

**Revealing Seasonal Dietary Niche Overlap Among Sympatric Large Carnivores using DNA
Metabarcoding**

Biodiversity and Conservation

Jessica R. Patterson¹, Stéphanie Périquet-Pearce^{2,3,4}, Madeline Melton¹, Brennan Peterson Wood¹,
Rubén Portas⁵, Ortwin Aschenborn⁵, Claudine Cloete⁶, Laura E. Peirson⁷, Diana J.R. Lafferty⁷,
James C. Beasley¹

¹University of Georgia, Warnell School of Forestry and Natural Resources, Savannah River Ecology Lab, P.O. Box Drawer E, Aiken, SC 29802, USA

²Ongava Research Centre, Private Bag 13 419, Southern Industrial, Windhoek, Namibia

³Department of Conservation Management, Faculty of Science, George Campus, Nelson Mandela University, Madiba Drive, George, 6530, South Africa

⁴Panthera, New York, NY, USA

⁵Department of Evolutionary Ecology Leibniz Institute for Zoo and Wildlife Research of Berlin, Alfred-Kowalke St. 17, 10315 Berlin

⁶Etosha Ecological Institute, Etosha National Park, Namibia.

⁷Northern Michigan University, Department of Biology, Wildlife Ecology and Conservation Science Laboratory, Marquette, MI 49855, USA.

Corresponding author:

Jessica R. Patterson

University of Georgia, Warnell School of Forestry and Natural Resources, Savannah River Ecology Lab, P.O. Box Drawer E, Aiken, SC 29802, USA

