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NEW SPECIES OF THE FAMILIES ANOSTOSTOMATIDAE AND RHAPHIDOPHORIDAE (ORTHOPTERA: STENOPELMATOIDEA) FROM CHINA

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One new species of family Anostostomatidae (*Apteranabropsis paracostulata* sp. n.) and ten new species of family Rhaphidophoridae (*Eurhaphidophora visibilis* sp. n., *Diestrammena proxima* sp. n., *D. bifurcata* sp. n., *D. improvisa* sp. n., *D. belousovi* sp. n., *D. kabaki* sp. n., *D. acutilobata* sp. n., *D. ovalilobata* sp. n., *Eutachycines hainani* sp. n., *Diestrammena distincta* sp. n.) are described from China.

KEY WORDS: Orthoptera, Stenopelmatoidea, Anostostomatidae, Rhaphidophoridae, new species, China.

А. В. Горохов. Новые виды прямокрылых семейств Anostomatidae и Rhaphidophoridae (Orthoptera: Stenopelmatoidea) из Китая // Дальневосточный энтомолог. 2010. N 206. С. 1-16.

Из Китая описаны 11 новых видов: *Apteranabropsis paracostulata* sp. n. (семейство Anostostomatidae), *Eurhaphidophora visibilis* sp. n., *Diestrammena proxima* sp. n., *D. bifurcata* sp. n., *D. improvisa* sp. n., *D. belousovi* sp. n., *D. kabaki* sp. n., *D. acutilobata* sp. n., *D. ovalilobata* sp. n., *Eutachycines hainani* sp. n., *Diestrammena distincta* sp. n. (семейство Rhaphidophoridae).

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INTRODUCTION

Representatives of the families Anostomatidae and Rhaphidophoridae are mainly inhabitants of forest floor in tropical and subtropical regions. They are insects with night activity. Many of them are able to climb bushes, tree trunks, and rocks. Some of them have digging habits. The classification of these groups is based on publications by Gorochov (1988; 1995; 1998; 1999; 2000; 2001; 2002) and Storozhenko (1990). The material studied is originated from the Institute of Zoology of Chinese Academy of Sciences, Beijing (IZAS) and the Zoological Institute of Russian Academy of Sciences, St. Petersburg (ZIAS).

DESCRIPTIONS OF NEW SPECIES

Family Anostomatidae

Subfamily Anabropsinae

Tribe Anabropsini

Apteranabropsis Gorochov, 1988

Type species: *Anabropsis miser* Bey-Bienko, 1968, by original designation.

Apteranabropsis paracostulata Gorochov, sp. n.

Figs 1-6

MATERIAL. Holotype – ♂, China: Yunnan Prov., “Menghun Xishuangbanna”, 750 m, 7.VI 1958, coll. “Meng Xuwu”; IZAS.

DESCRIPTION. MALE (holotype). General appearance similar to that of *A. costulata* Gorochov, 2001 and *A. sinica* B.-Bienko, 1962. Head with narrow median furrow on rostrum; width of this rostrum between antennal cavities almost equal to width of scape; vertex with weak (but distinct) median keel. Pronotum with most part of surface not smooth; pterothoracic tergites without traces of wing rudiments; thoracic and 1st-3rd abdominal tergites with rather numerous distinct longitudinal ridges near hind edge (these ridges low, narrow, and rather short; 4th-7th abdominal tergites with similar median ridge (all median ridges together look as interrupted median keel running from hind part of pronotum to 7th abdominal tergite). Femora without spines and denticles excepting one short inner apical spine on hind femur; fore tibia with oval both inner and outer tympana (these tympana equal to each other in size), one inner dorsal spine, four pairs of ventral spines, and four apical spines; middle tibia with four pairs of ventral spines, two pairs of dorsal spines, one inner dorsal proximal spine, and four apical spines; hind tibia with 13-15 outer dorsal denticles, 10 inner dorsal denticles, and eight large apical spines [small and large denticles situated more or less alternately; bases of most dorsal pair of apical spines moved slightly proximad; size of apical spines gradually reduced from above-mentioned pair (largest) to most ventral pair (smallest); latter spines not longer than longest denticles; inner apical spine slightly longer than outer one of same pair excep-

ting most dorsal and most ventral pairs (each of two latter pairs lacking difference in length of outer and inner spines)]. Abdominal apex and genitalia as in Figs 2-6. Coloration of body light brown with numerous small darkish spots, but some dark or light areas rather large: upper part of head, pronotum, abdominal tergites, cerci, paraprocts, and genital plate almost dark brown; antennae light excepting spotted proximal part; fore coxa darkish with light spine; all femora with dark distal part and not large light dorsoapical spot; hind femur additionally with two dark longitudinal bands (larger dorsolateral band and narrower one along median line of lateral surface) fused with each other in distal part; all tibiae with dark proximal part and light very small area near femoral articulation; all spines of legs rather light.

FEMALE unknown.

LENGTH (in mm). Body 23; pronotum 6; fore femur 8.5; hind femur 20.5; hind tibia 20.

COMPARISON. *A. paracostulata* sp. n. is most similar to *A. sinica* and *A. costulata*. The new species is distinguished from *A. sinica* by the presence of median furrow on rostrum and median keel on vertex, well developed short longitudinal ridges on thoracic and some abdominal tergites (in *A. sinica*, these ridges practically indistinct), light spine of fore coxa, more spotted hind femora, more straight distal half of paraproctal processes in profile, narrower apical part of these processes (for comparison see Figs 2 and 8, 9), narrower distal part of genital plate in profile (see Figs 2 and 7), clearly shorter styli of this plate, and almost straight hind edge of this plate between styli (see Figs 2, 4 and 7, 10). From *A. costulata*, the new species differs in the absence of traces of wing rudiments on pterothoracic tergites and distinctly unequal size of denticles on hind tibia. From the other representatives of this genus, *A. paracostulata* sp. n. clearly differs in the distinctly smaller or distinctly larger body, or in the presence of both tympana.

