VDH VIRGINIA DEPARTMENT OF HEALTH

Chagas Disease and Kissing Bugs

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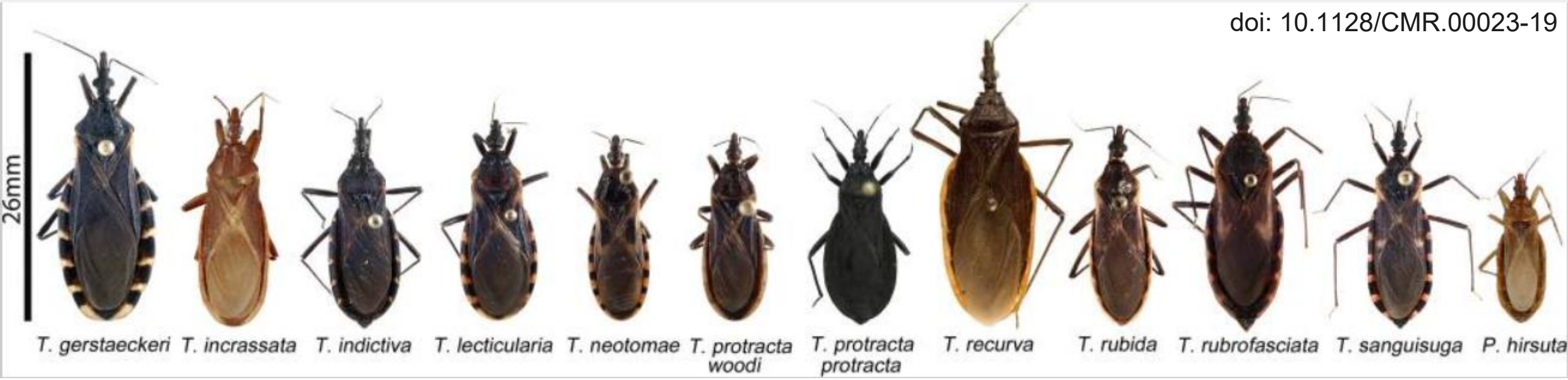
One of the most misidentified insects out there:

“Kissing Bugs”

Hemiptera -> Reduviidae -> Triatominae

- ~20 genera worldwide
  - 11 species in the U.S.

- Nocturnal and diurnal species.
- Sylvatic habitats.
- Males and females are blood-feeders.

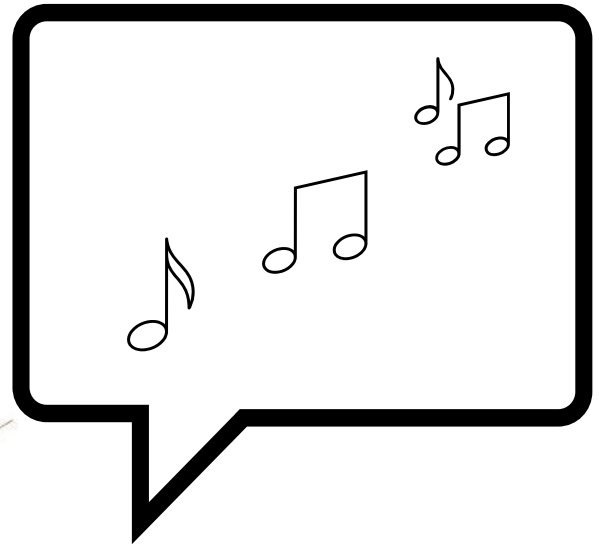


Blood feeding behavior

- “Sneaky”
- Often feed on a sleeping mammal/person
- Bite is typically painless
- Potential risk of anaphylaxis (rare)

- Texas has conducted passive insect surveillance (2015–2023):
  - 35% were positive for evidence of human blood meal.

“Fun fact” about kissing bugs:



They can sing!

