Foraging strategies of grizzly bears: Insights from stable isotopes in a dynamic ecosystem

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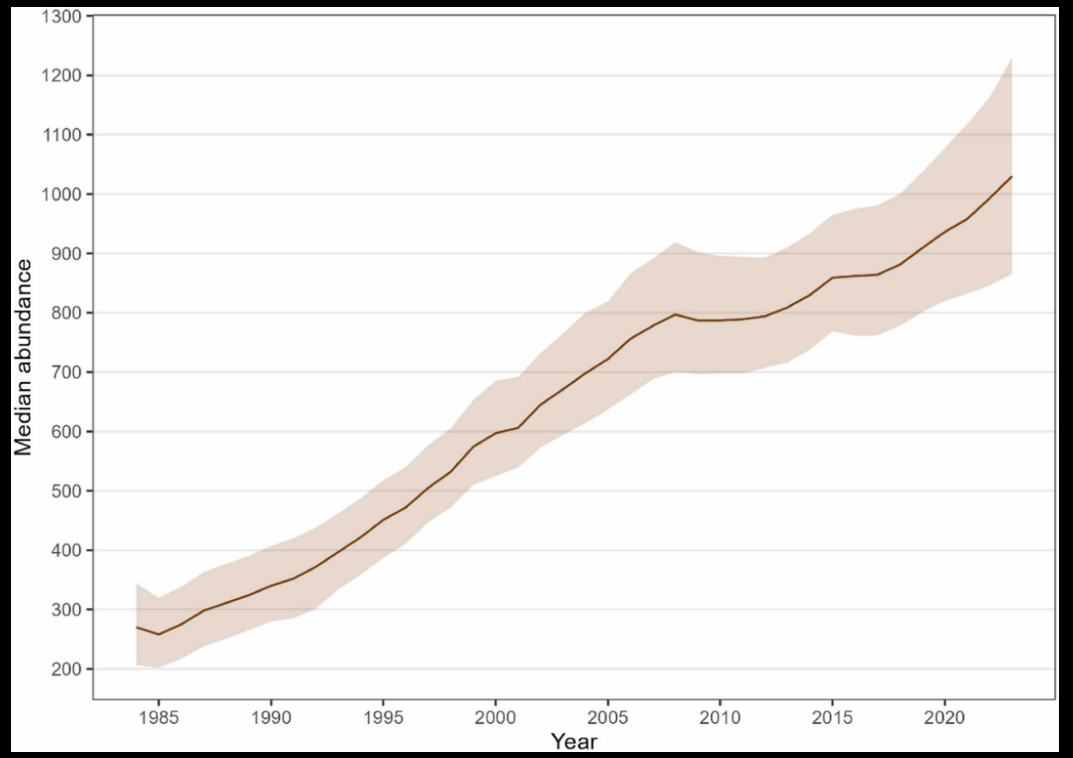
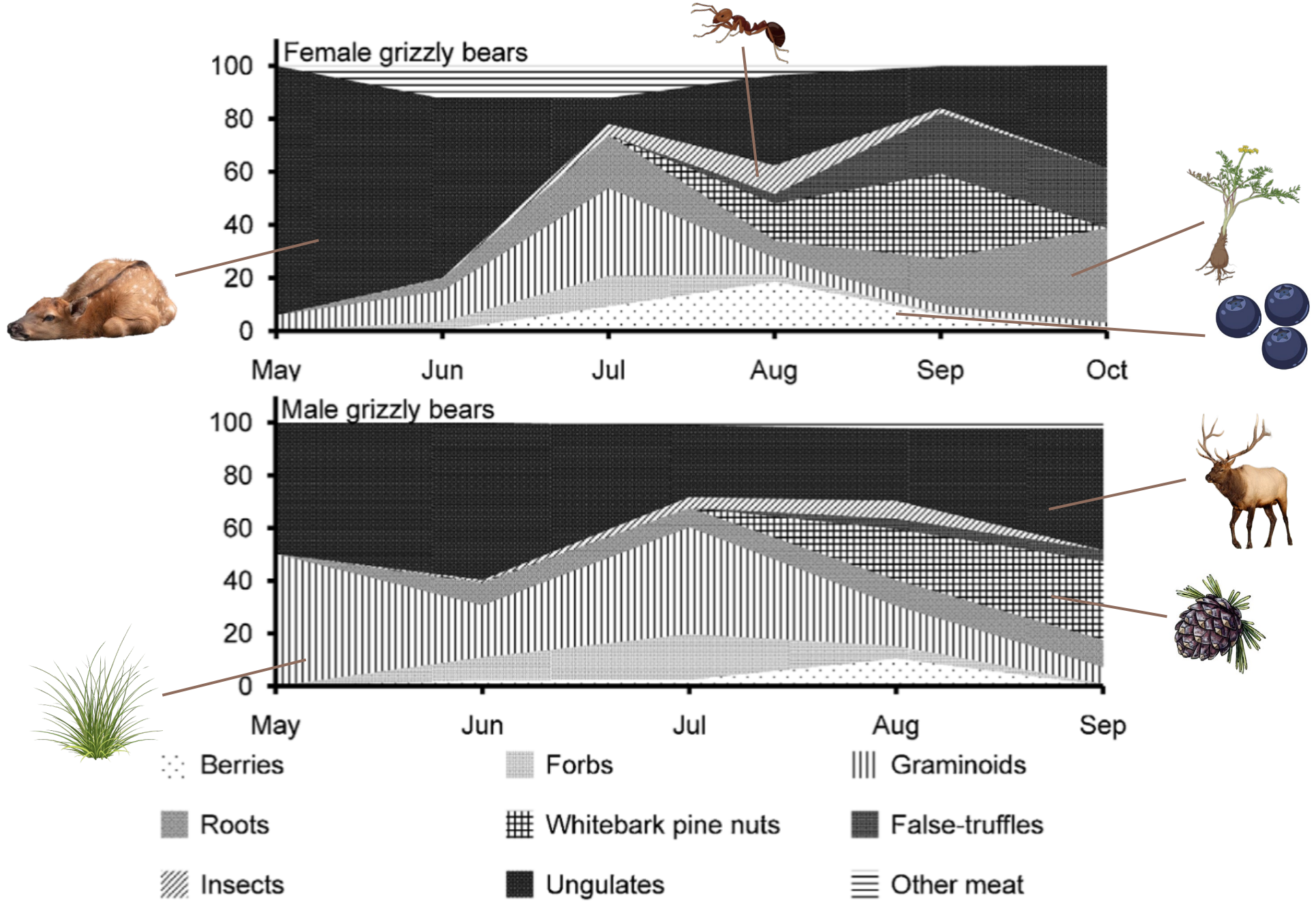


Fig. 5, Gould et al. (2024)

Individual decisions

Population outcomes



NPS, BioRender images

Adapted from Fig. 3, Fortin et al. (2013)

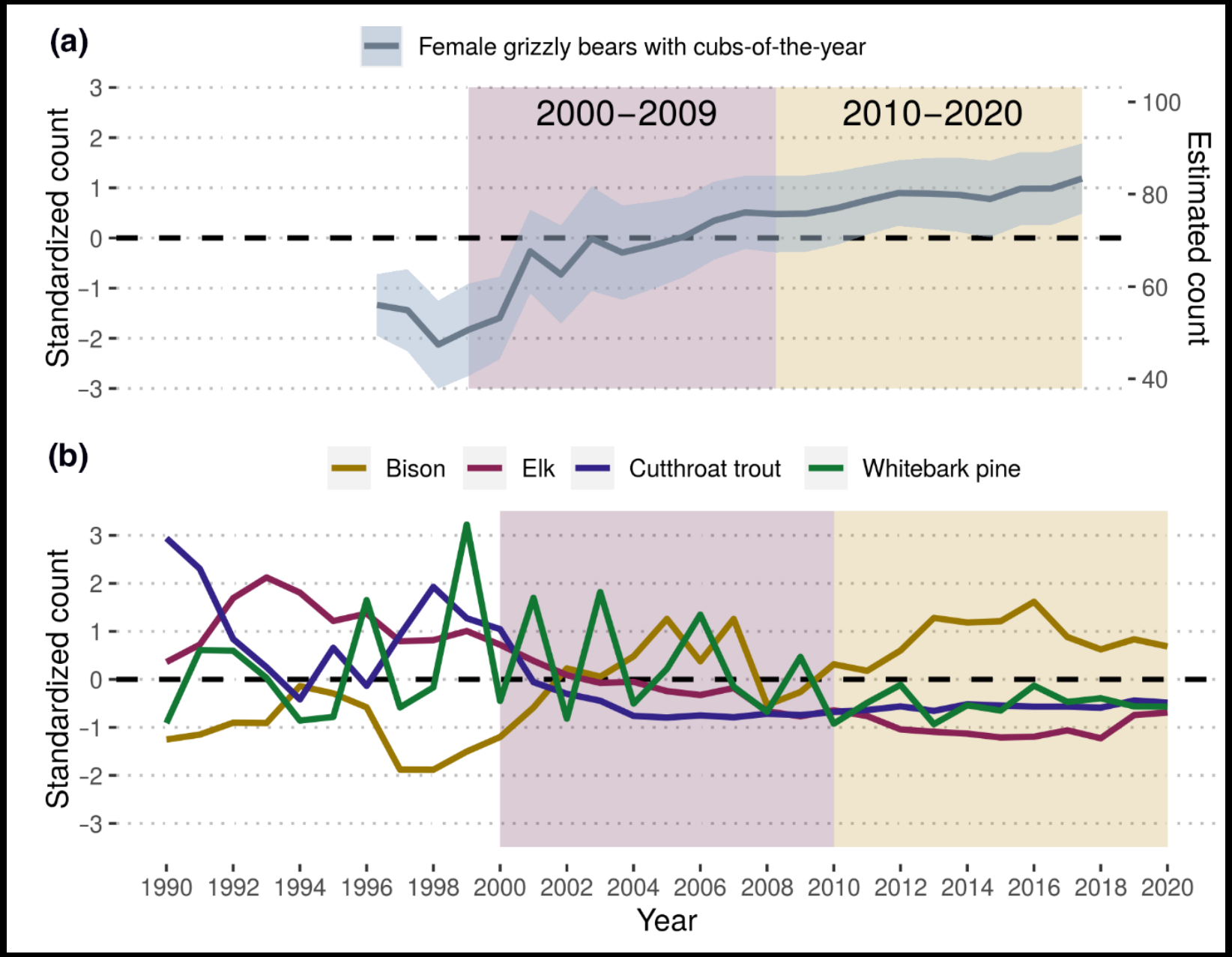


Fig. 1, Corradini et al. (2023)



