



## A review of the subgenus *Diestrammena* (*Gymnaeta*) from China (Orthoptera: Rhaphidophoridae Aemodogryllinae)

FENG ZHANG<sup>1</sup> & XIAN-WEI LIU<sup>2</sup>

<sup>1</sup>Department of Biology, Shanghai Normal University, 100 Guilin Road, Building 1-323, Shanghai, 200234 P. R. China.  
(billy000@126.com)

<sup>2</sup>Shanghai Entomological Museum, Chinese Academy of Science, Shanghai, 200032, China. (liuxianwei2008@163.com)

<sup>2</sup>Corresponding author

### Abstract

Eight new species—*Diestrammena* (*Gymnaeta*) *gonggashanica* sp. n.; *D. (G.) fallax* sp. n.; *D. (G.) wuyishanica* sp. n.; *D. (G.) lata* sp. n.; *D. (G.) longilamina* sp. n.; *D. (G.) femorata* sp. n.; *D. (G.) indivisa* sp. n. and *D. (G.) roundata* sp. n.—are described. A key to species of the subgenus *Diestrammena* (*Gymnaeta*) from China is given.

**Key words:** Orthoptera, Aemodogryllinae, *Diestrammena*, new species, China

### Introduction

*Diestrammena* (*Gymnaeta*) was proposed by Adelung in 1902. The type species is *Gymnaeta berezowskii* Adelung, 1902. *Diestrammena* (*Gymnaeta*) includes eighteen species belonging to the subgenera (Eades et al., 2009). Up to the present, sixteen species of *Diestrammena* (*Gymnaeta*) have been reported from China: *D. (G.) brevicauda* (Karny, 1933); *D. (G.) tianmushanensis* Liu et Zhang, 2001; *D. (G.) borutzkyi* Gorochov, 1994; *D. (G.) caverna* Jiao et al., 2008; *D. (G.) longicauda* (Karny, 1933); *D. (G.) berezowskii* (Adelung, 1902); *D. (G.) solida* Gorochov et al., 2006; *D. (G.) semicrenata* Gorochov et al., 2006; *D. (G.) crenata* Gorochov et al., 2006; *D. (G.) caudata* Gorochov et al., 2006; *D. (G.) ferecaeca* Gorochov et al., 2006; *D. (G.) omniocaeca* Gorochov et al., 2006; *D. (G.) chenhui* Rampini, Russo et Cobolli, 2008; *D. (G.) aspes* Rampini, Russo et Cobolli, 2008; *D. (G.) zorzini* Rampini et al., 2008; *D. (G.) latellai* Rampini et al., 2008.

In the present paper, eight new species—*D. (G.) gonggashanica* sp. n.; *D. (G.) fallax* sp. n.; *D. (G.) wuyishanica* sp. n.; *D. (G.) lata* sp. n.; *D. (G.) longilamina* sp. n.; *D. (G.) femorata* sp. n.; *D. (G.) indivisa* sp. n. and *D. (G.) roundata* sp. n.—are described. A key to species of the subgenus *Gymnaeta* is provided. To the present, twenty-four species of *Diestrammena* (*Gymnaeta*) have been described from China. All the type specimens are deposited in the Shanghai Entomology Museum, the Chinese Academy of Sciences, Shanghai, China.

### Key to the species of *Diestrammena* (*Gymnaeta*)

- 1(28) Tarsus of hind legs with bristles beneath. (Fig. 1)
- 2(7) Super internal spur of hind tibiae equal to the metatarsus.
- 3(4) Color rather uniformly yellow-brown, dorsum and legs mottled with brown (length of body 19.0, pronotum 7.5, hind femora 28.0mm)..... *D. (G.) tonkinensis* (Chopard, 1929)
- 4(3) Color blackish brown mottled with pale blotches.

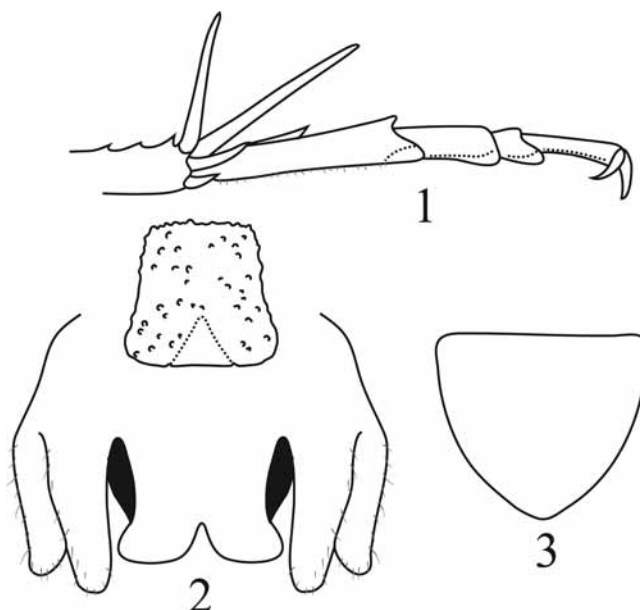
- 5(6) Fastigium of vertex black, face entirely black; genitalia of male as Fig. 2; subgenital plate of female as Fig. 3; length of body 12.7–15.0, pronotum 5.7–6.0, hind femora 18.3–22.0, ovipositor 8 mm) .....  
*D. (G.) brevicauda* (Karny, 1933)
- 6(5) Fastigium of vertex white, face light, with 2 large dark marks; genitalia of male as Fig. 6; subgenital plate of female as Fig. 5; length of body 9.0–11.0, pronotum 3.0–4.0, hind femora 12.0–14.0, ovipositor 7.5 mm .....  
*D. (G.) gonggashanica* sp. n.
- 7(2) Super internal spur of hind tibiae shorter than the metatarsus (Fig. 10)
- 8(11) Internal knee lobe of fore femur without spine, hind tibiae above on each side with 61–76 spines.
- 9(10) Epiphallus of male as Fig. 8; subgenital plate of female short (Fig. 9) (length of body 10.0–11.0, pronotum 4.0, fore femora 8.5–9.0, hind femora 15.0–16.5mm) .....  
*D.(G.) wuyishanica* sp. n.
- 10(9) Subgenital plate of female long, with narrowly rounded apex (Fig. 12).....  
*D. (G.) longilamina* sp.n.
- 11(8) Internal knee lobe of fore femur with a short spine, hind tibiae above on each side with 20–50 spines.
- 12(19) Fore and mid tibiae beneath with spurs.
- 13(18) Mid tibiae beneath with 1 internal and 1–2 external spurs; 3–8<sup>th</sup> abdominal sternites with cone-like projections. (Fig. 14)
- 14(17) Lateral lobes of male genitalia with apex bifurcate, epiphallus with 1 widened sclerotized plate
- 15(16) Genitalia of male as Fig. 15 .....  
*D.(G.) semicrenata* Gorochov et al., 2006
- 16(15) Genitalia of male as Fig. 16 .....  
*D.(G.) chenhui* Rampini et al., 2008
- 17(14) Lateral lobes of male genitalia with apex not bifurcate, epiphallus with 2 narrow sclerotized plates (Figs. 18–20) .....  
*D. (G.) indivisa* sp. n.
- 18(13) Mid tibiae beneath with 1 internal spur only; 3–8<sup>th</sup> abdominal sternites without cone-like projections (length of body 10.5–13.0, pronotum 4.2–5.1, hind femora 15.0–18.0, ovipositor 10.0–13.0 mm) .....  
*D. (G.) cuenoti* (Chopard, 1929)
- 19(12) Fore and mid tibiae beneath without spurs.
- 20(23) Eyes less reduced.
- 21(22) Abdominal sternites with distinctly cone-like projections; subgenital plate of female with almost rounded median lobe; epiphallus narrow (Fig. 24) .....  
*D. (G.) crenata* Gorochov et al., 2006
- 22(21) Abdominal sternites with obscure cone-like projections; median lobe of female subgenital plate with acute apex (Fig. 25).....  
*D. (G.) caudata* Gorochov et al., 2006
- 23(20) Eyes strongly reduced.
- 24(27) Eyes presented by narrow stripes.(Fig. 27)
- 25(26) Hind tibiae above on each side with 26–32 spines. Epiphallus of male as Fig. 29 .....  
*D. (G.) ferecaeca* Gorochov et al., 2006
- 26(25) Hind tibiae above on each side with 38–39 spines. Epiphallus of male as Fig. 30 .....  
*D. (G.) aspes* Rampini et al., 2008
- 27(24) Without eyes .....  
*D.(G.) omniocaeca* Gorochov et al., 2006
- 28(1) Tarsus of hind legs keeled beneath (Fig. 34)
- 29(52) Super internal spur of hind tibiae shorter than the metatarsus (*racovitzae* Group)
- 30(45) Hind tibiae above on each side with 50–90 spines.
- 31(42) Hind tibiae above on each side with 50–70 spines.
- 32(35) Body smaller (length of hind femora less than 20 mm).
- 33(34) Epiphallus of male as Figs. 35–36 (length of body 16.0, pronotum 4.5, fore femora 7.5, hind femora 16.0 mm) .....  
*D. (G.) femorata* sp. n.
- 34(33) Epiphallus of male as Figs. 39–40; subgenital plate of female as Fig. 38 (length of body 11.5–13.0, pronotum 4.2–4.5, hind femora 16.5–17.5, ovipositor 10.0–10.5mm) .....  
*D. (G.) fallax* sp.n.
- 35(32) Body larger ( length of hind femora more than 20mm)
- 36(39) Subgenital plate of female with triangular median lobe.
- 37(38) Subgenital plate of female triangular, with acutely pointed apex (length of body 15.0–18.0, pronotum 6.0–6.5, hind femora 22.0–23.0; ovipositor 13.0 mm) .....  
*D. (G.) racovitzae* (Chopard, 1915)
- 38(37) Subgenital plate of female as Fig. 43; epiphallus of male as Fig. 42 (length of body 16.0–19.5, pronotum 6.2–6.5, hind femora 25.0–28.0, ovipositor 15.0mm) .....  
*D. (G.) solida* Gorochov et al., 2006
- 39(36) Subgenital plate of female with rounded median lobe.
- 40(41) Subgenital plate of female as Fig. 45 (length of body 17.0, pronotum 6.0, fore femora 10.5, hind femora 21.0, ovipositor 12.0 mm) .....  
*D. (G.) lata* sp. n.
- 41(40) Female subgenital plate as Fig. 47, each side of base with projecting lobe(length of body 25.0, pronotum 5.5, fore femora 13.5, hind femora 26.5, ovipositor 14.5 mm) .....  
*D. (G.) roundata* sp.n.
- 42(31) Hind tibiae above with 76–88 spines on each side.
- 43(44) Epiphallus of male as Fig. 48; female subgenital plate as Fig. 49, length of body 15.5–18.3, pronotum 4.5–6.0, hind femora 25.5–28.0, ovipositor 12.0mm) .....  
*D. (G.) latellai* Rampini et al., 2008

