



Total Mercury (THg) Levels in Tricolored Bats (*Pipistrellus subflavus*) in East Central Texas



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Introduction

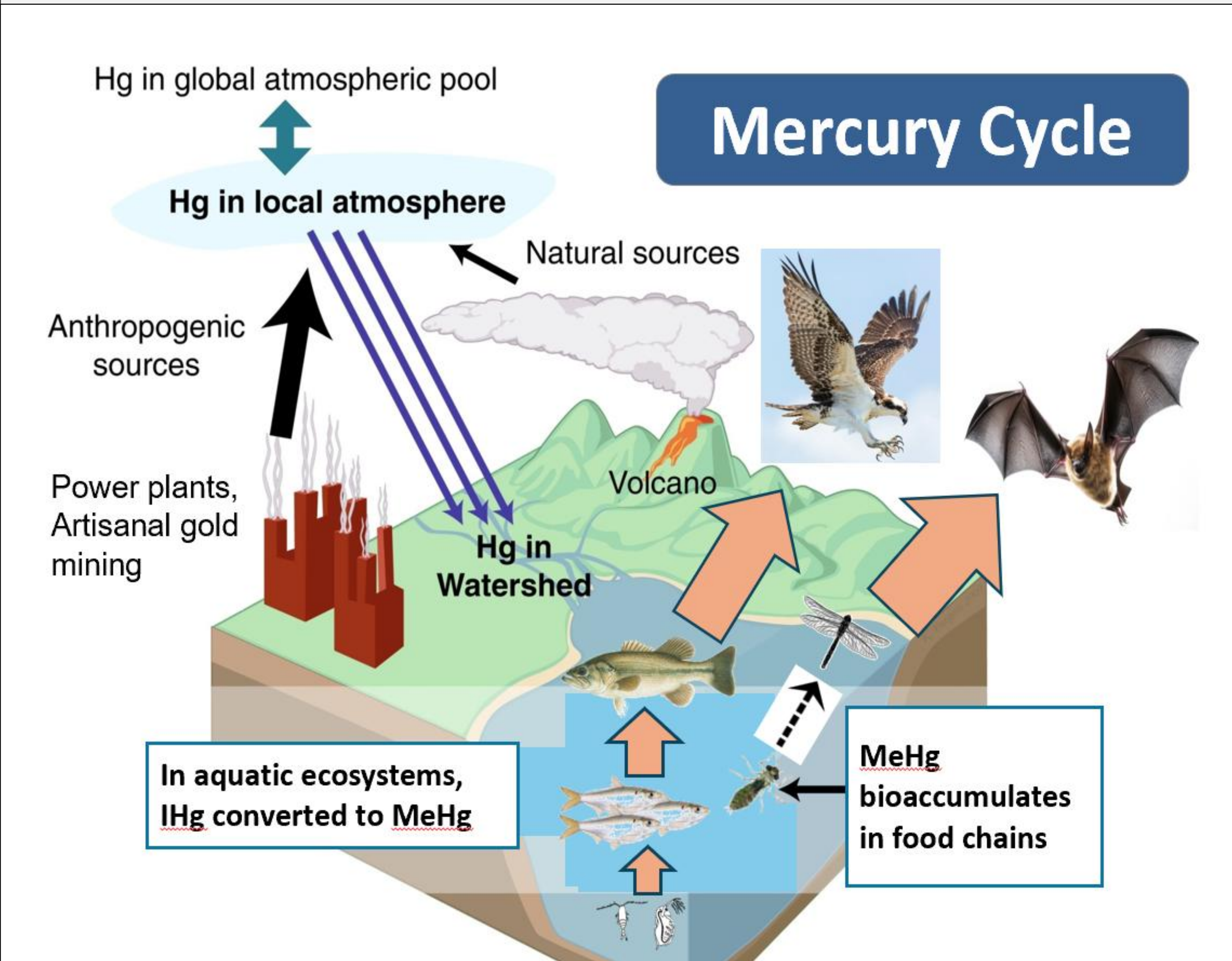


Figure 1: Global mercury cycle

- Terrestrial ecosystems in Texas are contaminated with toxic mercury (Hg) originating from anthropogenic emissions. Following deposition, IHg can be converted to MeHg and bioaccumulate in food webs.
- Identifying levels of contamination at the top of the food chain in bats can help determine risk posed by Hg to wildlife.

