Sialia

Volume 2, Number 2
Spring 1980
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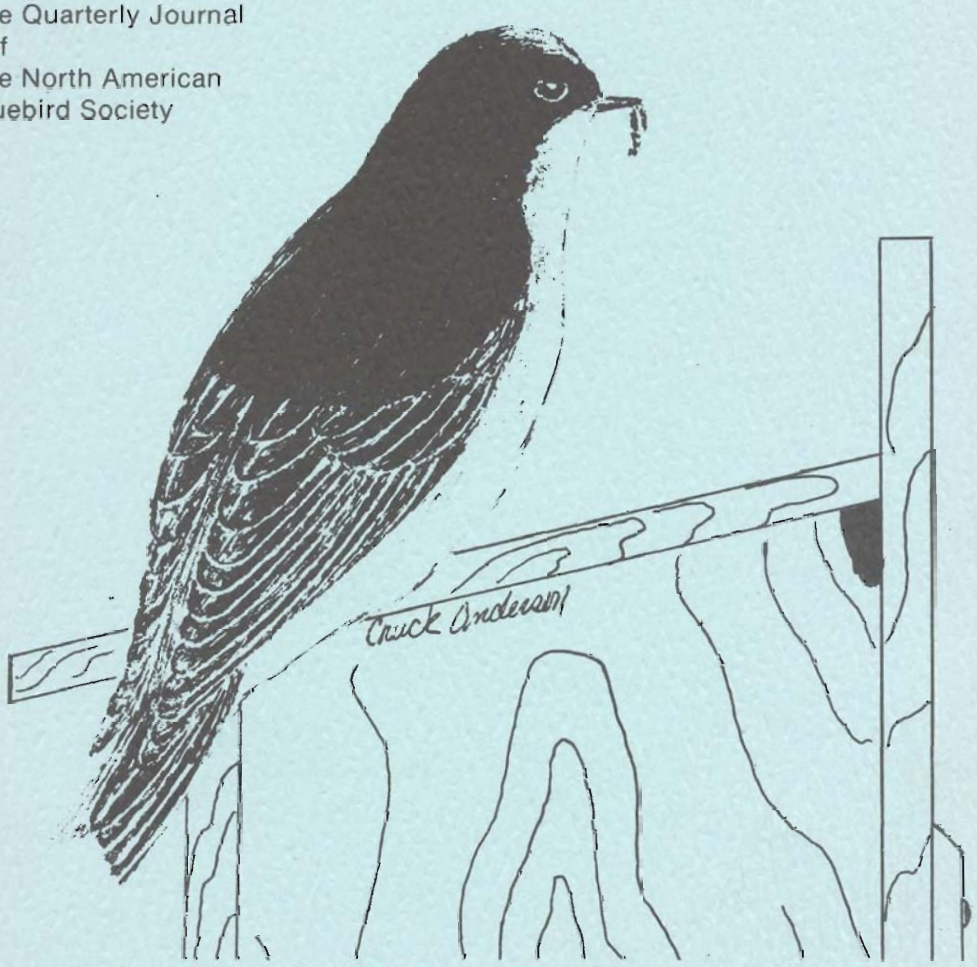
The Quarterly Journal
Of
The North American
Bluebird Society



NORTH AMERICAN BLUEBIRD SOCIETY

Sialia means bluebirds. Hence, the title of this journal. It is the word which the Swedish scientist, Carolus Linnaeus (1707-1778), used to name the genus grouping for bluebirds, a subset within the thrush family (Turdidae). 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 he classified, Linnaeus gave it the species name, **sialis**. Therefore the scientific name for the Eastern Bluebird is **Sialia sialis** (pronounced see-owl-lee-ah, see-owl-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, and their species names are descriptive of their locations. All three bluebirds are native only to the North American continent, although each inhabits different regions generally separated by the Rocky Mountains and by altitude preferences.

While the adult birds all show differing plumages, the young of all three species look remarably alike, prominently displaying spotted breasts and large white eye rings. This similarity in plumage was the principal reason the Society chose the juvenile 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 this theme will remind all about the plight of the bluebirds, and will stimulate actions which will allow this beautiful creature to prosper.

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The Quarterly Journal About Bluebirds

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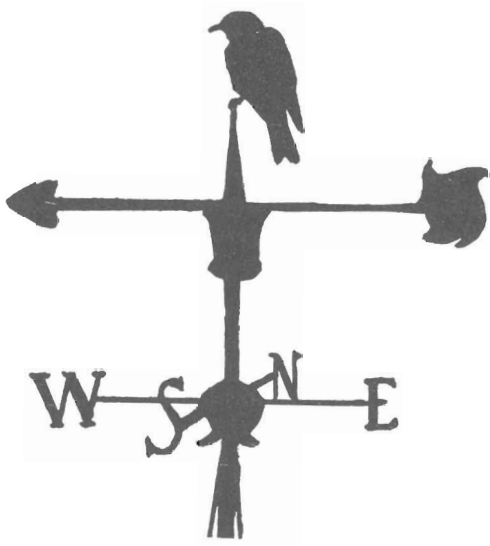
COVER

The cover artist for this Spring issue is Chuck Anderson of Maumee, Ohio. His pen and ink drawing is of a male Eastern Bluebird perched on his nesting box with food for his brood.

SIALIA welcomes the submission of articles, artwork and photographs for publication. Although this journal is dedicated primarily to the bluebird, material relating to native cavity nesting species will also be accepted for consideration. Manuscripts should be neatly typed and double spaced. All material submitted for publication is subject to editing or rewriting. Include a duplicate copy if you wish to proof the manuscript before publication. All manuscripts will be acknowledged. Black and white glossy photographs or negatives are preferred. Print the subject, names of any individuals pictured, photographer and return address on back of each photograph. Before preparing tables, graphs or other display material, please check with the editor about the requirements of our reproduction process. Cover art is welcome and should be in charcoal or black pen and ink. The editor's address is 10617 Graeloch Road, Laurel, Maryland 20810.

Presidential Points

Marilyn Guerra



By the time you read this the spring bluebird nesting season will be well advanced. I hope it is the most successful ever for all of you.

I would like to extend a hearty welcome to our new editor of **Sialia,** Jo Solem. We are looking forward to working with her over the coming months. If you want to reach Jo with news items or articles, her address is 10617 Graeloch Rd., Laurel, MD 20810. Again, our sincere thanks to immediate past President Bob Patterson and to former editor Jon Boone for making our journal the successful and informative publication it is.

Dr. Benedict Pinkowski of Pennsylvania has agreed to assume the important position of the Society's Research Chairman. You will be reading more about his committee's projects and plans in future issue of **Sialia.** I appreciate his assuming this responsibility for the work of this committee is at the heart of the Society's purpose.

Dick Tuttle, our Education Chairman, now has available a color slide show on bluebirds. This show runs about 20 minutes and has an accompanying tape. It is available to all members. I urge you to show it to civic, conservation, and youth groups as well as in the local schools. This is a great way to spread the bluebird word. See the notice elsewhere in this issue which provides more specific information about the show including how to rent or purchase it.

Thanks to volunteers across the country the plight of the bluebird is becoming more widely understood by the public. From Massachusetts to Oklahoma reports are coming in of talks, workshops, nature walks, bluebird trails and other projects spearheaded by our membership. In Jackson, Mississippi, for instance, R.B. Layton led a joint Jackson Audubon Society-N.A.B.S. effort to build and sell over 1,000 nesting boxes and poles to local residents. A large part of the proceeds was donated to the Society for use in our research and education programs. Thanks, Reba! (Incidentally, two of the books Reba has written are

available through the Society: **The Purple Martin** and **Thirty Birds That Will Build in Bird Houses.)**

The most dramatic news since our last issue was the astounding response to Joan Rattner Heilman's article in **Parade** magazine, "How You Can Hear the Bluebird's Song Again." This article was published nationwide and to date has drawn about 70,000 pieces of mail with more arriving daily. Mary Janetatos has the details in her column "Bluebird Tales" in this issue.

Note to Renewing Members

In order to save postage which is a substantial item in our budget, we have not been sending membership cards to renewing members by first class mail upon receipt of payment. Don't worry if you don't get prompt acknowledgement of your renewal. You will receive your membership card with your next issue of **Sialia.**

Cooperators Sought for Society Research Project

Volunteer cooperators are still being sought for a N.A.B.S. research project on bluebird nest parasitism by the blowfly, **Apaulina.** Adult flies may bear eggs in bluebird nests and the fly larvae feed on the nestlings. Research has suggested that parasitism may be a more serious problem for nests in boxes than nests in natural tree cavities, possibly because bluebirds place more nesting material (grasses, rootlets, pine needles) in flat bottomed boxes than in round-bottomed tree cavities. Cooperating persons are needed to test the effectiveness of special nest liners approximating the shape and size of natural cavities. Hopefully ten or more nests will occur in the experimental nests containing the liners and control boxes. Cooperators should be able to collect nest contents from the experimental and control sites shortly after the young fledge and mail these at N.A.B.S. expense for analysis of all parasites, including blowflies.

If you feel that you may be of assistance in this project during the 1980 nesting season, please contact:

Ben Pinkowski
P.O. Box 308
New Town, ND 58763

USING PUBLIC LANDS TO RECRUIT BLUEBIRDERS

Ohio Has A "Bluebird Park"

Richard M. Tuttle

It is a known fact that the bluebird will never be a common species unless bluebird trail operators become familiar phenomena in our society. The recruitment of new bluebirders is a major objective of the North American Bluebird Society. At Delaware State Park, near Delaware, Ohio, a bluebird trail stands as an example of bluebird conservation--ready to recruit new trail operators. Bluebird trails on public lands can raise bluebirds; more importantly, as educational and interpretive tools public trails can inspire new bluebirders leading to the establishment of bluebird trails on private lands.

Delaware State Park (DSP) is located 29 miles north of Columbus, Ohio and five miles north of the city of Delaware on U.S. 23. The 7,411 acre park follows the west shore of Delaware Lake, a flood control reservoir completed by the U.S. Army Corps of Engineers in 1951. The park is managed by the Division of Parks and Recreation (DPR) of the Ohio Department of Natural Resources (ODNR).

The pre-park history of farming is revealed by straight rows of Osage Orange, a few remnant woodlots of immature growth, solitary fruit trees that occasionally bear pears or apples, and a stream and lake shore lined with older "den" trees. Large fields that once supported corn, wheat, and oats now support sun-tolerant shrubs and trees such as American Elm and hawthorne-plant pioneers orchestrating the return of the forest. Nature's reclamation project has been helped by annual plantings by park personnel of conifers and various wildlife food plants.

