

2009 Year End Report

Twin Falls County Pest Abatement District

Report Prepared by District Manager Kirk Tubbs

Mission Statement: To protect the health and socio-economic well being of the citizens of Twin Falls County from harmful vectors and other pests, employing environmentally sound abatement practices

Report to Twin Falls County Pest Abatement District Board of Trustees

November 2008 Election resulted in the formation of The Pest Abatement District. The Abatement Board of Trustees was organized in January, Manager started work April 13, 2009, and Full Time Seasonal Employee worked April 13-Nov 15th. Part time Seasonal Student Employees worked May 17- Sep 30.

1. Geographic Area

The TFCPAD primarily conducts work inside Twin Falls County. The County contains approximately 1,232,000 acres. Treatments are targeted to the areas that will produce the best results for the time and money spent.

Treatment area for Black Fly control consisted of the Twin Falls Canal system which contains 110 miles of major canals and over 1,000 miles of laterals, the Salmon Falls Canal System which has over 300 miles of main and lateral canals, and the Roseworth Canal System which contains over 10 miles of main and lateral canals. In addition portions of coulee drainage streams, Rock Creek, Deep Creek, Cedar Draw, Dry Creek, Salmon Falls Creek, and the Snake River received some treatment. The entire Milner Irrigation Canal System was also treated; this system originates in Twin Falls County runs through Cassia County and then returns into Twin Falls County and contains over 25 miles of canal.

Mosquito Control work was conducted mainly in the more populous areas of the County. Priority in treatments was given to residential areas and those areas that have historically had WNV or have recently tested positive

2. Collaborative Agreements

In this first year of work, many other agencies, associations and groups were contacted by TFCPAD and were helpful and supportive of our goals. We have welcomed partnerships and the sharing of information and resources in order to fulfill our mission.

The Cities of Filer, Buhl and Kimberly worked with TFCPAD in identifying treatment areas and conducting treatment of storm drains and water retention ponds inside their city limits with product provided by TFCPAD. The City of Twin Falls provided information on areas in need of treatment and agreed to treat any storm drain that they serviced during summer months (after TFCPAD had conducted spring treatments) with product provided by TFCPAD.

University Of Idaho and TFCPAD shared a student employee during the summer.

College of Sothern Idaho provided help in finding a student employee that had a background and interest in Biology.

Idaho Department of Health and Welfare provided supplies as well as \$2,000 for mosquito surveillance through a grant.

The Twin Falls Canal company, Salmon Falls Canal company, and Milner irrigation district provided Canal information, water flow rates, data and in the case of Twin Falls Canal the loan of some water measuring equipment and water temperature data.

South Central District Health Board met with TFCPAD board and has provided information relevant to our treatment work.

3. Surveillance

Black Fly larval surveillance primarily consisted of yellow sample ropes hung in the waterways. A six inch section of the rope was marked off and larvae found on that section were monitored. Surveillance ropes were hung at various intervals along the canal and the number and locations of ropes was expanded during the summer as need for more data dictated and time allowed. At our peak, 70 different sample ropes were in place. The data provided by them helped us to plan out treatment schedules and track their effectiveness.