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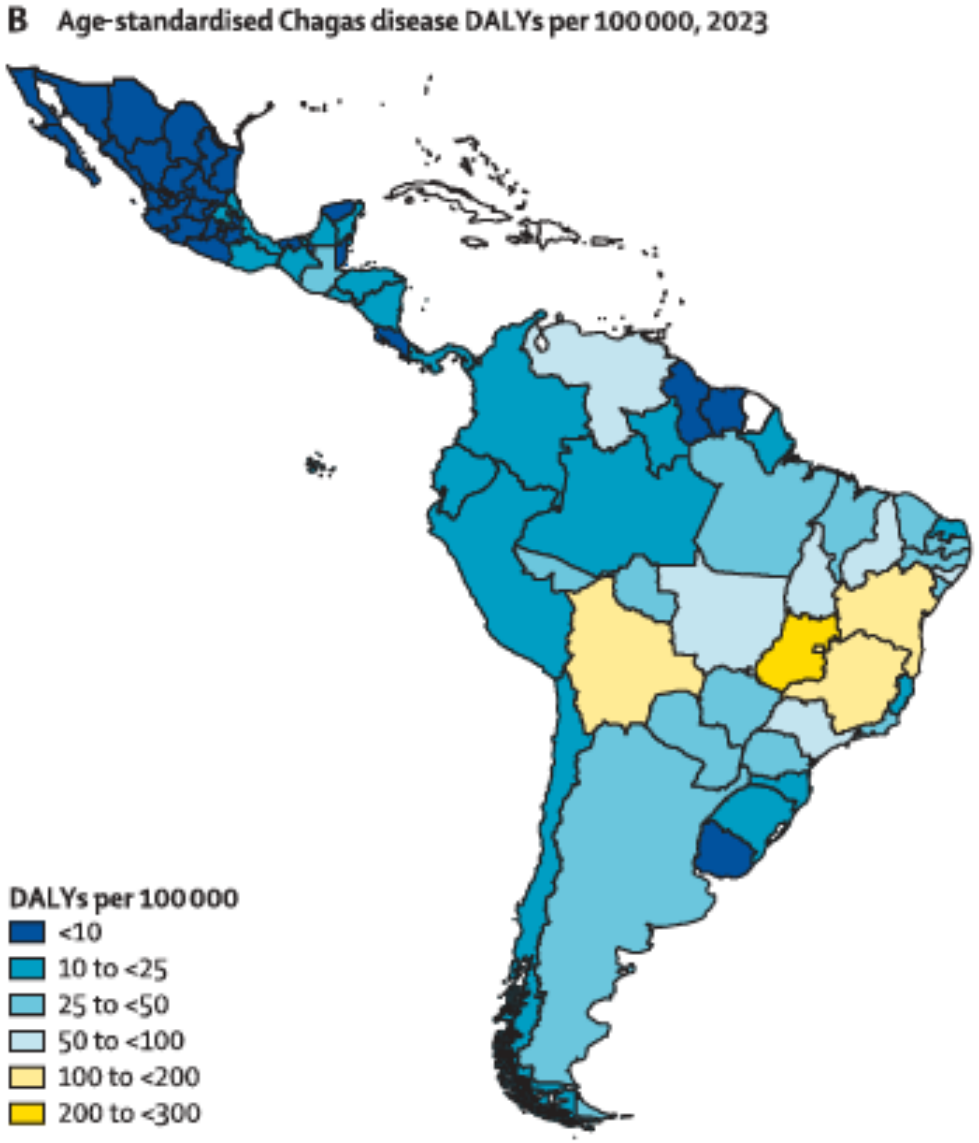
Chagas Disease

Chagas Disease

- Parasitic disease
  - *Trypanosoma cruzi*
- Estimated prevalence ~5 to 10 million Chagas disease (as of 2023).
- Endemic in Central and South America



Clinical information

Acute signs and symptoms

- Romaña's sign
- Fever
- Feeling tired
- Body aches
- Headache
- Rash
- Loss of appetite
- Diarrhea

