

New records of *Aedes aegypti* in municipalities of Chihuahua, Mexico

Nuevos registros de *Aedes aegypti* en municipios de Chihuahua, México

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ABSTRACT

Record of the presence of *Aedes aegypti*, vector of various arboviruses including dengue, in 14 (out of 38) municipalities sampled in the state of Chihuahua between 2018-2025 by the interdisciplinary team "EntomoVet".

KEY WORDS: Dengue, arbovirus, *Aedes aegypti*, mosquito, public health, vector-borne diseases.



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RESUMEN

Record of the presence of *Aedes aegypti*, vector of various arboviruses including dengue, in 14 (of 38) samples sampled in the state of Chihuahua by the interdisciplinary team "EntomoVet".

PALABRAS CLAVE : Dengue, arbovirus, *aedes aegypti*, mosquito, salud pública, enfermedades transmitidas por vector.

Dear Editor: *Aedes aegypti* is an African-origin mosquito that has spread throughout most countries in the Americas, accompanying the emergence, increase, and spread of dengue virus and other arboviruses (Lwande et al., 2020). Currently, its presence has spread across all states of the Mexican Republic, including Chihuahua (Lubinda et al., 2019). To study the entomological distribution of culicid mosquitoes in the state, we have been conducting collections since 2018 and have covered 38 municipalities to date. Immature mosquitoes (eggs) were collected using traps for subsequent development into adult mosquitoes, and adult mosquitoes were captured using manual aspirators and human bait. Later, the adult mosquitoes were identified with taxonomic keys and stored at the Medical and Molecular Entomology Laboratory of the Institute of Biomedical Sciences at the Autonomous University of Ciudad Juárez until processing. In the 38 sampled municipalities, we recorded the presence of *Ae. aegypti* in 14 of them: Batopilas de Manuel Gómez Morín, Buenaventura, Camargo, Casas Grandes, Chihuahua, Guerrero, Juárez, Namiquipa, Nuevo Casas Grandes, Práxedes G. Guerrero, San Francisco de Borja, Santa Isabel, Urique, and Uruachi (Figure 1). Previous studies also reported the presence of *Ae. aegypti* in the municipality of Guadalupe (Zuñiga et al., 2023), located in the northern part of the state. The sampling effort to find *Ae. aegypti* covered a total of 660 sites, of which 78 were positive for *Ae. aegypti* (11.82 %). Of these, 29 were collected by capturing adults attempting to bite, either at rest or with a human bait; the remaining 49 were immature stages. Regarding the types of breeding sites for these latter, 44 were of domestic origin, mainly tires, water tanks, livestock waterers, as well as stone and clay vessels typical of the Rarámuri (*Tarahumara*) ethnicity. The remaining 5 were natural breeding sites, including ponds, deep rock holes, and tree hollows. Although the results presented here are preliminary regarding the distribution of *Ae. aegypti* throughout the state of Chihuahua, these records demonstrate the high dispersal and colonization capacity of *Ae. aegypti* into the rural and mountainous areas of the state. According to the Epidemiological Bulletins from the General Directorate of Epidemiology (DGE, 2025), and although no cases have been reported up to Epidemiological Week 11 of 2025, during our collection period in 2024, 246 cases were reported (including 5 severe dengue, 129 with warning signs, and 112 non-severe); in 2023, 2 cases with warning signs; in 2022, 57 cases (48 non-severe and 9 with warning signs); and in 2019, 40 cases (34 non-severe, 5 with warning signs, and 1 severe). In 2021, 2020, and 2018, no cases were

reported. During this same period (2018-2024), there were no records of other arboviruses such as Zika, Chikungunya, or West Nile Fever. Although the state of Chihuahua has active dengue transmission, entomological surveillance and the risk of transmission emergence are important, given the increasing mobility of people from endemic areas who share social, environmental, and biological conditions conducive to transmission emergence and persistence in the state. Likewise, it is important to consider that, in addition to the social, biological, and environmental conditions that facilitate transmission, the immune status of the susceptible population may be relevant to the explosive outbreak of transmission. Finally, these results could be helpful for vector control programs, as they provide an outlook on the high capacity for adaptation and colonization of this vector in our state.

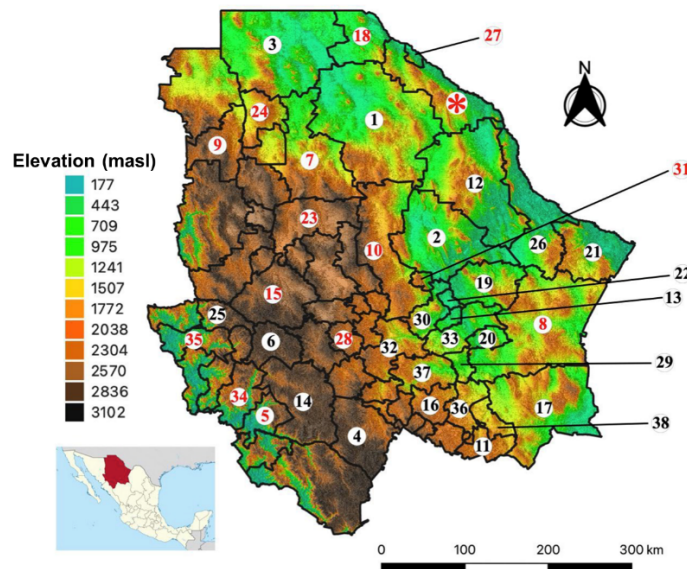


Figure 1. Map of Chihuahua showing the numbered municipalities we sampled.

The municipalities where immature or adult *Ae. aegypti* were recorded are indicated in red, while the red asterisk marks the municipality of Guadalupe, where Mejía Zúñiga et al. (2023) reported the presence of *Ae. aegypti*. List of municipalities: 1. Ahumada. 2. Aldama. 3. Ascensión. 4. Balleza. 5. Batopilas de Manuel Gómez Morín. 6. Bocoyna. 7. Buenaventura. 8. Camargo. 9. Casas Grandes. 10. Chihuahua. 11. Coronado. 12. Coyame del Sotol. 13. Delicias. 14. Guachochi. 15. Guerrero. 16. Hidalgo del Parral. 17. Jiménez. 18. Juárez. 19. Julimes. 20. La Cruz. 21. Manuel Benavides. 22. Meoqui. 23. Namiquipa. 24. Nuevo Casas Grandes. 25. Ocampo. 26. Ojinaga. 27. Práxedes G. Guerrero. 28. San Francisco de Borja. 29. San Francisco de Conchos. 30. Santa Cruz de Rosales. 31. Santa Isabel. 32. Satevó. 33. Saucillo. 34. Urique. 35. Uruachi. 36. Valle de Allende. 37. Valle de Zaragoza. 38. Villa López.

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