

## **BIOL 480.3: Modelling Population Dynamics and Resource Use in Wild Horse Populations – Fall 2020**

### **CRN 80026**

Dr. Phil McLoughlin and PhD candidate Paul Boyce are looking for a fourth-year BIOL or ENVB student with an ecological focus in their undergrad program to complete a BIOL 480.3 research project as described below.

Large predators can structure entire ecosystems and significantly alter resource use, movement patterns and population demographics. Wild horses in the foothills of Alberta are subject to predation from a number of large predators, and are components of a multi-prey system including species such as elk, moose, and deer. Little is known about the impact of predation on this horse population however, or the impact of predation on non-African equids in general. The unique social system and anti-predator behaviours exhibited by horses, makes inference about the specific impact of predators on horse populations difficult. The extensive literature outlining the significance of predator-prey interactions in large mammal systems suggests an understanding of these interactions will be critical in developing accurate models of population dynamics and resource use in wild horse populations, both of which are relevant to ecological theory and management of horse populations.

A student is sought to analyse trail-camera images of wild horses and predators from the Alberta foothills, and using capture-recapture analyses, develop individual encounter histories of wild horses. The student will also assess reproductive rates and inferred mortality rates across a range of predator densities. Analyses will directly contribute to population modelling, resource use, and movement patterns of wild horses, and the student will have the opportunity to co-author publications following the compilation of these results. The project will be conducted remotely through the framework of a BIOL 480.3 course.

For more information contact, Paul Boyce ([paul.boyce@usask.ca](mailto:paul.boyce@usask.ca)) or the Department of Biology ([biology.dept@usask.ca](mailto:biology.dept@usask.ca)), by September 11, 2020.