

Health Report

Item No. 3

Subject:	Mosquito Borne Disease Control; 2008/2009
Proponent:	Principal Environmental Health Officer
Location:	Shire of Harvey
Reporting Officer:	Principal Environmental Health Officer
File No.:	HSH005

Summary

This report is a description of the mosquito borne disease control activities undertaken by Council's Health Department for the 2008/2009 threat season, and the confirmed cases of Ross River virus (RRV) and Barmah Forest virus (BFV) throughout this Shire. The mosquito borne disease threat season usually occurs from September to May of each year.

Background

Mosquito control continues to be the major public health issue for the Shire of Harvey and the neighbouring Local Governments of Bunbury and Dardanup.

The aforementioned Local Governments have been co-operating since 1990 as the Leschenault Mosquito Control Group or CLAG (Contiguous Local Authority Group).

The purpose of the group, which formally meets biannually, is to control mosquito borne diseases on a sub regional basis by undertaking control methods in unison, sharing expertise and equipment.

Comment

The 2008/2009 mosquito season proved to be less active due to more consistent tidal regimes, than last season but did result in the second highest number of aerial treatments recorded. The control of Lot 100 Buffalo Road has been the primary cause for the increase in aerial treatments. It will be this site as well as others at the northern end of the Leschenault which will impact upon southern expansion of Binningup.

For the period of August, 2008, to April, 2009, the following control activities were undertaken within this Shire;

1. Approximately 55 on ground surveys were undertaken at known larval sites following conditions conducive to larval cycles.

This compares with approximately 75 for the 2007/2008 season.

2. These surveys resulted in:

- a) 30 treatments comprising of 23 manual and 7 aerial applications being undertaken, as compared to last season, with 51 treatments, including 8 aerial applications.
The larvicide usage is shown below in TABLE 1.

SIGNED _____ DATED 4th August, 2009.

Health Report**TABLE 1**

LARVICIDE USAGE		
Larvicide	2007/2008	2008/2009
Abate 10 SG	0kg	0kg
Abate 50 SG (aerial)	0kg	0kg
Vectobac AS Bti	6.3 litres	2.3 litres
Prolink Briquettes (s-methoprene)	327	421
Prosand (s-methoprene)	606kg	323kg

Aerial treatments were undertaken on the following dates and resulted in approximately 81 hectares being treated at an application rate of 4 kgs per Hectare

Monday, 22nd September, 2008
Monday, 6th October, 2008
Friday, 31st October, 2008
Friday, 28th November, 2008
Wednesday, 10th December, 2008
Sunday, 1st March, 2009.
Friday, 13th March, 2009

The full cost of the helicopter hire and 50% of the larvicide costs are met by the Department of Health in accordance with the CLAG agreement.

Post aerial treatment surveys continued for about 7-10 days revealing that the prosand (s-methoprene) treatment was very successful.

- b) The reliance upon S-methoprene based larvicides (i.e. briquettes & Prosand) remain the larvicide of choice. The alternate use of Bti and S-methoprene is undertaken depending upon the situation, but is also a useful technique to reduce possible larvae resistance.

Trials were commenced and successful results achieved with the aerial application of liquid Bti undertaken by the City of Mandurah. Such trialling refines the application techniques and further enhances the choice of larvicides to lessen resistance.

- c) The runnel installations at Crimp Crescent wetland and Barr Island remain very effective. Minor manual maintenance of the runnels was undertaken only at Barr Island. Machine maintenance is expected at Lot 131 Clifton Park and will be scheduled for December, 2009. The 4km of runnels at Point Duoro continue to be destroyed due to unlawful vehicle access, with large sections of the system now rendered inoperable. However with the construction of the new Collie Bridge illegal access has ceased.

This has resulted in the regressive action of applying larvicides. The static briquette stations are however continually destroyed due to vandalism which has made control at Point Duoro more labour intensive.

- d) The boat was utilised on two (2) occasions to undertake surveys and treatments on Barr Island and the Collie River environs.

