NORTHERN SALINAS VALLEY MOSQUITO ABATEMENT DISTRICT

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To: Honorable Marla O. Anderson
Monterey County Superior Court
1200 Aguajito Rd.
Monterey, CA 93940

Date: 5/6/2014

From: The Northern Salinas Valley Mosquito Abatement District

RE: Pursuant to Penal Code section 933

Honorable Marla O. Anderson,

Pursuant to Penal Code section 933 the following findings (F#) and recommendations (R#) were made to the Northern Salinas Valley Mosquito Abatement District (District) by the Civil Grand Jury please find our response below:

(F1) Mosquitoes in Monterey County carry disease that can infect humans and animals, including but not limited to West Nile virus (WNv) and encephalitis.

Since 2003 there have been 4,004 human cases, 1202 horse cases, 16,299 birds, and 16,084 mosquito, 5,087 sentinel chickens, and 276 squirrels that have tested positive in California.

Many birds have tested positive in Monterey, which has helped to direct our efforts toward potential endemic areas. As testing has improved we can now detect lower levels of the virus in birds, we call this a chronic level of the disease, which also has become an essential tool. West Nile virus is a disease of the birds, the mosquitoes spread it by taking blood from a bird host, then have the potential to transmit the disease to humans.

Unfortunately, there is no WNv vaccine for humans, but there is for horses. We have seen a decrease over the years with horse infections, because of these vaccines. Properly vaccinated horses is the best defense against WNv, Western Equine encephalitis (WEE) Eastern Equine Encepahlitis (EEE) and St. Louis Encephalitis (SLE). Humans, on the other hand, need to wait for the extensive testing required before being able to get a vaccine for WNv. Until a vaccine is ready for human use the best medicine is prevention, using repellants when necessary, proper screening around the house, maintaining water features, and

reporting to the District they have a mosquito problem, or notice dead birds. There is no charge for residents to call the District other than what is paid through their property tax bill.

Interestingly enough, a not so well known mosquito-borne disease, Myxomatosis, a viral infection of rabbits, caused by a member of the Poxvirus family, struck a Monterey farm. It is can be transmitted by mosquitoes and is usually fatal. In the United States, myxomatosis is most commonly seen along the Pacific coast. The virus that is present in the Western USA is referred to as the California strain of myxoma virus and possesses characteristics that differ slightly from other strains.

Another disease Dog Heartworm (*Dirofilaria immitis*) is a parasitic roundworm that is spread from host to host through the bites of mosquitoes. The heartworm is a type of filaria, a small thread-like worm, that causes filariasis. The definitive host is the dog, but it can also infect cats, wolves, coyotes, foxes and other animals, such as ferrets, sea lions and even, under very rare circumstances, humans. The parasite is commonly called "heartworm." Adult worms often reside in the pulmonary arterial system (lung arteries) as well as the heart, and a major effect on the health of the animal is a manifestation of damage to the lung vessels and tissues. Occasionally, adult heartworms migrate to the right heart and even the great veins in heavy infections. Heartworm infection may result in serious disease for the host, with death typically as the result of congestive heart failure.

Mosquitoes can host a variety of diseases and more importantly there are new mosquitos that have been introduced to California, that are capable of transmitting new disease.

The nuisance and disease that mosquitoes carry make mosquito abatement necessary.

(F2) The requirements for construction of holding ponds, continuing and growing irrigation of vineyards and other agricultural crops in the County create mosquito-breeding locations. Additionally, with a growing population, global trade, and tourism, new mosquito species traveling into new regions, present an increasing potential for humans and animals to cont[r]act mosquito borne disease throughout Monterey County.

Agricultural crops in Monterey County have become increasingly efficient over the years, innovation has lead to practices that help protect Monterey's limited water supply, thus limiting the District's efforts necessary to control mosquitos in these areas. Our main focus in highly agrarian areas is geared more towards the water conveyances themselves, keeping them free flowing, free of debris, vegetation, and silt.

"Diseases don't respect borders, and a disease threat anywhere is a threat everywhere. That's why global health security is so important. Disease threats move faster and less predictably than ever before, and we are now facing a perfect storm of vulnerability: new and emerging microbes, increasing drug resistance, global travel and trade, and intentional or accidental release of dangerous microbes are real threats. Middle East Respiratory Syndrome Coronavirus (MERS-CoV) and avian influenza (H7N9) are just two recent global disease threats, and there are many diseases out there that we don't even know about yet." CDC Director, Dr. Tom Frieden.

Globalization has become a major threat to public health. Just last year a newly introduced mosquito species has been found in three counties of California. Fresno, Madera, and San Mateo Counties have experienced the wrath of a new aggressive day biting mosquito, the diseases it carries are Yellow Fever, Dengue, and Chickungunya, all which have painful flu like symptoms.

