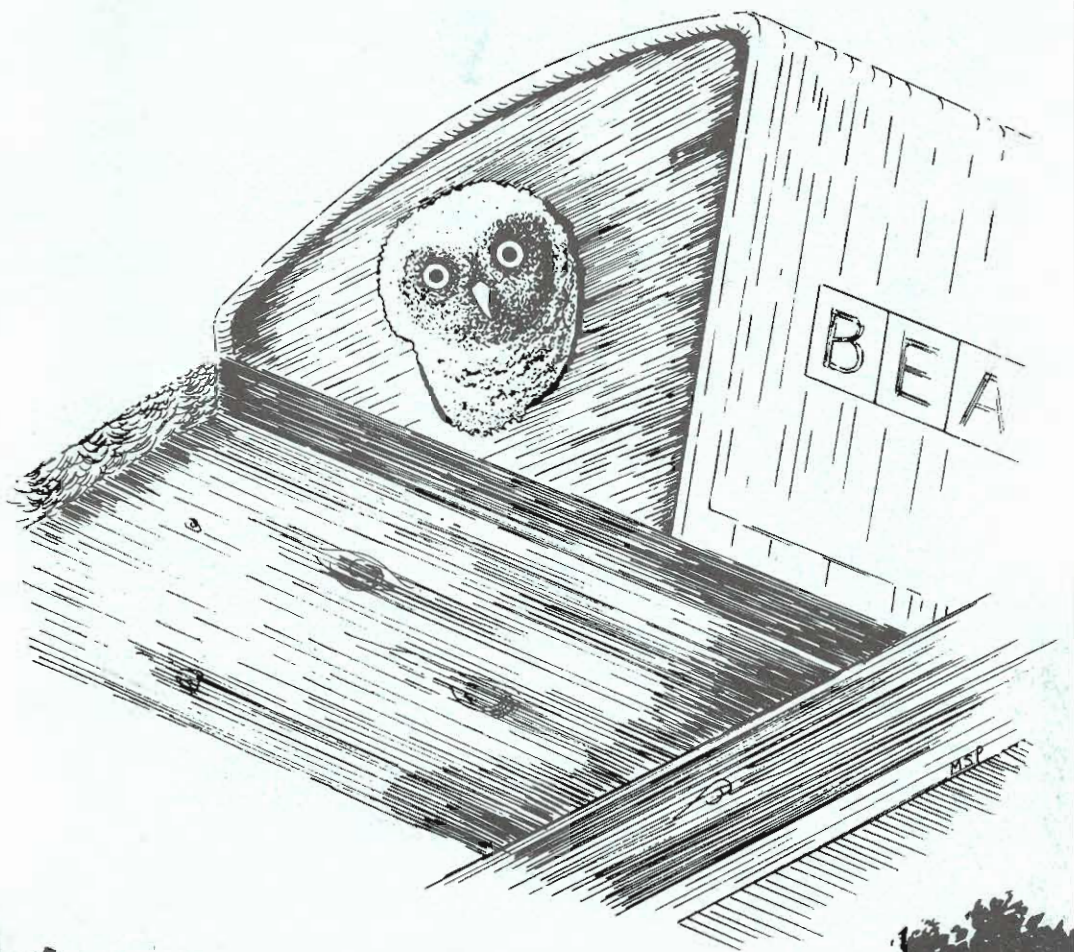


Sialia

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Spring 1989
Pages 41-80
Index

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

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

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Sialia

The Quarterly Journal
About Bluebirds

Volume 11, Number 2
Spring 1989
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EDITOR
Joanne K. Solem
**CONTRIBUTING
EDITOR**
Lawrence Zeleny
ART EDITOR
M. Suzanne Probst

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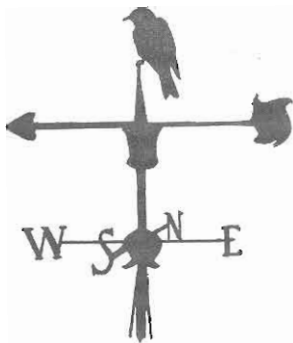
COVER

An Eastern Screech-Owl by Art Editor M. Suzanne Probst is one of the many cavity nesters included in the 1988 report beginning on page 65.

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 Graeoloch Road, Laurel, Maryland 20707.

Presidential Points

Sadie Dorber



In the last issue of *Sialia*, I related my experience of supplementing the diet of nestlings still in a box. One of the nestlings was so starved that it was necessary to take it to a wildlife rehabilitator. In this issue I'll share with you the time I spent getting the little bird prepared for release.

On 21 August, Barb called to ask if I could take the bluebird and get him ready for release. She was going on vacation and another rehabilitator was coming in to care for her assortment of birds and animals. I assured her I'd be happy to try, so the next morning she delivered the bluebird. I immediately pointed out to Barb that "he" was a "she." For the moment the bluebird was placed outside on the picnic table in a large cage, while I prepared the workshop for her to fly free and strengthen her wings.

I again called Larry Zeleny and we discussed the care that she now required. Following are the daily notes I kept on the little bluebird:

August 22—After getting the room ready for her, I brought the cage inside, opened the door and left the room. The room was furnished with several branches in high places and when I returned an hour later, she was on the highest branch. That is just what I thought she's do. She didn't seem particularly afraid of me and quickly realized my whistle meant food. I never talked to her, but always whistled when I entered.

August 23—She appeared much calmer today and immediately came to me begging for food. She was eating very well from a dish, but as we see fledglings in the wild do, she still wanted to be fed by me. She sings all the time. I can hear her when I walk by the workshop door.

August 24—Most of my time is spent searching for crickets, grasshoppers or anything I can find that I think she will eat. I want her to become accustomed to the insects; the variety will give her a more balanced diet. Found a few small earthworms, which she killed quickly, but they certainly aren't a favorite food. Since she would take food from me, I could get the first worm down her, but no more. She reminded me of my own children when they were small. When they didn't want to eat what you offered, they would refuse to open their mouths—that's just how she reacts. I entered the room one time today to find every-

thing wet, as she'd used the water dish for bathing. Crickets are devoured immediately.

August 25—Caught a few cabbage moths and though she killed them she refused to eat them. I talked to Shirl Brunell, the author of *I Hear Bluebirds*. Shirl had hand-raised bluebirds and suggested from experience to keep her as wild as possible. I cooked currants and mixed them with cornmeal and peanut butter. She would eat this mixture from my hand, but not from the dish.

August 26—I learned that a fingernail to the head of an insect didn't kill it, but slowed it down a little. I wanted the insects to still be moving, so that she had to catch them on her own. Several Japanese beetles she quickly killed and ate. In the wild, I think she would probably eat some of the things that aren't too well-received now if she were very hungry. I placed her outside in the cage so she will become familiar with the lawn and the noisy Blue Jays.

August 28—She isn't at all happy being placed in the cage to go outside, but I feel it's necessary. I wonder how many crickets or grasshoppers she'd eat before stopping. She attacks either one with a vengeance, but I can't catch enough at one time to see how many it takes to stuff her. I refuse to feed her by hand and she's begging very little. She is flying, even hovering over the food dish, so she's ready to release soon.

August 29—Tropical storm Chris brought some much-needed rain and made the crickets easier to find.

August 30—Although the day started off with some showers, tomorrow is to be sunny so the time has come to let her go free.

August 31—She is ready and, for her sake, I can't hold her any longer. The migrating bluebirds will soon be passing through and she needs to be ready to join

(Continued on page 71)

A Transmitter Package for Eastern Bluebirds

David H. Allen and John R. Sweeney

Abstract

Transmitter packages with monofilament harnesses weighing 7 to 9 percent of body weight were placed on two captive (1M:1F) and 28 free-ranging (16M:12F) Eastern Bluebirds (*Sialia sialis*). Twenty-three birds were observed for at least 13 days. Twenty-four required little (less than two hours) or no time to become accustomed to the transmitter package whereas 6 exhibited some initial flight impairment that lasted up to 1 day. Bluebirds, and probably other similar birds, can be outfitted successfully with transmitter packages of this design. However, correct fitting of the harness is critical.

Radio-telemetry studies of small birds, such as the Eastern Bluebird (*Sialia sialis*), have been hampered by restricting transmitter package weight to near the generally accepted weight limit of less than 4 percent body weight. Use of 4 percent body weight as a maximum load for small birds restricts transmitter package size, and dictates the use of batteries with short life expectancies. Transmitter packages weighing 10-16 percent of the bird's body weight have been used successfully (Graber and Wunderle 1966, Nesbitt et al. 1978, Sloan and Carlson 1980). However, these studies have had limited sample sizes. Using aerodynamic calculations, Caccamise and Hedin (1985) suggested small birds can carry transmitter packages which represent a larger percentage of body weight than large birds. Their calculations indicate that a 30-gram bluebird can carry as much as 4.0 grams or 13.3 percent of its body weight, with less than 5 percent reduction in surplus power.

Three general methods have been used to attach transmitters to birds: leg bands or tail clips, adhesives, and harnesses. Leg bands (Melvin et al. 1983) and tail clips (Bray and Corner 1972) are more appropriate for larger birds. Adhesives have been used successfully for some species, such as Mourning Doves (*Zenaida macroura*) (Perry et al. 1981), Brown-headed Cowbirds (*Molothrus ater*) (Raim 1978) and

House Sparrows (*Passer domesticus*) (Bruggers et al. 1981), but have not been used successfully on cavity nesters (R.M. Lennartz, pers. commun; Nesbitt et al. 1978). Harnesses used on larger birds such as Ring-necked Pheasant (*Phasianus colchicus*) (Labisky and Mann 1962), Ruffed Grouse (*Bonasa umbellus*) (Brander 1968) and American Woodcock (*Scolopax minor*) (Godfrey 1970) provided a durable, well-balanced package but added substantially to the package weight. This paper describes and evaluates the use of a relatively heavy transmitter attached to Eastern Bluebirds by means of a light-weight harness.

Methods

Prior to field studies, three bluebirds (1M:2F) were captured and placed in an aviary. Two birds (1M:1F) were outfitted with dummy transmitters (2.35-2.50 grams), and the other bird was observed as a control. Transmitters were attached with harnesses made from 7.7-kilogram (17-lb) test monofilament fishing line. Two lines were embedded in the epoxy covering the transmitter, allowing the line to extend from each corner (Fig. 1). This can be done either by the manufacturer or can be added later, using an acrylic resin.

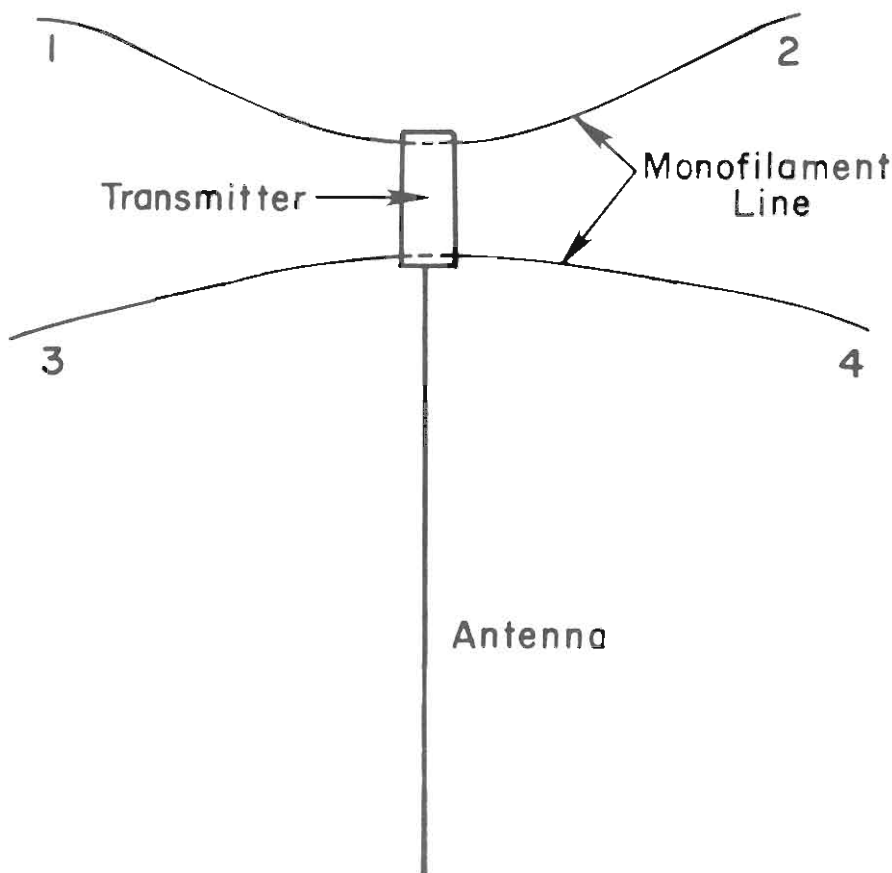
Two people were needed to harness a bird. One held the bird and transmitter in position while the other

tied, glued and clipped the lines. Lines one and two were tied snugly together to form a collar around the bird's neck, and lines three and four were tied around the bird's body just posterior to the wings (Fig 2). The four ends were then tied together at the breast such that the completed harness was tight enough that a pencil could not be easily slid between the harness and bird. This prevented the bird from slipping out of the harness and yet was loose enough to allow freedom of wing movement. To test if the harness was too tight, the bird was carefully held by the legs (tibiotarsi) close to the body and allowed to flap its wings. The harness was adjusted if any restriction in movement was noted. A small drop of Super

Glue® (Woodhill Permatek, Cleveland, Ohio) was then applied to each of the three knots (Fig. 2a, b, c), and the excess lines were clipped off. At least four 0.5-hour observation periods were taken each day to determine if the harness and transmitter weight were affecting the birds' behavior. After 30 days the dummy transmitters were removed, and the birds were examined for any possible deleterious effects.

