Maricopa County
Environmental Services Department
Vector Control Division

Best Management Practices for Vector Surveillance and Control

John Townsend
Maricopa County Environmental Services
Vector Control Division Manager

Maricopa County
Environmental Services Department

Working with our community
to ensure a safe and healthy environment

VISION STATEMENT:
As the recognized regional environmental leader, we will develop and foster innovative environmental health protection programs for the safety of our residents and their environment.

MISSION STATEMENT:
The mission of the Environmental Services Department is to provide safe food, water, waste disposal and vector borne disease reduction controls to the people of Maricopa County so that they may enjoy living in a healthy and safe community.

What is a Vector?

an insect or other organism that transmits a pathogenic fungus, virus, bacterium, etc.

An arthropod of public health significance, such as a mosquito, tick, flea or other insect that carries disease-causing microorganisms from one host to another.

Arizona Revised Statues

36-601

36-601. Public nuisances dangerous to public health

A. The following conditions are specifically declared public nuisances dangerous to the public health:

1. Any condition or place in populous areas that constitutes a breeding place for flies, rodents, mosquitoes and other insects that are capable of carrying and transmitting disease-causing organisms to any person or persons or any condition or place that constitutes a feral colony of honeybees that is not currently maintained by a beekeeper and that poses a health or safety hazard to the public.

MARICOPA COUNTY ENVIRONMENTAL HEALTH CODE
CHAPTER III
RODENTS, INSECTS AND VERMIN

REGULATION 1. Infestation - Harborage

The infestation by or harborage of rodents, lice, bedbugs, roaches, flies or other arthropods of public health significance, in or about any premises is hereby declared to be dangerous to public health. Any condition or place that constitutes a feral colony of honeybees that is not currently maintained by a beekeeper and that poses a health or safety hazard to the public is hereby declared to be a public nuisance dangerous to the public health. No person shall cause, maintain, or within his control, permit such infestation or harborage. The owner, occupant, or person in control of any place or premises shall take all reasonable measures to prevent such infestation or harborage and, upon notification from the Department to do so, shall take all necessary and proper steps to eliminate the infestation or harborage and to prevent its recurrence.

MARICOPA COUNTY ENVIRONMENTAL HEALTH CODE
CHAPTER III
RODENTS, INSECTS AND VERMIN

REGULATION 2. Mosquitoes

No person shall cause, maintain or, within his control, permit any accumulation of water in which mosquitoes breed or are likely to breed. The owner, occupant, or person in control of any place where mosquitoes are breeding, or which constitutes a breeding place for mosquitoes shall take all necessary and proper steps to eliminate the mosquito breeding and to prevent its recurrence through the elimination of or the institution of necessary control measures at mosquito breeding sites.

Best Management Practices for Mosquito Management

Best Management Practices (BMP) should form the fundamental approach to mosquito management for all mosquito control programs. Agencies should strive to adhere to these BMPs to the maximum extent practicable, given resource availability.

Programs are encouraged to maintain documentation as to how they intend to employ the 9 BMP components listed below in a Pesticide Discharge Management Plan as part of their operative AZPDES permit.

Best Management Practices for Mosquito Management

RECEIVED
MAY 03 2016
ADEQ

ADEQ Arizona Department of Environmental Quality

ANNUAL REPORT FORM
for the AZPDES
Pesticide General Permit

This form is for any Operator that is a Decision-maker required to prepare an annual report (see Pesticide General Permit AZG2011-001, Section 8.5). The annual report must be completed and included with the Pesticide Discharge Management Plan no later than February 14 for all covered pesticide discharge activities occurring during the previous calendar year. For discharges to an impaired water or outstanding Arizona water, or authorization under a specific approval, the annual report must be SUBMITTED to ADEQ and received by the department no later than February 21 for the previous calendar year. If required, submit the annual report to:

Arizona Department of Environmental Quality
Stormwater and General Permits Unit
1110 West Washington Street, 5415A-1
Phoenix, Arizona 85007

A. GENERAL INFORMATION

Operator Name: Steven Goode - Maricopa County Environmental Services Department Director

Project Name:	Authorization Number:
Vector Control	AZPEST-300008

Address:	City:	State:	Zip Code:
1001 N. Central Ave.	Phoenix	AZ	85004

Phone Number(s):	Fax:	E-mail:
(602) 372-5599	(602) 506-5141	SGoode@mail.maricopa.gov

Contact Name and Title (if different than Operator):
John Townsend - Vector Control Division Manager

Address:	City:	State:	Zip Code:
3220 W. Gibson Lane	Phoenix	AZ	85009

Phone Number(s):	Fax:	E-mail:
(602) 506-0703	(602) 506-0725	jtownsen@mail.maricopa.gov

B. DISCHARGE INFORMATION

If you maintained permit coverage but did not apply pesticides (and had no adverse incidents or corrective actions) in the previous year, check "No Discharge," skip to Section E., and sign the Certification. Otherwise, please complete the remaining sections of the form.

☐ No Discharge

C. ADVERSE INCIDENTS AND CORRECTIVE ACTION

1. Was an adverse incident observed and/or corrective actions taken for any Pest Treatment Area for which you have coverage under the permit?

☑ No adverse incidents were observed and no corrective action was taken.

☐ Yes, an adverse incident was observed and/or correct action was taken. Complete questions 2 – 5 for each Pest Treatment Area in which adverse incidents were observed or corrective actions were taken. Copy this section for additional submissions.

2. Pest Treatment Area: Area wide treatments within Maricopa County

Arizona Pollutant Discharge Elimination System (AZPDES)

Table 6.0
Annual Treatment Area Threshold

Pesticide Use	Treatment Threshold
Mosquitoes and Other Flying Insect Pests	
In Water	6,400 acres of treatment area
Weed, Algae and Vegetation Control	
In Water	80 acres of treatment area
At Water's Edge	20 linear miles of treatment area at water's edge
Animal Pest Control	
In Water	80 acres of treatment area
At Water's Edge	20 linear miles of treatment area at water's edge
Forest Canopy Pest Control	
In Water	6,400 acres of treatment area
Discharges to Impaired Waters or Outstanding Arizona Waters	
In Water	Any amount
At Water's Edge	Any amount
Specific Approvals	
In Water	Any amount
At Water's Edge	Any amount

Best Management Practices for Mosquito Management

Surveillance

Is the backbone of all Integrated Mosquito Management programs. Identifies problem species and population trends in order to direct and evaluate control methods.

Determines species to ensure that the most appropriate control methods are chosen.

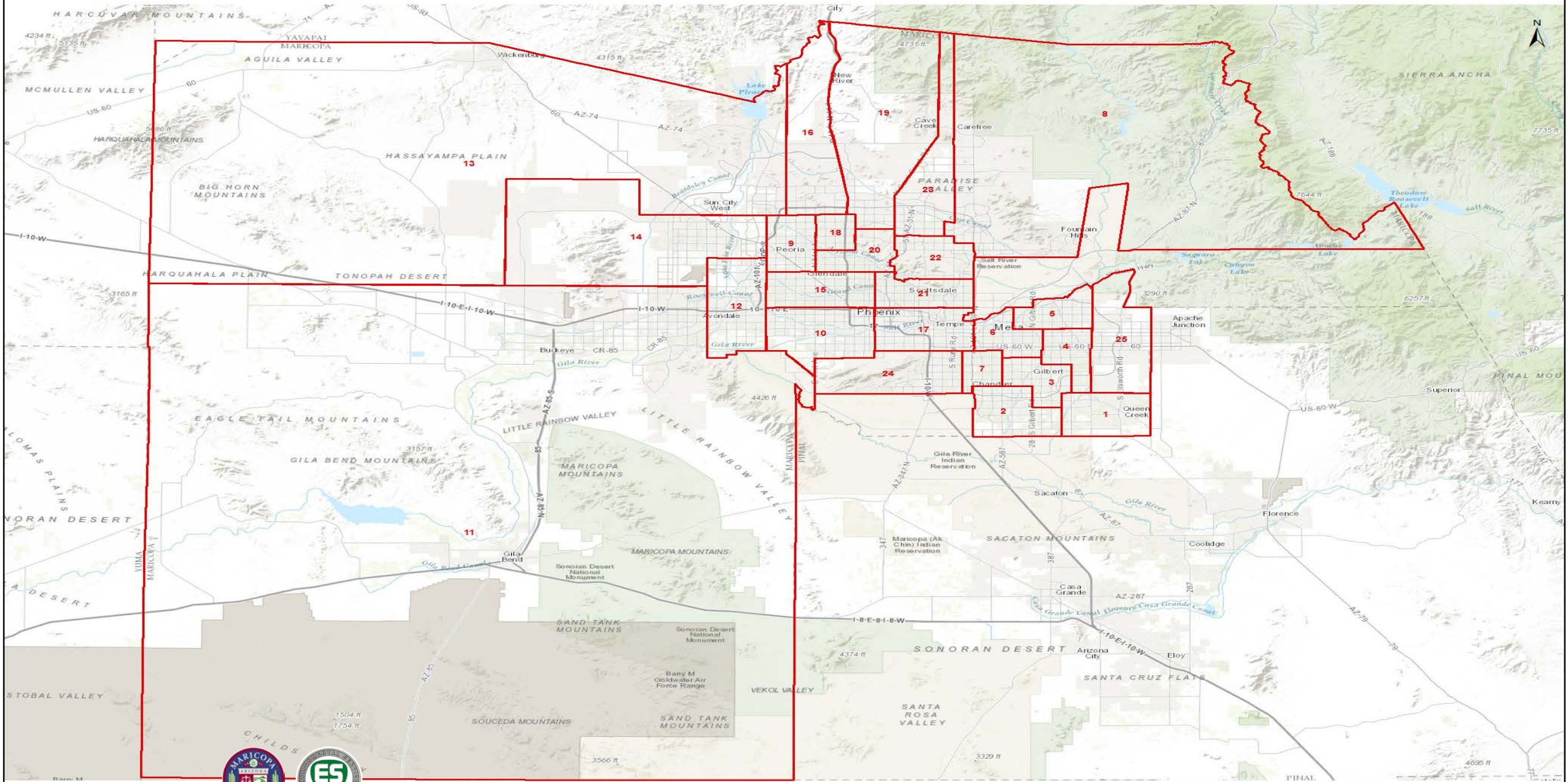
Determine population levels of adult mosquitoes using professionally acceptable techniques, including service requests, trap or collection data, to establish needs for action.

Best Management Practices for Mosquito Management

Mapping of the Surveillance Data

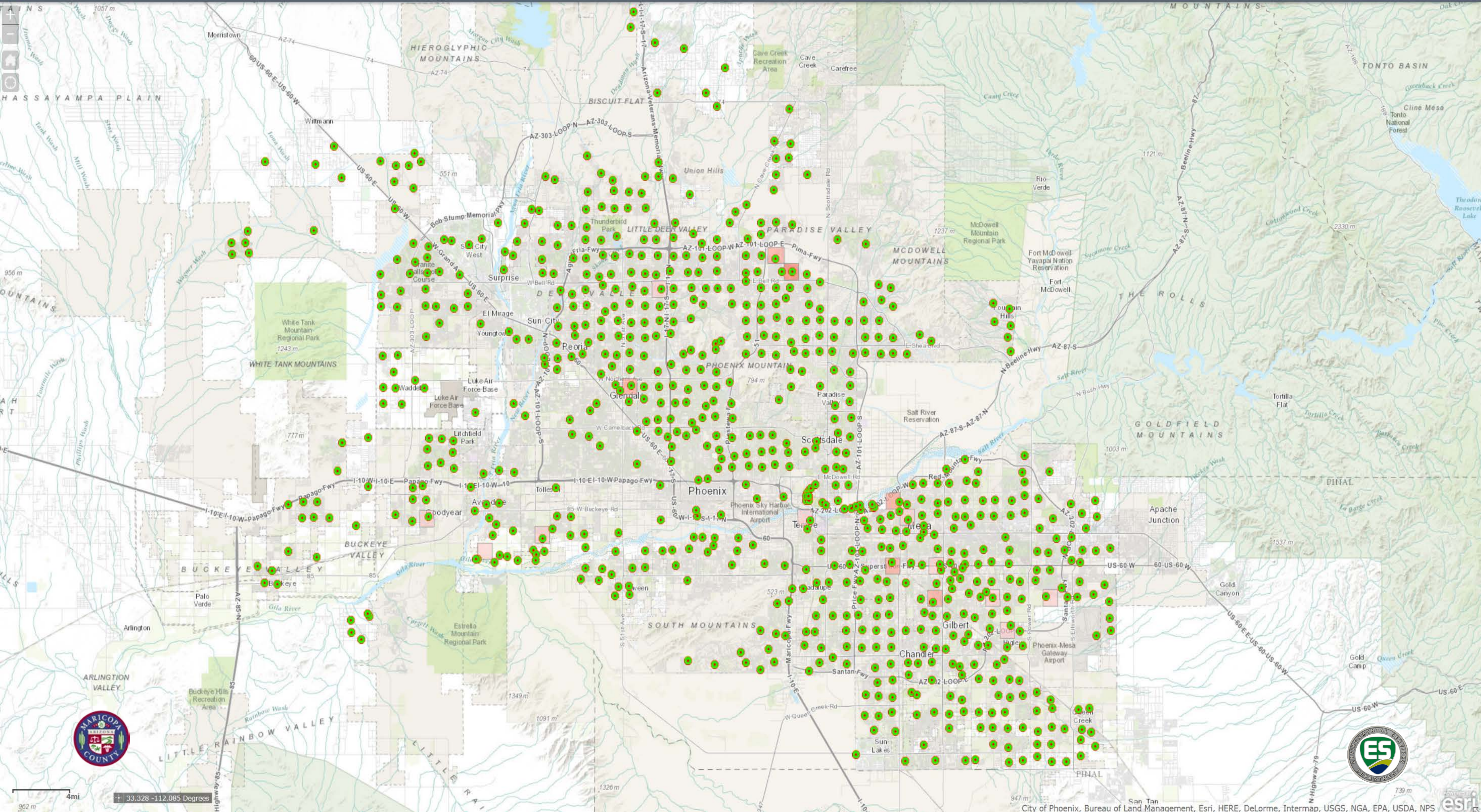
Utilize maps to continually monitor major sources of larval/adult mosquitoes in addition to documenting areas where control measures have been instituted. These maps should also define your treatment areas.

