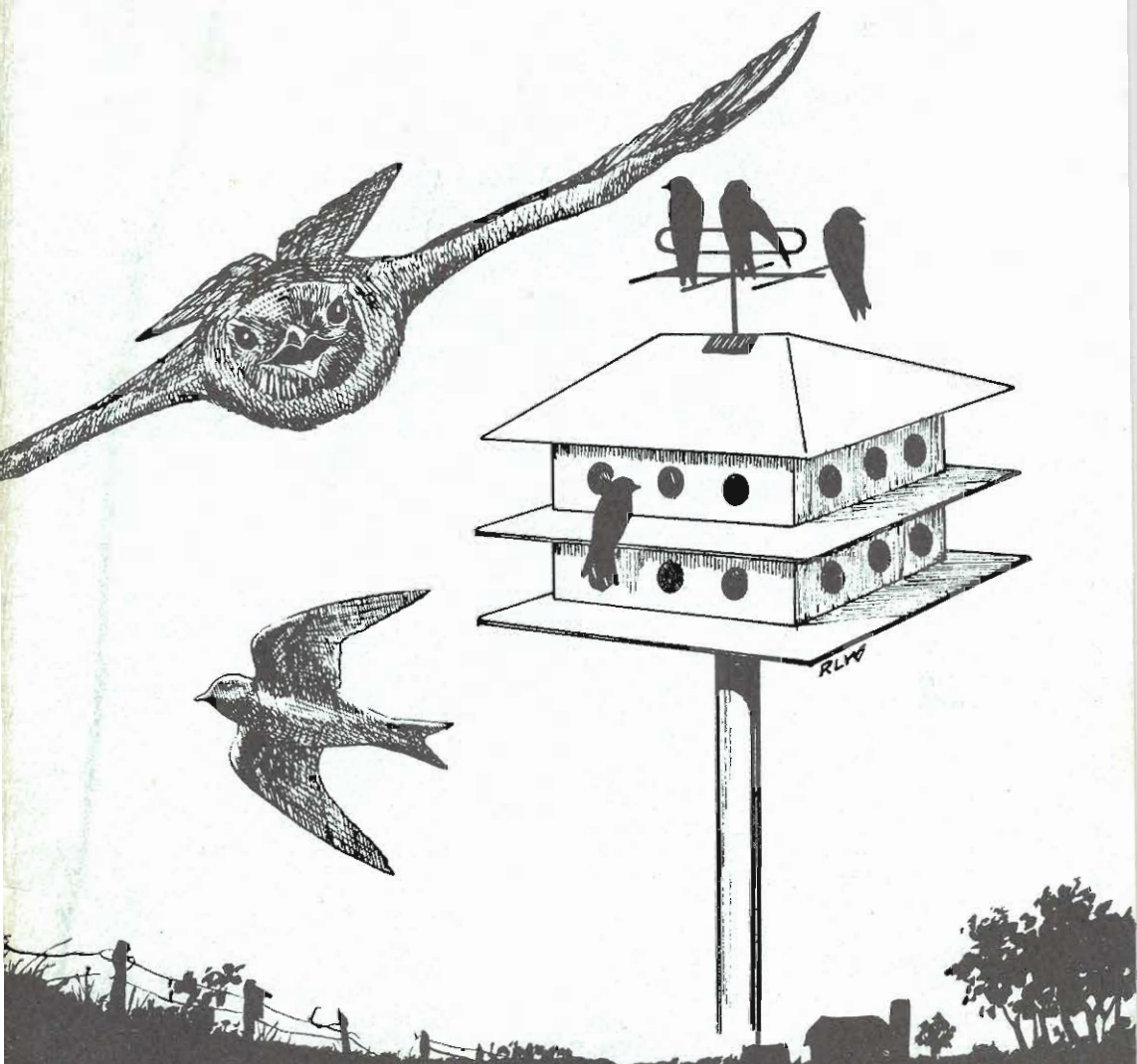


Sialia

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Pages 1-40

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Of
The North American
Bluebird Society



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Sialia means bluebirds. Hence the title of this journal. Technically, *sialia* is the Latinized, neuter plural version of the Greek word *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-ah'-ee-ah see-ah'-iss). Similarly, the Western Bluebird and Mountain Bluebird, the two other species within the genus, were named *Sialia mexicana* and *Sialia currucoides* (coo-roo-coy-dees) respectively. 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

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EDITOR

Joanne K. Solem

CONTRIBUTING

EDITOR

Lawrence Zeleny

ART EDITOR

Richard L. Woodward

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COVER

Art Editor Richard L. Woodward's cover features Purple Martins. An experience with this species led Dr. Jerome A. Jackson to examine pesticide use for box-nesting birds. His article begins on page 17.

Sialia welcomes original articles, art and photographs for publication. Although this journal is named for the bluebird, material relating to all native cavity nesting species will be considered. Manuscripts should be typed neatly and double-spaced. All material submitted is subject to editing or rewriting. Submit the original manuscript plus a duplicate copy if you wish to proof the material before publication. If the article has been submitted elsewhere (or previously published) that fact must be stated at the time of submission. All manuscripts will be acknowledged. Black and white glossy photographs are preferred. Print the subject, names of individuals pictured, photographer and return address on the back of each photograph. Art is welcome and should be in black pen-and-ink. We do not assume responsibility for manuscripts, photographs or art submitted. The editor's address is 10617 Graeoch Road, Laurel, Maryland 20707.

Presidential Points

Sadie Dorber

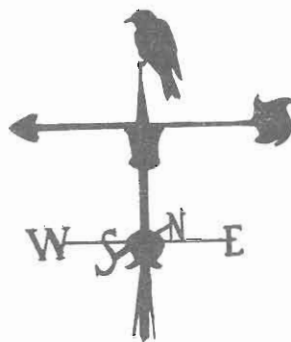
Jackson, Mississippi, the location of the Eighth Annual Meeting of the NABS, was the destination of four New York bluebirders: Fran Hanes, John Rogers, Ann Casselberry and me. We met in Syracuse to fly south together, while two other New Yorkers, Paul and Sandy Wilson, traveled by car in order to visit relatives along the way and to attend the World's Fair in New Orleans.

Annual meetings are a time to renew friendships made over the years with people who share the goal of promoting bluebird conservation. It's a group with which you share your disappointments or successes in bluebird management and come away feeling that you'll work harder next year.

One of the first couples I encountered was Jack and Ruby Finch of Bailey, NC. Jack has spent the last couple of years developing a snake predator guard. I was fortunate this past spring to be able to visit with the Finches and observe his research work in action. You have to see it to believe it!

Saturday morning ushered in a full day of presentations and a chance to view the different exhibits. We were all treated to a sneak preview of the new bluebird movie now under production by Berlet Films and due for release late in 1985. The footage resulted in many "a-a-h's" from the captive audience.

Several different field trips were on Sunday's agenda. I chose to take the trip to the Barnett Reservoir. We stopped at the gate on arrival to wait for the other cars to arrive. As far as I could see with the naked eye, there were Wood Duck boxes erected throughout the mud flats. Some were mounted in pairs on poles while others were singles, but all poles had predator guards. I questioned if all the boxes would be used and was told that nearly every box would contain a nest and that there were many more in other



areas of the reservoir. In a few weeks, the flats would be flooded to provide a wintering area for thousands of geese and ducks.

I've often heard the Southerners complain of the fire ant problem in connection with killing nestling bluebirds. The ant hills were everywhere; though I was careful to avoid disturbing the hills, I soon experienced stings. This is a serious problem for bluebirders of the area and an effective way to prevent the ants from entering bird boxes is desperately needed.

Since I was riding with Boots and Tracy Packer of near-by Brandon, they offered to give us an extended tour of the reservoir and different areas of Jackson. We all enjoyed lunch at a secluded area along the water's edge and sampled the ripe persimmons that the raccoons had not yet found.

Monday morning we were up early to spend a few more hours birding, before departing for home that afternoon. We were a little disappointed not to find a new species of bird for our life lists, but seeing the Carolina Wren as well as the Red-bellied and Red-headed Woodpeckers made the morning enjoyable. All three species are cavity nesters and seen only occasionally in my area.

I wish to thank Reber Layton and the Jackson Audubon Society for organizing such an informative weekend and for the warm Southern hospitality shown to all of us. ■

Eastern Bluebird Population Density in the Southeastern Portion of Its Breeding Range

Delos C. Dupree

Population density of avian species depends almost entirely on weather conditions and the availability of suitable habitat within a major climatic biotic community. Preferred habitat (core areas) will provide a relative abundance of acceptable food, shelter and nesting sites. Population density in core areas tends to be high and diminishes gradually in surrounding areas. Soil type, available moisture, elevation above sea level, latitude and other physiographic factors determine the seral and ultimately the climatic biotic community unless influenced by human activities. Physiographic maps have shown a remarkable similarity between physiographic stratification and avian population densities. (See *Sialia* 4(2):52-59)

The southeastern portion of the United States is comprised of two ecological stratifications or biomes (Fig. 2), the Eastern Deciduous Forest (II), which includes the Appalachians (A) and the Interior Plains (B), and the Southeastern Forest (III) which is divided between the Coastal Plain (A) and the Foothills (B). Breeding density of the Eastern Bluebird (*Sialia sialis*) as determined by the Breeding Bird Survey (BBS) (*Sialia* 1(2):74-79,87) is shown in Figure 1. While true climax biotic communities are very rare because of human disturbance, the secondary communities created would, if left undisturbed, revert to the original climax community over a period of time. Areas of climax communities which are in primary succession are preferred Eastern Bluebird habitat. Bluebirds are "edge" birds, inhabiting such places as burned-over areas, pastures, prairies, lawns and open areas in the woods. Whether or not bluebirds existed in large numbers before colonial times is problematical. Unchecked forest fires laid bare thousands of acres of land which, upon regeneration, provided excellent bluebird hab-

itat. The same was true of land devastated by volcanic eruptions and prairie fires. There was little to alter the natural life of the bluebird although Indians were known to have made nesting sites out of gourds and they did clear some land for agricultural purposes.

When the first settlers began to clear the land to build homes, to plant crops and to provide pastures for their livestock, they also created a perfect bluebird habitat by providing an edge effect. There were no European Starlings (*Sturnus vulgaris*) or House Sparrows (*Passer domesticus*) and no pesticides, nothing to prevent bluebirds from proliferating which they can do rather rapidly. Natural cavities were plentiful. Woodpeckers provided additional nesting sites in snags, in trees girdled by farmers for firewood, in wooden fence posts and in fruit trees. Sufficient food was no problem because of the abundance of wild berries in a natural successional habitat provided in wooded areas adjacent to cultivated or pasture land. No wonder old-timers can remember the days when bluebirds were as plentiful in the spring as robins are today.

Cities soon began springing up mostly along the Fall Line where cargo from ships had to be unloaded because the rivers became unnavigable. Land surrounding the large cities was intensely cultivated providing little habitat for bluebirds; consequently, bluebird populations began to decline in those areas. Coastal areas never were ideal bluebird habitat because of the tidal marshes and vast stands of pine trees, but human activity further reduced the availability of acceptable habitat.

Mountainous areas also provided little suitable bluebird habitat. Steep terrains are not farmable. As a result, most mountainous areas are covered

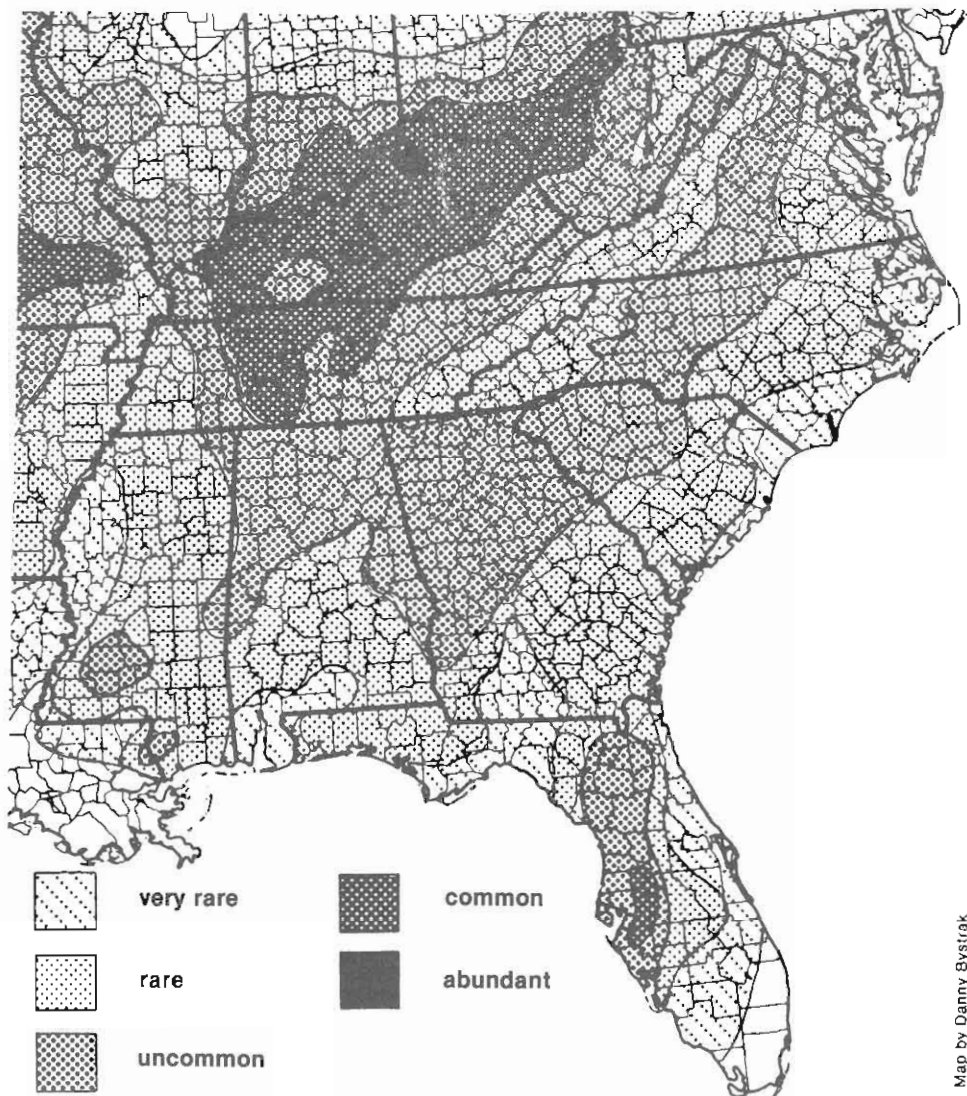
with dense stands of trees with few open areas. Modern methods of combating forest fires and replanting burned-over or logged areas rather rapidly greatly reduces the amount of "edge" effect. At high elevations the breeding season is shortened by cold weather which decreases the availability of insects to feed the young.

Plateaus, ridges and valleys, roll-

ing hills and grassy plains tend to support larger concentrations of bluebirds. These core areas generate surpluses which populate adjacent, less desirable habitats. Fortunately, most of the core areas are relatively free of densely populated cities and human activities have created "edges" which are beneficial to the bluebirds.

Much has been written about the

Figure 1. Relative Breeding Density of Eastern Bluebirds in the Southeastern States.