Following the captive trials, 28 (16M:12F) free-ranging bluebirds using natural cavities on the Department of Energy's Savannah River Plant near Aiken, South Carolina, were outfitted with either LF1 Custom Electronics transmitters (2.28-2.50 grams) with 20-centimeter [7.9 in.] uncoated whip an-

Figure 1. Transmitter with monofilament harness lines attached.



tennas, or MPB-1038-LD Wildlife Materials transmitters (2.26-2.49 grams) with 15-centimeter [5.9 in.] uncoated whip antennas. The above harness was used on all birds; however, one improvement was made in 27 cases. Instead of tying the monofilament lines and adding drops of Super Glue®, Berkley® connector sleeves (Berkley and Co., Spirit Lake, Iowa) with inside diameters of 0.57 millimeters [0.02 in.] were cut in thirds and crimped on the line. One-third of a sleeve was used in place of each knot.

Each bird was located and observed hourly during the daylight period every day for the first 13 days, then hourly every third day thereafter until transmitter failure (expected transmitter life was 30 days). Notes were made on the condition of the bird and the transmitter, and on the bird's behavior toward the transmitter and harness. When possible, birds were recaptured after transmitter failure and examined. Two-tailed, Student's t-tests were used to test for significant dif-

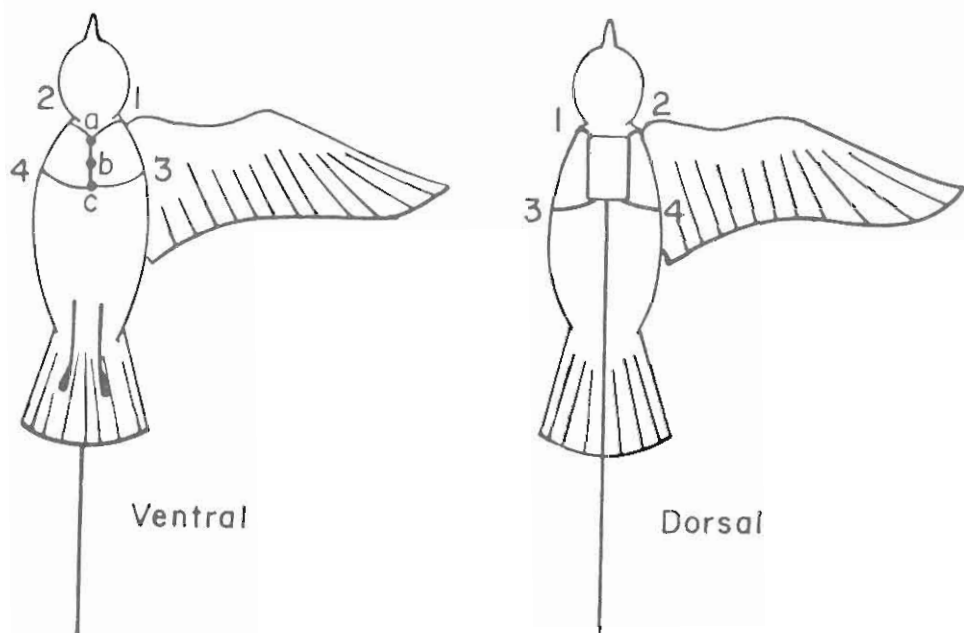
ferences ($\alpha = 0.05$) between mean body and transmitter weights.

Results and Discussion

Both captive birds outfitted with dummy radio transmitters exhibited behavior similar to that of the control bird except for some initial pecking and pulling on the harness. Transmitters were removed after 30 days and no deleterious effects of the transmitter or harness were observed. In fact, each bird gained over 3 grams during this time.

The transmitters used on 28 free-ranging bluebirds averaged 2.40 ± 0.0 grams ($\bar{x} \pm 1SE$) or 8.0 percent of a bird's weight. Battery life was approximately 30 days, and usable signal range was about 1 kilometer [0.62 mi]. Twenty-one birds were observed for at least 13 days and 16 were observed for 25 or more days. Regular contact with the remaining seven birds was lost within 5 days after release due to harness failure (3), transmitter failure (1),

Figure 2. Placement of transmitter package on bird.



death (1), or unknown causes (2). The three harness failures were preventable. In one instance a knot came loose, and in two instances the harness was simply fitted too loosely.

Twenty-two of 28 free-ranging birds required little (less than 2 hours) or no time to become accustomed to the transmitter package. Responses during this time were pecking or pulling at the harness, rather than changes in flight behavior. One of the remaining six birds died 3 days after release although it did not appear to exhibit abnormal behavior when released. The other five birds exhibited an initial, severe impairment to flight and/or a 1-day adjustment period suggesting that transmitter weights may have approached the maximum load for bluebirds. However, relative weights (percent body weight) of transmitter packages on birds exhibiting initial abnormal behavior were not significantly different from those on birds exhibiting normal behavior.

Responses of birds to the transmitter package also indicated that attachment of the device is critical. The three birds that exhibited severe impairment to flight when first released were immediately recaptured and examined. In these cases, the transmitter was positioned too high on the bird's back or the harness was too tight. Adjustments made in the harness appreciably increased the birds' flight capabilities. Upon release, two of these birds exhibited normal flight, whereas, one bird required a 1-day adjustment period.

Properly harnessed bluebirds continued flycatching, an important component of foraging tactics, and exhibited no apparent difficulty in obtaining food. Neither the transmitter nor the antenna appreciably hampered use of nesting cavities. All birds successfully monitored during the breeding season were regularly seen using cavities. In over 600 bird-days of observation recorded during the breeding and wintering seasons, only one instance of antenna entanglement was observed. This occurred when a female exiting a cavity got her antenna caught

in a crack at the base of the entrance. She struggled for about 3 seconds before pulling the antenna free. Antennas on three other birds were permanently bent suggesting that they had been entangled at one point.

Five birds were recaptured after wearing the transmitter package for 39 to 65 days. Mean weights of these birds prior to harnessing (29.8 ± 1.4 grams) and after recapture (30.5 ± 1.34 grams) did not differ significantly, indicating that the birds were not experiencing an energy deficit while outfitted with transmitters. Although three of these birds had worn or calloused skin around the transmitter or harness, all appeared to be in good condition.

Review of the above data indicates that bluebirds can be outfitted successfully with radio-transmitters that weigh 7 to 9 percent of their body weight. The harness described above provides a reliable means of attaching the transmitter; however, it is important to fit the harness correctly for each bird. Too tight a fit results in flight impairment whereas too loose a fit can result in the bird getting its bill caught under the collar portion of the harness, or the bird eventually slipping out of the harness. A weak link, as presented by Karl and Clout, (1987) could be incorporated but is probably more appropriate for noncavity nesters. The best transmitter position appears to be centered on the back, between the wings, with the antenna running along the back and out the tailfeathers. A small antenna exit angle is important for bluebirds since this will be less likely to hinder the bird while entering or exiting a cavity. A transmitter package of this design probably would be appropriate for other similar-sized birds. ■

Acknowledgments

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ogy at the University of Georgia and the U.S. Department of Energy.

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Speaker of the Quarter

Peter Tigh

Jerry Newman

This quarter we travel to the state of New York to find our speaker, PETER TIGH from Olean, New York.

Peter Tigh writes, "We've begun a comprehensive 'Bluebird Program' with many of our component school districts (27 in all). All 27 schools now have two bluebird trails on their property. In 1986 five schools constructed 10 houses each which were placed on one of our three properties as part of the trail. One site has 12 houses, one 30 and one 40. Each year an additional 50 houses are constructed by 5th grade students and placed somewhere in our system."

Peter adds that "Kids learn about the bluebird via the movie *Bluebirds, Bring Them Back*, the NABS slide pro-

gram, many readings and two field trips. The first field trip is for the selection of sites and planting of poles (in the fall). The second field trip is to put up the houses (in February or early March). Both field trips are led by naturalists who reinforce concepts such as habitat, food supply, behavior, and many concepts in the New York School's Elementary Science Syllabus."

The future of the bluebird lies in the hands of today's youth and it is incumbent upon the adults to educate and involve our youth in the bluebird recovery program. This "hands on" project of Peter and the Olean School District goes right to the heart of bluebird conservation. ■

QUESTION CORNER

Lawrence Zeleny



I have a number of questions.

- Vandalism of nesting boxes seems to be a problem. Would warnings on stickers or metal plates attached to the boxes help?

- Getting trapped House Sparrows out of a nesting box seems to be a problem. Wouldn't holding a clear plastic bag over the hole as the trap is opened work? The bird would fly to the light and into the bag.

- House Sparrows are a problem which will probably always be with us, but shouldn't there be publicity to help the public realize they should not feed them bread or encourage them to nest in their bird boxes?

- Starlings present a different problem. They compete for natural nest cavities and feed on some of the same fruit the bluebirds use. Their large roosts are also a winter problem in several ways. I wonder if NABS could find it feasible to encourage large scale reduction of the starling population through a variety of methods.

William Phillips
Ellicott City, Maryland

- Various types of notices and warnings have been attached to bluebird nesting boxes in efforts to reduce vandalism. These tend to be helpful but are rarely completely effective. Best results are obtained by placing the boxes in inconspicuous locations or on private property.

- House Sparrows may be removed from nesting boxes by using clear plastic bags as you suggest. Bags made of netting or small cages made of hardware cloth may also be used. In the case of top-opening boxes, the easiest and quickest way is to open the top

carefully (just enough to admit a hand) and then to remove the bird by hand.

- The House Sparrow population is believed to have been reduced somewhat by the great decline in the use of horses. These birds, however, are very adaptable and are able to maintain good populations without food supplied by man. They can be controlled locally by vigorous and continuous trapping operations and by destroying their nests repeatedly. Such operations, unfortunately, rarely meet with public approval.

- You are quite right that starlings are one of the major enemies of our bluebirds as well as of certain other cavity nesting birds, particularly several of our woodpeckers and the Great Crested Flycatcher. A continent-wide effort to eradicate starlings is beyond the scope of NABS activities at present at least, although we believe that most of our members would probably favor such a campaign. ■

Trail Directory Additions

If you have monitored a trail of 50 or more boxes for three years or more and would be willing to offer advice, tours, or a site for research give us your name, telephone, address, time tours would be possible, and the county, city and state where your trail is located.

Mail above information to Bluebird Trail Directory, NABS, Box 6295, Silver Spring, MD 20906-0295.

Bluebird Trail Data: Establishing Histories For Posterity

Richard M. Tuttle

Since my first year on the bluebird trail 21 seasons ago, I have recorded every nesting of Eastern Bluebirds (*Sialia sialis*), House Wrens (*Troglodytes aedon*), Carolina Chickadees (*Parus carolinensis*), Tufted Titmice (*Parus bicolor*), and Tree Swallows (*Tachycineta bicolor*) during weekly visits to my nest boxes. At the end of each season, I review my records to make management decisions, write annual reports, analyze trends, and establish local natural histories. My records have been the backbone and foundation of all articles and reports that I have published in order to promote bluebird conservation. Undergraduates, graduate students and professional ornithologists from three universities have used my records with their own data to complete research projects. Trail record keeping has been a very important part of my bluebirding experience since 1968.

I will describe my trail record keeping practices, keeping in mind that many trail monitors have their own established methods. I process my data through five steps before it is stored for future use. First, while on the trail, I write my nest box observations in an abbreviated form on a trail data pad which slides easily into my pants pocket. Bulky notebooks and clipboards have no place on the bluebird trail. The trail data pad is made of 10 or more forms stacked and stapled to a piece of cereal box cardboard. I tape the staple ends to prevent snagging. Data pads are 3-1/2 inches [8.89 cm] wide by any length depending on the number of box numbers on each sheet. All of my trail boxes have consecutive numbers and each pad sheet has enough spaces to allow data from an entire trail. Since I abbreviate my observations, when needed, I write detailed notes on the back of the pad. Once the information is transcribed from the note pad to my data book at home, the used page is torn loose at the bottom, folded back, and taped to expose a new form for the next trail visit. Once a pad is entirely used, I give it to a relative to insure the safety of one set of data in case of fire. (Figure 1 is a reduced copy of a trail data pad form.)

