

NEW GENUS AND SPECIES OF THE TRIBE PARAHIRACIINI  
(HEMIPTERA, FULGOROIDEA, ISSIDAE)  
FROM THE PHILIPPINES AND VIETNAM

VLADIMIR M. GNEZDILOV

Zoological Institute, Russian Academy of Sciences  
Universitetskaya nab. 1, St. Petersburg 199034, Russia  
E-mail: vmgnezdilov@mail.ru, vgnezdilov@zin.ru

*Nisoprincessa* gen. n. is described for *Nisoprincessa palawana* sp. n. from Palawan Island of the Philippines. This represents the first record of the tribe Parahiraciini in the Philippines. *Nisoprincessa palawana* sp. n. is treated as two subspecies according to the length of metopial proboscis – *N. palawana palawana* ssp. n. and *N. palawana bacuita* ssp. n. Furthermore, *Brevicopius gorochovi* sp. n. is described from Vietnam which is the first record of the genus *Brevicopius* Meng, Qin et Wang, 2015 in the country.

Key words. Parahiraciini, *Brevicopius*, *Thabenula*, morphology, taxonomy, Palawan, Central Vietnam.

INTRODUCTION

Currently, the tribe Parahiraciini comprises 18 genera with 70 species in the modern fauna, and one monotypic genus is known from the Baltic amber (GNEZDILOV 2013, WANG *et al.* 2015, GNEZDILOV & BOURGOIN 2016, GNEZDILOV & HAYASHI 2016, BOURGOIN 2017). The tribe can be treated as an endemic taxon in the Oriental Region with only a few species also recorded from the Eastern Palaearctic and Oceanic regions (GNEZDILOV 2013, ZHANG & CHEN 2013).

The members of the tribe are characterised by body more or less flattened dorso-ventrally, metope often projecting, usually with a proboscis, beetle-shaped (convex, coriaceous, not exceeding the length of abdomen) fore wings, usually with keel-shaped veins, caudo-dorsal angle of clavus of fore wings usually in shape of distinct triangular lobe – cuspidal apex of clavus (GNEZDILOV 2015, fig. 8), hind wings very often bilobate (two almost symmetric lobes, with anal lobe of vannus reduced), except *Scantinius* Stål, 1866 and the new genus described below which have trilobate hind wings (with anal lobe of vannus developed), long fore legs, and style with convex margin under the capitulum.

Herewith, a new genus and species from the Philippines and a new species of the genus *Brevicopius* Meng, Qin et Wang, 2015 from Central Vietnam are described. *Nisoprincessa palawana* gen. et sp. n. represents the first record of the tribe Parahiraciini in the Philippines and *Brevicopius gorochovi* sp. n. is

the first record of the genus from the mainland together with the type species of the genus; *Brevicopius jianfenglingensis* (Chen, Zhang et Chang, 2014) which was known before only from Hainan Island (CHEN *et al.* 2014, MENG *et al.* 2015) and recorded herein also from Central Vietnam.

## MATERIAL AND METHODS

The species discussed below including the type specimens of the species described are deposited in the following collections: IRSNB – Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgique; MMBC – Moravian Museum, Brno, Czech Republic; USNM – Smithsonian Institution, National Museum of Natural History, Washington, D.C., USA; ZIN – Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia.

Morphological terminology follows GNEZDILOV *et al.* (2014).

The drawings were made using Leica MZ95 light microscope. The photos of *Brevicopius* spp. were taken using Leica MZ8 with JVC video camera KY F70B in the National Museum of Wales (Cardiff, UK). The photos of *Nisoprincessa palawana* sp. n. were taken in the Museum für Naturkunde (Berlin, Germany) using a Leica Z16 APOA microscope with a Leica DFC490 video camera. Images are produced using the software Leica Application Suite ver. 3.7, Auto-Montage Essentials, Synoptics Automontage, and Adobe Photoshop.

