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Review of the genus *Pteranabropsis* Gorochov (Orthoptera: Stenopelmatoidea: Anostostomatidae: Anabropsinae) from China

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Abstract

A review of the genus *Pteranabropsis* Gorochov is presented. Five new species are described, namely *Pteranabropsis tenchongensis* **Wang, Liu, Li sp. nov.**, *Pteranabropsis infuscatus* **Wang, Liu, Li sp. nov.**, *Pteranabropsis karnyi* **Wang, Liu, Li sp. nov.**, *Pteranabropsis parallelus* **Wang, Liu, Li sp. nov.** and *Pteranabropsis tibenensis* **Wang, Liu, Li sp. nov.**. A key to the species of *Pteranabropsis* is provided.

Key words: Orthoptera, Anabropsinae, *Pteranabropsis*, new species, China

Introduction

The genus *Pteranabropsis* was established by Gorochov (1988) with the type species *Anabropsis carli* Griffin, 1911 from Vietnam. Johns (1997) regarded *Pteranabropsis* Gorochov, 1988 as a synonym of *Paterdecolyus* Griffini, 1913. Gorochov (1998) described 1 new species *P. carnarius* from Vietnam.

We don't agree with *Pteranabropsis* Gorochov, 1988 as a synonym of *Paterdecolyus* Criffini, 1913. *Pteranabropsis* is different from *Paterdecolyus* by having the pronotum "shouldered", and being fully winged and with longer cerci. Up to the present, *Pteranabropsis* included 2 species. In the paper we report 5 new species *Pteranabropsis tenchongensis* **Wang, Liu, Li sp. nov.** and *Pteranabropsis karnyi.* **Wang, Liu, Li sp. nov.** from Yunnan, *Pteranabropsis infuscatus* **Wang, Liu, Li sp. nov.** from Chongqing, *Pteranabropsis parallela* **sp. nov.** from Zhejiang, *Pteranabropsis tibetensis* **Wang, Liu, Li sp. nov.** from Xizang. The type specimens are deposited in the Shanghai Entomological Museum, Chinese Academy of Sciences.

Pteranabropsis Gorochov, 1988

Pteranabropsis Gorochov, 1988. *Zool. Zhurnal*, 67(3): 358.

Type species: *Anabropsis carli* Griffini, 1911.

Generic diagnosis. Body size large. Fastigium of vertex narrow, slightly wider than half the width of the 1st antennal segment, with a distinct dorsal longitudinal furrow. Occiput with a weak longitudinal carina. Pronotum "shouldered" (posterior area of disc flattened and its lateral margins angularly bent into the lateral lobe). Pronotum bispinose. Meso- and Metasterna lobate. Both wings developed. Paraproct of male specialized. Cerci longer, at least two times length of subgenital plate. Subgenital plate with styli. Ovipositor developed, saber shaped.

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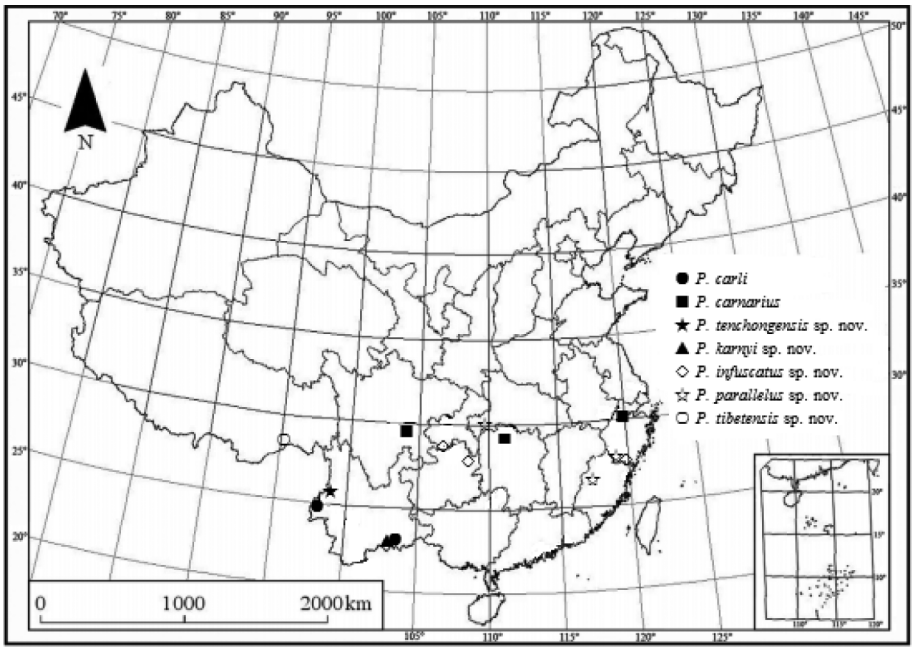


MAP 1. Distribution of the genus *Pteranabropsis*.

