

Ecologically based Weed Management in Rangelands  
Supervisor Lauchlan Fraser  
Committee: Wendy Gardner, Brian Wallace

*Centurea maculosa* (spotted knapweed) spreads rapidly and displaces the native grasses and forbs that are crucial to British Columbia's grasslands. Native grasses are invaluable to an ecosystem as they provide the main source of forage for wildlife and livestock, the root structure of healthy native systems prevent erosion and runoff, and the accumulation of litter breaks down to increase carbon sequestration. Traditional weed management often focuses on killing the weeds rather than addressing the fundamental ecological processes that allowed the invasion to establish, and re-establish. The processes that we are interested in are soil chemical properties, presence of allelopathy and the lack of desirables in the seedbed. In order to reverse the monoculture of weeds a multifaceted approach should be taken which involves herbicide application, soil amendments and adding desirable seed species to address these ecological factors. We are doing a field trial using a split plot design to determine which combinations of commonly used herbicide, seed mixes and soil carbon amendment reduces knapweed and allows desirable species to establish.