- 44(43) Epiphallus of male as Figs. 52–53; female subgenital plate as Fig. 51; length of body 15.0–17.0, pronotum 5.5–6.0, hind femora 19.0–20.0, ovipositor 9.0–13.5mm) ..... *D.(G.) tianmushanensis* Liu et Zhang, 2001
- 45(30) Hind tibiae above on each side with 30–50 spines.
- 46(49) Fore femora about 2.4 times as long as the pronotum.
- 47(48) Epiphallus of male as Figs. 56–57; subgenital plate of female as Figs. 55 (length of body 16.0–19.0, pronotum 5.0–6.0, hind femora 22.0–23.0, ovipositor 9.0–10.0mm) ..... *D.(G.) borutzkyi* Gorochov, 2004
- 48(47) Epiphallus of male as Fig. 58; subgenital plate of female as Fig. 59 (length of body 15.0–17.0, pronotum 5.0–5.5, hind femora 25.0–26.0, ovipositor 11.0mm)..... *D.(G.) zorzini* Rampini et al., 2008
- 49(46) Fore femora about 2 times as long as the pronotum.
- 50(51) Body smaller (length of hind femora 17–19mm); epiphallus of male as Figs. 62–63; subgenital plate of female as Fig. 61 (length of body 11.0–12.0, pronotum 4.5, hind femora 19.0, ovipositor 10.0 mm ).....  
..... *D. (G.) caverna* Jiao et al., 2008
- 51(50) Body larger (length of hind femora 34mm) (length of body 25.0, hind femora 34.0, ovipositor 11.5mm ) .....  
..... *D. (G.) coomani* (Chopard, 1929)
- 52(29) Super internal spur of hind tibiae as long as or longer than the metatarsus ..... (*berezowskii*-Group)
- 53(56) Genitalia of male with tringular epiphallus; subgenital plate of female with notched apex.
- 54(55) Fore tibiae beneath with 2 internal and 2 external spurs, mid tibiae beneath with 1–2 internal and 2 external spurs; epiphallus of male as Fig. 64; ovipositor longer than 15mm (length of body 13.5, pronotum 5.0, hind femora 17.0; ovipositor 16.0 mm)..... *D. (G.) longicauda* (Karny, 1933)
- 55(54) Fore tibiae beneath with 1 internal and 2 external spurs, mid tibiae beneath with 1 internal and 1 external spur; epiphallus of male as Fig. 67; subgenital plate of female trapezoidal, deeply notched at apex (Fig. 68) (length of body 11.5–20.0, pronotum 5.0–7.5, fore femora 7.5–14.0, hind femora 15.0–27.0, ovipositor 10.0–14.0mm) ....  
..... *D. (G.) berezowskii* (Adelung, 1902)
- 56(53) Genitalia of male with subrectangular epiphallus; subgenital plate of female with truncate apex (length of body 15.0, pronotum 5.8, fore femora 11.0, hind femora 22.0 mm, ovipositor 10.0mm)  
..... *D.(G.) adelungi* (Chopard, 1921)

## Descriptions

### *Diestrammena (Gymnaeta) brevicauda* (Karny, 1933) (Figs. 1–3)

*Tachycines (Gymnaeta) brevicauda* Karny, 1933. Ark. Zool., 26A (2): 6–8; Karny, 1937. In: Witsman (ed). Genera Insectorum. Fasc. 206: 248; —*Tachycines (Gymnaeta) coomani* Storozhenko, 1990. Ent. Obozr., 69 (4): 848 (Partum); Jin et Hsia, 1994. J. Orth. Res. 3: 18.



**FIGURES 1–3.** *Diestrammena (Gymnaeta) brevicauda* (Karny, 1933) 1. Tarsus of hind leg, lateral view; 2. Male genitalia, dorsal view; 3. Female subgenital plate, ventral view.