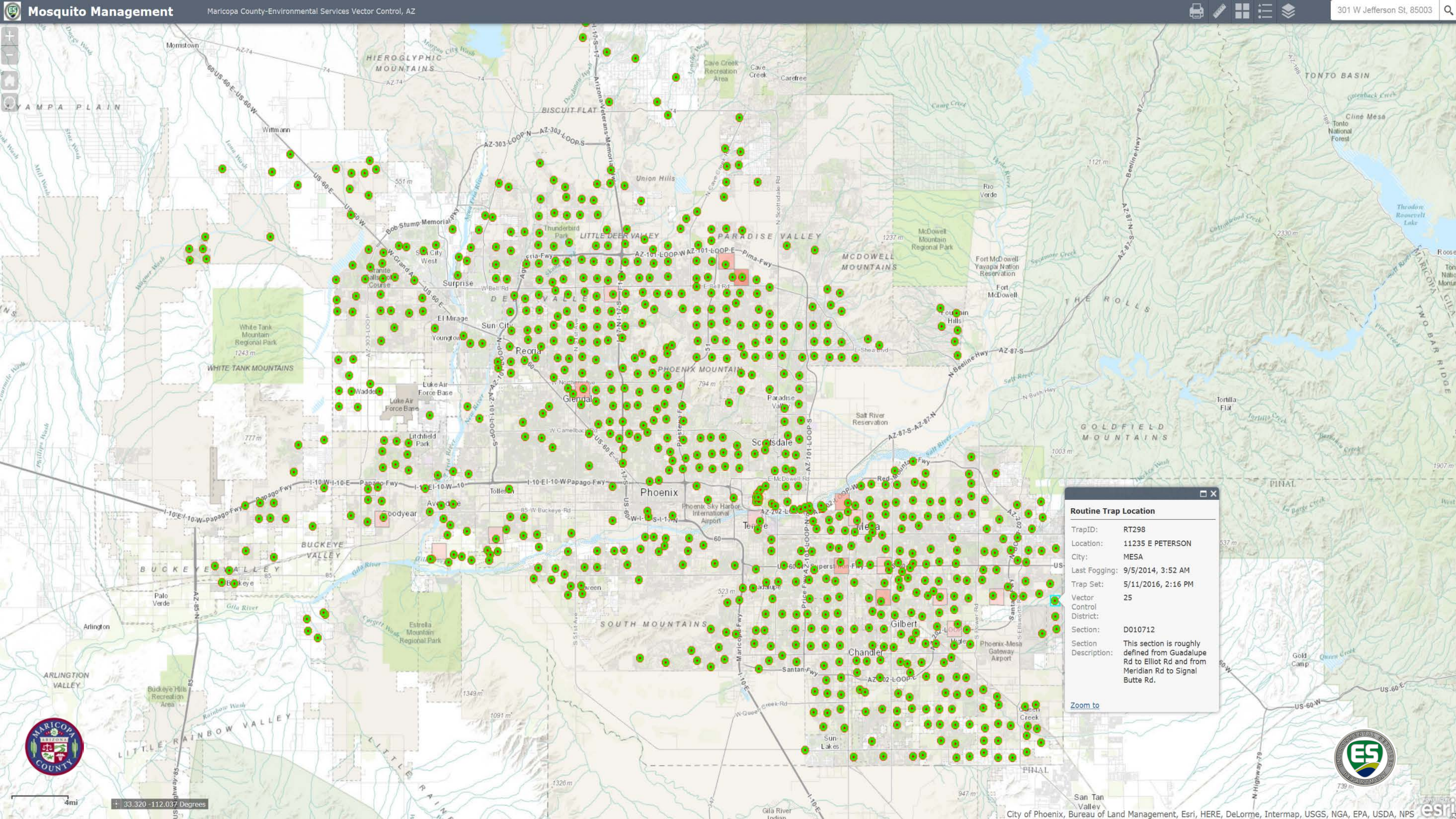
ARBOVIRUS ACTIVITY MAP (Vector Control Districts)

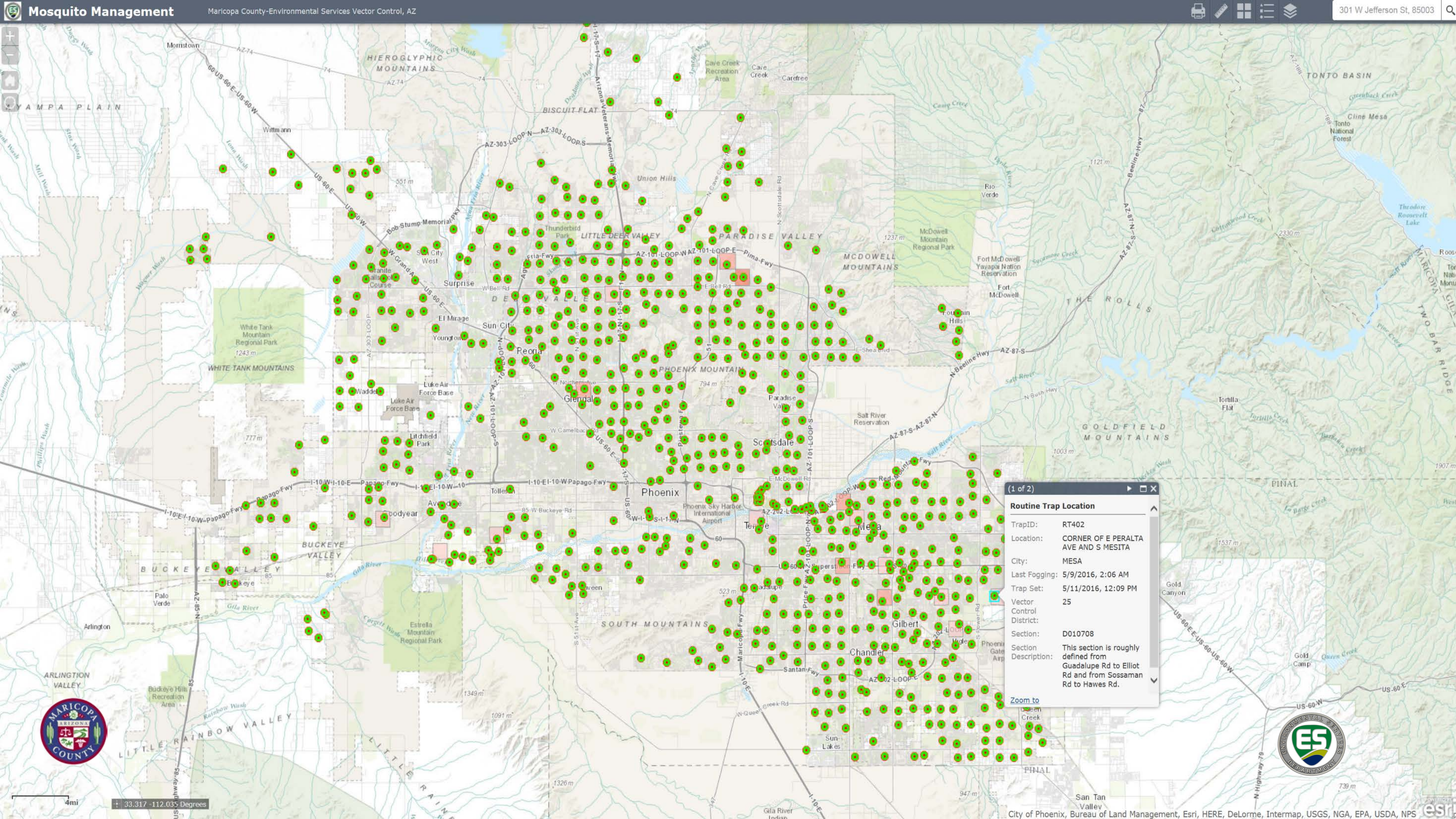


Mosquito Management Maricopa County-Environmental Services Vector Control, AZ

301 W Jefferson St, 85003




Mosquito Management
Maricopa County-Environmental Services Vector Control, AZ
301 W Jefferson St, 85003
Routine Trap Location
TrapID: RT298
Location: 11235 E PETERSON
City: MESA
Last Fogging: 9/5/2014, 3:52 AM
Trap Set: 5/11/2016, 2:16 PM
Vector Control District: 25
Section: D010712
Section Description: This section is roughly defined from Guadalupe Rd to Elliot Rd and from Meridian Rd to Signal Butte Rd.
Zoom to
Phoenix
Scottsdale
Mesa
Gilbert
Chandler
Glendale
Peoria
Surprise
Sun City
Goodyear
Avondale
Buckeye
Tempe
Paradise Valley
Fountain Hills
Cave Creek
Carefree
Wittmann
Morristown
Arlington
Palo Verde
White Tank Mountain Regional Park
WHITE TANK MOUNTAINS
HIEROGLYPHIC MOUNTAINS
MCDOWELL MOUNTAINS
GOLDFIELD MOUNTAINS
SOUTH MOUNTAINS
TONTO BASIN
BUCKEYE VALLEY
Estrella Mountain Regional Park
Luke Air Force Base
Phoenix Sky Harbor International Airport
Salt River Reservation
Fort McDowell Yavapai Nation Reservation
4mi
33.320 -112.037 Degrees
City of Phoenix, Bureau of Land Management, Esri, HERE, DeLorme, Intermap, USGS, NGA, EPA, USDA, NPS


Mosquito Management
Maricopa County-Environmental Services Vector Control, AZ
301 W Jefferson St, 85003
(1 of 2)
Routine Trap Location
TrapID: RT402
Location: CORNER OF E PERALTA AVE AND S MESITA
City: MESA
Last Fogging: 5/9/2016, 2:06 AM
Trap Set: 5/11/2016, 12:09 PM
Vector Control District: 25
Section: D010708
Section Description: This section is roughly defined from Guadalupe Rd to Elliot Rd and from Sossaman Rd to Hawes Rd.
Zoom to
Phoenix
Scottsdale
Mesa
Tempe
Chandler
Gilbert
Glendale
Peoria
Surprise
Goodyear
Avondale
Buckeye
4mi
33.317 -112.035 Degrees
City of Phoenix, Bureau of Land Management, Esri, HERE, DeLorme, Intermap, USGS, NGA, EPA, USDA, NPS