jessypatterson311@gmail.com

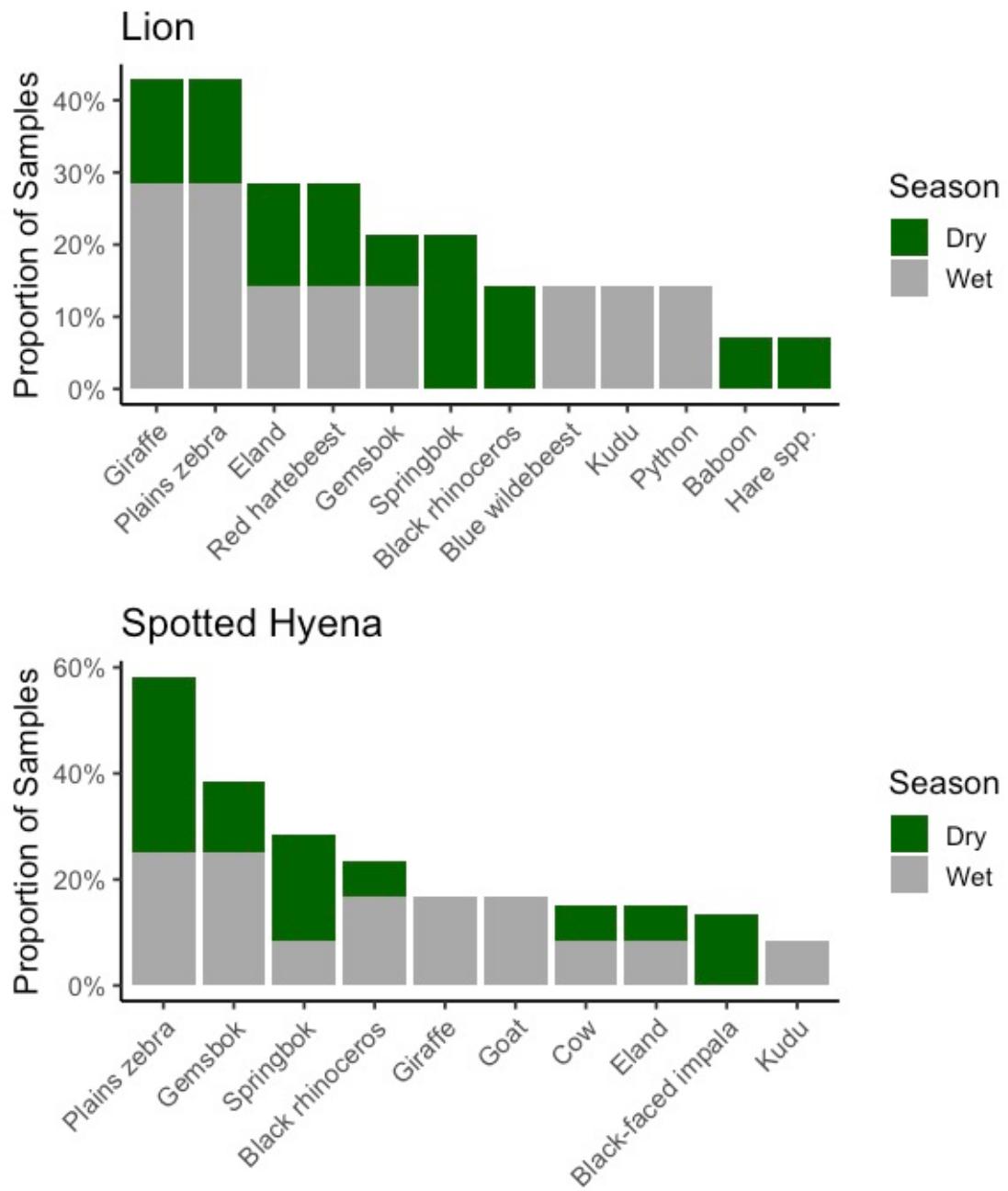


Fig. S1 Seasonal composition of vertebrate prey species detected in the diets of African lions (*Panthera leo*) and spotted hyenas (*Crocuta crocuta*) in Etosha National Park based on DNA metabarcoding. Bars represent the proportion of fecal samples in which each prey species was detected, calculated as the number of unique samples per species and season divided by the total

number of samples for that carnivore and season. Results are shown separately for the dry season (green) and wet season (grey), and prey species are ordered by overall frequency of occurrence from left to right. Only prey species with $\geq 1\%$ relative read abundance were included

