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Quantifying the shape variation of the elytra in Patagonian populations of the ground beetle *Ceroglossus chilensis* (Coleoptera: Carabidae).

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Abstract

Elytra shape variation was analyzed from two forest systems in the Chilean Patagonia, one composed of *Nothofagus dombeyi* and *N. nitida* and a second-growth stand of *N. pumilo*. Geometric morphometrics analysis and multivariate analyses were used on the complete elytra having the shape information (outline) of the trait. The results show several shape variations on the mid bottom of the elytra and confirm the local adaptation of the Patagoninan population at different traits than the results found at the abdominal section previous studies of the same species, nevertheless, here we found a complete absence of sexual shape dimorphism using the elytra as a trait of sexual differentiation. A positive allometry was found, however, this was not related with sexual dimorphism differentiation but rather with to the forest and second-growth forest.

Keywords: Elytra; geometric morphometrics; shape; Carabidae; *Ceroglossus*