



CAES

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CAES SEMINAR SERIES

“Protist Evolution and Diversity in the Termite Hindgut Symbiosis”

Dr. Stephen Taerum

Dept. of Plant Pathology and Ecology, CAES

Wednesday, October 23, 2019

12:00 noon to 1:00 p.m.

Food and coffee will be available at 11:45 a.m.

Jones Auditorium

The Connecticut Agricultural Experiment Station

123 Huntington Street, New Haven, CT

Symbiotic interactions are ubiquitous in nature, and can strongly impact the fitness and evolution of the species involved in such associations. This is apparent in the obligate digestive symbiosis between “lower” termites and the single-cell eukaryotes (or “protists”) that allow them to digest wood. The diversity and evolutionary histories of the symbiotic protists are poorly understood, as most termites have not been investigated, and most protist species still lack molecular data. Dr. Taerum will present his research on the protist communities of several termite species that were surveyed using microscopy, single cell PCR, high-throughput amplicon sequencing of whole termite guts, and single-cell transcriptomics. He will discuss how his work revealed high cryptic diversity of protists and incongruence between host and symbiont phylogenies, with a focus on the termite genus *Zootermopsis*. He discovered that although the symbiosis is primarily dependent on vertical transmission, the protist phylogenies do not always reflect those of their hosts, which may indicate that insufficient time has passed for symbiont divergence, or that the symbionts are sometimes horizontally transmitted between different host species.