

Testing Management-Intensive Cattle Grazing as a Rangeland Restoration Tool

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Heavy, continuous cattle grazing contributes to the decline of rangeland productivity and associated ecosystem services. Excessive trampling can expose bare ground where invasive plant species, such as spotted knapweed (*Centaurea maculosa*) can establish and outcompete native plants. Overgrazed pastures also contribute less organic matter into soil resulting in lower carbon sequestration potential. Recent research suggests that light to moderate, short duration grazing can improve rangeland productivity. Our objectives were to compare three cattle grazing systems (management-intensive or MiG, extensive, targeted) for their ability to: a) improve forage quality and quantity; b) increase plant biodiversity; c) sequester soil organic carbon; d) control spotted knapweed; and e) alter the soil seed bank. Electric fence enclosures were established in spotted knapweed-dominated rangeland located in Merritt, British Columbia. Cattle numbers and timing were controlled such that MiG was 10 cow/calf pairs for one day at the end of the growing season, extensive was 1 cow/calf pair for 10 days at the end of the growing season, and targeted was 10 cow/calf pairs for one day at the height of spotted knapweed flowering. Results from this research will be used to: develop a targeted grazing protocol for spotted knapweed control; assess whether intensive grazing practices can create productive, invasive-free rangelands.