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# **Zoonotic Disease Epidemiology and Surveillance Updates**

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**Epidemiology and Laboratory  
Capacity Workshop – Oct. 2018**

**DSHS Zoonosis Control Branch**

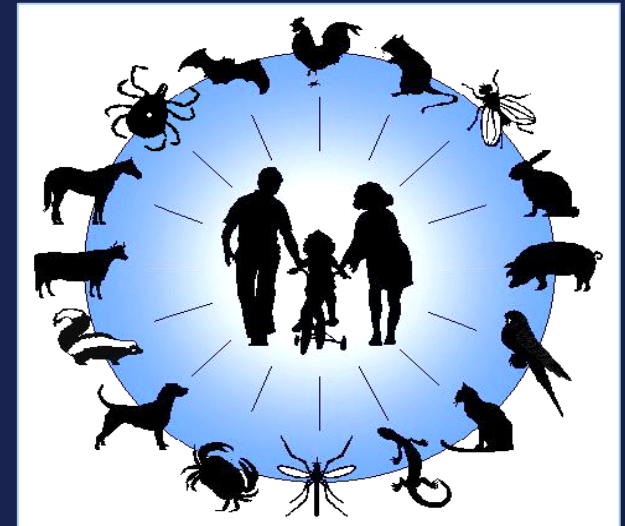
# Updates and Highlights



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- Arboviral diseases
  - *Aedes*-associated arboviruses
  - West Nile virus
- Brucellosis
- Fleaborne typhus
- Tickborne relapsing fever
- Other zoonoses



# ***Aedes*-transmitted Arboviruses**

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## **Zika, chikungunya, and dengue**

- Commonalities: transmission, symptomology, regions of endemicity
- Zika & chikungunya: recent emergence followed by sharp downturn
- Sporadic, seasonal risk of local vector-borne transmission in South Texas
  - 2013: dengue outbreak in LRGV & across border
  - 2015: isolated chikungunya case in Cameron county
  - 2016 & 2017: sporadic Zika disease cases in Hidalgo, Cameron counties



Image Source: <https://phil.cdc.gov/phil/details.asp>



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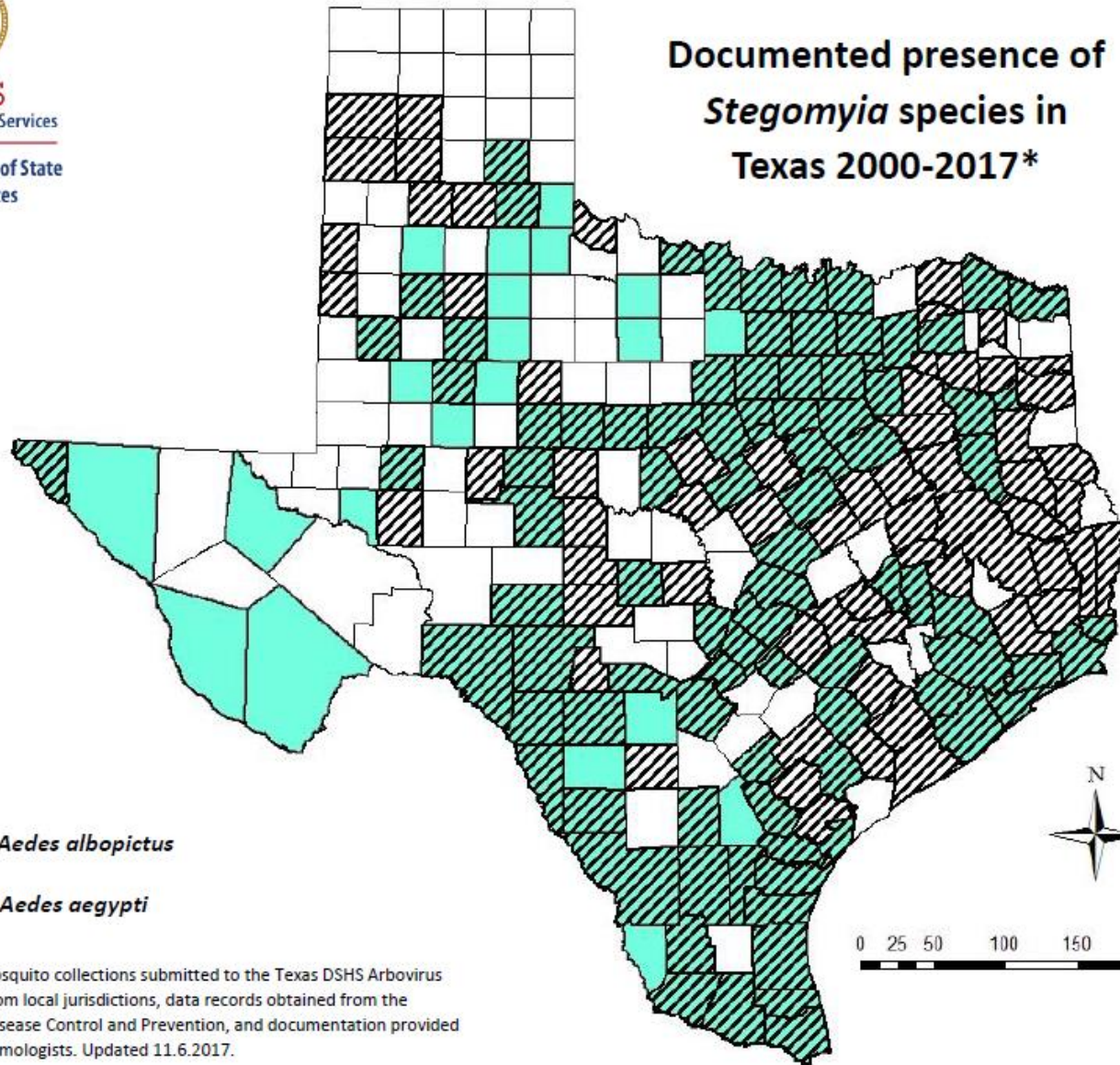


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## Documented presence of *Stegomyia* species in Texas 2000-2017\*



\*Based on mosquito collections submitted to the Texas DSHS Arbovirus Laboratory from local jurisdictions, data records obtained from the Centers for Disease Control and Prevention, and documentation provided by Texas entomologists. Updated 11.6.2017.

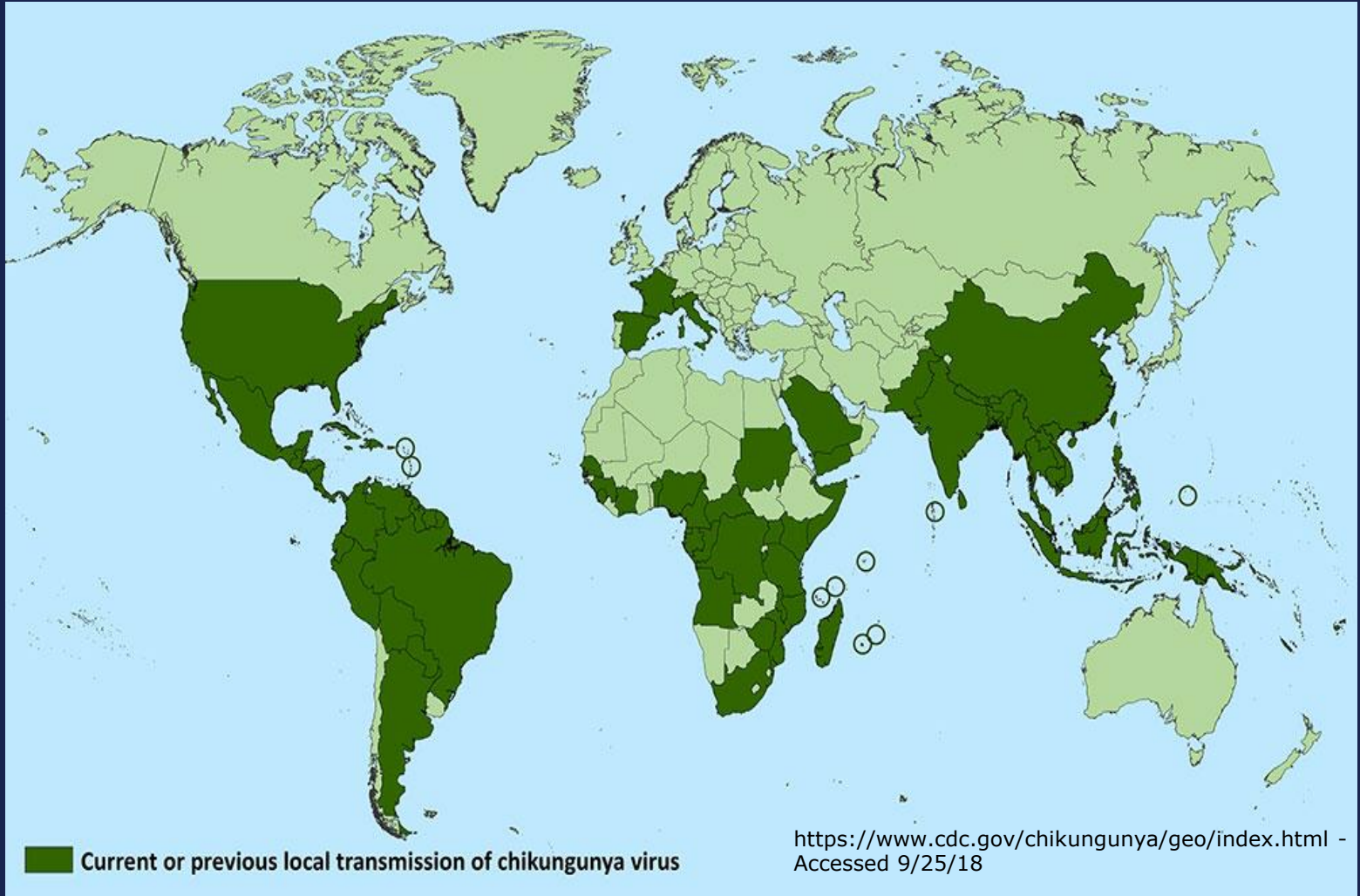
# Areas of Zika, chikungunya, and dengue risk are very similar