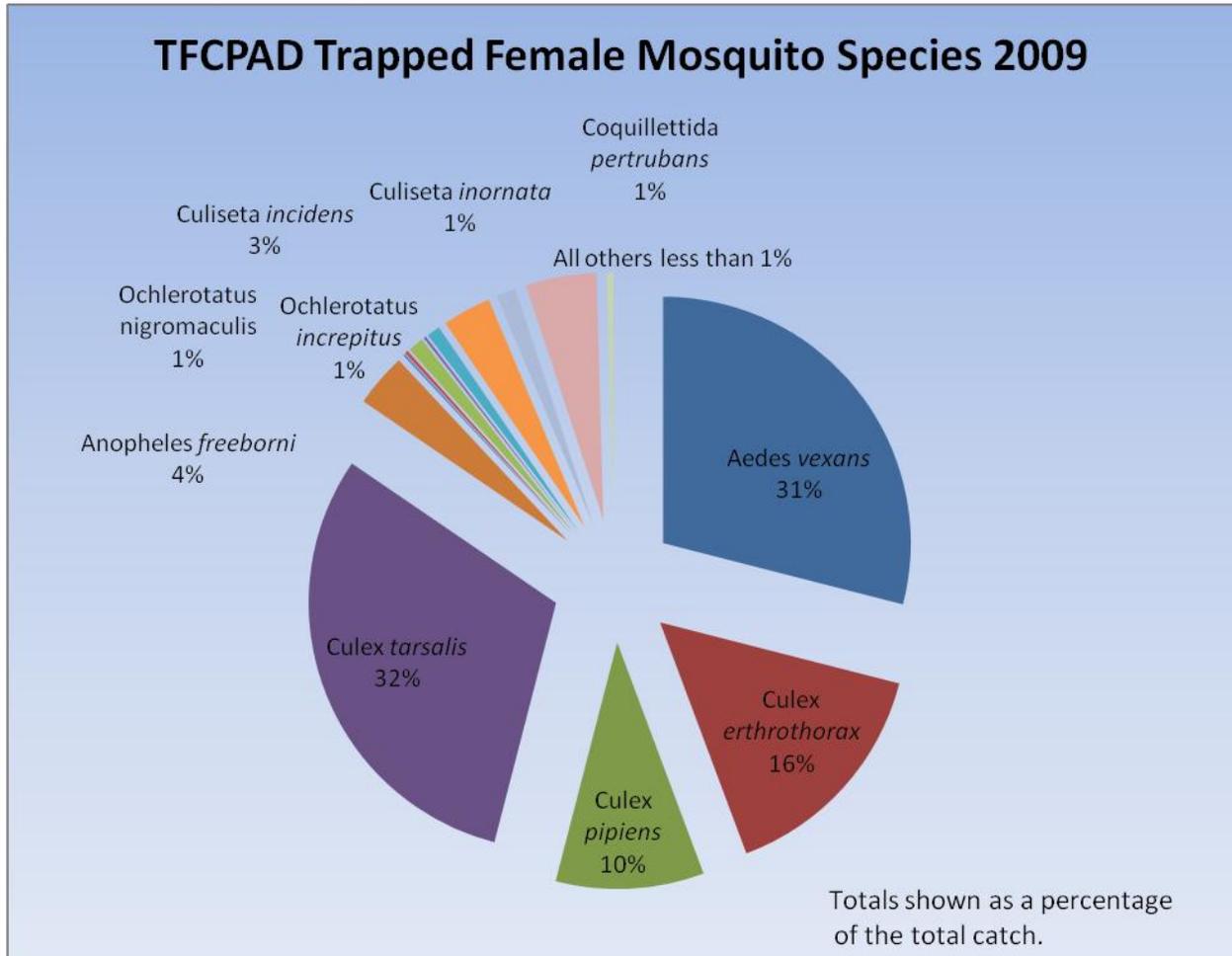
Mosquito surveillance for larva was conducted by dipping for larva in standing water sources such as ponds and water retention areas. Work primarily focused around the more populated parts of the county, but any potential mosquito source discovered while conducting other work was sampled and treated as needed.

Adult mosquito trapping was conducted on a weekly basis during the summer (5/26 to 9/25/09). Traps used a light and CO₂ produced by dry ice to attract the mosquitoes. Traps were set in the evening and retrieved in the morning. 178 trap nights produced a total of 3,841 female mosquitoes that were speciated as a part of this surveillance. This trapping provided mosquitoes for WNV testing as well as feedback on treatment results and needs. Three mosquito pools tested positive for WNV. All mosquito pools were negative for St. Louis encephalitis and Western Equine encephalitis.

