

Bluebird

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Does nest-box pairing harm bluebirds? NABS research chair Kevin Berner says he has observed no evidence on his trails that pairing would lead to lower bluebird numbers. He discusses his findings in an article beginning on page 4.

Photo by Ann Wick



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From the President

Doug LeVasseur

The month of January is closing in on 'Possum Valley here in southern Ohio. And it has been a cold January indeed. Snow that fell just after the first of the year is still on the ground, and last night the temperature dipped to 12 degrees below zero.

Only one pair of bluebirds has been visiting our meal-worm feeder regularly this winter, and, being the gentle birds they are, they share their meals with several White Breasted Nuthatches and a Carolina Wren.

At times like this I have to remind myself that there is a time lapse between the time this column is due and the time when it will be read. Two short months from now the snow will be long gone here in southeastern Ohio. Early signs of spring will be everywhere, and our bluebirds will certainly be scouting the country side for nesting sites.

Events will have taken place too. The NABS 26th Annual Convention in Kearney, Nebraska, will be history. One never has to go far out on a limb to predict the success of a NABS convention. Over the years I have attended many, but never have I looked forward to a NABS convention (and the Platte River waterfowl migration) with more anticipation than this one. I will submit my early thanks to Bluebirds Across Nebraska, its officers, board members and convention committee as well as the volunteers who have put forth their efforts to make this such a memorable convention.

Another significant change will take place in the next two months. My term in office as NABS president will come to an end at the convention, and a new president will be elected. I wish to extend my very best wishes and the best of luck to both candidates, Sherry Linn and Dean Sheldon. I can assure

you all that the bluebirds will come out winners no matter what the results of the election may be.

At this time I would like to briefly address the issue of the post script that appeared in this column in the last issue of *Bluebird*. When I wrote it I did not realize that the NABS constitution and bylaws do not provide for an absentee ballot. As your outgoing president, I promise to do what I can to rectify this situation so that none of you will again have to spend your valuable time thumbing through *Bluebird* looking for a ballot that did not exist. And I extend my sincere apologies to those of you who did.

I spent all of my working career building roads. You might wonder how such a career can prepare one for the presidency of a society such as NABS. Well, to tell the truth, sometimes I wonder too. But at least I know of the bumps in the road and of the smooth roads too. Just as no one person builds a highway, no one person can possibly administer a society such as NABS. I extend my sincerest thanks to all of the officers and board members, past and present who have supported me personally and the bluebird conservation movement in general these past three years. Also the past and present executive directors as well as those serving on committees.

And of course without you, our members, we would be nothing. You all are the backbone and the life of our society. Thank you all.

Whereas some of our methods may differ, we all have the welfare of the bluebirds at heart, and that in itself will keep us moving in the right direction.

As for me, I hope you all believe as I do that old bluebirds never die, they just fly away, so keep your eye to the sky for that beloved flash of blue!

From the Executive Director

Lisa Bulick

Web Site Updates

If you have visited the NABS web site recently, you probably have noticed that we have added a Corporate Sponsor page. We want NABS members and everyone visiting our web site to know where to find retailers, businesses, manufacturers, and distributors whose generous support demonstrates their dedication to bluebird education. Please visit the NABS Corporate Sponsors page to find the corporate sponsor nearest you!

Transcontinental Bluebird Trail on-line

After countless volunteer hours to recover data and build a new interface, Transcontinental Bluebird Trail (TBT) data entry is back on line. We owe a tremendous debt of gratitude to the members of the TBT Committee for their hard work and their commitment to the project. All current NABS

members have access to the TBT site; you need only your member ID number and password to get started. If you have not logged on to the TBT yet, your password is NABS. Once you have logged on, you may select a new password.

United Way contributions

Do you know you can allocate all or part of your United Way donation to NABS? NABS has recently been the recipient of two very generous United Way contributions. Our listing in Guidestar, an on-line database for non-profit organizations, qualifies us to receive these donations. We are grateful to the NABS members who made United Way contributions to NABS this year. If you are a United Way contributor and would like information about how to designate a donation, contact your local United Way representative.

Ithaca, New York, site for NABS 2004

The 2004 NABS convention will be presented in Ithaca, New York, July 7 to 11. Ithaca is in the Finger Lakes region of the state. The Clarion University Inn and Conference Center will be the meeting site. Ithaca is home to the Cornell Lab of Ornithology, and a tour of that facility will be part of the convention program.

The Finger Lakes region also offers over 100 wineries, a science

center, museums, and beautiful scenery, along with Eastern Bluebirds and bluebird trails.

You can get more convention information by contacting Carl and Phyllis Zenger by e-mail at zenger@localnet.com or by calling them at 716/434-7568. You may also contact D. T. Smith by e-mail at klip@clarityconnect.com.

Minnesota conference to be April 12

April 12 is the date for the annual conference of the Bluebird Recovery Program of the Audubon Chapter of Minneapolis. It will be held in the high school in North Branch, Minnesota, about an hour's drive north of the Twin Cities on I-35. Registration

begins at 8 a.m. that day. Speakers will include television reporter Ken Speake, Carrol Henderson of the Minnesota Department of Natural Resources, Keith Radel on starting a trail, and Richard Hjort and Ralph Johnson.

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P.O. Box 244
Wilmot, OH 44689

Lisa Bulick
Executive Director

330-359-5511

lisabulick@nabluebirdsociety.org
www.nabluebirdsociety.org

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*The NABS web site offers
answers to many questions.*

Editor: James J. Williams
345 Ferndale Road N.
Wayzata, Minnesota 55391
E-mail two-jays@att.net

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Does nest-box pairing harm bluebirds?

NABS research chair says there is no negative impact

By Kevin Berner, NABS Research Chairman

Nest-box pairing has been advocated as a technique to reduce competition between Eastern Bluebirds and Tree Swallows. The justification is that having two boxes present in close proximity will allow both species to nest simultaneously. Many people have found that while these species may appear to squabble over the boxes, they can co-exist in close quarters and both nest successfully.

While this viewpoint is widely held, it is not without challengers. Foremost among them has been Joe O'Halloran who analyzes data for collected by the Bluebird Restoration Association of Wisconsin (BRAW).

His data based on thousands of boxes indicated that paired boxes fledge fewer bluebirds and that pairing leads to reduced occupancy rates by bluebirds as swallows take over trails.

My field work

I have monitored bluebird research trails in east central New York's Schoharie County since 1989. These trails were established to test predator deterrent techniques and to compare various nest box styles. Over the years I have added new trails and often changed box placement and densities.

Early in my research work, I frequently added boxes, expanding trails and increasing box densities. My observations after doing so was

that increasing box densities definitely favored Tree Swallows while not increasing bluebird numbers nearly as much.

After reaching my highest number of box pairs in 1994, I eliminated many of my box pairs where pairs were in close proximity to each other, reducing box densities without any concurrent decrease in the number of bluebird pairs. At the same time if I had persistent problems with House Sparrows or House Wrens using nest boxes, I often eliminated those box sites. I now rarely find either of these species in my boxes.

Since 1990, with a few exceptions that year, all of my boxes have been paired. Most of my boxes are on

**Table 1.
Paired
nest box
use by
Eastern
Bluebirds
and
Tree
Swallows**

Year	No. box pairs	No. of pairs w/ bluebirds	Percent pairs w/ bluebirds	No. of bluebirds fledged	No. of bluebirds fledged per pair	No. of pairs w/ swallows	Percent pairs w/ swallows	No. of swallows fledged	No. of swallows fledged per pair	No. of pairs with 2 swallow pairs
1989	33	8	24.2	23	0.70	23	69.7	105	3.18	0
1990	58	16	27.6	36	0.62	42	72.4	175	3.01	0
1991	66	15	22.7	70	1.06	56	84.8	118	1.79	2
1992	61	21	34.4	67	1.10	45	75.0	157	2.52	2
1993	74	20	27.0	64	0.86	62	83.7	285	3.85	0
1994	80	22	27.5	70	0.88	72	90.0	301	3.76	4
1995	74	28	37.8	98	1.32	70	94.6	316	4.27	8
1996	48	13	27.1	58	1.21	43	89.6	192	4.00	5
1997	48	25	52.1	102	2.13	42	87.5	241	5.02	5
1998	47	27	57.4	104	2.21	42	89.4	205	4.36	10
1999	46	28	60.9	161	3.50	42	91.3	219	4.76	4
2000	42	31	73.8	145	3.45	39	92.9	163	3.88	4
2001	40	29	72.5	162	4.05	36	90.0	184	4.60	2
2002	38	33	86.8	129*	3.39	28	73.7	123	3.24	1

* The number of bluebirds fledged in 2002 was greatly reduced due to severe cold and heavy snow coinciding with the time when many bluebirds had their first broods in nests.

"I have observed no evidence on my trails that pairing would lead to lower bluebird levels. In contrast, my bluebird occupancy rates have shown a consistent and long-term increase at paired sites. These paired sites have contributed to high levels of production of two desirable species of native birds."

metal pipes approximately five to 10 feet apart; however, a small percentage of these boxes are on opposite sides of the same telephone pole. There have been only minor changes in my box placement since 1996.

Experimental design

In a true test of nest box pairing, I would have set up equal numbers of sites with paired or unpaired boxes. I also would not have increased or decreased box densities in an effort to eliminate this confounding variable. Such a test would be the ideal manner to collect pairing data. As mentioned previously, my study design was developed for other purposes; however, I believe that my results still are applicable to determining whether or not pairing is harmful as predicted by O'Halloran.

Results/Discussion

I compiled data on the numbers of nest box pairs, nest boxes occupied by either bluebirds or swallows, and bluebirds or swallow young fledged by per box pair (Fig. 1 and 2 and Table 1). A box was considered to have been used if a bird built a nest and laid at least one egg.

The percentage of paired boxes occupied by bluebirds started at 24.2 percent in 1989 and has grown fairly steadily over the years to a point where it reached 86.8 percent of pairs of boxes having bluebirds in 2002.

Swallows nested in just under 70 percent of boxes in 1989 and most years nested in 80 to 90 percent of the box pairs. While the bluebird use went up greatly, the swallow use was fairly stable throughout the study.

