

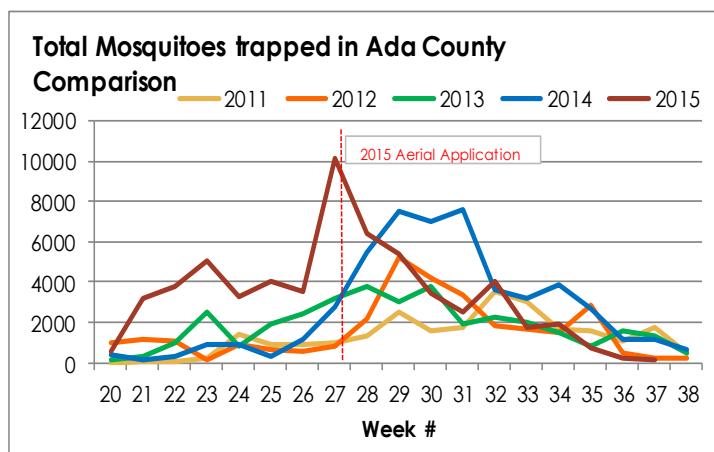
2015 Mosquito Annual Report

Ada County Mosquito Abatement District

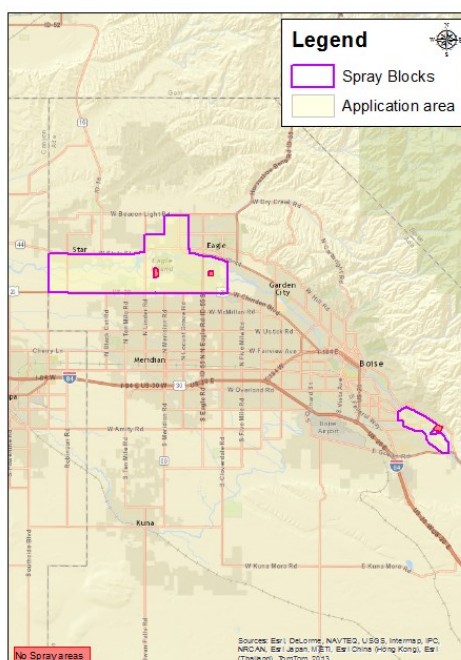
Record number of mosquitoes resulted in aerial application as another tool in the toolbox for control.

Due to the record number of floodwater nuisance mosquitoes early on this season, weather conditions favoring a high mosquito year from warm spring weather, and many public complaints, it was determined that an aerial application was warranted in certain parts of the county, mainly along the river near Star and Eagle. We saw record high counts in surveillance traps in the areas on the map 4-6 weeks earlier than normal which prompted a lot of ground work larviciding when sources could be found and nightly ground fogging, however the numbers continued to rise which lead us to

an aerial adulticide to help reduce numbers about the first week of July. After the application, surveillance trap counts were significantly reduced for both types of mosquitoes-floodwater and vector species. The application occurred after dusk and we had no reported verified bee kills from the application as to be expected since the application occurred well after dark when bees have returned to their hives. The results helped significantly reduce flying mosquito populations in the areas



covered for an avg. of 2-3 weeks and then after, helped the populations return to a normal manageable level through ground control efforts.



Affiliations/ Memberships

- Idaho Mosquito and Vector Control Association (IMVCA)
- Northwest Mosquito and Vector Control Association (NWMVCA)
- American Mosquito Control Association (AMCA)

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Mosquito Surveillance Operations

Surveillance is a key part of Mosquito Abatement, it allows us to track mosquito populations across the county and decide how best to use our resources to keep them at manageable levels. During the 2015 season the surveillance crews set 1,822 traps and caught a total of **61,429 mosquitoes** over the 18 week surveillance season, a record high in the history of the district! Once caught they are then individually identified and counted. The *Culex pipiens* and *Culex tarsalis* were then grouped into pools of up to 50 mosquitoes each to be tested for West Nile Virus absence or presence. Of our 61,429 mosquitoes caught, **12,636 of those were West Nile Virus vector species.**

We had a total of 28 pools come back positive for the West Nile Virus, 20 of these were trapped during the month of August.

This year we also set out oviposit traps at various sites throughout the county over a 5 week period to see if we could find any evidence of *Aedes aegypti* moving into the valley. The *Aedes aegypti* mosquito can carry dengue fever, chikungunya, yellow fever and Zika virus.

