ON THE TAXONOMY OF SOME FULGOROIDEA (HEMIPTERA)

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ABSTRACT

Key words: Acanaloniidae, Issidae, Nogodinidae, Tropiduchidae, new combinations, new synonyms, lectotype designation

К СИСТЕМАТИКЕ НЕКОТОРЫХ FULGOROIDEA (HEMIPTERA)

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РЕЗЮМЕ

Ключевые слова: Acanaloniidae, Issidae, Nogodinidae, Tropiduchidae, новые комбинации, новые синонимы, установление лектотипов
INTRODUCTION

In the course of studying the material, including types of planthoppers of the families Acanaloniidae Amyot et Serville, 1843, Issidae Spinola, 1839, Nogodinidae Melichar, 1898, and Tropiduchidae Stål, 1866 from several European museums some new synonyms and new combinations were discovered and are here established.

MATERIAL AND METHODS

The terminology of head follows Emeljanov (1995), hypocostal plate – Emeljanov (1971), and female genitalia – Bourgoin (1993). Dry and pinned specimens were examined using the light microscope. The material examined is deposited in the museums listed below.

Photographs of Vishnuloka prominula Distant and Mangola solida (Melichar) were made using Leica MZ8 with JVC video camera KY F7OB. Images are produced using the software Synoptics Automontage and Adobe Photoshop.

Institutional abbreviations:

SNSD – Staatliche Naturhistorische Sammlungen Dresden, Museum für Tierkunde, Germany.
MIZ – Museum and Institute of Zoology of the Polish Academy of Sciences, Warsaw, Poland.
MMBC – Moravian Museum, Brno, Czech Republic.
NMW – Naturhistorisches museum Wien, Austria.
MNB – Museum für Naturkunde, Berlin, Germany (formerly Zoologisches Museum, Humboldt Universität).
BMNH – The Natural History Museum, London, United Kingdom.
IRSNB – Royal Belgian Institute of Natural Sciences, Brussels, Belgium.
NHMB – Naturhistorisches Museum, Basel, Switzerland.

TAXONOMY

Family Acanaloniidae Amyot et Serville, 1843
Genus Acanalonia Spinola, 1839

Type species: Acanalonia servillei Spinola, 1839.

Acanalonia subpellucida (Fowler, 1904) comb. nov.
Amphiscepa subpellucida Fowler, 1904: 119, tab. 12, figs 9, 9a.

Type material examined. Female (lectotype here designated) – GUATEMALA, City, Champion (BMNH).

Supplementary description. Coryphe very narrow. Fore wings with hypocostal plate. Hind tibiae without lateral spines.

Note. To stabilize the nomenclature in the group (ICZN 1999: Art. 74) the lectotype is here designated for the specimen listed above which corresponds to the original description and belongs to the syntype serie (Fowler 1904).

The species is transferred to the genus Acanalonia according to wide metope and narrow coryphe and the shape and venation of fore wings. The ovipositor with large nearly triangular gonoplacs bearing marginal teeth is of characteristic acanaloniid type as described by Gnezdilov (2012).

Family Issidae Spinola, 1839
Tribe Issini Spinola, 1839
Genus Vishnuloka Distant, 1906

Vishnuloka Distant, 1906: 345;
Delia Melichar, 1906: 265 (Type species: Delia deserta Melichar, 1906), homonymy;
Ardelia Melichar, 1907: 324, nom. nov. pro Delia Melichar, 1906, nec Delia Robineau-Desvoidy, 1830, syn. nov.

Type species: Vishnuloka prominula Distant, 1906.

Vishnuloka prominula Distant, 1906 (Fig. 1A–C)

Vishnuloka prominula Distant, 1906: 345
Vishnuloka cuneata Distant, 1906: 346, syn. nov.

Type material examined. Female (lectotype of Vishnuloka prominula, here designated) – INDIA, Mungphu (BMNH). Female (lectotype of Vishnuloka cuneata, here designated) – MYANMAR, Tenass Vall, Myitta, Doherty (BMNH).

Supplementary description. Coryphe transverse, with anterior margin weakly marked (Fig. 1B). Metope with no intermediate carinae, protruding like a cone in its upper part (Fig. 1C). Fore wings narrowing apically; radius, median, and cubitus anterior bifurcate (R 2 M 2 CuA 2); median bifurcates
Fig. 1. Issidae and Tropiduchidae, external view: A, *Vishnuloka prominula* Distant (lectotype of *Vishnuloka cuneata*), lateral view; B, same, dorsal view; C, same (lectotype of *Vishnuloka prominula*), frontal view; D, *Cixiopsis chelydinus* (Jacobi), dorsal view. Scale bar (1 mm): a = A, B; b = C; c = D.
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Distally. Hind wings well developed, 3-lobed. Hind tibia with 2 lateral spines. First metatarsomere with 2 latero-apical and 2 intermediate spines.

