



# Geographe Mosquito Management Group



Mosquito Management Program

2012 Annual Report

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## Geographe Mosquito Management Group Report 2012

### **1 Executive Summary**

This report summarises the 2012 season detailing the adult trap numbers, larval monitoring, aerial treatments and emergence results. The 2012 was shorter than usual for Busselton with less aerial treatments carried out. Capel experienced late unseasonal rains which meant that an aerial treatment had to be carried out in Stratham on 19 December 2012, the latest a treatment had been carried out.

Aerial treatments were expanded in the Shire of Capel to encompass the use of Vectobac G, and BTI based pellet product and Prosand pellets, an S Methoprene based product. The Prosand pellets were used in Stratham which because of its unique habitat, low pH of 2.4 and dense vegetation, has been difficult to treat using conventional larvicides. The Vectobac G product was used in the wetlands south of the Capel River.

In 2012 Capel Health staff, in conjunction with the staff from the Mosquito-Borne Disease Control Unit of the Department of Health, ran a three day Mosquito Management Course in Peppermint Grove from 26 to 28 of September 2012. a total of 22 participants from around the state attended.

Key outcomes of the 2012 season:

- Seven aerial treatments were conducted over Capel and three over Busselton;
- Conducting Mosquito Management Workshop at Peppermint Grove;
- The City of Busselton received 7 complaints and the Shire of Capel four complaints about mosquitoes;
- The Geographe Mosquito Management Group receive permission from the Australian Pesticides and Veterinary Medicines Authority (APVMA) for the use of Teknar 1200C (City of Busselton) and Vectobac G (Shire of Capel) Both of these products are based on the bacteria, *Bacillus thuringiensis*, israelensis which once ingested by the mosquito, crystallises and kills the insect.

## 2. Introduction

Mosquitoes are a fact of life in the southwest of Western Australia; this is due to the quantity of wetlands in both the Shire of Capel and City of Busselton. A need for housing developments and reduced land availability means there are very few areas that are not within 6km of a mosquito breeding site, increasing the risk of becoming infected with a mosquito borne virus.

The mosquito management programs have been developed and deployed in 2006 to meet the risks posed by mosquito borne diseases. It is simply not possible or environmentally desirable to eradicate mosquitoes as they are an important part of the ecosystem. However, it is possible to manage mosquito populations and the incidence of mosquito borne diseases such as Ross River virus with effective mosquito management.

The mosquito management program consists of 4 factors:

- Pre treatment larval monitoring;
- Larviciding (aerial and hand treatments);
- Post treatment larval monitoring;
- Adult mosquito trapping, identification and counting.

The Shire of Capel has a total of 929 ha of wetland which stretches from Dalyellup down through to Forrest Beach and the City of Busselton has a total of 1459 ha which stretches from below Forrest Beach through to Toby's Inlet near Dunsborough. Of this an estimated 1115 ha is Ramsar protected wetland.

The water from the wetlands south of the Capel River flow into the Vasse Wonnerup estuary, a Ramsar declared wetland (Ramsar wetlands have international significance for their unique habitat and for bird life). The Ramsar declared wetlands resulted in the Shire of Capel and Busselton applying to the Federal Department of Sustainability Environment Water Population and Communities (DSEWPC) to operate a mosquito management strategy in this area, which is protected under the provisions of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. The

application for the Shire of Capel was approved on 14 March 2006 with no conditions. The application for the Shire of Busselton was approved on the 22 April 2005 with conditions.

The City of Busselton have submitted a referral for continued larvicide application to the wetlands in and surrounding Vasse Wonnerup. Approval was issued with 15 conditions, some of which are below:

- ✦ Limit of 7 treatments per annum;
- ✦ Adulticide (fogging) is only permitted to be applied within 1.5 km of the Vasse Wonnerup System if Ross River or Barmah Forest Virus has been detected and only if wind conditions are below 8 knots and will carry the adulticide away from the wetlands.

### **3. Weather Influences**

The water levels of the majority of wetlands within the two local government areas are rainfall driven not tidal. There are a couple of tidal influenced sites in Busselton and Capel. The first tidal site for Busselton is Toby's Inlet and the top end of the Vasse Wonnerup wetland near Layman Bridge. Within Capel there are two isolated tidal influenced areas close to the coast one near Peppermint Grove Beach and the other south of Minninup Beach.

Winter/spring 2012 was a contrast with the July rainfall being the lowest since records started over 100 years ago, with below average rainfall in August, the tenth driest on record. This contributed to a dry winter and a reduced level of mosquito breeding in Busselton. An unseasonal rain event in Stratham, 84 mm in one day, meant that the Muddy lakes area flooded which resulted in a treatment being carried out on 19 December.

## **4. Larval Monitoring**

Larval monitoring is broken into two categories, pre-treatment monitoring and post treatment monitoring. Pre-treatment monitoring identifies the larval density, location, stage, species and water depth. Post treatment monitoring identifies the success of the treatment.

The reduced rainfall led to less breeding in Busselton with only three treatments being carried out. The reduced rainfall did not translate to lesser larval breeding in Capel although it was patchy with some areas showing less numbers than usual

Post treatment monitoring was carried out after each treatment. After an s-methoprene treatment only the pupae were collected, this reduced the occurrence of III or IV instars perishing and giving an unrealistic emergence result. By only collecting the pupae a faster and clearer result is achieved. After a BTi application few samples were taken as the BTi kills the larvae within 6- 72 hours. What was hard to judge is the overall success rate of the treatment, a combination of larval monitoring and adult trapping numbers were used to achieve an average figure.

## **5. Adult Trapping**

### ***5.1 Shire of Capel Adult Trapping***

An adult mosquito trap consists of several components; first one is an insulated tin where the dry ice is stored. Then there is a battery operated motor which rotates a small fan and operates a light. The mosquitoes are attracted to the trap by the CO<sub>2</sub> given off from the dry ice as it melts and the light, they are then sucked down into the trap by the fan. A container attached to the trap by a mesh sock holds the mosquitoes until they are ready to be processed.

The following charts outline estimated adult mosquito numbers of *Aedes camptorhynchus*, divided into our four main areas Dalyellup and Gelorup, Stratham, Peppermint Grove Beach and Capel. *Aedes camptorhynchus* (salt marsh mosquito) is a vicious biter and carries both Barmah and Ross River virus; it predominantly likes brackish water and is mainly found in salt marshes. The site locations are where the traps are set; it doesn't mean that the site is responsible for the mosquito numbers.

Overall Stratham had the highest trap numbers with Dalyellup and Gelorup being the second highest. Stratham was a very productive area in regards to larval numbers and the two aerial liquid larvicide treatments had a low success rate, resulting in higher adult numbers. The area itself

is hard to treat due to heavy vegetation and acid sulphate soils reducing the efficacy of the treatments.



## 8.2 Hand Treatments

There were several hand treatments carried out during the season. 174 briquettes were used in Capel, mainly in the wetlands in Wake Drive in Dalyellup and 10 kilos of Vectobac in Stratham.



Photo hand treatment Peppermint Grove



