ABSTRACT

Anacroneuria tucuman sp. nov. is described from two males collected in Tucuman Province, Argentina, and a lectotype is designated for Anacroneuria fumigata Klapálek, a Brazilian species. The first Argentine records are given for A. atrifrons Klapálek and A. handlirschi Klapálek, and a few additional specimens of A. impensa Jewett, A. trimacula Jewett and A. uyara Froehlich are recorded. A checklist for 24 Argentine Anacroneuria species is given.

Keywords: Anacroneuria, Plecoptera, Perlidae, Brazil, Argentina, Lectotype, new species, new records

INTRODUCTION

Anacroneuria fumigata Klapálek is the last of 17 Anacroneuria species proposed posthumously by Klapálek (1922). Specific information on the composition of the type series is not given, but specimens deposited in the Berlin Museum and the Klapálek collection are indicated, and a range is given for body length and for wingspan, suggesting multiple specimens were included. While visiting Schlitz in 1988, I had the opportunity to examine the male terminalia of one of the syntypes from the National Museum, Prague, while the specimen was on loan to P. Zwick. Sketches made at that time were shared with C. Froehlich to assist in possible recognition of the species should it be rediscovered. Despite significant study of Brazilian Anacroneuria in the 25 year interval, apparently no specimens of A. fumigata have been discovered (Baldin et al. 2013; Bispo & Froehlich 2004a, b; Bispo et al., 2005; De Ribeiro & Froehlich 2007; Froehlich 2002, 2003, 2004, 2007, 2008, 2010b; Ribeiro-Ferreira & Froehlich 2001). Consequently, I provide the following redescription of male genitalic characters and designate a lectotype for this distinctive species. In addition, I have studied a few Anacroneuria specimens from Argentina over the past 25 years. Because there are relatively few published Argentine records in the literature, I take this opportunity to describe a previously unrecognized species and to provide records for additional species. These additions bring the list of Anacroneuria species reported for Argentina to 24, however two of these are nomen dubia, and two others were considered by Illies (1966) as “Species inquirenda”. Hopefully this small contribution will encourage continued collection and study of Anacroneuria at the southern extremity of its range.

MATERIALS AND METHODS

The abdomen for specimens was clipped near midlength and the terminalia brought to a boil in 10% KOH for a few seconds. Boiled terminalia were removed to dishes of distilled water and the internal viscera carefully removed; the aedeagus of male
specimens could then be grasped and pulled forward inside the abdominal cavity with fine tip forceps while the posterior end of the abdomen was held in place with a bent dissecting needle made from a minuten. Specimens from the following collections were examined during the study.

BPSC  Stark Collection, Clinton, Mississippi, U.S.A.
CMNH  Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, U.S.A.
FSCA  Florida Collection of Arthropods, Gainesville, Florida, U.S.A.
RESULTS AND DISCUSSION

**Anacroneuria atrifrons** Klapálek

*Anacroneuria atrifrons* Klapálek 1922:89. Holotype ♂ (British Museum of Natural History), Amazon, St. Paul [Brazil, Amazonas, São Paulo de Olivença]  

**Material examined.** ARGENTINA: Córdoba, Alta Gracia, La Paisanita, 17-23 February, 1984, L. Olivia, 1♂, 3♀ (BPS). BRAZIL: Bahia, Barra, 9 December 1907, 1♂ (CMNH).  
**Comments.** This species was formerly known from Brazil, Colombia and Peru (Froehlich 2008; Stark 2004; Stark & Sivec 1998; Stark et al. 2001). This is the first Argentine record and both new localities represent significant range extensions beyond the known Amazonas and Loreto area distribution.

**Anacroneuria fumigata** Klapálek

(Figs. 1-4)

*Anacroneuria fumigata* Klapálek 1922:95. Lectotype ♂, here designated (National Museum, Prague), Espírito Santo, Brazil  
*Anacroneuria fumigata*: Froehlich, 2010a:156

**Material examined.** BRAZIL: Espírito Santo, lectotype ♂ (NMP).  
**Male genitalia.** Hammer thimble shaped, height greater than basal diameter (Fig. 1). Aedeagal apex bearing upright lobes on ventral and dorsal surfaces beyond hooks (Figs. 2-4); apex slender in dorsal and ventral aspect, and slightly excavated, but somewhat thicker and irregular in lateral aspect; ventral lobe concave, dorsal lobe convex. Hooks slender (Figs. 2, 4).  
**Female.** Unknown.  
**Larva.** Unknown.  
**Comments.** The Berlin syntype is said to be missing (Froehlich 2010a) and the original description does not identify the total number of syntypes, consequently I designate the National Museum, Prague, *Anacroneuria fumigata* Klapálek male specimen labeled Zw# 100 as lectotype in order to provide stability for this species. The aedeagus is quite distinctive and no closely related species is known.