Maricopa County Arbovirus Activity Map

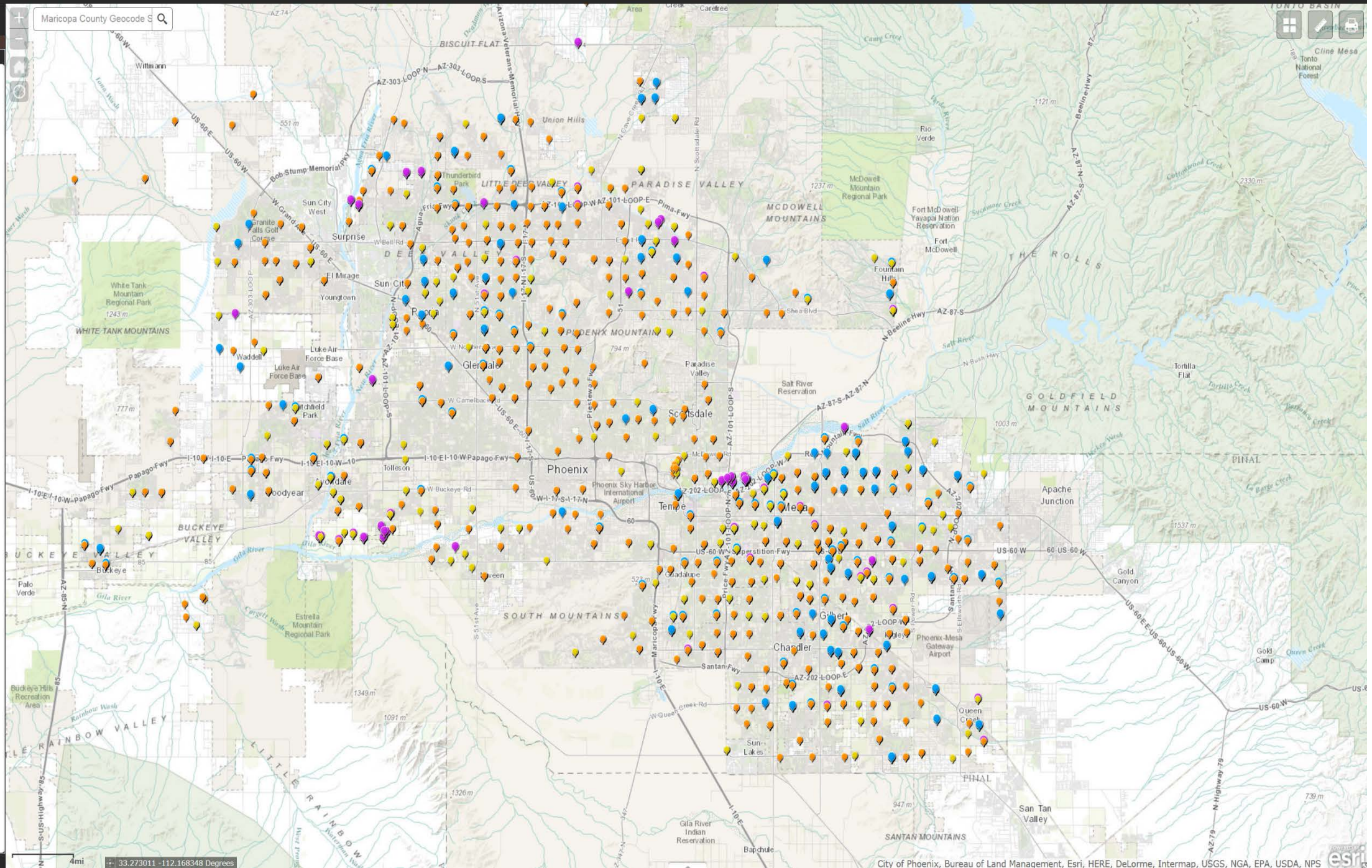
Environmental Services-Vector Control

Maricopa County Geocode S

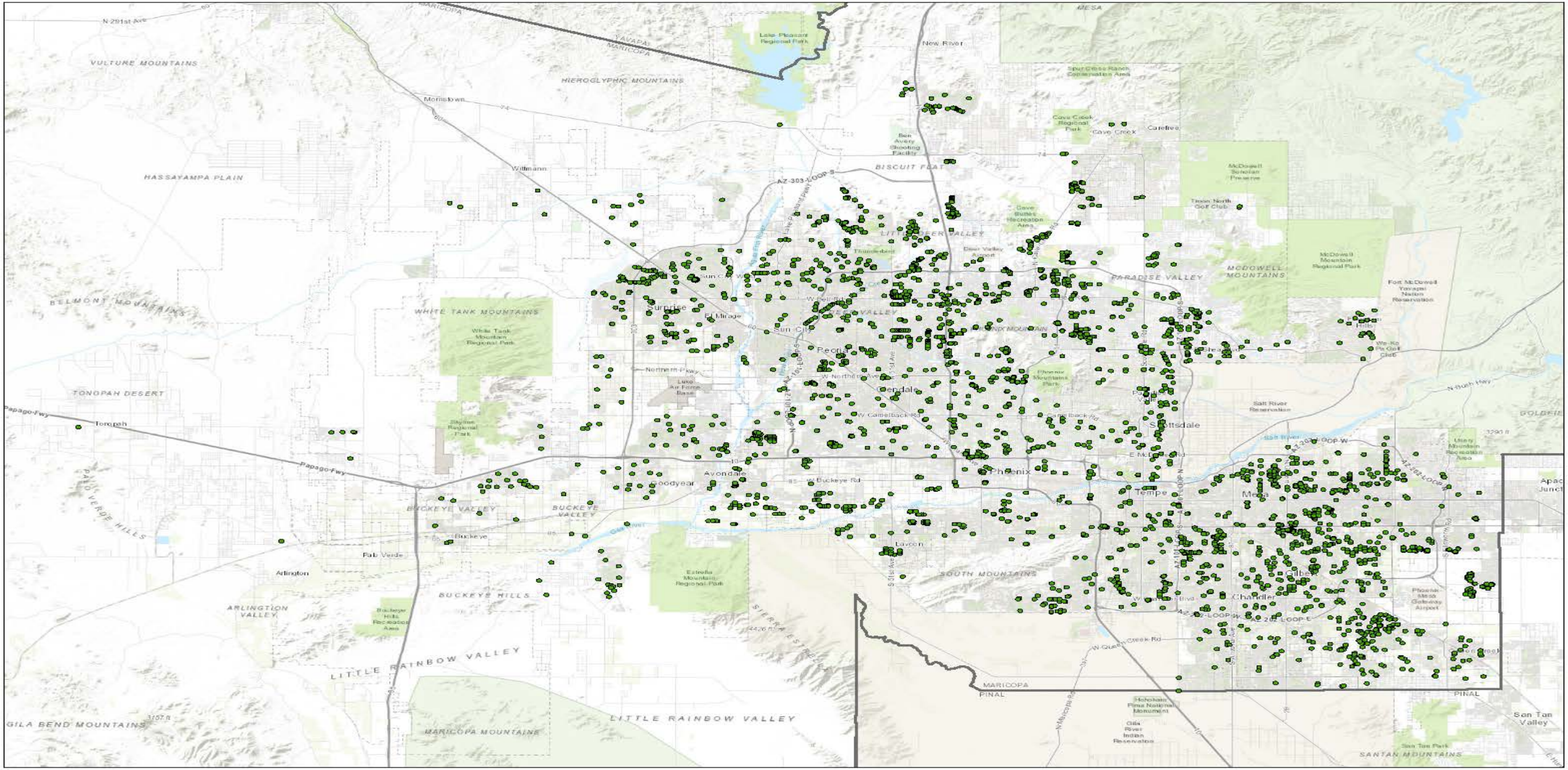
Legend

Lab Sample

- Cx quinquefasciatus
- Ae aegypti
- Cx tarsalis
- Ae vexans



LARVICIDED SITES 2017

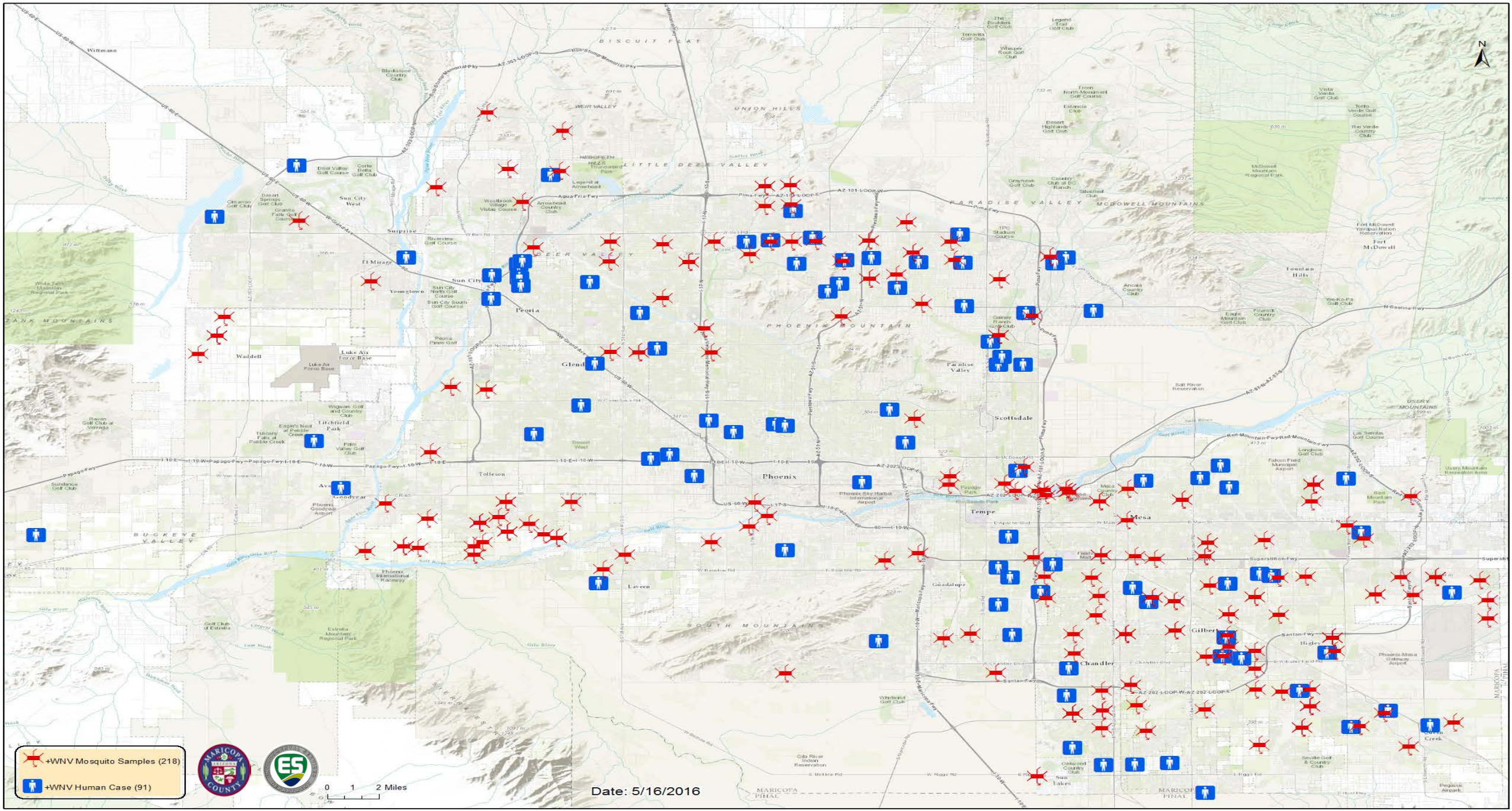


0 2 4 8 Miles

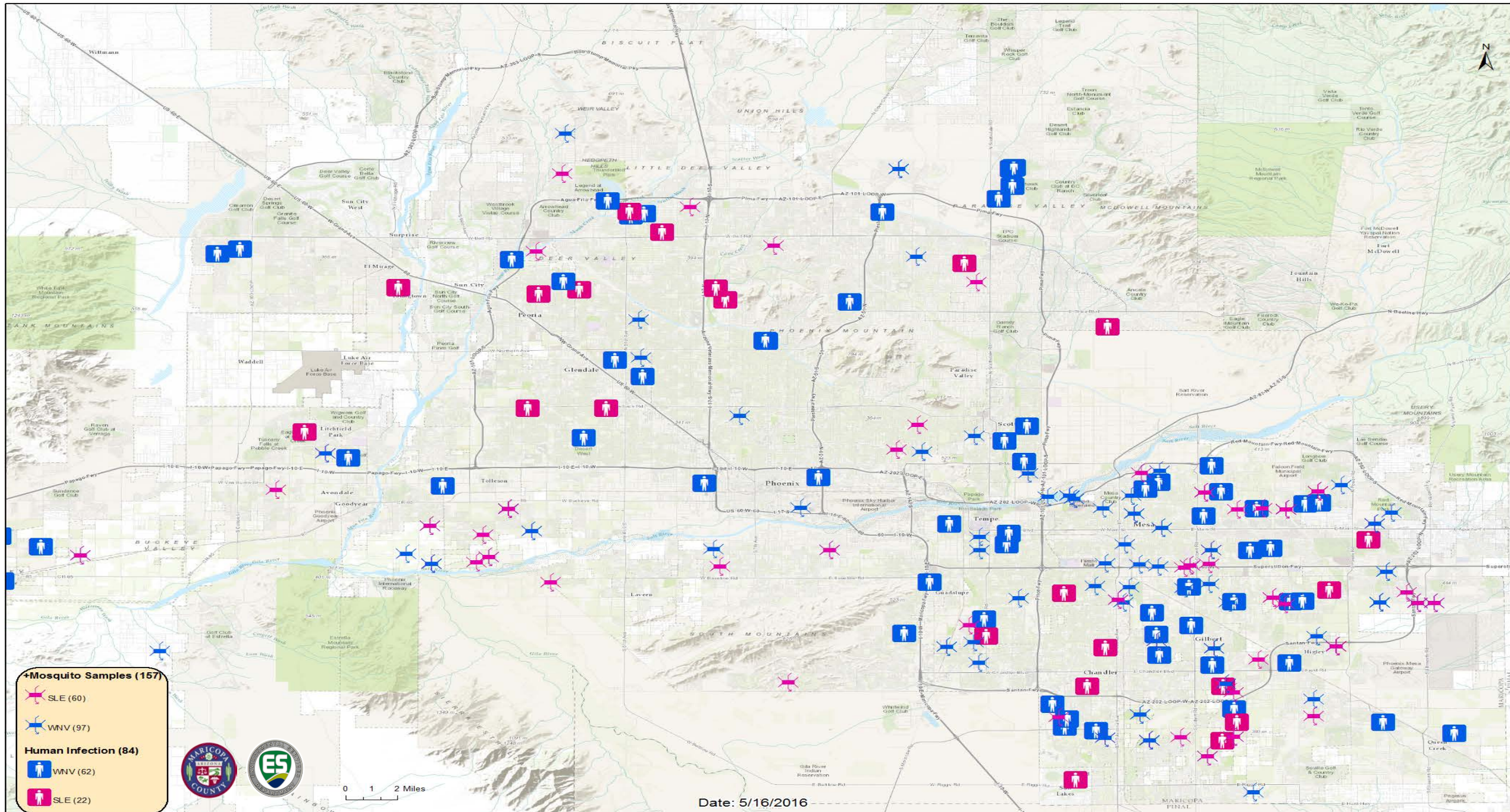
Legend:

- 2017 Larvicided Site (3477)