Key to known species of the *Pteranabropsis* from China

1 All femora with apex white; lobes of metasternum longer; hind margin of male subgenital plate without incision . . . . . *Pteranabropsis carli* (Griffini,1911)

\- All femora with apex not white; lobes of metasternum shorter; hind margin of male subgenital plate with a incision (except *P. tibetensis*) 2

2 Mid femur armed with spines on the ventral margins; lateral margins of male subgenital plate not parallel in apical half. 3

\- Mid femur unarmed on both ventral margins; lateral margins of male subgenital plate parallel in apical half 6

3 Mid femur with spines on both ventral margins 4

\- Mid femur with spines on externo-ventral margin only 5

4 Hind margin of male subgenital plate with a V-shaped incision. . . . . *Pteranabropsis carnarius* Gorochov, 1998

\- Hind margin of male subgenital plate with a U-shaped incision . . . . . *Pteranabropsis tenchongensis* Wang, Liu, Li **sp. nov.**

5 Hind margin of male subgenital plate with a U-shaped incision . . . . . *Pteranabropsis karnyi* Wang, Liu, Li **sp. nov.**

\- Hind margin of male subgenital plate with a V-shaped incision. . . . . .*Pteranabropsis infuscatus* Wang, Liu, Li **sp. nov.**

6 Hind margin of male subgenital plate with a V-shaped incision; ovipositor shorter than 15mm . . . . . *Pteranabropsis parallelus* Wang, Liu, Li **sp. nov.**

\- Hind margin of male subgenital plate without incision; ovipositor longer than 15mm . . . . . *Pteranabropsis tibetensis* Wang, Liu, Li **sp. nov.**

Pteranabropsis carli (Griffini, 1911)

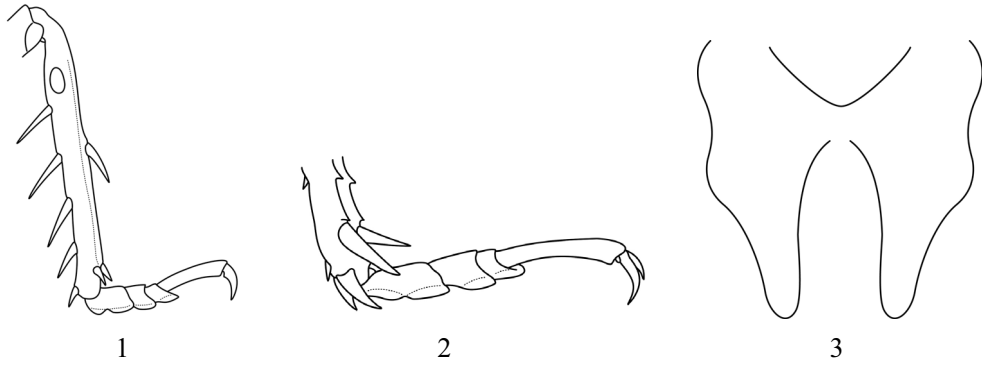
(Figs. 1–3)

Anabropsis carli Griffini, 1911. *Rev. Suisse Zool*., 19: 485–487; Karny, 1926. *Mitt. Zool. Mus. Berlin*., 12(2): 358; Karny, 1929. *Ann. Nat. Hist. Mus. Wien.,* 43: taf. 6, fig.10; Karny, 1929. *Lingnan Sci. Journ.*, 7: 748–749, fig.17; Wu, 1935. *Cat. Ins. Sin.*, 1: 82; Karny, 1937. *Genera Insectorum*, 206: 184 (partum); Bey-Bienko, 1957. *Ent. Obozr.*, 36 (2): 405.
Pteranabropsis carli Gorochov, 1988. *Zool. Zhurnal*, 67(3): 358; Jin *et* Hsia, 1994. *Jour. Orth. Res.*, 3: 16.
Paterdecolyus carli Johns, 1997. *Jour. Orth. Res.*, 6: 128.

Measurements (length in mm). Body ♂ 36.5, ♀ 36.0–40.0; pronotum ♂ 9.0, ♀ 9.0–10.0; tegmen ♂ 50.0, ♀ 45.5–47.0; metafemur ♂ 32.0, ♀ 31.0–32.0; ovipositor 23.5–24.5.

