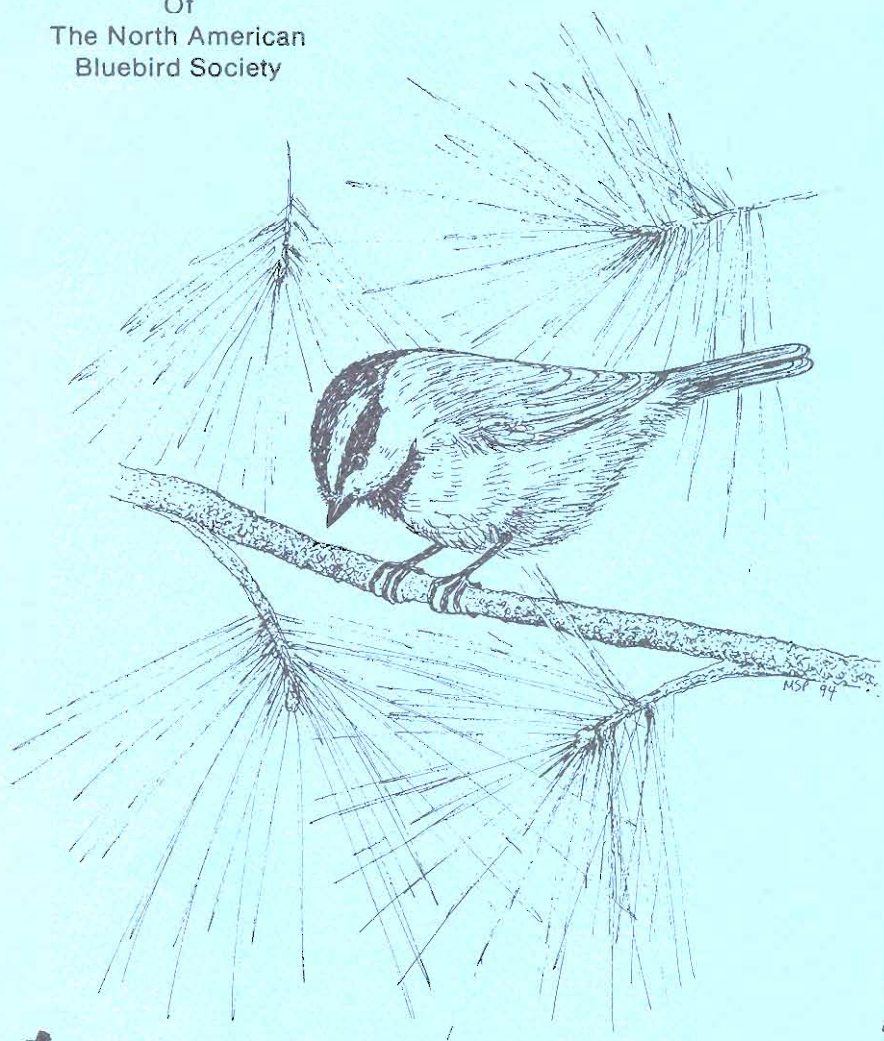


Sialia

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Summer 1994
Pages 81-120

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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-ahl'-ee-ah see'-ahl-iss). Similarly, the Western Bluebird and Mountain Bluebird, the two other species within the genus, were named *Sialia mexicana* and *Sialia currucoides* (coo-roo-coy-dees) respectively. 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

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About Bluebirds

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CONTENTS

Presidential Points	82
Charlotte Jernigan	
1993 Nesting Box Report	83
Kevin L. Berner and Allyn J. Brown	
European Starling—Eastern Bluebird Nest Site Competition, V	89
Peter A. Zerhusen	
A Bird in the Bush	94
Karen Blackburn	
Four Orphaned Bluebirds Are Given Three New Homes	95
Richard M. Tuttle	
Tests of Sparrow-Inhibiting Boxes	96
Wayne H. Davis and Kelly Mack	
Deer Mice, the Major Vector for Hantavirus	99
Cavity Nester License Plates	100
Bluebird Exchange	103
Bluebird Lady Recruits Bluebirds	107
You Say They Are "Bluish"?	112
William Harris	
Cat and 'Coon Guard	113
James E. Fitzgerald	
If You Build It, They Will Come	115
James D. Cox	
Bluebird Express	116
Bluebird Tales	118
Poetry: Houle	120

COVER

This cover, by Art Editor M. Suzanne Probst, features a Mountain Chickadee. The 1993 report of nesting box use by this and other species begins on page 83.

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 Graeoch Road, Laurel, Maryland 20723.

Presidential Points

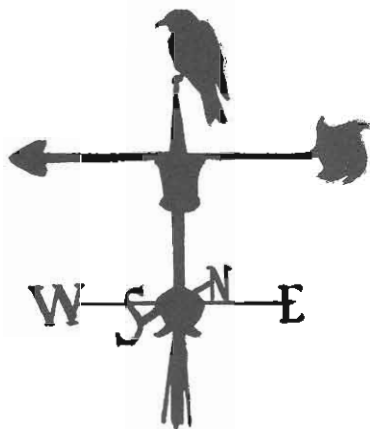
Charlotte Jernigan

There seems to be a growing awareness of the interconnectedness of life, and some people have a goal to enhance their outdoor experiences which will ultimately create nice memories. When NABS members Larry and Betty Jernigan extended an invitation to us to go to Tool, Texas this past winter to see their bluebirds, and then to pack their travel trailer for a couple of weeks of birding in South Texas, Bill and I couldn't think of a better reason for leaving home.

I found myself looking forward to mealtime in their baywindow dining area because we always had other guests coming to dine too. A shallow, long tray attached to the outside center window offered a banquet of raisins and cracked black walnuts for the partakers. We shared time at the table with from one to five bluebirds only four or five feet away. Betty said she tried for four years before having this taste of success, and will quickly say that it has been well worth the effort.

Naturalists and others go to the southern tip of Texas from all over the world to observe the unusual and abundant bird life and diverse plants. Thickets of head-high thorny brush known as chapparero are one of these plants, while glossy green citrus groves, rustling palms, and blazing bougainvilleas command attention too. With all of this in mind, we concluded that finding a Green Kingfisher in the lower Rio Grande Valley would be our main target. It is our smallest kingfisher (*Chloroceryle americana*), and not much larger than a bluebird. We found it twice!

A dirt street in Salineno led us to the bank of the river across which we looked to get a glimpse of Mexico. And there the bird was, perched on a limb making his own observations and then



off he went downstream. We also found one at the Santa Ana National Wildlife Refuge where we looked at it for a long period of time perched quite low on a branch that gave us good exposure to his beauty combining green, white, and rust.

This diminutive kingfisher is an accomplished flier, but it is also a diver, often taking prey very close to the surface of the water. They eject the indigestible portions of their food in the form of pellets; these pellets, containing fishbones, scales, and shells, are often found in the nest cavity with their eggs. Green Kingfishers burrow in a sandy bank near water, and excavate their two to three foot long tunnel five to eight feet above the water line. The entrance is often hidden. Their white eggs are about an inch long, and are incubated for 19-21 days. The male and female take turns during the day and make vocal exchanges at change-over time; however, only the female incubates at night. There are from three to six eggs, but usually five. Both sexes take care of the young, and about a month after fledging they are forced to leave their parental territory.

If you should choose to go south for the joy of seeking out this fellow who whiles away his time on the banks of rivers, streams, lakes, marshes and swamps, remember that he usually "casts his rod and reel" from low branches. ■

1993 Nesting Box Report

Kevin L. Berner and Allyn J. Brown

Introduction

The North American Bluebird Society (NABS) has been tabulating nest box surveys returned by its members since 1980. In the past, the survey form requested information on various sizes of standard nest boxes. For the first time, this year the surveys requested information about several box styles. Data on fledging levels of species of birds other than bluebirds were also requested for the first time (See Table 1). The three box styles with the highest reported rates of placement in the field were standard boxes (16,143), slot boxes (2,388), and Peterson boxes (1,004), but many returned surveys did not specify box design (See Table 2). This article is being published one issue later than usual to allow more large trails to submit their data for inclusion.

Overall there was a sharp drop in the number of bluebirds reported to have fledged throughout the United States and Canada. A total of 45,529 of the three bluebird species were produced in members' nest boxes, down sharply from the 70,686 documented in 1992. This was the lowest total observed since 1985. The general trend in the number of bluebirds reported to have fledged has been increasing since surveys were initiated. Unfortunately, there have been declines in the last two years which many members feel are the direct result of undesirable weather conditions during the breeding season. Some of the year to year variations in our fledging totals result from variable reporting rates from year to year. Many of the large western trails may produce thousands of nestlings and the absence of submissions of reports from these groups in a given year can greatly influence the final survey results. While the lack of that data does bias the results, it is quite apparent that this year's decline is a direct result of a decline in the number of breeding birds and/or nesting success, and not sampling problems. Two consecutive severe winters on the East Coast have reduced bluebird population levels. The Midwest has suffered from unusually wet weather that has also impacted populations.

East Region

A total of 12,174 bluebirds fledged from the eastern states and provinces. This was down from the 21,850 reported in 1992. Other common species to have fledged from boxes included 5,463 Tree Swallows, 2,007 House Wrens, 536 Black-capped Chickadees, 210 Carolina Chickadees, and 186 Tufted Titmice.

During the "Blizzard of the Century" in March 1993, Kenneth Radford of Salem, Virginia had swarms of 30-35 bluebirds two evenings at dusk. He had 6-8 bluebirds in one of his roosting boxes at one time with others trying to get in. During the breeding season he fledged 151 Eastern Bluebirds, 22 Black-capped Chickadees, 49 Tufted Titmice, and 11 Carolina Wrens.

Like many of the East Coast re-

spondents, Raymond Marr, of the Audubon Society of Rhode Island, felt that the severe winter and blizzard decreased bluebird numbers. He felt that his bluebird numbers were half what they might have been under less severe weather conditions. Despite these problems he reported 221 bluebirds fledging.

Gale Burton of Enola, Pennsylvania, reported the death of an adult female bluebird which she suspected was the result of a neighbor's pesticide spraying. The male was able to successfully raise their young on his own. Cindy Noll of Fleetwood, Pennsylvania documented the death of a female Tree Swallow and its young in a nest box two days after pesticides were sprayed

on adjacent corn fields.

Linda Phillips of Summerfield, North Carolina, and Elma Gardner of Vineland, New Jersey reported that flying squirrels used their nest boxes. Linda also had Brown-headed Nuthatches in 6 nest boxes fledging 22 young. She monitored 101 bluebird boxes, 86 of which were used by bluebirds leading to 535 young fledging. She lost 4 nests due to weather, 6 to snakes, 4 to House Sparrow predation, and 2 to ants. A total of 88% of the bluebird eggs laid in her boxes resulted in fledged young.

Live Oak, Florida resident, Lorna Beasley, noted that fire ants were the biggest problem on her nest box trail. She has tried to combat them with grease, fire ant crystals, and metal flanges on all boxes. Fire ants killed 11 of her nestlings last summer. She suspects that the bad drought that her area was experiencing decreased bluebird productivity. Despite these problems, she fledged 51 bluebirds, 2 Carolina Wrens, and 8 Great-crested Flycatchers.

As usual House Sparrows caused problems for bluebird enthusiasts. Twenty-four eggs and young were lost to House Sparrows in Charlene Snyder's four boxes in Sykesville, Maryland. One additional chick was killed by a cat.

House Wrens were a serious problem in Long Green, Maryland for Rosemary Rittler. Wrens destroyed 15 bluebird and 5 chickadee eggs and killed 5 day-old titmice chicks. Wren problems can be minimized by keeping boxes as far from brushy areas as possible. Unfortunately, many NABS members have observed that wrens are being found in boxes farther from brushy areas than usual during recent years.

Catherine Whorley, of Centreville, Virginia, observed that Northern Flickers hatched 4 young in a woodpecker box. European Starlings killed these chicks before they could fledge and the flickers abandoned the box.

North Carolina resident Willard Cash reported fledging approximately 400 bluebirds on his trail in Bladen

County, while producing 933 bluebirds near his home in Wayne County.