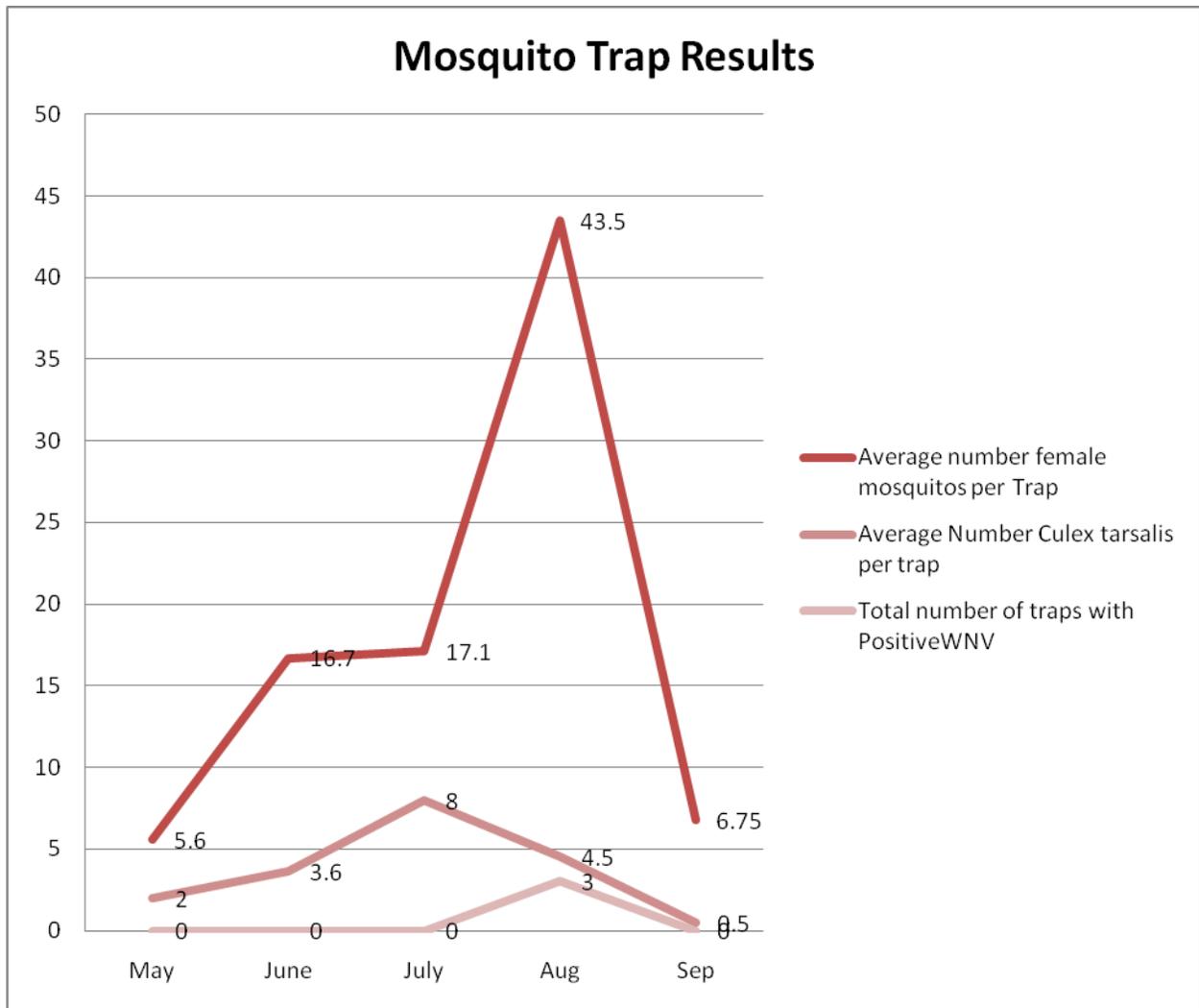
State guidelines were followed regarding trap counts of certain mosquito species and when a high number were caught, traps were reset to help determine if the population was rising or falling and to evaluate the effectiveness of our treatment efforts. For example, trapping of over 50 *Culex tarsalis* in one night in one trap would prompt a review of larval surveillance and treatment for that area, a search for potential breeding locations in the vicinity that were missed during previous treatments. The location would also be retrapped the following night and the following week. Only 3 locations hit this threshold of 50 *Culex tarsalis* in one trap night. In all of those locations additional areas in need of treatment were found and subsequent trapping resulted in lower catches indicating that we had found the source and the population was declining. Using our own catch data from this year, we will create an operating guide tailored for TFC so that we can catch needed treatment areas sooner.

Mosquito species also let us know what type of habitat to look for, and if we were dealing with a potential vector of disease or just a nuisance mosquito. This year's trap results have given us a baseline for Twin Falls County of what to expect in the future and a guideline for what population trends we

should be watching for. We can use them in planning when and where to work to reduce potential disease vectors before they become a problem.



