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Abstract

Modelling critical winter habitat of four ungulate species in the Robson Valley, British Columbia

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A modelling exercise was conducted to identify potential critical winter habitat for four ungulate species in the Robson Valley in east-central British Columbia: mule deer (*Odocoileus hemionus hemionus*), whitetailed deer (*Odocoileus virginianus*), Rocky Mountain elk (*Cervus elaphus nelsonii*), and moose (*Alces alces*). The model was developed to provide land managers with an effective decision-making tool to include critical winter habitat in land-use planning. Forest cover data, biogeoclimatic data, and a digital elevation model were used to reflect snow depth, forage availability, thermal cover, and security cover values during winter months. The model identifies low-elevation, south-facing, older forests where snowpacks are less deep as potential critical winter habitat for deer and elk. Because moose are better adapted to northern Interior winter conditions, the model identifies coniferous and deciduous stands with greater forage potential. Recent mild winters have limited the field validation process. Habitat assessment, using local sites as benchmarks for model evaluation, found that the distribution of resources varied within and between highrated polygons and that the model overestimates the amount of critical ungulate winter habitat in the Robson Valley. Forage availability, followed by snow interception, were shown to be the limiting factors in most cases. The model is a broad filter of critical ungulate winter habitat; it is intended for field use as a management tool to identify the boundaries of critical winter range. The limitations of the model and priorities for improvement are reviewed.

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