ETYMOLOGY. This specific name originates from *A. costulata*.

Family Rhaphidophoridae
Subfamily Rhaphidophorinae

***Eurhaphidophora* Gorochov, 1999**

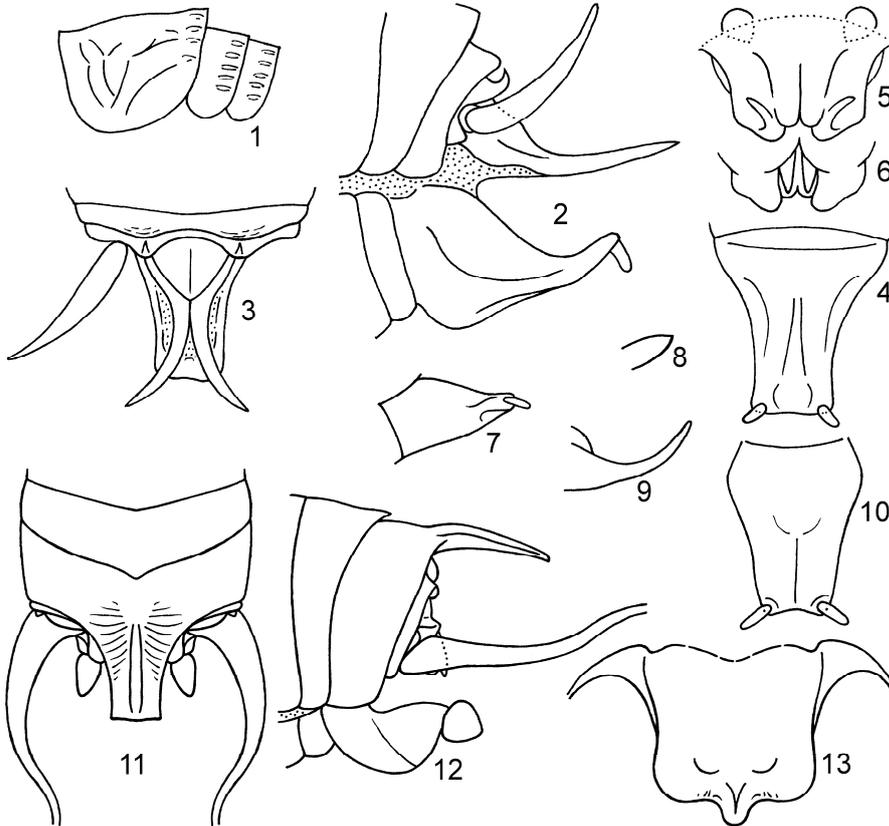
Type species: *Eurhaphidophora nataliae* Gorochov, 1999, by original designation.

***Eurhaphidophora visibilis* Gorochov, sp. n.**
Figs 11-13

MATERIAL. Holotype – ♂, China: Xizang Prov., “Motuo”, 1000-1500 m, IX 1956; ZIAS.

DESCRIPTION. MALE (holotype). General appearance almost as in *E. nataliae* Gorochov, 1999. Head with rostrum divided into right and left tubercles by narrow and deep furrow (these tubercles closely pressed to each other); lateral ocelli rounded,

large, and occupying proximal and middle parts of lateral surface of rostral tubercles (if to see from above); median ocellus oval, vertical, and hardly smaller than lateral ones. Femora with only apical spines typical of this subfamily; fore tibiae with two outer and one inner ventral spines as well as with a pair of ventroapical spines; middle



Figs 1-13. *Apteranabropsis* and *Eurhaphidophora*, male. 1-6) *A. paracostulata* sp. n.; 7-10) *A. sinica* B.-Bien. (holotype); 11-13) *E. visibilis* sp. n. Thoracic tergites from side (1); abdominal apex from side (2, 12) and from above (3, 11); genital plate from below (4, 10) and from side (7); paraproctal process (9) and its apex (8) from side; epiproct from behind (13).

tibiae with two outer ventral spines, two outer dorsal spines, 2-3 inner dorsal spines, and two pairs of apical (dorsal and ventral) spines; hind tibiae with 19-21 outer and 19-20 inner dorsal denticles as well as with four pairs of apical spines [spines of most dorsal and most ventral pairs short, almost equal to each other and to longest denticles; pair of spines nearest to most dorsal pair longest (inner spine slightly longer and outer one slightly shorter than hind basitarsus); each of spines nearest to most ventral pair somewhat more than twice shorter than nearest of more dorsal spines];

hind basitarsus with 3-4 dorsal and one very large dorsoapical denticles. Abdomen with angular hind median projection of 8th tergite, long and not very wide hind median process of 9th tergite (this process lamellar, with low median keel on dorsum and truncate apex, and not separated from rest of tergite; Figs. 11, 12), characteristic epiproct (Fig. 13), and short and very wide (high) styli of genital plate (Figs 11, 12); genitalia similar to *E. nataliae* (Gorochov, 1999: figs. 311-313), but with distinctly shorter dorsal lobes, slightly longer ventral lobes, roundly truncate apex of median ventral lobe, and wider distance between paired structures on dorsal part of this lobe. Coloration uniformly brown with following lighter parts: all legs and thoracic sternites almost light brown; most part of epicranium (below rostrum and eyes), antennae, palpi, proximal abdominal sternites, legs and thoracic sternites, but slightly lighter than rest of body (excepting yellowish and cerci slightly darker than ocelli).