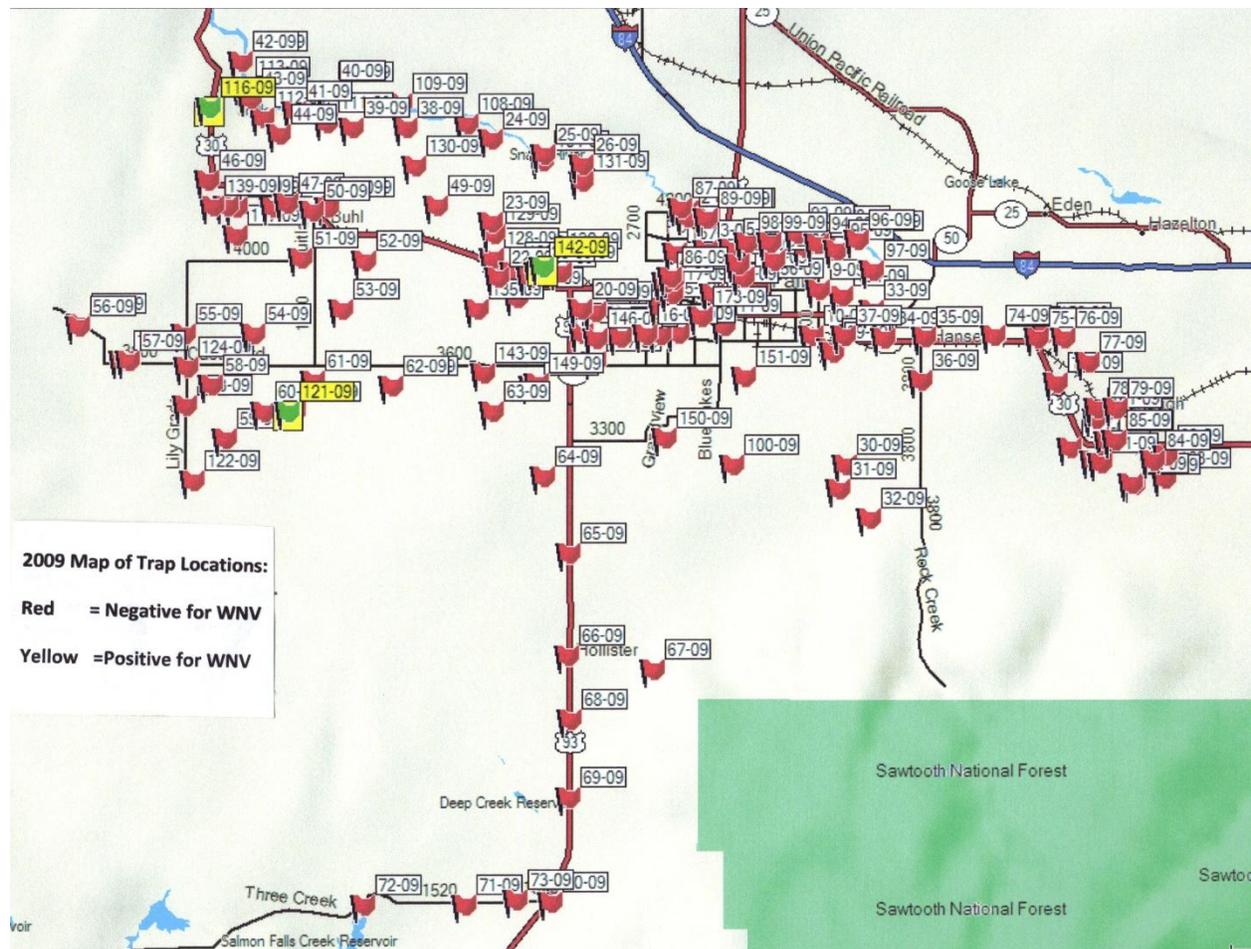
The above chart shows the population distribution of trapped female mosquitoes. This chart represents all trap contents from twin falls county, including the results of retrapping areas that had high numbers of *Culex tarsalis*. Under the Arbovirus Surveillance and Mosquito Control in Idaho guidelines for phased response level 3, trapping of more than 50 culex mosquitoes per trap for more than two consecutive nights is the population threshold for increased treatment response. *Culex tarsalis* and *culex pipians* are the two species most likely to carry WNV. All *Culex tarsalis* were submitted for testing. *Ades vexans* our second most commonly trapped mosquito, are often called a flood water mosquito. They are most often found in flooded areas along the river, near flooded irrigation areas. They would sometimes generate complaints, but are mostly a nuisance mosquito not generally a vector of disease. *Culex ethrotharax* are typically found in fresh water that has a heavy growth of emergent vegetation such as cattails.



