ArboAZ: Arizona Mosquito Activity Report

January 1 - December 31, 2017

There are over 40 species of mosquitoes in Arizona, but only some mosquitoes spread disease. Understanding the distribution of mosquito species within the state and the location of positive mosquito pools is crucial to implementing appropriate control efforts.

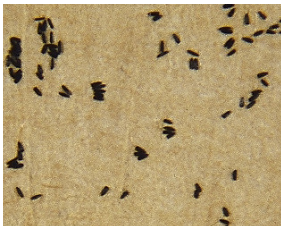
This report provides information on year-to-date **mosquito surveillance** in Arizona, as reported by county, tribal, and local vector control partners, in addition to human cases of mosquito-borne diseases, as identified by public health surveillance. Information is provided on **chikungunya**, **dengue**, **St. Louis encephalitis**, **West Nile**, and **Zika**.

Data is reported by the number of **mosquito surveillance** traps (unique location and dates on which mosquito surveillance occurred) and by mosquito pools/ egg locations. When adult mosquitoes are collected from a surveillance trap, they are divided by species, with one pool counted per species.

For example, if one trap collects ten mosquitoes, with three *Aedes vexans* and seven *Culex quinqefasciatus*, this would be reported as one trap but two **mosquito pools**. If eggs are identified at an oviposition trap, it is considered positive for eggs. If a trap was placed, but collected no mosquitoes or eggs, it would be reported as a surveillance trap but not a mosquito pool/positive egg location.

Mosquito Traps

A total of **41,620** adult mosquito traps have been set, which have collected 45,726 mosquito pools.



657 oviposition traps have been set; 9 of these traps have collected eggs.

Mosquito Testing

28,153 mosquito pools have been tested for at least one arbovirus.

2% (491) of tested mosquito have been **positive**.

See the map on page 2 for locations of mosquito surveillance in Arizona.

