

Non-vented Boxes and Black Flies: New Findings

by Kent Hall

It is known that black flies kill a wide range of birds from domestic turkeys & chickens to wild birds (including bluebird chicks) [<http://creatures.ifas.ufl.edu/livestock/bfly.htm>]. These insects breed and develop in slow moving water, not lakes, ponds or marshes. Outbreaks of these flies often occur in heavy rainfall extremes, even when streams are only seasonal.

After hatching, adult females (not males) seek blood meals. They can fly up to 10 miles from their hatching sites for these blood meals. They locate prey in the same way as mosquitoes, by detecting the CO₂ produced by birds or mammals. The blood meal is taken by "cutting mouthparts" that leave painful wounds. If you lose entire broods of chicks, check carefully on the featherless parts of the body where circular bite marks are readily observed (Pg. 4, WB, Vol. 20, #2).

In previous articles in WI Bluebird (WB), Gary Gaard has indicated that closing vents in nest boxes will prevent occupation by black flies and will therefore prevent bluebird chick deaths. In the Vol. 20, #2 Issue of the WB (Pg. 4 & 5) he stated: "The black fly will enter a vented nest box or a loosely constructed nest box but will not enter nest boxes that do not have ventilation holes". My article, on the other hand, presents data that documents the death of bluebird chicks in unvented boxes and refutes the "Gaardian black fly hypothesis".

Black flies hatch out in June and affect only broods that develop after these hatches (usually 2nd & 3rd broods). In the previous 6 years on the Audubon Trail (2033 Nest Box Years), there were no known deaths by black flies. In June of 2008, many areas of Wisconsin suffered torrential rains.

Most nest boxes on the Audubon trail that I coordinate are located in central Wisconsin where rainfall was less extensive than in other areas of the state.

The exception, however, was our sub-trail at Ft. McCoy. Rainfall was exceptionally heavy there in June. Our Ft. McCoy sub-trail monitors,



Craig & Laurie Bartholomew (see photo), started reporting loss of large numbers of chicks in early July and these losses continued until early August. There was a total loss of 80 chicks on their 99 nest box trail, unprecedented for the Audubon trail, and extremely stressful as a monitoring experience. It is hoped that this article will make such experiences more understandable and, hopefully, less traumatic to any others that might experience such events.

I suggested to the Bartholomews that they start collecting samples and send them to the USGS National Wildlife Health Center in Madison. They collected specimens and solicited the help of David J. Beckman, Wildlife Program Manager, at Ft. McCoy, who also helped collect specimens and arranged for their transport to the USGS Center.

On Sept. 6, Dr. Anne E. Ballman, DVM, Ph.D., Wildlife Disease Specialist with the USGS Center, sent an analysis of the findings of the Center. Several of the chicks that

were sent were too badly decomposed to analyze but for those that could be analyzed, no deaths were attributed to West Nile virus, pesticides or bacterial & fungi infections. The only cause of death found was due to black flies (both body lacerations and adults located in ear canals were confirmed).

For the past several summers, Terry Glanzman of Mondovi, has found nestlings killed by black flies in his "K-boxes". It was thought that black fly intrusion into the K-Box was due to the larger sized opening. However, the results from standard-sized, oval openings of the unvented, NAB's-Style boxes at Ft. McCoy, indicates that no nest box is safe from black fly intrusion. In fact, Gary Gaard also had black fly, chick deaths in unvented nest boxes last summer as well (Pat Ready, Personal Communication).

So where does this leave us? The major reason to completely eliminate vent holes or to at least plug them in April & May, is to prevent cold-related loss of chicks & eggs. So those still with vent holes in their nest boxes should plug them if they are not plugged already. To use your plugs for cold and vented boxes, use a temporary piece of wood placed over the vents with a screw in the middle. A simple twist on or about June 1 will then allow ample venting in the warmer periods of the season. Still, we permanently plug vents on the Audubon trail and have found very few deaths attributable to heat, so permanently plugged vents work as well.

At this time, it appears that no nest box for cavity nesting songbirds is immune from intrusion and subsequent ravages of black flies. Furthermore, there is no known way to prevent them from entering nest boxes. Luckily, black fly infestations seem to be involved mostly with high rainfalls. When heavy rains hit your bluebird trails in late May or June, be prepared for possible black fly hatches which could impact your 2nd or 3rd broods of nestlings.