**Specimens examined:** 4♂♂, 3♀♀, Liupanshan, Ningxia, 23.VI–7.VII.2008, leg. Bi Wen-Xuan.

**Distribution.** China (Gansu, Ningxia).

*Diestrammena (Gymnaeta) gonggashanica* sp. n. (Figs. 4–7)

**Diagnosis.** Male. Head with fastigium of vertex divided into two conical tubercles. Legs long and slender; Fore femora about 1.6 times as long as the pronotum, unarmed beneath, the internal knee lobe with 1 short spine and external knee lobe with 1 long movable spur; fore tibiae with 1 internal and 1 external spurs, a small median spine between the paired apical spurs. Mid femora unarmed beneath, the internal and external knee lobe with 1 long movable spur; mid tibiae with 1 internal and 1 external spur, a short spine between the paired apical spurs. Hind femora unarmed beneath, hind tibiae above on each side with 65–68 spines, which grouped in series, **super internal spur of hind tibiae equal to the metatarsus(Fig.4)**, tarsus with bristles beneath. Male genitalia as Figs. 6–7.

Female. Subgenital plate rounded, with notched apex (Fig. 5), ovipositor short, little longer than the half of hind femora.

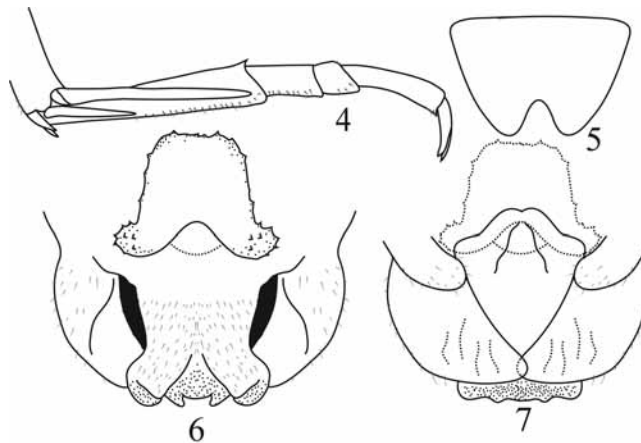
**Coloration.** Body blackish brown, mottled with pale blotches.

**Measurements (in mm):** Length of body 9.0–11.0, pronotum 3.0–4.0, fore femora 5.0–6.5, hind femora 12.0–14.0; ovipositor 7.5.

Holotype ♂, paratypes 10 ♀♀, Sichuan (Luding Hailuogou), alt. 2980m, leg. Liu Xian-Wei et al.

**Discussion.** This new species resembles *D. (G.) brevicauda* (Karny, 1933), but differs in the shape of male genitalia and female subgenital plate.

**Distribution.** China (Sichuan).



**FIGURES 4–7.** *Diestrammena (Gymnaeta) gonggashanica* sp. n. **4,** Tarsus of hind leg, lateral view; **5,** Female subgenital plate, ventral view; **6,** Male genitalia, dorsal view; **7,** Male genitalia, ventral view.

*Diestrammena (Gymnaeta) wuyishanica* sp. n. (Figs. 8–10)

**Diagnosis.** Male. Head with fastigium of vertex divided into two conical tubercles. Legs long and slender; Fore femora about 2.1–2.2 times as long as the pronotum, beneath unarmed, the internal knee lobe without spine, external knee lobe with 1 long movable spur; fore tibiae beneath with 1 internal and 2 external spurs, a small median spine between the paired apical spurs. Mid femora with internal and external knee lobe with 1 long movable spur; mid tibiae beneath with 1 external and 1 internal spur, a short spine between the paired apical spurs. Hind femora unarmed beneath, hind tibiae armed on each dorsal margin with 61–67 spines, which grouped in series, super internal spur of hind tibiae shorter than the metatarsus (Fig. 10), hind tarsus with bristles beneath. Male genitalia as Fig. 8.

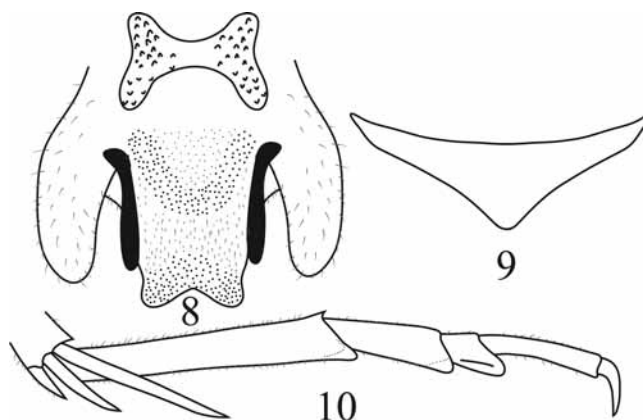
Female. Subgenital plate short, with apex (Fig. 9), ovipositor short, little longer than the half of hind femora.

**Measurements (in mm):** Length of body ♂10.0–11.0, ♀10.0; pronotum ♂4.0, ♀4.0; fore femora ♂8.5–9.0; ♀8.8; hind femora ♂14.0, ♀16.5; ovipositor ♀7.5.

**Coloration.** Body yellowish brown, mottled with dark brown blotches.

Holotype ♂, paratypes 1♂, 1♀, Fujian (Wuyishan Sangang), 27.VIII–3IX.1994, leg. Jin Xing-Bao and Yin, Hai-Sheng.

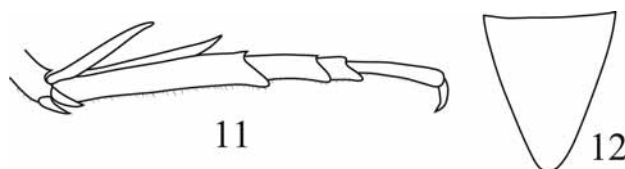
**Distribution.** China (Fujian).



**FIGURES 8–10.** *Diestrammena (Gymnaeta) wuyishanica* sp. n. **8**, Male genitalia, dorsal view; **9**, Female subgenital plate, ventral view; **10**, Tarsus of hind leg, lateral view.

***Diestrammena (Gymnaeta) longilamina* sp. n. (Figs. 11–12)**

**Diagnosis.** Female. Head with fastigium of vertex divided into two conical tubercles. Legs long and slender; Fore femora about 1.5 times as long as the pronotum, beneath unarmed, the internal knee lobe without spine, external knee lobe with 1 long movable spur; fore tibiae beneath with 1 internal and 1–2 external spurs, a small median spine between the paired apical spurs. Mid femora with internal and external knee lobe with 1 long movable spur; mid tibiae beneath with 1 external and 1 internal spur, a short spine between the paired apical spurs. Hind femora unarmed beneath, hind tibiae armed on each dorsal margin with 68–76 spines, which grouped in series, super internal spur of hind tibiae shorter than the metatarsus (Fig. 11), hind tarsus with bristles beneath. Subgenital plate long triangular, with narrowly rounded apex (Fig. 12).



**FIGURES 11–12.** *Diestrammena (Gymnaeta) longilamina* sp. n. **11**, Tarsus of hind leg, lateral view; **12**, Female subgenital plate, ventral view.

**Coloration.** Body yellowish brown, mottled with dark brown blotches, legs yellowish.

**Measurements (in mm):** Length of body ♀10.0; pronotum ♀4.0; fore femora ♀6.0, hind femora ♀11.0–12.0; ovipositor ♀7.5.

Holotype ♀, Paratypes 3♀♀, Sichuan (Luding Hailuogou), alt. 2980m, leg. Liu Xian-Wei et al.

