Research Center in Maryland, it is not surprising that he applied those same methods to his observations of bluebirds. His pioneering book, *The Bluebird: How You Can Help Its Fight for Survival*, first published in 1976, quickly became the Bible for serious

bluebirders, and remains the landmark work even today.

I remember in the early days of the North American Bluebird Society, there was a heady excitement as a result of the successes in developing and refining the design, placement and monitoring of bluebird nest boxes, and the creation of bluebird nest box "trails." Prince George's County, Maryland, was where it was happening. There was energy, commitment and plenty of bluebirds. Heck, we eventually declared ourselves the "Bluebird Capital of the World," and named the Eastern Bluebird the official bird of the county in 1976.

In the excitement, however, Dr. Zeleny was the voice of caution and observation. He was willing to look open-mindedly at any new fact or any new idea, but only those theories that stood the test of the scientific method stood a chance for his approval.

He had quite an effect on those whom he met. He was quiet, gentle and soft-spoken, but when he spoke, he commanded instant respect. His knowledge of bluebirds was profound, and the most respected ornithologists consulted and corresponded with him.

He is credited with being the "Founder of the North American Bluebird Society," but what is evident to me during the many years that I knew him is that he inspired more than just one generation to have the same love of bluebirds that he had.

Perhaps you don't know bluebirds. Even though they have been traditional symbols of hope and happiness for literally hundreds of years, I am still surprised at how many alert, aware people who value our native wildlife don't know this common songbird of fields, farms, and suburbs.

Smaller than a robin but bigger than a chickadee, the bluebird is a cavity nesting insect eater who prefers to nest in open fields, orchards and lawns. The bluebird is one of our most valuable native songbirds. Henry David Thoreau said "he carries the sky on his back," and no one has yet improved on his description.

Once you open your eyes and really start to look for bluebirds and once you put up a few nest boxes in suitable habitats and get a pair of nesting bluebirds to fledge several young ones, you are hooked. You will never again look at your yard, your field, or your community open space without insisting--and volunteering--to monitor bluebird nest boxes.

You see, the beauty of Larry Zeleny's legacy is that he proved that bluebirds, which have been displaced from their natural cavity nests and are seriously threatened throughout their range, will accept artificial nest boxes, and even thrive in them. The motto of the North American Bluebird Society is "Effective Conservation," and the thousands of dedicated volunteers who put up and monitor literally tens of thousands of bluebird nest boxes every year are testimony to the success of this backyard conservation effort. It is no exaggeration to say that this species, and many other cavity nesting songbirds who also use

bluebird nest boxes, have been saved from the threat of extinction.

I know that I will never again look at suitable bluebird habitats without thinking that bluebird boxes should be placed there, and that, with proper persuasion, someone can be convinced to monitor those boxes. This is the true hope for the bluebird's survival. I know that Larry Zeleny passed that conviction on to me in his gentle, unassuming way, and I am so grateful.

We buried him in Fort Lincoln Cemetery in Brentwood next to his beloved wife, Olive. Fort Lincoln Cemetery is an extraordinarily historic location just up from the Bladensburg Dueling Grounds near the Anacostia River on the border of Maryland and Washington. Even though I looked carefully today during the funeral and all I saw were European Starlings, I know that there are at least six successful bluebird nests in boxes in Fort Lincoln Cemetery and on nearby parkland that have been put up by volunteers and park naturalists--the first successful bluebird nests in this area in decades.

Sooner or later, one will drop by to pay his respects, and it will be just like coming home for Larry. ■

This tribute is reprinted, with permission, from the 2 June 1995 edition of The Prince George's Journal.

NINETEENTH ANNUAL MEETING OF THE NORTH AMERICAN BLUEBIRD SOCIETY

The Nineteenth Annual Meeting of the North American Bluebird Society will be held in Ontario, Canada, September 13-15, 1996.

The sponsor of the meeting will be the Ontario Eastern Bluebird Society.

Registration material will appear in the Spring 1996 issue of *Sialia*. Prior to that time, direct questions to Art and Margaret Rusnell, R.R. 1, Kleinburg, Ontario, Canada L0J 1C0. Tel. (905) 893-1538.

