Effectiveness of the PVC Nest Box for Producing Bluebirds

By Kent Hall

In the 2006 bluebird nesting season, Gary Gaard built PVC nest boxes (64) that he put in areas of high House Sparrow (HOSP) concentration. He was able to fledge 3.75 bluebirds/nest box (reported in WI Bluebird, Vol. 22, #4, Pg. 10 & 11; additional report in WB, Vol. 21, #4, Pg. 10 & 11) and claimed that these boxes could be used to prevent HOSP occupancy and fledge relatively high numbers of Eastern Bluebirds (EABL).

At the 2007 BRAW Annual State Convention, Gary presented his results. I asked him to prepare a total of 25 of these nest boxes for me to test on the Aldo Leopold Audubon Society's Bluebird Trail for the 2008 season. Table 1 reports the data collected by Audubon monitors in the 2008 season.

A total of 22 of the 25 PVC nest boxes were used in this experiment. They were substituted for wooden boxes immediately after they were occupied by HOSP's. Data from 47 other nest boxes with HOSP occupancy were also collected. The technique used allowed HOSP hens to lay and start incubating their eggs—only then were nests & eggs destroyed. This technique was repeated when needed.

Here are the results of our experiments:

1) PVC nest boxes were 100% effective in preventing HOSP occupancy. NO PVC nest box had any sign of HOSP nest building after replacing the wooden nest boxes.
2) PVC boxes were poor producers of EABL's: 66% less than our Standard HOSP control system and 289% less than the number produced on the Audubon Trail as a whole
3) PVC boxes were better producers of Tree Swallows (TRES's) then EABL's (+23%), more than double the difference (10%) with our Standard HOSP control system.

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Table 1. Prevention of House Sparrow Occupancy by Gary Gaard PVC Boxes: 2008 Season (Birds produced per box).

SPECIES	PVC (22 Boxes)	STANDARD HOSP CONTROL (47 Boxes)	AUDUBON w/o HOSP's (894 Boxes)	TOTAL ALAS TRAIL (963 Boxes)
EABL	1.18	1.96	4.84	4.59
TRES	1.45	2.16	1.03	1.05
EABL + TRES	2.63	4.12	5.87	5.64

4) Neither PVC boxes nor our Standard HOSP control system resulted in methods that were effective in producing large numbers of bluebirds.

Other studies I have conducted have shown that PVC houses are more attractive to TRES's than EABL's (EABL Trail at Hunt Hill Audubon) and actually depress bluebird production compared to wooden nest boxes (Ft. McCoy Trail in 2007).

At Hunt Hill Audubon (Washburn Co.), I did a retrospective nest analysis of about 40 nest boxes at the end of the 2006 season. The 28 PVC boxes were Gilbertson models that were thinner walled than the Gaard boxes. But absolutely NO EABL's nested in them. Of the 12 Peterson boxes placed in decent habitat, 7 had EABL's nest in them (the other five had TRES nest attempts). It was obvious that wooden boxes were more appealing to EABL's than thin-walled, Gilbertson PVC boxes.

At Ft. McCoy (Monroe Co.), we did an experiment with wooden vs. PVC nest boxes in the 2007 season. We put up a total of 120 nest boxes. They were put out in a trail of 4 wooden, NABS-Style, followed by one 6" diameter, thick-walled PVC nest box (96 wooden vs. 24 PVC). For that season, the wooden boxes produced an average of 6 fledglings per box compared to the 5 fledglings/box for the PVC nest boxes.

In summary, I can say with confidence that the Gary Gaard house stops HOSP nesting, but depresses EABL production and enhances TRES production. This result is consistent with information collected at Hunt Hill Audubon and Ft. McCoy. At this time I do recommend wooden nest boxes (NABS-Style preferred) over the use of PVC nest boxes to increase bluebird production.

When it comes to preventing EABL nesting depression by HOSP's, the Audubon Control system has not worked well. At this time, the best course of action is to put nest boxes away from House Sparrow habitat and/or trap and remove them from the habitat. For the 2009 season, we are going to try nest box trapping for those sites that appear attractive to HOSP's.