

## Midges: Non-biting Gnats

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Midges are widely distributed in the United States and Canada. These non-biting nuisance pests belong to the family *Chironomidae*. The general public often refers to them as “gnats.” At times, populations of midges can build to the point where people living near ponds, lakes and wetlands have huge numbers of midges in their yards. Because homeowners cannot treat the pond or lake, actions homeowners have available to them are limited and somewhat temporary.

Chironomus midges are similar in appearance to mosquitoes, but they cannot bite. Midges have plumose antennae resembling a small feather. They are small — rarely larger than 1/8-inch long. The adult midge may be a variety of colors from gray to dark brown to green.

Midge populations are dependent on water nearby, which includes ponds, lakes and wetlands.

Typically, male midges swarm in large numbers at dusk. Mating occurs when females enter the swarm.

Like mosquitoes, the midge larval stage is aquatic. The adult female midge lays eggs in masses over open water or attached to aquatic vegetation. Eggs hatch in several days and the young larvae drop to the bottom where they build tubelike structures of bottom debris held together by strands of silk. One interesting fact is the blood of some midge larvae (called bloodworms) is red, unlike the blood of most other insects. It is red because it contains hemoglobin which binds tightly to oxygen. This is necessary because of low oxygen conditions are present at the bottom of the water where these larvae live.

The larvae are scavengers, feeding on bottom debris. Under favorable conditions, they are larvae for about four weeks and then pupate for several days. Just before emergence, the pupa rises to the water surface, emerging like a mosquito. Midges are beneficial in the



Photo from 2006 showing dead midges outside a window of a home near Capitol Beach in Lincoln.

Soni Cochran, UNL Extension in Lancaster County

food chain. Fish feed on larval midges and birds feed on adult midges.

During their swarming activities, adults may be attracted to lights. Buildings with outside lighting will attract large numbers of these insects. If these lights are around vent openings, air conditioning units or windows, the insects can find ways into the structure. The next day, dead midges can be found on window sills, possibly through the entire building. This causes concern to homeowners and occupants of office buildings, hotels and healthcare facilities.

### Control

Avoid the use of unnecessary lights around dusk when midges swarm. If midges are entering the house, make sure vent openings and other entry points are sealed. Pools of standing water should be drained if possible.

Air insecticide fogs or sprays used for mosquitoes, can be applied to foliage or lawns to provide some temporary control of adults midges. Some products, including Mosquito-B-Gone, contain pyrethroids (permethrin), which are highly toxic to fish if they get into water. Because fish are natural predators of midge larvae and essential for controlling midge populations, avoid getting these products into bodies of water where there are fish.

## Midge Control Program at Capitol Beach

To combat midge outbreaks after the lake was dredged, the Capitol Beach Community Association has conducted an active midge control program since 2006. This effort has included a sampling program to monitor the number of midge larvae in the lake bottom and insecticide treatments to reduce midge larvae. The Association has stocked 700,000 predatory fish in Salt Lake, also known as Capitol Beach Lake, over the past three years. Species include bluegill, catfish and bass.

Midge larval surveillance is accomplished with a dredge that takes mud samples from several locations within the lake. Midge larvae in each sample are counted. Results indicate the average number of midge larvae per sample has decreased each year (Table 1). This downward trend is continuing which suggests fish predation and insecticide treatments are successfully reducing



Tom Janousek and James Pummel take samples from the bottom of Capitol Beach Lake to monitor the number of midge larvae. Tom Janousek, Pest Consulting Services, has been hired by the Capitol Beach Association to monitor and make midge control recommendations.

the midge population.

A midge larvicide was applied five times during 2006 and six times during 2007. So far in 2008, one treatment has been done, but additional treatments are planned in the summer to further reduce the midge population.

Before the lake was dredged, midge outbreaks occurred occasionally and, even when the lake ecosystem comes into equilibrium, outbreaks may occur from time to time.

Table 1. Midge larval samples and sampling numbers from 2006–2008 in Capitol Beach Lake.

Year	2006	2007	2008
Average number of midge larvae per sample	176	97	48
Sampling times	13	12	4 (as of May 29)

Sources: Tom Janousek and the Capitol Beach Community Association

## Bats In and Around Structures

Bats are misunderstood creatures. While some perceive them as an evil menace, they are actually gentle animals to be respected and not destroyed needlessly.

There are 13 species of bats in Nebraska. Most are uncommon and rarely found in or near structures. The big brown bat, red bat and little brown bat are encountered by the public.

Bats are not rodents, but they are mammals. Bats found in Nebraska feed only on insects, devouring more mosquitoes than any bug zapper. A single bat is able to consume more than 1,000 insects per night. An average colony of big brown bats may eliminate more than 100 tons of insects in one season.

Bats are nocturnal and seldom seen in daylight. They have good vision, yet rely on their specialized sonar, echolocation and hearing for hunting at night.

Native bats have only one or two young per year. The young are born in spring and stay in maternal roosts until late summer. In urban areas, bats frequently live in



Bat droppings (shown actual size).



One-way door netting used to exclude bats. Black arrow points to hole.

attics, areas behind shutters, downspouts, seams of bridges and even storm sewers. They can also be found in more natural areas like under loose bark or in hollow trees, rocky ledges and crevices.

Big brown bats live in colonies, some of which include hundreds of individuals in one attic. Many big brown bats stay in their Nebraska roosts all year. Some other Nebraska species migrate south for the winter.

You may not even know you have bats in the area unless you see their signs. Bat droppings are the most common sign left by bats. The droppings are small 1/8-1/4 inch long, black and shiny. Droppings are often

found on attic and porch floors under the eaves and shutters.

Bats can accidentally find their way into houses in the early evening hours, when they are looking for shelter or feeding on insects attracted by doorway lights. Bats can squeeze through openings as small as 1/4 to 3/8 inch in diameter.

If bats are suspected in a building, look for signs of rubbings. Bats move in and out of a structure through the same opening every evening. As the bats move through this opening smudges of oil and dirt from the bat's fur are left on the wood. Look for rubmarks at possible entry points near eaves, vents,

chimneys, cracks and other possible openings. Sometimes the squeaking and scratching of individual bats can be heard in a wall void, ceiling and other spaces.

If a colony of bats is living in a structure, wait until August before attempting any control. Young bats abandoned or sealed in a structure will move about looking for a way out, starve, die and create an odor problem. The general rule is “June through July — let them fly!”

In August, after the young bats have left the maternal roost, you can install one-way doors and/or seal exit/entry points. Pest control professionals are available to help you with this process or you can do-it-yourself.

**FOR MORE INFORMATION**  
UNL Extension NebGuide G1667 “Bats In and Around Structures” available at the extension office or on the Web at <http://lancaster.unl.edu/pest>

### Bats and Disease

Only a small percentage of bats carry rabies. In fact, other common animals, such as skunks, raccoons, cats, dogs and livestock with which humans have more contact, are noted to have a higher incidence of rabies. But, many of the deaths from rabies in the U.S. have been associated with the bat strain of rabies.

Since bats are so small, some people don't even know they were bitten. Therefore, Nebraska has adopted the following protocol for handling potential bat-human exposures. Assume a person was bitten if:

- he or she awakens to find a bat in the room;
- a bat is found in the room with someone unable to communicate well. For example, children, someone intoxicated or otherwise mentally impaired;
- or if the bat made contact with a person.

In these situations, do not release the bat. Take care not to damage the bat's head. If in Lincoln, contact Animal Control or the Health Department. If you live outside of Lincoln, contact local health officials to determine where the bat needs to be sent for rabies testing. If the bat is not found within a couple hours, consult health professionals about needed treatment.