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Lower survival of dependent young (van Manen et al. 2016)

Smaller home ranges (Bjornlie et al. 2014)

Reduced lean body mass (Corradini et al. 2023)



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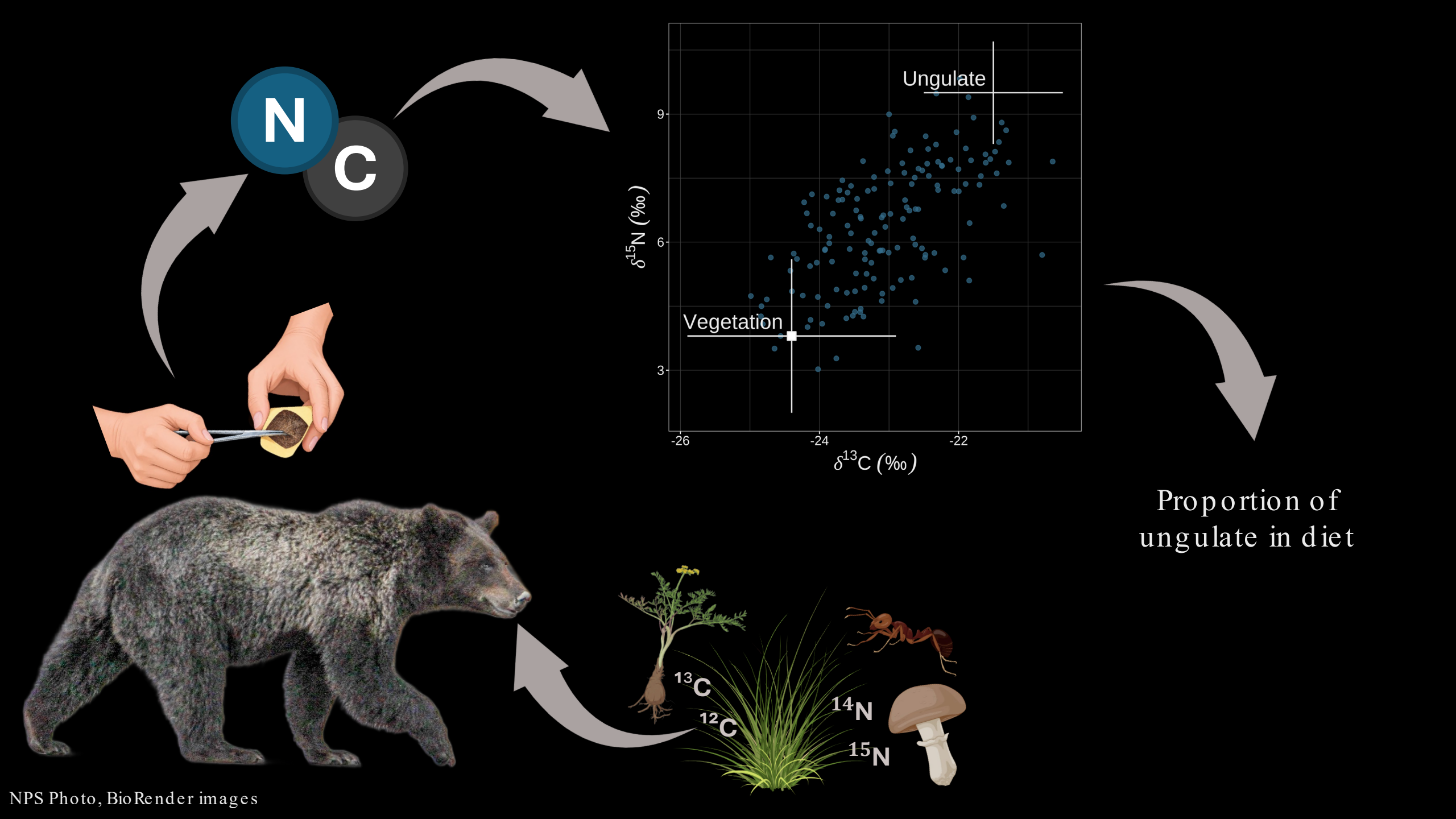
Why does the diet of grizzly bears differ?

How does variation in diet affect body mass?



NPS Photo, BioRender images

Interference Competition

Exploitative Competition



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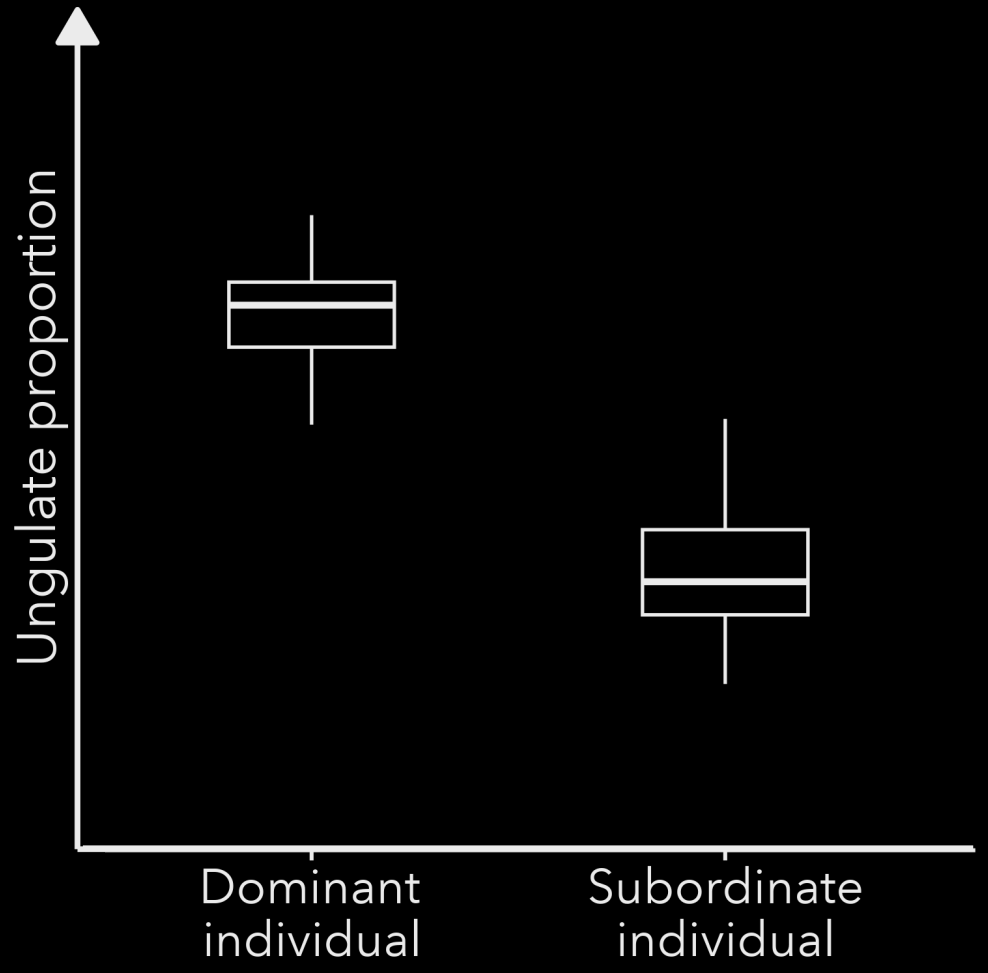
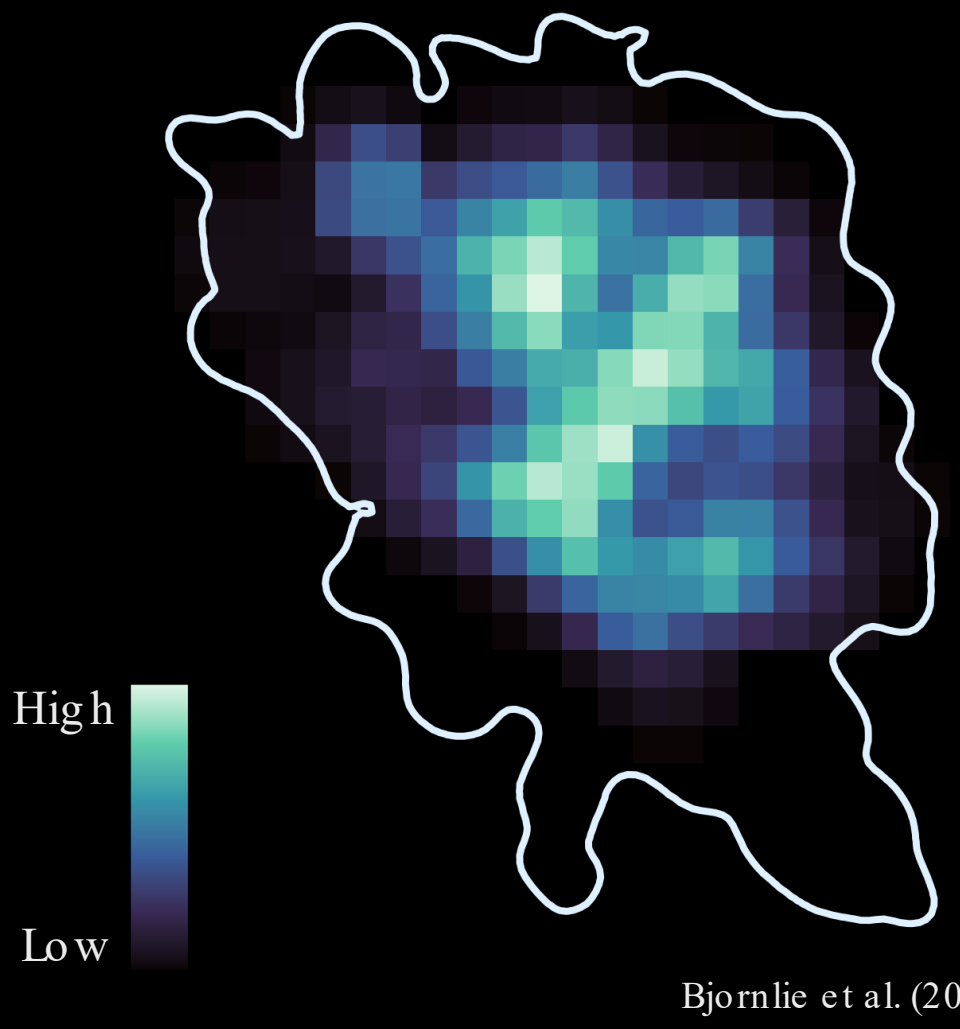
Bear cohort