## TAXONOMY

Issidae Spinola, 1839

Issinae Spinola, 1839

Parahiraciini Cheng et Yang, 1991

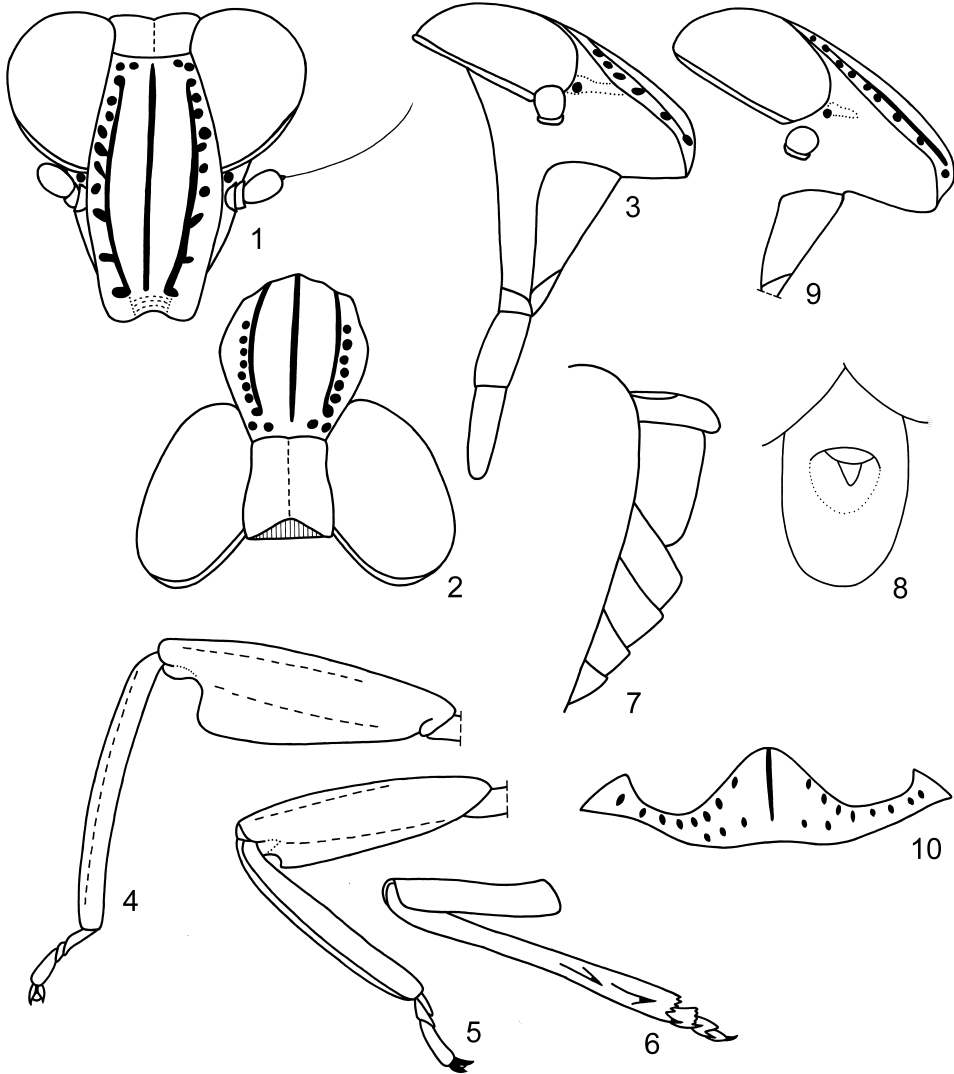
### **Nisoprincessa** gen. n.

Type species: *Nisoprincessa palawana* sp. n.

**Diagnosis.** Metope protruding in shape of proboscis, with distinct median and sublateral carinae (Figs 1–3, 9). Fore wings without transverse veins and with pustules between longitudinal veins. Postcubitus of fore wing not reaching first anal vein on clavus (Figs 11, 12). Hind wings trilobate, with two deep marginal clefts (Fig. 13). CuA and CuP of hind wings fused medially and separated apically. Fore and middle femora foliately flattened (Figs 4, 5). Fore femora are longest and hind femora are shortest (Fig. 6).

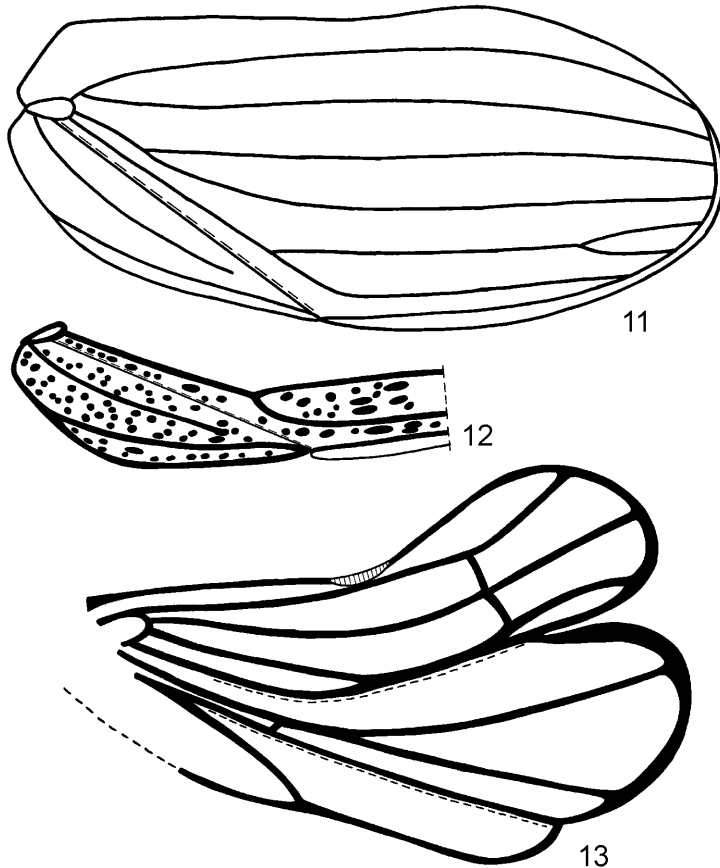
**Description.** Coryphe and metope joint at obtuse angle (in lateral view) (Figs 3, 9), metope well visible from above (Fig. 2). Border between coryphe and metope smooth, weakly recognizable. Metope elongate, with distinct median and sublateral carinae which not reaching its upper margin (Fig. 34); lateral margins convex medially. Metope protruding in shape of proboscis (in lateral view), with 12 pustules between lateral and sublateral carinae on each side. Coryphe elongate, 1.4 times as long laterally as wide at midline, with weak median carina; anterior margin convex; posterior margin obtusely angulate. Ocelli

present. Postclypeus large, without carinae. Pedicell elongately cylindrical. Second and third segments of rostrum nearly equal in length. Third segment of rostrum slightly narrowing apically, reaching hind coxae. Pronotum nearly as long as coryphe at midline, with weak median carina; anterior margin convex, with 16 pustules along its margin; posterior margin nearly straight, with 5 pustules along its margin (Fig. 10). Paradiscal fields narrow,