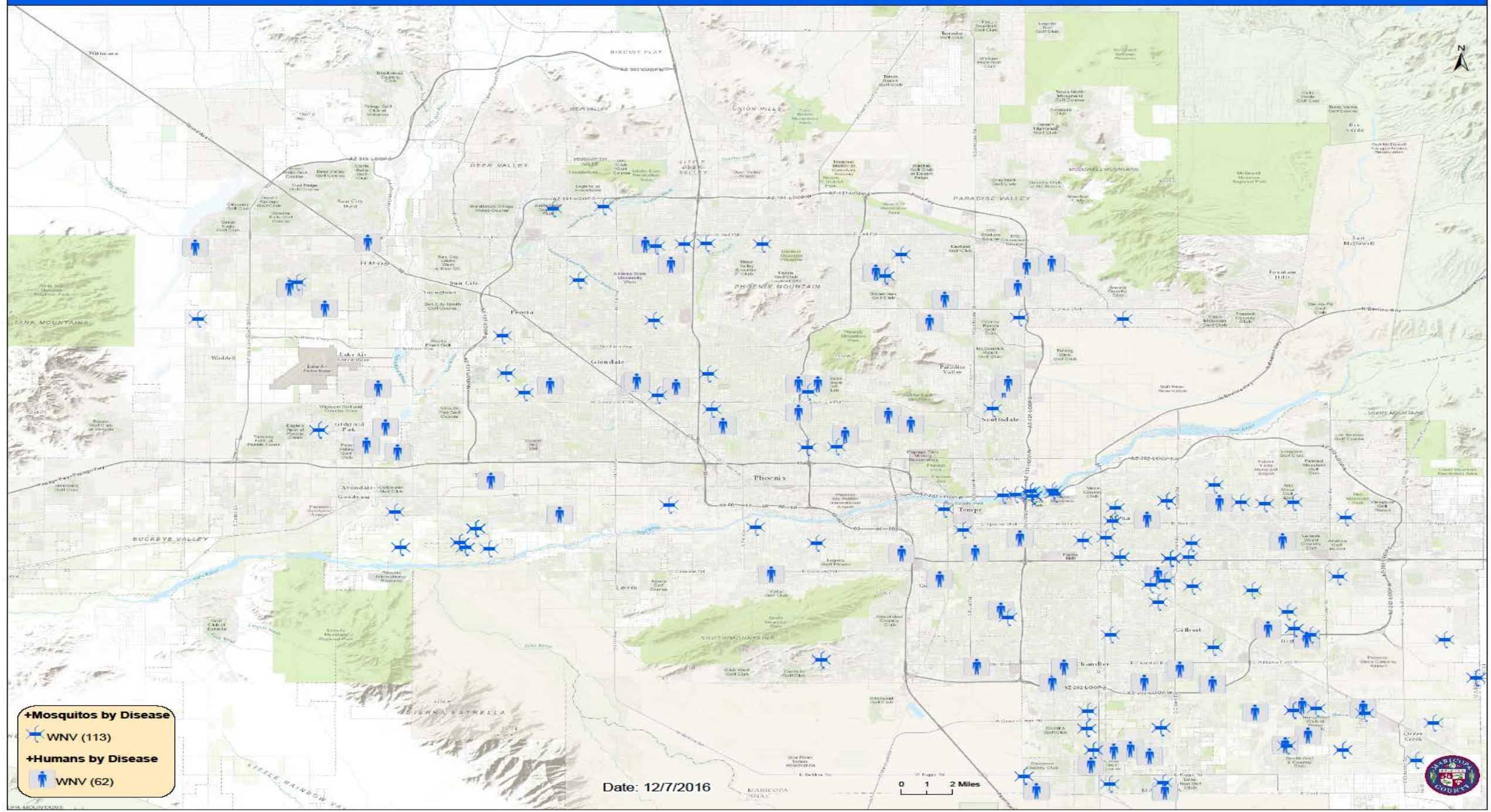
2014 ARBOVIRUS ACTIVITY MAP



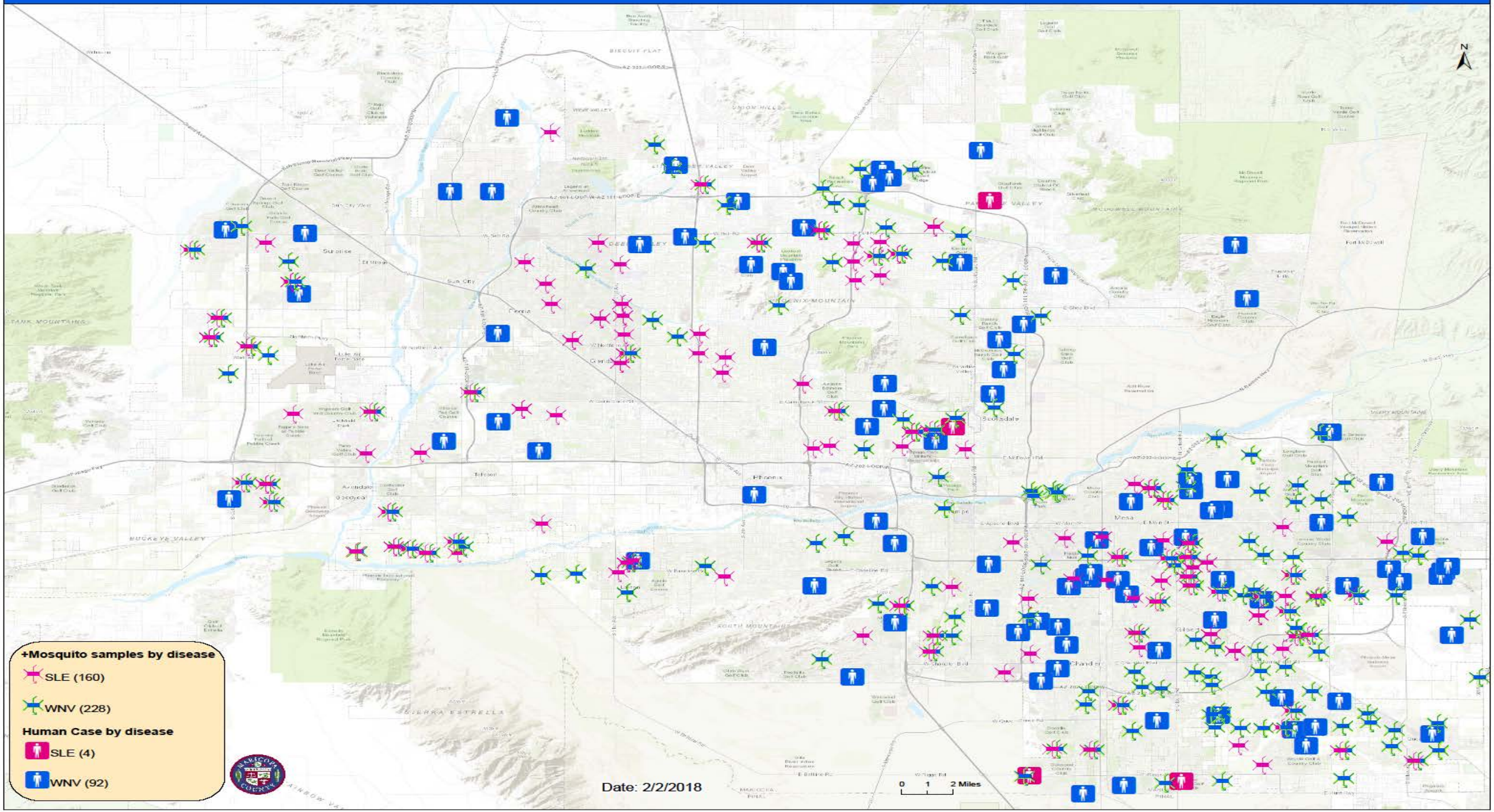
2015 ARBOVIRUS ACTIVITY MAP



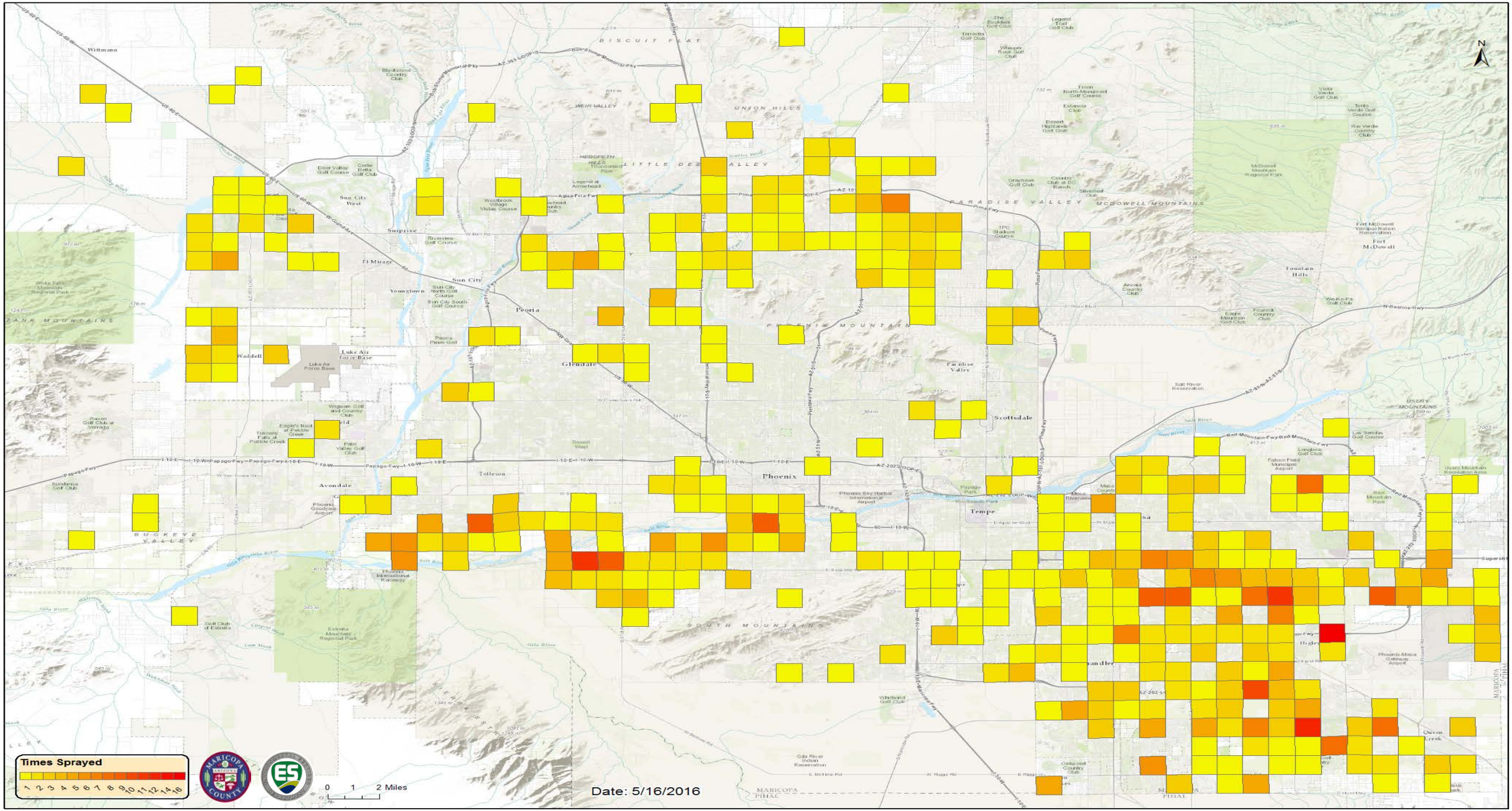
2016 ARBOVIRUS ACTIVITY MAP



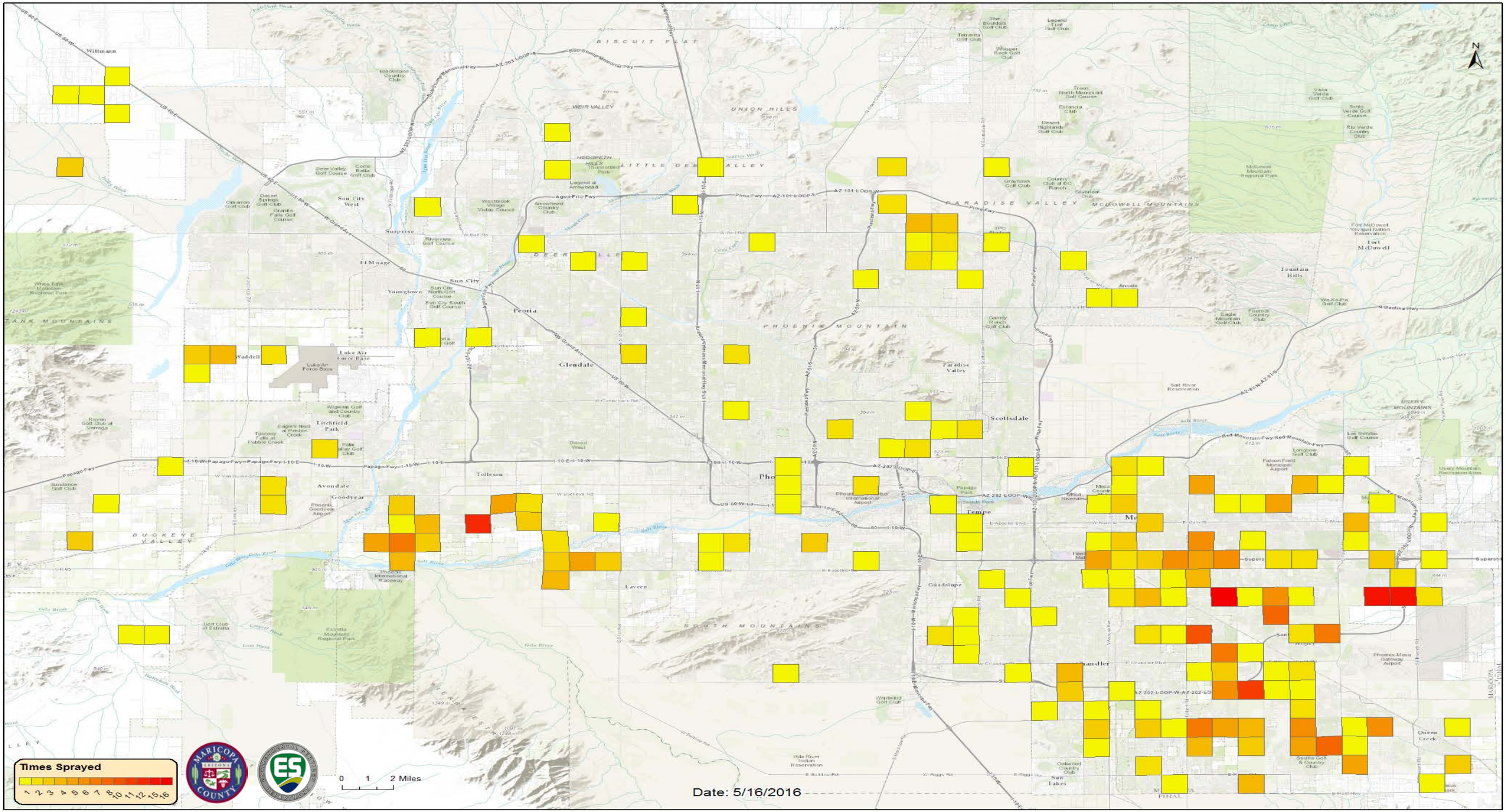
2017 ARBOVIRUS ACTIVITY MAP



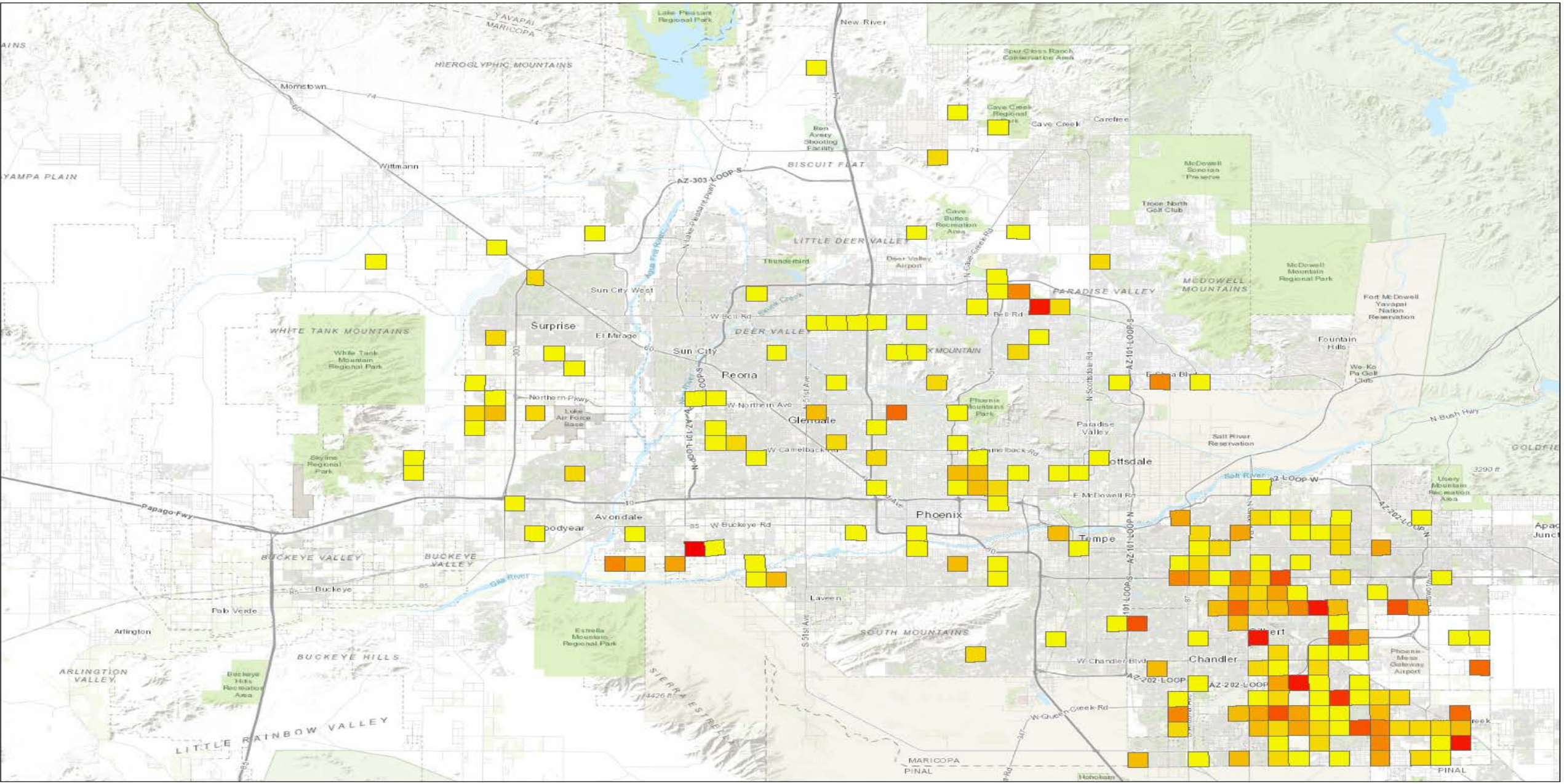
2014 ADULTICIDE MAP



2015 ADULTICIDE MAP



ADULTICIDE MAP 2018



0 1 2 4 6 8 Miles

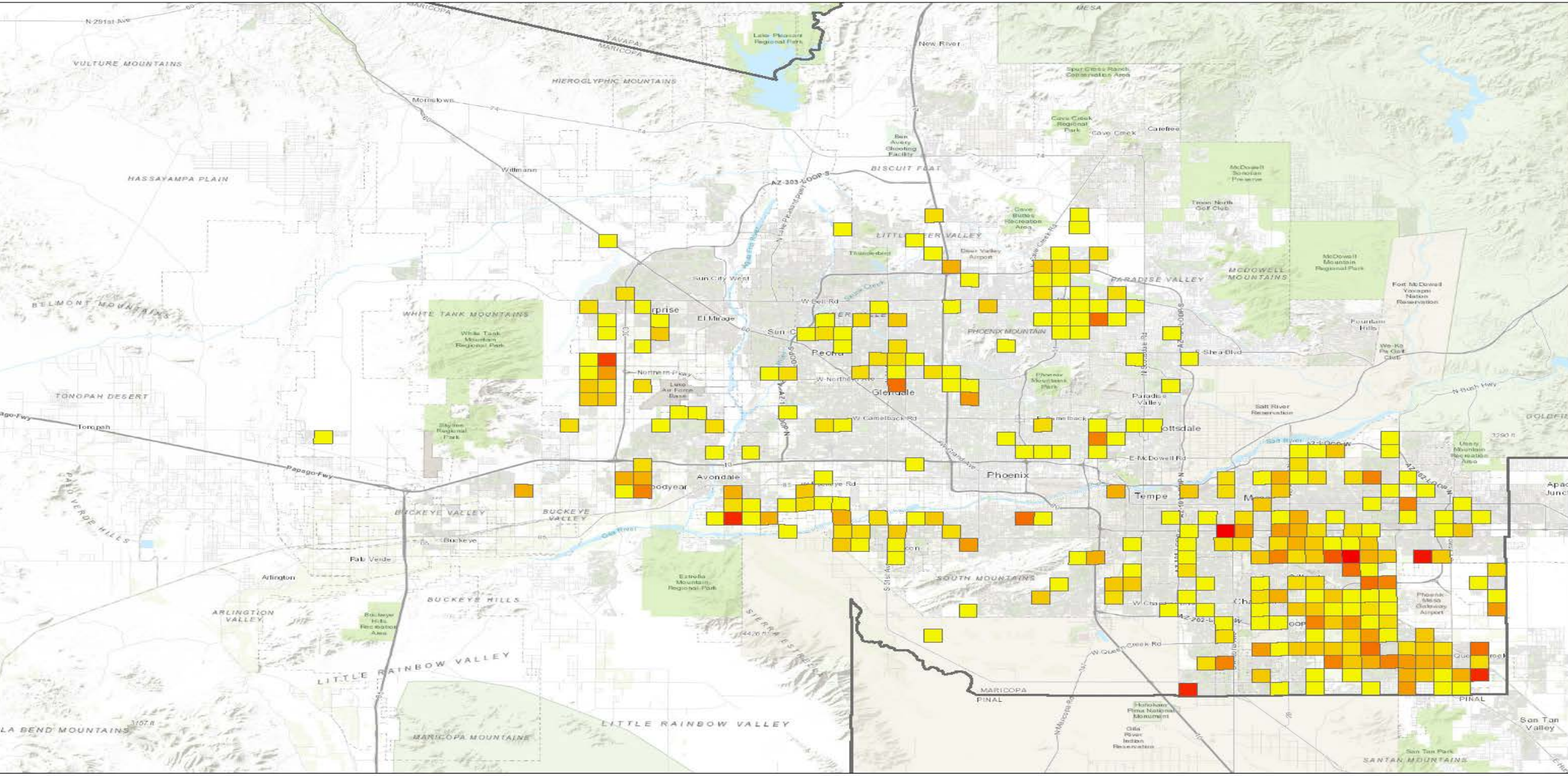
Legend:

