January 2020

ZOONOSIS CONTROL

Region 8 Zoonosis Control Newsletter

TEXAS Health and Human Services

Texas Department of State Health Services

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Dr. Kieffer's Corner

We hope everyone enjoyed a restful holiday season. As we move into the New Year, we are continuing our focus on enhancing vector surveillance in Region 8. This quarter's newsletter provides an overview of mosquito borne diseases and also highlights our mosquito surveillance capabilities. If you or your jurisdiction would be interested in helping collect mosquitoes, give us a call! We also have some vector training opportunities coming up, check out the training announcements on page 5 for more details. Thank you for all that you do, and wishing everyone a Happy New Year!

News from Region 8:

Mosquito Surveillance Kits
Region 8 has mosquito surveillance kits and LPA training funds available for vector control programs. Please contact us if you are interested in receiving a kit and enhancing surveillance in your jurisdiction.

ACO Continuing Education
Looking for ACO CE? Visit the DSHS website at https://www.dshs.texas.gov/idcu/health/zoonosis/education/training/aco/

Vector Borne Disease CE:
4 hour course on vector borne diseases and public health considerations. CE pending for ACOs, DVMs, LVTs, and LPAs. See Page 6 for additional details.

Newsletter Topics
Interested in a particular topic for the next newsletter? Email Region8.Zoonosis@dshs.texas.gov with your suggestions!

2019 Rabies Summary

As of December 31, 2019, 74 positive cases of rabies were identified in 11 of the 28 counties that make up Region 8. Bats made up the largest group of positive cases (68%), followed by raccoons (13%), foxes (11%), and cats and skunks (3% each).

2019 Rabies Cases in Animals, Region 8
January 1, 2019—December 31, 2019

	Bat	Cat	Dog	Skunk	Raccoon	Fox
Atascosa	1					
Bandera					8	2
Bexar	40					
Comal	2					2
Gonzales	1			1		
Guadalupe	2					
Karnes	1					
Kendall	1			1	2	2
Kerr	3					2
Lavaca		2				
Uvalde	1					
Total: 74	52	2	0	2	10	8

MOSQUITO BORNE DISEASES

Mosquito Borne Diseases (also known as arboviral diseases) are one of the most common types of zoonotic diseases worldwide. Certain arboviruses are more commonly found in the United States, such as West Nile Virus. Other arboviruses, like Dengue and Zika Virus, are more often found in other areas, such as Mexico and South America.

In 2019, DSHS reported the following activity for arboviruses:

Arbovirus	Human Cases	Horse Cases	Positive Mosquito Pools
West Nile Virus	30	1	119
Dengue	59*	N/A	0
Chikungunya	12**	N/A	0
Eastern Equine Encephalitis	0	6	0
St. Louis Encephalitis	0	N/A	9
Zika Virus	2**	N/A	0

*Dengue: 57 imported and 2 locally acquired cases (Hidalgo County)
**Chikungunya & Zika: Imported cases only

Figure 1: DSHS 2019 Arbovirus Activity Summary, Texas, All Cases
(As of 12/30/2019)