Map by Danny Bystrak

introduction of two alien species, the House Sparrow and the European Starling, which was a disastrous human error that greatly reduced bluebird populations over a period of time. Not much has been written, however, about the effect of introducing alien species of plants such as the Japanese Honey-suckle (*Lonicera japonica*). Wintering bluebirds subsist almost entirely on berries. Some understories of wooded areas are so overgrown with alien plants that the native berry-producing plants cannot survive. Controlled burning has restored natural habitats in some areas, but it is not a widespread practice.

Following are synopses of avian ecological stratifications in the southeastern states in which relative Eastern Bluebird abundance is compared.

Maryland

Maryland is divided almost equally between two biomes. Southern Maryland and the Eastern Shore are in the Upper Coastal Plains Sub-strata (4) of the Coastal Plain Strata (A) in the Southeastern Forest Biome (III). Central Maryland is in the Northern Piedmont Sub-strata (10), while western Maryland lies mostly in the Ridge and Valley Sub-strata (13) and partially in the Allegheny Plateau Sub-strata (24) of the Appalachians (A) in the Eastern Deciduous Forest Biome (II).

Bluebirds are extremely scarce in the Upper Coastal Plain especially on the Eastern Shore where tidal marshes and pine forests do not provide good habitat. Extensive crop farming further reduces available habitat. Although bluebirds are still very scarce in southern Maryland, conservation efforts have increased local populations, especially in small rural communities.

The Northern Piedmont Sub-strata could support a larger bluebird population ecologically if a substantial portion of the area had not been developed. There is a corridor along the Fall Line which is densely populated. Bluebirds are rarely seen there; yet, only a few miles from the center of the large cities, bluebirds can be seen in

rural communities and open farmland on the Piedmont Plateau.

Western Maryland has the best bluebird habitat in the state, but the population density falls in the rare category. Now that intensive conservation efforts are under way, substantial gains should be realized in a few years.

Effects of the severe winters of 1978 and 1979 are illustrated in Table 1, showing almost a 50 percent decline in bluebird population. Because Maryland lies at just about the northern limit for wintering bluebirds, losses were substantial. Winter weather has moderated the past few years so that several good breeding seasons should bring the average back to normal.

Delaware

Delaware has only two ecological sub-stratas. Virtually all of the state is a part of the Upper Coastal Plain Sub-strata (4) of the Coastal Plain Strata (A) in the Southeastern Forest Biome (III). Only the northern tip of the state is included in the Northern Piedmont Sub-strata (10) of the Appalachians Strata (A) in the Eastern Deciduous Forest Biome (II).

Scarcity of bluebirds in Delaware is not surprising. The closest core area is in northern Virginia, west of Washington, D.C. Years will pass before birds from the core area will extend their range sufficiently to reach Delaware, if indeed that ever happens. The only hope for increasing bluebird populations in the state is to place nesting boxes in the best possible habitat near existing nesting sites. Bluebirds are not an endangered species, just scarce, so they can be found.

Losses as a result of the severe 1978 and 1979 winters practically eliminated the entire population of Delaware bluebird nesting pairs. No sightings were recorded on any of the BBS routes in the state during 1980, which meant that the chances of finding nesting pairs of bluebirds were extremely small and in most areas impossible. Similar losses were noted in 1967 and 1970. Each time this happened a regeneration process took place the following year. Since 1975, however, there

has been a dramatic decline, which should be investigated unless there

has been a significant upward surge in the past few years.

Figure 2. Physiographic Stratification of Southeastern States as Used in Breeding Bird Survey Analyses.



II. Eastern Deciduous Forest

- A. Appalachians
 - 10 Northern Piedmont
 - 13 Ridge and Valley
 - 21 Cumberland Plateau
 - 23 Blue Ridge Mountains
 - 24 Allegheny Plateau
- B. Interior Plains
 - 14 Highland Rim

III. Southeastern Forest

- A. Coastal Plain
 - 1 Subtropical
 - 2 Floridian
 - 3 Coastal Flatwoods
 - 4 Upper Coastal Plain
 - 5 Mississippi Alluvial Plain
- B. Foothills
 - 11 Southern Piedmont

Adapted from Bysrak, D. 1981. The North American breeding bird survey. *Studies in Avian Biology* 6:34-41

Virginia

Virginia is located in two biomes with a diversity of physiographic features. The coastal regions consist of two sub-stratas of the Coastal Plain Strata (A) in the Southeastern Forest Biome (III). A small portion of the southeastern tip of the state is associated with the Coastal Flatwoods Sub-strata (3) while the remainder of the coastal land falls within the Upper Coastal Plain Sub-strata (4).

Central Virginia is dominated by the Southern Piedmont Sub-strata (11) of the Foothills Strata (B) in the Southeastern Forest Biome (III). A small segment of the north central section lies in the Northern Piedmont Sub-strata (10) of the Appalachians (A) in the Eastern Deciduous Forest Biome (II).

Western regions of the state are divided among three sub-stratas of the Appalachians Strata (A) in the Eastern Deciduous Forest Biome (II). Ridge and Valley (13) covers most of the western border except in the extreme southern tip where the Cumberland Plateau (21) lies to the west and the Blue Ridge Mountains (23) to the east.

Bluebird population density in Virginia is largely influenced by the core area existing in the foothills east of the mountains. Notice particularly the similarity between the core area and physiographic features as the Southern Piedmont extends southward. Notice also that relative abundance diminishes gradually in the mountainous and coastal regions and by the time one reaches the coastline bluebirds are very scarce. Apparently bluebird populations in the southwestern tip of the state are influenced by the core areas known to exist in the interior plains. The Blue Ridge Mountains seem to provide a land barrier separating the eastern and western populations. Since 1975 the average number of Eastern Bluebirds recorded per BBS route in Virginia has been greater than the mean. Severe winter weather in northern Virginia and the mountains during 1978 caused a decline which was reversed in 1979. In 1980 BBS statistics indicated the highest average

ever recorded. Extensive bluebird conservation efforts could have been a contributing factor.

North Carolina

North Carolina encompasses two biomes. The coastal areas are comprised of the Coastal Flatwoods Sub-strata (3) and the Upper Coastal Plain Sub-strata (4) of the Coastal Plain Strata (A) in the Southeastern Forest Biome (III). Also included in this biome is the Southern Piedmont Sub-strata (11) of the Foothills Strata (B) located in the central portion of the state. Another biome the Eastern Deciduous Forest (II) covers western North Carolina in the form of the Blue Ridge Mountains Sub-strata (23) in the Appalachians Strata (A).

Mid elevations, such as the Southern Piedmont, serve as the core area for bluebird abundance. Higher elevations, like the Blue Ridge Mountains, and the lower elevations found in the Upper Coastal Plain support a lesser number. Coastal Flatwoods are shunned by most bluebirds in this state.

Since BBS records were first kept in 1966, the average numbers of breeding bluebirds per route has increased from 2.4 to 5.97 in 1980. There have been declines, due mostly to the weather, but after 1975 the means have consistently been exceeded. Maybe conservation efforts and the banning of toxic chemicals are paying off.

South Carolina

South Carolina, except for the extreme northwestern tip of the state, is situated in the Southeastern Forest Biome (III). The Coastal Plain Strata (A) occupies the eastern half of the state and is comprised of the Coastal Flatwoods (3) and the Upper Coastal Plain (4) Sub-stratas. Southern Piedmont Sub-strata (11) of the Foothills Strata (B) makes up the other half. Just a small part of the Blue Ridge Mountains Sub-strata (23) of the Appalachians Strata (A) in the Eastern Deciduous Forest Biome II touches the northwestern tip.

Influence of the Southern Piedmont is readily seen as the core area for the Eastern Bluebird breeding range in South Carolina by comparing Figures 1 and 2. The areas are almost identical. Coastal areas, as usual, provide scant bluebird populations; however, there appears to be a larger proportion extending into the southern half of the Coastal Flatwoods than there are in the northern half. This could be attributed to the relative abundance of breeding birds in the core areas both to the west and to the south exerting more pressure than the relatively scarce populations to the north.

Since 1978 the birds per route have increased dramatically culminating in a huge surge during 1980 when an average of almost 11 birds were seen on each route. This figure is the highest recorded on the East Coast.

Comparing the statistics in Table 1 from 1975 through 1980, there appears to be an increase in bluebird populations south of Maryland and north of Florida, while those two states show declines. Increased conservation efforts and decreased use of toxic chemicals may be contributing factors for increases in populations, but there are undoubtedly others. Weather, of course, is an important factor as illustrated by the population declines caused by severe winters in the northern portions of the bluebirds' wintering range. Conversely, good weather during the breeding season permits as many as three nestings. South Carolina must surely have had ideal breeding seasons during those years.

Georgia

Georgia lies predominately in the Southeastern Forest Biome (III). The southern part of this biome is relegated to the Coastal Plain Strata (A) consisting of the Coastal Flatwoods (3) and Upper Coastal Plain (4) Sub-stratas, while to the north the Southern Piedmont Sub-strata (11) of the Foothills Strata (B) dominates the topography. Northern Georgia is bordered by the Blue Ridge Mountains Sub-strata

(23) to the east and the Ridge and Valley Sub-strata (13) to the west. Both are in the Appalachians Strata (A) of the Eastern Deciduous Biome (II).

Dispersal of bluebird populations in Georgia is somewhat confusing. Perhaps the close proximity of several core areas has had a pyramid effect. The Ridge and Valley (13), Highland Rim (14) and Cumberland Plateau (21) Sub-stratas lie just to the north and west. To the south the Floridian Sub-strata (2) influences that portion of the state. Unexplained is the scarcity of bluebirds in the south-central area of Georgia, but it persists through Florida all the way to the Gulf of Mexico.

Like other East Coast states as far north as Virginia, Georgia has experienced bluebird population increases above the norm since 1975. In all probability the reasons for increased relative abundance of the Eastern Bluebird is consistent with those set forth for those states.

Florida

Florida is dominated entirely by the Southeastern Forest Biome (III). Ranging from the Subtropical Sub-strata (1) in the south, the Floridian Sub-strata (2) in the central regions and the Coastal Flatwoods Sub-strata (3) with a small projection of the Upper Coastal Plain Sub-strata (4) in the north, the ecological stratification is a part of the Coastal Plain Strata (A). Subtropical and Floridian Sub-stratas exist only in Florida and nowhere else in the United States. They provide quite a contrast when comparing the relative abundance of the Eastern Bluebird. The former is almost devoid of bluebirds while the latter is a strong core area.

Human intrusion may greatly influence bluebird density in Florida if that has not already occurred. Notice the steady decline since 1967. As the population of the state steadily increases, the loss of habitat will also steadily increase. Fortunately, the core area still contains large areas of pasture and grazing lands which may not

be affected. The bluebirds have to go somewhere, so perhaps this explains the increases in adjacent states such as Georgia and South Carolina where human disturbance has not been as great.

The potential for a revival of previously high concentrations of bluebirds in Florida is there. All that remains is for someone to do something to alter the downward trend.

Alabama

Alabama has a variety of stratifications in both the Eastern Deciduous Forest (II) and the Southeastern Forest (III) Biomes. The Ridge and Valley (13) and the Cumberland Plateau (21) Substrata of the Appalachians Strata (A) and the Highland Rim Sub-strata (14) of the Interior Plains Strata (B) make up the former. The latter consists of the Upper Coastal Plain Sub-strata (4) in the Coastal Plain Strata (A) and the Southern Piedmont Sub-strata (11) in the Foothills Strata (B).

Strong influence from the Highland Rim core area extends well into the northern half of Alabama. In the east this core area is bolstered by the Southern Piedmont influence. Southwestern portions of the state are probably too industrialized to sustain any large numbers of bluebirds.

Aside from a small dip in 1977 and 1978 the relative abundance of the Eastern Bluebird in Alabama has remained fairly stable.

Mississippi

Mississippi has only one ecological stratification, the Southeastern Forest Biome (III) made up almost entirely of the Upper Coastal Plains Sub-strata (4) in the Coastal Plain Strata (A). The Mississippi Alluvial Plain Sub-strata (5) follows the western border and the Coastal Flatwoods Sub-strata (3) envelops the extreme southern border. Both are also in the Coastal Plain Strata (A).

Two isolated core areas are present in Southern Mississippi, one in the

Upper Coastal Plain and one in the Coastal Flatwoods. Bluebird abundance in the rest of the state, however, may depend on the influence of populations generated in the Highland Rim.

Relative abundance of bluebirds in Mississippi increased in 1979 and again in 1980 after a slight dip in 1978. Otherwise the population level has remained fairly constant. Tropical storms sometimes have a devastating effect during the breeding season.

Synopsis

Eastern Bluebird population density in the southeastern portion of its breeding range appears to be increasing. Adverse weather is the prime cause for downward trends, but recovery is rather rapid in succeeding years.

Two contributing factors are offered as possible reasons for the upward trend: restriction of the use of toxic chemicals and increased bluebird conservation efforts. Avian species in general have benefited by the ban on DDT, as an example.

Much has been done to help the bluebird, but the job is by no means completed. Human disturbances have, in some instances, created ideal bluebird habitat. By providing a safe nesting site in these areas, bluebird populations can and will be re-established. Nesting boxes mounted on a pipe with a baffle with an entrance hole that excludes starlings will reduce predation greatly. Competition from other cavity nesting species can be minimized by selecting the proper habitat in which to mount the nesting box. Periodic monitoring of the nesting site is essential in discouraging the intrusion of House Sparrows.

Many ecological mistakes have been made in the past that have placed severe stress on our wildlife, but what has happened cannot be recalled. Efforts should be directed to the future in order to preserve the bluebird and other cavity nesting species. This can be accomplished only through knowledge gained from past

Table 1. Average Eastern Bluebirds Recorded Per EBS Route in the Southeastern States, 1965-1980.

	1965	'66	'67	'68	'69	'70	'71	'72	'73	'74	'75	'76	'77	'78	'79	'80	Means
VA	...	2.33	2.38	1.48	2.42	2.83	2.31	2.82	3.00	2.92	4.81	5.61	5.09	3.93	4.84	5.97	3.772
MD	2.06	1.46	1.57	1.30	1.22	1.17	.94	1.21	1.04	1.18	1.45	1.68	1.13	.86	.91	.76	1.245
DE	1.30	.30	0	.89	.10	0	.30	.80	.70	.71	.67	.20	.10	0	.13	0	0.393
NC	...	2.40	3.77	1.91	.90	1.56	1.41	2.32	2.32	2.81	2.14	4.61	3.96	3.91	4.53	5.30	2.893
SC	...	4.86	6.50	4.00	3.29	3.92	1.27	1.36	1.79	2.77	2.93	5.50	3.87	6.41	6.13	10.92	4.443
GA	...	8.67	5.12	2.09	1.75	3.72	3.08	3.33	3.30	4.30	6.05	4.40	4.17	5.10	5.89	6.31	4.954
FL	...	4.78	6.58	4.39	3.18	3.54	3.34	3.89	3.50	3.32	3.00	2.13	1.63	2.40	2.10	1.47	3.275
AL	...	5.70	5.46	3.66	3.18	3.85	4.21	4.21	4.07	3.58	4.54	4.17	2.50	2.29	4.53	5.08	4.100
MS	...	2.47	3.14	1.53	2.65	1.70	2.65	3.80	2.11	2.55	3.50	2.53	2.44	1.79	3.41	4.13	2.684
AVG.		3.66	3.87	2.36	2.07	2.47	2.167	2.63	2.41	2.68	3.23	3.42	2.76	2.96	3.60	4.43	3.084

mistakes and through a continued interest in learning more about the lives of all avian species, especially the bluebird.