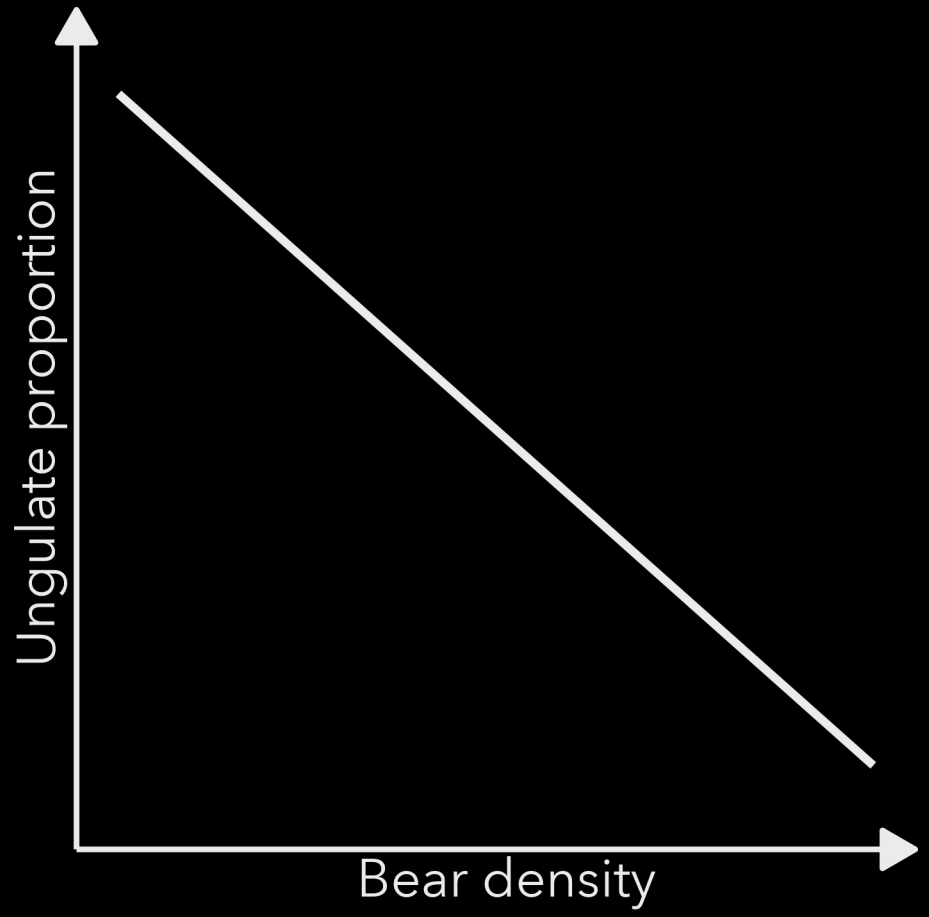
Interference Competition



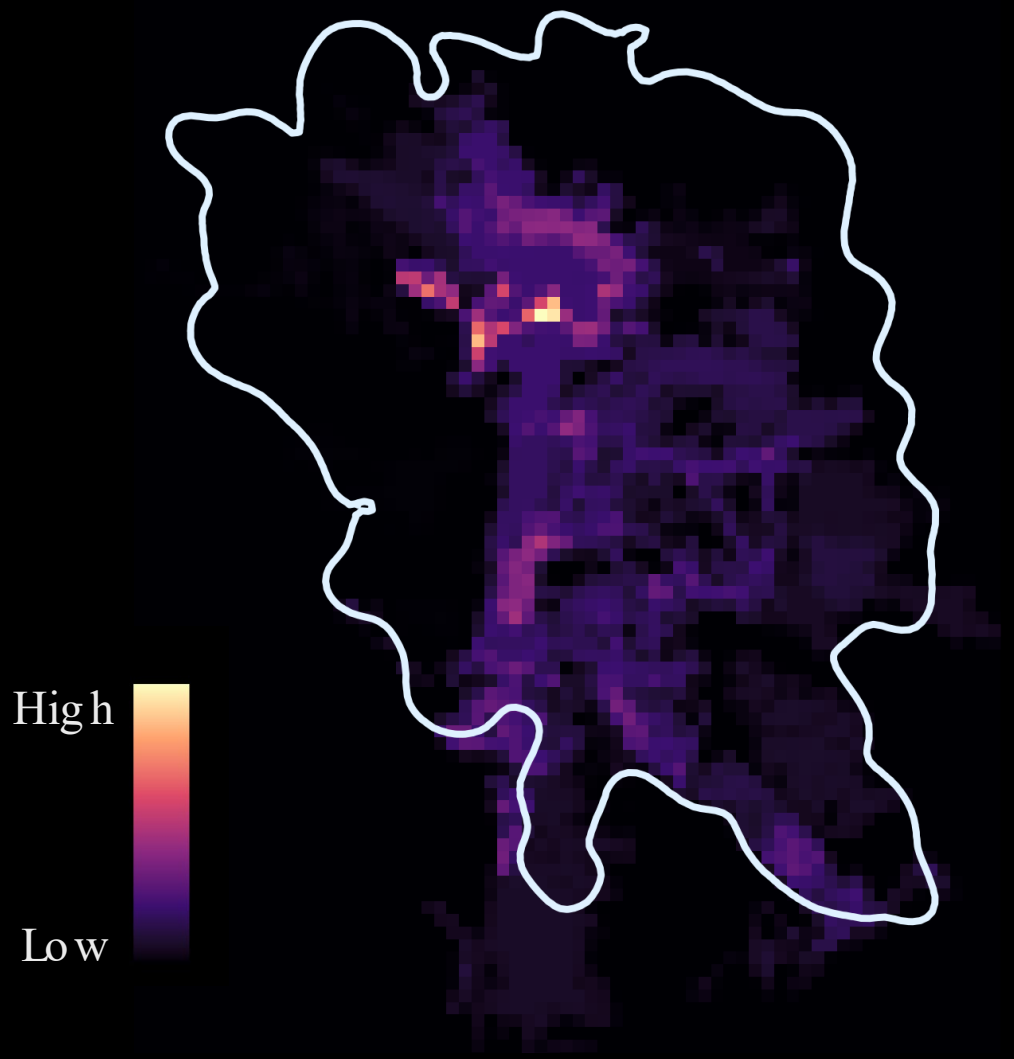
Bjornlie et al. (2014)

