

the valva to the tegminal area, provide possible synapomorphies of Angeronini with the *Hypomecisl*-like series of tribes. Genus *Devenilia*, which is superficially similar to Baptini members, has an arrangement of male genitalia musculature that is quite different from typical Baptini and unique for the examined Ennominae. A combination of apomorphic skeletal and muscle characters supports the

erection of *Devenilia*, together with possibly related genera, to a separate tribe. Thus, involving the genitalic musculature in taxonomic and phylogenetic research results in an increase of analysed characters, and enables the discovery of apomorphies for relationships between morphologically diverse genera as well as for distinction in superficially homogeneous groups.

## The species of the neotropical genus “*Trochrateina*” (Larentiinae)

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The present studies were aimed to examine morphological and genitalic characters of all species of *Trochrateina* to estimate their relation with the genus *Erateina* Doubleday.

According to recently published Geometrid Moths of the World catalogue edited by Malcolm J. Scoble (1999), the Neotropical genus “*Trochrateina*” (Larentiinae) consists of eight species. However, there is no published reference available, as well as no species was designated as a type species of “*Trochrateina*”. In the research collection of the Natural History Museum, London, the name of the genus was marked as a manuscript name proposed by Prout to separate eight distinct species from the genus *Erateina* Doubleday where they have been originally described. Of these eight species, four were described by Druce (*buckleyi*, *cyris*, *hermaea* and *uecysia*), two by Schaus (*cachara* and *delecta*), one by Walker (*specularia*) and one by Felder & Rogenhofer (*pohliata*).

In their geographical distribution species of “*Trochrateina*” occur at lower elevations in mountains ranging from Mexico to Bolivia. One species (*delecta*) is probably endemic to Costa Rica. The only two known specimens (females) of this species were collected at the elevation of 2300 m on Mt Poas. The other three (*cachara*, *cyris* and *specularia*) are distributed from Mexico to Guatemala at the elevation of about 1000 m and the remaining four species occur from Venezuela to Bolivia with only *T. hermaea* reaching the elevation of 2300 m.

One of the most striking morphological struc-

ture discovered in males of all species, except of *T. buckleyi* Druce, is a peculiar scent organ situated in a concave fold made by the wing membrane near the basal part of CuA vein on the dorsal side of forewings. Only very narrow slit visible between the edge of the fold and the wing membrane marks the way inside the organ. When the walls of the fold are pushed open, very small finger like scales projecting inwards are revealed. They probably serve as a containers for storage of a male pheromone. In addition a bunch of a very long, heavily sclerotized hair like scales originating from the basal part of the vein R are hidden under the fold. They may serve as a surface for the evaporation of a male pheromone when released from beneath the fold in the presence of a female.

The wings are triangular in shape, slightly narrower in males than in females with black or dark brown background and large iridescent white, semi-transparent spots covering central parts of both wings. By the contrast to black scales that are of typical shape and make ground colour of the wing, scales that cover white areas are strongly bent upwards. No areole is present on forewings.

In male genitalia valvae are elongated, trapezoidal or rounded with a pronounced, hardly sclerotized thorn-like processes located at their ventral part. In *T. pohliata* and *T. cachara* those processes are asymmetrical in both, the shape and length and occur on the ventral margin of the valvae. The asymmetry between the left and right valvae is also marked by differently sculptured surfaces. Uncus is beak like,

curved ventrally, and sharply ended. Vesica lacks spines and thorns.

In female genitalia bursa copulatrix with very large signum that is forming an irregular, heavily

sclerotized and twisted cuticular plate. The shape of signum and the shape of strongly sclerotized antrum is species specific.

## Notes to the molecular phylogeny of the Geometridae

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Recent pilot research of the phylogeny of geometrids, base on analysis of gene fragments sequence data (Abraham et al. 2001), has revealed discouraging disharmony of molecular phylogeny of the family, compared with that, based on morphological characters. Same disharmony is tracked for other families in Lepidoptera. These results strongly actualize question on interrelationships of morphological and molecular evolution, and induce a need of functional explanation of contradictions between morphological and molecular cladograms. The morphological method of the phylogeny reconstruction allows to interpret the biological meaning of results of the investigation. The explanation is based on understanding of mechanical function, ecological or ethological significance of the morphological characters are involved into analysis. The interpretation is needed for clarification of the causes and trends of morphological transformation and separation of charac-

ters keeping the genealogical information. As to molecular phylogeny, at present, for most genes we do not know the means of transformation of gene information into physiological, morphological and ethological characters. It occludes comprehension the biological meaning of differences between results of molecular and morphological phylogenetic investigations. Both methods of phylogeny reconstruction, morphological and molecular, need to be developed parallel to each other and in close interrelation between them.

### References

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