Objectives

- The objectives of this study were to determine:
1. Compare THg concentrations in Tricolored Bats between
 - sampling sites (culverts)
 - males and females
 - 2.) Compare THg in Tricolored bats from this study with previous studies
 - 3.) Assess THg concentrations in Tricolored Bats to the toxicity threshold for Hg

Methods

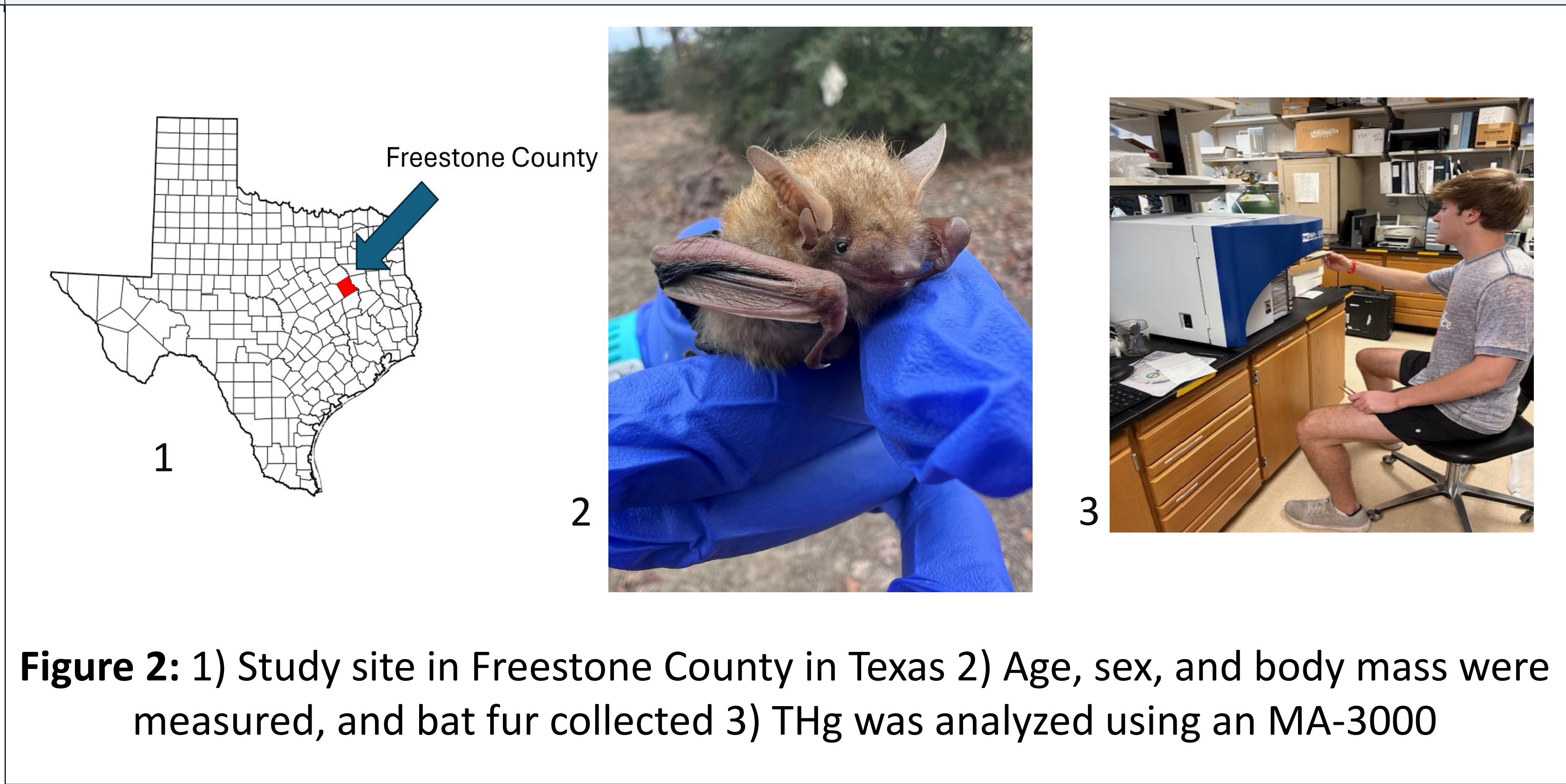


Figure 2: 1) Study site in Freestone County in Texas 2) Age, sex, and body mass were measured, and bat fur collected 3) THg was analyzed using an MA-3000