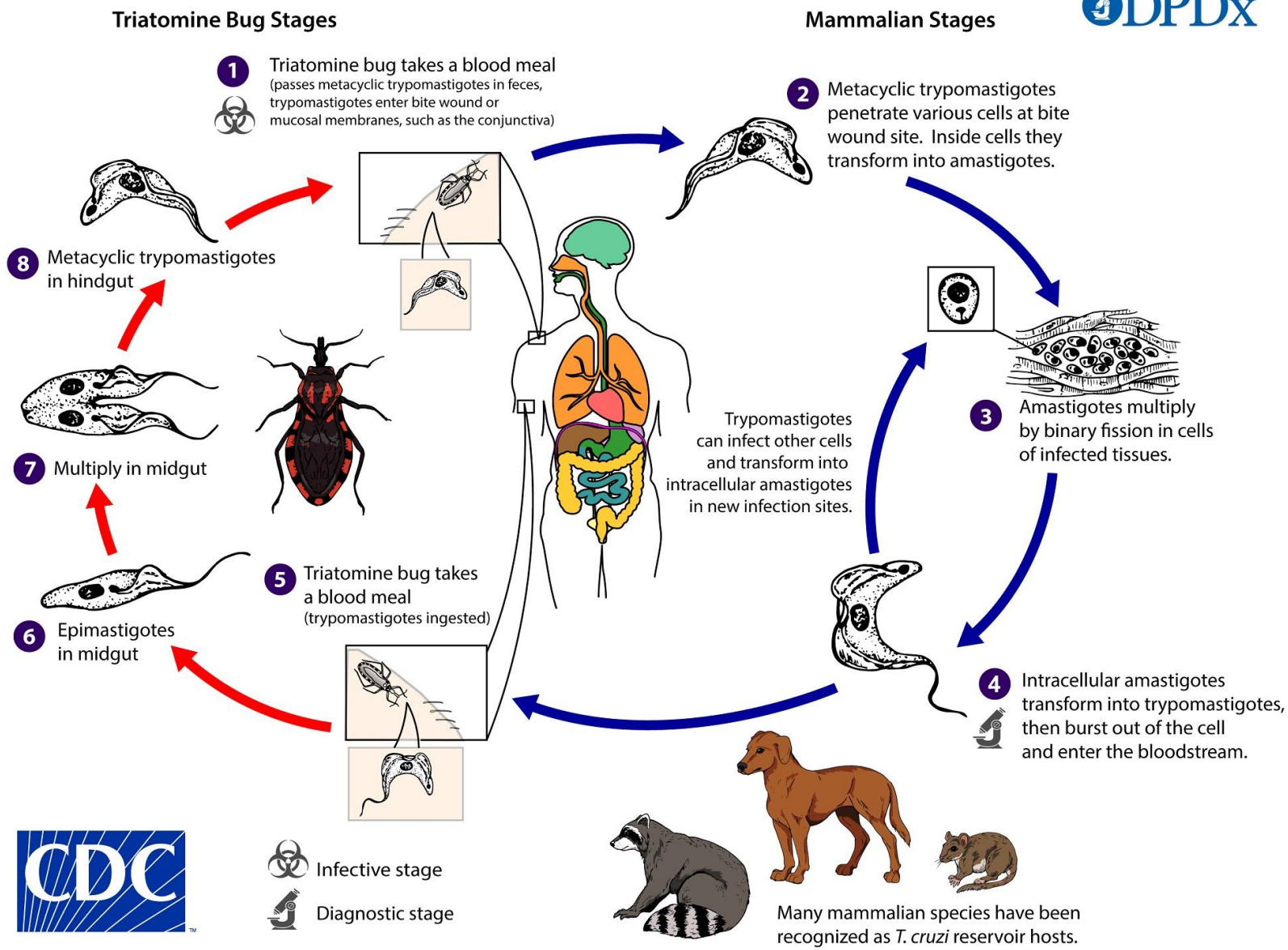
Chronic signs and symptoms

- Heart issues:
  - enlarged heart, heart failure, altered heart rate or rhythm, or sudden death.
- Digestive problems:
  - enlarged esophagus or colon, leading to trouble eating or going to the bathroom.

Anti-parasitic medication can treat or slow Chagas disease.

Trypanosoma cruzi

DPDx



CDC

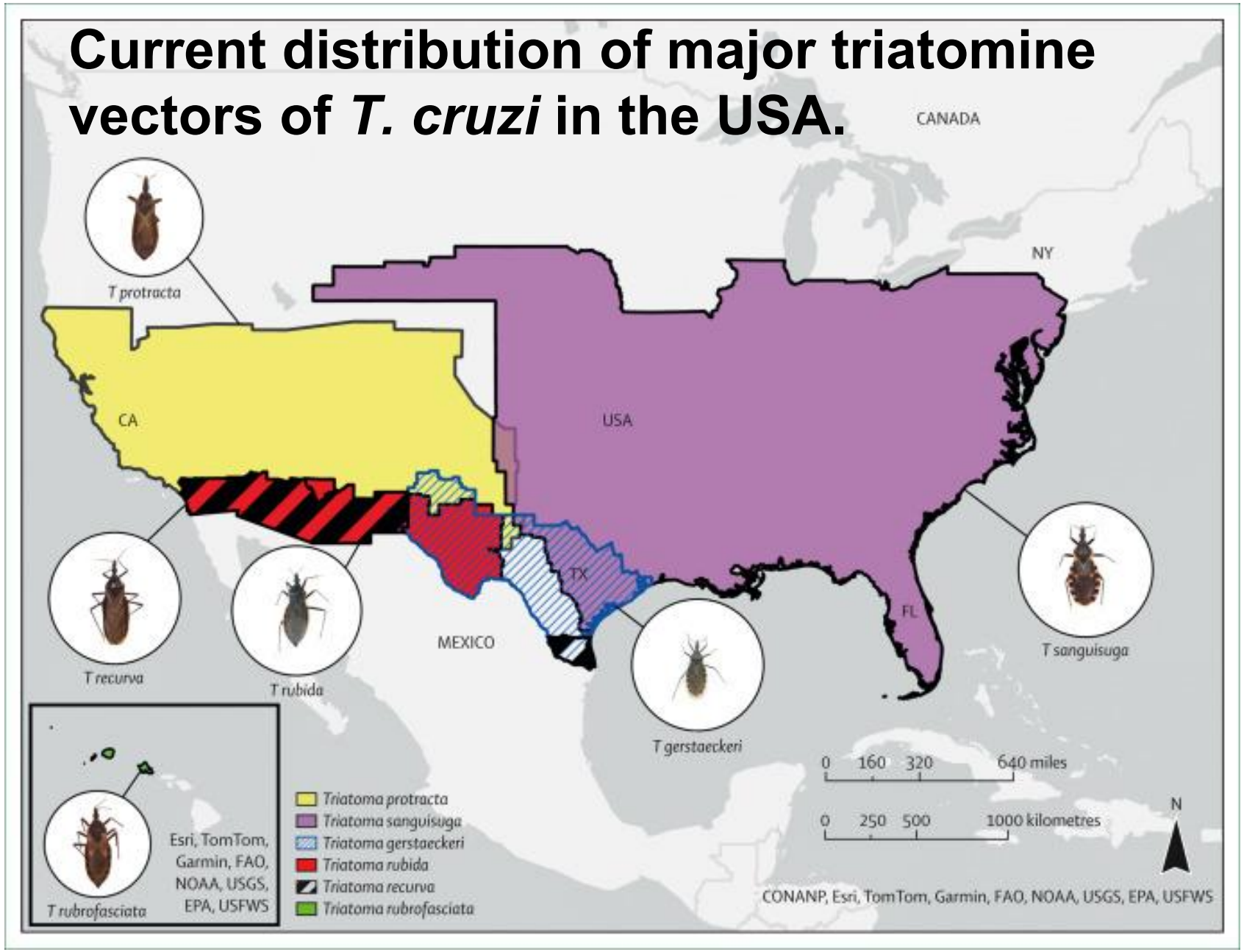
Estimations of *T. cruzi* in U.S. triatomines

