

EEB SEMINAR SERIES 2018

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Distinguished Michener Speaker, University of Texas



Social insects offer unique research opportunities to understand basic principles for optimization of microbiome functions. A challenge in host-microbiome research is elucidation and engineering of beneficial microbiome functions. To address this challenge, I co-opted a method practiced by fungus-growing ants to differentially propagate microbiomes and thus engineer microbiomes with specific beneficial properties (Trends in Microbiology 23:606-617). In bees, for example, we used this method to engineer microbiomes that provide pesticide-detox to honey bees and bumble bees. In plants, we used differential microbiome propagation to engineer beneficial rhizosphere microbiomes that confer salt tolerance to plants. I will argue that many social insects likely evolved microbiome-transmission pathways to differentially

propagate microbiomes and thus generate tunable microbiomes that help them to overcome stress (e.g., toxins, disease, or nutrient stress). Social insects therefore offer unique research opportunities to elucidate principles of microbiomes-inheritance, differential microbiome-cycling, and microbiome-engineering, with applications to human agriculture and medicine.

Microbiome selection by social insects: Applications to the apiculture and agriculture.

Host: Deborah Smith
Tuesday, 9 October, 2018, 3:45 p.m.
1005 Haworth Hall