Veteran trail operators know that fields and brushy areas are made for wrens, not bluebirds, but certain areas of the park are managed to serve the public. Mowing has created manicured lands to accommodate many human activities, producing prime bluebird habitat in the process. Some of the great human-bluebird areas are four mowed camping pods encircling a total of 214 camping sites, five large picnic areas, a marina, an amphitheatre, a baseball diamond, a beach-picnic area, and a grass landing strip for light planes. All are good **permanent** bluebird habitat.

There were no bluebirds in DSP in 1977. There were no bluebird nesting boxes in the park until July 6, 1977 when eleven girls from Camp Fire Girls, Inc., arrived from Columbus, Ohio to donate 16 nesting boxes to help their mascot, the bluebird. The boxes were mounted along Briar Patch Trail, a one and one-half mile loop around one of the camping pods. The trail lives up to its name; thus all but two nesting boxes were mounted in excellent WREN habitat.

The first wren nest was constructed July 7; the first egg appeared three days later! The six wren eggs and resultant young were used by the seasonal naturalist during daily nature talks. A hand held mirror was used to show curious park visitors eggs or young inside the box. Following the talk, each visitor was given a copy of "Hit the Trail for Bluebirds," a basic how-to-do-it bluebird trail pamphlet published by the Ohio Division of Wildlife.

Excited park visitors searched through the pamphlet and found nesting box plans so that they could build their own. The pamphlet's detailed "blueprints" along with other trail hints made it possible for motivated campers to start their own trails proving that a bluebird trail brochure is an essential followup to a successful interpretive experience.

The real irony of the 1977 season was that a pair of wrens actually helped the bluebird by substituting as interpretive tools. Visitors were better able to interpret or understand this aspect of nature after a guided tour to a wren nest. Wrens helped bluebirds as motivated park visitors constructed nesting boxes at home; quite the opposite of what usually happens on most trails!

By the post-blizzard spring of 1978, 26 pipe-mounted boxes were ready for the new season with seven of the nesting boxes located in good bluebird habitat. On May 28 four bluebird eggs were counted in box #11: DSP was in the bluebird business. This late-nesting pair nested a second time to produce eight fledglings for a 100% success rate. The "wren trail" was more prolific with a seasonal yield of 106 wrens.

The yield of bluebirders can only be postulated, but over 250 park visitors were guided through interpretive hikes. An additional 900 visitations were recorded at the nature center. A precut nesting box display board and an assembled nesting box were on display for the public's inspection. Seven pieces of wood cut from a single piece of 1" x 10" White Pine were glued and nailed to a second piece of lumber to display the simplicity of a bluebird nesting box. Pamphlets were available to illustrate dimensions.

The display board attracted more attention than the assembled box. Those with little confidence in their own woodworking ability realized that anyone can pick up a hammer and saw to start a bluebird trail. Who knows, maybe the nature center also "fledged" a few new carpenters!

Bluebird eggs and young were center stage attractions for over 50 days during the interpretive season. Wren families were always available for display. During nestling stages sassy adult wrens closely guarded their nesting boxes giving park

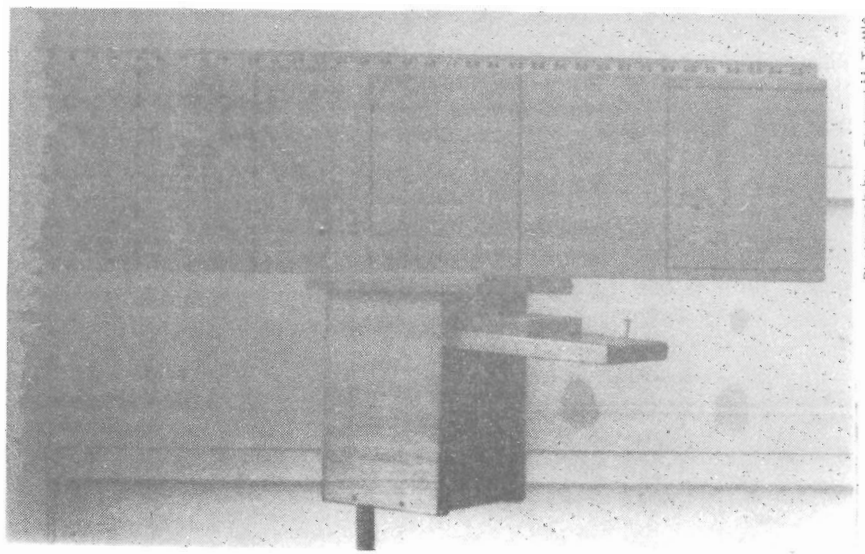
visitors an opportunity to meet the "boss of the brushlands." Visitors were led from brushy wren habitat into open areas with low or sparse vegetation to watch bluebirds feed. The contrast between wren and bluebird habitats was pointed out by the naturalist. Park visitors realized with their own eyes the cardinal rule of bluebirding: The habitat and box placement will determine the occupant.

The success of the 1978 season was an inspiration; everyone knew bluebirds were possible. In response, 40 nesting boxes were added in available bluebird habitat throughout the park. A sod landing strip alone accommodated six boxes. With 66 boxes in place the park was ready for spring.

By late April 1979 four pairs of bluebirds were nesting with seven pairs by late May. Did the park "snag"some spring migrants? If so, thank you, Michigan! Forty-four young bluebirds fledged in a habitat which two seasons earlier had produced none.

The month of May also introduced a new addition to the park ecosystem--the beautiful Tree Swallow. To central Ohioans, a Tree Swallow is quite a rare bird. Only in recent years has it begun to nest in Delaware County. The clearing of many woodlots and the building of several new reservoirs are possible reasons for the southerly expansion of the Tree Swallow's breeding range.

As interpretive tools Tree Swallows were winners. Bluebirds may have the more beautiful feathers, but swallows have the more beautiful nests. The gray and



Photograph by Richard M. Tuttle

A precut nesting box display board and assembled box were displayed at the nature center to show the simplicity of box construction.

white goose and duck feathers used as a nest lining contributed to the beauty, at least until the young were old enough to fill it with a fine crop of lice, mites, and droppings. The parents' fierce protective instincts were entertaining to campers. During guided tours swallows would swoop at onlookers. A respect for their parental devotion grew after the naturalist assured everyone that the swallows meant only to frighten and not touch them.

Nest observations did not appear to harm the families in any way. Visits to all nesting boxes usually took place when both parents were away gathering food. A single visit each day lasted no longer than eight minutes, even with a crowd of forty people. Detailed talks always took place **before** a box was approached to minimize the visitation time. If a group was caught by a returning parent the swallow showed signs of stress which quickly subsided when the onlookers immediately proceeded to the next nesting location. The parents of all species returned to hunting duties within minutes of each human visit showing no ill effects from the intrusion. Nesting box visitations did not take place during cool or wet weather or during the latter days of the nestling period. Parent birds are extremely protective three days prior to the time their young fledge. For this reason interpretation took place 75 yards from boxes with advanced nesting cycles. Such common sense precautions prevented any early fledglings.

Swallows have good memories and will sometimes fly far from their nest to attack a previous intruder. One lady camper, having visited a swallow's nest the previous day during a guided hike, was recognized and chased by a swallow as she frantically pedaled her bicycle past the nesting area. Afterward, she declared, with an uneasy chuckle, that she had to have some of those "crazy" birds on her farm. She, like many campers, was so impressed by her interaction with swallows, that she vowed to start a bluebird trail. Again, a competitive species, used as an interpretive tool, helped the bluebird.

The 1979 season produced 44 Eastern Bluebirds, 29 Tree Swallows, and 218 House Wrens. Trail visitations matched those recorded in 1978, but there was a noticeable increase in scheduled hikes for 4-H Clubs, scout troops, and flower clubs. The reputation of the bluebird program grew as visitors told their friends about the "bird houses at the park."

Many private trail operators make use of utility poles, fence posts, and trees as nesting box mounts. Greased pipe mounts are a **must** on public trails. Curious four-legged vandals will follow human scent at night from box to box. Without grease, raccoons, opossums, cats, and other predators will turn a trail into a tragedy.

Two-legged vandals may also be a threat. As many bluebirders can testify, inconsiderate humans make some public trails impossible. Vandalism has not been a problem at DSP for several reasons. There are no residential neighborhoods adjoining the park. Boxes are mounted in high grass overlooking

mowed areas making it a chore for the curious to approach a box. The boxes are mounted not more than 50 yards from public roads where they are constantly seen by motorists and patrolling rangers. If a nesting box is hidden, so are the vandals! In high risk parks some bluebirders mount boxes ten or more feet above the ground; interpretive possibilities are limited but certainly not eliminated.

The bluebird trail at DSP has done much to promote an awareness for bluebird conservation. Ninety boxes await the return of three species. With the help of two divisions of the ODNR, a local 4-H Club, and several volunteers, the DSP interpretive bluebird trail will produce bluebirders as well as bluebirds. It is the author's objective that readers will see in this article an example of what can be done with an interpretive bluebird trail.

You can help the bluebird by mounting five, ten, or more nesting boxes in a park, outdoor lab, game refuge, or other public facility that offers interpretive programs. You may be the "local bluebird expert" needed to start a program. Once a program is begun volunteers, clubs, groups, and troops will come forward to donate nesting boxes, mounting pipes, and their time to maintain a trail. You can use the N.A.B.S. slide program to recruit volunteers. Individuals can be found to monitor and maintain a trail, make displays, write press releases, and construct show cases. The N.A.B.S. Education Committee is preparing a how-to-do-it bluebird trail interpretive guide for volunteers and naturalists. Techniques which guarantee the welfare of trail tenants while motivating new bluebirders will be fully explained.

Public trails must be established before interpretation takes place. If we all work together, Ohio's "bluebird park" will be one of many across North America.

N.A.B.S. Education Chairman
295 W. Central Ave.
Delaware, OH 43015

Photograph by Richard M. Tuttle

Neill Otto was inspired by the DSP interpretive program to construct his first bluebird nesting box.

WHICH NESTING BOX SHOULD I USE?

TOP OPENING - FRONT OPENING - SIDE OPENING -

George N. Grant

The standard top opening nesting box design is the one for which the Society has been disseminating plans. It has also sold many boxes based on this pattern. Over the years it has proven to meet all the criteria for proper design and construction for bluebirds as well as a number of other species.

One aspect of this particular nesting box needs further examination, that is the means of opening it for inspection or cleaning. The main advantage to the top opening style is the fact that the box can be opened at any time during the nesting cycle to check the conditions within the box. So long as nestlings are not touched or handled there is little fear of them leaving the box prematurely. With the front or side opening boxes it is advisable that they not be opened after the twelfth day for fear the young may fledge at too early a stage. Even if captured and placed back in the box, they will only leave again. Generally speaking, young birds that depart the nest prematurely seldom survive. There is less chance of adult birds escaping a top opening box if you wish to catch them for banding or to examine their band. One can also easily capture House Sparrows if one is attempting to remove them. The top opening box is almost a must for those who are working with wrens. Because wrens normally fill their boxes with sticks, it is almost impossible to check their nests in other than top opening boxes. Considering these advantages there is a strong case for the top opening box.