Overall Mosquito catch rates were relatively low considering the amount of rain fall received this year. The higher catch rates in July and August were a result of warm temperatures at which mosquito larva develop quickly. Several of our high catches were in locations that had not received any early season treatment. Next year these areas will receive early treatment.

4. Mapping

GPS Units were used to provide accurate records of treatment locations, to measure treatment areas and then record this information for future use. We are currently in the process of compiling this data, searching and recording additional points that will need treatment in the spring and creating treatment routes with maps. Our GPS data can then be paired with Goggle Earth to create detailed maps.



5. Source Reduction

Educational efforts in utilizing good design to reduce potential pest habitat has been a part of our public education campaign as well various meetings with homeowners, site visits of individual ponds, and meeting with Twin Falls city engineers to discuss design practices of water retention ponds. The biggest impact we are having in source reduction is through educational effort. We cannot find and treat every potential breeding site, but when landowners know what to look for they help immensely by draining or flushing standing water.

6. Larval Control

Almost all control efforts were targeted towards the larval stage of both mosquitoes and black Flies. At this stage of the lifecycle they are confined to a smaller area and treatment is safe and effective.

Our Primary larvicide is Bti (*Bacillus thuringiensis v. israelensis*) which is a product of a natural soil bacteria, when refined it produces a protein crystal that when consumed reacts with the alkaline gut of a mosquito or black fly resulting in death. There is no secondary toxicity, or recycling of the product. It has little to no effect on non target species and does not persist in the environment.

Black Fly Larvae were treated using Bti applied to moving water. Larval stage and water temperature were monitored to determine treatment intervals. At the start of the season the focus was on treatment of the Twin Falls Main Canal from Murtaugh Lake outlet to Rock Creek, and portions of the Milner canal system. These were the areas treated in the past by the Emergency Abatement District. Measuring kill rates and effective treatment distances was a big part of our early treatments. As our monitoring indicated a need to expand treatment, we expanded treatment to include all of the Milner canal system, the Twin Falls Canal from the Milner Dam outlet to Castleford including treatment on many of the laterals, the Salmon Irrigation system and the Roseworth Canals.

Late season larval treatments are directed at Larvae that overwinter in some of the year round water sources as slowly growing larva that then emerge in the spring. Some black flies will also overwinter as eggs, and will not be affected by our treatments. With water flow rates low in the late fall, we can treat with a small amount of product versus the large amount that would be required in the spring to treat the same area.

Black Fly Treatments 2009

Roseworth Canal	Quantity Bti Used in gallons	Total Number of Treatments	Avg Water Temp. °F
May	0	0	
June	0	0	
July	12.5	4	
August	18.5	4	
September	5	2	
October			
Totals	36	10	Not enough data
Cost Of Bti @ 23.75/Gal	\$855		

Salmon Falls Irrigation	Quantity Bti Used in gallons	Total Number of Treatments	Avg Water Temp. °F
May	0	0	0
June	5.2	5	62
July	63	37	64
August	100	48	64
September	81	48	58
October	0	0	0
Totals	249.2	138	
Cost Of Bti @23.75	\$5,918.50		

Milner Irrigation	Quantity Bti Used in gallons	Total Number of Treatments	Avg Water Temp. °F
May	10.48	4	57
June	10	16	60
July	24.62	11	66.5
August	25.5	21	63
September	19	12	62
October	3	3	44
Totals	92.6	67	
Cost Of Bti @ 23.75	\$2,185		

Twin Falls Canal	Quantity Bti Used in gallons	Total Number of Treatments	Avg Water Temp. °F
May	111.58	12	
June	537.42	51	
July	1709.65	195	
August	1982	224	
September	1497.16	210	
October	194	43	Variable
Totals	6031.81	735	Too much data!
Cost Of Bti @ 23.75	\$143,2555.48		

