

D.G. Regan and Associates Ltd.
environmental services

23 March 2015

TIRRA
Box 4-1
Thetis Island, BC
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ATTN: Mssers. Stu Downey and Ernie Hunter
REF: Nuisance Mosquito Site visit and field discussion

As a follow up to our meeting of 17 March 2015.

In response to above normal adult mosquito annoyance during summer 2014, *DGRA* was contacted by Mr. Stu Downey in late February 2015. Following a number of telephone conversations and discussions regarding potential causes and solutions, a field visit was organized for mid-March.

On 17 March 2015, Messrs Stu Downey and Eric Hunter provided a brief survey of potential sources of mosquito development and nuisance they had identified. Several property owners provided details and tours of their properties and observations related to their local experiences with mosquitos. The largest site visited, was a slowing-flowing creek winding through three properties along a flat, valley bottom, ending in large pond beside Mr. Roy Halloway's property before draining into the ocean through a culvert. Larvae from flooded hoof prints and pools, and a single adult mosquito specimen, were collected from Mr. Bill Dickie's property, at the north end of this water course. Sample identifications determined that all larvae were *Aedes dorsalis* and the adult specimen was *Culiseta impatiens*. *Aedes dorsalis*, better known as the "salt marsh" mosquito, will also develop in brackish and fresh water. It is a vicious biter, day or night, and is not usually found more than 1-2 km from its source. *Culiseta impatiens* typically emerge early in the spring, often when there is still snow on the ground. They are not aggressive biters, and while they attack man on occasion they usually take blood from other animals, typically cattle.

A number of other properties were visited, and brief discussions, regarding each were completed.

As part of the discussions surrounding the issue of localized adult mosquito annoyance and possible solutions, a short term and long term plan was requested. The following is a very brief summary of the usual procedures/processes (long term plan) which a community-based nuisance mosquito control program would typically complete to become operational. The following assumes that there is funding and community support.

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1. The desire to have relieve from mosquito nuisance has been identified by residents and businesses and this has been brought forward to a rate payers association, municipal council or regional district. There is a typically a general consensus of where the “problem” areas are located, and the extent of the nuisance problem.
 2. The need for some form of control program is recognized. The treatment scope (area size) and costing for a program need to be determined. Public education and information is provided through personal contact, public meetings, brochures and pamphlets.

A development site survey to identify potential development habitats, site mapping, larval, and adult mosquito sampling, is completed. This information is essential to prepare and submit a Pest Management Plan to the BC Ministry of Environment. It also establishes the scope of potential control and provides a tentative, operational budget (\$) for further planning. If control applications are contemplated for more than 1 hectare of public land, a Pest Management Plan, Pesticide Use Notice and Pesticide Use Notice Confirmation is required. See the Integrated Pest Management Act (www.env.gov.bc.ca/epd/main/ipma).

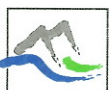
3. A Pest Management Plan is prepared using details of potential habitats, locations and species collected during the development site survey. It is an integrated plan which provides for the conservation of natural predators, reduction of habitat where possible and larval control using biological larvicides. This plan involves public notification (advertisement) and opportunity for input from the general public, interest groups and local first nations. A control program budget and funding is established.
4. Upon approval of the Pest Management Plan, valid for 5 years, mosquito control operations can begin. Legal notification and reporting requirements of program operations is required annually.

This long-term plan would typically be completed over a period of 1-3 years. The initial season may involve recognition of a problem and desire for action, public meetings, administrative and funding discussions. In the second season the development site survey would be completed during the summer. The PMP is prepared, advertised and completed during the fall and early spring using survey information. Operational mosquito control begins in season # 3. Year 1 and 2 tasks can occur in the same, first year allowing for control the following, or second summer.

It is understood that there are several residents interested in working to further develop the mosquito control service/program on Thetis Island. A short-term Action Plan for Thetis Island Ratepayers includes:

1. Public Education. The public should be encouraged to participate. Since mosquitos require water to develop, and can do so in as little as 7-10 days, land owners and residents should eliminate standing waters wherever they can. Empty buckets and other water holding containers. Clean gutters, tarped equipment and regularly change water in livestock

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watering troughs and bird baths. Ensure that irrigation or settling ponds are deeper than 1-2 feet, have shorelines/edges free of vegetation, or regularly circulate water and keep moving with a fountain or pump. Fill or grade water-holding depressions such as tire ruts, old excavations, forest and field puddles and depressions.

2. Volunteers to sample, collect and preserve larval mosquitos from potential development habitats that they believe may be sources of nuisance mosquitos. Adult mosquitos to also be collected from residents or volunteers willing to provide samples from their mosquito magnets™. Volunteers to keep records of their observations, dates of sampling, sampling results and any photographs or maps they collect or generate of potential sites.
3. Control of nuisance mosquito populations by landowners on their private land using a bacterial larvicide such as VectoBac (*Bacillus thuringiensis* var. *israelensis*) is possible where the water bodies are self-contained (man-made or natural) and on private land.
4. Residents to continue to deploy adult mosquito collection devices (mosquito magnets™), limit activity during dusk and dawn, in shaded and cool forested areas, wear light coloured, loose fitting clothing, ensure window screens are in good repair, eliminate or minimize standing waters on private properties.

We are very interested in the development of the local nuisance mosquito control program and are available to assist with its ongoing progression. We are available to attend committee or public information meetings, to provide volunteers with training and certification, and if called upon, can prepare and manage Pest Management Plan development and submission, and to supply mosquito surveillance, control and reporting services.

We look forward to working with the residents and businesses of Thetis Island as they develop a pro-active mosquito surveillance and control program to manage, and suppress nuisance mosquito populations.

If you have any questions on the above please contact us at your convenience.

Yours truly

DG Regan and Associates Ltd.



Curtis Feduk BSc., RPBio.,
President

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