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Vietnamese Issidae (Hemiptera, Fulgoroidea): new taxa, new records and new distribution data

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Abstract

An updated list of Issidae known from Vietnam is provided. Two new species, one from the genus *Darwallia* Gnezdilov, 2010, and another one from a new genus are described from the Hòn Bà massif in Central Vietnam. A key to species of the genus *Darwallia* is provided. *Gelastyrella hainanensis* Ran et Liang, 2006 is placed in synonymy under *Thabena litaoensis* Yang, 1994. This last taxon and the genus *Gergithoides* Schumacher, 1915 are recorded for the first time for Vietnamese fauna. New records in Vietnam are given for *Tetrica philo* Fennah, 1978 and *Gergithus iguchii* Matsumura, 1916.

Key words: Vietnam, Annamite Range, taxonomy, new genus, new species, new records, new synonymy

Introduction

Planthoppers of Vietnam remain very poorly known and studied. The main source of taxonomic information is the monograph by Fennah (1978) who provided the first general contribution to the Vietnamese fauna, but it mainly concerns the northern part of the country. Fennah (1978) listed totally 106 species and subspecies in 78 genera of 16 families of Fulgoroidea. Recent field collects, in collaboration with local authorities, allowed to report more than 200 planthopper species for Vietnam (FLOW: Bourgoïn, 2014), however it is far to cover what should be the real diversity of this group in Vietnam.

This is particularly the case of the family Issidae Spinola, 1839 even if it started to attract recent attention with the descriptions of some new taxa (Constant & Pham, 2011; Gnezdilov & Constant, 2012; Gnezdilov, 2013a). To complete the previously 19 species inventoried in Vietnam, we describe here two new taxa of the tribe Issini Spinola, 1839: one new genus with a new species and another new species of recently erected genus *Darwallia* Gnezdilov, 2010. We also provide additional data on distribution for 4 other species (2 of them are new for Vietnam) collected during two recent field trips to the southern part of the Anamitic Range between Dalat and Nha Trang, centre of Vietnam, and from old materials deposited in the MNHN collections. With this study the Issidae of Vietnam count now 25 species in 14 genera.

The Annamite Range is a long mountain chain over 1100 km long covering about 23 millions hectares with highlights peaks over 2500 m. It extends along the border of Vietnam and Laos, running parallel to the Vietnamese coast on the East side of the Mekong River. It is mainly covered by rainforest and is home to a remarkable and highly endemic fauna. Two main spots were targeted: during a first field trip in 2008, the Bi-Doup mountain and its neighbouring Hòn-Giao mountain, both part of the Bi Doup Nui Ba National Park, one of the largest preserved area in Vietnam (66,067 ha) and in 2013, the Hòn-Bà massif (19,046 ha) a smaller National Reserve. The Hòn-Bà massif is situated at the eastern end of a long mountainous ridge of some 30 km starting on the east side of the Hòn-Giao mountain. Both sites are covered with primary and secondary forest usually absent at these altitudes (800–2000 m) due to strong anthropic pressures and belong to the Southern Annamites montane rain forests

terrestrial eco-region itself part of the Annamite Range Moist Forests one of the 200 WWF's global ecoregions (Olson & Dinerstein, 2002).

Material and methods

The terminology of head and pronotum follows Anufriev & Emeljanov (1988), male genitalia: Gnezdilov (2003), and female genitalia: Bourgoïn (1993). The specimens studied are deposited in the Museum national d'Histoire naturelle, Paris, France (MNHN) and in the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia (ZIN).

Abbreviations:

ac—anal column of anal tube; ape—apical process of aedeagus; b.c.—basal cell of fore wing; bp—basal process of phallobase; cdap—caudo-dorsal angle of pygofer; cdas—caudo-dorsal angle of style; CuA—cubitus anterior vein of fore wing; hm—hind margin of style; hp—hook-shaped process of phallobase; lt—lateral tooth of style; M—median vein of fore wing; n—neck of capitulum of style; sap—subapical process of phallobase; VI, VII—female abdominal sternites.

Taxonomy

1. Issidae from Vietnam

New provisional list of Issidae currently known from Vietnam according to Gnezdilov's classification of the family (Gnezdilov, 2013b) and updated from Gnezdilov & Constant (2012):

Issidae Spinola, 1839

Issinae Spinola, 1839

Issini Spinola, 1839

Darwallia Gnezdilov, 2010 New for Vietnam

Darwallia barbata sp. n. New taxon

Euxaldar Fennah, 1978

Euxaldar jehucal Fennah, 1978

Pseudochoutagus Che, Zhang et Wang, 2011

Pseudochoutagus rubens Gnezdilov et Constant, 2012

Tetrica Stål, 1866

Tetrica philo Fennah, 1978 New record in Vietnam

Thabena Stål, 1866 New for Vietnam

Thabena litaoensis Yang, 1994 New for Vietnam

Dactylissus gen. nov. New taxon

Dactylissus armillarius sp. nov. New taxon

[*Vishmuloka* Distant, 1906 [In Lallemand (1942) *Vishmuloka deserta* (Melichar, 1906)] dubious record according to Gnezdilov, 2012]

Parahiraciini Cheng et Yang, 1991

Bardunia Stål, 1863

Bardunia curvinaso Gnezdilov, 2011

Flavina Stål, 1861

Flavina acuta Ran et Liang, 2006

Flavina sp.

Fortunia Distant, 1909

Fortunia byrrhoides (Walker, 1858)

Fortunia viridis (Lallemand, 1942)
Hemisphaeriini Melichar, 1906
Bolbosphaerius Gnezdilov, 2013
Bolbosphaerius belokobylskiji Gnezdilov, 2013
Gergithus Stål, 1870
Gergithus gravidus Melichar, 1906
Gergithus iguchii Matsumura, 1916 New record in Vietnam
Gergithoides Schumacher, 1915 New for Vietnam
Gergithoides sp.
Hemisphaerius Schaum, 1850
Hemisphaerius bipunctatus Melichar, 1906
Hemisphaerius cattienensis Constant et Pham, 2011
Hemisphaerius hippocrepis Constant et Pham, 2011
Hemisphaerius interclusus Noualhier, 1896
Hemisphaerius lygaeus Melichar, 1906
Hemisphaerius lysanias Fennah, 1978
Hemisphaerius palaemon Fennah, 1978
Hemisphaerius rufovarius Walker, 1858
Hemisphaerius signifer Walker, 1851
Macrodaruma Fennah, 1978
Macrodaruma pertinax Fennah, 1978

2. New taxa

Family Issidae Spinola Subfamily Issinae Spinola Tribe Issini Spinola

Genus *Darwallia* Gnezdilov, 2010

Darwallia Gnezdilov, 2010: 43.