Index of grizzly bear density

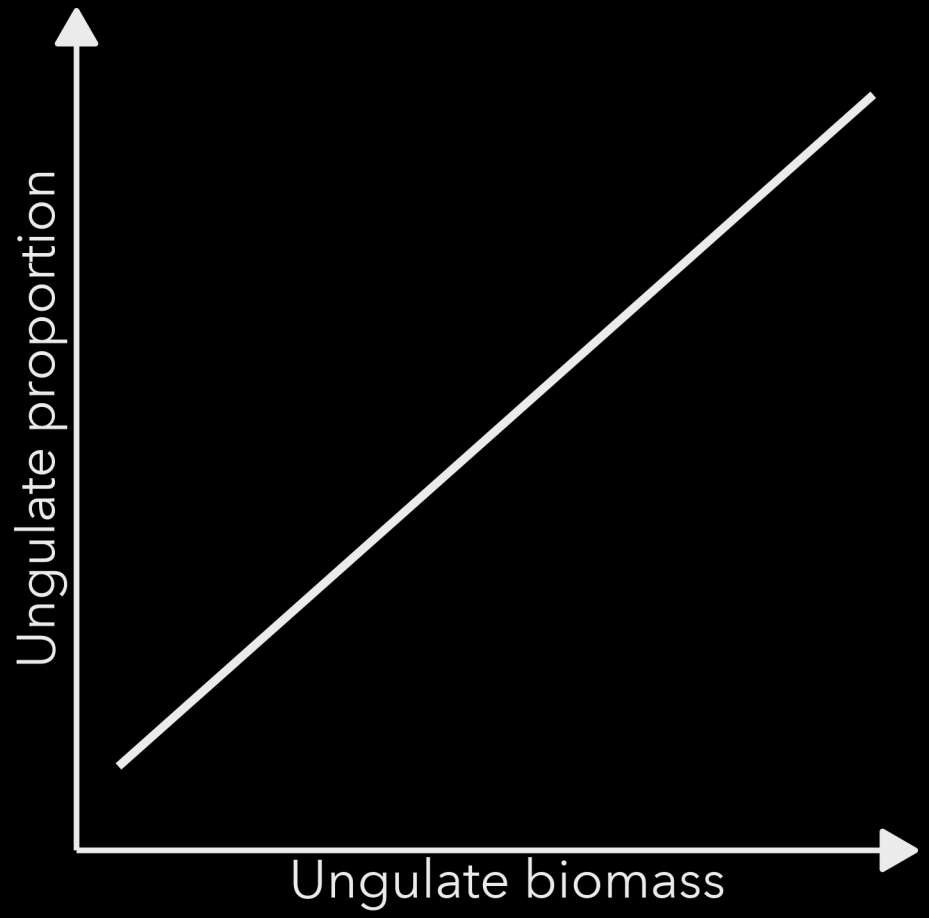
Exploitative Competition



Availability



Index of bison and elk biomass



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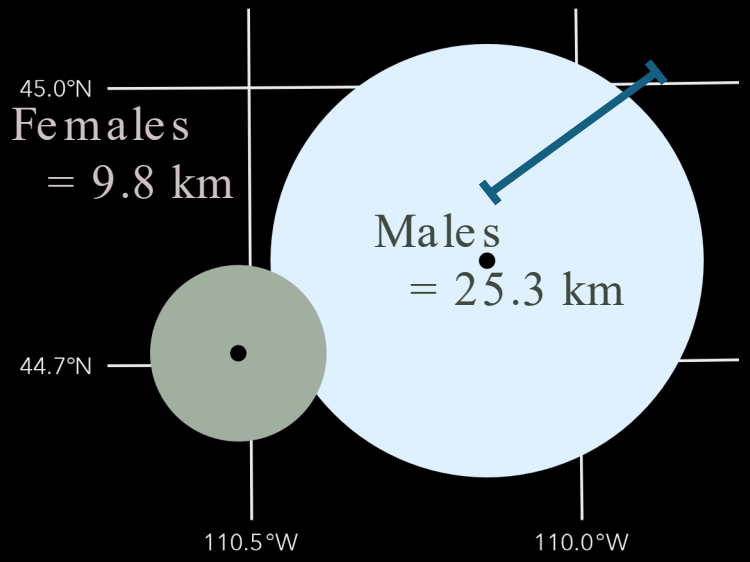

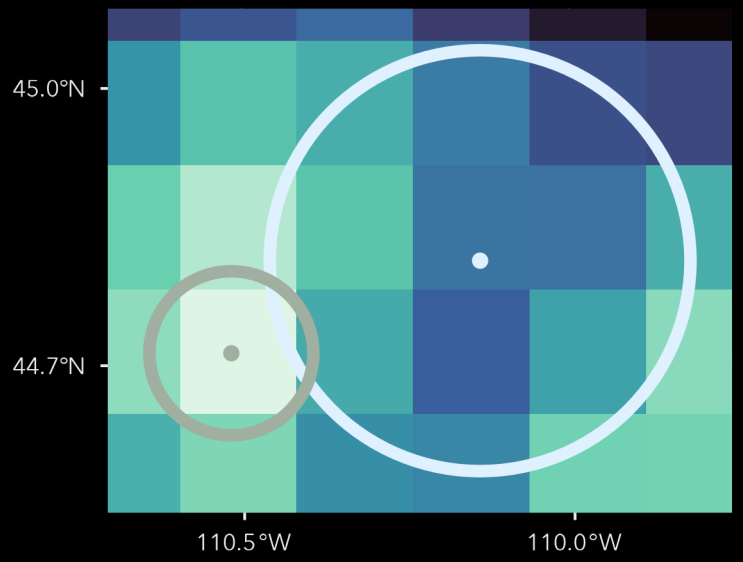

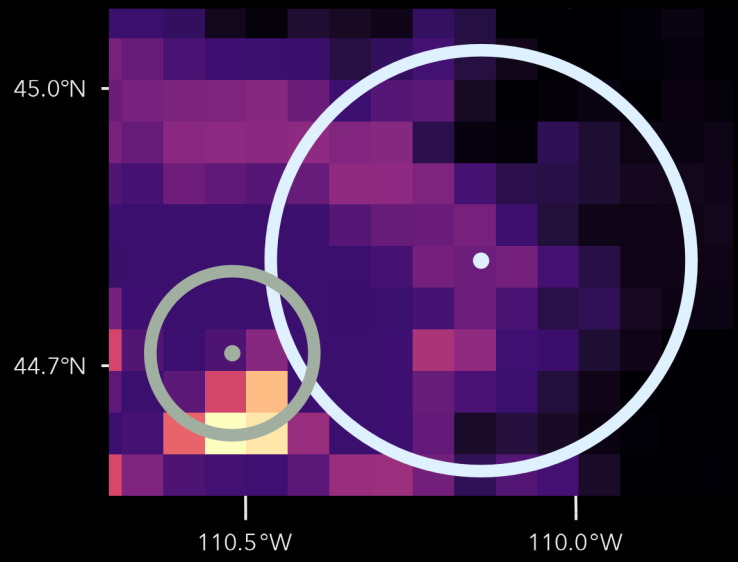

Sampling area defined by grizzly bear use radii

Estimated individual diets and then tested hypotheses with mixed models

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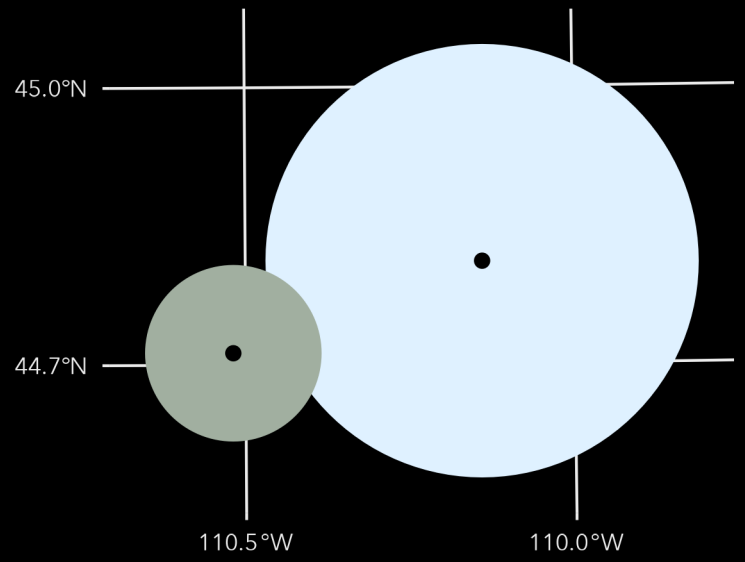
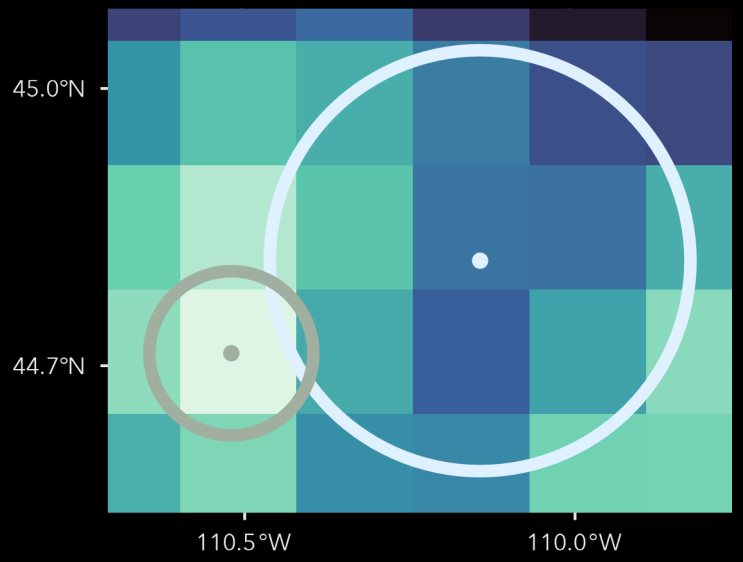
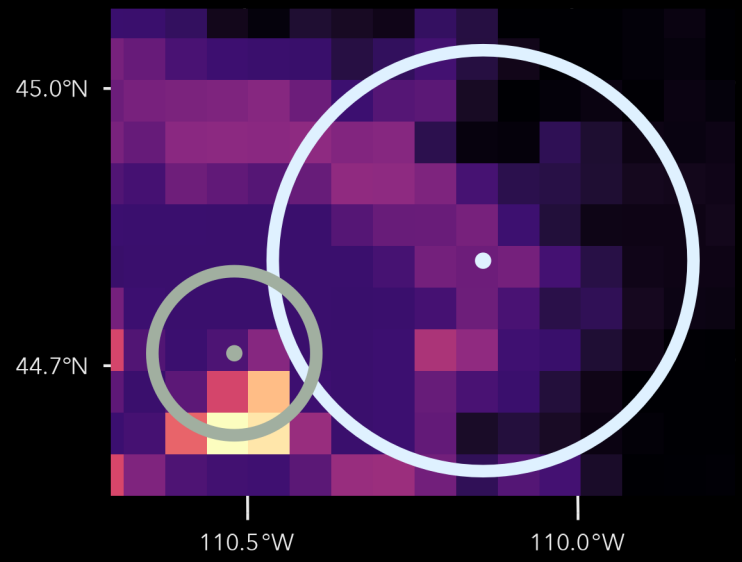
Interference Competition | Exploitative Competition | Availability







Best supported model included interaction between interference and exploitative competition