NABS charter member Thomas Mulvey of Pine Beach, New Jersey has fledged 1,935 bluebirds on the Colliers Mill Wildlife Management Area since 1975. He has averaged 150 bluebirds fledging each year for the last decade.

The Genesee Country Village Museum Nature Center in Mumford, New York continued to excel in its cavity nesting bird program. They fledged 50 bluebirds, 45 Tree Swallows, 60 House Wrens, 8 Black-capped Chickadees, 3 Great-crested Flycatchers, 428 Wood Ducks, 52 Hooded Mergansers, 14 kestrels, and 3 screech owls. Carl Zenger of Lockport, New York also had success with kestrels on his trail with 8 young fledging. Another New York resident, Joe Sedlacek, reported fledging 4 kestrels. He reported for the Broome County Nest Box Network whose members fledged 124 bluebirds, 591 Tree Swallows, 138 House Wrens, and 8 Black-capped Chickadees. Another monitor with kestrels was James Vlassopoulos of Frederick, Maryland. He had 10 boxes used successfully by these small falcons. His boxes yielded 47 eggs and fledged 46 kestrels, 39 of which were banded. He also fledged 5 flickers.

Rich Wells of Springville, New York reported having about one-half of the number of bluebird breeding pairs that he had in 1992. He suspected the poor breeding season in 1992 reduced the numbers of birds in 1993. He fledged 122 bluebirds and 372 Tree Swallows.

Vivian Mills Pitzrick of Belmont, New York fledged 142 bluebirds and 334 Tree Swallows. Her cumulative bluebird production total since 1971 is 1,851 young. She documented an average of 56 blowfly larvae or pupa/nest. She had one nest of white eggs.

The Ruritan Bird Club in Dinwiddie County, Virginia had 72 boxes monitored by 45 members ranging in age from 9 to 83, according to Fred Sahl. Bluebirds on their trails had 116 nests which produced 514 young from 608 eggs.

Table 1. Summary of 1993 NABS Nest Box Surveys

	East	Central	West	Total
No. surveys	205	153	28	386
No. of standard boxes	5,317	4,452	6,374	16,143
No. of Peterson boxes	137	853	14	1,004
No. of slot boxes	42	158	2,188	2,388
Other/unspecified boxes	2,033	12,409	378	14,820
Total no. of boxes	7,529	17,872	8,954	34,355
No. fledged:				
Eastern Bluebird	12,174	25,074	0	37,248
Western Bluebird	0	0	2,625	2,625
Mountain Bluebird	0	0	5,656	5,656
All species of bluebirds	12,174	25,074	8,281	45,529
Black-capped Chickadee	536	397	41	974
Carolina Chickadee	210	461	0	671
Mountain Chickadee	0	0	161	161
Tufted Titmice	186	222	17	425
Plain Titmice	0	0	143	143
White-breasted Nuthatch	34	13	43	90
Brown-headed Nuthatch	39	10	0	49
Tree Swallow	5,463	3,837	4,159	13,459
Violet-green Swallow	0	0	256	256
House Wren	2,007	838	742	3,587
Carolina Wren	35	18	0	53
Bewick's Wren	0	11	0	11
Great-crested Flycatcher	14	6	0	20
Ash-throated Flycatcher	0	0	23	23
Prothonotary Warbler	5	0	0	5
House Finch	4	0	0	4

Andy Brown, reporting for Calvert County Natural Resources in Prince Frederick, Maryland, indicated that 1008 bluebirds fledged from 444 boxes. Of the eggs laid in these boxes 69.2% hatched and of those that did, 94.8% fledged.

Following seven years of increases in bluebird production, the Schoharie County Bluebird Society in New York has had two consecutive years of productivity declines. Two consecutive cold and wet springs and harsh winters were thought to have caused the declines. A total of 226 bluebird and 72 Tree Swallow nestlings were found dead in members' nest boxes. Despite these problems the Society documented the fledging of 1509 bluebirds, 2136 Tree Swallows, and 701 House Wrens. Since the group first surveyed its members in 1985,

11,843 bluebirds have been fledged. Four House Finches also fledged from a Peterson box at the same site where an experimental box with a large entry hole had previously been used by this species.

Central Region

Bluebird fledging rates were down for the third consecutive year in the Central Region. In 1993, a total of 24,264 bluebirds were fledged whereas in 1992, 29,182 were produced. Also documented fledging in the region were 3837 Tree Swallows, 838 House Wrens, 461 Carolina Chickadees, and 397 Black-capped Chickadees.

Robert Rager of Rockford, Ohio noted that bad weather in March and April depressed his number of nestings

and eggs. In April 1992, he had 147 eggs, but in April 1993 he only had 45 eggs. By the end of the season he had fledged 237 bluebirds.

The "Blizzard of 1993" was cited by John Findlay, III of Birmingham, Alabama as causing problems for bluebirds even in that southern locale. He found 53 adult bluebirds dead in his nest boxes, with many similar reports from other local trail monitors. John reported fledging 289 bluebirds. Carolina Chickadees took advantage of decreased bluebird numbers and nested in greatly increased numbers in 1993.

Ike Franklin of Oklahoma City, Oklahoma observed that 1993 was a bad weather year for bluebirds due to very wet and very hot conditions. He also had a lot of vandalism, with 15 of his boxes needing to be replaced. He was able to fledge 82 Eastern Bluebirds, 16 Carolina Wrens, 11 Bewick's Wrens, and 5 Tufted Titmice.

Cold, rain, and flooding reduced bluebird productivity for Kenneth Schar of Libertyville, Illinois. With all the water Tree Swallows prospered and increased from 16 in 1992 to 99 in 1993. He had no raccoon predation for the last two years from his boxes which were mounted on PVC pipe or

electrical conduit. He sprays all of these pipes with silicone if bluebirds or swallows are using the boxes.

Late arrival and fewer nesting attempts by bluebirds were thought to have been caused by the "Blizzard of 1993" according to Marilyn Gericke, or Archbold, Ohio. By the end of the breeding season, the bluebirds produced 136 young.

Mrs. Robert Lynch of Free Union, Virginia also reported unusually low numbers and late arrival of bluebirds due to the late snows. Her last bluebirds did not fledge until 12 September.

Dorothy Weaver of Atlantic Mine, Michigan reported that Tree Swallow numbers were way down last year, presumably due to the 1992 June freeze which resulted in nesting failure.

An unusually cold wet spring and a very hot summer combined with high predation rates to suppress productivity for the Hot Springs Village Audubon Society in Garland County, Arkansas. Cats and raccoons killed many bluebirds. In one of their nest boxes 12 bluebird eggs were observed, only one of which produced young. While two or three females must have laid the eggs, only one was observed incubating them. A total of 545 bluebirds were

Table 2. Rate of use by box style from NABS 1993 Nest Box Surveys.

No. of nesting attempts*/box	East	Central	West
Bluebirds			
Standard	0.63	0.68	0.48
Peterson	0.53	0.63	--
Slot	0.52	0.49	--
Other	0.35	0.79	0.55
Tree Swallow			
Standard	0.17	0.17	0.41
Peterson	0.12	0.20	--
Slot	0.05	0.28	--
Other	0.32	0.13	--
House Wren			
Standard	0.08	0.06	0.67
Peterson	0.15	0.12	--
Slot	0.14	0.11	--
Other	0.05	0.03	--

*A nesting attempt was defined as laying at least one egg in a nest.

--Insufficient data.

produced, 260 fewer than last year.

Richard and Marlys Hjort of Chicago City, Minnesota also felt that the long series of days with cold weather had reduced bluebird and Purple Martin numbers. They produced 74 bluebirds, 220 Tree Swallows, and 6 Great-crested Flycatchers. Houses that usually support 26 pairs of martins had none at all.

Dick Tuttle of Delaware, Ohio had a 24.5% decrease in bluebird production. He attributed this decline to bad weather, reduced habitat quality in one state park site, and pesticides. He suspected that insecticides used to protect campers' pets from ticks killed bluebird adults in at least three boxes. He produced 281 bluebirds, 724 Tree Swallows, 82 House Wrens, and 16 Carolina Chickadees on his trails.

While many people cited weather-related problems, Edwin Edlund of Muskegon, Michigan reported having one of his better years as he produced 261 bluebirds from 150 standard boxes.

Gary Boone of Linton, Illinois also had a good year. He fledged 68 bluebirds from 8 boxes. Of 73 eggs laid, only 5 didn't hatch and all that hatched fledged.

Cathryn Kurtaugh of Highland Park, Michigan had a mix of Peterson and standard boxes. Her 13 standard boxes had one bluebird nesting attempt which produced 4 young, while her 21 Peterson boxes hosted 30 bluebird attempts and produced 100 young. She observed a male fledgling helping its parents feed their second brood.

Mary Strasser of West Salem, Wisconsin eliminated her predation problems by using metal poles fitted with 1 3/4 in. (4.4 cm) diameter PVC pipe from ground level to within a couple of inches of the nest box bottoms. She did have 5 wren nests in boxes mounted on greased metal poles raided by raccoons. She observed that 30 year flood levels appeared to affect nesting success.

Dick Walker of Loogootsee, Indiana reported that using low vent PVC boxes appeared to discourage House Sparrows due to their well-lit bottoms.

He has been using Noel guards, which he learned about at the annual NABS meeting in Minnesota, with considerable success. He reduced his predation losses from 147 in 1992 to 40 in 1993. With similar numbers of boxes, his bluebird fledging total increased from 393 in 1992 to 566 last year.

Don Wilkins of Park Rapids, Minnesota fledged 956 Eastern Bluebirds and 284 Tree Swallows from 226 boxes. He also produced 187 Purple Martins.

Preliminary results from the Bluebird Recovery Program in Minnesota indicate that bluebird numbers were down in 1993. According to the group's newsletter, the cold and rain throughout the nesting season resulted in abandoned nests, fewer eggs, and many dead nestlings. Gnats and blowflies were abundant for long periods. Problems with wrens and predation also increased in 1993.

An unusual breeding situation was documented by Diane Minick of Decatur, Illinois. She had two bluebird females nest in boxes 15 feet (4.6 m) apart, each laying three eggs, seven days apart. A single male bluebird helped raise the 6 chicks which all fledged.

Tom Barber of Cambridge, Ohio reported having success with using Noel guards to reduce predation. He had a House Sparrow kill two adult male bluebirds in one nest box and then build a nest over them. He produced 188 bluebirds and a record high 56 Tree Swallows.

NABS President, Charlotte Jernigan of Wagoner, Oklahoma had 29 standard nest boxes used for 45 bluebird nestings which yielded 125 young. She also had one nest of Tufted Titmice.

The Wildwood Bluebird Trail in Hardin and Tyler Counties in Texas produced 329 bluebirds from 158 boxes. They also fledged 110 Carolina Wrens and 23 Tufted Titmice.

Bob and Judy Peak of Henderson, Kentucky reported on trails in Kentucky and Tennessee where 917 bluebirds fledged from 185 boxes.

Another large producer, the Bella Vista Bluebird Society in Benton County, Arkansas fledged 924 bluebirds, which was a decline of 197 birds from 1992.

Carl Gregory of Lafayette, Tennessee reported four bluebird nestings in one nesting box. A total of 18 chicks were produced from this box alone. Overall he fledged 173 bluebirds from 38 boxes.

West Region

Bluebird fledging levels in the Western Region were the lowest reported since 1985, but several massive trails which traditionally report to NABS did not submit results this year. Nearly all of the boxes noted in the region's surveys were standard boxes. Reports in this region indicated that 5,656 Mountain Bluebirds, 2,625 Western Bluebirds, 4,159 Tree Swallows, and 742 House Wrens were fledged.

Warren Engstrom of Moraga, California reported a 20% drop in bluebird fledging rates which was at least partially due to increasing numbers of raccoons. He fledged 95 Western Bluebirds, 59 Violet-green Swallows, 12 House Wrens, 8 Black-capped Chickadees, and 5 Ash-throated Flycatchers.

Brian Williams, of Loomis, California was the only respondent listing nest box use by Western Screech-Owls. His boxes produced 1 owl, 61 Western Bluebirds, 39 Plain Titmice, 30 House Wrens, 23 Tree Swallows, and 13 Ash-throated Flycatchers.

