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**Cowlitz County Mosquito Control District**

## West Nile virus Contingency Plan

Cowlitz County is ready when WNV is detected. We know our mosquito populations. We have equipment and experienced personnel to increase control activities. We also have funds if we need other help in our county.

### When WNV is verified:

#### The Mosquito Control District will:

1. Place posters in public areas telling people how to prevent mosquito bites
2. Lower our Adulticide trigger points.
3. Increase adult trapping and testing to focus our efforts in areas where WNV is present.
4. Activate our back up fogger and increase fogging in areas where large populations of mosquito that transmit WNV and human populations intersect.
5. Treat all catch basins each month.
6. Apply barrier treatment in public areas where populations of mosquito that transmit WNV are above our trigger points.



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## WORKING TO CONTROL MOSQUITOES IN COWLITZ COUNTY



**HELP US HELP YOU  
FIGHT THE BITE!**

### Mission Statement:

We will minimize mosquito borne disease by reducing mosquito populations in Cowlitz County.

### Policy Statement:

It is impossible to eliminate all mosquitoes but by larviciding areas where mosquitoes develop, we can greatly reduce mosquito populations, and thereby reduce the chance of mosquito borne disease. Adult mosquito treatments will be made when public health is threatened by large populations of mosquito species that carry disease.

### Our Priorities:

1. Eliminate or reduce mosquito development sites.
2. Treat areas mosquitoes do develop.
3. Adulticide public areas, as needed.

### We will:

1. Educate the public
  - how to prevent mosquitoes from developing in their area.
  - how to reduce mosquito bites.
2. Work with the community to identify mosquito breeding areas.
3. Contact property owners and try to have them clean up or modify their property so that mosquitoes do not have a place to develop.
4. Check known development sites and treat when larvae are present.
5. Adulticide public areas when adults are present in numbers above our threshold.

### We cannot:

1. Eliminate all mosquitoes from the county.
2. Remove tires and other debris.
3. Adulticide private property.

## Cowlitz Mosquitoes that can carry West Nile virus



### **Aedes japonicus**

Present all season. Larva are typically found in small-volume containers of relatively clean water. Also recovered from artificial containers: bird baths, buckets, plastic milk jugs, wheelbarrows, animal watering containers, and tires and natural containers such as tree holes.



### **Aedes vexans**

One of the most important pest in flood areas along the Columbia River and its tributaries. Found in partially open, brushy, or wooded areas. Adults can disperse for 15 to 20 miles. Several hatchings may occur depending on the number of floods.



### **Anopheles freeborni**

Females hibernate in cellars, barns, outbuildings, and sheltered locations. They emerge by the last part of February, but few eggs are laid before April or May. Larvae have been taken along the margins of rivers, creeks, and irrigation ditches and in ponds, sloughs, and roadside ditches. This species can fly as far as 17.5 miles and live for 3 to 4 months.



### **Anopheles punctipennis**

Usually the species is not sufficiently numerous to be a serious pest. The larvae are often found in clear shaded pools.



### **Culex pipiens**

Develop where humans provide a favorable environment. The larvae develop in temporary and permanent pools, catch basins, improperly covered cesspools, and artificial containers. The females commonly enter houses and usually bite after dark. It is probably the most important nocturnal pest of man.



### **Culex stigmatasoma**

Develop in large numbers in log ponds. They also occur in street catch basins and water polluted by sewage. The females rarely bite.



### **Culex tarsalis**

One of the most important species. Larvae develop in permanent and semi permanent water such as log ponds, ditches, and marshes, also pools formed by floodwaters and irrigation. Adults seek shelter during the daytime and seldom bite man but will attack soon after sundown. Females hibernate in storage cellars, rock piles, and in abandoned mines or caves. They can disperse 2 and 3 miles in one evening and travel 7 miles or more in two evenings.

# CONTROLLING MOSQUITOES IN COWLITZ COUNTY

## THE SCIENCE

The Cowlitz County Mosquito Control District works from March through September to control mosquitoes in the county. With West Nile virus present in adjacent states, it is only a matter of time before we will be dealing with mosquitoes, not just as a nuisance, but as a public health problem.