Next, I transfer field observations from the trail data pad to two different forms in my yearly data book: a trail data calendar (Figure 2) for every 25 boxes and a box data

calendar for each box (Figure 3). The trail data calendar has 25 rows, one for each box, with a calendar line across the top. Each month, from March through mid-September, is divided into 15 day increments. After each trail visit has been recorded, data lines for each species are accented with colored markers. Bluebird data lines are yellow (It's easy to read notes through yellow HI-LITER.), Tree Swallow lines are green, wrens are red, sparrows are orange, etc. After the data lines are colored in, the events of 25 nest boxes are visible for interpretation. The trail data calendar shows me what is happening on the trail.

During the third step, I transcribe data to box data calendars, one for each box. Each day of the year is represented by a small square. Each row is a month and each column represents a day of a month (Figure 3). Abbreviations describing observations are written into the appropriate day square on the box data calendar. When eggs or young are observed, I draw a horizontal line bisecting the day square and write the number of eggs above the line; numbers of young are written below the line. I draw a circle around the number of anything which has died or has been killed, i.e., infertile eggs, wasps, sparrow eggs or adults, etc. I draw a square around the known number of fledglings at the end of any nesting cycle.

As an example, Figure 3 records the observations for box #34. The box data calendar reveals that the pipe mount was greased and the box cleaned on 3/13, a grass nest was started by 4/4, the box contained a bluebird nest on 4/11, 3 eggs on 4/19, 5 eggs on 4/26 and 5/2, 5 nestlings, 3 days old were counted on 5/8, 5 nestlings were banded and blowflies were removed on 5/14, 5 nestlings were "OK" on 5/21, and 5 nestlings fledged on, or near, 5/24 as ascertained after the old bluebird nest was removed on 5/26. A suspected Tree Swallow nest had been started on top of the used bluebird nest on 5/26 but was removed to rid the box of parasites. A Tree Swallow nest with no feathers occupied the box on 6/2 and the remaining data were similar to the bluebird data recorded earlier. The dot on 6/23 tells me that I identified or banded the brooding female on that date. On July 20, I found an unhatched Tree Swallow egg

Figure 1. The trail data pad records the observations of one trail visit.

DATE 5/7/88		OECC	
1	③♀ SPNR	41	81
2	CR	42	82
3	TSN-NF	43	83
4	5 TS eggs	44	84
5	2 TS eggs	45	85
6	TSN-F	46	86
7	3 TS eggs	47	87
8	2 TS eggs	48	88
9	1 TS egg	49	89
10	2 TS eggs	50	90
11	3 TS eggs	51	91
12	CR	52	92
13	4 y BB-2d	53	93
14	TSN-F	54	94
15	TSN-F	55	95
16	gross	56	96
17	3+ eggs		111
18	T	75	115
19		76	116
		77	117
		78	118
		79	119
		80	120

as I cleaned the old nest from the box. I checked the box four more times before September. All nesting cycles were high-lighted with the appropriate color.

Before I describe the next step, I want to mention that each trail section in my data book has a map. Trail maps are optional but they are valuable when I analyze trail events. Aerial maps 30 inches square with a "one inch equals 660 feet" scale are available from the map room of most county courthouses in Ohio. Sections of these maps can be traced, high-lighted, photocopied, reduced or enlarged, to produce highly accurate trail maps. Contact your local government agencies for possible maps of your trail locations.

The next step is calculating and re-

cording the initial egg date (IED) on the individual data calendar. All trail species lay one egg per day. In the sample data in Figure 3, the IED for the bluebird is easily calculated as 4/17 since three of five eggs were laid by 4/19. By counting backwards from 4/19, the undisputable IED of 4/17 is ascertained. The Tree Swallow IED could be either 6/3 or 4 demonstrating that no datum is 100% accurate unless you monitor your boxes daily. Extrapolation, or the practice of counting forward or backward using known values, is used to predict the hatching and fledging dates and the IED. Table 1 lists values that I use for extrapolation in Ohio. Pairs of values represent most common ranges whereas lone numbers represent most common values. Age indicators

Figure 2. The trail data calendar records the histories of 25 nest boxes.

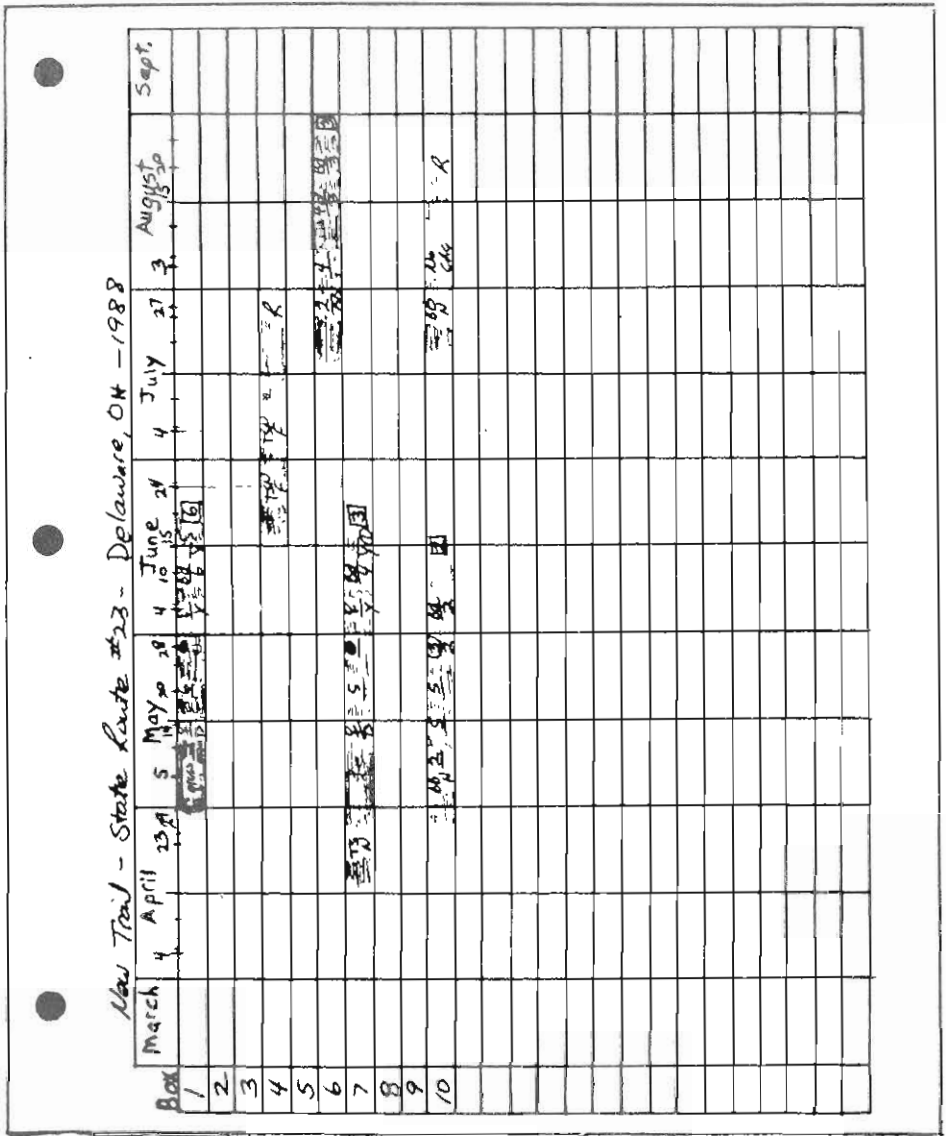


Table 1. Extrapolation values are used to calculate and predict nesting cycle events.

	BB	TS	HW	CHICK- ADEES	TT
INCUBATION PERIOD	12-14 13	13-16 13	12-15 13	12-13 13	13-14 13
NESTLING PERIOD	16-20 18	16-24 20	15	16	16

for nestlings can also help the process of extrapolation. For example, bluebird primary feathers sprout on day 4 and tail feathers emerge on day 8. Tree Swallow eyes begin to open on day 7, and primaries emerge on day 8. The growth rate of Tree Swallow nestlings can be rapid, 16 days, or slow, 24 days, depending on the availability

of flying insects.

Once the IED has been calculated to the best of your observations, you are ready for the fifth step, filling out the data summary sheet (Figure 4). The data summary sheet has a row for each nesting attempt and columns to record the box number, the IED, the premature termination date (PTD)

Figure 3. The box data calendar records the history of one nest box.

34

ERECTED 3/14/82 LOCATION Delaware State Park

TYPE OF MOUNT Pipe, COLOR Lex. Gr., DIS. TO ENTRANCE 60"

HABITAT Fallow field FACING East YEAR 1982

YELLOW = BLUEBIRDS GREEN = TREE SWALLOW
 ORANGE = SPARRONS BLUE = CHICKADEE/ TITMOUSE
 RED = WRENS PINK = WASP

BOX NO. 34, TYPE 5x5, LANDOWNER State of Ohio

↑ N

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
JAN.																															
FEB.																															
MARCH																															
APRIL																															
MAY																															
JUNE																															
JULY																															
AUG.																															
SEPT.																															
OCT.																															
NOV.																															
DEC.																															

which is the date that the nest attempt fails, and a column each for the number of eggs laid, hatched, fledged, and additional comments. I originally prepared this form in 1980 to simplify my data for computer analysis. I discovered that once my data was simplified, I didn't need a computer for most tabulations.

To simplify future calculations, I change all dates to numbers, starting with March first as 1. Figure 5 is part of a data calendar with the day numbers written in starting with March 1. I call these companion numbers. Companion numbers are substituted for dates on the summary data sheets. The most important number to convert is the IED. The bluebird in Figure 3 had an IED of April 17, or 48. The Tree Swallow's IED was June 3, or 95. Once dates are

changed to numbers, data can be manipulated more easily. For example, substituting companion numbers for actual dates simplifies the task of sorting IED's into chronological groups, such as sets of five days, when graphing egg laying histories for interpretation. I make sure the IED boxes on the summary data forms are large enough to accommodate actual dates and their companion numbers.

The premature termination date (PTD) is as important as the IED. If the entire clutch fails to hatch, no date is needed. FTH (failed to hatch) or FTF (failed to fledge) can be substituted for a PTD number. I write the actual reasons for failures in the "comments" column; one word will do in many cases, i.e., sparrow, raccoon, vandalism, unknown, etc. I use separate data

Figure 4. The data summary sheet is used to record nesting cycle information in its simplest form.

SPECIES		YEAR		EXTRAPOLATION VALUES		
<i>E. Bluebird</i>		1979		13, 18		
LOCATION		PAGE				
Delaware State Park						
NESTING BOX NUMBER	INITIAL EGG DATE	PREMATURE TERMINATION DATE	CLUTCH SIZE	NUMBER HATCHED	NUMBER FLEDGED	COMMENTS OR CAUSES
12	June 25 115		4	3	3	
16	May 26 77		5	3	3	
17	May 3 64	May 12 73	4	0	0	House Wren
27	April 27 58		1	0	0	Unknown
28	April 16 47		5	5	5	
28	June 8 100		5	5	5	
33	April 20 51	FTH	5	0	0	Unknown
34	June 27 119	FTH	5	0		Unknown
40	May 23		5		4	
41			5			
TOTAL			71	44	44	Total 8 15-10

summary sheets for each trail and each species.

In conclusion, bluebird trail monitors are fortunate to work with five or more wild-life species that tolerate weekly or daily visits. Predator-proof mounts will insure the safety of box residents and monitors need not hesitate to visit the boxes more frequently to record better data. (My boxes are mounted on greased pipes.) Of all wildlife species in North America, the life cycles of

our trail birds are some of the easiest to record. Our recorded observations make trail birds active barometers of the environment. I have used production standards established for the last two decades to reveal the deadly effects of herbicides and the effects of natural events, such as droughts, upon my trail birds. Without records, standards would not have been available for comparison. Wise corrections of management practices can be made only after trail events are

Figure 5. Companion numbers are substituted for dates on the data summary sheets to simplify sorting of information.

	1	2	3	4	5	6	7	8	9	10	11	12	22	23	24	25	26	27	28	29	30	31
JAN.																						
FEB.																						
MARCH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	25	26	27	28	29	30	31
APRIL	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	57	58	59	60	61	
MAY	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	86	87	88	89	90	91
JUNE	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	116	118	119	120	121	122	
JULY	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	146	148	149	150	151	152	
AUG.	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	177	179	180	181	182	183	
SEPT.	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200					
OCT.																						
NOV.																						
DEC.																						

recorded and analyzed.