Material examined. 1 ♂ (nymph) Yingjiang, Yunnan, 1981.X.5, leg. He Xiu-Song; 2 ♂♂ (nymph) Mawei, Pingbian, Yunnan, alt. 650–900m, 2009.V.22–23, leg. Liu Xian-Wei *et al.*.

Distribution. China (Yunnan); Ventam (Tonkin).



FIGURES 1–3. *Pteranabropsis carli* (Griffini, 1911) 1. Fore tibia and tarsus, lateral view; 2. Hind tarsus, lateral view; 3. Metasternum, ventral view (Copy Gorochov, 1988).

***Pteranabropsis carnarius* Gorochov, 1998**

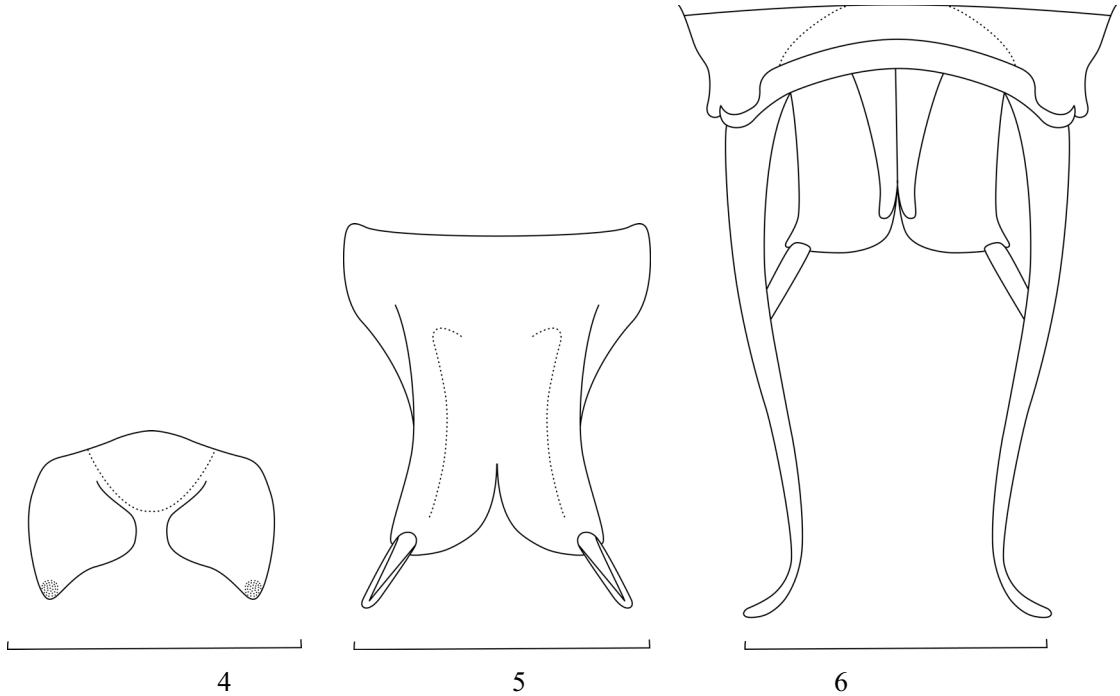
(Figs. 4–6)

Anabropsis carli Karny, 1930. *Ann. Nat. Hist. Mus. Wien*., 44: 157 (nec Griffini, 1911).
Pteranabropsis carnarius Gorochov, 1998. *Ent. Obozr.*, 77(1): 75.
Paterdecolyus carnarius Johns, 1997. *Jour. Orth. Res.*, 6: 128.

Measurements (length in mm). Body ♂ 34.0–36.0, ♀ 32.0–40.0; pronotum ♂ 8.3–8.7, ♀ 8.8–10.0; tegmina ♂ 43.0–45.0, ♀ 41.0–47.0; hind femur ♂ 28.0, ♀ 27.0–32.0; ovipositor ♀ 18.0.

Material examined. 1 ♀, Baoguosi, Emeishan, Sichuan, 1974.VII.22, leg. Zhou Yao & Yuan Feng; 1 ♂, Tianmushan, Zhejiang, 1987.VIII.19, leg. Zhou Jian-Zhong & Fan Shu-Dei; 1 ♀, Suoxiyu, Cili, Hunan, 1988.IX.1, leg. Liu Xian-Wei; 2 ♂♂, Wuxiangang, Emeishan, Sichuan, alt. 700m, 2007.VIII.2–4, leg. Liu Xian-Wei *et al*..