They do, however, have some disadvantages and in some parts of the country are not at all popular. The northern states, where Tree Swallows may take over a substantial number of boxes, are one of those regions where top opening boxes do not enjoy popularity for reasons I will detail.

When bluebirds fledge, the nest is usually clean of most fecal

material; it is normally a relatively clean and simple task to reach in and pull out the used nest. Even a twiggy wren nest is fairly easy to remove if one exercises caution for the thorns such a nest may contain. Tree Swallows present a different story. In most cases the nest itself is coated with fecal material as are the walls of the box. It is very difficult as well as time consuming to get these boxes reasonably clean. During wet weather when the nest is damp, the job becomes almost impossible, to say nothing of the unpleasant aspects of the chore. Young Tree Swallows generally remain in the nest 21 to 24 days. The parents are, in most cases, quite lax in nest sanitation the last few days the young are in the nest. They concentrate on feeding by flying to the entrance to fill whichever mouth is waiting at the hole.

Tree Swallows, like Purple Martins, depend on flying insects to feed nestlings. During periods of extended cold rainy spells the birds are extremely vulnerable; thus, in many nests each year, all of the young may die from exposure or starvation. In certain years the mortality may range as high as 50% or more. (The mortality rate for first broods of bluebirds in the North may exceed 30% due to inclement weather.) Because Tree Swallows have only one brood a year, they sometimes have as many as six to eight young. Even in good weather one or more of the weaker siblings may perish. Removing dead birds that may have been in the nest several days is extremely unpleasant especially when coupled with a wet nest and excessive fecal material. No wonder top opening boxes are often ignored after the initial nesting by those who erected them. If left uncleaned the boxes are unavailable for subsequent nesting attempts.

When I first started helping the bluebird, I made about two dozen top opening boxes according to the prescribed plans. After cleaning out a few of the nests (some containing dead birds) I vowed I would not do it again. Most of those original boxes have been replaced or modified. Most other trail operators in the area feel the same way. With a front or side opening box it is a quick and easy matter to clean out the nest and its contents scraping the sides and bottom of the box with a spatula or putty knife. For trail operators the time it takes to inspect or clean a box is an important consideration. Since nesting boxes are usually cleaned only twice a year, one way to clean top opening boxes containing dead birds or filthy nests is to remove them from their mount and turn them upside down. Boxes that are wired to posts are easily and quickly removed to accomplish this.

Last year for local birders I made top opening boxes with either a removable bottom or a bottom that pivoted down for easier cleaning. When they wanted more boxes they came back and specified front opening ones. Unfortunately this style of box is usually more difficult and more time consuming for the average person to build.

In this area, thanks to the **Parade** article and other publicity, many persons are attempting "bluebirding" for the first time. Most are building top opening boxes which I feel is a mistake. What should be a delightful experience for many of these enthusiastic newcomers may prove to be a

distasteful chore and destroy their interest in helping bluebirds, particularly if they are not successful in attracting bluebirds the first year.

The side or front opening box has other important advantages. Whereas the top opening style is easy for most adults to inspect at the recommended height of three to five feet to the bottom of the box, the preferred four and five feet is too high for shorter adults and children to check. It is certainly impractical for most trail operators to carry something to stand on. A lone low nesting box in a cattle pasture is sure to be used as a rubbing post. With a side or front opening box, one can place the box higher (out of reach of the cattle) and still inspect it without the need of a stepladder. The side opening box also has the advantage of being easier to check for heavy blowfly infestation in the nesting material. Side openings may occasionally be more convenient for other reasons. Opening a box from behind a fence without having to cross the fence would be such an instance. A disadvantage of the front opening box is that a thick predator guard around the entrance hole may prevent the front from opening properly. For that reason a side opening might be preferred.

It should be the aim of the Society to promote the best possible box design in order to increase the nesting chances of bluebirds. The merits of various models as well as individual and regional conditions should also be considered. As the central educator and coordinator of bluebird efforts, the North American Bluebird Society should strive to make all of the facts known so that members or interested persons can choose the type of nesting box which will best suit their needs.

RD #3, Box 153 B
Canastota, NY 13032

Editor's Note:

A side opening box is now available from the Society. See the enclosed price list.

NEST BOX RECORD CARD INTERIM REPORT

The nest box record cards for the 1979 breeding season have been received by the Research Committee. Efforts to tabulate the results are proceeding. Requests for cards for the 1980 nesting season should be made to the following address:

Ben Pinkowski
N.A.B.S. Research Chairman
P.O. Box 308
New Town, ND 58763

Though participation in this effort is entirely optional, a heartening number of bluebirders completed detailed nesting records.

FIVE SPECIAL BLUEBIRDS

Esther G. McFarlane

We have always had bluebirds near our home. We put up boxes for them and have had as many as 24 eggs hatch in one year. The harsh winter of 1977-78 changed that. No bluebirds nested during the summer of 1978. The winter that followed was, if anything, worse than the preceding one. We wondered if we would ever have bluebirds again.

March 1, 1979 was warm and beautiful. The first sound I heard as I walked out my door was the warble of bluebirds. I came back in the house shouting, "Bluebirds! Bluebirds!" Nothing could have made my day a better one. A pair chose to build a nest in a box that we could view from our kitchen window. We were able to observe them closely and learned much about them.

Five eggs hatched on May fifth. Five days later the male disappeared. When the young were 12 days old the female disappeared at approximately 11:30 a.m. All afternoon we could hear the young birds cry for food. The next morning I could stand it no longer. We decided to do something in an attempt to save them.

We removed the whole house and put it into our greenhouse. My husband dug some earthworms and I started to feed the young bluebirds with tweezers. They were so hungry that it was no problem to get them to eat, but I found it rather hard to reach down into the box to drop the food into their open mouths. We decided to remove their nest and place it inside an old wooden ice cream freezer. This made an ideal home for them and made it easier to feed each one.

After the second day they were waiting eagerly for their food. We fed them hourly during the day. At night we covered the "nest" with a cloth. Did you ever see a baby bluebird sleep? We found it interesting that they didn't awaken even if we touched them while they slept arranged in a ring. After we had had them in the greenhouse for five days we decided worms were not a sufficient diet, so we bought some very good hamburger. They loved it. From then on we fed them a mixed diet. All five were healthy, strong, and alert. When observing bluebirds in the past we noticed that they were coaxed from the nest about the eighteenth day. We prepared for that event by making a "tree" from an old broken limb. Since the greenhouse had been cleaned out for the summer there was ample room for them to fly.

First they got up on the edge of their freezer home, looked around, and promptly headed for the limb "tree." One did not make it. She flew into a window and hurt her neck and bill. For the next three days she

needed special care and feeding. I named her "Baby." She loved to be massaged on her neck which would put her to sleep. She became very special to me.

By this time I was able to determine the sex of each bird by the coloring under the wings. There were three males and two females with a definite leader among them. He was the first to fly to and examine new places.

We kept them in the greenhouse until they were 27 days old. We knew they should have been outdoors by this time. By now they were taking regular baths, feeding occasionally on fine chopped broccoli, and helping themselves to food left in a saucer although I still did most of the feeding. "Baby" always fed from my hand.

I felt sad knowing that they must soon go to their natural habitat. We prepared them by removing things that were familiar. I took their freezer home outside, set it down, and out they came. They flew just a short distance and then came back to my head and shoulders. "Well," I thought, "they will get used to this by the afternoon and everything will be all right." But they wanted no part of the outdoors. At 4:00 p.m. with "Baby" in my hand and the other four on my head and shoulders, I walked back into the greenhouse.

For the next three weeks they lived there while making no attempt to fly out of the open door. It was fun to play games with them. They would hide from me. After a few minutes I would say, "Baby, where are you?" Only then would she come out followed by the rest. I taught them to line up for their food.

Photograph by McFarlane

"Baby"

This was a sight to see as each tried to find his rightful place.

We knew they must leave eventually so once again we removed their familiar items. This time when they were taken outside the greenhouse they flew to the garden and surrounding trees while still keeping us in sight. I noticed that they flew after some insects so we felt that they would be all right. They chose a big oak tree in which to spend the first night. For three weeks I still put food on their table and they continued to take baths in their clay saucer.

One day "Baby" decided she no longer needed to eat from my hand nor would she fly to my head. Each day they all would venture a little further away. One day they left and we did not see them again for two

weeks. One morning in August I walked outside and there they were to greet me. It is now November. They have been back many times; all seems well.

Many people came to visit in order to see the bluebirds. Some had never seen one before (what a shame). One eleven year old boy said it all, "This is like a special blessing from God."

Route 1
Linn, Missouri 65051

Editor's Note:

Publishing the foregoing account is not intended to constitute encouragement for hand-raising young birds. It is actually illegal to do so without a permit. Individuals with demonstrated skills and experience are granted permits by federal authorities to enable them to treat injured birds or abandoned nestlings. "Abandoned" is the key word. Often well-meaning individuals are unaware that young birds of many species are urged by their parents to leave the nest before they can adequately care for themselves. They are then fed by the adults for several weeks. Be sure nestlings are truly orphaned before attempting to move or aid them. Make every effort to locate experienced licensed persons who could care for them. Unfortunately, such individuals are not always known to those needing their services or they may be located a long distance away. Compassionate individuals are likely to act exactly as Mrs. McFarlane did. She would, undoubtedly, be the first to underscore the time and patience necessary in assuming such a project. If you must tackle the job yourself make application for a permit to the nearest office of the Law Enforcement Division, U.S. Fish and Wildlife Service, U.S. Department of the Interior.

Note that when this brood was adopted the young were already thirteen days old. Efforts to raise birds less than a week old almost always ends in failure. Mrs. McFarlane also realized from the beginning that her efforts were only intended to help the bluebirds return to their natural habitat.

Lawrence Zeleny in **The Bluebird:** How You Can Help Its Fight for Survival describes his success in raising several broods of bluebirds. He recommends live insects particularly caterpillars and moths as the preferred food with meal worms also ranking high. Lean ground beef may be used but must be mixed with dibasic calcium phosphate containing Vitamin D to insure sufficient calcium in the diet. This builds healthy bones which will enable the birds to perch and fly correctly. Some people have successfully fed nestlings canned dogfood which has been formulated for puppies. Small pieces of hard-boiled egg yolk, bits of raw liver, and raisins also provide variety to supplement the diet. Raising an orphaned bird or brood can be an unforgettable experience, but the responsibility should not be undertaken lightly.

THE FLICKER'S COMPULSION TO EXCAVATE

Hubert W. Prescott

Mr. Prescott makes reference to an article that appeared in **Slalia** (Autumn, 1979, Volume 1, Number 4) entitled "Nesting Boxes and Platforms for Birds" by Benjamin P. Burtt, pp. 150-163. That article is available to **Slalia** readers as a reprint for $.50 or 10 for $4.00. A self-addressed business-size envelope with .15 postage will speed the response.

