Multi –scale Habitat Selection by Woodland Caribou along Spring Migration Routes

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Woodland caribou (Rangifer tarandus caribou) are a threatened species throughout Canada. As such, special management must ensure habitat requirements are met, particularly since much of their current range is strongly influenced by resource extraction industries. While winter habitat is thought to be limiting and is the primary focus of conservation efforts, maintaining connectivity between summer and winter ranges has received little attention. We used global positioning system data from an inter-provincial mountain caribou herd, whose range currently exists in a relatively pristine state, to define migratory movements. Resource selection functions (RSFs) and friction modeling were used to characterize selection of spring migration routes from available routes on the landscape. Broken stick models indicate that caribou migration was punctuated; caribou traveled for some distance (movement phase) followed by a pause (foraging/resting phase). Individuals repeated this pattern several times over the approximate week-long spring migration. We used RSF models to discriminate between foraging/resting sites and movement sites, at both the landscape and local scales. Models were based on the movements of four individuals, and then validated with data from an additional three individuals. This approach allowed us to identify two different sets of critical habitat requirements (travel and foraging/resting) for caribou migration. These models are an important and necessary step that should inform management plans if connectivity between caribou summer and winter ranges is to be maintained.