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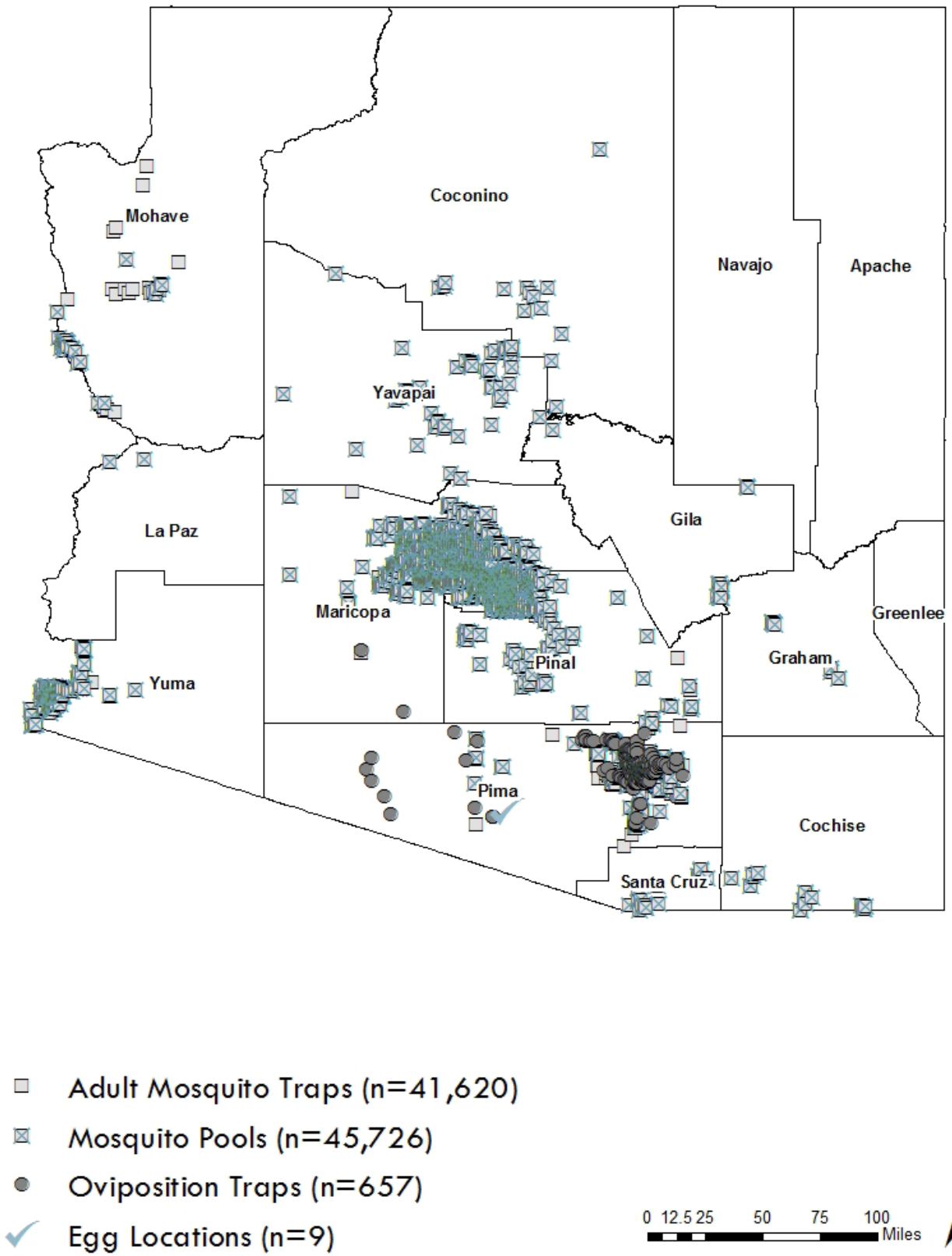
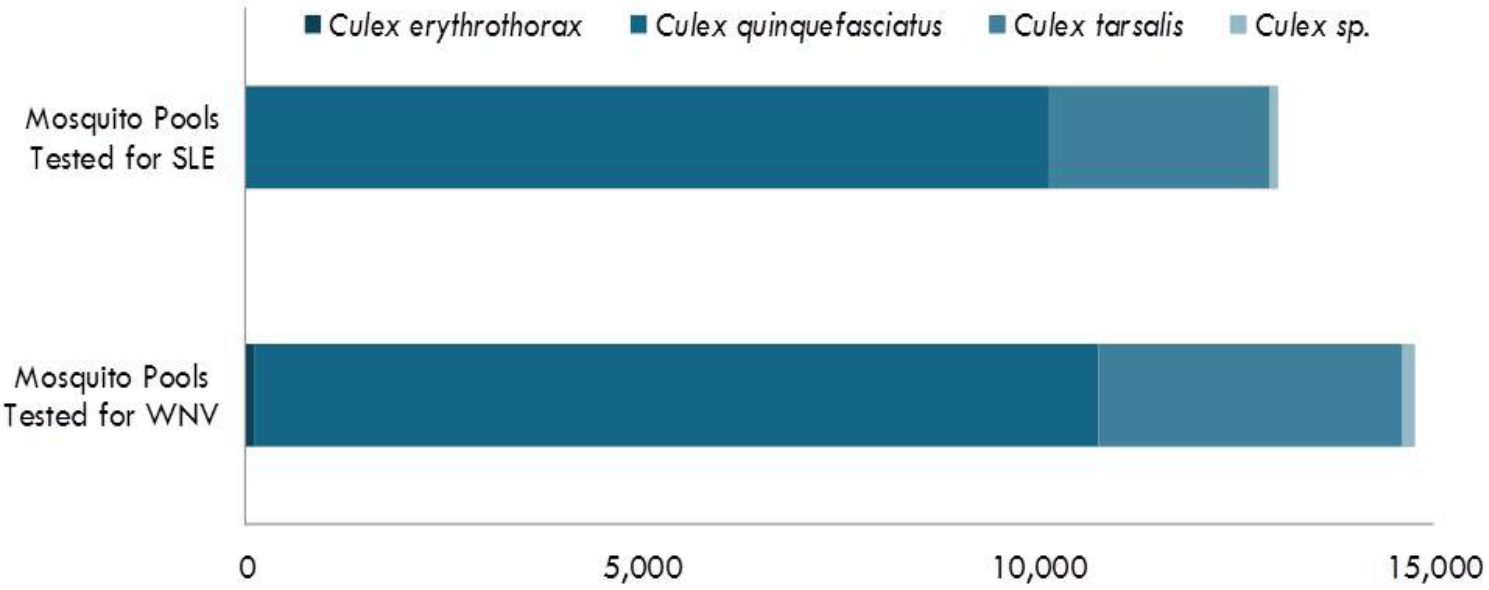
During 2017, over 40,000 mosquito traps were set in Arizona. Most **adult mosquito trap locations** have collected at least one **mosquito pool.** In contrast, only 9 of the 657 **oviposition traps** have collected **mosquito eggs**.