No evidence of availability influence

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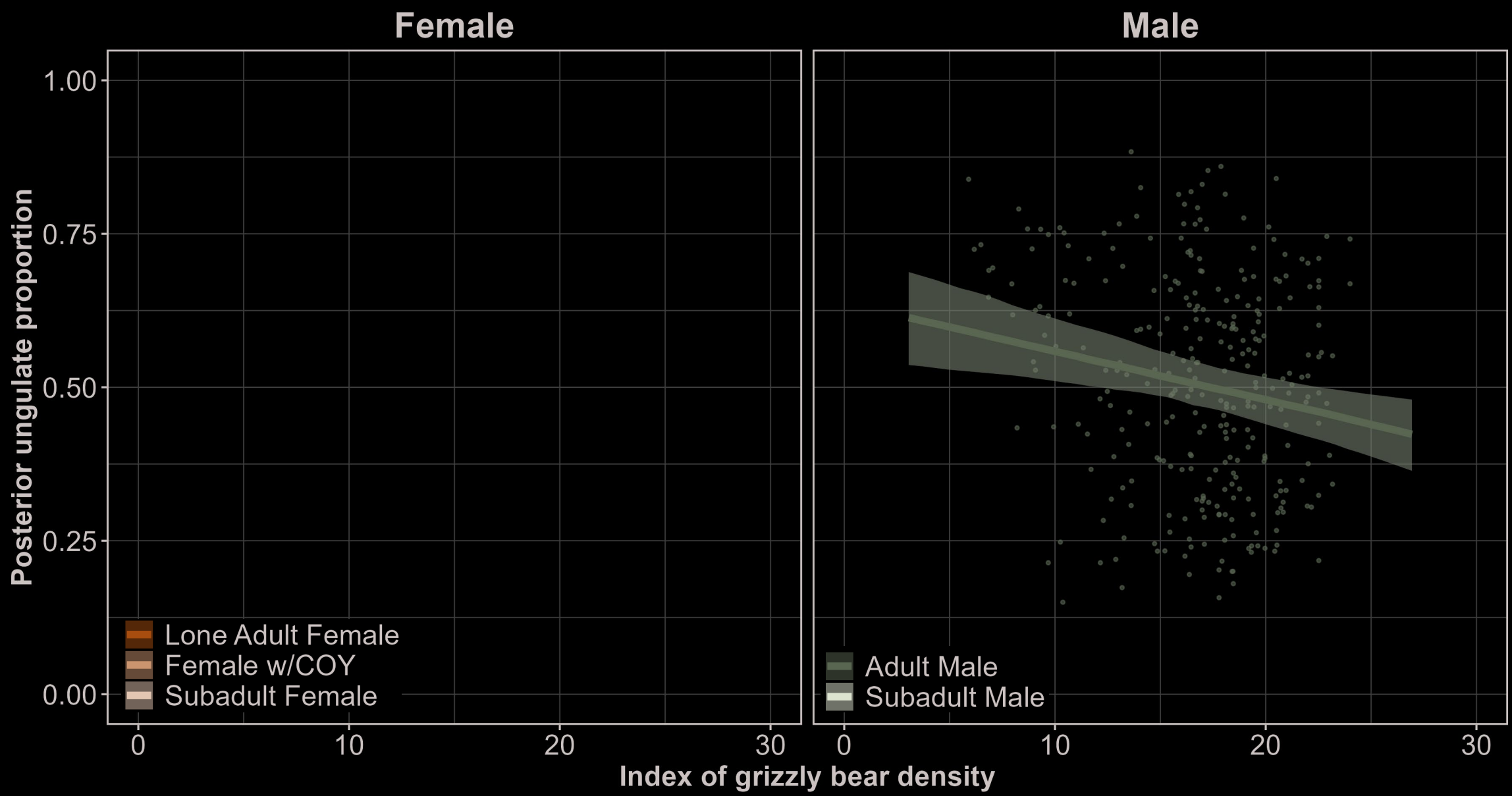

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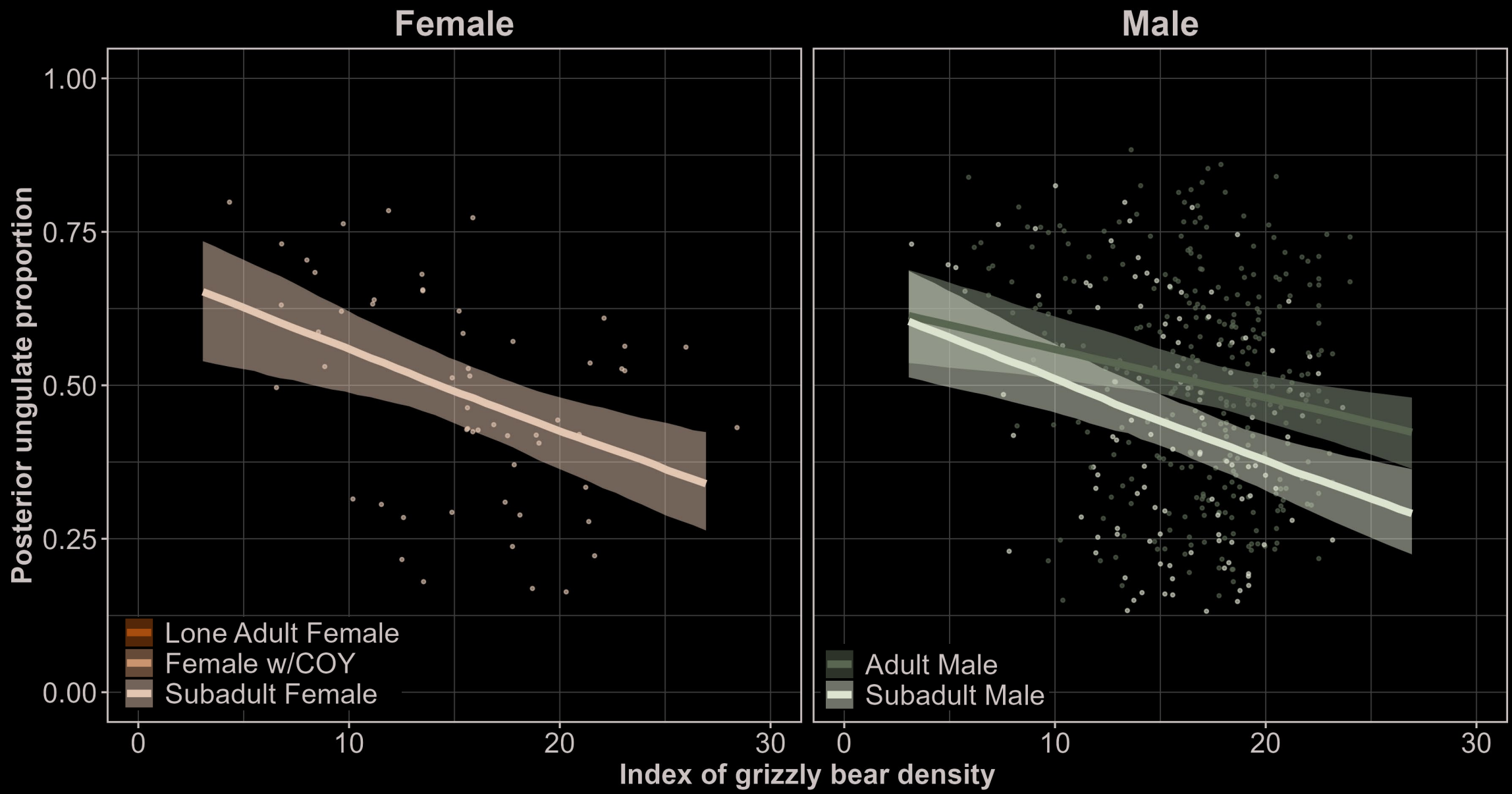

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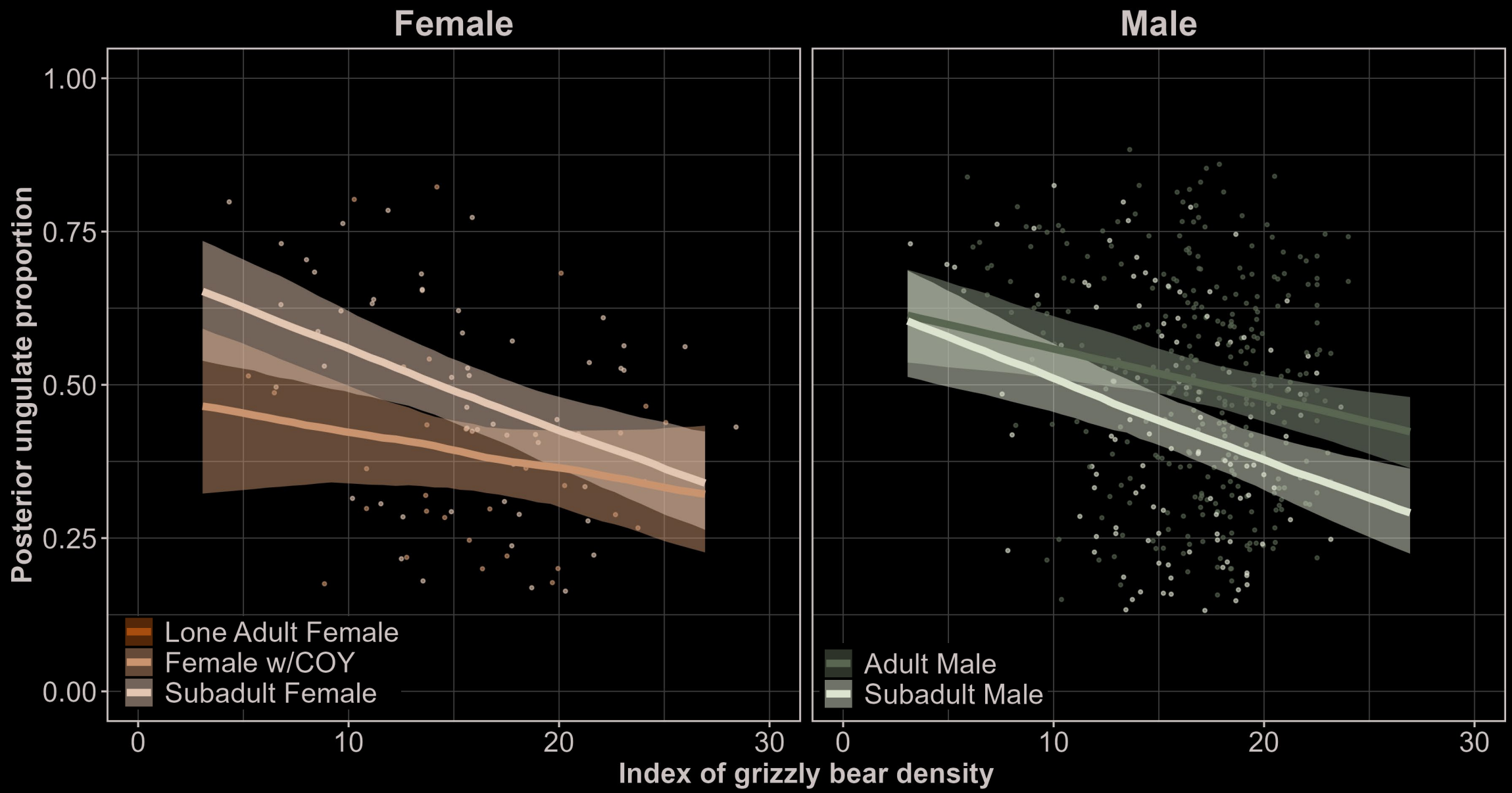