FEMALE unknown.

LENGTH (in mm). Body 2.7; pronotum 7.6; fore femur 8.4; hind femur 23; hind tibia 22.

COMPARISON. This new species differs from *E. nataliae* in the longer and much narrower hind process of 9th abdominal tergite in male, truncate apex of this process, and almost rectangular (not triangular) male epiproct.

ETYMOLOGY. This specific name originates from *visibilis* (Latin) – visible.

Subfamily Aemodogryllinae
Tribe Aemodogryllini

***Diestrarmena* Brunner-Wattenwyl, 1888**

Type species: *Locusta (Rhopidophora) marmorata* De Haan, 1842, by subsequent designation (Kirby, 1906).

***Diestrarmena (Gymnaeta) proxima* Gorochov, sp. n.**

Figs 14-19

MATERIAL. Holotype – ♂, China: Sichuan Prov., “Maerkang-Daoping”, 3230 m, 22.VII 1961, coll. “Li Xiaofu”; IZAS. Paratype: ♀, same data as in holotype; IZAS.

DESCRIPTION. MALE (holotype). Structure of body and genitalia similar to those of *D. (Tachycines) asynamora* (Adelung, 1902), but characterized by following characters: rostral tubercles of head distinctly shorter and with more rounded apex (for comparison see Figs 14, 15 and 31, 32); femora with only apical spines typical of this subfamily; fore tibia with two outer ventral spines, one inner ventral spine, one pair of ventroapical spines, one smaller ventroapical spine between them, and one small inner dorsoapical spine; middle tibia with one pair of ventral spines, one pair of ventroapical spines (left tibia with unpaired very small ventroapical spine between latter spines), and one pair of dorsoapical spines; hind tibia with two rows of numerous dorsal denticles similar to those of subgenus *Tachycines* Adelung, 1902

(almost as in *D. asynamora*) and three pairs of apical spines (inner dorsoapical spine longest, reaching base of apical denticle of hind basitarsus; outer dorsoapical spine somewhat shorter; middle inner apical spine distinctly shorter than previous spine; middle outer apical spine slightly shorter than latter one; pair of ventroapical spines shortest, but its inner spine hardly longer than outer one; hind tarsus with only one dorsoapical denticle on basitarsus and one small angular dorsoapical projection on second segment; genitalia with unpaired dorsal sclerite (epiphallus) and membranous apical lobules of dorsal median lobe almost as in *D. asynamora*, however lateral pair of these lobules longer than medial one (Fig. 17), paired lateral sclerites strongly arcuate in profile (Fig. 16), and membranous dorsal lateral lobes distinctly longer (Figs 16, 17). Coloration brown with traces of numerous slightly darker spots on lateral parts of pterothoracic and proximal abdominal tergites; however head, legs, and abdominal ventrum somewhat lighter (almost light brown) and with weak unpaired darkening on clypeus and base of labrum, paired darkenings under eyes and behind eyes (latter darkenings connected with each other by narrow darkish stripe on vertex), unclear darkish spots on tibiae and distal part of hind femur, and dark distal half of genital plate.

FEMALE. General appearance similar to that of male, but both middle tibiae with unpaired very small venroapical spine between pair of longer ventroapical spines. Genital plate as in Fig. 19; ovipositor almost straight (with distal part hardly curved upwards) and with almost smooth, narrow, and acute apical parts of valves; ventral edge of distal part of inferior valves of ovipositor with very low and elongate (weakly distinct) denticles (Fig. 18).

LENGTH (in mm). Body: male 15, female 18; pronotum: male 5, female 5.5; fore femur: male 7.8, female 7.6; hind femur: male 15.5, female 15; hind tibia: male 16, female 15.5; ovipositor 10.5.

COMPARISON. The new species is most similar to *D. asynamora* belonging to the subgenus *Tachycines*, but distinguished by the shorter rostral tubercles and presence of only apical spines on all femora. The latter character is a main diagnostic character of the subgenus *Gymnaeta* Adelung, 1902. So, the new species (and some other new species described here) is an additional evidence of possible polyphyletic of the latter subgenus (see note about it in Gorochoy, 1998).

ETYMOLOGY. This specific name originates from *proximus* (Latin) – nearest.