**Figs 1–10.** *Nisoprincessa palawana* gen. et sp. n. 1–8 = *N. p. palawana* ssp. n., holotype, 1 = head, frontal view; 2 = head, dorsal view; 3 = head, lateral view; 4 = left fore leg; 5 = left middle leg; 6 = left hind leg; 7 = female genital block, lateral view; 8 = female anal tube, dorsal view; 9–10 = *N. p. bacuita* ssp. n., holotype: 9 = head, lateral view; 10 = pronotum, dorsal view

distinct. Paranotal lobes widely triangular. Mesonotum longer than pronotum, with weak median and lateral carinae. Fore wings reaching apex of anal tube, elongately oval, convex (Figs 11, 33, 35). Costal margin angularly convex basally. Basal cell narrow. R 2 – furcating closely to basal cell, M 2 – furcating in basal part of wing, CuA 2 (same specimen has on one wing CuA 2 and on another – CuA 3) – furcating before apex of clavus (Fig. 11). Transverse veins absent, but pustules presented between longitudinal veins (Fig. 12). Clavus 0.5 times as long as whole wing. Pcu not reaching  $A_1$  (Fig. 13). Hind wings as long as fore wings, trilobate (with anal lobe of vannus rather narrow, but distinct), with two deep marginal clefts – between CuA and CuP and between branches of  $A_1$ . Basal cell large. R 1 M 1 CuA 1 CuP 1 Pcu 1  $A_1$  2  $A_2$  1; CuA and CuP fused medially and separated apically; anterior branch of  $A_1$  fused medially with Pcu; marginal vein thick on terminal parts of the lobes (Fig. 13). Fore and middle femora flattened and foliate (mostly fore femora) (Figs 4, 5). Fore and middle tibiae flattened. Hind femora and tibiae not flattened nor foliated (Fig. 6). Fore femora and tibiae are longest; middle tibiae nearly equal in length or slightly shorter than hind tibiae; hind femora are shortest. Hind tibia with 2 lateral spines in its

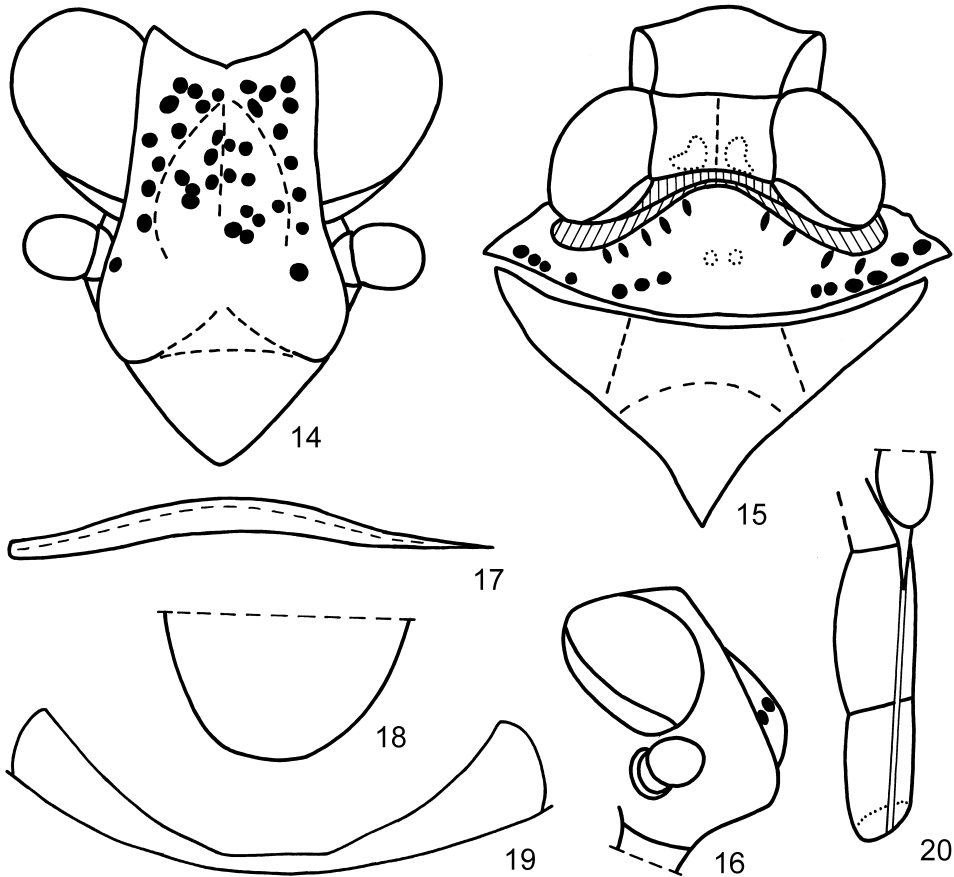


**Figs 11–13.** *Nisoprincessa palawana* gen. et sp. n. 11–12 = *N. palawana palawana* ssp. n., holotype: 11 = fore wing; 12 = clavus; 13 = *N. palawana bacuita* ssp. n., holotype, hind wing