The number of bluebirds fledging per nesting pair started out at 0.7

young per pair in 1989 and rose in all but four of the next 13 years. A significant increase was shown over the course of the study, and in each of the last four years approximately 3.5 to 4

Swallow fledging rates have

fluctuated and have not shown as consistent an upward trend as did bluebirds. An unusually low level of swallow production was observed in 1991 when 21 swallow nests were destroyed by raccoons in one week. This past summer bluebirds out-

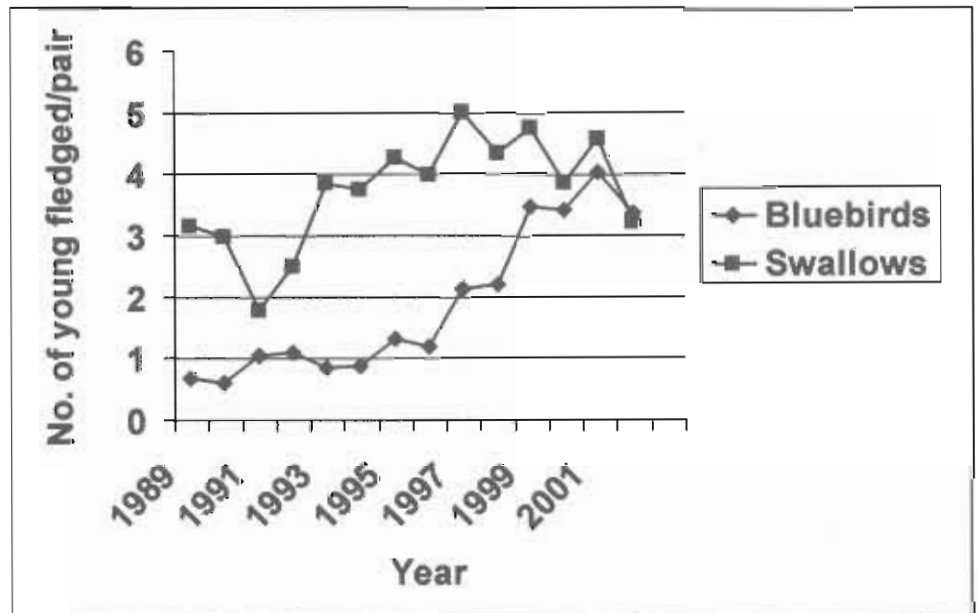


Fig. 1. Number of young fledged per box pair

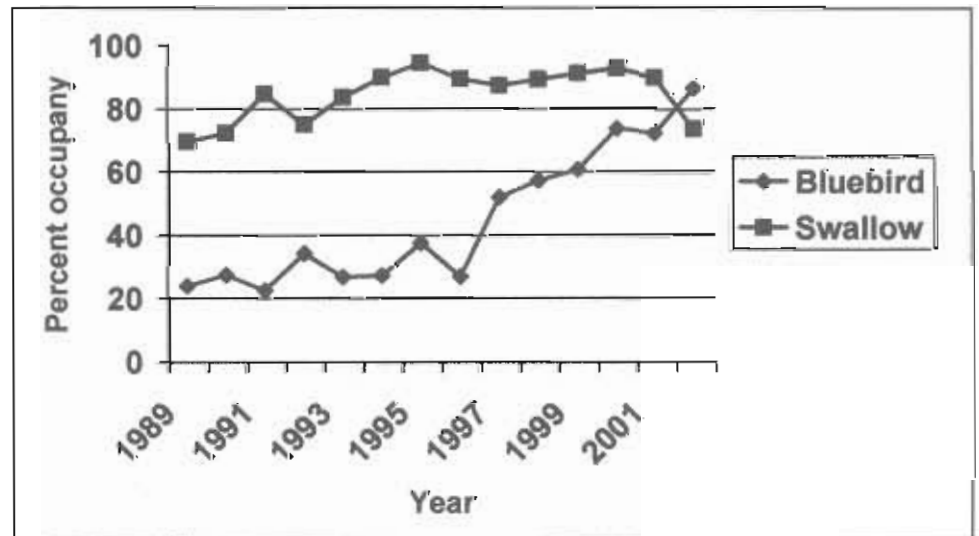


Fig. 2. Percentage occupancy per box pair by species

produced swallows for the first time. The difference between the number of bluebirds fledging and swallows fledging has generally decreased over the years, showing that competition with swallows was not depressing bluebird numbers.

There were numerous instances where Tree Swallows nested in paired boxes simultaneously. Over the 14 years of the study there were 47 incidences of swallows having active nests in both boxes at the same time. This phenomenon peaked in 1998 at 10 pairs and generally has declined since that time.

My box placement strategy has been to locate sites that provide high-quality habitat and low potential for interference from House Sparrows and House Wrens. I have found that to maximize the rate of bluebird occupancy, these sites should be widely spaced. Once a site was selected, I could have placed single or paired boxes. If I used a single box and the site was occupied by Tree Swallows first, it would be completely unavailable for bluebird use. With paired boxes, the potential for bluebirds to use the site should be increased.

The argument could be made that without pairing I could place boxes in more sites. Good quality sites are more of a limiting factor in my area than the availability of nest boxes, which can be made quickly, easily, and cheaply.

Conclusions

I have observed no evidence on my trails that pairing would lead to lower bluebird levels. In contrast, my bluebird occupancy rates have shown a consistent and long-term increase at paired sites. These paired sites have contributed to high levels of production of two desirable species of native birds.

Tree swallows have suffered due to the introduction of European

Starlings and House Sparrows just as bluebirds have and should be considered to be a valuable component of our ecological system, not an enemy whose reproduction should be minimized. What bluebird enthusiast can watch the acrobatic aerial maneuvers of a swallow without a feeling of awe?

While I don't agree with all of BRAW's conclusions, the members of this organization deserve a great deal of credit for their efforts to gather and disseminate data on bluebird-related issues. All states should seek to emulate their data gathering for the benefit of all native cavity-nesting birds.

It may well be true that in different areas of the country different ecological situations lead to different relationships in regards to which bluebird management strategies work best. I don't think that people in every corner of the continent should blindly follow my recommendations, BRAW's recommendations, or those of any other individuals or groups.

It would be better if they reviewed all the different points of view, conducted research within their own areas, and identify which strategies work best for them. As for me, I plan to continue to pair boxes, fledge hundreds of both species, and enjoy them equally on my trails.

(Kevin Berner is an associate professor in the Fisheries and Wildlife Technology department of the State University of New York, SUNY Cobleskill College of Agriculture and Technology. He has been the research chair for NABS since 1991. His postal address is 499 W. Richmondville Road, Richmondville, NY 12149. He can be reached by e-mail at BernerKL@Cobleskill.eduKevin.)

NABS members invited to tour western parks

The Wilderness Center (TWC), new home to the North American Bluebird Society, invites NABS members to participate in their ecotours. TWC has been leading nature tours for more than 20 years.

This spring, Gordon Maupin, executive director of the center, is leading a group to the legendary Four Corners area (Utah, Colorado, New Mexico, Arizona). The trip has been planned with the assistance of the Four Corners Outdoor School and Durango Nature Center.

Participants will see many spectacular natural and cultural splendors: Arches National Park, Canyonlands National Park, Chaco Canyon National Park, and Mesa Verde National Park. The group will ride on the narrow-gauge steam train from Durango to Silverton, Colorado. There also will be opportunities to visit the Dinosaur Museum and the Edge of the Cedars Museum.

The price for this 10-day tour is \$2,625 double occupancy and includes all lodging, nine dinners, eight lunches (mostly in the field), van transportation, limousine service to and from airport, naturalist leadership, and all admissions. For information, contact the NABS office.

Cover photo

Our cover photo was taken by Ann Wick, NABS member from Black Earth, Wisconsin. She was banding young Eastern Bluebirds on the grounds of the University of Wisconsin Pine Bluff Observatory near her home.

The temperature in the nest

Too warm? Too cold? Just right? Study of Tree Swallows shows importance of temperature to chicks

By Dr. Susan Chaplin

It might be a chilly 41 degrees F when the first Tree Swallow chicks hatch on a late May or early June morning in east central Minnesota. The wood bluebird nest boxes they favor for breeding provide little insulation from the night and early morning cold temperatures.

Perhaps because of the risk of hypothermia in the naked, newly hatched chicks, Tree Swallows, unlike bluebirds, insulate their grass nest cups with downy feathers from other bird species. (See Fig. 1.)

The importance of this feather insulation has been documented by researchers who found that removal

of the feathers from Tree Swallow nests resulted in stunted growth of the chicks. Too many feathers in the nest is a hazard as well, when daytime temperatures warm the nest and the added feathers prevent adequate ventilation and cooling of the nest cup. As nestlings grow and develop their own feathers, Tree Swallow parents remove the insulation from the nest cup.

Unlike their hole nesting bluebird counterparts, Tree Swallow chicks typically lay five to seven eggs, but the hatched young, weighing only 1.5 g. each, fill only about one-third of the nest cup volume. Four bluebird chicks may fill the nest cup com-

pletely within a few days of hatch, but it takes eight days for a brood of Tree Swallow chicks to acquire enough mass to fill the nest volume.

Accumulation of body mass is important to the tiny chicks to help them conserve their body heat, since the smaller you are, the faster you cool. By huddling together in the nest cup, chicks can share each other's heat and reduce their likelihood of cooling to the point where they become immobilized and cannot beg when parents bring food to the nest. (Fig. 2.)

In addition to feather insulation added above and within the nest cup, Tree Swallow parents share the brooding of their chicks during the cool nights and early mornings to help the chicks retain their body heat.

On the premise that nest temperature is critical to nestling development in Tree Swallows, we installed recording devices in several nest boxes at the Twin Cities Army Ammunition Plant (TCAAP) in New Brighton, Minnesota, to monitor temperatures during three breeding seasons (1995-1997).

A hole was drilled into the back of the nest box and a temperature probe was threaded into the nest cup and positioned between the feather lining and the unhatched eggs. The probe was connected to a small computer (Mini-mitter data logger) taped to the back of the nest box that recorded nest and air temperatures 10 times an hour, 24 hours a day, for the entire duration of nestling development (16-20 days).

Over 400 bluebird nest boxes had been installed on the 2,400-acre



Figure 1. This view of the interior of a Tree Swallow nest shows five eggs and feather insulation of the nest cup. Additional feathers covering the nest cup were removed to take the photo. Photo by S. Chaplin.

TCAAP site during the previous six years. Tree Swallows nested in a great percentage of the nest boxes. We chose six pairs of those nests for examination of nest temperature regulation. We measured this by placing a temperature data logger in each nest for the full duration of the nestling development.

The nests in each pair were in close proximity to each other (less than 100 yards), and chicks had approximately the same hatch dates. Brood size was reduced to three chicks in one nest of the pair and kept at six chicks in the other nest of the pair. Two undergraduate students at the University of St. Thomas checked the nest boxes twice a week to record weights and body temperatures of nestlings and verify the position of the temperature probe in the nest.

Data from the Mini-mitter temperature loggers was downloaded to the computer and analyzed to determine mean nest and air temperatures for two periods: midnight to 4 a.m. (a stable period of nocturnal air temperature) and 6 a.m. to noon (a daytime period with the greatest variation in air temperature).

From this data we hoped to answer two questions: How much does nest temperature change with variation in air temperature during nestling development? Do more chicks in the nest (six) keep the nest warmer than if there are fewer chicks (three)?