Results

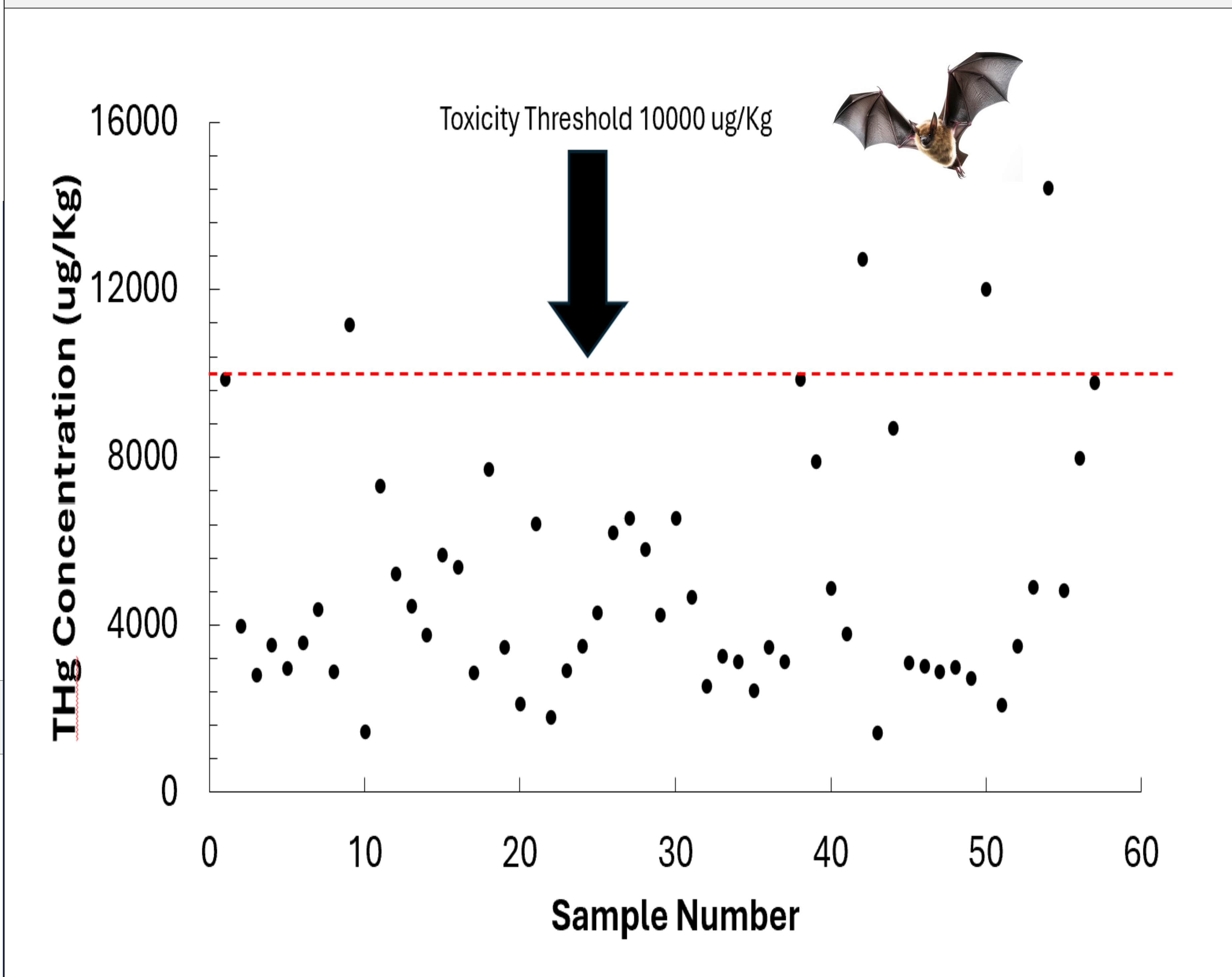


Figure 3: Total mercury concentration in 57 bat fur samples
Red line: Toxicity threshold of 10000 ug/Kg

Results (continued)

