

***Allocapnia sano*, a new species of snowfly (Plecoptera: Capniidae) from Alabama, U.S.A., plus six new state records**

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Abstract

A new eastern Nearctic snowfly species of the genus *Allocapnia* Claassen (Plecoptera: Capniidae) is described from Alabama, U.S.A. The male of the new species, *A. sano*, is distinguished from closely-related *A. loshada* Ricker and *A. sequatchie* Kondratieff and Kirchner by terminalia characters. In addition, new Alabama state records are reported for *Zealeuctra fraxina* Ricker & Ross, *Amphinemura appalachia* Baumann, *A. mockfordi* (Ricker), *A. wui* (Claassen), *Oemopteryx contorta* (Needham & Claassen), and *Alloperla chloris* Frison.

Key words: Plecoptera, *Zealeuctra fraxina*, *Allocapnia sano*, *Amphinemura appalachia*, *Amphinemura mockfordi*, *Amphinemura wui*, *Oemopteryx contorta*, *Alloperla chloris*, Alabama

Introduction

The eastern Nearctic snowfly genus *Allocapnia* Claassen is comprised of 43 species (Stark & Baumann 2005). The benchmark revision by Ross & Ricker (1971) included several new species descriptions and formation of species groups. New species have since been described by Kirchner (1980, 1982), Kondratieff & Kirchner (2000), Kondratieff & Voshell (1981), and Poulton & Stewart (1987). A recent collecting trip to Alabama, U.S.A., yielded a new species of *Allocapnia*. The type material is deposited in the insect collections of the Illinois Natural History Survey (INHS) and at Western Kentucky University (WKU).

***Allocapnia sano* sp. nov.**
(Figs. 1A–D).

Male. Body length 4.0–4.5 mm. Wings reaching 7th or 8th abdominal tergite. Dorsal

process of 8th tergite very high with plateau at same plane as abdomen; apical segment of epiproct dorsal limb nearly 1.5X length of basal segment, expanded in lateral view and greatest in posterior half, and distinctly upturned at apex (Fig. 1A). Dorsal process tuberculate, forming a transverse bar with broad, shallow V-shaped posteromedial indentation (Figs. 1B–1C).

Female. Body length 6.5–7.0 mm. Wings reaching 8th tergite to beyond tip of abdomen. Eighth abdominal sternite heavily sclerotized medially with broadly-rounded posterior projection (Fig. 1D); separated from 7th sternite by membrane.

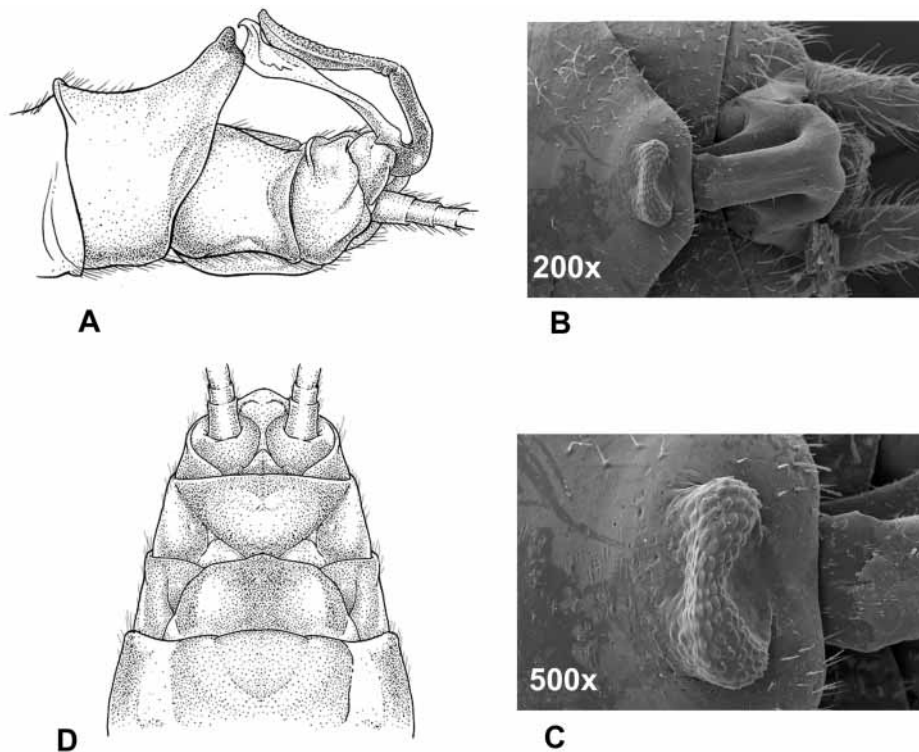


FIGURE 1A–D. *Allocapnia sano* sp. nov. A. Male terminalia, lateral. B. Male terminalia, dorsal, SEM micrograph, 200X. C. Male terminalia, dorsal, SEM micrograph, 500X; D. Female terminalia, ventral.

Material examined

Holotype male, paratype female, and one paratype male, U.S.A., Alabama, Madison Co., Cold Spring, Monte Sano, 3 km E Huntsville, 17 II 2003, S. A. Grubbs (SAG) and D. E. King (DEK) (INHS); Paratypes, same but 2 males, 2 females (WKU); same but 9 III 2003, 3 males, 3 females (WKU); same but 4 II 2006, 2 males, 10 females (WKU).

