Biology Seminar

Western
UNIVERSITY · CANADA

12:30 - 1:30 pm
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BGS 0153

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All speakers are postdoctoral research associates at Western University

(1) Transcriptomic and metabolomic changes in overwintering Asian longhorned beetles

An insect's capacity to survive low temperatures throughout winter is critical for range expansion in temperate regions. To cope with these stresses, many insects enter a state of developmental arrest known as diapause. The Asian longhorned beetle is a wood-boring, forest pest native to China and Korea. It has a complex life history, but little is known about its overwintering physiology. Here I will discuss metabolic rates, thermal sensitivity and cold tolerance strategy of overwintering larvae from an invasive, North American population. I'll then use this initial characterization to discuss targeted metabolomics and RNA-seq of overwintering ALB.

(2) Role of the gut-hormone ghrelin in the control of avian migratory behavior

Every year, billions of birds migrate between breeding and wintering grounds. Migration involves alternation between non-stop flights and stopover periods, and birds need to rapidly adjust behavior and physiology to each phase, a switch that is probably triggered by hormones. Evidence for a primary role of fat stores on migratory behavior has made the study of orexic/anorexic hormones a priority in migration physiology. The gut-peptide ghrelin is known for regulating food intake and appetite in vertebrates. In this talk, I will present my findings on the role of ghrelin in the control of migratory behavior in small passerine species.

(3) Emerald ash borer thermal tolerance in established and new invasive populations

Emerald ash borers are major ash tree pests in North America. In their primary overwintering stage as prepupae, they are not freeze tolerant and may be limited in their ability to expand in Canada if winter tree temperatures cause freezing. In some populations, emerald ash borers may overwinter as younger pupae, of which no thermal tolerance or physiology is known. We aim to understand the thermal tolerance of emerald ash borer larvae and prepupae in an established and frontier population. We also assess thermal conditions inside trees to determine whether emerald ash borers are exposed to lethal temperatures. Finally, we assess the thermal tolerance of a wasp parasite that may curtail the population and damage to ash trees.

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