Frequently Asked Questions – Mosquitoes

For any enquiries regarding the information in this document, please contact the City's Environmental Health Services on 9474 0777.

Mozzie Facts

- There are over 300 species of mosquito in Australia but less than 20 represent a significant risk to human health, either as nuisance-biting pests or vectors of disease.
- During the warmer months, mosquitoes can take less than one week to complete their development from eggs to adults.
- Only female mosquitoes bite. Blood feeding on a human or animal provides the protein required for egg development.
- Mosquitoes are primarily attracted to carbon dioxide and the "smell" of our skin. Each mosquito species varies in its propensity to bite humans.
- People can vary in both their attractiveness to mosquitoes and their sensitivity to a mosquito bite.
- Mosquitoes rarely emerge infected with a virus, they must acquire it from feeding on an infective animal and the virus must infect the mosquito (a complex process that may take up to 10 days) before the virus can be transmitted to a human.
- Adult mosquitoes typically live for up to 3 weeks.

I thought mosquitoes only bite at night time?

Mosquitoes come in a variety of species, each species possessing different behavioural characteristics. These characteristics govern among other things where they breed, what they bite and when they bite.

The most prominent species in the City during the mosquito season, *Aedes vigilax*, is recognised as one of the major pest and vector species throughout Australia.

Behaviourally, *Ae. vigilax* is characterised by its vicious day time biting habits and its ability to disperse on the wind over many kilometres in search of a blood meal.

Ae. vigilax tends to be especially active in the shade or under shelter and therefore may cause a nuisance around public BBQ facilities, under gazebos and in the garden.

The City's monitoring and control programs are largely aimed at reducing the impact of this problematic species throughout the City.

What is the City doing about mosquitoes in my area?

Mosquito activity within the City of South Perth is a regional issue that is largely associated with tidal salt marsh breeding areas situated along the Canning River. In 2011 the City, with the support of residents, the Department of Health, Department of Environment and Conservation and the Swan River Trust, developed and formally adopted a mosquito management plan outlining the City's ongoing commitment to reducing mosquito numbers in the City .

In light of poor mosquito seasons across the state in 2010/2011 and 2011/2012 as a result of the 'la Niña' weather system phenomenon, the City commissioned a review of its plan by an independent mosquito management consultant to

identify any further opportunities to improve its monitoring and treatment processes. The review led to a number of recommendations being adopted by the City.

The most significant of these is the introduction of helicopter (aerial) application of larvicide to the Canning River salt-marsh mosquito breeding habitat. This broad acre treatment method will address most of the issues associated with ground based access and physical impacts to the sensitive habitat.

The program has been endorsed in principle by the Council of the City of South Perth together with the Waterford Action Group and will be the first aerial mosquito control program to be employed in the Perth Metropolitan Area (excl. Mandurah).

Given the extent of the breeding habitat along the Canning River and the relentless breeding cycle, mosquito management is a difficult and challenging task. Although the City's program strives for high kill rates and aims to schedule treatments when they are likely to have the greatest impact, total eradication is not possible.

Even following a successful treatment there will always be a percentage of mosquitoes that escape treatment and thus maintain the population which inevitably causes frustration to the local community.

When will the City fog?

The City utilises adulticiding (fogging) during periods where adult mosquito numbers are shown to be excessive.

The effectiveness of fogging is often debated and is largely dependent on local weather conditions including -

- Wind speed range must be between 5-16 km/hr. to allow insecticide droplets to drift through the treatment area before they finally settle.
- A temperature inversion must be present with insecticide released below the inversion "lid" to keep the fog close to the ground. Non inversion (Lapse) conditions allow insecticidal fog to rise and generally miss the target insects.
- Not raining. Rain will scrub insecticide droplets from the air and completely degrade the effectiveness of an application.
- The wind direction must be such that it carries the insecticide droplets from the release point across the target treatment area. Once released, the insecticidal fog is completely outside human control. Therefore a predictable and consistent wind speed and direction is required.

Where fogging is indicated, the City will consider regional and local forecast weather conditions and schedule a treatment for a day and a time where conditions are predicted to be most suitable. If conditions are not suitable at the time of a scheduled treatment, fogging will be delayed until suitable conditions present.

Are insect repellents safe?

The type and concentration of active ingredient in an insect repellent determines how long an individual will be protected from biting mosquitoes. Repellents containing DEET (diethyltoluamide) or picaridin have been shown to be most effective.

There is often a perception that synthetic repellents such as DEET or picaridin can be toxic to humans. However, despite the widespread use of such products internationally for decades, very few cases of adverse reactions have ever been documented. Adverse reactions to repellents are generally the result of gross misuse of the product such as ingestion, ocular exposure or excessive application.

In Australia, DEET is available in formulations ranging from less than 10% up to 80%, however the Department of Health WA recommends sticking to repellents containing less than 20% active ingredient. Repellents containing low concentrations of DEET or picaridin, if applied correctly, should stop mosquito bites for around 2 hours.

Some repellents contain warnings regarding age limitations for use on children. However, it is

generally not recommended to use repellents on children under 3 months of age.

There are a variety of natural based repellents on the market that may suit those that prefer not to use products containing DEET or picaridin. Botanical products generally contain one or more of either *Eucalyptus*, *Citronella*, *Melaleuca*, peppermint or *Leptospermum* extracts in concentrations <10%. Botanical products have been shown to provide limited duration of protection.

If there is a skin reaction to a repellent, wash the site with warm soapy water. For serious reactions, consult a medical professional and provide details of the repellent used. Poison Information Centre Australia can be contacted on 13 11 26.

Five Mosquito Breeds

Aedes notoscriptus

The backyard breeder. Major domestic pest species. Breeds in unused swimming pools, tree holes, rock pools, pot plant drip trays, gutters, bird baths and tree holes. Prevalent in luscious, cool, humid and well shaded areas. Viscious biter of humans around dusk.

Culex annulirostris

The common banded mosquito. Generally associated with permanent natural freshwater habitats – e.g. reed swamps, storm water channels, constructed wetlands. Not as vicious a biter as other species but regarded as the principal vector of Murray Valley Encephalitis in Northern Australia.

Aedes vigilax

The summer saltmarsh mosquito. Breeding is generally triggered by high tides. Major pest and vector species in coastal areas around Australia. Disperses long distances. Vicious day biter.

Culex quinquefasciatus

The brown house mosquito. This mosquito is a domestic breeder much like *Aedes notoscriptus* however tends to favour water containing varying degrees of organic matter – leaves etc. Will readily enter buildings in search of a meal and likes to bite in the middle of the night.

Aedes camptorynchus

This mosquito breeds in a variety of settings but is strongly associated with tidal salt marsh habitats. Tends to peak at the beginning and end of the mosquito season where temperatures are milder. Will readily disperse 3-5km in search of a meal. This mosquito is known as a vicious night biter.