This mosquito has popped up in other parts of the United States, mostly southern states and along the east and west coasts, so we are trying to be pro-

active to determine absence or presence in our county. Our findings were negative over our test period, but we plan on continuing our search during the 2016 season.



Brock Palen, Mosquito Division Coordinator

Oviposit traps in Ada County trial 2015

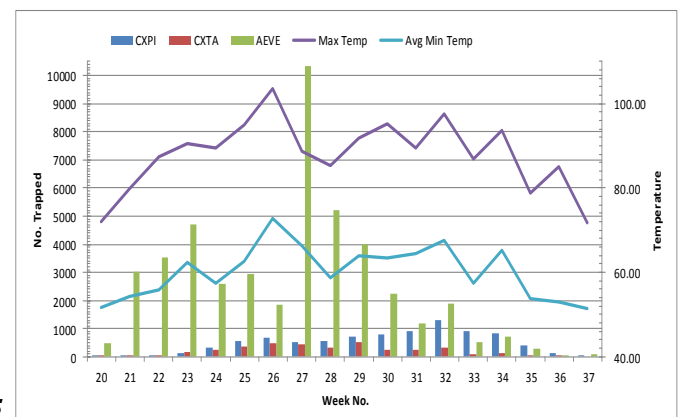


Male *Aedes aegypti* emerging. (Photo credit: www.oxitec.com)

Mosquito Species Found in Ada County...

Our most common mosquito species found this year was no different than in previous seasons, but the sheer numbers this season with *Aedes vexans* (AEVE) (n=45,681) were attributed to unknown untreated sources along the river and until that source was found, we heard quite a bit of complaints

from the local area residents. West Nile Virus vector mosquitoes were also found this year, *Culex tarsalis* (CXTA) (n=3703) and *Culex pipiens* (CXPI) (n=8934).

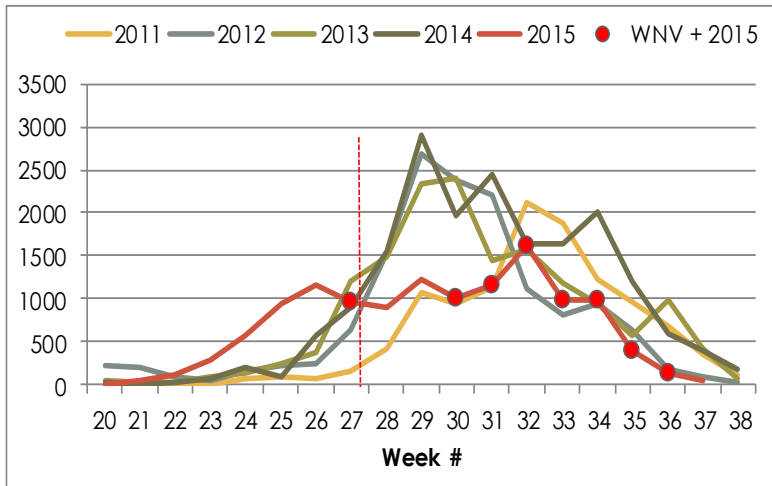


Three most common species found in Ada County in 2015.

