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Introduction

This information sheet outlines facts on the most commonly asked questions to do with mosquitoes and mosquito control.

Information and Advice

Worldwide, mosquito borne viruses and parasites are major causes of human and animal sickness and death. There are almost 100 species of mosquitoes in Western Australia and many of them can be serious pests, interfering with leisure time and outdoor activities. Therefore it is important for people to take personal measures to reduce the risk of contracting disease and to reduce the breeding.

Mosquito bites cause discomfort and pain, particularly to babies and those with sensitive skin. Only the female mosquito bites. They need blood to be able to develop their eggs. While taking blood, infected mosquitoes can pass on disease-causing viruses and parasites. Exposure to large numbers of mosquitoes increases the chance of being infected with mosquito borne disease.

What are state and local governments doing with mosquito control?

The Department of Health, in collaboration with local governments, conducts mosquito control programs in areas where mosquitoes are suspected of carrying disease. However, despite these programs Ross River virus and Barmah Forest virus (see description under *What is the most common mosquito borne virus in WA*) will always be a threat as they occur in natural cycles and it is not possible to eliminate all mosquitoes.



Above: Larvicide briquette stations in Pegs Creek

The City has a dedicated Pest Control Officer who surveys and treats mosquito breeding areas on a regular basis. The City has a proactive mosquito control program which involves pre-treating areas which may become inundated during rainfall events with briquette stations. These briquette stations disperse a target specific pesticide which kills mosquitoes while they are in their larval growth stages.

Additional hand application of the larvicide chemicals is undertaken where the briquette stations alone are inadequate (ie cyclonic events), which includes both biological and chemical agents. Where possible, the

City's Environmental Health Service applies target specific products which have minimal effect on both the aquatic life and other non-target insects.



Above: Applying biological larvicide to mosquito breeding area at Gum Tree Swamp in Bulgarra

After heavy rainfall events, the City will undertake fogging of both mosquito breeding areas, and residential areas to minimise the number of nuisance adult (flying) mosquitoes. The City has two fogging units which can be utilised in each of the townships within the region. Unfortunately fogging has a limited effectiveness and is only used as a last resort when other methods of control have failed.

What is the mosquito's life cycle?

During summer the life cycle from egg to flying adult mosquito takes 4 –10 days. In colder months the life cycle may take several weeks. Mosquitoes are prevalent in the City of Karratha throughout the year and their numbers greatly depend on the availability of water holding breeding sites.



Above: Salt marsh mosquito larvae in a drain near Point Samson

How can I eliminate mosquitoes from my backyard?

Eliminate Breeding Areas: Mosquitoes breed in standing water – such as that which may occur in old car tyres and other water holding containers, pot plant drip trays, septic and water tanks, roof gutters, domestic ponds etc. Removal and prevention of backyard breeding is a permanently effective control.

Following are some examples how this can be achieved:

- Keep ornamental ponds stocked with mosquito-eating fish e.g. Goldfish.
- Keep margins free of vegetation.
- Keep swimming pools well chlorinated and filtered, as well as free from leaves.
- Fill or drain depressions in the ground that hold water.
- Screen rainwater tanks with insect proof mesh.
- Ensure guttering does not hold water.
- Empty pot plant drip trays once a week or fill with sand.
- Reporting other areas of breeding (outside your property) to the Environmental Health Services for treatment.

Spraying of Backyard: Residual pyrethroid sprays eg bifenthrin, deltamethrin, outdoor foggers or permethrin can be used further to reduce nuisance mosquitoes, however it should not replace the removal and prevention of backyard breeding. Sometimes where mosquitoes are breeding in high numbers from natural areas or areas outside of your property, this can achieve an acceptable level of control.



Above: Dampier- Mosquitoes can breed to very high numbers after cyclonic rainfall

How can I avoid being bitten?