Acknowledgment

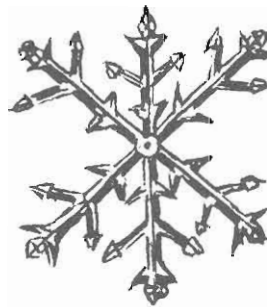
Much of the work leading up to this article was done by Danny Bystrak. I would like to acknowledge his help and extend thanks to him. ■

6002 Hunt Club Rd.
Elkridge, MD 21227

Television Commercial
Available for Loan

A 30 second public service announcement (PSA) TV commercial promoting bluebird conservation has been produced by NABS. Copies of the tape are available for loan to members.

Six copies of the 3/4-inch video tape cassette are available for a small charge to cover postage, mailer, and handling. In order to obtain a copy of the commercial, write to Richard J. Dolesh, 17800 Croom Road, Brandywine, MD 20613. Enclose a check to NABS for \$2.50. The tape should be returned in the enclosed self-addressed mailer within 10 days. Loan is on a first-come, first-served basis.



Hole Size for Mountain Bluebirds

Lawrence Zeleny

For several years evidence has been accumulating that some and perhaps most of the Mountain Bluebirds (*Sialia currucoides*) in certain western regions either cannot or will not enter the 1-½ inch diameter entrance holes commonly used in bluebird nesting boxes. Jess and Elva Brinkerhoff (1980) first encountered this problem on their extensive bluebird trail in south-central Washington. They solved the problem by increasing the hole size in their boxes to 1-5/8 inches, after which their trail became a spectacular success. Alfred Perry had a similar experience with his trail near Boise, Idaho.

NABS has been reluctant to recommend the 1-5/8 inch entrance hole since it was shown by Zeleny (1969) that starlings can and will enter this size opening even though it is a very tight fit for them. This finding has since been confirmed by several other observers in various parts of the country. Starlings have not yet invaded the areas of the Brinkerhoff and Perry trails in sufficient numbers to cause significant trouble, but they are rapidly increasing in numbers in many parts of the West.

Art Aylesworth (1984) in a recent report found that starlings became a serious problem on trails in Montana and Alberta where 1-5/8 inch entrance holes were used. This problem seemed to be eliminated completely when the hole size was reduced to 1-9/16 inches. The size of this latter hole was shown to be adequate to accommodate the Mountain Bluebirds of these regions, many of which appeared to find the 1-½ inch hole too small.

Research is being planned to learn more about the nature of this problem, its causes, its solution, and the exact regions in which it occurs. Present indications are that, in most parts of the Mountain Bluebird range,

the standard 1-½ inch hole for nesting boxes is entirely satisfactory.

Until more complete knowledge concerning this problem becomes available, it is now recommended that nesting boxes with 1-9/16 inch (approximately 40 mm) entrance holes be used in any part of the Mountain Bluebird breeding range where the bluebirds are observed to be unable to enter or to have serious difficulty in entering 1-½ inch holes. In making such observations it should be kept in mind that bluebirds, in making their initial inspection of a nesting box, frequently go only part way into the box and then back out, repeating this action a considerable number of times before finally entering the box. This simply represents caution on the part of the bird in entering an unfamiliar enclosure which may be quite dark inside; it should not be interpreted as indicating that the hole is too small. The problem with hole size appears at present to be confined to parts of Washington, Idaho, Montana, and Alberta, but it may be more widespread than we know.

Persons already using boxes with 1-5/8 inch entrance holes should find them entirely satisfactory so long as starlings do not infest their areas. But when starling interference does occur, patches with 1-9/16 inch holes should be attached to the boxes as suggested by Aylesworth (1984).

Bluebird nesting boxes with 1-9/16 inch entrance holes may now be obtained from NABS. The 1-½ inch holes of standard boxes can be enlarged with a hand rasp or file, or with a simple cylindrical rasp attachment to an electric drill. Care should be taken not to enlarge the holes to more than a 1-9/16 inch diameter since any such larger holes will likely permit starlings to enter. Needless to say, starlings

(Continued on page 16)

PLANTINGS FOR BLUEBIRDS AND OTHER WILDLIFE

Eastern Red Cedar: Evergreen Lifesaver

Karen Blackburn

Where bluebirds are concerned, it would be difficult to over-emphasize the importance of wild fruit during the winter months. The Eastern Bluebird, for example, depends upon fruits to supply more than 50 percent of its winter diet. The availability of wild fruit is, therefore, critical to the survival of the bluebird, not only in its winter range but in northern areas as well. Fruits that persist throughout northern winters are especially important to bluebirds when late spring storms cover their grassy hunting grounds with ice and snow, rendering animal food unavailable. Without emergency food sources, great numbers of bluebirds may perish in the aftermath of a single storm. Plants such as American Holly (*Ilex opaca*), Northern Bayberry (*Myrica pensylvanica*) and sumacs (*Rhus sp.*) often mean the difference between life and death for birds caught up in the struggle for survival.

Another "life-saver" is the Eastern Red Cedar, a tree for all seasons. The dense, evergreen foliage of this tree provides ideal protective cover to meet both the summer and winter needs of wildlife. For this reason, many species of birds choose to nest among its branches. Though its waxy, blue fruits resemble berries, they are technically classified as cones and serve to attract more than 50 species of birds. These berry-like cones remain on the tree long after ripening, allowing birds to find life-sustaining food throughout the winter months.

The Eastern Red Cedar is a tree of stately beauty. With a trunk of twisted red bark, it carries its dense, deep green foliage crisply to the sky. The trees may live up to three hundred years and seem only to grow more lovely with the passage of time. Often a straight row of aged specimens may be



seen crossing an old field, most likely tracing the line of a fence which has long since disappeared. Perhaps it was a bluebird, in pausing to rest upon the fence posts long ago, that "planted" the seeds which produced these fine old trees.

Eastern Red Cedar (*Juniperus virginiana*)

Native Range—Southern Canada south to Georgia and Texas

Hardiness.—To Zone 2

Habitat—Commonly found in abandoned fields and other open sites. Often on poor, dry, sandy or rocky soils as well as better sites.

Habit—An evergreen tree to 50 feet in height. Bark may be reddish-brown or gray. Has two foliage types: new growth consists of ½" long, prickly needles; adult leaves are small, blunt and scalelike, overlapping one another. Trees grow slowly but are long-lived. Plant parts are aromatic.

Fruit and Flowers—Flowers are inconspicuous with male and female flowers on separate plants. Fruits are ¼" berry-like blue cones with a white bloom. They remain on the tree throughout the winter months.

Landscape Value—Effective in screens or windbreaks, but most attractive when allowed to develop fully on open ground. Useful on sandy, rocky sites.

Culture—Best growth occurs on light loamy soils of limestone origin. Prefers full sun. Male and female plants necessary for fruit production. Tolerates pruning and is occasionally used in topiary work.

Undesirable Traits—Eastern Red Cedar serves as an alternate host to a rust which can be transmitted to apples and related trees. The rust affects apples by spotting fruits and leaves and appears on cedar twigs as ball-shaped brown galls

Wildlife Value—Dense foliage offers excellent year-round cover for nesting and roosting birds. The Yellow-bellied Sapsucker visits the tree for sap, and the fruits are favorites of the Northern Mockingbird, American Robin, *Eastern Bluebird*, Cedar Waxwing, Evening

Grosbeak, Purple Finch and Pine Grosbeak. Departing from their insectivorous ways, the Eastern Kingbird, Eastern Phoebe, Alder Flycatcher and the Tree Swallow also use the fruits.

Special Uses—Wood of the Eastern Red Cedar is strong and aromatic and is used in the making of cedar chests, cabinets and fence posts.

Related Species—Many *Juniperus* species may be found across North America. Occurring as trees or small shrubs, they usually bear the common names of cedar or juniper. Most species are of value to wildlife and many are of particular importance to the wildlife which inhabits the arid Southwest. Western birds that use the fruits of native junipers include the Band-tailed Pigeon, Mountain and Scaled Quail, Pinyon Jay, Clark's Nutcracker and Townsend's Solitaire. Juniper twigs and foliage appeal to a number of hoofed browsers as well. ■

19 Crescent Hill
E. Longmeadow, MA 01028

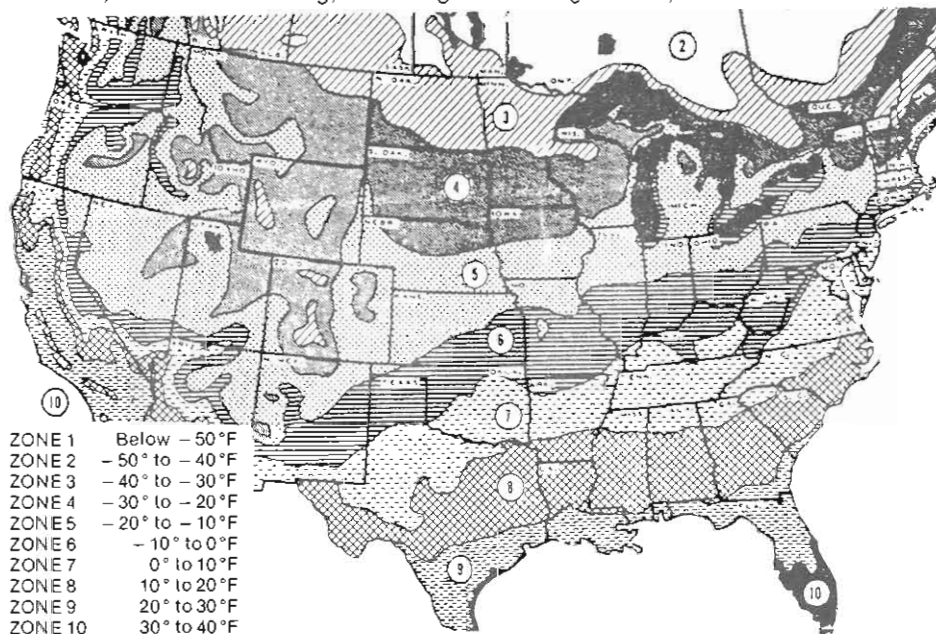


Figure 1. Hardiness Zones for the United States and southern Canada. Temperatures for each zone are the average annual minimum temperatures. When no zones are mentioned with the plant description, plants are hardy anywhere. If a zone is given, it indicates that plants are hardy within the zone and in all areas south of it. 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.

Death Struggle on a Montana Bluebird Trail

Art Aylesworth

On Memorial Day (28 May 1984), I was making my first nest box survey of nestlings near St. Regis, MT. I have an area 3½ miles long consisting of 34 paired boxes facing opposite directions mounted on telephone poles. It is not uncommon in this area to find bluebirds nesting in one box and Tree Swallows (*Tachycineta bicolor*) nesting in the opposite box. Approaching two of these boxes, I could hear a terrific struggle taking place. A male Western Bluebird (*Sialia mexicana*) was fluttering up and down from the telephone wires to the boxes and back. I opened the nearest box; it contained six Western Bluebirds approximately 12 days old. Small white and gray feathers were loose in the box about the young birds. The violent sounds came from the opposite box which I opened very carefully. A female Western Bluebird was struggling with what proved to be a male Tree Swallow. They were oblivious to my presence as well as to the open top of the box. Feathers were flying freely out of the opening. Finally the female bluebird struck a telling blow and got the swallow down in a corner of the box, pecking it repeatedly on the head. The swallow appeared to be dead. The bluebird turned to face me with her wings drooping and her breast heaving. Finally she fluttered up through the opening and onto the wires above me. I examined the swallow and found it to be lifeless and very battered about the head. My observation would be that the swallow must have been found with the young bluebirds and this death struggle started in that box although I did not observe anything

except bluebird and swallow feathers in the nest with the young bluebirds. Strangely enough, there was no swallow nest in the opposite box where the final struggle occurred. Just a quarter of a mile from this pair of boxes, I visited a single box that contained a completed bluebird nest without eggs with a male Mountain Bluebird (*S. currucoides*) dead in the nest. He had been pecked repeatedly on the head and had several feathers missing where the injuries took place. His body was still warm so obviously the struggle that resulted in his death had occurred the same morning. No swallows or other competitors were in the area. In all my previous experience, I have never seen a female bluebird battling a competitor near a box. It would appear to me that when swallows and bluebirds do battle "one on one" that perhaps the bluebirds win out quite often. On the other hand, when several swallows attack the bluebirds, I imagine, in most cases, the swallows are successful. ■

Box 794
Ronan, MT 59864

Bluebird Slide Show

The NABS slide show is available for rental at \$10.00 or purchase at \$55.00. The show consists of 141 collated, cardboard-framed 35 mm slides and a printed script (no slide tray). If a cassette narration is desired add \$5.00 to the purchase price.

To rent or purchase the bluebird slide show, write to the following address: NABS Slides, Box 6295, Silver Spring, MD 20906-0295. Please allow a month for delivery and, if possible, specify several dates.

The Importance of Nesting Box Location

Lawrence Zeleny

In planting trees it often has been said truthfully that it is far better to plant a 50 cent tree in a \$10 hole than a \$10 tree in a 50 cent hole. Similarly, it is far better to set out a cheap, poorly constructed bluebird nesting box in a suitable location (as long as the box meets certain rough measurement requirements) than to set out a beautifully constructed box in the wrong place. It is distressing to note how frequently organizations will go to great pains and expense to make or buy large numbers of the finest possible bluebird boxes only to set them out where there is almost no chance that bluebirds will use them.

Bluebirds are not really fussy about the location of their nests. They will accept nesting boxes in a wide variety of habitats; but they do have certain strong preferences. There are many kinds of locations that they reject completely, usually for good reason. Many disappointments on a bluebird trail can be avoided by an understanding of the birds' habitat requirements.

Perhaps the most important thing to remember is that bluebirds almost always refuse to nest within the limits of cities or large towns, and usually in all but the outer fringes of suburban developments. This was not always the case. Before the advent of the House Sparrow (*Passer domesticus*) and starling (*Sturnus vulgaris*) in North America, bluebirds nested freely in the residential sections of most cities. But now the bluebirds seem to have learned from sad experience that they cannot compete with the abundance of the foreign birds in metropolitan areas.

In the case of our efforts in the Washington, D.C. region many individuals have tried hard in recent years to entice bluebirds to nest in the Maryland and Virginia residential suburbs. Most of this suburban area is

within ten miles of the center of the city. Within that radius our efforts have had only very limited success. Yet within 50 miles of Washington and Baltimore many thousands of young bluebirds have been successfully raised during the same period in nesting boxes monitored by our collaborators. This highly successful area consists of some of the far-outlying suburbs and many small towns; but it is mostly rural in character, made up mainly of small farms and large country estates—ideal bluebird habitat.