Culex erythrothorax and ***Culex tarsalis*** are the most common mosquito species tested for West Nile virus (WNV) and St. Louis encephalitis (SLE) virus in Arizona.



Mosquito pools are more likely to be positive for **West Nile virus (WNV)** as compared to **St. Louis encephalitis virus (SLE)**. WNV-infection is most common among *Culex erythrothorax* mosquitoes, and SLE-infection is most common among *Culex tarsalis*.

The highest number of West Nile Virus (WNV)-positive mosquito pools are seen in Maricopa and Yuma counties during August and September.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Apache	0	0	0	0	0	0	0	0	0	0	0	0	0
Cochise	0	0	0	0	0	0	1	0	0	0	0	0	1
Coconino	0	0	0	0	0	0	0	0	0	0	0	0	0
Gila	0	0	0	0	0	0	0	0	0	0	0	0	0
Graham	0	0	0	0	0	0	0	0	0	0	0	0	0
Greenlee	0	0	0	0	0	0	0	0	0	0	0	0	0
La Paz	0	0	0	0	0	0	0	0	0	0	0	0	0
Maricopa	0	0	0	1	10	44	15	100	39	11	1	0	221
Mohave	0	0	0	0	0	0	0	0	0	0	0	0	0
Navajo	0	0	0	0	0	0	0	0	0	0	0	0	0
Pima	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinal	0	0	0	0	0	0	1	4	5	2	0	0	12
Santa Cruz	0	0	0	0	0	0	0	0	0	0	0	0	0
Yavapai	0	0	0	0	0	0	0	0	0	0	0	0	0
Yuma	0	0	0	0	0	0	2	58	45	0	0	0	105
TOTAL	0	0	0	1	10	44	19	162	89	13	1	0	339

Most St. Louis encephalitis virus (SLE)-positive mosquito pools have been reported from Maricopa County during August and September.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Apache	0	0	0	0	0	0	0	0	0	0	0	0	0
Cochise	0	0	0	0	0	0	1	0	0	0	0	0	1
Coconino	0	0	0	0	0	0	0	0	0	0	0	0	0
Gila	0	0	0	0	0	0	0	0	0	0	0	0	0
Graham	0	0	0	0	0	0	0	0	0	0	0	0	0
Greenlee	0	0	0	0	0	0	0	0	0	0	0	0	0
La Paz	0	0	0	0	0	0	0	0	0	0	0	0	0
Maricopa	0	0	0	0	0	1	1	66	59	23	1	0	151
Mohave	0	0	0	0	0	0	0	0	0	0	0	0	0
Navajo	0	0	0	0	0	0	0	0	0	0	0	0	0
Pima	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinal	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Cruz	0	0	0	0	0	0	0	0	0	0	0	0	0
Yavapai	0	0	0	0	0	0	0	0	0	0	0	0	0
Yuma	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	1	2	66	59	23	1	0	152

See the maps on the next two pages to see **West Nile virus-** and **St. Louis encephalitis virus-**positive mosquito pools and human case rates, by county.

