



Conference Abstract

# Evolutionary inferences about the genus *Abax* (Coleoptera, Carabidae: Pterostichini) based on molecular data and geographic distribution of taxa.

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## Abstract

A molecular analysis of the genus *Abax* (Pterostichidae) has been carried out based on the sequencing of a mitochondrial *cox* gene fragment and the nuclear *its-2* or *28S* genes. The three subgenera which are included within *Abax* on morphological grounds, namely *Abacopercus*, *Abax* s. str. and *Pterostichoabax* were partially supported. *Abacopercus* is a monotypic subgenus including *A. schueppeli* and is sister to the other species of the genus. *Pterostichoabax* is sister to a clade made up by species of the 'parallelus' group (*parallelus*, *carinatus*, *baenningeri*, *pilleri*, *oblongus*, and *continuus*), which are currently members of the subgenus *Abax*. The other species of this subgenus (*parallelepipedus*, *fiorii*, *ovalis* and *pyrenaicus*) make up a separate clade, what renders the subgenus *Abax* as polyphyletic.

The geographic framework of these results suggests that the ancestors of *Abax* appeared in the Carpathian area, where they gave rise to *A. schueppeli*. Successive cladogenetic events and expansion from the Carpathians to the Alps and the Pyrenees may have originated two main lineages, *Abax* sensu stricto and *Pterostichoabax* plus the 'parallelus' group. All these lineages have originated a number of species in temperate forests mostly

concentrated in the southern axis of Eastern and Central Alps, but all the *Pterostichoabax* species and two taxa of the *parallelus* group shifted its habitat into the alpine grass mats above the treeline during one or more ice age times.

## **Keywords**

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