The next important point to remember is that bluebirds will not nest in heavily wooded areas and rarely in any dense shade. They prefer sunny or lightly shaded locations for their nesting boxes. Yet wide open fields are less appealing to them than areas where there are some trees nearby. Since bluebirds feed largely from the ground, they are very partial to areas where the ground is not covered with tall vegetation. Thus bluebirds favor places where the grass or weeds are kept closely cropped or where the ground is stony or too infertile to permit more than sparse plant growth.

Overgrown hedgerows provide excellent nesting sites, protection, and often food for many songbirds, but bluebirds much prefer to nest at some distance from shrubbery or underbrush. They seem to know instinctively that in brushy areas House Wrens (*Troglodytes aedon*) are much more likely to interfere with their nests. Similarly, nesting boxes on fences that are free from vines and weeds are more attractive to bluebirds than those on fences that have become covered with vegetation.

Another important consideration often overlooked is that, in the general vicinity of their nests, bluebirds need

convenient perching places well off the ground but from which they can get unobstructed views of the ground. Bluebirds obtain most of their food by scanning the ground from these overhead perches. Whenever a suitable insect is spotted the bird will drop to the ground, seize its prey, and return to the same or another perch. At least one such perching place should be within 50 feet or so of the nesting box since, during the incubation period particularly, the male bird will use such a perch both for scanning the ground for food and for standing guard over his mate and her nest. He will attack furiously any other bird or animal that shows any interest in his nesting box.

Favorite perches are the lower dead branches of trees, from about 8 to 12 feet from the ground. Bluebirds are willing, however, to settle for perches nearer the ground such as fence posts or wires, or for much higher perches such as telephone or electric wires. When no other perches are available, a few stakes 5 feet or more long driven into the ground in the general vicinity of the nesting box will be greatly appreciated by the bluebirds. Birds have remarkably keen eyesight, far better than ours, and have no difficulty spotting tiny insects on the ground from high perches.

Mountain Bluebirds (*Sialia currucoides*) are somewhat less dependent on lookout perches than are Eastern Bluebirds (*S. sialis*) or Western (*S. mexicana*). They are masters of the art of hovering as they scan the ground for food. This permits them to make a

more thorough search of any area than they can from fixed perches, but this advantage is surely gained at the cost of a considerable expenditure of energy.

Following are some of the kinds of locations that are likely to provide the best bluebird habitat during the nesting season:

- Pastures
- Golf courses
- Large lawns
- Abandoned orchards
- Country cemeteries
- Roadsides of small country roads
- Open borders of woodlands
- Cultivated fields with low growing crops and open spaces between rows
- Any open areas with scattered trees and sparse vegetation or short grass

Nesting boxes are best mounted on smooth metal posts which may be kept well greased during the nesting season to help control climbing predators. Where predators are not a serious problem fences, fence posts, and utility poles (with permission from the utility company) are excellent and convenient for mounting the boxes. Trunks of isolated trees may be used if there are no squirrels or climbing predators in the area. ■

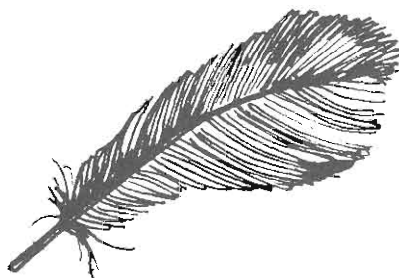
This article was first published in the February 25, 1976 edition of *Purple Martin News* (now *Nature Society News*) and is reprinted with permission.

(HOLE SIZE—Continued from page 11)

should *never* be permitted to maintain possession of any nesting box. ■

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On the Control of Parasites in Nest Boxes and the Use of Pesticides Near Birds

Jerome A. Jackson

One of the hazards that birds face when they reuse a nest or nest box is the possibility of a buildup of parasites from one season or one nesting attempt to the next. Moss (1966), Moss and Camin (1970), and Pinkowski (1977) present evidence that infestation of parasites such as mites (*Dermanyssidae*) and blowflies (*Calliphoridae*) can reduce reproductive success in birds such as Purple Martins (*Progne subis*) and Eastern Bluebirds (*Sialia sialis*). Thus, if we wish to "help" the birds, we could attempt to control parasites in nest boxes as well as provide the boxes for nest sites. The first line of defense should be cleanliness and tight-fitting construction that does not allow crevices as refuge for the parasites. In addition, numerous chemicals have been recommended as control agents by various authors, although the bases for such recommendations are often not given and the instructions on the packages of chemicals frequently do not refer to the use of the chemicals to control bird parasites. Indeed, the ornithological literature is generally devoid of comments on pest control in nest boxes except to recommend cleaning and lightly spraying or dusting the interior with this or that chemical.

What prompted me to look into the question of controlling external parasites of birds in nest boxes and the use of pesticides near birds is a tragedy in a Purple Martin colony which I will relate below for what might be learned from it. I will also go beyond this one disaster and review a number of chemicals which have been recommended for use in controlling bird ectoparasites. Since many of these chemicals are available for general use as insecticides, the annotated listing should be of general use to the individual who is concerned about

pesticide use but has a problem that may require a pesticide.

The attitude is sometimes taken that if a little bit does some good, a great deal will do a lot of good. No maxim could be more wrong when applied to pesticides. In May 1981, I received a call from Houston, Mississippi, to the effect that Purple Martins were dying in numbers at a martin colony. I visited the colony and found 19 dead adult martins. The caller indicated he had destroyed as many more dead birds and he was certain others had been carried off by dogs or cats. The martin colony at Houston was one of the largest in the area, including 13 aluminum martin houses and 180 apartments. It was with great pride that the owner heralded the arrival of martins each spring and with a strong sense of duty and "rightness" that he cleaned the apartments each fall. Having noticed mites in some of the old nests, the proprietor decided something must be done to protect his birds. He learned that sulfur would control the problem parasites and obtained some from his county Co-op for use in the martin houses.

When I inspected the apartments, I found a small pile of yellow-white powder in the center of most. The substance the martin landlord had purchased was from a bulk container and sold to him in an unlabelled paper bag. He had recently placed a teaspoon of the powder in the center of each apartment. I dissected several of the birds and found the stomach of each to include some of the chemical. Analysis of the powder by the Mississippi State Chemical Laboratory by gas chromatography and gas chromatography-mass spectroscopy indicated that it was indeed sulfur, but also included

4.9% of the pesticide EPN (0-ethyl 0-p-nitrophenyl phenylphosphonothioate), a potent organophosphate used as an acaricide/insecticide. The martin lover had certainly purchased a combination that would take care of the parasites in his martin house, but it was also one that was lethal to the birds. Heath et al. (1972) found that a dietary concentration of 349 ppm EPN was lethal to 50% of young Northern Bobwhite (*Colinus virginianus*) over a 5-day test period. The 4.9% EPN in the sulfur translates to a concentration of 49,000 ppm! Thus, death of the martins is no surprise.

There are three morals to this story: (1) Pesticides should be used for the purposes for which they are manufactured *and* under the conditions for which they are intended. (2) Pesticides should *not* be deposited in a small pile in the middle of a nest box. The birds may ingest anything that is in a box in large enough quantity to pick up. All that is needed is a light dusting with an emphasis on getting some of the chemical into cracks between walls where parasites can hide. (3) *Anything* being purchased as a pesticide should be bought and kept in a container bearing a label which indicates composition, methods and levels of application, purposes for which the product can be used, and precautions associated with use (including an antidote).

In preparing this report I learned two additional general bits of pesticide wisdom that I must pass on. (1) Do not take anyone's personal (or even professional!) advice in your selection of a pesticide without confirming on the label of the pesticide container that it is intended for the use you wish to make of it. It seems that everyone I talked to—extension agents, entomologists, toxicologists, and neighbors—knew just the perfect pesticide. I believe the toxicologist did. The others generally recommended chemicals that were stronger than what probably should be used in the confines of a nest box that might be occupied by tiny altricial hatchlings. (2) Do not accept the recommendations in your favorite bird book (or any other kind of book) without also confirming on the

label of the pesticide container that it is intended for the use you wish to make of it. Several references I examined suggested use of chemicals that are not approved by the U.S. Environmental Protection Agency for use on poultry—and if they are not good for poultry, they may not be safe for wild birds. One popular book written for pigeon (*Columba livia*) fanciers still recommends the use of DDT for control of mites! That volume (Levi 1981) was last revised in 1974, and DDT was banned from general use in the United States as of 1 January 1973 (Berg 1981).

Below are listed chemicals I have found currently recommended for use in nest boxes or on birds for ectoparasite control. Much of the literature, including nearly all of the testing of pesticides, deals with poultry or game birds. There is a definite need for studies of the effects of these chemicals on small songbirds. Some of these chemicals are more specific in their action than others. Before selecting a chemical, it may be worth learning just what it is you are trying to control. Some of the parasites associated with birds are mites, others are insects (feather lice, bedbugs, fleas, flies). Loomis (1978) and Watson and Amereson (1967) describe the various kinds of parasites which might be found in bird boxes. Some of the chemicals listed below will control any of these pests; others will control only some. Concentrations needed and frequency of application may vary with the type of pest and the type of chemical. Because of environmental problems associated with many modern pesticides, I have been inclined to use sulfur in my own martin houses, and it was somewhat of a surprise that I read in Loomis (1978: 668) that "The modern organophosphorous and carbamate insecticides are the main ectoparasite and fly control chemicals used for direct application to poultry, litter, or buildings." And that "There is little reason to use the relatively ineffective older inorganic insecticides such as sulfur and lime."

In selecting and using a chemical for control of parasites in bird nest boxes, it is important to consider that

most of these chemicals have been used with poultry, not small wild birds, and that toxicity of the chemicals may vary with species, size, health, and age of the bird. Also, poultry houses are generally large and open so that fumes dissipate rapidly, while nest boxes are small confined spaces with little circulation of air. It is important to realize the purpose for which the pesticides are used with poultry—for economic gain: eliminated parasites are measured in terms of increased meat or eggs for the market. Further, poultry are kept under exceedingly crowded conditions where any parasites at all could quickly become a serious problem. In the case of wild birds, our purpose in using chemicals in nest boxes should be to increase the chances of young fledging—not to eradicate the parasites. With the above consideration, reason suggests use of less toxic chemicals in lesser quantities, and only when needed.

The information presented below is not intended to recommend or endorse the use of any chemical, but merely to present commentary on what has been recommended for control of bird ectoparasites. Many of the chemicals are best known by their trade names (capitalized where mentioned), and since they are often manufactured by several companies, they often have more than one name. The first name listed below is the name that I found most used in reference to control of bird ectoparasites. Names in parentheses following each of those names are others listed by Berg (1981) for the same compound. Most of the chemicals are available in dust or liquid form and in various concentrations. A liquid might have the advantage of flowing more readily into crevices, but a dust is better for active nests since any problems that might be caused by the carrier liquid are avoided. Read label information carefully to determine concentration needed and best method of application.

In addition to general information about the pesticide as it relates to birds, if the information is given in Berg (1981) or Heath et al. (1972), I follow each entry with three indicators of tox-

icity. First, the U.S. Environmental Protection Agency has established "signal" words to indicate relative toxicity to humans. From least toxic to most toxic these are: CAUTION, WARNING, and DANGER. The bases for assigning signal words include measures of lethal doses of the chemical taken orally, inhaled, or in contact with the skin; and effects on the eyes and skin (Berg 1981:C341). Following the signal word is the single oral dose in milligrams per kilogram of body weight that was found to kill 50% of rats tested (= LD₅₀). Last is the median lethal concentration (LC₅₀) in parts per million (ppm) of the pesticide in a 5-day diet of second week Northern Bobwhite (values taken from Heath et al. 1972). These quantitative values will thus allow some distinction to be made among chemicals given the same signal word. It is important to note that the rat LD₅₀ values and the bird LC₅₀ values are each useful as indicators of the relative toxicity of the pesticides to rats and the bobwhite, respectively, and to a lesser extent they suggest potential toxicity to other mammals (e.g., man) and other birds. LD₅₀ and LC₅₀ values are not comparable to one another. The toxicity of any compound to a particular species cannot be ascertained until the compound is tested on that species. Also, it is important to note that the above values are for pesticides fed to the animals; the toxicities of the pesticides through contact with the skin are generally much lower for the chemicals included here. Note however that some potent pesticides, such as EPN, are nearly as toxic to touch (rat LD₅₀ = 22 mg/kg) as to eat (rat LD₅₀ = 14 mg/kg) (Berg 1981).

As we learn more about pesticides we know that recommended dosages and uses change. Thus it remains essential that the labels on the chemicals be read and all precautions adhered to. For the same and additional reasons it is not a good idea to use pesticides that have been "on the top shelf in the garage for years"—once opened, some chemicals lose their effectiveness, and some chemicals recommended a few years ago are now considered unsafe.

In the final analysis, control methods other than chemical pesticides may be the more desirable approach. Indeed, the "bird man of Alcatraz" (Stroud 1964:266) notes that "in my early days as a bird keeper I probably killed more birds through my fear of mites than were killed by the mites." He stressed cleanliness as the key to control in the aviary. Manual scrubbing of bird boxes with soap and water and rinsing with scalding water can be effective in controlling parasites in bird boxes that are being taken down for winter storage. Johnson (1932) and Mason (1944) suggest removing and burning nest material from early bluebird nests to reduce infestation of later broods. Before taking this approach, however, you should realize that there is also an energy expense to the birds in constructing a new nest and some preference may be shown for a nest box containing a reusable nest (Jackson and Tate 1974). If you should choose to leave old nests where a nest box is likely to be used more than once in a season, a light dusting of the nest with an appropriate pesticide following fledging of the young may be beneficial. An alternative to chemical pesticides in such a case might be the bacterium *Bacillus thuringiensis* which is now being marketed for control of many pests. Sell et al. (1970) and Hoffman and Gingrich (1968) suggest that it is effective in controlling ectoparasites of birds.

AN ANNOTATED LIST OF CHEMICALS THAT
HAVE BEEN SUGGESTED FOR POSSIBLE USE IN
CONTROLLING ECTOPARASITES OF BIRDS

INORGANIC CHEMICALS

1. *Sulfur*. This is an element that has long been used as an insecticide and fungicide. It *does* kill mites and insects (Creighton et al. 1943), but is much less efficient than the various organic pesticides. In general it may act more as a repellent than as a killer. Sulfur is safe enough to lightly dust birds and nests that are mite or insect infested, though it is known to irritate human skin (Berg 1981) and it might ir-

ritate bird skin as well. Clarke and Clarke (1975:101) note that excessive ingestion of sulfur has killed poultry and in lesser amounts can be harmful if eaten regularly by growing chicks. The fungicidal properties of sulfur may offer some protection against the buildup of *Histoplasmosis* spores, though I have found no documentation of this. One advantage of sulfur over the organic chemicals discussed below is that sulfur, though perhaps not as effective initially, does not lose its effectiveness. The organic pesticides listed here generally deteriorate within a few days.

