ON THE NICHE BREADTH OF *LONTRA LONGICAUDIS* (OLFERS, 1818) (MUSTELIDAE: LUTRINAE)

V.A. G. Bastazini\textsuperscript{1,2}

K. S. Sousa\textsuperscript{3}; R. A. Dias\textsuperscript{2}

\textsuperscript{1}PPG - Ecologia, Laboratório de Ecologia de Populações e Comunidades, UFRGS, Av. Bento Gonçalves 9500, Agronomia 90501 - 970, Porto Alegre-RS, Brazil, bastazini@hotmail.com

\textsuperscript{2}Laboratório de Biologia e Ecologia de Cordados, UCPel, Av. Félix da Cunha 412, Centro 96010 - 000, Caixa Postal 402, Pelotas-RS, Brazil

\textsuperscript{3}Ecólogo

INTRODUÇÃO

Despite its large geographical distribution, *Lontra longicaudis* is considered a “virtually unknown” carnivore (Kruuk 2006). There is a lack of basic information on many aspects of its biology, ecology and conservation status. Among the many aspects of its ecology that have received little attention and sound quantification are its niche requirements. Few authors have quantified the trophic dimension of its niche (Macías - Sánchez & Aranda, 1999, Oliveira 2002, Kasper et al., 2008, Sousa 2008).

Due to the potential functional role that otters may have in freshwater ecosystems, Bifolchi & Lodé (2005) argue that the conservation of Lutrinae is a priority in strategies and management of freshwater ecosystems. Therefore, conservation plans for the Neotropical Otter may have an important role for conservation of Neotropical freshwater ecosystems.

The ecological niche is considered one of the most interesting tools to reveal processes arising from species interactions within a community (Pinto - Coelho 2000), and may be an important ecological aspect to be considered in conservation plans.

OBJETIVOS

Upon this context, our study aims to quantify: i) the niche breadth of the Neotropical Otter (i.e., the trophic dimension of the niche space) based on published studies from Brazil and based on our own data collected in southern Brazil; ii) the correlation between its niche breadth and latitude; iii) the relationship between niche breadth index and sampling effort; iv) the dependence of niche breadth upon fish consumption.

MATERIAL E MÉTODOS


Niche breadth was calculated using the standardized form of Levins’ index ($B_{sta}$), proposed by Colwell & Futuyma (1971). This measure estimates quantitatively the degree of feeding specialization of a species, describing the diversity of resources required by the species, with values ranging from zero (smallest niche breadth possible, maximum specialization) to one (highest niche breadth possible, least specialization). Prey items were classified in the following categories: mollusks, crustaceans, chelicerats, insects, fish, amphibians, reptiles, birds and mammals.

Linear regressions were employed to verify whether or not the results found for niche breadth analysis could be an effect of different sampling effort among areas and to verify the dependence of niche breadth values upon the relative consumption of fish. We used Pearson’s correlation coefficients to evaluate associations between niche breadth and latitude. Linear models were carried out in the statistical package R (R Development Core Team 2009), and followed procedures reviewed in ter Braak & Looman (1995) and Gotelli & Ellison (2004). Significance level adopted in all analysis was $\alpha = 0.05$.

RESULTADOS

Niche breadth analysis indicates that *L. longicaudis* has a specialist feeding habit ($n = 16$; mean $B_{sta} = 0.21$; $SD = \pm$
0.10), where few prey items, especially fish, are consumed in high percentage. We did not found a significant relationship between niche breadth results and sampling size ($r^2 = 0.80; F_{1,14} = 52.85; p < 0.0001$). This result was expected due to the species piscivorous behavior. There are very few studies about the niche breadth of *L. longicaudis* (e.g., Macias - Sánchez & Aranda, 1999, Oliveira 2002, Kasper *et al.*, 2008, Sousa 2008). Using the standardized form of Levins’ index, Kasper *et al.*, (2008), in their studies in the Taquari valley, found similar values of niche breadth to the mean value found in this study.

There is a lack of information about the basic ecology of other Lutrinae species, including niche breadth analyses, which makes comparisons difficult. Macdonald (2002), in a revision about mustelids in Great Britain, found a mean value of $B_{sta} = 0.05$ ($SD = 0.04$) for *Lutra lutra*, a value of niche breadth sensibly inferior to our result for *L. longicaudis*.

Niche breadth and latitude presented a significant positive correlation ($r = 0.55; t = 2.49; df = 14; p = 0.03$). Gause’s hypothesis predicts that the higher diversity in the tropics could be explained by narrower niche breadth and lesser niche overlap among species. One may expect that Gause’s hypothesis could be expanded to populations of species that are distributed along a latitudinal gradient, such as the Neotropical Otter. Information on the geographical variation of niche breadth of other species that are distributed along a latitudinal gradient would be of great importance to elucidate this question.

CONCLUSÃO

This is the first study that tries to enlighten issues related to the niche breadth of *Lontra longicaudis* in a large geographical scale. We found that *L. longicaudis* is a specialist feeder and that its niche breadth is positively correlated with latitude. Studies that investigate prey diversity and the diversity of trophically equivalent species that occupy the same trophic guild of *L. longicaudis* could contribute to elucidate this correlation.

Acknowledgments

We acknowledge our appreciation for J. B. Garcias and his family, for their kind hospitality at the Santa Helena Ranch, Arroio Grande. Spraints from Taim Ecological Station were provided by F. D. Mazin, to whom we are thankful.

REFERÊNCIAS

