



## BACKGROUND

- Triatomines, commonly known as kissing bugs, are found in the United States.<sup>1</sup>
- Kissing bugs are known as vectors because they have been shown to transmit the protozoan, *Trypanosoma cruzi* (*T. cruzi*), that causes Chagas disease.<sup>2</sup>
- Commonly biting around the eyes and mouth of humans, these bugs generally feed on mammalian blood.<sup>1</sup>
- Infected individuals may present with or without symptoms, and if untreated may have long-term cardiovascular and gastrointestinal complications.<sup>3</sup>
- Chagas disease is not spread through direct contact with an infected individual, but may be spread via other methods.<sup>3</sup>
- *T. cruzi* was predominately found in South and Central America, but in recent years has been found throughout the southern United States.<sup>4</sup>
- It is unknown how far north the protozoan *T. cruzi* may be found in the United States.

## METHODS

- Collection of kissing bugs was performed utilizing two different methods: trapping (light trap, Figure 1, and LDPD5 laced traps) and social media (Citizens Science Program).<sup>5</sup>
- After collection, samples were dissected, DNA was extracted, and PCR was performed.
- Gel electrophoresis was used to identify if the samples were positive or negative for *T. cruzi*.
- Samples were tested amongst positive and negative controls.

## RESULTS

- Kissing bugs were collected around various areas of St. Louis including Bethalto, Edwardsville, Ewing, Grafton, and Springfield (Figure 2).
- Most samples were collected outside (54%), while some were collected inside (38%) (Figure 3).
- Thirteen kissing bugs were collected during July 2022 to October 2023 via Citizens Science Program, none were collected in either type of trap.
- Six of the samples (46%) were presumed positive for *T. cruzi* and seven were negative (54%) (Figure 4 & 5).