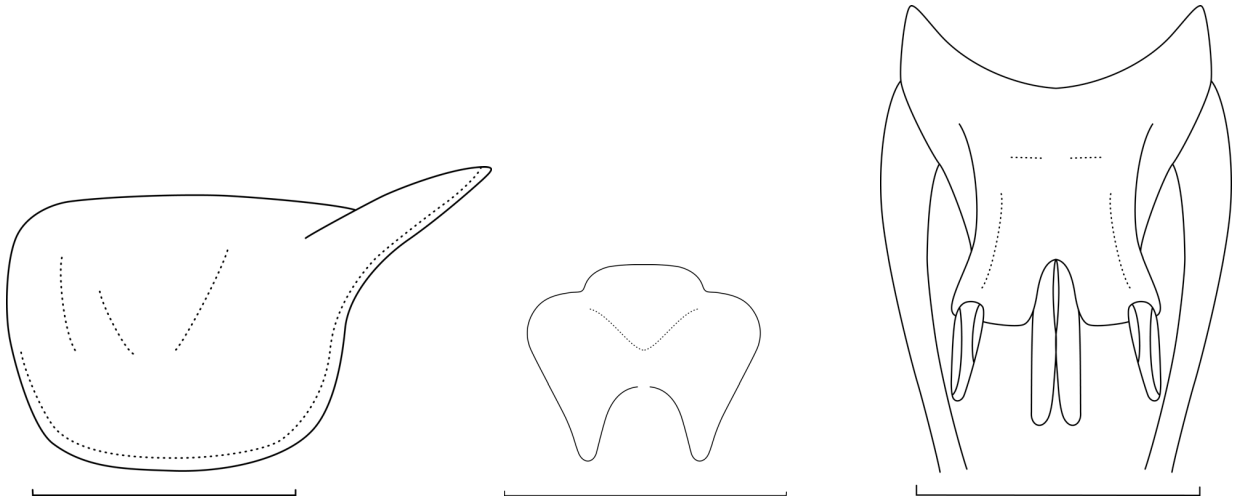
Distribution. China (Sichuan, Hunan, Zhejiang); Ventam.



FIGURES 4–6. *Pteranabropsis carnarius* Gorochov, 1998 4. Metasternum, ventral view; 5. End abdomen of male, dorsal view; 6. Subgenital plate of male, ventral view; scale bars=5mm.

***Pteranabropsis tenchongensis* Wang, Liu *et* Li sp. nov.**
(Figs. 7–9, Plate A)

Description. Male: Body large size. Fastigium of vertex narrow, slightly wider than half the width of the 1st antennal segment, with a distinct longitudinal furrow above. Occiput with a weak longitudinal carina. Pronotum shouldered (Fig. 7). Prosternum with 1 pair of slender, long spines. Meso- and metasterna lobate, the lobes of metasternum triangular (Fig. 8). Tegmina and wings well developed, tegmina without stridulating organ. Fore coxa with 1 spine, fore femur with 4–5 spines on inner ventral margin only, fore tibia with 2 internal spines and 1 external spine above, and with 5 pairs of spines below, tympanal organ open. Middle coax with an acute angled denticle, middle femur with 5–6 spines on interno-ventral margin and 2–5 spines on extero-ventral margin, middle tibia with 4 external and 3 internal spines above, and with 5 pairs of spines below. Hind femur with 3–4 spines on interno-ventral margin and 8–11 spines on externo-ventral margin, hind tibia with 10 spines each margin above. Hind margin of ninth abdominal tergite depressed and with a protruding lobe each side, tenth abdominal tergite with 1 pair of hooks upcurved, Epiproct roundly triangular, paraproct nearly straight, longer than epiproct, tapering apically, far surpassing hind margin of subgenital plate. Cerci thin and long, distinctly longer than subgenital plate. Hind margin of subgenital plate with a U-shaped incision (Fig. 9), styli longer, ventral surface grooved.



FIGURES 7–9. *Pteranabropsis tenchongensis* **sp. nov.** 7. Pronotum, lateral view; 8. Metasternum, ventral view; 9. Subgenital plate of male, ventral view; scale bars=5mm.

FIGURE A. *Pteranabropsis tenchongensis* **sp. nov.** Male. Holotype. Yinhuagu, Tengchong, Yunnan. Lateral view.

Female: Unknown.

Coloration. Body grayish brown, blackish brown underneath, with yellowish spots. Antennae dark brown with light rings. Legs yellowish brown, with brown stripes, all femur with darkened apex. Fore wings grayish white, translucent, with darkish speckles. Cerci yellowish brown.