**Distribution.** Northeastern India (Sikkim) and Myanmar (Distant 1906).

**Note.** The lectotypes are here designated for the specimens listed above which correspond to the original descriptions and belong to the syntype series (Distant 1906).

**Vishnuloka deserta** (Melichar, 1906) comb. nov.

*Delia deserta* Melichar, 1906: 265;  
*Ardelia deserta* Melichar, 1907: 324.


**Distribution.** Sumatra (Melichar 1906).

**Note.** The species was described after 3 specimens (Melichar 1906). The lectotype is here designated for the specimen listed above which corresponds to the original description and belongs to the syntype serie (Melichar 1906). Subsequently other specimens which belong to the syntype serie as well became paralectotypes.

The species is placed in the nogodinid genus *Scalabis* according to carination of the metope and vena-tion of the fore wings as described by Fennah (1954). The ovipositor with narrow and long gonoplacs and anterior connective laminae of gonapophyses VIII is of characteristic nogodinid type as described by Gnezdilov (2003) for the tribe Tongini. Thus the issid genus *Narayana* Distant, 1906 is limited in its distribution to Sri Lanka and Southern India.

**Genus Oryxana** Distant, 1910

**Type species:** *Flata subacuta* Walker, 1870.

**Oryxana suturalis** (Melichar, 1906)

*Issina suturalis* Melichar, 1906: 210;  
*Issella suturalis* Metcalf, 1952: 227;  
*Oryxana suturalis* Gnezdilov, 2009: 86;  
*Oryxana subrecta* Jacobi, 1941: 292, syn. nov.;  
*Buehleria rabana* Lallemand et Synave, 1953: 249, syn. nov.;  
*Oryxana rabana* Gnezdilov, 2009: 86.

**Type material examined.** Female (lectotype of *Issina suturalis*, here designated) – INDONESIA,

Note. The lectotypes are here designated for the specimens listed above which correspond to the original descriptions and belong to the syntype series (Melichar 1906; Jacobi 1941). Subsequently, other specimens which belong to the syntype series as well became the paralectotypes.

### Tribe Epacriini Fennah, 1978

**Genus Mangola Melichar, 1906**

Type species: *Mangola reticulata* Melichar, 1906.

*Mangola solida* (Melichar, 1911) comb. nov.  
(Fig. 2A–D)

*Hysteropterum solidum* Melichar, 1911: 115.

**Type material examined.** Female (holotype) – KENYA, Afrique Orient. Angl., Mont Nyro, Maurice de Rothschild 1905, “Hysteropt. solidum n. sp.” (handwritten) (MNHN).

**Other material examined.** 3 males, 3 females, KENYA, Kenya Marsabit N.P, Forêt Lac Paradis, 1400 m, 11–12 December 1972, M. Boulard leg. (MNHN).

Note. Melichar (1911) noted that only one specimen was available to him and this is here recognised as the holotype.

The species is transferred to the genus *Mangola* according to the characteristic robust shape of the body including fore wings, the transverse short corryphe, and the flat metope with a distinct median carina. The ovipositor is of characteristic nogodinid type as described by Gnezdilov (2003).

### Tribe Mithymnini Fennah, 1967

**Genus Telmosias Fennah, 1967**

Type species: *Telmosias crito* Fennah, 1967.

*Telmosias ecarinatus* (Synave, 1956) comb. nov.

*Hysteropterum ecarinatum* Synave, 1956: 16, figs 14, 30, 31.

**Type material examined.** 1 male, 2 females (paratypes) – REPUBLIC OF SOUTH AFRICA, Lammerskraal, Prince Albert Distr., C. P. (IRSNB).

Note. The species is transferred to the genus *Telmosias* according to the carination of metope, the shape and venation of the fore wings, and the structure of male genitalia as described by Fennah (1967).

