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## The immature stages of *Phylloicus lituratus* (Trichoptera: Calamoceratidae) with new records of *Phylloicus* and *Banyallarga* species in northwestern Argentina and southern Bolivia

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### Abstract

*Phylloicus lituratus* Banks 1920 larva and pupa were associated. It is a new record for Argentina and represents the most austral record for the species. New records of other Calamoceratidae species are provided also from northwestern Argentina and southern Bolivia. *Banyallarga (B.) argentinica* Flint 1983 is recorded for the first time for Bolivia; *B. (B.) loxana* (Navás 1934) and *B. (B.) yungensis* Flint 1983 are both newly recorded from Salta province in northwestern Argentina. Illustrations of male genitalia of all species and of immature stages of *P. lituratus* are included. Presence of a *Banyallarga* larva in a leaf case suggests a need to change some larval keys used to identify the two endemic genera of Neotropical Calamoceratidae.

**Key words:** adult-larva association, biology, caddisflies, new localities, Neotropics

### Introduction

The Calamoceratidae family is cosmopolitan and contains over 187 described species (Holzenthal *et al.* 2011). There are eight extant genera: *Anisocentropus* McLachlan (1863); *Phylloicus* Müller (1880); *Banyallarga* Navás (1916); *Ganonema* McLachlan (1866); *Ascalaphomerus* Walker (1852); *Calamoceras* Brauer (1865); *Georgium* Fischer (1964); and *Heteroplectron* McLachlan (1871) (Prather 2003, 2004; Holzenthal *et al.* 2007). The only fossil genus in the family contains one species: *Palaeocentropus placidus* Sukatsheva & Jarzembowski 2001. *Banyallarga* and *Phylloicus* are the endemic Neotropical genera of this family, with 17 and 54 species described, respectively. Both genera were reviewed by Prather (2003, 2004).

The genus *Phylloicus* has 54 described species and is the largest calamoceratid genus in the new world (Prather 2003). The adults are active during the day, and usually are not collected in light traps. Adults of many species are brightly or dramatically colored, with bold patterns formed by white, gold, and orange setae, or by clear, sometimes iridescent membrane. These wing patterns are diagnostic; therefore, adults of *Phylloicus* should be collected in clean, dry cyanide jars, handled carefully (to avoid rubbing hairs off the wings), and mounted on pins (Prather 2003). In northwestern Argentina and southern Bolivia there are 3 recorded species of *Phylloicus*: *P. angustior* Ulmer 1905, *P. bicarinatus* Prather 2003, and *P. cressae* Prather 2003. Immature stages of only three species of *Phylloicus* have been associated with their identifiable adult stages: *P. bromeliarum* Müller 1880, *P. abdominalis* (Ulmer 1905) and *P. camargoi* Quintero & Calor 2011 (Ulmer 1955; Huamantínco *et al.* 2005; Quintero *et al.* 2011).

*Banyallarga* has been divided into 2 subgenera: *Banyallarga* Navás (1916) and *Histricoverpa* Prather (2004). In northwestern Argentina and southern Bolivia there are 4 recorded species of *Banyallarga*: *B. argentinica* Flint 1983, *B. loxana* (Navás 1934), *B. penai* Prather 2004 and *B. yungensis* Flint 1983. The immature stages of *B. argentinica* were described by Flint and Angrisano (1985), and this is the only species in the genus for which immature stages have been associated with identifiable adults.

The differences between *Banyallarga* and *Phylloicus* larvae were given by Flint and Angrisano (1985). Unlike