Measurements (length in mm). Body ♂ 33.0; pronotum ♂ 9.0; tegmina ♂ 41.0; hind femur ♂ 27.0.

Material examined. Holotype 1 ♂, Yinhuagu, Tengchong, Yunnan, alt. 1428m, 2010.VII.5, leg. Zhang Ding-Jie.

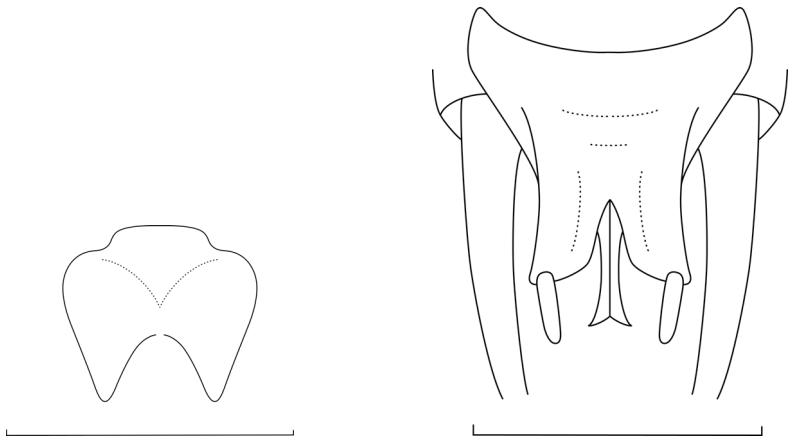
Distribution. China (Yunnan).

Etymology. This species named after the distribution area of the type specimen.

Diagnosis. This new species very similar to *P. carnarius* Gorochov, 1998, but differs in the hind margin of male subgenital plate with a U-shaped incision and ventral surface of styli grooved.

***Pteranabropsis karnyi* Wang, Liu *et* Li sp. nov.**
(Figs. 10–11, Plate B)

Description. Male: Body large sized. Pronotum shouldered. Prosternum with 1 pair of slender, long spines. Meso- and metasterna lobate, the lobes of metasternum shorter, triangular (Fig. 10). Tegmina and wings well developed, tegmina without stridulating organ. Fore coxa with 1 spine, fore femur with 3 spines on interno-ventral margin. Knee lobes each with 1 spine, fore tibia with 2 internal spines and 1 external spine above, with 5 pairs of spines below, tympanal organ open. Externo-ventral margin of middle femur with 2–3 spines and interno-ventral margin unarmed, middle tibia with 4 external and 3 internal spines above, with 5 pairs of spines below. Interno-ventral margin of hind femur with 3 spines and externo-ventral margin with 5–6 spines, hind tibia with 10 external and 10 internal spines above. Hind margin of ninth abdominal tergite depressed and with a protruding lobe each side, tenth abdominal tergite with 1 pair of hooks upcurved. Epiproct roundly triangular, paraproct longer than epiproct, tapering apically, distinctly exceed hind margin of subgenital plate. Cerci thin and long, longer than subgenital plate. Hind margin of male subgenital plate with a U-shaped incision (Fig. 11), styli thin, ventral surface not grooved.



FIGURES 10–11. *Pteranabropsis karnyi* **sp. nov.** 10. Metasternum, ventral view; 11. Subgenital plate of male, ventral view; scale bars=5mm.

Female: Unknown.

Coloration. Body pale grayish brown, blackish brown underneath, with yellowish spots. Antennae darkish brown, with pale rings. Legs yellowish brown, with brown stripes, all femur with darkened apex. Fore wings grayish white, translucent, with darkish speckles. Cerci yellowish brown,

Measurements (length in mm). Body ♂ 29.0; pronotum ♂ 7.5; tegmina ♂ 38.0; hind femur ♂ 25.0.

Material examined. Holotype 1 ♂, Fenshuiling, Jinping, Yunnan, alt. 1870m, 2009.V.27, leg. Liu Xian-Wei *et al.*.

Distribution. China (Yunnan).

Etymology. This species is named in memory of the well-known orthopterist Dr. Heinrich Hugo Karny.

Diagnosis. This new species very similar to *P. tenchongensis* **sp. nov.**, but differs in the mid femur without internal spines and styli not grooved.