Type species: *Issus patulus* Walker, 1857. By original designation and monotypy.

Darwallia barbata Gnezdilov et Bourgoin sp. n.

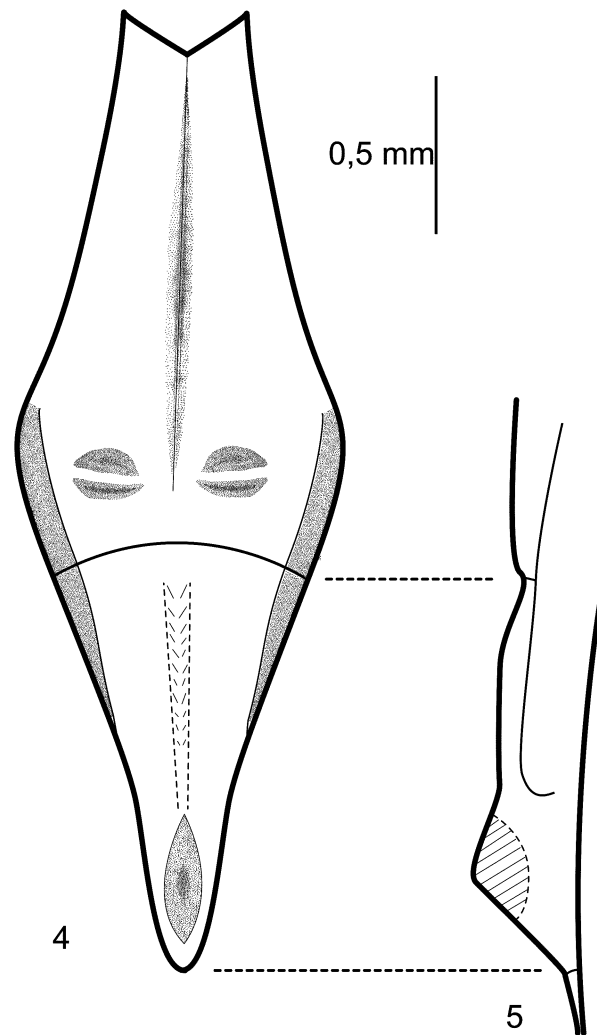
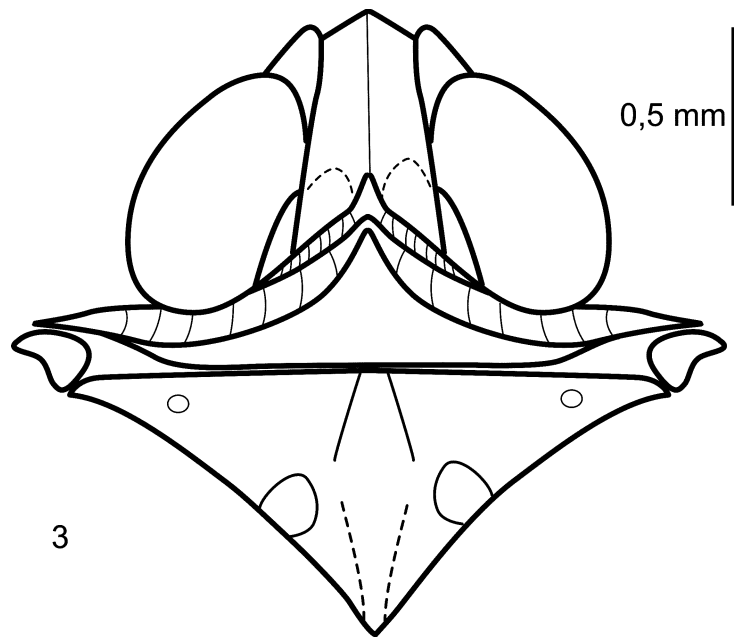
Figs 3–8, 22–24

Type material. Holotype, ♀, Vietnam, Khanh Hoa Province, Hòn Bà massif, 12°6.961'N, 108°58.734'E, 19.XI.2013, 850 m, sweeping, Th. Bourgoin leg., “Mission Hòn Bà MNHN 2013” (MNHN).

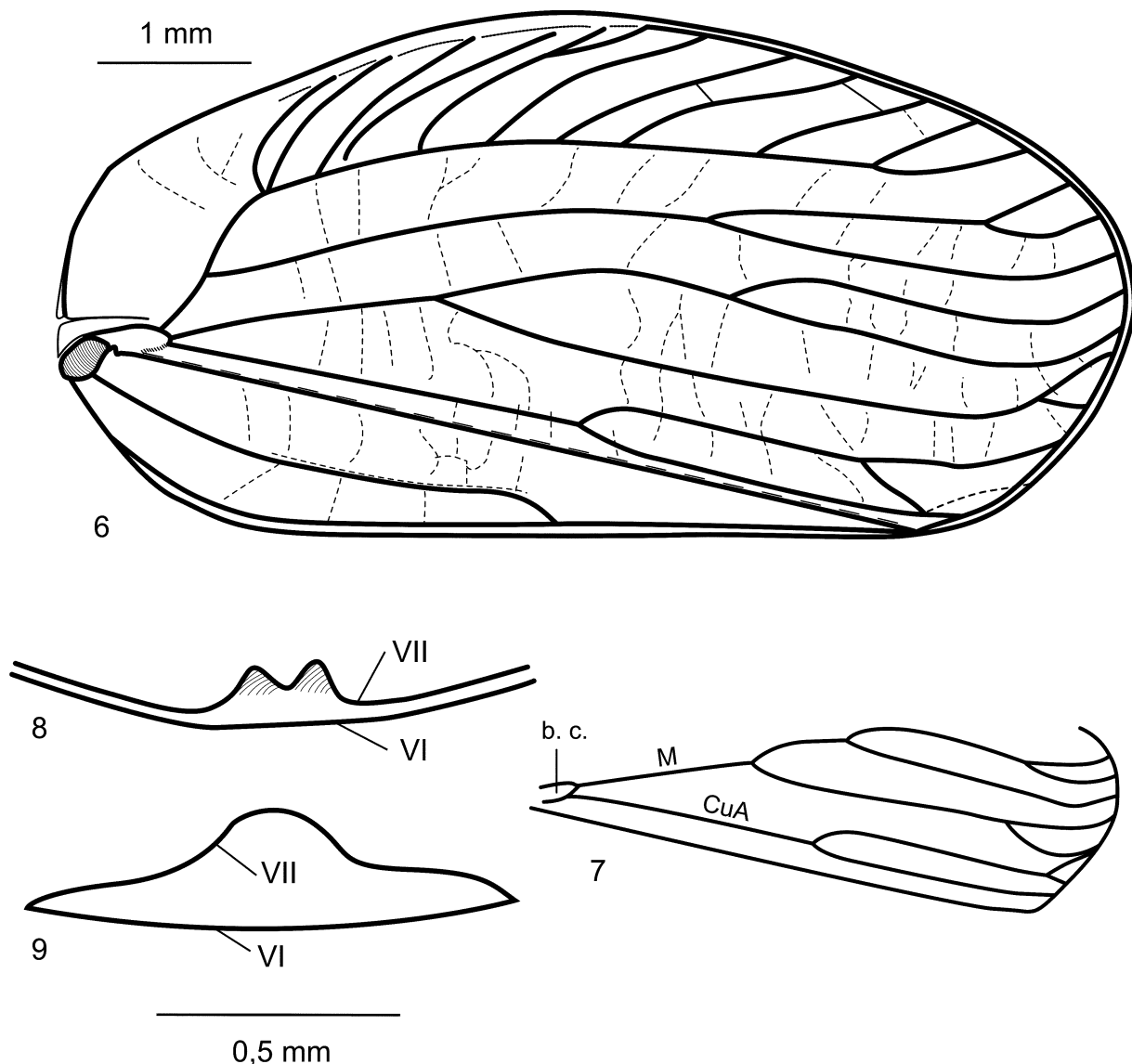
Description. Metope narrow, enlarged above the clypeus, with distinct median carina running from its upper margin to the metopoclypeal suture, but do not reach the last. Metopoclypeal suture relatively deep, convex. Metope with two pairs of moustach-like horizontal tubercles above the metopoclypeal suture (Fig. 4). Lateral margins of metope keel-shaped. Upper margin of metope acutely angulately concave. Postclypeus flat, laterally carinated, with median groove. Anteclypeus with median triangular-shaped process (in lateral view) (Fig. 5). Ocelli present. Coryphe long, narrow, with lateral margins highly elevated and keel-shaped; anterior margin angularly protruding, posterior margin acutely angularly concave (Fig. 3). Pronotum short medially, with anterior margin highly elevated and keel-shaped behind the coryphe. Paradiscal fields very narrow behind the eyes. Paranotal lobes wide. Mesonotum twice as long as pronotum medially, with two short median carinae (Fig. 3). Pedicel elongately cylindric. Third segment of rostrum slightly longer than second one. Fore wings wide, widely rounded apically, with narrow hypocostal plate (Fig. 6). Basal cell relatively wide, oval. Subcostal area wide, with many transverse veins. Sc+R furcates closely to basal cell after short common stem. R₁ multibranching (10–11 branches). R₂ with 3 branches (furcates distally). M 3–5 (first furcation near to wing middle, others—distally) (Figs 6, 7, 24). CuA 3