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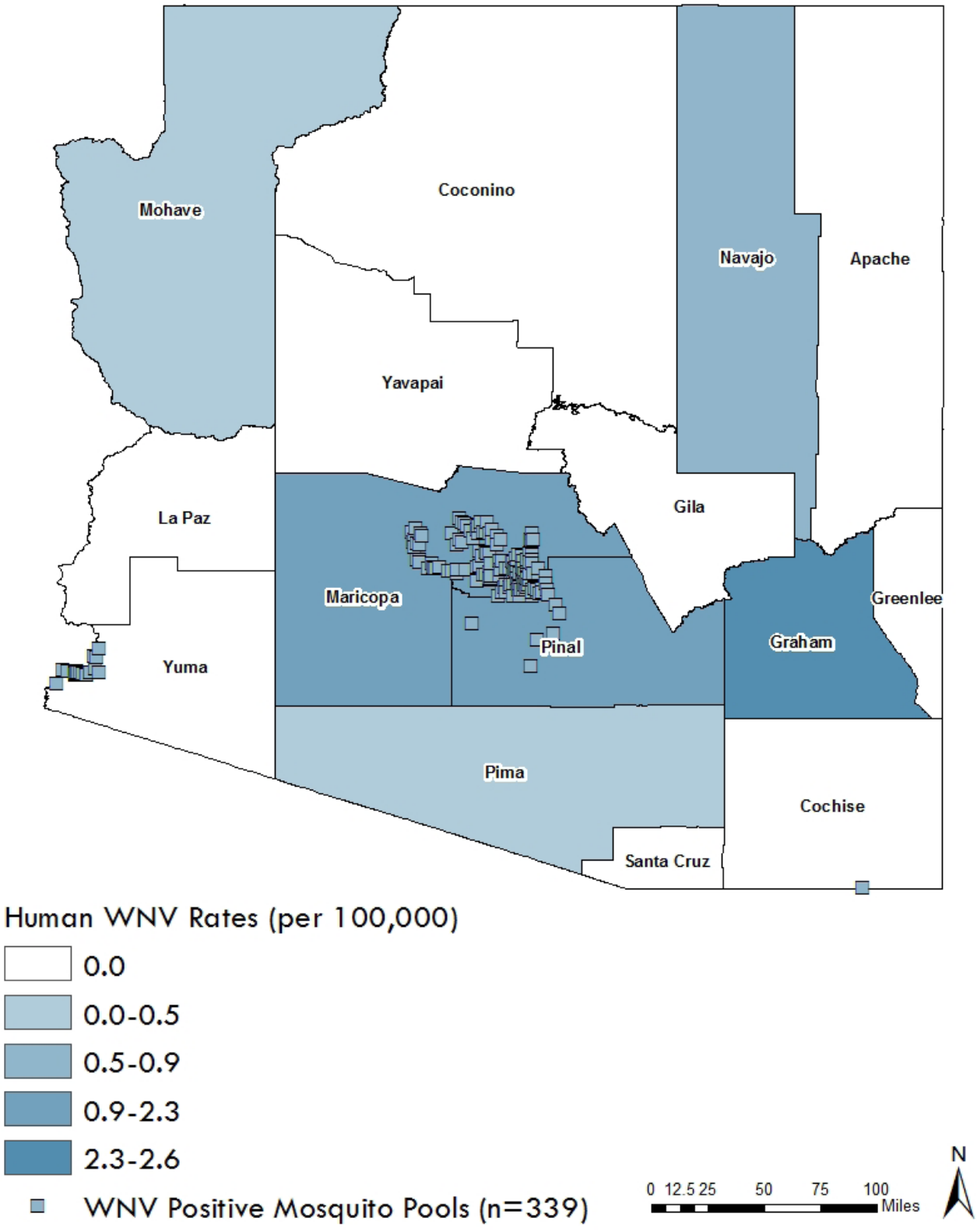
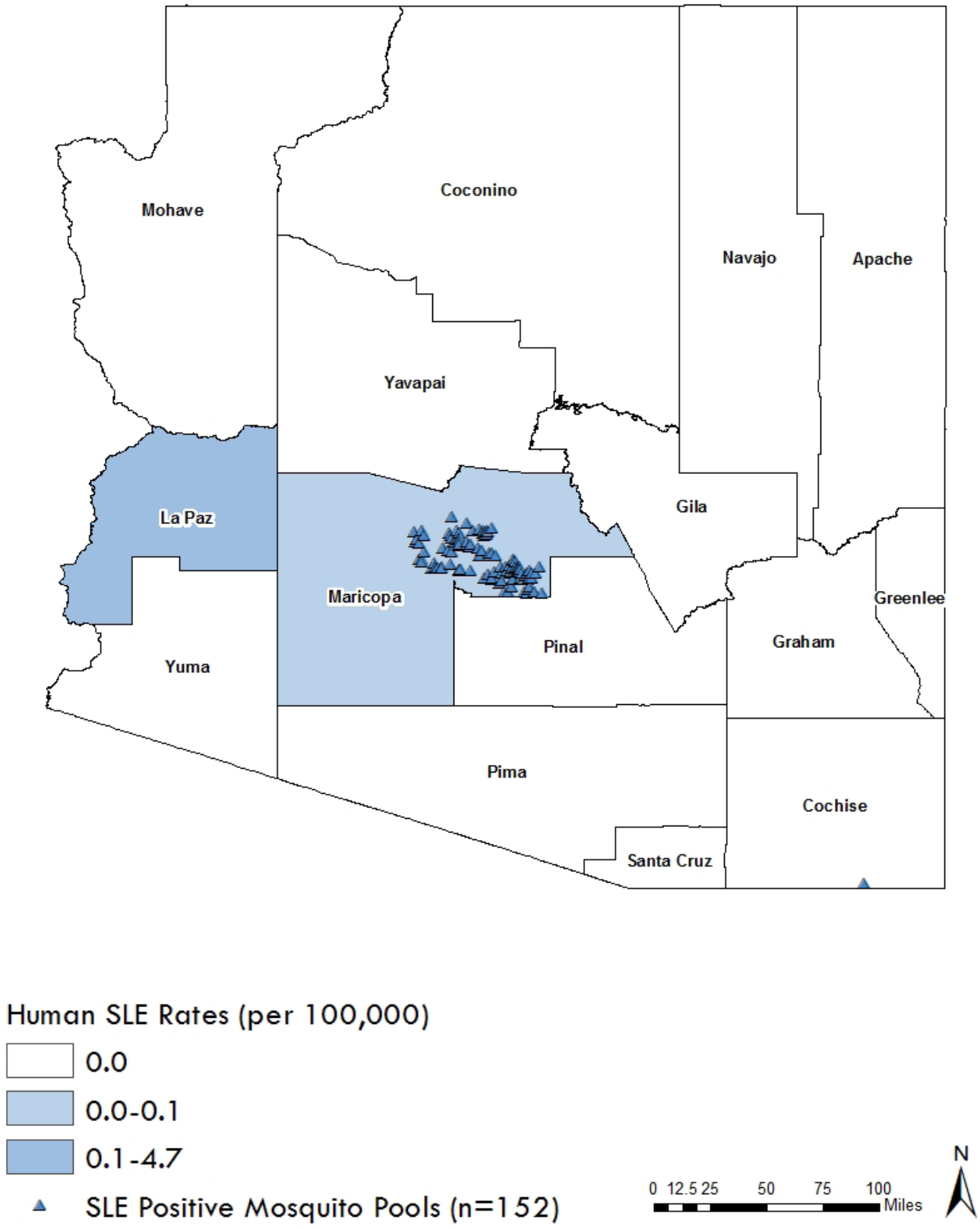
Over 300 **mosquito pools** have tested **positive for West Nile Virus**. Human cases have been reported from 6 counties, with the **highest rates** reported in Graham, Maricopa, and Pinal Counties.