2. *Dri-Die* (silica aerogel). This is a dessicant—similar to the material found in the small packet that was put in your binocular case by the manufacturer to protect the binoculars from moisture. This compound is effective in killing mites and insects by simply "drying them up." Dri-Die is probably a fine substance to use in clean, dry nest boxes over winter in order to start with pest-free boxes in the spring. However, birds' nests are relatively moist environments and Dri-Die would become saturated and lose its effectiveness in an occupied apartment because of this moisture. Moss (1966) used a combination of Dri-Die and Dibrom to control mites in Purple Martin houses. Dibrom is an organophosphate that will be discussed below. Drianone and Drione are silica aerogels mixed with pyrethrins synergized with piperonyl butoxide. Pyrethrins are natural pesticides of botanical origin and are discussed below. Piperonyl butoxide increases the effectiveness of the pyrethrins; see important comments on this synergist under "Other Chemicals" below. The EPA signal word for Drianone and Drione is CAUTION; no LD₅₀ or LC₅₀ is given for Dri-Die, Drianone, or Drione.

CHEMICALS OF BOTANICAL ORIGIN

3. *Pyrethrum*. The flowers of a chrysanthemum grown in Africa and South America are the source of this chemical. It has low toxicity to warm-blooded animals and is not hazardous to apply, but will kill both insects and mites. In

general this can be characterized as a "fast knock-down, slow killing" pesticide that is often in mixtures with a synergist such as piperonyl butoxide or other pesticides. Pyrethrum powder is sometimes hard to obtain, but extracts from the powder, called *pyrethrins*, are readily available. Zeleny (1976) recommends use of a pyrethrin spray to kill wasps that have taken over a bird house. Bates and Busenbark (1963:86) consider pyrethrins "the safest of all mite killers," noting that they are "slow, but ... very safe." Several synthetic compounds have been produced in attempts to duplicate the effects of natural pyrethrins. These include allethrin (= Pynamin), Neo-pynamin (= Phthalthrin), and SBP 1382. Berg (1981) suggests that allethrin is less effective at controlling insects than is pyrethrin. I have found no indication of the effectiveness or problems associated with the use of these synthetics for bird ectoparasites. Zeleny (1976:123) suggests that "Stronger pyrethrin formulations may be used in empty nesting boxes." The signal word for pyrethrum is CAUTION; LD₅₀ is 1500; no LC₅₀ is given.

4. *Rotenone*. Dried roots of South American plants of the genus *Derris* are the source of this chemical. Cooper and Eley (1979:264) list derris powder as suitable for external application to birds. The active ingredient in derris powder is rotenone. Rotenone will kill insects and mites and is only moderately toxic to most warm-blooded animals. Excessive amounts (1 g/kg of body weight) have been fatal to 5-day-old chickens (Clarke and Clarke 1975:192). Rotenone is more toxic to swine and fish (Berg 1981) and should not be used near water that could become contaminated. For that reason it is probably not a good pesticide to use in Wood Duck (*Aix sponsa*) boxes. Potter (1967) used 1% rotenone powder at the bottom of his bluebird boxes to control blowflies and reported a 70-100% increase in nestling production. Scott (1979) suggests 0.5% rotenone powder for blowfly control in bluebird boxes. Rotenone breaks down rapidly when exposed to sun and air, losing its effectiveness within a week.

It can be used judiciously during the nesting season as well as after cleaning the boxes. The signal word for rotenone is CAUTION; LD₅₀ is 132-1500; no LC₅₀ is given.

CARBAMATES

5. *Sevin* (carbaryl, Hexavin, Karbaspray, Ravyon, Septene, Tricarnam). Sevin is effective against both insects and mites and is considered safe for direct application to birds (Loomis 1978). Solomon and Robel (1980) found no significant changes in body weight or energy variables of Northern Bobwhite that were fed 10-90 mg/kg of carbaryl (less than 5% of the LD₅₀ of 1077-1322 mg/kg for Northern Bobwhite). At higher doses (180-540 mg/kg for 60 days), Nir et al. (1966) found a decrease in food intake by chickens. Bart (1979) did songbird population surveys of an area before and after aerial spraying with Sevin and could discern no effects on the birds. In contrast, Moulding (1976) reported a decline in singing-male survey results following two applications of Sevin. The negative effect reported by Moulding may or may not be of consequence to the limited use of Sevin in nest boxes, since the population effect reported could have resulted from the pesticide decreasing the food supply and thus having a secondary, non-poisoning, effect on the birds. Some questions have been raised about potential danger of Sevin to pregnant mammals (Smalley et al. 1968; see also Clement and Nisbet 1972). The signal word is CAUTION; LD₅₀ is 500-850; LC₅₀ is greater than 5000.

ORGANOPHOSPHATES

6. *Malathion* (Calmathion, Celthion, Cythion, Detmol MA 96%, Emmatos, Emmatos Extra, For-Mal, Fyfanon, Hiltion, Karbofos, Kop-Thion, Kypfos, Malaspray, Malamar, Malaphele, Malatol, Malmed, MLT, Sumitox, Vegfru, Malatox, Zithiol). As might be ascertained by the list of alternate names for this organophosphate, malathion is a popular pesticide. Its popularity is due to its low toxicity to

mammals and a high degree of compatibility with other insecticides and fungicides. The prefix (Mal-, meaning bad), is due to the strong odor of garlic that most forms of this pesticide have. Some formulations (Cythion, Fyfanon, Emmatos Extra) are low odor, but I personally believe a poison ought to smell bad. Loomis (1978) considers malathion safe enough for direct application to poultry for control of both insects and mites. Heath et al. (1972) found malathion to rank 51, 44, and 53 in oral toxicity for Northern Bobwhite, Japanese Quail (*Coturnix coturnix*), and Ring-necked Pheasant (*Phasianus colchicus*) out of 53 pesticides tested. Notably the pesticides tested did not include sulfur, pyrethrum, rotenone, or Dri-Die. In spite of the low avian toxicity suggested, excessive doses have caused persistent muscle weakness (Durham et al. 1956) and a pronounced rise in blood glucose levels of chickens (Uppal 1970). McEwen and Brown (1966) reported 6 of 19 wild Sharp-tailed Grouse (*Pedioecetes phasianellus*) died following dosage with 201-300 mg/kg of malathion. Clement and Nisbet (1972) accept limited use of malathion as a pesticide (no reference to nest boxes) because of its low toxicity and relatively short life in open environments. The signal word for malathion is CAUTION; LD₅₀ is 1000; LC₅₀ is 3497.

7. *Dibrom* (naled, Bromex, RE 4355). This is the chemical used by Moss (1966) in association with Dri-Die (see above). It has also been recommended as an aerial spray for flies in the presence of poultry by Loomis (1978: 669). Dibrom has some short residual fumigant action (Berg 1981). The signal word for this organophosphate is DANGER; LD₅₀ is 430; LC₅₀ is 2117.

8. *Ronnell* (Ectoral, Etrolene, fenchlorfos, Nankor, Korlan, Trolene, Viozene). This organophosphate is known for its residual effects in controlling insects (Berg 1981) and at some concentrations can be used for control of ectoparasites on poultry (Loomis 1978). A heavy oral dosage (1000 mg/kg of body weight) has been fatal to chickens (Raffensperger 1958). This pesticide is taken up by the body and stored in

body fat for a short time (Clarke and Clarke 1975). The signal word is CAUTION; LD₅₀ is 1740; LC₅₀ is not given.

9. *Co-Ral* (coumaphos, Asuntol, Bay 21/199, Baymix, Diolice, Meldane, Muscatox, Resistox, Umbethion). This chemical is registered for control of common ectoparasites of poultry (Berg 1981, Loomis 1978). Among the 53 pesticides tested by Heath et al. (1972), Co-Ral ranked 13, 16, 14, and 16 in toxicity for Northern Bobwhite, Japanese Quail, Ring-necked Pheasant, and Mallard (*Anas platyrhynchos*). The signal word is WARNING; LD₅₀ is 56-230; LC₅₀ is 120.

10. *DDVP* (Benfos, Cekusan, Cypona, Dede vap, Derriban, Derribante, Diclorvos, Divipan, Duo-Kill, Fly-Die, Herkol, Mafu, Marvex, Nogos, No-Pest, Nu van, Oko, Phosvit, Vapona, Vaponite). Here is another popular pesticide (though you probably did not recognize it by the name DDVP). This is the chemical in the familiar No-Pest strips that you see hung in various places to "silently" do in the bad bugs. It is also the chemical found in some flea collars. Loomis (1978) lists it as suitable for application to birds as well as around poultry houses. An extension entomologist I spoke with said that he had cut 1 x 2 inch rectangles of No-Pest strips and tacked them on the inside of bluebird houses, achieving good control of mites with no loss of young. On the other hand, a toxicologist warned that this chemical is extremely volatile and relatively toxic —with the lack of air circulation in such a small space he would not recommend use of this chemical in bird houses. Ingestion of Diclorvos by chickens has caused poisoning (Lloyd 1973). This chemical has been assigned the signal word DANGER; LD₅₀ is 56-80; LC₅₀ exceeded 5000 for Mallard, not available for Bobwhite.

11. *Stirofos* (Rabond, Appex, CVMP, Gardcide). The only reference associating this chemical with birds was Loomis (1978) who considered it safe enough to use on chickens for external parasites. Berg (1981) lists it only as an insecticide for use on plants. The signal word is CAUTION; LD₅₀ is 4000-5000; no LC₅₀ available.

OTHER CHEMICALS

12. *Nicotine Sulfate* (Black Leaf 40). This is a pesticide that has long been used with poultry. Loomis (1978:668) notes that "Although nicotine sulfate ... is still effective against lice and mites ... mammalian and avian toxicity is relatively high." The signal word is DANGER; LD₅₀ is 50-60; no LC₅₀ available.

13. *Benzyl Benzoate*. This chemical is available only by prescription of a veterinarian (Berg 1981) and is used as a spot treatment for mites. Cooper and Eley (1979) recommend a 10% solution for use on birds. Benzyl benzoate is known to cause a skin irritation in humans (Gosselin et al. 1976). No signal word is given; LD₅₀ is 500-5000; no LC₅₀ is given.

14. *Creolin*. This is a coal-tar derivative that I found listed only in Terres (1968) who suggests spraying the inside of nest boxes after cleaning with one part Creolin to 10 parts water to destroy lice and other insects. Stroud (1964:160) also noted that Creolin had been suggested to control feather mites, though he did not use the chemical himself. I searched Chemical Abstracts from 1965 through 1982 and could find no indication of use of Creolin associated with birds. Most of the recent literature on this chemical is Russian and deals with use of Creolin to control mites on sheep and goats. Windholz (1976) indicates that Creolin can be used as a general industrial and household disinfectant but that it should not be used on cats. Without further information, I would be reluctant to use this chemical in a bird house. No signal word, LD₅₀, or LC₅₀ given.

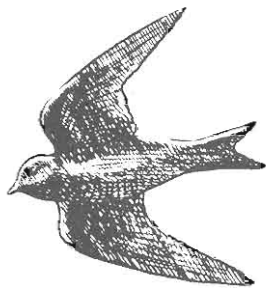
15. *Naphthalene* (moth balls). Stroud (1964:268) noted that there is "no better substance for keeping the nests of chickens and pigeons free from lice and mites." But when used in canary (*Serinus canaria*) nests he found that "one moth ball placed ... with the eggs will kill the chicks in the eggs within twelve hours, will kill eight-day old chicks in the nest within sixteen hours, ... will make the hen doxy and groggy ..." He goes on to suggest

that a very small pinch of naphthalene powder sprinkled on the nest or mixed in the nesting material will keep the nest free from mites without harming the birds. In the end he said that he preferred to use pyrethrum. Berg (1981) notes that naphthalene has a low toxicity for mammals and that it has been sold formulated with other ingredients as a lice powder for poultry. No signal word, LD₅₀, or LC₅₀ given.

16. *Piperonyl butoxide* (Butacide). This chemical is used primarily as a synergist to enhance the effectiveness of pyrethrins and rotenone. The combination of these chemicals is often found in aerosols and household sprays. Cooper and Eley (1979:264) consider the combinations suitable for external application to birds—with caution. Since this chemical is commonly used to increase the effectiveness of pyrethrins and rotenone, it is important that the user be aware of the consequences to himself. Piperonyl butoxide inhibits some liver enzymes in laboratory rodents and by inference in man (and birds?). Because liver enzymes act to detoxify many drugs and other foreign chemicals, a heavy exposure to piperonyl butoxide (or other similar synergist) could make a person (or a bird) more vulnerable to a variety of other toxic substances that the body would normally tolerate. The signal word is CAUTION; LD₅₀ is greater than 7500; no LC₅₀ is given. ■

Acknowledgments

I thank Bob Esher and Bette Schardien Jackson for many helpful comments on the manuscript and Howard Chambers for useful discussion of the potency and potential use of many of the chemicals.



APPENDIX

Index to chemicals mentioned in the annotated listing of pesticides. Numbers refer to numbered entries in the listing.

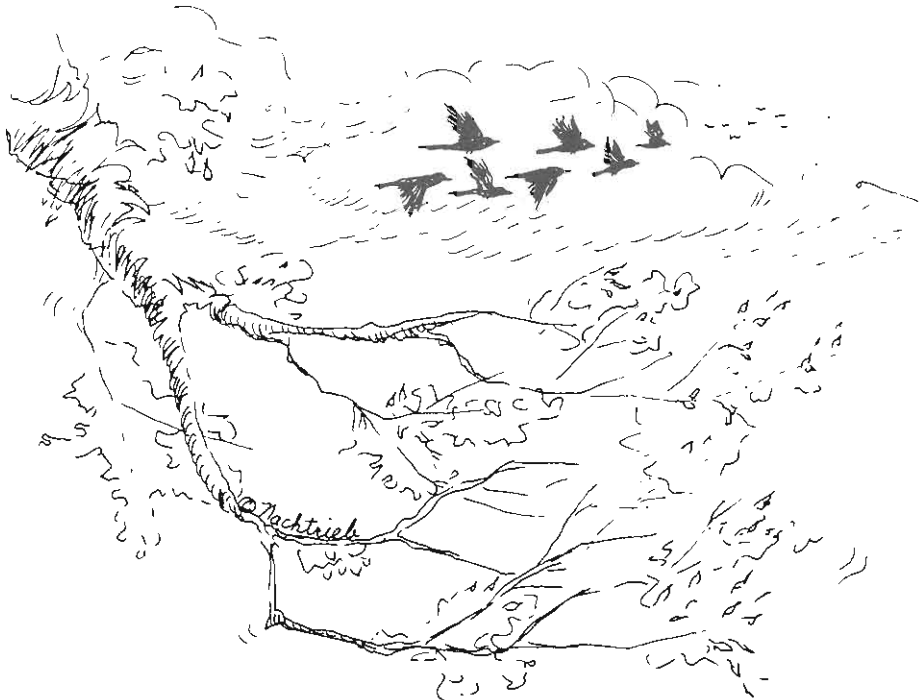
Allethrin	3	Ectoral	8	Neo-pynamin	3
Appex	11	Emmatos	6	nicotine sulfate	12
Asuntol	9	Emmatos Extra	6	Nogos	10
Baymix	9	Etrolene	8	No-Pest	10
Bay 21/199	9	fenchiorfos	8	Nuvan	10
Benfos	10	Fly-Die	10	Oko	10
benzyl benzoate	13	For-Mal	6	Phosvit	10
Bromex	7	Fyfanon	6	Phthalthrin	3
Calmathion	6	Gardcide	11	piperonyl butoxide	2,3,16
carbaryl	5	Herkol	10	Pynamin	3
Cekusan	10	Hexavin	5	pyrethrin	2,3,15
Celthion	6	Hilthion	6	pyrethrum	3,6
Co-Ral	9	Karbaspray	5	Rabond	11
coumaphos	9	Karbofos	6	Ravyon	5
Creolin	14	Kop-Thion	6	RE 4355	7
CVMP	11	Korlan	8	Resistox	9
Cypona	10	Kypfos	6	Ronneil	8
Cythion	6	Mafu	10	Rotenone	4,6,15
DDVP	10	Malamar	6	SBP 1382	3
Dedevap	10	Malaphele	6	Septene	5
Derriban	10	Malaspray	6	Sevin	5
Derribante	10	Malathion	6	Stirofos	11
derris powder	4	Malatol	6	Sulfur	1,6
Detmol MA 96%	6	Malatox	6	Sumitox	6
Dibrom	2,7	Malmed	6	Tricarnam	5
Diclorvos	10	Marvex	10	Trolene	8
Diolice	9	Meldane	9	Umbethion	9
Divipan	10	MLT	6	Vapona	10
Drianone	2	Muscatox	9	Vaponite	10
Dri-Die	2,6,7	naled	7	Vegfru	6
Drione	2	Nankor	8	Viozene	8
Duo-Kill	10	Napthalene	15	Zithiol	6

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Department of Biological Sciences, P.O. Box Z, Mississippi State University, Mississippi State, Mississippi 39762.