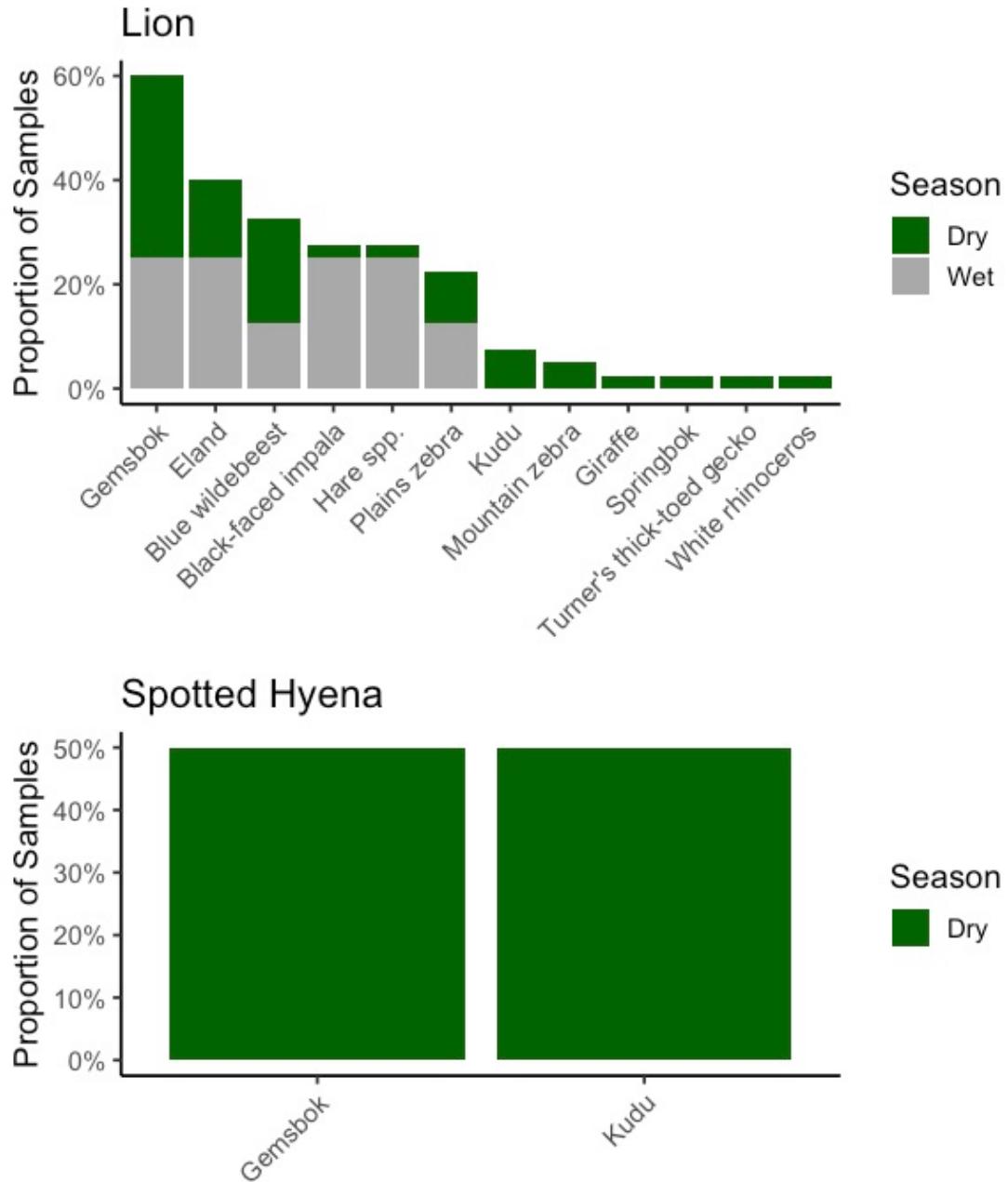


Fig. S2 Seasonal composition of vertebrate prey species detected in the diets of African lions (*Panthera leo*) and spotted hyenas (*Crocuta crocuta*) in the Ongava Game Reserve based on DNA metabarcoding. Bars represent the proportion of fecal samples in which each prey species was detected, calculated as the number of unique samples per species and season divided by the total number of samples for that carnivore and season. Results are shown separately for the dry season (green) and wet season (grey), and prey species are ordered by overall frequency of occurrence from left to right. Only prey species with $\geq 1\%$ relative read abundance were included

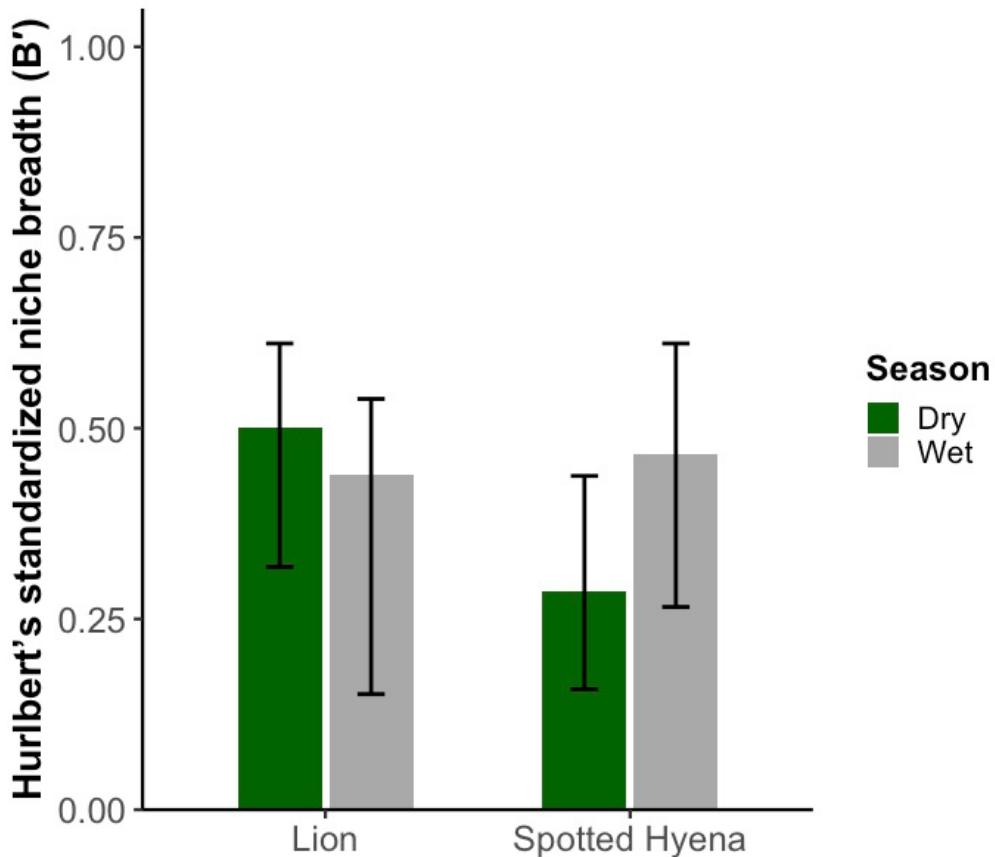


Fig. S3 Seasonal variation in standardized niche breadth (Hurlbert's B') for African lions (*Panthera leo*) and spotted hyenas (*Crocuta crocuta*) in Etosha National Park, in both the dry

