

# Empowering Rural Communities for Neglected Tropical Disease Prevention: Outcomes of a Participatory Vector Surveillance System for Chagas Disease

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## INTRODUCTION & AIM

**Chagas disease (CD)**, a neglected tropical disease caused by *Trypanosoma cruzi*, disproportionately affects **socially and economically vulnerable populations** in the **Gran Chaco** ecoregion. Despite regional advances in vector control, persistent structural inequalities, geographic dispersion, and limited health resources challenge the sustainability of traditional top-down strategies. *Innovative, community-centered approaches are needed to enhance surveillance, equity, and long-term control.*

## METHOD

A longitudinal mixed-methods community intervention was conducted between April 2021 and November 2023 in Huanqueros, a rural locality of Santa Fe Province, Argentina (Figure 1). A **participatory collaborative social network** was co-constructed through stakeholder mapping, intersectoral workshops, school-based activities, and sustained communication using information and communication technologies (Figure 2). Community members were trained to identify and report suspected triatomine bugs, while institutional partners performed entomological confirmation and focal insecticide spraying (Figure 3). Infestation data from 2023 were compared with those from the last Ministry of Health inspection in 2018.

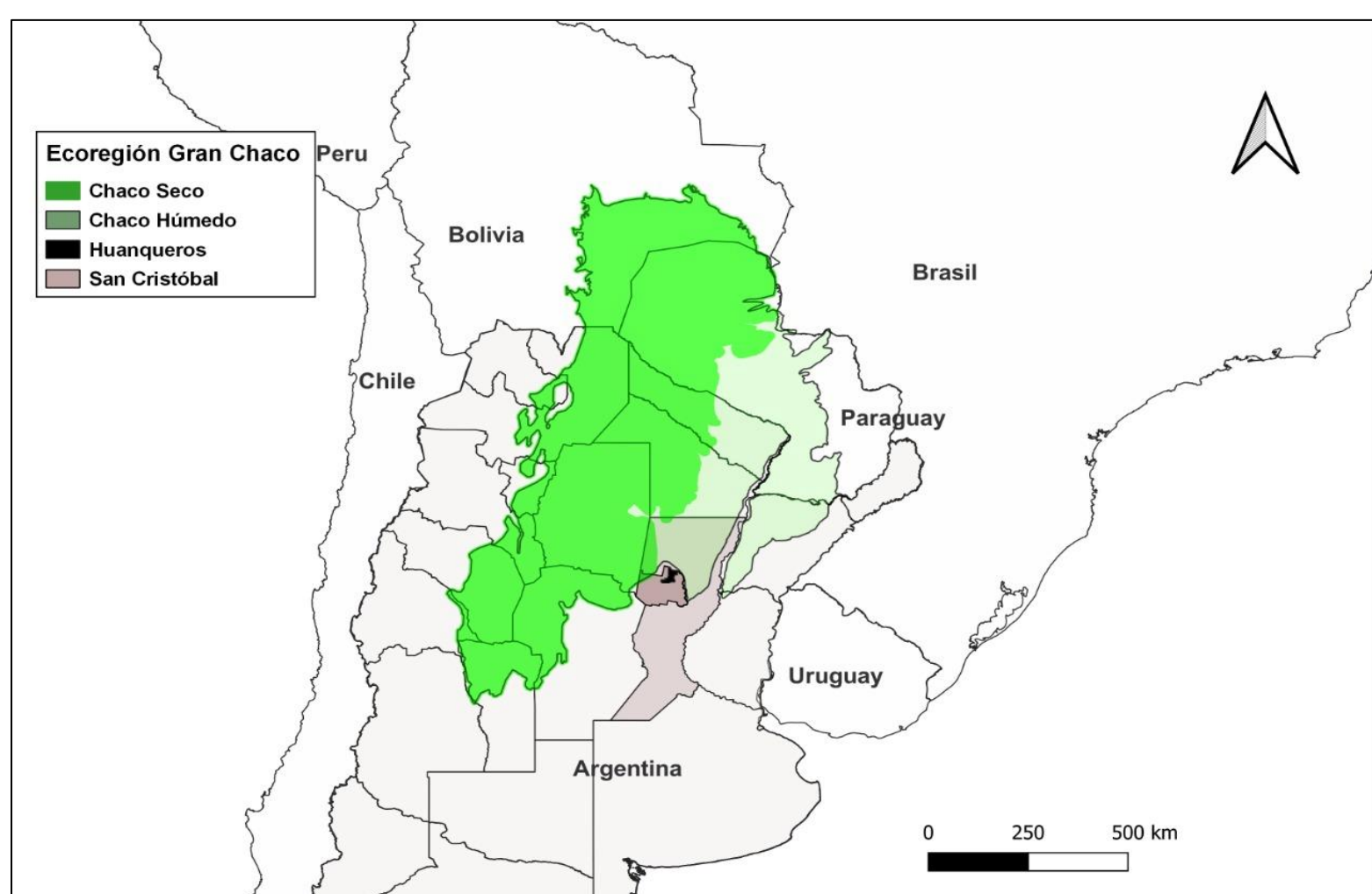


Figure 1. Map of the location of Huanqueros in the Gran Chaco



Figure 2. School-based prevention activities in Huanqueros School.