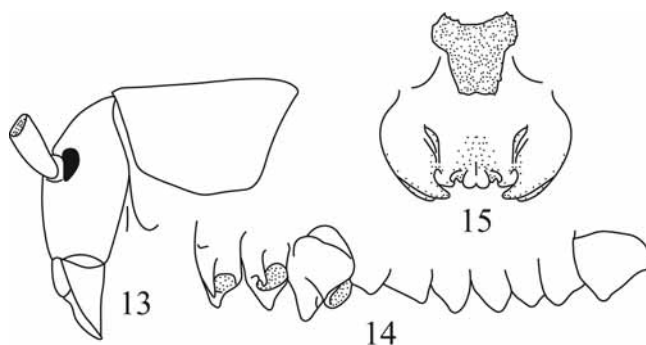
**Discussion.** This new species resembles *D. (G.) wuyishanica*, but differs in the legs being shorter and longer than subgenital plate of female.

**Distribution.** Known only from China (Sichuan).

***Diestrammena (Gymnaeta) semicrenata* Gorochov et al., 2006 (Figs. 13–15)**

*Diestrammena (Gymnaeta) semicrenata* Gorochov et al., 2006. Russian Entomol. J., 15(4): 356, Figs. 7–11.

**Distribution.** Hubei (Shennongjia).

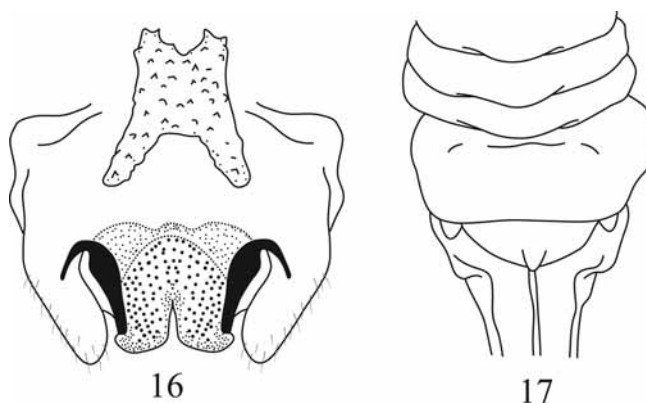


**FIGURES 13–15.** *Diestrammena (Gymnaeta) semicrenata* Gorochov et al., 2006 **13**, head and pronotum, lateral view; **14**, coxae, lower parts of 3–8<sup>th</sup> abdominal sternites, lateral view; **15**, Male genitalia, dorsal view. After Gorochov 2006.

***Diestrammena (Gymnaeta) chenhui* Rampini, Russo et Cobolli, 2008 (Figs. 16–17)**

*Diestrammena (Gymnaeta) chenhui* Rampini, Russo et Cobolli, 2008. Monografie Naturalistiche-3-2008: 136, Figs. 15–20.

**Distribution.** Guizhou (Guanling).



**FIGURES 16–17.** *Diestrammena (Gymnaeta) chenhui* Rampini, Russo et Cobolli, 2008 **16**, Male genitalia, dorsal view; **17**, Female subgenital plate, ventral view. After Rampini, et al., 2008.

***Diestrammena (Gymnaeta) indivisa* sp. n. (Figs. 18–20)**

**Diagnosis.** Male. Head with fastigium of vertex divided into two conical tubercles. Legs long and slender; Fore femora about 2.5 times as long as the pronotum, beneath unarmed, the internal knee lobe with 1 short

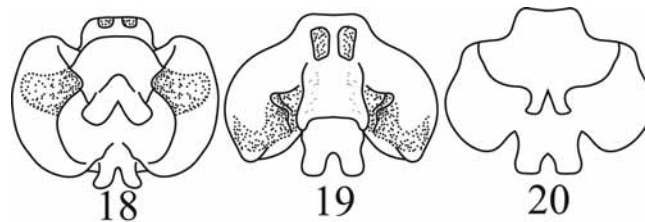
spine and external knee lobe with 1 long movable spur; fore tibiae beneath with 2 external spurs, a small median spine between the paired apical spurs. Mid femora with internal and external knee lobe with 1 long movable spur ; mid tibiae beneath with 1 external spur, a short spine between the paired apical spurs. Hind femora unarmed beneath, hind tibiae armed on each dorsal margin with 38–42 spines, which grouped in series, super internal spur of hind tibiae shorter than the metatarsus, hind tarsus with bristles beneath. Male genitalia as Figs. 18–20.

**Measurements (in mm):** Length of body ♂11.5; pronotum ♂4.5; fore femora ♂9.0; hind femora ♂11.5.

**Coloration.** Body yellowish brown, mottled with dark brown blotches.

Holotype ♂, paratype 1♂, Jiangxi (Wannianxian), 6.XI.2007, leg. Jiao.

**Distribution.** China (Jiangxi).

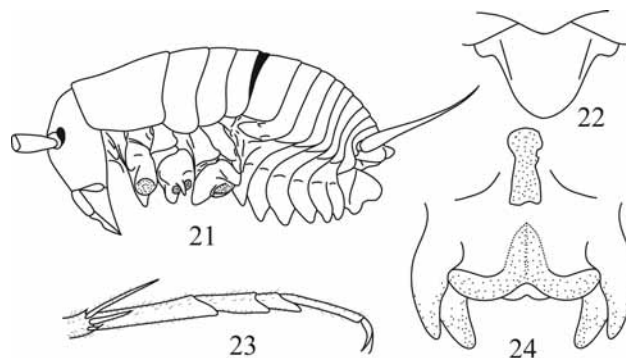


**FIGURES 18–20.** *Diestrammena (Gymnaeta) indivisa* sp. n. **13**, Male genitalia, back view; **14**, Male genitalia, dorsal view; **15**, Male genitalia, ventral view.

***Diestrammena (Gymnaeta) crenata* Gorochov et al., 2006 (Figs. 21–24)**

*Diestrammena (Gymnaeta) crenata* Gorochov et al., 2006. Russian Entomol. J., 15(4): 355, Figs. 1–6.

**Distribution.** Hunan (Longshan).

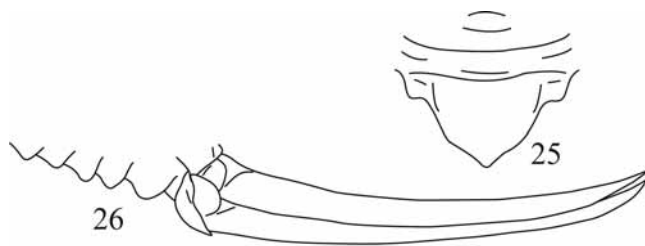


**FIGURES 21–24.** *Diestrammena (Gymnaeta) crenata* Gorochov et al., 2006 **21**, body, lateral view; **22**, Female subgenital plate, ventral view; **23**, Tarsus of hind leg, lateral view; **24**, Male genitalia, dorsal view. After Gorochov et al, 2006.

***Diestrammena (Gymnaeta) caudata* Gorochov et al., 2006 (Figs. 25–26)**

*Diestrammena (Gymnaeta) caudata* Gorochov et al., 2006. Russian Entomol. J., 15(4): 357, Figs. 12–13.

