City of Rocklin

Vector Control Plan

December 2014

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Introduction

Mosquitoes, ticks, and other pests can carry and transmit many dangerous diseases such as malaria, West Nile virus, encephalitis, and Lyme disease to humans and animals. Prevention and elimination of these vector species populations are the most effective ways to combat these diseases.

This plan was developed in conjunction with the General Open Space Management Plan as part of an effort to develop a unified open space management system. Vector control in the City of Rocklin is provided by the Placer Mosquito and Vector Control District. The Placer County Mosquito and Vector Control District utilizes an integrated vector management to control vector populations which includes education, surveillance, and control. This plan summarizes the methods used to control vector species.

Implementation

The Preserve Manager shall be responsible for determining if any Preserve is harboring dangerous vector species. When it has been determined that vector species exist with a Preserve, the Preserve Manager will coordinate with the Placer County Mosquito and Vector Control District to determine the best method for addressing the situation. When determining the control methods to be used, the following factors will be taken into consideration:

- Proximity to wetlands, streams and other waters of the U.S.
- Proximity to habitat of endangered or listed species
- Proximity to residences, parks or other public facilities

Control Methods

The following control methods are part of the Placer County Mosquito and Vector Control District's programs, however not all of them are appropriate for use in every situation.

Biological Controls

> *Mosquito Fish*: Mosquito Fish (*Gambusia affinis*) eat mosquito larvae as soon as the larvae hatch and are provided to residents for use in ornamental ponds, unmaintained swimming pools, and animal water troughs. The fish are not for use in wetlands or waterways and shall not be used in Preserves.
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> *Microbial Larvicides*: The bacterium known as Bti (Bacillus thuringiensis israeliensis) has been shown to be effective as an insecticide for mosquitoes and midges. When the bacteria are ingested by mosquito larvae, it produces a protein that destroys the

larvae's intestinal lining. Bti may have an effect on other aquatic organisms and shall not be placed in any wetlands or streams within the Preserves.

Chemical Controls

Chemical control methods are used to reduce existing pest populations. The chemicals are applied in an ultra-low volume spray that creates a fog of small droplets over the affected area.

Pyrethrins/Pyrethroids: Pyrethrin is a naturally occurring insecticide found within chrysanthemums that degrades within 4 to 6 hours. The synthetic form of pyrethin, Pyrethroids, is also commonly used though they do not break down as quickly.

Organophosphates: Organophosphates are used in rotation with pyrethrins and pyrethroids to reduce the effects of pesticide resistance.

Insect Growth Regulators: Growth regulating chemicals such as methoprene prevent the larvae from maturing and they die in the pupal stage. Methoprene can be useful for treating larval sources that are otherwise difficult to treat.

Physical Controls

Managing Standing Water: Standing water is the primary breeding ground and habitat for mosquitoes. Removing all sources of standing water eliminates this habitat and prevents mosquitoes from breeding.

Larvicidal Films: Oily films are applied to the surface of standing water to kill mosquito larvae. The film reduces the surface tension of the water and makes it difficult for the larvae to attach to the surface and breathe. Mosquitoes are unable to develop a resistance to this method which makes it extremely advantageous.

Restrictions

- No mosquito fish or Bti shall be introduced to wetlands or streams within the Preserves.
- No chemical controls or larvicides shall be used to control vector species within any wetlands, streams, or other waters of the U.S. in the Preserves.
- Ponding within wetlands, streams or other waters of the U.S. in the Preserves shall not be modified.