Arbovirus Surveillance in Mosquitoes and Small Mammals at the Savannah River Site

Monica Perry[1,2], Daniel Mead[3], Daniel Peach[1,4], and Olin E. Rhodes, Jr[1,5]

[1]The University of Georgia's Savannah River Ecology Laboratory
[2]Warnell School of Forestry and Natural Resources, University of Georgia
[3]Southeastern Cooperative Wildlife Disease Study, Department of Population Health, University of Georgia
[4]Department of Infectious Diseases, University of Georgia
[5]Odum School of Ecology, University of Georgia



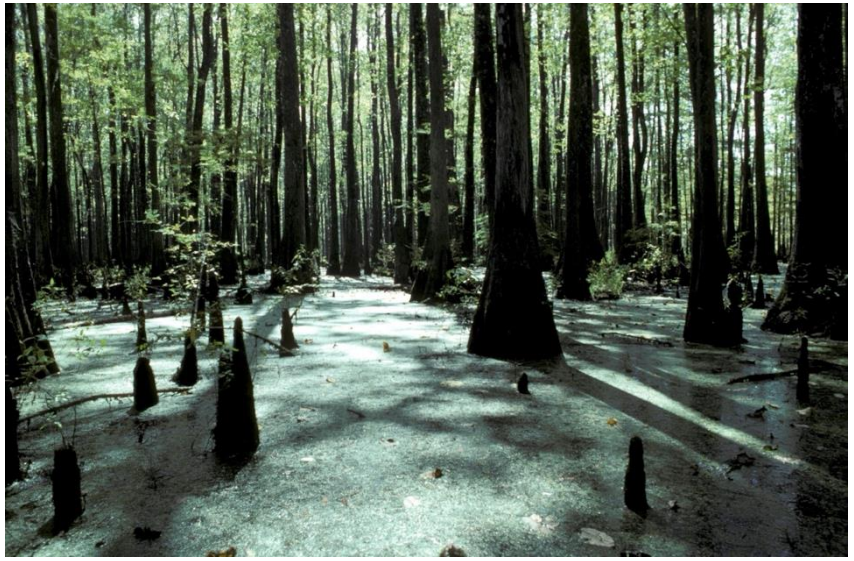
Cotton rats
(*Sigmodon hispidus*)