**Distribution.** Guangxi (Guilin).

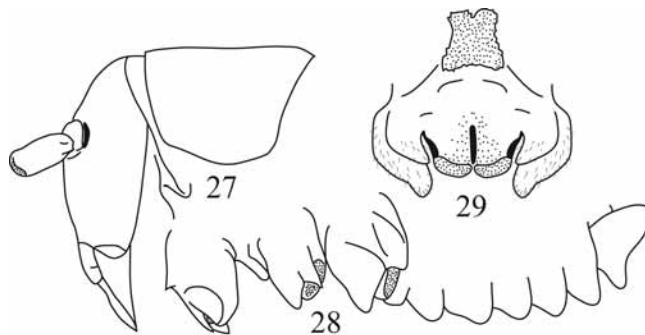


**FIGURES 25–26.** *Diestrammena (Gymnaeta) caudata* Gorochov et al., 2006. **25**, Female subgenital plate, ventral view; **26**, ovipositor, lateral view. After Gorochov et al. 2006.

***Diestrammena (Gymnaeta) ferecaeca* Gorochov et al., 2006 (Figs. 27–29)**

*Diestrammena (Gymnaeta) ferecaeca* Gorochov et al., 2006. Russian Entomol. J., 15(4): 359, Figs. 19–23.

**Distribution.** Guizhou (Libo).

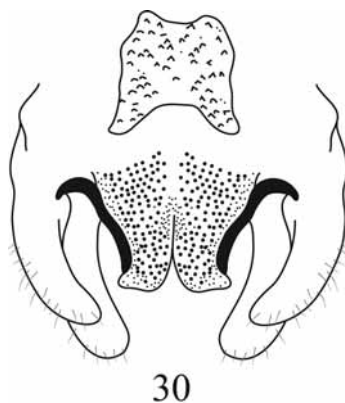


**FIGURES 27–29.** *Diestrammena (Gymnaeta) ferecaeca* Gorochov et al., 2006 **27**, head and pronotum, lateral view; **28**, coxae, lower parts of 3–8<sup>th</sup> abdominal sternites, lateral view; **29**, Male genitalia, dorsal view. After Gorochov et al., 2006.

***Diestrammena (Gymnaeta) aspes* Rampini, Russo et Cobolli, 2008 (Fig. 30)**

*Diestrammena (Gymnaeta) aspes* Rampini, Russo et Cobolli, 2008. Monografie Naturalistiche-3-2008: 136, Figs. 21–24.

**Distribution.** Guizhou (Libo).

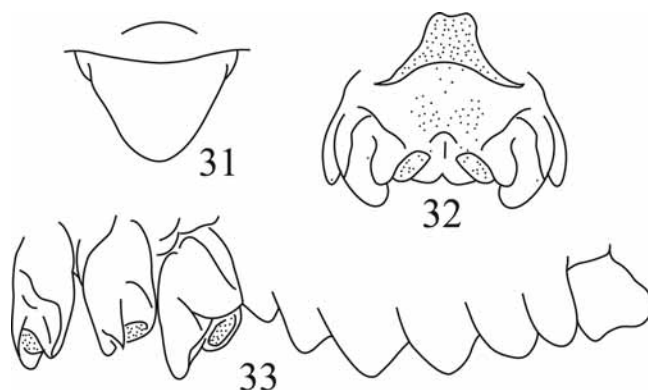


**FIGURES 30.** *Diestrammena (Gymnaeta) aspes* Rampini, Russo et Cobolli, 2008 **30**, Male genitalia, dorsal view. After Rampini, et al., 2008.

*Diestrammena (Gymnaeta) omniocaeca* Gorochov et al., 2006 (Figs. 31–33)

*Diestrammena (Gymnaeta) omniocaeca* Gorochov et al., 2006. Russian Entomol. J., 15(4): 358, Figs. 14–18.

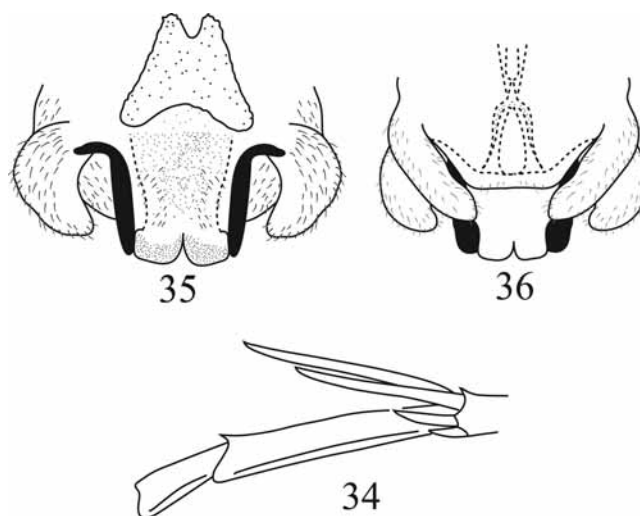
**Distribution.** Hunan (Longshan).



**FIGURES 31–33.** *Diestrammena (Gymnaeta) omniocaeca* Gorochov et al., 2006 **31**, Female subgenital plate, ventral view; **32**, Male genitalia, dorsal view; **33**, coxae, lower parts of 3–8<sup>th</sup> abdominal sternites, lateral view. After Gorochov et al. 2006.

*Diestrammena (Gymnaeta) femorata* sp. n. (Figs. 34–36)

**Diagnosis.** Male. Head with fastigium of vertex divided into two conical tubercles. Legs long and slender; Fore femora about 1.6–1.7 times as long as the pronotum, beneath unarmed, the internal knee lobe with 1 short spine, external knee lobe with 1 long movable spine; fore tibiae beneath with 2 external and 1 internal spines, a small median spine between the paired apical spurs. Mid femora beneath unarmed, the internal and external knee lobe with 1 long movable spine; mid tibiae beneath with 1 external and 1 internal spines, a short spine between the paired apical spurs. Hind femora beneath unarmed, hind tibiae armed on each dorsal margin with 57–65 spines, which grouped in series, **super internal spur of hind tibiae little shorter than the metatarsus** (Fig.34), tarsus keeled beneath. Male genitalia as Figs. 35–36.



**FIGURES 34–36.** *Diestrammena (Gymnaeta) femorata* sp. n. **34**, Tarsus of hind leg, lateral view; **35**, Male genitalia, dorsal view; **36**, Male genitalia, ventral view.

Female. Unknown.

**Measurements (in mm):** Length of body 16.0, pronotum 4.5, fore femora 7.5, hind femora 16.0.

**Coloration.** Body yellowish brown, mottled with dark brown blotches.

Holotype ♂, Guiangxi (Xingan Maoershan), alt. 1650–1900m, 18–19.VIII.1992, coll. Liu, Xian-Wei et Yin Hai-Sheng.

**Discussion.** This new species resembles *D.(G.) racovitzai* (Chopard,1915), but differs in the all femora shorter and shape of male genitalia.

**Distribution.** Known only from China.

### *Diestrammena (Gymnaeta) fallax* sp. n. (Figs. 37–40)

**Diagnosis.** Male. Head with fastigium of vertex divided into two conical tubercles. Legs long and slender; Fore femora about 2.0 times as long as the pronotum, beneath unarmed, the internal knee lobe with 1 short spine, external knee lobe with 1 long movable spur; fore tibiae beneath with 1 internal and 2 external spurs, a small median spine between the paired apical spurs. Mid femora beneath unarmed, the internal and external knee lobe with 1 long movable spur; mid tibiae beneath with 1 internal and external spur, a short spine between the paired apical spurs. Hind femora beneath unarmed, hind tibiae above on each side with 49–63 spines, which grouped in series, super internal spur of hind tibiae little shorter than the metatarsus (Fig. 37), tarsus keeled beneath. Male genitalia as Figs. 39–40.

