



straighter shape and long denticles across the ventral edge. Another new discovery is a fused ventral side of the gonopod in attines.

The data shows differences of genitalia between species and allows a view on variability of structures from older to newer lineages, giving hints on their phylogenetic position. Morphs like the spicular length are an example. Conserved features inside the tribe or between species are also an important indicator, the similarities between *Myrmicocrypta* and *Cyphomyrmex* indicate a slower progression between Paleoattini and lower attines, leaving questions on their phylogenetic positions.

## 12 Clarification of the taxonomic status of two *Alloxysta* species through genetic analysis (Hymenoptera: Cynipoidea: Figitidae: Charipinae)

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Charipinae taxonomy has been always very problematic with many described species and interspecific limits not very clear. After the morphological characterization, now we are using molecular information to check the limits between species. In this sense, two cosmopolitan species have been compared: *Alloxysta victrix* (Westwood, 1833) with *Alloxysta consobrina* (Zetterstedt, 1838). Three molecular markers have been sequenced and concatenated: COI, ITS2 and 16S. Morphological matrix has been also included in the phylogenetic analysis. Inter and intraspecific genetic distances have been calculated and compared with previous data. After these studies one new synonymy is here established: *A. consobrina* n. syn. of *A. victrix*. Phylogeny with other Charipinae species and comparative plates are also included.

## 13 Petal dragonflies (Odonata: Petaluridae): Unchanged through epochs?

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The Petaluridae are a Mesozoic group of dragonflies whose speciation ended about 65 million years ago. The surviving 11 species in 5 genera share a unique (and probably derived) semi-terrestrial larval lifestyle, building complex water-filled tunnels up to 75 cm long (*Petal-*



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*ura* and *Uropetala*), living in rather simple burrows (*Tanypteryx*), or not digging burrows at all (*Phenes* and *Tachopteryx*). Specific ecology is reflected in the peculiar morphology of the larva, which is the source of many phylogenetically informative characters.

Phylogenetic relationships between Petaluridae and other Anisoptera remain unresolved. While in many (both old and new) publications Petaluridae were considered a sister group to the rest of Anisoptera, most recent studies show this group nested deeper in the Anisoptera, although in different positions.

A comparative morphological study of the ovipositor in Aeshnidae, Austropetaliidae and Petaluridae revealed a plesiomorphic ‘cutting’ ovipositor design in *Tachopteryx* and a gradual reduction of the cutting edges of the ovipositor in *Tanypteryx*, although all Petaluridae lay eggs in unstructured wet substrates such as moss, soil and leaf litter, which is usually accompanied by a reduction of the cutting elements of the ovipositor (for example, in Aeshnidae). We propose that the plesiomorphic ovipositor morphology preserved in *Tachopteryx* may shed light on the ancestral morphological and behavioural characters of the Petaluridae and lead to a rethinking of the biogeographical origin of this ancient insect lineage.

### 14 Phylogeny of bagworms (Lepidoptera: Psychidae): a preliminary result from anchored hybrid enrichment data

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Bagworm moths (Psychidae) are a family of approximately 1,350 moth species that are distributed worldwide and grouped into 10 subfamilies and 300 genera. Their common name refers to the bag-like cases that larvae make from leaves, stems, and detritus that they spin together with silk. Adult bagworms are unusual in the animal kingdom in that they display a remarkable range of sexual dimorphism and sexual reproduction. Over half of the known species have adult females that are brachypterous or apterous (i.e., lacking wings), and some species have vermiform adult females that also lack legs, eyes, antennae, and mouthparts, whereas adult males possess “normal” characteristics. The neotenic females never leave their silk cases, and in these species, the female calls the male, and the male inserts its telescopic abdomen into the case to mate. This extreme sexual dimorphism in bagworms has resulted in some of the most bizarre life history traits found among insects. Despite their unusual life his-