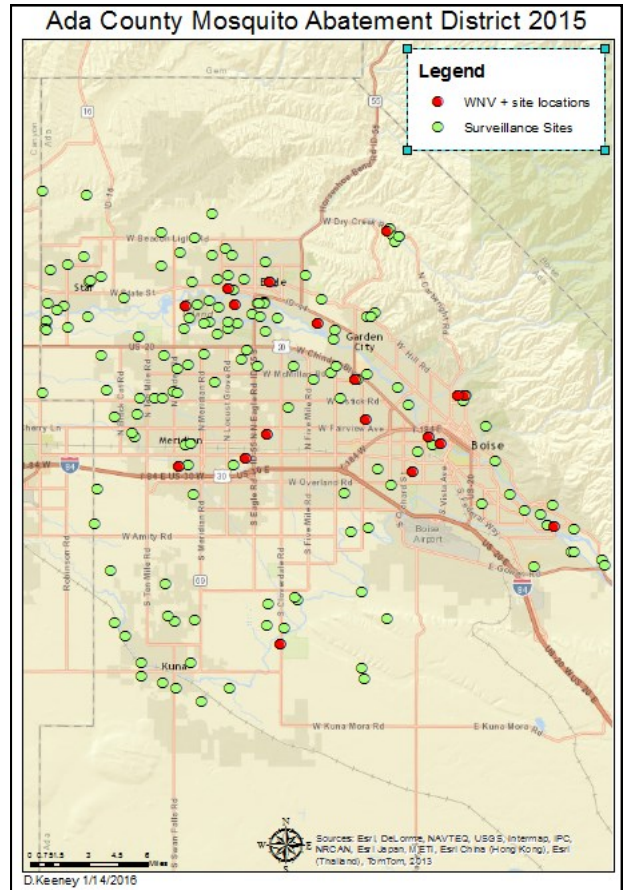
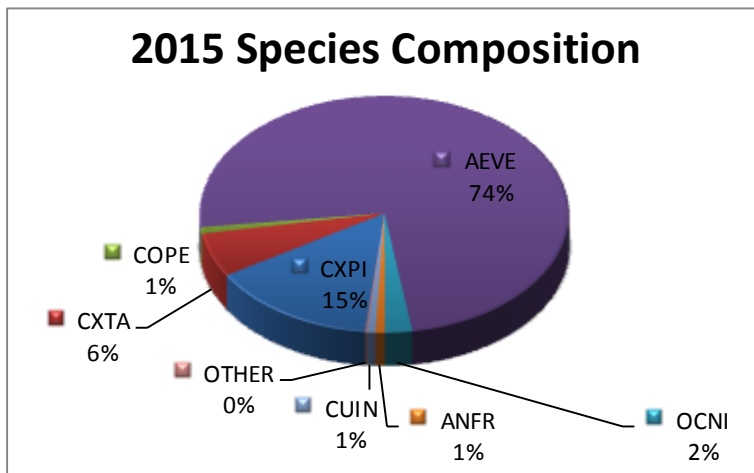
West Nile Virus in Ada County

West Nile Virus was first found in Ada County in 2005, and peaked in 2006, since then we have seen it over the years and continue to expect to see it, however, some years it is not as wide spread as in others. In 2015, we found a total of 28 positive pools (a decrease from 2014 at 50 positive pools), the first occurring on July 8th, 2015, with most of virus found in August. In 2015,

82% of the positive pools were *Culex pipiens* which has shifted in recent years from *Culex tarsalis* being the primary vector in Ada County. All locations were treated within same day of finding WNV through adulticide applications.



Culex species trapped in Ada County and WNV + week hits in 2015.



Ada County History of West Nile Virus

Year	# of WNV positive pools	Week of first onset of WNV +	# of <i>Culex</i> spp. sampled/tested
2015	28	27	12,636
2014	50	30	18,538
2013	90	28	15,602
2012	19	28	14,503
2011	0	NA	11,408
2010	0	NA	5,519
2009	38	29	10,466
2008	3	31	5,957
2007	5	29	4,034
2006	52	21	3,599

Mosquito Nightly Adulicide Control Operations

The 2015 season started off a little higher in work orders than in previous years, we already had 142 work orders for May, most of them where trap locations. By June, most of the adulicide applications were in response to high trap counts from surveillance and public complaints of floodwater species along the Boise River corridor and was in full force. July was the peak of the season for Adulicide.

This season, Meridian had the most fog requests with a total of 1,291 work orders, followed by Eagle with 709 work orders, Kuna with 296 work orders, Boise with 212 work orders and Star with 166 work orders. Over the season Adulicide crews completed **2,941 work orders**, of which 856 were



Adult mosquitoes landing in less than 30 seconds!

from surveillance trap locations and of those, a total of 18 unique trap locations across the county came back positive for