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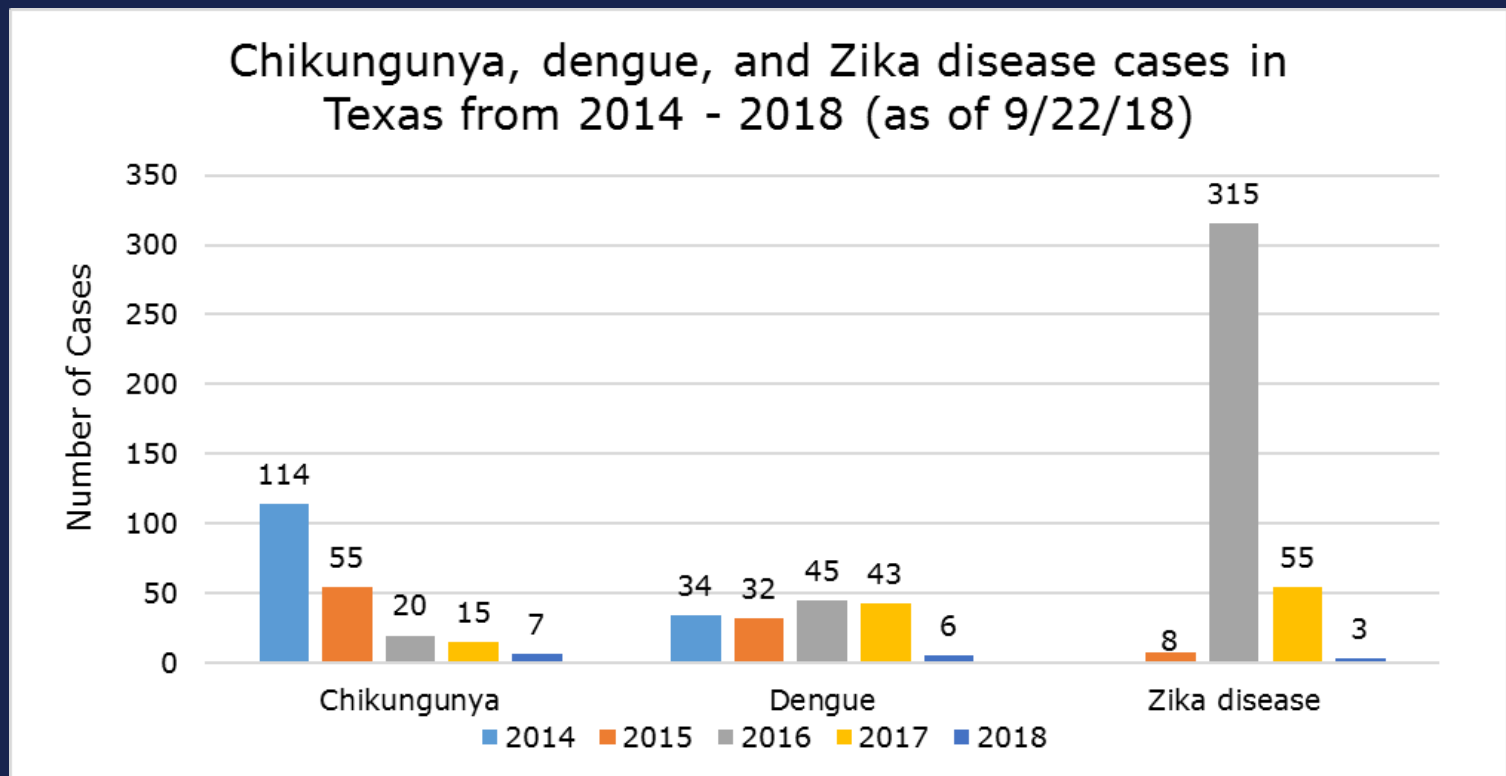
# Recent trends



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- Travel to Mexico, Asia, & the Caribbean
- Emergence in Americas: Chikungunya (2013), Zika (2015)