Female. Subgenital plate with 3 triangular lobes (Fig. 38), ovipositor short, rather longer than the half of hind femora.

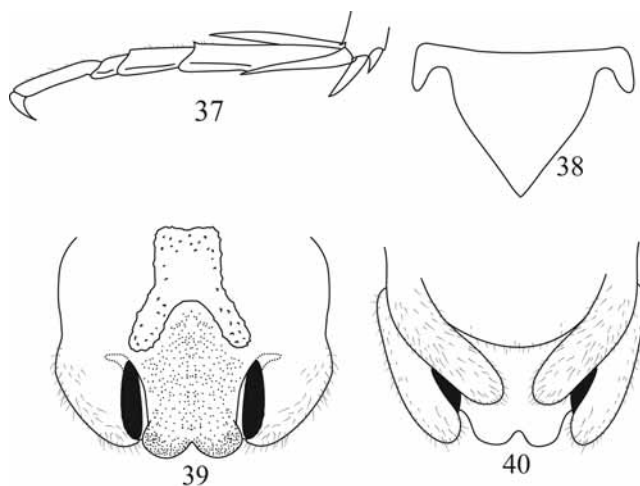
**Measurements (in mm):** length of body 11.5–13.0, pronotum 4.2–4.5, fore femora 8.5–9.0, hind femora 16.5–17.5, ovipositor 10.0–10.5 mm

**Coloration.** Body yellowish brown, mottled with dark brown blotches.

Holotype ♂, paratypes 4♂♂, 4♀♀, Yunnan (Tenchong Dahaoping), 17.IX.1991, leg. Liu, Zu-Yao et al.

**Discussion.** This new species resembles *D. (G.) racovitzai* (Chopard, 1916), but differs in the shapes of male genitalia and female subgenital plate.

**Distribution.** Known only from China (Yunnan).



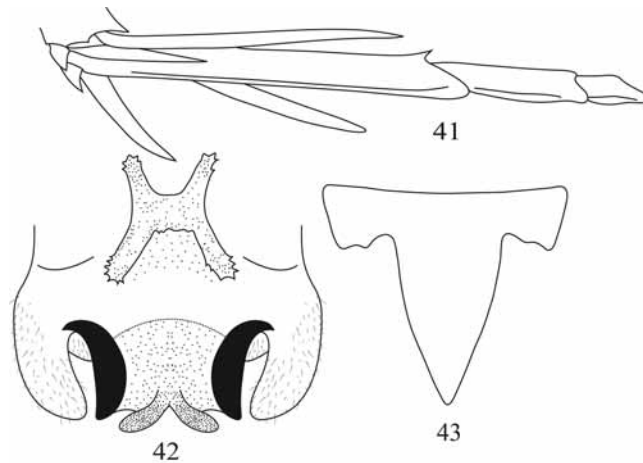
**FIGURES 37–40.** *Diestrammena (Gymnaeta) fallax* sp. n. **37**, Tarsus of hind leg, lateral view; **38**, Female subgenital plate, ventral view; **39**, Male genitalia, dorsal view; **40**, Male genitalia, ventral view.

*Diestrammena (Gymnaeta) solida* Gorochov et al., 2006 (Figs. 41–43)

*Diestrammena (Gymnaeta) solida* Gorochov et al., 2006. Russian Entomol. J., 15(4): 360, Figs. 28–34.

**Specimens examined:** 1♂, 1♀, Guizhou (Chishui National Reserve in Spinulose Tree Fern), alt. 700m, 2–4, VIII.2007, Coll. Liu Xian-Wei et al.

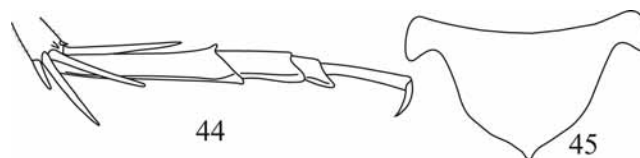
**Distribution.** Hunan (Longshan); Hubei (Lichuan); Sichuan (Omeishan); Guizhou (Chishui).



**FIGURES 41–43.** *Diestrammena (Gymnaeta) solida* Gorochov et al., 2006 **41**, Tarsus of hind leg, lateral view; **42**, Male genitalia, dorsal view; **43**, Female subgenital plate, ventral view.

*Diestrammena (Gymnaeta) lata* sp. n. (Fig. 44–45)

**Diagnosis.** Female. Head with fastigium of vertex divided into two conical tubercles. Legs long and slender; Fore femora about 1.75 times as long as the pronotum, unarmed beneath, the internal knee lobe with 1 short spine and external knee lobe with 1 long movable spur; fore tibiae beneath with 1 internal and 2 external spurs, a small median spine between the paired apical spurs. Mid femora beneath unarmed, the internal and external knee lobe with 1 long movable spur; mid tibiae beneath with 1 internal and 1 external spur, a short spine between the paired apical spurs. Hind femora unarmed beneath, hind tibiae above on each side with 65–70 spines, which grouped in series, super internal spur of hind tibiae shorter than the metatarsus (Fig. 44), hind tarsus keeled beneath. Subgenital plate rounded, with pointed apex, each side of base with projecting lobe (Fig. 45) ovipositor distinctly longer than the half of hind femora.



**FIGURES 44–45.** *Diestrammena (Gymnaeta) lata* sp. n. **44**, Tarsus of hind leg, lateral view; **45**, Female subgenital plate, ventral view.

**Measurements (in mm):** length of body 17.0, pronotum 6.0, fore femora 10.5; hind femora 21.0; ovipositor 12.0

**Coloration.** Body yellowish brown, mottled with dark brown blotches.

Holotype 1♀, Zhejiang (Taishun Wuyanling), alt.800m, XI.2005, leg. Wang, Yi-Ping.

**Discussion.** This new species resembles *D.(G.) coomani* (Chopard, 1929), but differs in the shape of female subgenital plate.

**Distribution.** China (Zhejiang).

***Diestrammena (Gymnaeta) roundata* sp.n. (Figs. 46–47)**

**Diagnosis.** Female. Head with fastigium of vertex divided into two conical tubercles. Legs long and slender; Fore femora about 2.5 times as long as the pronotum, unarmed beneath, the internal knee lobe with 1 short spine and external knee lobe with 1 long movable spur; fore tibiae beneath with 1 internal and 2 external spurs, a small median spine between the paired apical spurs. Mid femora beneath unarmed, the internal and external knee lobe with 1 long movable spur; mid tibiae beneath with 1 internal and 1 external spur, a short spine between the paired apical spurs. Hind femora unarmed beneath, hind tibiae above on each side with 68–75 spines, which grouped in series, super internal spur of hind tibiae shorter than the metatarsus (Fig. 46), hind tarsus keeled beneath. Subgenital plate rounded, each side of base with projecting lobe (Fig. 47).

**Measurements (in mm):** Length of body 18.0, pronotum 5.5, fore femora 13.5; hind femora 26.5; ovipositor 14.5

**Coloration.** Body yellowish brown, mottled with dark brown blotches.

Holotype 1 ♀, Yunnan (Nabanhe), alt. 1800m, 13.XI.2008, leg. Tangliang.