FIGURES 1–2. Southern Annamites montane rain forests terrestrial eco-region, primary rain forests. 1. Hòn-Bà National Reserve, 2. Bi Doup Nui Ba National Park.



FIGURES 3–5. *Darwallia barbata* sp. n., holotype, female. 3—head, pro-, and mesonotum, in dorsal view; 4—face; 5—clypeus, in lateral view.



FIGURES 6–9. *Darwallia* spp., females. 6—*D. barbata* sp. n., holotype, left fore wing, in lateral view; 7—same, right fore wing (fragment), in lateral view; 8—same, hind margin of VI–VII sternites; 9—*D. patula* (Walker), hind margins of VI–VII sternites.

(first furcation near to wing middle, another—distally). Between longitudinal veins there are many transverse veins. Clavus long (4/5 of whole wing length), opened (Pcu + A₁ runs to the apex of clavus). Hind wings well developed, equal in length to fore wings, apparently 3-lobed. Hind tibia with 2 lateral spines distally and with 7 apical spines. First metatarsomere with 2 latero-apical and 6 intermediate spines.

Female genitalia. Hind margin of sternum VII with 2 peculiar horn-shaped processes (Figs 8). Anal tube long and narrow. Gonoplacs rounded, convex.

Coloration. General coloration brown reddish or dark brown, with yellow greenish lateral parts of the head, coryphe, mesonotum medially, and II–III abdominal sternites (Figs 22–24). Hind wings, abdominal sternites IV–VII, and gonoplacs dark brown. Spines, claws, and horn-shaped processes of sternum VII black.

Total length. 8.2 mm.

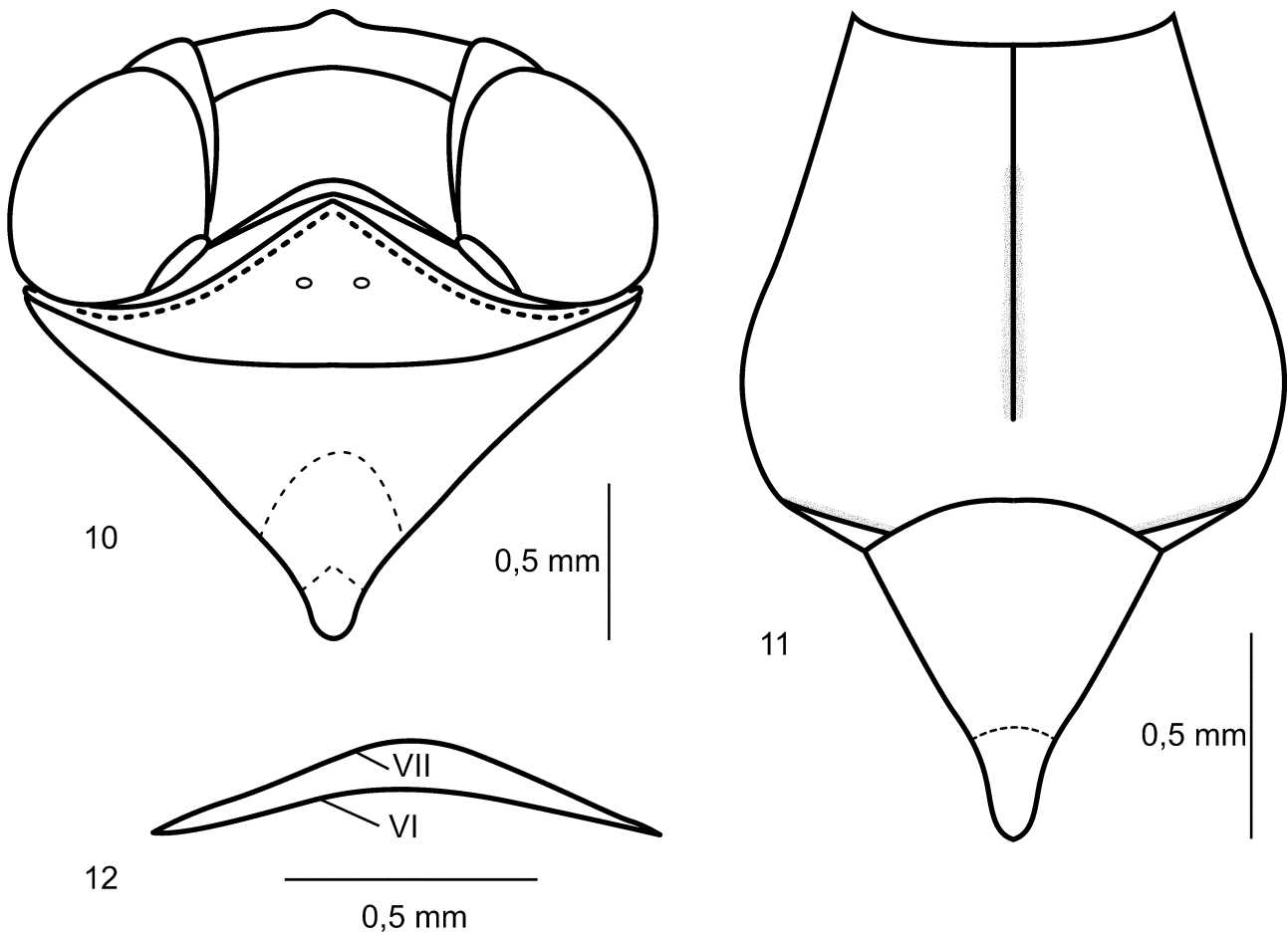
Etymology. Species name is derived from the Latin “barba” (mustaches) referring to horizontal tubercles above the metopoclypeal suture.