Triatoma gerstaeckeri estimates positive prevalence between **45–70%**

Triatoma sanguisuga between **25–67%**

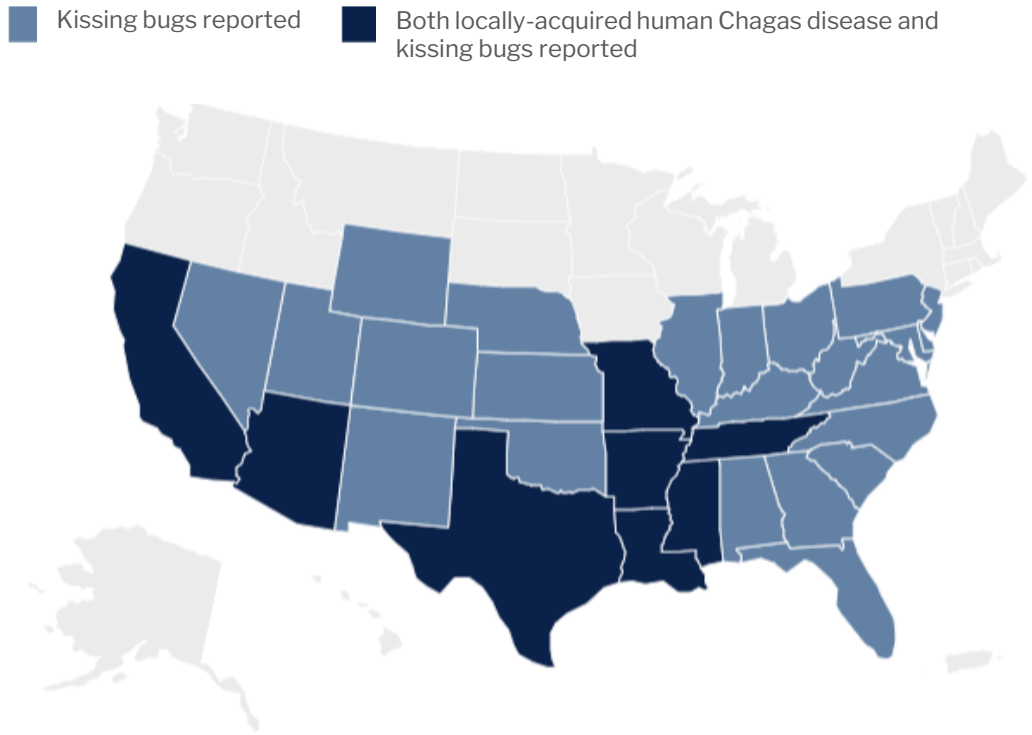
Adults are more likely to be infected than nymphs.

Current distribution of major triatomine vectors of *T. cruzi* in the USA.



