





Peer Review: Seasonal diets, trace minerals, heavy metals, and body condition: nutritional characteristics of barren ground caribou in Southwest Alaska

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Accepted by 2 of 2 reviewers

Conflicts of Interest

The authors declare no conflicts of interest.

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Reviewer Summaries

Federico Garrido-de León

Initial Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

What did the authors do a good job with?

I believe the authors need to address the revisions made so far more thoroughly (I think the manuscript requires major revisions), as the information presented still lacks clarity, synthesis, and a more in-depth discussion.

How do you think this research will contribute to the field?

Although the authors have not stated it explicitly, their contributions are valuable for advancing the understanding of foraging behaviour in caribou populations and its relationship with environmental factors.

Regarding the study design and methods, what do the authors need to fix or improve upon to be fit for publication?

It is necessary to provide a clearer explanation of how the isotopic analyses were conducted, as well as the animal sedation protocols used. Additionally, more detail is needed regarding the number of animals sampled, the sampling methods, and the rationale for using different tissues for isotopic analysis. Finally, the relationship between body condition, trace minerals, and health is not clearly explained and requires further clarification.

Regarding the analysis and interpretation of their findings, what do the authors need to fix or improve upon to be fit for publication?

The authors should interpret more consistently the relationship between the sampled resources and the mixing models used. Additionally, they should elaborate on the significance of the differences in carbon and nitrogen values (for example, C₃ vs. C₄ plants in relation to carbon variation).

Is there anything else you think the authors need to fix in their article to be fit for publication?

The authors should revise the manuscript to synthesize information more effectively and restructure the text to guide the reader more clearly. Many paragraphs could be merged, and the overall flow and organization of content would benefit from reordering to improve readability and coherence.

Do you have any concerns about the ethics of this research?

Although the authors present the capture and handling protocols, it is important to provide detailed descriptions of the sedation and anesthesia procedures used for caribou.

Do you believe the article, in its current form, is fit for publication?

This paper needs major revisions and another round of peer review

Revised Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No



How well did the authors respond to your comments?

5/5

What - if any - feedback do you feel the authors did not adequately respond to?

none, they have responded satisfactorily

Based on your review, what should happen next?

This paper is ready for publication

Would you like to be listed as a Collaborator on the final publication?

Yes, please list me as a Collaborator

Matteo Rizzuto

Initial Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

What did the authors do a good job with?

The authors did a good job with introducing the manuscript's research question, as well as with most of the methods' descriptions

How do you think this research will contribute to the field?

This manuscript has the potential to expand our current knowledge of caribou nutritional ecology, and in particular, on how the forage for key elemental nutrients. I can see myself referencing this work in the future, particularly as the focus on multiple elements sets it apart from many other works that only measure carbon, nitrogen, and phosphorus.

Regarding the study design and methods, what do the authors need to fix or improve upon to be fit for publication?

The study design was good and well thought out. The methods need some improvement to increase the level of detail provided for some of the data collection, particularly regarding the plant samples. As well, the statistical analyses need to be described in much more detail. All of these edits are necessary to ensure transparency and reproducibility of the results presented in the manuscript.

Regarding the analysis and interpretation of their findings, what do the authors need to fix or improve upon to be fit for publication?

The analyses need to be described in much more detail in the manuscript and would benefit from a detailed description in an electronic supplementary material. The interpretation of the results also needs to be improved. In my reading, it seemed that the authors picked some results to focus on and left other results unexplained or only cursorily mentioned them. The authors also need to do a better job of placing their results in the context of our current knowledge of caribou fitness, diet, and their interplay to shape population dynamics

Is there anything else you think the authors need to fix in their article to be fit for publication?

"The authors assembled what looked like a fairly rich dataset, yet the description of it and of the analyses used on it were both fairly limited. As another reviewer suggested, I would encourage the authors to prepare an electronic supplementary material that provides further detail on study design, data collection and processing, analyses, and overall results of the study.



Further, some of the figures were difficult to read and interpret (e.g., Figure 7). As well, the author's conceptual diagram is more table than a diagram.

Both these issues would need to be fixed before publication."

Do you have any concerns about the ethics of this research?

None

Do you believe the article, in its current form, is fit for publication?

This paper needs major revisions and another round of peer review

Revised Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

How well did the authors respond to your comments?

4/5

What - if any - feedback do you feel the authors did not adequately respond to?

My suggestion to more clearly state hypotheses and predictions

Based on your review, what should happen next?

This paper requires minor revisions but does not need further peer review

Would you like to be listed as a Collaborator on the final publication?

Yes, please list me as a Collaborator