The Prescott Bluebird Recovery Project in Portland, Oregon reported 336 Western Bluebirds and 57 swallows (both tree and violet-green).

Bill and Edith Ryan of Yakima, Washington, reporting for the Yakima Valley Bluebird Trail, indicated that over the last decade there has been a great increase in Western Bluebird numbers while Mountain Bluebirds are decreasing in number. This trend is not only true of their trail, but in general throughout that area. W.J. Ryan reported for this group that 267 Western Bluebirds and 125 Mountain Bluebirds fledged on the trail.

Elsie Eltzroth of Corvallis, Oregon reported a cold and rainy breeding season through July, with a two week delay in the onset of breeding. She noted 10 cases of Western Bluebirds laying clutches of 7 eggs. Usually she has 1 to 3 clutches of 7 every 2 to 3 years. A few swallows also laid 7 eggs this year and one even laid 8. A total of 316 bluebirds fledged on this trail.

William Anaka of Canora, Saskatchewan fledged 668 Mountain Bluebirds and 380 Tree Swallows in spite of prolonged cold and wet weather. Another large trail in Canada, the Southern Interior Bluebird Trail near Oliver, British Columbia, made heavy use of slot boxes. Their report indicated that 43 standard and 2,186 slot boxes yielded 1,740 Mountain Bluebirds, 1,197 Western Bluebirds, 890 Tree Swallows, 28 Violet-green Swallows, 885 House Wrens, 161 Mountain Chickadees, 18 Black-capped Chickadees, and 60 White-breasted Nuthatches.

Donald Stiles of Calgary, Alberta reported the results of 41 monitors. Tree Swallows had a poor year due to heavy June rains which resulted in many dead young. Poor weather also decreased the number of second bluebird broods. Monitors reported 5,217 Mountain Bluebirds, 3,549 Tree Swallows, and 446 House Wrens fledging.

Hazel Skuce reported for the Friends of the Bluebird organization in southwestern Manitoba. This group had 58 monitors working with 2,202 boxes. A total of 1,022 nesting attempts were made by Mountain and Eastern Bluebirds. They also reported many dead swallows. House Wrens are using an increasing number of their boxes each year. A banded female Mountain Bluebird was reported to have used the same nest box each year since 1989.

Conclusion

Throughout the last century several periods of decline have been noted for bluebirds due to weather particularly following severe winter. Despite the best efforts of NABS members, little can be done to eliminate these population declines. Historically bluebird

(Continued on page 98)

European Starling—Eastern Bluebird Nest Site Competition, V

Peter A. Zerhusen

Abstract

The European Starling (*Sturnus vulgaris*) was first introduced into North America in 1890. The birds quickly spread across much of the continent. Their introduction and quick dispersion are major causes for the precipitous decline of the Eastern Bluebird (*Sialia sialis*). This article is the fifth in a series attempting to measure both the intensity and duration of nest site competition between these two species in natural nest site cavities with openings large enough to accommodate a starling. Data have been collected during seven nesting seasons in the past decade. Over the past 10 years, nest site competition has remained intense despite repeated annual trapping and disposal of both adult and juvenile starlings. In fact, when breeding ranges overlap, it is highly unlikely that bluebirds are able to nest successfully in natural nest site cavities large enough to accept a starling. Even though there is continued intense competition from starlings, annual trapping and disposal of them appears to have resulted in rather substantial reductions in the numbers of trapped birds over the last three nesting seasons. Additionally, flooding of the nesting box by juvenile starlings during June, July, and August, a behavior observed over five previous nesting seasons, disappeared almost entirely during the 1992 and 1993 nesting seasons. Perhaps live-trapping and disposal is beginning to produce positive results. In regard to the duration of the nest site competition, starling use of the nesting box continues to be heaviest in March, April, and May. This coincides precisely with the nesting timetable of the bluebird. Finally, the article raises concern over nest site competition between House Wrens (*Troglodytes aedon*) and bluebirds over bluebird nesting boxes. Increased competition by House Wrens has been observed. Their effect on bluebird populations may need study.

Introduction

This is the fifth in a series of articles investigating the intensity and duration of nest site competition between the European Starling and the Eastern Bluebird (Zerhusen 1984, 1986, 1990, and 1992). Starlings have long been considered a major contributor to the precipitous decline of the bluebird population since their introduction into New York City's Central Park in 1890 (Chapman 1924). Where starlings are present, bluebirds are simply unable to successfully compete for available natural nesting cavities with an opening large enough to accommodate a starling. The introduction of the bluebird nesting box with its 1 1/2 inch (3.8 cm) opening has effectively eliminated competition between the two species for these particular nesting sites, but the use of the bluebird

nesting box provides no information about the intensity and duration of competition in natural nest site cavities. As the breeding range of the starling continues to expand, it is likely to place increased adverse pressure on bluebird populations. Clearly, in many areas the starling has become the most abundant bird species (Zeleny 1976). This article represents a continuing attempt to measure the intensity and duration of nest site competition between the two species over multiple nesting seasons and the effect of systematic trapping and disposal of starlings on nest site competition. Data on seven nesting seasons since 1984 will be reported and analyzed. Additionally, data will be shared reflecting five consecutive nesting seasons (1989-1993).

Methodology

Every attempt has been made to employ identical methods and procedures each year. The same nesting box has been used for all seven nesting seasons reported. The dimensions of the man-made nesting box are 5 1/2 x 6 x 13 in. (13.9 x 15.2 x 33.0 cm). The nesting box is placed outside toward the end of February/beginning of March, which coincides with the bluebird nesting timetable when bluebirds return to their breeding grounds in this region (Zeleny 1976).

The sight location for the nesting box has remained unchanged. It is placed on the trunk of a particular deciduous tree at a height of approximately 5 feet (1.5 m) from the ground. The tree is located approximately 60 ft. (18.3 m) from the author's residence to facilitate observation and trapping. The surrounding 30-40 acres consist of cut lawns, open fields, and pastures. Bluebird nesting boxes, which have been used successfully by bluebirds, are located within approximately 150 ft. (45.7 m) of the starling box.

Monitoring periods have remained substantially unchanged. The starling box is monitored from late February through August. Peak observation periods include early mornings before the author leaves for work and late afternoons and evenings after work. Weekends permit additional monitoring time. The starling box is not monitored during vacation periods. Vacation time typically involves approximately one month out of the six month nesting season. Vacations last from two days to as long as three weeks. Lengthier vacations (over two days) are not taken until July or August, after the nesting season has substantially ended. Nest-

ing progression by starlings has never produced a complete clutch of eggs. No hatchlings have been found during any of the monitored nesting seasons and nesting material is routinely disposed of at the time of trapping or checking of the nesting box.

The trapping method remains unchanged. A manual trap, similar to the one described by Morris Green in the Winter 1984 issue of *Sialia* (6:8-11) is utilized. When a starling enters the nesting box, a string is pulled from the observation point, which pulls a piece of wood across the opening, effectively preventing the starling's escape from the box. After being live-trapped, the starling is disposed of to ensure that each bird is counted only once.

The sexing of trapped starlings began with the 1989 nesting season. The color of the rami of the lower mandible is used to establish sex. Kessel, in a 1951 study, reported 100% accuracy sexing 600 European Starlings using this method. During the breeding season, the lower mandible of the female becomes pink, while that of the male blue-black.

Findings

The intensity and duration of nest site competition can now be reported over seven nesting seasons since 1984. Data are also available for the past five consecutive nesting seasons (1989-1993). Over seven nesting seasons, a total of 406 starlings (juveniles and adults) have been trapped (Table 1).

This represents a yearly average of 58 birds, and an adult-only average of almost 47 birds. It can be reasonably concluded that nest site competition

Table 1. A Comparison of Trapped European Starlings During the 1984, 1985, 1989, 1990, 1992, and 1993 Nesting Seasons

	1984	1985	1989	1990	1991	1992	1993	Totals	Average	
Adults		48	65	53	51	39	31	39	326	46.6
Juveniles	11	28	15	11	14	0	1	80		11.4
Totals		59	93	68	62	53	31	40	406	58.0

between starlings and bluebirds has remained intense during this 10 year period. This author assumes that, where the starling breeding range has substantially overlapped that of the bluebird, the bluebird is effectively prevented from breeding successfully in natural nest site cavities with an opening large enough to accommodate a starling (Zerhusen 1992). Also, given the significant number of trapped adult starlings each year, it is possible to conclude that in at least some areas of the starling's breeding range there are many more adult birds than there are available nest sites. A roving population of non-breeding adult starlings is likely to have a substantially negative effect on the bluebird population and may increase the starling's range as well.

When the number of trapped adult starlings is compared over the last five nesting seasons (see Table 1), a trend appears to be developing. The adult-only average for 1989 and 1990 is 52 birds. Over the past three years (1991-1993) the adult-only average approximates 36 birds or an average reduction of around 16 birds annually, or a 30.1% average drop in the number of trapped adult birds. This reduction is even more dramatic using 1984-1985 results when the average number of trapped adult starlings was 56.5 birds. Compared to the 1991-1993 results (36.3 birds), there is an average annual reduction of approximately 20 birds or about a 35.8% decline. These data sug-

gest that live-trapping adult starlings may substantially reduce nest site competition between the two species. With an average, however, of more than 36 adult starlings visiting the starling box during the past three years, the nest site competition remains exclusively in favor of the more aggressive starling. Only additional annual trapping of adult starlings will determine if nest site competition can be further reduced between these two species.

Behavioral observations give yet another perspective on the intensity of nest site competition. On 7 April 1992 a pair of adult starlings was trapped and disposed of. Within 10 minutes another pair was at the nesting box. On 20 April 1992 four adult females were trapped the same day. Bluebirds are not able to compete successfully given this level of intensity.

Table 2 provides a comparison of trapped adult starlings by month. The data clearly indicate that April is the month of the most intensive nesting activity by starlings (122 birds trapped or 43.9%). This is precisely the month that the female bluebird begins building its nest (Zeleny 1976). May, the month with the second highest total of trapped adult starlings (79 birds or 28.4%), coincides with the period when bluebirds are incubating and hatching eggs, as well as feeding nestlings. The month of March has the third highest total of trapped adult starlings (56

Table 2. A Comparison of Trapped Adult European Starlings by Month

	Feb.	March	April	May	June	July	August
1985*	0	17	21	16	7	4	0
1989	1	6	27	17	2	0	0
1990	0	22	10	15	4	0	0
1991	0	10	23	6	0	0	0
1992	0	1	16	11	3	0	0
1993	0	0	25	14	0	0	0
Totals	1	56	122	79	16	4	0
Percent	0.4	20.1	43.9	28.4	5.8	1.4	0.0

*Results not available from the 1984 nesting season.

birds or 20.1%). This is the period when the male bluebird locates a nesting site and the female, it is to be hoped, accepts the site. These results clearly indicate that the two species are on a reproductive collision course in natural nest site cavities where the opening is large enough to accommodate a starling. The bluebirds are denied nesting opportunities using these sites.

Table 2 also shows that the adult starlings' use of the nesting box drops significantly in June and July (16 and 4 adult birds trapped respectively). July is the month when bluebirds nest for a third time. It is not known, however, what percentage of bluebirds nest a third time in July, or if they would use a nesting cavity previously inhabited by starlings. The author's own man-made nesting box has not been used for a third nesting. It is also the author's observation from repeated monitoring of bluebird trails that relatively few bluebirds nest a third time. Bluebird use of starling nest sites during July is not a solution to the nest site competition between the two species.

It had been reported previously (Zerhusen 1992) that juvenile starlings began "flooding" the starling nest box in June, July, and August. Concern was raised regarding the potential deleterious effect of such flooding on second and third nestings by bluebirds, especially in any natural nest site cavity with an opening large enough to accept a starling; however, Table 3 outlines a rather dramatic change of events. During the entire 1992 and 1993 nesting seasons, only one juvenile

starling was captured. Prior to 1992, they were regular visitors during the months of June, July, and August over five reported nesting seasons (1984, 1985, 1989, 1990, and 1991). The reason for this dramatic behavioral change remains unclear and awaits further investigation. One possibility is that the trapping of adult and juvenile starlings over seven nesting seasons during the past 10 years (a total of 406 trapped birds) may be reducing the starling population in the area to an unknown extent.