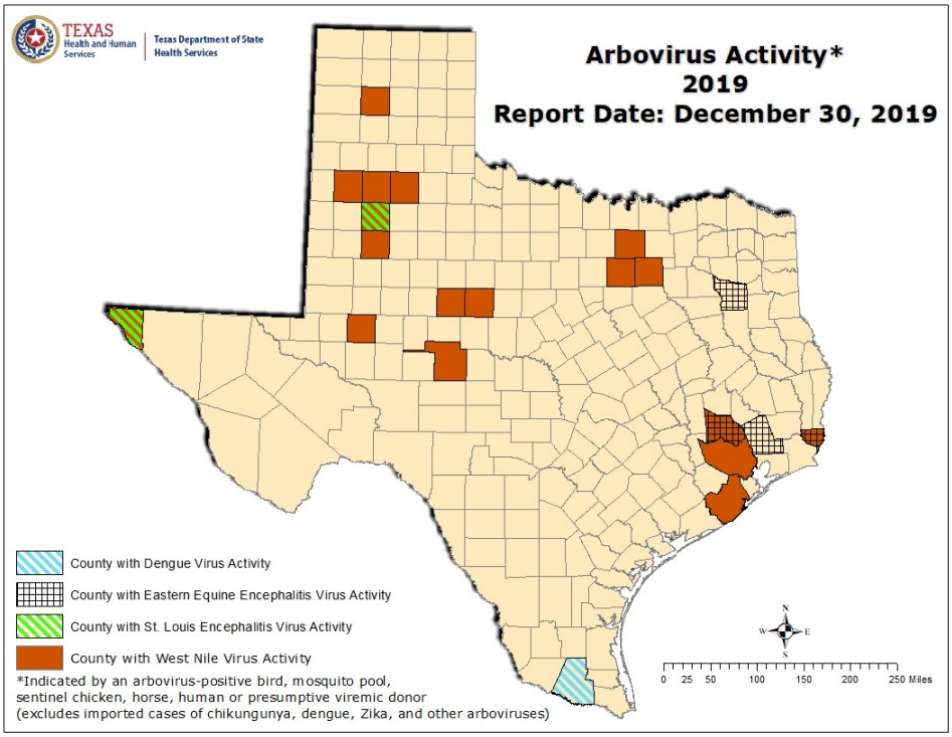

Figure 2: DSHS 2019 Arbovirus Activity, Texas, Excluding Imported Cases
(As of 12/30/2019)

Source: https://dshs.texas.gov/idcu/disease/arboviral/westNile/reports/weekly/

MOSQUITO BORNE DISEASES

West Nile Virus

West Nile Virus (WNV) is transmitted by the *Culex* mosquito. It is one of the most common mosquito-borne diseases in Texas. Most people infected do not develop any symptoms. Infection with WNV can cause symptoms of fever, body aches, joint pains, vomiting, diarrhea, and rash (Figure 1). Serious illness can result from infection of the central nervous system, leading to encephalitis (inflammation of the brain) or meningitis (inflammation of the membranes surrounding the brain and spinal cord).

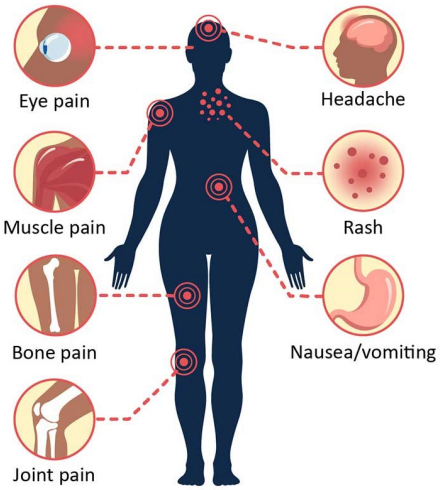

Figure 1: Common Symptoms of Mosquito Borne Diseases (Source: CDC)

Dengue Virus

Dengue Virus is transmitted by the *Aedes* mosquito. Infection with dengue virus can cause rash and flu-like symptoms such as fever, joint pains, nausea and vomiting. In some cases, it can develop into more serious illness with Dengue Hemorrhagic Fever (DHF), which causes shock, internal bleeding, and in severe cases, death. According to the Centers for Disease Control (CDC), 40% of the world's population live in areas with risk of dengue, which includes Latin America, Africa, and the Middle East.

Chikungunya Virus

Chikungunya (CHK) virus is transmitted by the *Aedes* mosquito. Similar to dengue, CHK infection can cause fever, joint pains, and rash. The joint pains of CHK can last for months or years. Prior to 2013, CHK was primarily found in Africa, Asia, and Europe. In recent years, it has now spread to the Americas. Local transmission is rare in Texas, with most cases occurring from those who have traveled to Latin America or other countries.