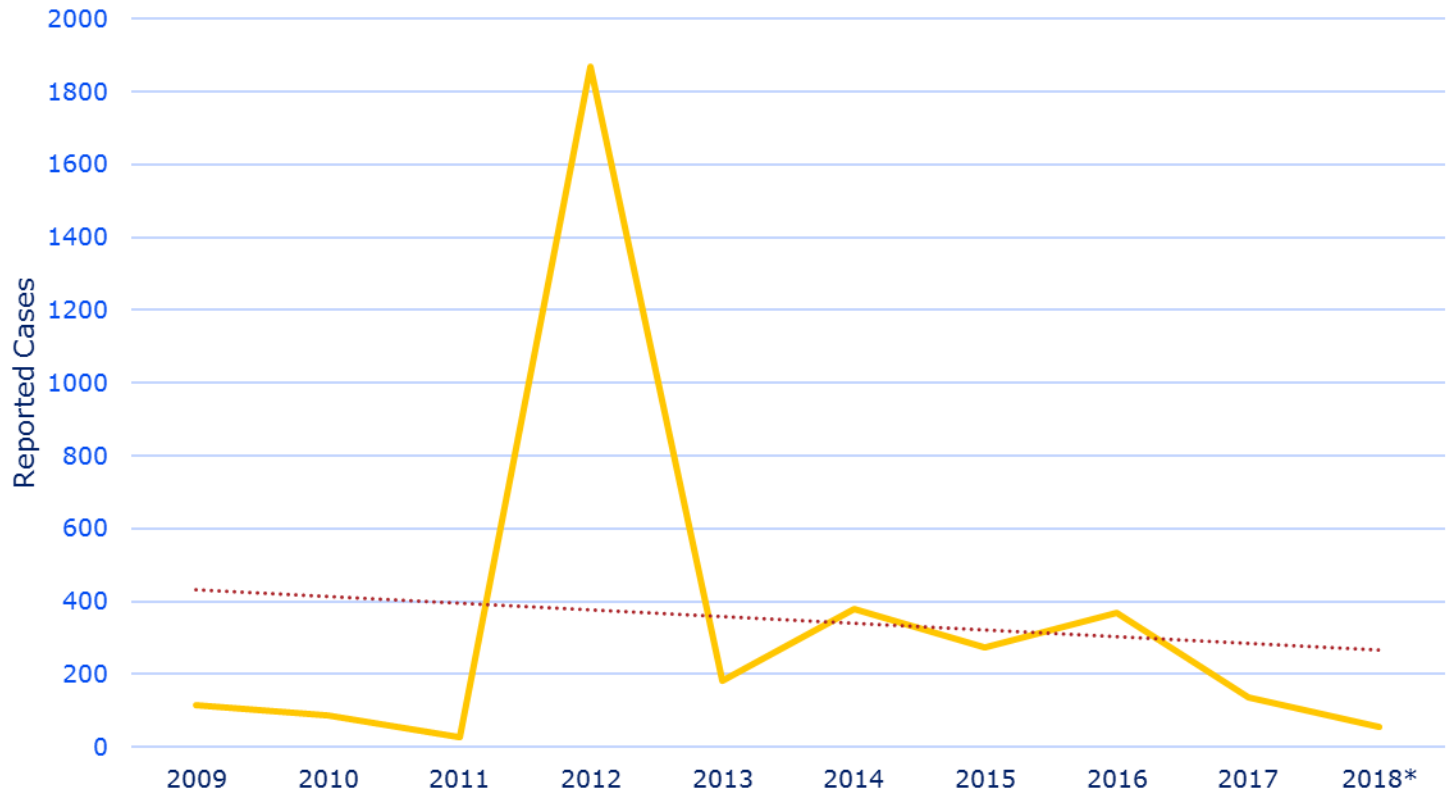


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## Reported Cases of West Nile Virus, Texas, 2009 - 2018\*



\*Provisional data for 2018, as of 9/22/2018

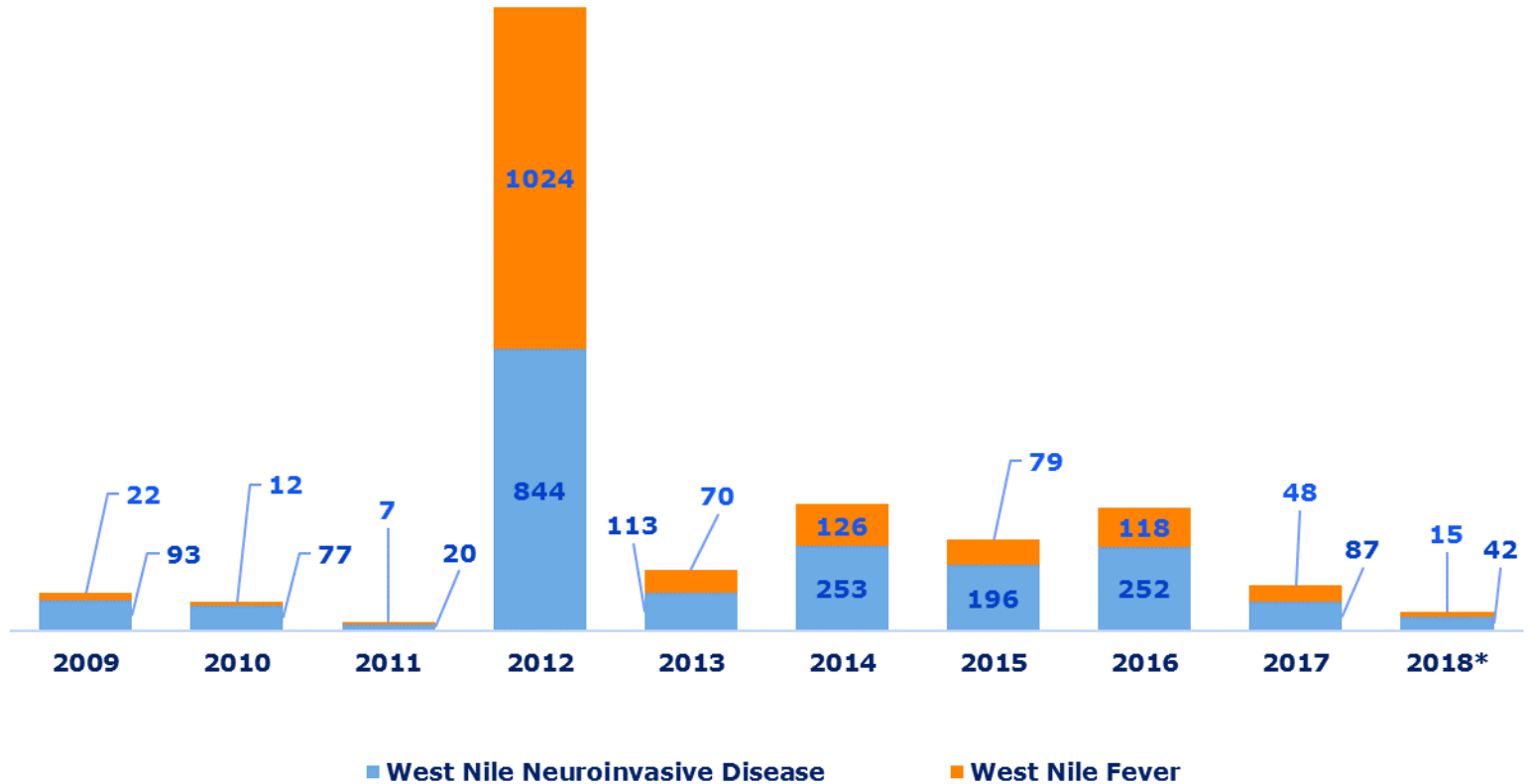


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# Reported Cases of West Nile Fever and West Nile Neuroinvasive Disease, Texas 2009 - 2018\*



\*Provisional data, as of 9/22/2018



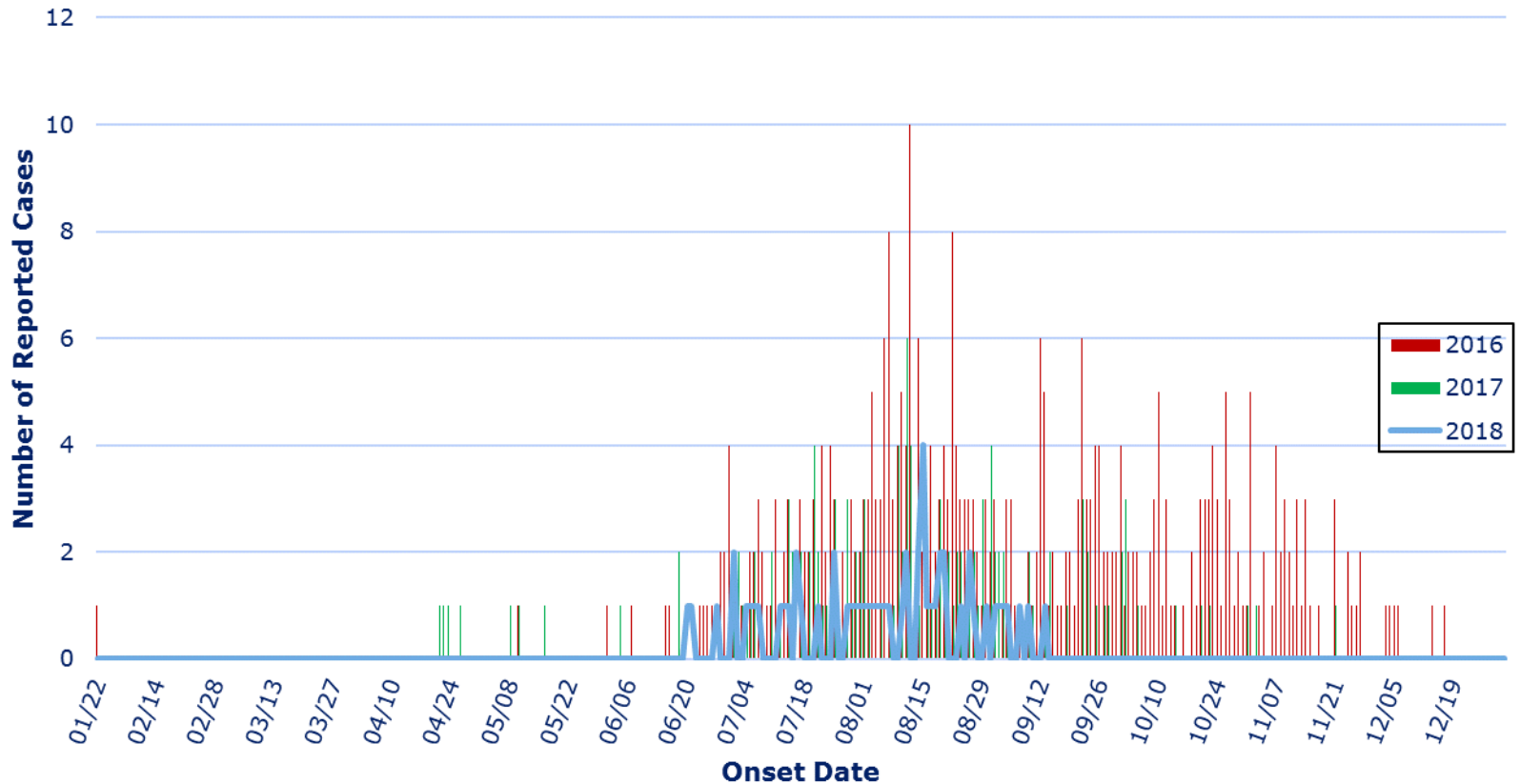


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# Human Cases of West Nile Virus Reported in Texas, by Onset Date, 2016-2018\*