Table 4 compares the number of trapped adult starlings segregated by sex for five nesting seasons. The trend reported in the 1992 study (Zerhusen) continues. Adult male starlings are live-trapped with greater frequency than females (63.4% to 36.6%). This behavior has remained consistent for the last five consecutive nesting seasons. An explanation for the apparent discrepancy remains unclear. It has been the author's observation that male starlings locate the nesting site first. They then sing and shake their wings in what appears to be an attempt to attract a female starling. It also appears that they participate in nest building. Both adult males and females have been trapped after carrying nesting material to the box. Whether any or all of these factors explain the discrepancy awaits further investigation.

Conclusions

This article has investigated both the intensity and duration of nest site

Table 3. Use of Nest Site by Juvenile European Starlings

	June	July	August	Totals
1984	0	2	9	11
1985	8	17	3	28
1989	5	1	9	15
1990	4	6	1	11
1991	1	2	11	14
1992	0	0	0	0
1993	0	0	1	1
Totals	18	28	34	80

Table 4. Number of Trapped Adult European Starlings Segregated by Sex for Years 1989, 1990, 1991, 1992, and 1993

	1989	1990	1991	1992	1993	Total	%
Male	37	33	22	18	25	135	63.4
Female	16	18	17	13	14	78	36.6

competition between the European Starling and the Eastern Bluebird over seven nesting seasons during the past decade. Consecutive data were presented for the past five nesting seasons. The data strongly suggest that nest site competition between the two species over the past 10 years has remained intense. In fact, it is unlikely that bluebirds are able to nest successfully in natural nest site cavities with openings large enough to accept a starling.

The trapping and disposal of starlings appears to be having a positive effect. Trapped adult starling numbers have been significantly reduced during the three most recent nesting seasons (1991, 1992, and 1993); however, their numbers, although reduced, are not at a point where they are likely to benefit the bluebirds. Continued trapping will need to occur in order to determine if an eventual benefit for bluebirds can be achieved.

The most disturbing fact continues to be the apparent existence of a "roving" population of non-breeding adult starlings. It would appear that there are many more adult starlings than available nest sites, both natural and man-made. This can only serve to worsen the plight of the bluebird as starlings continue to expand their range.

One implication from these findings is that efforts to aid the bluebird must be linked to methods for reducing starling populations. Live-trapping and disposal is the method utilized in the present study. Additional methods might include live-trapping and sterilization of male starlings or the monitoring of a man-made starling nesting box to prevent starlings from nesting successfully. Monitoring would in-

clude regular removal of starling nesting material and eggs from the nesting box. This method may be helpful to those individuals uncomfortable with starling disposal. Whenever starlings are prevented from nesting successfully, the chances of bluebird survival are increased.

Finally, over time, this author has observed increased pressure from House Wrens utilizing the bluebird nesting boxes on the author's bluebird trail. Whereas bluebirds nest at some distance from each other (approximately 100 yards (91.4 m), this author has observed wrens nesting as close as 50 ft. (15.2 m) from each other. Additionally, the male often occupies a second nesting box, building a "dummy" nest which he later defends. Observation indicates that, at times, House Wrens and bluebirds can peacefully coexist in bluebird nesting boxes as close to each other as 100 ft. (30.5 m). Many times, however, House Wrens have been observed building directly on top of a bluebird nest or removing bluebird eggs from a bluebird's nesting box. The 1993 nesting season on the author's bluebird trail was disastrous for bluebirds, largely due to the sheer number of pairs of House Wrens attempting to nest in the bluebird nesting boxes. The number of nesting pairs of House Wrens appears to be increasing over nesting seasons, at least on the author's trail. Research appears necessary in regard to the intensity of use of bluebird nesting boxes by House Wrens. The two species share similar habitats (farmyards, open fields, and orchards). The House Wren poses yet another threat to bluebird survival since their breeding ranges overlap to a large extent (National Geographic Society 1987) and,

(Continued on page 98)

A Bird in the Bush

Karen Blackburn



The winter of 1993-94 was a particularly difficult one for both humans and wildlife to endure. Many regions were buried for months on end under a solid blanket of snow. Here in Connecticut, a storm on 18 March made history by adding enough new snow to break all existing records for total annual accumulation. With that storm, we had received in excess of 83 inches of snow for the season. Records were also broken in many other parts of the country. Sadie Dorber wrote to report a record-breaking accumulation of 122 inches of snow in the vicinity of Vestal, New York, where she makes her home. As difficult as it is for us humans to get through such a winter (having to shovel snow from rooftops to prevent their collapse, to clear driveways and sidewalks, and to attempt to avoid accidents on icy roads), we must remember that it is all the more difficult for wildlife. Wild creatures must struggle not only with frigid temperatures, but also must struggle to find food enough to maintain their body heat under such conditions.

As we have noted many times in previous columns, the difficulties faced by wildlife are intensified toward winter's end. By that time, all of the choice foods have been consumed, and yet it is still too early for fresh green growth to appear, still too early for spring's renewed supply of insect food. Birds and other forms of wildlife will then encounter life-threatening conditions, and their peril increases with each late-season snowstorm. They will perish unless they can find the so-called "emergency foods" that will keep them alive. As mentioned many times previously, the sumacs (*Rhus* sp.) are among these valuable emergency foods, and I have recently received reports which serve as further testimony to the value of these plants for the survival of wildlife.

Karl Curtis wrote from Jamesville, New York: "This year, for the first time, I've seen deer 'barking' Staghorn Sumac trees (*R. typhina*) with stems 3 to 4 inches in diameter. This was not the usual browsing of the branch tips; the deer ate all the bark from the sumac's main stems, and as high as they could reach!" Karl also observed Wild Turkeys feeding on sumac fruits during the winter months: "The turkeys got right up into the sumac trees to get the seeds—quite a feat for such large birds to balance themselves in the tops of the trees! But the smarter ones did cleanup detail, getting the seeds which fell to the ground." In February, Karl observed six Eastern Bluebirds, and though they were not feeding at the time, he notes that they, too, were in the vicinity of a stand of Staghorn Sumac. Karl concludes by saying, "I really believe that sumac got a lot of wildlife through this nasty winter." I have no doubt that he is absolutely right!

Further testimony to the value of sumac comes from Sadie Dorber who stated in her recent letter: "The Pileated Woodpecker has just about cleaned all the fruit from the Staghorn Sumac." Sadie also mentioned that an American Robin arrived in mid-March to feed on the crabapples in her yard, and that turkeys also visited to take these fruits. Like Karl, she also noted that the local deer had suffered a particularly difficult winter, and, in Sadie's case, the deer resorted to "cleaning out the bird feeder each night."

It is my sincere hope that these reports will serve to inspire readers to

(Continued on page 98)

Four Orphaned Bluebirds Are Given Three New Homes

Richard M. Tuttle

Late in the evening of 21 July 1992, I answered a telephone call from the Ohio Wildlife Center (OWC), a wildlife rehabilitation organization in Columbus, Ohio. I am a proud member of this very busy group, but recently my only contribution has been to be on a list of bluebird conservationists that are willing to accept orphaned Eastern Bluebirds (*Sialia sialis*) or Tree Swallows (*Tachycineta bicolor*) as transplants into active nest boxes. Four orphaned bluebirds had been presented to OWC that day and were in need of foster parents. I was the second bluebirder to be contacted that evening. The first monitor had no nests that could accommodate the orphans.

Before I could help, I had to establish the age of the birds. The volunteer at the center said the nestlings' tails were approximately one-half inch long and their wings had feathers long enough to show blue. Based on ornithological data on the development of nestling bluebirds, I estimated that the age of the birds was 10-11 days. I told the volunteer that I would check my data book for transplant possibilities and call back.

I monitor 247 nest boxes. My data book contains trail data calendars and box data calendars (Tuttle 1989). Trail data calendars record the events of 25 boxes on one sheet. Trail events can thus be interpreted at a glance. I found 33 active nests while viewing my trail data calendars.

Next, I looked at the box data calendar for each of the active bluebird nest boxes. The box data calendar has a square for each day. Data is recorded within the day squares. Within 20 minutes, I had interpreted events for each nest box which held nestlings and counted four possible foster situations for the orphans. I called the rehab center and agreed to pick up the orphans the following day.

Volunteers had fed the young birds many times before I arrived to pick them up; they seemed content to lie flat in the bottom of their paper towel nest in a margarine carton. My first stop was the front lawn of Perkin's Observatory south of Delaware. Box #14 contained four nestlings 10 days old. I added the smallest of the four orphans and from all appearances it looked like a perfect fit. I took the three remaining orphans to Delaware State Park. At box #54, I transplanted another orphan into a family of three nestlings that were 10 days old.

The last two orphans were placed in box #143 which contained three nestlings 11 days old. Box #143, a slot box, was the prized possession of the most dominant male bluebird in the park, one of those manic males that attacks even when there are only eggs in its box (usually, bluebirds will not dive at me until the young are feathered out). When I left the inflated family of five, I knew their chance for survival was extremely good. Since all four orphans had been placed among three new families, I had no need to use the fourth possible foster nest.

Two days later, I checked all three nest boxes and all nestlings appeared to be normal; the transplants had been accepted. Ultimately, all nestlings fledged on time.

I am guided by two basic rules when I foster bluebirds, Tree Swallows, and other bluebird trail species. First, I make sure the fostered nestlings are within one day of being the same age as the adoptive family. Weekly or more frequent trail monitoring and good record keeping make this possible. Nestlings pass through many behavioral changes and if there are large age differences within the nest, a competitive edge could develop among the nestlings to threaten the survival of younger birds.

Second, when adding foster birds to a nest, I rarely increase the size of the family to a number greater than the average brood size for that species and season. Pinkowski (1975) and other professional ornithologists have found that normal brood size for a species represents the maximum number that parents can feed. If the nest is overloaded with foster nestlings, none of the birds will grow properly. Average brood size for bluebirds is a function of three nesting periods within the season in Ohio (Tuttle 1991). The average brood size for the first nesting season, late March through May, is five; for the second nesting season, June through mid-July, it is four; and the average brood size is three for the third and last nesting. Tree Swallows nest once and their average brood size is six (Tuttle 1987).

I also consider weather conditions, type of vegetation, and availability of food, in order to add or subtract one nestling from the average value when I'm determining the best possible course to follow when fostering orphaned nestlings.

I would also like to add that it is illegal to transplant orphaned birds without having the proper permits to do so from both state and federal governments, which OWC does.

I cooperate with OWC to give orphaned bluebirds the most effective foster parents—other bluebirds. In 10 years OWC has never had to raise a bluebird or a Tree Swallow, thanks to the help of bluebird trail monitors. In order to help orphaned trail birds and lessen the work load of some dedicated wildlife rehabilitators, align yourself with a rehab facility near you. ■

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This article has appeared in a slightly different form in The Bluebird Monitor (published by the Ohio Bluebird Society) and in the Ohio Wildlife Rehabilitation Association Newsletter.

Tests of Sparrow-Inhibiting Boxes

Wayne H. Davis and Kelly Mack

Introduction

House Sparrows (*Passer domesticus*) are a serious problem on the bluebird trail. They will evict nesting bluebirds, destroy eggs, kill young, and sometimes even adults in the nest. The most effective way to deal with the problem is to trap and kill the sparrows; however, a desirable alternative would be a nest box that sparrows will not use.

There have been several attempts to design a box that bluebirds like but sparrows will not use. McComb *et al.* (1987) and Davis (1991) found that bluebirds prefer a slot entrance and Davis (1989) found that House Sparrows prefer a circular entrance. Davis (1992) tested a shallow slot box and found that, although House Sparrows did not like it, bluebirds did not like it very well either. He also tried a large entrance box (Davis 1993) with similar results. Gilbertson (1991; 1993) using PVC sewer pipe,

designed a box which showed promise for bluebirds and was seldom used by sparrows. We decided therefore to test his box as a possible solution to the sparrow problem.

