

T294 The effect of forage availability on the somatotrophic axis in free-ranging alaskan moose (*Alces alces*). A. A. Parillo*¹, J. P. Richmond¹, K. S. White², J. Crouse³, B. W. Dale⁴, and S. A. Zinn¹, ¹University of Connecticut, Storrs, ²Alaska Department of Fish and Game, Juneau, ³Alaska Department of Fish and Game, Soldotna, ⁴Alaska Department of Fish and Game, Palmer.

To determine if components of the somatotrophic axis reflect the availability of forage or nutritional status in adult moose (*Alces alces*), 3 distinct Alaskan populations of free-ranging moose [Gustavus (n = 42), Skwentna (n = 24), and Nelchina (n = 11)] were used. Forage availability, low (Gustavus), medium (med; Nelchina) or high (Skwentna) varied with population. Moose from each population were captured once in fall (October–November; high forage availability) and once the following winter (March; low forage availability). At capture, blood samples were collected via venipuncture to determine if forage availability influenced the somatotrophic axis, and rump fat was measured to assess body condition. Concentrations of GH and IGF-1 were quantified by RIA using bovine and human antisera, respectively. Western ligand blots were used to quantify IGFBP-2 and -3. Rump fat was greater in fall than winter (2.4 ± 0.26 vs. 1.1 ± 0.24 cm; $P \leq 0.01$), but was similar across the 3 populations [1.68 ± 0.16 (low), 1.57 ± 0.27 (med) and 2.1 ± 0.18 (high) cm; $P \geq 0.17$]. Concentrations of GH averaged 3.4 ± 1.2 ng/mL and were not different between populations ($P \geq 0.15$) or season ($P \geq 0.12$). Average IGF-1 concentrations were greater ($P \leq 0.03$) in high than low (135.4 ± 17.6 vs 89.8 ± 17.1 ng/mL) forage availability and greater ($P \leq 0.01$) in fall [117 ± 20.01 (low), 138 ± 25.1 (med), and 220 ± 16.4 (high) ng/mL] than in winter [62.5 ± 14.2 (low), 42.2 ± 30.6 (med), and 50.6 ± 18.7 (high) ng/mL]. Conversely, IGFBP-3 was greater ($P \leq 0.01$) in low compared with high (72.1 ± 6.0 vs 43.4 ± 7.4 AU) forage availability, and greater ($P \leq 0.01$) in fall compared with winter (69.2 ± 4.4 vs 34.4 ± 4.6 AU). Similarly, IGFBP-2 was greater ($P \leq 0.01$) in low than high (47.1 ± 3.1 vs 24.4 ± 4.0 AU) forage availability, and was greater ($P \leq 0.01$) in winter than fall (36.9 ± 2.5 vs 32.0 ± 2.9 AU). Serum IGF-1 concentrations increased, whereas IGFBP-2 and IGFBP-3 decreased with greater forage availability. These components of the somatotrophic axis may be useful indicators of nutritional status in free-ranging populations of Alaskan moose.

Key Words: somatotrophic axis, moose (*Alces alces*), forage availability