Times sprayed

1 2 3 4 5 6 7 8 10 17

N

ADULTICIDE MAP 2017



0 2 4 8 Miles

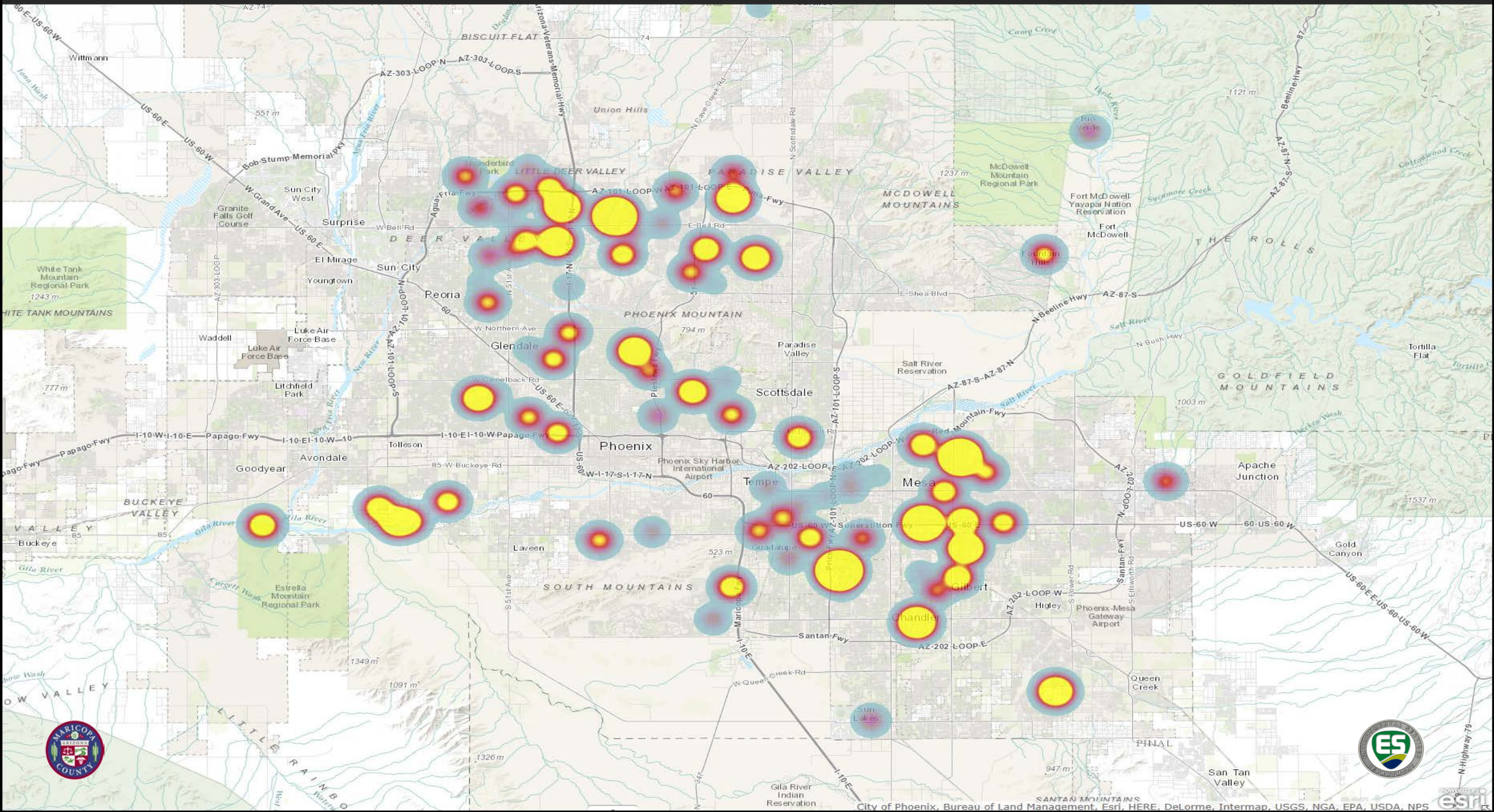
Legend:

Times sprayed

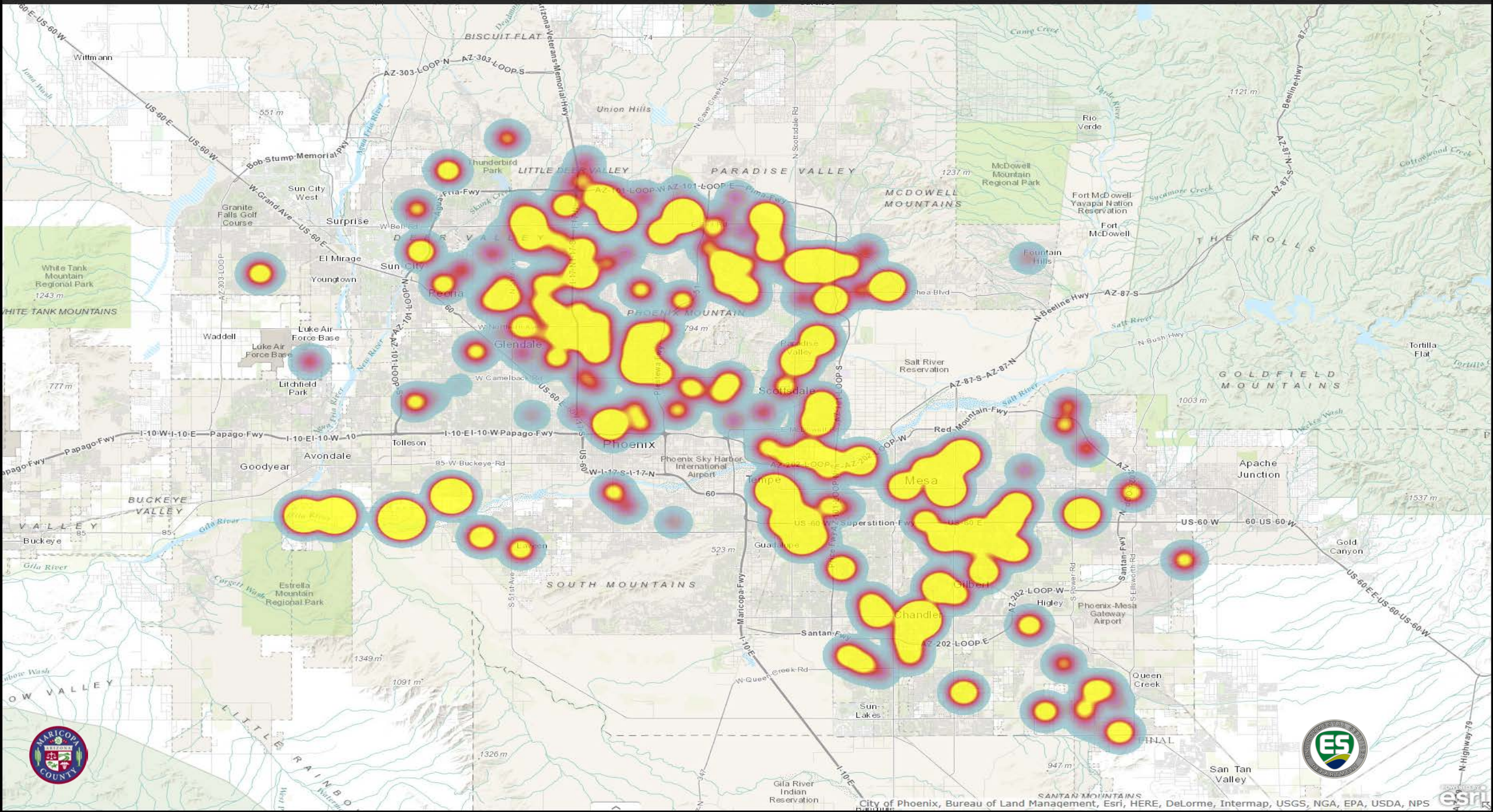
1 2 3 4 5 6 7 8 9 10 13 14

N

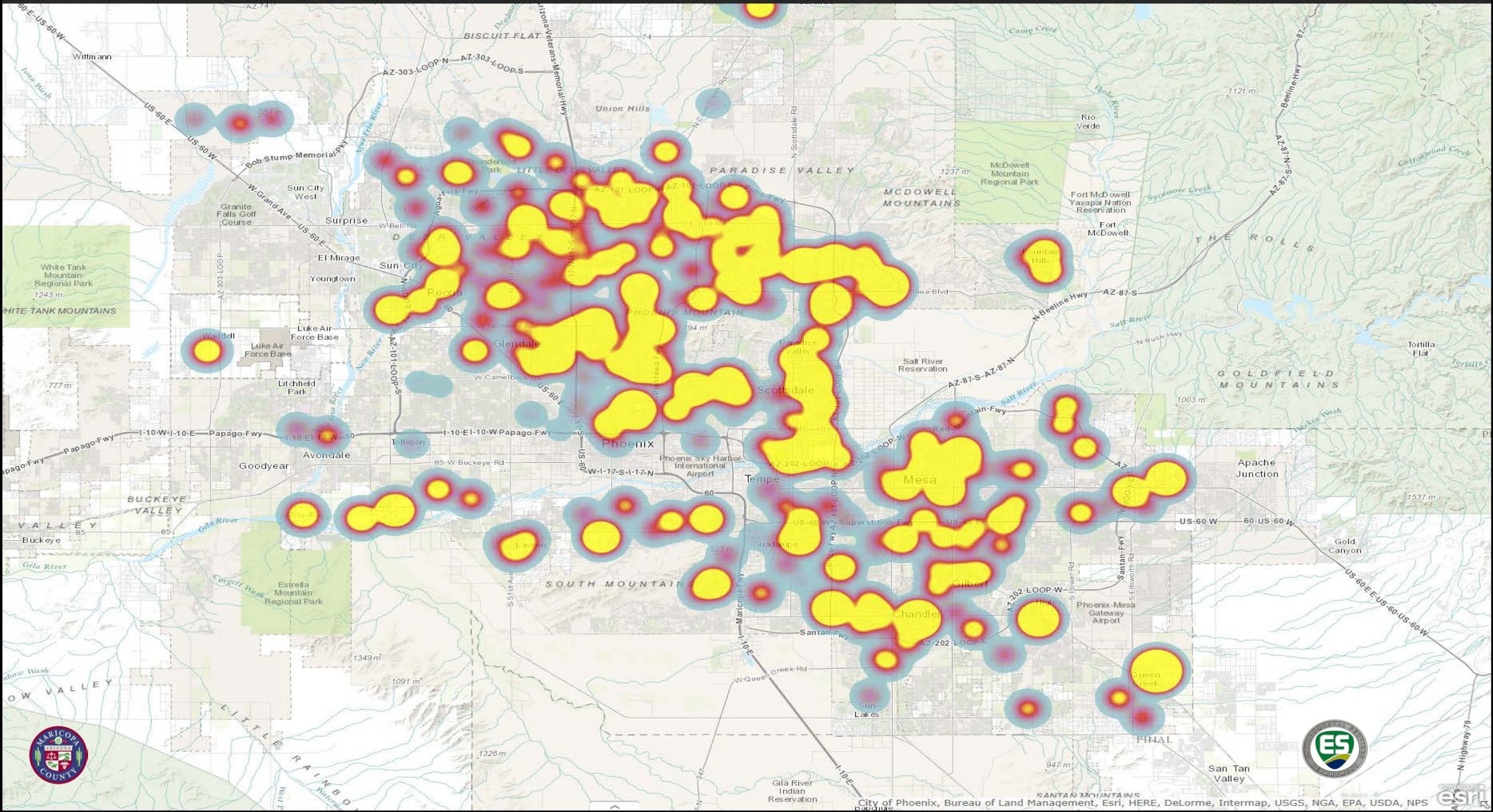
2006 Aedes aegypti activity-Maricopa County Vector Control



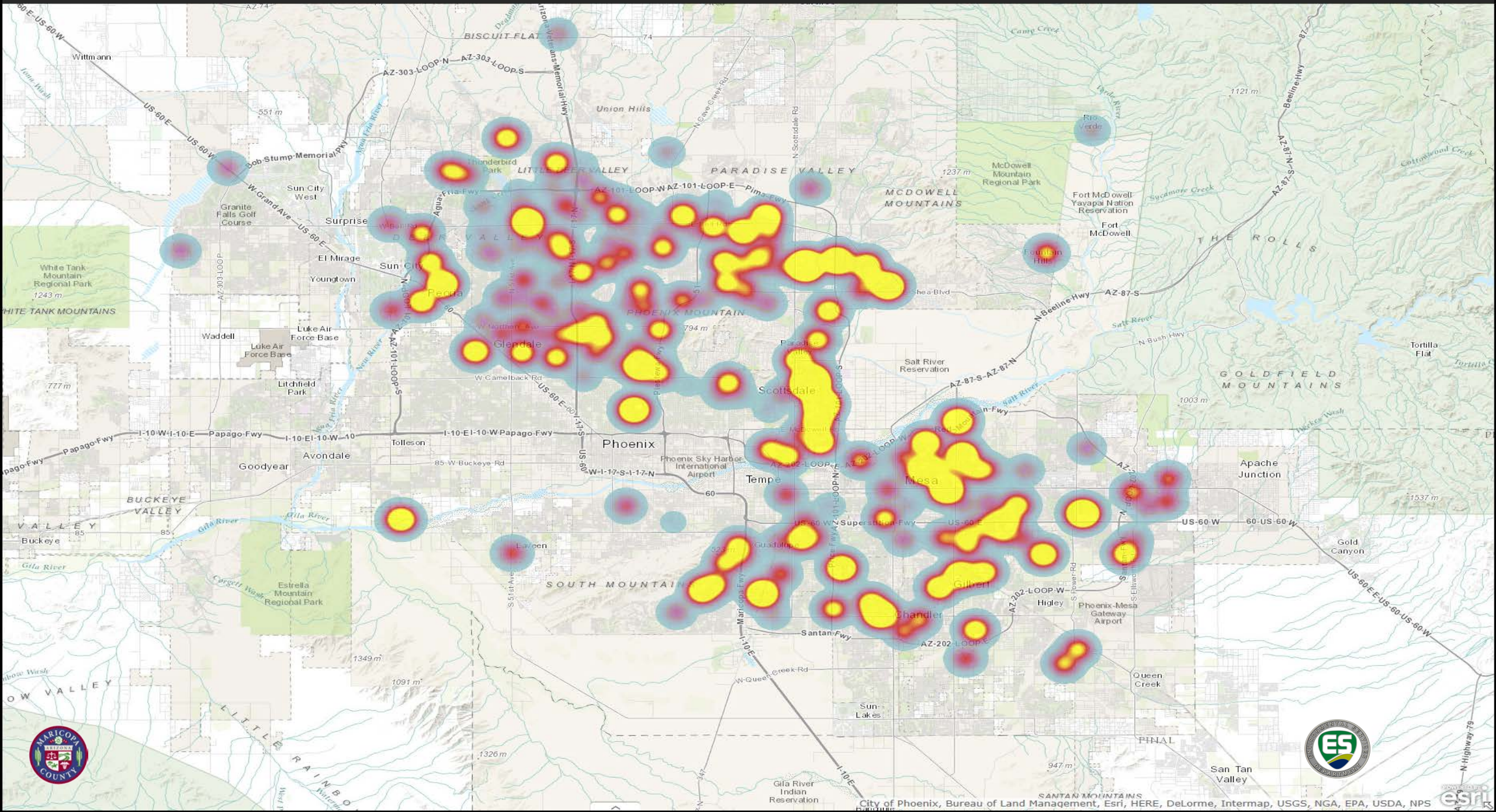
2007 Aedes aegypti activity-Maricopa County Vector Control