The "Yellow-shafted" and "Red-shafted" Flickers to which Mr. Prescott refers are now considered, along with the Gilded Flicker, to be sub-species of the Common Flicker.

Under the subtitle "Sawdust Sometimes Helps" on page 159, Benjamin Burtt indicated that "If there are no chips in the bottom of a nesting box, woodpeckers may damage the wall of the box while attempting to fulfill their needs." Evidently the writer did not have that polkadot woodpecker known as the flicker in mind when he made that statement, or he might have used much more emphatic language.

In my experience with the Yellow-shafted Flicker in Washington's Spokane Valley and with the Red-shafted Flicker in western Oregon, I found that the correct amount of coarse sawdust or wood chips placed on the nesting box floor in order to form a good nesting bed did not subdue the flicker's urge to excavate. The result was major damage to the nesting box. Under natural conditions, of course, the flicker excavates its own nest cavity. The fact that you have provided one ready-made, in the form of a nesting box with all of the essential appointments, does not allay the flicker's springtime need to excavate.

My flicker boxes had 6 x 7 inch floors, were 18 inches from floor to roof and had 2 and 5/8 inch diameter entrance holes located 12 inches above floor level. When I filled them half full of coarse sawmill sawdust the male and female flicker took turns excavating all of the sawdust managing to empty it in about two days. This fact was signaled by a low frequency tapping (about one tap per second) coming from inside the nesting box. This tapping warned that the flickers, having removed all of the sawdust, had not yet satisfied their need to excavate and were chiseling away at the inside of the box. It also meant that one had better fill the nesting box about half

Photograph by Hubert W. Prescott

Red-shafted Flicker at nest

full of sawdust again without delay if the box were to be saved from ruin.

Now that I was aware of the species' eccentricities I was better prepared. With the approach of spring I made it a practice to fill flicker nesting boxes with coarse sawdust all the way to the roof as tightly as I could pack it in. If the cagey starlings had not intervened by the time the flickers had removed the bulk of this sawdust, the flickers were satisfied, and the female was ready to settle down to the business of egg-laying and incubation.

The European Starling, while not a woodpecker, is just as proficient as the flicker in its ability to remove excess sawdust, wood chips, or any other loose material obstructing the nesting cavity. Starlings constitute a major problem that woodpecker landlords have to deal with in order to increase the chances for success with the various species of woodpeckers.

13505 S.E. River Road
Portland, Oregon 97222

A THOUGHT FROM THE BLUE

Surely we may learn a lesson from the bluebird's activities--in the loving, tender care they give their families; in their joining with other families of bluebirds for the sheer joy, it would seem, of sharing companionship, roaming the skies and filling the air with their delightful song as they go!

Lord, give us the capacity to appreciate Thy beauty everywhere; and as truly expressed in the bluebird's sun-reflected, azure-blue wings, matched only by Thy heavenly-blue skies on a tranquil, sunny day!

Katharine M. Braun

QUESTION CORNER

Lawrence Zeleny

What type of materials do bluebirds use in constructing their nests?

Robert Lamison
Ovid, New York

Bluebird nests are usually made of dry grass or dry pine needles. The material used in any one nest is usually remarkably uniform in character. The birds make little or no effort to line the nest with finer or softer material. The nests usually are confined to the bottom three inches or so of the box or cavity, although they are occasionally much deeper, extending up nearly to the entrance hole.

What can I do to help the bluebirds find my nesting boxes?

Cathy Hogan
Eugene, Oregon

Nothing, really, except to hope and pray. It is important, of course, that you have selected a suitable location for the box and that you do everything possible to keep House Sparrows out of it. In late winter or early spring any bluebirds in your area will usually make an exhaustive search for nesting sites. If your nesting box is in a good location they are very likely to find it.

Could I buy bluebirds or eggs anywhere?

Boyce Loring Hanks, M.D.
Frisco City, Alabama

No. The sale or possession of native songbirds or their eggs is prohibited by federal law. Even if they could be purchased the birds would probably leave your area as soon as they were released. Artificial incubation of songbird eggs and hand-raising of the newly hatched birds to maturity is an exceedingly difficult task. Unlike such birds as chickens, ducks, and quail, bluebirds and other songbirds are unable to feed or otherwise care for themselves until they are several weeks old.

Tell me how to protect the bluebirds from my cat--I don't want to get rid of her.

Mrs. H.A. Carothers
Luray, Virginia

Cats that are permitted to roam outdoors freely are a serious threat to nearly all small birds, especially those that feed from the ground and young birds that are still unable to fly. Two or more small bells attached to the cat's collar help a little to protect adult birds. Bluebird nesting boxes may be protected from cats by funnel-shaped baffles or wide smooth collars made of sheet metal and attached to the posts or trees on which the boxes are mounted. Fortunately, young bluebirds when they first leave the nest are usually able to fly to the nearest tree or shrub. Thus they are much less vulnerable to cats than many species that so often flounder around on the ground for hours or days after fledgling.

Could you name some berry-bearing plants whose fruits last through the winter?

Mrs. Lawrence H. McCarty
Pecatonica, Illinois

Among the best are American Holly, Mountain Ash, Staghorn Sumac, pyracantha, bittersweet Red Chokeberry **(Aronia)**, and various hawthorns. Multiflora Rose is also one of the best, but this shrub can become a serious nuisance because of its invasive nature. Your local nurseryman should be able to advise you as to which plantings are best suited to your area.

N.A.B.S. SLIDE PROGRAM AVAILABLE

Richard M. Tuttle announces that a slide program has been prepared by the Education Committee and is now available for rental or purchase. The program details the problems facing all three species of bluebirds found in North America and makes a strong case for personal involvement in bluebird conservation. The program consists of 140 color, 35 mm., plastic-mounted, numbered slides complete with a typed script. Trays are not included. Rental fee is $5.00. The program may be purchased for $50.00; $55.00 if a cassette tape narration is desired.

To order the program or for further information, contact the Education Committee Chairman at the following address:

N.A.B.S. Slides
c/o Richard M. Tuttle
295 W. Central Ave.
Delaware, OH 43015

Please include your name, address, and telephone number as well as rental or purchase request. Make checks payable to the North American Bluebird Society. Prices are subject to change without notice.

ENDOPARASITISM IN WESTERN BLUEBIRDS OF OREGON

Elsie Kollin Eltzroth, Angeline S. Cromack, and Lloyda L. Thompson-Cowley

The status of the Western Bluebird **(Sialia mexicana)** has become of increasing concern to naturalists and ornithologists in the Willamette Valley of Oregon. This species occurs from southern British Columbia south to central Mexico, its range bounded on the east by western Montana, and on the west by the Pacific coast (Zeleny 1976). In Oregon it is a summer resident east of the Cascades and a permanent resident west of those mountains. Although it ranked with the American Robin **(Turdus migratorius)** in abundance earlier this century (Gabrielson and Jewett 1940), Christmas Bird Counts of Seattle and Portland from 1926 to 1977 reflect the Western Bluebird's decline in the valleys of western Washington and Oregon (Prescott 1977).

Bertrand and Scott (1979) now classify the Western Bluebird in Oregon as uncommon (0 - 9 birds per day/observer/area) in all zones with the exception of the coastal zone where it is rare (5 or less birds per year/observer/area).

The national decline of the genus **Sialia** has been well documented (Zeleny 1976). Loss of nesting and feeding sites has resulted from the drastic reduction of habitat accompanying modern agricultural practices and urban expansion. Species such as the European Starling **(Sturnus vulgaris)** and House Sparrow **(Passer domesticus)** also contributed to this decline when they usurped woodpecker drilled or other natural cavaties needed for nesting by bluebirds. These nesting problems led to the establishment of bluebird trails, networks of starling-proof nesting boxes placed in areas where bluebirds had thrived earlier. Continuing projects by individuals and organizations have contributed to the nesting success and increased populations among Eastern Bluebirds **(Sialia sialis).**

In March of 1976, Audubon Society of Corvallis placed 86 bluebird nesting boxes at 40 sites within a 15 mile radius of Corvallis in suitable habitat where bluebirds had been seen feeding. Where feasible, these boxes were erected within sight of homes from which regular observations could be made. This

project was not intended as a study of specific aspects of bluebird behavior, but it was established to increase the population of Western Bluebirds. The trail provided much interesting anecdotal information relating to the life history of the Western Bluebird. Of greater importance was the scientific data derived from failures rather than successes on this trail.

The only bluebird activity recorded the first year (1976) was the inspection of a nesting box by a bluebird pair. Later that summer a dead mummified male was found a few feet from the base of that box. Its body and feathers were intact and there was no obvious sign of predation.

In 1977 seven bluebird pairs nested. Only one of seven broods fledged with the normal complement of parents. During the early spring breeding period five dead adults were found close to their nesting sites. Again, there was no evidence of predation. Later in the summer three dead fledglings were recovered.

The dead birds were submitted to Oregon State University's Veterinary Diagnostic Laboratory for necropsy. Three of the adults and one fledgling were found to contain acanthocephalan endoparasites. Eleven nestlings were lost as a result of the parental deaths associated with parasitism. Five other breeding birds disappeared during the 1977 season.

In 1978 eight pairs of Western Bluebirds nested. Three of eight broods fledged with the normal complement of parents. One dead female was recovered in April and two fledglings were found later. The adult and one fledgling contained acanthocephala. Six eggs were lost as a result of the parental death. Four breeding adults, each from a different nesting pair, disappeared during the 1978 season.

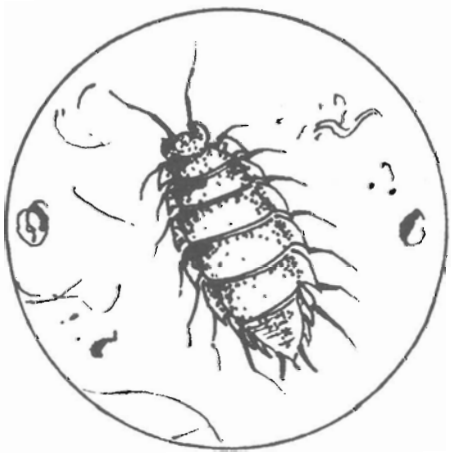
In 1979 fourteen pairs of bluebirds nested. Early observations with regard to endoparasitism were hampered when, in May, five of seven broods were abandoned due to suspected human harassment and egg destruction by House Wrens **(Troglodytes aedon)**. Later, five pairs fledged nine broods successfully. Five adults, four nestlings and one fledgling were found dead during the season. Necropsies of the four birds suitable for examination indicated acanthocephalan parasitism in one adult female which had been recovered in May and in one nestling in July. The death of the parasitized adult resulted in the loss of seven eggs.

