



KAMIMURIA GRESSITTI, A NEW STONEFLY SPECIES FROM CHINA (PLECOPTERA: PERLIDAE), AND NEW RECORDS OF *K. ATRA* FROM VIETNAM

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ABSTRACT

A new species of *Kamimuria*, based on male and female specimens collected in 1948 by J.L. Gressitt and colleagues in Hubei Province, China, is described and compared to related species of the genus. New provincial records are also given for *K. atra* Sivec & Stark from Cao Bang and Nghe An, Vietnam.

Keywords: *Kamimuria*, Plecoptera, Perlidae, China, Vietnam, new species, new distributional records

INTRODUCTION

Sivec & Stark (2008) published the most recent major study of the Oriental-Eastern Palearctic genus *Kamimuria* Klapálek, 1907 in which 41 species were considered valid and another 18 nominal species were placed as *nomen dubia*. Subsequently, Li et al. (2012), Sun & Du (2012) and Wang et al. (2013) have added 4 new species and two *nomen dubia* have been redescribed by Sun & Du (2012), bringing the current list to 47 species. However, another 12 species described by Du (2006), Du & Ran (2002), Du & Sivec (2004, 2005) and Du & Wang (2005, 2007) were overlooked by Sivec & Stark (2008), and DeWalt et al. (2013) include several more older names on their list which we regard as *nomen dubia*, or as members of other genera (e.g. *Paragnetina*, Sivec et al 2013, in manuscript). In the current study we recognize another previously undescribed *Kamimuria* species collected in 1948 in Hubei Province, China during the California Academy of Sciences-Lignand University

Dawn Redwood (*Metasequoia glyptostroboides*) Expedition directed by J.L. Gressitt (Radovsky 1983). We also present additional provincial records from Vietnam for *K. atra* Sivec & Stark. Table 1 presents a list of 34 Chinese *Kamimuria* we consider as valid species; another 13 nominal Chinese *Kamimuria* species considered as *nomen dubia* are also included on the list (DeWalt et al. 2013; Sivec et al. 1988; Sivec & Stark 2008).

MATERIALS AND METHODS

The Chinese specimens were previously determined as "*Perla melli* (Wu)" by S.G. Jewett, Jr., in the 1960's, and remained in his collection after his death, until forwarded to R.W. Baumann some years later. The single vial, containing a male and female, was included in a lot of miscellaneous stonefly specimens sent to me by Professor Baumann and will be deposited with the California Academy of Sciences. The Vietnamese specimens were among

Table 1. Systematic list of Chinese *Kamimuria*, *nomen dubia* listed in bold.

Species Name	Date	Authors	Provincial Locality
<i>acutispina</i>	1973	Wu	Yunnan
<i>amoena</i>	1912	Klapálek	Shaanxi (?)
<i>bimaculata</i>	2005	Du & Sivec	Gansu
<i>bispina</i>	2005	Du, in Du & Wang	Guizhou
<i>brevilata</i>	2002	Du, in Du & Ran	Guizhou
<i>brunneicornis</i>	1921	Klapálek	Jiangxi
<i>cheni</i>	1948	Wu	Guangxi
<i>chingtechenensis</i>	1935	Wu	Jiangxi
<i>chungnanshana</i>	1938	Wu	Shaanxi
<i>coarctata</i>	1912	Klapálek	Beijing
<i>crassispina</i>	1948	Wu	“Chengtú”
<i>digyracantha</i>	2012	Du & Sun	Henan
<i>extremispina</i>	2006	Du	Guizhou
<i>fulvescens</i>	1912	Klapálek	Gansu
<i>gressitti</i>	2013	Sp. nov.	Hubei
<i>guangxia</i>	2013	Li & Wang	Guangxi
<i>hainana</i>	2012	Li, Wang & Yu	Hainan
<i>huangi</i>	2005	Du & Sivec	Gansu
<i>infumata</i>	1936	Navás	Gansu
<i>integra</i>	1916	Klapálek	Gansu
<i>jeanneli</i>	1935	Wu	Zhejiang
<i>kirinensis</i>	1938	Wu	“Kirin”
<i>lii</i>	2002	Du, in Du & Ran	Guizhou
<i>liui</i>	1940	Wu	?
<i>longispina</i>	1948	Wu	“Kwangsi”
<i>magna</i>	1938	Wu	Shanxi
<i>magnimacula</i>	2005	Du, in Du & Wang	Guizhou
<i>manchuriana</i>	1938	Wu	Liaoning
<i>maolanensis</i>	2002	Du, in Du & Ran	Guizhou
<i>melli</i>	1935	Wu	Guangdong
<i>miaolingensis</i>	2007	Du & Wang	Guizhou
<i>microda</i>	2002	Du, in Du & Ran	Guizhou
<i>nigrita</i>	1962	Wu	Yunnan
<i>orthogonia</i>	1962	Wu	Sichuan
<i>pronotalis</i>	1934	Navás	Sichuan
<i>radialis</i>	1934	Navás	Gansu
<i>ramosa</i>	1936	Navás	Gansu
<i>robusta</i>	1948	Wu	Fujian
<i>simplex</i>	1929	(Chu)	Zhejiang
<i>sparsula</i>	2001	Du in Du et al.	Zhejiang
<i>taoi</i>	1936	Wu	“Kwangsi”
<i>tenuispina</i>	1948	Wu	“Chengtú”
<i>tergistigma</i>	2004	Du, in Du & Sivec	Guangxi
<i>trapezoidea</i>	1962	Wu	Yunnan
<i>tuberosa</i>	1973	Wu	Sichuan
<i>wangi</i>	2012	Sun & Du	Shaanxi
<i>yangi</i>	2005	Du & Sivec	Gansu

unstudied material on loan from the Royal Ontario Museum, Toronto (ROM).

