Sialia

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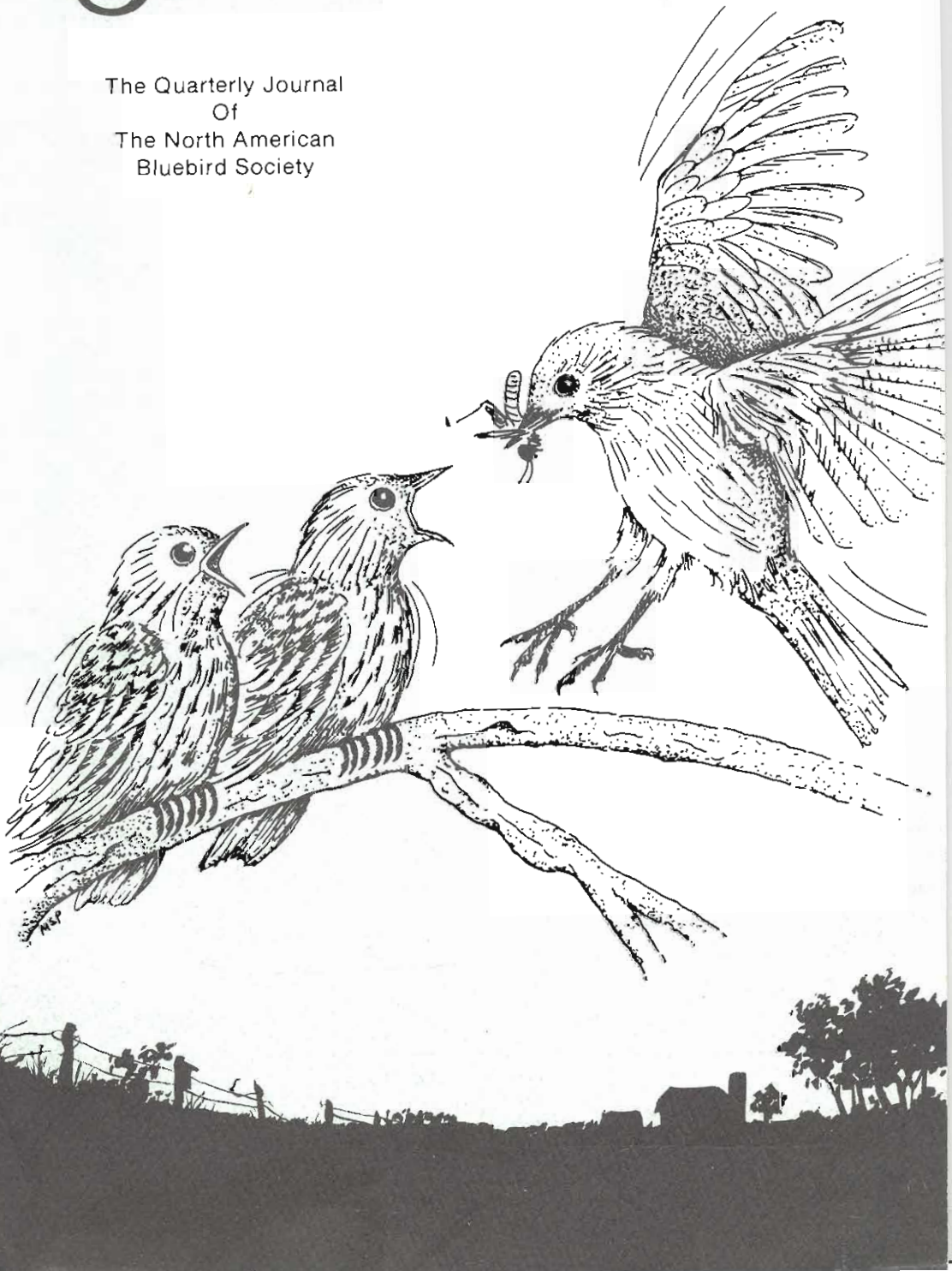

Sialia means bluebirds. Hence the title of this journal. Technically, *sialia* is the Latinized, neuter plural version of the Greek word *sialis*, a noun meaning a "kind of bird." Since the Eastern Bluebird was the first bluebird classified by Carolus Linnaeus (1707-1778), he gave it the species name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

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

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The Quarterly Journal About Bluebirds

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ART EDITOR
M. Suzanne Probst

COVER

Art Editor M. Suzanne Probst's cover depicts a male bluebird bringing a grasshopper to two fledglings.

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 Graeloch Road, Laurel, Maryland 20707.

Presidential Points

Sadie Dorber

After a very busy weekend of exciting field trips and speakers, my husband and I planned to spend the next eight days birding and seeing the Big Sky country.

Lil Files had to get to Whitefish to catch the 5:00 a.m. train to Boston the next morning, so we offered to give her a ride.

All three of us wanted to see the wildlife in the Bison Range again so that was our first stop. We took the long auto route that winds up and around the mountains on a gravel road. As we climbed slowly to the top of the ridge, we watched the Flathead River wander through the valley below. We stopped to view a large herd of bison. John and Harriet Findlay pulled in behind us. John spotted antelope moving along a fence line. Suddenly, two Golden Eagles came soaring up over the ridge of the mountain.

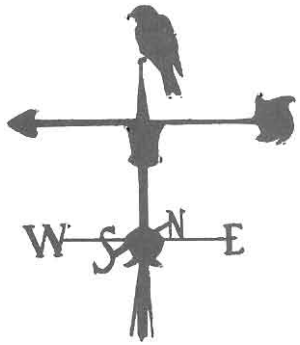
The three of us continued our trip toward Whitefish going up the eastern side of Flathead Lake. This area is famous for cherry orchards; however, nearly all the trees were dead and many owners were busy removing the trees with dozers in preparation for planting new trees. One owner stopped long enough to explain the sad story to us. Several very warm days early in the spring started the sap flow. A hard freeze followed which resulted in burst tree trunks.

We reached Whitefish by late afternoon and left Lil at her hotel. We continued on toward Glacier National Park which we planned to drive through the next day.

Neither of us had yet adjusted to the time change so we were still awakening before the birds. A quick breakfast and we were on our way to Glacier Park. Our first stop inside the park produced a MacGillivray's Warbler, a lifer for me.

From Glacier Park we started south on our way to Red Rock Lakes Refuge. Our route took us through the Plains Indian Reservation, wheat fields, and Benton Wildlife Refuge. The wheat fields were home to the longspurs, which initially presented an identification challenge.

We left the highway at Monida for the drive into Red Rock Lakes and found we had 28 miles of gravel road ahead of us. This area is all cattle range and large herds were visible all across the enormous valleys. Many raptors were sighted on the fence posts or telephone poles.



We soon started seeing many Mountain Bluebirds, sometimes a small flock together and often several males within the flock. Nearer the refuge, nesting boxes lined the road, but we still couldn't understand why we were seeing such large numbers of bluebirds.

That evening I called Art Aylesworth and related my bluebird tale. Art said that he had been contacted last year by a retired gentleman that vacations near the refuge and who described the large number of bluebirds. Apparently, the birds had been living at the refuge in celibacy due to a lack of nesting cavities. When nesting boxes were put up, the bluebirds actually fought each other to claim the nest sites. Since we were returning to Red Rock again the next day for a full day of birding, Art asked that we try to find fledgling bluebirds to see if the boxes were helping. Unfortunately, we sighted adult birds only. Art took 100 boxes to the refuge last fall and will try to get a larger trail developed. Many more boxes are needed along with someone who can manage the trail. We all wonder what attracts and holds such a large number of bluebirds in the area.

Our vacation time was growing shorter. We stopped at Art's cabin on Sunday to spend some time with him and Vivian. The cabin located on the Clark Fork River is truly a paradise.

Our last day in Montana was spent checking boxes and birding with Deni Hershberger. Deni took us through the trails on the Flathead Reservation and told us about Joe Parker the Indian that talks to his bluebirds. I was quite disappointed that I was unable to meet him.

Deni Hershberger, Art Aylesworth, Tom Matsko and all their crew deserve a big thank you from all of us in the NABS. It was a wonderful meeting in a magnificent state. ■

Bluebirds and Starlings: Competition for Nest Sites

Wayne H. Davis and William C. McComb

A decline of the population of Eastern Bluebirds (*Sialia sialis)* during the past century has been attributed in part to the fact that introduced House Sparrows (*Passer domesticus)* and European Starlings (*Sturnus vulgaris)* appropriate most of the nesting sites (Zeleny 1976). Zeleny wrote that a bluebird can never compete successfully with a starling for a site.

Although eviction of bluebirds by House Sparrows has been adequately documented (e.g., Gowaty 1981; 1984) interaction between bluebirds and starlings has received little study; we have reported an instance in which heavy use of nest boxes by starlings apparently had little effect on bluebird production (Davis, *et al.* 1986). We present here the results of our further studies on interactions between these two species.

Methods and Materials

On the surface mines described in our previous paper we erected boxes as described therein. Boxes accessible to starlings and bluebirds had entrances about 34 mm wide [1.34 in.] and those accessible only to bluebirds had entrances of 30 mm [1.18 in.]. Tangle Trap™ was smeared on the support stakes to deter predation.

On 26 February 1987 we erected 48 nest boxes on the mines. Boxes were placed in six groups of eight each with groups separated from one another by 2 km (1.3 miles). Boxes were spaced 320 m (0.2 mile) apart within a group. Groups were split between two treatments: eight boxes were accessible to both starlings and bluebirds and eight were accessible to bluebirds only. There are no House Sparrows on the mines. Each treatment was replicated three times. The boxes were visited weekly through 7 August and nesting activities recorded.

In 1988 the same stations were used, but the experimental design was modified because of apparent clustering of starling activity the previous year. Boxes were numbered one through 48 with the odd numbers made accessible to starlings and bluebirds, and the even numbers accessible only to bluebirds. Old nesting material was removed on 8 March and the boxes were monitored weekly until the experiment was terminated on 14 July.

On 15 March 1988 we established an experiment on the University of Kentucky Coldstream and adjacent Spindletop Agricultural Experiment Farms at Lexington where House Sparrows, starlings and bluebirds have nested in our experimental boxes in previous years. Sixty-two stations were established each 320 m [0.2 mile] apart. Boxes were placed mostly on fence posts with a few on utility poles and trees about 1.5 m [5 ft.] above ground. Boxes were numbered and the odd numbers made accessible to starlings and bluebirds and even numbers accessible only to bluebirds.

Results

In 1987 bluebird nestings had begun in two boxes on the mines when first inspected 5 March. By 2 April all but five boxes had bluebird nesting activity. On that day a blizzard hit and 14 inches [35 cm] of snow fell. All bluebirds abandoned their nests and no new nesting activity was noted until 16 April. We had intended to close off any accessible boxes that were not being used by bluebirds before the starlings began nesting activity on the mines (about the end of April), thus forcing starlings to evict bluebirds if they were to nest (there are almost no nesting sites on the mines other than what we provide). However, because of the

snowstorm we were not able to tell which sites had been abandoned by bluebirds; all boxes had some nesting material before the end of April.

Starlings nested in five boxes, or 21% of those accessible to them. In four of these, starlings used boxes that had previously had bluebird nesting activity (Table 1). In two of these instances the starlings apparently evicted bluebirds; the other two sites had apparently been abandoned before the starlings moved in. At one of these, bluebirds were seen on March 5 and 12 and some nesting material was in the box on 2 April, the day of the blizzard. There was no change until 7 May when a starling nest was present. After the starlings raised their young, bluebirds reoccupied the site in July and raised a brood.

At another site bluebirds had a nest with 4 eggs on 2 April. This was abandoned. On 29 May starlings had begun a nest. An empty starling nest was present the following two weeks but was not used. The next week a bluebird nest with three eggs was in the box; bluebirds raised five young.

At a third site a bluebird nest contained one egg on 23 April. The following week the nest and egg were gone and a starling nest had been started. The starlings fledged four young about 4 June. The nest was rebuilt about 25 June, but the starlings did not raise a second brood.

At the final starling site a female bluebird was incubating four eggs on 23 April. On 30 April the nest and eggs were gone and a starling nest was under construction. On 7 May a dead adult female bluebird was in the box. The top of the head was bloody and the feathers on the top of the head were gone; she had apparently been killed by starlings. The following week a starling was in the box on a nest with an egg.

In 1988 starlings nested in three boxes on the mines (Table 1). The first starling nesting activity was seen on 19 April. By that time bluebirds occupied all but four of the 48 boxes; two empty boxes were accessible to starlings and two were not. The first starling nest was built in one of the empty boxes.

The second starling nest was under construction on 10 May. It was in a box that had contained a bluebird nest and five eggs the previous two weeks. The nest and eggs had apparently been removed by the starlings.

The third starling nest was under construction 17 May; it was built in the only accessible box that was not being used. Thus two of the three starling nests were built in the only vacant boxes available.

Nesting activity at the UK farms is shown in Table 2. Starlings and House Sparrows had started nesting in the boxes by 26 March; seven of the 20 starling starts had begun by then. The earliest bluebird nesting activity was seen in one box on 2 April. Three additional bluebird nests had begun by 9 April. Thus only one-fourth of the bluebird nestings had begun by then. On the other hand, 38 of 45 bluebird nestings on the mines had begun in March.

Table 1. Nesting Activity in Boxes on the Mines.

	Eastern Bluebird nests	European Starling nests	Starling eviction of bluebirds	Empty	Total boxes
1987					
Accessible to starlings	22	5	2	0	24
Not accessible to starlings	22	0	0	2	24
1988					
Accessible to starlings	22	3	1	0	24
Not accessible to starlings	23	0	0	1	24

Table 2. Nesting Activity in Boxes at the UK Farms in 1988.

