

Review of Indochinese Issini Spinola, 1839 (Hemiptera, Fulgoroidea, Issidae), with description of a new genus from Laos

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Gnezdilov V. M. 2014. — Review of Indochinese Issini Spinola, 1839 (Hemiptera, Fulgoroidea, Issidae), with description of a new genus from Laos. *Zoosystema* 36 (4): 761-770. <http://dx.doi.org/10.5252/z2014n4a4>

KEYWORDS

Laos,
Malaysia,
lectotypification,
new records,
new genus,
new species.

ABSTRACT

For the first time a list of Issini Spinola, 1839 taxa known from whole Indochinese region is given. The list comprises 12 genera with 20 species, including *Tapirissus guilberti* n. gen., n. sp. described from Laos. Lectotype is designated for *Tetrica viridimixta* Distant, 1906. *Eusudasina nantouensis* Yang, 1994 is recorded from Laos for the first time and *Eupilis albilineola* Walker, 1857 from Malaysia.

RÉSUMÉ

Les Issini Spinola, 1839 (Hemiptera, Fulgoroidea, Issidae) d'Indochine, avec la description d'un nouveau genre du Laos.

MOTS CLÉS
Laos,
Malaisie,
lectotypification,
signalisations nouvelles,
genre nouveau,
espèce nouvelle.

Pour la première fois, nous donnons la liste des taxa connus d'Issini Spinola, 1839 pour la région indochinoise. Cette liste comprend 12 genres et 20 espèces, incluant *Tapirissus guilberti* n. gen., n. sp. décrit du Laos. Un lectotype est désigné pour *Tetrica viridimixta* Distant, 1906. *Eusudasina nantouensis* Yang, 1994 est signalé pour la première fois au Laos et *Eupilis albilineola* Walker, 1857 en Malaisie.

INTRODUCTION

The Indochinese geographic region includes at least seven countries: Vietnam, Laos, Cambodia, Thailand, Myanmar, Western Malaysia, and Singapore. Fulgoromorpha fauna of this region is highly diverse and for many groups is almost unknown. Thus in recently revised tribe Bennini Metcalf, 1938 of the family Cixiidae Spinola, 1839 which is distributed in this region 101 new species were described and 22 new genera were erected (Hoch 2013). The fauna of the tribe Issini Spinola, 1839 of this area was never in a focus of special study. During last 160 years 12 genera with 20 species of the tribe Issini, including new genus and new species described below, are recorded from this region (Stål 1854, 1861, 1870; Walker 1857; Distant 1906; Melichar 1906; Fennah 1978; Gnezdilov 2009, 2013a; Gnezdilov & Constant 2012). Myanmar houses the highest number of species – eight, Western Malaysia with four species, Laos, Vietnam, and Singapore each with three species. Still nothing is published from Cambodia and Thailand.

During my study in the Hemiptera collections of several European museums a new species representing a new genus of the family Issidae from Laos was discovered and new record of *Eusudasina nantouensis* Yang, 1994 from Laos was provided.

MATERIAL AND METHODS

The terminology of the head and pronotum follows Anufriev & Emeljanov (1988). Photographs of the specimen were made with Nikon video camera SMZ 1500, images are produced using the software ACT-2U Combine Z5. The drawings of male genitalia were produced using light microscope Mikmed-1. The holotype of the species described in this paper is deposited in the MNHN. Other specimens examined are from the museums listed below.

ABBREVIATIONS

Institutions

- BMNH Natural History Museum, London;
IRSNB Institut royal des Sciences naturelles de Belgique, Brussels;

- MNHN Muséum national d'Histoire naturelle, Paris;
NMBC Moravian Museum, Brno, Czech Republic;
OUMNH Oxford University Museum of Natural History, Oxford;
ZIN Zoological Institute, Russian Academy of Sciences, Saint Petersburg.