RESULTS AND DISCUSSION

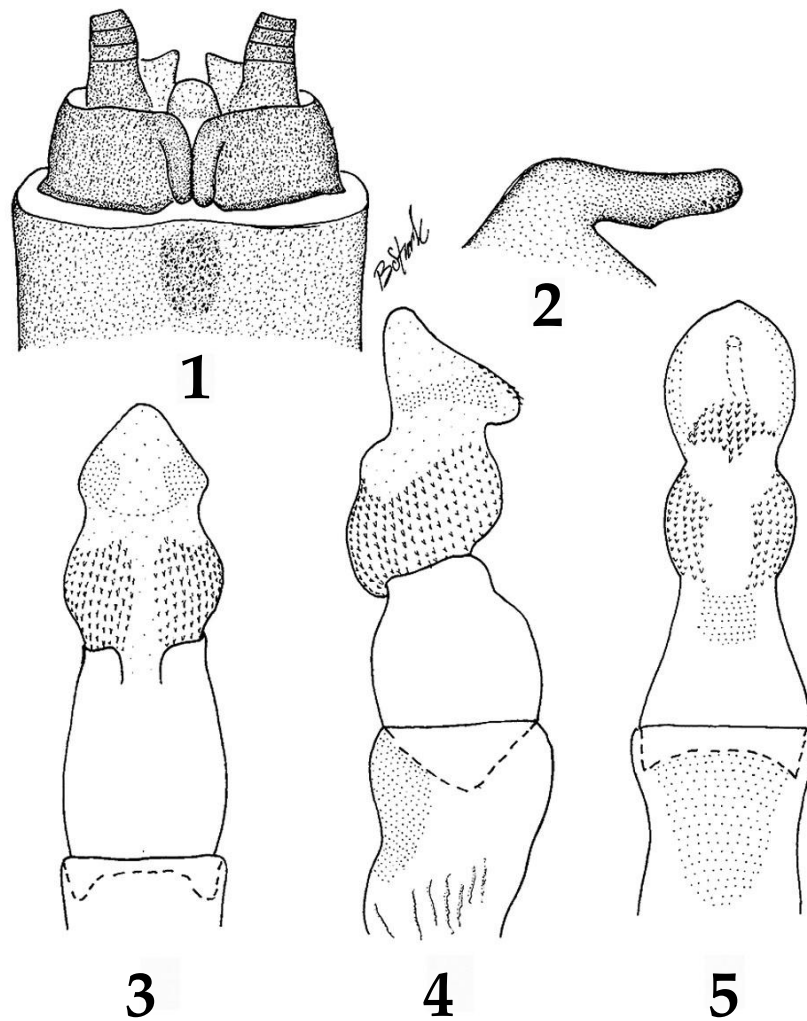
Kamimuria atra Sivec & Stark

Kamimuria atra Sivec & Stark 2008:111. Holotype ♂ (Slovenian Museum of Natural History), Chiang Mai Province, Doi Inthanon National Park, Thailand

Material examined. VIETNAM: Cao Bang Province, Ba Be National Park, jct Lake Ba Be road and trail to

ethnic village, 18 May 1995, D. Currie, J. Swann, 1♀ (ROM 956068). Lao Cai Province, tributary Muong Hao Ho River, 15 km E Sapa, 926 m, uv light, 10 May 1995, D. Currie, B. Hubley, J. Swann, 1♀ (ROM 956033). Nghe An Province, ca. 25 km SW Con Cung, Khe Moi Forestry Camp, tributary Khe Moi River, 18° 56' N, 104° 49' E, 308 m, 4 June 1995, B. Hubley, J. Swann, 1♀ (ROM 956158). Same site, 6 June 1995, B. Hubley, 1♀ (ROM 956172).

Comments. This species was previously reported from several sites in Thailand, and from Lao Cai and Vinh Phu provinces, Vietnam. The new Vietnamese provincial records are from Cao Bang and Nghe An.



Figs. 1-5. *Kamimuria gressitti* male genitalia. 1. Terga 9-10. 2. Right hemitergum, lateral aspect. 3. Aedeagal apex, dorsal. 4. Aedeagus, lateral. 5. Aedeagus, ventral.