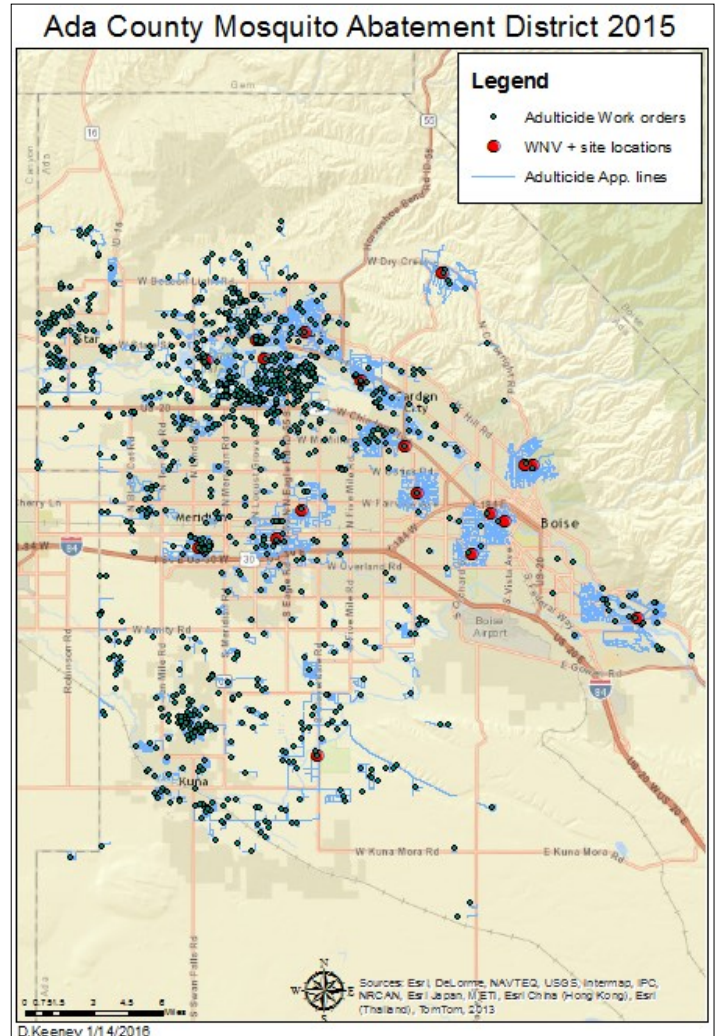
WNV. When a trap tested positive for WNV, we fogged a half mile to a square mile around that trap in response to the positive species flight distribution with WNV. At the beginning of the season, we fogged at the low rate application with mosquito adulicide chemical, permethrin; in July we increased the rate to a midlevel rate of application in

accordance with the label and following best management practices which helped throughout the summer reduce flying mosquito populations. All told, the Adulicide crews fogged a cumulative of 82,429 acres (average buffer of 300 ft. swath) or **2266.8 lane miles** for the 2015 season.

This year, we did field trials on two new products, Duet at Eagle Island in the first part of Septem-

ber and Delta Gard in Star, Eagle, and in the Kuna area, both of these products have different active ingredients which helps add more tools in the adulicide toolbox to help with potential resistance management issues in adult mosquito populations. Both did well and had a high efficacy of over 80% effectiveness.

Charlie McNeil, Adulicide Crew lead



Mosquito Daily Larvicide Control Operations



Ada County is currently split up into 11 areas with a larvicide field technician in

each of these areas. Each Larvicide field technician will have an average of 250-350 sites per week to inspect for larva and treat if needed. Sites may vary from a large pasture of approximately 3-10 acres, large cattail ponds, back yards from over watering to a drain inlet (storm drain) that is 100 ft². Larvicide crews also have work orders that may be placed by land owner that are having mosquito problems. At that time the larviciders will contact the land owners and make an appointment to inspect, treat and/or map the reported problem. The larviciding field technician position is a seasonal job, lasting from mid-

March to the end of September. We had a lot of new larviciders this year, they did a great job of covering their areas and helping out in other areas needed. For Ada County's 2015 larvicide season, the crew had **21,430 mapped sites that lead to 86,731 inspections and 41,566 treatments** throughout the season, totaling **794.3 treated acres**. In the early season we had an area that had high nuisance floodwater species counts (Aedes) and had trou-

ble finding where the problem was coming from, after a group effort of looking we found the problem area in irrigated fields along the river in Star and Eagle and after treatment, the counts dropped down a great deal.

Robin Howard, Larvicide Crew Lead



Storm Drains are Mosquito Producers!

Be aware of over watering!

We continue to find mosquito larvae in storm drains and drop inlets along the roads, most of this water is sourced to over watering of residential lawns for common areas. These drains are perfect plac-

es for vector mosquitoes-those that are able to carry disease like West Nile Virus- to develop and emerge as adults!

Please help out by reducing mosquito habitat and reduce water usage on lawns and in common areas of your

neighborhood!



Storm drain producing mosquitoes.

Projects worked on in 2015

Field Trials with Duet and Delta Gard adulticide efficacy- Overall, trials proved that both products had effective adult mosquito control in nightly operations and can be used in future to help rotate different active ingredients and reduce potential mosquito insecticide resistance.

Oviposit Trial Trap- Placed 15 traps in different locations in the district for 3 weeks. Throughout the trial, we found areas to improve on and will continue in next season at different locations. Results were that no *Aedes Aegypti* were found in these trap locations.