Morphology

- A₁ first anal vein;
aa apical angle of anal tube;
ac anal column;
at apical tooth of style;
bpphb basal process of phallobase;
bs basement of style (point of connection to connective);
cda caudo-dorsal angle of style;
CuA₁, CuA₂ branches of cubitus anterior vein;
CuP cubitus posterior vein;
cv connective;
hp hind margin of pygofer;
lmat lateral margin of anal tube;
lt lateral tooth of style;
M₁-M₄ branches of median vein;
nk neck of style;
Pcu postcubitus vein;
ps plate of style;
R₁, R₂ branches of Sc + R vein;
Sc subcosta vein;
ssp suspensorium process;
spphb subapical processes of phallobase;
vh ventral hooks of aedeagus;
vlphb ventral phallobase lobe.

SYSTEMATICS

- Family ISSIDAE Spinola, 1839
Subfamily ISSINAE Spinola, 1839
Tribe ISSINI Spinola, 1839

Tapirissus n. gen.

TYPE SPECIES. — *Tapirissus guilberti* n. sp.

ETYMOLOGY. — The generic name is derived from the combination of two other generic names – *Tapirus* (Mammalia, Tapiridae) and *Issus* (type genus of the family Issidae) to show the similarity of postclypeal proboscis of the new genus and trunk of *Tapirus indicus* (Desmarest, 1819) – which is the single Oriental species of the family Tapiridae.

DISTRIBUTION. — Northern Laos.

DIAGNOSIS. — Metope elongate, without sublateral carinae (Fig. 1C, D). Metope and coryphe joined at obtuse angle – metope wholly visible from above (Fig. 1A). Coryphe transverse. Postclypeus large, in shape of flattened laterally proboscis bearing a median carina, resembling a chisel (Fig. 1B). Fore wing with reticulate venation and without hypocostal plate (Fig. 1B). Hind wings one-lobed (Fig. 2). Hind tibia distally with a single lateral spine.

COMPOSITION. — Monotypical genus.

TAXONOMIC RELATIONSHIPS. — Closely related to the genera *Eusudasina* Yang, 1994 and *Euxalldar* Fennah, 1978.

DESCRIPTION

Metope elongate, enlarged above clypeus, with rows of small bumps (tubercles) along its lateral margins and with weak median carina which runs from its upper margin to its middle; without sublateral carinae (Fig. 1C, D). Metopoclypeal suture almost straight. No ocelli. Coryphe transverse, with keel-shaped margins; anterior margin weakly convex, posterior margin weakly concave (Fig. 1A). Pronotum short, anterior margin obtusely angulate, keel-shaped, posterior margin almost straight; with no carinae. Paradiscal fields very narrow behind the eyes. Paranotal lobes wide, without carinae. Mesonotum longer than pronotum, without carinae. Tegulae small. Fore wings narrowly rounded apically (Fig. 1B), without hypocostal plate, with reticulate venation – longitudinal veins furcate often, with many transverse veins in between including the clavus; all veins are raised. Basal cell large, rounded. Hind wings one-lobed, veins with setae, costal margin deeply concave, anal lobe reduced – hind margin of the wing is formed by first anal vein (Fig. 2[A₁]). First metatarsomere with two latero-apical spines and six intermediate spines. Second metatarsomere with only two latero-apical spines.

Tapirissus guilberti n. sp. (Figs 1-3)

TYPE MATERIAL. — **Holotype.** 1 ♂ Laos, Naten, 21°20.259'N, 101°52.816'E, secondary forest, 901 m, 27.IX.2004, E. Guilbert leg., MNHN.

TYPE LOCALITY. — Laos, Naten.

DISTRIBUTION. — Northern Laos.

ETYMOLOGY. — The species named after the collector, French heteropterologist Dr Eric Guilbert (MNHN).

DIAGNOSIS

Suspensorium with pair of narrow stick-shaped processes (Fig. 3A[ssp]). Ventral phallobase lobe large and long, narrowing to its apex (Fig. 3B[vlphb]). Each dorso-lateral phallobase lobe with nearly semicircular process basally (Fig. 3A[bpphb]) and with one long narrow and one small hook-shaped subapical processes (Fig. 3A[spphb]). First metatarsomere with six intermediate apical spines.

