

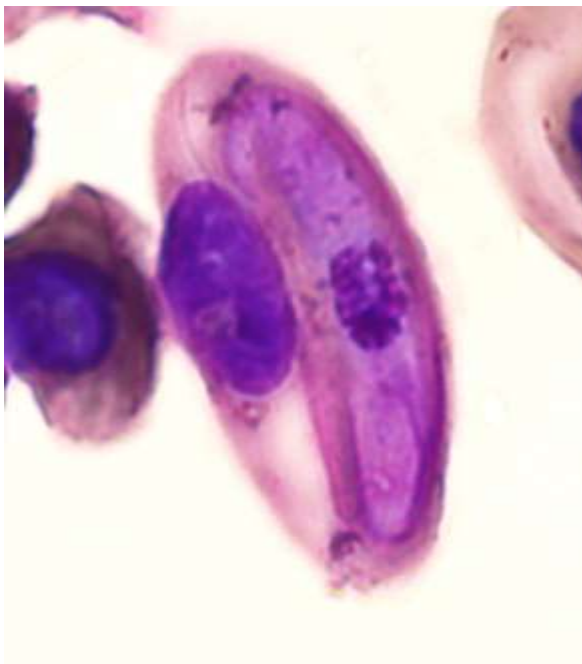


# Biology @ Acadia

## HOST-SPECIFICITY AND FREEZE TOLERANCE OF *HEPATOZOON* BLOOD PARASITES IN THE WOOD FROG, *RANA SYLVATICA*

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Host specificity is the ability of a parasite to infect one species of host, but not infected a related species. Freeze tolerance is the ability to survive episodes of whole-organism freezing for periods lasting up to several weeks. Host specificity and freeze tolerance may play a role in the prevalence and intensity of infections of *Hepatozoon* species, which are blood parasites related to malaria parasites, in freeze-tolerant wood frogs. In this study, host specificity and freeze tolerance of two parasite species, *Hepatozoon catesbiana* and *Hepatozoon clamatae*, were investigated in wood frogs.



Green frogs, as sources of *Hepatozoon* parasites, mosquitoes, as vectors of these parasites, and eggs of wood frogs were collected. Female mosquitoes that taken blood from infected green frogs were fed to juvenile wood frogs reared from eggs. Infection levels in wood frogs were determined by analyzing stained blood smears under a light microscope. To investigate effects of freezing on these parasites, we placed infected wood frogs in a -3.0 C freezer after they had been acclimated to low temperature (4 C) for three weeks. We found that *H. catesbiana* readily infects wood frogs, but that *H. clamatae* does not. Preliminary results revealed that parasite levels in frozen frogs were greatly reduced compared to parasite levels in unfrozen control frogs.

**Sean McGee** graduated from Sir John Franklin High School in Yellowknife, NWT, in 2004. He attended Acadia University right out of high school, but decided to leave after second year to work, and returned four years later to finish an honours degree. He hopes to pursue medicine or another field of health care, and found his honours experience at Acadia extremely useful for introducing him to research and for fostering independence and professionalism.