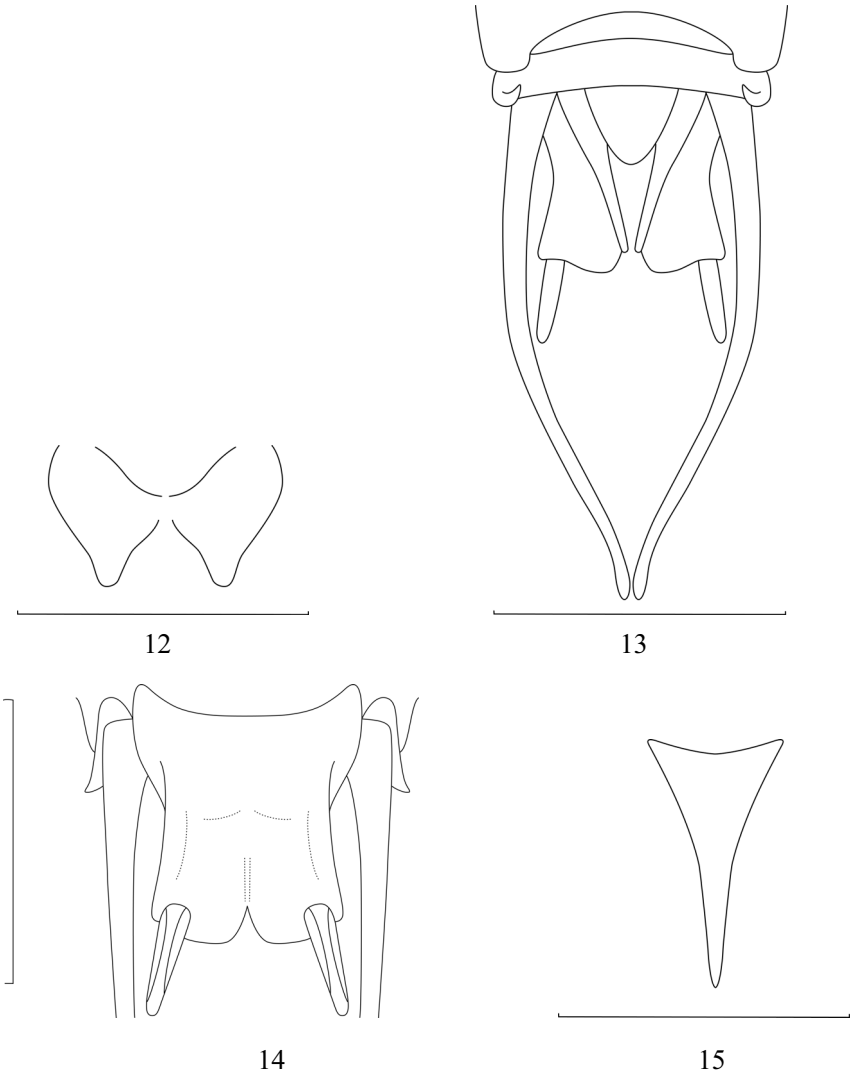
FIGURE B. *Pteranabropsis karnyi* **sp. nov.** Male. Holotype. Fenshuiling, Jinping, Yunnan. Lateral view.

***Pteranabropsis infuscatus* Wang, Liu *et* Li sp. nov.**
(Figs. 12–15, Plate C)

Description. Male: Body medium sized. Pronotum shouldered. Prosternum with 1 pair of slender, long spines. Meso- and metasterna lobate, the lobes of metasternum triangular and apex obtuse (Fig. 12). Tegmina and wings well developed, tegmina without stridulating organ. Fore coxa with 1 spine, interno-ventral margin of fore femur with 3 spines, externo-ventral margin unarmed, knee lobes each with 1 spine, fore tibia with 2 internal spines and 1 external spine above, 5 pairs of spines on below, tympanal organ open. Externo-ventral margin of middle femur with 2–3 spines, interno-ventral margin unarmed, middle tibia with 4 external and 3 internal spines above, on below with 5 pairs of spines. Interno-ventral margin of hind femur with 3 spines and externo-ventral margin with 6 spines, hind tibia with 11 external and 10 internal spines above. Hind margin of ninth abdominal tergite depressed and both sides protruding rearwards, tenth abdominal tergite with 1 pair of hooks upcurved (Fig. 13). Epiproct roundly triangular, paraproct nearly straight and tapering to the apex, not exceed hind margin of subgenital plate. Cerci thin and long, much longer than subgenital plate. Hind margin of male subgenital plate with a V-shaped incision (Fig. 14), styli longer, ventral surface grooved.

Female: Body gererally similar to that of male. Subgenital plate triangular, gradually tapering to the apex (Fig. 15). Apical half of ovipositor upcurved and with obtuse apex.

Coloration. Body darkish brown, with yellowish spots. Antennae darkish brown, with pale rings. Legs yellowish brown, with brown stripes. Fore wings grayish white, translucent, with darkish speckles. Wings dark brown, with blackish and light rounded spots. Cerci yellowish brown.