### Family Tropiduchidae Stål, 1866

**Tribe Cixiopsini Fennah, 1982**

Fennah (1982) erected the tribe Cixiopsini for the genera *Cixiopsis* Matsumura, 1900, *Zema* Fennah, 1956, *Duriopsis* Melichar, 1902, *Padanda* Distant, 1906, and *Olontheus* Jacobi, 1944. Subsequently the genus *Caffrommatissus* Fennah, 1967 was added to the tribe (Huang and Bourgoin 1993). Matsumura (1914) placed *Padanda atkinsoni* Distant, 1906 – in synonymy under *Cixiopsis punctatus* Matsumura, 1900. He treated *P. atkinsoni* as brachypterous form of *C. punctatus*. Finally Anufriev and Emeljanov (1988) have regarded *Olontheus obscurus* Jacobi, 1944 as a junior synonym of *C. punctatus*. As *O. obscurus* is the type species of the genus *Olontheus* Jacobi, 1944 it means the synonymization of the genera *Cixiopsis* and *Olontheus* as well. Our study of the type specimen of *Nacmusius chelydinus* Jacobi, 1944, which was treated as belonging to the family Issidae (Jacobi 1944; Metcalf 1958), shows that this species belongs to the genus *Cixiopsis* and accordingly *Nacmusius* Jacobi, 1944 is a junior synonym of *Cixiopsis Matsumura, 1900.*

Taking into consideration the synonymies mentioned above the tribe Cixiopsini consist of four genera: *Cixiopsis* Matsumura, 1900, *Duriopsis* Melichar, 1902, *Zema* Fennah, 1956, and *Caffrommatissus* Fennah, 1967 (Fennah 1982; Huang and Bourgoin 1993). The first three genera are known from Asia (Matsumura 1900, 1914; Melichar 1902; Fennah 1967).
Fig. 2. Nogodinidae, *Mangola solida* (Melichar), holotype: A, lateral view; B, dorsal view; C, frontal view; D, ovipositor. Scale bar (1 mm): a = A, B; b = C; c = D.
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1956; Vilbaste 1968; Anufriev and Emeljanov 1988; Wang and Liang 2007; Rahman et al. 2011) and Caffrommassus – from southern Africa (Fennah 1967). However the genus Cixiopsis is very peculiar within all of the mentioned genera (except the genus Durioptis for which the structure of the male genitalia is not described), in the structure of penis with the character of a large laterally flattened phallobase totally covering the aedeagus. The tribe is in need of revision.

Genus Cixiopsis Matsumura, 1900

Cixiopsis Matsumura, 1900: 207;
Padanda Distant, 1906: 331 (Type species: Padanda atkinsoni Distant, 1906), syn. fide Matsumura, 1914: 268;
Olontheus Jacobi, 1944: 17 (Type species: Olontheus obscurus Jacobi, 1944), syn. fide Anufriev and Emeljanov, 1988: 488;
Nacmusius Jacobi, 1944: 19 (Type species: Nacmusius chelydinus Jacobi, 1944), syn. nov.

Type species: Cixiopsis punctatus Matsumura, 1900.

Note. We have studied the material on the genus Cixiopsis from Nepal (Gnezdilov, unpublished) and found it significantly different in the structure of penis from Cixiopsis punctatus. Thus despite the synonymy proposed by Matsumura (1914) and supported by Anufriev and Emeljanov (1988) for the species, we suggest treating all type species mentioned above as distinct species of the genus Cixiopsis until the males of the species from type localities are examined.

Cixiopsis punctatus Matsumura, 1900

Cixiopsis punctatus Matsumura, 1900: 208.


Cixiopsis atkinsoni (Distant, 1906)

Padanda atkinsoni Distant, 1906: 332, fig. 166.

Distribution. northeastern India (Sikkim).

Cixiopsis chelydinus (Jacobi, 1944) comb. nov.

(Fig. 1D)

Nacmusius chelydinus Jacobi, 1944: 19, fig. 6.

Material examined. 1 female – CHINA, Fukien, Shaowu (500 m), 7 August 1937, J. Klapperich leg. (SNSD).

Distribution. Southeastern China.

Note. The species was described after 3 males from Kwangtseh in China collected by J. Klapperich (Jacobi 1944). According to the list of types deposited in the Zoologisches Forschungsmuseum Alexander König in Bonn (Lampe et al. 2006) there is one specimen deposited there (incorrectly named as the holotype) with the labels corresponding to the original description and this may be designated later after examination as the lectotype; we have examined the photo of this specimen (Fig. 1D). Another specimen mentioned in the same list (as the paratype) does not completely correspond to Jacobi’s label data (1944) as it was collected in October, but according to the abbreviation given by Jacobi all 3 syntypes were collected during July–September.

Cixiopsis obscurus (Jacobi, 1944)

Olontheus obscurus Jacobi, 1944: 17, fig. 5.

Type material examined. 1 specimen with abdomen missing (holotype) – VIETNAM, Tonkin, Chapa, 28 June 1917, Jeanvoine (SNSD).


Note. The species was described after a single male (Jacobi 1944). The specimen listed above corresponds to the original description and this is recognised here as the holotype. Lampe et al. (2006) listed the holotype of the species as deposited in Bonn, however, the labels mentioned in the list is not corresponding to the original description.

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