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:

When we first joined the North American Bluebird Society and the Minnesota Bluebird Recovery Program, I thought it would be interesting to know people that cared a lot about birds. But what I found out from my recent accident in Michigan is that those same people care about others just as they do their birds, and for that I will always be grateful.

I received cards, letters, and phone calls from all over the United States and Canada. We even were offered a place to stay from Otsego, Michigan to Darlington, Wisconsin.

The wonderful care I received at Foote Hospital in Michigan got me all back together again just fine. My doctor here now tells me I'm way ahead of schedule. For that I must thank you all--your cards and prayers worked.

I've told Jackson Community College to save us that spot on the floor--we will be back again next March, our eleventh year.

Thank you so very much!

Marlys Hjort
9571 270th St., N
Chisago City, MN 55013

Dear Editor:

I joined NABS about a year and a half ago and I just want you to know how much I enjoy being a member.

I have become involved with bluebird conservation here in my area. About a

year ago I started the Bluebird Recovery Project in order to get more people interested in bluebirds and to put up boxes. I have seen a lot of evidence that it is working, and I have had a lot of people call and ask questions. When someone calls to tell me they have bluebirds in their new box, it is very rewarding.

I have been circulating literature, talking to elementary school classes, putting up posters, and talking with many people in order to educate them as to the importance of providing more nest boxes. The local paper ran a short story on my project and this created a lot of interest.

The results have been very gratifying, and as a result of my efforts and the people that have become involved, we have seen a very noticeable increase in the local bluebird population just within the past year.

J.D. Clay
5050 Hall Rd.
Greenup, KY 41144

Dear Editor:

We knew that bluebirds don't like to nest in a forest, but we put up a bluebird house in front of our cabin in the woods near Goshen, Virginia, for decoration. In the spring of 1994 we did see a pair of Eastern Bluebirds investigating it but, as expected, they didn't buy.

Each spring, however, I open the box to see whether there are signs of wrens or

other birds there. In the last week of April this year, I opened the box and was startled to see a tiny squirrel in a grassy nest. As I reached to close the box, the squirrel scampered out and up the tree a few feet. When I moved around to get a better look, the squirrel climbed higher and glided to a nearby tree. With the help of a wildlife guide, I identified it as a southern flying squirrel.

From its size, I guess it was an adult, probably a female. Since this squirrel is nocturnal, I had never seen one before. I didn't disturb the nest to see if any young were present, but now I wish I had.

Lester B. Cundiff
RD 2, Box 87
Landenberg, PA 19350

Dear Editor:

I saw one lid of my ST-1 sparrow trap down and went outside to find a junco who had hung himself between the lid and the top of the front side. I know the junco was able to work his head under the lid because last August I found a Tufted Titmouse trying desperately to extract itself from the same situation. I rescued the titmouse and thought it a one-time fluke.

I cannot think of a worse way to start the new year. Implicitly trusting a product sold through your organization, I bought the trap to help birds like juncos and, instead, I kill them.

Sylvia Seeley
3541 Madison Place
Hyattsville, MD 20782

Dear Mr. Dupree, Treasurer:

On behalf of the College Foundation [SUNY-Cobleskill, NY] I would like to thank you very much for the check for \$500 which will be used to hire an intern to do research under Kevin Berner's supervision.

I know that this will pay for very important work for the [North American]

Bluebird Society. We certainly are pleased that SUNY Cobleskill is able to participate in this program and that you are supporting it with dollars.

Walter J. Clark
Director of Development
SUNY Cobleskill Foundation
Cobleskill, NY 12043

Dear Editor:

Last night I wore a bluebird shirt to the senior citizen's meeting and generated lots of attention.

A year ago our bluebird luck was zilch. Fledged not one baby bluebird. Blowflies killed them all. Friends put up one box and fledged every one of three hatches. Amazing we thought--and beginners at that!

Bluebirds bring us much pleasure since being retired; we have time to observe them and build nesting boxes for anyone interested.