U.S. cases of Chagas

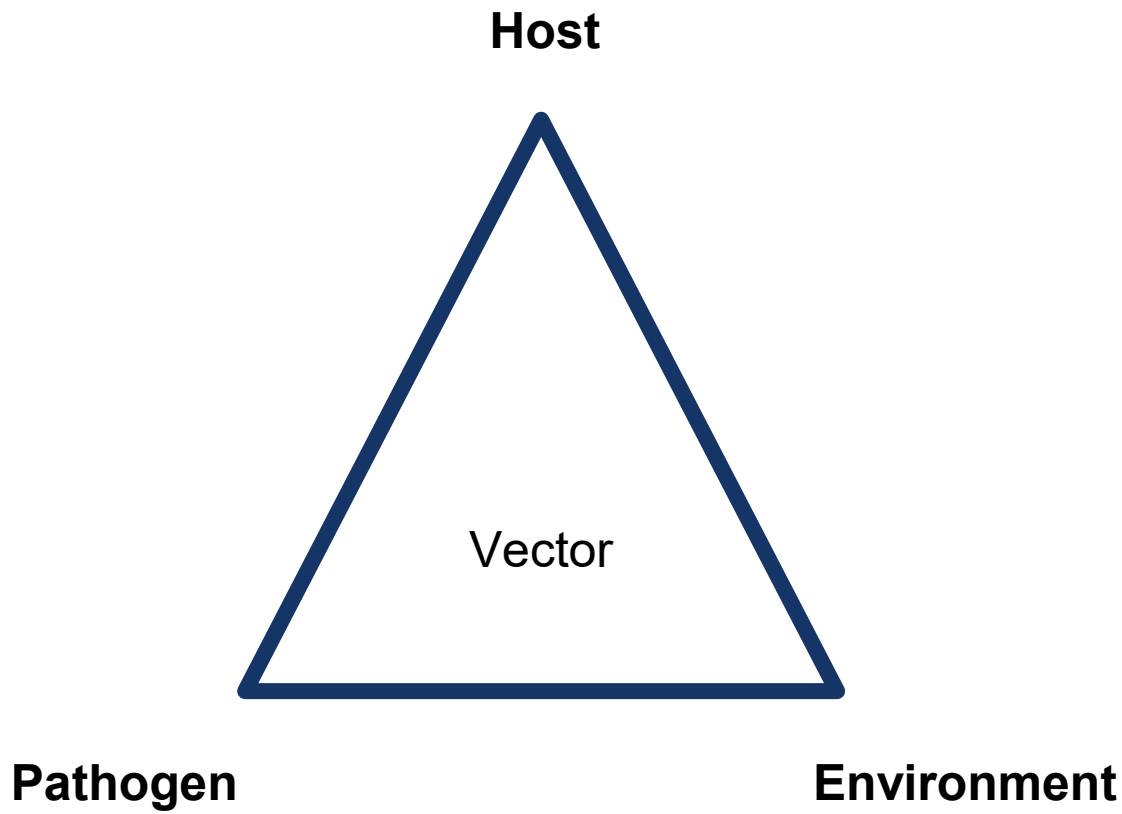
- Not a nationally notifiable condition.
  - Some states & localities have made it reportable.
- ~300,000 cases in the United States.
  - Persons now living in the U.S. with chronic infections, exposures from endemic countries.
- As of 2020, at least **78 well-documented U.S. local cases.**
  - During 2013-2023, 51 local cases of Chagas were identified in TX.



SOURCE "Chagas Disease, an Endemic Disease in the United States," Texas A&M Kissing Bug Community Science program

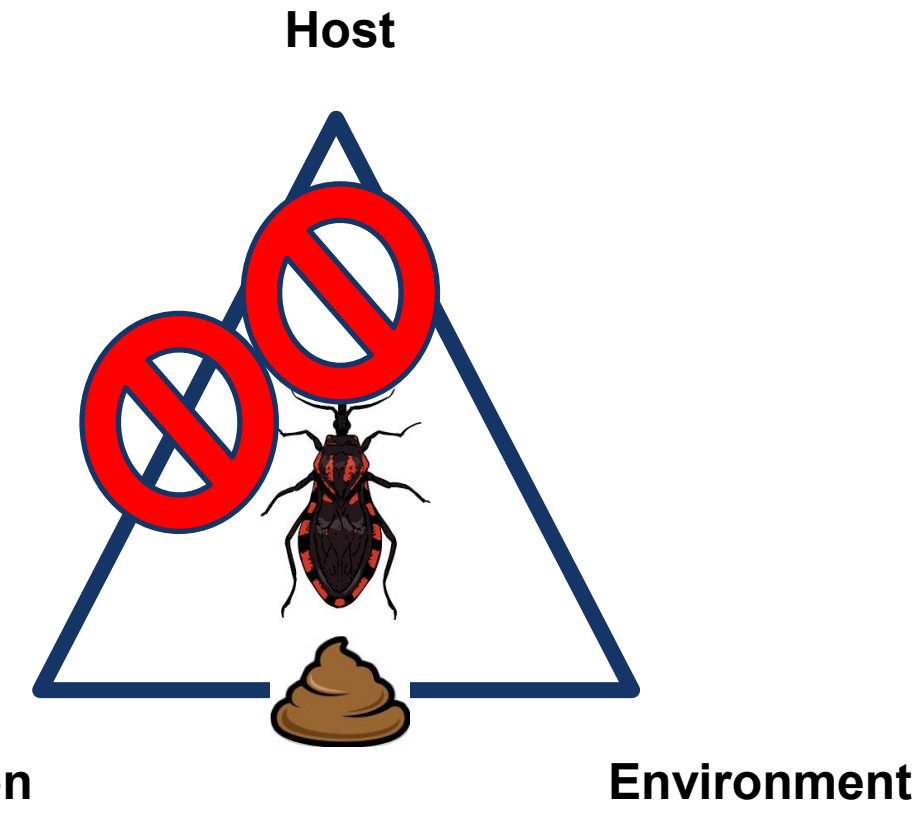
The “Epidemiologic Triad” at work:

- Disease occurs from complex interactions between the host & pathogen
  - Can be facilitated by a vector
- Chagas is a GREAT example of this framework in action -> disease is not frequently occurring in the U.S. **even though all components are present!**



Why are things different in the U.S.?