distal half and 6 apical spines. First and second tarsomeres of fore and middle legs short, nearly equal in length, third tarsomere as long as first and second together. First metatarsomere longer than second one; second and third metatarsomeres nearly equal in length. First metatarsomere with 2 latero-apical and 7 intermediate spines in regular row (without gaps). Second metatarsomere with only 2 latero-apical spines. Hind margin of arolium of pretarsus convex, not reaching apices of claws (in dorsal view); dorso-lateral plates wide.

Hind margin of female sternite VII widely concave. Gonoplasts convex, without carinae (Fig. 7). Anal tube 1.3 times as long as wide, anterior margin widely rounded; paraproct short (Fig. 8).

Etymology. Generic name is derived from combination of Greek "νησί" (Island) and Princessa (Puerto Princessa).



**Figs 14–20.** *Brevicopius jianfenglingensis* Chen, Zhang et Chang. 14–19 = female: 14 = head, frontal view, 15 = head, pro-, and mesonotum, dorsal view, 16 = head, lateral view; 17 = hypocostal plate of fore wing, 18 = apical part of female anal tube, dorsal view, 19 = hind margin of female sternite VII, ventral view; 20 = male, rostrum, lateral view

### **Nisoprincessa palawana** sp. n.

Description. Morphology as mentioned for the genus.

Colouration. General coloration dark brown (Figs 33–35). Metope with light carinae and pustules. Genae with light stripes running across the ocelli (dotted line on figs 3 and 9). Postclypeus with brown lateral parts and with light brown band basally. Anteclypeus dark brown to black except light brown yellowish basal part. Rostrum light brown with black apex. Pro- and mesonotum dark brown yellowish, with yellowish carinae and pustules. Fore wings with greenish veins and light pustules. Hind wings semitransparent, with dark brown veins. Hind epimerae and episternae with large black spots. Notum between trochanters light yellow. Trochanters of fore and middle legs light yellow. Fore and middle femora with light spots and dots. Fore and middle tibiae with light outer margins. Hind femora dark brown to black. Hind tibiae dark brown basally, light brown yellowish medially and dark brown apically. Tarsi and claws with pretarsus dark brown. Apices of leg spines black. Abdominal sternites VI–VII dark brown laterally and almost black medially. Gonoplags sometimes mainly light brown yellowish. Margins of gonoplags and anal tube black.

Note. The species is presented by two females which are clearly differ each from other by the length of metopial proboscis and the shape of light stripes of genae (Figs 3, 9). The type localities of these specimens are situated in Puerto Princesa and in Bacuit Bay which is 238 km NE of Puerto Princesa, thus it is rather possible to expect even different species in these localities, but at the moment I have no males and prefer to describe subspecies for these females until males will be discovered and examined.

#### Key to subspecies of *Nisoprincessa palawana*

- 1 Metopial proboscis as long as postclypeus (in lateral view) (Fig. 9). Light stripe of gena not reaching lateral margin of metope (dotted line on fig. 9). Total length – 6.0 mm **N. palawana bacuita** ssp. n.
- Metopial proboscis 0.6 times as long as postclypeus (in lateral view) (Fig. 3). Light stripe of gena reaching lateral margin of metope (dotted line on fig. 3). Total length – 5.5 mm **N. palawana palawana** ssp. n.

### **Nisoprincessa palawana palawana** ssp. n.

(Figs 1–8, 11, 12, 33, 34)

Type material. Holotype, ♀, “P. Princesa / Palawan / Baker”, “Collectio / Dr. L. Melichar / Moravské museum Brno”, “Arhopoda timida [? Horv.]”, “Nomen invalidum (Manuscript name) / P. Lauterer det. 1987” (MMBC).

**Nisoprincessa palawana bacuita** ssp. n.

(Figs 9, 10, 13, 35)

Type material. Holotype, ♀, "N. Palawan / Bacuit / Dezemb. 1913 / leg. G. Roet'cher", "Bardunia nasuta Mel. [hand written in ink] / det. Melichar [printed]", "Collectio / Dr. L. Melichar / Moravské museum Brno" (MMBC).