Key to *Darwallia* species

- 1 Metope with no mustache like tubercles above the metopoclypeal suture (Fig. 25). Hind margin of female sternum VII convex, with no horn-shaped processes (Fig. 9). Small species, females: 5.5–6.0 mm. Malaysia, Singapore, Indonesia *D. patula* (Walker)
- Metope with two pairs of mustache like tubercles above the metopoclypeal suture (Figs 4, 23). Hind margin of female sternum VII with two peculiar horn-shaped median processes (Fig. 8). Large species, female: 8.2 mm. Southern Vietnam *D. barbata* sp. n.

Genus *Dactylissus* Gnezdilov et Bourgoïn gen. n.

Type species: *Dactylissus armillarius* sp. n.



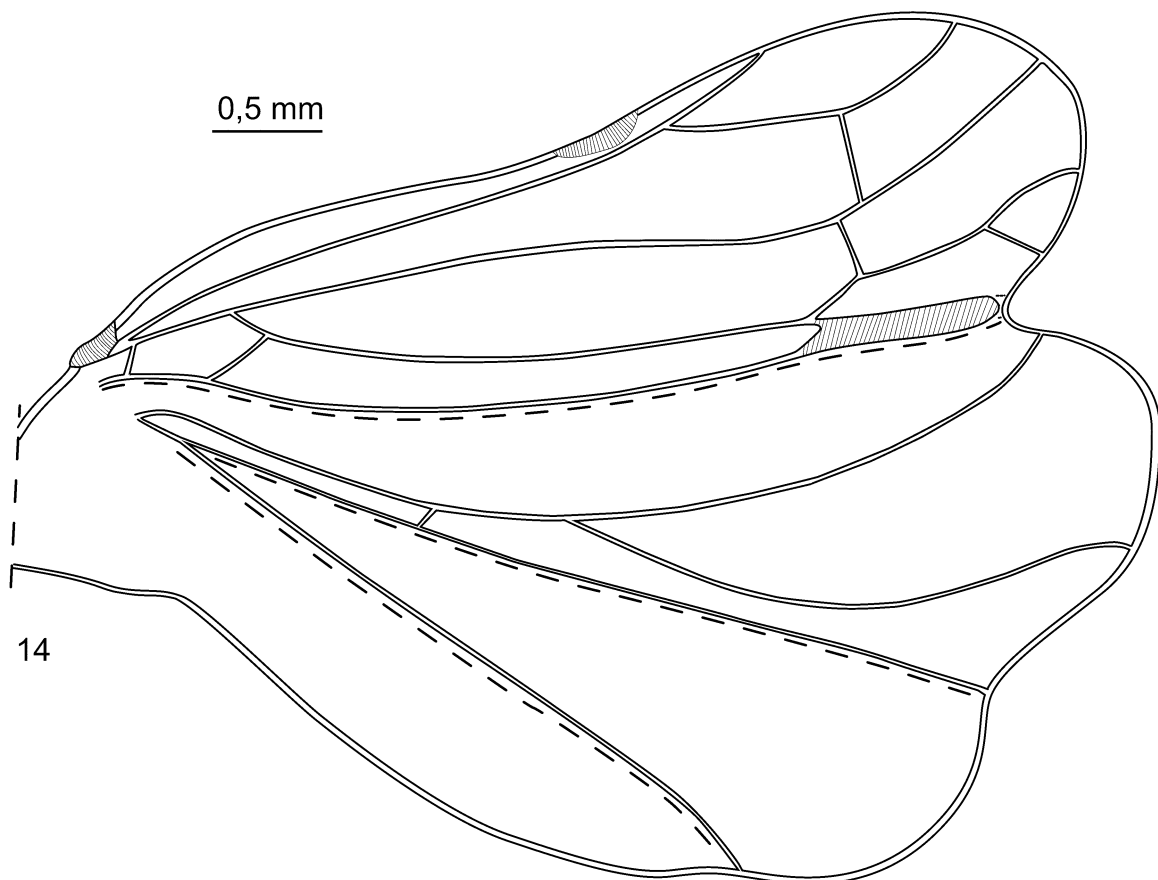
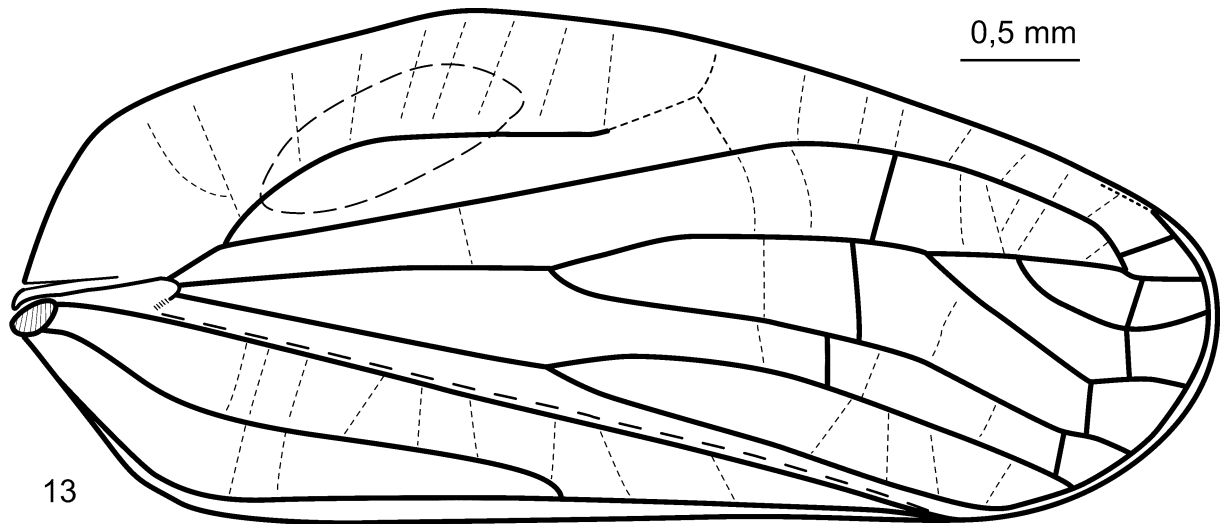
FIGURES 10–12. *Dactylissus armillarius* gen. et sp. n. 10—male, holotype, head, pro-, and mesonotum, in dorsal view; 11—same, face; 12—female, paratype, hind margins of VI–VII sternites.