\*Provisional data for 2018, as of 9/22/2018

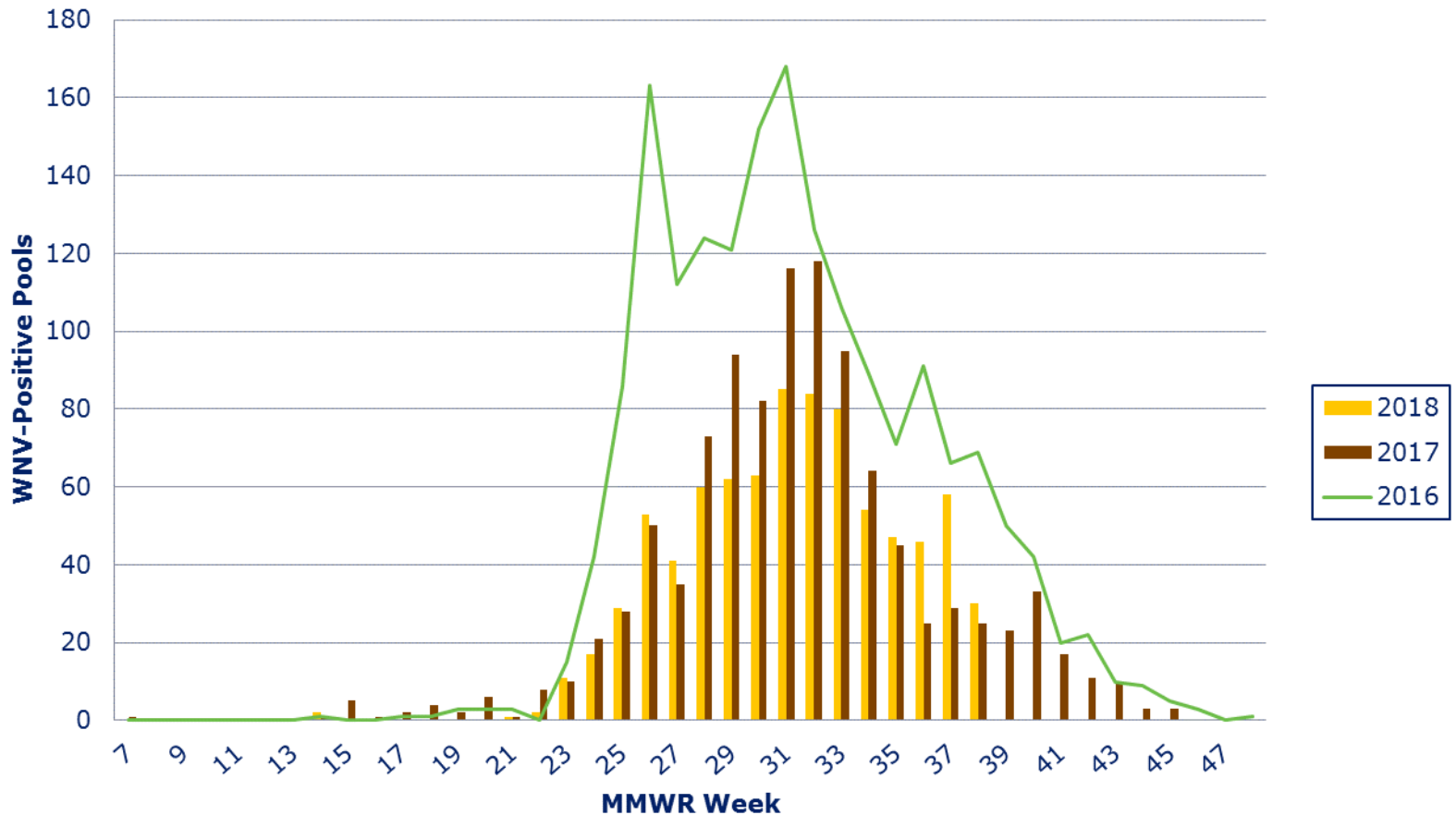


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# WNV-Positive Mosquito Pools Reported in Texas, by MMWR Week, 2016-2018\*



\*Provisional data for 2018, as of 9/22/2018



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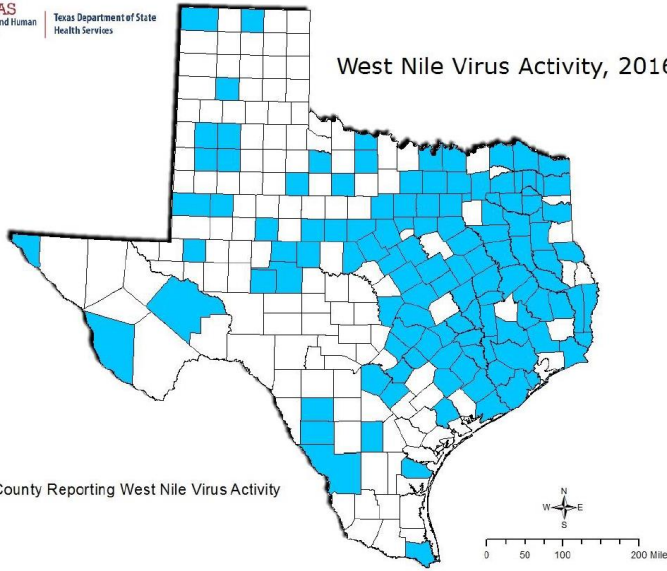
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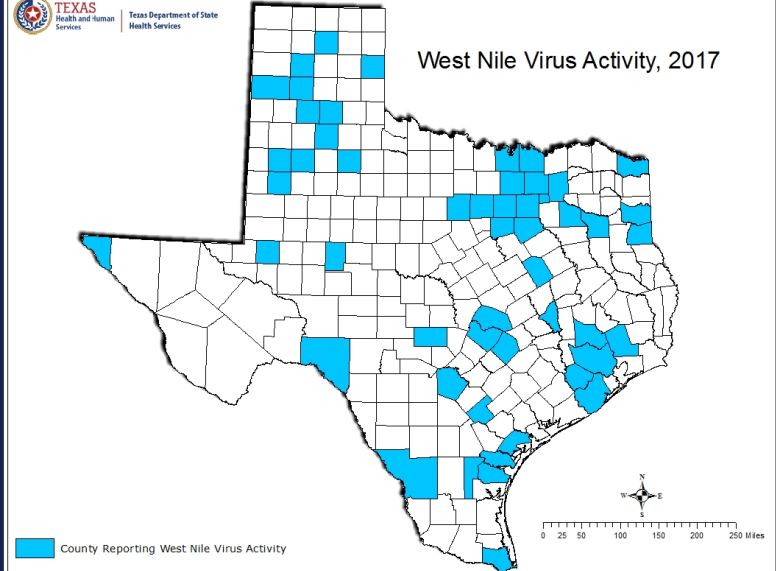
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### West Nile Virus Activity, 2016