	European Starlings	House Sparrows	Eastern Bluebirds	Empty	Total Boxes
Accessible to starlings	20	3	4	5	31
Not accessible to starlings	0	11	13	10	31

In half of the 20 boxes used by starlings on the UK farms, nests were built and eggs laid; in the others nesting material was carried in but no nests were built. In one of the latter, bluebirds built a nest on the starling nest material and laid eggs in June. In no instance did bluebirds nest in boxes after starlings had raised their broods, as they sometimes do on the mines. In one box starlings raised a second brood.

In no instance did starlings evict bluebirds at the UK farms. There was one case of apparent eviction by House Sparrows, which built over the bluebird nest, and three instances where bluebirds took over boxes that were being used by House Sparrows. Whether bluebirds evicted the House Sparrows is unknown. Sparrow eggs disappeared two to four weeks before the bluebirds nested. The bluebird nests were built on the sparrow nests.

Discussion

The nesting behavior of starlings and bluebirds is different between the mines and the UK farms. The mines are excellent bluebird habitat but marginal for starlings. Nest sites are restricted almost exclusively to our nest boxes. The farms are excellent habitat for the abundant starlings and sparrows. Nest sites for both species are plentiful in the buildings. Many old trees on the farms provide cavities which apparently are used exclusively by starlings. Except for a single natural cavity in a post, nesting by bluebirds was restricted to our boxes.

Starlings nest earlier on the farms than on the mines, and bluebirds nest later on the farms than on the mines. In Lexington and on the farms, starlings were seen singing on territory and exploring natural tree cavities during the last week of February.

With both starlings and House Sparrows nesting in our boxes on the UK farms in March, it seems that bluebirds delay their activity until both of these alien species have selected their sites and then they choose among those remaining. Although egg loss was common among all three species, eviction of one species by another to claim a nesting site on the farms was not. However, starlings appropriated 60% of the boxes available to them, thus decreasing their usage by House Sparrows and bluebirds (Table 2).

On the mines, where nest sites are severely restricted, starlings evicted bluebirds, removing nests and eggs to replace them with their own. In one instance they apparently killed the adult female bluebird. However, this behavior was uncommon; starlings would choose unoccupied boxes when available. ■

Acknowledgments

We thank the North American Bluebird Society for a grant to finance this study and Shirley Davis and Debra Claus Walker for help with the field work.

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(Continued on page 138)

Literature Review

T. David Pitts

Peterson, Ronald P. 1987. A new bluebird nesting structure for highway rights-of-way. Wildlife Society Bulletin 15:200-204.—The construction, costs, and utilization of 92 artificial cavities in wooden fence posts are described in this article. Cavities 9.2 cm (3.6 inches) in diameter and 22.9 cm (9.0 inches) deep were drilled into the posts; entrances were 3.5 cm (1.38 inches) wide and 5.1 cm (2.0 inches) tall. All posts used were adjacent to interstate highways. Costs were calculated to be $6.67/cavity in existing fence posts and $19.00/cavity in posts bought for that purpose. Over a 3 year period about 13% of the cavities were used by Eastern Bluebirds and 51% by Tree Swallows. The author suggests that the regular spacing of cavities, rather than concentrating them in optimum habitat, may have been a factor in the low rate of use by bluebirds; I wondered about the effects of the entrance size. The author points out the problem of accessibility along interstate highways where pedestrians are not allowed. In one area 11 cavities had wooden tops and 12 cavities had wire mesh tops; bluebirds used the cavities with wooden tops about 2.5 times more frequently than the open top cavities.

Toland, Brian R., and William H. Elder. 1987. Influence of nest-box placement and density on abundance and productivity of American Kestrels in central Missouri. Wilson Bulletin 99:712-717.—Like many other secondary cavity nesting birds (i.e., birds that nest in cavities but are not capable of excavating cavities), American Kestrels in many areas face a shortage of suitable nest sites. Several studies published in the last two decades have documented increases in kestrel populations following the placement of nest boxes. The three year study reported here involved extensive surveys to determine kestrel populations before and after nest boxes were erected. Seventy adult kestrels were color marked, allowing individual birds to be identified and studied. Natural cavities on the study area were located; nesting activities in natural sites and nest boxes were compared. As the population size increased, the number of kestrels using nest boxes increased and the number using natural cavities decreased. The authors conclude that nesting success in nest boxes (especially those mounted on buildings and utility poles) was similar to that in natural cavities. Extensive use of nest boxes as winter roost sites and feeding platforms was also documented.

Mulvihill, Robert S. 1987. Runt eggs: a discovery, a synopsis and a proposal for future study. North American Bird Bander 12:94-96.—The impetus for this report was the presence of a runt egg in an Eastern Bluebird nest; the egg measured 11.0 x 9.0 mm (0.44 x 0.36 inches) which is far below the normal size of approximately 21 x 16 mm (0.84 x 0.64 in.). The author states, "This may be the proportionately smallest runt egg ever reported for a wild bird." The frequency of runt eggs in nests of Eastern Bluebirds and other species is briefly reviewed. Attention is drawn to the fact that egg collectors (in the years when egg collecting was legal) commonly collected runt and other types of abnormal eggs in preference to normal eggs. Consequently, the frequency of runt eggs in museum collections is not an accurate indicator of the frequency with which runt eggs actually occur in nature. A cooperative program in which bluebird workers could report their observations in a standard format is suggested. Dr. Mulvihill has data sheets available and would like the assistance of members of NABS. His address is Powdermill Nature Reserve, Star Route South, Rector, Pennsylvania 15677. ■

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

Western Bluebirds, Tree Swallows and Violet-Green Swallows West of the Cascade Mountains in Oregon, Washington and Vancouver Island, British Columbia

Earl Gillis

The role of the "extra swallow," the beautiful Violet-green Swallow *(Tachycineta thalassina),* unknown in the Midwest and East, has not been well understood. It is the Violet-green Swallow, even more than the Tree Swallow *(T. bicolor)* that has driven Western Bluebirds *(Sialia mexicana)* out of the valleys and up into the mountains to survive.

It has been very difficult in the Pacific Northwest to sort out why we were unable to benefit Western Bluebirds greatly from material written by Eastern and Midwestern writers and researchers. One of our errors seems to have been that we did not differentiate sufficiently between the two highly competitive swallow species, the Tree Swallow and the Violet-green Swallow, but lumped them together as "those swallows." This is an easy thing to do as the more dominant Tree Swallow arrives in the northern Willamette Valley of Oregon in early March, followed shortly by the slightly smaller Violet-green Swallow. There are differences in color, size, etc., but at a distance and in indifferent light it is difficult to tell them apart. The eggs and nests are so similar that one needs to see the adults at the nest box to be able to identify the species.

The near extinction of Western Bluebirds *west of the Cascade Mountains* in Oregon, Washington, the San Juan Islands (U.S.A.), the Gulf Islands (Canada), and about one-half of Vancouver Island in British Columbia was almost complete. This area of about 56,000 square miles [155.399.28 sq. km] would be equivalent to a strip of land nearly 100 miles [160.9 km] wide extending from the tip of northern Maine southward more than 600 miles [965.4 km] to just below the area of Wilmington, Delaware.

This western area became so devoid of Western Bluebirds and their reality became so lost to the memory of residents that the various blue "jay" species are often referred to as "bluebirds" by individuals living in the area. One would need to be nearly 60 years of age to have living memories of the long vanished bluebird.

The House Sparrow *(Passer domesticus)* was introduced into Portland, Oregon in 1889 from San Francisco where colonies had been established as early as 1871. The House Sparrow reached Seattle by 1897.

Not only were Western Bluebirds driven out of cities like Portland in the early 1920s by House Sparrows, but the Violet-green Swallows were also displaced from the niche they held in western cities which was similar to that of Purple Martins *(Progne subis)* in the Midwest and East. Purple Martins in the West still adhered to nesting in trees and snags and had not adapted to the use of nest boxes. The natural habitat of the Violet-green Swallow was cities, they were secondary to Tree Swallows in the valleys and low areas, but they competed vigorously with Western and Mountain Bluebirds to elevations above 7,000 feet [11,263 km].

Changing farm practices with destruction of bluebird habitat coupled with a heavy use of newly discovered pesticides such as DDT cleared the Willamette Valley of bluebirds by 1947, a full 15 years before the European Starling *(Sturnus vulgaris)* invasion. Tree Swallows, Violet-green Swallows and bluebirds fought over what was left, and the bluebirds lost.

Several farmers who are lifelong Willamette Valley residents tend to agree with Cecil Smith (age 85) that the destruction of habitat and decline of birds and animals including bluebirds began with the widespread use of mod-

ern tractors in the 1930s. Horses, when pulling a plow, tended to shy away from briars which widened the fence row into prime wildlife habitat (pers. comm).

Even the overlap of the 16-foot [4.85 m] rail fences provided secure dry places all winter long. A farmer with a tractor was able to begin to plow out these wide fence rows right back to the original fence lines. In the meantime, the wooden rails were replaced by a thin line of wooden fence posts and woven wire fencing and the great habitat was gone! These farmers recall the enormous numbers of nests seen in the old wide fence rows when the leaves dropped off in the fall. In order to satisfy the expanding food markets brought on by World War II, farmers brought more land under cultivation by plowing out pastures and making larger fields while plowing stubble under in the fall destroyed winter habitat and food. These changed farming practices left many farms as poor habitat for birds and animals. The final act was to drench or dust these farms with DDT and other pesticides developed in the 1940s. The loss of birds and animals was enormous.

Herlugson (1978) reported that during the nine year census period 1968-1976 no nesting bluebirds were found on Breeding Bird Sruvey routes west of the Cascade Mountains in the state of Washington.

The bluebird's problem was that it was in a continual battle for nesting sites. First, it fought other bluebirds. This competition was followed by gangs of Tree Swallows and, if it won that battle, it still had to face superior numbers of the highly competitive Violet-green Swallows. The attack by Tree Swallows is direct and a decision is reached in a week or two. The smaller Violet-green, however, is more patient and sometimes waits until the odds are 3-2 in its favor before usurping the bluebird nest box.

Bluebirds have three basic tasks to perform: 1. incubate the eggs or brood the young, 2. protect the nest box, and 3. gather food. Harassment by numbers of swallows at such a time often develops into an impossible situation. A shortage of insects due to cold or wet weather may force the female off the nest to supplement the feeding. The eggs may get cold or the young suffer from hyperthermia or starvation and become too weak to eat and die. When this occurs, the adult bluebirds abandon the nest. The swallows place feathers over the eggs or dead young, then proceed to build the straw portion of their nest on top. One such usurpation observed by the author took 57 days before the Violet-green Swallows won out and built their nest upon seven three-day-old baby bluebirds.

Hubert Prescott began his search for the elusive bluebird in 1971 and found about 30 nesting pairs on the upper reaches of Chehalem and Parrett Mountains, about 20 miles [32.18 km] southwest of Portland. These nest boxes were maintained mostly by "old timers" who had remembered these birds from years earlier. This broken timbered area was a bluebird refuge that had plenty of tree-lined protection with a thinning out of swallows at the higher elevations. The "bluebird line" started at about the 600 foot [182.88 m] level; rarely could a bluebird successfully nest below that elevation, but the higher the altitude the more conditions improved. At elevations of 1,000 to 1,600 feet [304.8-487.7 m] bluebirds seemed to regain control over their own destiny.

Prescott and Gillis (1985) found that at elevations of 600 to 1,600 feet nest boxes placed on trees produced an average of 2.75 bluebird fledglings per site compared to 1.18 on fence posts with no overhead protection and they also fledged two weeks earlier. Swallow usurpation of bluebird nest boxes on open fence posts far exceeded any predation that occurred when nest boxes were placed on trees.

A tree serves well whether it is a semi-isolated English walnut, apple, peach, pear, prune, Douglas fir, or utility pole with overhead wires west of the Cascade Mountains or ponderosa pine, juniper and power poles east of the Cascade Mountains. Mountain Bluebird territories overlap east of the

Photograph by Hubert W. Prescott

Violet-green Swallow at entrance to nesting box.

Cascade Mountains in the high and dry plateau country at about 4,000 ft. [1719.2 m]. In these areas Western Bluebirds still tend to use trees for protection while Mountain Bluebirds favor more open country.

An examination of the defensive characteristics of the English walnut tree, for example, demonstrates how the odds change in favor of the bluebirds. This large spreading tree offers the male bluebird hundreds of perches from which he can defend his nest box. These perches enable him to strike telling blows that can knock squirrels or starlings to the ground. If he sits on his nest box attached to the tree trunk, he cannot be successfully attacked by harassing swallows from above or behind and, depending upon the breadth of the branches, his flanks are secure. If the swallows attack from the front, there will be "hang time" as the swift and agile swallows must pull up to avoid hitting the tree. That gives the larger bluebird a straight power shot. In military parlance he has "narrowed his front" when faced with overwhelming numbers.

It is not known exactly at what elevation Violet-green Swallow and Western Bluebird competition levels out, but it is thought that the thinning out of swallows at higher elevations may be due to the fact that there are fewer flying insects available for them than for the ground feeding bluebirds. (Mountain ponds and lakes are exceptions.)

Harold Pollack (1986-88 corresp.) of Victoria, British Columbia successfully demonstrated the principle of altitude and trees. He, along with Charley Trotter and Calvor Palmateer, moved their failed Western Bluebird project about 25 miles [40.2 km] north of Victoria to a more remote and higher area and were rewarded with excellent results.

The Violet-green and Tree Swallows are not enemies and should not be interfered with as they also are victims of man's excesses. They are a part of the delicate balance of nature and, though highly competitive with bluebirds, often cooperate in fighting against House Sparrows and sometimes have even been observed feeding baby bluebirds. There is a strong possibility that these two swallow species are the instruments that have kept the blowfly in check in the Pacific Northwest. Elsie Eltzroth (1988) of Corvallis, Oregon reported that the first incidence of blowfly infestation and loss of young bluebirds to them occurred during a period of low swallow population.

Hubert Prescott's effort in developing a Violet-green Swallow nest box (1983) that was House Sparrow-proof was twofold: *first*, to help reduce competition with bluebirds and *second*, to introduce the swallows back into the cities safely in the midst of competition from House Sparrows. The houses may also be used by chicka-

dees, wrens and possibly nuthatches.