Description. Metope wide, convex, with median carina running from its upper margin but do not reaching the metopoclypeal suture (Fig. 11). Postclypeus slightly flattened dorso-ventrally, with no carinae. Coryphe transverse, twice as wide as long medially, with no carinae; anterior margin obtusely anguately convex; posterior margin concave (Fig. 10). Fore wings elongate, with narrow hypocostal plate (Fig. 13). Basal cell narrowly oval. Sc+R 2 (furcates near to basal cell). Anterior branch of radial vein rather short, it runs on protuberance of wing surface. M 4, firstly furcates near to wing middle. CuA 2, furcates near to wing middle. Clavus long (3/4 as long as whole wing), opened (Pcu + A₁ runs to the apex of clavus). Many secondary veins are presented between the main elongate veins. Hind wings well developed, almost as long as fore one, 3-lobed with 2 deep and 1 weak marginal clefts (Fig. 14). Costal margin with a coupling lobe. Basal cell wide. Sc+R 2 (furcates after the coupling lobe), irm 1, M 1, imcua 1, CuA 3 (anterior branch furcates apically, posterior branch fused apically with CuP and flattened),

Pcu 1, A₁ 2 (posterior branch fused medially with Pcu), A₂ 1. Posterior branch of first anal vein and second anal vein reaching marginal clefts. Hind tibia with 2 lateral spines in apical half and with 7 apical spines. First metatarsomere with 2 latero-apical and 9 intermediate spines arranged in arc.

Female genitalia. Hind margin of sternum VII convex medially (Figs 12, 33). Anal tube elongate. Gonoplasts nearly triangular shaped in abris, convex.

Etymology. Generic name is derived from the combination of Greek “δακτύλιος” (finger) and generic name “Issus” referring to bizarre structure of male phallobase.



FIGURES 13–14. *Dactylissus armillarius* gen. et sp. n., male, paratype. 13—fore wing; 14—hind wing.

***Dactylissus armillarius* Gnezdilov et Soulier-Perkins sp. n.**

Figs 10-21, 26-33

Type material. Holotype, ♂, Vietnam, Khanh Hoa Province, Hòn Bà massif, 12°6.961'N, 108°58.734'E, 13.XI.2013, 850 m, sweeping, Th. Bourgoïn leg., “Mission Hòn Bà MNHN 2013” (MNHN). Paratypes: Vietnam, Khanh Hoa Province, Hòn Bà massif: 3♂, 3♀, same as holotype (2♂, 3♀—MNHN, 1♂—ZIN); 1♂, 4♀, 12°6.961'N 108°58.734'E, 872 m, 18.XI.2013, sweeping, “collecte à vue et filet”, A. Soulier-Perkins leg. (1♂, 3♀—MNHN, 1♀—ZIN); 1♀, 12°6.773'N 108°58.379'E, 78 m, 17.XI.2013, “collecte à vue et filet”, A. Soulier-Perkins leg. (MNHN).

Description. General coloration brown or dark brown including hind wings (Figs 26–33). Head laterally light brown greenish. Metope (face) brown with two yellow markings medially besides of median carina and 2 yellow markings above the metopoclypeal suture (Figs 28, 31). Paranotal lobes of pronotum brown greenish each with large black spot. Legs light brown. Spines black. Abdominal sternites may have lateral yellow patches.

Male. Postclypeus sometimes brown greenish. Fore wings with brown reddish longitudinal veins and dark brown or black cells often with transverse yellow orange band crossing medially clavus and reaching anterior branch of median vein (Figs 26, 27, 29). Sometimes face brown with yellow markings poorly visible or fore wings brown without bands but with transverse veins light yellow.

Female. Fore wings dark brown with brown reddish main longitudinal veins and yellowish secondary veins (Figs 30, 32).

Male genitalia (Figs 15–21). Anal tube elongate, 2.5 times as long as wide, rounded apically (in dorsal view). Anal column long, $\frac{1}{4}$ of the anal tube length (Fig. 21). Pygofer with convex medially hind margin and protruding caudo-dorsal angle (in lateral view) (Fig. 20). Style is massive with caudo-dorsal angle widely rounded (Fig. 18); capitulum on short neck, narrow apically (in dorsal view) (Fig. 19); apical tooth weak, lateral tooth well developed. Phallobase arc-shaped (in lateral view). Dorso-lateral phallobase lobes with pair of large triangular subapical lateral process (Fig. 16), pair of long and narrow hook-shaped ventral process arising below the triangular ones ventrally, spirally crossed on the dorsal side of phallobase, and coming directed apically again on its ventral side (Figs 15, 17), and with two pairs of wide basal processes fixing the hook-shaped ones (Fig. 16). Hook-shaped processes of the phallobase with denticles proximally. Ventral phallobase lobe wide, narrowing apically (Fig. 15). Aedeagus with no ventral hooks. Apical processes of aedeagus long, exceeding the upper margin of phallobase, each with small subapical semicircular process.

Total length. Males—5.0–5.3 mm. Females—5.7–6.0 mm.

Etymology. Species name is derived from Latin “armilla” (ring) referring to the peculiar spiralic hook-shaped processes of the phallobase.

Ecological note. The species mainly occurs between 700 m and 900 m and was regularly collected by sweeping the vegetation while not in a great quantity. With two other yet undescribed species of Hemisphaeriini, the Issidae were one of the most collected taxa (in quantity) at this altitude in the Hòn-Bà massif. *Dactylissus armillarius* gen. et sp. n. appeared to be restricted and characteristic to this primary wet forest biotope at the altitude of around 800 m.