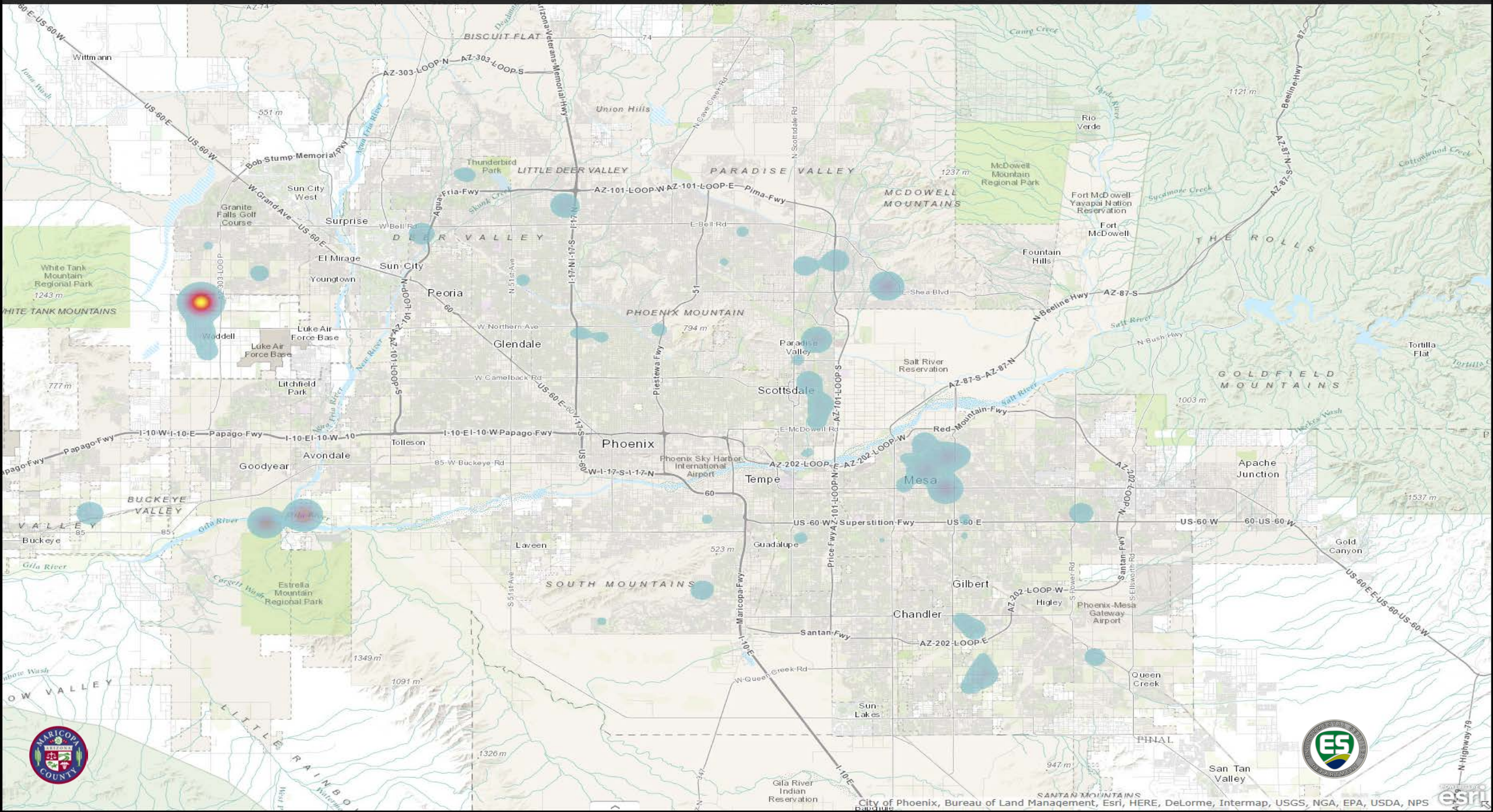
2008 Aedes aegypti activity-Maricopa County Vector Control



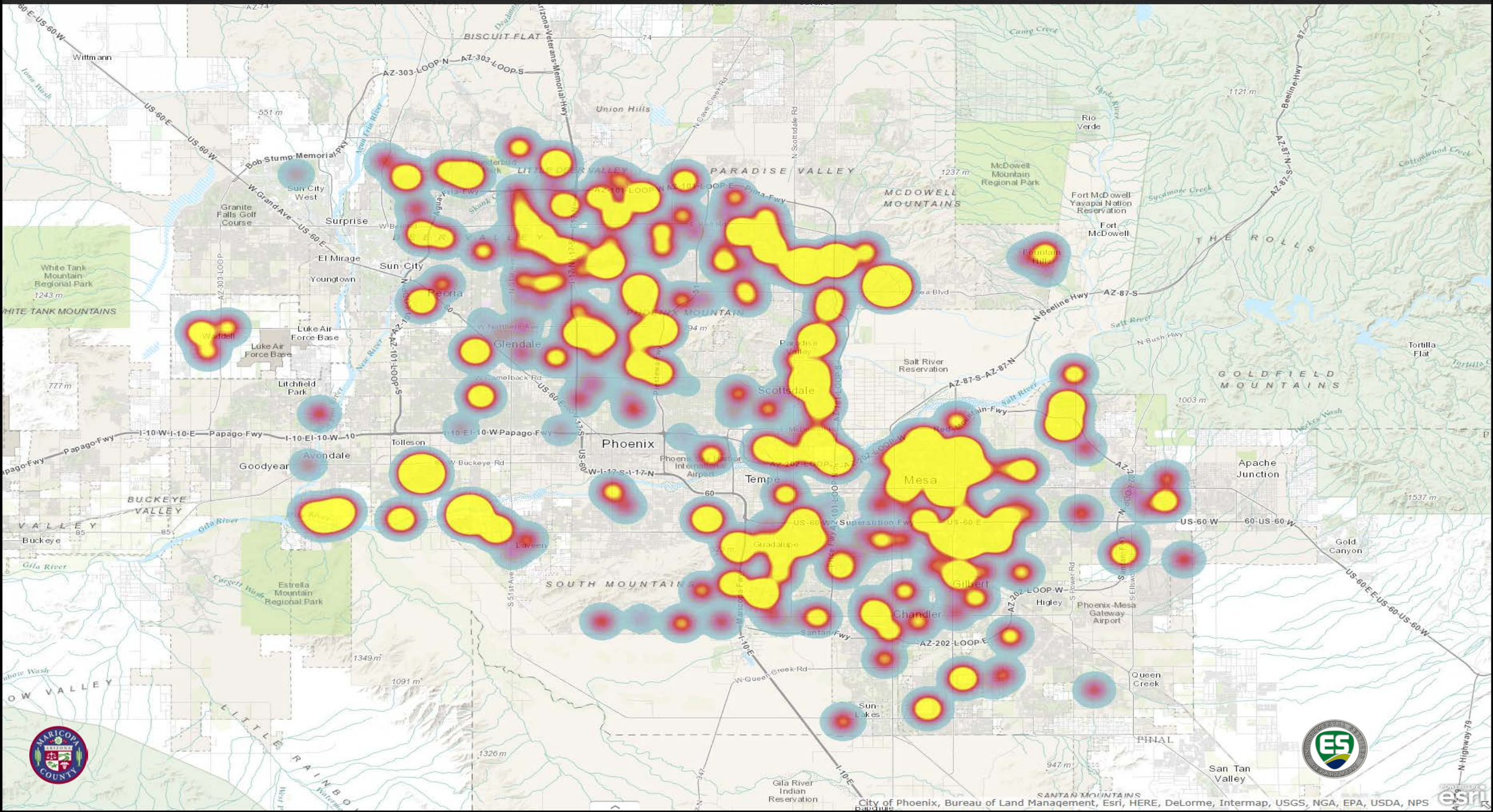
2009 Aedes aegypti activity-Maricopa County Vector Control



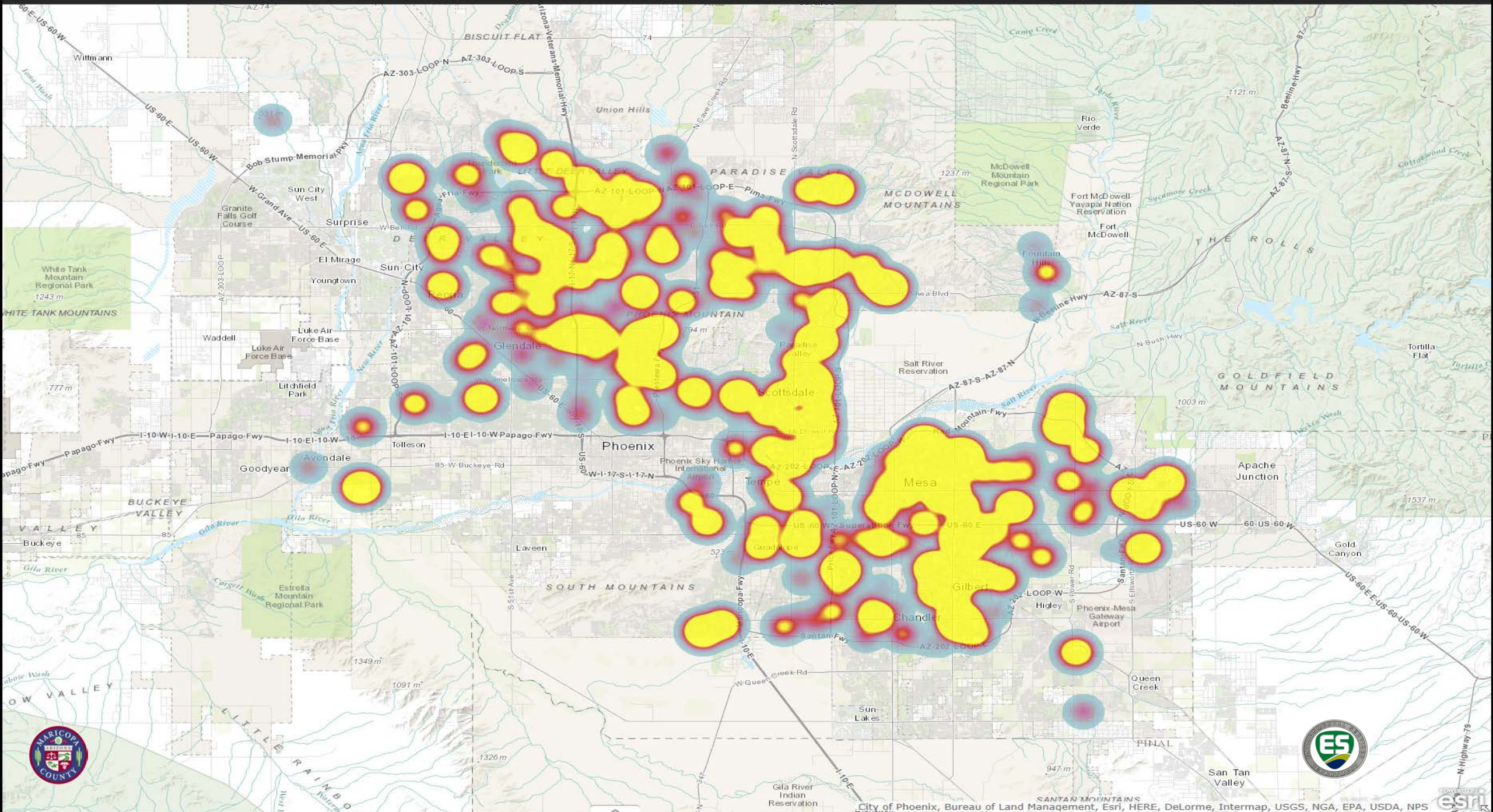
2010 Aedes aegypti activity-Maricopa County Vector Control



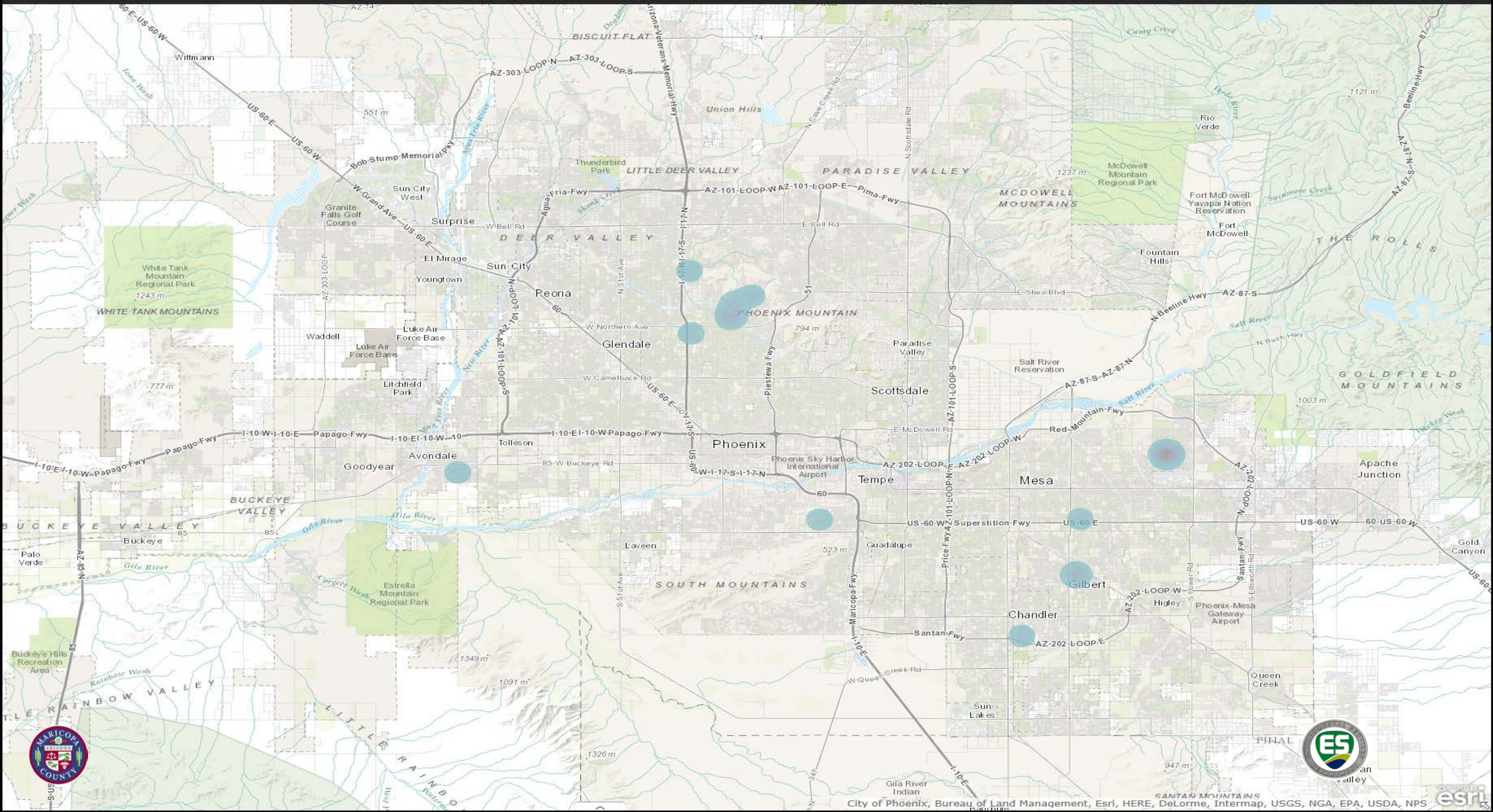
2011 Aedes aegypti activity-Maricopa County Vector Control



