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# POSTER SESSION



## Sexual dimorphism in the hornless dung beetle *Geotrupes mutator* (Marsham, 1802) (*Coleoptera, Geotrupini*)

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Sexual dimorphism underlies many aspects of evolution, ecology, and ethology of dung beetles. In a lot of species, the males are equipped with horns on their heads, which are either smaller or absent in females. In other hornless species the differences between sexes are mostly limited to the legs, with males presenting spines and teeth, and females wider foretibiae. Here, we focused on *Geotrupes mutator*, a hornless tunneler whose distribution stretches from the basal planes to mid-mountain areas. Adults produce distress calls when disturbed. This research combined traditional and geometric morphometric techniques to evaluate whether the two sexes differ in the size or shape of any external body parts or in the structure of the stridulatory organ. We focussed on the head, hindwings, elytra, foretibia and femurs of the three legs, with maximum pronotum width used as a good proxy of body size. For the structure of the stridulatory organ, we counted the number of ridges present in a 0.5 mm wide band of the coxa on the pars stridens. The results revealed no significant differences between males and females in terms of size, but morphological differences were detected for the forefemur, likely reflecting the shape differences in the foretibia between the two sexes. All morphological traits related to mobility were isometric and positively correlated with global body size ( $\rho \geq 0.95$ ). Concerning the stridulatory organ, the number of ridges on the pars stridens was significantly greater in females. Distress call stridulations in this species are composed of two subunits (A+B), both of which showed sex-dependent differences: females emitted sounds with more peaks in subunit A, and the peaks in subunit B were of a lower amplitude. These results suggest that inter-sex differences in bioacoustics may depend on morphological differences of the pars stridens.

**Keywords:** morphological traits, distress call, stridulatory organ

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