DESCRIPTION

Total length (from the apex of clypeal proboscis to the apex of fore wing): male – 4.1 mm.

Hind wings with basal cell large, oval (Fig. 2). Sc + R₂, M₄, CuA₂, CuP₁, Pcu₁. Sc + R furcates in apical half of the wing, branches short. Between radius and median there are several secondary veins forming two triangular cells. Median firstly furcates near to wing middle, and again – in apical half of the wing. Posterior branch of median (M₄) zigzag-shaped. Cubitus anterior furcates near to wing middle. Anterior branch of CuA (CuA₁) zigzag-shaped.

General coloration of upper side brown to dark brown (Fig. 1A-C). Genae under the eyes, scapus and pedicel, and postclypeus dark brown. Anteclypeus and trochanters of the legs light yellow. Fore wings brown with some veins white. Hind wings light brown. Abdominal sternites light brown, with yellow greenish spots. Fore and middle femora dark brown. Fore and middle tibiae dark brown, with light brown apices. Hind femora brown. Hind tibiae light yellow brownish. Tarsi brown. Apices of spines black.

Male genitalia

Pygofer narrowing from its base to its apex under the anal tube (in lateral view), with distinctly convex hind margin (Fig. 3A). Anal tube wide and short, widening apically (in dorsal view) (Fig. 3E), lateral margins turned down (in lateral view) (Fig. 3A). Anal column (paraproct) long, ½ as long as anal tube. Suspensorium with pair of narrow stick-shaped processes (Fig. 3A[ssp]) which are apparently fixed by

the basal lobes of the phallobase (Fig. 3A[bpphb]). Phallobase curved at almost right angle (in lateral view). Ventral phallobase lobe large and long, narrowing to its apex (Fig. 3B[vlphb]). Each dorso-lateral phallobase lobe with nearly semicircular process basally (Fig. 3A[bpphb]) above the suspensorium process and with one long narrow and one small hook-shaped subapical processes (Fig. 3A[spphb]). Phallobase membranous dorsally. Aedeagus with pair of long and narrow ventral hooks which arising basally and directed to the apex of phallobase (Fig. 3A, B[vh]). Style with massive plate and rounded caudo-dorsal angle (Fig. 3C); capitulum on distinct neck, wide, slightly narrowing apically (in dorsal view) (Fig. 3D); apical tooth small, lateral tooth well developed.

INDOCHINESE ISSINI

Darwallia patula (Walker, 1857)

Issus patulus Walker, 1857: 153.

Issus sobrinus Walker, 1857: 154, syn. fide Gnezdilov (2010: 44).

Thabena stali Melichar, 1906: 294, syn. fide Gnezdilov (2010: 44).

Thabena sobrina – Liang 2001: 237.

Darwallia patula – Gnezdilov 2010: 44.

MATERIAL EXAMINED. — **Singapore**. 1 ♀, holotype of *Thabena stali*, “Singapore, Higgins 69, Coll. Camille van Voixem”, IRSNB.

DISTRIBUTION. — Malaysia (Sarawak, Kuching) (Walker 1857; Gnezdilov 2010), Indonesia (Gnezdilov 2010), Singapore (Melichar 1906).

Eusudasina nantouensis Yang, 1994

Eusudasina nantouensis Yang in Chan & Yang, 1994: 82.

MATERIAL EXAMINED. — **Laos**. 1 ♀, Hua Phan Province, Phu Phan Mt., 1500–1900 m, 20°12'N, 104°01'E, 17.V.-3.VI.2007, V. Kubán leg., “Entomological expedition Laos 2007, Moravian Museum Brno Czech Republic”, NMBC.

DISTRIBUTION. — Taiwan, Laos (new record).

Euxaldar jehucal Fennah, 1978

Euxaldar jehucal Fennah, 1978: 268.