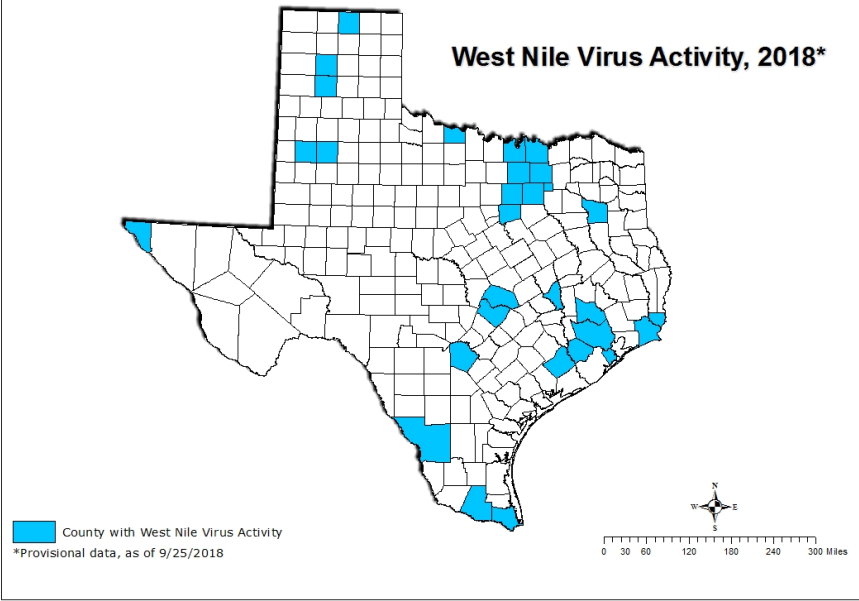
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### West Nile Virus Activity, 2017



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### West Nile Virus Activity, 2018\*



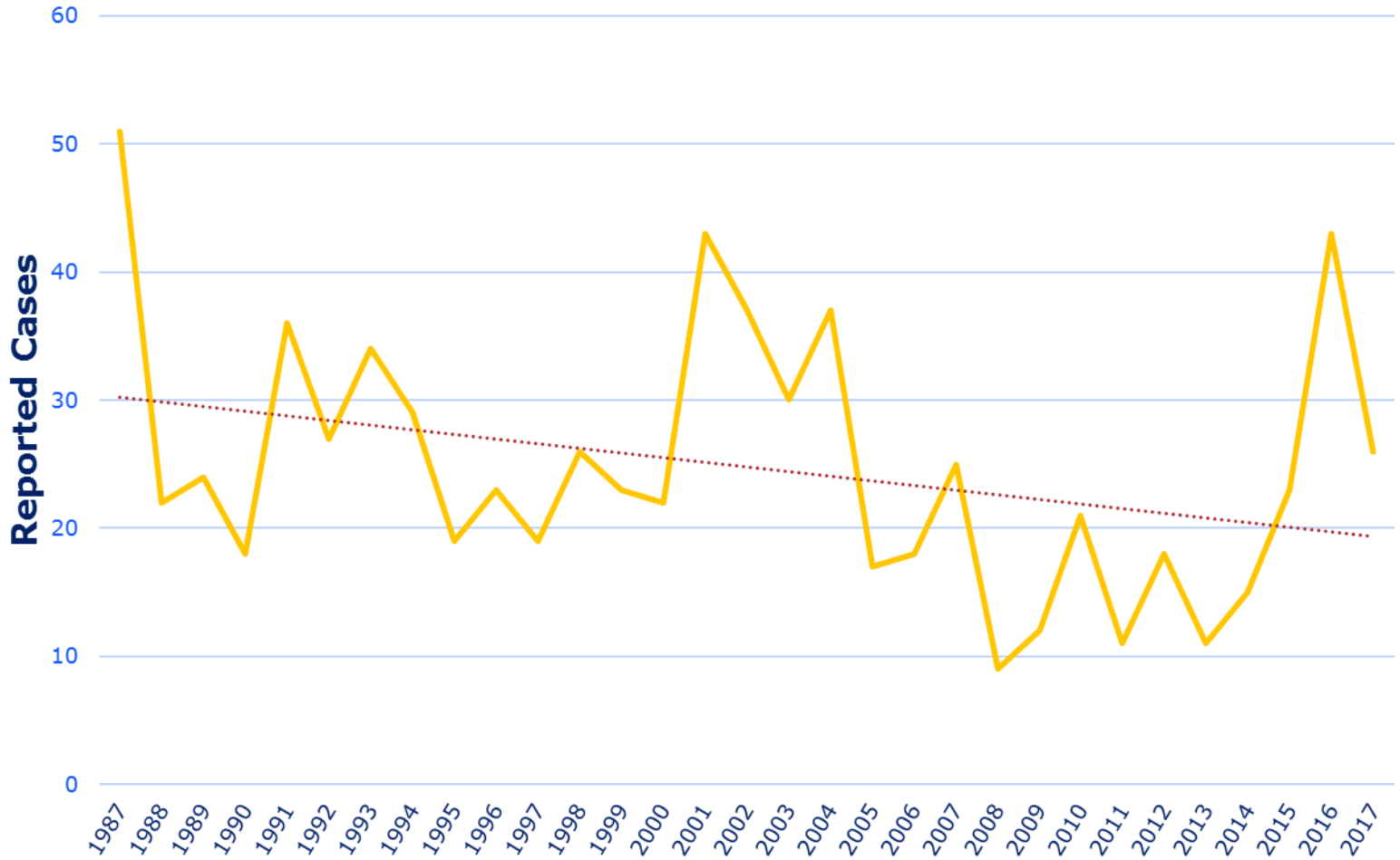


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## Reported Cases of Brucellosis in Texas, 1987 - 2017 (N=769)



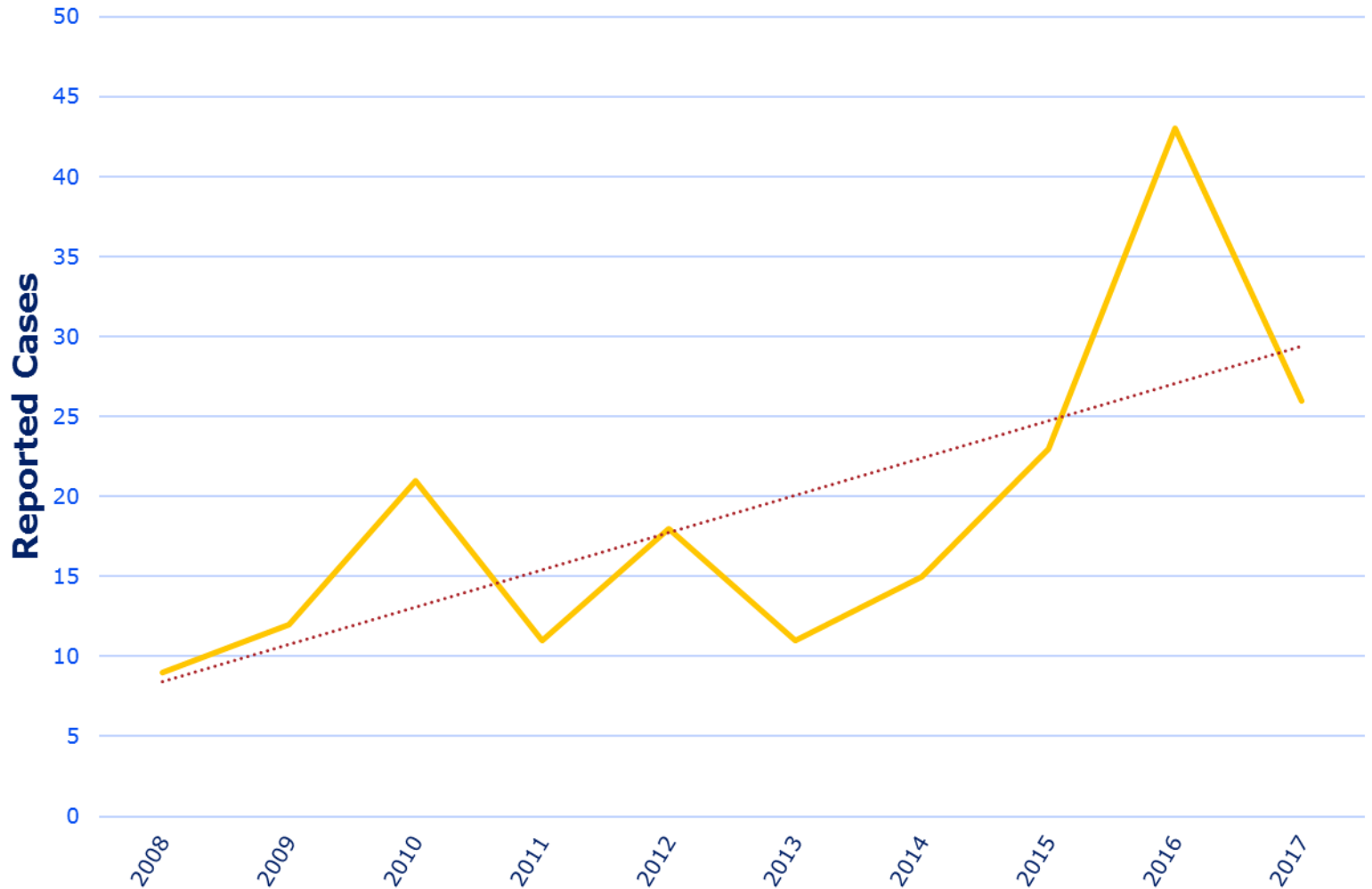


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## Reported Cases of Brucellosis in Texas, 2008 - 2017 (N=189)

