Biology Seminar

Western
UNIVERSITY · CANADA

12:30 - 1:30 pm
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BGS 0165

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All speakers are postdoctoral research associates at Western University

[1] Taiwanese white dolphin: on the brink of extinction

The Taiwanese white dolphin (*Sousa chinensis taiwanensis)*, is subspecies endemic to Taiwanese waters. The dolphins are only found in near-shore waters of the west coast of Taiwan and their primary distribution occupies ~330 km2 in a thin strip of water only some 110 km long. The subspecies number fewer than 75 individuals and appear to be on a declining trajectory. Since 2008 it has been listed as Critically Endangered in the Red List of Threatened Species of the International Union for Conservation of Nature (IUCN), meaning that it is globally recognized as facing an extremely high risk of extinction.

[2] Using thermal biology theory to choose climate-matched biological control agents for an emerging agricultural pest

Biological control -using natural enemies to control pests - is an important component of agricultural insect pest control, but not all introductions of biological control agents are successful. This is possibly because the source populations for the biocontrol agents are adapted to climates significantly different from the release locality. There is a large body of research on thermal biology theory that can inform introductions, but to our knowledge it has not yet been applied to biocontrol. I propose to use thermal biology to choose a climate-matched population of *Trisulchus japonicas* (or Samurai wasp), a parasitoid wasp that is the most promising biocontrol agent for the invasive Brown Marmorated Stink Bug (BMSB) in Canada.

[3] Thermal biology and species distributions of jumping spiders across a desert elevational cline

Thermal biology is known to influence many aspects of organisms and is frequently linked to geographical species distributions. Here we examined an elevational assemblage of *Habronattus* jumping spiders to measure different aspects of their thermal biology including thermal limits (CTmin, CTmax), thermal preference, V CO2 as proxy for metabolic rate, locomotor behavior and warming tolerance. We tested whether thermal biology helped explain how species were distributed across elevation. *Habronattus* had very high CTmax values (~ 52°C), which did not differ among species across the elevational gradient. The highest-elevation species had a lower CTmin than any other species. All species had a strong thermal preference around 37°C. Differences between species with respect to locomotion (jump distance) were likely driven by differences in mass, with no differences in thermal performance across elevation. Taken together, these data suggest that *Habronattus* are resilient in the face of climate-change related shifts in temperature.

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