FIGURES 12–15. *Pteranabropsis infuscatus* **sp. nov.** 12. Metasternum, ventral view; 13. End abdomen of male, dorsal view; 14. Subgenital plate of male, ventral view; 15. Subgenital plate of female, ventral view; scale bars=5mm.

FIGURE C. *Pteranabropsis infuscatus* **sp. nov.** Male. Holotype. Jiangjin, Chongqing. Lateral view.

Measurements (length in mm). Body ♂ 26.0–27.0, ♀ 27.0; pronotum ♂♀ 8.0; tegmina ♂ 35.0–36.0, ♀ 31.0–32.0; hind femur ♂♀ 24.0; ovipositor ♀ 15.0–16.0.

Material examined. Holotype 1 ♂, Jiangjin, Chongqing, alt. 900–1200m, 1983.VII.24, leg. Pan Yan-Zheng; paratype 1 ♂ 1 ♀, Jiangjin, Chongqing, 2001.V. 22, leg. Yan Hai-Jiang & Zhu Yu-Xiang; 1 ♀, Fanjingshan, Guizhou, 2001.VII. 10, leg. Shi Fu-Ming; 1 ♀, Wuyanling, Taishun, Zhejiang, alt. 800m, leg. Wang Yi-Ping.

Distribution. China (Chongqing, Guizhou, Zhejiang).

Etymology. The specific epithet refers to characters of wings.

Diagnosis. This new species very similar to *P. carnarius* Gorochov, 1998, but differs as follows: body smaller, wings dark brown, middle femur without internal spines below.

***Pteranabropsis parallelus* Wang, Liu *et* Li sp. nov.**
(Figs. 16–19, Plate D)

Description. Male: Body medium size. Pronotum shouldered. Prosternum with 1 pair of slender, long spines. Meso- and metasterna lobate, the lobes of metasternum triangular, apex pointed (Fig. 16). Tegmina and wings well developed, tegmina exceeding apex of hind femur; hind wings nearly equal to tegmina. Fore coxa with 1 spine, interno-ventral margin of fore femur with 2 spines, but exteno-ventral margin without spines, knee lobe with 1 spine, fore tibia with 2 internal spines and 1 external spine above, 5 pairs of spines on below, tympanal organ open. Both ventral margins of middle femur unarmed, middle tibia with 4 external and 3 internal spines above, with 5 pairs of spines below. Interno-ventral margin of hind femur with 2–3 spines, exteno-ventral margin with 5–7 spines, knee lobes with 1 spine, hind tibia with 10 external and 10 internal spines above. Hind margin of ninth abdominal with a medial lobe, tenth abdominal tergite with 1 pair of hook upcurved (Fig. 17). Epiproct near triangular, paraproct cylindrical with base incurved, slightly exceeding hind margin of subgenital plate. Cerci thin and long, distinctly longer than subgenital plate. Lateral margin of subgenital plate parallel in apical half, hind margin of subgenital plate with a V-shaped incision (Fig. 18); styli longer, ventral surface grooved.

Female: Generally consistent with male. Subgenital plate triangular with pointed apex (Fig. 19). Ovipositor upcurved in apical half with obtuse apex.

Coloration. Body dark grayish brown, with yellowish spots. Antennae brown, with pale rings. Legs pale grayish brown, with darkish brown stripes, hind femur with a black interrupted longitudinal stripe in outer side. Fore wings grayish brown, translucent, with darkish speckles. Cerci pale brown.

FIGURE D. *Pteranabropsis parallelus* **sp. nov.** Male. Holotype. Baishanzu, Qingyuan, Zhejiang. Lateral view.