George & Elvera Nichols
3936 Waits Rd.
Owego, NY 13827

Dear Editor:

Through Wayne Davis and your journal I discovered the slot box and became very intrigued. I built one and placed it out front between mine and my neighbor's driveway and the street. I placed chopped peanuts on the roof to attract the chickadees or titmice, expecting the bluebirds to choose the Peterson out back, and instead the bluebirds chose it [slot] first feeding on the peanuts. It only took them two days to find it and select it. On the third day nest building began. Five eggs were laid....

Right before incubation had begun, I came across a product called Bluebird Treat and decided this was a perfect situation to try it. Immediately they loved it, particularly the male.

Brian Miller
5528 Tallow St.
Fredericksburg, VA 22407

Bluebird Tales

Mary D. Janetatos

"We've got a lot of crying to do and then a lot of laughing to do!" said **Dr. Shirl Brunell**, past NABS board member and bluebird author (*I Hear Bluebirds*) reacting to the news of NABS Founder **Larry Zeleny's** death on 27 May 1995. Others also responded to his passing: **Anne Sturm**, NABS past president: "...a fine gentleman who lived a fine life; he had incredible patience...."; **Suzanne Pennell**, nature artist and a founding NABS board member: "an extraordinary man...the sweetest...just fabulous!"; **Rich Dolesh**, past NABS board member and now chief of interpretation and conservation for the Maryland-National Capital Park and Planning Commission in Prince George's County, Maryland: "...a grand fellow; an inspiration to me in many ways..."; **Barbara Inzana**, professional vocalist and past secretary of NABS board of directors: "...he lived a wonderfully full life..."; **Jack Finch**, founder of *Homes for Bluebirds* of Bailey, North Carolina and founding board member of NABS, along with his wife **Ruby**: "...we will always cherish the memory of the evening he stayed with us; we discussed the problems that bluebirds faced in the tobacco barns and what might be done about it..."; **Norah Lane** of Ontario, former NABS board member and bluebird activist with her late husband, **John**: "...throughout the years (Larry's) kindly encouragement brought response from hundreds of us!"; **Lorne Scott**, elected Member of the Provincial Legislature of Saskatchewan and founding board member of NABS: "He was a great friend and champion of bluebirds."

Many bluebirders commented:

Nancy E. MacCIntock, professional indexer who worked with Larry on his book, *The Bluebird: How You Can Help Its Fight for Survival*: "What a privilege it was for me to have known that example of humanity at its best, Larry Zeleny"; **Frances Sawyer**, founder of Bluebirds Over Georgia, "We bluebird lovers are all



kindred spirits and now we have one in heaven!" (He does join several other heroic bluebirders!) The **Reverend Ray Prybis**, OMI, founding corresponding secretary of NABS, who had visited Larry in his last months, informed us that he had celebrated Holy Mass for the repose of Larry's soul, in the Basilica of the National Shrine of the Immaculate Conception in Washington, D.C. This kind gesture would have pleased Larry, Protestant though he was.

All of the current NABS officers and board members also spoke fondly of Larry and conveyed their condolences to his daughter, **Nancy Zeleny Kuhn**, and his son, **William**, as well as to his four grandchildren. I reminisced with **Charlotte Jernigan**, NABS president, about how delighted Larry was this past winter when I delivered to him her gift of black walnuts carefully shelled. He rationed those nuts, offering them to others who did not share the same enthusiasm for them--and relishing them for what would be the last time. I can speak for myself and the NABS office staff members in saying we have lost a very dear and much loved friend who graced us often with his presence here at NABS headquarters, attended Christmas parties, and even, on some occasions, helped the volunteers "stuff *Sialia*." May he rest in peace!

Happily, life goes on for those who carry out Larry's legacy. I especially enjoy hearing of the efforts of those involved with children, as did Larry, for we realized how vital to "effective conservation" it is to instruct and form children's attitudes toward the proper care of the

environment. The June 1995 issue of *Zoogoe Magazine* ran a bluebird story and included NABS' address. This resulted in a number of letters from children. Scott Brewer, of Marengo, OH, wrote in block print that he wanted us to send him a letter about how to build a bluebird house. I hope he enjoyed the color pictures on the brochure, "Where Have All the Bluebirds Gone?" which was sent to him, to Joy Hardesty, of Deer Park, TX, and to Mike in Hopedale, MA, as well as to all the other inquiries. Brandt West's missionary family was in Germany and was headed for Sweden, but Brandt wanted bluebird information. Jessica Tarpley, 11, of nearby Olney, MD, telephoned the NABS office and wanted to know how she could become involved in monitoring bluebird nest boxes. I was especially impressed with Jessica's art work depicting bluebirds!