In nests containing six chicks, nest temperature varied to the same degree as did air temperature during the first six days after hatching, but nests were about 4 to 12 degrees F higher than the air temperature. Temps ranged from a low of 66 F at night to a high of 104 F in the early afternoon.

However, after eight days, nest temperature was relatively constant at 90 F throughout most of the day. Nest



Figure 2. This clutch of six Tree Swallow nestlings (day 4) was removed from the nest for weighing. The Pesola scale used for weighing is placed above them for reference. Note the huddling behavior of the young birds. Photo by S. Chaplin

temperature became variable again just before fledging (days 14-18) when chicks got very active in the nest and rested on the edge of the nest cup away from the temperature probe.

This variation in nest temperature occurred early in development because as chicks grew in size and mass, filling the nest cup, they could more effectively control their own body temperature, and thus the nest temperature as well. Nest temperature then was independent of the changes in air temperature.

Many studies have demonstrated that a favorable (warm) and stable thermal environment for developing

eggs and chicks is essential to the reproductive success of birds. Interestingly, temperatures recorded from Tree Swallow nests during nestling development closely resemble temperatures reported during egg incubation in hummingbirds, ducks, and other songbirds.

Does number of chicks in the nest affect the thermal environment? Yes.

Number of chicks had a significant effect on nest temperature, especially during the night-time exposure to cool air temperatures. The mean nocturnal nest temperature of three-chick nests was almost 4 degrees F cooler than six-chick nests over the entire nestling period.

The difference in the thermal environment of the two brood sizes was even greater during day 6 to day 12 of development (9 degrees F). Why did this happen?

Recall that six chicks can fill the nest cup volume at about eight days of age and that the nest temperature is independent of air temperature during the remainder of their development. Three chicks in the nest filled only about one-half of the nest cup volume from day 8 to 12, allowing a large mass of cold air around them to affect the nest temperature. Thus, as you might expect, six-chick nests were warmer at night. The nocturnal nest temperatures of three-chick nests was only 82.5 F, at a time when six-chick nests were 92 F.

Nest temperatures of three-chick nests more closely followed the air temperature during the daytime than six-chick nests did after day 6 of nestling development. Three-chick nests were still markedly affected by cool morning temperatures up until day 12 when chicks had acquired sufficient plumage insulation. In the six-chick nests, nest temperature was independent of air temperature by day 10 of development.

This suggests that Tree Swallow chicks mature more slowly in a nest containing fewer birds because of the cooler nest environment. This conclusion is supported by researchers who showed that Tree Swallow chicks reared in uninsulated nests were smaller and less mature at 12 days of age, compared to chicks reared in normally insulated nests.

If development of Tree Swallow chicks is retarded by a cooler nest temperature, then small clutches would require longer time to fledge and be at higher risk from nest predators. It might seem that it would cost parent birds more energy to rear large broods of chicks (six or more

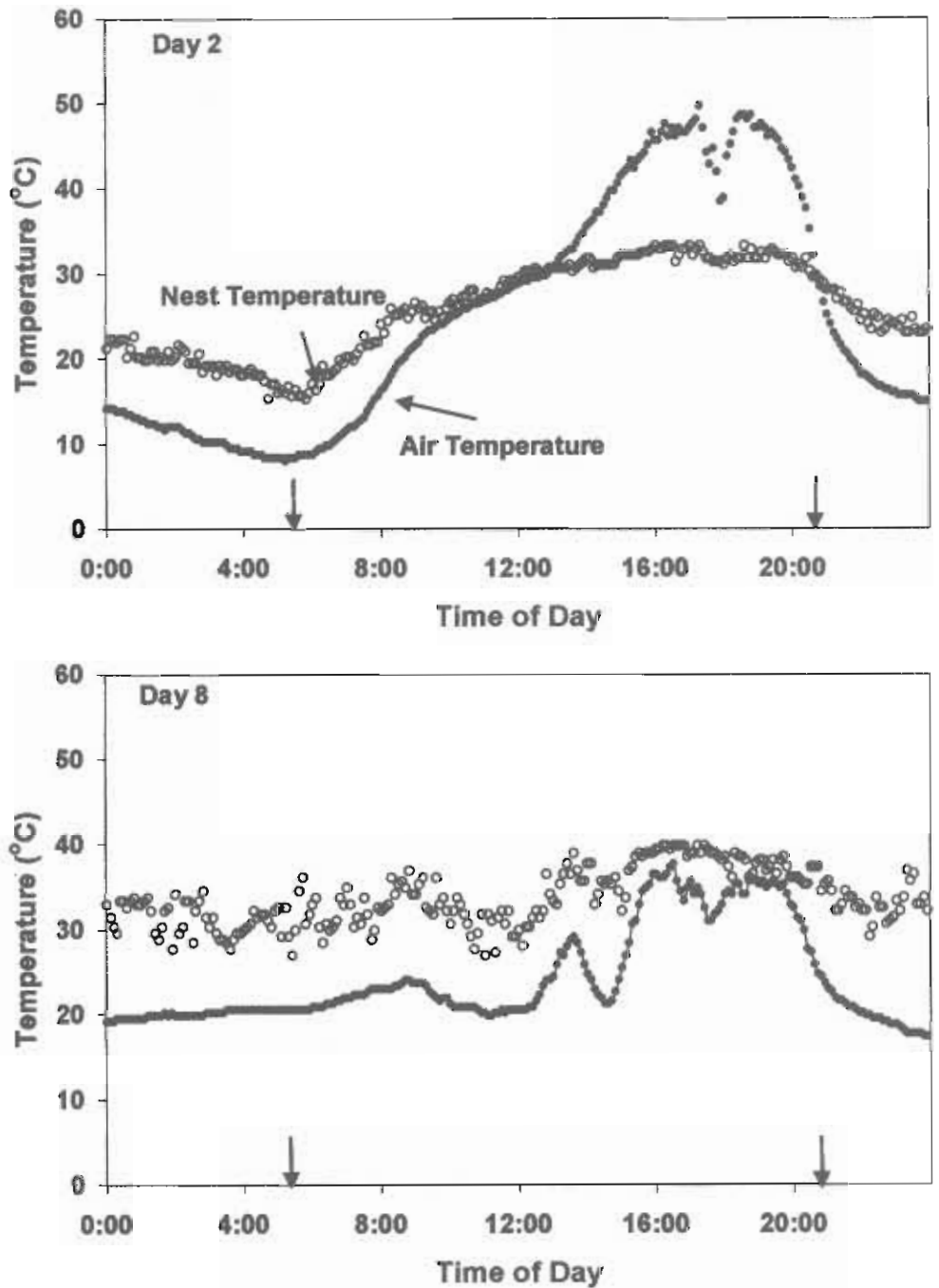


Figure 5. These graphs show nest (open circles) and air (closed circles) temperatures on day 2 and day 8 of nestling life in a six-chick nest of Tree Swallows. The chicks hatched on 31 May 1997. Time is CDT; sunrise and sunset are indicated by arrows on the time axis.

young in the nest).

However, the higher nest temperature created by a larger brood offers an advantage. A larger clutch maturing more quickly means more nestlings may survive predation to fledge, and pass on those parents' genes.

It would be interesting to see whether this strategy works for other hole nesting species, like the bluebird.

(The research for this project was done by and the original paper prepared by Susan B. Chaplin, M. L.

Cervenka, and A. C. Mickelson. *The original paper, entitled "Thermal environment of the nest during development of Tree Swallow (*Tachycineta bicolor*) chicks," was published in 2002 in the journal The Auk 119:845-851.)*

Reference is made here to information from an article by M. P. Lombardo, R. M. Bosman, C. A. Faro, S. G. Houtteman, and T. S. Kluisza, 1995, "Effect of feathers as nest insulation on incubation behavior and reproductive performance of Tree Swallows (*Tachycineta bicolor*)," *The Auk* 112:973-981.

The research reported here was supported by the University of St. Thomas summer undergraduate research fund and by Alliant Technology, New Brighton, Minnesota. Ms. Chaplin is Professor of Biology at the University of St. Thomas, St. Paul, Minnesota, and can be reached by email at sbchaplin@stthomas.edu.

BLUEBIRD TRAILS

A Guide to Success



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Rhythm and bluebirds

New devices track temperatures and incubation rhythms at the nest

By Caren Cooper and Tina Phillips

From the tropics to the polar regions, only a few millimeters of eggshell separate a delicate bird embryo from the fluctuating temperatures of the external world. Birds are remarkable for their ability to regulate their eggs, heating or cooling them to a narrow range of optimal temperatures. While incubating eggs, birds use a variety of strategies to meet their energy needs. But until recently, exploring this variation was hampered by the lack of suitable techniques for monitoring the microclimate of the nest.

Now in a pilot study from The Birdhouse Network (TBN), participants are using new technologies to help scientists understand the variation in incubation behavior of female Eastern Bluebirds.

In 130 nest boxes throughout the eastern United States, female Eastern Bluebirds are sitting not only on their eggs, but on tiny electronic data loggers that record the time and temperature. Preliminary data already show considerable variation in incubation rhythms among different females.

Traditionally, nest temperatures were monitored by using small thermocouples placed inside the nest and attached to a large and expensive externally mounted data logger. The expense and size of the equipment limited the number of nests that could be monitored during a breeding season.

Participants of TBN's pilot study are monitoring nests with new devices, each one the size of a stack of four dimes, programmed to record

temperatures automatically. One device is placed in the nest cup, where it records temperatures every two minutes (see illustration). Two others are affixed to the inside and the outside of the nest box, where they log ambient temperatures every two hours. After the participants return the data loggers, we download the data for analysis.

The preliminary data show considerable variation in temperature fluctuations and incubation rhythms among different females. For example, a female bluebird in Tennessee left her nest twice as often between sunrise and sunset as a female in Texas. When she was off the nest, the temperature in the nest cup dropped as low as 5 °C in Tennessee, compared with the nest in Texas, which always stayed above 17 °C. These temperature fluctuations are useful as relative measures, permitting inferences about incubation patterns, but do not necessarily reflect the exact egg temperatures.

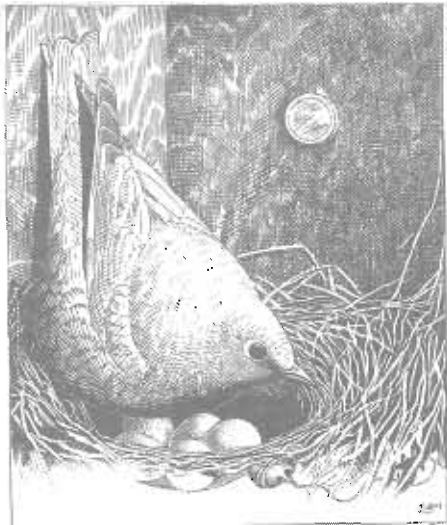
In general, the bluebird in Tennessee spent shorter periods away from the nest than the bluebird in Texas did (10-minute periods compared to 30-minute periods). She also spent less time sitting on the eggs before leaving, presumably to forage (30-minute periods, compared to one-hour periods). The bluebird in Tennessee also had to spend proportionately more time rewarming the clutch to an optimal temperature — about two-thirds of each incubation bout compared with half of the incubation bout for the Texas bluebird.