By determining the value of high elevations and the importance of trees to support nest boxes, Prescott and others have helped to encourage bluebirds in the Pacific Northwest. It appears that Western Bluebirds, Tree Swallows, and Violet-green Swallows may yet be able to nest successfully in numbers in the area west of the Cascades. ■

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Where Are the Bluebirds at Christmas Time?

Reber Layton

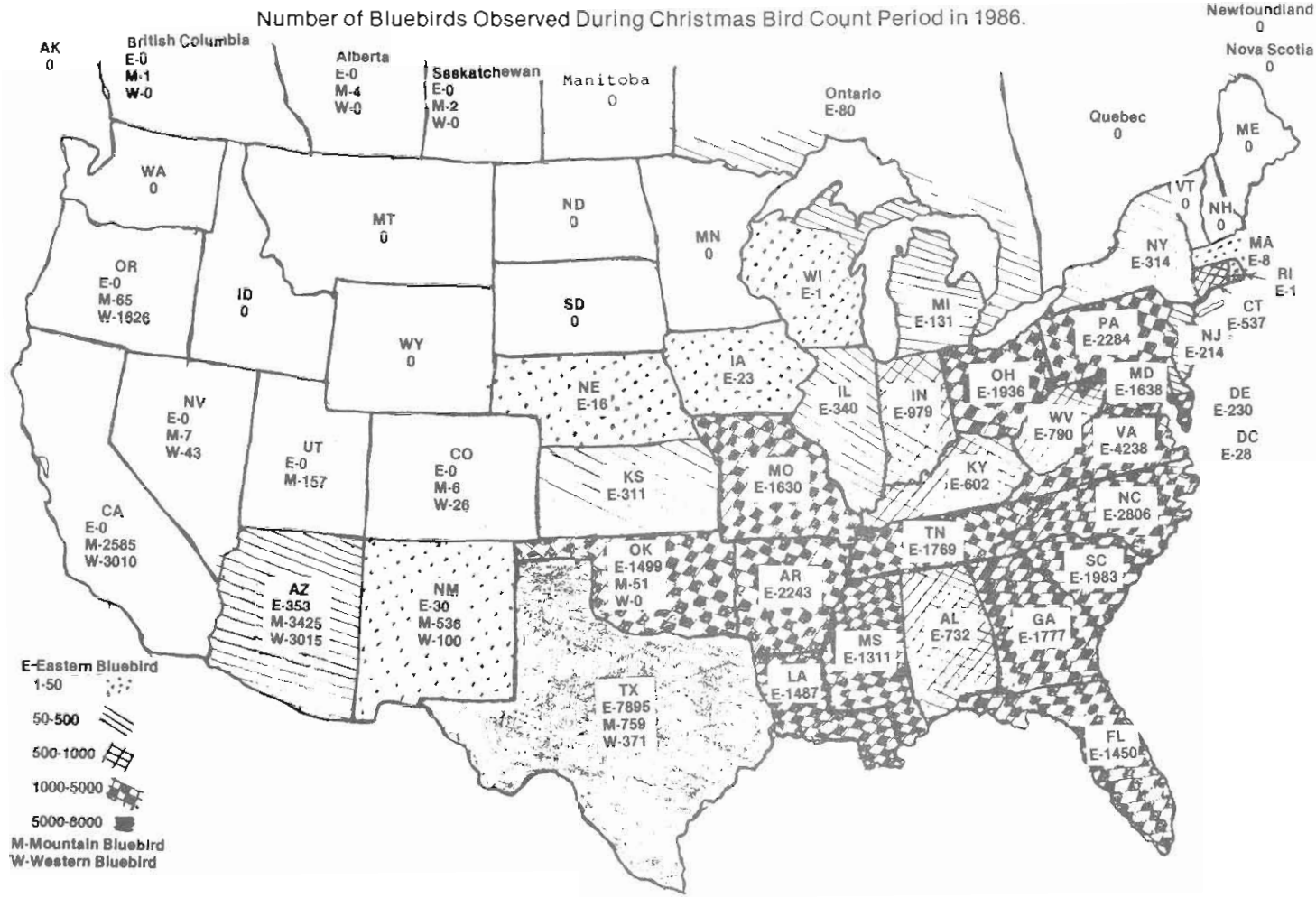
Have you often wondered where bluebirds are during the winter months? Finding the answer to this poses a problem. Perhaps the best indicator, and maybe the only one, is the Christmas Bird Count. As you perhaps know, counts are made on designated territories from dawn to dusk or even later on specified days during the two weeks of Christmas. They are carried out in an organized manner throughout the United States and Canada under the auspices of the National Audubon Society. Results are published in *American Birds.* This has gone on for the past 89 years.

Using these data, I tabulated the Eastern Bluebird count for Mississippi over the past ten years. That is the duration of the Jackson Audubon Society Bluebird Project, a part of NABS' bluebird emphasis. Bluebird houses during the ten year period have been made and sold at cost, resulting in over 36,000 bluebird boxes being placed throughout the state. I found that the number of bluebirds tallied on these counts rose steadily from 194 in 1978 to 1040 in 1987 (Fig. 1).

Review of the tabulated data whetted my appetite to see just where bluebirds are during the Christmas season throughout North America. I selected 1986, a year in which the data were tabulated in a columnar fashion providing easier data gathering for my purpose than the narrative arrangement found for other years. I realized, of course, that the Christmas Bird Counts could not be considered to be a scientific comparison of states, for one could hardly compare the results for California, with over 3000 persons counting, to that of Mississippi with only 192 counting. By dividing the total count of bluebirds for each state by the number of persons counting for that state, a usable comparative result might be reached. However, these data can be used within each state to indicate the changes in population of a species and to show migration patterns of a species within the continent.

The map shows the location of bluebirds during the Christmas period for each state of the United States and the provinces of Canada as revealed by the Christmas Bird Count.

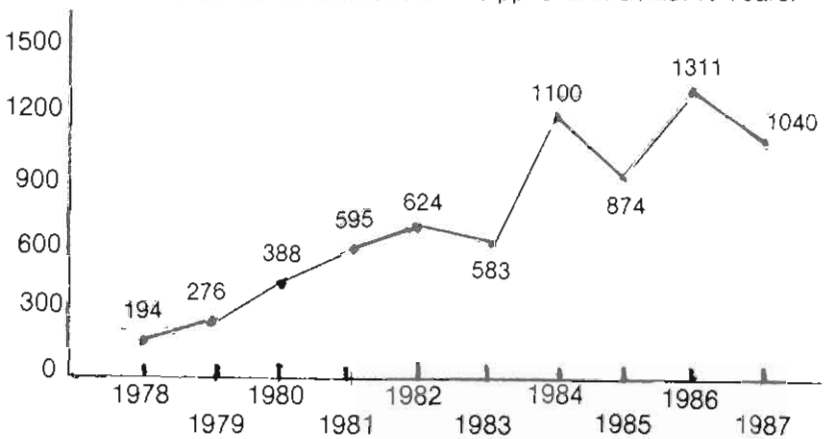
As one might expect, the concentration of the Eastern Bluebird is across the South, but Ohio, Pennsylvania, and Missouri hold a large number during the Christmas period. California, Arizona, and New Mexico are states selected by Mountain and Western Bluebirds for their winter sojourn —with Texas retaining its share of all three species. The 80 Eastern Blue-


Number of Bluebirds Observed During Christmas Bird Count Period in 1986.
AK
0
British Columbia
E-0
M-1
W-0
Alberta
E-0
M-4
W-0
Saskatchewan
E-0
M-2
W-0
Manitoba
0
Ontario
E-80
Quebec
0
Newfoundland
0
Nova Scotia
0
ME
0
VT
0
NH
0
NY
E-314
MA
E-8
RI
E-1
CT
E-537
NJ
E-214
PA
E-2284
WA
0
OR
E-0
M-65
W-1626
ID
0
MT
0
ND
0
SD
0
WY
0
MN
0
WI
E-1
MI
E-131
IA
E-23
NE
E-16
NV
E-0
M-7
W-43
UT
E-0
M-157
CO
E-0
M-6
W-26
KS
E-311
IL
E-340
IN
E-979
OH
E-1936
WV
E-790
MD
E-1638
DE
E-230
VA
E-4238
DC
E-28
KY
E-602
MO
E-1630
CA
E-0
M-2585
W-3010
AZ
E-353
M-3425
W-3015
NM
E-30
M-536
W-100
OK
E-1499
M-51
W-0
TX
E-7895
M-759
W-371
AR
E-2243
LA
E-1487
MS
E-1311
AL
E-732
TN
E-1769
GA
E-1777
SC
E-1983
NC
E-2806
FL
E-1450
E-Eastern Bluebird
1-50
50-500
500-1000
1000-5000
5000-8000
M-Mountain Bluebird
W-Western Bluebird

birds counted in Ontario, Canada certainly seem to indicate that all bluebirds do not migrate from their residential area to warmer climates. ■

P.O. Box 12157
Jackson, MS 39211

Figure 1. Christmas Bluebird Counts for Mississippi Over the Past 10 Years.



Zeleny Receives Bartsch Award

Larry Zeleny (left), daughter Nancy Zeleny Kuhn, and Mary Janetatos, Executive Director, North American Bluebird Society at Paul Bartsch Award presentation.

At its annual meeting on 28 June 1989, the Audubon Naturalist Society of the Central Atlantic States presented Lawrence Zeleny with its highest honor, the Paul Bartsch Award, which read as follows:

For alerting the public to the near extinction of the beloved bluebird, and for coming to its rescue when such action was urgently needed;

For motivating those around you to join in your crusade and for continuing to be the bluebird's most passionate advocate in the conservation movement;

For founding the North American Bluebird Society and for personally being responsible for the welfare of numerous families of bluebirds along your own bluebird trail near Beltsville;

For your writings in the field of bluebird conservation, particularly your book *The Bluebird How You Can Help Its Fight for Survival*, which has inspired people all over North America to take up the bluebird's cause;

For showing us that one person can truly make a difference.

QUESTION CORNER

Lawrence Zeleny

In one of our boxes a female bluebird laid five eggs but two weeks later those eggs were covered by a new bluebird nest. (I removed the bottom nest and found partly developed embryos in two eggs.) The female laid three eggs in the new nest, but the next time I monitored it the nest was turned to the side and shortly after the pair disappeared. What caused this behavior?

Ann Roof
Conway, South Carolina

If a clutch of bluebird eggs fails to hatch for any reason, the female bird will often cover the eggs with fresh nesting material and then lay another clutch of eggs in hopes of better luck on the second attempt. Sometimes even a third clutch will be laid in the same manner. There is some evidence that before the normal incubation period has been completed the female bird may be able somehow to sense that none of the eggs will hatch and she will, therefore, discontinue incubation and cover the eggs. In your case, the partly developed embryos in two of the eggs may have died as a result of excessive heat or some other reason.

Another possibility is that the female that laid the eggs that were later covered died or deserted for some reason. In that case, the eggs would have been covered by another female which then laid the last clutch of eggs.

Since the nest was finally "turned to the side" it would appear that some creature other than the bluebirds had been busy, possibly a would-be predator, and that the disturbance caused the bluebirds to abandon the project. It is also possible that the female bird was taken from the nest by the predator that caused the disturbance.

We have 10-12 bluebirds in our area this fall. They have carried pine needles into one of our two boxes. Are they "staking out" the box for spring? Are they sleeping there at night? Will they stay in our area all winter?

Lynn Hoyt
Apex, North Carolina

Bluebirds frequently use nesting boxes for sleeping quarters on cold winter nights. As many as 14 bluebirds have been known to crowd into one nesting box to keep warm at night in severe weather.

Bluebirds occasionally carry nesting material into nesting boxes in late fall. They rarely complete a nest at that time of year and, of course, never attempt to raise a family at that time. No one knows the purpose of this activity and it does not seem to have anything to do with the use of the box for sleeping purposes.

Bluebird nests are usually made mostly of dry grass, but dry pine needles are quite often used instead.

North Carolina is well within the winter range of the Eastern Bluebird, so you can expect your birds to remain there throughout the year. ■

Nest Lowering to Prevent Raccoon Predation

William F. Read

A constant problem on most Eastern Bluebird trails is raccoon predation of nestlings, adult females, and eggs. Once raccoons are successful in locating a food item in a nesting box, they will continue investigating all boxes they come across in their territory. Eliminating these highly intelligent animals from an area is extremely difficult. Predation can be stopped by putting metal cones or protective sheeting around the posts. These guards are extremely effective but are labor intensive and expensive.

Another method to reduce raccoon predation has been the use of a predator guard (an additional piece of wood attached to the entrance hole to increase its thickness) to make it difficult for the animal to put its paw inside a box and grab the nest or its contents. A total thickness of more than 1 3/4 in. [4.5 cm] is not preferred by Eastern Bluebirds based on my seven years of experience in operating a bluebird trail. A predator guard is virtually useless unless the top of the nest is at least 6 or 7 in. [15.2-17.8 cm] lower than the bottom of the entrance hole, given a 1 1/2 in. [3.8 cm] total entrance thickness.

Unfortunately, many female Eastern Bluebirds will build a nest almost to the top of the nest hole which makes the guard completely ineffective. I remove the excess nesting material thus lowering the nest to the appropriate depth in the box, thereby preventing most raccoon predation. This method should not be attempted unless your boxes are either side or front-opening and the depth from entrance hole to bottom of box is at least 8 1/2-9 in. [21.6-22.9 cm]. My method is to put my fingers gently under the nest about 3 in. [7.6 cm] from the top of the cup area and lift up slightly. Then remove all the nesting material below and carefully lower the remaining nest to the bottom of the box without disturbing the top or cup area.

When the nest contains only eggs, it is important not to take the entire nest out of the box and change the orientation of the nest to the nest hole when replaced. This orientation should always be the same after the nest is lowered. If the nest contains young, the alignment is not as important.

