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Authors: Sarah A Hamer, Rachel Curtis-Robles, Gabriel L Hamer

PII: S2214-5745(18)30002-6
DOI: https://doi.org/10.1016/j.cois.2018.05.005
Reference: COIS 465

To appear in:

Received date: 15-2-2018
Revised date: 1-5-2018
Accepted date: 9-5-2018

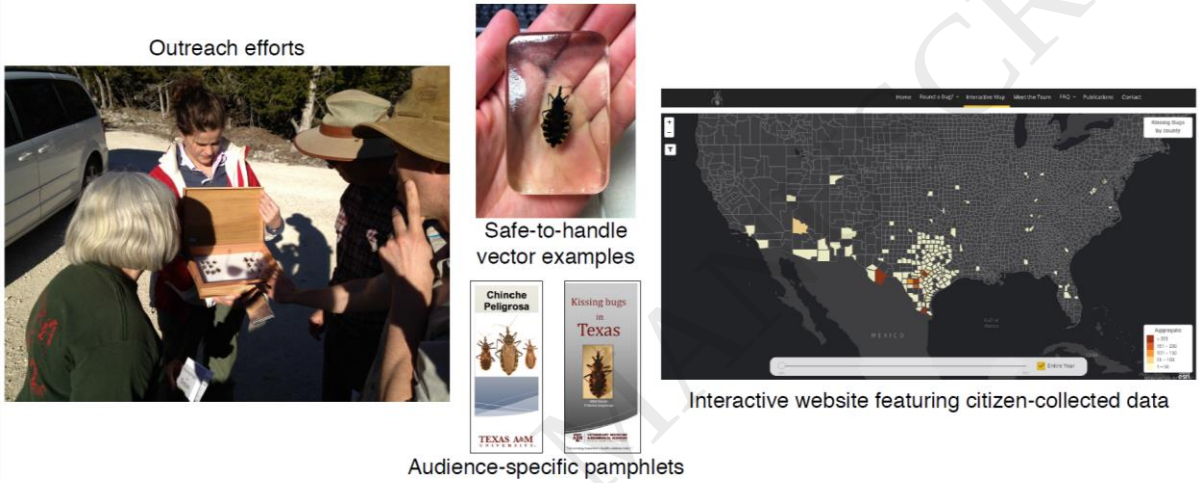
Please cite this article as: Hamer SA, Curtis-Robles R, Hamer GL, Contributions of citizen scientists to arthropod vector data in the age of digital epidemiology, *Current Opinion in Insect Science* (2018), https://doi.org/10.1016/j.cois.2018.05.005

Contributions of citizen scientists to arthropod vector data in the age of digital epidemiology

Sarah A. Hamer[a*], Rachel Curtis-Robles[a], Gabriel L. Hamer[b]

[a] Department of Veterinary Integrative Biosciences, 4458 TAMU, Texas A&M University, College Station, TX, USA 77843; RCurtis@cvm.tamu.edu, SHamer@cvm.tamu.edu
[b] Department of Entomology, 2475 TAMU, Texas A&M University, College Station, TX USA 77843; GHamer@tamu.edu
[*] Corresponding author: SHamer@cvm.tamu.edu

Graphical abstract



Highlights

- Citizen scientists expand the geographic coverage of vector research initiatives.
- Cyber infrastructure allows widespread participation, transforming vector research.
- Citizen contributions integrate with public health campaigns to improve health.

Abstract

Citizen-collected arthropod vectors are useful for epidemiological studies of vector-borne disease, especially since the vectors encountered by the public are the subset of vectors in nature that have a disproportionate impact on health. Programs integrating educational efforts with collecting efforts may be particularly effective for public health initiatives, resulting in an empowered public with knowledge of vector-borne disease prevention. Citizen science programs have been successfully implemented for the collection of unprecedented sample sets of mosquitos, ticks, and triatomines. Cyber infrastructure employed in digital epidemiology—including websites, email, mobile phone apps, and social media platforms—has facilitated vector citizen science initiatives to assess disease risk over vast spatial and temporal scales, advancing research to mitigate vector-borne disease risk.

Introduction

Diseases in human and animal populations have a long history of standardized reporting (i.e. government-required notification of reportable or notifiable diseases), which generates datasets