Records need not be analyzed immediately to be valuable. As you plan for the next season, memories will be rekindled as you examine your data book during the winter months. In addition to your yearly use of records, your data will be used decades or centuries from now if you publish your observations and conclusions, or if you will

your records to the right individual or institution. Hopefully, there will be bluebirds and bluebirders benefiting each other long after our trails and records are passed to the succeeding generations; our data may be their best guide for doing what is best for tomorrow's feathered friends. ■

61 South Washington St.
Delaware, OH 43015

NABS RESEARCH GRANT AWARDS

The North American Bluebird Society is proud to announce the presentation of the sixth annual research grant awards. The 1989 recipients are as follows:

BLUEBIRD GRANTS

Wayne H. Davis—*The Betty H. McIlwain Award*

Topic: A Better Bluebird Box

Janice Simpkin

Topic: A Genetic and Behavioral Study of Possible Mixed Reproductive Strategies in Mountain Bluebirds (*Sialia currucoides*)

Susan Meek

Topic: Parental Care and Nest Defense in Eastern Bluebirds

GENERAL GRANTS

Daniel E. Varland

Topic: Behavior and Ecology of Post-Fledging American Kestrels

Victoria J. Byre—*The James L. Williams Memorial Award*

Topic: Aspects of the Breeding Biology and Productivity of Eastern Bluebirds in Three Types of Habitat in DuPage County, Illinois

Kevin L. Berner

Topic: Designing Bluebird Nest Boxes to Exclude Raccoons

STUDENT GRANTS

Bridget J. Stutchbury

Topic: A Study of the Behavioral Ecology and Breeding Biology of a Natural Population of Purple Martins.

Leo Beukeboom & Hans Breeuwer—*The Upstate New York Bluebird Society Award*

Topic: Distribution and Abundance of Blowflies (*Protocalliphora*) and Their Parasitoid Wasps (*Nasonia*)

Lori A. Willimont

Topic: Sexual Dimorphism and Foraging Ecology of the West Indian Red-bellied Woodpecker, an Island Species, and the Red-bellied Woodpecker, a Continental Species

BERMUDA GRANT

Kenneth L. Crowell & Marnie R. Crowell

Topic: Population Density and Status of the Bermuda Bluebird

The North American Bluebird Society annually provides research grants-in-aid for ornithological research directed toward cavity nesting species of North America with an emphasis on the genus *Sialia*. Information and application materials are available from Cathy Blohowiak, Research Committee Chairman, 106 S. Pebble Beach Ct., Slidell, LA 704601

Literature Review

T. David Pitts

Fleming, W.J., and D.R. Petit. 1986. **Modified milk carton nest box for studies of Prothonotary Warblers.** *J. Field Ornithol.* 57:313-315. Petit, L.J., W.J. Fleming, K.E. Petit, and D.R. Petit. 1987. **Nest box use by Prothonotary Warblers (*Protonotaria citrea*) in riverine habitat.** *Wilson Bulletin* 99: 485-488.—Thousands of nest boxes are available each year for nesting birds: Most of these boxes are constructed of wood, primarily because of practical reasons such as cost, availability of materials, and ease of construction. It has been generally assumed that birds prefer wooden boxes. The study reported here was conducted along the Tennessee River in Benton and Humphreys counties, Tennessee. The authors provided 301 nest boxes and observed 117 nests of Prothonotary Warblers. Prothonotary Warblers preferred nest boxes constructed of 1/2 gallon cardboard milk cartons over nest boxes constructed of PVC pipe or wood. Only 5% of the wooden nest boxes and 27% of the PVC tubes were used while 67% of the milk cartons had nests. Why such a drastic difference? The authors speculate that the smaller size of the milk cartons and their placement on small diameter trees may have influenced the warblers when nest sites were being selected. The first article describes the construction of milk carton nest boxes and the second article presents some of the nesting data.

Davis, W.H., W.C. McComb, and P.N. Allaire. 1986. **Nest box use by Starlings: does it inhibit bluebird production?** *Transactions Kentucky Academy of Science* 47:133-135.—Observations were made during three nesting seasons on the use of about 45 nest boxes on reclaimed surface mines in Kentucky. Entrance size was regulated so that either European Starlings or Eastern Bluebirds could enter during the first two years, but only bluebirds

could use the boxes during the last year. Starlings used about 50% of the boxes. Bluebirds fledged almost as many young in 1983 when starlings used 60% of the boxes as in 1985 when starlings were excluded from the boxes. Starlings produced only one brood per year in the boxes; bluebirds produced broods before and after starling use each year. Exclusion of starlings did not result in an increase in the success rate of bluebird nests. No bluebird nests were destroyed or taken over by starlings. The authors conclude that starlings had little impact on bluebird productivity on this study area, but at other locations starlings may interfere with nesting bluebirds.

Hill, James R., III. 1988. **The eastern House Finch nesting in Purple Martin houses and gourds.** *American Birds* 42: 36-38.—House Finches were introduced into the eastern United States in 1940; since then, the species has expanded its range and increased its population in an explosive fashion. The ecological effects of House Finches on native birds are not well understood. This article describes the use of a Purple Martin house by House Finches and reports on a survey of owners of Purple Martin houses or gourds. Observers in eight states reported that House Finches had used housing structures erected for Purple Martins. House Finches are adaptable and aggressive; like House Sparrows they will use a variety of nest sites, including cavities. If you observe House Finches using nest boxes or gourds designed for bluebirds, Purple Martins, or other cavity nesting birds, please report the date and circumstances to Mr. Hill at Purple Martin Conservation Association, Edinboro University of Pennsylvania, Edinboro, PA 16444. ■

Dr. Pitts welcomes reviews from members. Readers should submit material to Dr. T. David Pitts, The University of Tennessee at Martin, Martin, TN 38238-5014.

Winter Plant Foods of Eastern Bluebirds in Tennessee

T. David Pitts, Mike Conner, Steven Crews, Mary Crutcher, Julie Hobbs, Junior King, Jeff Martin, Troy Martin, Tim McCraw, John Rayfield, and Joey Wray

Eastern Bluebirds (*Sialia sialis*) that nest in Tennessee are nonmigratory. During the winter bluebirds form small flocks as the adults, which usually remain on or near their nest sites, are joined by young bluebirds. On warm winter days bluebirds can be seen on utility wires and other perches as the birds scan short vegetation and exposed soil for insects and other arthropods. Even on cold days some small animals, especially spiders, may be active on south-facing slopes exposed to the sun. However, when air and soil temperatures drop below zero degrees Celsius [32 °F] and no insects, spiders, or other small animals that could serve as prey are active, bluebirds must depend on plants for a food supply. Unlike many of the other small birds that overwinter in Tennessee, bluebirds cannot digest seeds. Only the fleshy part of small fruits and berries can be utilized by bluebirds. The fruits and berries are swallowed whole, and the seeds are either regurgitated or voided with the feces. Bluebirds will occasionally roost in nest boxes; however, cavities are normally used for roost sites only on extremely cold nights. Therefore, seeds that are present in the nest boxes used as roosts can serve as indicators of the types of food consumed by the birds before going to roost on cold days. The purposes of our study were to determine the primary winter plant foods of bluebirds in a variety of habitats in northwest Tennessee and to describe differences in diet between years.

Methods

Feces and regurgitated seeds were collected from nest boxes during four winters (1983-1984, 1984-1985, 1985-1986, and 1986-1987) in Weakley County, Tennessee, and during the winter of 1983-1984 in Obion County, Tennessee. At the end of each nesting season all debris was removed from each nest box; the boxes were inspected at irregular intervals during the winter. Table 1 indicates the number of boxes from which materials were collected and the number of samples taken each year. Samples ranged in size from only 1 seed to 1379 seeds; such a large range is due to variation in the number of bluebirds roosting in each box, the irregular pattern of box use, and the differences in intervals between collections. If feces and regurgitated seeds were found in nest boxes these materials were collected, dried at room temperatures for 2-3 weeks, and then

stored. Seeds were identified by comparison with a reference collection of fruits and berries from the study area. Since many of the fruits have more than one seed, we used the average number of seeds per fruit reported by Pitts (1979) to determine how many actual fruits were represented by the seeds that were collected. Appendix 1 includes the number of seeds per fruit and the scientific names of the plants.

While all of the nest boxes were located in suitable Eastern Bluebird habitat, three different types of habitat could be recognized in Weakley County. Some of the boxes were located on a farm where no cattle were present; the open fields of this farm were used for hay production. The hay was usually harvested only once per year, normally in late summer. A second type of habitat consisted of a

cattle farm where a small number of cattle was present; while the vegetation (mostly grasses) was shorter than on the farm without livestock, the vegetation was sufficiently tall in late summer to permit limited hay harvest. The third type of farm had the greatest density of livestock; the pasture was always heavily grazed (few blades of grass more than 10 cm [4 inches] long could be found) and bare areas of soil were exposed.

Results

A total of 12,913 fruits was identified.

Table 2 lists each of the species identified and its percentage of the total. In addition to identifying the types of fruits consumed, we considered differences in the frequencies of occurrence of various species between years and localities. Table 3 compares the most common foods reported by Pitts (1979) for Obion County in the 1970's with our samples from 1983-1984. Table 4 compares the fruits consumed on three Weakley County farms with different densities of livestock. Table 5 shows the fruits consumed on a lightly grazed Weakley County farm during four different winters.

Table 1. Number of nest boxes with roosting bluebirds and the number of samples of fecal material and regurgitated seeds collected in northwest Tennessee.

Year	No. of boxes used for roosts	No. of samples collected
1983-1984	12	26
1984-1985	8	21
1985-1986	6	8
1986-1987	7	7
		62

Table 2. Number and percent of fruits identified in material collected from Eastern Bluebird roosts in northwest Tennessee, 1983-1987.

Species	Number	Percent
Sumac	11,361	88.0
Flowering dogwood	315	2.4
Wild grape	314	2.4
Japanese honeysuckle	250	1.9
Hackberry	155	1.2
Wild rose	138	1.1
Possum haw	109	0.8
Pokeweed	96	0.7
Greenbrier	54	0.4
Climbing bittersweet	31	0.2
Unidentified	90	0.7
TOTAL	12,913	

Table 3. A comparison of winter plant foods of Eastern Bluebirds in Obion County, Tennessee in the 1970's (Pitts 1979) and in 1983-1984.

Species	Percent of Total	
	1976-1978 (N = 761)	1983-1984 (N = 2151)
Sumac	54	75
Japanese honeysuckle	37	3
Possum haw	5	<1
Wild grape	<1	12
Hackberry	<1	6
Pokewood	<1	2

Table 4. Fruits consumed by Eastern Bluebirds on Weakley County, Tennessee farms with different densities of livestock.

Species	Percent composition of diet on farm where density of livestock was:		
	Zero (N = 513)	Light (N = 7,094)	Heavy (N = 2,455)
Sumac	39	92	96
Japanese honeysuckle	31	<1	<1
Possum haw	15	<1	<1
Greenbrier	6	<1	<1
Wild rose	4	1	<1
Flowering dogwood	0	4	<1

Discussion

Our results consistently point to sumac fruits as the most frequently consumed plant food of Eastern Bluebirds during winter. We do not know if this is due to choice or if these fruits are simply most readily available. Northern Mockingbirds (*Mimus polyglottos*) actively defend possum haw bushes with fruits against other fruit eating birds such as bluebirds. We did not observe mockingbirds or any other species defending sumac bushes. We suspect sumac is heavily consumed primarily because it is most readily

available.

A comparison of our data from Obion County with those of Pitts (1979) (Table 3) shows increases in the percentages of sumac, wild grape, and hackberry consumed but decreases in Japanese honeysuckle and possum haw. Many species of plants vary in the amount of fruits produced per year; years of heavy fruit production may be followed by years of lower production. Our data may simply reflect these fluctuations. Another possible reason for the differences may be the loss of fence rows where honeysuckle commonly grows. Obion County, like many

other counties in Tennessee, is experiencing a decline in the number of farms, an increase in average farm size, a decline in cattle production, and an increase in average field size as farmers combine small farms and remove fence rows to allow more efficient use of large equipment in row crop production. Another possible reason for the differences between the two studies is the sample sizes. The much larger sample size in our study probably represents a larger number of birds using a wider area; the earlier study may have dealt with a small number of birds that happened to have had a good local supply of honeysuckle.

Our comparisons of farms with different amounts of livestock suggest that bluebirds consume a greater variety of foods, and rely less heavily on sumac, on areas without livestock. Cattle browse heavily on honeysuckle which could explain its absence in the diet of birds on farms with livestock. A striking difference in the farms was the absence of mockingbirds on the farms without livestock. The absence of mockingbirds may have allowed bluebirds to feed on fruits such as possum haw and wild rose that were controlled by mockingbirds on the other farms. However, any conclusions we draw on this point can only be tentative because of the disproportionate sample

sizes and the fact that we had only one farm of each type for comparison.

A comparison of foods consumed over four winters on the same farm (Table 5) shows consistently high use of sumac, with occasional use of dogwood, wild rose, honeysuckle, and pokeweed. We have no information on the effects of flocks of migratory birds such as American Robins (*Turdus migratorius*) and other thrushes on fruit availability in northwest Tennessee. The presence or absence of such flocks might explain, at least in part, the minor year-to-year variations we observed. Again, however, the most notable point was the consistently high use of sumac.

Are sumac fruits good bluebird food? Table 6 summarizes caloric values of some bluebird plant foods as determined by Burns and Viers (1973) and Pitts and Graves (unpublished). Of the fruits available to bluebirds, sumac provided, by far, the least energy per fruit. If we assume that a bluebird needs about 24,000 calories per day and has about 40% digestive efficiency (based on data for Cedar Waxwings (*Bombycilla cedrorum*) from Holthuijzen and Adkisson 1984), each bluebird would need about 1300 sumac fruits per day. If 10 hours of feeding

Table 5. Fruits consumed by Eastern Bluebirds on a lightly grazed cattle farm during four winters in Weakley County, Tennessee.