Over 150 **mosquito pools** have tested **positive for St. Louis encephalitis virus**. **Human cases** have been reported from 2 counties: La Paz and Maricopa.



Aedes aegypti and *Aedes albopictus* mosquitoes are capable of spreading diseases such as chikungunya, dengue, yellow fever, and Zika. While *Aedes albopictus* are not known to be in Arizona, *Aedes aegypti* mosquitoes are well established in many parts of the state.

Although *Aedes aegypti* mosquitoes in Arizona are not known to carry any diseases, they could be introduced if someone traveled to an area where one of the viruses was spreading, became infected, and was then bitten by a local mosquito after returning to Arizona. Identifying parts of the state with *Aedes aegypti* mosquitoes helps public health officials to target areas that may be high-risk for local spread of these viruses. Testing *Aedes aegypti* mosquitoes here in the state also helps monitor for potential introduction of new viruses.

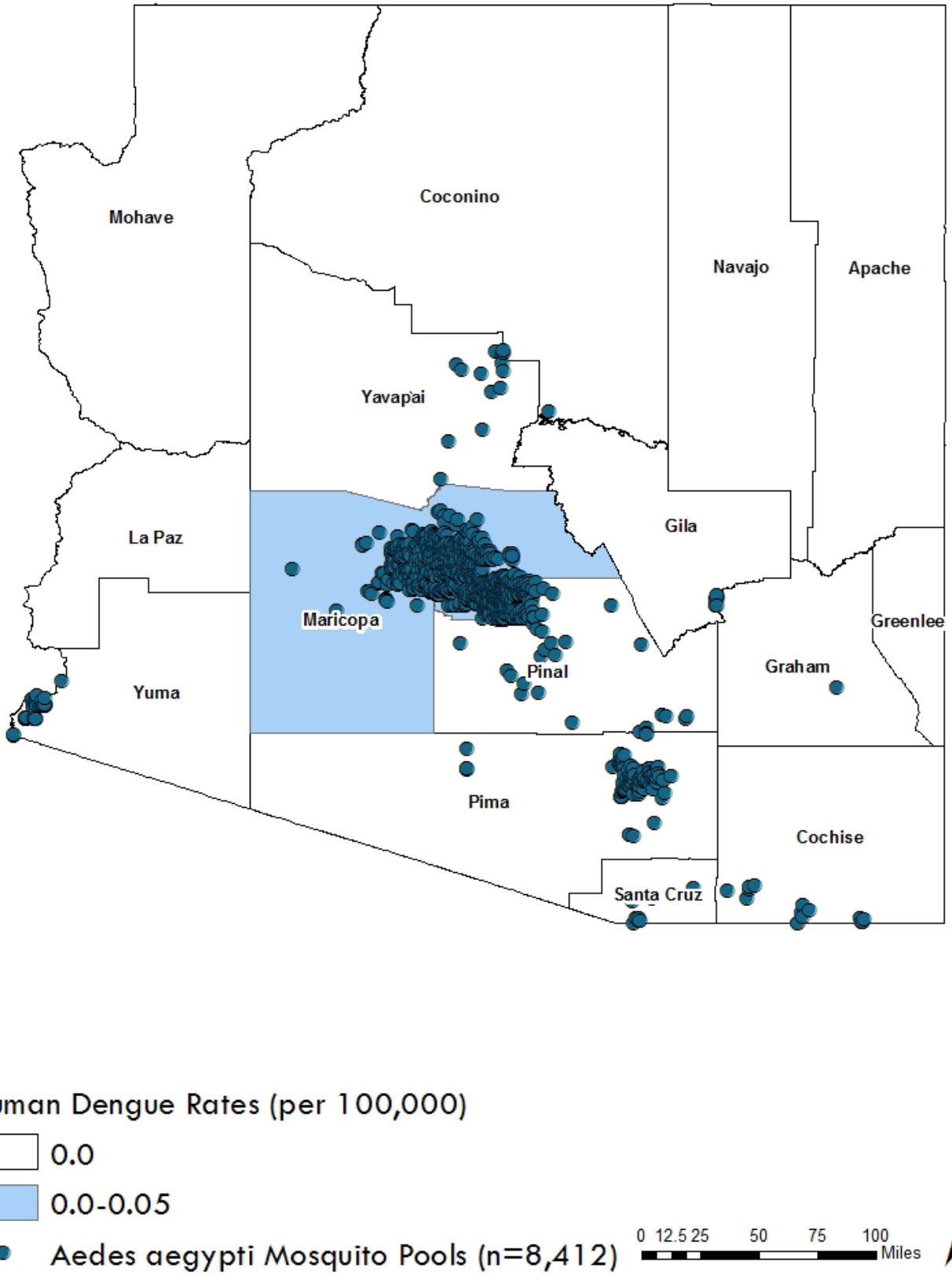
***Aedes aegypti* mosquito pools are identified with increasing frequency during the beginning of the year, with a peak in August. Most *Aedes aegypti* mosquito pools are identified in Maricopa County.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Apache	0	0	0	0	0	0	0	0	0	0	0	0	0
Cochise	0	0	0	0	0	0	25	28	26	0	0	0	79
Coconino	0	0	0	0	0	0	1	7	1	0	0	0	9
Gila	0	0	0	0	0	0	2	5	0	2	0	0	9
Graham	0	0	0	0	0	0	0	2	0	0	0	0	2
Greenlee	0	0	0	0	0	0	0	0	0	0	0	0	0
La Paz	0	0	0	0	0	0	0	0	0	0	0	0	0
Maricopa	56	69	133	314	620	820	720	1,941	1,425	876	714	184	7,872
Mohave	0	0	0	0	0	0	0	0	0	0	0	0	0
Navajo	0	0	0	0	0	0	0	0	0	0	0	0	0
Pima	0	1	6	9	12	7	28	95	68	35	0	0	261
Pinal	0	0	0	2	8	11	9	15	22	10	0	0	77
Santa Cruz	0	0	0	0	0	0	0	7	2	2	0	0	11
Yavapai	0	0	0	0	0	3	3	5	8	0	0	0	19
Yuma	0	0	0	8	9	13	3	8	21	11	0	0	73
TOTAL	56	70	139	333	649	854	791	2,113	1,573	936	714	184	8,412

0 mosquito pools have tested positive for chikungunya, dengue, or Zika virus.

See the maps on the next two pages to see human case rates for **dengue** and **Zika** virus, along with identified ***Aedes aegypti* mosquito pools.** No human cases of **chikungunya** have been reported in 2017.

The only cases of **dengue** reported in 2017 have occurred in Maricopa County. Parts of Maricopa County are known to have abundant ***Aedes aegypti* populations**.



The only cases of **Zika** reported in 2017 have occurred in Maricopa County. Parts of Maricopa County are known to have abundant ***Aedes aegypti* populations**.