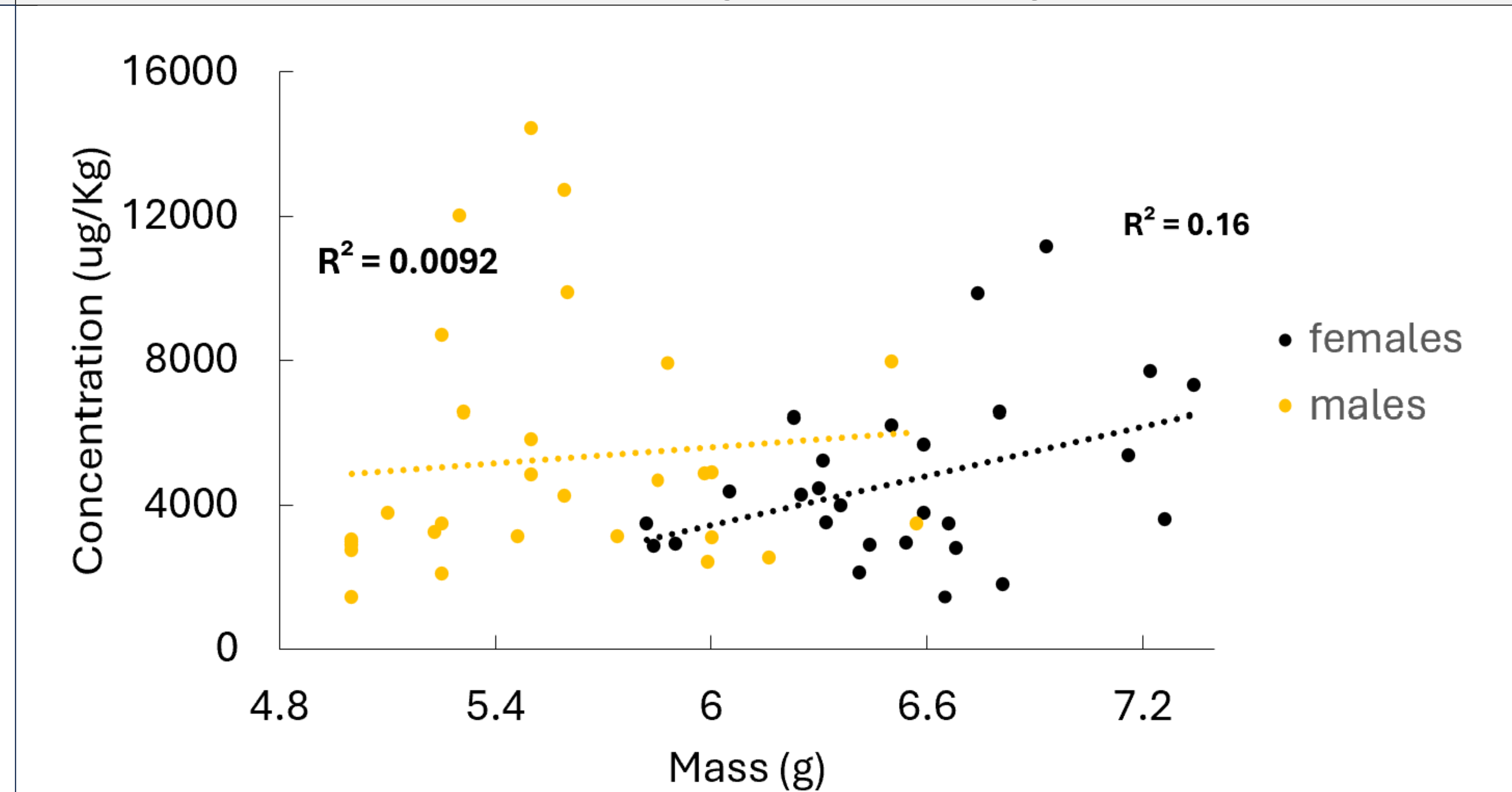


Figure 4: Total mercury concentrations in males and females

Study	Location	Sample size	Hg concentration
My study	Freestone County, Texas	57	5081 +/- 2977 ug/Kg
Parker et. al 2024	Austin, Texas	69	6040 +/- 3150 ug/Kg
Yates et. al 2013	Northeastern U.S.	29	740 ug/Kg
Korstian, Chumchal et. al 2017	Central Texas	21	4000 ug/Kg

Figure 4: Comparison of total mercury concentrations in Tricolored bats with previous studies

Discussion

- 7.0% of bats in the study exceeded the toxicity threshold (4/57) with 14.0% (8/57) being within 20% of the toxicity threshold
- THg may pose a risk to the health of some individual bats in East/Central Texas
- More research needs to be conducted on mercury contamination in Tricolored Bats in context with the other threats
- More conservation efforts needed to improve the population of Tricolored bats and ensure the species survival

References: Parker et. Al 2024, Yates et. Al 2013, Korstian, Chumchal et. Al 2017