Methods and Materials

We tested 50 of each of three styles of nest boxes at the University of Kentucky agricultural farms near Lexington. One was the PVC box built to Gilbertson's specification, 4 inch (10 cm) PVC pipe with a slot entrance 2 inches (5 cm) wide and 1 1/8 inches (3 cm) high and 4 1/2 inches (11.5 cm) deep. We painted these boxes gray outside and inside. Another was a large entrance (2 inches by 4 inches) box 4 inches deep with a floor of 4 inches by 4 inches. The control was our standard slot entrance box with an entrance 4 inches wide and 1 1/8 inch high, a 4 inch square floor, and 5 inches (12.5 cm) deep.

Boxes were mounted on 1/2 inch (1.3 cm) conduit wired to steel T posts of fences or mounted directly in the ground over a piece of rebar, at locations selected so as not to be hit by the mowers. We polished and greased the conduit to deter raccoon predations. Height above ground varied from about 5 to 8 feet (about 1.5 to 2.5 m). Ninety-nine boxes were 8 feet high and 51 were 5 feet high with the three styles of boxes equally distributed at the two heights. Boxes were generally placed 0.1 mile (160 m) apart alternating the three styles. The boxes were erected in September 1992 to give the House Sparrows an opportunity to investigate them during fall and winter. We checked all boxes in February and monitored them weekly from the first week of April until activity ceased in mid-September. We recorded our findings without further disturbance with

the following exceptions: when House Sparrow clutches were complete we removed the eggs to prevent these pests from fledging young, and we cleaned out boxes where bluebird eggs were destroyed or abandoned.

Results

Results are shown in Table 1. Steve Gilbertson's PVC box performed well. As many PVC boxes as the controls were used by bluebirds, and about as many bluebirds were fledged. House Sparrows definitely preferred the control boxes. More PVC boxes were left empty, but this can be attributed to the fact that House Sparrows used more of the controls.

Discussion

To discourage House Sparrows you should have a box that is rather shallow, has a slot entrance, and is mounted low (about 5 feet) on a post. We had more House Sparrows than usual probably because we had so many boxes mounted 8 feet high. Of the 24 boxes used by House Sparrows, only two (both controls) were mounted on the low posts. Gilbertson's (1991) method of mounting his boxes probably makes them quite unfavorable to House Sparrows.

In this and our previous studies of various styles of boxes, we have found three that House Sparrows do not like: the shallow slot box, the large opening slot box, and Gilbertson's PVC box. Only the latter, however, is as productive of bluebirds as our control box.

Table 1. Use of Three Styles of Nest Boxes

Box Type	Used by Bluebirds	Blueblrds Fledged	Used by House Sparrows	Used by House Wrens	Wrens Fledged	Used by Chickadees	Chickadees Fledged	Empty Boxes
PVC	23	92	4*	5	12	5	24	14
Large Entrance	17	53*	4*	5	14	0	0	19
Control	23	101	18	8	31	2	8	4

*P < 0.05 Chi-square tests

People who want a good sparrow-inhibiting box should try Gilbertson's.

Acknowledgment

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(1993 REPORT—Continued from page 88) populations have rebounded over several years from these declines. While many parts of the bluebird's range have had bad weather conditions, it is reasonable to expect that population increases will resume following "good" weather years. NABS members have provided the best data available on bluebird population trends available for these species. Over time we will also be able to show population trends for the other cavity nesting birds using this year's baseline data. While our members' primary interest may be bluebirds they are encouraged to document use of nest boxes by all native species. ■

(COMPETITION—Continued from page 93) unlike the starling, the wren is a federally protected species. ■

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(BUSH—Continued from page 94)

PLANT—PLANT—PLANT for wildlife! Plant and preserve the life-saving emergency plants such as sumacs, crabapples (*Malus* sp.), hollies (*Ilex* sp.), bayberries (*Myrica* sp.), junipers and red cedars (*Juniperus* sp.). The trees and shrubs you plant may well save many lives!

Finally, we have received a report "through the grapevine" that Western Bluebirds have been seen feeding on persimmon and pomegranate. We would greatly appreciate hearing firsthand reports of such sightings. How about it, Western Bluebirders? Please send in your reports! As always, we invite all readers to send their observations pertaining to plant use by wildlife to: Karen Blackburn, 185 Mica Hill Rd., Durham, CT 06422. Many thanks to Karl Curtis and Sadie Dorber for sharing their observations with all of us. ■

Deer Mice, the Major Vector for Hantavirus

During 1993, extensive newspaper and television coverage of a mysterious flu-like illness in the Four Corners area of the Southwest appeared to be of little more than passing interest to bluebirders. When the cause of the disease was determined to be a hantavirus for which the widespread deer mouse is the major vector, the news had immediate relevance for bluebird monitors. The chance that monitors will become infected by contact with virus-carrying rodents is *extremely small*. Taking some simple precautions, however, is prudent.

As of 16 March 1994, the Centers for Disease Control and Prevention (CDC) reported a total of 64 cases of hantavirus-induced illness in the United States. New Mexico had the highest number of cases (20) with the following states reporting one to five cases: Oregon, Idaho, Montana, North Dakota, South Dakota, Minnesota, California, Nevada, Colorado, Arizona, Texas, Kansas, Louisiana, and Indiana.

The CDC in Atlanta, Georgia, provided the following information about the hantavirus.

The outbreak in southwestern United States was probably due to abnormally high populations of the major host, deer mice (*Peromyscus maniculatus*), which have now dropped to more normal levels. Dr. Clarence J. Peters, chief of the Special Pathogens Branch at the National Center for Infectious Diseases at the CDC, suggested that this has been a virus of deer mice for a long time. It is unfortunate that the range of the deer mouse includes most of the North American continent with the exception of the most southeastern portion of the United States. Evidence of infection has also been found in pinon mice (*P. truei*), brush mice (*P. boylii*), and western chipmunks (*Tamias* spp.) plus half a dozen other small rodents. Arthropods are not known to have a role in the transmission of the hantaviruses, nor are cats

and dogs known to be reservoir hosts in the United States. They may bring infected rodents into contact with humans, however.

Infected rodents do not get sick, but they do shed viruses for long periods. No evidence of person to person transmission has been seen. People have become infected by inhaling hantavirus which has been transmitted by tiny airborne droplets. These could come from saliva, urine, and feces. In rare cases, people have been bitten. Transmission might occur when dried material contaminated by rodent excreta are disturbed. Handling of wild infected rodents is risky.

Symptoms are similar to flu with a fever of at least 101°F, headache, muscle aches, sometimes abdominal pain and nausea. Within a few days, respiratory tract symptoms develop including a cough and shortness of breath. Fluid buildup in the lungs is usually rapid. Mortality is 60%.

In late November 1993, the CDC announced that biomedical researchers had grown the hantavirus responsible for the fatal lung disease in the laboratory. This step should make it possible to develop a simple test, speed the search for treatments, and perhaps aid in the development of a vaccine.

Although the overall risk of hantavirus infection to humans is low, precautions should be taken. Bluebird monitors come in contact with deer mice or the similar appearing white-footed mouse (*P. leucopus*), most often in late winter and early spring in nest boxes mounted on wooden posts. The CDC recommends using rubber gloves, pouring disinfectant (like Lysol® or bleach) on the area where mouse nests or excreta have been, and burying nests or droppings. The Bluebird Recovery Program further suggests using pliers to remove mice. Do not inhale when removing mouse nests from bluebird nest boxes. ■

Cavity Nester License Plates

In the Autumn 1993 issue of Sialia, we ran a picture of a vehicle license plate owned by Shirley Adams of Alton, Illinois, which contained the identifying word SIALIA 2. We asked our readers to share photos of their license plates which demonstrated their commitment to cavity nester conservation.



Jerry Asker, of Grangeville, Idaho, has a Mountain Bluebird on his license plate. He says that the special bluebird plate costs \$35.00 for the first year and \$25.00 to renew of which \$10.00 is dedicated to non-game wildlife; therefore, bluebirds win with both publicity and financial support.

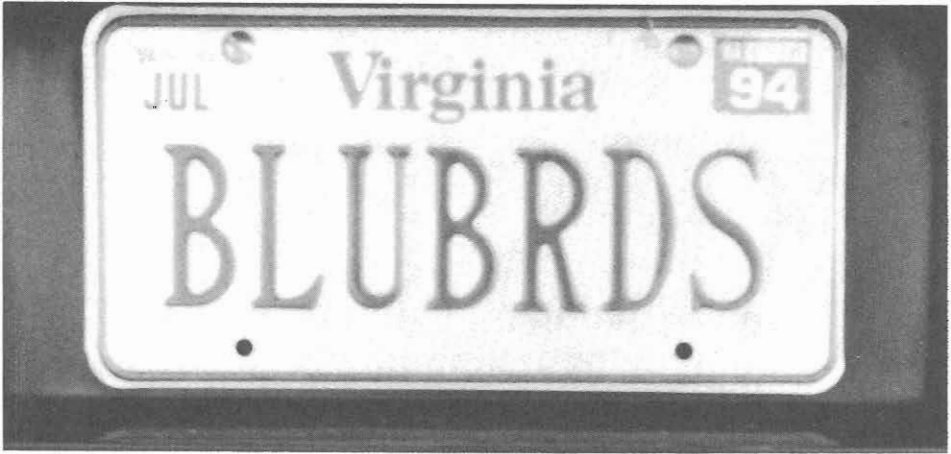


Ray Harris, of Pincher Creek, Alberta, makes a creative statement when he parks his vehicles side by side (*above and facing page at bottom*). He probably wishes the Western or Mountain Bluebird had a species name that would fit on a license plate. He notes that many people ask what his plates mean so it gives him a "good opportunity to explain about bluebirds." His 100 box trail is a family affair. For 13 years Ray, his wife Ardell, their sons, their sons' wives, and three granddaughters have monitored the trail on a weekly basis.



Billy Dunbar, Watkinsville, Georgia, sent a photo of the license plate attached to his wife, Brenda's, vehicle. It is an abbreviated, but easily understood, spelling of kestrel forced by a six letter limitation. "Every possible spelling of bluebird was already taken." He adds that his wife "has had many positive comments" many from people "who had never heard of a kestrel."





Ira Campbell, of Timberville, Virginia, sports a plate he has had for five or six years. He says he likes the plural for bluebirds because it is a reminder of the more than 4200 bluebirds fledged on his 100 box trail over the last 22 years.



Marcia Hoepfner, of Metamora, Illinois, has SIALIA 1 on her plate. So people don't miss the meaning, she has a NABS sticker on a car window and a porcelain bluebird figurine on the dashboard.

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.

Bluebird Exchange

This feature extracts items from the newsletters of bluebird organizations and the periodic reports of groups with bluebird or cavity nester projects. If news from your state or region has not been included in either the 1994 Winter or Spring issues of Sialia, please check to be sure this editor or NABS is on your mailing list. We want to include your material!

MAINE—*Downeast Bluebird*, Winter 1994

This issue features Frank Zuern's Tree Branch Bluebird Box with plans and instructions. This adds another state to the list of those publicizing this box and providing an opportunity for it to be widely tested in 1994.

—*Bluebird Association of Maine*

MINNESOTA—*Bluebird News*, February 1994

A 1993 Bluebird Recovery Program (BBRP) grant was made to Professor Neal Mundahl of Winona State University (MN) to compare the thermal characteristics of the Peterson nest box and the Gilbertson PVC box. Results of tests of empty boxes did not show significant differences in daily maximum and minimum temperatures. The major thermal difference was in the rate of heat gain and loss. As might be anticipated, PVC boxes gained heat more quickly and lost it more rapidly than did the wooden Peterson box. Breezy conditions, rapidly changing clouds and sun as well as precipitation also caused faster thermal changes in the PVC box. Comparative studies have not yet been made with occupied boxes. It is interesting to note that 1993 breeding results which involved prolonged wet, cold weather "did not yield reports of a larger percentage of nestling deaths in PVC boxes than in wooden boxes. This might support the supposition that it was either the *wetting* of already cold nestlings by parental visits or a common *lack of food* that was of more significance in survival." (p. 3)

BBRP has, at least for 1995, abandoned the idea of a bluebird calendar.