Starting in March, licensed technicians go out into the wetlands of Cowlitz County, searching for mosquito larvae. Dippers are used to scoop up water. The water is then checked for the presence of mosquito larvae. The search for larvae goes on through September.



When larvae is found, it is brought back to the laboratory. While the larvae is still alive, it is placed under a microscope to be identified. In 2006, two new species of mosquitoes were discovered in Cowlitz County.



Carbon Dioxide Trap

Two different kinds of traps are used to capture adult mosquitoes. The primary trap that is used takes advantage of carbon dioxide (which attracts mosquitoes to people) to bring mosquitoes into a net. These traps are usually set out for 12 hours.



Gravid Trap

The gravid (egg laying mosquitoes) trap uses foul smelling water to attract female mosquitoes.

After the mosquitoes are captured, they too are brought back to the lab for identification. If they are known vectors of WNV, they are tested for the presence of the disease. If the test is positive, they are sent to Fort Lewis for confirmation.

## THE FIELD WORK

The licensed technicians working for Cowlitz County Mosquito Control are part-time employees. They work evenings and on weekends to apply the products required for controlling mosquitoes. Should West Nile virus come to Cowlitz County, the hours in the field will increase.

The number of adult mosquitoes is at its peak in July. Starting in March, licensed technicians search for mosquito larva and apply larvaecide in areas where they are present. There are several methods of application, but the most common way is to use a backpack sprayer. This allows the technician to cover a larger area of larvae infested wetlands



A licensed technician uses a 'Mozzie' to treat catch basins with larvaecide. The larvaecide interferes with the lifecycle of the larvae, preventing it from becoming an adult mosquito. Most of the products used are species (mosquito) specific.



When the larvae infested area is just too large to be treated by hand, or with a backpack sprayer, a helicopter is brought in to spread the larvaecide over hundreds of acres of wetlands in just a few hours.



If there is a particularly large number of adult mosquitoes in an area, a low volume fogger is used to spray a fine mist that kills the adult mosquitoes while they are in flight. This "fogging" is done from dusk to midnight, the hours when the adult mosquitoes are most active.



### **Culiseta impatiens**

Found in timbered areas, roadside ditches, holes left from fallen or uprooted trees, margins of beaver-dams wheel ruts, and other small pools with bordering brush or trees. The females will bite man.



### **Culiseta inornata**

Found in poorly drained irrigated areas and in many types of semi permanent and permanent water, also found in shaded pools. The females hibernate, and some larvae may over winter.



### **Ochlerotatus (Aedes) sticticus**

Breed in brushy bottom lands along the Columbia River when the Columbia floods. Adults disperse 15 to 20 miles and are a serious pest. Eggs remain viable for at least 3 or 4 years if not reached by floods.



### **Coquillettidia perturbans**

Eggs are laid in swamps, marshes, or log ponds containing cattails, or other suitable plants. They hatch in 4 or 5 days, and the larvae attach themselves to roots or stems of the plants. It comes to the surface when ready to emerge. They over winter in the larval stage. There is one generation each year. The adults readily bite man and animals.

## Cowlitz Mosquitoes that do not carry West Nile



### **Culiseta incidens**

Breed in permanent and semi permanent pools and artificial containers. Only the females hibernate. They will attack man but are not considered important because of their small numbers.



### **Culiseta particeps**

Found in pools overgrown with vegetation. Little is known of the feeding habits of adults.



### **Ochlerotatus (Aedes) aborigines**

Found in snow and rain pools in wooded and semi wooded areas.



### **Ochlerotatus (Aedes) cinereus**

Develop in woodland and open meadow pools. Larvae collected from early April to late June. The females attack both during the day and at dusk. They are known to rest near the ground in the grass or underbrush near their breeding sites.



### **Ochlerotatus (Aedes) sierrensis**

A small mosquito that breeds in tree holes and artificial containers, also rock pools and wooden receptacles under trees and old automobile tires and tree stumps. The larvae may be found in midwinter. The life cycle may be completed in as little as 15 days. A persistent biter but has a restricted flight range.