

# BLACK FLIES

## A Nuisance for Humans and Wildlife Alike

Story by Christine M. Parker

**IF YOU ARE** victim to the attacks of swarming, hump-backed gnats this spring, it might have been black flies.

Black flies (*Simuliidae*), known to some in Illinois as turkey-gnats or buffalo-gnats, are best known for the blood-feeding behavior of females. North America is inhabited by 254 species of black flies, representing just 15 percent of the total number of black fly species described around the world.

The immature life stages of black flies develop in flowing freshwater and can increase in abundance with improved water quality. In addition to serving as an indicator of water quality, immature black flies play a vital role in the aquatic food chain. Black fly larvae are food for a variety of species. Studies of trout diets demonstrated that black flies of all life stages are a common food item, especially for larger trout.

Black flies also are a valuable food item among different duck species. During the reproductive season, food availability is incredibly important to nesting ducks. Incubating individuals will remain on a nest for hours at a time, relying only on energy reserves and intermittent feeding opportunities. The diet of harlequin ducks (*Histrionicus histrionicus*) on their breeding grounds in northern Canada is primarily composed of black fly larvae, indicating this pesky fly does have a pivotal role to play in the food chain.

However, like many blood-feeding parasites, black flies have been well documented throughout history as pests. In 1844, explorer and naturalist Josiah Gregg wrote:

*"It not only attacks the face and hands, but even contrives to insinuate itself into those parts which one is most careful to guard against intrusion.*

*Here it fastens itself and luxuriates, until completely satisfied. Its bite is so poisonous as to give the face, neck, and hands, or any other part of the person upon which its affectionate caresses have been bestowed, the appearance of a postulated varioloid [a person with small pox]."*

In areas where they are abundant, such as western Illinois, residents can confirm the nuisance of black flies as they swarm and bite exposed skin during gardening, hunting, or during other outdoor activities. In 2018, in fact, many states experienced an excess of black flies that led to loss of chickens to a farmer in Iowa, a bull and cow in Arkansas, and closure of an Arkansas state conservation center.

Reports of black flies attacking wildlife also increase during years of high black fly activity. Interactions between black flies and wildlife have not been well studied, yet numerous anecdotal reports exist. Failed nesting attempts among red-tailed hawks and bald eagles occurred in Iowa in 2018 due to heat and black fly attacks on the nestlings. Other reports of nesting failure due to black fly attacks occurred among great horned owls (*Bubo virginianus*), snowy owls (*Bubo scandiacus*), Arctic peregrine falcons (*Falco peregrinus tundrius*) and common loons (*Gavia immer*).

Black fly bites can spread disease among both domestic and wild birds. Leucocytozoonosis is a malaria-like disease that is transmitted by black flies to domestic fowl, waterfowl, wild turkeys and raptors. Among nestling and fledgling birds leucocytozoonosis can be fatal. However, the impact of black flies and parasite transmission on wildlife populations is relatively unclear. Advances in our ability to monitor animal behavior and black fly activity have increased the ability of scientists to



Photo courtesy of Illinois Department of Public Health

study the influence of black fly attacks on wildlife. Here in Illinois, researchers from the Illinois Natural History Survey and biologists from Illinois Department of Natural Resources are working together to monitor wild turkey habitat use, nesting behavior, and black fly abundance to better understand the influence that black fly attacks may have on wild turkeys during the nesting season. ■

Reference: Gregg, Josiah. *Commerce of the prairies, or, The journal of a Santa Fé trader: during eight expeditions across the great western prairies and a residence of nearly nine years in northern Mexico.* Volume 2. New York, 1844.



### BIO

Christine Parker is a PhD candidate at the University of Illinois at Urbana-Champaign and works with Illinois Natural History Survey Avian Ecologist and advisor Jeff Hoover.

Parker is broadly interested in forest-bird ecology, and is studying the relationship between forest management, wild turkey habitat use and incubation behavior.



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