MATERIAL EXAMINED. — **Vietnam**. 1 ♂, 70 km NWW of Ha Noi, Ba Vi, 24.XI.1990, S. A. Belokobylskij leg., ZIN.

DISTRIBUTION. — Vietnam (Fennah 1978; Gnezdilov & Constant 2012).

Jagannata chelonia Distant, 1906

Jagannata chelonia Distant, 1906: 338.

MATERIAL EXAMINED. — **Myanmar**. 1 ♂, Holotype, “Tenass Vall, Myitta, Doherty”, “type”, BMNH.

DISTRIBUTION. — Myanmar (Distant 1906).

NOTE

The holotype is missing hind legs.

Jagannata maculata Distant, 1906

Jagannata maculata Distant, 1906: 339.

MATERIAL EXAMINED. — **Myanmar**. Holotype, “Tenass Vall, Myitta, Doherty”, “type”, BMNH.

DISTRIBUTION. — Myanmar (Distant 1906).

NOTE

The holotype is missing abdomen and hind legs.

Kodaiannela bicinctifrons Fennah, 1956

Kodaiannela bicinctifrons Fennah, 1956: 508.

MATERIAL EXAMINED. — **Laos**. 1 ♂, Région de Phongsaly, Long Nai Mai, forêt primaire, 21°14'N, 101°54'E, 918 m, 1.X.2004, A. Soulier-Perkins leg., MNHN.

DISTRIBUTION. — China (Guizhou, Sichuan) (Fennah 1956; Zhang & Chen 2010), Laos (Gnezdilov 2013a).



FIG. 1. — *Tapirissus guilberti* n. gen., n. sp., holotype, habitus: **A**, dorsal view; **B**, lateral view; **C**, **D**, face. Total length of the specimen: 4.1 mm.

Kodaiianella bipartita (Distant, 1906)

Sivaloka bipartita Distant, 1906: 353.

Kodaiianella bipartita – Gnezdilov 2013a: 42.

MATERIAL EXAMINED. — Myanmar. 1 ♀, lectotype, “Tenass Vall, Myitta, Doherty”, “type”, BMNH.

DISTRIBUTION. — Myanmar (Distant 1906).

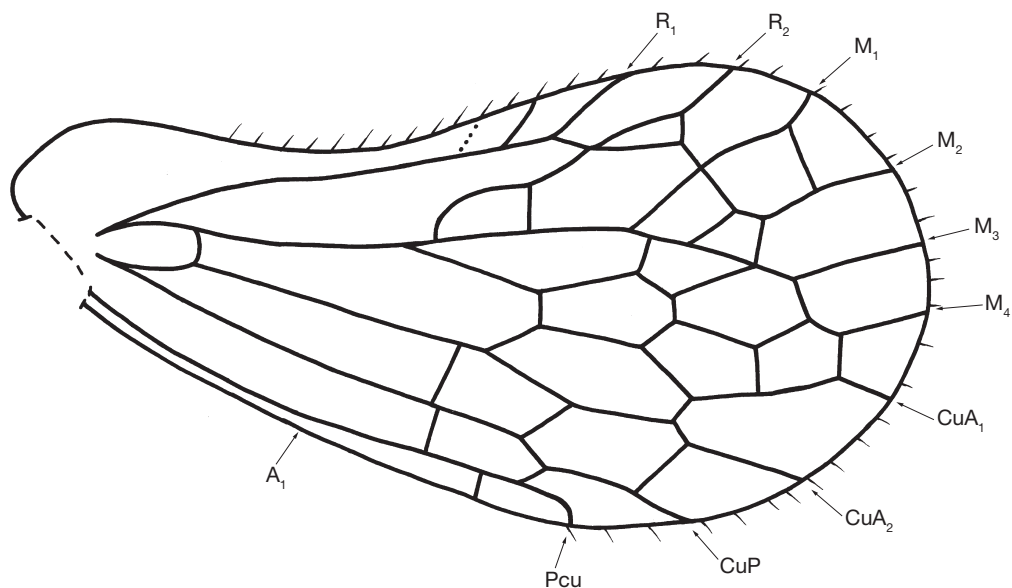


FIG. 2. — *Tapirissus guilberti* n. gen., n. sp., holotype, hind wing. Total length of wing: 2 mm.

