(25) RELATIONSHIPS BETWEEN REMOVAL OF BROWSE BIOMASS AND MOOSE PRODUCTIVITY AND DENSITY

Seaton, C. Tom, Rodney D. Boertje, Thomas F. Paragi, Craig L. Fleener, Steve D. DuBois, and Brad Griffith. Alaska Department of Fish and Game, 1300 College Road, Fairbanks, AK 99701-1599 (CTS, RDB, TFP), tom_seaton@fishgame.state.ak.us; Council of Athabascan Tribal Governments, 283 East Second Avenue, Fort Yukon, AK 99740 (CLF); Alaska Department of Fish and Game, PO Box 605, Delta Junction, AK 99737-0605 (SDD); USGS Alaska Cooperative Fish and Wildlife Research Unit, 209 Irving I Building, University of Alaska Fairbanks 99775 (BG)

Abstract: We studied removal of browse biomass by moose in 4 areas of Interior Alaska, 2000–2003. Our purpose was to document landscape-scale patterns of browse removal over a gradient of moose productivity and density. We estimated the proportion of current annual growth that was removed based on bite diameters and diameter-mass regressions specific to each browse species. In late winter we sampled willow (*Salix* spp.), quaking aspen (*Populus tremuloides*), balsam poplar *(Populus balsamifera*), and paper birch (*Betula papyrifera*) with current annual growth between 0.5 m and 3.0 m above the ground. We estimated browse removal by moose to be 9–42% of current annual growth at the landscape-scale. Browse removal by moose was inversely correlated (r^2 = 0.94) with moose twinning rate (range 6–63%) and correlated (r^2 = 0.89) with moose density (range 0.15–1.1 moose per km^2). We documented browse removal estimates to (1) evaluate the need for habitat rejuvenation in an area of high density, after predator control; (2) evaluate habitat suitability where predator control was proposed to increase moose density; and (3) provide relative baseline information linking the fields of moose habitat biology and population biology.

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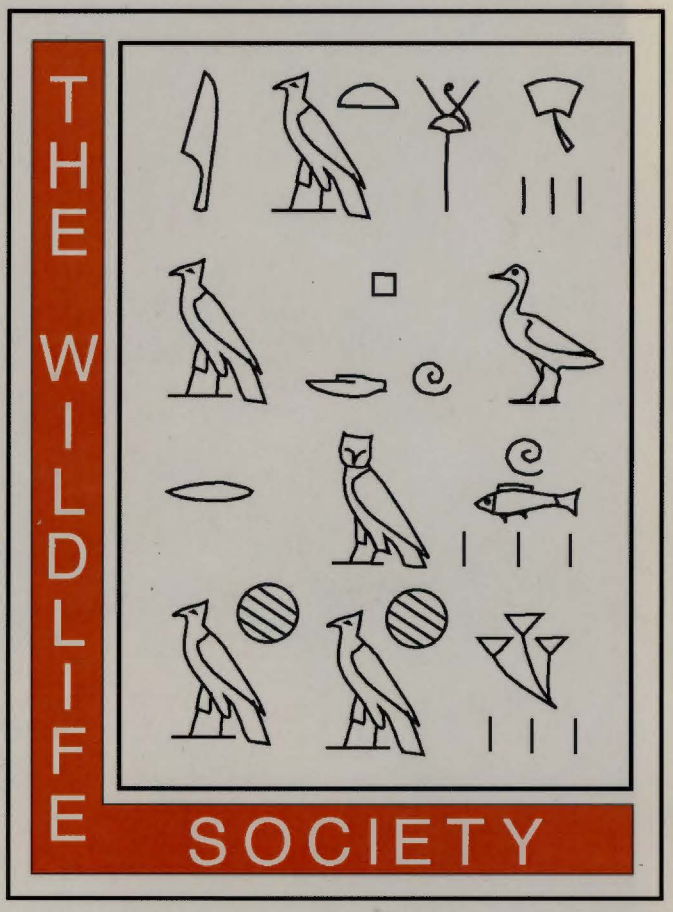

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