

Investigating Pathogens at the Human-Livestock Interface in the SAVA Region of Madagascar

Quinn Girard, *Biology and Evolutionary Anthropology Majors, Global Health Minor*

BACKGROUND

Understanding how parasites and pathogens move between people, animals, and the environment is critical for addressing health challenges. To investigate these “One Health” questions, I studied smallholder farmers and their livestock in Madagascar’s SAVA region. This ongoing project is a collaboration between Duke, Duke-NUS, East Carolina University, and Mahaliana Labs.



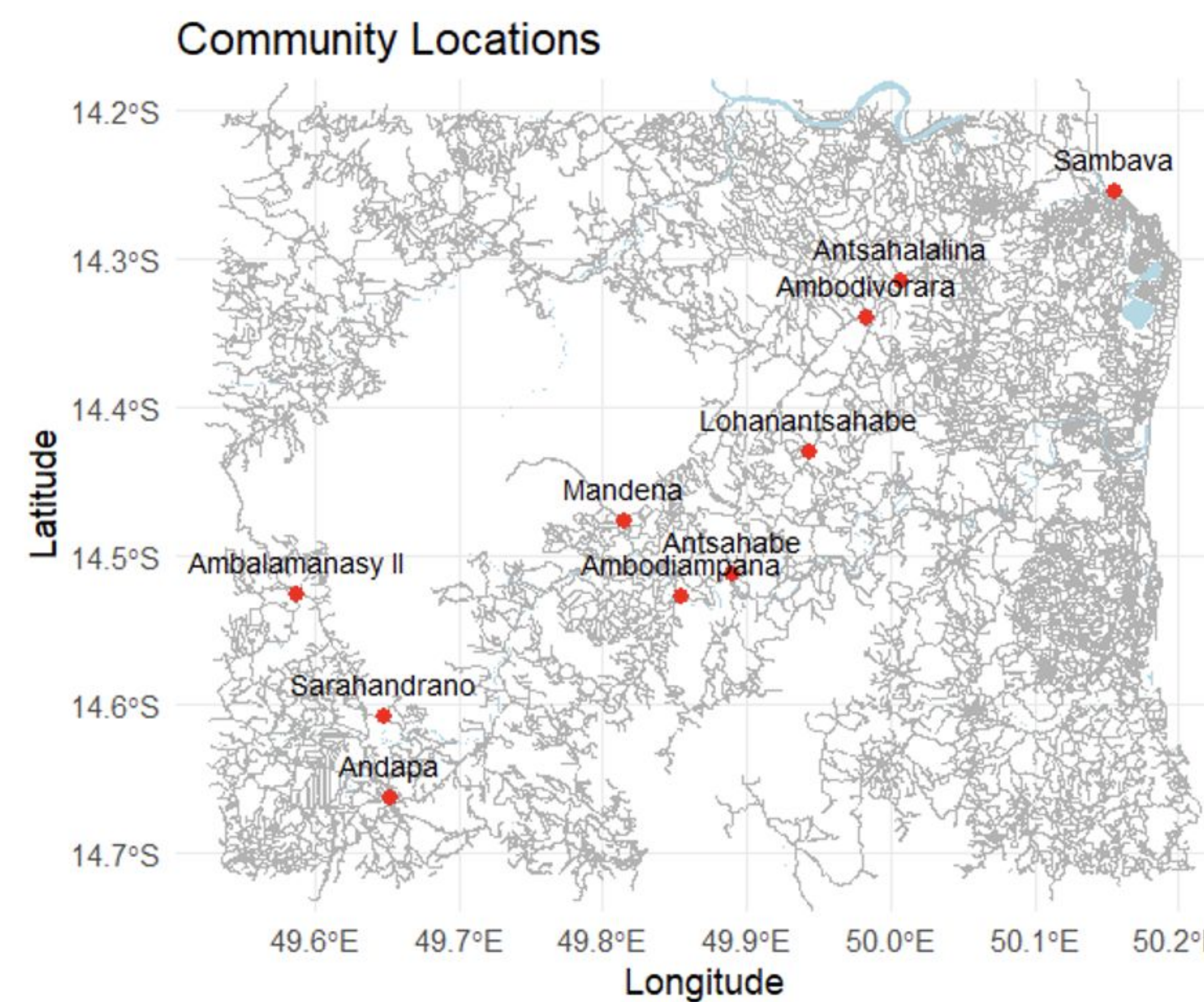
On-the-ground in the village of Mandena

OBJECTIVES

- Identify pathogens of concern among communities and livestock in this setting
- Understand what factors might influence transmission of pathogens along the human-livestock interface
- Understand how pathogens are connected geographically in relation to access to markets and transportation networks

METHODOLOGY

- 10 villages in the SAVA region chosen to capture a transect of variation in population size
- Connected with local leaders and health officials to identify potential participants



Credit: Dr. Mark Janko

- Biological samples collected from livestock animals and their owners
- Surveys conducted to collect data on interactions with animals, agricultural practices, use of antibiotics, and food security
- Laboratory analysis conducted at Mahaliana Labs in Antananarivo, including PCR, RT-PCR, and Nanopore sequencing

OUTCOMES & NEXT STEPS

- Fieldwork completed in Summer 2025:
- 293 human participants
 - Surveys and samples
- 810 animals sampled
 - 400 chickens
 - 175 ducks
 - 116 pigs
 - 84 zebu
 - 25 geese
 - 7 goats
 - 2 rabbits
 - 1 turkey
- Continued PCR and sequencing at Mahaliana Labs in Antananarivo
- Further collaboration between partners to begin data analysis



Dr. Olivier Rasolofoniaina sampling a zebu