3. New taxonomic and distribution data

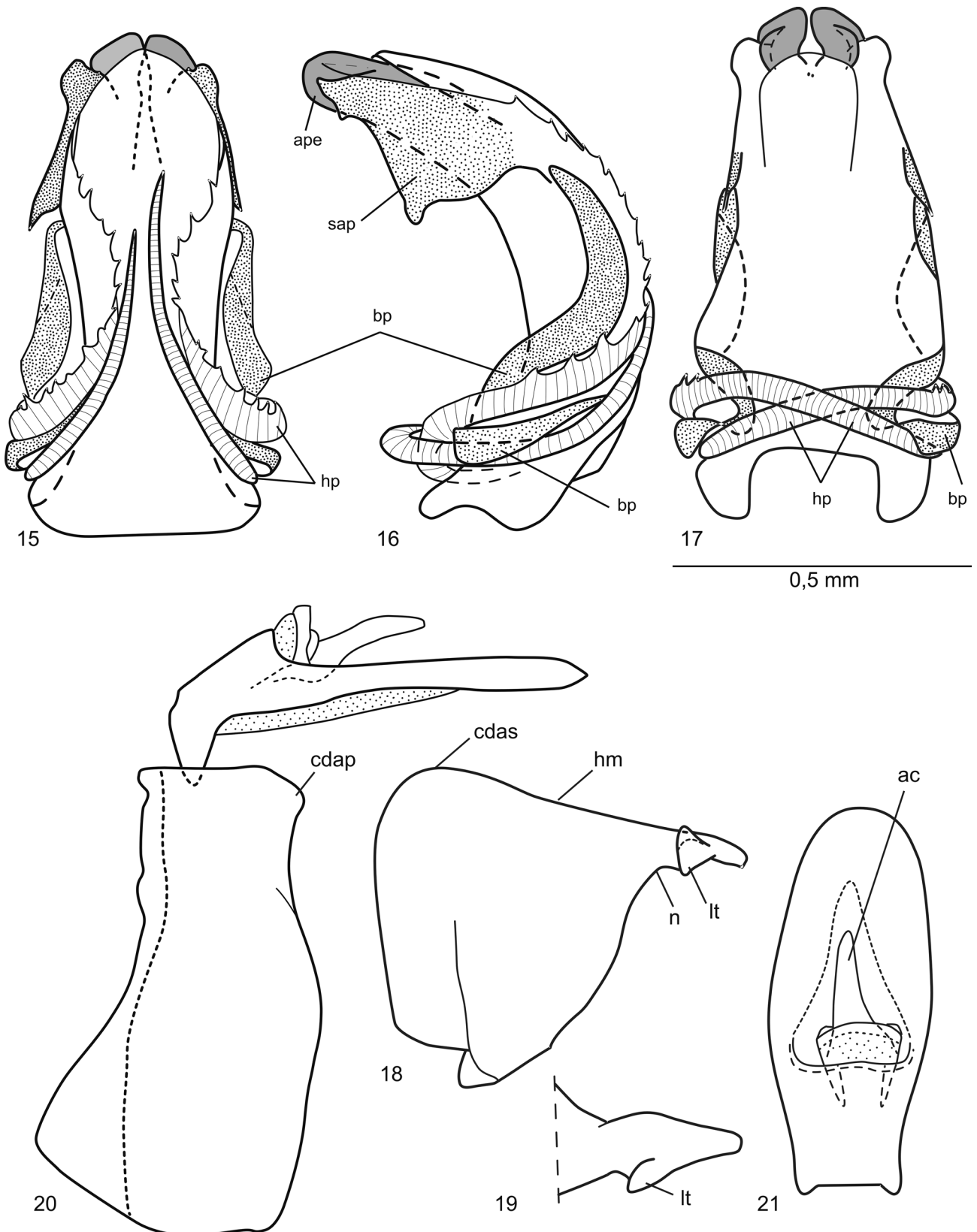
***Tetrica philo* Fennah, 1978**

Material examined. Vietnam: 2♂, “Museum Paris, Tonkin, rég. de Hoa Binh, A. de Cooman 1928”; 1♀ “Museum Paris, Tonkin, Hoa Binh, J. de Cooman, R. Oberthur 1919”; 1♀, “Museum Paris, Tonkin, rég. de Hoa Binh, A. de Cooman 1930”; 1♀, “Museum Paris, Tonkin, rég. de Hoa Binh, A. de Cooman 1928”.

Note. The species was described from Ninh Binh Province in northern Vietnam (Fennah, 1978). Here recorded for the first time from neighbouring Hoa Binh Province.

***Thabena litaoensis* Yang, 1994**

Gelastyrella litaoensis Yang, 1994: 90 (in Chan & Yang, 1994). *Gelastyrella hainanensis* Ran et Liang, 2006: 65, figs 1–8, **syn. n.** *Thabena litaoensis* Gnezdilov, 2009: 80. *Thabena hainanensis* Gnezdilov, 2009: 80.



FIGURES 15–21. *Dactylissus armillarius* gen. et sp. n., paratype, male genitalia. 15—penis, in ventral view; 16—penis, in lateral view; 17—penis, in dorsal view; 18—style, in lateral view; 19—capitulum of style, in dorsal view; 20—pygofer and anal tube, in lateral view; 21—anal tube, in dorsal view.



FIGURES 22–25. *Darwallia* spp. 22—*D. barbata* sp. n., holotype, female, in dorsal view; 23—same, in frontal view; 24—same, in lateral view; 25—*D. patula* (Walker), male, in frontal view.



FIGURES 26–29. *Dactylissus armillarius* gen. et sp. n., paratypes, males. 26, 27—dorsal view; 28—frontal view; 29—lateral view.



FIGURES 30–33. *Dactylissus armillarius* gen. et sp. n., paratypes, females. 30—dorsal view; 31—frontal view; 32—lateral view; 33—ovipositor.

Material examined (MNHN). Vietnam: 1♂ 1♀, “Museum Paris, Tonkin, Hoa Binh, J. de Cooman, R. Oberthur 1919”; 2♂ 2♀, “Museum Paris, Tonkin, rég. de Hoa Binh, A. de Cooman 1926”; 2♀, “Museum Paris, Tonkin, rég. de Hoa Binh, A. de Cooman 1928”; 1♀, “Museum Paris, Tonkin, rég. de Hoa Binh, A. de Cooman 1929”.

Distribution. China (Hainan) (Ran & Liang, 2006a; Zhang & Chen 2012), Taiwan (Chan & Yang, 1994), Vietnam (new record).