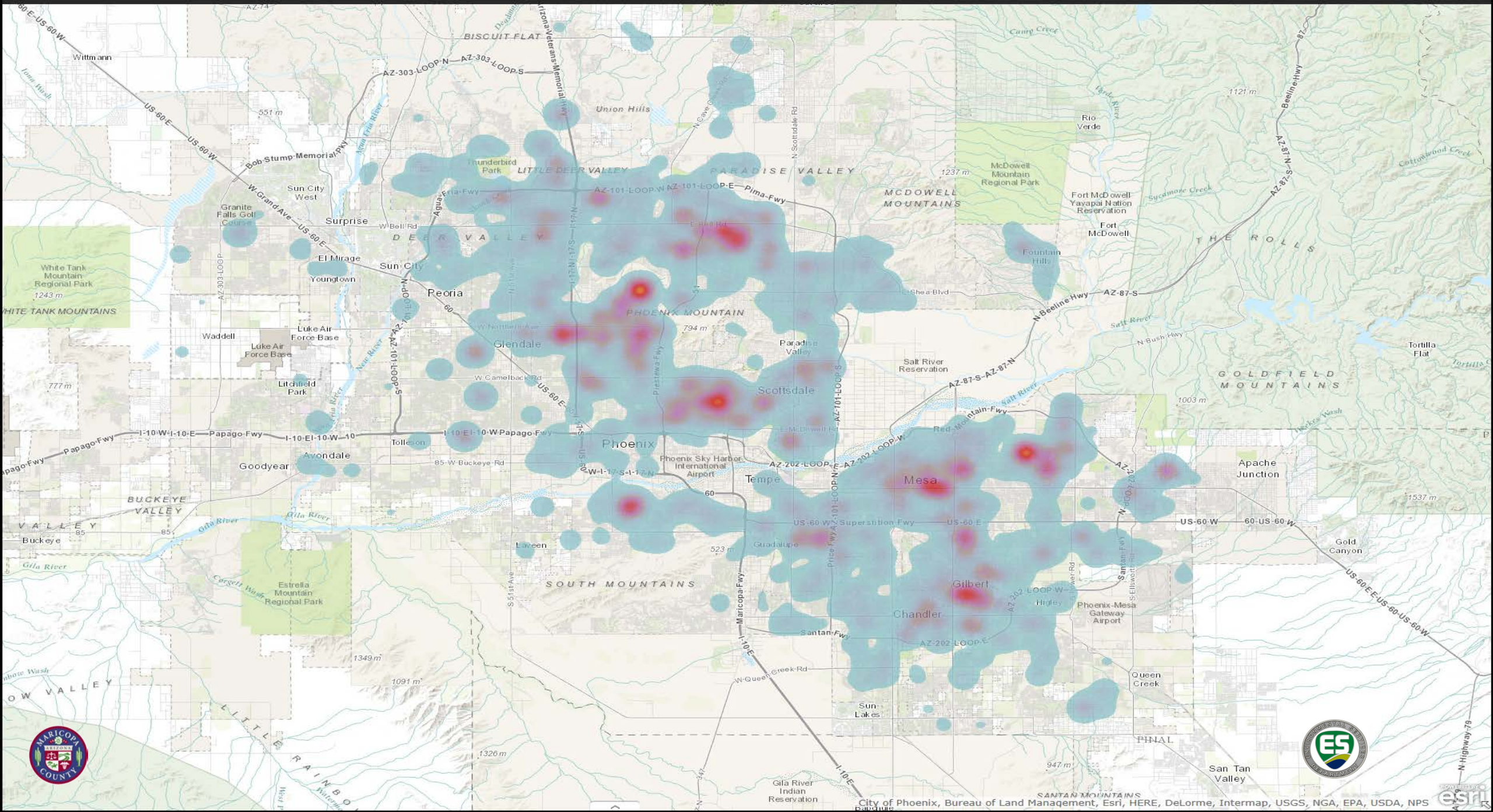
2012 Aedes aegypti activity-Maricopa County Vector Control



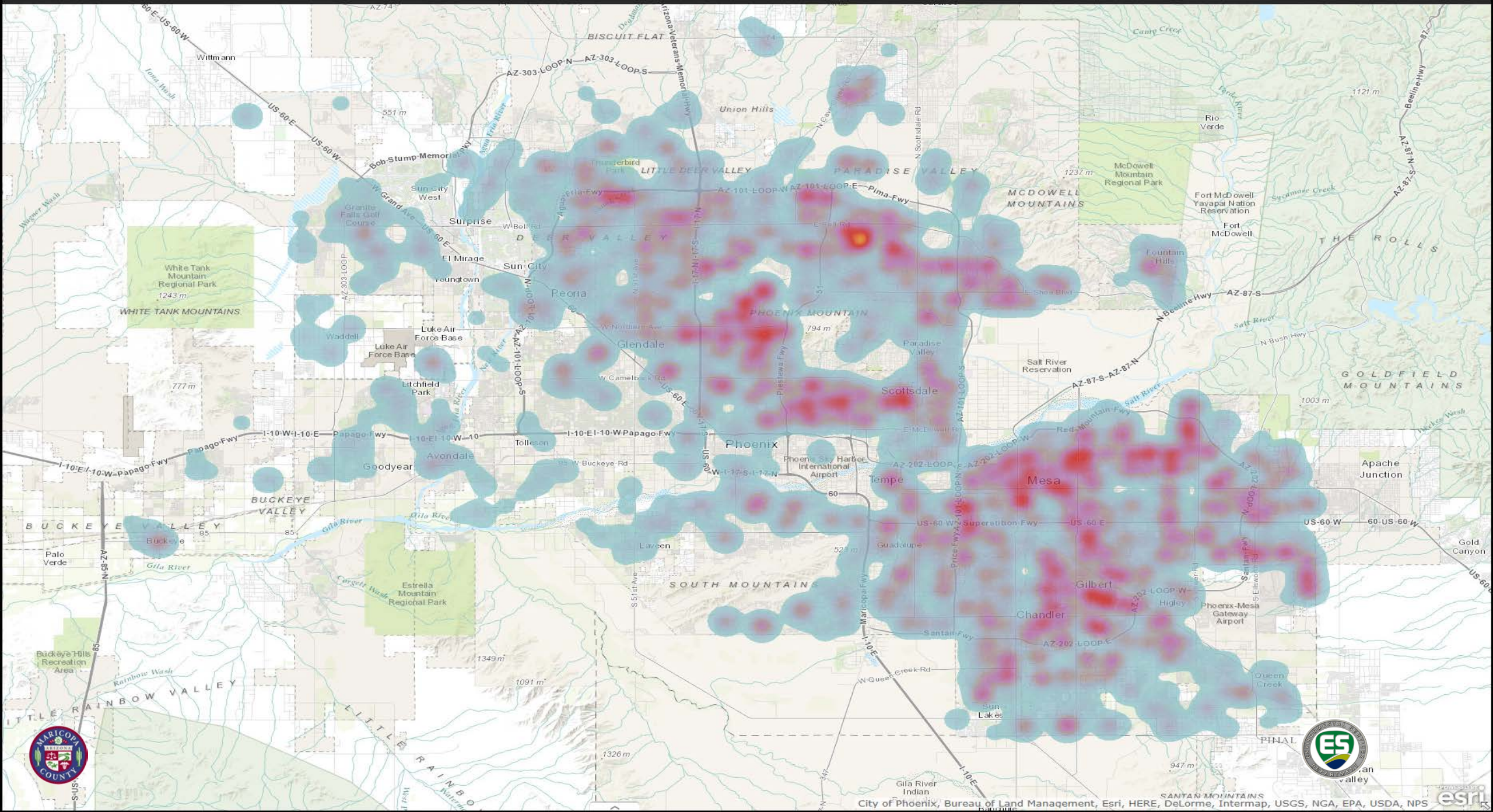
2013 Aedes aegypti activity-Maricopa County Vector Control



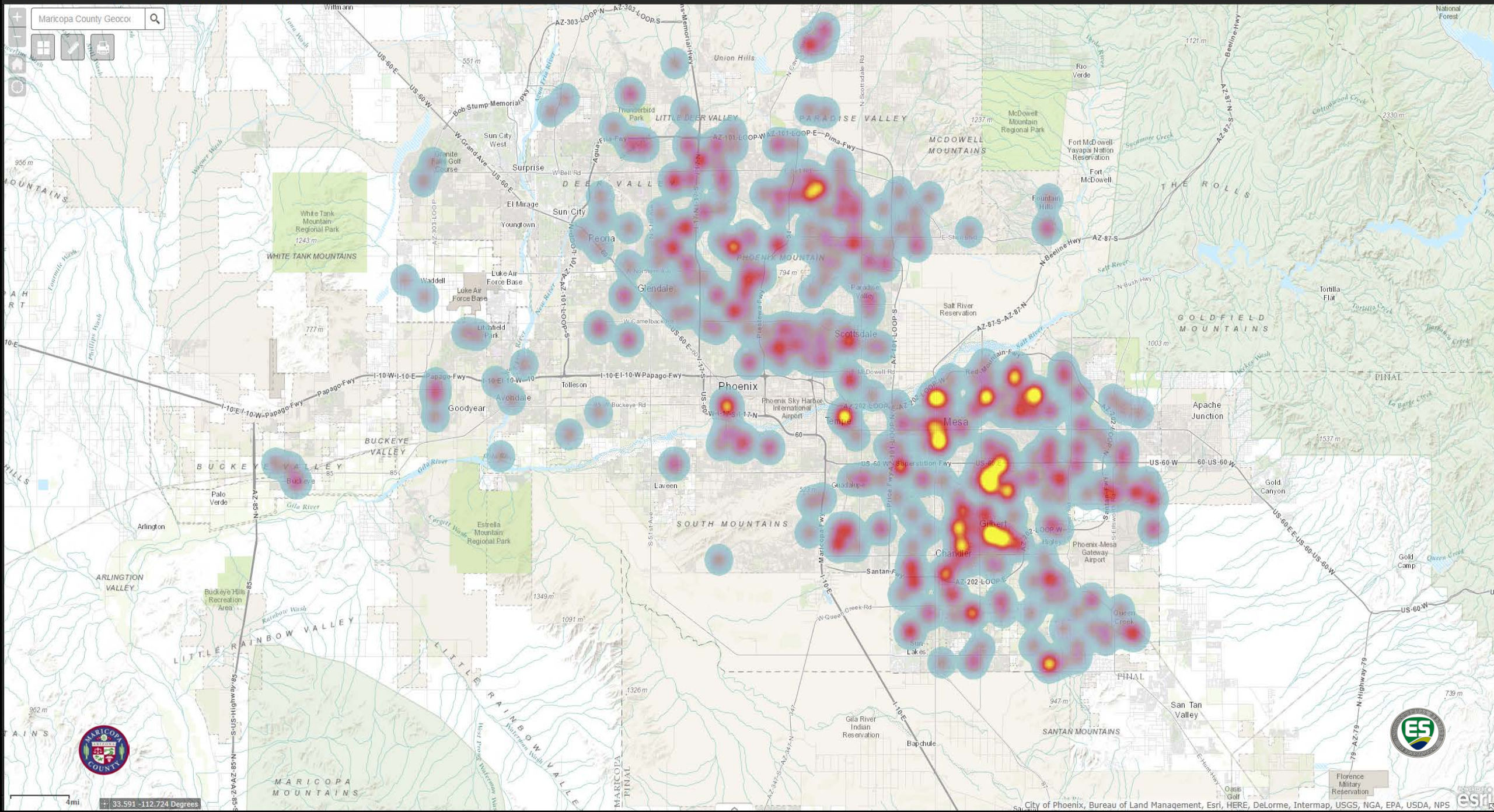
2014 Aedes aegypti activity-Maricopa County Vector Control



2015 Aedes aegypti activity-Maricopa County Vector Control



2016 Aedes aegypti activity-Maricopa County Vector Control



Best Management Practices for Mosquito Management

Set Action Thresholds

Decisions to initiate control measures need to be based on the analysis of either larval or adult mosquito surveillance or other available field data. Programs must establish a mechanism on which decisions to institute control measures are based.

Determine threshold values that trigger routine control measures. These values are used for guidance but can be influenced by other factors when control operations are instituted – particularly in disease outbreak scenarios or mosquito-borne disease prevention.

Maricopa County Treatment Criteria

	Response	Follow Up	Surveillance (Routine Inspection Sites)	Fog 1 Square Mile IF	CO2 Trap Follow Up to Determine Efficacy of Treatment	Surveillance (Routine Inspection Sites)
+ WNv Mosquito	Fog 1 square mile	Set CO2 traps/survey for breeding site	Larvicide	Flood Water > 300 OR Culex spp > 30*	Yes	Yes
+ WNv Horse	Set CO2 Traps/survey for breeding site	positive mosquitoes fog 1 square mile	Larvicide	"	Yes	Yes
+ WNv Bird	Set CO2 Traps/survey for breeding site	positive mosquitoes fog 1 square mile	Larvicide	"	Yes	Yes
Flood Water > 300 OR Culex spp > 30*	Fog 1 square mile **	Set CO2 traps	Larvicide	Yes	Yes	Yes

Maricopa County Dengue / Chikungunya / Zika Response Plan

Response level	Conditions	Vector Presence	Vector Abundance	**Vector** Response / Action	**Epi** Response / Action
1	No Human Case Activity	None	Not Present	None	Routine Passive Human Case Surveillance
2	No Human Case Activity	Present	High	Increased *Aedes aegypti* trapping and testing	Routine passive surveillance; consider initiating enhanced passive surveillance
3	Suspect / Probable or Confirmed Human Case (**Import Only**)	Present	Some Vector Activity	Check historical CO2 trapping records for the presence of *Aedes aegypti* in the area, increase trapping and testing of mosquitoes in the area surrounding the suspect case with traps designed to collect *Aedes aegypti*. Will get address of patient from epi and confirm if we have permission to set traps immediately near the house. Will test mosquito for chik/dengue/Zika as possible for PCR and if positive mosquito is found see level 4/5.	Rapid case investigation, including arranging for additional laboratory testing and patient and/or family interview (includes questions about travel/exposure history, if the patient is seeing mosquitos in or near their home, and asking permission to set traps immediately near their house). Will also give prevention education to the patient and family. MCVC to be notified.
4	Strong Suspect / Probable / Confirmed Human Case	Vector Presence High	Above Established Thresholds and/ or PCR + Mosquito samples	Extensive mosquito trapping and testing of the mosquito population in the neighborhood with traps designed to collect *Aedes aegypti*. Sample at least 150 meter radius surrounding the suspect/probable/confirmed human case. Placement of lethal ovi-traps and resting boxes in the area, backyard inspections to reduce breeding sites. neighborhood adulticide treatments based on trapping data. Conduct source reduction and/or larviciding as indicated.	Same as #3 above. Plus: Public health team to assess need to go door to door in the immediate neighborhood (minimum area = 150 meter radius surrounding suspect patient house). Will leave door hangers and give education to all the home owners in the neighborhood. This might also be the level that an emergency will be declared, and EOC (virtual or actual) is initiated, especially if mosquitoes test positive by PCR.
5	Human Case(s) w/ Evidence of Local Transmission within one or more communities	Present	N/A*	Extensive mosquito trapping and testing of the mosquito population in the neighborhood with traps designed to collect *Aedes aegypti* surrounding the confirmed human case. Sample at least 150 meter radius surrounding the confirmed human case. Placement of lethal ovi-traps and resting boxes in the area, backyard inspections to reduce breeding sites. neighborhood adulticide treatments, if possible, barrier spraying in the neighborhood	Same as #3 and #4 above. Emergency to be declared including to allow entrance of vector team into neighborhood of case patient(s). Large education campaign to surrounding neighborhood of case patients. Press release. Continue and/or expand door-to-door outreach efforts based on outbreak monitoring.

*Response level 3-5 not dependent on vector abundance

Best Management Practices for Mosquito Management

Physical Control or Source Reduction

Source reduction (the elimination, removal or modification of larval mosquito habitats) typically is the most effective and economical long-term method of mosquito control, but this may not be practicable for many larval habitats.

Source reduction can be as simple as overturning a discarded bucket, disposing of old tires or turning a wheel barrow upside-down so it wont collect rainwater.

These efforts often minimize and/or eliminate the need for mosquito larviciding in the affected habitat in addition to greatly reducing the need for adulticiding in nearby areas.

Best Management Practices for Mosquito Management

Biological Control

These control methods are often resource-intensive and may not be advisable or practicable for many programs. Nonetheless, their feasibility should be explored.

Stocking of certain species of native, non-invasive fish known to be predators of mosquito larvae, may provide significant reductions in larval mosquito populations and act as a long term treatment option.

Utilization of bats, birds, dragonflies and other predators of mosquitoes can be problematic and ineffective as a primary control strategy and is not recommended as a major component of any control strategy.

Best Management Practices for Mosquito Management

Public Health Mosquitocides

Handling, disposal, personal protective measures and applications must be made in full accordance with products label.

Larvicides

Often the primary control method in natural or man-made wetlands, riverine bottomlands, woodland pools, freshwater marshes, roadside ditches, stormwater management ponds, etc. These can also be a primary control method in locations where mosquito populations are determined to be in concentrated sources in urban areas or in close proximity to houses. Larvicides can be labor intensive and expensive to apply to large breeding areas.

Biological larvicides

a. Microbial larvicides – Bti, Bs, Spinosad
b. Growth regulators and chitin synthesis inhibitors - methoprene

Chemical larvicides

a. Organophosphates - Temephos
b. Oils – petroleum and mineral-based

Best Management Practices for Mosquito Management

Adulticides

Adulticides are applied so as to impinge upon the mosquito target in flight or at rest on vegetation. Adulticiding based on surveillance data is an extremely important part of any integrated mosquito management program and may form the primary treatment method for many programs where comprehensive larviciding is not practical.