Late Season Larval Treatments in all other locations

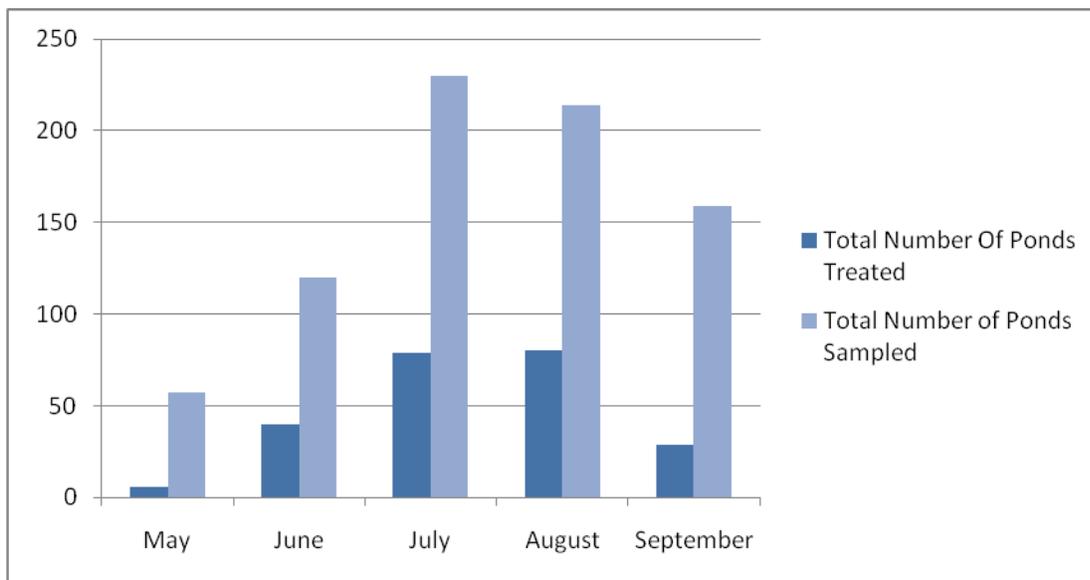
	Quantity Bti Used in gallons	Total Number of Treatments	Avg Water Temp. °F
October	24.5	6	Variable
November	19	15	
Totals	43.5	21	
Cost Of Bti @ 23.75	\$1033.13		

Mosquito larvae were controlled in several ways. Early in the season catch basins, storm drains, and some water retention ponds were treated using Altosid which comes as a small ingot that slowly releases methoprene, an insect growth regular. The slow release formula allows these early season treatments to last during the summer. Methoprene prevents mosquito larva from developing into adults, and in the form applied, the water can dry up and the product remains ready for the next time the catch basin fills with water. An ideal treatment for storm drains where we do not have the man power to check and treat each one at intervals during the summer. Close to 2,000 such locations were treated this year. This consisted mostly of storm drains treated in the past by the Twin Falls City Street, Water, and Parks Departments and next year that number will increase due to treatment of additional areas found during our surveillance.

Additional mosquito larval control was conducted by the use of Bti and a Bacillus *sphaericus* biological Larvacide applied to standing water when Mosquito larvae were found present. Bacillus

sphericus works in much the same way as *Bti*, it is a natural soil bacteria that is consumed by the larvae. The difference is that it is a live bacterial that when consumed it multiplies inside the mosquito gut eventually killing the mosquito. The mosquito gut ruptures and releases the bacteria for other larva to consume. In areas of high mosquito larva this recycling of the product can make this type of treatments last longer than *Bti*. The drawback to this is that it costs more than what *Bti* does. These treatments are not long lived so treatment areas require continued monitoring and treatment as needed. *Bti* is our most cost effective treatment and was used for most treatments.

In a few areas we tried a surface film to treat for mosquitoes. A surface film is a monomolecular film that coats the surface of the water preventing pupa mosquitoes from emerging from the water. It can also plug a mosquito larva's breathing tube and suffocate it. The film is designed to break down rapidly; it can however affect some non target insects. It was effective and we may use it in limited areas next year.



7. Control of Adult Mosquito Populations

Our most effective control of adult mosquitoes was accomplished by controlling the larva. The application of *Bti* to the canal system had the added benefit of helping to control mosquitoes in their vicinity.

Plans are in place and we are ready if needed for the use of aerial application of larvicides such as *Bti*.