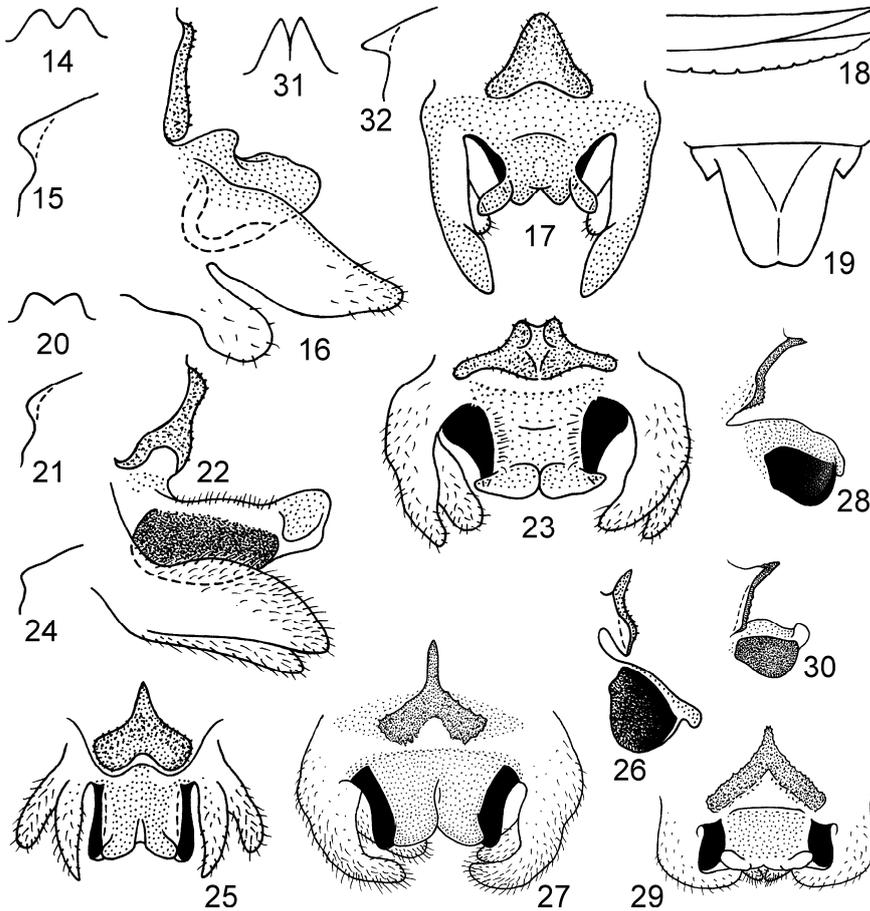
***Distrammena (Gymnaeta) bifurcata* Gorochoy, sp. n.**

Figs 20-23

MATERIAL. Holotype – ♂, China: Yunnan Prov., “Xiaomengyang, Xishuanbanna”, 850 m, 2.IX 1957, coll. “Wang Shuyong”; IZAS.

DESCRIPTION. MALE (holotype). Structure of body parts more or less similar to that of *D. proxima*, but body distinctly larger, rostral tubercles shorter (Figs 20, 21), hind tibiae with hardly less numerous dorsal denticles and longer inner dorsoapical spine extending slightly behind apical denticle of hind basitarsus (fore and middle legs missing), apex of epiproct somewhat narrowing and slightly curved upwards,

genitalia with wider and shorter unpaired dorsal sclerite (epiphallus) having slightly bifurcate dorsal median lobe (Fig. 23), their membranous dorsal median lobe with a pair of membranous apical lobules and very large and almost oval paired lateral sclerites (Figs 22, 23), and dorsal and ventral pairs of lateral membranous genital lobes almost equal in length (Figs 22, 23). Coloration of head light brown with a pair



Figs 14-32. *Diestrammena*. 14-19) *D. proxima* sp. n.; 20-23) *D. bifurcata* sp. n.; 24-26) *D. improvisa* sp. n.; 27, 28) *D. belousovi* sp. n.; 29, 30) *D. kabaki* sp. n.; 31, 32) *D. asynamora* (Ad.). Rostral tubercles without antennal cavities from above (14, 20, 31) and from side (15, 21, 24, 32); male genitalia from side (16, 22) and from above (17, 23, 25, 27, 29); male genitalia without lateral and ventral membranous lobes from side (26, 28, 30); distal part of ovipositor from side (18); female genital plate from below (19).

of dark vertical bands under eyes and on lateral parts of labrum, dark dorsal spots behind eyes, and brown antennal flagellum; pronotum brown with almost indistinct darkish spots on lateral lobes; pterothoracic and abdominal tergites almost uniformly dark brown; body venter lighter (brown), but with dark brown genital plate (cerci missing); hind legs light brown with narrow oblique darkish stripes on proximal third of outer femoral surface and somewhat darker (but less distinct) spots on rest of femur and on tibia.

FEMALE unknown.

LENGTH (in mm). Body 19; pronotum 6.7; hind femur 26; hind tibia 29.

COMPARISON. The new species differs from all the other congeners in the strongly transverse epiphallus (unpaired dorsal sclerite) having slightly notched dorsal apical part as well as in the very large and almost oval paired lateral sclerites in male genitalia.

ETYMOLOGY. This species name originates from *bifurcatus* (Latin) – bifurcate.

***Diestrammena (Gymnaeta) improvisa* Gorochoy, sp. n.**

Figs 24-26

MATERIAL. Holotype – ♂, China: Hubei Prov., “Guong Men Shan, Sheng Long Jia”, 1460 m, 23-30.VII 1998, coll. “Yu Xiao Dong”; IZAS.

DESCRIPTION. MALE (holotype). Structure of body parts similar to that of *D. proxima*, but distinguished by following characters: rostral tubercles of head distinctly shorter and more or less similar to those of *D. bifurcata* (see Figs 21 and 24); fore tibia with two outer ventral spines, one inner ventral spine, and one pair of ventroapical spines (ventroapical spine between latter spines and inner dorsoapical spine absent); middle tibia with only one pair of ventral spines, one pair of ventroapical spines, and one pair of dorsoapical spines; hind tibia with two rows of numerous dorsal denticles (forming 14-16 groups of these denticles in each row; these groups including 2-5 denticles) and apical spines as in *D. proxima*, but longest inner dorsoapical spine extending hardly behind apex of apical denticle of hind basitarsus; genitalia with unpaired dorsal sclerite (epiphallus) having rather large median apical spine at proximal part and characteristically notched distal edge (Figs 25, 26); membranous apical lobules of dorsal median lobe of genitalia shorter, medial of them smaller than lateral ones; each of these lateral lobules provided with large and almost oval sclerotized plate reaching base of lateral part of dorsal median lobe (Figs 25, 26); membranous dorsal lateral lobes of genitalia slightly longer than ventral ones (Fig. 25). Coloration of body almost uniformly brown with light brown ventral parts, head, and legs, but dorsum of head, rostrum, four vertical stripes under antennae and under eyes, large spots on femora, and hind tibiae darkish.

