



ADHS Mosquito Surveillance Protocol for Vector Control Agencies

Last updated: 6/6/2024

Starting May 1, 2024 the Arizona Department of Health Services will be accepting mosquito collections for arbovirus testing for season 2024. The Arizona arbovirus surveillance program conducts surveillance for at least two mosquito-borne encephalitis viruses; St. Louis encephalitis (**SLE**) and West Nile virus (**WNV**) at the Arizona State Public Health Laboratories (ASPHL). The goal of this surveillance program is to detect and monitor arbovirus activity throughout the state so as to identify areas of increased risk and to help guide risk reduction efforts.

Since 2020, **we encourage all local vector control agencies to use ArizonaSurv** (<https://az.vectorsurv.org>) as a system to enter, report and analyze mosquito surveillance data. The use of ArizonaSurv will improve data quality, allow for faster reporting to ADHS and CDC, and will give users access to data mapping and analysis tools. You can find more information on ArizonaSurv on our Mosquito-Borne Diseases home page www.azdhs.gov/mosquito and on the VectorSurv website, under Documentation <https://vectorsurv.org/docs/>.

Mosquito Collection

For collection you will need CO2 trap(s), a mechanical aspirator, screw cap glass or plastic vials for adult mosquito collections, and shipping boxes. If possible, please collect mosquitoes in your area at least once per month from April through October. To collect and sort mosquitoes, please follow the protocol below:

1. **Bait the trap** with at least two pounds of dry ice to last all night, and hang the trap close to sun down. Hang CO2 trap(s) with the bait can and/or motorized fan at shoulder height. Hang it from a tree limb or other structure in a place that is likely to have some shade from the east side so that the samples don't get blasted by the morning sun. Also, hang it in a safe place to avoid theft or vandalism. You have the option of turning off the mini-light so as to be more discreet. The capture net hangs below the fan. If the night is likely to be breezy, it may be necessary to secure the net with a rubber band.

2. **Harvest** your catch in the morning by pinching off the capture net while the fan is still running. Keep the mosquitoes cool and shaded until you are ready to process them into vials. When you are ready to process the mosquitoes, **chill the mosquitoes briefly on dry ice** (approximately 30 - 60 seconds) to immobilize them. Then **aspirate** them into the plastic capsule. If the mosquitoes are beginning to move within the capsule, chill them again briefly to immobilize them. Then hold the capsule with the tube over the vial and tap the mosquitoes down the tube into the vial. Please DO NOT over-pack the vials as this will damage the mosquitoes and makes identification difficult. Screw the cap on securely.
3. Please send us samples **already sorted by species and identified**, as ADHS has very limited capacity to do so.
4. **Label the vial/s** with the following information: Date, Location, species and Collector's Name (you can print the labels from ArizonaSurv, see instructions below). White medical tape works well for labels. Seal the vial(s) inside a plastic bag so as to facilitate easier handling when removing the samples from the shipping box. Pack the vial(s) in a shipping box containing enough dry ice to keep the sample cold all the way to ASPHL. It is important to remember that **preserving mosquitoes in a cold state makes species identification easier and more accurate**. If samples become warm or soggy while in transit to the state lab, the mosquitoes will deteriorate often to the point where species identification is not possible.

Submitting Pools for Testing

We request for the sake of consistency in reporting mosquito trapping data to the state that you use **ArizonaSurv** (<https://az.vectorsurv.org>). Please enter in the system your trapping sites (under the Sites tab) and pools (under the Arthropod tab).

1. To **submit** your pools for testing at ASPHL, go to Arthropod/Pools/Testing/New Submission. Select the pool/s you want to submit and the type of testing (WNV/SLE or chikungunya/dengue/Zika).
2. You should also **print pool information** and **labels** to be included with your shipment to ASPHL by clicking on print and labels, respectively, under Arthropod/Pools/Testing/Manage Submission. Find more detailed instructions on <https://vectorsurv.org/docs/arthropod/submission-manage/> and in the ArizonaSurv Guide on our Mosquito-Borne Diseases [home page](#). When ASPHL testing is completed and entered in ArizonaSurv, you will receive an email and the data will be updated in the system under Arthropod/Pools/Testing/Manage Test Results. If you enter your data in ArizonaSurv, you do **not** need to use the ADHS [Mosquito Data Submission form](#). For any issues with ArizonaSurv please contact the vector team at ybzd@azdhs.gov.

Turn-around-time for mosquito pool testing by the Arizona State Public Health Lab is 7-14 business days.

If you are using RAMP testing

If your agency is testing mosquito pools using the [RAMP test](#), we would recommend submitting your sample for confirmatory PCR testing at ASPHL when:

- All RAMP samples testing between **30 – 300 Units**
- *The first RAMP sample of the season* for your agency testing **greater than 300 Units**

Information on RAMP sample testing for confirmatory PCR Testing:

- RAMP buffer is compatible with PCR testing and can be saved for confirmation or research purposes.
 - Sufficient supernatant should be available for multiple tests.
 - RAMP buffer is compatible with other testing technologies but RAMP buffer must be used for RAMP testing instrument.
- Following RAMP protocols per manufacturer literature
 - “If samples are to be sent for PCR confirmation...remove the supernatant from the mosquito sample(s) and immediately freeze and aliquot for PCR testing.”
 - If above is not possible freeze/chill the mosquito homogenate, BB’s, and RAMP buffer.
- Samples should be submitted and shipped like regular mosquito pools (as described in this document).

Shipping

Ship the vials to the state lab at the following address:



**Arizona State Public Health Laboratory
Bureau of Laboratory Services**

250 N. 17th Avenue, Phoenix, AZ 85007
Phone: (602) 542-1190; Fax: (602) 542-0760

[Shipping and Receiving](#) Hours:

- Mon - Fri – 8 a.m. to 5 p.m.
- Sat – 9 a.m. to 5 p.m.

Please note that we will prioritize laboratory testing for the *Culex* species. However, species within other genera may also be selectively tested as well. Also please note that you need to send your samples to the Arizona State Public Health Lab, not the Office of Infectious Disease Control.

It's Important to Remember:



1. Pack the sample in enough dry ice to last two days.
2. Include your pools print out from ArizonaSurv as your packing list. Make sure your agency name and contact information is visible.
3. Collect and ship the mosquitoes early in the week.
 - a. Do not ship mosquitoes on a Thursday or Friday as they may not arrive before the weekend. Ensure that samples arrive during normal business hours.
 - b. Ship them by overnight delivery.

Thanks again for your help and good hunting!

The Vector Team

Vbzd@azdhs.gov

Office of Infectious Disease Control at (602) 364-3676 (you'd be asked to leave a message).