

Detering Black Flies

Bet Zimmerman

Black flies (also known as buffalo gnats, turkey or white socks) are biting, blood-sucking, can cause an allergic reaction (welt). swarming insects in the genus *Simulium*. There are about 1800 different species that belong to the Simuliidae family, and at least 254 known species of black flies north of the Mexican border, some of which target specific species.

The ones that are a problem in the nestbox are small (about 1/8 inch [2-5 mm] long), black or gray, with a humped back, short legs, and antennae. Only the female takes a blood meal. They will bite for about three weeks before they die. They can fly up to 15 miles in search of blood. Eggs are laid in fresh, slow running water (rivers, creeks, streams). There is only one generation each year. Saliva injected during biting can cause an allergic reaction (welt).



Purple Martin nestling with welts from black fly bites." After a few more days of being bitten it died. Photo by Bob Flam.

Black flies are a serious pest, especially in some parts of the midwest. In 2008, Bob Flam indicated that ~240 bluebird nestlings were lost in 300 boxes on nine golf course trails in Iowa. Flam also lost 35 Purple Martin nestlings in his boxes, and his friend lost all of his Purple Martin nestlings (70-80) that same year.

These insects typically live for one month in the spring (especially in areas with a lot of rainfall). They typically die when temperatures exceed 80° F (although Keith Kridler notes that he has seen them in northeast Texas on livestock when it is 115° F.) They prefer to feed on



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warm, sunny, days, windless days. Populations tend to peak from mid-June to July, and adults are active for about 2-3 weeks each year. Thus they are a bigger problem for later broods. BRAW (Bluebird Restoration Association of Wisconsin) has found that nestlings under 5 days old are not bitten and 10 day old nestlings are most susceptible.

CLUES AND IMPACT: Intense, repeated black fly feeding can cause death of nestlings, possibly due to blood loss or an immune response to the saliva injected during feeding, or even from suffocation as birds pile up on top of one another to avoid bites.

Nestlings may have circular red or purple welts/lesions on featherless areas of the body, especially under the wings. Adult flies may be found in ear canals. Black flies may be seen hovering around the nestbox.

DETERRING: Black flies may be attracted to dark colors, carbon dioxide (CO₂) which birds exhale, and the scent of a dirty nest.

- Do not locate boxes near fresh, slow-moving running water.

- When blackflies are active, BRAW recommends spraying the inside of box with Pyrethrin Flys Away II (daily) until nestlings are 12-13 days old. Pyrethrin is a repellent, but has low residual activity.

- Remove or replace dirty nests (with lots of fecal material).

- Minimize access:

- Try nestboxes without ventilation holes, or stuff ventilation holes or slots with Mortite caulk or cotton, or cover with duct tape (on the outside) or fine screen folded on itself. (But note that Kent Hall in Wisconsin found that no nestboxes were immune to blackflies, even with vent holes plugged.)

- Use a nestbox with no vent holes (Gilwood, Simple House, flyGuard boxes) if you are not in a very hot climate (e.g., I suspect this would not

work in Texas).

- Apply Tanglefoot around the exterior edges of all vent holes, but NOT near the nestbox entrance where it could get on birds and kill them.

- Vent CO₂: CO₂ is heavier than air. It will come out the entrance hole of a nestbox before it will go out the vents on the top. Bob Flam suggests the following: drill holes in boxes BELOW the entrance, on the bottom on one side of the box. This will allow the smell and CO₂ to escape. Cover the hole with a piece of window screen, folded double and stapled over the inside of the hole, or stuff screen into the hole. The screen will keep the hole from getting plugged with nesting material, and will also prevent entry by black flies. If you have vents up top, put screens over them too (staple over the outside).

- Try spraying pure vanilla extract (not imitation) in box daily with a mist bottle (expensive, but Flam feels he was able to save ~ 140 Purple Martin nestlings using this and venting).

- Black flies may be attracted to dark colors. Do not use dark colors (e.g., blue, black, brown, purple) on the outside of the nestbox. If you must paint the exterior, use white or yellow. (This is better for reflecting heat anyway.)

- What doesn't work: Getting rid of standing water, fogging with insecticides at night (unlike mosquitoes, black flies do not breed in stagnant water or feed at night), garlic in mesh bags, DEET, Sevin dust, European Hornet trap bottles.

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