

**(41) BROWSE REMOVAL AND PLANT ARCHITECTURE AS INDICES TO CHANGES
IN MOOSE DENSITY**

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Abstract: Managing moose populations for elevated sustained yield is aided by monitoring indices of intraspecific competition or nutritional condition to gauge density-dependent environmental feedback. In 4 areas of Interior Alaska where moose density recently changed, we evaluated magnitude of change for 4 browse indices: proportional number of current annual growth (CAG) twigs browsed, proportion of CAG biomass removed, mean diameter at point of browsing (DPB), and proportion of plants with broomed architecture. In one area where moose density doubled in 5 years following effective predation control, browse removal increased 236% for biomass and 120% for twigs, DPB increased by 16–42%, and brooming increased 150%. In 3 areas where moose density declined 31–41% over 2–4 years through elevated antlerless harvest, we found declines of 30–40% in biomass removal, 30–70% in number of twigs removed, and 13–37% in DPB, but changes in plant architecture were inconsistent among the 3 sites. Twinning rate (an index of nutritional condition) changed comparatively little between browse surveys, possibly because of a lag time influenced by female life history. Of the 4 browse indices studied, biomass removal (an index to intraspecific competition) most consistently reflected the direction and magnitude of short-term changes in moose density. Site-specific measures of habitat and animal conditions at a given moose density provide objective means for gauging the capacity of managed ecosystems to support moose of defined nutritional condition. These measures of habitat and moose conditions have been key factors used to implement harvest strategies to adjust moose densities.



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