I only lower nests that contain young or those having eggs which have been incubated 11 or 12 days to prevent the female abandoning the nest. It is extremely important that the cup of the nest is intact so she can brood properly. If the nest is flattened, the young may sprawl all over the bottom of the box making it difficult for the female to brood and some young may perish due to cold. Nesting material at the bottom of the box also insulates young against cold.

In 1987, I had only one instance of raccoon predation. A pair of bluebirds nested and fledged three young in a raccoon-proof box. On the second attempt, House Wrens took over. The female bluebird then built a nest in a box that deer mice had wintered in and that hadn't been cleaned out. The female built a high nest and three eggs had been laid when the nest was pulled apart by a raccoon. I put up another box near the first nesting site and the pair renested successfully. ■

A longer version of this article was published originally in the Ontario Bird-Banders Association Newsletter in 1987.

2-165 Green Valley Drive
Kitchener, Ontario N2D 1K3

Brown-headed Nuthatch Evicts Eastern Bluebirds

Gerald L. Hartley

I observed the following incident recently.

12 April 1989, 9:10 a.m.—I was standing about 100 ft. [30.5 m] in front of a box in which there was a bluebird nest. While I watched, a Brown-headed Nuthatch *(Sitta pusilla)* exited the box with a bluebird egg in its beak, flew to a pine some 66 ft. [20.1 m] to the left front of the box, dropped the egg, and returned to the box. It then removed a second egg and dropped it under the pine. After a short, detailed inspection of the outside of the box and a check inside, the nuthatch flew to another pine near the rear of the box, perched, let out a couple of high-pitched cries, and flew away.

I obtained a ladder and checked the box. It was empty. Earlier when I had checked this box, it contained a female bluebird incubating five eggs. I found the two eggs that I had watched the nuthatch remove along with one other under the pine. They all contained mid-sized embryos. The adult male bluebird was in the immediate area feeding. No female was observed. The male showed no interest in the box or the activity.

12 April 1989, 1:30 p.m.—I made a return visit to the area. No bluebirds or nuthatches were in the vicinity.

13 April 1989, 9:10 a.m.—I made a return visit to the box area. Although I observed a male and female bluebird in the immediate area, neither showed any interest in the nesting box.

I removed the nest from the box and noted a few small ants in the area between the bottom of the nest and the bottom of the box. Nothing else appeared unusual. I know of no activity that would have caused the adults to terminate the nest as the embryo in the eggs appeared alive.

There was no new nesting activity in this box as of 4 May 1989.

I would be interested in hearing from any other monitors who have observed this same activity by Brown-headed Nuthatches. ■

Route 1, Box 72A
New Brockton, AL 36351

(**BUSH**—continued from page 142)

question: Does the presence of mockingbirds seem to discourage bluebirds from nesting in otherwise suitable habitat? Though mockingbirds are known to be highly territorial, they appear in some cases to behave in a particularly aggressive manner toward bluebirds, and thus may play a role in limiting bluebird habitat. If you have witnessed such conflicts between bluebirds and mockingbirds, we ask you to send descriptive reports of the encounters. This subject will be addressed in greater detail in a future "Bird in the Bush" column.

As always, we also invite your comments and observations concerning plant use by wildlife. Please send your reports to Karen Blackburn, Rt. 3 Box 650, Marianna, FL 32446. We thank Angela Van Cleve for taking the time to write and share her valuable observations with all of us. ■

NABS 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.

PLANTINGS FOR BLUEBIRDS AND OTHER WILDLIFE

Devil's Walkingstick: A Prickly Choice

Karen Blackburn

"Devil's Walkingstick" is surely a fitting common name for this spiny species. Though hardly appropriate for ornamental use in the landscape, this coarsely textured plant with its prickly limbs, tall plumes of white flower clusters, and large compound leaves may add a considerable amount of interest to a natural area. If nothing else, Devil's Walkingstick will certainly serve as a conversation piece in the wildlife garden.

Devil's Walkingstick
Aralia spinosa

Native Range—From southern New England to northern Florida and west to Michigan, Iowa and Texas.

Hardiness—To Zone 6 and southerly portions of Zone 5.

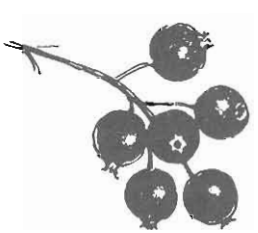
Habitat—Moist, fertile soils of woodlands and riverbanks.

Habit—A shrub or small tree ranging from 5 to 15 feet (1.52 to 4.56 m) in height. Distinctive features include coarse spines along the stems and very large alternate leaves which may be doubly or triply compound. Leaves may reach 4 feet (1.22 m) in length, are composed of toothed leaflets, and are borne on thorny leafstalks.

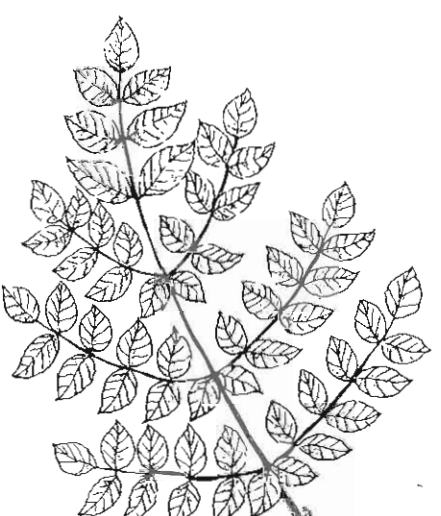
Fruit and Flowers—Small white flowers occur in flat-topped clusters which together create a plume effect. Ripening from late summer through autumn, the 1/4 inch (.64 cm) black berries appear in clusters.

Landscape Value—Mix with other wildlife plantings in a natural setting or use alone to spread from suckers.

Culture—Plant in rich moist soil in full or partial sun. Propagate by seed or by division of suckers.



Fruit approximately lifesize



Wildlife Value—Though Devil's Walkingstick is not widely used by wildlife, its fruits are a preferred food of Wood and Swainson's Thrushes and are also used by the Ruffed Grouse, Northern Bobwhite, Blue Jay, Gray Catbird, Eastern Bluebird, Northern Cardinal, Pine Grosbeak and White-throated Sparrow. Prickly plants such as Devil's Walkingstick generally provide good protective cover for birds and small mammals. ■

Rt. 3, Box 650
Marianna, FL 32446

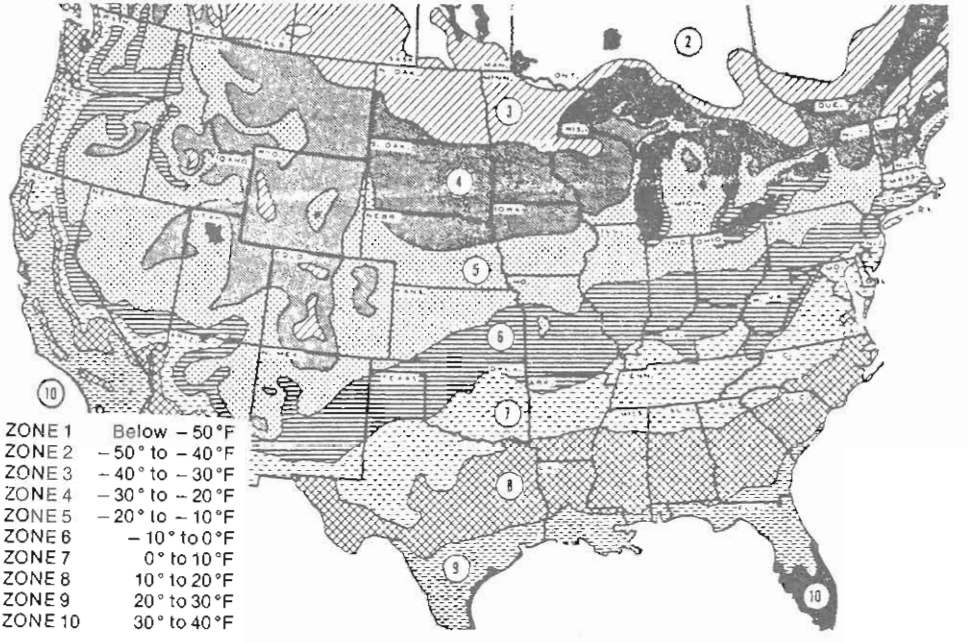


Figure 1. Hardiness Zones for the United States and southern Canada. Temperatures for each zone are the average annual minimum temperatures. When no zones are mentioned with the plant description, plants are hardy anywhere. Factors within zones such as altitude, exposure, soil type, moisture, etc. can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

Bluebird Boosters

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

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

All contributions are tax deductible. Mail your check to NABS Boosters, P.O. Box 6295, Silver Spring, MD 20906-0295.

East Meets West on a Bluebird Trail

John Findlay, III

For us, the trip to the annual meeting in Missoula, Montana, was a memorable one, and our photographs will help to preserve those memories.

Visiting Art Aylesworth's Mountain Bluebird trail west of Ronan across the beautiful Flathead River was a real treat. We felt it was truly East meeting West: bluebirders with an Eastern Bluebird trail in Alabama becoming acquainted with a Mountain Bluebird trail in Montana.

Differences were obvious—only the beauty, the age-old nesting routines, and the cooperation of the bluebirds seemed familiar. The male Mountain Bluebird is bluer, the egg clutch is larger, and, of course, its range is far different from its eastern counterpart. The nest boxes placed by Aylesworth are constructed differently, have larger entrance holes, and are attached to fence posts in a different way. The nests are not made of pine straw as is the case here in the Southeast. Natural predators and human interference are so different that it is like comparing apples and oranges. Seeing Tree Swallows was a pleasure; they are not a problem here!

There was not a shopping mall in sight. Nor were there interstates or rush hour traffic. The "big sky" along Art's trail was not marred by man-made structures, pollution, or litter. Ideal weather, fine cameras, long lenses, and the cooperation of the nesting bluebirds offered us the photographic opportunities we had hoped for. I remarked to my wife, Harriett, that if we didn't come home with acceptable, even exceptional, pictures it could only be blamed on the photographers.

We were practically parked in the middle of the dirt road that bisected the Indian range and 30 feet from Mountain Bluebirds feeding young in nesting boxes. The dust kicked up by an occasional passing hay truck and the summer heat were the only problems we contended with.

What a contrast with my trail of 170 boxes located along paved highways in the fastest growing county in Alabama just east of Birmingham. Parking in a road to photograph bluebirds here would be suicidal. In the 13 years I have operated my trail, there have been 15 new shopping centers built—with all the attendant traffic and problems they bring.

In spite of the continuing urban sprawl and the resulting loss of habitat, the ever present predation, and so many other problems, the bluebirds and their benefactors have fought back. A gratifying increase in the bluebird population appears to have resulted from my trail. Over 520 bluebirds fledged in 1989 which raised my cumulative production to almost 4000. Many other bluebirders report exciting results as well.

NABS and its dedicated trail operators are making a difference. Attending national and regional meetings and visiting trails such as Art Aylesworth's bring home that fact to all of us. If we ever thought we were "going it alone," we now know differently. And we feel the better for it! ■

2749 Millbrook Rd.
Birmingham, AL 35243

(BLUEBIRD/STARLING COMPETITION— continued from page 125)

Zeleny, L. 1976. *The Bluebird.* Indiana Univ. Press, Bloomington.

School of Biological Sciences, University of Kentucky, Lexington 40506 and Department of Forest Science, Oregon State University, Corvallis, Oregon 97331

Wayne H. Davis received a bluebird research grant from the North American Bluebird Society in 1987 for "Eastern Bluebird and European Starling Competition for Nest Sites."

Seasonal Densities of Eastern Bluebirds of Western Louisiana Pinelands

Harland D. Guillory, Charles M. Allen,
Charles H. Stagg, and Stephen D. Parris

Eastern Bluebirds *(Sialia sialis)* are locally common permanent residents of western Louisiana. Pinkowski (1977) reported that bluebirds favored habitat of mostly open areas with a few sparsely distributed trees and shrubs. The managed pinelands of Fort Polk, Vernon Parish provide many acres of such preferred habitat. These open areas are also favored by Common Bobwhites *(Colinus virginiana)*, Redcockaded Woodpeckers *(Picoides borealis)*, Brown-headed Nuthatches *(Sitta pusilla)*, Pine Warblers *(Dendroica pinus)*, and Bachman's Sparrows *(Aimophila aestivalis)*.

There is little documentation of seasonal bluebird densities of managed pinelands of western Louisiana. Noble and Hamilton (1976) researched seasonal bird densities, which included bluebirds, in loblolly pine *(Pinus taeda)* plantations of Livingston Parish of southeastern Louisiana. Baseline data from a predominantly longleaf pine site could be very helpful to future workers in this area.

Methods

Bluebirds were censused during each of the four seasons (two to four times per season for a total of 57 trips) during 1983-87. Spring censuses were conducted in April and May; summer, June and July; fall, September and October; and winter, December and January. The transect census (Robbins 1978) was used in the mornings, beginning at first light, to determine seasonal densities. An observer slowly walked and occasionally briefly stopped along the same route for each census run. All bluebirds seen and heard were counted. All of the width of the study site, lateral to the census route, could be seen as the route was followed. Bluebirds are very visible birds because of their foraging and perching behaviors, and the authors believe that most, if not all, of them within the study plot were consistently observed during each census run. The open study site, caused by a low tree and shrub density, added to the visibility of the bluebirds. Each run required 3 to 3½ hours for completion.

The 30.2 acre (12 ha) study plot was located north of the Fort Polk airport and near the Advanced Wastewater Treatment Facility.