## RESULTS & DISCUSSION

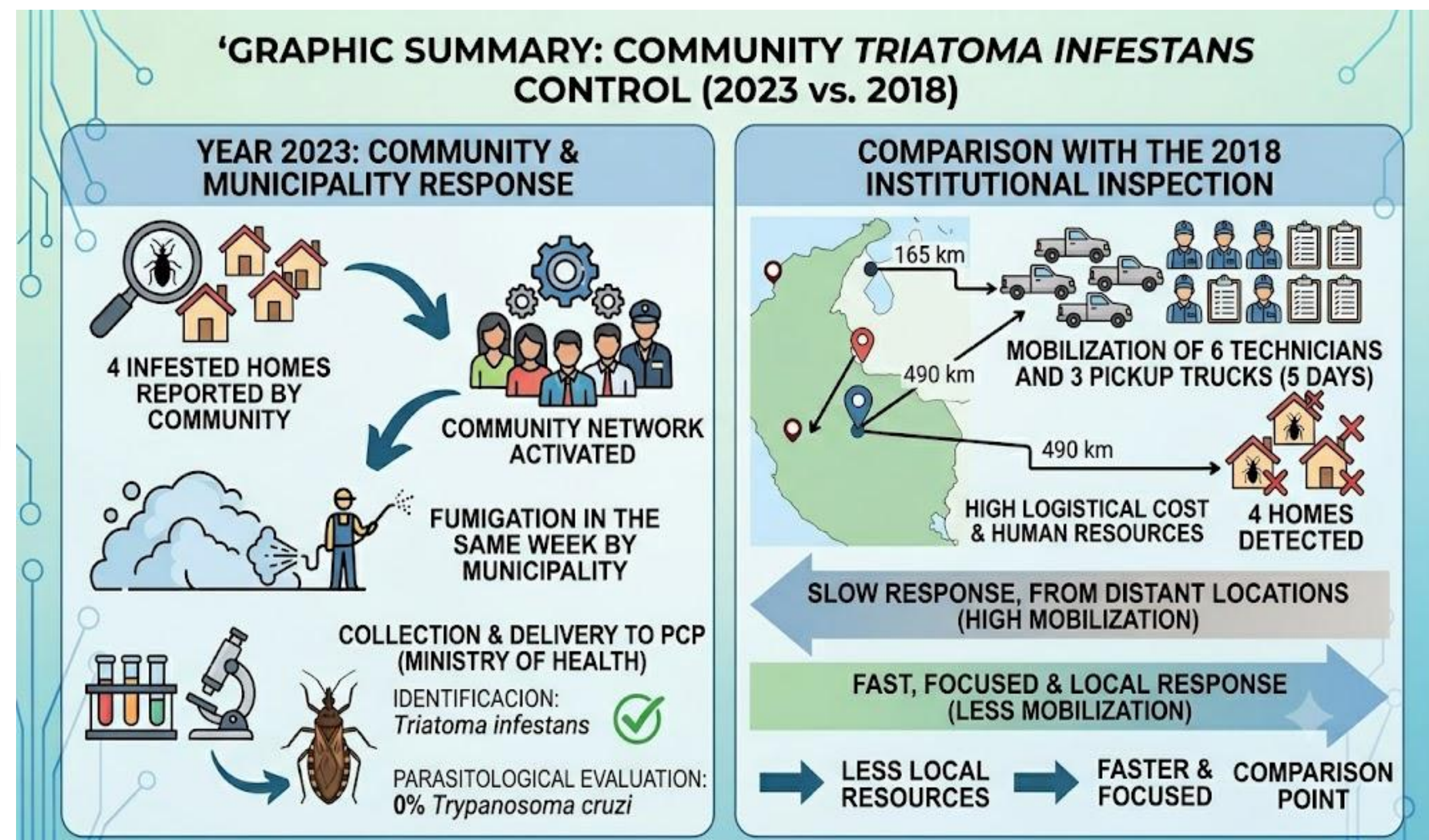


Figure 3. Image of one of the triatomines collected by the community

- In 2023, four households with triatomine infestation were detected through community-based surveillance. All specimens were identified as *Triatoma infestans* and tested negative for *T. cruzi*. Focal fumigation was implemented within the same week through coordinated municipal action.
- The number of infested houses matched the 2018 institutional findings; however, the participatory strategy required fewer external resources, reduced logistical costs, and enabled faster response. The intervention strengthened local awareness, inter-institutional articulation, and collective responsibility for prevention.

## CONCLUSION

Embedding **vector surveillance within a participatory community network** represents a **feasible and sustainable complementary strategy for Chagas disease control** in underserved rural settings. By addressing social determinants, promoting local ownership, and reinforcing intersectoral collaboration, this approach aligns with current global strategies for neglected tropical diseases and may contribute to more equitable and resilient control programs.

## REFERENCES

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