Role of mammalian species as hosts for *Trypanosoma cruzi* at Joint Base San Antonio-Lackland, San Antonio, Texas

Joint Base San Antonio-Lackland in San Antonio, Texas is home to the Military Working Dog (MWD) program, which trains over 900 dogs annually that support the military forces of our country and other federal agencies.

In recent years, some MWDs at the base have been infected with a protozoan parasite, *Trypanosoma cruzi* (*T. cruzi*), which is carried by Triatomine insects and causes Chagas disease (Trypanosomiasis). Chagas disease is a chronic, incurable infection that can cause cardiac and digestive problems in humans, canines and many free-ranging mammals, including skunks and opossums. Triatomine bugs (also known as kissing bugs, Reduviidae bugs, assassin bugs, cone-nosed bugs and blood suckers) are blood-feeding insects that can live outdoors or indoors and in cracks and holes of substandard housing.

Because these trained canines can potentially become infected, which can lead to life-long health complications and diminished work performance, the Texas A&M Institute of Renewable Natural Resources (IRNR) and Texas A&M University Department of Wildlife and Fisheries Sciences (WFSC) are working with the U.S. Department of Defense to aid in the management of *T. cruzi*. Since the role of free-ranging mammalian species as *T. cruzi* reservoir hosts is still largely unknown at Joint Base San Antonio-Lackland, the overall aim of this project is to identify preventative strategies for MWD personnel to consider and to develop proactive mammalian and supporting habitat management programs to reduce the disease threat to humans and canines.

Project Goal

The goal of this project is to understand the parasite-vector-host interaction in the environment surrounding the MWD facilities. Through this project, IRNR and WFSC seek to clarify the spatial distribution and relative densities of Triatomine insects (vector) and possible free-ranging wildlife mammalian species (hosts) by season and vegetation type.

Line transects (1 meter x 100 meter) are the method for collecting baseline information to address study objectives. Vegetation characteristics, Triatomine densities, and mammal densities and infection rates will be sampled within each 100-meter line transect area or along points placed every 10 meters. Nine transects, or sampling units, randomly placed within each treatment area (i.e., vegetation types) will be sampled by season.

Triatomine insects

T. sanguisuga

T. gerstaeckeri

Objectives

- Identify and estimate relative densities of Triatomine insects (vector) in various seasons and vegetation types (dense woodlands, semi-improved woodlands and grasslands)
- Estimate relative densities of mammalian hosts by season and vegetation type
- Estimate the prevalence of *Trypanosoma cruzi* in blood samples from major host mammalian species
- Estimate mammalian species populations using mark-recapture estimates or trap success indices

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