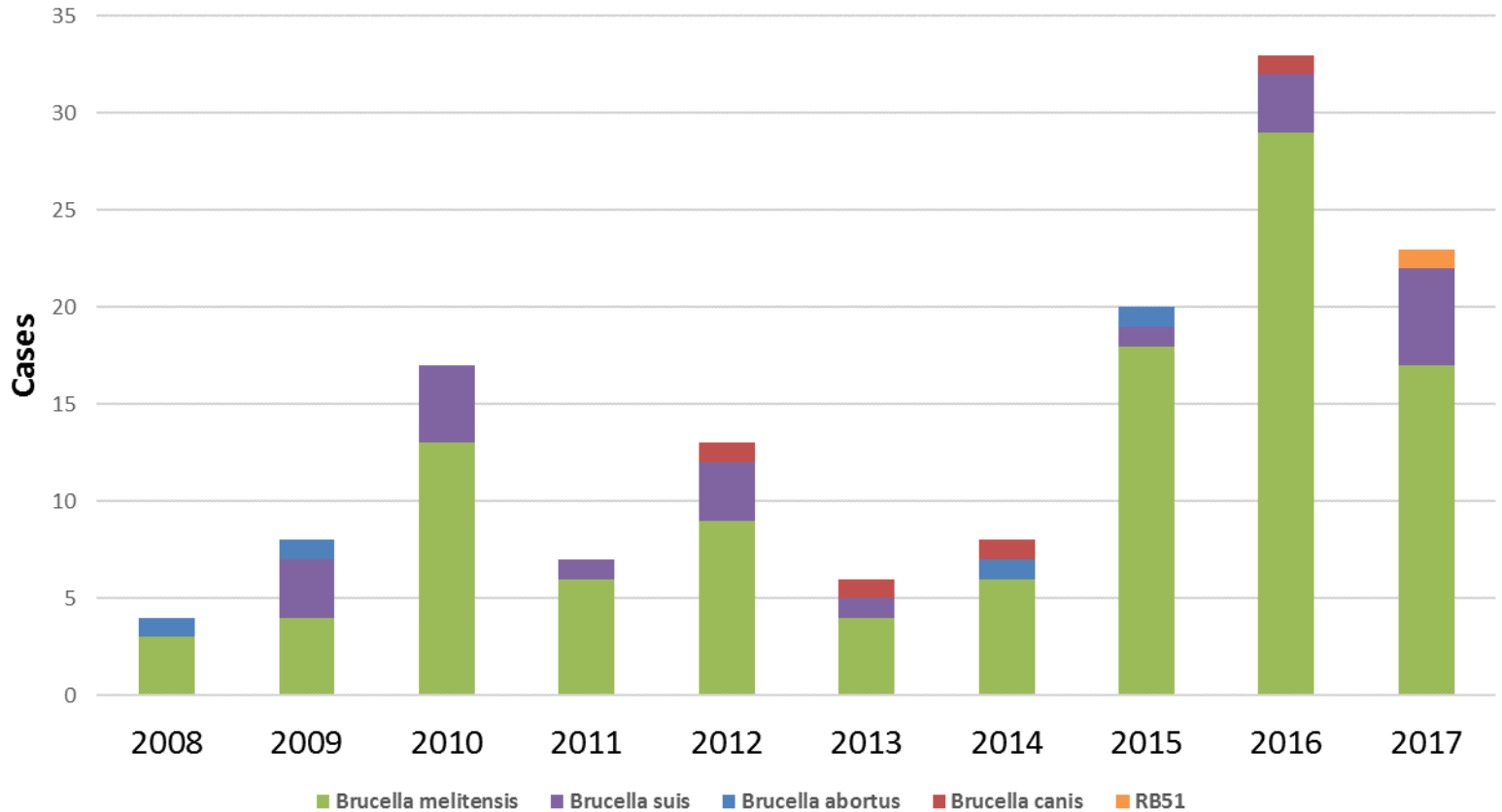




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## ***Brucella* Species Identified in Confirmed Cases by Year, Texas, 2008-2017 (N = 139)**



# 2017 Brucellosis in Texas



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- In 2017, there were 26 cases of brucellosis reported from 13 counties
  - Harris County (8), Dallas County (5), and Tarrant County (3) reported the highest number of cases
- Of the 26 reported cases, 16 (62%) were male and 10 (38%) were female
- The majority (81%) of cases were Hispanic
- The majority of cases (73%) were hospitalized
- Three (12%) case-patients were pregnant at the time of infection
  - No pregnancy complications have been reported
- No deaths were associated with brucellosis in 2017