- Slower defecation behaviors.
- Housing differences.
- Potential for indirect exposure leading to disease transmission.



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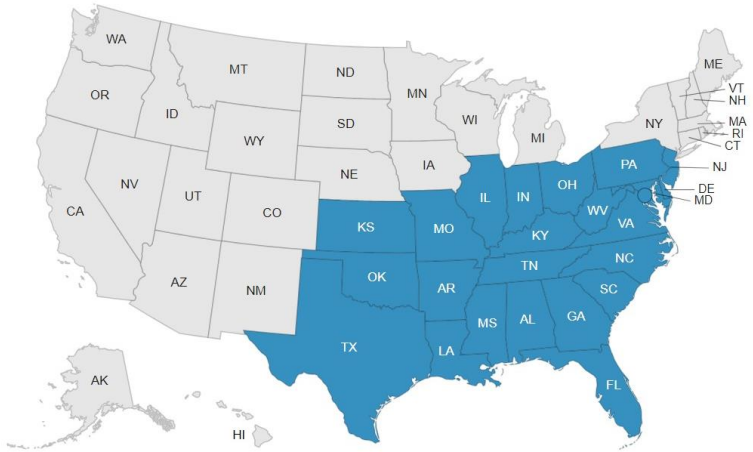
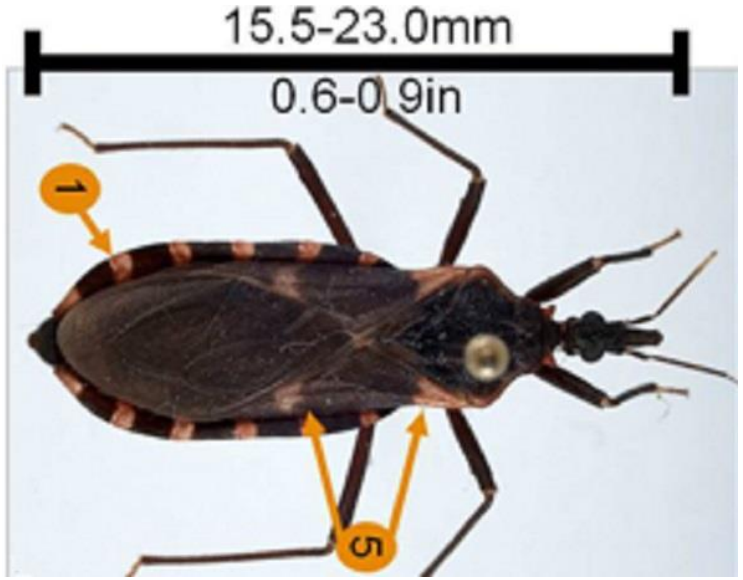
State of Virginia