House Wrens have become a major problem. Any measures to legally impede nesting or to outsmart them for the benefit of other native cavity nesters is good news. Editor Dorene Scriven reports that a wren guard used by Warren Frey of Pennsylvania may be worth trying. His guard is designed to aid chickadees and operates on the theory that if wrens can't see an entrance hole they will be less likely to evict or harass chickadees. *After* chickadees claim a box, Frey adds a wooden guard made of thin scrap paneling which is the same width as the roof. It is attached with screws flush to the front of the roof. The guard extends slightly below the hole, but there is space behind it for the chickadees entering or leaving the box. A guard for a bluebird box should probably be farther away from the box front. This has been successful for the designer with wrens and chickadees.

—*Bluebird Recovery Program*

NEW YORK—*Bluebird News*, Winter 1994

Robert L. Miller, Non-game and Habitat Unit Leader for the Division of Fish and Wildlife, New York State Department of Environmental Conservation at Albany, was the featured speaker for the fall meeting on 2 October 1993. Of particular interest to bluebirders was the news that, after a review of the endangered, threatened, and special concern lists to be conducted in the coming year, the Eastern Bluebird might be removed from the special concern list. Miller viewed that possibility as a tribute to the New York State Bluebird Society (NYSBS) which has played a key role in reversing the decline of the species in New York State.

A decision was announced to rotate seasonal meetings throughout the state.

Nest survey results for 1993 again, as in 1992, show the number of bluebirds reported fledged by NYSBS members declining from the previous year. Fledglings dropped approximately 1,000 and boxes reported declined by 800. Undoubtedly, weather was the major factor in making 1993 a poor nesting season.

The article in the 31 August 1993 *New York Times* carried extensive publicity about the society to many parts of the country. Since the story was picked up by the Associated Press, the material generated interest in many states.

The NYSBS owns three video tapes and the NABS slide program which are available to members for the cost of postage when such items will be used in seminars or workshops. Individuals may borrow the same items for personal use for a \$5.00 postage and handling fee.

Kevin Colton, of Seneca Falls, NY, has been named to coordinate the Route 20 Bluebird Trail Project. This effort is designed to establish a research and education bluebird trail along NYS Route 20 which extends from the Massachusetts border on the east to Pennsylvania on the west.

Don Bragg summarizes an article in the *Wilson Bulletin* 104(4):630-643 concluding that blowfly parasitism on Eastern Bluebird and Tree Swallow nestlings does not contribute significantly to nestling mortality. Researchers Roby, Brink, and Wittmann conclude that blowfly larvae infestation does add stress which can be crucial during periods of food shortage or bad weather.

—*New York State Bluebird Society*

---*B.C.N. NEWS*, February 1994

By February 1994 there were 25 respondents to Joe and Tamra Sedlacek's request for information for the first Broome County (NY) nest box survey. This group fledged 124 bluebirds, 591 Tree Swallows, and 138 House Wrens from 359 nest boxes. This mailing included a one sheet summary packed with box mounting and locating instructions, a sheet from the NYSBS listing some plantings that provide food bluebirds use, and one of Larry Zeleny's articles about helping wintering bluebirds.

—*Broome County Nestbox Network*

OHIO—*Bluebird Monitor*, Spring 1994

The Ohio Bluebird Society is planning to adopt a new logo and is redesigning its brochure.

Several articles by Dr. Wayne Davis are included in this issue. In one he discusses the pros and cons of types of grease as predator deterrents. Initial experiments with Tangle Trap® were successful, but Dick Tuttle mentioned hearing that a chickadee had been trapped in the sticky substance so advised against it. Davis also found bluebird and flicker feathers in the material below his boxes. He then decided to try lithium grease, but the label warning of dangerous lead content led him to abandon that substance. He then went with a quart of turpentine to five pounds of chassis grease which the late Harry Krueger suggested. There has been a major decline in predation of Davis's boxes since using grease on the mounting posts, but there have been a few indications that bluebirds may get into the grease which may adversely affect the adult or its eggs. He asks what adverse experience readers have had using grease as a predator deterrent.

In a second article Davis describes a variety of styles of fasteners for nest boxes. Where circumstances allow, he goes with his favorite simple device—a #6 finishing nail driven halfway into the side of the box and bent over the front. For boxes made of solid lumber, it serves for years.

In a third article in this same issue, Wayne Davis provides some suggestions for the success of workshops at which nest boxes are constructed. Good planning and anticipation of problems are important.

Dean Sheldon's column describes the necessity for and steps to take when conducting a "spring cleaning" of nest boxes.

Ken Fitz makes a plea for erecting boxes for American Kestrels citing the fact that not only are they attractive cavity nesters, but he watched one eat a House Sparrow which makes their presence a plus. He has had success in attracting kestrels to use a box at Dawes Arboretum. He does mention in passing that the height

of such boxes makes them difficult to monitor. He does not mention that the entrance may allow starlings to use the box or that there are much more effective methods for House Sparrow control.

An article from the Dawes Arboretum newsletter about birds striking windows is reprinted. Millions of birds are killed each year as a result of collisions with windows. The arboretum has tried a solution which has been totally effective. Netting is placed over the windows. The plastic type, available at garden centers, is durable and relatively inexpensive. Aesthetically, it is at least neutral. If you would like more details about how to install netting or wish to receive other suggestions to reduce bird strikes against windows, write to The Dawes Arboretum, 7770 Jacksonstown Rd., SE, Newark, OH 43056

—Ohio Bluebird Society

ONTARIO—*Ontario Eastern Bluebird Society Newsletter*, Fall 1993; Winter 1994

Preliminary breeding results for 1993 indicate that, although temperature and precipitation were closer to normal than in 1992, reproductive success was lower. Three probable factors are cited—all weather-related.

Eastern Bluebird population notes include comments on an article about bluebird identification appearing in *American Birds* 46(1):159-162. Field guides may lead one to believe that identifying bluebirds is always straightforward and relatively easy, but Kenn Kaufman points out some exceptions.

Editor Bill Read writes about some banding recoveries in his continuing study of bluebirds in Ontario's apple orchards. In the spring of 1991 he banded five nestlings in the Vanmyeren orchard northeast of Paris along the Grand River. During the 1992 season, four of the five were retrapped in apple orchards: "two in Vanmyeren and two in Brubacher about 7 km to the east. A total of 28 young were produced by these second year birds and their mates." In 1993 he retrapped the fifth bluebird of the original 1991 brood. "It is highly improbable for all five young to survive their first winter but to eventually retrap all five is even more unlikely." (p. 4)

A short note describes the routes bluebirds use in Ontario during fall migration. Many follow the Great Lakes shoreline. In southern Ontario migration may last from mid-October into late November; in the northern sections of the province bluebirds begin moving in late August and have left by the end of September. The warm fall of 1991 resulted in record numbers of bluebirds appearing on Ontario's Christmas Bird Counts.

The Winter issue discusses the cold fall and severe winter. Despite a January mean temperature which was the coldest since record keeping began in 1914, bluebirds were seen in Ontario. An observation of 11 Eastern Bluebirds roosting for the night in a single nest box in the Port Stanley area on 19 January was testament to the fact that bluebirds can tolerate cold temperatures providing a reliable food source is available.

Tubex tree shelters have sometimes been reported to trap bluebirds and other birds if netting has not been placed over them. It is unknown if this is a problem in Ontario so a request is made for individuals to check tree shelters in this province and send the information to the OEBS.

—Ontario Eastern Bluebird Society

Art Credits

Jon E. Boone: 82, 116
Suzanne Pennell: 105, 118
M. Suzanne Probst: 94



1995 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 1995. ■

Bluebird Lady Recruits Bluebirders

Bluebirders use a variety of methods to publicize the need for bluebird conservation. Few people can top the infectious enthusiasm of Marcia Hoepfner of Metamora, Illinois, who submitted examples of some of her ideas and sponsored events.

Marcy and others, who provide leadership in the area west of Peoria, present workshops—a time-honored and successful way to describe bluebird basics. The workshops are occasionally enlivened, as the one on 20 March 1993 at Shad Hill Arts and Culture Center in Farmington was, by Marcy donning a bluebird costume borrowed from Marie Olinger of Galesburg.

A tour of Marcy's trails is another event for which she puts out extensive publicity. The tour on 5 June 1993 attracted 27 people from 14 different cities. She and her husband, Don, host an annual potluck at a local park which brings bluebirders together at the end of the breeding season so that they can exchange information and receive encouragement to increase their efforts the following year.

The "Bluebird Lady of Metamora" was surprised in mid-February 1994 to receive a telephone call from Robert Gillogly, pastor of the First Federated Church in Peoria. He told her he intended to talk about bluebirds in his sermon the following Sunday and was calling to ask some questions. She was delighted to find that when Pastor Gillogly sent her a copy of the sermon, it was entitled "The Bluebird of Happiness." ■



Marcy Hoepfner presented a program at Shad Hill Arts and Culture Center, Farmington, March 1993, in this bluebird costume borrowed from Marie Olinger of Galesburg.

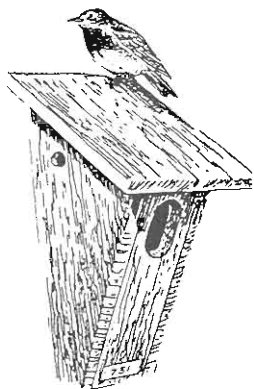
BLUEBIRD WORKSHOP

Saturday, March 20, 1993

10:00 a.m. - 3:00 p.m.

Shad Hill Arts and Culture Center,
Route 116 East and 78, Farmington, Illinois

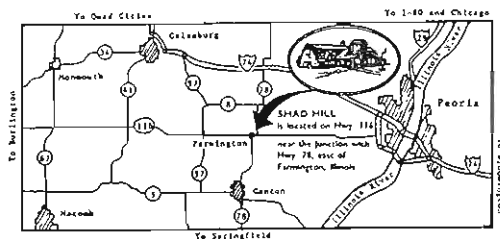
Programs by: Marie Olinger, bluebird enthusiast
Marcy Hoepfner, bluebird enthusiast
Evert Staffeldt, retired biologist
Bud Gronewold, birdhouse woodworker
Illinois Conservation Dept., slide program



Displays by Marcy Hoepfner and
The North American Bluebird Society
Birdhouses and Patterns Available

Luncheon Reservations Needed
Call Shad Hill at (309) 245-4452

Sponsored by: Shad Hill Arts & Culture Center
The Two Rivers Arts Council
The Illinois Arts Council, a state Agency



TOUR OF BLUEBIRD TRAILS

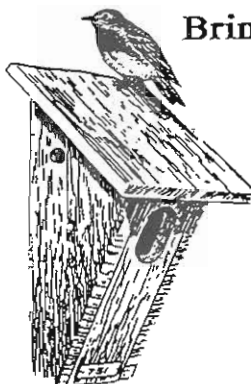
JUNE 5, 1993

10:00 A.M.

**Start at Marcy Hoepfner Home
South of Metamora**

**Turn West on Riggert Road
Look for Bluebirds on Mailbox**

Bring Sack Lunch



BLUEBIRD

ENTHUSIASTS!

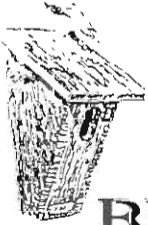
**For more information call
Marcy Hoepfner at (309)367-2765**

**Upcoming Event:
Sept. 18, 1993
Annual Bluebird Potluck
at Issac Walton Park**

Historian's Request

Please send newspaper and magazine articles about bluebirds to Historian Jane Williams, Box 123, Ware Neck, VA 23178. Be sure name and address of publication, volume and date are included. Photographs of members en-

gaged in publicizing bluebirds or those documenting some unusual occurrence are also welcome. They will be added to scrapbooks which are a permanent record of activity on behalf of bluebirds and other cavity nesters.