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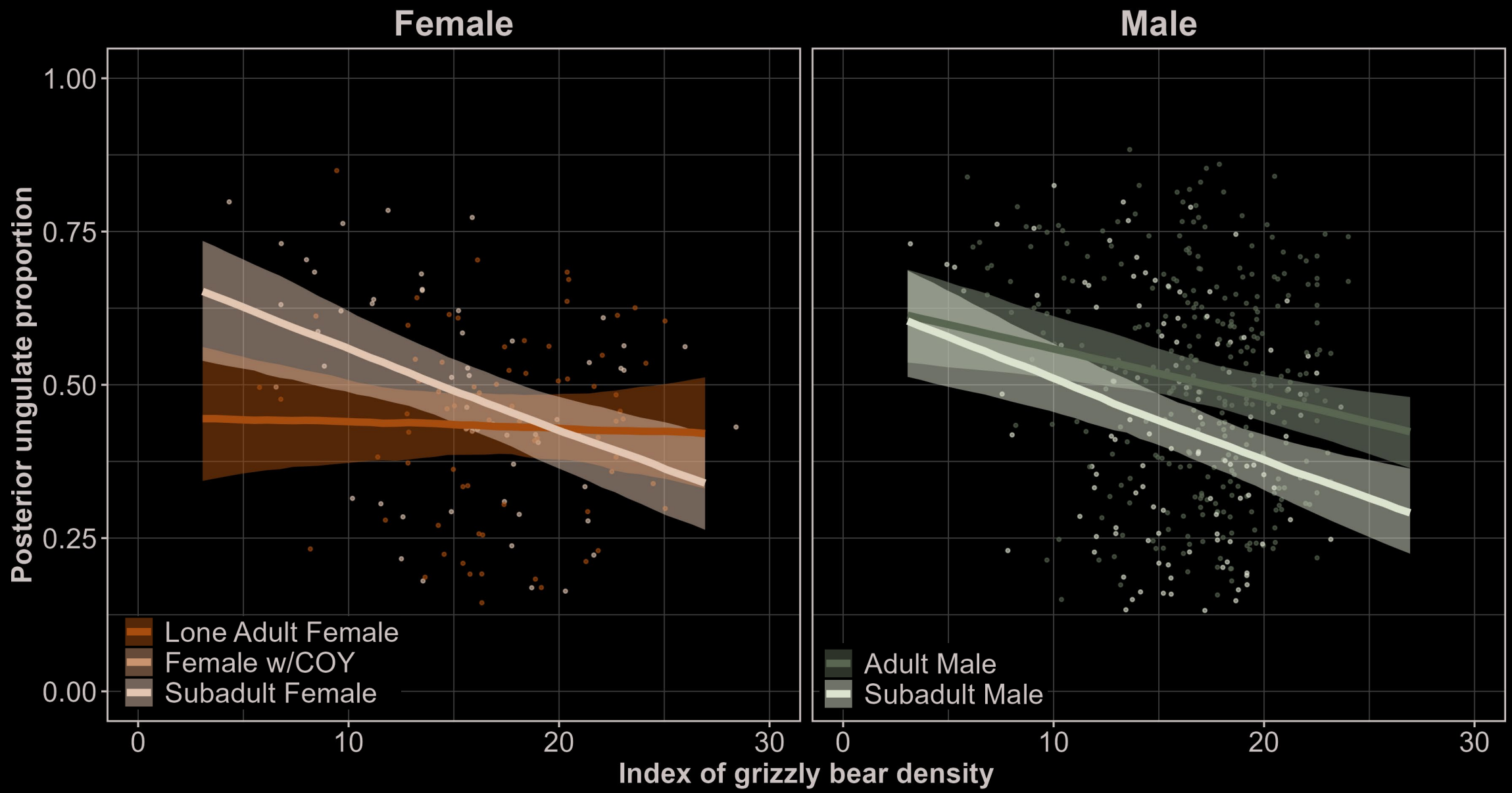

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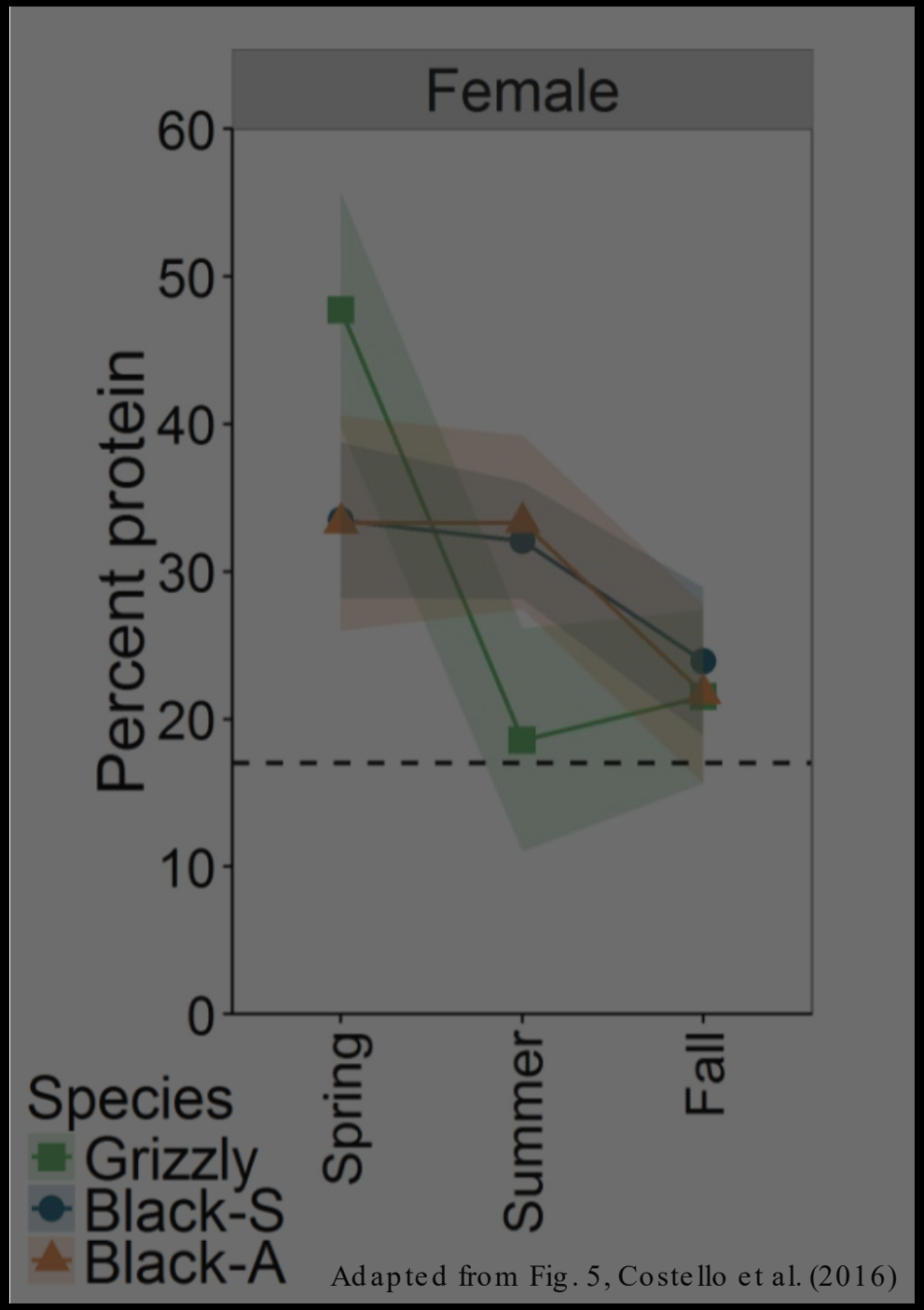

Adapted from Fig. 5, Costello et al. (2016)