Pseudochoutagus rubens
Gnezdilov & Constant, 2012

Pseudochoutagus rubens Gnezdilov & Constant, 2012: 572.

MATERIAL EXAMINED. — Vietnam. 1 ♀, holotype, “Me Linh, 20-24.VIII.2010, Day Catch I.G.31.668, J. Constant and P. Limbourg legs”, IRSNB.

DISTRIBUTION. — Vietnam (Gnezdilov & Constant 2012).

Sarima solita Melichar, 1906

Sarima solita Melichar, 1906: 303.

DISTRIBUTION. — Malaysia (Perak) (Melichar 1906).

NOTE

The photos of the type specimen were examined. No material was available for study.

Tempsa malaya (Stål, 1854)

Issus malayus Stål, 1854: 246.

Tempsa malaya – Stål 1866: 393.

DISTRIBUTION. — Malaysia (Malacca) (Stål 1854), Singapore (Stål 1861).

NOTE

No material was available for study.

Tetrica bifasciata Distant, 1906

Tetrica bifasciata Distant, 1906: 340.

MATERIAL EXAMINED. — Myanmar. 1 ♀, holotype, “Tenass Vall, Myitta, Doherty”, “type”, BMNH.

DISTRIBUTION. — Myanmar (Distant 1906).

NOTE

The holotype is missing head.

Tetrica fusca Stål, 1870

Tetrica fusca Stål, 1870: 757.

DISTRIBUTION. — Myanmar (Stål 1870).

