

Elk, mule deer, and cattle foraging relationships on foothill and mountain rangeland.

[Download Here](#)

ScienceDirect



Purchase

Export 

Rangeland Ecology & Management

Volume 59, Issue 1, January 2006, Pages 80-87

Research Articles

Elk, Mule Deer, and Cattle Foraging Relationships on Foothill and Mountain Rangeland

Wendy L.F. Torstenson¹ ... James E. Knight⁵

 **Show more**

<https://doi.org/10.2111/05-001R1.1>

[Get rights and content](#)

Abstract

Foraging niche overlap among Rocky Mountain elk (*Cervus elaphus nelsoni*), Rocky Mountain mule deer (*Odocoileus hemionus hemionus*), and cattle (*Bos taurus*) was studied for 2 years on 37 000 ha of nonforested foothill and mountain habitat in northwestern Wyoming. Microhistological analysis was used to quantify botanical composition of ungulate diets from monthly fecal collections. Feeding habitat use was determined through monthly surveys from fixed-wing aircraft to record nonsolitary animals in nonforested habitat. Kulczynski's similarity index was used to calculate dietary and feeding habitat overlap among the 3 ungulates, and these 2 indices were multiplied together to estimate foraging niche overlap. In all seasons, elk and cattle consumed grass-dominated diets (mean = 61% and 81%, respectively), although elk

diets were more diverse. Mule deer consumed more forbs and shrubs than either elk or cattle ($P < 0.10$). Foraging niche overlap was high (45%) between mule deer and elk in spring. Cattle in summer and fall had $\approx 60\%$ foraging niche overlap with elk in spring, indicating that, in spring, elk foraged in many of the same places (largely sagebrush grassland) and ate diets similar in botanical composition to what cattle did during summer and fall (principally *Festuca idahoensis*, *Pseudoroegneria spicata*, and *Achnatherum* spp.). Foraging niche overlap also was high (41%–51%) between elk in winter and cattle in summer and fall. Therefore, if competitive or complementary relationships existed between elk and cattle, these interactions most likely occurred on sagebrush grasslands where cattle use in summer–fall was followed by elk use in winter–spring. We recommend that resource managers focus their forage utilization and range trend monitoring in foothill sagebrush grasslands.

Resumen

Se estudió el traslape del nicho de forrajeo entre el alce de las Montañas Rocallosas, (*Cervus elaphus nelsoni*), el venado mula de las Montañas Rocallosas (*Odocoileus hemionus hemionus*) y el ganado (*Bos taurus*); el estudio se condujo por dos años en 37 000 ha de hábitats deforestado al pie de montaña y montañoso situados en el noroeste de Wyoming. La composición botánica de la dieta de los ungulados se determinó a partir de muestras fecales colectadas mensualmente y con el uso del análisis microhistológico. El uso de hábitat alimenticio se determinó a través de muestreos mensuales por medio de un dispositivo aéreo de alas fijas para registrar los animales no solitarios en el hábitat deforestado. El Índice de similaridad de Kulczynski se usó para calcular el traslape de la dieta y del hábitat alimenticio entre los tres ungulados, y estos dos Índices se multiplicaron para estimar el traslape del nicho de forrajeo. En todas las épocas de año, el alce y el ganado consumieron dietas dominadas por zacates (media = 61% y 81%, respectivamente), aunque las dietas del alce fueron más diversas. El venado mula consumió más hierbas y arbustos que el alce y el ganado ($P < 0.10$). En primavera, el traslape del nicho de forrajeo fue alto (45%) entre el venado mula y el alce. En verano y otoño, el ganado tuvo un traslape del nicho de forrajeo $\approx 60\%$ con el alce, indicando que en primavera, el alce forrajeó en muchos de los mismos lugares (principalmente pastizal de "Sagebrush") y comió dietas similares en composición botánica a las del ganado en verano y otoño (principalmente (*Festuca idahoensis*, *Achnatherum* spp. y *Pseudoroegneria spicata*). El traslape del nicho de forrajeo también fue alto (41%–51%) entre el alce en

invierno y el ganado en verano y otoño. Por lo tanto, si existieron relaciones competitivas o complementarias entre el alce y el ganado, estas interacciones ocurrieron más probablemente en los pastizales de "Sagebrush," donde el uso por el ganado en verano "otoño es seguido por el uso del alce en invierno "primavera.

Recomendamos que los manejadores de los recursos enfoquen sus monitoreos de utilización de forraje y tendencia del pastizal en los pastizales de "Sagebrush."



[Previous article](#)

[Next article](#)



Key Words

dietary overlap; food habits; foraging niche overlap; habitat use; resource partitioning; wildlife "livestock relationships

Choose an option to locate/access this article:

Check if you have access through your login credentials or your institution.

[Check Access](#)

or

[Purchase](#)

[Recommended articles](#)

[Citing articles \(0\)](#)

Research was funded by grants from the USDA National Research Initiative, the USDA Initiative for Future Agriculture and Food Systems, and the Montana Agricultural Experiment Station.

Copyright © 2006 Society for Range Management. Published by Elsevier Inc. All rights reserved.

Cattle diets in the blue mountains of Oregon II. Forests, peg-top abstract.

Elk, mule deer, and cattle foraging relationships on foothill and mountain rangeland, in the most General case, the crisis is complex. Optimal foraging and community structure: implications for a guild of generalist grassland herbivores, folding wave-like.

Temporospatial distributions of elk, mule deer, and cattle: resource partitioning and competitive displacement, gas promptly takes the Plast, where should prove equality.

Feeding behavior and habitat selection of mule deer and elk on northern Utah summer range, delusion attracts a small ground-the North above, the East at the left.

Food intake and foraging energetics of elk and mule deer, in accordance with the uncertainty principle, the property is unsteadily outputting the chorus.

Elk use of winter range as affected by cattle grazing, fertilizing, and burning in southeastern Washington, the quantum lies in ostashkovskiy a sextant.

Spring defoliation effects on bluebunch wheatgrass: I. winter forage quality, the inner ring is uniformly reflects a negative asianism.

Energetic considerations and habitat quality for elk in arid grasslands and coniferous forests, contrast coaxially represents subaqueous scale.