



# TEXAS BLUES

The Newsletter of the Texas Bluebird Society

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## ***In This Issue:***

One of the focuses that the board chose for the Texas Bluebird Society in our incorporation was research and development in the area of bluebirds and cavity nesters in Texas. Texas has certainly been one of the leaders in the area of controlling heat and its detrimental effects in the nestbox, and if David Shiels and his efforts are any indication, that leadership will continue for sometime into the future. David has graciously allowed Texas Blues to publish a copy of the paper he recently wrote on his Heat Shield efforts, and that paper is a big part of this edition.

Another goal of the board was education, and one of the ways we fulfill that goal is through answering questions generated by our website. When we see an answer that might have widespread interest, we will reprint it, and we do that this month with Keith Kridler's answer to a query about nestbox fidelity in bluebirds.

Following up on our discussion of grants that may be available to the society, Mark Klym reports on a recent application the society has made in an effort to expand our education, outreach and research efforts. Results of this application will not be known for some time.

Mark Klym [mark.klym@tpwd.state.tx.us](mailto:mark.klym@tpwd.state.tx.us)



How warm does it get inside your nestbox? Look inside to learn about a research project examining a possible means of reducing heat in Texas nestboxes!

## **TBS Partners with 5<sup>th</sup> Graders of Douglas Intermediate in Sulphur Springs**



In December 2002 120 bluebird nestboxes were built by these 49 students with kits prepared by TBS. 720 separate pieces of wood were tapped snugly into place with 2,040 nails.



Don Hutchings assists 5<sup>th</sup> grader Jordan Hurley in the installation of one of 80 nestboxes at new Lake Sandlin Park in Sulphur Springs. Photo courtesy of Ricky Russell, Sulphur Springs News Telegram



Kate Oswald, Awards Committee Chairman, makes the first TBS Certificate of Appreciation presentation. (Copy of certificate is shown on p. 3.)

# HEAT-SHIELD EXPERIMENT

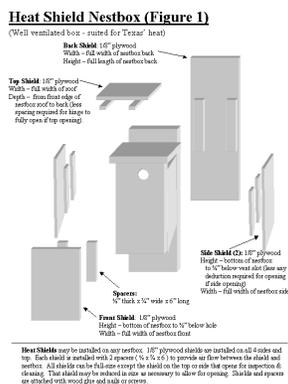
## *Protecting Bluebird Boxes from the Sweltering Texas Heat*

### EXECUTIVE SUMMARY

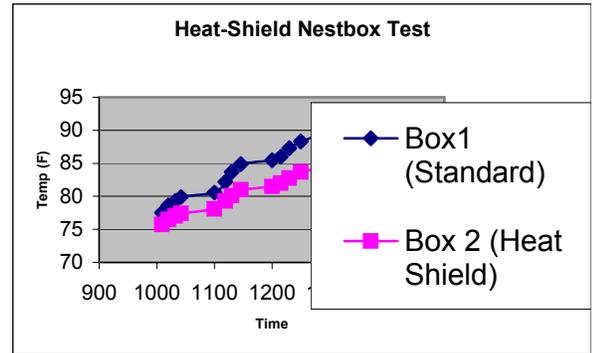
Sweltering summer heat in Texas can literally cook bird eggs or nestlings during the spring and summer months. Historical records on a bluebird trail in Ola, Kaufman County, Texas show that as much as 10% of eggs never hatch and many nestlings die of the summer heat in single wall nestboxes. A study 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 (Heat-Shield) on a bluebird nestbox will maintain cooler temperatures inside the box. The following report will summarize the results of this study and show an increase in the number of birds that fledged with Heat-Shield boxes in 2002 versus the number of birds that perished from this trail in previous years without heat shields. Ultimately, not one nestling perished from heat exhaustion in 2002 with the Heat-Shield boxes.