Species	Percent of total for winter			
	1983-84	1984-85	1985-86	1986-87
	(N = 2,839)(N = 2,987) (N = 796) (N = 1,066)			
Sumac	88	95	95	95
Flowering dogwood	9	0	0	4
Wild rose	1	1	5	<1
Wild grape	0	1	0	0
Japanese honeysuckle	1	<1	0	0
Pokeweed	1	0	0	0

Table 6. Caloric values of some fruits consumed by Eastern Bluebirds and the number of fruits required per day.

Species	Calories/pulp of 1 fruit	No. fruits required/day*
Possum haw	633	95
Flowering dogwood	375	160
Japanese honeysuckle	374	160
Bittersweet	146	411
Sumac	45	1,333

*Assuming a requirement of 24,000 calories per day and 40% efficiency of digestion.

Appendix 1. Common and scientific names of plants mentioned in the text and the number of seeds in one fruit of each.

Common Name	Scientific Name	No. seeds/fruit
Sumac	<i>Rhus</i> sp.	1
Flowering dogwood	<i>Cornus florida</i>	1
Wild grape	<i>Vitis</i> sp.	1
Japanese honeysuckle	<i>Lonicera japonica</i>	5
Hackberry	<i>Celtis occidentalis</i>	1
Wild rose	<i>Rosa</i> sp.	3
Possum haw (= deciduous holly)	<i>Ilex decidua</i>	5
Pokeweed (= pokeberry)	<i>Phytolacca americana</i>	9
Greenbrier	<i>Smilax</i> sp.	1
Climbing bittersweet	<i>Celastrus scandens</i>	4

time are available, a bluebird would need to consume one sumac fruit every 28 seconds throughout the day. At the other extreme, only 95 fruits of possum haw, or one every 6.3 minutes, would be required. The concentration of energy in possum haw fruits is a likely explanation of why mockingbirds defend possum haw but not sumac. Bluebirds apparently have little choice; they simply feed on whatever undefended fruits they can find. ■

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Volume 11, Number 2

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- Holthuijzen, A.M.A., and C.S. Adkisson. 1984. Passage rate, energetics, and utilization efficiency of the Cedar Waxwing. *Wilson Bull.* 96:680-684.
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- Pitts, T.D., and D.A. Graves. (unpublished) Caloric content and availability of some winter plant foods of Eastern Bluebirds in northwest Tennessee.

PLANTINGS FOR BLUEBIRDS AND OTHER WILDLIFE

Greenbrier Thickets Provide Cover, Nest Sites and Food

Karen Blackburn

Though they are often regarded as weeds, greenbriers deserve consideration by those of us seeking to improve wildlife habitat. There is no doubt that they are rampant growers which defy cultivation, but in nature there is a place for everything. On the home grounds, the place for these prickly vines is a wild corner of the yard. Allow them to ramble over weeds, stumps or brush to create a miniature refuge for birds, rabbits and other small animals. Left to wander, greenbriers will often form impenetrable thickets providing valuable protective cover, nest sites and food for many species of wildlife.

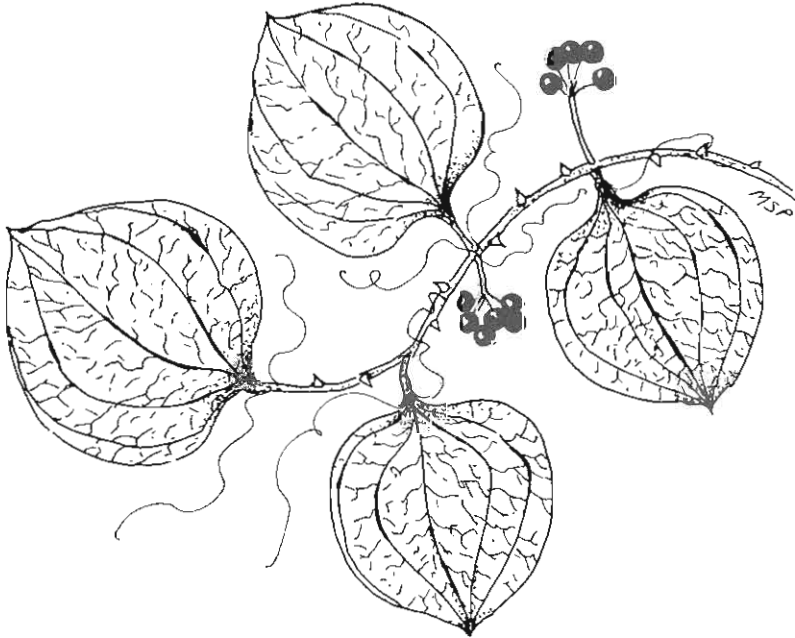
Common Greenbrier *Smilax rotundifolia*

Native Range—Nova Scotia to Florida, west to Michigan and Texas.

Hardiness—To Zone 5

Habitat—Frequently occurs in moist woods, fencerows, fields and along roadsides.

Habit—A green-stemmed, thorny vine which is capable of climbing up to 30 feet (9.14 m) by means of tendrils. Leaves, with parallel veins, are broadly rounded and are spaced alternately along the stems.



Fruit and Flowers—The greenish-yellow flowers occur in inconspicuous clusters arising from the leaf axils. The blue-black fruits are approximately 3/8 inch (.95 cm) in diameter and may have a whitish bloom. Small clusters of fruit ripen in the fall and persist throughout the winter.

Culture—Prefers moist locations in full sun, but will tolerate drier conditions.

Landscape Value—Recommended only for natural areas where its dense tangles will provide food and cover for wildlife.

Undesirable Traits—A vigorous grower capable of smothering other vegetation. Plant with other vines in an out-of-the-way location to create a wildlife tangle.

Wildlife Value—Fruits of the Common Greenbrier are a favorite of the Wild

Turkey, Ruffed Grouse, Fish Crow, Northern Mockingbird, Gray Catbird, American Robin, and Swainson's Thrush. The Northern Bobwhite, Northern Flicker, Pileated Woodpecker, American Crow, Brown Thrasher, Hermit and Gray-cheeked Thrushes, Eastern Bluebird, Cedar Waxwing, Common Grackle, Northern Cardinal and White-throated and Fox Sparrows also take the fruits. A number of birds use the tangles of Common Greenbrier for cover, and the Northern Mockingbird, Gray Catbird, Brown Thrasher and Northern Cardinal are among the species that use the vines for nesting.

Related Species—There are many related species which are also of value to wildlife. All are green-stemmed vines that bear tendrils and parallel-veined leaves. Most are prickly or thorny. ■

Rt. 3, Box 650
Marianna, FL 32446

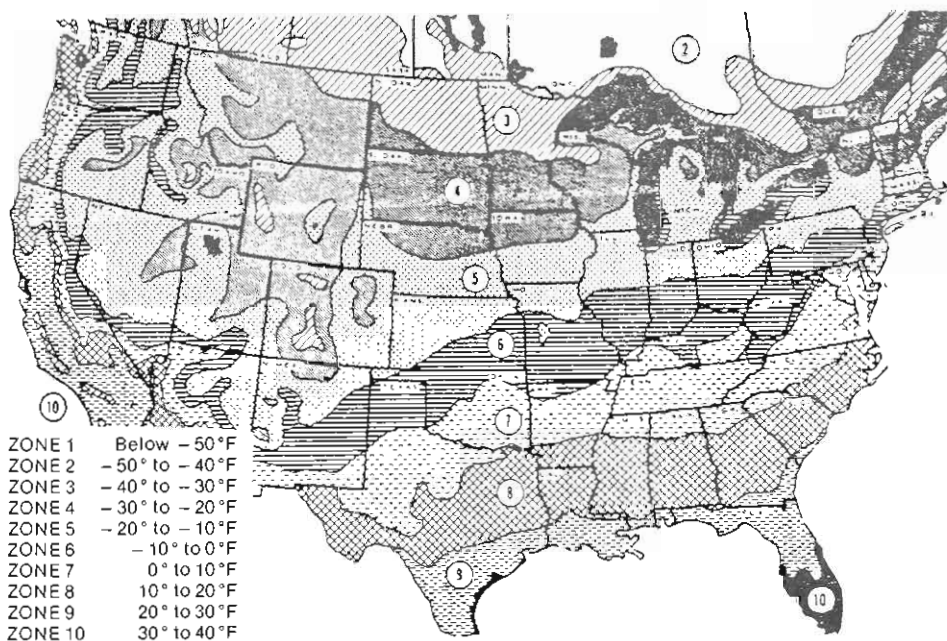


Figure 1. Hardness Zones for the United States and southern Canada. Temperatures for each zone are the average annual minimum temperatures. When no zones are mentioned in the plant description, plants are hardy anywhere. Factors within zones such as altitude, exposure, soil type, moisture, etc. can create variations. This map was developed by the Agricultural Research Service of the U.S. Department of Agriculture.

A Bird in the Bush

Karen Blackburn



I recently received a very nice letter from Gerald Hartley of New Brockton, Alabama, in which he related observations he made in December of 1988: "Yesterday, and at times earlier, I noted Eastern Bluebirds feeding on Chinese Tallow (popcorn) nuts. I also note smaller birds taking them. I'm sure the oily nuts are extremely high in energy. Chinese Tallow provides a good source of honey for our bees, and the trees are colorful in the fall."

Since I could find among my references no mention of bluebirds feeding on Chinese Tallow, I wrote to Mr. Hartley requesting additional information regarding his observations. He kindly responded as follows: "About two years ago, a woman told me that she had seen bluebirds taking Chinese Tallow nuts. I told her I'd like to go to her house and observe this personally, but I had to travel no farther than my own backyard—bluebirds were feeding on a Chinese Tallow tree there. This tree is located 40-60 feet [12.19 m - 18.29 m] from a power line, and the bluebirds seem to enjoy launching from the line to the tree. Dogwood fruits are in short supply in our area now, and I'm confident that the bluebirds were supplementing their diets with the tallow nuts. They perch on the same power line to gather insects from my garden."

Chinese Tallow (*Sapium sebiferum*), or "Popcorn Tree" as it is sometimes called, is a 30 to 40 foot [9.14 m - 12.19 m] deciduous tree which produces white, popcorn-like seeds in the fall. As indicated by its common name, Chinese Tallow is an introduced species; it has been planted throughout many of the southeastern states as a shade tree. It is considered hardy only in the Lower South, but, where it can be grown, it does well in most types of soil under full sun. Among its attributes are heat and drought tolerance, a rapid growth rate, seeds which persist through the winter, and depen-

dable fall color. However, in some areas it is considered a noxious weed species.

Mr. Hartley's observations of bluebirds feeding on the seeds of Chinese Tallow are of great interest regarding the winter feeding habits of these birds. Other readers who have seen bluebirds feeding on Chinese Tallow are urged to send in their reports accompanied by the following information if possible: Are other sources of winter fruits (such as holly, sumac, red cedar and *Pyracantha*) available to bluebirds in the locality? If so, do bluebirds seem to show a preference for Chinese Tallow, or does it appear to be used strictly as an emergency food or as a supplement to their diet of insects? Have other species of birds been observed taking the seeds? Finally, if you have Chinese Tallow trees which are altogether ignored by birds, you are urged to report this as well, also noting the availability of other fruiting plants in the vicinity. Though not a scientific survey, through reader responses we will attempt to get a general idea of how popular this tree is with bluebirds and other species.

I thank Mr. Hartley for his contribution to this column and invite other readers to share their observations of wildlife use of Chinese Tallow or other trees, shrubs or vines. Have you planted for wildlife? I'd like to hear from you, too! Let us know what worked (or didn't work) in your experiences with wildlife plantings. Please send your reports to Karen Blackburn, Rt. 3, Box 650, Marianna, FL 32446. ■

1988 Nesting Box Report

Delos C. Dupree and Michele Wright

Results of the Breeding Bird Survey (BBS) (*Sialia* 1(2):74-79, 87) compiled by the U.S. Fish and Wildlife Service of the Department of the Interior indicate a reversal of the downward trend in Eastern Bluebird populations, a continuing rise in the number of Mountain Bluebirds and a decline in nesting Western Bluebirds.

From 1966 when BBS data were first recorded, through 1979 there was a significant decline in the Eastern Bluebird population. The latest report covering the period 1966 through 1987 showed a continental increase of 0.115% per year, not much of an increase but at least a reversal of the downward trend. Recovery from losses during the severe winter of 1977-78 (especially in the Ohio Valley region) was rather rapid.

Unlike the Eastern Bluebird, the Western Bluebird had shown a slow but steady increase in numbers during the 1966-1979 period with significant increases in the Sierra-Trinity Mountains of California. Beginning in 1979 the trend reversed and the average loss for the 1966-87 period was at the rate of 0.300% per year. The need for added effort on the part of bluebirders is evident.

Mountain Bluebirds tallied during the breeding season continued to flourish on the continent. Gaining in population at the rate of 0.383% per year the most significant increases included the Northern Plains, the Wyoming Basin and Southern Rocky Mountains, and California and Colorado.