Trees were sampled as recommended by Oosting (1956) and Philips (1959). Trees with a diameter at breast height (dbh) ≥ 4 in (10.2 cm) ≥ 6 ft tall (1.8 m) were sampled with 20, 121 yd² (101.2 m²) circular plots. Greater understory ≤ 6 ft tall (1.8 m) and ≤ 4 in (10.2 cm) dbh was sampled with 20, 48.6 yd² (40.5 m²) circular plots as done by LeBlanc (1979). Locations of all plots were randomly selected with the help of a random numbers table.

Results and Discussion

Longleaf pine *(Pinus palustris)* comprised most of the study plot trees; however, there were a few shortleaf pines *(P. echinata)*, southern red oak *(Quercus falcata)*, sandjack oaks *(Q. incana)*, and flowering dogwood *(Cornus florida)*. There were only 44 trees per acre (110/ha), a basal area of 36 ft² per ac (8.1 m²/ha), and a mean dbh of 12 in (30 cm). Noble and Hamilton (1976) reported 58 trees per ac (145/ha) with a mean dbh of 15 in (37.5 cm), and a basal area of 62 ft² per ac (13.95 m²/ha) at their study area.

The greater understory (midstory) was sparsely distributed as well, with 40 stems per ac (100/ha) and .74 ft² per ac basal area (5 m²/ ha). This was com-

prised of longleaf pine, winged sumac *(Rhus copallina)*, red and sandjack oaks, flowering dogwood, and *Vaccineum* spp.

The lesser understory (herbaceous layer) was not quantitatively sampled, but was visually determined to be dominated by bracken fern *(Pteridium aquilinum)*, bluestems *(Schizachyrium* spp.), poison oak *(Rhus toxicodendron)*, legumes (Fabaceae), and many species of the family Asteraceae.

Bluebirds were most abundant during the fall and winter (Table 1). At this time, small groups often foraged in association with Northern Cardinals *(Cardinalis cardinalis)*, Dark-eyed Juncos *(Junco hyemalis)*, American Goldfinches *(Spinus tristis)*, Indigo Buntings *(Passerina cyanea)*, and American Robins *(Turdus migratorius)*. Lower numbers occurred during spring and summer (Table 1) when some bluebirds had departed from northern breeding grounds or when birds had established breeding territories and distributed themselves over available nesting habitat. Noble and Hamilton (1976) reported similar results: highest density in winter, 8 bluebirds per 100 ac (20 per 40 ha) and lowest in spring and summer, 2-4 birds per 100 ac (5-10 per 40 ha).

In addition to the presence of fall transients and wintering birds from the north, the higher fall and winter densities at Fort Polk may have also been influenced by the availability of blackgum *(Nyssa sylvatica)* and red bay *(Persea borbonia)* fruit in the wet, deciduous drainage bottoms (baygalls) bordering the pineland. These fruit, particularly blackgum, are preferred food items for bluebirds as well as other species.

Management Suggestions

Many management techniques for pinelands create excellent habitat for Eastern Bluebirds, as well as Common Bobwhites, Red-cockaded Woodpeckers, Brown-headed Nuthatches, Pine Warblers, and Bachman's Sparrows. Periodic controlled burning maintains the open pine stands and the herbaceous layer on the forest floor necessary for foraging by bluebirds; however, burning may destroy potential nest sites, particularly the dead trees or tree parts left over after logging operations.

The following is a list of management procedures of pinelands that would be beneficial to Eastern Bluebirds:

1. Late winter, January or February, controlled burns every 3-4 years.
2. Preserve potential nest sites during burning.
3. Leave fallen logs and treetops after logging operations for foraging perches.
4. Practice selective cutting of pines and hardwoods to help maintain open habitat (up to 60 trees per ac).
5. Provide an ample supply of bluebird nest boxes.

The authors are aware of the difficulties that may be encountered in the implementation of the above suggested procedures. Their adoption, however, would be highly beneficial to bluebirds, whose presence would add

Table 1. Seasonal average number of Eastern Bluebirds per trip (first number) and average number per acre per trip at Fort Polk, LA 1983-87.

	1983-84	1984-85	1985-86	1986-87	Cumulative 1983-87
Spr	1.67(.06)*	-**	3.00(.10)	7.75(.26)	4.36(.14)
Sum	9.50(.31)*	.25(.01)	7.25(.24)	5.75(.19)	5.14(.17)
Fal	11.50(.38)	8.50(.28)	16.0(.53)	6.00(.20)	10.50(.35)
Win	12.50(.41)	6.25(.21)	7.50(.25)	9.25(.31)	8.88(.29)

* Spr 1983, N = 3; Sum 1983, N = 2; all others, N = 4.
** No census run.

a significant aesthetic value to many areas. ■

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Harland D. Guillory and Charles M. Allen: Division of Sciences, Louisiana State Univ. at Eunice, P.O. Box 1129, Eunice, LA 70535.
Charles H Stagg and Stephen D. Parris: Environmental and Natural Resources Management Division, Directorate of Engineering and Housing, Fort Polk, LA 70535

NORTH AMERICAN BLUEBIRD SOCIETY RESEARCH GRANTS

The North American Bluebird Society announces the sixth annual grants in aid for ornithological research directed toward cavity nesting species of North America with emphasis on the genus *Sialia*. Presently four annual grants of single or multiple awards totalling $10,000.00 are available and include these items:

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

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

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

Bermuda Research Grant—Available to student, professional or individual for project to be done in Bermuda.

Further guidelines and application materials are available upon request from Cathy Blohowiak, Research Committee Chairman, 106 South Pebble Beach Ct., Slidell, LA 70460. Completed applications must be received by December 1, 1989; decisions will be announced by January 15, 1990.

A Bird in the Bush

Karen Blackburn

In the spring issue, it was reported that bluebirds had been observed feeding on Chinese Tallow or Popcorn Tree (*Sapium sebiferum),* an introduced species grown in the southern states. In response to that column, a reader in Alachua, Florida kindly wrote to share her experiences with us. Angela Van Cleve reports that she first observed bluebirds feeding on her two Chinese Tallow trees in January, 1988. She goes on to say, "Bluebirds returned this January (1989) and fed on tallow trees quite a bit until mid-March when insects became more abundant and the bluebirds started nesting. I do not have any other sources of winter fruit in my yard, and I do not think there are any nearby."

Other birds which Ms. Van Cleve has observed feeding on Chinese Tallow include Yellow-rumped Warblers, American Goldfinches, Northern Cardinals, Northern Mockingbirds, and (infrequently) Palm Warblers. She reports that these birds feed on the trees from fall until spring, and, when she wrote in May, cardinals and goldfinches were still seen feeding there at times when her bird feeders were empty.

Since mockingbirds seem to have a habit of defending the best available food sources in a given area, I was curious to know if the mockingbirds which feed on Ms. Van Cleve's trees defend this source of food. She replied that mockingbird consumption of the "popcorn" is more prevalent during the fall and winter months, at which time "the mockingbirds defend these trees against other birds feeding on tallow, as well as birds that feed from hanging mixed seed feeders in these trees."

Perhaps some readers who have Chinese Tallow on their property share the experience of Mr. Hartley of Alabama, who originally reported sightings of bluebirds feeding on these trees. Though he has Chinese Tallow trees in his back yard, he had never noticed bluebirds feeding there until a fellow bluebirder mentioned to him that she had seen bluebirds using her Chinese Tallow. Once this was called to his attention, Mr. Hartley kept an eye on his own trees and found that bluebirds were, indeed, feeding there. Now is the time to start watching those "Popcorn Trees" for bluebirds and other consumers. Your reports regarding wildlife use of this species would be most welcome. If possible, please accompany your report with the following information: Are other sources of winter fruit available in the locality? If so, do bluebirds appear to show a preference for Chinese Tallow, or is it used more often when other fruit sources have been exhausted? Have other species of birds been seen feeding on Chinese Tallow, and have mockingbirds been observed defending this food source? Finally, if your Chinese Tallow trees are not visited by birds, you are encouraged to report this as well, also noting the availability of other fruiting plants in the vicinity. We also invite any other comments you may have pertaining to this species.

Mockingbird Interference in Bluebird Nesting?

At this time, we are equally interested in reports from readers who have observed mockingbirds aggressively interfering with the feeding and nesting habits of bluebirds. Since both species share the same general habitat preferences, conflicts have been observed. We therefore put forth this

(Continued on page 135)

WHAT A GIFT!

Cyndy Mitchell

Our Godchildren, Melissa, age six, and Betsy, age five, hand decorated a bird house and gave it to my husband, Ed, for his birthday. Ed and Melissa ceremoniously nailed it to a tall loblolly pine tree near the edge of our backyard. It was easily visible from the windows of our bedroom, living room and kitchen. Quite frankly, I had my doubts about its subsequent occupancy, but it was a reminder of the thought, time, and love Melissa and Betsy were eagerly willing to put into a present for their "Uncle" Ed. That thoughtful gift turned out to be the most enjoyable gift either one of us has ever received.

For the last four or five weeks we have been watching a pair of bluebirds prepare for life's greatest miracle, that of birth. They meticulously built their nest, spending hours every day collecting just the right materials. Then, lo and behold, there were five gloriously blue eggs. On 30 April, Ed lifted me up for another peek at the eggs, but they were gone and were replaced by five huddled lumps and beaks! Momma and Poppa bluebird began their seemingly endless chore of keeping those five well fed. Each visit by the parents to the bird house was met by loud screeches and chirps. The babies learned quickly that the squeaky wheel gets the grease and each one competed. I was amazed to see how much the male contributed to the care and feeding of his brood. If only humans would do half as well.

We viewed the bird house activity through our telescope and got a bird's-eye view, so to speak, of their feeding and cleaning habits. I couldn't tell what was being fed to the babies, but I'm pretty sure it wasn't worms—it looked more like insects. Those five beaks were always wide open and ready for more of whatever it was. The adults would take the waste out every fifteen minutes or so and fly far away from the nest with it. I imagine it was an attempt to eliminate any evidence of their nest so it wouldn't be discovered by predators. Our walks out to the bird box provoked several "dive-bombings"! If only they could have sensed our harmless curiosity and concern.

Today, 16 May, was perhaps the highlight for me. I went out to refill our bird feeder (accompanied by our cat, Kitty, I might add) and heard Momma and Poppa bluebird's warning chirps. They were louder than usual. I walked over to the bird house and, of course, was dive-bombed, but I saw no movement inside the bird box and thought the babies must have flown away. I went back to the feeder and sat down a moment to stroke Kitty. When I looked over to the box, there was a little body halfway out the hole. Before I could blink, out it flew to a tree near the edge of our lawn. I was immobile, awed by the sight, and thrilled to be so close and yet unnoticed. Immediately, another little head appeared. He took a little longer to make his first flight (perhaps two minutes) but he too landed on the same branch as his nest mate. Then came the third and the most hesitant. He stuck his head out and viewed his surroundings and apparently liked it much better inside! Every little thing frightened him. A pine needle fell from the tree and he disappeared inside the house once again. All along, Momma and Poppa were chirping encouragingly near by and frequently flew to the entrance hole to tell him that outside wasn't so bad, to give it a chance.

It took him at least ten minutes to work up the courage to fly, but at last he did. He reminded me a lot of myself! The last two left their safe home without a moment's hesitation and made their surprisingly strong flight to join the others. Blinking up at the bright sunlight and that branch of a sweet gum tree, I saw the most wonderful sight—Momma and Poppa bluebird and their five newly fledged youngsters. They sat there for a while and then flew away together, I guess for intensified flying lessons. I can still hear them in the woods.

Our bird house is empty now and I wish them Godspeed. They can come back anytime.

Thanks again Melissa and Betsy. What a gift! ■

1528 Lake Koinonia Dr.
Woodstock, GA 30188

Bluebirds Versus Robins

Claudette Bevan outlines a problem involving competition for food between two species. Her letter and Lawrence Zeleny's answer follow.

Dear Dr. Zeleny:

I received your letter of February 3, 1989, concerning my problem with my bluebirds and robins. Would you believe that all winter long the battle has existed? The bluebirds have stayed in the yard all winter and have been in and out of their nesting box. I had frozen dogwood berries that I put in a container at the base of their tree where the box is located. The robins will come each and every time the bluebirds land in the feeder and run them off. Some days there are 30 or more robins in my yard at once. Before I put the berries out, they were fighting so this is not the problem. I am at a loss as to what to do; however, the bluebirds always return after their encounter with the robins, but I am afraid when they start building and have eggs and baby birds that this might be a problem. My husband in all his spare time keeps a BB gun loaded in order to scare off the robins. They have learned that when they hear the window squeak, they fly off. He doesn't shoot to kill, just to scare them away. The bluebirds ignore any goings-on except for the robins.

You mentioned moving the box from berry producing trees. Our entire yard has such trees—dogwood and two other kinds that I do not know the names of. We did not have this problem until last summer and this was the third summer we had raised bluebirds.

Last winter I put out frozen dogwood berries and they never ate any, so I did not freeze any for this winter, but I found a full can in my freezer so when the cold, rainy weather lasted for a few days, I put them out. The bluebirds have been feeding ever since.

If you have any more suggestions, other than moving the boxes, please let me know as we are very disturbed with this problem. As I told you in my first letter, we have a box in our backyard and one in the front. We are having the same problem at both sites.

Do you think the bluebirds will stand their ground and not let the robins prevent them from building in our box? They have not let them run them off; they just are at a constant war, but they always return. Some days we have two or three pairs at a time in the yard plus lots of baby ones.

Please let me know, if anything, what to do before summer gets here.

Claudette Bevan
100 Kenn Myer Drive
Thomasville, NC 27360

Dear Mrs. Bevan:

Thank you for your letter of March 3 in further reference to your robin vs. bluebird problem.

As I visualize the situation, your property has become a favorite wintering ground for both robins and bluebirds because of the abundant supply of dogwood and other berries. In late fall and winter both robins and bluebirds tend to gather together into flocks of their own kind and to take up residence at or near a good source of winter food. Both species live mainly on berries and other wild fruits during the winter since insects are not readily available.

