



The Interacting Effects of Grazing and Productivity on Carabid Beetle and Spider Communities in Semi-Arid Grasslands

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Insect and arthropod communities are an integral part of the semi-arid grassland food web as sustenance for other insects, mammals, and birds. Insect communities can change with alterations to the plant community, such as decreases in litter and biomass. How does grazing affect grassland insect biodiversity? This study examines the effects of cattle grazing on the spider and carabid beetle communities along an elevation (productivity) gradient in British Columbia. We hypothesize 1) that disturbance (in the form of grazing) reduces vegetation, and alters microhabitat. This change in resources will lower polyphagous insect diversity (spiders and carabid beetles) and 2) that high elevation - high productivity grasslands, will have a higher abundance and diversity of polyphagous insects. We used pitfall traps set with propylene glycol and water to collect insect specimens in May, July, and late August. We found that smaller species of beetles (*Cymindis*) had high average per trap numbers at the low elevation (low productivity). Mid-sized species (*Amara*) had the highest average per trap numbers in the high elevation sites. We found eleven spider families in the grasslands. The most common spider family captured was the wolf spider (*Lycosidae*), with the highest average capture per trap at the lowest elevation (lowest productivity), grazed site. There was little difference between grazed and non-cattle-grazed areas. It is meaningful to consider the ability of grasslands to maintain biodiversity with and without disturbance. It appears that grazing has little effect on spider and carabid beetle communities.

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