Triatoma sanguisuga

Eastern conenose

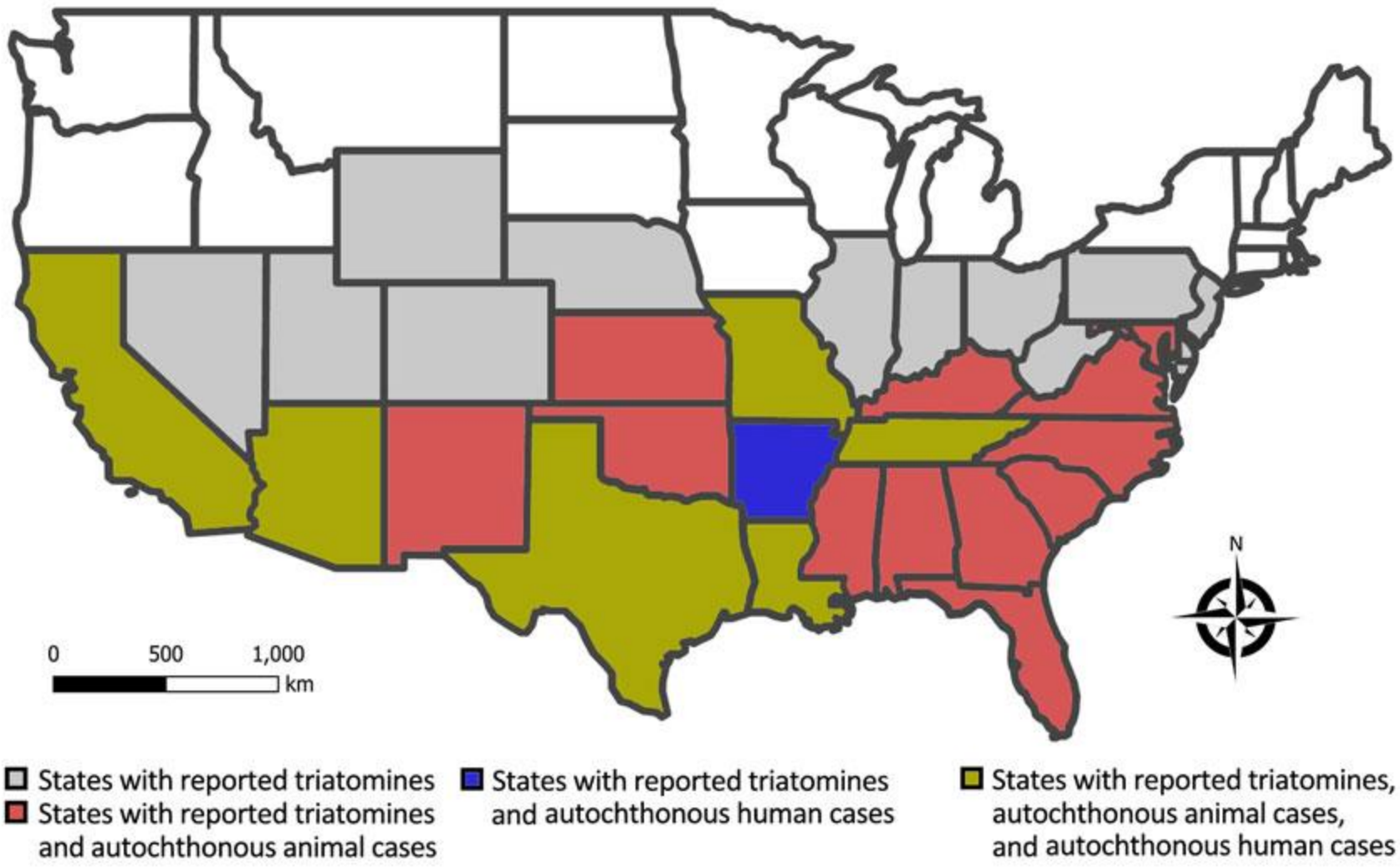
- Most commonly encountered species in the southeastern U.S.
- Broad geographic range





Photos courtesy of CDC

To date, there is no evidence of autochthonous human Chagas infections in Virginia.



doi:10.3201/eid3109.241700

Chagas in Wildlife and Domestic Animals:

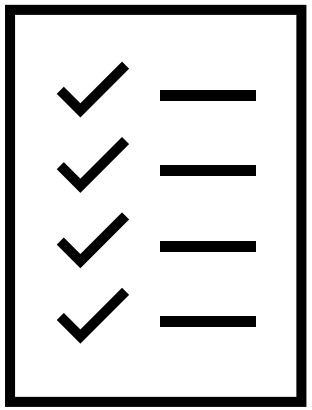
- Virginia animals have been seropositive for *T. cruzi*:
  - Dogs, foxes, coyote, raccoon, opossum

- Texas has conducted animal disease reporting (2013–2015)
  - >400 animal cases of Chagas reported
  - 431 Dogs , 2 cats, 1 horse, 1 rat, 3 chimps, and 1 Walrus

If someone thinks they have found a kissing bug in or around their home, they should carefully collect the insect.

Collection information is VITAL:

- Where was this insect found?
  - In the home? Be as detailed as possible!
  - Outside but near the home?
- When was this insect found?
  - Date
  - Time of day
- Was the insect alive or dead when it was collected?



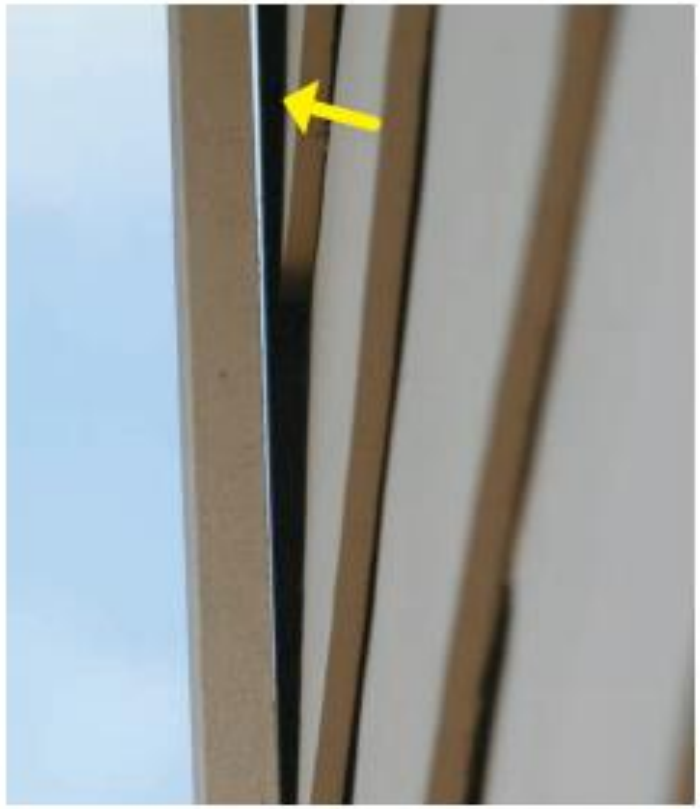
Confirming the identification & next steps:

- **The resident should contact their local health department**, who will consult with the State Public Health Entomologist to identify the insect, review collection/exposure information, and determine next steps.