**Distribution.** China (Yunnan).

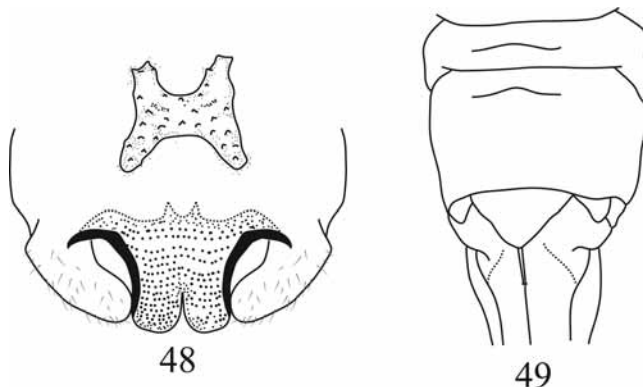


**FIGURES 46–47.** *Diestrammena (Gymnaeta) roundata* sp. n. 46. Tarsus of hind leg, lateral view; 47, Female subgenital plate, ventral view.

***Diestrammena (Gymnaeta) latellai* Rampini, Russo et Cobolli, 2008 (Figs. 48–49)**

*Diestrammena (Gymnaeta) latellai* Rampini, Russo et Cobolli, 2008. Monografie Naturalistiche-3-2008: 130–134, Figs. 3–8.

**Distribution.** Guizhou (Qianxi)



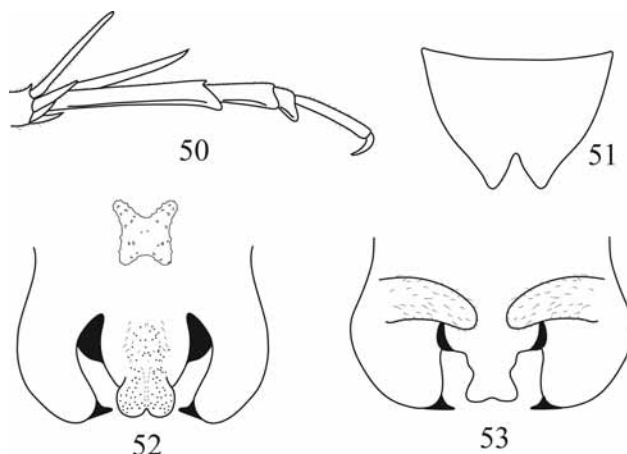
**FIGURES 48–49.** *Diestrammena (Gymnaeta) latellai* Rampini et al., 2008. 48, Male genitalia, dorsal view; 49, Female subgenital plate, ventral view. After Rampini et al., 2008.

***Diestrammena (Gymnaeta) tianmushanensis* Liu et Zhang, 2001 (Figs. 50–53)**

*Tachycines (Gymnaeta) tianmushanensis* Liu et Zhang, 2001. In Wu et Pan : Insects of Tianmushan National Nature Reserve. P. 98–99; Jiao et al., 2008. Zootaxa, 1917: 57–58, Figs. 4–6.

**Specimens examined:** 1♂, Anhui (Wenquan Huangshan), 23. X.1985, leg. Liu Xian-Wei; 1♀, Zhejiang (Linan Tianmushan), 1989.IX.2.

**Distribution.** China (Zhejiang; Anhui).



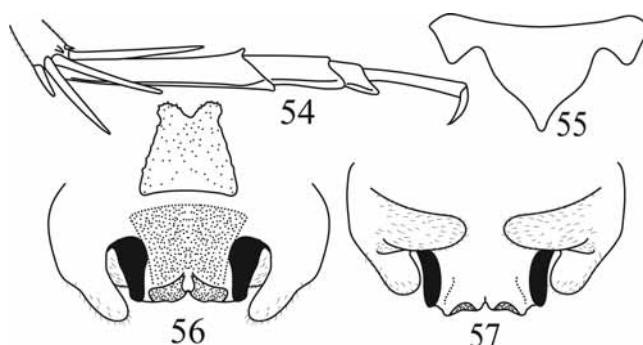
**FIGURES 50–53.** *Diestrammena (Gymnaeta) tianmushanensis* Liu et Zhang, 2001 **50**, Tarsus of hind leg, lateral view; **51**, Female subgenital plate, ventral view; **52**, Male genitalia, dorsal view; **53**, Male genitalia, ventral view.

***Diestrammena (Gymnaeta) borutzkyi* Gorochoy, 1994 (Figs. 54–57)**

*Diestrammena (Gymnaeta) borutzkyi* Gorochoy, 1994. Proc. Zool. Inst., St-Petersburg, 257: 49; Jiao et al., 2008. Zootaxa, 1917: 59, Figs. 7–9.

**Specimens examined:** 1♂, 2♀♀, Guizhou (Chishui National Reserve in Spinulose Tree Fern), 20.X.2006, coll. Liu, Xian-Wei et al.; 1♀, Hunan (Zhangjiajie), 10–12.IX.1988, Coll. Liu Xian-Wei; 1♀, Sichuan (Emeishan), 2–4.VIII.2007, Coll. Liu Xian-Wei.

**Distribution.** China (Chongqing, Guizhou, Guangxi).

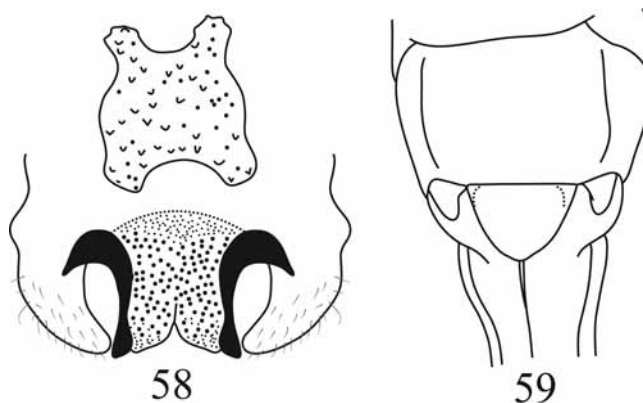


**FIGURES 54–57.** *Diestrammena (Gymnaeta) borutzkyi* Gorochoy, 1994. **54**, Tarsus of hind leg, lateral view; **55**, Female subgenital plate, ventral view; **56**, Male genitalia, dorsal view; **57**, Male genitalia, ventral view.

***Diestrammena (Gymnaeta) zorzini* Rampini, Russo et Cobolli, 2008 (Figs. 58–59)**

*Diestrammena (Gymnaeta) zorzini* Rampini, Russo et Cobolli, 2008. Monografie Naturalistiche-3-2008: 134–135, Figs. 9–14.

**Distribution.** Guizhou (Qianxi)



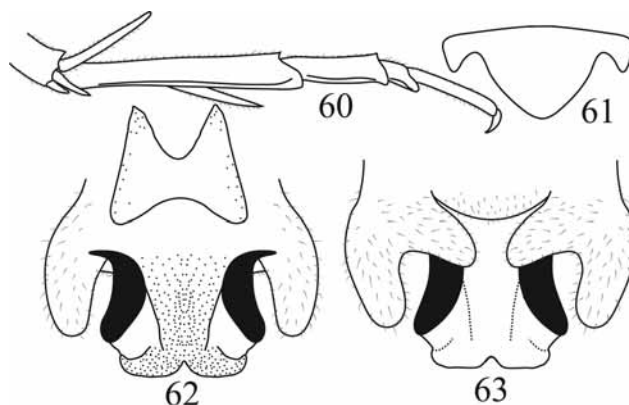
**FIGURES 58–59.** *Diestrammena (Gymnaeta) zorzini* Rampini et al., 2008 **58**, Male genitalia, dorsal view; **59**, Female subgenital plate, ventral view. After Rampini et al., 2008.