Eastern Equine Encephalitis

Eastern Equine Encephalitis (EEE) is transmitted by *Culiseta melanura* mosquitoes, which is primarily a mosquito of birds. Horses are susceptible to this virus, and there is a vaccine to prevent EEE in horses. Infection in humans is very rare, and can result in fever or neurologic disease (encephalitis and meningitis). EEE viral encephalitis in humans can be very serious, resulting in death for one third of those infected.

St. Louis Encephalitis

St. Louis Encephalitis (SLE) is transmitted by the *Culex* mosquito. This virus cycles mainly between mosquitoes and birds, but sometimes humans or other mammals can become infected. Less than 1% of SLE virus infections result in symptoms. Those with symptoms can experience fever, dizziness, and nausea. Older adult persons with SLE virus infection are more likely to develop encephalitis.

Zika Virus

Zika Virus is transmitted by the *Aedes* mosquito. Infected persons can spread Zika virus to each other through sexual transmission and it can also be spread from a pregnant woman to her baby. Infection with Zika virus during pregnancy is known to cause certain birth defects, such as microcephaly. Most people infected with Zika virus do not show symptoms, however reported symptoms are similar to other arbovirus infections: fever, rash, joint/muscle pain and/or conjunctivitis. In 2016-2017, there was local transmission of Zika Virus in Texas and Florida. No confirmed locally acquired Zika cases were reported in the United States in 2019.

MOSQUITO SURVEILLANCE

In 2019, the Public Health Region 8 Zoonosis Team received funding to enhance vector surveillance activities throughout the region. This funding was provided through grants offered by the United States (US) Centers for Disease Control (CDC):

Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC) Grant

The ELC grant provides funding to jurisdictions to detect, prevent, and respond to infectious disease threats. The ELC grant emphasizes three core areas:

- Surveillance, Detection, and Response
- Prevention and Intervention
- Communications, Coordination, and Partnerships

Under this grant, the Zoonosis Team received mosquito surveillance kits to assist with collecting and testing mosquitoes for vector borne diseases, such as West Nile Virus, Dengue, and Zika Virus. The Team provided these kits throughout the region and provided training upon request. The kits include:

- BG-2 Sentinel Mosquito Traps
- CDC Mini Light Traps with Dry Ice Dispensers
- Gravid Mosquito Traps
- Aspirators

There are still kits available! If you are interested in receiving these kits or volunteering to collect mosquitoes in your area, please contact the Region 8 Zoonosis Team at Region8.Zoonosis@dshs.texas.gov. Free training available!

Figure 1: Mosquito Trapping Equipment

Figure 2: Trevor Maness Setting up a CDC Light Trap

INSECTICIDE RESISTANCE TESTING

In addition to mosquito surveillance, an important component of integrated mosquito management is monitoring the status of resistance to insecticides in mosquitoes.

Insecticide resistance testing should be considered:

- ◊ Before an insecticide is chosen for vector control
- ◊ To compare the efficacy of an insecticide with other insecticides
- ◊ At the beginning and the end of the mosquito control season
- ◊ To provide initial evidence if an insecticide is losing its effectiveness

The Texas Department of State Health Services Arbovirus Laboratory and Zoonosis Control Branch is offering insecticide resistance (IR) testing for Aedes aegypti and Aedes albopictus, mosquitoes that transmit infectious diseases such as Dengue, Chikungunya and Zika. The testing method uses the CDC Bottle Bioassay procedure. This service is available to jurisdictions who have a vector control program.

The IR test will use eggs collected from ovitraps. Ovitraps are simple, inexpensive containers designed to attract Aedes female mosquitoes. The containers are typically dark in color and made of metal, plastic or glass and contain a paper substrate where the female mosquitoes will lay their eggs. The paper containing the eggs is sent to the DSHS Arbovirus Laboratory to create the colonies for the Insecticide resistance test.