These differences could be a result of differences in clutch sizes, ambient

The strategy of sitting on eggs

temperatures, the female's condition or experience, or food supply. We will have a better idea of the causes of this variation at the end of the breeding season, when participants report clutch sizes and return the remaining data loggers, which record both ambient and nest-box temperatures all season.

We'd like to thank the dedicated participants who helped us develop this pilot study for future protocols, and the North American Bluebird Society for contributing funding.



Temperature in the nest of this Eastern Bluebird is recorded by a data logger. You see it hidden in the nest (to the right of the eggs). It is held in place by a thin wire. On the back wall of the box is another data logger (round button). It records temperature in the box. (Drawing courtesy Cornell Lab of Ornithology.)

From 'Birdscope'

These articles first appeared in *Birdscope*, the newsletter published by the Cornell Laboratory of Ornithology. Go to web site www.birds.cornell.edu, or call 800/843-2473 for membership information. The articles are used with permission.

Sitting on a nest may look easy, but it involves more trade-offs than meet the eye.

When birds sit on eggs, they are not simply relaxing. They are regulating the temperature of the clutch. The optimal range is 96.8 degrees F to 104.9 degrees F (36 C to 40.5 C). If egg temperatures drop below the optimal range, embryonic development slows. Higher temperatures are lethal for the embryo.

Although most people think of incubation as a warming process, birds may need to cool their eggs by shading or moistening them in hot environments. For example, one pair of Black-necked Stilts at southern California's Salton Sea made 155 trips in one day to soak their belly feathers in water to cool their eggs.

Incubation requires a balance between sitting on the eggs to maintain their temperature and leaving the nest to refuel by foraging. Different bird species cope with this conflict in various ways.

Male Emperor Penguins fast for 64 days, living off stored fat while incubating eggs. In other species, including many gulls, shorebirds, and songbirds, the male and female take turns incubating the clutch. Females of many songbirds and hummingbirds incubate the eggs alone. In some species, such as goldfinches and crossbills, the male will supplement the female with food while she sits on the nest. But in other species, the female must leave the eggs unattended when she goes out to forage. For a hummingbird, that's at least 140 times each day.

Incubation thus involves a series of trade-offs: a female gains energy by leaving the nest to forage, but she

must expend energy to rewarm or cool the clutch after returning. The way that birds allocate their incubation and feeding times can affect reproductive success.

Recent studies have shown that energy requirements during incubation are so demanding that they can limit clutch size and therefore the number of young that a female can produce. Ambient temperatures may also play a role in determining clutch size and determining how hard birds must work to keep the eggs at the proper temperature. Large clutches require more energy to warm, but they also retain heat better while the female is foraging. Thus, large clutches may be easier to incubate in cooler environments.

Data from The Birdhouse Network have shown that clutch sizes of Eastern Bluebirds increase from south to north and from east to west (*Birdscope*, Spring 2000). Do incubation constraints factor in? By collecting data on incubation and ambient temperatures at Eastern Bluebird nests, participants in our pilot study are helping us develop protocols for a study investigating the factors limiting clutch size and reproductive success. Stay tuned.

— Caren Cooper and Miyoko Chu



Temperature and size of cavity examined as factors in successfully raising young

Does the temperature inside a tree nest cavity influence reproductive success for the birds nesting there? Does tree cavity size influence clutch size? Researcher Dr. Karen Wiebe of the Department of Biology at the University of Saskatchewan sought answers to those questions in the forests of British Columbia with recent studies that focused on Northern Flickers.

Dr. Wiebe measured structural characteristics of 160 Northern Flicker nests at Riske Creek, British Columbia, and placed electronic data-loggers in 86 of those nests to record internal temperatures after the flickers completed nesting. The results of her work were published in *The Auk*, 118(2)412-421, 2001.

She found that the best predictors of a variety of nest-cavity temperature variables were tree health, diameter of the tree at cavity height, and orientation of the cavity. Small and dead trees showed the most extreme (maximum and minimum) temperatures during a 24-hour period, but, on average, nests here were the coldest nests from the perspective of incubation.

South-facing cavities reached the highest temperatures during the day, and the orientation of natural cavities also was biased towards the south. Dr. Wiebe had predicted that cold nests would be expensive for adults and nestlings in terms of energy, and she found that larger clutches were laid in warmer cavities. However, there did not appear to be any relationship among nest temperature and hatching or fledging success, according to Dr. Wiebe's study.

"What is the general importance of cavity temperatures?," Dr. Wiebe

asked in her paper. "The thermal environment of a nest should be important to cavity-nesting birds in environments where thermal stress influences reproductive success. The fact that some, but not all, populations of woodpeckers show nonran-



Northern Flicker

dom orientation of nest holes may indicate that constraints imposed by the climate within the nesting cavity are more important in habitats or years with more extreme weather.

"There is little empirical data on reproductive success in relation to nest temperature for any cavity-nesting species," she wrote. "Blue Tits (Europe) in warm nest boxes had fewer interruptions in laying and lower incubation costs. Care of young birds by both parents may also be a trait affecting tolerance of nest temperatures. Mountain Chickadees had higher fledging success in warm than in cold nest boxes. Most benefits accrued because warmer nests prevented chilling of the eggs or nestlings when a parent leaves the nest to

forage. In contrast, both sexes of flickers alternate in incubation bouts, so there is little danger of the eggs chilling.

A second study examined the relationship between clutch size to tree cavity size, again using Northern Flickers as the subject bird species. In the abstract to an article published in the *Journal of Avian Biology* 32: 167-173, 2001, Dr. Wiebe and co-author Trisha L. Swift wrote:

"We analyzed clutch size versus nest size in 153 broods of the Northern Flicker. Larger volume cavities were less susceptible to predation, and cavity size was positively associated with the age and body size of males and with the body condition of female parents.

"Although clutches varied between four and 11 eggs, and the floor area of cavities varied about five-fold, we found no relationship between clutch size and floor area or cavity volume.

"To see if there were fitness consequences to clutch size relative to nest size, we examined hatching success and nestling mortality in flicker broods. Hatching success was not related to cavity size, but crowding slightly reduced nestling survival. However, there was no effect of cavity size on the total number of nestlings fledged.

"Newly excavated flicker cavities were smaller than reused cavities, suggesting a cost to excavation. This cost, coupled with the minimal fitness consequences to overcrowding may explain why flickers do not adjust clutch size to cavity size."

Predation risk was greater for small cavities, reported Dr. Wiebe and Ms. Swift, but predation was not related to clutch size or nest crowd-

ing, according to their study. "Many but not all studies have found low nest predation in nest boxes compared to smaller natural cavities," they wrote. "A variety of factors including entrance hole size, height and placement of the boxes, and age of adults have been implicated in the high success of boxes.

"We found that more spacious flicker cavities were less susceptible than smaller cavities to predation, similar to a 1984 study (Nilsson) that showed that deeper nest boxes were safer than shallow ones. (Confirmed predators in the Wiebe-Swift study were red squirrel, weasel, mink, fisher, and black bear.)

"Excluding predation as a cause," they wrote, "crowded nests had greater mortality. This supports the idea of Slagsvold (1989) that crowding leads to physical injury of buried nestlings, or limits the ability of parents to feed all nestlings in a brood."

(Dr. Wiebe can be reached at the Department of Biology, University of Saskatchewan, 112 Science Place, Saskatoon, Saskatchewan S1N 5E2, Canada, e-mail wiebek@duke.usask.ca.)

Help requested in new study of starling nest competition

This is a request for assistance with a new research project.

A number of cavity-nesting birds have declining populations. These include the Red-headed Woodpecker, Northern Flicker, and Purple Martin. Other species continue to need human assistance to maintain or increase their populations (Eastern Bluebird is a prime example).

One factor implicated in the population declines of these cavity-nesting birds is "interference competition" from the European Starling.

Please consider assisting with a new multi-year research project, which has the objective of determining the effect of starlings as competitors for nest cavities. This research would require observation of existing nest cavities or nest boxes. New nest boxes for various species (especially the Northern Flicker) can be constructed and monitored as part of this project, if desired. If this option is chosen, data from this project can be additionally provided to existing research efforts such as the Cornell

Lab of Ornithology's Birdhouse Network.

I will provide participants with forms on which to record observations at natural cavities or nest boxes (bluebird, Tree Swallow, or martin houses included, of course) of interspecific interactions between starlings and any other cavity-nesting species.

My objective is to assess whether and how often starlings disrupt the nesting cycle and/or take over cavities or boxes, and this can include interfering with any native-species pair, such that they do **NOT** successfully nest, whether or not the starling pair does so successfully. I plan to ask participants to gather data for (initially) at least two nesting seasons, beginning with spring '03.

This project is in the planning stage, and I would like to determine if a sufficient number of cooperators/participants would be interested. Your assistance would be greatly appreciated. If you would like to participate, please write to me at iltlawas@earthlink.net, or, if you do not have internet access, please use the mailing address below. I will supply further information and add your name to the list of possible cooperators. Thanks in advance for your help.

William P. Mueller, Cavity-nesting Birds & Competition Study, 1242 S. 45 St., Milwaukee, WI 53214.



If you have a cat, this is not where you want to see your pet. Both cats and birds are better off if the cat stays in the house, according to the American Bird Conservancy. Indoor cats live longer, healthier lives. Photo by Wendell Long.

An experiment: protecting nesting birds from heat

By R. David Shiels

Sweltering summer heat in Texas can literally cook bird eggs or nestlings during spring and summer months. Historical records on a bluebird trail in Ola, Kaufman County, Texas, show that as many as 10 percent of eggs never hatch and many nestlings die of the summer heat in single wall nest boxes.