- Insect testing will be coordinated through Virginia Department of Health (VDH) with the State Public Health Laboratory (DCLS), if warranted, and if the resident consents.

- The resident may wish to consult with VDH to discuss any human testing or other public health recommendations.

Remediation and Defense:

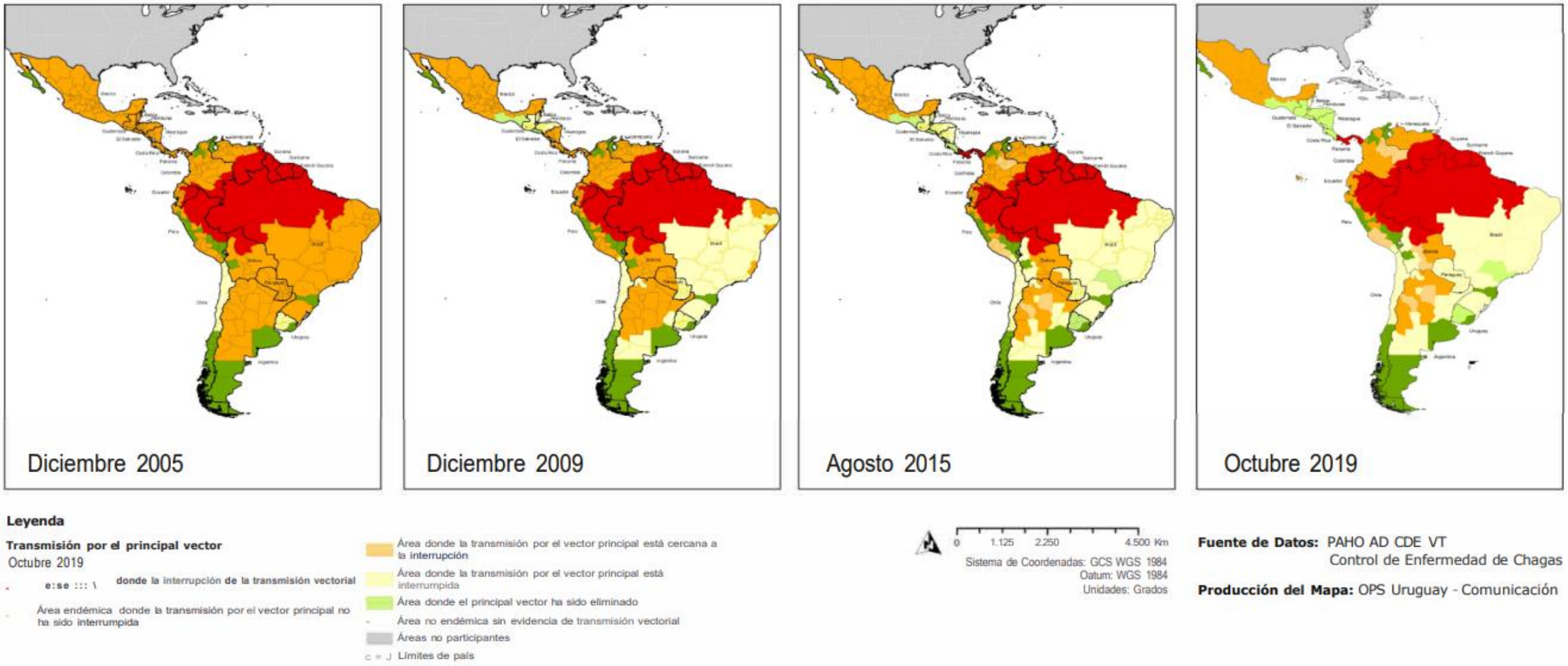


Kissing bug hiding inside crack of siding

Photo courtesy of Texas A & M

- If a single kissing bug is found indoors it is not necessarily cause for wider concern.
- Multiple nymphs or adults found in or around the home warrants investigation.
- IPM strategies can be used.
  - Seal cracks
  - Remove woodpiles, leaves, etc.
  - Remove pests, nests
  - Keep chimney flues closed

Progress in reducing Chagas



Chagas Difficulties in U.S. Public Health

- Passive surveillance only
  - Few specimens are reported to VDH each year
  - No formal surveillance structures in place

- Low provider awareness in the U.S.
  - Chronic symptoms can be difficult to distinguish from other health conditions

Questions?

Extra slides -

Triatoma lecticularia

- 1 reported sighting in Virginia (2019)
- “Diffuse range” and “difficult to collect”

Photos courtesy of CDC

Blood-feeding of *T. sanguisuga*