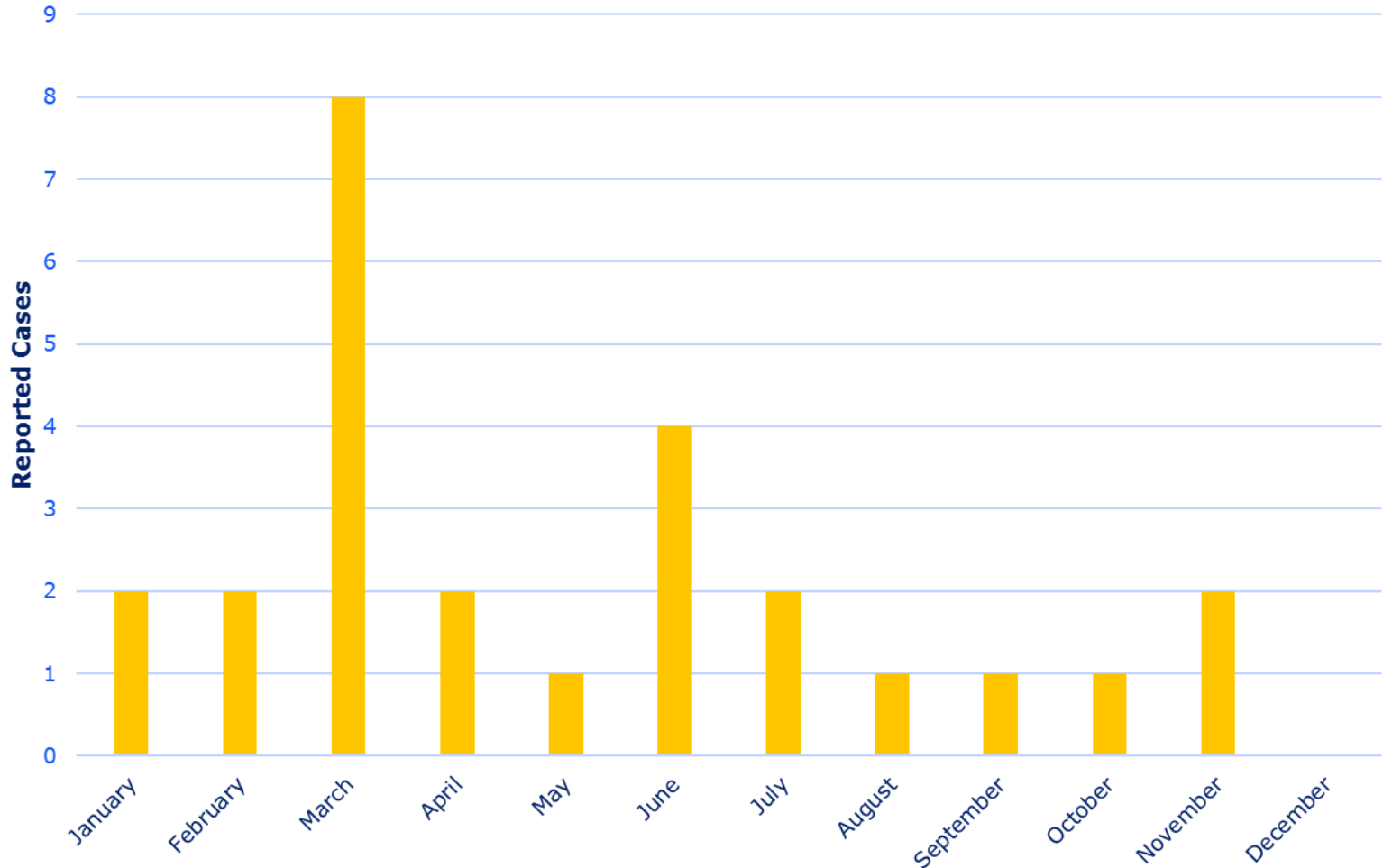


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## Reported Cases of Brucellosis in Texas by Onset Month, 2017





# Brucellosis: Clinical Presentation



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- Most commonly reported clinical signs and symptoms
  - Fever (92%)
  - Sweating (65%)
  - Fatigue (54%)
- Reported clinical signs and symptoms of chronic disease
  - Arthritis (12%)
  - Splenomegaly (8%)
  - Endocarditis (4%)

# Brucellosis Exposures



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- Most commonly reported exposures
  - Contact with animals (50%)
  - Consumption of unpasteurized cheese (38%)
  - Consumption of unpasteurized milk (8%)
  - Consumption of undercooked meat (8%)
- Ten (38%) case-patients reported consuming unpasteurized dairy products from Mexico

# Fleaborne Typhus Cases on the Rise!



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- Overall increase over last 13 years in Texas
- Distribution has changed over last 5 years
  - Increased typhus activity in Dallas-Fort Worth & Houston areas
- Health Alert issued Nov 30, 2017



Figure 1: *Xenopsylla cheopis*, the Oriental rat flea  
[www.cdc.gov/typhus/murine/index.html](http://www.cdc.gov/typhus/murine/index.html)

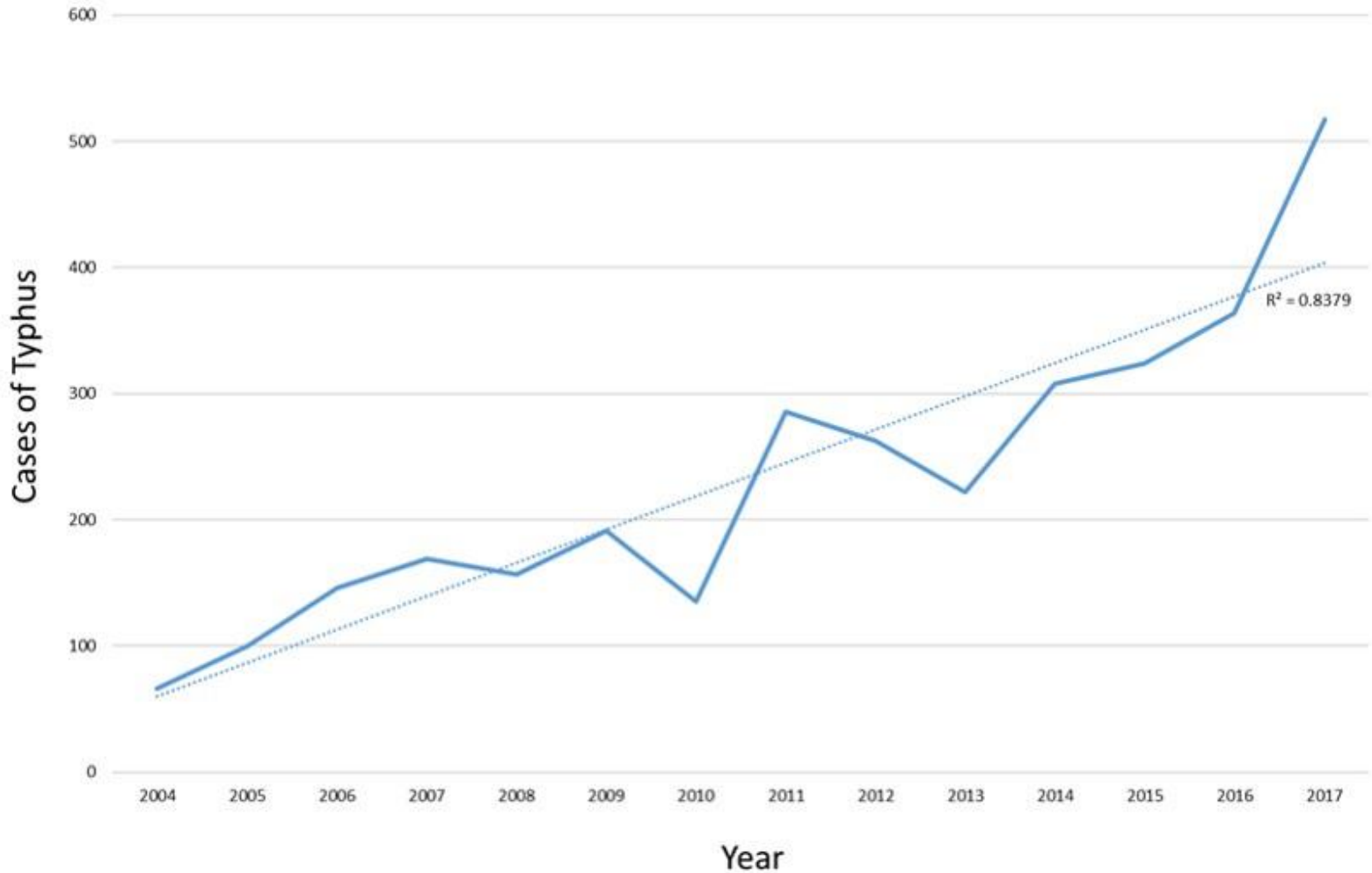


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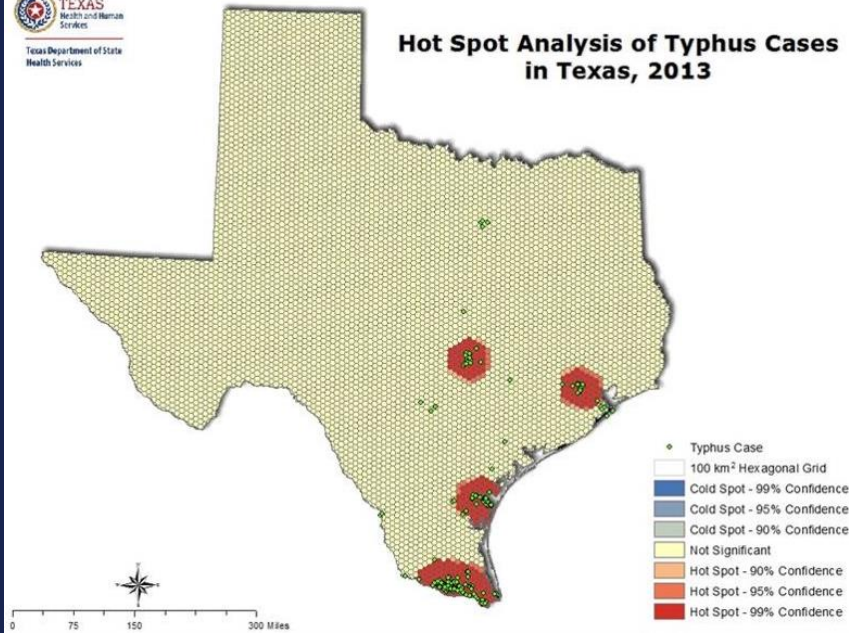
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### Reported Typhus Cases in Texas by Year, 2004-2017



