



# RIVERSIDE

DEPARTMENT OF ENTOMOLOGY  
Entomology Seminar Series



## Speaker:

Ethan Tolman, Ph.D.

**Date:** Thursday, March 13, 2025

**Time:** 4:00 pm - 4:50 pm

**Format:** In-Person Seminar & Virtual Access

**Location:** Student Success Center, Room 316

**Zoom:** 977 4212 3075

**Passcode:** 997822

## Title:

“Odonata in their 'Genomics Era': Implications for Insect Evolution and Conservation”

## Abstract:

Insects represent the most diverse and ecologically significant lineage in the Tree of Life, thus the recent surge of newly generated genomic data from Insecta present an unprecedented opportunity to address fundamental questions in evolution with direct implications for species conservation. The order Odonata, a well-established model for comparative genomics, provides a critical window into the evolution and conservation of aquatic insects—a group that has historically been underrepresented in genomic research compared to terrestrial insect taxa. Recent evolutionary studies of Odonata have uncovered phenomena such as introgression between non-sister taxa and revealed key genomic insights in both habitat specialists and synanthropic species. Novel phylogenomic approaches show that introgression between non-sister lineages is ubiquitous in Odonata, adding weight to the hypothesis that introgression is a widespread phenomenon across Insecta, and can be important when developing conservation management strategies. Gene families which have undergone significant expansions in the dragonfly family *Petaluridae* are presumably adaptive for the unique, semi-terrestrial, fen environments they inhabit as nymphs. Likewise, synanthropic species provide insight into the molecular machinery necessary for insects to thrive in highly modified aquatic habitats. Beyond deepening our understanding of Odonata evolution and conservation, this foundational research serves as a template for studying the genomic mechanisms underlying adaptation and conservation in other aquatic insect orders, as the pressures faced by aquatic insects are largely universal. With freshwater ecosystems facing ever increasing human influence, the application of conservation genomics is vital for informing management efforts meant to safeguard Odonata and broader aquatic insect biodiversity.

<https://ucr.zoom.us/j/97742123075?pwd=k8Ph9oGf34v8GexVuqVxJ0mK9cCK0P.1>

*Refreshments will be served in the Entomology Building at 3:00 pm*