**Brevicopius** Meng, Qin et Wang, 2015

Type species: *Fortunia jianfenglingensis* Chen, Zhang et Chang, 2014

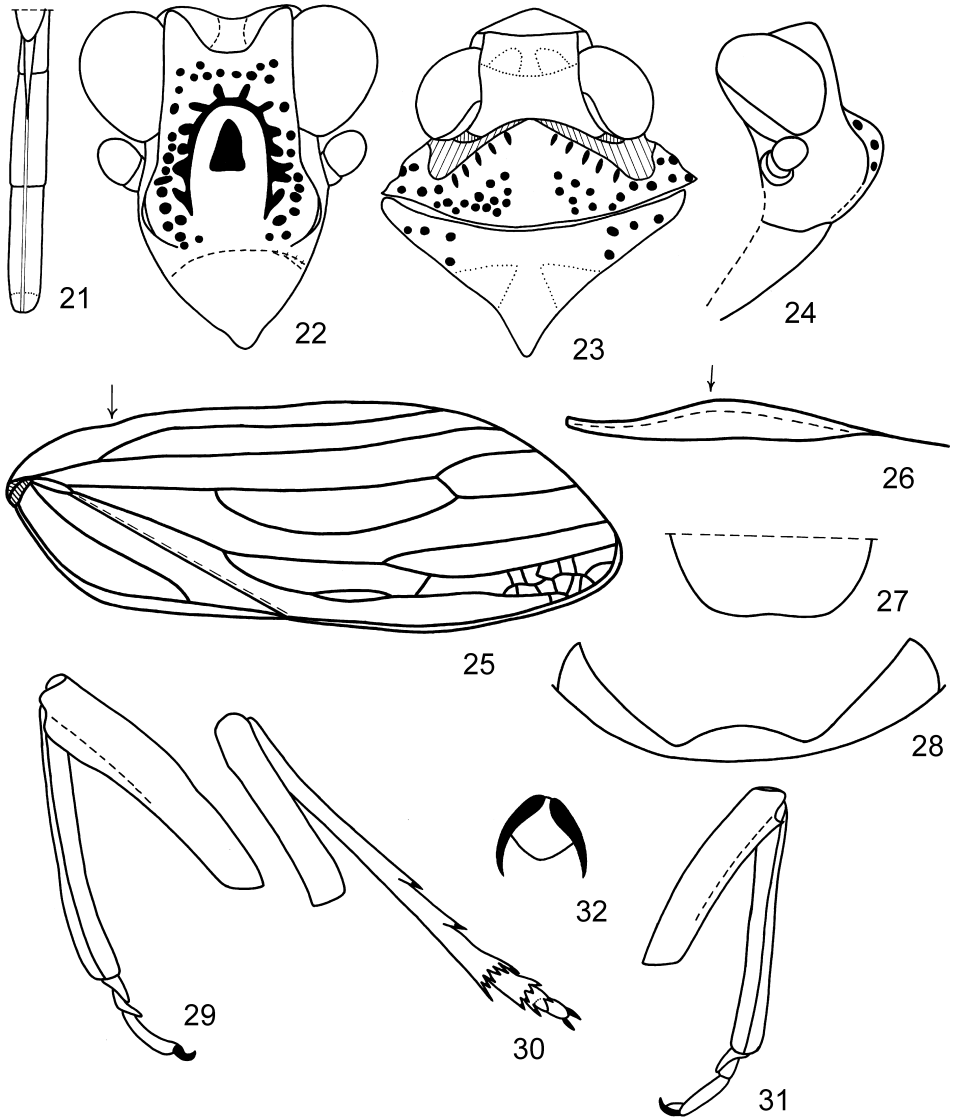
**Brevicopius gorochovi** sp. n.

(Figs 21–32, 39–44)

Type material. ♀ Holotype, Vietnam, Gia Lai Province, Buon Luoi, 22.III.1995, A.V. Gorochov leg. (ZIN).

Description. Metope elongate, convex above postclypeus – this lower part of metope joint to its upper flat part at right angle (in lateral view) (Figs 22, 24, 42, 43). Metope with sublateral carinae joint below its upper margin in shape of horse-shoe and with pustules between sublateral carinae and upper and lateral margins. Inside of horse-shoe at midline there is large triangular pustule (Fig. 22). Upper margin of metope deeply trapezoidally concave (Figs 22, 43). Metopoclypeal suture distinct, convex. Postclypeus large, smooth. Ocelli absent. Pedicell elongately cylindrical. Rostrum reaching hind coxae, its second and third segment nearly equal in length; third segment not narrowing apically (cylindrical) (Fig. 21). Metope and anterior part of coryphe joint at right angle (in lateral view) (Figs 24, 42). Coryphe transverse, concave along midline (Figs 23, 40). Anterior and posterior parts of coryphe nearly equal in length along midline and joint at obtuse angle; posterior part is more convex. Pronotum and mesonotum nearly equal in length along midline. Pronotum with pustules along its anterior margin and besides of midline. Paradiscal fields wide, with pustules except smooth areas behind the eyes. Paranotal lobes widely triangular. Mesonotum concave medially. Tegulae small. Fore wings elongate, with kell-shaped longitudinal veins, with wide hypocostal plate (Figs 25, 26, 39, 41). Clavus slightly longer than 1/3 of wing length. Basal cell narrow, weakly recognisable. R 2 – furcating near to basal cell, M 2, CuA 3 – both furcating at the same level before apex of clavus. Postclaval parts of fore wings crossing (in dorsal view). Hind wings as long as fore wings. Fore femora are longest, hind femora are shortest (Figs 29, 30). Fore and middle femora and tibiae flattened (Figs 29, 31). Hind tibiae are longest. Hind tibia with 2 lateral spines in distal half and with 7 apical spines. First and second tarsomeres of fore and middle legs nearly equal in length, third tarsomere 2–2.5 times longer. First and second metatarsomeres nearly equal in length, with long hair-shaped setae on ventral surface. First metatarsomere with 2 latero-apical and 6 intermediate spines. Second metatarsomere with only 2 latero-apical spines. Arolium of pretarsus not exciding apices of claws, with convex hind margin (in dorsal view) (Fig. 32). Hind margin of female sternite VII with two concavities (Fig. 28). Anal tube wide, with median concavity apically (Fig. 27). Gonoplags convex, without carinae (Fig. 44).