***Diestrammena (Gymnaeta) caverna* Jiao et al., 2008 (Figs. 60–63)**

*Diestrammena (Gymnaeta) caverna* Jiao et al., 2008. Zootaxa, 1917: 59, Figs. 10–13.

**Specimens examined:** Holotype ♂, paratype 1♂, 2♀♀, Hubei (Xianning) 25.X.2007, leg. Jiao.

**Distribution.** Known only from China (Hebei).



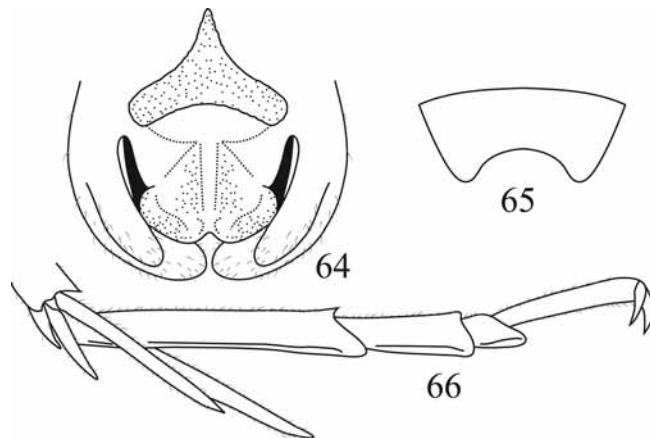
**FIGURES 60–63.** *Diestrammena (Gymnaeta) caverna* Jiao et al., 2008 **60**, Tarsus of hind leg, lateral view; **61**, Female subgenital plate, ventral view; **62**, Male genitalia, dorsal view; **63**, Male genitalia, ventral view.

***Diestrammena (Gymnaeta) longicauda* (Karny, 1933) (Figs. 64–66)**

*Tachycines (Gymnaeta) longicauda* Karny, 1933. Ark. Zool., 26A(2): 4–6; Karny, 1937. In: Witsman (ed). Genera Insectorum. Fasc. 206: 249; Storozhenko, 1990. Ent. Obozr., 69(4): 848; Jin et Hsia, 1994. J. Orth. Res. 3: 18.

**Specimens examined:** 4♂♂, 2♀♀(larva), Ningxia (Liupanshan), 2000. VII. 7–14, leg. Bi Wen-Xuan; 3♂♂ (larva), Ningxia (Liupanshan), 2000.VI.23–28, leg. Bi Wen-Xuan.

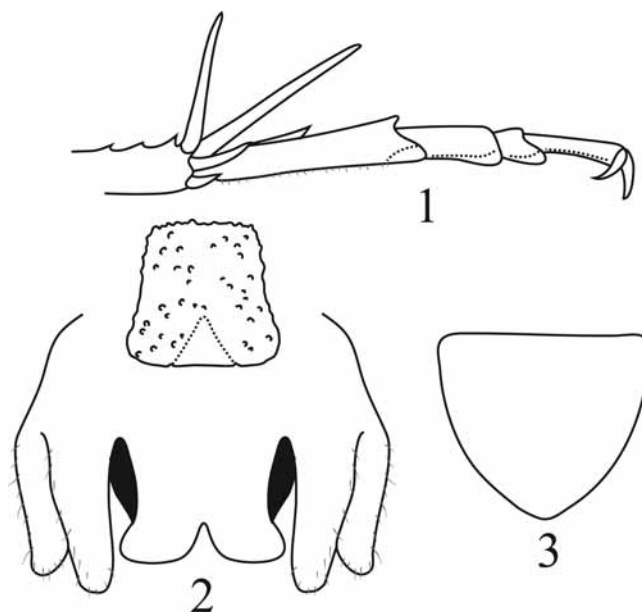
**Distribution.** China (Ningxia; Gansu).



**FIGURES 64–66.** *Diestrammena (Gymnaeta) longicauda* (Karny, 1933) **64**, Male genitalia, dorsal view; **65**, Female subgenital plate, ventral view; **66**, Tarsus of hind leg, lateral view.

***Diestrammena (Gymnaeta) berezowskii* Adelung, 1902 (Figs. 67–69)**

*Gymnaeta berezowskii* Adelung, 1902. Ann. Mus. Zool. Peterb., VII: 63; Jacobson & Bianchi, 1905. Priam.i Lozhn. Ross. Imp., 352, 434; Kirby, 1906. Syn. Cat. Orth., 2: 125; —*Tachycines berezowskii* Chopard, 1916. Bull. Soc. Ent. France, 158; —*Tachycines (Gymnaeta) berezowskii* Chopard, 1921. Rec. Ind. Mus., 22: 522; Karny, 1931. Lingnan sci. Journ., 7: 752; Karny, 1931. Lingnan Sci. Journ., 7: 752; Karny, 1933. Ark. Zool., 26A(2): 3–4; Karny, 1934. Konowia, 13(1–3): 218; Karny, 1937. In: Witsman (ed). Genera Insectorum. Fasc. 206: 248; Stotozhenko, 1990. Ent. Obozr., 69 (4): 847 (♀); Jin et Hsia, 1994. J. Orth. Res., 3: 18 (partum); Liu, 2007. In Wang *et* Zhang: The Fauna Orthopteroidea of Henan.: 489–490 (partum); —*Gymnaeta gansuicus* Adelung, 1902. Ann. Mus. Zool. Peterb., VII: 64; Jacobson & Bianchi, 1905. Priam.i Lozhn. Ross. Imp., 352, 434; Kirby, 1906. Syn. Cat. Orth., 2: 125; *Tachycines gansuicus* Chopard, 1916. Bull. Soc. Ent. France, 159; Karny, 1931. Lingnan Sci. Journ., 752; Karny, 1934. Konowia, 13 (1–3): 218; Karny, 1937. In: Witsman (ed). Genera Insectorum. Fasc. 206: 248; —*Diestrammena (Gymnaeta) brevicauda* Jiao et al., 2008. Zootaxa, 1917: 56–57, Figs. 1–4.



**FIGURES 67–69.** *Diestrammena (Gymnaeta) berezowskii* Adelung, 1902 **67**, Male genitalia, dorsal view; **68**, Female subgenital plate, ventral view; **69**, Tarsus of hind leg, lateral view.

**Specimens examined:** 2♀♀, Shannxi (Huxian Huashuping), alt.1700m, 25.VI.2007, leg. Zhou-Shun; 1♂, 1♀, Sichuan (Tianquan Labahe), alt. 2060m, 28–30.VII.2007, coll. Liu, Xian-Wei et al.; 8♂♂, 3♀♀, Sichuan (Shimian Liziping), alt. 2100m, 22–25.VII.2007, coll. Liu, Xian-Wei et al.; 1♂, 1♀, Sichuan (Qingchengshan), 10.VIII.1987, coll. Liu, Xian-Wei; 9♂♂, 19♀♀, Ningxia (Liupanshan), 2000m, 2000.VII.11–12, Bi, Wen-Xuan leg.; 17♂♂, 13♀♀ (Larva), Ningxia (Liupanshan), 1900m, 2000.VII.7, Bi, Wen-Xuan leg.

**Distribution.** China (Gansu, Ningxia, Shannxi, Sichuan).

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