Figure 1: Light Trap



Figure 2: Kissing Bugs Found Inside vs. Outside

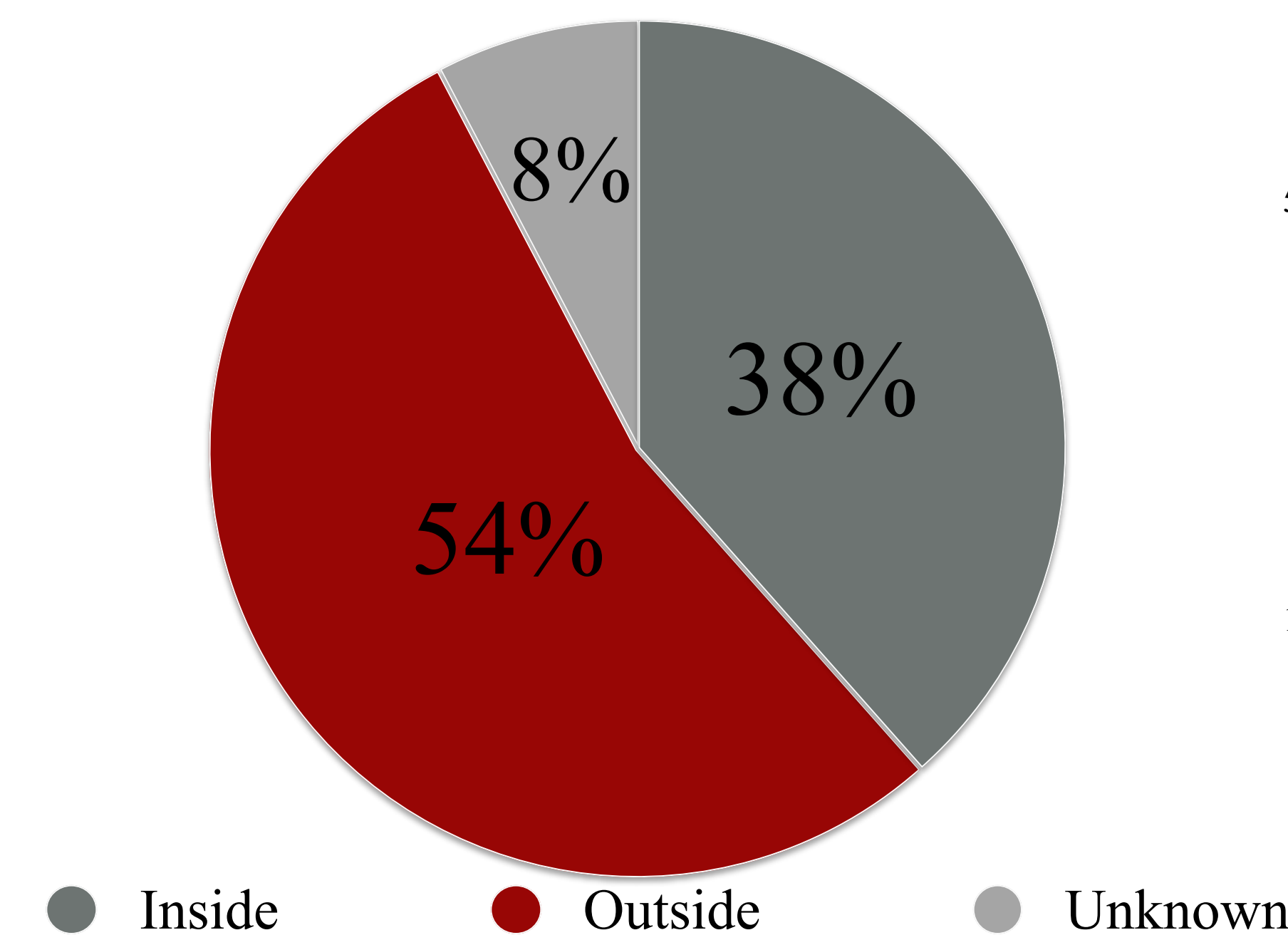


Figure 3: Location of Collected Kissing Bugs

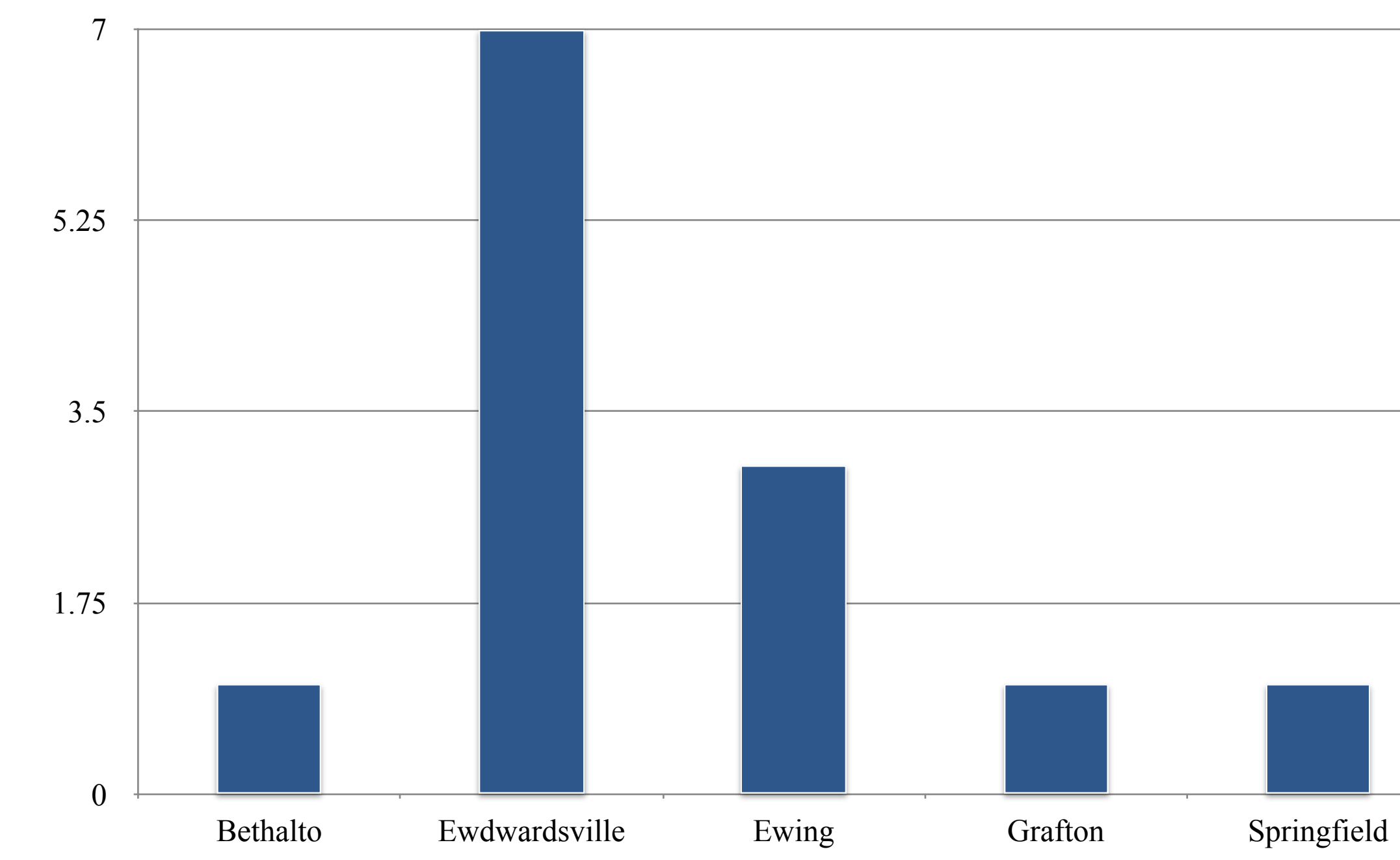


Figure 4: Presumed Positive Sample

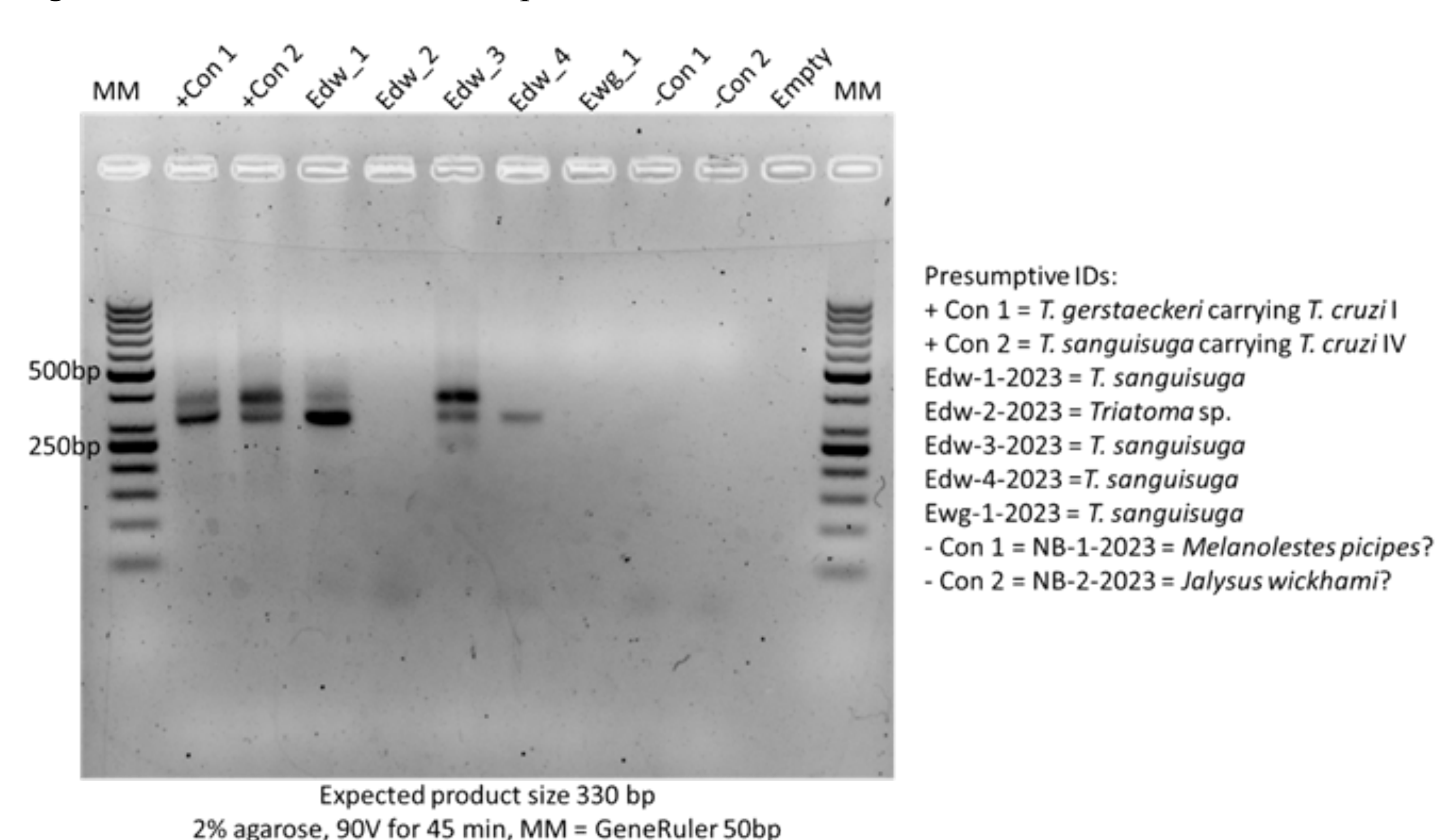
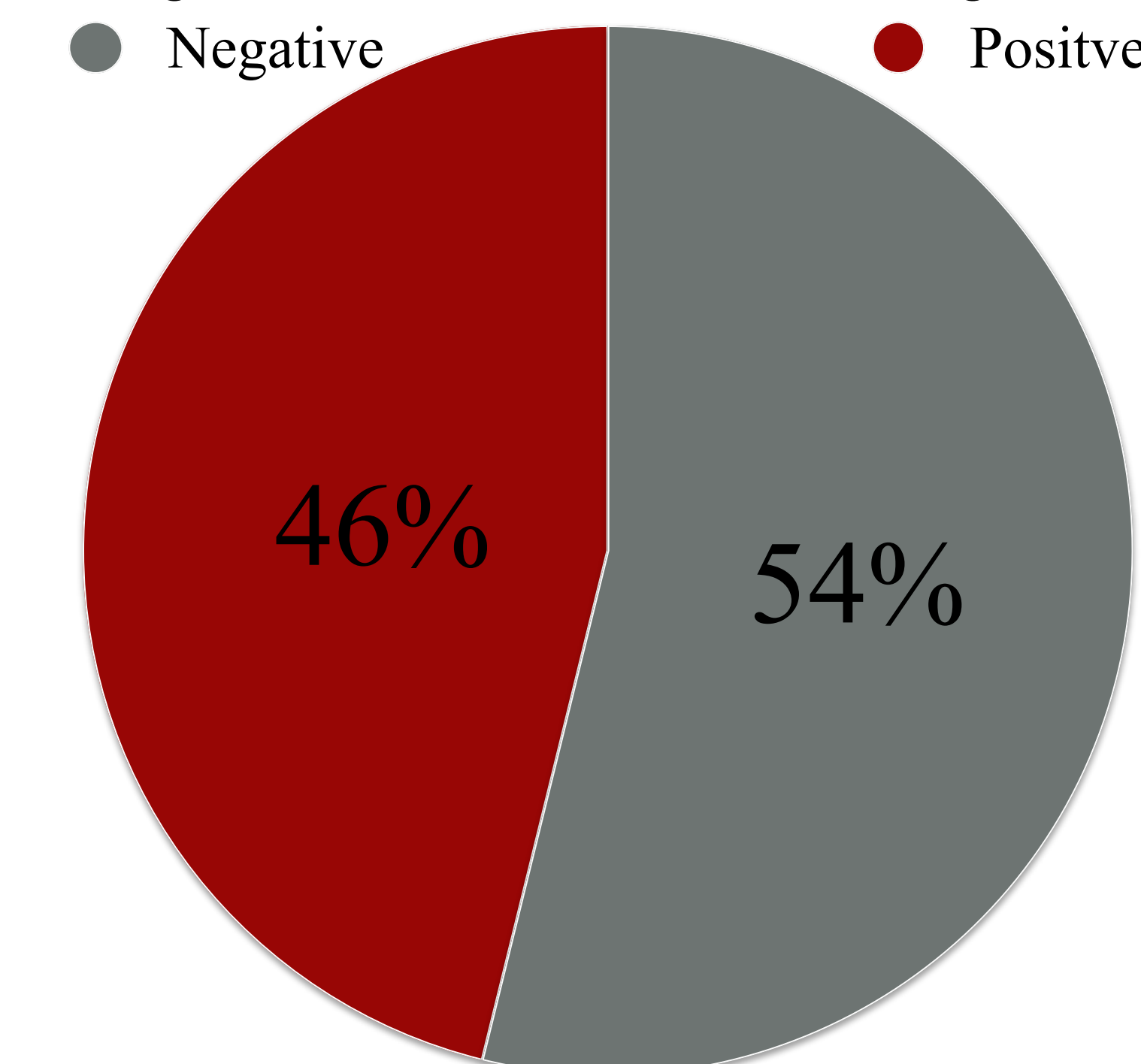


Figure 5: Presumed Positive vs. Negative



## DISCUSSION

- Chagas disease affects a wide variety of mammals, including humans and dogs. Current medications (benznidazole and nifurtimox) are most effective in the early stages of the disease.<sup>6</sup>
- While the number of kissing bugs collected was small, the percentage of positive was large meaning the impact is still significant.
- There were a few limitations to the study including small sample size. However, the number of kissing bugs in St. Louis area is not presumed to be numerous.

## CONCLUSION

- Even though the kissing bug population is not presumed to be numerous in this area, the fact that almost half the collected samples were positive for *T. cruzi* is important.
- Most of the population is unaware of the spread of this disease to the United States, and now the causative agent could be found around the St. Louis area.
- The next steps to help manage the spread of Chagas disease would be patient and provider education.

## REFERENCES

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