Since there are evidently more robins than bluebirds in your area and since the robins are larger and more aggressive, they dominate the situation and instinctively resent competition for their food by other birds. Consequently, they drive away the bluebirds at every opportunity in order to protect the berry supply for their own.

My guess is that this "war" between the two species will soon end. In April both the robins and the bluebirds will be selecting mates if they have not already done so. The flocks will break up and only a few of each species will remain on your property. Their interest in the berries will greatly diminish because insects, which they prefer to berries, will again become abundant.

It is good to know that your bluebirds have refused to be banished in spite of the aggressive behavior of the robins. This means that bluebirds will very likely occupy and raise their broods in one or more of your nesting boxes, probably without interference from the robins. The robins will be too busy with their own family affairs!

Larry Zeleny
Founder

Mice in Winter? Plug Entrance Holes

Ruth Gilchrist

Shortly before Thanksgiving, I lifted the lid on a bluebird house nailed to a post beside a cornfield. Inside was a tightly constructed nest of corn silk and animal fur. There were no openings in the nest which filled the box. I carefully lifted the nest out and carried it in one hand about twenty-five feet. I poked a little hole near the bottom and out jumped several deer mice. They disappeared into the debris left by the corn harvester. I walked perhaps another hundred feet when I felt something crawling up my neck under my scarf, then to the top of my head under my head scarf and tassel cap.

After walking through the orchard, barnyard, and backyard, I reached the steps to the house. I called my sister in order to show her the nest. Then with both hands empty, I grabbed tassel cap and head scarf off my head. I got the mouse by the tail, but he managed to escape. Because it was a cold, windy day, I had worn a sweater under my coat. The mouse had crawled from the nest, up my arm between sweater and coat without my feeling it until it reached my neck.

Next day I found another mouse nest in one of the three boxes I had sitting on a pile of wood waiting for repairs. All bluebird house entrance holes were then plugged for the winter until the first bluebird would arrive in March. ■

R.D. 7, Box 76
New Castle, PA 16102

Looking for a Bluebird

Carole Liposky

"So keep on looking for a bluebird and listening for his song whenever April showers come along." I thought Eastern Bluebirds existed only in songs because I had never seen one in all my 40 years.

Remember that super cold winter of 1985? I live in Morristown, Tennessee near Knoxville, and on 21 January the temperature was 24 below zero, the lowest in the nation for that day. There was, however, one bright spot during that dismal time; I happened to see an article in the newspaper written by a local man about how to attract Eastern Bluebirds. The idea was pleasant as I looked outside at the frozen world.

Within a minute, I was happily writing to the "suggested further information" sources supplied by my neighbor. Within two weeks I began receiving pamphlets telling me how to make nesting boxes as well as how and where to situate them. It so happened that my eighth grade son, Jeff, needed a wood shop project so I asked him to make a bluebird box. The nesting box was completed in the middle of March, and my husband put it up at the back of the yard about 50 feet from a small catalpa tree as instructed.

We had put our box up with much hope (and some faith) that bluebirds would find it. Well, we kept an eye on that box every day for three weeks looking for a bluebird. And then—could that have been a bluebird on that box? Sure enough! Happily, we were all home that March morning. My son was not only amazed but flattered that a bluebird was actually interested in his Industrial Arts project.

We had two nestings that season of 1985. What a thrill to watch the nest building begin and to anticipate baby birds. Within three weeks five blue eggs appeared in the soft, grassy nest. The second nesting occurred within two weeks of the first brood's fledging. This time there were four eggs. We have since seen that often a third nesting occurs with three eggs.

I've pondered the declining number of eggs with each successive nesting and have decided that the weary parent birds need just a little less to do as the summer wears on.

My favorite bluebird story happened one evening in August 1985. I had a little garden in the back corner of my yard which was located about 50 feet from the bluebird box. That evening I decided to pick tomatoes and took a big stainless steel bowl to the garden. As I began to pick, I was suddenly alarmed by something rushing about my head. Looking up I saw my attackers—the bluebirds!

I was genuinely frightened as the feisty parents repeatedly dived at my head. I put the stainless steel pot on like a helmet and ran the 50 feet back to the house. The birds kept right after me until I had disappeared inside. I called to my husband and Jeff to hurry to the window to observe this uncharacteristic behavior.

We crept outside and sat at the picnic table, sharing the binoculars. It then became clear that the babies were leaving their nest and I had inadvertently walked into the momentous occasion. Imagine! We were even going to get to see their first flight. The normally timid and sweet-tempered bluebird parents had been staunchly defending their babies' flying space.

The bluebird parents would repeatedly "buzz" the box and then fly to the tree. All that action was clearly a coaxing demonstration to the emerging youngsters. As each baby took off, we quietly cheered. Their beeline flight to the catalpa tree looked practiced and strong. They weren't quite as good as their parents, but considering it was the first time ever, they got an "A".

By the end of the summer of 1988 my husband and I could count ourselves grandparents to 30 additional bluebirds. ■

1600 Lacefield Drive
Morristown, TN 37814

Speaker of the Quarter

Diane Allison

Jerry Newman

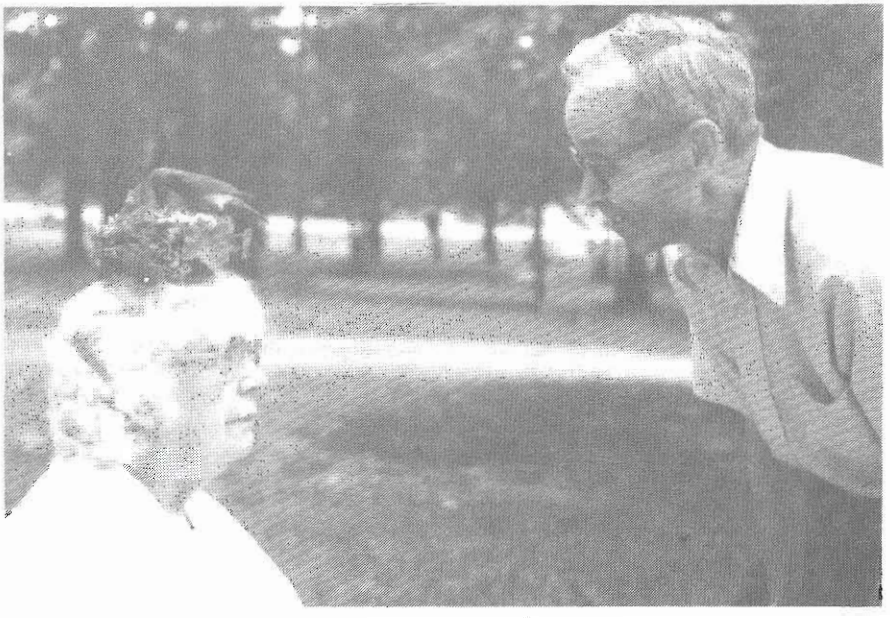
This quarter the state of Pennsylvania again provides the locale for our speaker, DIANE ALLISON of Pipersville, Bucks Co., Pennsylvania.

Diane became a "speaker" for bluebirds by evolution. She has had bluebirds and a small trail at and near her home for the past ten years. About five years ago she took up wildlife photography and accumulated quite a few bluebird slides. While she was accumulating these slides, word of her bluebird trail spread and she fell into doing programs and workshops to try and increase public awareness of the plight of the bluebird. In her programs her approach is about the same as it is for most of us: she usually talks about the bluebirds a little, shows the slides, has a question and answer period and, finally, she says, "We build boxes." If there is not time to do the actual building, some groups request kits to build later.

Diane states that she passes out a sheet with general information including her name and address, and another sheet with building measurements and directions for establishing a bluebird trail. She has worked with fifth grade school classes which build nest boxes, make a trail, monitor it and keep records on the boxes. She has also worked with Girl Scouts, church groups, and adult evening schools. From these efforts she has received many referrals for her program.

Basically, most of the above sounds familiar, yet it gets right to the heart of what we are trying to accomplish in the Speakers Bureau: make the public award of the problem, give them solutions, and encourage them to get involved. ■

Bluebird Photo Helps Dental Patient



Laurance Sawyer of Ringgold, GA, with his wife, Adelaide, who wears a nest of bluebirds. This photograph was sent to Laura Riley in northern New Jersey who passed it along to her dentist in New York City. Dr. Soldati used it to calm a tearful patient. Laurance Sawyer described the incident in the poem on page 160.

Patients Experience Nature Through Bluebirds

Tom A. Barber

The idea of setting up a bluebird trail on the Cambridge Mental Health and Developmental Center came about as the result of the banding of one nestling bluebird in July of 1987. Father John Belfield, the Center's Roman Catholic priest, had a bluebird nesting box built by Mark Sestina close to his church. Bluebirds found the box and the female laid four eggs. Mark kept close tabs on the progress of the nesting. When the two young were almost ready to band, he called Doug LeVasseur and set up a date for banding. He also contacted me so that I could have my students, ages 21 to 50, attend the banding. (I'm an Adult Basic Education teacher who sees 10 students twice a week in the evening for math and some science study.) When Doug banded the nestlings, he found one dead.

The residents were excited by this experience, so I thought of having our own bluebird trail in addition to Father John Belfield's box. The Cambridge facility has plenty of open fields which are great bluebird habitat. Each resident could build a box and personalize it by carving his name in it. Mr. Harold Sivard, the O.T. instructor, was contacted. He was already interested in bluebirds, so he was especially interested in getting this project started. He checked with his supervisor and got permission to buy the wood. Then he pre-cut the cedar to Ohio Division of Natural Resources specifications. Next, the 10 residents pounded the boxes together. They really did an excellent job. Father Belfield was very happy. He felt that the nesting boxes would make the grounds seem more like a home.

I then had to find good locations for the 12 new boxes which included two Harold Sivard built himself. I located the boxes on telephone poles because it would have been hard for the groundskeepers to cut around a dozen extra poles. This was in the fall of 1987.

Spring of 1988 arrived and with it our first big disappointment. House Sparrows came out in droves and took over 75 percent of the boxes. I was cleaning out nests and eggs twice a week for two months. Some of the residents couldn't understand why sparrows couldn't nest in their boxes, so I had to explain the problems House Sparrows caused. Finally I found a bluebird nest in one of the boxes. The

A resident viewing nestling bluebirds for the first time on initial outing to see first successful nesting on trail.

resident who had built that box was excited. When the eggs hatched I took the residents out to view the three-day-old nestlings. They were surprised by the nestlings' small size. Yes, the resident who built that box was very proud.

All of a sudden at the end of May the sparrows stopped nesting. Slowly the bluebirds began to find the boxes. It seemed that the sparrow nesting season had run its course. Each week a new bluebird nest was found on the trail.

As a group we went back and viewed the first three nestlings when they were 15 days old. The residents were really surprised to see how much bigger they had grown.

All together we fledged 26 bluebirds on this trail of 13 boxes. Not bad for a trail that had nothing but sparrows until the end of May. We had seven successful nestings with the loss of one four nestling clutch to raccoon predation.

Some of the residents were upset because their boxes were not used by bluebirds. This was one of the drawbacks of this project. But there is always next year, and that is how I consoled them.

I do feel the project was a huge success even with the setbacks. The residents learned a great deal and feel more compassion toward their fellow creatures. ■

60406 Stewart Rd.
Cambridge, OH 43725

Photographs by Tom A. Barber

A resident of Cambridge (OH) Mental Health and Developmental Center with bluebird box he built and which contained the first successful bluebird nesting on this trail.

THIRTEENTH ANNUAL MEETING OF THE NORTH AMERICAN BLUEBIRD SOCIETY

The 13th annual meeting of the North American Bluebird Society will be held in Gettysburg, Pennsylvania, October 26-28, 1990.

Twelfth Annual Meeting Report

Mary D. Janetatos

The Twelfth Annual Meeting of the North American Bluebird Society was held in Missoula, Montana, on July 7-9, 1989 at the Holiday Inn, Parkside. Sponsored by Mountain Bluebird Trails, the meeting was attended by approximately 200 persons from many states and provinces. The meeting coincided with Montana's celebration of its centennial year.

On Friday the field trip began shortly after 8:00 a.m. with three large busloads and one vanful of bluebird enthusiasts. The promised Western and Mountain Bluebirds were seen in all stages nesting. There were other sightings, chiefly nesting Osprey, with young clearly visible. One nest was on a constructed platform set on top of a utility pole, evidence of cooperation between the Montana State Department of Fish, Wildlife and Parks and the utility company.

The breathtakingly beautiful Montana landscape flashed by as the bus headed toward St. Regis. Shortly after noon, the group was treated to a sumptuous barbecue—of buffalo, roasted on an open spit. Ice cream sundaes with homemade huckleberry sauce concluded the menu.

On Friday evening, Alfred Perry, of Boise, Idaho, gave a highly unusual presentation: "High Desert Indians, Their Life and Ways." With some American Indian ancestors in his family tree, Al's deep love for them was exhibited in his flawless narrative wherein he painted an audio picture of the lifestyle of primitive man before the advent of Europeans in North America. Each tribe had its recognized characteristics and talents. Al researched even the basket weaving, learning the craft from Indian women artisans. The audience was spellbound by the fascinating narrative of this veteran bluebirder who could interpret the intricate lifestyle of pre-Columbian man in North America.

Saturday's schedule included many first-rate presentations from 9:30 a.m. until 7:00 p.m., when the banquet was served. Deni Hershberger, a prodigious bluebirder from Plains, MT, and chairwoman of the NABS Annual Meeting Planning Committee, was ably assisted by Art and Vivian Aylesworth, and Pat Matsko. Deni warmly welcomed the group to Montana. In an invocation, Harold Hughes, bluebirder from Coalsdale, Alberta, thanked God for His wonderful gifts and asked His blessing on the gathering. Master of Ceremonies Tom Matsko, of Great Falls, MT, kept the meeting humming along on schedule. Initial speaker Vince E. Yannon of the Montana Fish, Wildlife and Parks (FW&P) department in Helena gave a very entertaining presentation on "Injured Species Recovery." Vince began with an eerie rendering of an elk "bugling." He then brought out a Great Horned Owl he is rehabilitating. After a meal the owl regurgitates a pellet composed of the indigestible parts of whatever animal or bird had been eaten. If it was a bluebird, the pellet would be blue! He recounted that this owl took a cat once—audience reaction: applause! The entire presentation was a well illustrated lesson in respect for species whose life cycle requirements can be perceived as colliding with human use or misuse of the environment.