FEMALE unknown.

LENGTH (in mm). Body 14; pronotum 4.5; fore femur 8.5; hind femur 16.5; hind tibia 17.5.

COMPARISON. The new species is similar to a species determined by Jiao et al. (2008) as *D. brevicauda* (Karny, 1933) and to species determined by Zhang & Liu (2009) as *D. longicauda* (Karny, 1933) and *D. berezowskii* (Adelung, 1902) in the shape of epiphallus in male genitalia. From the first species, *D. improvisa* differs in the distinctly shorter pronotum, membranous dorsal median lobe of male genitalia divided into two pairs (not into one pair) of apical lobules, and almost uniform coloration of body; and from both the other species, in the same characters of membranous dorsal median lobe in male genitalia, distinctly shorter membranous ventrolateral lobes in male genitalia, and slightly longer median or lateral parts of epiphallus. However all these old names were proposed for species originated from Gansu Province of China, but the above-mentioned coauthors studied males only from other Chinese provinces (not from Gansu and not from Hubei). Belonging of the latter males to these species is problematic as representatives of this forest subfamily usually have very narrow geographical areas (excepting one or two almost synanthropic species).

ETYMOLOGY. This name originates from *im-provisus* (Latin) – improvised.

***Diestrammena (Gymnaeta) belousovi* Gorochoy, sp. n.**

Figs 27, 28

MATERIAL. Holotype – ♂, China: Sichuan Prov., “Nanping & Pingwu Pass”, 32°53'21” N, 104°14'53” E, 3370-3590 m, 27.VII 2005, coll. I. Belousov and I. Kabak; ZIAS.

DESCRIPTION. MALE (holotype). Structure of body very similar to that of *D. improvisa*, but rostral tubercles intermediate between those from Figs 21 and 24, fore tibiae with two outer and one inner ventral spines as well as with 5 apical spines (a short dorsal pair, a longer ventral pair, and one short spine between latter spines), middle tibiae with a pair of ventral spines and apical spines almost as in fore tibiae, hind tibiae with about 70 denticles on each dorsal keel (division of these denticles into groups almost indistinct) and apical spines as in *D. improvisa*, genitalia with distinctly narrower proximal part of epiphallus having shorter apical spine as well as with slightly lower distal part of lateral sclerotized plates of membranous median dorsal lobe (Figs 27, 28). Coloration uniformly light brown with slight darkish spots on apical part of abdominal dorsum and legs (including feather-like pattern from lines on proximal part of outer surface of hind femora).

FEMALE unknown.

LENGTH (in mm). Body 16; pronotum 4.6; fore femur 8.8; hind femur 17.5; hind tibia 18.5.

COMPARISON. The new species differs from *D. improvisa* in the above-listed characters. From the similar specimens mentioned in the previous “Comparison”, it differs in the narrower proximal spine of epiphallus or distinctly shorter pronotum.

ETYMOLOGY. This species is named in honor of one of its collectors.

***Diestrarmena (Gymnaeta) kabaki* Gorochoy, sp. n.**

Figs 29, 30

MATERIAL. Holotype – ♂, China: Sichuan Prov., “SW Jiabi”, 31°33-34’ N, 102°45-46’ E, ~3000 m, 6.VIII 2007, coll. I. Belousov and I. Kabak; ZIAS. Paratype: ♀, same data as in holotype; ZIAS.

DESCRIPTION. MALE (holotype). Structure of body as in *D. belousovi*, but without dorsoapical spines on fore tibiae, with slightly more numerous dorsal denticles on hind tibiae (about 75 on each keel), somewhat shorter inner dorsoapical spine of these tibiae (reaching base of dorsoapical denticle of basitarsus), clearly shorter proximal part of epiphallus and shorter membranous median dorsal lobe in genitalia (Figs 29, 30). Coloration distinctly spotted: body dark brown with yellowish ventral half of head, ocelli, and thoracic venter, as well as with light brown vertical stripes under antennal cavities, spots on lateral lobes of pronotum and pterothoracic pleurites, abdominal venter (excepting darker distal part), and base of cerci; antennae, cerci, and legs yellowish, but with a few darkish marks on scape, slightly darkened middle part of maxillary palpi, distinctly spotted fore and middle tibiae and distal half of all femora, distinctly darkened proximal half of hind tibiae, and hardly darkened distal half of these tibiae and most part of hind tarsi.

FEMALE. General appearance as in male, but with lightish spots on lateral parts of mesonotum and darker base of cerci. Genital plate somewhat similar to that from Figs 38, 39, but without visible lateral lobules, with slightly wider and more rounded apex having small (but distinct) round median notch; ovipositor with distal part similar to that from Fig. 18, but this part somewhat more curved upwards.

LENGTH (in mm). Body: male 11, female 13; pronotum: male 4.8, female 4.7; fore femur: male 7.5, female 6.5; hind femur: male 14.5, female 13.3; hind tibia: male 15, female 13; ovipositor 8.

COMPARISON. The new species is most similar to the specimens determined by Zhang & Liu (2009) as *D. berezowskii* in the structure of male genitalia, but distal notch of its epiphallus is clearly deeper, and female genital plate in the new species is with the distinctly less deep hind notch.

ETYMOLOGY. This species is named in honor of one of its collectors.