(May-October) and wet (November-April) seasons. Bars represent mean dietary breadth based on frequency of occurrence (FOO) of prey species in fecal samples, with error bars showing 95% confidence intervals from 2,000 bootstrap iterations

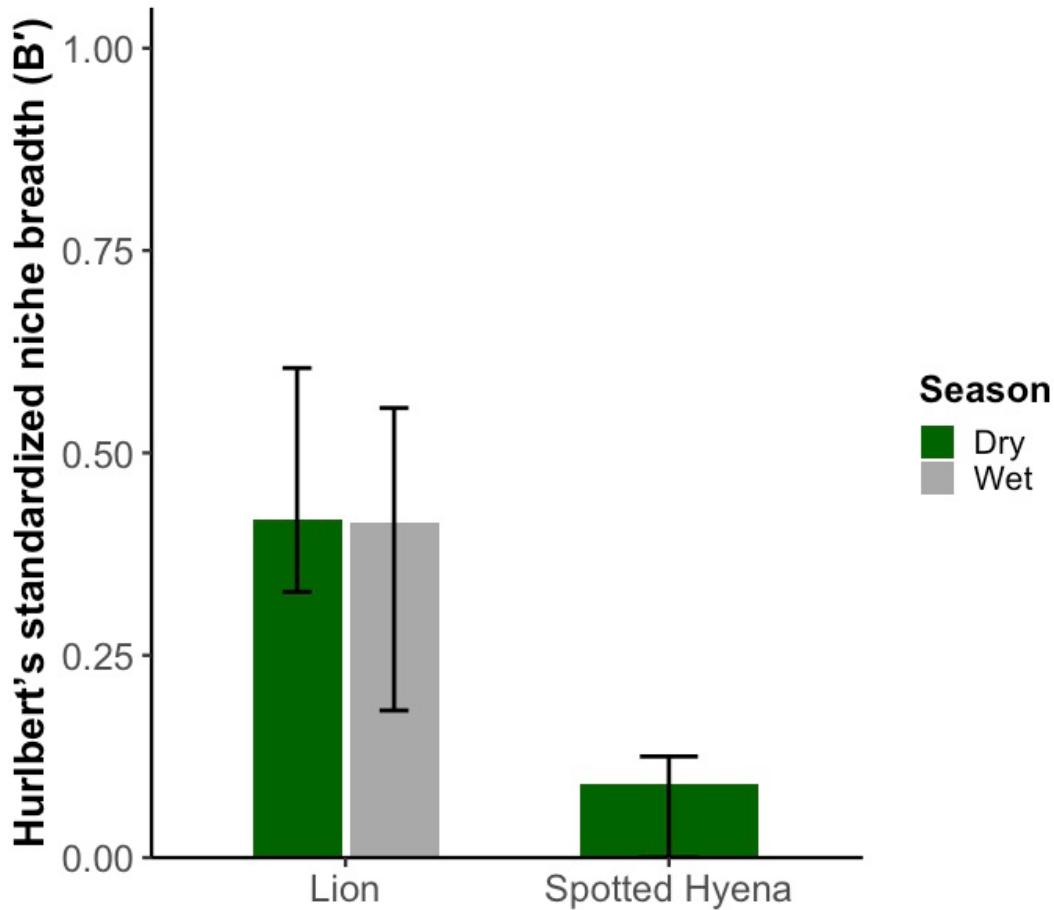


Fig. S4 Seasonal variation in standardized niche breadth (Hurlbert's B') for African lions (*Panthera leo*) and spotted hyenas (*Crocuta crocuta*) in the Ongava Game Reserve, in both the dry (May-October) and wet (November-April) seasons. Bars represent mean dietary breadth based on frequency of occurrence (FOO) of prey species in fecal samples, with error bars showing 95% confidence intervals from 2,000 bootstrap iterations