

Landscape Analysis of Moose Distribution Relative to Fire History in Interior Alaska

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Moose (*Alces alces*) play a major role in the dynamics of boreal forest ecosystems and are an important resource for subsistence users. Fire is a primary disturbance of boreal forests in interior Alaska, but how the age and juxtaposition of fires affects the density and distribution of moose on a landscape scale is poorly understood. We combined datasets on the density and distribution of moose collected by the Alaska Department of Fish & Game with Geographic Information System (GIS) data on vegetation, topography, drainage class, presence and absence of fire, and distance to rivers and towns using the GIS system ARC/VIEW. We also investigated effects of patch size, shape, and configuration on density and distribution of moose populations using FRAGSTATS. We used a correlation matrix to determine which independent variables should be included in a multiple regression model and scatter plots to determine whether these variables should be transformed prior to analysis. The final data set included topographic variables including elevation and terrain ruggedness, vegetation type, presence/absence and age of fires, amount and distance to available water, and variables describing the patchiness of the habitat. Initial results suggest the importance of fire > 10 years old, available water, and vegetation type in determining the density and distribution of moose in Interior Alaska.



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