Mailman's Retirement Gift Is a Nest of Titmice

Shawn Ryan

During his 27 years as a mailman, James C. Mathews had reached into mailboxes and found live snakes, slimy garbage and other stomach-churning items.

But he found something in a mailbox Thursday [31 May] that he said made up for most of the nasty little gifts. He found a nest of newly hatched baby birds.

Mathews, who retired Thursday, had been waiting three weeks for the eggs to hatch. The nest was in a mailbox on his route in Bluff Park [AL] and Mathews, who lives in Bessemer, knew the chicks could be born any day. He was hoping they would hatch before his last day.

The three chicks were born Wednesday afternoon.

"It's like they hatched just for me," he said. "It's kind of a going-away present."

The nest—made of moss, sticks, bark and hair—fills the mailbox. The chicks are in the back, almost hidden by mounds of nest. But a low whistle brings their heads shooting up, their cavernous, yellow mouths wide open and ready for food.

The small mother bird, a titmouse, started building her nest more than a month ago, said Liz McArdle, owner of the mailbox-turned-nursery. Mrs. McArdle said she scraped the nest out of the box five or six times. Mathews said he did the same thing.

"I was afraid someone would disturb her eggs after they hatched so I tried to discourage her from building her nest," Mrs. McArdle said.

It was a wasted effort. The mother bird had picked out her home and was determined to live there. If the mailbox was left ajar—even the tiniest bit—the

bird was inside decorating her house.

"She would work frantically," Mrs. McArdle said.

Finally, Mrs. McArdle and Mathews decided to give in to Mother Nature. Mrs. McArdle nailed a plastic container to the back of the mailbox post and Mathews started leaving the mail in it.

"We cooperated with her to let her raise her family," Mathews said.

The babies were born Wednesday after Mathews had made his daily rounds. To let him know the good news, Mrs. McArdle tied a pink bow on the mailbox and left a sign for him. It read: "We had triplets."

Mathews has left word at the Bluff Park branch Post Office, asking that the next mailman be careful with the birds.

Mrs. McArdle said the mother now seems content with the arrangement and doesn't seem to mind her privacy being invaded by the huge faces which constantly appear at the mailbox door. "She just sits and looks at you, sort of like she is saying, 'Hello,'" Mrs. McArdle said. "She knows that we don't touch anything on the inside."

Mathews added that he was amazed by the mother bird's stamina while she sat on the nest, warming the eggs. "I don't see how she stayed in there (the mailbox) during those hot days we had last week," he said.

Not many neighbors know yet about the babies, Mrs. McArdle said. "I was afraid the children would come by and disturb her." ■

We thank The Birmingham News for permission to reprint this article by one of their staff writers and for supplying and allowing the use of the photograph.

News staff photo by Ed Jones



Scott McArdle, left, and Mathews watch the baby birds hatched in mailbox.

QUESTION CORNER

Lawrence Zeleny

You recommend cleaning nesting material out of nesting boxes weekly to prevent House Sparrows from nesting. How can I determine what species is building if I don't see a bird near the box but just find the nest?

Joseph E. Brethauer
Dayton, Ohio

It is sometimes difficult to distinguish between bluebird and House Sparrow nests in the early stages of construction. The completed nests, however, are quite easy to distinguish. The bluebird nest is very neatly made of relatively uniform material, usually dry grass or dry pine needles and few, if any, feathers. The rim of the nest is not more than about 2½ inches above the bottom of the cup of the nest. Sparrow nests are built up much higher on the sides and are often domed over at the top. They are usually made of a great variety of nesting material including feathers when available. House Wrens build their nests almost entirely of twigs and typically use enough nesting material to nearly fill the nesting box. Descriptions and/or photographs of the nests of various birds are found in many bird books.

Whenever there is any uncertainty as to the identity of an active nest in a nesting box, it is best to wait and watch for the owners of the nest to appear on the scene.

Do bluebirds have a sense of smell?
Laurance Sawyer
Ringgold, Georgia



Bluebirds and other passerines are believed to have very poor senses of smell and taste as compared with most mammals including man. However, they have excellent hearing and superb eyesight.

In your article in *The Living Bird Quarterly* 2(2):22 you wrote that bluebirds "do not use the same nest more than once." By this do you mean the actual nesting material or also the nesting box and site?

Dirk de Waard
Greenville, Florida

Bluebirds do not use a nest for raising more than one brood of young. If they use the same nesting box or natural cavity for another brood they will build another nest for this purpose on top of the old nest, unless the old nest is removed first. We recommend that bluebird nests be removed from nesting boxes as soon as the young birds have flown. A nesting box in a single location may be used by bluebirds for many years, especially if previous nestings in it have been successful. ■

Report of Seventh Annual Meeting

Mary D. Janetatos

The Seventh Annual Meeting of the North American Bluebird Society took place October 12-14, 1984, at the Holiday Inn North in Jackson, Mississippi. After morning registration, Dr. Dudley Peeler, Past-President of the Jackson Audubon Society (JAS) presided. A warm welcome was given by Nancy Grenfell, President of JAS. Rev. Jerry McBride, associate rector of St. James Episcopal Church in Jackson led the assembled group in prayer.

The first speaker was Dr. George Hurst, professor of wildlife, Mississippi State University, who was introduced by Bob Roberts, Past-President of JAS. George Hurst illustrated his talk on the "Use of Nesting Boxes on Young Loblolly Pine Plantations," with many slides showing the success of installing bluebird nest boxes on areas where logging of fast-growing paper-pulp pine forests had been harvested. In this way, the bluebird population was able to utilize areas not usually recognized as habitat. This is an extremely important development for native cavity nesting birds as much land in southern states is planted in pine trees to fill society's ever expanding need for paper.

Next, Liz Peeler, Past-President of JAS, introduced Bill Turcotte, Emeritus Assistant Director, Mississippi Wildlife Conservation Department. After a short disclaimer as to the technical shortcomings of his "Home-made Movie—Mississippi Bird Songs," he showed a charming film with sound which he had crafted over a long period of time in Mississippi. He tested the audience's knowledge of bird songs; those from out of state were surprised at the local dialect used by the birds—birds with southern accents!

Following a coffee break provided by the Hospitality Committee of JAS, Reber Layton of the NABS Board of Directors and the JAS, introduced "Four on the Floor—Bluebirding in Mississippi". Representing North

Mississippi was Dr. Tom Holden, physician and naturalist from Grenada; Central Mississippi, Perry Ritchie, wildlife artist and naturalist from Canton; Southwest Mississippi, Dr. Richard Field, physician and naturalist; and Southeast Mississippi, Tina Dew, naturalist from Pachuta. Each panelist detailed bluebird conservation efforts in his own area. Perry Ritchie, whose endearing paintings of bluebirds decked the conference rooms, has the wonderful privilege of year-round bluebirds as she feeds them from enclosed feeders.

On Saturday afternoon Evelyn Tackett, Past-President of JAS introduced Judy Toups, a birder, environmentalist, nature writer and newspaper columnist. Her topic was "The Mississippi Gulf Coast Tern Program". Judy described the nesting cycles of Least Terns, and how they interacted with other shorebirds and with human activity. Her conclusion was that though more needs to be done, the situation is improving.

Her presentation was followed by the Annual Business Session and Awards. NABS Executive Director Mary Janetatos began with a description of a typical work week at headquarters. A round of applause greeted her account of the many faithful volunteers who assist her and Treasurer Chuck Dupree in day to day operations. She then thanked the members of the Speakers' Bureau throughout the continent and named many bluebirders who, by their prodigious service to NABS, had become well-known to the central office. President Lillian Files then recounted some of her experiences while moped-monitoring her trail in MA and giving her many talks on bluebird conservation. As Mary read the names and bluebirding accomplishments of the award winners, Lillian presented each with a handsome plaque. Election of officers and Board

Members followed. The slate of nominees was presented by Nominating Committee Chairman Bryan Shantz. The nominees were then elected unanimously.

At 2:30 p.m., a surprise was in store. The scheduled talk was to have been a duologue entitled "The Bluebirds and the Martins" by Dr. Larry Zeleny, NABS founder and author of *The Bluebird*, and Reber Layton, Chairman of the Jackson Bluebird Project and author of *The Purple Martin*. Due to the illness of Mrs. Olive Zeleny, however, Larry could not attend the meeting. In place of the scheduled talk, a sneak preview of a bluebird motion picture was given by its producer, Walter Berlet, of Berlet Films, Inc. The action photography of this remarkable film is stunning. The audience was enthusiastic and will eagerly await the completed film, which we hope will be available in late 1985 through NABS.

Following the afternoon coffee, Patty Compton, Past-President of JAS, introduced the next speaker, John Judy, who is Tennessee Valley Project Coordinator of Environmental/Energy Education Program from Nashville, Tennessee. He had just returned from an international environmental educator's meeting in Alberta, Canada without even a stop at home. The coincidental nature of the trip was apparent to all: ten Albertans had journeyed to Mississippi for the NABS Annual Meeting and here was a bluebirder who had gone to Alberta for a meeting at the same time! Judy's message about the urgency of informing the public about the importance of conserving our renewable resources was well received by the audience. He stated repeatedly that NABS was in the forefront of this mission, and filled very well the function of getting people involved as well as keeping them informed.

Marita Smith, Past-President of JAS, introduced Bryan Shantz whose talk was entitled "The Mountain Bluebird in Alberta, Canada." Bryan is NABS Education Chairman as well as past Board Member, and wildlife biologist and photographer who is an active bluebirder on the Ellis Bird Farm in

Red Deer. His photographs of Mountain Bluebirds gave the audience a taste of what it would be like to visit Alberta for the NABS Eighth Annual Meeting, July 12-14, 1985. In a further taste of the hospitality extended to NABS, newly-elected NABS President, Sadie Dorber, was presented with a gigantic ten-gallon red felt hat by Ellis Bird Farm official, Morris Flewelling. The final talk of the afternoon was a heart-tugging trip into the world of "Bluebird" by poetic author Andre Dion of Quebec, Canada. Ruby Finch read movingly from Andre's book, a perfect complement to Andre's poignant tale of how he came to write the odyssey. All ages may enjoy the beautiful story, true to fact yet steeped in fantasy, illustrated in full color by Richard Lemire. The English translation, by Jane Brierley, is available exclusively through NABS.

Saturday evening's banquet was presided over by Nancy Grenfell, President of JAS. Following the dinner, Maurice Duvic, editor of JAS newsletter introduced the speaker, Dr. James D. Lazell, President of the National Conservation Agency from Jamestown, Rhode Island. His illustrated address was "Conservation in Action: Birds and Animals of Hawaii, West Indies, Tasmania, and China." Following this address, Mike McGraw, Past President of JAS made the special awards to the members of the Jackson Audubon Society to close the day.

Sunday was set aside for field trips. This writer took the "Green Tour." Our group walked all over the Reservoir land encountering both the dreaded fire ants, and the Mississippi mud. Box lunches were enjoyed in a picnic grove, and the Seventh Annual Meeting drew to a close.

As in all annual meetings, the exhibit room provided a place where all could view the "booths" set up with bluebird offerings for all. These included Laurance and Adelaide Sawyer's assorted hollow log nest boxes, feeders, bird baths, and scrapbooks of amusing bluebird scenes; various nesting boxes which were used

by other native cavity nesters, most notable of these was the one used by a Prothonotary Warbler; the NABS booth, monitored by Priscilla Kingston; the NABS scrapbook, assembled by Dottie Foy; Ray and Clara Brinser's

supply of "Bluebird diet," and the kiosk set up by Bryan Shantz depicting the legendary Ellis' Bird Farm. Winnie Ellis was present thereby adding a special note. ■

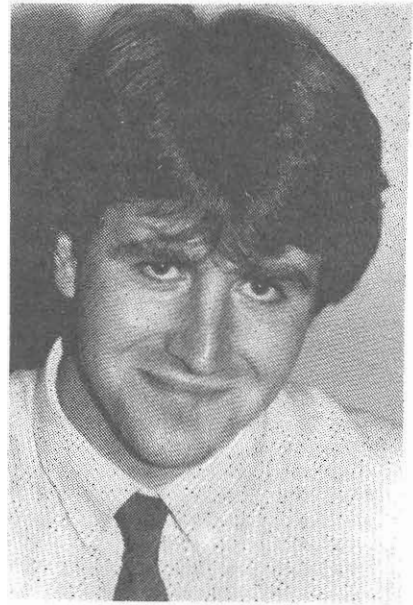
Bermuda Bluebird Society President Suffers Paralysis as Result of Fall While Aiding White-tailed Tropicbird

Thomas Outerbridge, the charismatic young bluebirder from Bermuda, suffered a disastrous fall while aiding the conservation efforts of another cavity nesting bird in his native Bermuda, in June of 1984. He was digging out nesting cavities for the White-tailed Tropicbird (*Phaethon lepturus*) in the cliffs high above the ocean when he fell.

Tommy had captivated the audience at the NABS' Sixth Annual Meeting in Binghamton, NY, in 1983 where he shared his film "Happiness is a Bluebird in Your Garden." On the sound track he sang a song he composed, "Mr. Bluebird Blue."

In February of 1984, NABS Founder, Larry Zeleny, President Lillian Files, Treasurer Chuck Dupree and his wife Betty, and Executive Director, Mary Janetatos travelled to Bermuda to witness the ceremony arranged by Tom and his collaborators which launched the Bermuda Bluebird Society. (See *Sialia* 6(3):107-108) Tom had converted nearly the whole population of Bermuda into bluebirders. The thrill of being on that island paradise was augmented by seeing many bluebirds, and being recognized as bluebirders everywhere we went.

It was with great sorrow that we heard of Tom's accident in June. He is convalescing in England, battling paralysis from the waist down. Our hopes and prayers go out on his behalf for a complete recovery. At last report, Lady Dunrossil, wife of the Gouverneur



Tommy Outerbridge

of Bermuda, was to visit him in the British hospital where he is being treated.