Hopefully, the 1988 NABS survey report is not an indication of another downward trend for the Eastern Bluebird, but tabulations of data received are not very encouraging. The number of reports received in 1988 (1,101) was only slightly fewer than in 1987 (1,107) within the range of the Eastern Bluebird, but the number of fledglings reported dropped from 46,632 in 1987 to 39,129 in 1988.

East

The decline in the number of reported fledglings did not occur in the East but mostly in the Midwest; in fact, slight gains were experienced east of the Appalachian Mountains. Even though the number of reports received increased from 386 to 440 (14% gain) and the number of boxes monitored increased from 7,131 to 8,795 (23% gain), the number of successful nestings was above average, increasing from 3,411 to 3,953 (16% gain). As a result, the number of fledglings rose from 15,497 to 19,063 (23% increase).

One way to increase the success ratio is to reduce predation according to Thomas J. Mulvey, a charter member from Pine Beach, NJ. Tom clamps his nesting boxes onto a 1 1/2 in. [3.81 cm] diameter steel pipe protected by a steel cone-shaped predator guard. His trail of 19 boxes is located in the Colliers Mill Wildlife Area. All 19 boxes were used successfully, 18 by blue-

birds and 1 by swallows. Of the 171 bluebird eggs laid, 151 hatched and 149 fledged. Predation by wrens, adverse weather and infertile eggs were blamed for losses. Tom writes that the 8.3 fledglings per box is the best year so far in his 12 year old bluebird trail. Incidentally 6 Tree Swallows fledged from the other box.

Another example of a member's concern for helping the bluebird was demonstrated by Susan M. Watkins of Rock Stream, NY. Displeased with the way her local township maintenance workers were spraying the roadsides to control weeds and concerned for the health of "her" bluebirds, Susan convinced the authorities that mowing roadsides was more cost effective than spraying. They bought a bush hog and discontinued spraying so Susan feels much better.

Florence Germond, a charter member who is coordinator for the

Ralph T. Waterman Bird Club Bluebird Trail reports a successful year with no losses due to the "awful heat." The 200 box trail is monitored weekly by 7 members of the club with a number of smaller trails being cared for privately. A total of 609 bluebirds fledged between May 10 and August 27.

Historical data about bluebirds is always welcome. Marjorie Blood of East Lebanon, ME, while doing geneological research came across a diary of the first minister of Lebanon, ME.. Rev. Isaac Hase, a Harvard graduate. On March 11, 1744, he wrote "3 Larks, robins, bluebirds singing. Ground chiefly bare." On March 15, 1776, he noted, "Bluebirds about." On March 18, 1787, he made the following entry: "Bluebirds and robins came." What you say or do to help the bluebirds today may never become a part of historical data unless the information you have is put in writing, unless, of course, you have a tape recorder.

Cowbird eggs were found in boxes monitored by Denise Miller and Myra Simpson of Sterling, VA, Bea Mansfield of Reidsville, NC, and Cathy Reno of Gainesville, FL. This emphasizes the need for regular monitoring of boxes. Cathy probably has the first recorded nesting of a mockingbird using a bluebird box. Impossible, you say; there must be some catch. Well, there was. Half of the roof of the box was missing and the mockingbird was using the roof opening to go to and from the nest.

The first report of Tree Swallows nesting in boxes placed back to back came from Joseph R. Sedlacek of Johnson City, NY. For the most part the back to back double boxes were working well keeping the bluebird-swallow families in balance according to Joseph, but in 1988 he had two sets of double boxes placed back to back with Tree Swallows nesting on each side at almost the same nesting cycle. When Dan Boone wrote about bluebird-swallow balance (*Sialia* 4(1):10-11), he was afraid this might happen when swallows saturated an area. Perhaps placing some of the boxes farther from water would allow the swallows to disperse.



Cavity nesting trails are exciting as Joseph will attest. Besides the 371 Tree Swallows (8 in one brood), 91 bluebirds and 29 House Wrens fledged on his 248 box trail, he had two pairs of American Kestrels fledge 10 (5 each); two pairs of Hooded Mergansers occupy two boxes with one pair successfully fledging 10; a pair of Wood Ducks produce 11 young; while two other boxes were occupied by Great Crested Flycatchers and Black-capped Chickadees, both unsuccessful.

Another cavity nesting trail monitored by Lorna B. Beasley of Live Oak, FL, produced 3 young screech-owls along with the following fledglings of other species: 23 bluebirds, 24 martins, 5 titmice, 3 flycatchers and 1 Red-bellied Woodpecker. Readers can readily see the need for helping other cavity nesting species when they begin to realize how fast the forests are disappearing and how the use of snags for firewood is depleting the remaining wood lots of natural nesting cavities.

John and Sarah Wilson of Jackson, SC, started a 22 box bluebird trail 5 years ago. Now with the help of the Sandy Acres Garden Club the trail has grown to 150 boxes on a ten mile bluebird trail which is claimed to be the longest in South Carolina. Last year 594 young bluebirds were fledged. See what one or two members can do. Get help when your trail starts expanding

so each and every box can be monitored regularly.

The Environmental Education and Interpretive Section of the Pennsylvania Bureau of State Parks established bluebird trails in parks throughout the state in 1981 as a conservation education program. Louis Ritrovato, chief of the section, and his staff are to be congratulated on their promotion of this great educational program and the aid given to the cause of bluebird conservation. The 1988 report will not come out until March, but 2,149 bluebirds were fledged in 1987.

To keep fire ants away from her nesting boxes, Delilah Caruthers Gwaltney of Wildwood, FL, wraps the bottom of the pipe supporting the box with small rope or binder twine and keeps the wrapping soaked with diesel oil.

Henry V. Stueler of St. Leonard, MD, found a bluebird nesting in a cedar newspaper box next to a rural route mail box. Six young bluebirds fledged from 2 nestings. Not satisfied with just having a few bluebirds, Mark Kimball Oakley of Westfield, NC, increased his trail from 3 nesting boxes to 30. He built the houses out of scrap lumber from a construction site. To his surprise and delight 128 bluebirds fledged. Now Henry is going to build more boxes and get the whole community involved. So you see the moral of the stories. When the need is there, be ready.

Extremely hot and dry weather didn't bother bluebirds on the Tanglewood Park Trail of Charles W. Abbey and Dr. Patrick Ober in Clemmons, NC. Their 79 box trail produced 46 fledglings in 1986; 177 in 1987; and a "phenomenal" 311 in 1988. Not all members have this much success, but chances are getting better each year.

Central

Perhaps a bad year discouraged some members from reporting because only 667 reports were received, a drop of 7% from last year's total of 715. This may account for some of the 14% drop in the number of boxes monitored; 14,953 in 1987 and 12,825 in

1988. The number of boxes used by bluebirds dropped from 6,671 to 4,574, a decrease of 32%. Only 20,066 fledglings were reported compared with 31,135 in 1987 or 36% few bluebirds.

Mary Ellen Vetter, chairman of the Audubon Chapter of Minneapolis Bluebird Recovery Program, blames the prolonged drought and unrelenting heat for the decline citing smaller broods, more infertile eggs, age variations in siblings, and increased raccoon predation.

So many similar reports were received concerning losses due to excessive heat that only a few were randomly selected for this article. Wayne Tice, chairman of the Hot Springs Village Audubon Society Bluebird Committee in Arkansas, reported that several hatchings occurred over a three or four day period because high temperatures precipitated incubation as soon as eggs were laid. The younger nestlings consequently were not able to compete for food with the older and stronger siblings resulting in losses. Although more nesting boxes were added to the trail, fewer were used and fewer eggs were laid. The result was a drop from 547 fledglings in 1987 to 460 in 1988.

Even boxes constructed of 7/8 in. [2.22 cm] rough-cut cedar for better insulation didn't prevent the heat from causing nesting failures on Francis F. Schweickert's 73 box trail in Peru, IL. Infertile eggs and lost nestlings reduced the number of fledged bluebirds to 179 after having 301 the previous year. Francis reports that seven of her nesting boxes were used by very small brown bats as roosting boxes from September 7, 1988 through October 15, 1988.

Awnings were constructed over nesting boxes by Mr. & Mrs. Frederick J. Barnard of Winfield, KS, to minimize the effect of the heat. They were rewarded with 5 bluebird fledglings from two nestings. All 13 Purple Martin eggs hatched and fledged successfully in their 12 hole martin house and, for added pleasure, they watched a pair of Carolina Wrens raise 5 young in a hanging flower basket.

According to Eric T. Vebehor of Ferdinand, IN, heat was responsible for 19 unhatched eggs and the death of 40 nestlings, but he was happy that 50 survived. Maybe that is the right attitude to have; be thankful that there are many more bluebirds still around and that something can be done to help them survive.

Not all losses were caused by the heat. Roland A. Dagwell of Indian River, MI, wrote that an early spring followed by a three day snowstorm and cold weather resulted in a bad start for the bluebirds and early swallow arrival. Two weeks later the same thing happened. Some bluebird nests had been built and eggs laid, but quite a few were abandoned. Dead swallows were found in 16 boxes, probably from starvation. On the bright side, 346 bluebirds and 59 swallows fledged.

A former board member, John Findlay III of Birmingham, AL, was named as one of the top three cooperators in supporting Alabama's Non-game Wildlife Program. John maintains 148 boxes from which 463 young bluebirds were fledged in 1988.

One of Carolyn Fessler's neighbors in Wagoner, OK, had 2 Prothonotary Warblers fledge from a nest built in a gourd hanging from a tree. Carolyn had one box in which Carolina Chickadees nested, another with a pair of Tufted Titmice, and one in which bluebirds nested 3 times beginning on March 10.

Two new trails were started by Tom A. Barber of Cambridge, OH. One of the trails started was on the grounds of a state hospital, the Cambridge Mental Health and Developmental Center. Patients at the hospital built the boxes for the trail and were very excited when their boxes were used by the bluebirds. There were 36 successful nestings on Tom's trail which produced 148 young.

Bewick's Wrens successfully nested on trails monitored by Mrs. J. M. Reeves in Dublin, TX, Patricia Folley in Noble, OK, and Mary Beth Frampton in Tulsa, OK.

Bewick's Wrens are becoming increasingly scarce in the East, so Easterners are envious of anyone fortunate

enough to be able to fledge these beautiful birds. Mrs. Reeves also had success in attracting a Downy Woodpecker pair and a pair of Black-crested Titmice.

West

Despite a drop in the number of reports from 141 to 115, the number of bluebirds fledged increased 35% from 13,799 to 18,592. Although 34% more boxes (9,092 vs. 6,764) were monitored, the number of boxes used soared by 52% (4,215 vs. 2,766). The average number of boxes used by bluebirds is usually about 41%.

Dr. Harry Powers, an associate professor of biology at Rutgers University in New Jersey, has monitored a bluebird trail in Montana during the summer off and on for the last 28 years in order to study bluebirds and starlings. In an article in the *Natural History* magazine, Dr. Powers states that the drought has helped the bluebird and reduced the starling population. His study revealed that fledglings were much stronger and were able to escape predators because warm mornings made insects more active and, therefore, easier for the young to find. On the other hand, starlings had a difficult time probing for insects in the baked ground.

A banner year for Mountain Bluebirds was reported by Duncan Mackintosh of Lethbridge, Alberta, coordinator for southern Alberta and Art Aylesworth of Ronan, MT, coordinator for north-central and western Montana, northern Idaho, and Nevada. Mountain Bluebirds increased by 4,481, but only 108 more Western Bluebirds were fledged. According to Duncan, bluebirds arrived much later than the 1987 date of February 20th, but they nested two weeks earlier than usual, getting a good start before the swallows arrived and second broods were the best ever. A pair of Western Bluebirds were reported nesting for the first time in southern Alberta.

Larry and Barb Stolz of Mitchell, SD, and Jennie D. Byron of Cavalier, ND, had success with their Eastern Bluebird trails. There are few members

Table 1. 1988 Nesting Box Data According to Geographic Region.

Types of Boxes Used	4" x 4"			5" x 5"			Other	Total
	E	C	W	E	C	W		
Total No. of Boxes	5,314	2,890	753	2,643	3,793	7,725	838	30,712
Boxes Used by Bluebirds	2,485	1,315	315	1,134	1,245	3,772	334	12,742
No. of Bluebirds Fledged	11,208	6,358	1,157	6,033	5,519	16,911	1,822	57,721
Boxes Used: Chickadees	200	163	3	53	43	13	12	8
Boxes Used: Titmice	70	50	12	16	15	4	2	0
Boxes Used: Nuthatches	14	7	3	3	3	1	5	44
Boxes Used: Swallows	658	298	156	514	202	1,356	137	3,609
Boxes Used: Wrens	391	242	46	132	92	125	40	28
Boxes Used: Flycatchers	4	1	4	3	2	12	7	0
Total No. Boxes Used	3,822	2,076	539	1,855	1,602	5,283	537	18,281
% of Boxes Used by All Species	71.9%	71.8%	71.6%	70.2%	42.6%	68.4%	64.1%	37.0%
% of Boxes Used by Bluebirds	46.8%	45.5%	41.8%	42.9%	32.8%	48.8%	39.3%	20.0%
% of Boxes Used by Others	25.1%	26.3%	29.8%	27.3%	9.4%	19.6%	24.2%	17.0%

E — East (440 reports)
 C — Central (667 reports)
 W — West (115 reports)
 Total (1,222 reports)

Geographic Regions According to States and Provinces

East: Bermuda, Connecticut, Delaware, Florida, Georgia, Maine, Maryland, Massachusetts, New Brunswick, New Hampshire, New Jersey, New York, North Carolina, Nova Scotia, Pennsylvania, Quebec, Rhode Island, South Carolina, Vermont, Virginia, Washington, D.C.
 Central: Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Ohio, Oklahoma, Ontario, Tennessee, Texas, West Virginia, Wisconsin.
 West: Alaska, Alberta, Arizona, British Columbia, California, Colorado, Idaho, Manitoba, Montana, Nevada, New Mexico, North Dakota, Oregon, Saskatchewan, South Dakota, Utah, Washington, Wyoming.

in these two states, but it is hoped that others will soon join the bluebird conservation effort.