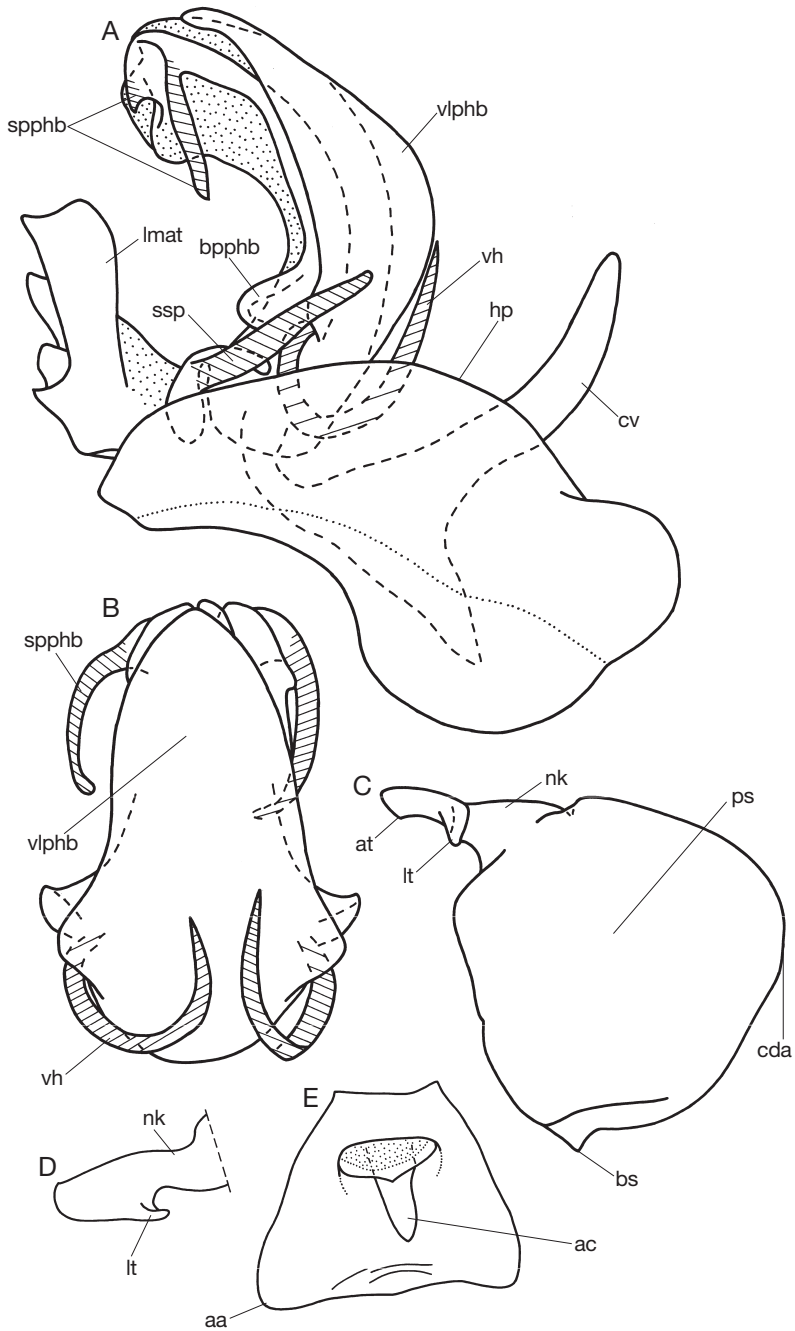


FIG. 3. — *Tapirissus guilberti* n. gen., n. sp., holotype, male genitalia: **A**, anal tube, pygofer, penis, and connective, lateral view; **B**, penis, ventral view; **C**, style, lateral view; **D**, capitulum of style, dorsal view; **E**, anal tube, dorsal view. Abbreviations: see Material & methods.

NOTE

The photos of the type specimen were examined.
No material was available for study.

Tetrica philo Fennah, 1978

Tetrica philo Fennah, 1978: 269.

DISTRIBUTION. — Vietnam (Fennah 1978).

MATERIAL EXAMINED. — **Vietnam**. 1 ♂, Thanh Son, Ba Thuoc, Thanh Hoa, 700 m, 15.VI.2003, H.T. Pham leg., IRSNB.

Tetrica viridimixta Distant, 1906

Tetrica viridimixta Distant, 1906: 340.

MATERIAL EXAMINED. — **Myanmar**. 1 ♀, lectotype (here designated), “Tenass Vall, Myitta, Doherty”, “type”, BMNH.

DISTRIBUTION. — Myanmar (Distant 1906).

NOTE

According to the original text Distant (1906) based his description on several specimens. In the collection of the Natural History Museum (London, United Kingdom) there are two females with identical locality labels. One of them is labeled as “type” and another one as “syntype”. I designate here the lectotype for the female labeled as “type”.

Thabena brunnifrons
(Bonfils, Attie & Reynaud, 2001)

Borbonissus brunnifrons Bonfils, Attie & Reynaud, 2001: 218.

Thabena brunnifrons – Gnezdilov 2009: 79.

MATERIAL EXAMINED. — **Singapore**. 1 ♂, Sungei Buloh, swamp forest, 27.VII.2005, Malaise trap, P. Grootaert leg., ZIN.

DISTRIBUTION. — Reunion I. (Bonfils *et al.* 2001), Singapore (Gnezdilov 2009), Taiwan (Chan *et al.* 2013).

Thabena decipiens (Melichar, 1906)

Gelastyrta decipiens Melichar, 1906: 264.

Thabena decipiens – Gnezdilov 2009: 80.

DISTRIBUTION. — Malaysia (Perak) (Melichar 1906).

NOTE

The photos of the type specimen were examined.
No material was available for study.

Thabena diversa (Melichar, 1906)

Gelastyrta diversa Melichar, 1906: 263.

Thabena diversa – Gnezdilov 2009: 80.

DISTRIBUTION. — Myanmar (Melichar 1906).

NOTE

The photos of the type specimen were examined.
No material was available for study.

Thabena retracta (Walker, 1857)

Issus retractus Walker, 1857: 152.

Thabena retracta – Gnezdilov 2009: 78.