To minimise your exposure to mosquitoes the following advice may be helpful:

- Avoiding areas of high mosquito activity such as near salt marshes, stagnant water and poorly maintained drainage systems.
- Avoid being outdoors during times of peak mosquito activity such as dawn and dusk. Sometimes during calm and overcast days certain mosquito species are prevalent throughout the day in certain areas such as adjacent to salt marshes.
- Plan your outdoor activities with mosquitoes in mind and avoiding times where high numbers of mosquitoes are known to have emerged. This may occur up to 8 weeks after a cyclone or very heavy rainfall.
- Wear loose clothing which covers exposed skin areas where practical such as long sleeves and long trousers. Mosquitoes can bite through tight fitting fabric such as denim.
- Mosquito repellents are an effective way of avoiding exposure to mosquitoes. However, as with all chemicals they should be applied in accordance with the manufacturer's instructions, especially infants and young children and only as a last resort where all other control measures are not practical or possible. Repellents, which contain the active ingredient DEET at 5% or above, or picardin are effective at deterring mosquitoes.

What is the most common mosquito borne virus in WA?

Ross River Virus Ross River and Barmah Forest virus disease are endemic in the Pilbara and the City of Karratha has approximately 5-40 cases reported every year. The numbers of cases depend on many factors including natural cycles of virus and mosquito prevalence. The actual numbers of people with mosquito borne viruses are likely to be much higher because many people with the disease do not seek medical assistance and are therefore not diagnosed. Symptoms include joint pains and swellings, sore muscles, rash, fever and fatigue. These symptoms may persist for several months.

Barmah Forest Virus Similar symptoms as the above Ross River Virus.

What other mosquito borne viruses are in Australia?

Murray Valley Encephalitis This is fortunately a very rare occurrence. Symptoms range from fever, headaches, lethargy, irritability and floppiness. The severe form of the disease can lead to brain damage, paralysis and even death. This disease is often active in the Pilbara region and the City of Karratha keeps a flock of sentinel chickens to check on the activity of the disease. Murray Valley Encephalitis is usually active during and in the few months after the summer wet season, and the activity depends on the availability of freshwater breeding sources, as the vector of the disease is a freshwater mosquito species.

Kunjn Virus The symptoms of this rare disease are similar to Murray Valley Encephalitis with the addition of joint pains similar to flu like symptoms. This disease is generally not as severe as Murray Valley Encephalitis however sufferers must seek medical attention immediately should this be suspected.

Dengue Fever This mosquito borne disease is not thought to be present in Western Australia at this time although in the past it was established as far south as the south west of the State. The disease is presently endemic in North Eastern Queensland and recently the town of Tennant Creek in the Northern Territory was confirmed as having the main vector of the disease namely the species *Aedes aegypti*. This town is undergoing an *Aedes aegypti* eradication campaign to ensure the vector does not become established in the Northern Territory. The symptoms of Dengue fever include anorexia, vomiting, backache, diarrhoea, gastrointestinal disturbance, and rash. The more severe forms of the disease can lead to (Dengue Shock Syndrome) which has a high fatality rate.

Dengue fever can also be transmitted by other exotic mosquitoes such as the Asian tiger mosquito (*Aedes albopictus*) which has the potential to enter our region from transportation from affected areas. The City of Karratha and the Australian Quarantine and Inspection Services (AQIS) work together to ensure that incursions of exotic mosquitoes do not lead to their establishment in our region. Should any exotic mosquitoes be suspected in cargo entering local ports, mosquito control measures are immediately deployed.

Sentinel Chicken Program

City's Environmental Health Service participates in the Sentinel Chicken Bleeding program which is part of a state wide program administered by the Department of Health and UWA. There are also 2 flocks located at Harding Dam which are kept by the Water Corporation.

Blood samples are obtained from the City's flock of 12 chickens on a fortnightly basis, and analysed for the presence of Murray Valley Encephalitis and Kunjin Virus. Should any positive results occur, the Department of Health issues media releases warning both residents and visitors to the region of the presence of the disease and reminders to reduce exposure (as listed previously)



Left: The sentinel flock located at the Cowle Road Depot in the Karratha Industrial Estate.

Additional Information

If you would like additional information on mosquito control, please contact the City of Karratha Environmental Health Services on 9185 8555.

The Department of Health's Mosquito Borne Disease Control Branch on:

Ph: (08) 9388 4999

Facsimile: (08) 9383 1819

E-mail: mosquito@health.wa.gov.au

Contact Website: <http://www.public.health.wa.gov.au/3/1152/2/mosquitoes.pm>

Disclaimer

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If you need more information about any matter raised in this document, please contact the City of Karratha's Environmental Health Service on 9186 8555.