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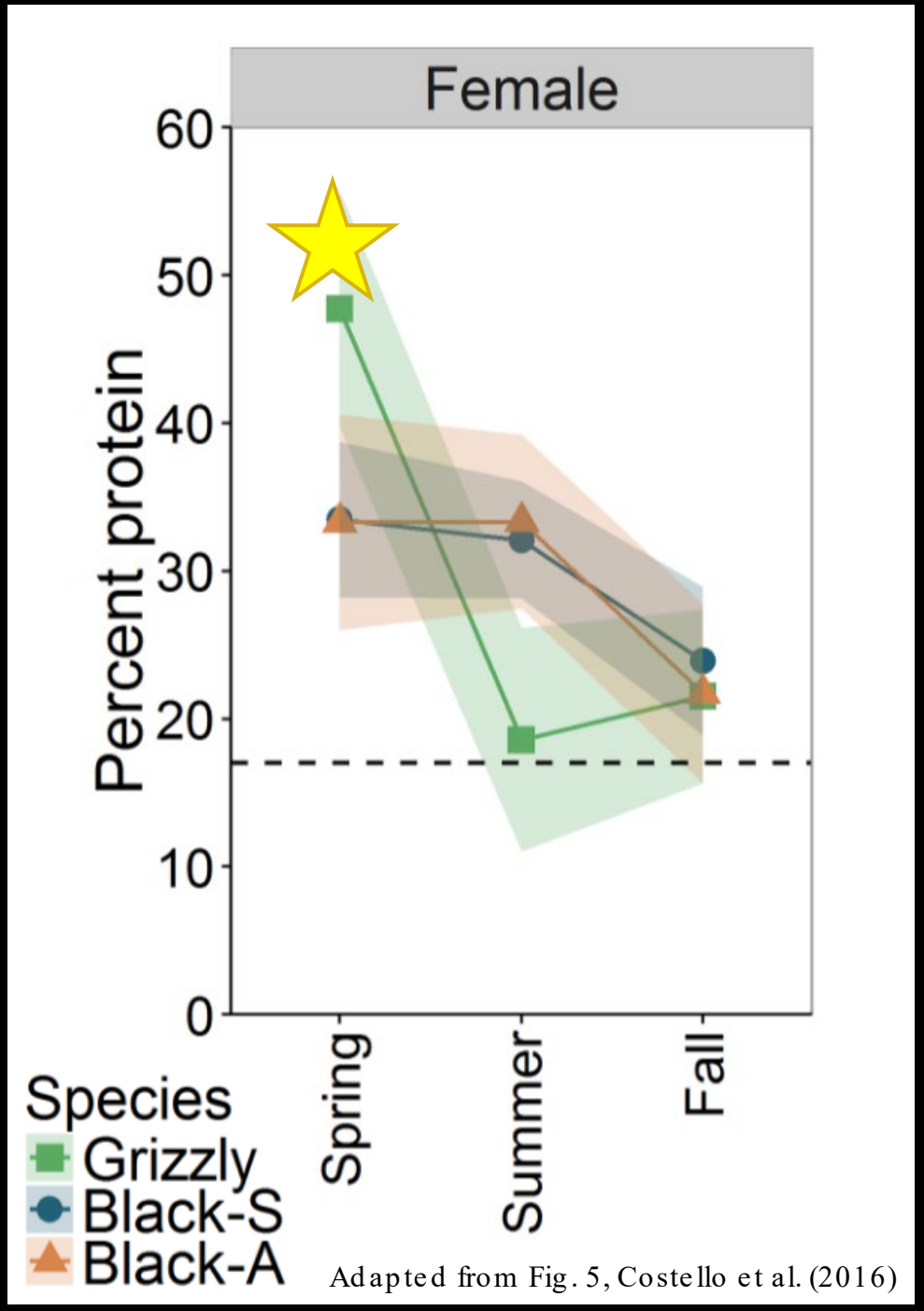

Adapted from Fig. 5, Costello et al. (2016)



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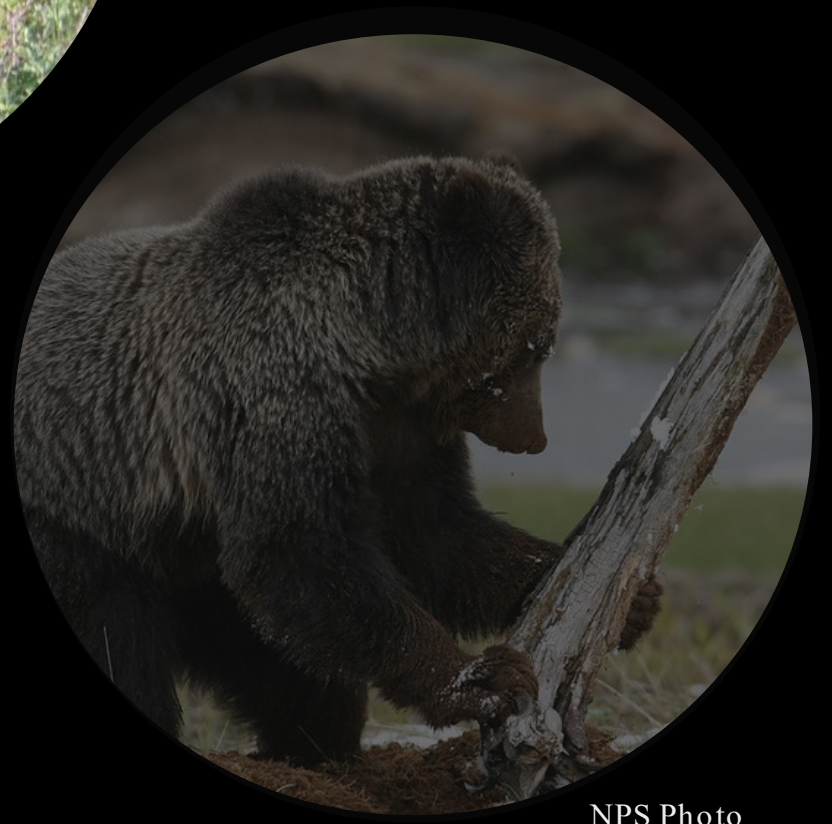

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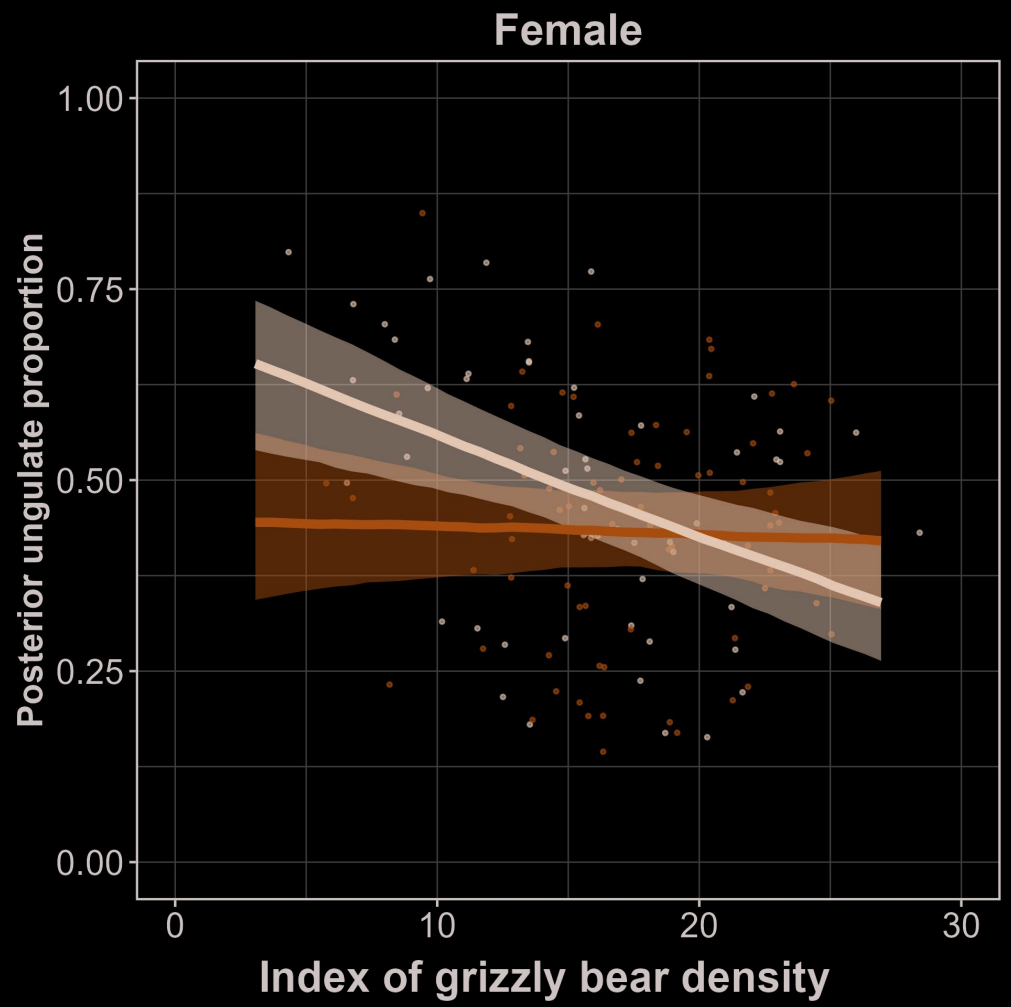

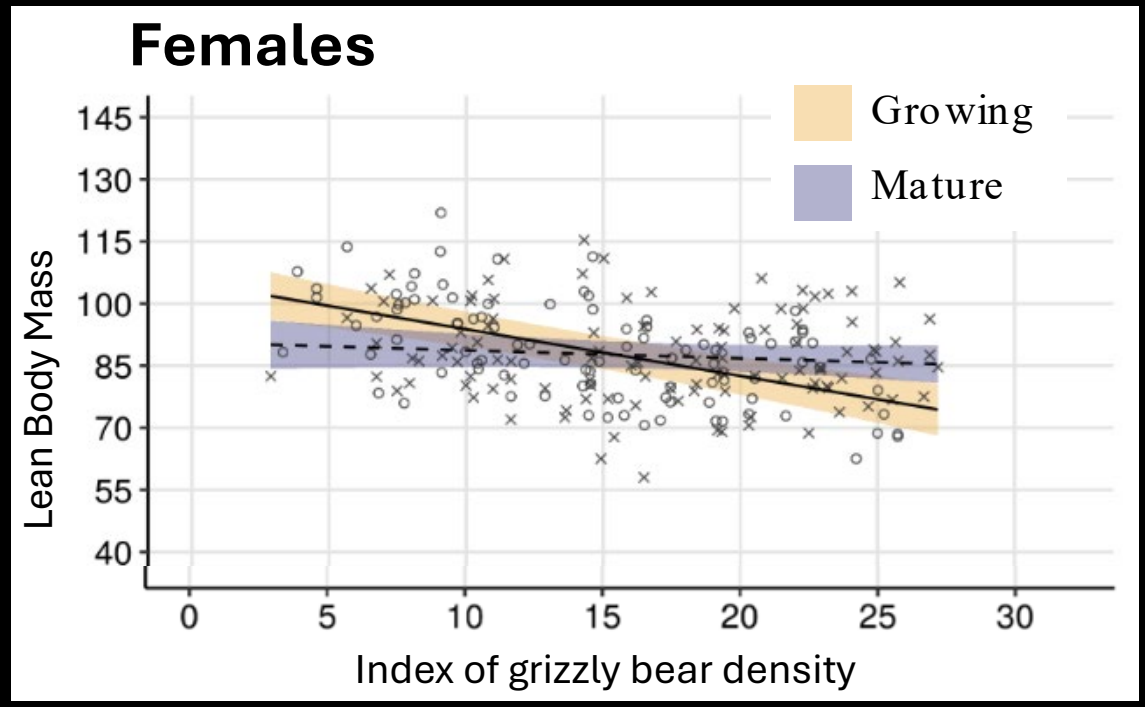

Fig. 4, Corradini et al. (2023)

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How does diet affect lean body mass?