Health Report

- e) The quad bike was utilised on four (4) occasions to assist in the application of larvicides and survey work. This allows Staff to cover considerable distances quickly and to carry equipment which previously could not be done
- f) Adulticiding was not undertaken due to the excellent control achieved by surveillance and the appropriate application of larvicides.

Council may recall during the 2007/2008 season adulticiding operations ceased, due to equipment failure with the thermal fogger and a three (3) month delay in receiving the replacement part. To supplement the thermal fogger an ultra low volume (ULV) back pack machine was purchased. Although envisaged as a backup, this machine allows further flexibility in the control of adult mosquitoes.

3. Ross River virus and Barmah Forest virus Notifications September, 2007 – May, 2008.

TABLE 2

Monthly Breakdowns are at Date of Notification (Not Onset)

Monthly Onset Date	Ross River Virus	Barmah Forest Virus
September	1	0
October	0	1
November	2	1
December	4	0
January	4	2
February	1	0
March	5	0
April	2	0
May	0	0
TOTAL	19	3

TABLE 3

**Notified Cases of Ross River virus for the Shire of Harvey
1987 to May, 2009**

88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	
45	1	1	25	4	3	2	71	13	14	
98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09
23	32	3	1	1	56	2	17	14	13	19

To date, 994 cases of RRv were recorded state-wide and 317 in the South West, 19 cases of RRv were notified to this Shire. This equates to 1.9% of total Western Australia cases and 6.0% of South West cases. It is to be noted that 163 cases of RRv were recorded in the Peel Region for the equivalent period.

It is to be noted that the moderate level of RRv activity appears to have been consistent for the past four years defying previous trends of, four seasons low activity followed by a single year of extreme active.

SIGNED _____ DATED 4th August, 2009.

Health Report**TABLE 4****Notified Cases of Barmah Forest virus for the Shire of Harvey
1987 to May, 2007**

88/ 89	89/ 90	90/ 91	91/ 92	92/ 93	93/ 94	94/ 95	95/ 96	96/ 97	97/ 98	
0	0	0	0	0	0	0	0	2	0	
98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	03/ 04	04/ 05	05/ 06	06/ 07	07/ 08	08/ 09
0	0	8	3	1	0	0	3	4	1	3

There was 3 case of Barmah Forest virus reported to the Shire of Harvey for the 2008/2009 season, with 197 cases recorded state-wide and 79 in the South West. This equates to 1.5% of state-wide and 3.40% of South West cases.

Case Investigation

Each case of RRv or BFv notified is investigated where possible to ascertain the probable source of infection.

Once again the demographics established that generally most people were infected within 1 kilometre of the environs of the Leschenault Estuary. This is very significant when considering the potential future intrusions of human populations to the north of the Leschenault Estuary. However this needs to recognise that presently the human population does not extend much further than 1 kilometre from the estuary. Scientific research locally and within the South West has revealed that *Ae camptorhynchus* are quite capable of travelling up to 1 kilometre per night and up to at least 6 kilometres from a release site.

Virus Activity

The Arbovirus Surveillance and Research Laboratory of The University of Western Australia (UWA) continued to trap and analyse adult mosquitoes from four locations on a fortnightly basis throughout this Shire.

For the period July, 2008 to March, 2009, 15 isolates of RRv were recovered from the following trap sites within this Shire;

TABLE 5

Trap Site	Number of Isolates	Virus ID	Mosquito Species
Belvidere; DEC camp ground Leschenault Peninsula	6	RRv (NE) BFv	<i>Ae camptorhynchus</i>
Fresh Water Larvae; John Boyle walk Leschenault Peninsula	3	RRv (NE) BFv	<i>Ae camptorhynchus</i>
Crimp Cres; Leschenault	3	RRv	<i>Ae camptorhynchus</i> <i>Ae clelandi</i>

(NE) denotes north eastern phenotype.

Public Education

With environmental indicators suggesting significant RRv activity at the commencement of the season, the Leschenault CLAG, in conjunction with the Shire's of Capel and Busselton initiated the television advertising programme. A total of 90 spots were shown on the Golden West Network for the period 7th September to 26th October, 2008. As the season progressed the disease threat did not materialise as expected and therefore further advertising was not considered necessary. However a contingency advertising plan was in place if virus activity escalated.