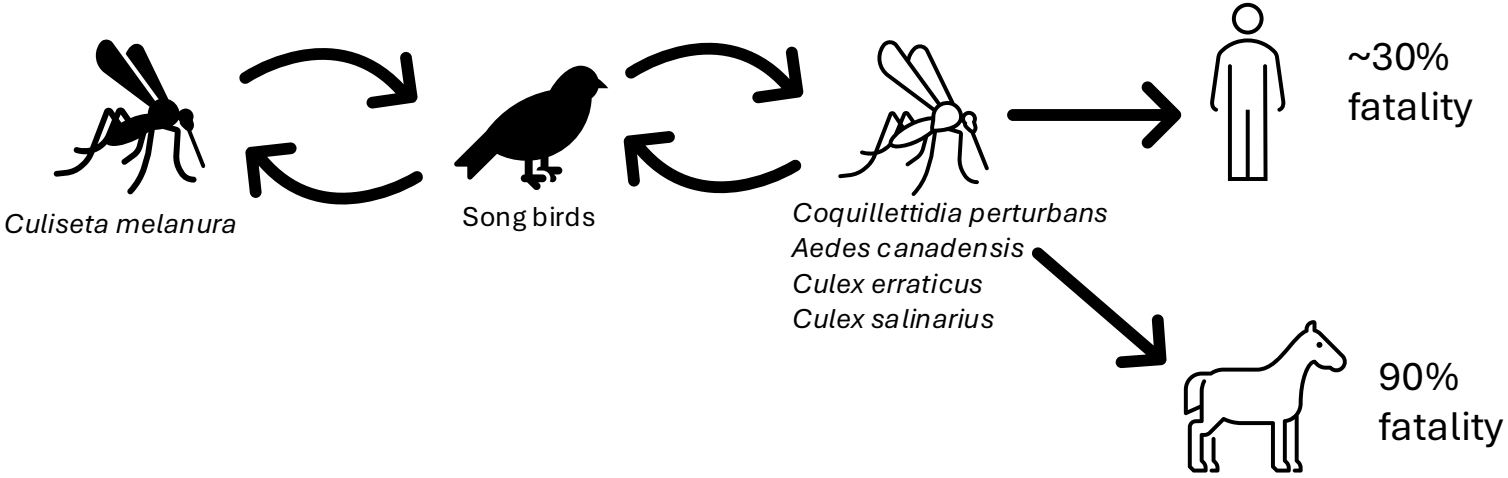




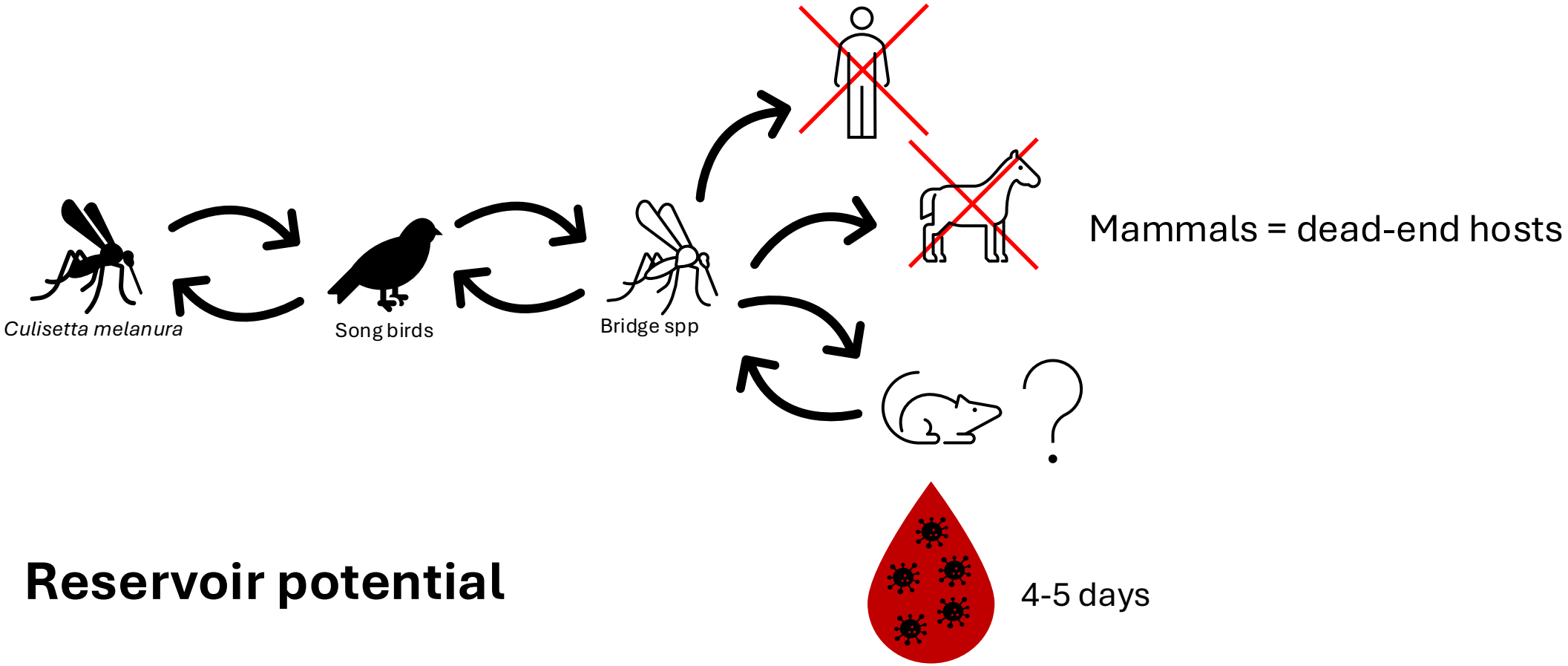


Eastern Equine Encephalitis Virus (EEEV)
"Triple E"