Disappointments were experienced on their Western Bluebird trails by Bill and Edith Ryan of Yakima, WA, George F. Walter of Roy, WA, and Elsie K. Eltzroth of Corvallis, OR. Starlings are penetrating the area where Bill and Edith have their trail and, as usual, that is bad news for the bluebird. Although many of the bluebirds were attracted to their boxes when natural cavities were usurped by starlings, the success rate was low.

An extended period of wet weather in the early spring delayed nesting for three weeks on George's trail. Of the 215 pairs using his nesting boxes, 74 pairs failed to produce any young.

On Elsie's 200 box trail, Western Bluebirds attempted to nest 93 times but were successful only 55 times. Of the 489 eggs laid, only 286 hatched. Partial hatchings, like 1 of 5 or 2 of 6, may have been caused by the cold, not freezing, weather in April and May which could have chilled the eggs before incubation began. A few young had already died in the box before Elsie discovered blowfly larvae. Several weak nestlings had to be hand fed for a few days before being returned to their box.

Plain Titmice reared young in 9 of 68 boxes on Donald E. Yoder's trail in Walnut Creek, CA. He also had White-breasted Nuthatches in 1 box, Tree Swallows in 7 and Western Bluebirds in 10.

An uncommon predator was apprehended on the Ellis Bird Farm in Lacombe, Alberta by Mryna Pearman but not before 10 Mountain Bluebird and 5 Tree Swallow nests had been destroyed. The culprit was, of all things, a magpie or group of magpies. For those who worry about a little wren, how would you like to cope with magpies or Kiskadee Flycatchers?

At least one pest on the North American continent is showing signs of a significant decline in numbers. Hold your applause because this rascal is still a fierce competitor of the bluebird. According to the latest compilation of the BBS reports, the House Sparrow is declining at the rate of 1.063% a year continent wide. Now with this good news you can hope for a better bluebird year in 1989 and be sure to share your good or even bad news with the rest of the bluebirders by sending your reports in by November 1. ■

6002 Hunt Club Rd., Elkridge, MD 21227 (Dupree); 2926 Woodwick Ct., Ellicott City, MD 21043 (Wright).

“Bluebird, Fly”

We often hear “I don't know the bluebird's song; do you know where I could purchase a tape?” After a considerable amount of searching, the North American Bluebird Society is pleased to announce that cassette tapes are now available featuring the songs of the Eastern and Western Bluebirds. These bird songs will be on the reverse side of our new song “Bluebird, Fly” composed exclusively for NABS by Doug Wood.

We are still trying to obtain the song of the Mountain Bluebird. Since the Mountain Bluebird usually sings only at dawn, we're starting to think no one gets up early enough to record the song. If anyone can provide a suitable recording, we could then include the song on future cassettes.

NABS headquarters would like to thank Andrea Priori, Laboratory of Ornithology, Cornell University, Ithaca, New York, and Sandra Gaunt, Borror Laboratory of Bioacoustics, Ohio State University, Columbus, Ohio. Both of them gave their time and guidance to assist us in obtaining suitable songs.

The cassettes are available at headquarters for \$5 00.

—Sadie Dorber

IN MEMORIAM

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.

In memory of Olive Zeleny

Junius W. Birchard
Mr. & Mrs. Malcolm Dorber
Elsie K. Eitzroth
Lillian Lund Files
Mark & Jean Raabe
Vincent E. Schneible

In memory of Junius W. Birchard

Lea & Harry Allen
John D. Babington
Wendell Edgar
Mrs. Cuddie E. Davidson, Jr.
Mrs. Richard Kellner
Robert & Grace Kocker
Peace Education Division American
Friends Service Committee, staff
Beatrice Stevenson
Bill & JoAnn Stevenson & family
Sussex Co. Bird Club
Mrs. James L. Williams
Ella R. Yager

In memory of Bill Hartley

Lexington Garden Club

In memory of Lenore B. Derr

Riverside Garden Club

In memory of Cecil G. Coke

Mrs. Homer Cadden
Ellie Cunningham
Nawasa, Bobby, Danny Jones
Theresa & Andy Jonas
Stella Kemp
Alma Larry

NABS SPEAKERS BUREAU —WHAT IS IT?

At the annual meeting of NABS in Wagoner, Oklahoma in 1986 the Board established the position of Chairman of the Speakers Bureau to bring together the informal entity consisting of those who had rented or purchased the NABS Slide Program. We also consider anyone a "speaker" who has developed his own program. In my annual report and the "Speaker of The Quarter" column, I share the comments and suggestions of the speakers in the hope

that others might see something that may be useful.

Like the U.S. Marines we need a few good volunteers who are willing to help inform the public about the plight of the bluebird and other native cavity nesting species. Although the title "Speakers Bureau" sounds formal, it is not. You don't have to be an experienced speaker. The NABS cassette tape can do the talking for you and the 141 slides tell the story, or you can develop your own program. Showing the slides and answering questions are the major prerequisites.

The public is eager to learn and willing to help when a problem has been identified, but to inform them we need an army of "speakers" willing to hit the road for the bluebirds. Won't you join us in this endeavor? The bluebirds are waiting for YOU to spread the word.

If you give bluebird programs/workshops and are not on my mailing list, please send me your name and address. If you want to receive more detailed information about the Speakers Bureau, drop me a line: Jerry Newman, Chairman, Speakers Bureau, PO Box 53, Rising Sun, MD 21911 ■

(POINTS—Continued from page 42)

them. I finally chose to release her at a neighbor's as bluebirds are in the vicinity. They have a huge lawn for easier insect hunting and they don't own a cat.

During the conversations with Dr. Zeleny, I unfortunately didn't discuss her release, nor did I mention the subject to Shirl Brunell. Dr. Zeleny later told me that over the years of releasing hand-raised birds and animals, he's found that they usually aren't accepted by their own species. A hand-raised bird or animal is going to act a little differently and family groups don't welcome outsiders. Shirl Brunell also found this happened with her hand-raised bluebirds.

The area of the bluebird's release was large enough to accommodate many bluebirds; it was also a location where I see flocks during migration. She was capable of catching her own food so I feel the odds of surviving were in her favor. My returns to the release area to look for her were always frustrating. Although I could hear bluebirds and sometimes find them, I could not locate her. Often I could hear them at the top of a tree, but couldn't see them through the leaves. What a thrill it would be for both Barb and me to receive a report from the Banding Laboratory about band number 1301-72896 being picked up in a nest box next year. ■

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 very much enjoy seeing the one pair of bluebirds I know to be nesting nearby (5 miles away). I have been trying to drum up more interest in them with a small amount of success. I would like to be in touch with others in my area who are also interested in bluebirds.

I've got a 10 box trail but thus far no bluebirds. In the future I intend to start trapping some of the many House Sparrows and starlings in my neighborhood. The latter have displaced Great Crested Flycatchers here. If we could only make starling pie a yuppie food, we would have the starling problem licked!

Jill A. Miller
61 Lake Shore Road
Natick, Massachusetts 01760

Dear Editor:

Every year we have about 15 to 20 fledglings from three boxes. Several years ago, we saw a pair of bluebirds inspecting the big roosting box (for birds to sleep in in winter) which has the hole near the bottom. After a few days, they started to build and successfully raised four and then five babies. We thought this was unusual—and to do it twice! The box is still there. We had never seen bluebirds near it in winter and we have not seen bluebirds near it again after the nestings.

Marge W. Kosmahly
P.O. Box 67
Mineral, Virginia 23117

Dear Editor:

Thought you might be interested in two projects I had in connection with bluebirds last year. In March 1988 I showed the NABS slides to 4-H members at the Mini College in Frederick. This is the second year I have done that. In conjunction with that event, Mr. Hacles, who works for Norad, had the boys and girls make bluebird boxes out of the materials he provided. He had cut out all the parts and then showed them how to nail them together. Fifteen new homes for bluebirds were provided.

I also have been volunteering at the Emmitsburg Elementary School. I showed the bluebird slides to the special education class under the supervision of Mr. Baran. I took parts for two bluebird houses that my husband had cut out. He also drilled holes in the pieces and marked how to nail them together. It was quite a feat for these youngsters to nail the boxes together.

Lucille K. Beale
16309 Four Points Bridge Rd.
Emmitsburg, Maryland 21727

Dear Editor:

The wind blew down our old apple tree where the bluebirds had a nest so we put up a box on a fencepost. We were a little late but the bluebirds came back!

Zelda Beth
215 N. Massachusetts St.
Erie, Kansas 66733

Sialia, Spring 1989

Dear Editor:

The following wholesaler of mealworms is very reasonably priced: Grusco, Box 15001-0, Hamilton, Ohio 45015. I hope this information will be useful to other bluebirders. I have installed two separate feeders in my front and back yards as a mockingbird has decided the back feeder is his. His behavior is somewhat frustrating as he chases the bluebirds all over the yard. I'd be interested to hear from others who might have had this problem and to find out how they solved it. The mockingbird is aggressive toward the bluebirds even though he cannot get to the mealworms.

Carol Daugherty
8551 Strimple Rd.
Cheves, Ohio 45002

Dear Editor:

I've had nest boxes on an old telegraph line along a railroad track here for many years (it will be an area that we will tour during the annual meeting in July). This railroad line had been owned by Burlington Northern who sold it to a Montana corporation called Montana Rail Link. It became necessary to remove the telegraph line. I met with these people twice requesting that the posts and nest boxes be saved. Mr. Goodrich was so impressed by the number of birds using the area that he advised me that they would save the poles for us. The trail covers an area of approximately 18 miles and I believe it to be the largest nesting population of Western Bluebirds I've heard of. The line produced nearly 500 young. I think businesses will cooperate with us if they are approached correctly—certainly these two firms did.

Art Aylesworth
P.O. Box 794
Ronan, Montana 59864

Dear Editor:

I was most interested in the letter from Jack Keegan published in the Summer 1988 issue (p. 115). He pre-

sented data suggesting that bluebirds prefer boxes on posts away from trees to those placed on trees.

I used to think that a long bare tree trunk was a good site, but I also have developed the definite impression that bluebirds prefer boxes on fenceposts or utility poles to those on trees.

I have 19 boxes on trees and 43 on posts. In 1988, bluebirds built in 18 of those on posts and two on trees. It was similar to House Sparrows: 12 nested in boxes on posts and only one on a tree. Starlings, however, showed no preference (for experimental purposes half my boxes, 11 on trees and 21 on posts, were accessible to starlings), using two-thirds of the boxes accessible to them regardless of site.

Blacksnakes, squirrels, House Wrens, and starlings have probably pushed bluebirds into their preference for a box or a post away from the trees.

Place boxes on fenceposts (on the side away from the livestock) and on utility poles (with permission of the utility).

Wayne Davis, Professor
School of Biological Sciences,
University of Kentucky
Lexington, Kentucky 40506-02225

Dear Editor:

This is in reply to the letter from Wayne Tice 11(1):19 that appeared in Dr. Zeleny's Question Corner.

I am appalled by the number of bluebirders who, as soon as they start monitoring bluebird boxes, want to band bluebirds. Banding is a research tool. Mr. Tice wants to be supplied with some valid reasons so he can take his pick. This is not the way it works. Anyone who applies for a banding permit so he can band nestlings will usually be denied a permit. I cannot speak for the Bird Banding Laboratory, but banding wild birds should be for a definite reason, not just to satisfy a whim.