MATERIAL EXAMINED. — **Malaysia**. 1 ♂, holotype, “Borneo”, “type”, BMNH.

DISTRIBUTION. — Malaysia (Sarawak, Sabah) (Walker 1857; Gnezdilov 2009), Singapore (Gnezdilov 2009).

Vishnuloka prominula Distant, 1906

Vishnuloka prominula Distant, 1906: 345.

Vishnuloka cuneata Distant, 1906: 346, syn. fide Gnezdilov (2012: 240).

MATERIAL EXAMINED. — **Myanmar**. 1 ♀, lectotype of *Vishnuloka cuneata*, “Tenass Vall, Myitta, Doherty”, “type”, BMNH.

DISTRIBUTION. — India (Sikkim), Myanmar (Distant 1906).

Eupilis albilineola Walker, 1857*Eupilis albilineola* Walker, 1857: 93.

MATERIAL EXAMINED. — Malaysia. 1 ♀, holotype, “Sar., Wallace, *Eupilis albilineola*” (hand-written in ink), OUMNH.

DISTRIBUTION. — Malaysia (Sarawak).

NOTE

Formally the species was described from Singapore (Walker 1957: 93), however, our study of Walker’s type specimen which is a female deposited in the OUMNH showed that it was described after Wallace’s specimen collected in Sarawak (eastern Malaysia, Borneo). Accordingly Walker’s record from Singapore may be treated as *lapsus calami*.

DISCUSSION

Described up to date Indo-Malayan fauna of Issini includes 152 species in 39 genera (Gnezdilov 2013c). Apparently we are just at the beginning of discovering and describing the Indochinese Issini as it currently comprises only 20 species (see the list above).

The new genus and new species from Laos described above is an important contribution to the knowledge of the fauna of this country as except already mentioned members of the tribe Issini just one more issid species of the tribe Parahiraciini Cheng & Yang, 1991, *Flavina acuta* Ran & Liang, 2006, was previously recorded from the country. Apparently the issid fauna of Laos is much richer than it is currently documented and further investigation will bring more materials to our knowledge. According to our study in the collections, at least two more genera, *Thabena* Stål, 1866 (Issini) and *Fortunia* Distant, 1909 (Parahiraciini) are represented in Laos. For comparison, recently published papers, on the issid fauna of Vietnam, list 20 species (Gnezdilov & Constant 2012; Gnezdilov 2013b) and even this list is very far from being complete because Issidae is supposed to be one of the richest in number of taxa groups of Auchenorrhyncha in Vietnam (Novotný 1992, 1993).

Morphologically *Tapirissus guilberti* n. gen., n. sp. is closely related to the monotypical genera *Eusudasina* Yang, 1994, originally described from Taiwan (Chan & Yang 1994) and recorded above from Laos, and *Euxaldar* Fennah, 1978 – endemic to northern Vietnam (Fennah 1978). All three genera are characterized by metope with bumps, postclypeus strongly flattened laterally, with median carina, and fore wings with reticulate venation. However *Eusudasina* and *Euxaldar* in contrast to *Tapirissus* n. gen. have hind tibia with two lateral spines and postclypeus with no proboscis. It is conceivable that this group of genera derived in Indochinese region and later *Eusudasina* spreaded to Taiwan as well.

Acknowledgements

I thank Dr Eric Guilbert and Prof. Dr Thierry Bourgoïn (Paris, France), Dr Igor Malenovský (Brno, Czech Republic), Mr. Darren Mann (Oxford, United Kingdom), Dr Mike Wilson (Cardiff, United Kingdom), and Mr Jérôme Constant (Brussels, Belgium) for the opportunity to examine the material and Prof. Dr Hannelore Hoch (Berlin, Germany) and Dr Adeline Soulier-Perkins (Paris, France) for their valuable comments of the manuscript. The study was financially supported by the MNHN, the Royal Society (London, United Kingdom), and the Alexander von Humboldt Stiftung (Bonn, Germany).

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Submitted on 14 February 2014;
accepted on 1st July 2014;
published on 26 December 2014.