The reports from Oregon State University's Veterinary Diagnostic Laboratory for these three years indicated that two of the adult birds were infested with acanthocephalan parasites in the intestinal lumen to such a degree that parasitism was considered the primary cause of death. Three other adults, two fledglings and one nestling contained smaller numbers of this thorny-headed worm. Some of these birds, weakened by their parasitic burden, died from other intestinal disease.

The parasite was identified as **Plagiorhynchus (Prosthorhynchus) formosus** (Van Cleave 1918) by G. D. Schmidt (pers. comm.), and the clinical evidence was reported by

Thompson-Cowley **et al.** 1979. **P. formosus** has been found in a wide variety of birds including the European Starling, American Robin, and other thrushes (Schmidt and Olsen 1964).

The only known intermediate host of the acanthocephalan **P. formosus** is the terrestrial isopod **Armadillidium vulgare** (Sinitsin 1929, Schmidt and Olsen 1964). This isopod, commonly called the pillbug, and introduced from the Old World, is abundant from coast to coast (Paris and Pitelka 1962). **Porcellio laevis** and **Porcellio scaber**, two other introduced isopods also widely distributed across the United States, have been experimentally infected with **P. formosus** (Schmidt and Olsen 1964).



Pillbug

The bluebird, primarily insectivorous, does include isopods in its diet. Eastern Bluebirds have been reported to feed on isopods as a minor food item (Beal 1915), and Pinkowski (1978) found that isopods comprised 0.8% of nestling Eastern Bluebird diets. The pillbug is found in abundance in urban and rural areas around Corvallis throughout the year. We have seen a Western Bluebird fledgling catch and eat several pillbugs. **A. vulgare**, in the bark mulch of a flower bed.

The "short drop" method of feeding is the usual prey-gathering technique used by Eastern Bluebirds in the spring (Pinkowski 1978), and it reflects the greater availability of geophilous prey at that time of year when ground cover is short. It would be natural for the adult Western Bluebird to feed on the ubiquitous pillbug as an easy prey and a readily available food source after most of the fruits and berries of winter had been depleted and the bird's preferred foods, such as spiders, grasshoppers and crickets, were still scarce. Regular observations of bluebirds on the Corvallis Trail during cold, rainy, late winter and early spring weather seemed to indicate that much of their time was spent under protective cover and fewer drops were made to the ground for food then, than when the days were dry and sunny. Later in the year bluebirds forage by gleaning and by flycatching above-ground prey (Pinkowski 1978).

infected **A. vulgare** throughout the year, they may be subjected to increased levels of infestation by **P. formosus** prior to and during the breeding season when they experience a great nutritional demand.

The most significant losses on the Corvallis Bluebird Trail occured in May 1977 with the loss of 5 adults and 11 nestlings. Following a wet

and cold February and March, the precipitation and temperature returned to normal in April. In May, rainfall was nearly twice the normal amount for the month, 3.43 inches, and the temperature was 4° below the norm of 51° F. (National Oceanic and Atmospheric Administration (NOAA) 1977).

In 1978, only one adult bird was lost due to parasitism, and this occurred in April when 4.94 inches of rain fell, more than twice the normal amount. Springtime temperatures remained near normal (NOAA 1978).

In May 1979, one parasitized breeding female died with the loss of seven eggs. There had been heavy rain and colder than normal temperatures in February. The warmer, drier March weather changed to moist, cool weather in April and early May (NOAA 1979). Early in July one of three dead nestlings removed from a box and examined at the Diagnostic Laboratory, was found to contain an acanthocephalan in the small intestine. This was the first recovery of the thorny-headed worm in so young a bluebird. This bird came from a poorly attended nest. The adult birds fed the six young at lengthy intervals and did not forage far from the nest site.

Because of the small sample of birds and the complexities of the host-parasite relationship, we have no conclusive evidence that weather conditions and food supply correlate with our fatalities associated with parasitism; however, there does seem to be some interrelationship between these factors. Spring weather in Corvallis is often damp and cold, and the Western Bluebird is capable of finding pillbugs in gardens and other areas where decayed organic material accumulates.

Since **A. vulgare** represents the intermediate host of the endoparasite, **P. formosus**, this combination appears to threaten the survival of adult birds during the nesting season. We suggest that bluebirds infested with this parasite may be less likely to survive under the physiological demands of egg production, incubation, and brooding of young when stressed by adverse weather. We feel that **P. formosus** is contributing to the mortality of bluebirds and that this endoparasite should be considered in the population decline observed in western Oregon. Additional evidence for **P. formosus** parasitism elsewhere in other species of bluebirds would add more data to this aspect of bluebird population studies.

The authors are grateful to the volunteers who gave of their time and effort to this independent study: monitors at primary sites for their untiring observations and recording of events; Audubon Society of Corvallis, Oregon for monetary support of the Corvallis Bluebird Trail and related activities; Donald H. Helfer for his assistance at the Oregon State University Veterinary Diagnostic Laboratory; Gerald D. Schmidt, University of Northern Colorado, Greeley, for identifying the acanthocephalan specimens; and Jan Krabbe and Kermit Cromack, Jr. for critical review of this manuscript.

Literature Cited

Beal, F.E.L. 1915. Food of the robins and bluebirds of the United States. U.S. Department of Agriculture Bulletin, #171.

Bertrand, G.A. and J.M. Scott. 1979. A checklist of the birds of Oregon, 3rd edition (revised by M.S. Eltzroth and F.L. Ramsey). Oregon State University Bookstore, Corvallis, Oregon.

Gabrielson, I.N. and S.C. Jewett. 1940. Birds of Oregon. Oregon State University, Corvallis, Oregon.

National Oceanic and Atmospheric Administration, Climatological Data. 1977. Environmental Data and Information Service, National Climatic Center, Asheville, N.C. Vol. 83, 2-5.

_____. 1978. Vol. 84, 2-5.

_____. 1979. Vol. 85, 2-5.

Paris, O.H. and F.A. Pitelka. 1962. Population characteristics of the terretrial isopod **Armadillidium vulgare** in California grassland. Ecology 43: 229-247.

Pinkowski, B.C. 1978. Feeding of nestling and fledgling eastern bluebirds. Wilson Bulletin 90: 84-98.

Prescott, H. 1977. Portland Bluebird Trail. SWOC Talk: an Oregon Bird Review 3: 17-35.

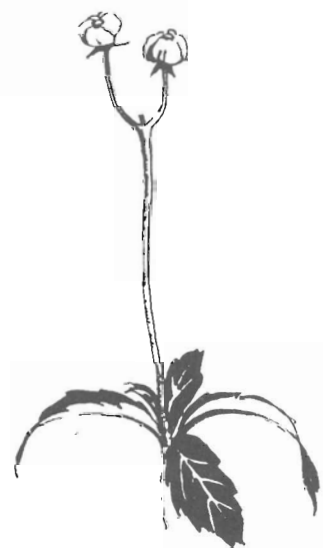
Schmidt, G.D. and O.W. Olsen. 1964. Life cycle and development of **Prosthorhynchus formosus** (Van Cleave 1918) Travassos, 1926, an Acanthocephalan parasite of birds. Journal of Parasitology 50: 721-730.

Sinitsin D. 1929. Note on an intermediate host for **Plagiorhynchus formosus.** Journal of Parasitology 15: 287.

Thompson-Cowley, L.L., D.H. Helfer, G.D. Schmidt, and E.K. Eltzroth. 1979. Acanthocephalan parasitism in the Western Bluebird **(Sialia mexicana)**. Avian Diseases 23: 768-771.

Zeleny, L. 1976. The bluebird: how you can help its fight for survival. Indiana University Press, Bloomington, Indiana.

Audubon Society of Corvallis, Post Office Box 148, Corvallis, Oregon 97330 (Eltzroth); 3350 N.W. Tanager Drive, Corvallis, Oregon 97330 (Cromack); Department of Poultry Science, Oregon State University, Corvallis, Oregon 97331 Thompson-Cowley).



BRIDGEFORTH MIDDLE SCHOOL STUDENTS AID BLUEBIRDS

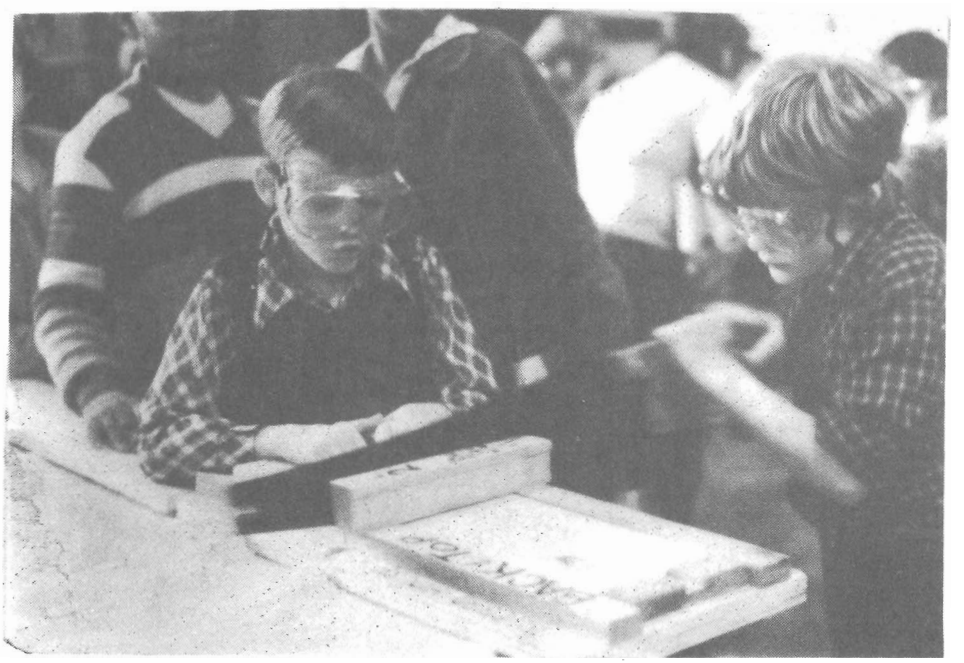
Ray Henrie

Each year my fifth grade Industrial Arts students construct bluebird houses. Last year fifth and sixth graders constructed 400 houses. This year the fifth graders will build almost 200 houses.