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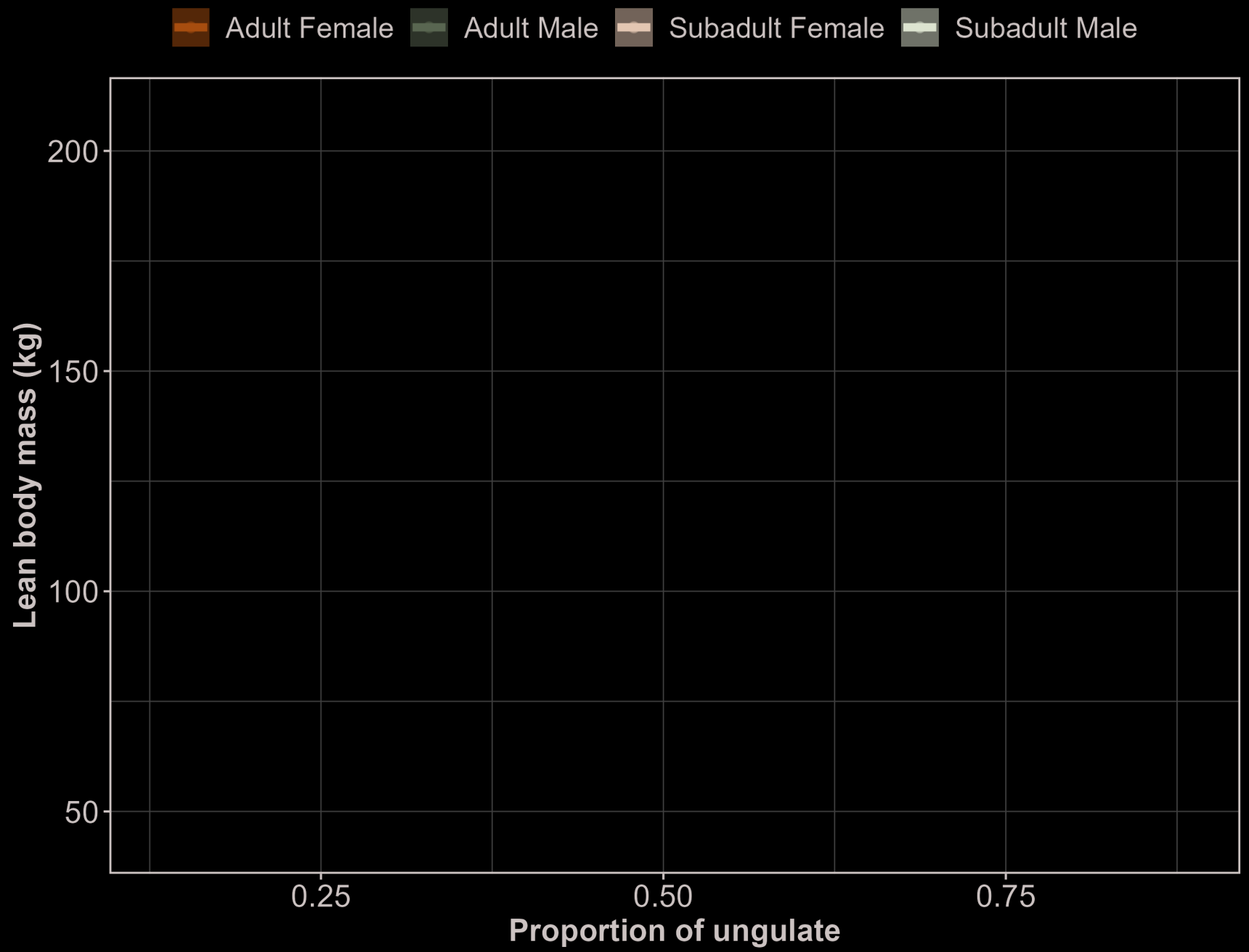
How does diet affect lean body mass?

Diet more strongly predicted lean body mass than the index of bear density

Diet effect was independent of life stage



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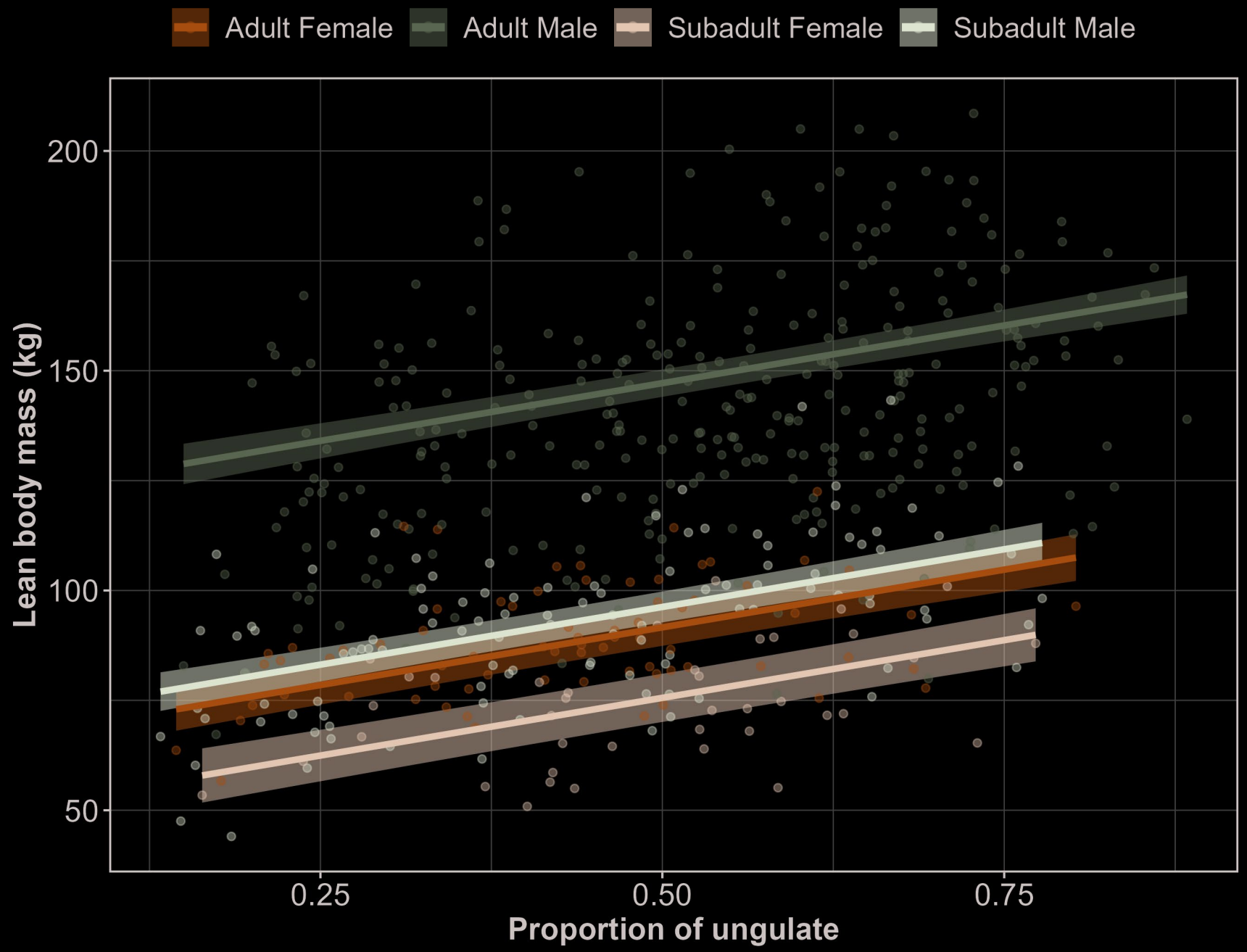

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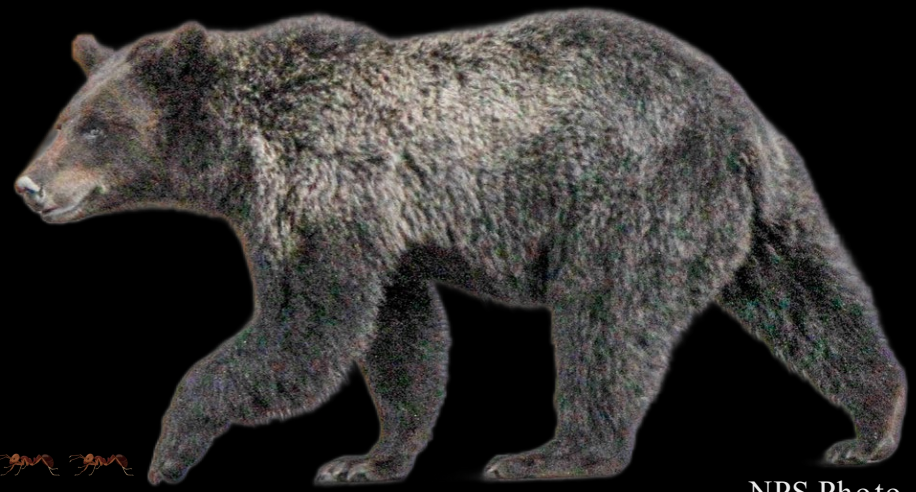
Why does diet differ?



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Interference x Exploitative Competition

Ungulate proportion, mediated by competition, as one mechanism of variation in lean body mass

Acknowledgements

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