F3. Coordination and communication between the District staff and the Monterey County Health Department staff has been infrequent, somewhat limited to instances of disease out-breaks. A large working group of stakeholders was established during the West Nile outbreak in 2004 but it no longer meets on a regular basis.

Since the outbreak of 2004 we have worked with The Health Department to train its employees how to recognize and abate mosquito nuisance. They come to us when they need a helping hand and vice versa. We both work together and communicate when necessary. We still coordinate dead birds and mosquito calls.

(F4) The District has a competent and hardworking staff but unfortunately the public does not seem to be aware that the District exists, what they do or why it is important that mosquito abatement activities continue. Preventing disease simply does not attract public notice, active support or media attention, although it is the most cost effective measure for preventing disease, human misery and death.

The District currently has six staff members whose experience range from 10 to 38 years of service. Four mosquito technicians cover 458 square miles of the District's boundaries. One of the mosquito technicians is the District's heavy equipment operator. Each member of the staff is certified through the California Department of Public Health in mosquito control, terrestrial invertebrate vector control and vector vertebrate control and is required to obtain 40 units of continued education every 2 years. Each staff member including the District Manager-Biologist and Administrative Assistant is capable of carrying out more than one function within the district program.

The District carries out its responsibility to the residents of the area through a multi-faceted program including, but not limited to the following:

- Collection of adult mosquito populations throughout the District. Specimens are identified, and reported to the California State lab.
- Continuous surveillance and inspection of water sources for mosquito egg, larval and pupal populations.
- Insecticide resistance testing of larvae is done in the laboratory and the field.
- Survey of pertinent disease occurrence through contacts with veterinarians, state health officials, and local environmental health departments.
- Maintenance of encephalitis virus and West Nile virus surveillance programs.

The District periodically cleans and maintains water courses throughout northern Monterey County in cooperation with city and county departments utilizing the District's heavy equipment and expertise.

We do what is called Source Reduction in which mowing and mulching of dense vegetation is done in alternating bands, leaving strips of undisturbed vegetation thinning the overall density of work areas. This activity creates opportunities for a more diversified spectrum of wildlife. The work is only done during the dry season and away from standing water. Low ground pressure of equipment is done so as not to disturb burrowed species. Only common tules, cattails and bull rushes are mowed.

Overall this type of enhancement project not only helps in controlling mosquito populations, but aids in the recovery of threatened and endangered wildlife species. With a biologist on staff, consultation services can be supplied to agencies planning to alter and/or restore wetland habitat in order to minimize mosquito

production in the finished project. The District reviews proposed development plans in order to minimize the possibility of the creation of new mosquito breeding sources.

We also employ biological control agents namely mosquito fish. The District maintains a lab and outdoor rearing program for larvae eating fish, *Gambusia affinis,* which can be placed in all known suitable bodies of water in the District. Mosquito fish are delivered to residents in the District. For those residing outside the District, the fish can be picked up at the District office by appointment. They are great for people who have horse troughs, ponds, and they were a big help with the housing crisis and neglected swimming pools.

As a District we also treat for the mosquitos in which we call larviciding or adulticiding, depending on the life stage. The District employs measures of control having the least effect on non-target organisms as well as stabilizing natural predator populations. District staff is constantly looking into the newest Biological Control agents to be employed in their efforts to control mosquito larvae production that will also be safe for the environment. We treat street drains, unmaintained water features, ponds, water conveyances, marshes, anything and everything that can hold water.

The District also actively collects dead birds and mosquitos, we then test them for various mosquito borne disease. We also keep two sentinel chicken flocks that are great for testing because they do not die from illness, rather they show if disease are in the area.

We also provide free public education; we can also assist homeowners with a wide variety of wild animals and bugs.

(F5) Should the proliferation of mosquitoes and mosquito borne disease increase, it will not only have an impact on the health of residents but will also negatively impact tourism thus affecting the whole economy of Monterey County.

The following is a clipping from a newspaper article that describes a mosquito situation that happened last summer in the tourist town of Bandon Oregon. Bandon is known for wood products, fishing, and the Bandon Dunes Golf Resort. A similar situation would happen in Monterey if mosquito abatement did not exist, because we treat for the "Salt marsh mosquito" in and around the salt marshes.

One afternoon in mid-June, Amy Fraser pulled up to her home in Bandon and saw her dog Lily outside. The dog's legs looked muddy, her normally white fur coated black.

Unlike many mosquitoes that are active at dusk and dawn, salt marsh mosquitoes bite during the day. After hearing from angry constituents, Rep. Peter DeFazio, D-Ore., pressed U.S. Fish and Wildlife officials for a solution.

"They told me they were looking into the problem," he said in a news release in July. "Three months later and well into the tourist season, the mosquito problem has gotten worse."