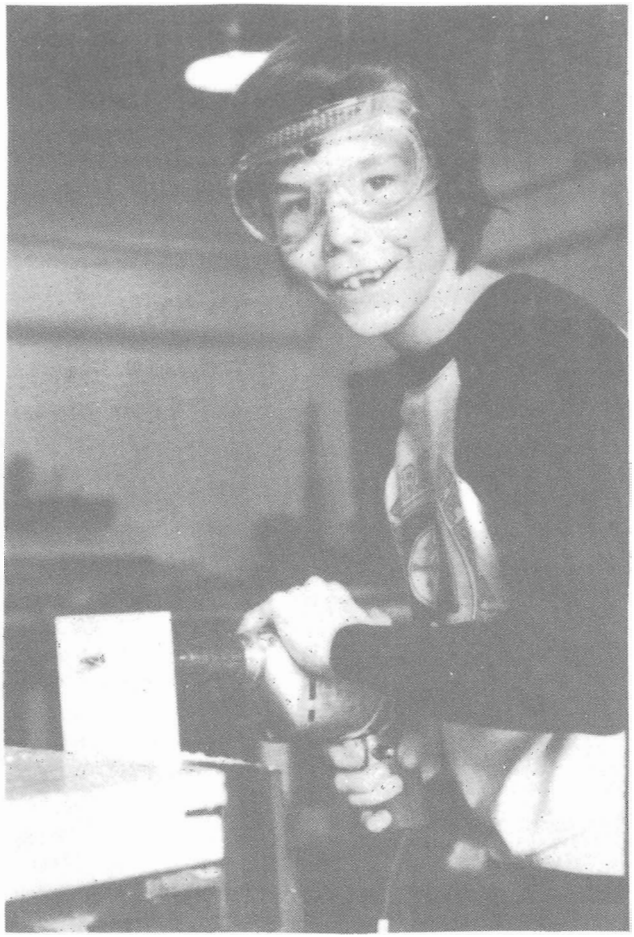
The photographs show these young people, many of whom have never before built anything, using special jigs devised to hold their saws straight. This enables them to cut the parts perfectly true. Since assembling the box is the most difficult step, assistance is usually provided.

The children become very enthusiastic about the possibility of having a bluebird family in their backyard. Although some students never do put their boxes out, many have proudly reported to me that they have a real bluebird family living in the house they made.

We hope that some day Pulaski, Tennessee will be known as the "Bluebird Capital of the South."



A special jig is used to cut the top and back of the box.



An entrance hole is drilled.

Bridgeforth Middle School
Pulaski, TN 38478

Proud students display completed boxes.

All photographs by Ray Henrie

PLANTINGS FOR BLUEBIRDS AND OTHER WILDLIFE

The Life-sustaining Sumacs

George N. Grant

In the Autumn 1979 issue of **Sialia** (Volume 1, Number 4), I stated that the Multiflora Rose might be the most important plant of all for bluebird survival. After further research I have concluded that it is not the rose, but rather the sumacs that are the most valuable overall bluebird survival food. The importance of this plant is vastly underrated. As I reviewed my sources I realized that most authors failed to give sumac sufficient credit for its role in wildlife survival; in fact, three of the most important books made no mention of it at all.

Sumacs are common and plentiful, and the fruits remain uneaten on the plants well into the next spring. The drupes, as they are correctly called, are seemingly ignored by the birds; therefore, for years conservationists and wildlife biologists felt that sumac had little value. To most people it was considered to be a weed plant, a rapidly spreading nuisance without significance to mankind or wildlife.

Granted, sumacs do not provide choice or preferred foods, but they are an essential winter survival food used by many species of wildlife in the East and Prairie regions. Sumac is quite abundant in most areas.

Each fruiting head may contain from 100 to 700 seeds of high nutritional value. A single acre of mature sumac may contain more than 3500 fruiting heads that are generally held well above the deepest snow. Even vast hordes of starlings rarely strip an entire area as they are able to do with many other plants. In a healthy stand fruit production is consistently heavy and crop failure is rare. Sumac provides a valuable and sizeable food supply which only severe ice storms render unavailable. Under extreme weather conditions the quantity of fruit and the growth habit of the fruiting head may still supply available food on the leeward side of the cluster. Life-sustaining indeed is the lowly sumac!

Although various sumacs grow throughout the 48 contiguous states and southern Canada, I find little in the literature regarding its usage or importance to either the Western or Mountain Bluebirds. For the Eastern Bluebird sumac fruits constitute 2-5% of the diet. This is rather significant when you consider that approximately 68% of the total yearly diet is derived from animal food. Sumac is generally consumed only during the winter months. Both Dr. Benedict Pinkowski and Dr. David Krieg, in their monumental studies, mention the importance of sumac to the Eastern Bluebird.

Certainly a plentiful supply of sumac is important in all states where the bluebird winters. Of equal importance would be its availability in the North. When the bluebird starts returning in March, food is relatively scarce with few insects or fruits available. Particularly during storms, stands of sumac may well spell the difference between life and death for bluebirds as well as many other wintering and migrant species. Although 38 species of song and gamebirds are listed as utilizing the various sumacs, I am sure many more use it out of dire necessity. The fruit and stems are important winter browse for the White-tailed Deer throughout the Eastern United States. The Eastern Cottontail Rabbit includes sumac bark in its winter diet as do several other mammals. With all these desirable attributes, sumacs can be called THE life-sustaining plant during times of scarcity and hunger when little else may be available.

In our own central New York state yard we have a sizeable stand of Staghorn Sumac. During late spring snowstorms flocks of 50 to 100 robins will converge there and feed on the fruit clusters until the storm abates, the snow melts, and bare ground is visible again. Our annual flock of Evening Grosbeaks, numbering well over 100, can be found daily feeding on sumac to supplement their diet of sunflower seeds; likewise, the Northern Cardinals spend considerable time there. A few years ago my wife, Marilyn, came across a flock of Pine Grosbeaks feeding on sumac in the abandoned field behind our property.

There are about 15 species of sumac in the United States. Strictly speaking, the sumacs as a genus **Rhus** also include Poison Ivy, Poison Oak, and Fragrant Sumac. Three of the sumacs with particular wildlife value are the Staghorn Sumac **(Rhus typhina)** Smooth Sumac **(Rhus glabra),** and Winged Sumac **(Rhus copallina).** These three should not be confused with Poison Sumac **(Rhus vernix)** that grows in partly wooded swamps and bears white fruit.

The new growth of Staghorn Sumac is covered with a soft, velvety fuzz similar in appearance to the antlers of a deer "in velvet," hence the common name. This is the largest and most widely distributed species of this genus; therefore, it probably has the most wildlife value. It occurs naturally from Nova Scotia, eastern Quebec, and southern Ontario, south to North Carolina and west to Iowa and Minnesota. It ranges in height from 10 to 30 feet.

Smooth Sumac is native throughout most of southern Canada and all of the contiguous 48 states. It can be differentiated from

Staghorn Sumac by the fact that the twigs are hairless. It is further distinguished by fruits with fewer hairs, while the fruit cluster is rounder with more irregular open branching. The average height is 6 to 15 feet.

Winged Sumac is also known as Shining or Dwarf Sumac. "Winged" refers to the fact that the midrib of the leaflets is bordered by thin, membranous tissue similar to Winged Euonymous. It generally grows five to eight feet tall and is the only one of the three to have non-toothed leaflets. The fruit cluster is very similar to that of the Smooth Sumac.

These three sumacs grow in a variety of soils. Although preferring a fertile, well-drained soil, they will survive and even thrive in dry poor soil situations as long as the drainage is good. Typical growing sites include roadsides, fence rows, hillsides, railroad rights-of-way, burned-over areas, and abandoned fields. Sumacs spread mainly by means of underground shoots from their elaborate lateral root systems and can form extensive thickets. This explains large stands of either all male or all female plants.

Yellow-green flowers open in June or July which are insect pollinated. The fruit forms on the female plants in August and September. The fruit consists of a fleshy layer with a single seed inside and a firm outer skin surrounded by a dark red fuzz. This type of fruit is called a drupe rather than a berry because of the single hard stone which encloses the seed.

In autumn the brilliant red shading of sumac leaves ranks among the most spectacular of fall colors. For this reason alone it is sometimes planted or left as an ornamental. For large lawns it can be a most desirable addition, but some people would not even consider allowing this common "weed" to grow in their yard. Fortunately the trend to more naturalistic landscaping may, in time, give such plantings the long overdue credit they deserve.

To propogate sumac it is fairly easy to dig plants in the wild during the dormant stage. Seeds are extremely difficult to start and require special procedures. Root cuttings work very well, but remember, you need both male and female plants. Sumac stands respond vigorously to soil disturbance around their roots; existing stands can be enhanced by this procedure. They will also respond well to removing some of the older canes. Sumac cannot grow or fruit in shaded areas so a sunny location is a must.

Sumacs have little commercial value, but they are used as a source of some natural foods. Sumac also produces a beautifully rich yellow dye for use in craft materials.

You are fortunate if you have a bountiful supply of one of these three sumacs growing wild near your home. If the supply of sumac in your area is limited, perhaps you could encourage its planting, or at least prevent the needless destruction of existing stands. All who are involved in conservation efforts can sleep better knowing that there is a plentiful supply of sumac helping to sustain the bluebirds.

RD #3, Box 153B
Canastota, NY 13032

Note:

The planting chart prepared by George Grant covering all of the plantings listed to date in this series is scheduled to appear in the Fall 1980 issue of **Slalia.**

Bluebird Workshops

"How to Attract Nesting Eastern Bluebirds" is the theme of a workshop to be conducted April 19, 1980 for the Black River Chapter of National Audubon Society. John and Clara Corogin of Lorain, Ohio, are organizing the event. The workshop will be led by Mr. Robert M. Schutsky of RMC Ecological Division, Drumore, Pennsylvania (**Slalia 1: 146-147**).

Philadelphia Electric Company is also sponsoring this workshop at the Muddy Run Recreation Park, Holtwood, Pennsylvania, June 7, 1980.

If you would like more information (including costs) of these workshops or if you wish to sponsor or organize one for your group, contact Mr. Schutsky at the following address:

RMC Ecological Division
P.O. Box 10
Drumore, PA 17518
Phone (717) 548-2121

IN MEMORIUM

Each year the Spring issue of **Slalia** will carry a list of memorials which have been received by the Society during the preceding year. Contributions in memory of family members or friends can be made as general donations or can be specified for research, education, or gift memberships.

In memory of Ruth G. Martin, of Flagstaff, Arizona, a lifetime bird lover who especially cherished the bluebird. By her husband Ralph S. Martin.

Additional contributions were made in Mrs. Martin's memory by family members and friends:

The Shelley Martin Family
Dr. Russell Balda
Mr. & Mrs. Virgil Jeter
The Tom Grim Family
The Gene Martin Family
Mr. & Mrs. Charles Kiehl
Mr. & Mrs. Don Kiehl
Mr. & Mrs. James E. Marshall
Mr. & Mrs. D. H. Bushey

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 think Sialia is great and enjoy it very much. A comment on the use of plastic containers for milk, bleach, etc. Several years ago, Dr. Lawrence Zeleny suggested that we might try these plastic jugs for nesting houses for bluebirds. I did this and have the following observations: bluebirds will, in fact, nest in the plastic jugs, but only if there are no wooden cavities available.

