

## Bat boxes as a conservation tool: do they help or hinder?

Susan Dulc, MSc candidate

Supervisors: Dr. Karl Larsen and Dr. Cori Lausen

Committee Members: Dr. Mark Paetkau, Dr. Leigh Anne Isaac

Bats are a critical component of healthy, functioning ecosystems and provide economic benefits to agricultural and forestry industries through insect pest control. Unfortunately, bat populations face a number of threats. An introduced fungal disease, white-nose syndrome (WNS), has caused catastrophic losses to bat populations in eastern North America and is moving westward. Pesticide use, wind turbines and habitat loss are additional threats to bat populations. Installation of bat boxes is often suggested as a conservation tool and method to mitigate loss of habitat however, there is growing concern about the efficacy of bat boxes in contributing to conservation of bat populations. Recently, an increasing number of mass mortality events, associated with extreme heat events, at bat boxes have been reported and are a significant cause of concern. While previous studies have investigated the design preference and occupancy of boxes, our research will provide much needed information regarding the reproductive success of bats using these structures to raise young and the microclimates available within the roost structures in relation to ambient conditions. Results from this project will be used to: create best management practices guidelines; inform conservation and management actions; and, assess the potential of bat boxes to be used as a population recovery tool for species impacted by WNS.