

Biting Midges or Sandflies

Controlling biting midge

Biting midges are one of the most difficult groups of insects to control. In Australia, there are currently no chemicals that are registered for controlling larval biting midges in their breeding sites. Additionally, the breeding sites are often very large, making chemical control unrealistic.

Application of adulticide insecticides is the only chemical control option currently available. "Fogging" using traditional adulticides can provide temporary relief, but once the chemical droplets have settled, midges can reinfest from outside the treated area.

Residual surface spray adulticides (e.g. containing bifenthrin or permethrin) can be applied to external surfaces (walls, shade-cloth awnings, insect screens, vegetation) around houses and public buildings to knock down resting midges. Some residual products can provide control of midges for up to six weeks, depending on environmental conditions. However, the repeated use of adulticides may also impact adversely on non-target insect and spider populations.



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How do I avoid being bitten?

Wearing long, loose-fitting, light-coloured clothing and using insect repellents will provide protection when biting midges are present. The most effective repellents contain diethyl toluamide (DEET), with lotion formulations generally providing longer protection than liquid or aerosol sprays. As with all chemicals, repellents should be applied in accordance with the manufacturer's instructions, especially to infants and young children. Repellents are not suitable for babies.

People living or travelling in areas affected by biting midges should avoid being outside around dawn and dusk and at other times if midges are active. Emergence of the adults of some midge species is known to be associated with lunar cycles, so local knowledge may assist with planning holiday times or outdoor activities. When camping, choose locations that are well away from midge breeding sites.

Houses, caravans, tents and other camping gear should be fitted with insect screens or mesh. It is important to use a small mesh size to limit insect entry as biting midges can fit through standard fly screens. Insect screens and other biting midge "resting areas" can also be sprayed with surface spray insecticides (see above) to increase their effectiveness. Ceiling fans or other air circulation devices may also discourage midges from biting.

Further Information

For more information about biting midges please contact your local government Environmental Health Officer

or

Environmental Health Directorate
Department of Health
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PERTH BUSINESS CENTRE WA 6849
Telephone: (08) 9388 4999
Facsimile: (08) 9388 4864

This brochure and information on other insects of importance to public health are available at:
<http://www.public.health.wa.gov.au>

This document can be made available in alternative formats such as computer disc, audiotape or Braille, on request from a person with a disability.

Photo on front cover: Courtesy Mike Muller, Brisbane City Council



Government of **Western Australia**
Department of **Health**

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HP11177Jan09 23658

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Delivering a **Healthy WA**

This brochure provides information about the health impacts and ways of avoiding and controlling biting midges.

What are biting midges?

Biting midges (often called 'sandflies') are well known because of the severe reaction that some people have to their bites. They are very small (1.0mm – 3.0mm) flies, belonging to the family of flies called *Ceratopogonidae*, with one pair of wings and short legs. In some species the wings have characteristic patterns of pale patches. Over 200 species occur in Australia, although only a few cause a serious nuisance to humans. The majority of Australian biting midge species belong to the genus (or group) called *Culicoides*.

Male and female biting midges feed on plant nectar for energy. Only the females bite, using the blood they



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obtain as a source of protein for developing a batch of eggs. A bite is made in the skin and saliva is injected to prevent blood clotting, thereby allowing the blood to be sucked up. Contrary to common belief, it is not fly urine that causes the discomfort. Rather, it is the saliva itself that produces the classic allergic response. Female biting midges may attack in large numbers, biting exposed skin, and the bites can be irritating and painful.

In many parts of the world midge problems occur in coastal areas, leading to the popular but misleading name of 'sandflies'. In other parts of the world they are also known as 'no-see-ums'.

Where and when do they occur?

Biting midges occur in many coastal and inland areas of Western Australia (WA), but are most common near sandy estuarine and foreshore areas and mangrove swamps in tropical and sub-tropical parts of the State. They are particularly abundant in some coastal areas of north-west WA.

Breeding sites of biting midges are commonly around the edge of water bodies or in decaying vegetable material. Adult female biting midges lay their eggs in a range of habitats including damp soil, moist decaying leaf material and muddy, sandy or vegetated substrates.

Tiny, pale-coloured worm-like larvae hatch from the eggs. The larvae then progress through four moults or stages (known as instars), the last of which gives rise to a pupa. The pupa is a short-lived, non-feeding stage, from which the adult emerges. The newly emerged adults mate and the females then disperse from the breeding site in search of a blood meal.



Midges are very small (1.0mm – 3.0mm) flies, belonging to the family of flies called *Ceratopogonidae*. Only the females bite, using the blood they obtain as a source of protein for developing a batch of eggs.

The life cycle (egg to adult) takes three to 22 weeks depending on the species and prevailing environmental conditions. Emergence of adult biting midges is associated with the new and full moon phases. Adults of different species live for several days to weeks or even months. Most types of biting midge only disperse a few hundred metres from their breeding sites, although there are some species that can travel several kilometres.

Biting midges are most active under calm conditions. They will seek shelter amongst vegetation and are less likely to seek a bloodmeal when it is windy. Biting tends to occur around dawn and dusk, but may continue through the night and during overcast days.

What are the health impacts?

There are no known diseases of humans transmitted by biting midges in Australia. However, their bites can be painful and/or irritating in some people. Despite their small size they often cause severe local (allergic) reaction.

The allergic reaction occurs in response to proteins in the saliva that is injected when the midge bites. The severity of the reaction varies from person to person. People who live in an area where they are continuously exposed to biting midges may become desensitised over time, eventually experiencing only very mild reactions or no reaction at all. Others, including tourists, may have severe reactions with red swollen bites measuring several centimetres in diameter.

The bites are usually painful and itchy. They may also form blisters, become weepy and can persist for days or weeks. Some people may not be aware of being bitten and the itching may not commence for some hours. The application of an ice pack or mild antihistamine may provide some relief, and in severe cases medical advice may be required.



Secondary infections resulting from scratching of the bites may require the application of antiseptic cream or systemic antibiotics.