Note. The drawings of male genitalia of *T. litaensis* and *T. hainanensis* were compared and the species found conspecific as the structure of penis is very peculiar according to the cap-shaped apical lobe and very different from other species of the genus. Diagnostic characters mentioned for *T. hainanensis* in the original description (Ran & Liang, 2006) are only the coloration of coryphe (vertex) and the number of apical spines on hind tibia. These characters are more variable in comparison with male genitalia and may be treated as interspecific variation between the island populations. Finally both names were mentioned from Hainan (Zhang & Chen 2012) which also confirms our point of view.

The genus *Thabena* is Indo-Malayan and currently groups 14 species distributed in China, Indonesia, Malaysia, Philippines, Singapore, Taiwan, and Thailand (Gnezdilov, 2009, 2013b). *Thabena brunneifrons* (Bonfils, Attié et Reynaud, 2001) described from Réunion was probably imported from Asia to this island (Gnezdilov, 2009) and *Thabena fissala* (Fieber, 1876) described from Portugal by Fieber might be due to an error of locality (Gnezdilov *et al.*, 2011). As it could have been expected, this genus is now found also in northern Vietnam.

***Gergithus iguchii* Matsumura, 1916**

Material examined. Vietnam: 1♀, “Museum Paris, Tonkin, rég. de Hoa Binh, A. de Cooman 1930” (MNHN).

Note. The species was described from Japan (Honshu) (Matsumura, 1916) and later recorded from China (Fennah, 1956) and northern Vietnam (Ninh Binh Province) (Fennah, 1978). This is the first record of the species from neighbouring Hoa Binh Province.

***Gergithoides* sp.**

Material examined. Vietnam: 1♀, Lam Dong Province, Bi-Doup massif, Da Lat, Ghang Ly, 12°11.052'N, 108°40.669'E, 12.VI.2008, 1467 m, open range and forest edge, beating, Th. Bourgoin leg. (MNHN).

Note. The genus includes 6 species and was known up to now from China and Taiwan (Schumacher, 1915; Chan & Yang, 1994; Che *et al.*, 2003), Southern Korea (Rahman *et al.*, 2013), and Malaysia (Melichar, 1906). This is the first record of the genus from Vietnam. The genus is in need of revision as correct identification of the species is possible only after male genitalia characters and still now *Gergithoides rugulosus* Melichar, 1906 from western Malaysia was not illustrated.

***Flavina* sp.**

Material examined. Vietnam: 1♀. Lam Dong Province, Bi-Doup massif, Da Lat, Hon Giao, 12°11.262'N, 108°42.851'E, 10.VI.2008, 1567 m, rain forest, beating, Th. Bourgoin leg. (MNHN).

Note. This is the second species of the genus known from Vietnam. Externally it is different from *Flavina acuta* Ran et Liang, 2006 described from Vietnam and Laos (Ran & Liang, 2006b), but we prefer to leave it as undescribed until the male will be collected as the genus is in need of revision and proper identification have to be based on male genitalia characters in addition to other external morphological characters.

Discussion

Including the present work, 25 species of Issidae representing 14 genera are currently reported from Vietnam: Issini—6 genera with 6 species (3 genera and 3 species including the new ones described above are reported for the

first time); Parahiraciini—3 genera with 5 species; Hemisphaeriini—5 genera with 14 species (one genus is reported for the first time) (Tab. 1). Within mentioned above taxa 4 genera are endemics to Vietnam (*Bolbosphaerius* Gnezdilov, *Dactylissus* gen. n., *Euxaldar* Fennah, *Macrodaruma* Fennah). Other genera are distributed wider in the Indo-Malayan Region. Thus the genus *Darwallia* Gnezdilov, 2010, newly recorded from Vietnam, was erected for a single species, *Issus patulus* Walker, 1857, known from Malaysia, Singapore, and Indonesia (Gnezdilov, 2010).

Unfortunately for most of Vietnamese species, only few specimens are known and they have been almost not mentioned since their description, blocking any further analyses on their distribution and ecology. Much more data (inventories) and knowledge (taxonomy, phylogeny, etho-ecology etc) are therefore necessary to better understand the ecological place and role of the Issidae, particularly in tropical areas.

Indeed, while only few data are available, Issidae represent an important phytophagous group of insects for tropical ecosystems. Recent studies have placed them as the fifth most abundant and diverse planthopper taxon in the tropics (Papua New Guinea: Novotný & Basset, 1998), and even the first one in Vietnam (Novotný, 1992, 1993). It is however much difficult to appreciate their real importance in terms of species diversity as the Vietnamese planthopper fauna remains particularly understudied. Currently, one can just note the noticeable poor representation of Issini taxa (Tab. 1) versus the strong representation of the Hemisphaeriini, a clearly Indo-Malaysian taxon as well the Parahiraciini (Gnezdilov, 2013b). Issini are more widely distributed while they are not known from Southern Africa, Madagascar, Seychelles, most of Pacific, and New Zealand (Gnezdilov, 2013b). Their apparent rarity in Vietnam is however obviously an artefact, as quiet a number of other Issini species has been found in other museum collections to be described as new taxa, with a major proportion of endemics.

The genus *Dactylissus* gen. nov. described above is unique within all known Issidae in the structure of male genitalia—the presence of long and spiral hook-shaped ventral processes of phallobase. Apparently these processes of phallobase play same functional role as typical ventral hooks of aedeagus in other issid genera. According to venation and shape of fore and hind wings *Dactylissus* gen. nov. is related to the genus *Eusarima* Yang, 1994—currently the largest Indo-Malayan genus of Issini (Gnezdilov, 2013c).

TABLE 1. Current knowledge of Issidae diversity in Vietnam. NbGn, NbSp: number of genera, of species known worldwild; VietGn, VietSp: number of genera, of species known from Vietnam; DivGn, DivSp: Vietnamese Issidae diversity at generic and specific levels. *Gnezdilov (2013b) listed 128 genera with 754 species for the tribe Issini, but he missed monotypical genus *Stilbometopius* Gnezdilov et O'Brien, 2006 and accordingly total numbers of the genera and species are corrected here.

