

National saltmarsh mosquito surveillance programme 2014–2015

The present contract specification for the National Saltmarsh Mosquito Surveillance Programme (NSP) has been in operation for five years and during 2014–2015 the programme continued surveillance for post-border evidence of exotic saltmarsh mosquitoes. This year, field sampling of saltmarsh sites (**Figures 1 & 2**) has produced 8 758 mosquito larvae (**Table 1**) and 1 761 adults (**Table 2**), belonging to 10 species and five genera. This result is similar to previous years and within the normal variation produced by seasonal weather.

Table 1: Larval mosquitoes identified, 2014–2015

<i>Ae. antipodeus</i>	1 111
<i>Cx. pervigilans</i>	7 385
<i>Cq. irucunda</i>	0
<i>Ae. notoscriptus</i>	1
<i>Cx. quinquefasciatus</i>	0
<i>Ae. subalbirostris</i>	157
<i>Cs. tonnoiri</i>	0
<i>Ae. australis</i>	43
<i>Cq. tenuipalpis</i>	0
<i>Op. fuscus</i>	61
Total	8 758

Table 2: Adult mosquitoes identified, 2014–2015

<i>Ae. antipodeus</i>	516
<i>Cx. pervigilans</i>	813
<i>Cq. irucunda</i>	297
<i>Ae. notoscriptus</i>	47
<i>Cx. quinquefasciatus</i>	10
<i>Ae. subalbirostris</i>	42
<i>Cs. tonnoiri</i>	1
<i>Ae. australis</i>	0
<i>Cq. tenuipalpis</i>	35
<i>Op. fuscus</i>	0
Total	1 761

The NSP uses a statistically proven methodology for directing surveillance effort. It is designed to provide a high statistical probability that, if a fertile female exotic saltmarsh mosquito breaches the border and finds suitable breeding habitat, the resulting population will be detected before it can become widely dispersed. It is therefore

comforting to report that no exotic saltmarsh mosquitoes were detected post-border in 2014–2015. However, over the 10 years the NSP has been in existence, it has been totally focused on the narrowly defined saltmarsh habitat. This narrow brief is largely an artefact of the original (2005) mandate, when the NSP ran alongside another programme that ran from 1998 to 2010, to eradicate the southern saltmarsh mosquito (SSM) (*Aedes camptorhynchus*), at a cost of \$70M. The brief also reflects a close watch on all saltmarsh habitats since, to protect the SSM eradication investment and provide ongoing protection against the unknown pathway or pathways of SSM entry. However, it has long been recognised that five of the seven known exotic mosquitoes of concern to New Zealand are not confined to saltmarsh habitats.

In 2013 MPI and the Ministry of Health jointly commissioned external expert reviews of the NSP and Border Health Programme, to recommend responses to present and future exotic mosquito biosecurity threats at the border and post-border. These reviews were carried out by Professors Scott Ritchie and Richard Russell. Briefly, their recommendations were that:

- surveillance of the post-border mosquito breeding habitat types should in future include other high-risk exotic mosquito species in places close to Transitional Facilities;
- surveillance operations should be empowered to take urgent measures to minimise the risk of internal spread of any high-risk exotic mosquito species found; and
- given the time that has elapsed since SSM was eradicated in 2010, the frequency of some saltmarsh habitat visits could be reduced to less than the current minimum of four times per year.

There now exists the opportunity, as recommended by Ritchie and Russell, to change the next phase of mosquito surveillance to include a wider range of high-risk exotic mosquito species and revise the post-border programme specification to accommodate the more complex human and biological factors that influence the biosecurity risk.

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Figure 1: Sampling mosquito larvae



Figure 2: Trapping adult mosquitoes