A short break was followed by Ronan, MT, resident Art Aylesworth's talk on "Western Bluebird Recovery in Montana." Veteran bluebirder as well as a past director of NABS and co-founder (with Lethbridge, Alberta's Duncan Mackintosh) of Mountain Bluebird Trails, Art has been a benefactor to Mountain Bluebirds for many years. In 1980, Duncan and Art enlarged the nest box hole size and found greater acceptance of the boxes by both Western species. Through Art, Deni Hershberger became interested in bluebirding and began to develop her own trails. Bluebirders discovered that

Western Bluebirds were expanding their range. Brood size of many pairs was sometimes 10 eggs, yielding an average of 1-1/2 more young than the Mountain Bluebirds. The Western species arrives earlier in spring and leaves later. This phenomenon will be closely watched.

Professor Richard Hutto, of the University of Montana in Missoula, lectured on "The Distribution and Ecology of Western Migratory Landbirds in Winter." He discussed tropical deforestation. He explained that he had personally observed in Mexico's Central Plateau many mixed species flocks of small migratory birds (including Mountain Bluebirds) eating mistletoe berries. Although some data he judged to be biased, it appeared that sometimes migratory birds increased in cutover tropical forests, and, as yet, Breeding Bird Surveys do not say that populations are declining. However, isolation of forest fragments continues at alarming rates. International conservation as well as *intra*national policies must be carefully evaluated to result in the best possible balance between human activity and our natural surroundings.

Following lunch, NABS President Sadie Dorber of Vestal, NY, addressed the assembled bluebirders. She remarked on the smoothly run program coordinated by Deni Hershberger and her committee. Sadie then opened the annual business meeting at which officers were elected and award plaques given. The slate of officers was presented by Nominating Committee Chairman Lillian Files of Tyngsboro, MA. The slate of officers and board members submitted by the committee and distributed earlier to NABS members was elected unanimously. Award honorees will be discussed in a separate article in this issue.

"The Ellis Bird Farm, Nine Years Later" was described by Myrna Pearman, NABS director, of Lacombe, Alberta. Myrna's impressive collection of slides ranged from the early days of the unique "bird farm" to the present day. From the time of Charlie and Winnie Ellis's sale of their farm to Union Carbide Co., the land has been a haven for wildlife indigenous to the area. Year round trapping of sparrows and starlings ensures the success of populations of Mountain Bluebirds and other native birds using the nest boxes. Myrna documented a cooperative effort between a giant industry and an environmental group which benefits both the environment and the industry.

Dennis Flath of Montana Fish, Wildlife and Parks in Bozeman described the "Montana Centennial Bluebird Trail." On the screen, Dennis showed the silhouette of a bird which he dubbed a "generic" bluebird. He described how the Eastern Bluebird has made its way into eastern Montana. Many bluebird nest boxes have been erected there and have attracted some of the bluebird population from western North Dakota. Volunteerism through FW&P is very effective in eastern Montana. In this talk, as in the next one, it was shown how individuals can make a difference when budget and time constraints afflict the governmental departments whose mission it is to "manage" the many square miles of parkland in the state. Bill Pryor, of Bozeman, MT's FW&P, described, through slides, graphs and lively narrative, the "Needs of Montana Wildlife and the Value of Wildlife as a Resource." Bill detailed the minimal negative impact which the state population of only 800,000 people now has, but warned that this could change as many seek vacation homes in this beautiful state.

Following a short break, Donna Hagerman, newly elected NABS board member from Reno, NV, discussed "Entrance Hole Sizes." Donna maintains her bluebird trail near Reno, in the fourth state which has chosen a bluebird to be its state bird. Joining New York, and Missouri with the Eastern Bluebird, and Idaho with the Mountain Bluebird, Nevada has also chosen the Mountain Bluebird as its avian symbol. In her talk, Donna described her trail and her "hole size" project. Responding to suggestions by Art Aylesworth, she made some of her nest boxes with 1 9/16" holes and some with 1 1/2" hole size. Some of these were

placed side by side and both attracted Bluebirds and Tree Swallows. At first, the hole size did not seem to matter to the Mountain Bluebirds in Nevada. There was subsequently some evidence that the bluebirds preferred the larger size. Since she banded the nestlings Donna found in banded birds that female bluebirds returned to the hole size that they fledged from. Observing 58 choices of nest boxes, in 1987, 72% used the larger hole and in 1988, 84% used the larger hole. Donna also introduced Jan Simkins of Reno, NV, who was a recipient of a NABS Research Grant in 1989.

The final offering of the afternoon was a film called "The Last Parable." It detailed the beauty and fragility of our wonderful planet. Choices made by individuals and by governments worldwide must not be made with motives of greed and avarice, but with regard for those co-inhabitors of this planet, the soil, the water, the air, the flora and the fauna coexisting here with humanity.

A period of rest and refreshment preceded the banquet, at 7:00 p.m. Then attendees enjoyed a buffet dinner following which door prizes were awarded. The invited speakers, Craig S. and Jon H. Jourdonnais, presented the multimedia "Islands of the Wild." Against a background of contemporary music, many scenic treasures of Montana sped across three large screens simultaneously.

Sunday morning the group travelled to the National Bison Range located on an Indian reservation, near St. Ignatius, and to nearby Nine Pipes National Wildlife Refuge. A few of the large mammal species sighted were buffalo, elk, and prong-horned antelopes. Some of the nesting birds sighted were: Great Blue Heron, Double-crested Cormorants, and Western Grebes. Red-necked Grebes with young riding on their backs delighted everyone.

Upon returning, fond farewells were exchanged and appreciation of John Lubbock's statement appearing on the back of the attractive program was felt by all:

All those who love Nature she loves in return, and will richly reward, not perhaps with the good things as they are commonly called, but with the best things of this world—not with money and titles, horses and carriages, but with bright and happy thoughts, contentment and peace of mind. ■

Awards Presented

The North American Bluebird Society annually recognizes bluebirders who have made major contributions to bluebird conservation. At the Twelfth Annual Meeting in Missoula, Montana, on 8 July 1989, the following were honored with award plaques:

Upstate New York Bluebird Society
Lillian Lund Files
Deni Hershberger
Mark Raabe
Jim and Mildred Spear

The Lawrence Zeleny Award was made to the ***Upstate New York Bluebird Society.*** The Upstate group was formed in 1982. Public education is the main goal of this organization. They meet twice a year always welcoming new bluebirders. Displays are set up at community events across the state of New York. Brochures are handed out and questions answered.

Since 1983, the group has purchased lumber and made boxes to sell to the public. Local businessmen help by selling the boxes at no profit to themselves. Over 2500 boxes have been distributed by the Upstate bluebirders. Box sale profits go to-

ward printing costs for educational materials, the purchase of wildlife shrubs which are given free to members, and research both at the state and national level. They fund a substantial annual grant as part of the NABS research program.

John and Norah Lane Awards for outstanding contributions to bluebird conservation by individuals were made to the following people:

Lillian Lund Files has been an active bluebirder for many years. She not only monitors an extensive trail, but each year she also speaks to several dozen groups in her home state of Massachusetts and nearby states. She was instrumental in getting the bluebird on the state poster for the checkoff fund, and she has served as a consultant in the establishment of several major trails for the state or organizations.

She was elected to the NABS board of directors, served as president and now chairs the nominating committee. Her enthusiasm for and devotion to the bluebird has made her a leading force for bluebird conservation in New England.

Deni Hershberger turned into a true bluebirder when she put a box in her yard and produced two broods of Western Bluebirds the first year. She encourages everyone she meets to put up a few boxes. Through family and friends, she has helped expand bluebird conservation from Montana into eastern Washington.

Along with the major trail she monitors, she has several Wood Duck boxes and provides artificial platforms for Canada Geese. Her lawn contains numerous hummingbird feeders. She often provides slide programs for schools and community groups.

Currently, she serves on the board of Mountain Bluebird Trails and is a past board member of NABS.

Mark Raabe was an active bluebirder long before the formation of the North American Bluebird Society. He is a charter member and served as corresponding secretary before taking over as recording secretary in 1983. He held this position until last year. He still serves in a legal capacity for NABS.

Mark's first bluebird trail was in Rapahannock, VA. Now, Mark and his wife, Jean, maintain the bluebird trail they instituted at Antietam National Battlefield. They have developed an attractive bluebird exhibit for the visitor center.

Mark served as a consultant for the bluebird trail established at Wolf Trap Farm Park near Reston, VA; he was also active in the formation of Kestrel Karetakers devoted to another cavity nester. He maintains boxes for American Kestrels on his Antietam Battlefield Bluebird Trail.

His devotion to cavity nesting species and their preservation through conservation organizations has been evident for years.

Jim and Mildred Spear of Russell, Manitoba, began their bluebird conservation 16 years ago when they met John and Norah Lane. They have been active members of the Brandon "Friends of the Bluebirds" since that time.

Their own bluebird trail has grown to 225 boxes which reaches westward into Saskatchewan. Fifteen hundred miles is covered annually in caring for their boxes. Their work with young people has enabled them to pass on their love and respect for nature. They have also set aside a 40 acre lake and 240 acres of poplar and maple bush for wildlife. Last year Jim was awarded the Wildlife Cooperator's Award by the Manitoba provincial government. In 1988, the Spears began a banding program. ■

Deni Hershberger accepts award from NABS Executive Director Mary D. Janetatos, right.

Jim Spear, Jr. and his wife, Linda, accept award on behalf of Jim, Sr. and his wife, Mildred, from Norah Lane.

Richard Wells, Vice President Upstate New York Bluebird Society, accepts award on behalf of Upstate bluebirders from NABS President Sadie Dorber.

Executive Director Mary D. Janetatos, left, presents NABS award to Lillian Lund Files.

Photographs by Myrna D. Pearman

Mark Raabe accepting his award.

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 read an article in the *Chronicle Herald* printed in Halifax, Nova Scotia, about nesting boxes to help the bluebirds. My wife and I have been members of the Nova Scotia Bird Society since 1976 and enjoy bird watching very much.

I am a senior citizen and can find the time and materials to make and erect nesting boxes. We have had Tree Swallows come to our one and only house that was put up about five years ago. As an amateur radio operator (VE7XA) I have talked to people in Maryland over the years.

Roy Blakeburn
R.R. #3, Sydney
Nova Scotia, Canada

Dear Editor:

I received a letter from a Dr. Kent in Lufkin, Texas, telling me of 2 bluebird nests in our log houses. Each nest contained 4 bluebird eggs and 1 titmouse egg.

A customer in Tennessee claims the same for her house. How unusual is this?

Anybody out there got one to beat it? Let's hear!

Laurance Sawyer
Rt. 1, Bluebird La.
Ringgold, GA 30736

Dear Editor:

During the recent NABS conference in Montana, several people asked me if we had video copies of "The Last Parable" available for sale. Following are the prices: 16 mm prints, $300.00 (make check to Alpha Cine Lab); 1/2 in. tape $29.95, 3/4 in. video tape $39.95. Checks for tapes should be made payable to Montana Department of Fish, Wildlife and Parks. Send orders and checks to Mike Gurnett, Montana Department of Fish, Wildlife and Parks Film Center, 930 Custer Ave., Helena, MT 59601.

Dennis L. Flath
Nongame Coordinator, Research and
Technical Services Bureau
FWP Building, MSV Campus
Bozeman, MT 59717-0001

Dear Editor:

This is an update of locations where 1 9/16 in. drill bits may be obtained. For building several hundred boxes a heavy duty multi-spur bit would be best; cost is about $35.00. Contact The Forest City Tool Co., Box 788, Hickory, NC 28601, PH. 1-800-438-2623.

For those building fewer than 100 boxes, several companies make 1 9/16 in. hole saws that run from $9.00 to $12.00. Contact one of the following companies: W.W. Grainger Co. (has offices all over the U.S.), General Office, Box 5959, West Howard St., Chicago, IL 60648, PH. 1-312-647-8900; The Irwin Co., Box 829, Wilmington, OH 45177, PH. 1-513-382-3811; Delta International Machinery Corp., Box 18617,

Memphis, TN 38116, PH. 1-901-363-8800.

Art Aylesworth
Box 794
Ronan, MT 59864

Dear Editor:

I monitored 283 boxes last year with bluebirds in 163 of them. I fledged 596 young and found none died from heat or even looked stressed from the prolonged near 100° heat.

Also, I find it impossible to believe that a bluebird needs 24,000 calories a day to survive (*Sialia* 11(2):60). A grown man only needs 2500-3000 and would have a hard time eating 24,000 calories in a day. Please clarify.

Terry Glanzman
Rt. 1, Box 197
Mondovi, WI 54755

Dr. T. David Pitts, senior author of the article to which Mr. Glanzman refers, answers as follows:

The term "calorie" is clearly defined by physicists, and most biologists are careful to adhere to that definition. However, the term "calorie" as applied to human diets by nutritionists is actually 1000 times larger than the physicists' "calorie." When we read that humans need 2000 calories per day we are being mislead: our actual requirement (in real calories) would be 2000 x 1000 or about 2,000,000. Technically, the term "calorie" used by nutritionists is a kilocalorie; some nutritionists do refer to human calories as "Big calories" in an attempt to distinguish between "real" calories and "human" calories. When we understand that bluebirds need about 24,000 calories or 24 kilocalories per day while humans need about 2,000,000 calories or 2000 kilocalories per day, the comparison makes considerably more sense.

Dear Editor:

Over the past few years I have been trying to attract bluebirds to my wooded homesite. I have tried various nesting boxes and ideas. I finally found the NABS and ordered their boxes and set up a trail. No results at all!