We put out eighteen and none was used as a nest for about two years. This makes me suspect that whatever was in the bottle prior to this might not have been completely cleaned out. It may take a year or two for the jug to become odorless. The plastic containers are quite hot and should be, as Dr. Zeleny recommended, painted at least twice and placed in a shaded area. Finally, they do not hold up too well as most of the ones we put out three years ago have broken. We lost two nests this past year because the top broke away.

In summary, plastic containers can be used if they are mounted in a cool, well-protected spot, but they are not as desirable as a wooden box.

Richard J. Field, Jr. M.D.
Centreville, Mississippi

Dear Mr. Field:

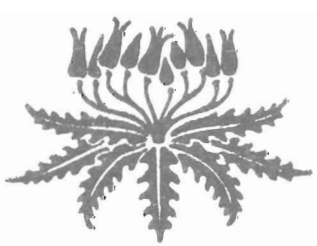
Thank you for your comments concerning the use of plastic containers as bluebird nesting boxes. Your summarizing sentence is a good one. Plastic containers are not as desirable as wooden boxes.

If building or buying wooden boxes is a financial strain, plastic containers can be a thrifty substitute. Plastic jugs offer the advantage of recycling a product, definitely as laudable idea in an increasingly energy-short society.

Though they are cheap and easily obtained, jugs are flimsy and should not be expected to last the same length of time a well-constructed wooden box would. Your observation that three years of weathering makes the jugs so brittle that the neck breaks away is a useful one. We hope that any readers using this style of nesting box will make a note to replace them frequently.

One other factor which you mention should be underlined. Because the walls of plastic "boxes" are so thin, there is almost no insulation to protect the bluebird eggs and nestlings from soaring summer temperatures. The exterior should be painted with at least two coats of light-colored latex or aluminum paint. If attempts are made to use them unpainted they can only be placed in TOTALLY SHADED locations. This may result in a lower acceptance rate by bluebirds.

For a comparison of the insulating quality of this box style, refer to "Bluebird Nesting Box Temperatures," by Lawrence Zeleny, **Sialia**, Winter 1980 (Volume 2, Number 1). Box 4 in Table 6, page 13, is an unpainted plastic gallon jug which suffered a dangerously high temperature rise of 22° F. when the box was mounted in full sun.



Dear Editors:

Enclosed is my check for $15.00 for which please extend my membership in the North American Bluebird Society for another year. I am a charter member of the Society.

I have one specific request. Please let us know in your excellent publication WHERE we can see bluebirds in the spring and summer. It is all well and good to put up houses--get wrens and Tree Swallows and no bluebirds--and read about bluebirds, but not know WHERE we can see them. I would like specific information on where there are good numbers of them that one might see!

Lila W. Williams
Manlius, New York

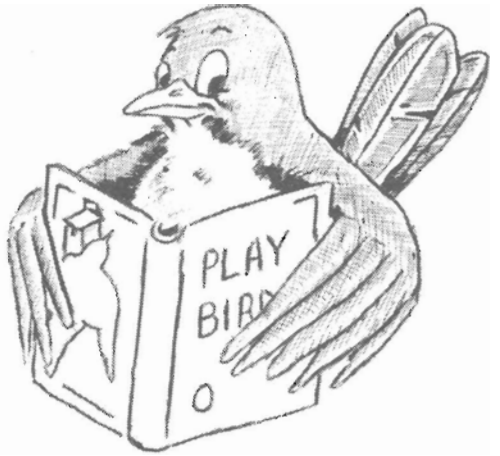
Dear Mrs. Williams:

I understand how frustrating it is to watch and wait and never see a bluebird. I regret that **Sialia** cannot be used as a clearing house for requests; it is simply too large a task. There are several suggestions that come to mind, however, to help you and others who want so much to see bluebirds. Contact a local bird club or chapter of the National Audubon Society. These groups always contain knowledgeable individuals who can give you tips because they know the area. If there is no group near you check through back issues of **Sialia**. You may find an article or

(Continued on page 85)

BLUEBIRD TALES

Mary D. Janetatos



A marvelous thing happened to bluebirds on the way to Christmas this year. A cover story about them appeared in **Parade** magazine. Joan Rattner Heilman's article "How You Can Hear the Bluebird's Song Again" was featured in the nationally distributed Sunday supplement on November 25, 1979. Ms. Heilman had written her excellent article after completing much independent research and consulting with Lawrence Zeleny, N.A.B.S. founder. The result was an informative, moving article which prompted some 70,000 people to send for "complete information on how to build nestboxes and other bluebird lore." They were instructed to send a self-addressed, stamped long envelope with 25¢ in coin to Box 6295, Silver Spring, MD 20906. The Society then sent the nestbox plans and the full-color brochure, "Where Have All the Bluebirds Gone?"

The all-volunteer staff of the Society was just overwhelmed by the volume of mail. As Executive Director I regularly stop by the post office which is nine miles west of my home. The responses began coming in on Monday, November 26, from those whose newspaper carriers deliver the Sunday supplement inserted in the Saturday newspaper. This happened both in Annapolis. MD and in a town in Michigan because all of the mail which was squeezed tightly into the 4" x 4" x 14" mailbox came from those two places. Tuesday I picked up four trays of mail (each tray holds about 300 letters). Wednesday I cautiously called the post office, "Hi! This is Mary, from the Bluebird Society." The postal clerk respond with, "Uh-HUH." Trembling, yet curious to know more, I queried, "Do I have any mail?"

"Yes, Madam, you do. There are **eight sacks** here!"

Since I was already sitting down, the draining strength had no visible effect.

"How many pieces of mail are in one sack?"

"About 1300," he replied.

I gasped something about finding a way to pick it up and hung up. Reflecting that my Honda was no match for this job, I quickly called one of my trustiest assistants, an office regular, **Irene Ritch.** Yes, her station wagon was available; yes, she would pick up the mail and take charge of it at her home.

Thursday I called the post

office. Ten more sacks had arrived. This called for something even larger than the station wagon. I phoned an Audubon friend, **Jane Zuke,** who said that her van would be available Friday. By then there were 15 sacks of mail waiting at the post office. I arranged to have the stalwart fire-fighting twins, **Tom** and **Joe Tait**, meet us at my house when we got back. Also waiting were my visiting parents, **Anthony** and **Isabel Dougherty.** When Jane and I drove into the driveway, **Kathleen Smith** (the Society's Membership Aide). **Tom** and **Joe Tait** and my parents all gaped in disbelief at the 15 sacks of mail in Jane's van. Santa's sleigh couldn't have held more than that van! As my gentle mother nearly reeled at the sight, Tom, Joe, Jane, Dad and I began lifting, lugging, dragging and hauling it all down to my basement. Later I began calling a few key people. **Chuck Dupree**, treasurer of N.A.B.S., came and took away about nine sacks which were opened by him and his wife, **Betty;** his daughter, **Debbie**; and his mother, **Freida Plaski**. **Jim** and **Peggy Hunter** kept coming for more and more--until they too had done about nine sacks. **Tom** and **Joe Tait** took many sacks away also.

The next few weeks passed in a blur. Huge loads at the post office were picked up by **Frances Ehlers** in her station wagon and taken to her home. **Anne Sturm** picked up ten sacks another day and spirited them away to Barnesville. My tiny Honda also chipped away at the mountains of mail.

My dear mother had gone home after witnessing that vanload and started to pray up a storm that I'd get help with all that mail. (I have to admit to a prayer or three on my own part, too.) Those prayers were heard because generous folks began to appear at my house (the office) in large numbers in response to my telephoned cries for help. **Mother** and **Dad** helped open mail. My three college student offspring **John, Kathi** and **Ann Janetatos** not only opened mail but were happy with a rather abbreviated celebration of Christmas!

Organizations sprang into action: two local chapters of National Audubon; **Prince George's** with **Carol Beyna, Paul Jung, Jo Osterhouse** (also an office regular) and others, and **Northern Fairfax Audubon,** a new chapter whose membership had initially adopted a bluebird project, led by **Ron Stanley, Lynn** and **Eleanor Hurst** and **Joyce Tarrach;** the **Howard County** and **Patuxent Bird Clubs** with **Eileen** and **John Clegg, Marty Chestem, Marjorie Mountjoy, Lois Carleton, Jo Solem, Paul** and **Debbie Leifer, Mark Wallace, Edith** and **Sarah Haviland. Rosamond Munro** and **Lynne Clary; Ayr Hill Garden Club** with **Margaret Whitmore, Daphne Sloan, Dave** and **Linda McKay;** also **Rossmoor Leisure World** rallied by **Florence Porter** with **Myron Whitney** and **Laurae Hay** as well as the **Rossmoor Lions Club; the Friends House Retirement Village** with **Mildred Shepherd** and the untiring **Jim** and **Peggy Hunter; Meadowside Nature Center** with **Sara Lustbader, Julie Melvin, Rosemary Treichel** and many volunteers;

Dawn Morris' Camp Fire group and other **Camp Fire** and **Blue Bird** groups found by **Marge Tate;** Flower Valley friends **Fred** and **Agnes Florschuty, Anthony** and **Claire Bergamini, Carl Techiegg.** I am sure the whole town of Barnesville responded to **Anne Sturm's** call for help, especially **Cynthia, Eric** and **Brian Laug, Milton** and **Shirley Ricketts, Chet Anderson, Ross** and **Eva Goeke.**

There were the faithful bluebirders and friends: **Marilyn Guerra** and her helpers **Catherine** and **John Guerra** who also recruited neighbors **Carl, Marty** and **Evelyn Evans.** They in turn were joined by friends **Todd Daniels, Danny Dulaney** and **Larry Solda. Bud** and **Lois Lyon, Jim** and **Sue Turner, Chester** and **Jennie Shelton, Paul** and **Joan Woodward, Enid** and **Grant Riggle, Bill** and **Peggy Stott; Billy Stasia, Chris, Rachel** and **Alexa Stott, John** and **Barbara Inzana, Doris Baker, George Hudson, Kathleen Smith** and **Larry** and **Olive Zeleny** were all cheerful and willing workers.

Bluebirders from far away asked to get their hands on some of those mail sacks. Offers came from **George Grant** and **Fran Hanes** in New York, **Bob Schutsky** in Pennsylvania, and **Dick Tuttle** in Ohio. In a phone conversation with **Lorne Scott**, N.A.B.S. board member and Membership Chairman, I had to explain the impracticality of having a few dozen sacks of mail shipped to Saskatchewan. Lorne couldn't bear the thought that Canada was unable to get in on the act!

Some new "regulars" have also stepped forward to help fill the many orders for nestboxes, books, etc. generated by the material sent to the Parade respondents: **Mrs. Marion Eberly** (mother of **Nancy MacClintock**) who contributes her time and effort right in her home, **Wally** and **Katie Knapp**, who liked the idea of helping the bluebirds when introduced to it by the Lions Club of Rossmoor; **Bill Morton** who was a **Parade** respondent living nearby and generously gave of his time after a telephoned call for help; **Harold Norwood**, a bluebirder from nearby Laurel, and **Sally Funkhauser**, a bluebirder from Fulton, Md.