**Anacroneuria handlirschi** Klapálek

*Anacroneuria handlirschi* Klapálek 1922:94. Lectotype ♂ (Vienna Museum), Coroica, Bolivia, designation by Zwick (1973)  

**Material examined.** ARGENTINA: Salta, Aguas Blancas, Oran, 1 March 1958, 1♂ (BPSC).  
**Comments.** This species was previously reported from Bolivia and Peru (Stark & Sivec 1998).

**Anacroneuria impensa** Jewett

*Anacroneuria impensa* Jewett 1959:157. Holotype ♀ (California Academy of Sciences), Nova Teutonia, Santa Catarina, Brazil  
*Anacroneuria impensa*: Froehlich, 2002:80

**Material examined.** ARGENTINA: Misiones, Arroyo Piray-Mini, W Dos Hermanas, 23 November 1973, O.S. Flint, Jr. 3♂ (USNM).  
**Comments.** Froehlich (2002) previously reported *A. impensa* from this site. The species is presently known only from the Brazilian type locality and from this Argentine site.

**Anacroneuria trimacula** Jewett

*Anacroneuria trimacula* Jewett 1959:155. Holotype ♀ (California Academy of Sciences), Nova Teutonia, Santa Catarina, Brazil  
*Anacroneuria trimacula*: Froehlich, 2002:88

**Material examined.** ARGENTINA: Misiones, Arroyo Coati, 15 km E San Jose, 18-19 November 1973, O.S. Flint, Jr. 2♂, 1♀ (USNM).  
**Comments.** Froehlich (2002) previously reported this species from the same site and several additional ones in Brazil, Argentina and Paraguay. More


recently, De Ribeiro & Froehlich (2007) reported the species from Rio Grande do Sul State in Brazil.

*Anacroneuria tucuman* sp. nov.

(Figs. 5-9)

**Material examined.** Holotype ♂ and 1 ♂ paratype from Argentina, Tucuman Province, Horco Molle, 700 m, 15 January 1980, L. Stange (FSCA).

**Adult habitus.** General color pale yellow brown. Head with brown lappets and a diffuse spot forward of ocelli and a pair of small diffuse spots between lappets. Pronotum mostly brown but with pale lateral margins, a pale median band on the anterior
half of the disk and a pale area incorporated within dark region in center of disk (Fig. 5). Legs pale brown except for narrow dark brown band on distal end of femora. Wings pale, transparent; veins pale amber except for C and R veins which are very pale.

**Male.** Forewing length 12-14 mm. Hammer a low, almost transparent bubble-like structure (Fig. 6). Aedeagal apex simple, but slightly offset from shoulders by a subtle notch (Figs. 7-9); a pair of small membranous lobes occur on the posterior margins of the apical area and an inverted Y-shaped keel with long stalk occurs on the dorsum. In lateral aspect the sclerotized area bulges slightly and is offset from the pale keel. Hooks slender (Figs. 7, 9).

**Female.** Unknown.

**Larva.** Unknown.

**Etymology.** The species name, used as a noun in apposition, is based on the Argentine province in which the type specimens were collected.

**Diagnosis.** Only three *Anacroneuria* species are currently known from the neighboring province of Salta [A. *arrazayalensis* Orce (Orce 2003); *A. marshallii* Stark (Stark 2007); *A. saltensis* Froehlich (Froehlich 2002)] and only *A. reedi* (Navás) (Navás 1919), a species whose identity is in question (Illies 1966), has been reported from Tucuman Province. The aedeagus of the new species is generally similar to that of *A. saltensis* but the keel in that species consists of a pair of parallel lines, the apex is not offset from the shoulders and the hammer is thimble shaped. Several other Andean species, such as *A. pachacuti* Stark & Sivec, 1998 have similar aedeagal shape and features but none have the combination of a slightly offset apex, a Y-shaped keel and the low bubble-like hammer found in *A. tucuman*.