Control of adult mosquitoes through fogging was not conducted. TFCPAD has an ultra low volume fogger ready for use in the event that serious disease outbreak justifies its use.

We used three Mosquito Magnet traps to capture adult mosquitoes. These traps use propane as the source for creating CO₂ to attract mosquitoes. In some cases these traps were part of our surveillance efforts, in most instances we set these traps up in areas of citizens' complaints or areas historically noted as having a high population or past WNV locations. These traps could be left running for several weeks and did, along with larval treatments, help reduce the number of adult mosquitoes in that area. The traps

did have their problems; they are designed to operate at peak mosquito activity and did not always work when we wanted them too. This winter they will be modified to suit our needs.

8. Certification

Professional Applicator licenses were maintained by all our applicators. The following is a list of training attended:

April 29&30th North West Mosquito and Vector control Association conference

May 5th Mosquito Control Training at Rock Creek Park

May 7th ISDA Quagga and Zebra mussel training

June 17th Budget Training

October 27th ICRIMP training for Risk Managers

November 5th Idaho Mosquito Control Association

November 14th Sothern Idaho Garden Symposium

9. Public Education and awareness

The following is a list of major events attended by TFCPAD and significant interviews with the press:

Twin Falls Times News August 10th http://www.magicvalley.com/news/local/article_1fd9f808-d743-5c44-b246-2d3d1d7e2c70.html

KMVT News August 26 and 27th. www.kmvt.com/news/local/55826127.html ,
www.kmvt.com/news/local/55229947.html

TFC Fair September 2-7th

Perrine Bridge Festival September 11-12th

South Central Community Action BBQ September 19.

In addition we have been able to get out information through homeowners associations, contributions to newsletters, our website and even taking hatch out jars of mosquito larvae into schools!

10. Other Business

Some of our costs this year were startup costs, this year two vehicles were purchased, a F350 and a Ford Ranger. A forklift, pumps and flow meters, mosquito traps, a kayak, and office and shop equipment were some of our major purchases.

Our fiscal year ended on September 30 ,2009 we ended the year with \$321,879.82 having been spent, \$109,000 carryover money that has been budgeted for emergency money in the future and \$10,879.18 that was unused and will remain in our account our FY 2010 budget is attached to this report.

All Board meetings were announced and open to the public. The following is a list of Meeting dates,

1/20/09

1/27/09

1/30/09

2/18/09

2/25/09

3/04/09

3/11/09

3/18/09

3/30/09

4/08/09

4/23/09

5/12/09

6/10/09

7/15/09

8/19/09

9/30/09

10/28/09

11/18/09



TFCPAD Board: Left to Right, John Snelling – President, Theresa Strolberg Treasurer, Erik J. Wenninger, Ph.D., Univ. of Idaho Extension, Greg Garatea, Tony Brand Secretary, Evard Gibby, Health District, Clif Amundsen, Ph.D.

BUDGET FOR TWIN FALLS COUNTY PEST ABATEMENT DISTRICT

Budget was approved at a public hearing Thursday, August 22, 2009, at 7:30 PM at the Twin Falls County Pest Abatement district office. The following table shows the budgets for 2009 and 2010.

Budget 2008-2009		Budget 2009-2010	
Revenues		Property Taxes	467,461
Property Taxes	441,857	Grants	2,000
Expenditures		Carryover Money	109,000
Salaries & Wages	109,721	Income Total	578,461
Vehicle Repair/Maintenance	5,000	Expenditures	
Fuel	10,000	A Budget	
Equipment	35,000	A Budget (Salaries & Wages) Total	86,414
Personal Protective Gear	1,000	B Budget	
Office Supplies	2,000	Benefits & Taxes Total	33,160
Shop Supplies	5,000	Building Expenses Total	28,856
Postage	600	Other Insurance Total	5,592
GPS Equipment	6,400	Vehicles Total	30,470
Training	3,000	Travel Total	7,600
Integrated Pest Management	140,000	Training Total	1,640
Repayment to County	40,000	IT and Communications Total	5,882
Notice of Election	9,000	Emergency & Carry Over Total	129,004
Administration	20,000	Community Outreach Total	7,400
Rent	25,000	Integrated Pest Management Total	186,543
Benefits	25,136	Administration total	55,900
Tort	5,000	Total B Budget	492,047
Total	441,857	Grand Total	578,461