### Hot Spot Analysis of Typhus Cases in Texas, 2013



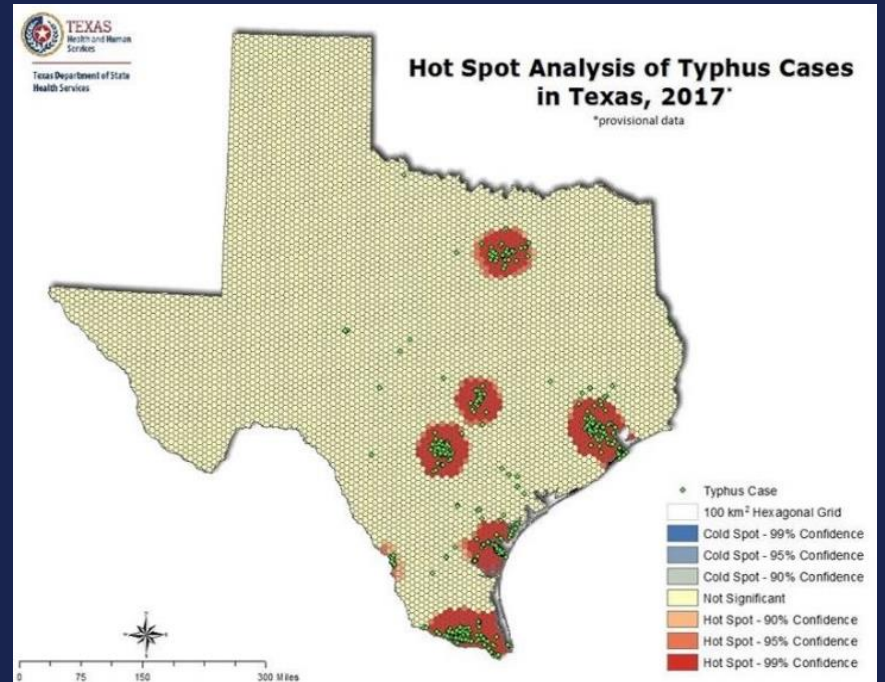
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### Hot Spot Analysis of Typhus Cases in Texas, 2017\*

\*provisional data



# Tickborne Relapsing Fever, Oh My!



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- Seven cases reported in 2017
  - Six in Travis County
  - Majority of exposures were not associated with cave exploration
- At least two of these patients were initially diagnosed with Lyme disease
- Not currently notifiable in Texas, but considering adding to list



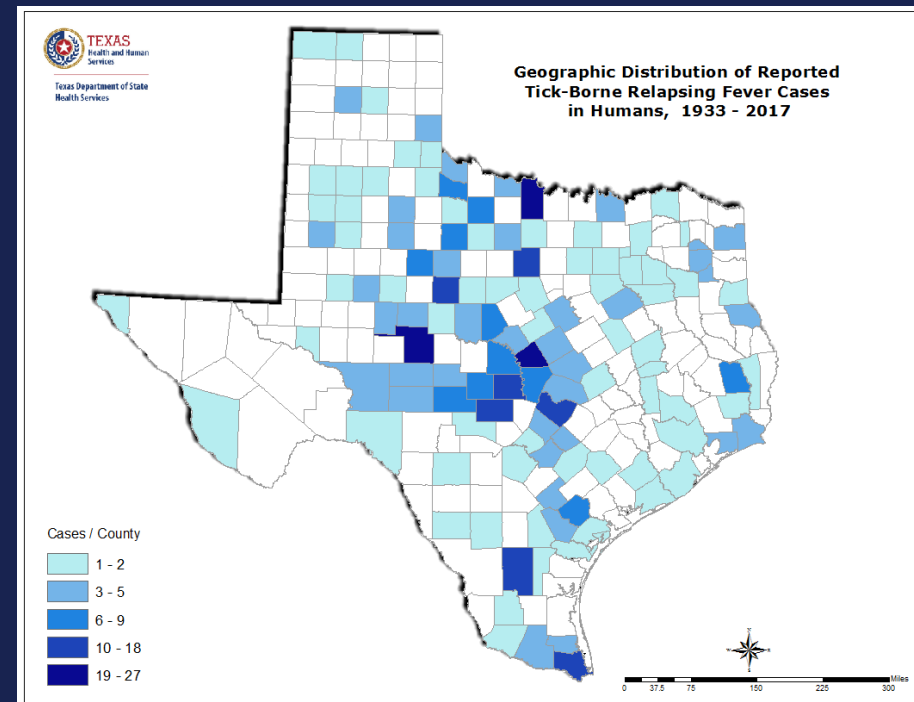
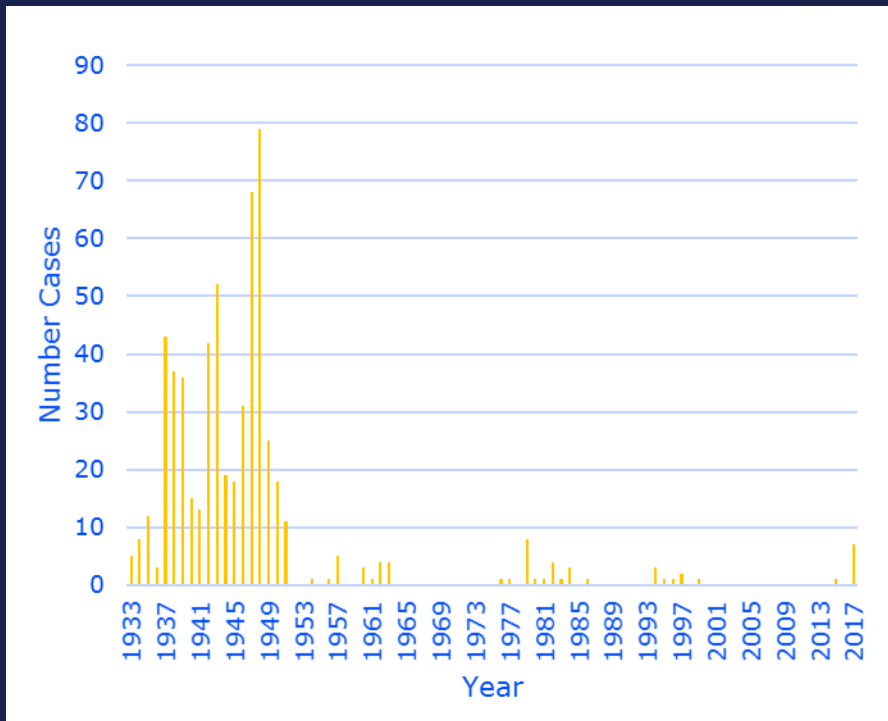
*O. hermsi* tick, before and after feeding.  
Photo taken by Gary Hettrick RML, NIAID.

# TBRF Cases Reported in Texas, 1933-2017



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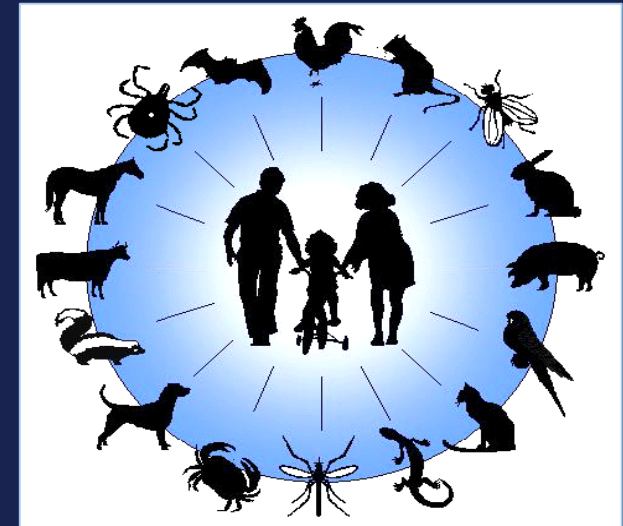
# More on Zoonoses



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- Wednesday Breakout Sessions
  - Zoonotic Disease One-Health Investigations at 10:15 am
  - Vectorborne Zoonoses at 3:00 pm
- Regional Zoonosis Control Offices  
<http://www.dshs.texas.gov/idcu/health/zoonosis/contact/>







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# **Thank you**

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**Zoonosis Control Branch Epi Team**