I'm sure that many of you will wish to communicate with him and he would love to hear from you. His address is as follows:

Thomas Outerbridge
C/O The Paddocks Private Hospital
Princes Risborough
Buckinghamshire, England

—Mary Janetatos
Executive Director

Society Launches Special Box Monitoring Project

The North American Bluebird Society has established a special box monitoring project to enlist the support of trail monitors and volunteer researchers to assist in finding answers to a number of questions relating to nesting success of bluebirds and other cavity nesting species.

Because there is considerable dedication on the part of Society members, it is hoped that solutions may be found to some problems through concerted volunteer efforts.

NABS has budgeted limited funds to help defray the cost of investigation by trail monitors who are working on approved projects. The amount of funding will vary from \$50 to \$100. These funds will help to defray the cost of specialized supplies or materials that might be required but are not intended as reimbursement for mileage, meals, etc.

The following categories will be eligible for consideration:

1) Nest site competition

A. One of the most serious deterrents to successful bluebird conservation is nest site competition from House Sparrows, an alien species. Possible solutions include the use of open-topped nesting boxes, plastic jugs, and nesting box height experimentation.

B. Competition is also posed by native cavity nesting species. The Society is looking for methods by which two or more of these species can live compatibly in the same habitat.

2) Hole and nest box size for Mountain Bluebirds

Conflicting evidence supports possible re-design of nest box size and change of entrance hole to accommodate Mountain Bluebirds.

3) Climbing predator control

Simple and inexpensive methods are sought to control losses from climbing predators.

4) Mortality in nesting boxes

Of particular concern is mortality of adult Tree Swallows found dead in nesting boxes. This category also may include projects investigating possible pesticide contamination and mortality from ingestion of insecticide-poisoned insects; mortality from agricultural spray contact and mortality from use of wood preservative-treated lumber for boxes.

5) Safe methods for controlling parasites, wasps, bees, and ants in nesting boxes

Various insecticides have been used for this purpose, but their safety has not been established for this use. Alternatives have been proposed including nest box re-design and replacement of infested nests with artificial nests.

6) Hanging nesting boxes

Though hanging nesting boxes have generally been regarded as unacceptable to bluebirds and, therefore, not recommended, there is some reported success with them. Investigations should include support design and predator control success.

7) Decline of nesting success of Great Crested Flycatcher

Certain cavity nesting species, such as the Great Crested Flycatcher, appear to be in serious trouble because of competition from starlings. Confirmation is needed to determine whether a nest hole entrance of 1-9/16 inches is acceptable.

Many people are already involved in investigations to find solutions to these problems; you are encouraged to submit your proposals for review. Both new and ongoing projects will be considered.

Requests for stipends in the range of \$50 to \$100 for projects related to the above categories should be summarized in a one page proposal (if possible). In addition to a clear statement of the problem, also include justification, objectives, background, methods, supplies, and schedule. Proposals will be evaluated by a review committee. Mail project proposals to

Richard J. Dolesh

17800 Croom Road

Brandywine, Maryland 20613.

Committee Heads Appointed

President Sadie Dorber has named the following individuals to committee chairmanships for the coming year:

Awards Committee—Anne T. Sturm

By-laws Committee—Mark Raabe

Development Committee—David Pardoe

Education Committee—Bryan Shantz

Historian—Bob Bodine

Nominating Committee—Lillian Files

Research Committee—Theodore W. Gutzke

Special Projects Committee—Richard J. Dolesh

Awards Presented

At its annual meeting NABS presents awards to individuals and groups who have made outstanding contributions to bluebird conservation. If you would like to nominate an individual, group, or organization for consideration by the Awards Committee, please send a letter documenting the work of your nominee to Anne Sturm, Awards Committee Chairwoman, Box 341, Barnesville, MD 20703.

The **JOHN AND NORAH LANE AWARD** for an outstanding contribution to bluebird conservation by an individual was made to the following persons:

Reber Layton of Jackson, MS, author of *The Purple Martin* and *30 Birds That Will Build in Bird Houses* and organizer of an outstanding campaign for bluebird conservation centering in Jackson, MS. He has inspired many Mississippians to take up the bluebirds' cause.

Richard M. Tuttle of Delaware, OH, who, as a public school teacher, has taught bluebird conservation to thousands of children. He devised a simple plan for constructing a bluebird nesting box from 3 feet of 1 inch by 10 inch pine board. This plan was integrated into the brochure "Hit the Trail for Bluebirds" authored by Dick and published by the Ohio Department of Natural Resources, Division of Wildlife. Dick also compiled the NABS slide program. He has served as Slide Program Coordinator, Board Member, and Education Chairman.

Edward Robinson of Wawanesa, Manitoba, who assisted John Lane in the early days of the Brandon Junior Birders. He compiled bird migration records for more than 65 years and is a life member of the Manitoba Naturalists.

Edwin T. McKnight of Washington, DC, who has maintained extensive bluebird trails in rural Maryland and Virginia for many years. He has kept meticulous records of these thousands of nestings.

The **LAWRENCE ZELENY AWARD** for outstanding contributions to bluebird conservation by an organization was given to the following two groups:

The **Jackson Audubon Society (JAS)** which supported and extended the efforts of Reber Layton in promoting bluebird conservation. JAS also actively stimulated bluebird awareness and provided support for the North American Bluebird Society. They were instrumental in making bluebird conservation a statewide cause in Mississippi.

The **Ohio Division of Wildlife (ODW)** for following through on the ideas and innovations of Dick Tuttle. The ODW produced a 12 minute videotape covering the bluebird's life cycle and the operation of a bluebird trail. They also initiated a program to provide bluebird nesting cavities along limited access highways throughout Ohio.

The **RESEARCH AWARD** for an outstanding contribution to bluebird conservation was presented to **T. David Pitts, PhD**, who is a professor at the University of Tennessee in Martin, TN. Dr. Pitts did his doctoral work on bluebirds. He credits Amelia Laskey (last year's Research Award recipient) with inspiring him to concentrate on bluebirds in his research. ■

WANTED: Back Issues of *Sialia*

Don't discard back issues of *Sialia*! If, for any reason, you cannot keep past copies of the bluebird journal return them and claim a tax deduction of \$2.50 for each.

Many new members desire complete sets of back issues which we are unable to supply. Copies of Volume 1:1,2 and Volume 3:2 are particularly needed. Mail back issues to headquarters:

North American Bluebird Society
Box 6295
Silver Spring, MD 20906-0295

Thank You, Volunteers!

When the North American Bluebird Society was founded in 1978, there were many generous persons ready to help the new organization hatch and fledge. Since that time, people have continued to furnish support for the Society's activities in many ways. Recruiting new members is one way. There is a vast network of people attracting new members through casual conversation and gift memberships. Across the continent, like so many parent bluebirds, are the members of the NABS' Speakers' Bureau giving sustenance to the Society by providing information and feeding in a constant flow of new members. Although these speakers are too numerous to list here, the Society could not do without them any more than baby bluebirds could do without insects.

The past and present officers and members of the board are another group of individuals who are a great asset to the Society. They search for funding for major research and educational projects and attend far-flung board meetings. Remarkable among this year's efforts were the following: Anne Sturm, NABS' Past-President, Former Secretary and Board Member who worked on the Awards Committee, the Development Committee, and the Film Committee. Anne also recruited Nelson Hoye, who gave NABS the benefit of his consulting experience on the Film Committee. Dottie Foy surmounted many difficulties as NABS' first Historian. One result of her labors is a travelling scrapbook. Other Board Members generously lent their expertise above and beyond the minimum required. Out-going President, Lillian Files, did an outstanding job of dealing with a number of knotty problems during her term of office. As a special way of saying thank you, we are printing below a poem submitted by Margery Knisley, a friend and neighbor of Lil's.

The Bluebird's Song in March

Over the meadow and through the wood
To Lillian's place I'll fly.

My heart know the way,
Wing north today
Through cloudy or sunny sky.

Over the meadow and through the wood
Oh, how the wind doth blow.
It quickens the pulse,
And chills the house
But it's on to Tyngsboro.

Over the meadow and through the wood
"Windswept Acres" is nigh.
The collies await us,
The flag is unfurled
My favorite box I spy.

Over the meadow and through the wood
Nesting again in style.
She waits on The Hill,
Oh, hear us all trill,
Three cheers for Lillian Files!

The Annual Meeting is the work of volunteers—this year's Grand Marshall was Reber Layton, Board Member from Jackson, MS. He received assistance from Nancy Grenfell, JAS President and Sally Hathorn of the Hospitality Committee. Indeed, many of JAS' committees were helpful to him.

NABS members who take the time to keep records of their nesting successes and failures and then turn them in by the requested deadline are also helping the Society.

Editor Jo Solem appreciates the continued assistance of special volunteers. For their excellent work and dependability Art Editor Richard L. Woodward and "Plantings" author, Karen Blackburn, deserve special commendation. Marian McGrath, Tedd Gutzke, and Larry Zeleny continue to provide valuable advice and assistance.

NABS operates on a day-to-day basis by sending out direct mail, receiving a large number of requests for bluebird information, and filling orders for the bluebird books, nesting boxes, and collectibles which are largely unavailable elsewhere. On a quarterly basis the regular volunteers are joined by others who stuff the current *Sialia* and its inserts into envelopes for mailing.

In the past year, Wally and Katie Knapp have continued their faithful assistance as NABS' longest-serving weekly volunteers who help by collecting and answering the mail. Marjorie Mountjoy and Frances Ehlers appear weekly and sometimes oftener to make sure that orders are filled. Marty Chestem, past NABS Vice-President and Board Member, assists with orders when she is in town. Tom and Joe Tait, currently NABS Vice-President and Corresponding Secretary respectively, help with the mail.

Membership list maintenance is done by Edith and Sarah Haviland; recently, Sarah has been coming weekly with Violet Lau to assist with the heavy volume of mail. Also a weekly volunteer is Carol Sykora. Marie Battle was able to pull NABS through a particularly heavy work-flow period, coming in almost daily for a few months. Sharon and Joelle Sabotka helped when the work flow exceeded the average amount. Linda Polk, who with her four year old daughter, Allison, shares my house, has been of great assistance in her spare time. Long-distance volunteer typing and fund-raising assistance is currently being furnished by Mrs. Barbara Maddigan of Auburn, IN.

The "stuffin' *Sialia*" group includes Florence Porter who brings in a

reliable group from Rossmoor Leisure World including Harriet Shapiro, Les-sie Garrison, Laurae Hoye, Helen Tun-stall, Alice McIntyre, Mary Barker, and May Bradford. Harold and Mildred Nor-wood come with assorted relatives, two granddaughters and Beulah Moore, Mildred's sister. Anne Sturm once brought her mother-in-law Opal Sturm along with Rex and Anne's three chil-dren: Morgan, Maren and Logan. New-comers this year were the Fairland 4-H group whose leader is Fil Ryan: Matt Ryan, Marc and Gretchen Bauer, Re-becca Segal, Jennifer Doak, and Lyle Curry. Regular *Sialia* volunteer, Found-er Larry Zeleny, once brought his 10 year old next-door neighbor, Christina Donnelly. Larry continues to maintain a voluminous personal correspondence with individuals and scientists and keeps a watchful eye on nesting box quality control.

Since my bluebirding habitat has grown into House Wren territory, all of these volunteers had little actual re-ward in *seeing* bluebirds, but their de-votion to the cause remained ever faithful. As bluebird conservation spreads across the continent and even to Bermuda, a crystal-clear realization warms the heart. It is "volunteers work-ing here" and we thank all of you! ■

Mary D. Janetatos
Executive Director

North American Bluebird Society Eighth Annual Meeting

July 11-14, 1985

Red Deer, Alberta, Canada

Informative Sessions, Annual Meeting, Field Trips
(plus optional field trips before and after the conference)

For information write:

Ellis Bird Farm Ltd.
Box 5501, Red Deer
Ab., Can., T4N 6N1

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 like the idea of the sparrow trap as shown in the Winter 1984 issue.

The pest birds in my area are so skittish that a string 200 feet long would be required.

We should begin to think very hard about protecting all native cavity nesting species from *Passer domesticus* and *Sturnus vulgaris*.

L.A. Smith
Brantford, Ontario

Dear Editor:

Almost every summer we are able to successfully hatch three sets of young bluebirds. However, my concern does not end with completion of the nesting season for I carry on a winter feeding program which I believe to be quite successful.

I grind beef suet which has a small amount of lean meat on it using a knife like a butcher would use to grind hamburger. At first, for several years, I did this with a hand-turned grinder, but now my "customers" have become so numerous that I use an electric grinder to be able to keep up. I find that if we have snow on the ground it takes from three to five pounds a day to keep up with the demand. A robin or two will also feed from the same feeder as the bluebirds. I have found that the ideal feeder is a piece of flat board about 8 inches square with a low border completely around the edge of it. The

border serves two purposes: first, it gives the birds something to grip when they are feeding, and second, it keeps the suet from falling on the ground into the snow. The best location for this feeder seems to be on a porch post just outside the kitchen window of our house. This location seems to deter large woodpeckers from infringing on the small birds' feeder. Then I nail a large chunk of suet to a tree in the yard which takes care of the larger birds including five-times-a-day visits by Pileated Woodpeckers.

Chester Abell
Forsyth, Missouri

Dear Mr. Abell:

Thanks for your winter feeding tips. Bluebird lovers are always anxious to help birds through the difficult winter months. A part of your letter not reprinted above describes your nesting success and the fact that after you clean your boxes you dust the inside with sub-limed sulphur. Be sure to read carefully Dr. Jackson's article in this issue.

Dear Editor:

I have a nesting pair of bluebirds 150 feet from my house. They had three eggs, two of which I know hatched. They have been in our yard since May 31st. Their courtship—her indecision over which one of the two nest boxes would best suit her—was priceless. They will not tolerate the presence of a

flicker in the yard. I'm not sure why. The flickers do not go near the box. They just peck for bugs on the ground or hang on a "planted" dead tree. That dead tree is one of the bluebirds' favorite perches, perhaps that is why they chase them away.

The pair of bluebirds is the first my husband and I have ever seen. They have "made" our summer. The time will soon come when they will leave—we will feel so sad. My parents have enjoyed seeing them. Our elderly neighbors were thrilled to see them. Our seven year old son thinks they are pretty. They surely have been "bluebirds of happiness" to us and for us this summer.

Lois D. Sullivan
Corfu, New York

Dear Editor:

In Lawrence Zeleny's book *The Bluebird*, there is a chapter on predators and enemies of the bluebird. One subchapter deals with the two-legged kind of predator, humans. In my opinion, this problem needs more attention than it now receives.

Around Iowa Falls and some other parts of the state, bluebirds have suffered along with other wildlife by being targets of indiscriminate killing. When I first began planning my bluebird trail, I was advised by a local conservationist not to put the trail along or near the roadside because houses have been known to have been damaged severely by people who don't understand the bluebird's and other wildlife's plight. For this reason I don't believe this region of the country will ever become a bluebird paradise.

Matt Baumann
Iowa Falls, Iowa

Dear Matt Baumann:

Iowa Falls may have some insensitive people but, just as in many other areas, only a small percentage of the population vandalizes property and destroys birds and their nests. We hope education by those who care for our native cavity nesting birds will change their actions. Meanwhile, locate boxes as inconspicuously as

possible and, in general, place them on private property away from public traffic.

