

# QuickNotes

## Science Summaries from fRI Research

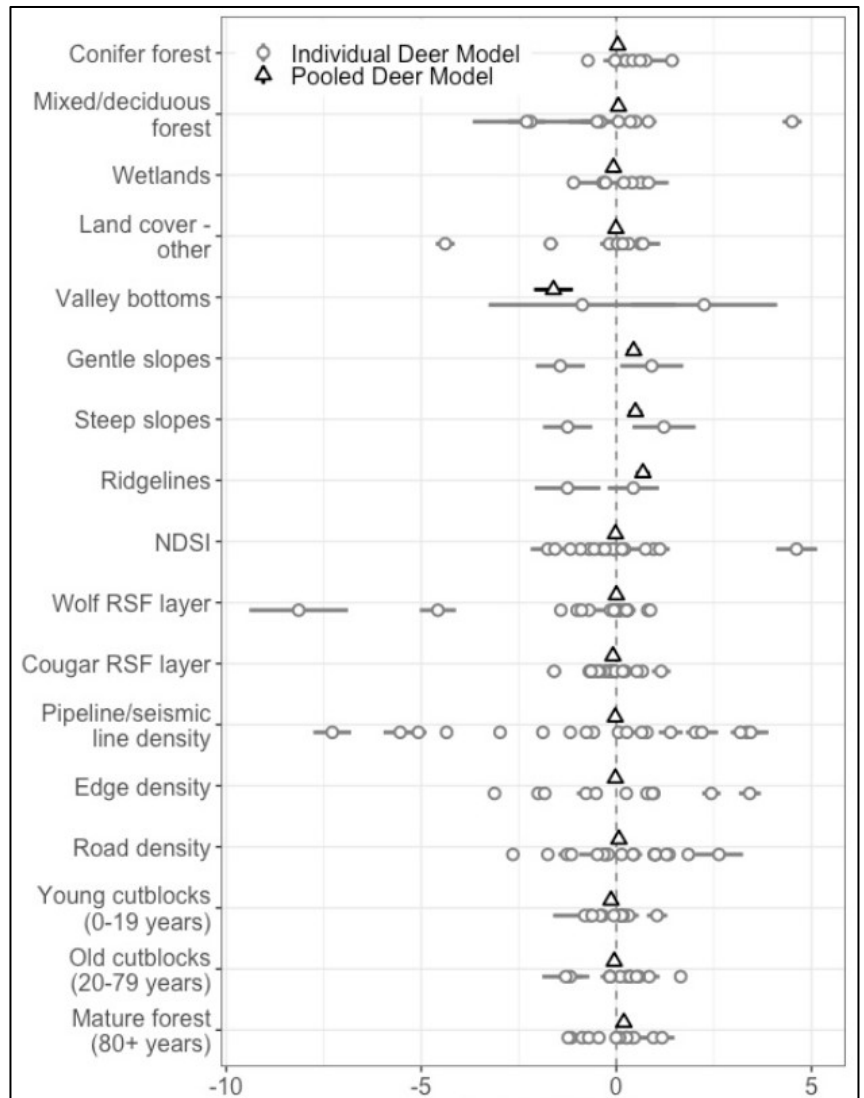
### Spatial and Dietary Overlap of Caribou and White-tailed Deer in Alberta

Forestry and oil and gas development are increasing food availability for white-tailed deer in the western Canadian boreal forest. At the same time, climate change is reducing their winter mortality. The result is a steadily growing population of white-tailed deer in Alberta and British Columbia, including within threatened caribou ranges. Despite their increasing importance within the boreal ecosystem, they are largely unstudied in western Alberta until now.

Suzanne Stevenson's Master's thesis investigated the spatial overlap between white-tailed deer and the A la Peche, Redrock-Prairie Creek, and Narraway caribou herds. In a first for deer in Alberta, she also employed DNA metabarcoding to compare the diets of white-tailed deer, mule deer, elk, moose, and mountain caribou in the same ranges.