3RD ANNUAL
(RAIN OR SHINE)
BLUEBIRD ENTHUSIASTS
GET-AQUAINTED POTLUCK

SEPTEMBER 18, 1993
2:00 p.m.
ISSAC WALTON PARK

Hosts: Don and Marcy Hoepfner

Please bring: 2 covered dishes to share with big group
(1 main dish & 1 salad or dessert)

Your beverage

Lawn chairs & table service

Directions: Take 116 East past Germantown - turn north
(left) at Riggert Road - (2 miles past State Police
Headquarters) - turn west (left) at T-Junction at end of
Riggert Road. This takes you to entrance to Issac Walton
Park. Follow road up to the clubhouse! No pets allowed!

Hope to meet you! Bring any ideas you have to help these
Gems of Blue. How many did you get to fledge?

RSVP - 367-2765 or Rt. 1, Riggert Road, Metamora, Ill.
61548



Marcy Hoepfner, Metamora, Illinois, kneels (*left foreground*) with part of the group which turned out for an early June 1993 look at her bluebird trails.



The Hoepfners planned this wall in the family room of their new home before the house was even started. In addition, there are bluebirds in wallpaper in a bedroom and in the border around the kitchen. Suncatchers hang in the kitchen windows and porcelain figurines of bluebirds are displayed. Understandably, Marcy characterizes herself as "nutty about bluebirds."

You Say They Are “Bluish”?

William Harris

This story goes back nine years to a time when my wife and I moved to a mobile home park in southern New Hampshire. As luck would have it, we found a beautiful lot. It has proven to be not only a great place to feed birds, but also a great area for nesting birds. Nuthatches, titmice, chickadees, and Tree Swallows have nested in our homemade boxes. Northern Cardinals and even Wood Thrushes have nested nearby.

So it was with a great deal of pleasure that we saw a bluebird land on one of our yard boxes back in the late 1980s. Although it did not stay, we started looking around the park for likely bluebird nesting sites. Over the years we have erected 14 bluebird boxes. Although no bluebirds showed up, we did get new visitors to the park — Tree Swallows.

Then in 1993 things began to happen. A big factor was the erection of five new double-wide homes on extra large open lots. Good bluebird habitat we thought. When the first tenant moved in, he put up some pretty wren boxes. I promptly gave him a bluebird box, asking if he'd like to get nesting bluebirds? He went me one better. He made two new boxes from good lumber and promptly put them up in opposite corners of his big grassy lot. Then he returned my box, plus one of his brand-new ones.

Within days he had Tree Swallows carrying pine needles to a box. A few days later he called and said a male bluebird had landed on the roof of the now occupied box. Apparently the swallows informed him that the place was already rented, for the bluebird never came there again. In the meantime I put another box up on the adjoining lot. Sure enough, a bluebird was seen at the box, but it never settled in.

Then a new family bought another of the double-wides. I asked these good people if they'd like to attract bluebirds to their property. Indeed they would!

I put up a box for them and, by the next afternoon, birds were carrying nesting material into the box. No, these were Tree Swallows, too, but I assured the folks that these birds would make good neighbors and were very beneficial.

In due time the lady of the house called me and said “The birds are gone — the nest is empty!” I quickly told her to clean out the box, nest and all.

Having done that, I assumed the nesting season was about over. In a chance conversation with the lady a few weeks later, she mentioned that birds were being fed at this same box. I told her that the Tree Swallows only nest once each year. “Oh,” she said, “these birds are not the same kind of blue as the first nesters.” “But you say they are bluish?” I asked. “Oh yes, a beautiful blue.” Well, my wife and I hopped in our car and high-tailed it over to their home. One quick look into the box convinced us we were looking at five of the most alert baby bluebirds you ever saw. All were well-feathered and bright-eyed. I told the folks that within 24 hours these birds would be gone from the box. And indeed they were.

Later in the fall we saw a family of bluebirds not far from the nest site. They seemed to be everywhere: first in the road, then on the telephone wires, down on a lawn, and up in the pine trees. What a joy to watch, but, more than that, what satisfaction there was in the knowledge that we finally had bluebirds in our mobile park. We have plans for erecting nearly 20 boxes in the park in preparation for the 1994 season. ■

15 Clovercrest Dr.
Nashua, NH 03062

Cat and 'Coon Guard

James E. Fitzgerald

During 1993, 19 of my bluebird boxes were mounted on steel posts, each with a snake guard. The posts were six and one half feet (20 m) in length driven approximately 16 inches (40.6 cm) into the ground (just past the anchor plate). The snake guard was a 24 inch square (61.0 cm) piece of one-quarter inch (0.6 cm) mesh hail screen wire netting. The middle was fastened to the post with baling wire, so that it was approximately level. The guard was about four feet (1.2 m) above the ground, mounted just beneath the bird box. The guard kept the snakes out, but it was a failure in keeping out raccoons and house cats.

During the month of October 1993, I set up four bluebird boxes on the bank of the Kansas River near Topeka, Kansas. The boxes were in a line about 12 feet (3.7 m) apart. The posts were of different lengths: one seven (2.1 m), two six and one-half, and one six foot (1.8 m).

I cut four metal guards from an eight foot (2.4 m) length of corrugated metal roofing material. The cost for the metal was \$5.00 plus tax for the eight foot piece. I rounded the corners by cutting about three inches (7.6 cm) off each corner of the 24 inch by 27 inch (68.6 cm) guards. A modified "T" hole was cut with a cold chisel in the center of each sheet to match the shape of the post. A number of nail holes were made in the sheet metal around the post hole so that baling wire could be inserted. The posts were driven into the ground to just above the anchor plate. The metal guard was slipped on the post from the top. Baling wire was used to fasten the metal guard to the post near a level position just below the bottom of the nest box. Bluebird boxes were mounted on the posts above the guards.

Predators are common. House cats are seen quite often in this area. A gardener in the vicinity has a big garden and keeps the perimeter elec-

trified because he has a severe problem with raccoons.

I put a fish in each of the bird boxes and tied a piece of fish on the outside at the top of each box. For the long post the guard was mounted 55 inches (1.4 m) above the ground. One edge of the guard drooped to 48 inches (1.2 m). Both six and one-half foot posts had a mounting height of 48 inches which drooped to about 41 inches (1.0 m). The short post had the guard mounted at 41 inches; it drooped to about 32 inches (0.8 m). I put some scrap fish parts on a string and dragged these around the area, up to, on, and around the nest box posts.

This was a test to see if I could develop a guard to keep snakes, house cats, and raccoons out of my bluebird boxes. A week later I moved the three taller posts over to a farmstead where cattle and hogs are raised. There are many house cats there to keep down



Photograph by James E. Fitzgerald

Cat and 'coon guard used with success by author in Shawnee County, Kansas, after testing by baiting boxes with fish scraps.

the rat population. There are also known to be coyotes, foxes, and bobcats in the area, sometimes during daylight hours. I also fed these house cats fish during the summer. This area is along a creek. Every few days I dragged new pieces of fish around the area and added more fish to the nest boxes. The animals jumped up on the metal guard on the three shorter posts. They left paw marks on the metal. I washed the paw marks off with a wet cloth each day so I could tell when they jumped up on the guard. All the predators fell off before they could get any of the fish. The metal guard is rather thin material and "gives" quite easily. I believe some animals may be frightened of jumping up on the limber metal guards. I could not identify all the predators that jumped on the metal guard, but some animals left paw prints larger than house cats.

The last week of tests I deposited

pieces of fish on the ground near the posts each day. All were gone the following day. I discontinued the test after 18 days as predators did not get any of the fish, either inside the nest boxes or wired to the outside. They had jumped up on the metal on the three shorter posts on only five days. I favor the six and one-half foot posts.

I plan on using these guards on my nest box posts in 1994. I will make sure the corrugations are along the side of the box so the droop will be directly in front and back of the nest box. The metal is placed tight enough around the post, where the baling wire is wrapped, to keep snakes from bypassing the guard at the post hole. Should there be a problem at the hole, this area could be reinforced with hail screen wire netting. ■

2910 SW Arvonja Place
Topeka, KS 66614

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.

Bluebird Boosters

Appearing on the inside back cover is a list of those individuals who have made a financial commitment to bluebirds and cavity nesters over and above their annual dues. Such support is essential in maintaining a stable dues structure. We thank the individuals, organizations, and businesses for their generosity.

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

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

Tree Branch Bluebird Box Testers

During the 1994 breeding season NABS members within the ranges of all three species of bluebirds are testing the Tree Branch Bluebird Box (*Sialia* 16(1):13-19).

Please tabulate data carefully and return results on or before 1 September 1994, if possible. Send your results to Frank Zuern, 1040 Maricopa Drive, Oshkosh, WI 54904 with a copy to NABS and another to your regional or state coordinator. Results will be published in *Sialia*.

The data will help to determine whether this horizontal design is a safe box, attractive to bluebirds which fledge all species successfully.

Your help and cooperation is most appreciated.

—Frank A. Zuern

If You Build It, They Will Come

James D. Cox

Less than two years ago I saw an article in the local newspaper about bluebirds. I was interested. Dick Purvis, who wrote the article, lived in my area. With the aid of the telephone directory, we got together forming a partnership to expand the borders of the bluebird kingdom.

Dick was well into this business with active trails in parks, cemeteries, and on golf courses. He helped me get started with my own trail.

In early March, a representative from the park where we now have 20 boxes, called reporting a road-killed male bluebird and suggested that taxidermy might be in order. With written permission from the U.S. Department of the Interior, the specimen is being mounted. The bird will be placed on top of a typical bluebird box and displayed at the Interpretive Center in Irvine Regional Park. We have written an explanatory statement to be placed under the mounted bird as follows:

THE WESTERN BLUEBIRD

THIS IS A TRUE NATIVE TO AMERICA. THE WESTERN BLUEBIRD THRIVED WITH THE FAMILY FARM ATMOSPHERE DURING THE 18TH AND 19TH CENTURIES. NESTING CAVITIES WERE PLENTIFUL IN THE ORCHARD TREES, AND IN THE FARM BUILDINGS. BUT, SINCE MANY FARMERS HAVE MOVED TO THE CITY, THE BIRDS NOW HAVE FEW PLACES TO NEST.

THE NORTH AMERICAN BLUEBIRD SOCIETY (NABS) AND THE AUDUBON SOCIETY HAVE BOTH ENCOURAGED ITS MEMBERS TO PUT UP DOZENS OF THESE BOXES ALONG THE BORDERS OF TIMBER LANDS, AND ADJACENT TO COUNTRY ROADS. "BLUEBIRD TRAILS" ARE BEING STARTED EVEN IN OUR OWN ORANGE COUNTY. THE BLUEBIRDS HAVE TAKEN TO THEM, AND NOW AGAIN THEIR NUMBERS

ARE GROWING. THERE IS A 20 BOX BLUEBIRD TRAIL HERE IN IRVINE PARK. SEE IF YOU CAN LOCATE ONE OF THE BOXES, AND ENJOY THE BEAUTY OF THESE GENTLE CREATURES. THEIR NESTING SEASON IS MARCH THROUGH JULY.

To get the cooperation of park officials is easy if you will spend a little time explaining what you want to do. We ask them to watch the Audubon video "Bluebirds Up Close." If they do, then, with a little reassurance that we are responsible individuals in caring for the park, they will even help us, as the example above indicates.

In climates like that of southern California where there is no rain from April to November, we must depend upon imported water to form the proper habitat. Bluebirds are still rather scarce here, and the challenge to build up their numbers is great. We are using different methods in each park. In many areas there are simply no bluebirds. We continue to solicit greater local interest and membership in NABS to help our cause. ■

17531 Leafwood Lane
Tustin, CA 92680

NABS SLIDE SHOW

The NABS slide show is available for rental at \$10.00 or purchase at \$65.00. The show consists of 141 collated, cardboard-framed 35 mm slides and a printed script (no slide tray). If a cassette narration is desired, add \$5.00 to the purchase price.

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

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:

I really enjoyed the article in *Sialia* about the Tree Branch Bluebird Box! I've already sent for info about receiving one. I love experimenting. I have a gorgeous picture of four bluebirds bathing at the same time in a clay pot bottom, with a bright yellow bird patiently sitting and waiting its turn.

Also, the bluebirds around here prefer to sit on red lawn furniture. They choose my red chairs, tables, etc., over white, wood, etc.