Adulticides utilized in basic programs are typically applied as an Ultra-Low-Volume (ULV) spray where small amounts of insecticide are dispersed by aircraft or truck-mounted equipment.




In some jurisdictions, adulticides may also be applied via “thermal fogs”, utilizing heat to atomize droplets. Adult mosquitoes may also be targeted by “barrier treatments”, which involve application of a residual insecticide to vegetation where mosquitoes are known to rest.




Best Management Practices for Mosquito Management

Adulticides

Adulticides should only be applied when established spray thresholds have been exceeded.

Non-residual adulticides applied to the air column in order to impinge upon mosquitoes in flight should only be applied when the target species is active.

Adulticides should be applied strictly according to label specifications. This will produce minimal effects on non-target organisms and promote efficacy.

Adulticides should only be applied by personnel trained and certified in their usage and handling.

Adulticides labeled for mosquito control may include:

Organophosphates – Malathion, Naled

Natural pyrethrins - Derived from Chrysanthemum plants

Pyrethroids - Permethrin, Resmethrin, Sumithrin

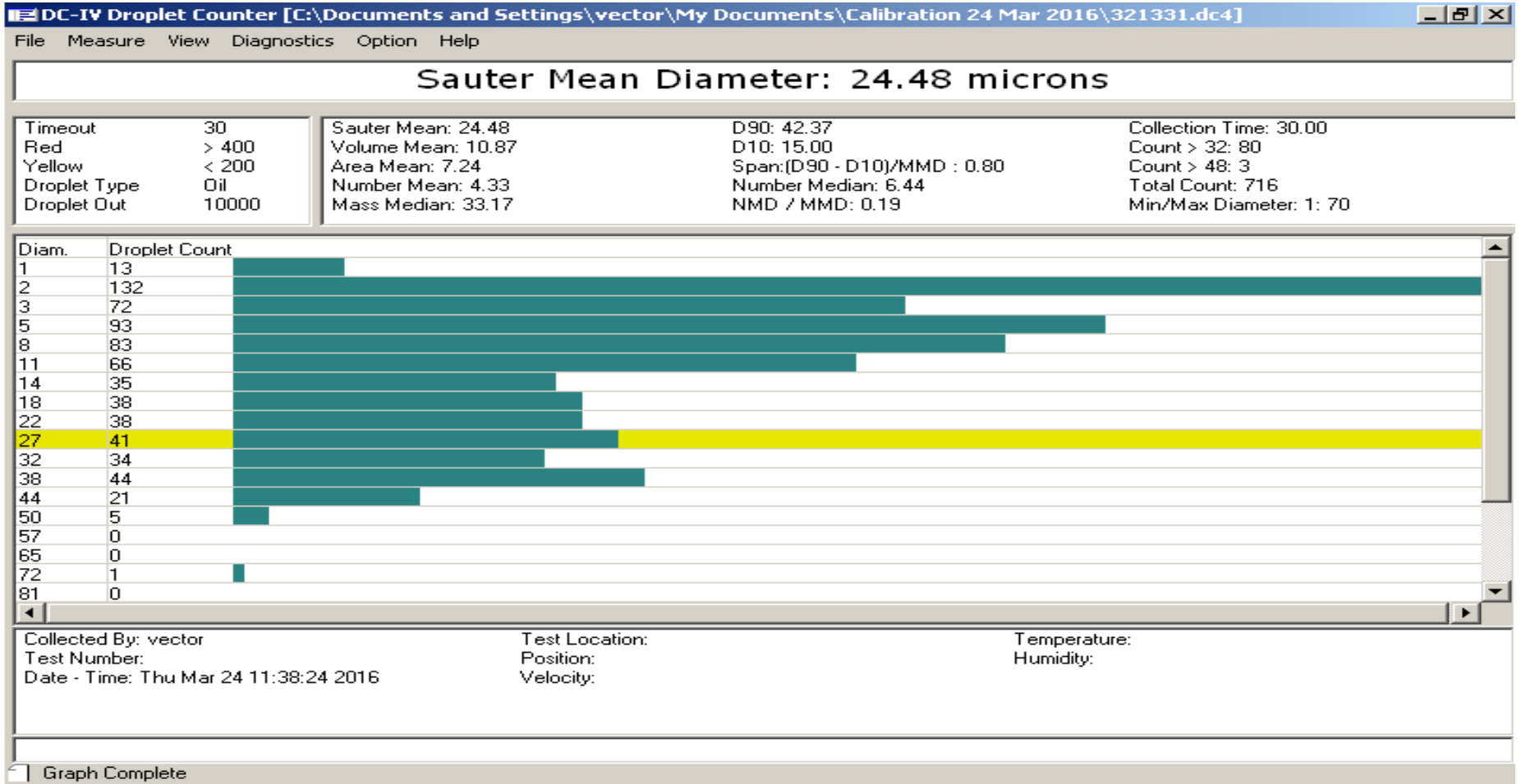
Pyrethroid derivatives – Etofenprox, Deltamethrin

Best Management Practices for Mosquito Management

Adulticides continued

Adulticides should be applied at label rates that are effective as determined by monitoring. Applying doses lower than those that provide adequate control can in fact result in the need for additional adulticide treatments and might encourage development of insecticide resistance.

Adulticide application equipment should be calibrated and maintained per equipment manufacturer's specifications. Droplet size calibration should be performed at the beginning of the fogging season.



Best Management Practices for Mosquito Management

Monitoring for Efficacy/Resistance

Resistance management techniques attempt to minimize the risk of mosquitoes becoming resistant to the existing chemicals and should be practiced in even basic programs.

Utilizing physical control/source reduction and biological control methodologies to the maximum extent practicable.

Avoiding the use of the same class of chemical against both immature and adult mosquitoes.

Applying pesticide at the rate recommended on the label. Do not underdose.

Utilizing a different chemical class at the beginning and end of treatment season.

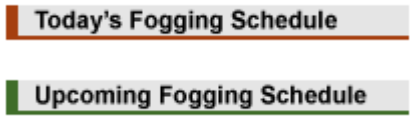
Assessing susceptibility at the beginning and sometime during the mosquito season.

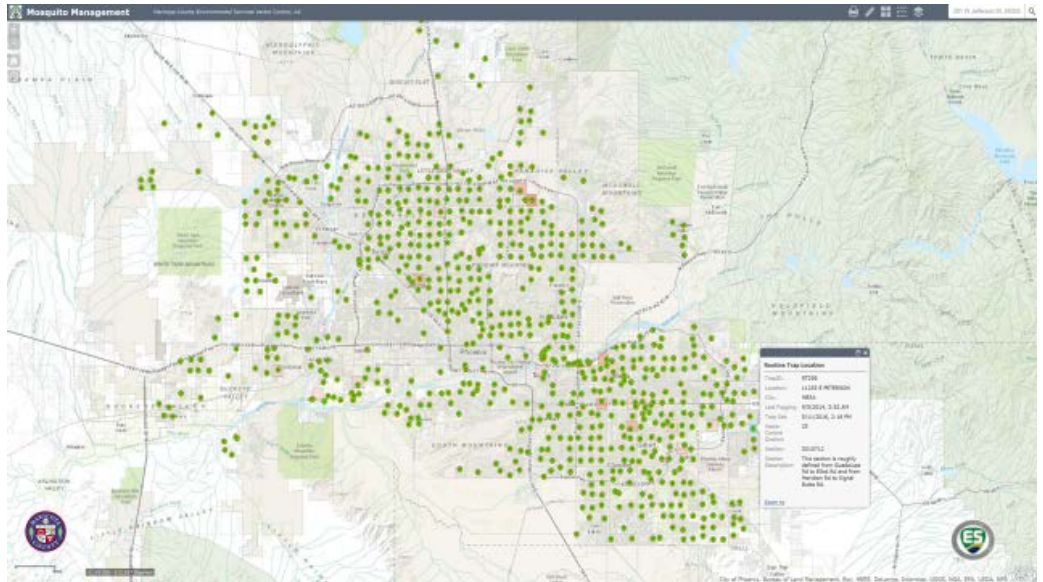
Best Management Practices for Mosquito Management

Education & Community Outreach

Education of the general public should be encouraged to enlist resident's support in eliminating mosquito habitat, proper screening methods and proper application of personal protective measures such as repellents to minimize human/mosquito contact.

Mosquito control programs should keep their constituents informed of surveillance and control activities to the maximum extent practicable.





Best Management Practices for Mosquito Management

Record-keeping

Operators/applicators should record the following for each application and maintain the records for the time specified by the **Arizona Department of Agriculture - Pest Management Division**, which is three years.

Applicator’s name, address and pesticide applicator certification number

Application date and time of day

Product name and EPA registration number

General location of application and approximate size of area treated

Amount of material applied

Rate of application

Best Management Practices for Mosquito Management

Record-keeping

Materials Applied

Materials	Amount	Area Treated	Application Rate	Number of Applications	Total Treatment Cost	Cost per Area Treated
5% Skeeter Abate	37 dry oz	9,200 sq.ft.	0.4 dry oz/100 sq.ft	43 Times	$33.53	$0.36
Agnique MMF G Dry	1,091 dry oz	136,400 sq.ft.	0.8 dry oz/100 sq.ft	415 Times	$176.61	$0.13
Altosid XR Briquettes	6,688 ea.	668,800 sq.ft.	1 ea./100 sq.ft	2289 Times	$20,264.64	$3.03
Altosid XR-G	2,259 dry oz	322,673 sq.ft.	0.7 dry oz/100 sq.ft	1185 Times	$1,136.56	$0.35
Duet	111 gal.	11,201 acres	0.00988732 gal./acre	71 Times	$14,929.50	$1.33
Fish	1,540 ea.	30,800 sq.ft.	5 ea./100 sq.ft	76 Times	$231.00	$0.75
Larvicide Oil	204 fl.oz	13,606 sq.ft.	1.5 fl.oz/100 sq.ft.	25 Times	$20.72	$0.15
Natular XRT	229 ea.	22,900 sq.ft.	1 ea./100 sq.ft	66 Times	$883.94	$3.86
VectoBac G	618 dry oz	88,300 sq.ft.	0.7 dry oz/100 sq.ft	556 Times	$92.70	$0.10
VectoLex CG	316 dry oz	45,100 sq.ft.	0.7 dry oz/100 sq.ft	280 Times	$116.92	$0.26

Best Management Practices for Mosquito Management

Record-keeping

Materials Applied by Field Technician

For 4/16/2016 - 5/16/2016

AcunaR

Agnique MMF G Dry

Amount	ID Number	Area Treated	Application Rate	Treatment Date	Treatment (Area) Notes
0.8 dry oz	5580-1	100.0 sq.ft.	0.8 dry oz/100 sq.ft	04/19/16	
0.8 dry oz	1144-3	100.0 sq.ft.	0.8 dry oz/100 sq.ft	04/21/16	
0.8 dry oz	RSI80	100.0 sq.ft.	0.8 dry oz/100 sq.ft	04/21/16	
0.8 dry oz	3368	100.0 sq.ft.	0.8 dry oz/100 sq.ft	04/22/16	
0.8 dry oz	3880-1	100.0 sq.ft.	0.8 dry oz/100 sq.ft	04/22/16	
0.8 dry oz	3880-2	100.0 sq.ft.	0.8 dry oz/100 sq.ft	04/22/16	
0.8 dry oz	CC-16-05711	100.0 sq.ft.	0.8 dry oz/100 sq.ft	04/22/16	
2.4 dry oz	127-1	300.0 sq.ft.	0.8 dry oz/100 sq.ft	04/25/16	
1.6 dry oz	CC-16-06168	200.0 sq.ft.	0.8 dry oz/100 sq.ft	04/25/16	
3.2 dry oz	CC-16-06222	400.0 sq.ft.	0.8 dry oz/100 sq.ft	04/26/16	
3.2 dry oz	CC-16-06291	400.0 sq.ft.	0.8 dry oz/100 sq.ft	04/26/16	
0.8 dry oz	1403	100.0 sq.ft.	0.8 dry oz/100 sq.ft	04/28/16	
3.2 dry oz	CC-16-06896	400.0 sq.ft.	0.8 dry oz/100 sq.ft	05/04/16	
0.8 dry oz	CC-16-07085	100.0 sq.ft.	0.8 dry oz/100 sq.ft	05/05/16	
1.6 dry oz	CC-16-07304	200.0 sq.ft.	0.8 dry oz/100 sq.ft	05/11/16	
0.8 dry oz	1403	100.0 sq.ft.	0.8 dry oz/100 sq.ft	05/12/16	
0.8 dry oz	3516-1	100.0 sq.ft.	0.8 dry oz/100 sq.ft	05/12/16	
3.2 dry oz	CC-16-07428	400.0 sq.ft.	0.8 dry oz/100 sq.ft	05/12/16	
0.8 dry oz	127-1	100.0 sq.ft.	0.8 dry oz/100 sq.ft	05/13/16	
0.8 dry oz	4035	100.0 sq.ft.	0.8 dry oz/100 sq.ft	05/13/16	
0.8 dry oz	4670	100.0 sq.ft.	0.8 dry oz/100 sq.ft	05/13/16	
0.8 dry oz	5311-2	100.0 sq.ft.	0.8 dry oz/100 sq.ft	05/13/16	
0.8 dry oz	5580-1	100.0 sq.ft.	0.8 dry oz/100 sq.ft	05/13/16	

Altosid XR Briquettes

Amount	ID Number	Area Treated	Application Rate	Treatment Date	Treatment (Area) Notes
2.0 ea.	CC-16-05711	200.0 sq.ft.	1 ea./100 sq.ft	04/22/16	
3.0 ea.	CC-16-06168	300.0 sq.ft.	1 ea./100 sq.ft	04/25/16	
12.0 ea.	CC-16-06291	1,200.0 sq.ft.	1 ea./100 sq.ft	04/26/16	
2.0 ea.	CC-16-06889	200.0 sq.ft.	1 ea./100 sq.ft	05/03/16	
16.0 ea.	CC-16-06896	1,600.0 sq.ft.	1 ea./100 sq.ft	05/04/16	
7.0 ea.	CC-16-07085	700.0 sq.ft.	1 ea./100 sq.ft	05/05/16	
3.0 ea.	CC-16-07304	300.0 sq.ft.	1 ea./100 sq.ft	05/11/16	
16.0 ea.	CC-16-07428	1,600.0 sq.ft.	1 ea./100 sq.ft	05/12/16	

Altosid XR-G

Amount	ID Number	Area Treated	Application Rate	Treatment Date	Treatment (Area) Notes
0.7 dry oz	4029	100.0 sq.ft.	0.7 dry oz/100 sq.ft	05/13/16	

Duet

Amount	ID Number	Area Treated	Application Rate	Treatment Date	Treatment (Area) Notes
1.7 gal.	RT259	168.2 acres	0.01 gal./acre	04/25/16	

Fish

Amount	ID Number	Area Treated	Application Rate	Treatment Date	Treatment (Area) Notes
20.0 ea.	CC-16-06222	400.0 sq.ft.	5 ea./100 sq.ft	04/26/16	

VectoBac G

Amount	ID Number	Area Treated	Application Rate	Treatment Date	Treatment (Area) Notes
0.7 dry oz	1037-1	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/18/16	
0.7 dry oz	1037-3	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/18/16	
0.7 dry oz	4416	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/18/16	
0.7 dry oz	6415	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/18/16	
0.7 dry oz	6418-1	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/18/16	
0.7 dry oz	6418-2	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/18/16	
0.7 dry oz	3516-1	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/19/16	
0.7 dry oz	4029	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/19/16	
0.7 dry oz	RSI302	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/19/16	
0.7 dry oz	1144-1	100.0 sq.ft.	0.7 dry oz/100 sq.ft	04/21/16	
4.2 dry oz	1144-2	600.0 sq.ft.	0.7 dry oz/100 sq.ft	04/21/16	

Thank You

John Townsend
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Vector Control Division Manager
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