Kamimuria gressitti, sp. nov.
(Figs. 1-8)

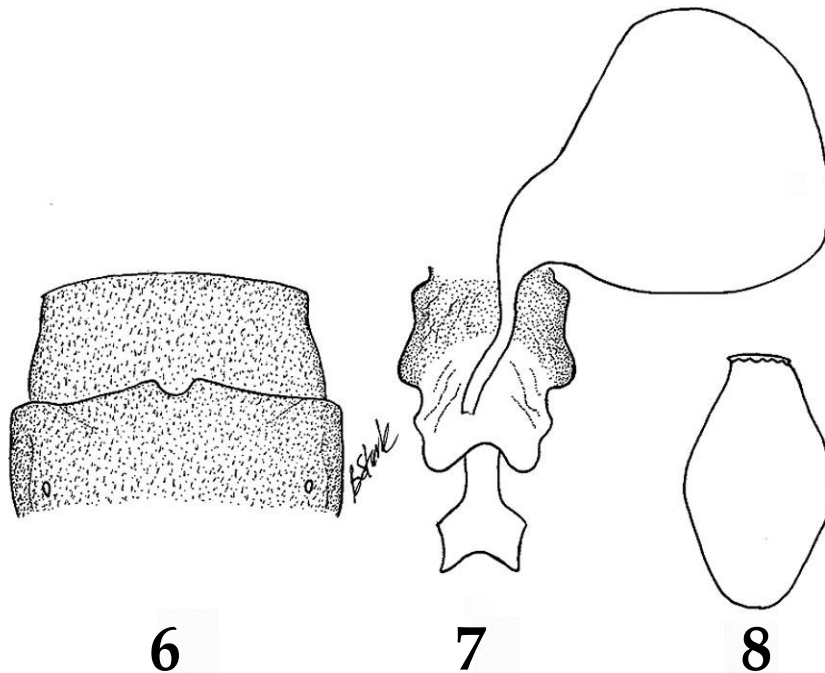
Material examined. Holotype ♂ and paratype ♀ from CHINA, W. Hupeh (Hubei Province), Lichuan District, Suisapa, 1000 m, 23 August 1948, J.L. Gressitt, Djou (California Academy of Sciences).

Adult Habitus. Three ocelli. Color pattern apparently pale brown, without distinctive pattern, but obscured by specimen condition. Wings pale, veins pale amber.

Male. Forewing length 20.5 mm. Hemitergal lobes slender, finger-like, bluntly rounded at the apex and bearing a small patch of sensilla basiconica along ventroapical margins (Figs. 1-2); hemitergal lobes meet in median field of tergum 10 in dorsal aspect, and approach anterior margin of tergum 10; in lateral aspect a slight ventral swelling occurs near midlength of hemitergal lobes (Fig. 2). Tergum 9 with a median patch of sensilla basiconica; sterna 4-6

with well developed hair brushes. Aedeagus membranous, relatively straight, but constricted subapically, near midlength, and at base of aedeagal tube (Fig. 4); armature extensive on subapical sac portion, consisting of a circular band of sharp, triangular spines; band narrowly divided medially on dorsal surface and more broadly on ventral surface; fine microtrichia occur in a pair of apicolateral patches (Figs. 3-4) and similar patches occur ventrally on the middle tube section (Fig. 5) and ventrally on the basal envelope section (Fig. 5).

Female. Forewing length 22 mm. Subgenital plate a short, triangular projection, barely reaching the anterior margin of sternum 9 (Fig. 6), and bearing a small median notch. Vagina membranous but partially lined with pale setae around wide posterior section at gonopore; anterior section slightly narrower from midlength, and bearing a prominent, balloon-like spermatheca on a slender stalk (Fig. 7).



Figs. 6-8. *Kamimuria gressitti* female genitalia. 6. Abdominal sterna 8-9. 7. Vagina and spermatheca. 8. Outline of egg.

Egg. Length ca. 0.41 mm, width ca. 0.24 mm. Somewhat barrel shaped with short, wide, slightly

flanged collar (Fig. 8). Chorion smooth.
Larva. Unknown.

Etymology. The patronym honors the late J. Linsley Gressitt, distinguished Coleopterist and Naturalist, director of the “Dawn Redwood Expedition”, and co-collector of the type series of this species.

Diagnosis. The aedeagal armature size and general aedeagal shape is somewhat similar to that of *K. similis* Klapálek (Sivec & Stark 2008), however the new species lacks the enlarged pair of dorsal spines found in *K. similis*, and the hemitergal lobes of the latter species bear an abrupt subapical notch not found in the new species. There is also a general similarity with *K. atrocephala* Sivec & Stark, however that species has a more extensive patch of lateral spines along the aedeagal tube and sac, and a small patch of sensilla basiconica on tergum 8. Unfortunately, the provisional key in Sivec & Stark (2008) is based, in part, on pigment patterns and is therefore, unsuitable for specimens like these which have obscure pigmentation.

Kamimuria nigrita Wu

Kamimuria nigrita Wu 1962:140.

Kamimuria nigita Wu 1962:144. Misspelling

Kamimuria nigrita: Illies, 1966:632.

Perla nigrita: Zwick, 1973:264.

Comments. In Wu’s (1962) original description, this species is referred to as *K. nigrita* in the list on page 140, and as *K. nigita* on page 144 in association with the original description. Illies (1966), as first reviser, and Zwick (1973) both use the species name, *nigrita*.

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