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What's in the diet? DNA-based analysis for qualitative and quantitative assessment of animal diet

Groen, K.

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What's in the diet?

DNA-based analysis for qualitative and quantitative assessment of animal diet

1. Quantitative DNA-based diet analysis is influenced by the DNA marker used, altering DNA detectability. Therefore, the use of multiple markers is strongly advised for accurate quantification (**Chapter 2**, this thesis).
2. DNA-based diet analysis is always subject to digestion processes, which are random and challenge quantitative accuracy. Consequently, quantitative results should only be derived from sufficient sample sizes (**Chapter 3**, this thesis).
3. DNA metabarcoding can achieve higher-resolution insights into prey composition, that are otherwise difficult to obtain using traditional methods (**Chapter 4**, this thesis).
4. Qualitative DNA-based diet analysis can reveal spatially varying diet compositions of lions in nature reserves (**Chapters 4 and 5**, this thesis).
5. The strength of qualitative DNA-based diet analysis lies in its ability to obtain large datasets across time and space in a short period, opening up new possibilities for answering ecological questions (Meyer et al., 2020).
6. DNA-based diet assessments should preferably always be complemented with traditional methods to mitigate the risk of biological and technical contamination inherent to genetic analyses (Bonin et al., 2020).
7. The future of quantitative and qualitative diet analysis is geared towards whole-genome sequencing, enabling us to estimate species presence and abundance simultaneously (Andres et al., 2023).
8. Quantitative and qualitative DNA-based assessments of diet will become the new conventional way of studying an animal's diet.

9. Science is like a religion; you can choose not to believe in it.

10. The duration of a PhD should depend on the subject rather than being fixed to a set number of years.

Kevin Groen

Leiden, 9 October, 2024