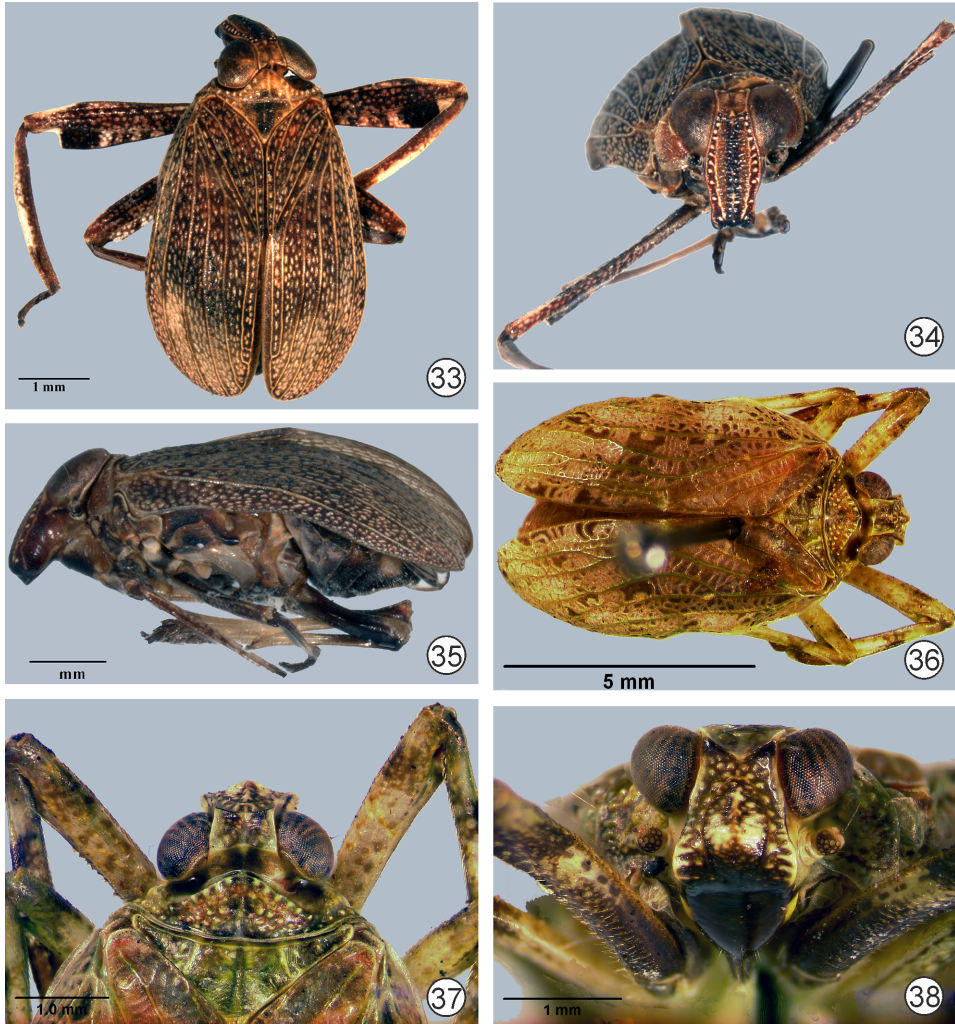
Colouration. Head, pro- and mesonotum light brown yellowish (Figs 39, 40). Metope dark brown to black, with black upper angles; sublateral carinae, median triangular, and pustules light yellow (Fig. 43). Genae light brown yellowish, with red dots and with black



**Figs 21–32.** *Brevicopius gorochovi* sp. n., holotype. 21 = rostrum, 22 = head, frontal view, 23 = head, pro-, and mesonotum, dorsal view, 24 = head, lateral view, 25 = fore wing, 26 = hypocostal plate of fore wing, 27 = apical part of female anal tube, dorsal view, 28 = hind margin of female sternite VII, ventral view, 29 = right fore leg, 30 = left middle leg, 31 = left hind leg, 32 = pretarsus of left fore leg



stripe along eye margin (Fig. 42). Scapus and pedicel light green yellowish. Clypeus dark brown to black. Rostrum green yellowish. Pronotum with black posterior margin. Mesonotum with dark brown upper angles. Fore wings with brown yellowish R and transverse veins and with black cells basally and behind the hypocostal plate (Figs 39, 41). M and CuA green yellowish with dark brown and black cells between them, transverse veins reddish. Clavus with dark brown to black cells and with reddish transverse veins, Pcu greenish, A<sub>1</sub> brown. Hind wings dark brown. Fore coxae and femora dark brown to black, with light