Harry A. Krueger
Route 2, Box OR28
Ore City, Texas 75683

Bluebird Tales

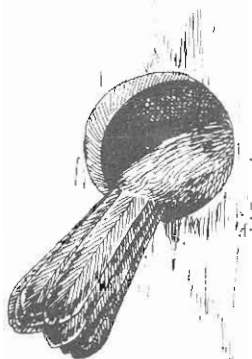
Mary D. Janetatos

The BAD news: a starling tried to get into the backyard bluebird box on February 1! The GOOD news: it left and a male bluebird came five minutes later! Next day I noticed peculiar sounds upon waking and was sure it was bluebirds! Yes, there were Mr. and Mrs. Bluebird hopping around the nest box during a false spring morning which had concluded the warmest two weeks I can ever recall in mid-winter. Nancy Hughes of Broken Arrow, OK, related her amazement in early winter to see bluebirds "plop into their home three in a row! I had no idea that bluebirds would come back and 'winter over' in their home. They have become very aggressive—are dive-bombing the starlings in our yard. I hope and pray they are planning on staying with us and will nest here this spring." Pat Gelding of Clyde, NC, told of her home area being one where cattle and sheep are raised and being near retirement age, she has a young friend, Lyndie, to share her love of bluebirds. While they "are treated to views of all kinds of wildlife...Lyndie and I are partial...to the bluebirds though. Maybe it is because the color is so sharp and clear that they stand out like touches of sky blue. Maybe it is also that we heard the 'old timey' saying here... 'seeing a bluebird assures good luck'. Guess the old timers here were safe in that expression because it does give a lift to even the dullest day."

Max and Irene Brandon claim to have increased the bluebird population near Greenville, SC, by at least 25 last year, saying that they had "eleven boxes and had several nests in them and the strong feeling that some built in gourds and houses put up for Purple Martins."

Pat Hagerstrand, a student at Berry College in Georgia wrote last fall that she made an "A" on her bluebird speech using material sent her by NABS.

A little farther north and on a grander scale, my friend from years ago, Fran Howe, of Burlington, VT, related a delightful story which she found for her TV show "Across the Fence" (WCAX-TV). "The 4th grade and 8th grade in the little town of Fairfax, VT, have worked out the most amazing project. They got a federal grant for supplies—wood and nails—and have made 100 bluebird houses! They are putting them up this fall to be ready for early comers (the Old Farmers Almanac says March will be warm!) and by working on a paired basis,



one 4th to one 8th, they have made their quota! They expect every home in Fairfax Mill to have a bluebird house and they will have at least one trail. They came on my show (WCAX-TV Across the Fence Program) and told how they did it! They were so well prepared we fell in love with them. They wrote and learned their script and by elimination on basis of performance, one little girl and one older boy came on the show! In my fifteen-plus years of doing the program I have never found anything like it!"

There are continuing accounts of how different people "spread the word" about bluebird conservation. For the second year NABS donated a pair of bluebird nest boxes to a fundraising event given by the adoption agency Barker's Foundation. Auctioning off the boxes raised funds for this praiseworthy organization, and their representative Debbie Bingham of Hyattsville, MD, was hopeful of generating "lots of interest in the North America Bluebird Society." Trula Walters of Thomasville, NC, wrote that her "Garden Club (Cereus) sponsors a Junior Gardener Club for the Physically and Multi-handicapped Children (K-5) in our county schools. Their teacher is Mrs. Harriet Forbis. This year, 1988-89, our theme for the children is on *Our Feathered Friends*. Our exhibition theme will be 'SAVE THE BLUEBIRDS' "

Bluebird conservation has always seemed to me a "natural" for 4-H groups. To bear that out, Ann Edwards of Ocala, FL, wrote that "Our 4-H club built 25 bluebird houses in December of 1988. We mounted them on posts and set them out at a nearby rural elementary school with 600 students. We have purchased one of Dr. Zeleny's books to give to the school library. We plan to give demonstrations on constructing and maintaining a bluebird trail to the student body. At our youth fair in February, we plan to construct an exhibit (10'

x 10') of a rural scene complete with a bluebird box along a country lane. We will summarize the construction of a bluebird trail for the public to see. We expect at least 3,000 people to view our exhibit "

Retirees also take naturally to bluebird conservation. **Mr. and Mrs. Lurton Gesell** of Connersville, IN, wrote last fall "Since you last heard from us we have placed 56 cavity nesting boxes out. This is our retirement hobby. These boxes are in the hands of friends, relatives, and neighbors. We meet some of the nicest people. And you know what? No one has refused a box. They are also bluebird conservationists. We are making ourselves available to smaller groups telling about the bluebirds, sharing our talents and God's gift to us. Have some FFA classes for this winter to visit. Happy 10th Anniversary to the NABS!"

Veteran bluebirder **Meade Flynn** of Alberta, VA, also wished success to NABS and said, "I am now 96 1/2 and it has been over a year since **Mary Frances**, my dear wife of 53 years, has been gone. My son, Bob, is here with me and he recently took me to my college (Randolph-Macon) reunion, Class of 1913. I told them about our great society, NABS." Our heartfelt sympathy goes out to Meade and the other bereaved bluebirders! May the dear Lord console you with warm memories and with new sightings of His bluebirds!

Bluebirds helped **Jonathan Fry** to celebrate Mother's Day. His mother, **Connie**, of Martinsburg, PA, related this in her letter: "On Mother's Day, Jon blindfolded me and led me to what he said was my Mother's Day present—one of the nesting boxes with five baby bluebirds. What a surprise! And they all grew up. Jon spent all summer checking on his bluebirds. Once he found part of an adult bluebird beside its box of four eggs, partially eaten. Observing the nest for half a day, we did not see its mate. Thinking we had to do something with these eggs, we put one in a bluebird box inhabited by a wren. She hatched all the eggs in her nest, including the bluebird. The other eggs we put in a nesting box occupied by a bluebird with three eggs. These six did not all hatch and since the bluebird in the wren's nest seemed to be crowding the baby wrens, Jon moved it to the bluebird's nest with its possible brothers and sisters."

A more off-beat story came from **George Walter**, of Roy, WA. George was recently honored with a "Special Act Award" for his outstanding contributions to the Fort Lewis Wildlife Management Program. He used nest boxes and natural habitat improvement to increase bluebirds on Fort

Lewis from 22 pairs in 1983 to 168 pairs in 1987. George is a Natural Resources Specialist for the Nisqually Indian Tribe. His work on the military facility, Fort Lewis, has been in a volunteer role. He recommends that anyone looking for new territory should consider nearby military lands.

All of the activity on behalf of bluebirds—upcoming and ongoing—can have tangible, if "unofficial" results. I note these results from the mail received here at NABS. To wit: from **Haysi, VA, Nick, Jana, Bethany, and Nicholas Travaskis** reported last fall "On September 17 we saw such a beautiful sight. In our yard (about 1/2 acre) there were about 100 bluebirds and some goldfinches. They flew and played and sang for about three days. Then they all left. My husband felt there was about one male for every 12 females. We figured they grouped together to migrate.

From **Theford, Ontario, Miep Verkley** wrote last fall "We have lived on this unsprayed, undistributed 20 acre property for 20 years. We have learned to recognize many birds, wildflowers, trees and other natural wonders. But never the bluebird... until this summer. On September 12, I saw a pair of bluebirds in the valley behind the house. And on September 21st I saw 10 or 12 more!! They were apparently migrating. They stayed around for an hour or so and then moved on.

Indeed, many folks will go well out of their way to help bluebirds, but it would be hard to top the account by **Dr. Shirli Brunel** of Texarkana, AR—author of *I Hear Bluebirds* and NABS Board Member who, with NABS Treasurer, **Chuck Dupree**, attended a Fall ('88) Festival at Brandywine Creek State Park in Pennsylvania. Her account of Thursday, Friday, Saturday and Sunday included soaking wet clothes in a suitcase flooded from a burst water heater; the cap of a tooth breaking off and its little prongs sticking into her jaw; the necessity of taking liquids and finding a dead insect in the airline's orange juice; finding a non-English speaking (at least *southern* English) Iranian dentist to repair her dental bridge; a hotel room with a couch but no bed; a rock band playing under her room; book sales going well until yellow jacket attack on upper lip; ice cube control attempted but lip doubles in size anyway; heavy rain cancels Festival; on return flight neighboring baby tips mother's dinner plate on Shirli's shoe. Secretary on Monday asked how her trip went. Shirli: "Routine."

Here's hoping you bluebirders don't have a "routine" (disastrous) spring!

Happy Bluebirds to ALL!!

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Prepared for *Sialia* by Nancy E. MacClintock-Indexes

MOMENTS

Nancy Rowe

Everything is drenched from the constant, heavy, welcome rain and I am concerned about the youngsters in the nest box by the vegetable gardens, for they should be leaving home any day—any minute, in fact. These four may be the last hope for this year's bluebird crop; and a poor one it has been, considering last year's baby boom.

The showers have ceased, at least temporarily, so I'll go check on them. The world beyond our meadow is noticeably quiet, as it often is on an afternoon in August; but the small sounds of birds are distinct and greatly magnified by the moisture-laden air, like the voices of children at play in a falling snow.

Several goldfinches scallop across the sky, scattering "perchickery" notes as they rise from each undulation. This is their time to shine, long after most birds have had their summer day. They have waited for the thistles to mature, so as to fashion their cottony nests from the down and to feast on the seeds.

One lone Barn Swallow swoops low for insects over the meadow, perhaps separated from a migrating flock. After our own nesting swallows departed, insects have become more noticeable in the evening, despite the efforts of Chimney Swifts to sweep the sky.

A Yellow-billed Cuckoo's "kowk, kowk" and a Mourning Dove's cooing remind me that the wild habitat from which they call will soon become a housing development.

Song Sparrows, so aptly named, entertain me as I walk. If Broadmead were to select a "community bird," it should surely be the Song Sparrow. It is friendly, seems to like our company, and its bright melody pierces our consciousness wherever we are across these acres, all summer long. We are never out of range of its song.

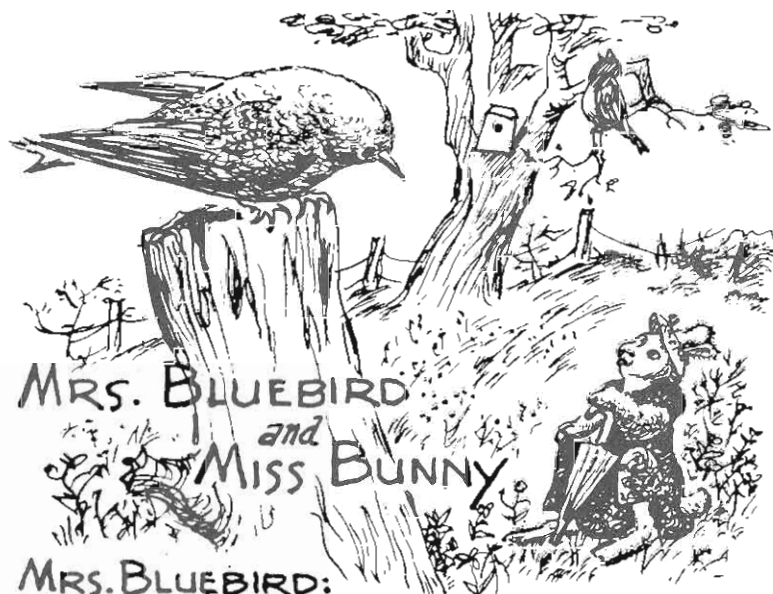
Suddenly there is a hush, as though all nature is awaiting the entrance of a performer. And enter he does, not with a commanding opening but with a high, sweet, delicate, downward-slurred phrase. Another one responds. They sing and call antiphonally as they feed and keep together their four fledgling bluebirds in their stränge, new environment high in the black locust trees by the gardens.

For a few precious moments I share the beauty of these lyrics with two gardeners who happen to be in the right place at the right time.

These are truly moments to savor and remember. ■

Broadmead A-3
13801 York Rd.
Cockeysville, MD 21030

Reprinted from *Voice of the Residents*, newsletter of the Broadmead Lifecare Retirement Community Residents Association, Vol. XI, No. 2.



MRS. BLUEBIRD
and
MISS BUNNY

MRS. BLUEBIRD:
"MY BUNNY FRIEND, YOU TALK TOO MUCH!
SO, I'LL NOT SPEAK ONE GOSSIP WORD,
OR YOU WOULD SAY BACK AT THE HUTCH
YOU HEARD IT FROM A LITTLE BIRD."

MISS BUNNY:
"I KNOW I DO TAKE LIBERTIES
POLITENESS NEVER WOULD CONDONE,
BUT TELL ME, MRS. BLUEBIRD, PLEASE!
HOW LONG IT WAS YOU WERE ALONE.

WHAT WAS YOUR AGE WHEN IT GREW CLEAR
THAT SINGLENESS HAD LOST ITS HUE,
AND SUITORS FLEW FROM FAR AND NEAR
TO BEG OF YOU AN INTERVIEW?

WHY DID YOU THINK HIS COURTING SONG
WAS SWEETER THAN A RIVAL'S BEST —
IS HE WHO SINGS THE WHOLE-DAY LONG
SO NICE TO HAVE AROUND THE NEST?"

ALLEN E. METELMAN

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BLUEBIRD BOOSTERS

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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 other 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) \$7.50; Senior (over 60), \$10.00; Regular, \$15; Sustaining, \$30; Supporting, \$50; Contributing, \$100; Corporate, \$100; Donor, \$250. Add \$2 per year for Canada and Mexico and \$3 per year for other countries (surface mail). U.S. funds only, please. Amounts over \$6 are tax deductible.

Address:
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Silver Spring, MD 20906-0295