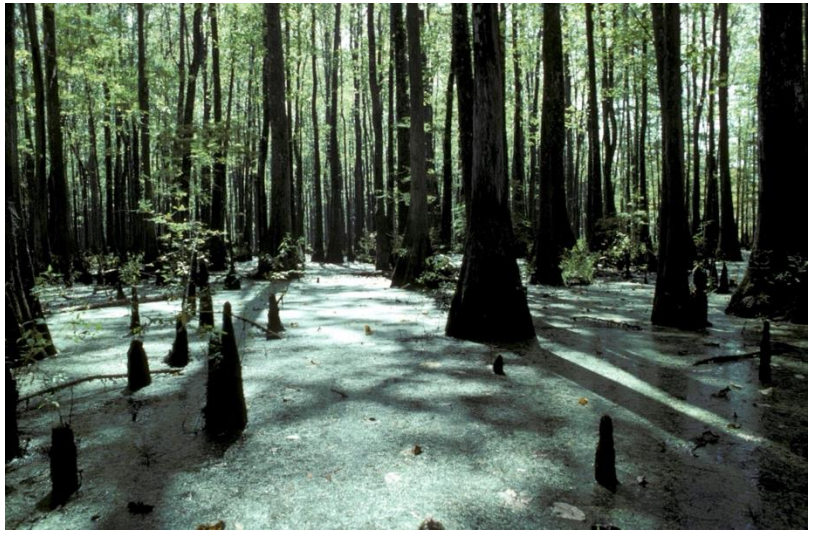


Where do cotton rats fit?



Reservoir potential

Is EEEV circulating in mosquitoes and cotton rats at the Savannah River Site?





Savannah River Site (SRS)