**Figs 33–38.** Parahiraciini. 33–34 = *Nisoprincessa palawana palawana* ssp. n., holotype: 33 = dorsal view, 34 = frontal view. 35 = *N. palawana bacuita* ssp. n., holotype, lateral view. 36–38 = *Brevicopius jianfenglingensis* Chen, Zhang et Chang, male: 36–37 = dorsal view, 38 = frontal view

spots outside apically and light yellow, with brown spots inside. Fore femora and tarsi dark brown. Fore tibiae with two large light brown yellowish patches at its middle and proximally (Fig. 41). Middle trochanters dark brown outside and light yellow inside. Middle coxae light yellow. Middle femora light yellow, with brown spots and dots and dark brown outside basally and apically. Middle tarsi dark brown. Hind coxae dark brown to black. Hind trochanters dark brown. Hind femora dark brown to black outside and brown yellowish inside. Hind tibiae light yellow greenish, with brown spots. Hind tarsi light yellow greenish. Third metatarsomere brown apically, claws dark brown. Apices of leg spines black. Third abdominal sternite brown yellowish, with black lateral parts. Abdominal sternite VI black medially. Abdominal sternites V–VI brown to dark brown and black medially. Abdominal sternite VII light brown, with black median lobe (Fig. 44). Abdominal laterotergites VI–VII black. Gonocoxa VIII dark brown to black, with light yellow hind margin. Gonoplags dark brown, with two orange patches medially. Anal tube yellow greenish.

Total length. 11 mm.

Etymology. The species is named after the well-known Russian orthopterologist – Dr. Andrey Gorochov.

*Brevicopius jianfenglingensis* (Chen, Zhang et Chang, 2014)  
(Figs 14–20)

*Fortunia jianfenglingensis* Chen, Zhang et Chang, 2014: 94 (sp. n.).

*Brevicopius jianfenglingensis* Meng, Qin et Wang, 2015: 585 (comb. n.).

Material examined. Vietnam: 1 ♂, “Annam Province / Haut Donai / Col de Blao”, “Alt. 900 M. / 11.5.1933”, “M. Poilane / Coll.” (USNM); 1 ♀, Dak Lak Province, Chu Yang Sin Nat. Park, 2–10.VII.2007, P. Grootaert leg. (IRSNB).

