

WIU CENTENNIAL HONORS COLLEGE
Thomas E. Helm Undergraduate Research Day 2023

Abstract

Poster

Major: Biology

Faculty Mentor(s): Shawn Meagher

Protozoa Infection in White-Footed Mice

Kevin Delgado

Zoonotic diseases are infections that can spread from animals to people, and they present a major human health issue. Many zoonotic diseases are vector-borne diseases, transmitted to humans by vectors, which are oftentimes blood-sucking arthropods such as fleas, mosquitos, and ticks. In the USA, ticks are the main vector responsible for the transmission of vector-borne viruses, such as viruses, bacteria, and protozoa. Tick-borne disease infection rates are increasing, thus increasing in the potential for human health risks. Therefore, it is vital to determine the occurrence of vector-borne illnesses. One way to determine the occurrence of tick-borne infections is to look for their presence in wild reservoir hosts. Rodents are known to be important reservoirs for various protozoan diseases, including Chagas disease, babesiosis, and toxoplasmosis. In this project, I will survey wild Illinois rodents for the presence of several protozoan tick-borne diseases. Mice will be trapped at WIU's Kibbe Life Science Station. Mouse blood will be collected, blood DNA will be extracted, and PCR (polymerase chain reaction) will be utilized to detect the presence or absence of particular protozoa species (*Babesia microti*, *Cytauxzoon felis*, *Hepatozoon americanum*, and *Trypanosoma cruzi*) in each mouse. There has been a great deal of research on bacteria infecting rodents (particularly Lyme disease) in the USA, but much less on protozoa. My project is significant because protozoans contribute to human infections every year but their frequency in nature is not well documented.