*Anacroneuria uyara* Froehlich

*Anacroneuria uyara* Froehlich 2002:100. Holotype ♂ (United States National Museum), Nova Teutonia, Santa Catarina, Brazil

**Material examined.** ARGENTINA: Misiones, Arroyo Coati, 15 km E San Jose, 18-19 November 1973, O.S. Flint, Jr. 1 ♂ (USNM).

**Comments.** This species was previously reported from Paraná, Rio Grande do Sul, Santa Catarina and São Paulo states, Brazil, and from Entre Rios Province, Argentina (Froehlich 2002, 2004; De Ribeiro & Froehlich 2007)

**Checklist of Anacroneuria Species Reported from Argentina, Nomen Dubia in Bold Font**

<table>
<thead>
<tr>
<th>Species List</th>
<th>Provincial Records</th>
<th>Source of Record</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>A. arrazayalensis</em> Orce 2003</td>
<td>Salta</td>
<td>Orce, 2003</td>
</tr>
<tr>
<td><em>A. atrifrons</em> Klapálek 1922</td>
<td>Córdoba</td>
<td>New record</td>
</tr>
<tr>
<td><em>A. badilinea</em> Jewett 1959</td>
<td>Misiones</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. coscaroni</em> Froehlich 2002</td>
<td>Entre Rios</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. debilis</em> (Pictet 1841)</td>
<td>Entre Rios, Misiones</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. fuscicosta</em> (Enderlein 1909)</td>
<td>Misiones</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. handlirshi</em> Klapálek 1922</td>
<td>Salta</td>
<td>New record</td>
</tr>
<tr>
<td><em>A. ignatiana</em> (Navás 1923)</td>
<td>Misiones</td>
<td>Navás, 1923</td>
</tr>
<tr>
<td><em>A. impensa</em> Jewett 1959</td>
<td>Misiones</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. marshallii</em> Stark 2007</td>
<td>Salta</td>
<td>Stark, 2007</td>
</tr>
<tr>
<td><em>A. novateutonia</em> Jewett 1959</td>
<td>Entre Rios, Misiones</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. oculatila</em> Jewett 1959</td>
<td>Misiones</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. orphana</em> (Navás 1918)</td>
<td>Misiones</td>
<td>Navás, 1918</td>
</tr>
<tr>
<td><em>A. plaumannii</em> Jewett 1959</td>
<td>Misiones</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. polita</em> (Burmeister 1839)</td>
<td>Misiones</td>
<td>Froehlich, 2002</td>
</tr>
<tr>
<td><em>A. profunda</em> (Navás 1921)</td>
<td>Mendoza</td>
<td>Navás, 1921</td>
</tr>
</tbody>
</table>

A. reedi (Navás 1919) Tucuman, Catamarca Navás, 1919; Cabo & Wais, 1988
A. saltensis Froehlich 2002 Salta Froehlich, 2002
A. stanjewetti Froehlich 2002 Entre Rios, Misiones Froehlich, 2002
A. tinctilamella Jewett 1959 Misiones Froehlich, 2002
A. trimacula Jewett 1959 Misiones Froehlich, 2002
A. tucuman sp. nov. Tucuman New record
A. uyara Froehlich 2002 Entre Rios Froehlich, 2002
A. ytuguazu Froehlich 2002 Entre Rios Froehlich, 2002

ACKNOWLEDGMENTS

I thank O.S. Flint, Jr. at the United States National Museum of Natural History, J. Rawlins at the Carnegie Museum of Natural History, and P. Zwick, Schlitz, Germany for their assistance in obtaining specimens for use in this study. I also thank curators at the Florida Collection of Arthropods and the National Museum, Prague for their kind assistance in providing specimens, and C. Froehlich for providing literature and information about the holotype of Anacroneuria reedi.

REFERENCES

Froehlich, C.G. 2004. Anacroneuria (Plecoptera: Perlidae) from the Boracéia Biological Station, São Paulo State, Brazil. Aquatic Insects, 26:53-63.
Jewett, S.G., Jr. 1959. Some stoneflies from Santa Catarina, Brazil (Plecoptera). The American

Received 22 August 2013, Accepted 4 September 2013, Published 22 October 2013