



## Phylogenetic analysis of *Arsenura* Duncan (Lepidoptera, Saturniidae, Arsenurinae) based on adult morphology

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### Abstract

Arsenurinae includes 10 Neotropical genera with 74 species. *Arsenura* Duncan, 1841 is represented by 30 species and 13 subspecies, making it the largest genus of the subfamily. The species of this group occur both in the Andean high altitude and at sea level, but present higher biodiversity at lower altitudes. Most of the immature remain unknown; however, it is known that some larvae feed on several plant families. There are no prior studies on the phylogenetic relationship between the species of the genus. The goal of this study was to establish the relationships between *Arsenura* species using cladistic analysis, based on adult morphological characters. *Arsenura* was recovered as a monophyletic group, with the following relationships between species: ((*A. meander*, *A. pandora*)(*A. polyodonta*(*A. orbignyana*, *A. xanthopus*))(*A. rebeli*((*A. mossi*(*A. beebei*, *A. ciocolatina*))(*A. archianassa*(*A. armida*(*A. albopicta*, *A. delormei*)))))(*A. aspasia*, *A. biundulata*)(*A. sylla*, *A. thomsoni*)(*A. cymonia*(*A. ponderosa*(*A. batesii*, *A. drucei*)))))).

**Key words:** Lepidoptera, Saturniidae, Arsenurinae, *Arsenura*, cladistic analysis

### Introduction

Arsenurinae is exclusively Neotropical and according to Lemaire (1996) includes two tribes: Almeidaini with one genus and two species, and Arsenurini with nine genera and 56 described species. However, recently, 15 new species of this subfamily were described: *Dysdaemonia concisa* Becker, 2001; *Rhescyntis reducta* Camargo & Becker, 2001; *Paradaemonia meridionalis* Camargo, Mielke & Casagrande, 2007; *Paradaemonia balsasensis* C. Mielke & Furtado, 2005; *Caio witti* Brechlin & Meister, 2010; *Caio hidalgensis* Brechlin & Meister, 2010; *Caio chiapasiana* Brechlin & Meister, 2010; *Arsenura paraorbignyana* Brechlin & Meister, 2010; *Arsenura yungascymonia* Brechlin & Meister, 2010; *Arsenura altocymonia* Brechlin & Meister, 2010; *Arsenura kaechi* Brechlin & Meister, 2010; *Arsenura arianae* Brechlin & Meister, 2010; *Arsenura fuscata* Brechlin & Meister, 2010; *Arsenura jennettae* Wolfe, Conlan & Kelly, 2000; *Arsenura giuglarisi* Bénéluz, 2009. Another species, *Arsenura angulatus*, was revaluated by Brechlin & Meister (2010a), which makes a total of 74 species in the subfamily.

Arsenurinae was treated as a subfamily for the first time by Jordan (1922). Bouvier (1930) named the group Rhescyntinae and some subsequent authors continued using this name (Schüssler 1936; Michener 1952; Ferguson 1971). Other taxonomic combinations have also been proposed: Travassos & Noronha (1968) described a new family Dysdaemoniidae, including *Caio*, *Dysdaemonia*, *Titaea* and *Paradaemonia* based on the median spurs of the hind legs, but this family is currently not used by most authors. All genera defined by Lemaire (1980) are monophyletic, with solid support given by several synapomorphies (Camargo *et al.* 2009).

With the inclusion of newly described species, *Arsenura* Duncan, 1841 are represented by 30 species and 13 subspecies, making it the largest genus of the subfamily (Lemaire 1980, 1996; Camargo *et al.* 2009). The group consists of moths of large size, usually brown or gray, with slight sexual dimorphism, except for the wing extensions in the form of tails, present in males. The species of this group occur both in the Andean high altitude and at