Ruth A. Vickers
14704 Central Ave.
Chester, VA 23831

Dear Editor:

I don't know who helped me at your office in my hour of need (about six calls in the middle of the snowstorm week) but my bluebird poster arrived in time for me to do my program and they loved it! Thanks for all your help.

A few years back I submitted an article to you about how a neighbor popped a robin's egg into my bluebird house and we raised both the baby robin and bluebird babies out of that house (*Sialia* 13(2):76). An addition to that story, which is kind of fun, came via a friend of my mother-in-law's whom she has not seen for years and who resides in South Carolina. Somehow or other my bluebird story was picked up from your publication and was in a paper the friend saw. She happened to recognize my name and sent

the article from the South Carolina newspaper to my mother-in-law (who now resides in Florida). We knew it was a small world, but I am constantly amazed how people just ADORE those bluebirds.

Kay E.B. MacNeil
689 Golf Club Lane
Frankfort, IL 60423

Dear Editor:

I wish to share with readers an interesting observation I made on 12 February 1994. I was making some minor repairs on our park's bluebird trail. Three of six boxes I looked in had a Downy Woodpecker taking shelter in them. Judging from the woodpecker feathers in the boxes, the woodpeckers have turned our bluebird boxes into their regular winter homes.

Mark H. Mohr
2355 Ada Road
Lima, OH 45801

Dear Editor:

May we respond to the letter from Ike Franklin, Oklahoma City (16(1):36-37) regarding golf course habitat for bluebird boxes?

With 165 boxes on five golf courses, the members of the Hot Springs Village Audubon Society have monitored these boxes for many years. Since 1986 we have fledged 4603 bluebirds from 6686 eggs, an undesirable aver-

age of 69%. Our problems are predators, raccoons, snakes, and domestic cats, rather than any golf course maintenance.

In all of this extensive monitoring, we can recall fewer than 10 events where dead young or adults were suspected of poisoned food after exhausting all other possibilities for their deaths. We also suspected herbicides, rather than pesticides.

Our Audubon Society has sponsored a superintendent on one golf course, in membership in the New York State Audubon Society program, "Audubon Cooperative Sanctuary Program." Among the requirements are the ongoing program of wildlife food and cover enhancement. He has just recently been recognized by the USGA for his participation in this program. He has been able to adjust the application of herbicides and pesticides so as to have the least possible effect on the bluebird breeding season.

Wayne E. Tice
P.O. Box 8282
Hot Springs Village, AR 71909

Dear Editor:

Sialia has already reported the participation of at least one golf club in the Audubon Cooperative Sanctuary Program for Golf Courses. I am pleased to report that my local club has also joined. Birders should urge their local golf clubs to join the program. Coordination is handled through the United States Golf Association (USGA) and the Audubon Society of New York State, Inc. Allegedly, every golf club in the country has been contacted and given information about the program....There is a \$100.00 fee required with the application and annually thereafter.

It should be noted that there is a degree of distrust within the National Audubon Society over the name of this program for the following reasons: 1. National Audubon Society has no connection with Audubon Society of the State of New York; 2. NAS believes it is a money-making scheme on the part of the promoter; 3. the program

does not certify as safe any golf course or other environment, with or without a fee; 4. NAS foresees confusion in the mind of the public through an unauthorized use of the name "Audubon" as in this program.

Even given such background information, it would seem that encouraging the many golf courses in the country (and those yet to be developed) to recognize their alteration of the natural habitat and to take steps to restore, enhance, and protect their environment can only be in the best interests of the conditions birders want to perpetuate.

Donald E. Yoder
2021 Ptarmigan Dr. #1
Walnut Creek, CA 94595

Dear Editor:

As I look out my kitchen window, I see 18 beautiful bluebirds. Some are sitting on our cast-off Christmas tree lying in the snow, and others are standing in the snow looking for their dinner.

I have been feeding the bluebirds for six years—all year long. They know me and my sing-song call for them. When I call "Where are the bluebirds?" they all come flying to me for food. They let me get fairly close to them, within six to eight feet.

The bluebirds love currants, mealworms, dogwood berries (which I freeze in the fall), and a peanut mixture that I found in *Habichat* (Vol. 2, no. 1) called "marvel meal recipe." The cardinals, Downy and Red-bellied woodpeckers, chickadees, titmice, juncos, and Carolina Wrens also love the peanut mixture.

During the cold and snowy days I have currants, dogwood berries, cranberries, and the peanut mixture out all day so the bluebirds can eat whenever they want. I feed them mealworms three times a day: 7:30 a.m., 11:30 a.m. and 4:00 p.m. Most of the time, especially at 7:30 a.m. and 4:00 p.m., the bluebirds are all lined up on the peak of my house waiting for their mealworms. You see they can tell time!

It was six years ago, by pure accident, that I realized a pair of bluebirds

(Continued on page 119)

Bluebird Tales

Mary D. Janetatos

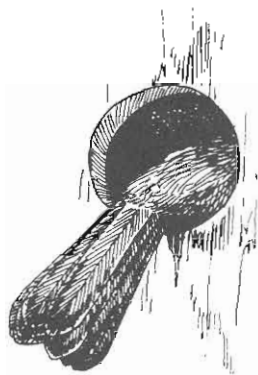
Reports of bluebirds hereabouts have been far too secondhand early this spring. The "backyard blues" usually appear in my field of vision a day before the backyard robins do. My trusted friends **Voula** and **Tommy** (hairdressers) and **Sarah Funkhouser** (NABS' administrative assistant) have reported bluebird sightings. Sarah even told me of a male examining my Zeleny box in the backyard of NABS' headquarters (my home). After the fierce winter and late, wet spring, I hope there will be good nesting success this season. We need it!

Two good ones to ask about this season's bluebirds would be NABS board member **Marcy Hoepfner** of Metamora, IL, and **Marie Olinger**, of Galesburg, IL. Both women are seasoned members of the NABS Speakers' Bureau, and again ran a Spring Bluebird Workshop sponsored by the Shad Hills Arts and Culture Center, the Two River Arts Council, and the Illinois Arts Council.

Even though his name belies it, **Bob Young** of Gray Court, SC, just retired in "upstate South Carolina" and his goal is to put up 150 boxes this spring!

Monica Rappe reported from Dillon, SC, that she is SHARE (Students' Habitat and Resource Education) at Avalon Academy and the club "is very interested in bluebirds. We put up five boxes last year on our campus and kept up with the bluebird trail. This year we built and sold 50 boxes for a project, and once again have our boxes up."

Finally, **James H. Tuten**, of Blythewood, SC, identified the reason NABS heard from so many "bluebird hopefuls" in that state. "I read about the society in the South Carolina Electric Cooperatives' January 1994 issue of *Living in South Carolina*." The editor, Larry Cribb, had interviewed NABS representatives and the January issue showed Larry Zeleny's appealing



photograph "Little Brother and Little Sister" in full color on the cover. The article was titled "Build a Bluebird Box" and also quoted bluebird information from **John Cely**, wildlife biologist with the Nongame and Heritage Trust Section of the South Carolina Wildlife and Marine Resources Department. The article was a big boost for bluebird conservation and generated many requests for NABS' information.

A request from farther away was received from **Brian Lee Hendricks**, of French Camp, CA. Upon receiving NABS material, he wrote, "Thank you for sending two ways of making bluebird nesting boxes....I will pick the bigger one so a bigger family can fit." Brian's efforts will help the Western Bluebird, to be sure.

Patricia Nelson, of Tacoma, WA, wrote after the Mt. St. Helen's volcanic eruptions of the comeback being staged by Western Bluebirds: "At one of the lookout points, a startling view of tall, stripped gray trees, providing nest cavities for the myriad of Western Bluebirds that were so busy feeding their broods. Isn't that good news for bluebird lovers?"

NABS has heard from Mountain Bluebird benefactors. NABS board member **Hal Koontz**, of Billings, MT, sent an article clipped from *Sunset Magazine* which depicted **Howard Godecke**, of Minden, NV, mounting a nest box on a "prime Nevada site." It wasn't clear if the box was intended for Western or Mountain Bluebirds. Nevada has chosen the Mountain Bluebird as its

state bird, as has Idaho, the site of the Seventeenth Annual Meeting of NABS held 9-11 June in Boise. The meeting, hosted by the Golden Eagle Audubon Society, Inc. and the Nongame and Endangered Wildlife Program, Idaho Department of Fish and Game, will be reported on in a future issue of *Sialia*.

Elsie Nykyfork, of Vernon, British Columbia, wrote "I am in charge of 250 nest boxes here in the North Okonagan Valley." Again on the Mountain Bluebird front, **Arne Carlson**, of Camrose, Alberta, said, "With the help of your article in this issue of *Wild Bird*, March 1994, and the lady from Camrose here, I hope to create a bluebird trail of my own. I plan to set up the boxes in the Meeting Creek Valley which is halfway between Stettler and Camrose."

R.D. Williams, M.D., of Markleville, IN, enclosed his card with a letter requesting 200 copies of the NABS brochure. His card says, "Retired Doctor—Bluebird Expert and Lecturer." He added, "No charge for any lecture!" Dr. Williams also wrote, "I'm considering becoming a life time member since I'm devoting a major part of my life to bluebird conservation and promotion." And, shortly thereafter, he made good on that "threat"—becoming a NABS Life Member!

Mr. & Mrs. Lurton E. Gesell of Connersville, IN, wrote, "We are happy to be chosen to place nesting boxes for bluebirds on PSI, that's Public Service of Indiana Electric Co., for environmental reasons. Also are contacted to give the bluebird story to the local Rotary Club during the winter months. We will give them an interesting story and they will appreciate it."

Grant and Enid Riggle, of Harrisonburg, VA, (formerly of Montgomery County, MD) are NABS charter members who continue their bluebirding efforts on the grounds of their retirement community. Besides giving bluebird talks, Grant enjoys monitoring his Peterson-style nest boxes which he reports have "good success." Grant enclosed a newspaper clipping from the *Daily News Record*, 9 March 1994.

Remedial reading teacher **Robin**, who teaches 45 first through

eight graders at Circleville School, has been awarded a West Virginia Education Fund minigrant of \$283.00 for a classroom project entitled "Reading for the Birds." Ms. Kile is using the money to buy bird books, building materials for bird boxes, and binoculars to use on a field trip. "Some of the children lack reading motivation. They enjoyed bird watching so I've turned that interest into reading projects." Ms. Kile truly personifies the gifted teacher, in my opinion. And now she might be interested in the NABS Educator's Packet (see enclosed Picture Catalog).

One of the most moving letters NABS has received recently came from a rather new bluebirder, **Mrs. Kris Foster**, of Toledo, OH. She volunteered to monitor 10 boxes in local parks but no bluebirds came to those boxes. She began to wonder if bluebirds "really did exist." On a camping trip in July in southern Ohio, a park ranger told her where to find some occupied boxes. She saw a nest, eggs, nestlings, and a pair of adults...."from that moment on I have been in love with those beautiful little birds. It absolutely made my year!"

And we hope that *your* bluebirds will make *your* year as we all bask in the welcome summer sunshine! ■

(LETTER—Continued from page 117)

were nesting in a wood-crete house right in my backyard. Since then I find myself observing all kinds of wildlife and have had such pleasure dedicating myself to the survival of the bluebirds in my area.

Rosemary Z. Rittler
12707 Sweet Water La.
Long Green, MD 21092

Getting to Know...Bluebirds!

See the enclosed picture catalogue for information concerning the 36 page educator's packet produced by the NABS Education Committee. Designed to be used in grades four through six, the material can be adjusted for use with younger or older students.

Heartlifted

Oh, I hear you! Yes, I see you
now, as you call!
Perched high on a treetop,
your shape looks so small.

Oh, how you, bird so tiny,
can lift my heart so
That it soars with you upward,
wherever you go!

And this summer, you'll brighten
the hearts of all here
With the family you'll raise,
and the mate you'll hold dear.

You are known as the bluebird
of true happiness,
And of all of God's birds,
I do love you the best.

—Donna Lee Houle

(BOOSTERS—Continued from inside back cover)

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(Continued on page 120)

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**

