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### PUMA BODY SIZE VARIATION: AN INTRASPECIFIC APPLICATION OF BERGMANN'S RULE

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The puma (*Puma concolor* (Linnaeus,1771)) is the terrestrial mammal which has the most extensive distribution in the western hemisphere, ranging from 51° N to 51° S in latitudinal gradient, where the species present morphological variations. Bergmann's rule states that within warm-blooded species, organisms living at lower temperature are generally larger than those living at higher temperature. On the other hand, some researchers state that within carnivores, the body size increases according to their preys. In this survey we aimed to assess if the temperature and/or the food habits determine puma body mass (PBM) variation across its range, where male pumas can reach more than 80 kg in Patagonia and Canada, and less than 30 kg closer in Ecuador. Therefore, we collected body mass from adult ( $\geq 2Y$ ) male pumas, which have been caught by researchers in across their range ( $n=55$ ). For each catch site, we also got the annual average temperature (AAT) from Worldclim using the software ArcGis 9, and the mean weight vertebrate preys (MWVP) killed by pumas from scientific literature. For the statistical analysis, we performed a multiple linear regression. We found that there was effect on PBM ( $R^2=0,593$ ;  $F(2,51)=37,096$ ;  $p<0,001$ ), and the temperature explains about 59% of the PBM variation ( $r^2=0,587$ ;  $p<0,001$ ), and the PBM decreases when the temperature increases ( $y=71,354 - 1,120*x$ ). However, there was not effect of MWVP on PBM ( $r^2=0,086$  ;  $p=0,416$ ). Although pumas in Canada and northern USA presented similar PBM to pumas in Patagonia, they presented different MWVP. Apparently, pumas choose their prey according to availability of resources, PBM is not related to its prey selection. The PBM ranging from 65 to 86kg was only found in locations where the AAT was smaller than 10°C. Thus, we concluded that Bergmann's Rule is applied to puma, nevertheless PBM aren't related with their preys size.

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