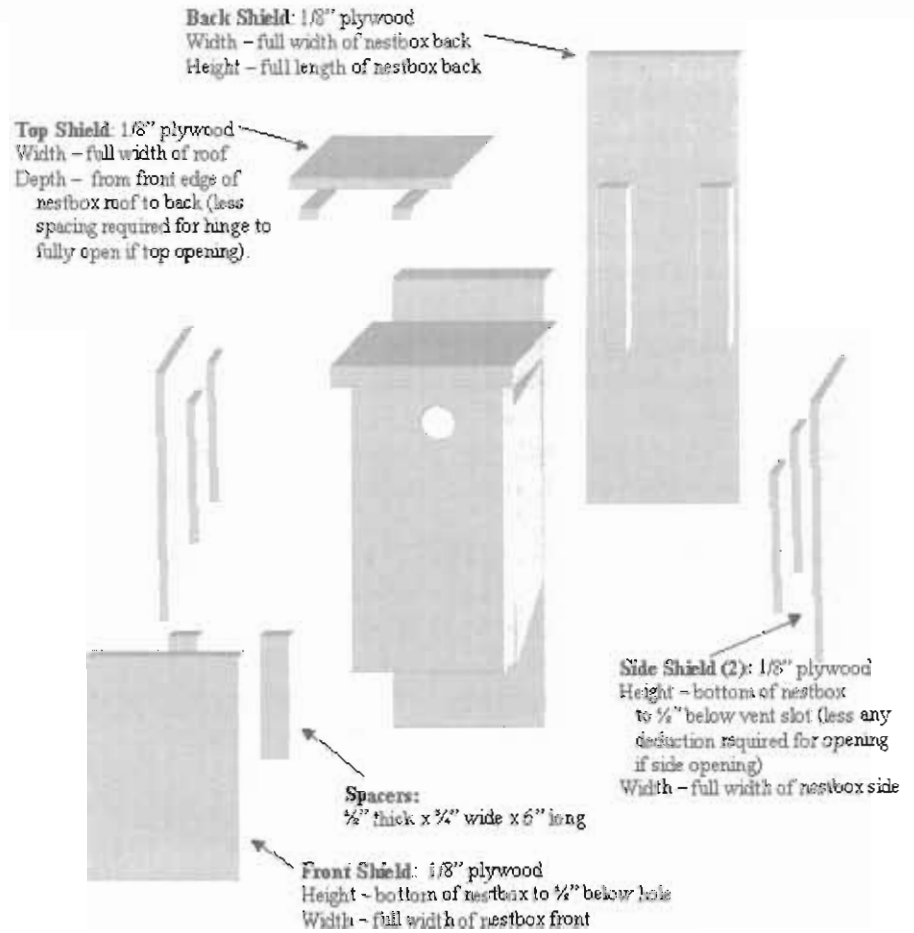
A study was conducted on this trail in an attempt to minimize egg and nestling casualties during the nesting season from late February through August 2002. Preliminary tests show that providing an extra layer of material on a bluebird nest box will maintain cooler temperatures inside the box.

The study began at the end of the 2001 nesting season when two identical nest boxes were constructed from 3/4-inch western red cedar (cedar). Each box measured four inches by five inches wide and 10 1/2 inches tall. The roof was slanted by 13-1/2 degrees, and the entrance hole was 1-1/2 inches round.

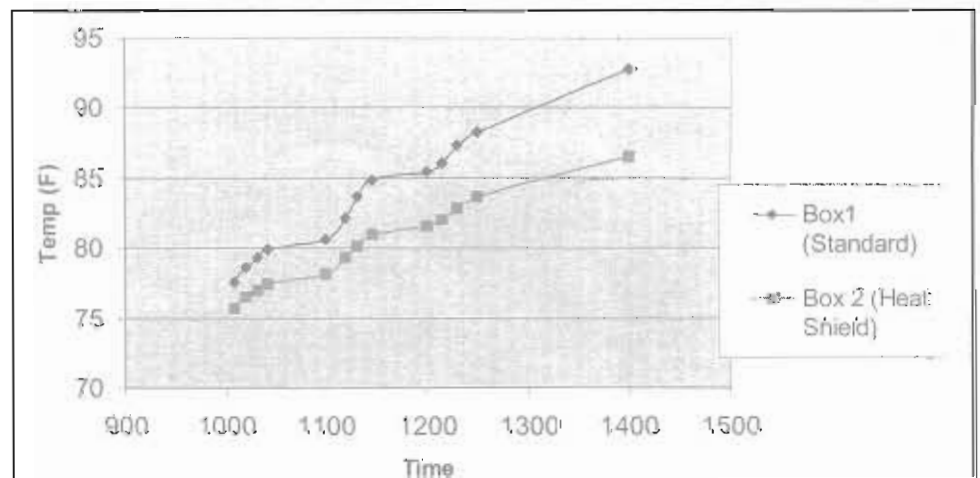
Box number 1 (Box 1) had the normal single-element wooden walls. Box number 2 (Box 2) was equipped with heat shields. The heat-shield walls were made of 1/8-inch birch plywood attached to the box with 1/2-inch cedar spacers to create insulating space between the two walls.

An additional roof (outer layer) also was attached with spacers. Digital thermometers were installed inside each box on the back wall opposite the entrance hole. The thermometers were equipped with FM frequency transmitters to a base unit inside the author's home where temperature readings could be recorded. Temperature observations began in the morning and were concluded just before midnight.

There was a two-degree difference



Heat shields may be installed on any nest box. One-eighth-inch plywood shields are installed on all four sides and the top of the box. Each shield is installed with two spacers (1/2 x 3/4 x 6 inches) to provide air flow between the shield and the box. All shields can be full-size except the shield on the top or side that opens for inspection. The shield may be reduced in size as necessary to allow for opening. Shields and spacers are attached with wood glue and nails or screws.



Graph shows temperature gain over time in boxes with and without heat shields.

in box temperatures by mid-morning, a four-degree difference at noon, and a maximum difference of 6.3 degrees Fahrenheit at 2 p.m. Based on the success of the preliminary experiment, heat shields were applied to 23 of 26 boxes on the author's trail.

Each bluebird nest box (23 total) was brought in for the application of the heat shields in January 2002. Shield plates were constructed from 1/8 inch plywood as described above. Each box was coated with Weatherboss® non-toxic water-based wood preservative. The boxes were placed in their previous locations.

The trail was first monitored on March 13, 2002. This initial monitoring event showed that female bluebirds were willing to accept the reconfigured boxes, with 15 of the 23 boxes containing complete nests. A total of 35 eggs had been laid in nine of the boxes by March 13.

All 23 boxes were used for the entire nesting season. By the beginning of August, a total of 166 bluebirds had fledged from the 23 boxes.

The 2002 nesting season yielded a greater number of fledglings than any previous year of the trail's 17-year history. Not one baby bird was (known to be) lost during the 2002 season due to heat stress. In previous years, July and August monitoring events commonly saw many casualties from overheating. However, it should be noted that the 2002 nesting season had few days where the daily temperature exceeded 100°F.

More study is needed to determine whether this heat-mitigation effort will increase the total number of fledglings over time or will have an affect on the number of hatched eggs.



NABS books, guides, slides, videos, packets. Easy to order.

NABS educational materials, always helpful in your bluebirding adventures, now can be ordered right here, with the convenience of a phone call. The previous catalog of bluebird products has been discontinued. Instead, you can buy these items directly from our headquarters. Many of our most popular and most useful bluebird items are available at attractive prices, with prompt delivery.

If you wish to purchase nest boxes, accessories, or mealworms, please contact Jenna Bird at 800/634-1558. In the near future, we will provide information about other sources for these items in *Bluebird* and on our web site.

BOOKS

- Bluebird Monitor's Guide** by Cynthia Berger, Keith Kridler, Jack Griggs — \$17
- Enjoying Bluebirds More** by Julie Zickefoose — \$6
- The Bluebird Book** — The Complete Guide to Attracting Bluebirds by Don & Lillian Stokes — \$14
- Bluebird Trails, A Guide to Success** by Dorene Scriven — \$17
- Mountain Bluebirds, A Trail Monitoring Guide** by Myrna Pearman — \$6

NABS EDUCATIONAL MATERIALS

- Stokes Bluebird Basics Video** — \$12
- NABS Bluebird Slide Program** — \$60
- NABS Educational Packet** — \$6
- Educational Poster and Pocket Field Guide** — \$7
- Nest Box Approval Labels**, sheet of 30 labels — \$2.10
- NABS Pocket Field Guide** — \$1.75

Order these items from:

NABS
P.O. Box 244
Wilmot, OH 44689
Telephone 330/359-5511 or 888/235-1331
Fax 330/359-5455

NOTE: All prices include shipping and handling.

Speakers' Bureau report

Our presentations are making a difference

By Ron Kingston

At the end of each year a survey is made of all the NABS members who volunteer as speakers. In January 2002, a survey asking questions about the 2001 programs was sent to each of the 244 members of the speakers' bureau. Every year the speakers are asked for a summary of the past year's programs, a few questions about what worked and what didn't, and how NABS could help them. In this review, we hope the information provided will inspire all bluebirders to communicate to the public about bluebirds and other cavity nesters, and to increase an awareness of bluebird conservation across their area and all North America.

All of our speakers are doing an outstanding job, but not all comments can be printed in this review, due to lack of space.

The speakers were asked for their suggestions on the speakers' bureau. Here are some of the replies.

Donna Reimers, Iowa: I use Stoke's video, framed Roberta Lee poster, and samples of approved bluebird nest boxes and mounting systems. I have charts for reasons to monitor and items to take when monitoring. I've found that a bluebird display in our public library and books donated to library helps spread the word.

Jennifer Schlick, New York: I gave 13 programs last year and especially use game cards in my program. I have a fourth grade program/game that teaches bluebird history, natural history, and conservation, and I also have a slide show geared more for adults.

Edward Gray, Nebraska: By

using slides, a prepared talk, and nesting box give-away, I've established an 18-box trail on a golf course.

Dan McCue, Tennessee: I gave 17 programs last year. I show to all who are desirous, especially school groups, 4-H groups, and adult service organizations

Doug Sciberras, Minnesota: I enjoy entertaining the kids with various books and floor markers for a bluebird "Habitat" game.

Bill Seibert, Nebraska: Of the five programs that I gave, the picnic and bluebird watch, where 25 people walked our bluebird trail, was the most satisfying. I use slides, assortment of bluebird boxes, poster, lots of handouts, and mealworms.

Tena Taylor, Mississippi: With various nests, House Sparrow eggs, poster, Stokes video, and pictures of bluebirds and Blue Jays, I gave three programs in Mississippi last year, one at the Calhoun Health Service Nursing Home.

Ron Brenneman, South Carolina: At the Birds and Butterflies event in Aiken, I used a bluebird box, mounting pole, books, and mealworms along with bluebird nuggets to get the word out in South Carolina.

Ray Harris, Alberta: Sometimes I use the Stoke's video as an introduction, depending on facilities and audience. I have my own slide set of about 175 slides. I cover typical bluebird habitat, bluebird nests and eggs; female brooding, and nestlings as they progress in growth. Also banding of nestlings and unbanded adults. I have pictures of Tree Swallows and House Wren nests, eggs and nestlings. I show shots of predators,

the damage they wreak and the methods I use to combat same. I have the tools that I use, the banding pliers and bands. Also have a bluebird nest box and a mouse nest in a nest box. I gave four presentations last year to a total of about 100 people. Also, I invited our local provincial fish/Wildlife officer to sit in on one and see what we are about. I consider that a good move. It paid off.

