Problem

Wildlife monitoring is difficult and expensive

- Expansive ranges
- Difficult terrain
- Limited funding and staff

Objectives:

- Investigate and optimize the effectiveness of blow flies (Diptera: Calliphoridae) as bio-monitors
- Develop genomic and bioinformatic pipelines to identify DNA from gut content samples

Background

- Blow flies are found worldwide
- Appear within minutes of an organism's death^{1,4,11}
- Utilized for Time of Colonization (TOC) estimates for Forensic Entomology^{2,8,9}



Figure 1: https://insectlab.russell.wisc.edu/2022/11/30/blowflies-indoors/

Why use flies as bio-monitors?:

- Non-invasive wildlife monitoring.
- Better detection of more elusive species.
- Cost and time effective sample collections.

Proposed Pathway of Analysis:

- 1. Fly consumes animal DNA
- 2. Fly gut content is extracted and sequenced
- 3. Analyzed using bioinformatic pipeline
- 4. DNA identification





• Phoenix Zoo