Then this spring out of nowhere three pairs of bluebirds arrived. They flew right past my trail and set up housekeeping in a dead vine-covered stump, a dead tree, and a woodpecker hole in a live tree. All of the nests were within 50 feet of each other. The vine-covered stump is right by the front door of the house and the family makes at least a dozen trips a day within three feet of the nest. The bluebirds raised at least one family, maybe two, right in the middle of the traffic pattern.

Murray C. Renick, Jr.
18 Country Club Terr.
Rolla, MO 65401

Dear Editor:

Some interesting notes from my trail:

1. A female bluebird used a dummy wren twig nest adding no grass lining of her own. She laid 4 eggs, 3 hatched, and 3 fledged successfully.
2. I have had bluebirds using hanging nesting boxes made of heavy lumber (2x4s, 2x6s and 1x6s).
3. A Tree Swallow placed a piece of peacock tail feather in its nest. The peacock farm is 3/4 mile away.
4. I no longer use 4 in. PVC pipe nesting boxes because they are too small for a clutch of 5 or 6 young. Now I add only 5 in. PVCs to my trail. I use them to replace vandalized wooden nesting boxes. When I erect the replacement, I put a NABS vinyl decal on the smooth PVC surface. It seems to discourage further vandalism.

Rob Early
R.D. #3, Box 196
Pleasantview Road
Hummelstown, PA 17036

Bluebird Tales

Mary D. Janetatos

At last the State of Maryland is getting into the bluebird act. **Torrey C. Brown, M.D.,** speaking as Secretary of the Maryland Department of Natural Resources in Annapolis, MD, wrote:

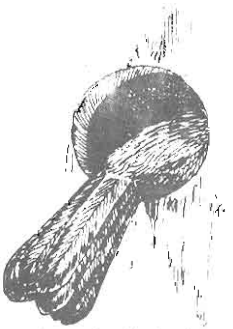
"Thank you for your contribution of bluebird nest box plans and bluebird conservation literature for our 1989 Bayfest bluebird conservation demonstration project. All of the materials you provided were distributed to 4,600 of the attendees of Bayfest.

The eighth grade media class of Eastern Middle School in Rockville and the Explorers of Post 367 in Annapolis constructed 28 bluebird nesting boxes according to the plans. Materials for the project were donated by the Chesapeake Bay Trust and all construction was done during the Bayfest demonstration. The public was very interested in the demonstration, and we could have distributed more materials than we had requested.

The bluebird nesting boxes have been erected in Seneca Creek State Park under the direction of **Mr. Cliff Horton,** the District Wildlife Manager."

Wayne Davis, of Lexington, KY, sent a newspaper article entitled "Bringing Bluebirds Back to Bluegrass" which reported how Wayne strives to find the ideal bluebird nest box. He prefers a slot opening, and has mounted over 800 boxes along the fences lining the Bluegrass Parkway, the Mountain Parkway, and Interstates 64 and 75. "The horse farms we have here are beautiful habitat for bluebirds, but there is absolutely no place for bluebirds to nest," Davis says.

If bluebirds travelling in Texas are alert, they will find stopping places with my friend from Audubon Naturalist Society days, **Lee Ella May-Bright** in Odem. As reported in **Kay McCracken's** "Birding" column in the Corpus Christi (TX) *Caller-Times*, "The May ranch, two miles out of Berclair (in Goliad County), has been in the May family for more than a century and must be bluebird heaven...." **Janine Briley** sent a copy of an Arbor Day program sponsored by the East Texas Area Council of Camp Fire, Inc. Janine's "Bubbly Bluebirds" group had a project entitled "Save the Bluebirds and Beautify the Parks." This project won "a most prestigious statewide award, the Texas Urban Forestry Award (youth category) from the Texas Forest Service."



They were given technical assistance by **Harry Krueger,** veteran bluebirder from Ore City, TX. Harry and NABS Board Member **Keith Kridler,** Mt. Pleasant, TX, along with **Robert McKinney** write the informative monthly newsletter "Bluebird News." It can be obtained by sending $20.00 per year ($15.00 for persons over 65) to Box 1624, Mt. Pleasant, TX 75455.

From Wildwood, FL., **Delilah C. Gwaltney** wrote enclosing a copy of *Florida Wildlife* magazine for Jan-Feb 1989. An article by **William J. Weber** was entitled "The Bluebird Lady," and detailed the work Delilah had done for bluebirds.

Bill Todd, Castle Hayne, NC, incapacitated by MS and in a wheelchair, also works to aid bluebirds by building and selling nesting boxes on roadsides. Mrs. Todd wrote that he was featured on a local TV "Crossroads" program as a "man who is doing what he can by providing real estate for an endangered (sic) species."

Speaking of providing "real estate" for bluebirds, **Nancy Gilbert,** Somers, NY (member of NABS Speaker's Bureau), sells nest boxes to the Heritage Hills Bluebird Boosters and includes a NABS color brochure, "Where Have All the Bluebirds Gone?" in each box, along with an informative sheet of pointers for the prospective bluebirder.

The "Birdman of Brewerton" (NY) is **John Rogers,** NABS board member, Speaker's Bureau member, and co-founder of the Upstate New York Bluebird Society. Credited with "bringing the bluebird back to central New York" by **Thad Pechin,** John's cousin and fellow bluebird fan,, John's trail consists of 460 boxes covering a 70 mile area in Oswego and Onondaga counties. In 1988, there were 534 bluebirds fledged.

This penchant for inspiring others to get involved in bluebird conservation traces back to NABS Founder **Larry Zeleny, Amy Heater,** Mt. Clare, WV, told of her New Seekers 4-H Club being inspired by Larry's work reported in the May 1987 issue of *Southern Living* magazine. Amy wrote that the 40 club members completed 30 nesting

boxes and plan to mount them in parks and near nursing homes, to monitor them, and keep them in good repair. **Marie Roo,** Seattle, WA, leader of Calowise Adventure Club (Camp Fire) wrote to obtain a NABS information packet. To illustrate their need, several entertaining pictures in full color were sent by the club members. Danielle's was a bit upsetting, however, for it showed a beautifully drawn "Garfield" enjoying an ice cream sundae when a stunning Mountain Bluebird flew by. Gleeful Garfield said, "I'll get you next!" **Annakarin** and **Carmel**'s renditions were less mischievous, but very appealing and we trust they have made good use of the material sent. Evidentally **John Eschle, Jr.** did that because he wrote saying he had finished his Eagle project which was a bluebird trail at Lapham Peak (WI) Park.

Patti Burke, Ivy, VA, described starting a bluebird trail at Meriwether Lewis School, where the school has voted the bluebird their mascot. **Marie Hanson,** Auburn, CA, wrote telling of NABS member **Ron Brown** who with help from his brother, **Ed,** aided over 120 students in building nesting boxes. Ron, a Speaker's Bureau member, donated the materials.

Harking back to pre-NABS bluebird history, **Ruth Doyle,** Grass Valley, CA, told of reading "Song of Hope for the Bluebird" in the June 1977 issue of *National Geographic.*

In May of 1989 **William F. Read,** Kitchener, Ontario, wrote updating us on the Ontario Bluebird Society which he had founded in April of 1988. William's group joined the other North American local societies devoted to bluebird conservation and all do a wonderful job of educating the public and compiling statistics on the results of trails.

Several unusual accounts arrived in the mail. **Miss K. Gail Rudy,** Altoona, PA, told of a "very busy bird year in our yard": in a white pine tree, robins; above a shed door, phoebes; in a red plum tree, a yellow warbler; in a garden nest box bluebirds! **Theo E. Taylor,** Atlanta, GA, had several nestlings by the same female bluebird. This is certain because the bird is an albino. **Brenda Wadsworth,** McCalls, AL, gave a detailed account of rescuing eggs and incubating them; she was planning to place them in foster care on **John Findley's** trail.

And then there was the bluebird *nuisance!* **Susan Carter,** Stone Mountain, GA described efforts to dissaude a male bluebird from attacking his reflection in garage windows and the brass kickplate on a door. An artificial snake worked in the garage but not at the front door. "We are just about fed up. My husband wants to take the nesting boxes down. We now have another family in the second box. Do you have any suggestions?" Maybe you could try a hawk or owl silhouette, Susan, but don't take the boxes down. Put up with a little bluebird madness!

NABS President **Sadie Dorber,** Vestal, NY, told of **Ray Briggs'** extensive bluebird work in Scoharie County, NY, where his small army of monitors visit **Vickie Briggs,** Ray's wife, who is ill with multiple sclerosis. At one point, Ray eagerly asked Sadie's help in instructing him in banding bluebirds. Sadie could not make the trip right then. but Rav pressed for details. Sadie's question to him, "How can I tell you how to band bluebirds over the telephone?"

Carl Lagle, Cambridge, OH, says, "I have had an interest in birds for the past 25 years, but nothing like I feel for the bluebird. I monitor 43 boxes this year. I am fortunate to have as my mentor **Doug LeVasseur.** Together we suffer through the anguish that sometimes happens in monitoring. We also share the joy." Doug is a NABS board member from Senecaville, OH. He wrote recently, "After nine years on bluebird trails imagine my excitement when I opened the lid of the box I call the 'far-far' house to see a clutch of 6 white eggs. I would like to share this experience with other followers of 'Bluebird Tales'."

While enjoying the wonderful NABS Twelfth Annual Meeting in Missoula, MT, last July, we were able to become better acquainted with members we had spoken with by telephone or had corresponded with at some point. **Don Yoder,** Walnut Creek, CA, was among these. **Lloyd** and **Arlene Wilson,** Godfrey, IL, brought greetings from former board member **Ralph Shook,** also of Godfrey. Lloyd described his own bluebird conservation activities. He has built and given away thousands of nesting boxes and promotes membership in NABS. Writing in late July, **Andrew Harlan,** Trout Creek, MT, said it all, "I thought the meeting in Missoula was a blast."

Watch for NABS being mentioned in a winter or spring issue of *Country Magazine.* Also watch for a new bluebird video "Bluebirds Up Close" done by Nature Science Network (108 High St., Carrboro, NC 27570). Michael Godfrey, producer, interviewed this writer in Montana where he also obtained excellent footage of the Western and Mountain Bluebirds. Michael has had much success with other bird videos on owls and hummingbirds.

From Daisy Hill Farm, Royal, AR, we received an information request and our closing wish, "Thank you, God bless, and have a beautiful bluebird day!" ■

Those Little Bluebirds

The fearful little fellow showed a tiny streak of yellow
As he faced the new and fearful prospect of the odds,
Up there on that high throne one must twist and grunt and groan,
And seek the benediction of the gods.

Never mind, my little friend, here's a sight will all fear end,
A daddy bluebird feeds his little brood
Atop a lady's head; from him all fear has fled.
Now if you cry, 'twill seem so rather rude.

That's the thing, just shout and sing;
Pretend you're on a little country road,
And the bluebirds 'round will sing,
So you'll hardly feel the sting
Of the needle with its analgesic load.

Now this brightens up the day,
And you'll have a lot to say
When your mother peers inside your little mouth,
You can tell her all your troubles
Vanished just like little bubbles
As you viewed those little bluebirds from the South.

Their message now to you
Is to keep your heart so true
That when you grow up tall to be a man,
You'll find that life's a lot worth while
And you'll meet it with a smile
And you'll always say, *"I'll do the best I can!"*

Laurance Sawyer

Art Credits

Jon E. Boone: 122, 156
Suzanne Pennell: 133, 157, 158
M. Suzanne Probst: 136, 142

BLUEBIRD BOOSTERS

Eastern Bluebird

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Dave & Jan Ahlgren
Harold N. Ahlgren
Eugene A. Armstrong
Sue D. Ball
Mrs Nancy Baron
Deborah A. Bartolini
Marie A. Battle
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George Todd
Patricia H Vaughn
Nancy L Weiss, M.D.
Mrs. James L. Williams
Robert D. Williams, M.D
B. Wolfert
Lance D. Wood
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Fledgling Bluebird

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Monica Ahrens
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Argyle Country Club, Inc.
Arrow Wiring Contractors
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Brenda Baldwin
Mrs. Nicholas L. Ballich
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Mr. & Mrs. Malcolm Dorber
Mrs. Leslie Douglas
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Dorothy M. Evans
Carol Fleming
Sylvia Forsmith
Mrs. Irene S. Frantz
Dee Friar
Mr. & Mrs. Raymond Gay
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Phyllis M. Haeger
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Deborah L. VanDyke
Mrs. Ethel Wells
Phil & Debbie Whitehouse
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Don M. Willey
Robert H. Williams
Michael Owen Willson
P.R. Wilson
Jeannie Wright

Western Bluebird

Mrs. A.G. Andrews
Countess Patricia S. DePatra
Chris Trytten

Nestling Bluebird

Delos C. Dupree

Mountain Bluebird

Gary Black, Jr.
Fred & Jean Wishneski

Founded in 1978, THE NORTH AMERICAN BLUEBIRD SOCIETY is an incorporated non-profit organization determined to increase the populations of the three species of bluebirds on this continent. Inasmuch as the populations of these birds have diminished due to the maladroit actions of human beings, as well as other natural disasters, the primary objective of the SOCIETY is to educate all who will listen about the importance of preserving these singular creatures in their native environment.

Toward this end, the SOCIETY will work, within the bounds of effective conservation, to study those obstacles impeding bluebird recovery; to publish results of those studies; to promote ideas and actions which might reduce the effect of those obstacles; and to obtain a more complete knowledge about bluebird ecology, in the hope of learning more about the ecology of humankind.

Membership: Student (under 21) $10.00; Senior (over 60), $10.00; Regular, $15; Sustaining, $30; Supporting, $50; Contributing, $100; Corporate, $100; Donor, $250. Add $2 per year for Canada and Mexico and $3 per year for other countries (surface mail). U.S. funds only, please. Amounts over $6 are tax deductible.

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