***Diestrarmena (Gymnaeta) acutilobata* Gorochoy, sp. n.**

Figs 33, 34

MATERIAL. Holotype – ♂, China: Hubei Prov., “Guong Men Shan, Sheng Long Jia”, 1460 m, 23-30.VII 1998, coll. “Yu Xiao Dong”; IZAS.

DESCRIPTION. MALE (holotype). Structure of body similar to those of *D. proxima*, but rostral tubercles of head somewhat more acute in profile (Fig. 33), hind femora with one additional small denticle at middle of inner edge of ventral surface, fore tibia with seven spines (two outer ventral spines, one inner ventral spine, and two pairs of apical spines: a pair of dorsal spines and a pair of ventral ones), middle

tibia with only one pair of ventral spines and four apical spines, hind leg with 15-16 pairs of weakly distinct groups of denticles (each group including 4-7 denticles) on dorsal surface of tibia as well as with tibial apical spines and hind tarsus as in *D. improvisa*, genitalia with unpaired dorsal sclerite (epiphallus) almost quadrangular and dorsal lateral lobes having sclerotized apical part provided with small angular and almost acute projection (Fig. 34), membranous ventral lateral lobes of genitalia much smaller than dorsal ones (Fig. 34). Coloration of body almost uniformly brown with light brown venter and head (however head dorsum, rostrum, a pair of vertical bands under eyes, distal part of palpi, and distal and middle parts of antennae almost brown, but with sparse small lightish spots on antennal flagellum) as well as with lightish and very weakly spotted legs (hind femora almost light brown with hardly visible darkish transverse and narrow stripes on outer surface; hind tibiae brown).

FEMALE unknown.

LENGTH (in mm). Body 18; pronotum 6.5; fore femur 10; hind femur 20; hind tibia 22.

COMPARISON. The new species is similar to *D. tianmushanensis* Liu et Zhang, 2001 in the presence of partly sclerotized area (having a small angular projection) at the apex of dorsolateral membranous lobes of male genitalia, but clearly distinguished from it by the larger and quadrangular epiphallus lacking distinct proximal and distal median notches, longer sclerotized plate on each lateral side of median membranous lobe of male genitalia, and larger apical sclerotized area of their dorsolateral membranous lobes.

ETYMOLOGY. This specific name originates from *acutus* and *lobatus* (Latin) – acute and lobate.

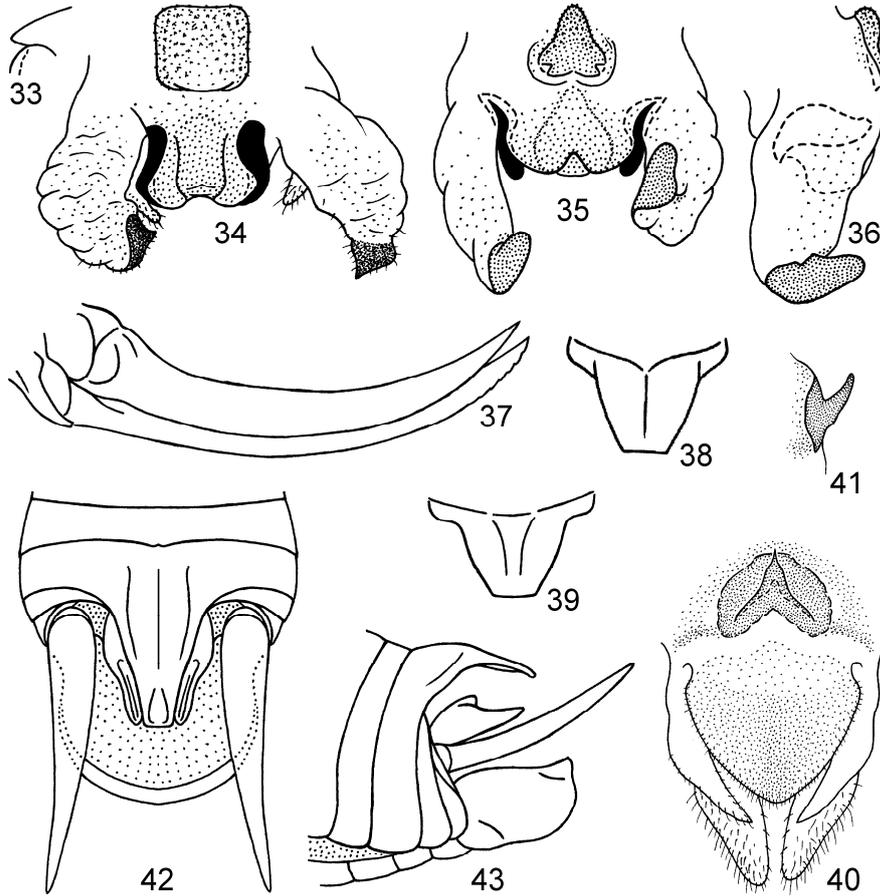
***Diestrammena (Gymnaeta) ovalilobata* Gorochov, sp. n.**

Figs 35-39

MATERIAL. Holotype – ♂, China: Hubei Prov., “Guong Men Shan, Sheng Long Jia”, 1460 m, 23-30.VII 1998, coll. “Yu Xiao Dong”; IZAS. Paratypes: 2 ♂, 2 ♀; same data as in holotype; IZAS.