Dear Dr. Zeleny:

I received the latest issue of *Sialia* and after reading about the "magic mix" that one reader puts out for bluebirds I felt compelled to write.

I have had a rehabilitation permit for about 15 years. Through the years I have had birds brought to me dead and I have found such birds on my and my neighbors' property. Each bird was given a complete autopsy by this writer. I found the culprit, where there was no indication of weather, disease, starvation, or predation to be plain peanut butter. Peanut butter ALONE is deadly. A perching bird's crop is not made to handle the heavy consistency of this product.

Peanut butter should be used in minute quantities as a binding agent only in conjunction with other edibles. Under no circumstances should it be used alone.

Dottie Foy
Oriental, North Carolina

Dear Dottie Foy:

The use of peanut butter to feed birds is a somewhat controversial issue. However, the evidence now seems quite clear that when used alone, without admixture with other ingredients, peanut butter may indeed be dangerous and even fatal as you indicated. The danger is not due to any toxic element in the peanut butter but rather to its sticky consistency which may cause it to choke the birds or otherwise obstruct the digestive tract. When mixed with a sufficient amount of other ingredients, peanut butter is considered safe and highly nutritious.

*I believe that the "magic mix" referred to in your letter and in *Sialia* 6(3):112 is probably quite safe since it contains 80% of ingredients other than peanut butter and has evidently been used without trouble by the person who wrote the letter to the Editor.*

Larry Zeleny
Founder

Bluebird Tales

Mary D. Janetatos

If you haven't seen a bluebird in a long, long time, go south! That's what bluebirders did in mid-October, when NABS' Seventh Annual Meeting was held in Jackson, Mississippi. People came from Alberta and Quebec in Canada, from Massachusetts, North Dakota, New York, North Carolina, Virginia, Oklahoma, Illinois, Maryland, Indiana, Georgia, Texas, Louisiana, Alabama and Tennessee. Regrettably, for the first time, Larry Zeleny, NABS' Founder, was unable to attend, due to the illness of his wife, Olive. Happily, Olive is well on the way to recovery. In the extended summer weather we listened to stimulating talks on birds and animals, looked at informative, beautiful exhibits, shopped for bluebird items, and stalked the local birds, including our banner "bluebird."

For the seasoned bluebirders, it was reunion time. **Laurance and Adelaide Sawyer** had parked their big blue van labeled "Bluebird Housing of Ringgold, Georgia" right at the motel entrance, and, as usual, it was stacked with log bird houses, feeders and bird baths, as well as the albums of trick photos which astound and amuse their audiences at every stop. **Jack Finch** of Bailey, NC, set up his bluebird feeding stations as **Ruby** renewed memories with her loving smile. Jack has been harvesting dogwood berries, aided by **Gay Duncan**, NABS Board Member, of Southern Pines, NC. Gay reports bluebirds coming to her winter feeder to sample her dogwood berries. **Gerry Hartley** of Enterprise, AL, brought his lovely photos of bluebirds.

Some new attendees with long-established reputations in NABS included **Keith and Sandy Kridler** of Mt. Pleasant, TX; **John Findlay III** of Birmingham, AL, and **Dr. Richard Field** of Centreville, MS. Keith Kridler had once originated a unique bluebird nest box made of PVC pipe, and in the spring of 1984 his bluebird trail work was the subject of a beautifully illustrated



article in *Texas Parks and Wildlife*. **John Findlay** has been active in bluebirding since before his retirement; he now promotes bluebird conservation, as well as NABS, throughout Alabama. **Dr. Richard Field**, who claimed that his wife **Betty** was the "real" bluebirder, has nonetheless taken the unusual step of writing "prescriptions" for his patients which are really gift memberships in NABS. It seems he must be saying to them, "A few bluebirds in your life will help you feel better!" It was good to meet **Don and Sue Lockey** of Onaga, Kansas, who had once journeyed all the way to Wagoner, OK, to consult with Board Member **Charlotte Jernigan** about their bluebird problems. Don also professed an interest in helping another native cavity nesting bird—the American Kestrel. How pleased he was to meet and talk with **Mark Raabe** (NABS' Recording Secretary), **Mark** and former Board Member **Roger Jones** founded Kestrel Karetakers.

John Rogers, Paul and Sandy Wilson, Ann Casselberry, and Fran Hanes (who was elected to the Board of Directors at the Annual Business Meeting) were glad to savor thoughts and sightings of their New York State Bird. As always, Fran's delightful bluebird art and artifacts were a popular stop in the exhibit room.

Those attending from Alberta sported "I'm from Red Deer" buttons and included **Winnie Ellis**, one of the Founding Directors of the Ellis Bird Farm, Ltd (EBF); **Morris Flewelling**,

present Chairman of Ellis Bird Farm; **Michael O'Brien**, Vice-Chairman, representing Red Deer River Naturalists, **Mr. and Mrs. Walter Lindley**, EBF Director representing Union Carbide Canada, Ltd; **Fred Schutz**, EBF Director representing Federation of Alberta Naturalists, **Bryan Shantz**, EBF Wildlife Biologist and NABS Education Chairman, and **Myrna Pearman**, charter member of NABS. These people and **Andre Dion** made up the international component of the Annual Meeting.

Newly-elected Board Member **Ron Kingston** and his wife **Priscilla** of Springfield, VA, had generously transported many of the bluebird items available at the Society's table. Priscilla then acted as NABS' representative as she sold the items and answered questions about membership. Nearby, **Clara** and **Ray Brinser** were explaining the merits of "Bluebird Diet," a specially synthesized bird food pellet which was devised by Zeigler Brothers from Pennsylvania. The berry-sized pellets contain a wide variety of food items such as dogwood berries, beef stock, and vitamin supplements. It is the Brinsers' hope that those who have been feeding bluebirds in winter will try this formula to see if it is accepted by the bluebirds. (For more information, please contact Mrs. Clara Brinser, 1007 W. 48th St., Richmond, VA 23225. NABS does not endorse this product.) **Meade** and **Mary Francis Flinn** attended; Meade once again fulfilling his role as the elder statesman of bluebirding. Meade retired many years ago from a career in banking, and then devoted his time to promoting bluebird conservation in his home town of Alberta, VA. As always, the Brinsers were kind enough to drive Meade and Mary to the Jackson meeting.

In between all the stimulating talks on bluebirds and other birds and animals, there was time to visit with new and old friends. There was also time to examine the NABS' Bluebird Scrap Book fastidiously assembled by Historian **Dottie Foy**. A delightful snack table was furnished by the Hospitality Committee of the Jackson Audubon Society.

One newcomer to such events was **Walter Berlet**, the talented and well-known wildlife film producer. Walter and his wife **Myrna** are in the process of making a first-rate film on bluebirds. In fact, you, dear reader, may get involved by suggesting a name for this film which covers people who work for bluebird conservation as well as the life cycle of bluebirds. The film is tentatively titled "Bluebirds Unlimited," but if you send suggestions to NABS by March 1, we will pass them along to the Berlets. A faithful convention attendee was **Dick Tuttle**, of Delaware, OH. Dick's bluebird involvement comes off as being well-nigh total, since, as a teacher, he instructs his school pupils in building nest boxes, he instructs in bluebirding summer visitors to the park where he works, he has instructed many in the Ohio Division of Fish and Wildlife, and he instructs the general public through his articles which have appeared in *Bird Watcher's Digest* and other publications.

At the banquet, **Clara Brinser** inspired a most loving action. Taking a package of the beautiful new bluebird note cards NABS has available from artist **Ed Bierly**, she distributed the cards throughout the assembled guests and each one signed a greeting to **Larry** and **Olive Zeleny**, wishing Olive a speedy recovery from her heart ailment.

On Sunday morning, field trips got underway, and this writer participated in one which is reported on elsewhere. **Charlotte** and **Bill Jernigan**, of Wagoner, OK, kindly invited Andre Dion, Research Chairman Tedd Gutzke, Chuck Dupree and me to ride with them.

As the meeting drew to a close, new and old friends had much to anticipate in getting through winter to spring and then to July 12-14, in Alberta for the Eighth Annual Meeting at the Ellis Bird Farm, home of the Mountain Bluebird. In the words of Walter Berlet, "I'm glad I came; this meeting is fun!" Sorely missed at the Seventh Annual Meeting was the other international component of bluebird conservation: the Bermuda Bluebird Society. ■

The Bluebirds

There he is so proud and brave
Sitting perched on his box at the break of day,
No one need ask "What kind of bird?"
The question is answered without one word.
So beautiful to look at and charming to hear
And dreadful extinction may be near,
This bird clad proudly in his coat of blue
Needs his homes of wood and hopes renewed.

Lorian Jackie Avery



Where Have All the Bluebirds Gone?

With plumage bright and cheerful song
Where have all the bluebirds gone?

There was a time when we could see
Bluebirds in almost every tree.

Then came man with insecticide;
Since then too many birds have died.

Lumbering trees of every kind
Makes nesting places hard to find.

What can we do to lure some back?
Build them houses and then keep track.

As we count bluebirds two by two
They'll bring happiness to me and you.

Edna B. Willis

ART CREDITS

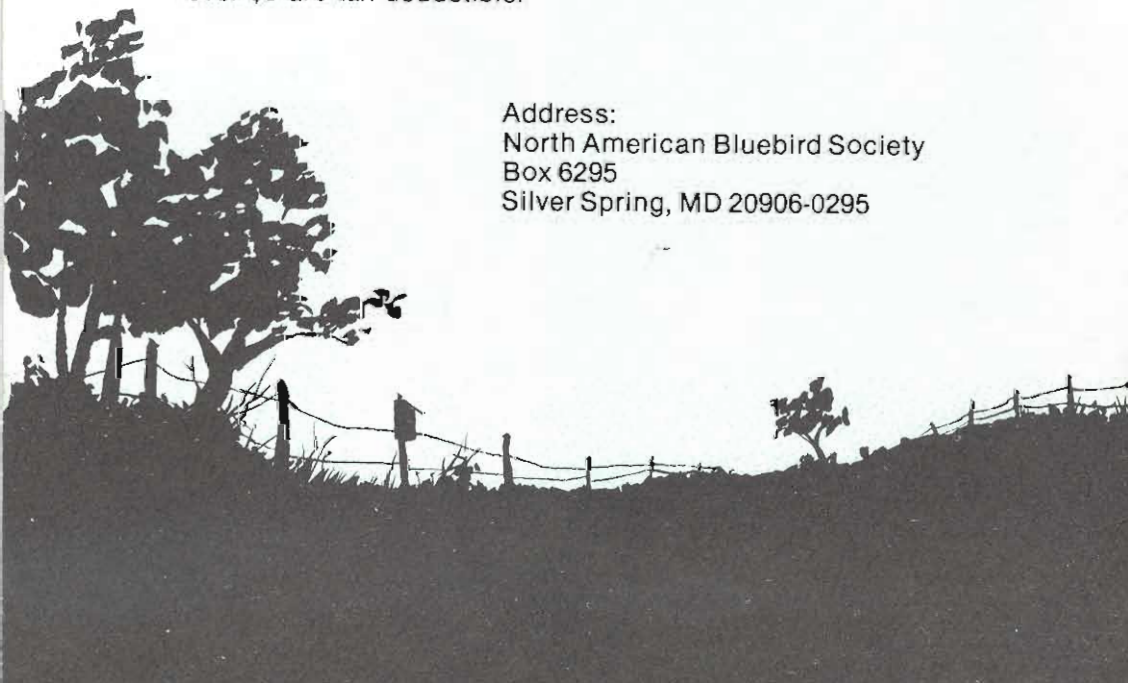
Jon E. Boone: 2, 36
Shirley Eley Nachtrieb: 25
Suzanne Pennell Turner: 10, 16,
28, 38
Richard L. Woodward: 12, 23

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 maladroitness 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: Students (under 21) and Senior (over 60), \$7.50; Regular, \$10; Sustaining, \$30; Supporting, \$50; Contributing, \$100; Corporate, \$100; Donor, \$250. Amounts over \$5 are tax deductible.

Address:
North American Bluebird Society
Box 6295
Silver Spring, MD 20906-0295



Society Launches Special Box Monitoring Project

The North American Bluebird Society has established a special box monitoring project to enlist the support of trail monitors and volunteer researchers to assist in finding answers to a number of questions relating to nesting success of bluebirds and other cavity nesting species.

Because there is considerable dedication on the part of Society members, it is hoped that solutions may be found to some problems through concerted volunteer efforts.

NABS has budgeted limited funds to help defray the cost of investigation by trail monitors who are working on approved projects. The amount of funding will vary from \$50 to \$100. These funds will help to defray the cost of specialized supplies or materials that might be required but are not intended as reimbursement for mileage, meals, etc.

The following categories will be eligible for consideration:

1) Nest site competition

A. One of the most serious deterrents to successful bluebird conservation is nest site competition from House Sparrows, an alien species. Possible solutions include the use of open-topped nesting boxes, plastic jugs, and nesting box height experimentation.

B. Competition is also posed by native cavity nesting species. The Society is looking for methods by which two or more of these species can live compatibly in the same habitat.

2) Hole and nest box size for Mountain Bluebirds

Conflicting evidence supports possible re-design of nest box size and change of entrance hole to accommodate Mountain Bluebirds.

3) Climbing predator control

Simple and inexpensive methods are sought to control losses from climbing predators.

4) Mortality in nesting boxes

Of particular concern is mortality of adult Tree Swallows found dead in nesting boxes. This category also may include projects investigating possible pesticide contamination and mortality from ingestion of insecticide-poisoned insects; mortality from agricultural spray contact and mortality from use of wood preservative-treated lumber for boxes.

5) Safe methods for controlling parasites, wasps, bees, and ants in nesting boxes

Various insecticides have been used for this purpose, but their safety has not been established for this use. Alternatives have been proposed including nest box re-design and replacement of infested nests with artificial nests.

6) Hanging nesting boxes

Though hanging nesting boxes have generally been regarded as unacceptable to bluebirds and, therefore, not recommended, there is some reported success with them. Investigations should include support design and predator control success.

7) Decline of nesting success of Great Crested Flycatcher

Certain cavity nesting species, such as the Great Crested Flycatcher, appear to be in serious trouble because of competition from starlings. Confirmation is needed to determine whether a nest hole entrance of 1-9/16 inches is acceptable.

Many people are already involved in investigations to find solutions to these problems; you are encouraged to submit your proposals for review. Both new and ongoing projects will be considered.

Requests for stipends in the range of \$50 to \$100 for projects related to the above categories should be summarized in a one page proposal (if possible). In addition to a clear statement of the problem, also include justification, objectives, background, methods, supplies, and schedule. Proposals will be evaluated by a review committee. Mail project proposals to

Richard J. Dolesh
17800 Croom Road
Brandywine, Maryland 20613.

Committee Heads Appointed

President Sadie Dorber has named the following individuals to committee chairmanships for the coming year:

Awards Committee—Anne T. Sturm

By-laws Committee—Mark Raabe

Development Committee—David Pardoe

Education Committee—Bryan Shantz

Historian—Bob Bodine

Nominating Committee—Lillian Files

Research Committee—Theodore W. Gutzke

Special Projects Committee—Richard J. Dolesh