When we receive inquiries from teachers, I always alert them to the Educational Packet for the middle elementary grades compiled under the direction of past president and current nominating chairwoman, Sadie Dorber. Mrs. Diane Ross, a third grade teacher in Elgin, IL, wrote that a friend gave her Leo Ward's glass Bluebird of Happiness. Accompanying it was information about helping the bluebird so she was asking for more material. A fifth grade class in Whidbey Island, WA, sent individual letters sparked by their reading of *Bluebird Rescue*. Joe Tait, corresponding secretary for NABS, sent each child in Mrs. Ross's class a letter answering his or her specific bluebird question.

John Phillips, of Los Angeles, CA, as leader of Camp Fire Group, We Pia Gah, reported on the bluebird trail his group had put out at their campground. (Note: the Camp Fire "Save the Bluebird" project was initially begun for Camp Fire, Inc. by Larry Zeleny and yours truly. At the time I was a Camp Fire leader for the two groups of which my daughters, Kathi and Ann, were members.)

Birds & Blooms, a bright new addition to the field of nature periodicals, featured

NABS member Jennifer Jones's work with her bluebird trail in Kalona, IA, in its very first issue. The fine article included the Society's address and continues to yield requests for bluebird information.

Fran Studnicka, Brookfield, IL, wrote describing their novice bluebirding efforts. "I thought they ate mosquitos but when we watched they were feeding their young lots of green worms.... One night about 8:30...the mother flew up to the nest with another green worm. She stuck her head into the box and the babies didn't make a sound. I got the image of the poor little birds stuffed with food saying, just let us sleep already."

Mr. and Mrs. Vincent S. Luca, of Hawthorne, FL, said that an article in *4-H-er* "seeded" their request. "We are both 73 years of age and have bluffed our way through 50 (!) years of wedded bliss." Congratulations to you both! And may the bluebird of happiness brighten the rest of your years! The sculpted blue crystal bluebirds by Leo Ward (available through NABS) inspired a request for information from Theresa Willis, living somewhere in the Catskills of New York.

Bobby H. Dorris, of Portland, TN, says he has retired from the business whirl and is building bluebird boxes and learning about bluebirds. Another retiree, Dr. R.D. Williams, of Markleville, IN, sent an Associated Press newspaper story about his retirement "career" in bluebirding. He and his wife, Beverly, bought a 126 acre farm. They placed a bluebird "run" on the farm and it is a true cavity nester trail. "In the houses, its finders, keepers. There are Black-capped Chickadees, wrens, Tree Swallows, and the Tufted Titmouse. I throw out the English [House] Sparrows." Dr. Williams is a member of NABS' Speakers Bureau: "I enjoy being a spokesperson for NABS."

Another NABS promoter is David Shields, of Dallas, TX. He wrote, "The Wills Point Bluebird Festival was a smash! I really pushed for new members at my booth and during my slide show." (It paid off with four new members for NABS.)

In July, Lurton Gesell, of Connersville,
(Continued on page 139)

To the Bluebird

Ye bird, as blue as blue can be
Why do you languish in the tree?
Do you do it just for me--
Because I stand in awe of thee?

Your plumage is so very rare,
Its beauty is beyond compare;
You have a song that's all your own--
A warbling, in monotone.

Your shade of blue, without debate
No one could ever duplicate;
On velvet wings you take your flight,
Ah, so delicate and light.

'Twould take a man of hardest heart
To shoot you with a gun or dart,
Who's worthy of my fondest praise,
Who brings such joy through summer days.

--Lucille Peeler Roberts

(BOOSTERS—Continued from inside back cover)

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Dr. & Mrs. Robert Williams
Stephen M. Wimmingham
Woodbury Women Club
Jeannie Wright
S.K. Young
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Nestling

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The Rev. P.F. Davidson
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The DeLange Family
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Susan F.C. Weil
(Continued on page 180)

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**