DESCRIPTION. MALE (holotype). Structure of body similar to those of *D. proxima*, but distinguished by following characters: rostral tubercles of head as in *D. acutilobata*; fore tibia with two pairs of ventral spines and three apical spines (a pair of ventroapical spines and one outer dorsoapical spine); middle tibia with two inner and one outer ventral spines on one leg and with one inner and two outer ventral spines on another leg as well as with four apical spines (a pairs of dorsal and a pair of ventral ones); hind tibia with 14-15 weakly distinct groups of denticles in both dorsal rows (each group including 3-6 denticles) and apical spines as in *D. improvisa*, but longest inner dorsoapical spine reaching apex of apical denticle of hind basitarsus; genitalia with unpaired dorsal sclerite (epiphallus) more or less vertical and having moderately narrow proximal part and weakly notched distal edge

(Fig. 35); lateral sclerotized plates of membranous median dorsal lobe of genitalia as in Figs 35, 36; apical part of each dorsolateral membranous lobe of genitalia weakly sclerotized and with rounded lobule-like apex directed upwards (Figs 35, 36). Coloration as in *D. acutilobata*, but head with three (not two) pairs of darkish vertical stripes under eyes (two pairs) and under antennae (one pair), antennae and palpi almost completely light brown, legs hardly spotted (femora almost uniformly light brown; hind tibiae brown with slightly darker and weakly distinct transverse stripes).



Figs 33-43. *Diestrammena*, *Eutachycines* and *Diestrammima*. 33, 34) *Diestrammena acutilobata* sp. n.; 35-39) *D. ovalilobata* sp. n. (35, 36, holotype); 40, 41) *Eutachycines hainani* sp. n.; 42, 43, *Diestrammima distincta* sp. n. Rostral tubercle with part of antennal cavity from side (33); male genitalia from above (34, 35, 40) and from side (36); epiphallus from side (41); ovipositor from side (37); female genital plate from below (38, 39); male abdominal apex from above (42) and from side (43).

Variation. Body slightly lighter or slightly darker and with more distinct (almost dark brown) vertical stripes on head partly fused with each other; hind femora with 1-4 inner ventral denticles (excepting apical spines); middle tibiae in one paratype with only a pair of ventral spines (excepting apical spines); inner dorsoapical spine of hind tibiae in one paratype extending hardly behind apex of apical denticle of hind basitarsus.

FEMALE. General appearance as in male, but body slightly larger. Genital plate as in Figs 38, 39; ovipositor more or less arcuate, with acute apex and very small (almost indistinct) denticles on ventral edge of distal part of inferior valves (Fig. 37).

LENGTH (in mm). Body: male 12-17, female 14-16; pronotum: male 5-5.5, female 5.5-6; fore femur: male 7.5-8.5, female 8-9; hind femur: male 15-17, female 16-18; hind tibia: male 16.5-18.5, female 18-20; ovipositor 7-8.

COMPARISON. The new species is similar to *D. tianmushanensis* and *D. acutilobata* in the presence of sclerotized area at the apex of dorsolateral membranous lobes of male genitalia, but it distinctly differs from them in the different shape of epiphallus as well as in the rounded (not angular) apex of the above-mentioned dorsolateral lobes in male genitalia.

ETYMOLOGY. This specific name originates from *ovalis* and *lobatus* (Latin) – oval and lobate.

***Eutachycines* Storozhenko, 1990**

Type species: *Diesrammena feai* Chopard, 1915, by original designation.

***Eutachycines hainani* Gorochov, sp. n.**

Figs 40, 41

MATERIAL. Holotype – ♂, China: Hainan Island, 20 km of Sanya City, 26.XI 1959, coll. A. Strelkov; ZIAS. Paratypes: 1 ♂, 1 ♀ (nymph), same data as in holotype; 6 ♂, 1 ♀ (nymph) Hainan Island, near Sanya City, 28.IV 1958, coll. B. Bykhovskij. All paratypes in ZIAS.

DESCRIPTION. MALE (holotype). Body typical of this genus. Eyes normally developed; rostral tubercles intermediate between those from Figs 32 and 33. Femora with only apical spines characteristic of this subfamily; fore tibiae with two outer ventral spines and 4 apical spines (one short outer dorsal, a pair of longer ventral, and one short between latter spines); middle tibiae with one outer ventral spine and 4 apical spines (a pair of short dorsal and a pair of longer ventral: outer dorsal of them very short); hind tibiae with about 25 denticles on each of two dorsal keels and 6 apical spines (division of these denticles into groups indistinct; a pair of dorsoapical spines long, especially inner spine reaching apex of dorsoapical denticle of hind basitarsus; a pair of middle apical spines shorter, and a pair of ventroapical spines shortest, but outer spines of both latter pairs somewhat shorter than inner ones). Abdominal apex typical of Aemodogryllinae; genitalia with distinct spine directed

proximal and situated almost at middle of epiphallus; other denticles of epiphallus absent or indistinct; membranous parts of genitalia as in Figs 40, 41. Coloration brown (almost light brown) with somewhat darker spots on rostrum, on some parts of tergites, and on legs (including feather-like pattern similar to that of *D. belousovi*, but less distinct).

Variations. Other males slightly variable in body size and armament of legs; their epiphallic spine varied from hardly shorter to hardly longer than in holotype.

DEUTONYMPH OF FEMALE. General appearance as in male, but body size as in small males. Genital plate more or less similar to those of female of *D. kabaki*, but distinctly shorter; ovipositor almost straight.

LENGTH (in mm). Body: male 12-14, deutonymph of female 10-13; pronotum: male 5-5.7, deutonymph of female 5-5.5; fore femur: male 8.3-9.5, deutonymph of female 7.5-8.5; hind femur: male 15.5-18, deutonymph of female 14.5-15.5; hind tibia: male 16.3-19, deutonymph of female 15.5-16.5; ovipositor of deutonymph 6.5-7.5.