He called for immediate relief and long-term action.
U.S. Fish and Wildlife launched a study with Oregon State University scientists to seek a mosquito management strategy but that effort will go on for a year. In the short term, the agency drained a few ponds in the refuge about two weeks ago. Residents report that the problem has lessened in recent days but not gone away.

A full solution has been entangled in red tape.
Fish and Wildlife doesn't deal with mosquitoes.

"We're not experts in mosquito abatement," said Megan Nagel, an agency spokeswoman. "There's no

precedent for FWS to pay for and do the spraying."

Cash-strapped Coos County doesn't have a vector control agency, and any way, the refuge is under federal protection. The agency has to issue a permit before sprays can be used.
For that to happen, the feds said they needed Coos County to declare a health emergency.
Zogg said that would amount to an abuse of her power.

So on Thursday, she issued a health advisory, warning residents about the mosquito problem.
That got the federal wheels turning, said John Sweet, chairman of the Coos County Board of Commissioners.

"The U.S. Department of Fish and Wildlife accepted that as a trigger to start their process towards permitting control measures," Sweet said Friday. "I'm hopeful that will happen next week."
Once the county has permits, it will have a new problem: How to pay for abatement. U.S. Fish and Wildlife has said it won't dish up the dollars, DeFazio said.

He's working on authorities in Washington D.C. and gone to the governor's office in Salem looking for help.
In the meantime, Bandon residents have to cope. They're just hoping they don't have to suffer through another explosive breeding cycle this summer.

- Lynne Terry August 30, 2013. Reporter for The Orgonian, Bandon OR.

This is just one situation where mosquitos affect the overall health of the economy. The reason this District was formed was because of the "Salt marsh mosquito" in the Elkhorn Slough and surrounding areas. In those days the salt marsh mosquito had an impact on farming operations, devastating effects on real estate, and overall quality of life. The salt marsh mosquito would travel all the way into Salinas and Monterey to bite the residents who lived there and then fly back to the marshes to lay eggs.

The tourism industry in Monterey County would suffer, people just don't like getting bit, add the disease factor, soon your city would have a reputation for a bad mosquito problem which would eventually detract people from wanting to see what you have to offer.

(R1) County Board of Supervisors, The District, and the Monterey County Environmental Health Department (Health Department) should work together to develop a coordinated plan for mosquito control, including a budget for countywide mosquito management, whether the parcel tax passes or does not pass.

The Health Department and The District work together to cover the entire County. The District finds the Health Department to be most helpful with mosquito related issues; we help The Health Department whenever we can.

Creating, "a budget for countywide mosquito management" alone does not provide a funding source to pay for the costs of said management.

(R-2) The District and the Monterey County Health Department should establish regular and routine communication regarding mosquito abatement and control issues. They should work to find ways to maximize resources of both groups to broaden the reach of mosquito control throughout the County when possible.

The District and the Health Department do communicate on a, " as needed basis." Regular meetings waste time, money, and are not the most efficient mode of communication. The Constituency would prefer service to meetings. Both departments use email to communicate or the telephone when issues arise. We are efficient at what we do and have maximized resourcefulness between both departments.

The District and Heath Department have the same goal: protect public health.

(R-3) The Northern Salinas Valley Mosquito Abatement District Board should allocate resources to public information and outreach, including but not limited to; managing the website, social media and written materials explaining the role of mosquitoes in human and animal disease and the resources available to members of the public trying to control mosquitoes on their own property.

In recent years, correlating with West Nile virus, extra efforts have been made for public outreach. For instance last year the District entered our amphibious vehicle into the Colmo del Rodeo Parade, it stole the show. Additionally, The District sent out 50,000 newspaper inserts that were distributed in The Monterey County Weekly and The Californian. The District paid for billboards, radio time, and for increased fleet visibility, all in the name of public education. The District sends out press releases regularly and as a result we have received some full-page newspaper articles, airtime on T.V.

We have established a Facebook page, and are considering professional help with our website. In addition to the previous, we also participate at Farm Day, Rodeo, hold an annual booth at the Monterey County Fair, visit classrooms, give talks to various organizations and membership clubs. The Health Department worked with District staff to air mosquito awareness on Access Monterey Peninsula.

Education is one of our best tools and we will continue to seek new and innovative ways to inform the public.

(R-4) The District and Monterey County Health Department staff should mutually and quickly explore and report on a path to extend the mosquito abatement activities throughout the County and report their findings to the Board of Supervisors.

Annexation alone does not provide a funding source to pay for the costs of abatement. The additional revenue needed to fund abatement efforts would need to come from a voluntary reduction of the property tax revenue now going to the County or from a voluntary reduction from one or more of the other taxing agencies, or from a voter approved tax or assessment.

Respectfully Submitted,

Ken Klemme
District Manager – Biologist
Northern Salinas Valley Mosquito Abatement District