Elaine Crossley, New York: I use nests and eggs, video, tape recorder, laminated pictures, and nest box. The best part of my program is when people ask questions and I know the answers. They sincerely want to get started helping the bluebirds. There is much interest in our area, and I have met many people who continue to keep me informed of their successes and failures each year.

Elsie Eltzroth, Oregon: I use books, slides, eggs, nests, nest boxes, handouts including NABS brochures, charts, graphs, posters, study skins of Western Bluebirds and other cavity nesting birds, and Stoke's video. I gave six programs last year. I presented one workshop early in spring and it was attended by 30 persons (some were monitors or homeowners who already were in the program). One had started a trail near Salem, Oregon, and came to learn how to present a workshop.

Donna Legare, Florida: In January, I gave a program at the Bluebird and Purple Martin Celebration. This included a slide show about bluebirds, Purple Martins, and other cavity-nesting birds. We used slides, many of which are from the NABS slide program, a nest display (we have a permit), a display of various

boxes and gourds and predator baffles. After the slide show, we held a parent/child bird house build. Twenty-eight children built nest boxes with the help of a parent and our staff. The entire program reached 75 people. In September a big success was at the For the Birds Festival. This festival include a Parent/Child Birdhouse Build. Thirty children participated with their parents. We also include a brief discussion of bluebirds along with showing many of the NABS slides in our Planting a Refuge for Wildlife slide show.

Dorene Scriven, Minnesota: I gave many talks and a radio interview this past year. I mainly talked to schools, garden clubs, and Audubon Societies to which I take NABS handouts, our Bluebird Recovery Program (BBRP) display, electronic board, BBRP slide show, egg/nest display, and sometimes a video.

Jim Olsen, California: In the two programs that I did I used regular slide/lecture program and charts from the California Bluebird Society. In February, I talked to 85 people at Sierra Foothills Audubon Society, Grass Valley/Nevada City area, and in April to 25 people at the Sierra Horticulture Society in the same area.

Mary Penn, Virginia: I used different styles of boxes and predator guards, along with slides and handouts while giving eight programs to a younger audience, 4-H clubs, etc. I proudly wear my speaker's button.

Jean Buchanan, Tennessee: I have changed my presentation over the years to include all cavity nesters. Have recently added a fourth trail at our nature center called a cavity-nester trail with boxes for woodpeckers, owls, kestrels and shelves for nuthatches. Seems to draw much interest and is valuable from a public education standpoint. All continue to love our bluebirds. Programs, whether for garden clubs, school

classes, or our public Bluebird Days, always fun for me to do also.

Bill Abbey, North Carolina: I have lots of boxes (Finch, NABS, Troyer, PVC) and use NABS slides and a Cornell poster. I gave five programs last year in which about 100 people attended. A speaker's program is what got me going into bluebirds. Thanks.

Nancy Kay Duncan, Georgia: I gave 30 plus programs in 2001. All of

"By giving programs at garden clubs and libraries, I have seen bluebird boxes spring up and membership in the Hendricks County Bluebird Society grow."

my programs except one was to day-camp students and a few private school groups. All of the children as well as adults enjoy the part of my program where I tell my personal story about watching birds as a child and finally after 30 years being able to attract bluebirds and having them nest in my yard. Personal stories seem to rate the most empathy.

Alberth Goga, Pennsylvania: I explain that store-bought nest boxes have too little overhang over the entrance hole. The House Sparrow waits over the short overhang and attacks the bluebird when they exit, and every one in the audience seems to understand this. I use seven different boxes with different nests inside to show what bird is nesting.

David Heidenreich, New York: I used an RT 11 nest-box trail display, two mounted boxes on a pipe stand, and Stoke's video among other things. I have added miscellaneous types of predator guards and two

meal worm displays with grub information. I suggest using them as emergency food when the weather is cold and wet to help with the young in the boxes near their homes.

Donald Johnson, California: In the five programs given last year, four were for the Girl Scout troops who built 60 boxes and one was at the Condor Group of the Sierra Club, members of which built 25 boxes. NABS is doing a nice job keeping the country informed about the plight of the bluebirds.

Sam Phelps, New York: I use nest boxes and old newspaper columns in my five programs. I work with the Orange County 4-H Clubs, and give demonstrations on how to build and place nest boxes.

David Cook, California: I use nest boxes, nests, and photos at the program given at the Wild Bird Unlimited Cooperative and the Challenger School at San Jose.

Dave Eastman, New Hampshire: By giving 10 programs this year, and many more over the years, I continued to offer Kevin Berner's suggestions. I try to let attendees know that we are in a state of continual renewal in our perceptions and insights. People love the homespun quality of bluebird stewardship and wish to join with like minds who have warm regard for cavity-nester ecology.

Cindy Kirkpatrick, Indiana: By giving programs at garden clubs and libraries, I have seen bluebird boxes spring up and membership in the Hendricks County Bluebird Society grow.

Toni Lynn Merchen, Nebraska: At the Lewis and Clark Recreation Area at Campground, Yankton, South Dakota, Saturday night is movie night. I showed the bluebird video and brought boxes for demonstration. Around 25 persons attended.

Elizabeth Nichols, Maryland: I've found trail tours very effective

and popular for parents and children. Consulting and guiding everyone while covering single-box maintenance and multi-box trails. I stress monitoring frequently, and the importance of House Sparrow control, plus supplemental feeding especially early in spring. I explain that I have not lost one nestling in three years on my 12-box trail. I use a lot of things in my programs: nest boxes, metal post, snake guards, mealworms for door prizes, drawing of House Sparrows, tape of Bluebird songs, posters, and a folder for NABS memberships.

John Rogers, New York: We had over 200 people show for our Conversation Field Days at Cortland, New York, and over 130 at the Jefferson County Westcott Beach State Park. In all, I gave 18 programs throughout the year using a slide program (part NABS and part my own), and have much literature available.

Mel Toellner, Missouri: I use all NABS brochures and tried to find a poster on other bird nests and signs of predators. At Mexico Rotary Club, I launched a program where fellow NABS bluebirders asked for house sponsors. We now have 35 new nest boxes mounted with baffles at parks. The Biology Club will submit NABS data to the Cornell Nest box Project for future studies. We were covered by area TV, radio and newspapers in December.

Shea Lewis, Arkansas: Here at Crowley Ridge State Park in north-east Arkansas we use our slides and a nest box. We talk to many kids and gave special programs to four master gardener groups of Greene County.

Myrna Pearman, Alberta: We had our third annual Bluebird Festival in July of 2001 with lots of activity. In all I travel around the province giving over 40 programs about the wonderful bluebirds. We hope to establish the construction of a large

wetland in 2002 which will enhance the habitat potential of the Ellis Bird Farm and should be an additional attraction for our visitors.

* * * *

NABS brochures, the Stokes' video, and the new shortened NABS 80-slide program are proving to be valuable tools in presenting programs.

ALBERTA

Ray Harris
Myrna Pearman

ARKANSAS

R. Lane
Shea Lewis

CALIFORNIA

David Cook
Donald Johnson

Jim Olsen
Don Yoder

CONNECTICUT

Frederick Comstock

FLORIDA

Donna Legare
Kay MacNeil

GEORGIA

Nancy Kay Duncan
Edward Gray

Terry Johnson
Frances Sawyer

ILLINOIS

Joan Harmet
Kay MacNeil

Lloyd Wilson
Eleanor Dunham

Cindy Hedges

INDIANA

Pat Hunter
Arthur Jeffries

Cindy Kirkpatrick

IOWA

Donna Reimers
Pat Schlarbaum

KANSAS

Oliver Russ
John and Jean Wesley

LOUISIANA

Evelyn Cooper

MARYLAND

Michael Gillis
Betty Nichols

MASSACHUSETTS

Lillian Files

MICHIGAN

Kurt Hagemeister
Doug Sciberras

MINNESOTA

Richard and Marlys Hjort
Dorene Scriven

Dawn Ulrich
Mary Ellen Vetter

MISSISSIPPI

Tena Taylor

MISSOURI

Paul Day
Mel Toellner

MONTANA

Erv Davis
Bob Niebuhr

NEBRASKA

Gordon Backer
Steve and Cheryl Eno

Darrell Gammon

Toni Merchen

Bill and Sandy Seibert

NEW HAMPSHIRE

Dave Eastman

NEW JERSEY

Marle Hageman

NEW YORK

Kevin Berner
Elaine Crossley

David Heidenreich
Sam Phelps

Evelyn Rifenburg

John Rogers

Jennifer Schlick

Joseph Sedlacek

Barb Treiber

Richard Wells

Paul Wilson

Carl Zenger

NORTH CAROLINA

Bill Abbey

OHIO

Darrell Gammon

Tami Gingrich

Svante Humbla

Jean Rutan

OKLAHOMA

Charlotte Jernigan

Kevin McCurdy

Robert Walshaw

OREGON

Elsie Eltzroth

PENNSYLVANIA

Diane Allison

Cynthia Berger

Alberth Goga

Ted Morus

Judy Wink

Andrea Wyman

SOUTH CAROLINA

Ron Brenneman

Barry Whitney

TENNESSEE

Peg Beute

Jean Buchanan

Zellie and Pat Earnest

Dan McCue

TEXAS

Keith Kridler

Pauline Tom

VIRGINIA

Barbara Chambers

Chris Cuddeback

Robert Hammond

Mary Janetatos

Gary Knipling

Anne Little

Mary Penn

Fred Sahl

Barbara Stinson

VERMONT

Ron Svec

WASHINGTON

W. J. Ryan

WISCONSIN

Howard Rasmussen

Logging data by computer: back and better

The Transcontinental Bluebird Trail (TBT) information collection site is back on the Internet at www.tbt.nabluebirdsociety.org.

The TBT was originally developed and placed on-line in 2000. After a couple of years came a short period of instability during which NABS recommended that its members report their data to The Birdhouse Network (TBN) operated by the Cornell Lab of Ornithology (CLO).

Now, with the return of NABS reporting site, it is possible to report data to two entities. Should you report to both or choose one for entry of your data? Here is a comparison of the two programs so that you may better decide which one is best for you. Perhaps you will see value in using both.

The original TBT and the TBN

were developed and announced at about the same time with some similarities. This included the support of research about cavity-nesting species. The TBN still has a good focus in that regard, with very strong support and backing from CLO.

With the original TBT web site, NABS discovered that a very small percentage of its members were interested in submitting research-quality data through a web site. The time needed to enter trail data was quite high, and the reasons most NABS members gave for not registering their trail or submitting their data was that time factor.

It becomes apparent that although NABS members could be considered the elite of the bluebird world, for most of them it is a hobby. Hobbies are supposed to be fun. The new TBT

follows that philosophy. This should not be understood to mean that the TBT has lost its research focus. Instead, it is felt that greater numbers of NABS members will support a simpler data format.