If all of the generous folks who wrote to obtain the plans to build nestboxes will do just that, and then put them up in suitable places, and watch over them, there should be plenty of homesites for the searching bluebirds this year.

This new desire to help the attractive native birds must grow into a long term love and concern for them because this year's population of bluebirds may not be sufficient to provide tenants for all the new houses. Patience and love must continue until this year's successful broods come back next year. Then, in a few years the success witnessed from Beltsville (Larry Zeleny's trail) to the Braun and Brinkerhoff trails (in California and Washington state) will result in the bluebird's song once again being restored to the spring chorus.

"THE BLUEBIRDS ALSO DISAPPEARED . . . ."

Joanne K. Solem

By now **Sialia** readers are aware of the deluge of mail the Society office has received as a result of the nationally distributed **Parade** article. Along with the requests came letters. Thousands of them. They ranged from impeccably typed requests on letterhead stationery to scrawls on scraps of paper. The round careful letters of children, the elegant script of skilled calligraphers, as well as the shaky hand of the infirm or aged were all equally welcome and read with eager interest. One of the recurring themes stated in letter after letter was the distant remembrance of bluebirds seen years ago. The memory might have grown dim with the passing decades, but the desire to see the birds again was voiced ever so frequently. Many hoped to attract them because they had never seen one; to them bluebirds "existed only in story and song" as one writer put it. Ronald Markin of Swartz Creek, Michigan wrote,

> "I live in Gaines Township, west of Flint. I have heard of bluebirds here in the locality 30 years ago but have never seen one myself."

Barbara Sapula of Windsor, Connecticut represents the laudable attitude of many people,

> "After reading about the plight of the bluebird my husband and I decided that we should do something also to save these birds that we've never seen."

Mrs. Gerald Lanfier of Nichols, Iowa says one of her personal highlights for all of 1979 was looking out of her bedroom window and seeing a pair of bluebirds, the first that she had ever seen.

A request for information came from R.W. Hancock from his home in Jacksonville, Florida. He noted, "I am 36 years old and have only seen one bluebird."

Typical and too numerous to detail were the individuals from all parts of the country who indicated the lengthy interval since they had last glimpsed a bluebird:

> "I haven't seen a bluebird since about 1927."
> "It's been forty years since I've seen a bluebird."
> "I haven't seen a bluebird for 51 years."

"The last bluebird I saw was about 1965."

"It has been 25 years since I had a bluebird in my yard."

"Bluebirds are scarce here in Iowa. Used to hear old timers talk about them."

"I last saw bluebirds 60 years ago on my grandmother's farm."

"There haven't been any bluebirds around for at least 28 years."

"I am a recently retired railroad conductor who has not seen bluebirds since I was a young boy in Pennsylvania."

A number of writers unwittingly detailed widespread reasons for the decline of the bluebird in many parts of the country. Jim Abraham of Reading, Pennsylvania mentions the loss of habitat:

"I can remember as a boy in the mid-fifties, having bluebirds in our back yard. Our home had been built in an old apple orchard and the trees abounded in bluebirds. One by one the trees died and were removed till now only one or two remain. The area has been continuously built up and the bluebirds have disappeared."

Peter J. Ban of Campbell, California also notes the passing of ample open space:

"I was born and raised in the Santa Clara County of California. When I was young, about 40 years ago, this valley was blessed with the bluebird. Our valley now is covered with homes and blacktop, and I have not seen any bluebirds for 30 or more years."

Both John Meninger of North Caldwell, New Jersey and Mrs. Peter Christy of Oklahoma City, Oklahoma point to the disappearance of wooden fence posts as a reason for the decline of the birds:

"I was raised on a farm with wooden fence posts. The last time I saw any bluebirds was before I moved from the farm in 1928."

"The newspaper article about bluebirds brought to mind the days of my childhood in southern Oklahoma where they were a very common sight. I remember when our family would be working in the fields the bluebirds would fly around the fence posts. Upon examination of the posts we would find their nest down in the rotted part of the wooden post."

Some of us tend to date the widespread use of insecticides to the period right after World War II. Mildred Yonka of Valdalia, Illinois points out that it was a problem for wildlife over 50 years ago:

"From 1909 until 1926 I lived on a farm in southern Illinois. There was a large apple orchard across the road. One year the people who owned the orchard had a machine brought in to dust the orchard with an insecticide of some sort. It killed Father's bees. The bluebirds also disappeared. . . ."

Judging from some of the foregoing comments, which represent only a small sampling of those voicing similar sentiments, melancholy should have settled over N.A.B.S. headquarters. Fortunately, not all of the letters painted so gloomy a picture. Some of the brighter aspects of bluebird conservation as detailed by **Parade** readers will be examined in another issue of **Sialia.**

(Continued from page 79)

letter from an individual in your region with whom you could make arrangements to see bluebirds. Finally, you can write to our headquarters P.O. Box 6295, Silver Spring, MD 20906, in care of Mary Janetatos, Executive Director. She can match your request with members having the same zip code in an effort to help you.

You are particularly fortunate, Mrs. Williams, because you live in the same area as George Grant, one of the regular contributors to this publication. Write to him at RD 3, Box 153B, Canastota, NY 13032. I'm sure he'll be able to help you find the elusive bluebirds you seek.

FROM THE EDITOR

As the recently appointed editor of **Sialia,** I am mindful of the debt which I owe to the founding editor. Jon Boone's considerable talents as artist, author, and editor lent this publication a unique touch. With the capable assistance of Robert Patterson, Jon established and maintained **Sialia's** consistently high quality--no small feat for a fledgling organization.

For both men it was an obvious labor of love, but one which placed severe demands on their time. For so competently designing **Sialia,** for their dedication to the cause of the bluebird, and for the endless hours which were necessary to the production of this quarterly the North American Bluebird Society acknowledges their role with profound gratitude.

With the support of the membership and the Board of Directors, I look forward to continuing the essential role that **Sialia** plays in the North American Bluebird Society.

Jo Solem

February 11, 1980

Mr. Jon Boone
9505 Good Lion Road
Columbia, Md. 21045

Dear Jon,

At the first board meeting of the year, the North Amercian Bluebird Society passed a unanimous resolution commending you for the excellant work accomplished in the past year as editor of **Sialia**.

The media today is filled with many types of newsletters and journals. To enter this area by editing a journal such as **Sialia**, is a formidable challenge. Each issue was prepared in an attractive manner despite a limited budget, staff or other necessary resources.

The membership of the Society ranges from the scholar/scientist to the active birder and the ardent beginner with their first box. The journal was tailored from the beginning to suit these rather different needs.

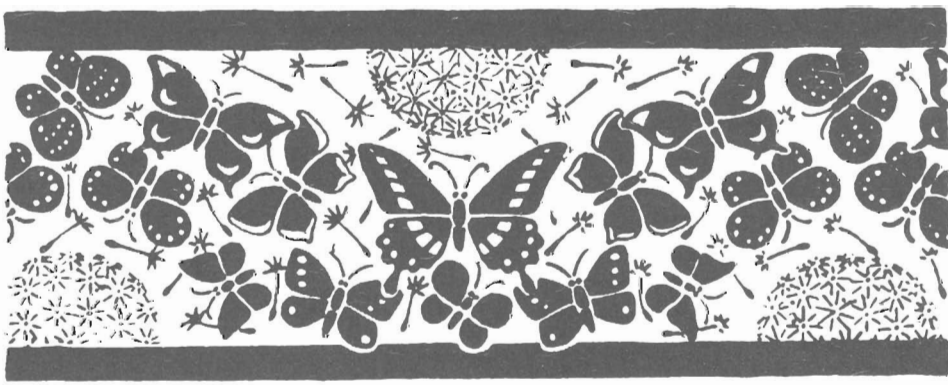
Many professional organizations are able to produce only a most simple journal. In this case the publication of **Sialia** was the finest gem the Society could exhibit.

These few words offer little compensation for your sacrifice and work. We hope that you will continue to support the Society and our efforts to preserve the habitat and nesting sites for Bluebirds.

We remain in debt to you for all you have done and we assure you of our gratitude and support.

Sincerely,

(Rev.) Raymond A. Prybis



February 11, 1980

Mr. Robert Patterson
12601 Buckingham Dr.
Bowie, Md. 20715

Dear Bob,

At the first board meeting of the year, the North American Bluebird Society passed a unanimous resolution commending you for the excellant work accomplished in the past year when you were president of the Society.

Like Washington, Martin Luther King and others, you had a dream. You saw this dream move from the ideal to the real. To do this requires a balance of leadership, courage and a great deal of industry. In the intial growth stages of any organism or organization, the first steps are critical. The amount of effort needed to accomplish even the most simple procedures are difficult and time consuming. Yet in spite of this, the Society not only came into being but has begun to prosper. Certainly the phenomenal growth of the Society in such a limited time is one indication of how well you did your job.

The other dream that has come to completion is the starting of the journal, **Sialia**. Often these ventures are such that later efforts will continually seek to improve and build on the foundation that has been laid. In this case the work that you have done with Jon Boone is the measure with which later issues will be judged.

These few words offer little compensation for all that you did in the past year. We hope that you will continue to support the work of the Society and in a very special way the efforts of the Society to preserve the habitat and nesting sites for Bludbirds.

Once again we are grateful to you for all that you have done for us. We assure you of our continual support.

Sincerely,

(Rev.) Raymond A. Prybis

IT'S SPRING AGAIN

Winter's cold gives way to Spring;
Lazy clouds drift in the sky;
Heav'n is matched by bluebird's wing,
Searching for a mate nearby.

Meadows echo their love call,
The air is filled with melody;
And all who hear them thus, entralled
Lift eyes to thank Him silently.

For messengers of happiness,
And of His love they truly are;
He sent them down to us to bless--
They bring Him to us from afar.

Oh, thank you, God, for love sublime,
Personified in azure-blue;
Please send them back to us in time,
To keep reminding us of You!

Katharine M. Braun

HEAVEN'S BLUE

Bluebirds have a color all their own.
I look at them, and know that I am shown
A bit of heaven; winging down to me
A bit of God--and suddenly I'm free
Like bluebirds, calling as they fly
To loved ones, as they roam the sky.

My spirit soars; no longer has the earth
The power to hold me fast. I just gave birth
To faith, to hope, to love--because
I saw a bird that's blue,
Yet didn't make a sound--just flew!

Katharine M. Braun

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: Students (under 21) and Senior (over 60), $7.50; Regular, $10; Sustaining, $30; Supporting, $50; Contributing, $100; Corporate, $100; Donor, $250. Group membership rates available upon application. Amounts over $5 are tax deductible.

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