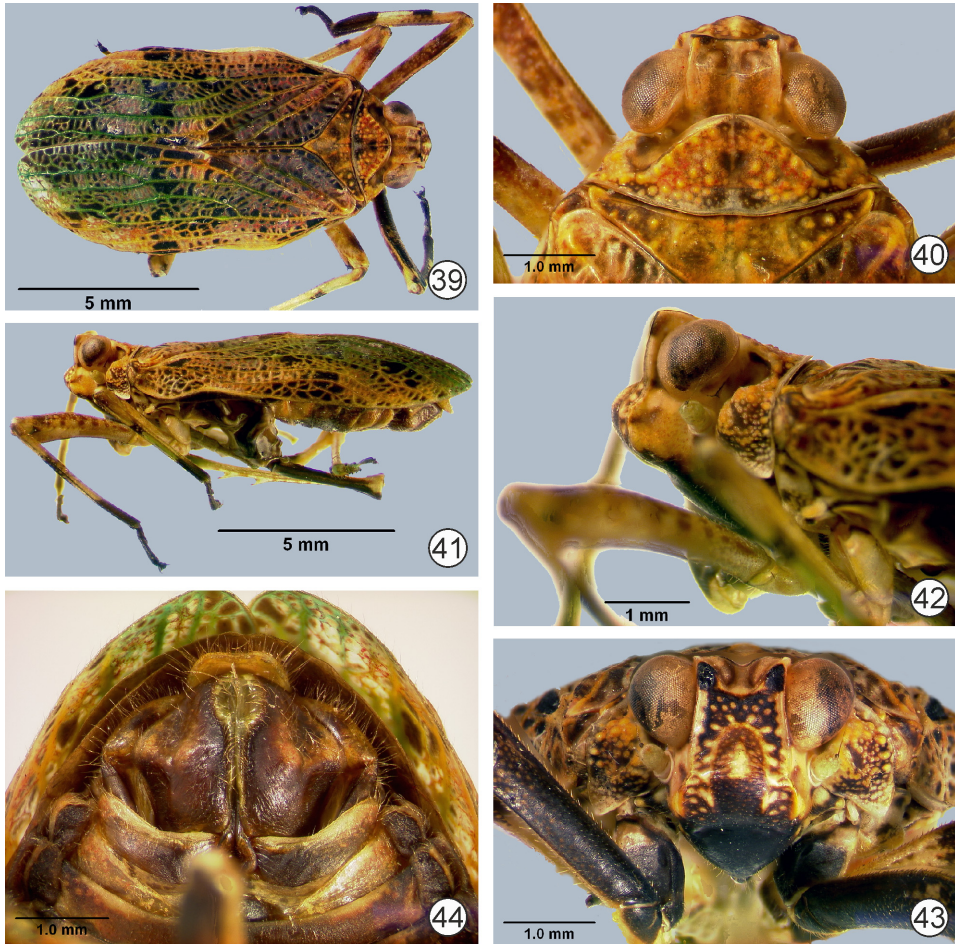
Key to species of *Brevicopius*

- 1 Upper margin of metope trapezoidally concave (Figs 22, 43). Metope angularly convex above the clypeus (Figs 24, 42). Coryphe divided into anterior and posterior parts joint at obtuse angle (Figs 23, 40). Third segment of rostrum nearly as long as second one (Fig. 21). Fore wings with wide hypocostal plate (Fig. 26) and green yellowish M and CuA (Fig. 39). Hind margin of female sternite VII with two concavities (Fig. 28). Female anal tube widely rounded apically, with median concavity (Fig. 27). Total length – 11 mm. Central Vietnam **B. gorochovi** sp. n.
- Upper margin of metope obtusely angulately concave (Figs 14, 38). Metope slightly convex above the clypeus (Fig. 16). Coryphe not divided into two parts (Figs 15, 37). Third segment of rostrum shorter than second one (Fig. 20). Fore wings with narrow hypocostal plate (Fig. 17) and

light brown M and CuA (Fig. 36). Hind margin of female sternite VII widely concave (Fig. 19). Female anal tube narrowing apically, without concavity (Fig. 18). Total length – 9 mm. China (Hainan I.), Central Vietnam  
*B. jianfenglingensis* (Chen, Zhang et Chang, 2014)

## DISCUSSION

According to the shape of proboscis and foliately flattened fore and middle femora *Nisoprincessa* gen. n. is conceivable, even likely closely related to the genera *Narinosus* Gnezdilov et Wilson, 2005 and *Folifemurum* Che, Zhang



**Figs 39–44.** *Brevicopius gorochovi* sp. n., holotype. 39–40 = dorsal view, 41–42 = lateral view, 43 = frontal view, 44 = ovipositor, ventral view

et Wang, 2013, both from China. However, *Narinosus nativus* Gnezdilov et Wilson, 2005 has bilobate hind wings (WANG *et al.* 2015, fig. 28) and *Folifemurum duplicatum* Che, Zhang et Wang, 2013 has hind wings rudimentary (CHE *et al.* 2013, fig. 5). On the other hand according to its trilobate hind wings *Nisoprincessa* gen. n. is related to the genus *Scantinius* Stål, 1866 (GNEZDILOV 2012, fig. 3) from Borneo (GNEZDILOV & WILSON 2007), however, venation is different – *Nisoprincessa* gen. n. almost has not transverse veins, but *Scantinius* with reticulate venation on main lobes, except anal one. *Nisoprincessa* gen. n. is very distinctive even within Issidae by the character of fusion of CuA and CuP of hind wings which are fused on a long distance medially, but became separated again apically (Fig. 13). In *Scantinius* as well as in Issini (Thioniina) CuA and CuP are closed or fused apically (GNEZDILOV 2012, figs 1–2). Also if in *Scantinius* Pcu and A<sub>1,1</sub> are fused medially on very short distance (almost a point) – in *Nisoprincessa* gen. n. Pcu and A<sub>1,1</sub> are fused medially on rather long distance which is characteristic also for many Oriental Issini (GNEZDILOV 2012).

The monotypic genus *Thabenula* Gnezdilov, Soulier-Perkins et Bourgoïn, 2011 described after Fieber's material (GNEZDILOV *et al.* 2011) according to bilobate hind wings and close relationships to the *Thabena* Stål, 1866 have to be transferred to the tribe Parahiracini. Thus including the new genus and a new species described above the total number of extant parahiracine taxa rises to 20 genera with 65 species: *Bardunia* Stål, 1863 (= *Prosonoma* Melichar) (8 species), *Brevicopius* Meng, Qin et Wang, 2015 (2 species), *Duriopsilla* Fennah, 1956 (1 species), *Flavina* Stål, 1861 (= *Dolia* Kirkaldy, = *Nilalohita* Distant) (10 species), *Folifemurum* Che, Zhang et Wang, 2013 (1 species), *Fortunia* Distant, 1909 (= *Clipeopsilus* Jacobi, 1944 = *Parahiracia* Ouchi, 1940) (4 species), *Fusiissus* Zhang et Chen, 2010 (2 species), *Mincopius* Distant, 1909 (1 species), *Narinosus* Gnezdilov et Wilson, 2005 (1 species), *Neodurium* Fennah, 1956 (4 species), *Neotetricodes* Zhang et Chen, 2012 (5 species), *Paratetricodes* Zhang et Chen, 2010 (1 species), *Pinocchias* Gnezdilov et Wilson, 2005 (1 species), *Nisoprincessa* gen. n. (1 species), *Rhombissus* Gnezdilov et Hayashi, 2016 (1 species), *Scantinius* Stål, 1866 (= *Dindinga* Distant, 1909) (2 species), *Tetricodes* Fennah, 1956 (4 species), *Tetricodissus* Wang, Bourgoïn et Zhang, 2015 (1 species), *Thabena* Stål, 1866 (= *Cibyra* Stål, = *Gelastyra* Kirkaldy, = *Gelastyrella* Yang, = *Borbonissus* Bonfils, Attié et Reynaud) (14 species), *Thabenula* Gnezdilov, Soulier-Perkins et Bourgoïn, 2011 (1 species).

\*

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