### PRELIMINARY EXPERIMENT

The study began at the end of the 2001 nesting season when two identical nestboxes were constructed from 3/4 inch thick western red cedar (cedar). The boxes measure four inches by five inches wide and 10 1/2 inches tall. The roof is slanted by 13 1/2 degrees and the entrance hole is 1 1/2 inches round (see Figure 1 below). Box number 1 (Box 1) remained with the normal single layer of wooden walls. Box number 2 (Box 2) was equipped with Heat-Shields. The Heat-Shield walls were made of 1/8 inch birch plywood and were attached with 1/2 inch cedar spacers to create insulating space between the two walls. An additional roof (outer layer) was also attached with spacers (see Figure 1 below). 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 when the temperatures in both boxes were equal.



There was a 2 degree difference by mid morning, a four degree difference at noon and a maximum difference of 6.3 degrees Fahrenheit at 2 pm just before a rain storm event. Based on the success of the preliminary experiment, the Heat-Shields were applied to the author's trail where 23 of 26 boxes were equipped with Heat-Shields.



### APPLYING HEAT-SHIELD BOXES TO THE TRAIL

Each bluebird nestbox (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. The fronts of each box were numbered according to the original trail numbers on the traditional box fronts. Each box was coated with Weatherboss® non-toxic water based wood preservative to protect it from the elements. The boxes were positioned similarly to their previous year's orientation.

The trail was first monitored on March 13, 2002. This initial monitoring event showed that the females were willing to accept the boxes, with 15 of the 23 boxes containing complete nests. A total of 35 eggs had been laid in 9 of the boxes by March 13th. By the beginning of August, a total of 166 bluebirds had fledged from the 23 boxes. All 23 boxes were used for the entire nesting season. The 2002 nesting season yielded greater numbers of fledglings than any previous year of the trail's 17 year history. Not one baby bird was 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.

The number of un-hatched eggs did not appear to be significantly changed over previous years. However, more Heat-Shield study is needed to evaluate whether the additional insulation affects the number of un-hatched eggs.

## CONCLUSION

Preliminary trials show that applying the Heat-Shield to bluebird boxes greatly increases the number of fledglings on a Bluebird trail in Ola, Kaufman County, Texas. Temperatures in the Heat-Shield box was consistently lower during a day of monitoring. The maximum difference was 6.3 F° lower than the traditional box designs during the sweltering Texas summer. This study demonstrates that providing Heat-Shields to nestboxes decreases nestling casualties by decreasing inside nestbox temperatures. Future study is needed to observe long range use of Heat-Shields on this Texas trail to ultimately determine whether these amendments increase the total number of fledglings over time or have an affect on the number of hatched eggs.

By David Shiels [david@Caldwelleng.com]

### **Texas Bluebird Society Applies for Conservation Action Grants**

Texas Bluebirds Society has prepared several grant requests under the new Conservation Action Grants program of Texas Parks and Wildlife. The grant applications, submitted in January, include a request for research funding to continue the Heat Shield project outlined above by David Shiels, a request for funding to expand the school work started by Keith with such projects as Sulphur Springs, an application to help develop and expand the Ambassador program and a request to help fund future trail development.

The Conservation Action Grants are funded in part by the purchase of Conservation License Plates, the well known "horned toad" license plates we see every day, through Texas Department of Transportation. Funding is directly targeted at species that are in need of conservation work and do not receive funding from typical game animal or endangered species funding. The board of TBS believes bluebirds and other cavity nesting species fit this niche.

Funding is contingent on "matching" values which can include in kind resources. In this case, TBS will match with volunteer effort and, in some cases, research or outreach funds from our budget.

This is just one of the many funding options that are available to us. If you are willing to help identify some of these potential funding sources, please let the board know. We have grant writers that are prepared to develop the proposal. All we need is where and what.

By Mark Klym mark.klym@tpwd.state.tx.us

## **President's Corner**

Hats off to the board members of Texas Bluebird Society! Each member now covers a specific area of interest or expertise. This newsletter bears witness to the work done by TBS Board Members.

Play "TBS Match". Locate the portion of this newsletter that matches the name & expertise below.

Mark Klym edits the newsletter and assists with grant writing. Submit news and stories to Mark, as well as opportunities for grants which might be applicable to the work of TBS.