Issidae	NbGn	NbSp	VietGn	VietSp	DivGn	DivSp
Issini	129*	755*	6	6	4.7	0.8
Parahiracini	14	38	3	5	21.4	13.2
Hemisphaeriini	15	187	5	14	33.3	7.5

Acknowledgements

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Bibliography

- Anufriev, G.A. & Emeljanov, A.F. (1988) Suborder Cicadinea (Auchenorrhyncha). In: Ler, P.A. (Eds.), *Keys to the insects of the Far East of the USSR. Vol. 2*. Nauka, Leningrad, pp. 12–495. [in Russian].
- Bourgoin, T. (1993) Female genitalia in Hemiptera Fulgoromorpha, morphological and phylogenetic data. *Annales de la Societe Entomologique de France (N.S.)*, 29 (3), 225–244.
<http://dx.doi.org/10.1080/00379271.2007.10697491>
- Bourgoin, T. (2014) FLOW (Fulgoromorpha Lists on The Web): a world knowledge base dedicated to Fulgoromorpha. V. 8. Available from: <http://hemiptera-databases.org/flow/> (accessed 15 July 2014)
- Chan, M.-L. & Yang, C.-T. (1994) *Issidae of Taiwan (Homoptera: Fulgoroidea)*. Chen Chung Book, Taichung, Taiwan, 188 pp.
- Che, Y.-L., Wang, Y.-L. & Chou, I. (2003) Taxonomic study of the genus *Gergithoides* Schumacher (Homoptera: Fulgoroidea: Issidae). *Entomotaxonomia*, 25 (2), 102–108.
- Constant, J. & Pham, H.T. (2011) Two new species of *Hemisphaerius* from Vietnam (Hemiptera, Fulgoromorpha, Issidae). *Nouvelle Revue d'Entomologie (N. S.)*, 27 (2), 109–115.
- Fennah, R.G. (1956) Fulgoroidea from Southern China. *Proceedings of the California Academy of Science, Series 4*, 28 (13), 441–527.
- Fennah, R.G. (1978) Fulgoroidea (Homoptera) from Vietnam. *Annales Zoologici (Warszawa)*, 34 (9), 207–279.
- Gnezdilov, V.M. (2003) Review of the family Issidae (Homoptera, Cicadina) of the European fauna, with notes on the structure of ovipositor in planthoppers. *Chteniya pamyati N.A. Kholodkovskogo (Meetings in memory of N.A. Cholodkovsky)*, 56 (1), 1–145. [in Russian with English summary]
- Gnezdilov, V.M. (2009) Revisionary notes on some tropical Issidae and Nogodinidae (Hemiptera: Fulgoroidea). *Acta Entomologica Musei Nationalis Pragae*, 49 (1), 75–92.
- Gnezdilov, V.M. (2010) Three new genera and three new species of the family Issidae (Hemiptera: Fulgoromorpha) from Borneo and Sumatra. *Tijdschrift voor Entomologie*, 153, 41–52.
<http://dx.doi.org/10.1163/22119434-900000289>
- Gnezdilov, V.M. (2012) On the taxonomy of some Fulgoroidea (Hemiptera). *Proceedings of the Zoological Institute RAS*, 316 (3), 239–247.
- Gnezdilov, V.M. (2013a) Notes on planthoppers of the tribe Hemisphaeriini (Homoptera, Fulgoroidea, Issidae) from Vietnam with a description of a new genus and new species. *Zoologicheskii Zhurnal*, 92 (6), 659–663. English translation published in *Entomological Review*, 93 (8), 1024–1028.
<http://dx.doi.org/10.1134/s0013873813080095>
- Gnezdilov, V.M. (2013b) Modern classification and the distribution of the family Issidae Spinola (Homoptera, Auchenorrhyncha: Fulgoroidea). *Entomologicheskoe Obozrenie*, 92 (4), 724–738. [in Russian with English summary]
- Gnezdilov, V.M. (2013c) New synonyms and combinations for the planthopper genus *Eusarima* Yang (Hemiptera, Fulgoroidea, Issidae). *Acta Entomologica Musei Nationalis Pragae*, 53 (2), 485–492.
- Gnezdilov, V.M. & Constant, J. (2012) Review of the family Issidae (Hemiptera: Fulgoromorpha) in Vietnam with description of a new species. *Annales Zoologici (Warszawa)*, 62 (4), 571–576.
<http://dx.doi.org/10.3161/000345412x659632>
- Gnezdilov, V.M., Soulier-Perkins, A. & Bourgoin, T. (2011) Fieber's original drawings and their corresponding types for the family Issidae (Hemiptera, Fulgoromorpha) in the Muséum national d'Histoire naturelle of Paris, France. *Zootaxa*, 2806, 24–34.
- Lallemand, H. (1942) Notes sur quelques espèces recueillies par le R. Piel (Musée Heude Shanghai) et le R.P. de Cooman (Hoa Binh, Tonkin). *Notes d'Entomologie Chinoise*, 9 (4), 69–77.
- Matsumura, S. (1916) Synopsis der Issiden (Fulgoriden) Japans. *Transactions of the Sapporo Natural History Society*, 6, 85–118.
- Melichar, L. (1906) Monographie der Issiden (Homoptera). *Abhandlungen der K. K. Zoologisch-botanischen Gesellschaft in Wien*, 3 (4), 1–327.
- Novotný, V. & Basset, Y. (1998) Seasonality of sap-sucking insects (Auchenorrhyncha, Hemiptera) feeding on *Ficus* (Moraceae) in a lowland rain forest in New Guinea. *Oecologia*, 115, 514–522.
<http://dx.doi.org/10.1007/s004420050549>
- Novotný, V. (1992) Community structure of Auchenorrhyncha (Homoptera) in montane rain forest in Vietnam. *Journal of Tropical Ecology*, 8, 169–179.
<http://dx.doi.org/10.1017/s0266467400006301>
- Novotný, V. (1993) Spatial and temporal components of species diversity in Auchenorrhyncha (Insecta: Hemiptera) communities of Indochina montane rain forest. *Journal of Tropical Ecology*, 9, 93–100.
<http://dx.doi.org/10.1017/s026646740000701x>
- Olson, D.M. & Dinerstein, E. (2002) The Global 200: priority ecoregions for global conservation. *Annals of the Missouri Botanical Garden*, 89, 199–224.
<http://dx.doi.org/10.2307/3298564>
- Rahman, M.A., Kwon, Y.J. & Suh, S.J. (2013) A new species of the genus *Gergithoides* Schumacher (Hemiptera: Fulgoroidea: Issidae) from Korea. *Entomological News*, 122 (4), 293–299.

<http://dx.doi.org/10.3157/021.122.0401>

- Ran, H.-F. & Liang, A.-P. (2006a) The issid genus *Gelastyrella* Yang (Hemiptera: Fulgoroidea: Issidae) from China. *Zootaxa*, 1238, 63–68.
- Ran, H.-F. & Liang, A.-P. (2006b) Taxonomic study of the issid genus *Flavina* Stål (Hemiptera, Fulgoroidea, Issidae). *Acta Zootaxonomica Sinica*, 31 (2), 388–391.
- Schumacher, F. (1915) Der gegenwärtige Stand unserer Kenntnis von der Homopteren-Fauna der Insel Formosa unter besonderer Berücksichtigung von Sauter'schem Material. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 8, 71–134.
- Zhang, Z.-G. & Chen, X.-S. (2012) A review of the genus *Thabena* Stål (Hemiptera: Fulgoromorpha: Issidae) from China with description of one new species. *Entomotaxonomia*, 34 (2), 227–232.