CO₂ Project for Surveillance traps
-This project was looking into cost effectiveness, management, and risk of converting surveillance traps using dry ice to using CO₂ canisters. At the end of the season, it is still being reviewed if feasible and effective- and if so we could see a significant cost savings from dry ice use. We will continue to review options in 2016.

Bike Implementation Project-
Early on this season some of the equipment needed to potentially implement a full time bike crew was acquired, some pre-planning and research activities took place, though not implemented due to

the timing of year and proper planning. More trainings for bike safety and planning options were reviewed so that in 2016, a “soft bike trial crew” is proposed to be implemented a few times a month depending on areas within the district to help organize and manage a new way to improve larvicide control efforts

Barrier Treatments- In 2015, we tested a barrier treatment as an option to control adult mosquitoes after they land and rest on vegetation within Eagle Island in different locations. While one location came back as not a significant decrease in trapped mosqui-



Eagle Island State Park at sunset just before a night time adult mosquito treatment to control flying mosquitoes.

Projects worked on in 2015 continued...

toes post treatment, it may have been attributed to vegetation present and that not an entire perimeter was sprayed. In the next season, we may try again in a different location with more of perimeter spray with set trap locations where mosquitoes travel through vegetation of a multiple day trial to see if any decrease in samples are observed, therefore analyzing this as another tool in toolbox for mosquito control.

Right: *Samples after field trial with Duet kill efficacy*



Barrier treatment: field technician spraying vegetation.



Having to forge high water to get to newly discovered "mosquito island" near Star.

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Training Opportunities and Continuing Education

Continuing education and training of staff is a primary objective of our program in order to use the best management practices available. The majority of training also contributes for recertification credits through the Idaho State Department of Agriculture to continue to carry a Professional Applicators license in the state of Idaho.

2015 Seminar/Conference/Training	People Sent	Hours	Total
ATV training	1	6	6
ACMAD in house seminars	14	4	56
ACMAD in house training applicators	11	80	880
IMVCA Spring Workshops	14	8	112
NWMVCA Spring Workshop	1	12	12
NWMVCA Fall Conference (BC, Canada)	1	20	20
Idaho Pest Expo (ECA of ID)	1	12	12
SWIWCA Fall Seminar	7	8	112



Field Technician "dipping" for larvae.

Total Hours in Training for 2015:

1210



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It's a hard job, but someone's got to do it! Field technician losing boots in muddy marsh after treating for larvae.

Mission Statement

The mission of Ada County Mosquito Abatement District is to control mosquitoes that are both a nuisance and potential vector of disease to Ada County residents.

Districts Brief History

Ada County's original Mosquito Abatement District (MAD) was the Three-Mile Creek District established in 1974, which included 12 sq miles between Cloverdale and Cole Roads and Franklin and Columbia Roads. There were several district annexations made over the next few decades, and in 2004 Ada County Board of County Commissioners agreed to incorporate and operate what was then called the Southwest Ada County Mosquito Abatement District. Today, the district is known as Ada County Mosquito Abatement District (ACMAD) and covers 406 sq miles, with the majority of the district covering major residential and urban areas.

Goals from 2015

2015 had some objectives set out that we worked on throughout the season. With new staff coming on and learning new roles within the mosquito department and gaining experience, challenges were met, but in the end, overcome, and the season turned into another mosquito year with record breaking nuisance floodwater mosquitoes and some West Nile Virus presence within Ada County.

1. Increase control and monitoring of storm drains using effective and efficient means through larviciding practices: **Goal met- 95% of new sites mapped were DI's/ drains; new sites mapped in 2015 were 6853.**
2. Increase the number of remediated sites and tracking through mobile computer devices and GIS: **Documented 1.6 (n=602) times as many sites from 2014, continue in future efforts**
3. Increase education and

- public outreach for mosquito control and the ACMAD within the residents and track it through mobile computers and GIS and programs and events: **Goal not met due to staff turnover & mainly computer error issues**
4. Projects to continue to implement and work on in 2015: oviposit traps and barrier application planning: **Goal Completed**

Goals for 2016

1. More thorough training and skill building with seasonal staff to help achieve mission
2. Increase Remediated sites by setting goals by larvicide area and track through computer program
3. Continue to work with Public Education Specialist to increase education and public outreach
4. Improve mobile program software to be efficient, effective tool for field staff