COMPARISON. The new species differs from all the other congeners in the characteristic shape of epiphallus in male genitalia (with spine situated at middle of epiphallus, not in proximal part of it).

ETYMOLOGY. This name originates from Hainan Island.

Tribe Diestramimini

***Diestramima* Storozhenko, 1990**

Type species: *Diestrammena palpata* Rehn, 1906, by original designation.

***Diestramima distincta* Gorochoy, sp. n.**

Figs 36, 37

MATERIAL. Holotype – ♂, China: Tibet, Cuona, 2000 m, 17.VIII 1994, Coll. Huang Fusheng; IZAS.

DESCRIPTION. MALE (holotype). Body rather small for this genus. Head with rostral tubercles almost as in *Diestrammena acutilobata* sp. n.; eyes normal (not reduced). Lateral lobes of pronotum more or less semicircular in profile. Fore and middle femora with only apical spines normal for this subfamily; hind femur with four-five inner ventral denticles; fore and middle tibiae with two pairs of ventral spines and five apical spines [pair of ventroapical spines long, but unpaired ventroapical spine between them and pair of dorsoapical spines short; one of latter spines (inner dorsoapical spine of fore tibia) very small]; hind tibia with 23 inner and 26 outer dorsal denticles as well as eight apical spines (one pair of dorsoapical spines very short, other pair of dorsoapical spines very long, pair of middle apical spines almost twice shorter than latter one, and pair of ventroapical spines short; spines of latter pair equal to each other in length, but inner spine in each of two longer pairs distinctly longer than outer one); hind basitarsus slightly longer than inner dorsoapical spine of hind tibia and provided with only dorsoapical spine; 2nd segment of hind

tarsus with dorsoapical angular projection. Abdominal apex: 6th tergite with very small hind median projection; 7th tergite with large hind median process having dorsal longitudinal furrow; paraproct moderately short, with dorsal angular tubercle, almost acute hind process, and longitudinal furrow on dorsal surface running from this tubercle to apical part of this process (Figs 36, 37); genitalia membranous (poorly preserved). Coloration brown, weakly spotted: epicranium light brown with dark spots behind eyes and slight darkenings on dorsal part of vertex and under antennal cavities; palpi and antennae uniformly brown with sparse lightish spots on antennal flagellum; thorax and abdomen greyish brown with weakly distinct darker spots and light median line running from pronotum to 6th abdominal tergite; body venter, genital plate, and cerci light brown; legs light brown with slight darkish spots including characteristic (feather-like) ornament on outer surface of hind femur.

FEMALE unknown.

LENGTH (in mm). Body 12; pronotum 3.5; fore femur 8.5; hind femur 15.5; hind tibia 17.

COMPARISON. The new species is similar to *D. minor* Gorochov, 1998, *D. major* Gorochov, 1998, *D. cryptopygia* (Chopard, 1918), and *D. tsongkhapa* (Wurmli, 1973), but clearly distinguished from them by the following combination of male characters: process of 7th abdominal tergite rather short and weakly curved in profile, paraproct very short and with the characteristic dorsal angular tubercle. From the other species of this genus, *D. distincta* sp. n. differs in the clearly smaller body and narrower (lower) paraprocts of male.

ETYMOLOGY. This specific name originates from *distincta* (Latin) – distinct.

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REFERENCES

- Gorochov, A.V. 1988. System and phylogeny of the recent superfamilies Hagloidea and Stenopelmatoidea (Orthoptera) with description of new taxa. Communication 1. *Zoologicheskij Zhurnal*, 67(3): 353–366. (In Russian).
- Gorochov, A.V. 1995. System and evolution of the suborder Ensifera (Orthoptera). Part 1. *Proceedings of the Zoological Institute RAS*, 260: 1–224. (In Russian).
- Gorochov, A.V. 1998. Material on the fauna and systematics of Stenopelmatoidea (Orthoptera) from Indochina and some other territories. I. *Entomologicheskoe Obozrenie*, 77(1): 73–105. (In Russian).

- Gorochov, A.V. 1999. Material on the fauna and systematics of Stenopelmatoidea (Orthoptera) from Indochina and some other territories. II. *Entomologicheskoe Obozrenie*, 78(1): 60–78. (In Russian).
- Gorochov, A.V. 2000. New taxa of Anostomatidae and Propalangopsidae (Orthoptera). *Zoosystematica Rossica*, 9(2): 299–315.
- Gorochov, A.V. 2001. The higher classification, phylogeny and evolution of the superfamily Stenopelmatoidea. – In: Field L.H. (Ed.). *The biology of wetas, king crickets and their allies*. Wallingford, CABI Publishing: 3–33.
- Gorochov, A.V. 2002. Material on the fauna and systematics of Stenopelmatoidea (Orthoptera) from Indochina and some other territories. III. *Entomologicheskoe Obozrenie*, 81(2): 318–337. (In Russian).
- Jiao, Zh., Niu, Ch., Liu, X., Lei, Ch. & Bi, W. 2008. Description of Chinese species of the subgenus *Diestrammena* (*Gymnaeta*) Adelung (Orthoptera: Rhaphidophoridae). *Zootaxa*, 1917: 55–60.
- Storozhenko, S.Yu. 1990. Review of the orthopteran subfamily Aemodogryllinae (Orthoptera, Rhaphidophoridae). *Entomologicheskoe Obozrenie*, 69(4): 835–849. (In Russian).
- Zhang, F. & Liu, X. 2009. A review of the subgenus *Diestrammena* (*Gymnaeta*) from China (Orthoptera: Rhaphidophoridae: Aemodogryllinae). *Zootaxa*, 2272: 21–36.

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