The format for registering a trail and entering data is much reduced, and for many members who belong to a NABS affiliate it will appear to be the same data requested by the affiliate. This could mean data entry at the NABS level being reflected back (or forward) into the affiliate database.

The original TBT did not offer a hard-copy option for trail registration and data entry. The new TBT and the TBN do (although the new TBT has yet to work out the details of doing so). The TBN does charge extra for this service, while the TBT hopes to work this out through volunteer data entry and trail registration.

NABS recommendation for those who wish to enter detailed research quality data is the TBN. For those who wish to share the success/failures of their trail and to become part of the continent-wide bluebird trail, the TBT is the obvious answer. The answer for your trail may be both. Whatever your decision, the birds will certainly benefit from your time. (Additional comparisons of the two data-logging sites can be found on the TBT web site.)

To log onto the TBT you will need your NABS membership ID number and a password. If you never logged onto the old TBT or did not change your password it is NABS, the letters N, A, B, and S. If you did log on and changed your password on the old TBT, that password has been retained. If you need help with your password or for any questions with the TBT, email tbt@nabluebirdsociety.org.

Bluebirds as state birds

Every state has a state bird, usually so named by act of the state legislature. The Mountain Bluebird is the state bird for Idaho and Nevada. The Eastern Bluebird has been chosen in Missouri and New York. No state has claimed the Western Bluebird.

The Northern Cardinal, chosen by seven states (Illinois, Indiana, Kentucky, North Carolina, Ohio, Virginia and West Virginia) is the most popular species in this regard.

Renewing early helps NABS

Please help NABS continue to be a continent-wide resource for bluebird conservation. The cost of simply doing business today is increasing. NABS has its share of paper, postage, and operational cost increases.

You can help by renewing at the next higher membership level. If you are a senior member (\$15), consider renewing as a regular member (\$20). If you are a regular member, consider renewing as a sustaining member (\$35). If you are a three-year regular (\$55), join for three years at full regular membership rates (3 x \$20 = \$60). If your membership is enjoyed by two or more people, please renew at the family rate (\$30).

You also can help NABS save money by renewing your membership before your expiration date, noted on the mailing label of *Bluebird*.

Bluebird News from Shore to Shore

Leif L. Marking, La Crosse County, Wisconsin, coordinator for the **Bluebird Restoration Association of Wisconsin (BRAW)** writes to us about his group's success with Eastern Bluebirds. "In 2000, we produced 324 fledglings, 544 in 2001, and 1,138 in 2002. Our goal for year 2003 is 1,500 fledged bluebirds."

His group used the NABS-style nest box "because it is sensible, easy and practical to construct, provides sufficient space for large broods, offers drainage, ventilation, and insulation, obviously the bluebirds readily accept them, and plans are readily available (at web site www.nabluebirdsociety.org)

"More important, perhaps, than the house type," Mr. Marking says, "is the predator protection provided for the bluebird house. We use a PVC pipe over a seven-foot steel T-type fence post as used in farmers' fences. We use a five foot by 1.5-inch diameter PVC pipe over the steel post; the house is attached with a U-bolt to yield a firm and steady mount. We have experienced good results with this predator protection system.

Fred Craig, another bluebird enthusiast, and Mr. Marking produced a simple home video this past summer showing various elements of their bluebirding efforts. They have a short version for entertainment and a long version for training.

Ross Miltner, North Canton, Ohio, recently completed his volunteer project to earn the rank of Eagle Scout. Ross worked with NABS member **Janice Petko** to completely renovate her 50-box trail located on the grounds of the Carroll County Historical Society. She was experiencing serious losses due to predation

on her TBT trail. Ross recruited the help of fellow Scouts to complete the project, which involved dismantling the trail, painting nest boxes, and building predator guards.

Don Stiles in his always-interesting newsletter for the **Calgary Area Bluebird Trails** monitors passed along a good question in a recent issue. The query came from bluebirder **Dick Stauffer**, who wanted to know why one egg of a clutch would not hatch. The answer comes from **Don Conrad** of High River, Alberta: When one egg of a clutch does not hatch it almost always is the first egg laid, an infertile egg because the pair bond between male and female birds was not yet established. The male had not yet had opportunity to mate with the female.

Mr. Stiles also sent us this interest-

ing item: A banded bluebird was found dead in Alberta last summer, tangled in fishing line in a shrub at the edge of the Oldman River. A group of wildlife biologists conducting a Harlequin Duck survey found the bird. What is the most likely explanation for why it was tangled in fishing line? There was some line in the bird's mouth when it was examined by the biologists. It is thought that the bluebird may have gone for a fisherman's fly and couldn't extricate itself, and then was left there by the fisherman. The bird had been banded two years earlier at a location about 50 miles (90 k) south of the river site. The story was relayed to Mr. Stiles by **Linda Cerney**.

A sharp drop in local Western Bluebird population in 2002 was reported by the **Prescott (Oregon)**



This Red-bellied Woodpecker is feeding on black oil sunflower seed on a simple platform feeder. Some woodpecker species will eat seeds from feeders. Red-bellied Woodpeckers are found throughout the eastern half of the United States. Photo by Howard Boltson, Long Island, New York.

Bluebird Recovery Project (PBRP).

The number of birds fledged from project nest boxes that year dropped by 28 percent from the 2001 figure, from 1,715 to 1,232. Ninety-four adult birds were lost, some possibly to a bacterial infection, according to an article in the PBRP newsletter. It also is possible, according to the newsletter article, that "in some of our core area, the Western Bluebird population has reached its carrying capacity, and adequate habitat and food items are not available."

A bald Mountain Bluebird nestling was found in Montana last summer. **Jude Whitcombe** of **Philipsburg** wondered why the bird had no head feathers. The answer, wrote **Keith Kridler** of **Mt. Pleasant, Texas**, is likely to be mites. The very small insects can cause birds to scratch feathers away. Or, says the book *The Birdwatcher's Companion* (Christopher Leahy) the mites can themselves damage feathers to the point of baldness. Northern Cardinal is another species that can be conspicuously bald. The feathers do grow back.

Nancy Smallwood of **Basic, Montana**, reported Mountain Bluebirds nesting in a brush pile in her yard. The two Montana stories come from *Bluebird Tales*, the newsletter of **Mountain Bluebird Trails**.

The same issue of *Tales* shows **Wendall Oliverson** of **Cardwell, Montana**, with 1,050 boxes on his trails. He reported 620 in use in 2002,

with 5,260 Mountain Bluebirds fledged. Wow.

Rickey Jenkins writes from **Caleria, Alabama**, about his work with bluebirds in conjunction with the U.S. Corps of Engineers. They cooperated on a project to rebuild and replace boxes along the Tombigbee and Black Warrior rivers in Alabama. Mr. Jenkins tended 129 boxes in 2002, with 506 Eastern Bluebirds fledged.

The **Ellis Bird Farm** in Alberta reported a 10 percent gain in Mountain Bluebird nesting attempts in 2002 and a gain of 30 percent in young birds fledged.

We end with one more Montana story, this sent to us by **Bob Niebuhr**. **Dan Ryan** of **Cascade, Montana**, was asked by his neighbor last summer to come over with his camera. He arrived to find a Bull Snake that had entered a nest box and swallowed three baby birds, but then was too extended to exit. Dan did get critter out of the box, then found it a new home across a creek. The nestbox was located under the eaves of a house so the snake either climbed the drain pipe or a tree next to the house and dropped down on to the box roof.

Pileated eats grapes from vine

By Tom Sykes

One Saturday in January, my wife Carol and I were out birding near our central Wisconsin home when we heard the loud chattering of a Pileated Woodpecker. Locating the bird, we observed it not on the side of a tree but instead in a dense collection of deciduous shrubs not more than three feet off the ground.

We watched the bird fly to another dense collection of shrubs, all the while chattering and rattling loudly. We drove our vehicle to within 20 feet or so of the bird, and watched it feed on grapes.

There were several vines of wild grapes growing in a collection of dogwood. The woodpecker was downing one grape after the other, as quickly as it could. It was feeding in a manner more commonly associated with a thrasher or a cuckoo. It was skulking through the tangles of vines and dogwood, horizontal for the most part, while arching its back in order to pull off grapes from above (all the while vocalizing loudly).

Given the structure of a woodpecker's feet, it was an amazing display of dexterity not associated with any experiences observing woodpeckers. In fact, we've never seen any woodpecker eating berries before. But that's the wonder of birding — just when you think you've seen everything there is to see about a particular species feeding habits, they up and turn a new page.

(Tom and Carol Sykes live in Appleton, Wisconsin. They can be reached by e-mail at dhandler@execpc.com.)

April 30 is next deadline for *Bluebird*

The deadline for the Summer 2003 issue of *Bluebird* is April 30, 2003. Earlier submissions always are appreciated. The editor prefers to receive material by e-mail (no attachments, please) at two-jays@att.net. Postal address is Jim Williams, 345 Ferndale Road N, Wayzata, MN 55391. Include a self-addressed stamped envelope if you wish return of manuscripts or photographs. Letters to the editor are welcome. Letters may be edited for length and content.

From the technical literature

These are summaries of articles recently published in ornithological journals.

Nest-site selection is predator related

A recent study in northern Europe shows the importance of nest-site selection in deterring predators. Dr. Tomasz Wesolowski of the Department of Avian Ecology at Wroclaw University in Poland studied nest-site use by Marsh Tits, birds related to and similar in appearance to North American chickadees. A proposal that nest predation is the most important selective pressure shaping nest-site use of Marsh Tits was checked in a long-term study (almost 500 nests) in eastern Poland. Here, the birds bred in natural holes. Predation was responsible for 70 percent of total nest losses. Predation risk depended on hole attributes. Nests in dead wood were attacked significantly more often than those in live wood; nests in old woodpecker holes were attacked more frequently than nests in holes of other origin; and nests more shallowly located in the cavity were more at risk than nests placed more deeply. The entrance size did not influence overall predation risk, but small entrance size was important in preventing access by larger predators. Marsh Tits nest in deep holes with small entrances. They rarely nest in holes in dead wood or in woodpecker holes. Dr. Wesolowski concluded that nest-site use for this species is best explained as an anti-predator adaptation. This has evolved and is maintained by the pressure of nest predators, he said. The study was published in *The Ibis* (144:593-601), journal of the British Ornithological Union.