2025



Small mammal trap



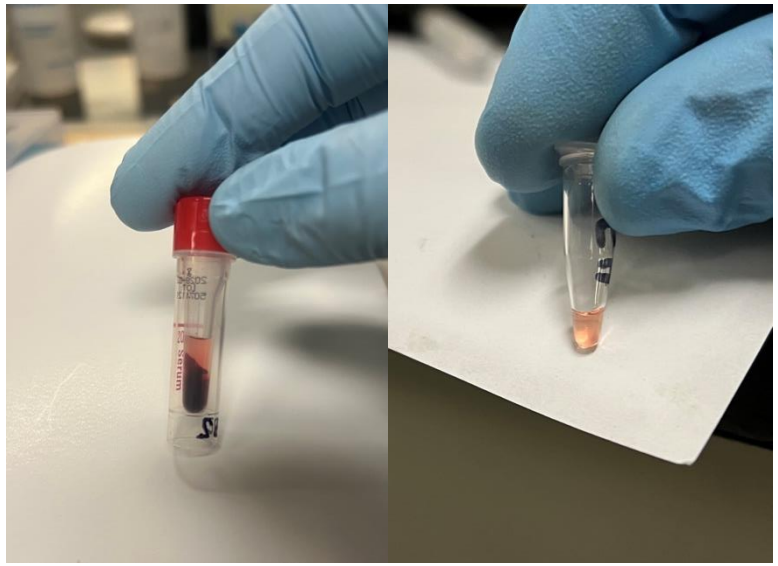
Cotton rat



CDC light trap with dry ice



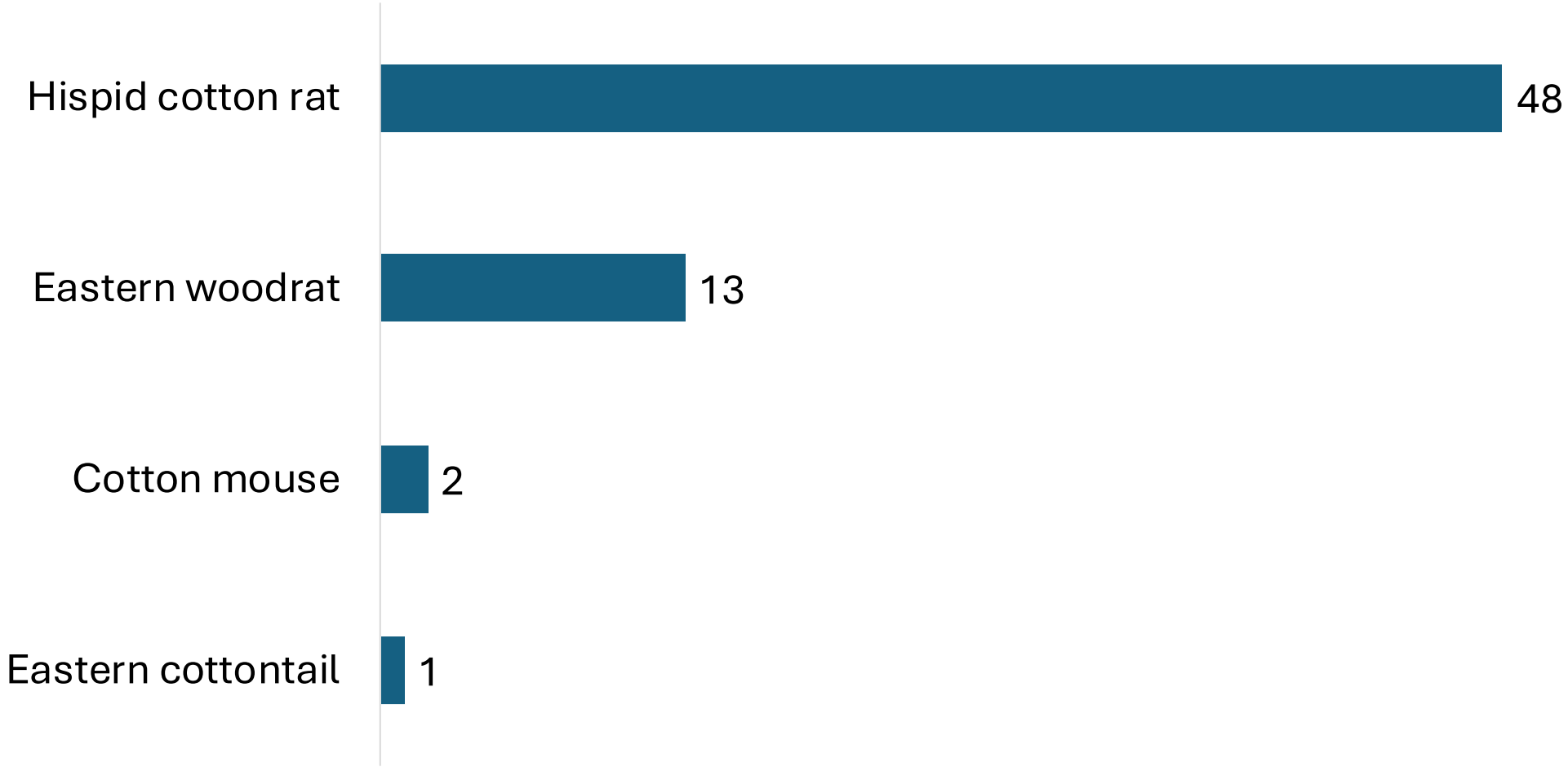
Blood draw



Serum extraction

2025 Small Mammal Collections

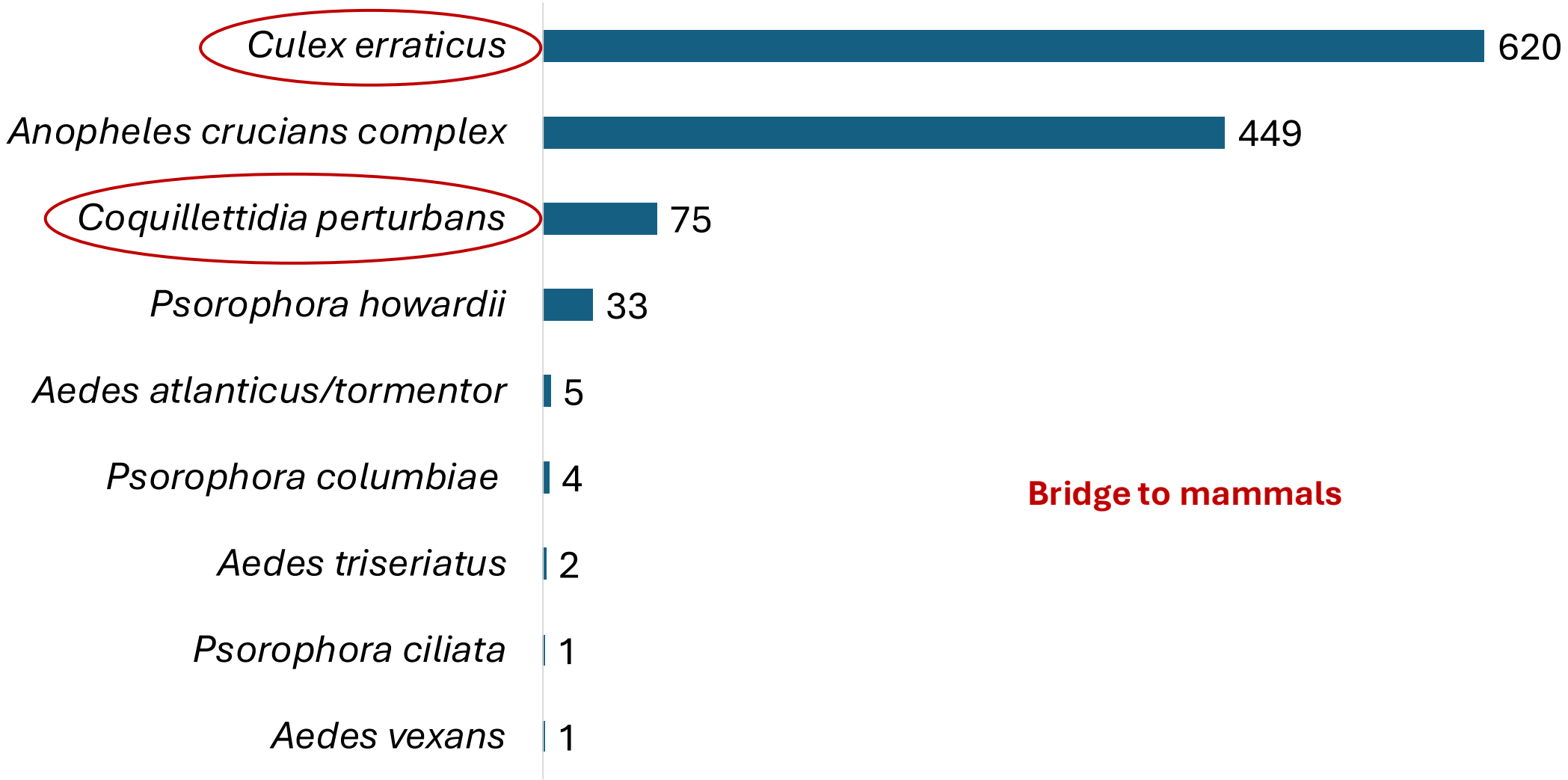
64 individuals • 4 species





2025 Mosquito Collections

1190 individuals • 9 species



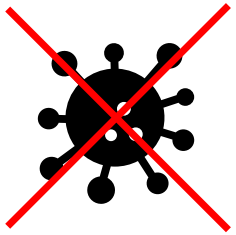
What do negative results mean?



(1) Little to no virus circulation at the sampled sites and times
(2) Virus circulating but cotton rats were rarely infected
(3) Infected rats had brief viremia and or virus levels below detection



Coquillettidia perturbans
Culex erraticus





2026

More mosquitoes!







2026 Results pending



20 cotton rat samples

Contributions

Connecting lab and field evidence

- Testing wild cotton rats for live virus

Sampling hosts and vectors together

- Studying cotton rats alongside mosquito communities

Expanding wildlife surveillance

- Looking beyond residential and agricultural settings



Future directions

- **Expand field sampling**
  - More personnel, more traps, longer season, and multiple years
- **Add antibody testing**
  - Evidence of previous exposure
- **If virus is detected:**
  - Quantify



Acknowledgments

- Elmer Gray
- Skyler Kerr
- Kayla Aycock
- Anya Weiss
- Nalany Richardson
- Mary Beard
- Steven Castleberry
- Shelby Robinson
- Leanne Alworth
- Linda Lee

U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

National Nuclear Security Administration

SOUTHEASTERN COOPERATIVE WILDLIFE DISEASE STUDY

Savannah River Ecology Laboratory
UNIVERSITY OF GEORGIA


Questions?