# "No-See-Um" Biting Flies

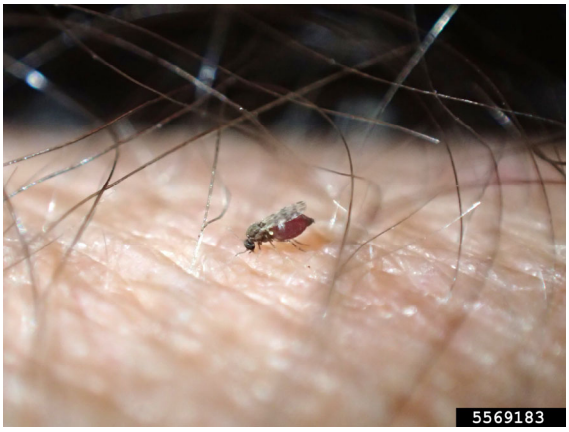
No-see-ums are small biting flies that appear during the summer months. These tiny biting insects are barely visible to the naked eye, but their bites can be very painful and annoying. Also known as biting midges or punkies, these minute insects are probably familiar to outdoor enthusiasts, gardeners, farmers, and ranchers.

Entomological literature indicates that no-see-um genera found in Arizona and the southwest are *Culicoides* (family Ceratopogonidae). Adult no-see-ums are less than 1/16-inch long, can easily pass through normal window screens, and resemble a smaller, more compact version of the mosquito. They are most active in early mornings and evenings of mid- to late summer. Mouth parts are well developed with elongated mandibles adapted for blood sucking. Both males and females feed on flower nectar but only the female feeds on blood. She must consume blood for her eggs to mature and become viable.

No-see-um eggs are laid on moist soil. Common breeding areas include the edges of springs, streams and ponds, muddy and swampy areas, tree holes, and even water associated with air conditioning units. The eggs hatch in as little as 3 days. The wormlike larvae have short brush-like breathing structures that allows them to breathe in an aquatic environment. Although larvae are not strictly aquatic or terrestrial, they cannot develop without moisture. After feeding on decomposing organic matter and pupating, adults emerge, feed, and mate.

As mentioned previously, bites of these tiny flies are painful and irritating. The bite usually starts as a small red welt (1/8" or so) or water-filled blister that itches. Once scratched, the welt can break open and bleed, but the itching usually continues. Allergic or sensitive individuals may develop long-lasting painful and itchy lesions. Bite treatments recommended by some dermatologists include topical cortisone creams and non-steroidal anti-inflammatory drugs such as aspirin or ibuprofen. Persons having severe reactions should consult a physician or dermatologist.

Insect repellents containing DEET typically used against mosquitoes are also labeled for use against biting midges, but seem to be only marginally effective in repelling them. Always follow the label precautions and apply before exposure to the insects. Botanical insect repellents (those containing citronella, eucalyptus, and other plant extracts) may also provide some protection. Occasionally no-see-ums and biting midges will enter houses and screened patios through standard 16 mesh screening and netting or damaged areas of the screen. If this is the case you can replace damaged screen with tighter mesh screen, consider treating existing screens with an approved insecticide such permethrin, or use fans to keep them from flying in your general vicinity.




Biting midge (*Culicoides* sp.) feeding on a human host (Photo by Whitney Cranshaw, Colorado State University, Bugwood.org).

The simplest strategy to prevent no-see-um bites is to wear long sleeve shirts, long pants, shoes and socks, and a hat during times when no-see-ums are most active. Choose lighter colored garments and consider hats with fine meshed netting. No-see-um-proof netting is also available and outdoor equipment companies market head nets, jackets, and pants made from this material. These products may come in handy depending on your preferences and outdoor activities. “Mosquito” head nets are an excellent idea where biting midges are especially problematic. Otherwise, the head and neck can be treated with a topical insecticide in addition to appropriate clothing, as the head and neck are often where bites occur. Of course, these same strategies are also effective against mosquitoes and black flies.

Management of larvae with insecticides is not a viable option due to their inaccessible and dispersed breeding sites. However, some reduction of breeding is possible through cultural practices that modify larval habitat. Eliminating stagnant water rich in organic matter will help reduce biting midge breeding habitat. Use of mosquito “dunks” that slowly release the bacterial insecticide *Bacillus thuringiensis* (Bt) in water features, birdbaths, and livestock water troughs may also reduce numbers of these pests.

No-see-ums are primarily a nuisance. The major medical issue associated with them is allergic reactions to the bites. However, like other blood feeding flies, some Culicoides species may carry pathogens that can cause disease in humans and animals.

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Adapted from original Backyard Gardener publications by Jeff Schalau, Agent, Agriculture & Natural Resources, University of Arizona Cooperative Extension, Yavapai County