Etymology

The species name is in reference to Monte Sano, which is Spanish for "mountain of health." The common name, Sano snowfly, is proposed for this species (Stark *et al.* 1998).

Diagnosis

Allocapnia sano likely belongs to the *A. recta* (Claassen) species group (Ross & Ricker 1971), which includes *A. loshada* Ricker, *A. malverna* Ross, *A. mohri* Ross & Ricker, *A. polemistis* Ross & Ricker, *A. recta*, *A. sequatchie* Kondratieff & Kirchner, and *A. starki* Kondratieff & Kirchner. Morphological characteristics used to define the *A. recta* group, as "...dorsal process of the male eighth tergite arcuate or only slightly incised, and situated on a marked posterior elevation of the tergite. The male seventh tergite lacks a process..." (Ross & Ricker 1971), are exhibited by *A. sano*. The male of *A. sano* is most similar to *A. loshada* and *A. sequatchie* due to the expanded apical segment of the epiproct dorsal limb and the posteriorly-incised tubercle of the 8th abdominal tergite. However, the lack of a subapical notch on the epiproct limb of *A. sano* easily distinguishes it from *A. loshada* (Fig. 1, Kondratieff & Kirchner 2000) and the small button-like dorsal process of *A. sequatchie* (Figs. 10–11, Kondratieff & Kirchner 2000) contrasts with the bar-like process of *A. sano*. Females in the *A. recta* group are difficult to differentiate (Ross & Ricker 1971; Kondratieff & Kirchner 2000) and the female of *A. sano* cannot be reliably distinguished from other members of this group.

Remarks

Allocapnia sano is known only from the type locality. Cold Spring emanates from a sandstone capstone layer near the summit of Monte Sano in northern Alabama. The spring flows down a boulder-laden, high-gradient channel prior to sinking within fractured limestone. *Allocapnia sano* may be found from similar habitats along the Cumberland Plateau both in Alabama and north into Tennessee.

The known ranges of *A. loshada* and *A. sequatchie* do not overlap with *A. sano*. *Allocapnia loshada* is an Appalachian species known from a small geographic area encompassing eastern Tennessee, southwestern Virginia, and West Virginia. *Allocapnia sequatchie* has been collected only from Tennessee's Sequatchie River Basin.

New Alabama State Records

Zealeuctra fraxina Ricker & Ross exhibits a limited distribution in the eastern Nearctic region and has been recorded only from Indiana, Illinois, Kentucky, Ohio, Tennessee and West Virginia (Grubbs 2004; Stark & Baumann 2005). This species was recently collected from a Cumberland Plateau stream in northern Alabama, representing a new state record and a small southern range extension.

Material examined

U.S.A., Alabama, Jackson Co., tributary to Larkin Fork Paint Rock River, 19 II 2006, SAG, 4 males, 12 females (WKU).

Amphinemura appalachia Baumann is an Appalachian species known from Pennsylvania southwest to Georgia (Baumann 1996; Stark & Baumann 2005). This species was collected from a small stream draining Talladega Mountain in east-central Alabama, representing a new state record and a southwestern range extension along the Appalachian Mountains.

U.S.A., Alabama, Clay Co., Barbaree Creek, Talladega National Forest (TNF), 25 III 2005, SAG, 3 males, 6 females (WKU).

Ricker (1952) described *Amphinemura mockfordi* Ricker from Monteagle, Tennessee. This species was known only from the type series until Nelson (1997) redescribed the males and provided the first descriptions of the female, nymph and egg. *Amphinemura mockfordi* was also obtained from Monte Sano, representing a new state record and a southern range extension along the Cumberland Plateau.

U.S.A., Alabama, Madison Co., Cold Spring, Monte Sano, 9 III 2003, SAG and DEK, 2 males, 3 females (WKU).

Amphinemura wui (Claassen) is a widespread Appalachian species distributed from Quebec and the Canadian Maritime Provinces south to Tennessee and Georgia (Stark & Baumann 2005). This species was collected from the Talladega Creek drainage in east-central Alabama, representing a new state record and a southwestern range extension along the Appalachian Mountains.

U.S.A., Alabama, Clay Co., Talladega Creek, TNF, 9 V 2005, A. L. Sheldon (ALS), 6 males, 3 females (WKU).

Oemopteryx contorta (Needham & Claassen) is an Appalachian species known from Maine south to North Carolina and Tennessee. This species was collected from a small headwater stream in east-central Alabama, representing a new state record and a prominent southwestern range extension along the Appalachian Mountains.

U.S.A., Alabama, Clay Co., tributary to Swept Creek, TNF, 24 I 2006, ALS, 2 males (WKU).

Alloperla chloris Frison is a widespread Appalachian species known from Maine and Quebec southwest to Georgia (Surdick 2004). This species was collected from a headwater stream in east-central Alabama, representing a new state record and a southwestern range extension along the Appalachian Mountains.

U.S.A., Alabama, Cleburne Co., tributary to South Fork Terrapin Creek, TNF, 19 V 2004, SAG, 1 male (WKU).

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