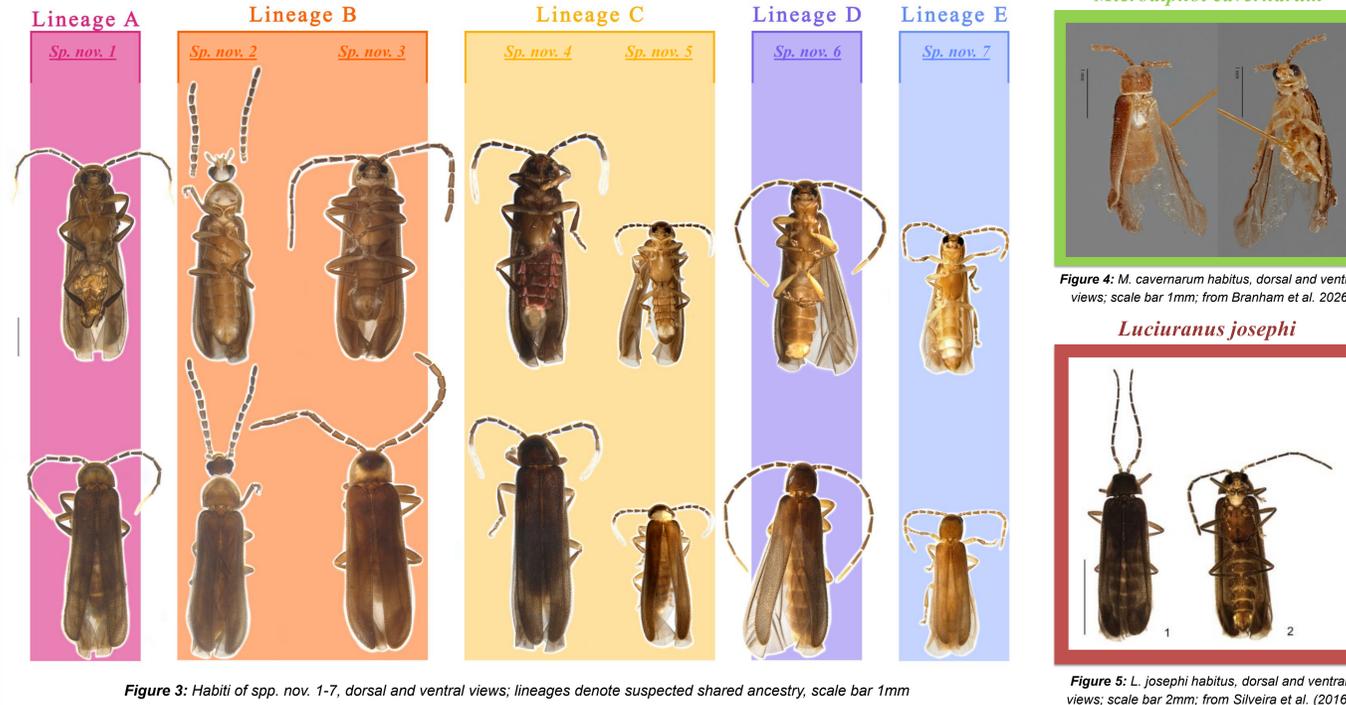


Confounding convergences: consequences of miniaturization in firefly evolution (Coleoptera: Lampyridae)

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INTRODUCTION

- Miniaturization is the evolution of extremely small body size within a lineage (Hanken & Wake 1993)
- Recent morphometric analysis provided evidence that suggested that the morphology of the sensory organs on the head is allometrically linked to body size (Silveira et al. 2026, in progress)
- We have identified five groups of currently undescribed miniaturized species, one of which could be one of the **oldest lineages of Lampyridae** and the **first ancient lineage to be identified in South America**
- The external morphology of these lineages appear identical; however, they have a wide geographical spread and are likely more distantly related than their external morphology suggests



Externally, these lineages appear to be closely related...



... however, the genitalia tell a very different story.

Figure 6: Pronotum (dorsal and ventral views), alinotum (dorsal view), mesoscutellum (dorsal view), abdomen (ventral view), and male genitalia of spp. nov. 1-7, with notes on key similarities and differences

Phylogenetic Placements



Figure X: Modified phylogeny from figure 1 of Martin et al. (2019) denoting the predicted placement of each lineage, color coded according to fig. X-X. predictions are based on unpublished phylogenomic analyses and morphology of the genitalia

Future Work

- Describe all new genera and species
- Use a total evidence approach combining molecular and morphological data for phylogenetic analyses for each lineage
- Use the resulting phylogenetic tree for geometric morphometric and phylogenetic comparative methods to assess the extreme convergence demonstrated in this poster

References

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Affiliate logos

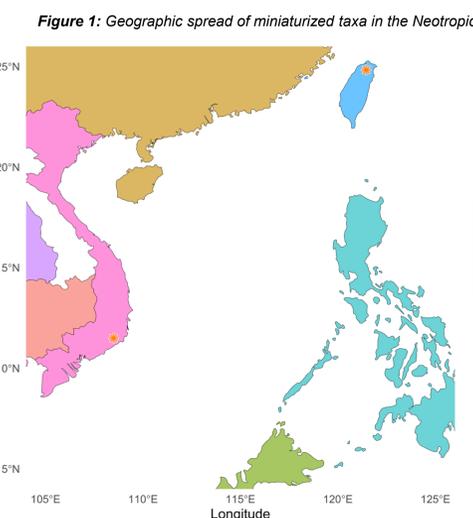


Figure 1: Geographic spread of miniaturized taxa in the Neotropics

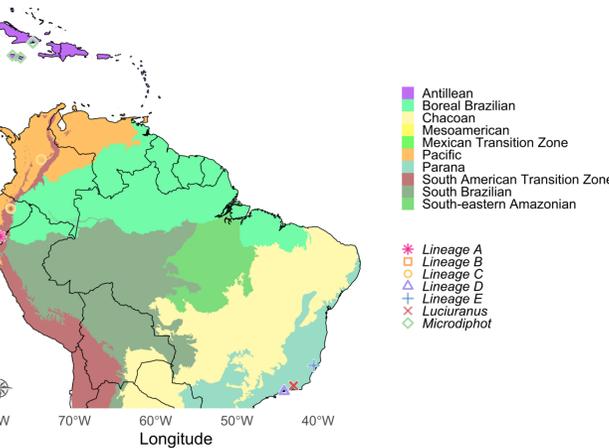


Figure 2: Geographic spread of miniaturized taxa in the Palearctic