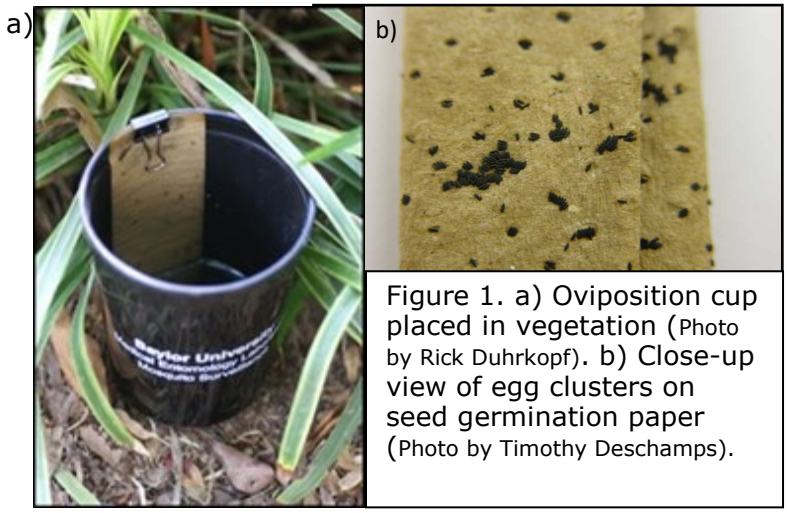

Figure 1. a) Oviposition cup placed in vegetation (Photo by Rick Duhrkopf). b) Close-up view of egg clusters on seed germination paper (Photo by Timothy Deschamps).

Please contact DSHS Region 8 Zoonosis (Region8.Zoonosis@dshs.texas.gov) or the Arbovirus Laboratory, Dr. Bethany Bolling (Bethany.bolling@dshs.texas.gov, 512-776-2442 or 512-776-2731) if you are interested in performing Insecticide Resistance testing in your community.

TAMU AGRILIFE EXTENSION VECTOR CONTROL TRAININGS

Master Vector-Borne Disease Management Certification Course

A 3-Day Workshop that includes Vector Biology and Ecology, Epidemiology of Vector-Borne Diseases, Prevention & Communication Activities, Insecticide Resistance Monitoring, and Outbreak Response for Vector-borne Diseases.

Preparation for the TDA Pesticide Applicator License

A 2-Day course specifically held for people wanting to obtain a Non-commercial political subdivision (NCPS) License Category 12, Public Health.

****NEW****

TDA will be on site on day 3 to administer two tests free of charge to those that have registered with TDA for their license

⇒ **Funding may be available to assist with travel reimbursement and exam fees (if applicable) for Region 8 jurisdictions included in the Hurricane Harvey Disaster Declaration counties. If you are within one of these counties and would like more information, please contact Region 8 for additional questions.**

Upcoming Courses in Region 8:
San Antonio—Mar 24, 25, 26

Vector Management CEU Program

This workshop is designed to train personnel in cities and municipalities that are in the field of mosquito abatement or are working on setting up a mosquito control program.

Upcoming Courses in Region 8:
Victoria—Feb 19th
San Antonio—April 29th

For more information on courses and registration information, visit **https://livestockvetento.tamu.edu/workshop-registration/**

REGION 8 TRAINING EVENTS

Vector-Borne Disease and Public Health Seminar

March 18, 2020
1:00pm—5:00pm
Animal Care Services Annex
4710 State Highway 151
San Antonio, TX 78227

4-hour introductory course on the role of public health professionals and vector-borne diseases. Topics include:

- Vector Identification & Surveillance
- Trapping, Abatement & Prevention Basics
- Vector-borne diseases in Texas, of human and animal significance
- Considerations for pest control applicators, animal handlers and veterinary professionals

To Register, visit the following link:
https://www.surveymonkey.com/r/ZF3WNN5

ACO Basic Course

April 8-9, 2020
Uvalde, Texas

The two-day course will consist of 12 hours of lecture with a test on the second day. We welcome any ACO who needs C.E. hours and would want to teach a topic for the class to contact us.

For More ACO CE Course Information:
https://www.dshs.texas.gov/idcu/health/zoonosis/education/training/aco/

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