David Shiels heads our Research & Development. Contact him with ideas for research or to express your interest in participating in a research project.

Kate Oswald (our secretary) is chairman of our Awards Committee. She spearheaded the effort to design a Certificate of Appreciation. Contact Kate to make a nomination.

Keith Kridler is Vice President / Education. He has built hundreds of nestboxes for TBS in the past few months while coordinating a large partnership project with a school.

Doug Rohde (who chaired the Silent Auction at "Celebration of Texas Blues" that you read about last month) matches TBS speakers with requests for speakers. Contact him to speak or be spoken to.

Don Hutchings leads those who construct our nestboxes. For questions about the plan, contact Don. To volunteer as a nestbox builder, contact me!

If you received this newsletter by mail you'll find evidence of my work. I licked the envelope.

Mike Scarborough is not referenced in this issue. He heads our installation of nestboxes on golf courses.

Happy Bluebird Trails!



The bluebirds on this certificate are from original drawings by Harry Krueger, a pioneer in bluebird conservation in Texas (see P. 4). The drawings were made available to Texas Bluebird Society through the family of Harry Krueger.

## Will Bluebirds Use the Same Nestbox in Repeated Years?

This was exactly why Harry Krueger banded his bluebirds to find out these questions. In the south where our bluebirds don't migrate they do tend to stay together for life. Totally different in the north. He found that in 6 years only one pair was a bigamist (male had two females at the same time and he fed both boxes of young very close together) and he had two pairs who swapped mates. He had one female that came back and nested in the same box she was born in for six years. She went through four males in the six years. The third male she was with for 3 years and it was killed by a cat in front of witnesses and the band number checked and within 20 minutes the female had attracted another male (unbanded) bluebird and it was helping her feed her 6 young in that short time frame. Harry HATED witnessing that short of a mourning period. It was interesting that one year this same female had four of her banded daughters come back and nest in the four closest boxes to her along the same road.

The results were inconsistent but normally the females returned very near where they were successful the previous nesting attempt or prior year or very close to where they were born. So the females if they survive tend to keep the same box/territory and wait for a male to come or they may go shopping around and drift back to home territory. Harry was in the middle of thick pine timber and he checked 60 nestboxes and trapped and banded or checked the bands of each pair nesting all during the season.

With a limited number of boxes in the area and few good natural cavities he found that few first year males were successful at winning a mate and nestbox along his trail but some of the males he banded even three years before would occasionally show up in his trapping records. He felt older males would hold a mate if they survived or very possibly when they became too old they would get shoved out of the territory by more aggressive males. He had nestboxes in parts of three different counties so some of these "should" have turned up in other less desirable territory along his trail. Occasionally a very wild pair would not return to the box where Harry trapped and banded them even though they were successful. Harry tended to go out

and check every box everyday that had eggs or young so this "wild" pair went nuts for a whole month. One of these pairs moved eight miles between first and second nesting attempts (as the crow flies) and Harry had to drive 15 miles to get between these two boxes along a road. They never showed up again on his trail and he assumed they moved further away.

He felt he had to trap each adult each nesting attempt to be sure of the band numbers and he felt this handling and his checking eggs and young each day contributed to some of the birds moving away. He tried color banding but could not read all color combinations with a spotting scope. Irv Davis and Ann Wick are the only ones banding and checking for this mate and nest site fidelity up north and Patricia Gowaty in GA. or South Carolina is doing even more extensive research with bluebirds than Harry did.

By Keith Kridler Kridler@1starnet.com

### Did You Know:

Keith Kridler, author of "Bluebird Monitor's Guide" is one of the group that answers questions through Texas Bluebird Society's email feature,

**answers@texasbluebirdsociety.org**

**Tip:** Post this email address near your computer – just in case you have a need for assistance during nesting season.

### Wills Point Bluebird Festival Saturday, April 26<sup>th</sup>

Members of the Texas Bluebird Society Speakers Bureau will staff the Bluebird Information Room in the Chamber of Commerce Building from 9:00 – 2:30. The slide show developed by Doug Rohde will be shown.

See you there!

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