Risk to adult birds vs. risk to nestlings

Some bird species produce more eggs per nesting season but live shorter lives. Others produce fewer eggs per season but live longer lives. Two nuthatch species that fit each of those patterns were subjects of a recent study. White-breasted Nuthatches in an earlier study had a mean clutch size of 7.3 eggs and adult survival less than that expected on average for Red-breasted Nuthatches. Red-breasted Nuthatches (earlier study) had a smaller mean clutch size (5.7 eggs), but a longer expected adult life span. The purpose of the study was to determine the level of risk that parents of each species were willing to tolerate to themselves versus their offspring. The theory would be that White-breasted Nuthatches, with shorter lives and therefore more invested in the current nesting effort, would be willing to tolerate greater risk to themselves during the nesting season. Red-breasted Nuthatches, on the other hand, would be more likely to cut risk for the adult birds. The study validated that premise. Males of both nuthatch species were presented with models of an adult predator (hawk) and an egg predator (wren) while feeding incubating females on the nest. The White-breasted Nuthatch was found to respond more strongly to the egg predator, thus placing greater value on its current offspring. The Red-breasted Nuthatch responded more strongly to the adult predator, thus placing greater value on its adult survival and future breeding possibilities, according to the authors of the study, Cameron K. Ghalambor and Thomas E. Martin of the Montana Cooperative Wildlife

Research Unit at the University of Montana. The study was published in the journal *Animal Behavior* (60:263-267).

Do swallows take out fertility insurance?

Females of many bird species mate with more than one male. These are called extra-pair copulations. This sets the stage for competition between the sperm of two or more males to fertilize eggs and pass along genetic material. Males of these species could be expected to have been selected by evolutionary pressure for their ability to successfully compete in this fashion. Indeed, testes size, sperm count, and ejaculate volume are larger in bird species in which females mate with more than one male. But, not all males of these species are equal in this respect. A recent study of Tree Swallows, published in *The Condor* (104:803-810) discusses this aspect of mating for that species. It was found that sperm concentrations varied widely among the male Tree Swallows studied. Female Tree Swallows have no way to know which males carry more sperm. The study suggests that the additional matings are a form of fertility insurance for female Tree Swallows: the more males with which females mate, the better the chances of them producing fertile eggs with a genetically superior mate. The authors of the study say this theory needs more study. Authors were Michael P. Lombardo, Armetris N. Forman, Matthew R. Czarnowski, and Patrick A. Thorpe, Grand Valley State University, Allendale, Michigan, and Rutgers University, New Brunswick, New Jersey.

Affiliates of the North American Bluebird Society

The North American Bluebird Society serves as a clearinghouse for ideas, research, management, and education on behalf of all bluebirds and other native cavity-nesting species. NABS invites all state, provincial, and regional bluebird organizations to become NABS affiliates in "A confederation of equals all working together toward a common goal...a further partnership in international bluebird conservation". No cost is associated

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CANADA

Alberta
Calgary Area Bluebird Trail Monitors
 c/o George Loades
 167 Canterbury Dr SW
 Calgary, AB, Canada T2W1H3
 E-mail: bluebird@creb.com
Ellis Bird Farm, Ltd.
 c/o Myrna Pearson
 Box 5090
 Lacombe, AB, Canada T4L 1W7
 E-mail: myrna@ellisbirdfarm.ab.ca

Mountain Bluebird Trails Cons. Society
 Contact: Gwen Tietz
 P.O. Box 401 Stu Main
 Lethbridge, AB Canada T1K 3G9
 Tel: 403-553-2780

British Columbia
Southern Interior Bluebird Trail Society
 Sherry Linn, President
 Box 494
 Oliver, BC, Canada V0H 1T0
 E-mail: goldstrm@vip.net

Manitoba
The Friends of the Bluebirds
 3011 Park Ave.
 Brandon, MB, Canada R7B 2K3
 Tel: 204-727-5102
 Fax: 204-728-7346
 e-mail: smitha@braudon.ca
 Contact: Ann Smith

Ontario
Ontario Eastern Bluebird Society
 2-165 Green Valley Drive
 Kitchener ON, Canada N2P 1K3
 Contact: Bill Read

UNITED STATES
Arkansas
Bella Vista Bluebird Society
 e/o Jim Jaussen
 27 Britten Circle
 Bella Vista, AR 72714
 Tel: 479-855-7277

California
California Bluebird Recovery Program
 2021 Plamigan Drive #1
 Walnut Creek CA 94595
 Tel: 925-937-5974
 Fax: 925-935-4480
 E-mail: cbrp@value.net

Colorado
Colorado Bluebird Project
 c/o Bob Priester
 6060 N. Broadway
 Denver CO 80216
 Tel: 303-291-7253
 E-mail: bluebird.project@state.co.us

Georgia
Bluebirds Over Georgia
 5858 Silver Ridge Dr.
 Stoue Mountain GA 30087
 E-mail: fgsawyer@bellsouth.net

Idaho
Our Bluebird Ranch
 152 N 200 E.
 Blackfoot ID 83221
 Tel: 208-782-9676
 E-mail: pjbarnes@micronet
Rocky Mountain Blues
 c/o David Richmond
 HC67 Box 680, Clayton ID 83227
 Tel: 208-838-2431, fax 208-838-2685
 E-mail: fowest@salmoncountry.net

Illinois
JoDavies County BBRP
 c/o Grace Storch
 431 Stadel Road, Elizabeth, IL 61028
 E-mail: bluebird@naturalareaguardians.org
East Central Illinois Bluebird Society
 c/o Loreu Hughes
 1234 Tucker Beach Road, Paris, IL 61944
 suziq@comwares.net

Indiana
Indiana Bluebird Society
 P.O. Box 356, Leesburg IN 46538
 Tel: 219-858-9050
 E-mail: bluebird@maplenet.net
The Brown County Bluebird Society
 c/o Dan Sparks
 P.O. Box 660, Nashville, IN 47448
 Tel: 812-988-1876, fax: 812-342-3820
 E-mail: dansparks_47448@yahoo.com
American Bird Conservation Association
 c/o Merlin Lehman
 59980 C.R. 35, Middlebury, IN 46540

Iowa
Johnson County Songbird Project
 c/o Jim Walters
 1033 E. Washington, Iowa City IA 52240-5248
 Tel: 319-466-1134
 E-mail: james-walters@uiowa.edu
Bluebirds of Iowa Restoration
 c/o Jaclyn Hill
 2946 Ubben Ave., Ellsworth, IA 50075-7554
 Tel: 515-836-4579
 E-mail: hillhome@netius.net

Kentucky
Kentucky Bluebird Society
 e/o Bob Ivy
 P.O. Box 3425, Paducah, KY 42002
 Tel: 270-898-6688 or 731-688-0031
 E-mail: bobivy@centurytel.net

Louisiana
Louisiana Bayou Bluebird Society
 c/o Evelyn Cooper
 1222 Cook Road, Delhi, LA 71232
 emeooper@bayou.com
Massachusetts
Massachusetts Bluebird Association
 Contact: Haleya Priest
 89 Pulpit Hill Rd., Amherst, MA 01002
 Tel: 413-549-3937, fax 413-549-2901
 E-mail: MaBlue@gis.uct

Minnesota
Bluebird Recovery Program
 (Audubon Chapter of Minneapolis)
 c/o Dorene H. Scriven
 P.O. Box 3801, Minneapolis MN 55403
 E-mail: scriv001@umn.edu
Mississippi
Mississippi Bluebirds
 c/o Tena Taylor
 192 CR 457, Calhoun City MS 38916
 Tel: 662-628-1625
 Fax: 662-628-6300
 E-mail: tenataylor@tycom.net

Montana
Mountain Bluebird Trails, Inc.
 c/o Bob Niebuhr
 373 Beth Drive
 Great Falls, MT 59405
 Tel: 406-453-5143, fax 406-453-3840
 E-mail: blubrdbob@prodigy.net

Nebraska
Bluebirds Across Nebraska
 c/o Derry Wolford
 705 9th Ave., Shenandoah, IA 51601
 E-mail: derrywolford@hotmail.com

New Hampshire
New Hampshire Bluebird Conspiracy
 c/o Bruce Burdett
 P.O. Box 103, Sunapee NH 03782
 E-mail: bluebird@smet.com

New York
New York State Bluebird Society
 c/o Kevin Berner
 499 West Richmondville Rd.
 Richmondville NY 12149
 Tel: 518-294-7196
 E-mail: bermerk1@cobleskill.edu

Seboharia County Bluebird Society
 c/o Kevin Berner
 499 West Richmondville Rd.
 Richmondville NY 12149
 Tel: 518-294-7196
 E-mail: beruerkl@cobleskill.edu

North Carolina
North Carolina Bluebird Society
 c/o Dempsey Essick
 PO Box 1149, Welcome, NC 27374
 336-731-3499, fax 336-732-3444
 E-mail: essickarl@lexcominc.net

Rutherford County Bluebird Club
 P.O. Box 247, Ellenboro, NC 28040
 Contact: Christopher Greene

Ohio
Ohio Bluebird Society
 c/o Bernie Daniel
 9211 Solon Dr.
 Cincinnati, OH 45242
 E-mail: bdaniel@cinci.rr.com

Oklahoma
Oklahoma Bluebird Society
 Mariou Liles
 5656 So. 161 W. Ave.
 Sand Springs, OK 74063
 Tel: 918-241-2473, fax: 918-699-3358
 Email: sialia@worldnet.att.net

Oregon
Prescott Bluebird Recovery Project
 c/o Voice of Prescott
 P.O. Box 1469, Sherwood OR 97140
 Tel: 503-245-8449
 E-mail: email@prescottbluebird.com
Audubon Society of Corvallis
 Elsie Eltzroth
 6980 NW Cardinal Rd.
 Corvallis OR 97330
 Tel: 541-745-7806
 E-mail: eltzroth@peak.org/Pennsylvania
Bluebird Society of Pennsylvania
 P.O. Box 267
 Enola PA 17025-0267
 Tel: 717-938-4089 (Kathy Clark, Pres.)
 Fax: 717-938-0455
 E-mail: rputt@ezonline.net

Purple Martin Conservation Association
 Edinboro University of Pennsylvania
 Edinboro PA 16444
 Tel: 814-734-4420 (Louse Chambers)
 Fax: 814-734-5803
 E-mail: info@purplemartin.org

Tennessee
Benton County Bluebird Society of Tennessee, Inc.
 Dan McCue, President
 108 Bland Street, Camden, TN 38320
 Tel: 731-584-5060
 E-mail: dmccue@usit.net
Tennessee Bluebird Trails
 e/o Steve Garr
 P.O. Box 190, Mt. Juliet, TN 37121
 E-mail: tnbluebirdtrails@msu.com

Texas
Texas Bluebird Society
 P.O. Box 40868, Austin, TX 78704
 E-mail: tbs@austin.rr.com

Virginia
The Virginia Bluebird Society
 Charlie Chambers
 8911 Moreland Lane
 Annuadale, VA 22003
 Tel: 703-978-6609
 E-mail: vbs@virginiabluebirds.org
 www.virginiabluebirds.org

Washington
Cascadia Bluebird and Purple Martin Society
 c/o Dr. Michael Pietro
 3015 Squalicum Pkwy # 250
 Bellingham, WA 98225

Wisconsin
Bluebird Restoration Association of Wisconsin
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