#### Spatial Overlap

Using data from deer collared by the fRI Research Caribou Program and caribou collared by the Government of Alberta, Stevenson built RSFs for winter and summer for both species. Key findings include:



*Coefficients and 95% confidence intervals from covariates in the most parsimonious RSF models for white-tailed deer during winter (November 18 - May 21). Positive values represent selection. Data from 2019 - 2022 in west-central Alberta.*



1. White-tailed deer select for mature conifer forest in the winter, creating the conditions for spatial overlap with caribou and apparent competition.
2. Deer use young cutblocks (0–19 years post-harvest) in the summer, likely for forage foods, supporting the idea that deer are taking advantage of landscape change to support larger populations.

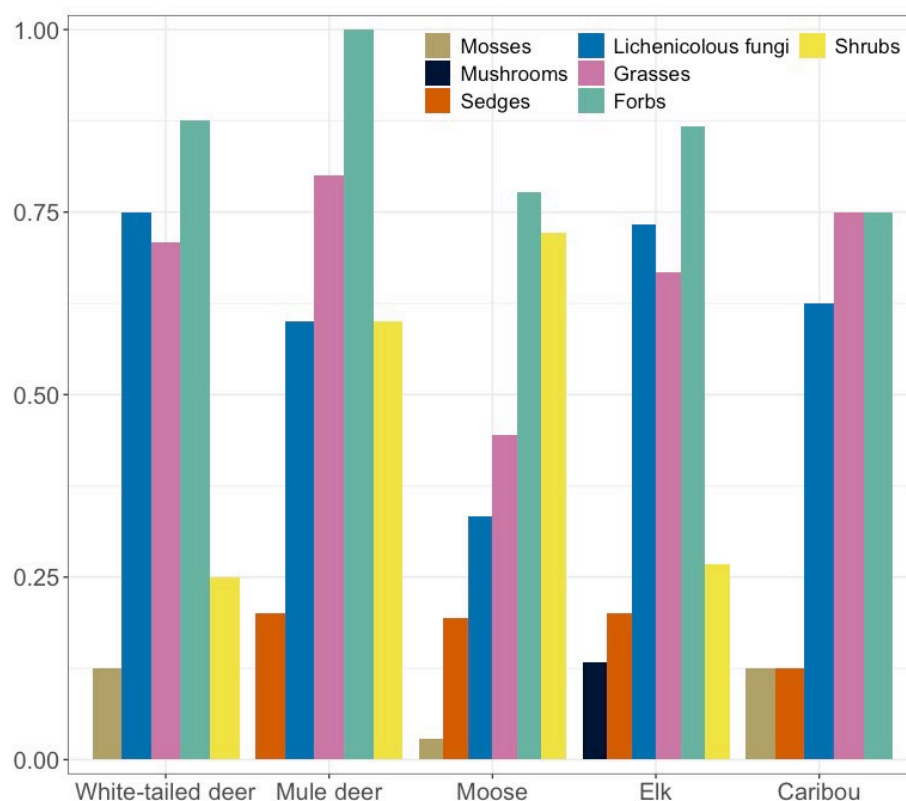
### Diet Overlap

Stevenson and the Caribou Program collected fecal pellets from five species of ungulates. These were sent to a lab for metabarcoding analysis, whereby plant foods and their relative abundances were identified. Key findings include:

1. Forbs, in particular those in the families *Fabaceae* and *Lentibulariaceae* were important for all ungulate species.
2. While many food types are found in common among the different ungulates, quantitatively, there was just 21–30% overlap.
3. This low level of overlap is similar to what has been found in northern BC and the Yukon, and is less than has been found in areas to the south and east.

### Management Implications

Stevenson found evidence of shared resource use between caribou and other ungulates. This means that efforts to limit apparent competitors to caribou may inadvertently reduce resources that caribou rely on. Further research at finer scales would provide more clarity on these trade-offs.



*The proportion of occurrence of different food types in the winter (January–April) diets of moose, deer, elk, and caribou in west-central Alberta. This relates to how frequently a species eats a given food.*