SIGNED _____ DATED 4th August, 2009.

Health Report

The 4 panel static display was exhibited continually and rotated through the following locations from October, 2008 to January, 2009;

Leschenault Leisure Centre,
Australind Shopping Centre,
Bunbury Golf Club.

Staff Activities

Council's Environmental Health Officers have successfully completed the induction training required to undertake low level helicopter operations. Whilst this is mandatory on an annual basis the training course is presently cost free.

The Principal Environmental Health Officer (PEHO) as the nominated WALGA non metropolitan representative attended a half day meeting in Perth of Mosquito Control Advisory Committee (MCAC). The purpose being to approve CLAG budgets and to discuss procedures and future directions. The appointment is for a two (2) year term with the Committee meeting several times a year.

As a delegate nominated to assist with mosquito control issues in respect to formation of Regional Parks under the Greater Bunbury Region Scheme the PEHO has attended two meetings in Bunbury however this process appears to have stalled due to some unresolved issues.

The Shire of Harvey was host to Mr. Scott Dunsdon during his two week professional development. Mr. Dunsdon is the senior vector control officer for Townsville City Council and was selected by the Mosquito Control Association of Australia, (North QLD Division).

Mr. Dunsdon was impressed with our achievements when considering budget, equipment and areas of operations.

The PEHO was invited to attend Peel Region CLAG in February, 2009. The meeting was held in Mandurah and covered similar areas of operations as the Leschenault CLAG. It was important to reinforce co operation with our northern Local Government neighbours.

The PEHO was approached by the Queensland Department of Health and Australian Biosecurity to consider participating in the field trialling of new method of detecting arboviruses. If successful this detection system will have world wide significance and application. In brief, the purpose of the project was to trial a remote detection system to recover arbovirus that does not require sentinel animals or the processing of pools of dead mosquitoes. The method was to capture virus RNA (Ribonucleic acid) from the saliva of a feeding mosquito on a sugar pledget (feeding pad) and then to recover the RNA in the laboratory.

Staff agreed to participate and a representative from Queensland Department of Health attended onsite for a one week to instruct on the required methods.

It was the role of staff to set two traps at set locations, operating for a period of one week before recovery the pledgets. The pledgets were required to be recovered in an aseptic method, packaged and forwarded to the University of Queensland. New pledgets were then fixed in the traps and re-set in the field. The trial was undertaken from the 14th October to 24th December, 2008, for a period of 12 weeks.

On the completion of laboratory work the project was deemed to be successful with the research being presented at the Australian Biosecurity Collaborative Research Centre, Darwin. Staff has been informed that this research has created considerable "excitement" within this field of science.

It is to be noted that Staff have been duly acknowledged for their contribution towards the success of this project.

SIGNED _____ DATED 4th August, 2009.

Health Report

Future Projects

Council may recall from the 2007/2008 report that Staff intended to create an information shelter describing the function of the runnel system and mosquito control activities at the Knapp's Channel (Crimp Crescent) tidal wetland. To date, the design of the information board has been completed and is awaiting production. The sign's dimensions are 1750mm x 1200mm x 1.2mm aluminium, with the print being UV proof and graffiti resistant vinyl. The shelter will be located on the walk trail located on the west side of the wetland and out of view of the car park to avoid vandalism. The walk trail has proved to be popular by the public especially during the mosquito season. It is expected that this project will be completed before the forthcoming mosquito risk season.

Statutory/Policy Environment

Health Act, 1911 – Predicates the Local Government to undertake control of disease carrying vectors.

CLAG Agreement.

Budget Implications

Within 2008/2009 budget.

Officer's Recommendations:

That Council receives this report entitled Mosquito Borne Disease Control 2008/2009.

DS-09/118. **Adams/Burgoyne**

"That the Officer's Recommendation be adopted."

CARRIED 6-0

I. CLOSURE

There being no further business to discuss, the meeting was declared closed at 5.10 p.m.