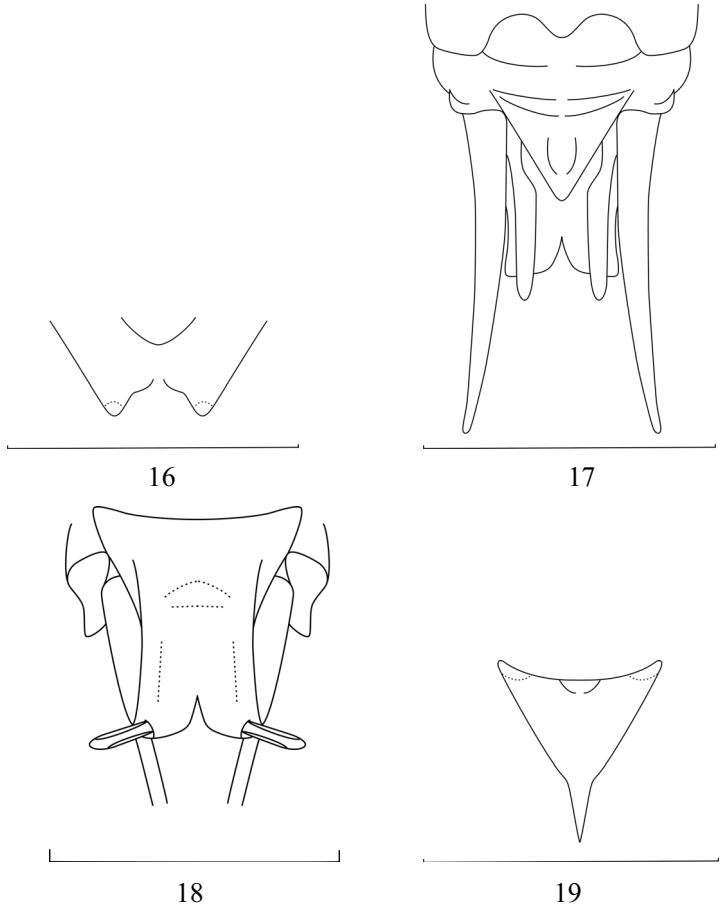
Measurements (length in mm). Body ♂ 19.0–30.0, ♀ 20.0–25.0; pronotum ♂ 6.5–6.8, ♀ 6.0 –6.3; tegmina ♂ 29.0–30.0, ♀ 24.0–26.0; hind femur ♂ 21.0, ♀ 21.0–23.0; ovipositor ♀ 13.0–14.0.

Material examined. Holotype 1 ♂, Baishanzu, Qingyuan, Zhejiang, alt. 900m, 2008.V.22–27, leg. Huang Bao-Ping & YanYing; paratype, 3 ♀♀, same data as holotype; 1 ♀, Xuanen, Hubei, 1989.VII.27, leg. Liu Zu-Yao & Jin Gen-Tao; 2 ♀♀, Longhang, Mingxi, Fujian, 2008.VIII.8, leg. He Zhu-Qing.

Distribution. China (Zhejiang, Fujian, Hubei).

Etymology. This species is named in reference to the to character of male subgenital plate.

Diagnosis. This new species similar to *P. carnarius* Gorochov, 1998, but differs from it by the mid femora unarmed, subgenital plate of male with parallel lateral margins in apical half and ovipositor shorter.



FIGURES 16–19. *Pteranabropsis parallelus* **sp. nov.** 16. Metasternum, ventral view; 17. End abdomen of male, dorsal view; 18. End abdomen of male, ventral view; 19. Subgenital plate of female, ventral view; scale bars=5mm.

***Pteranabropsis tibetensis* Wang, Liu *et* Li sp. nov.**
(Figs. 20–24, Plate E)

Description. Male: Body medium size. Pronotum shouldered. Prosternum with 1 pair of slender, long spines. Meso- and metasterna lobate, the lobes of metasternum triangular with apex pointed (Fig. 20). Tegmina and wings well developed. Tegmina exceeding apex of hind femur, hind wings nearly equal to tegmina. Fore coxa with 1 spine, interno-ventral margin of fore femur with 2 spines, but externo-ventral margin without spine, knee lobe with 1 spine, fore tibia with 2 internal spines and 1 external spine above, with 5 pairs of spines below, tympanal organ open. Middle femur unarmed below, middle tibia with 4 external and 3 internal spines above, with 5 pairs of spines below. Both ventral margins of hind femur with 3–4 spines, hind tibia with 9–10 spines each margin above. Hind margin of ninth abdominal tergite with 1 pair of processes, wrinkled above. Tenth abdominal tergite with 1 pair of hooks upcurved (Figs. 21–22). Epiproct roundly triangular, paraproct tapering apically, slightly exceeding hind

margin of subgenital plate, with apex acute and strongly diverged. Cerci thin and long, distinctly longer than subgenital plate. Lateral margin of subgenital plate parallel in apical half, hind margin of subgenital plate truncate (Fig. 23).

Female: Body roughly similar to that of male. Subgenital plate protractedly triangular with pointed apex (Fig. 24). Ovipositor upcurved in apical half, with apex obtuse.

Coloration. Body dark grayish brown, with pale yellowish spots. Antennae dark brown, with light rings. Legs light brown, with darkish stripes, hind femur with an interrupted longitudinal blackish stripe in outer side. Fore wings brown, transparent, with dark stripes. Cerci lightish brown.

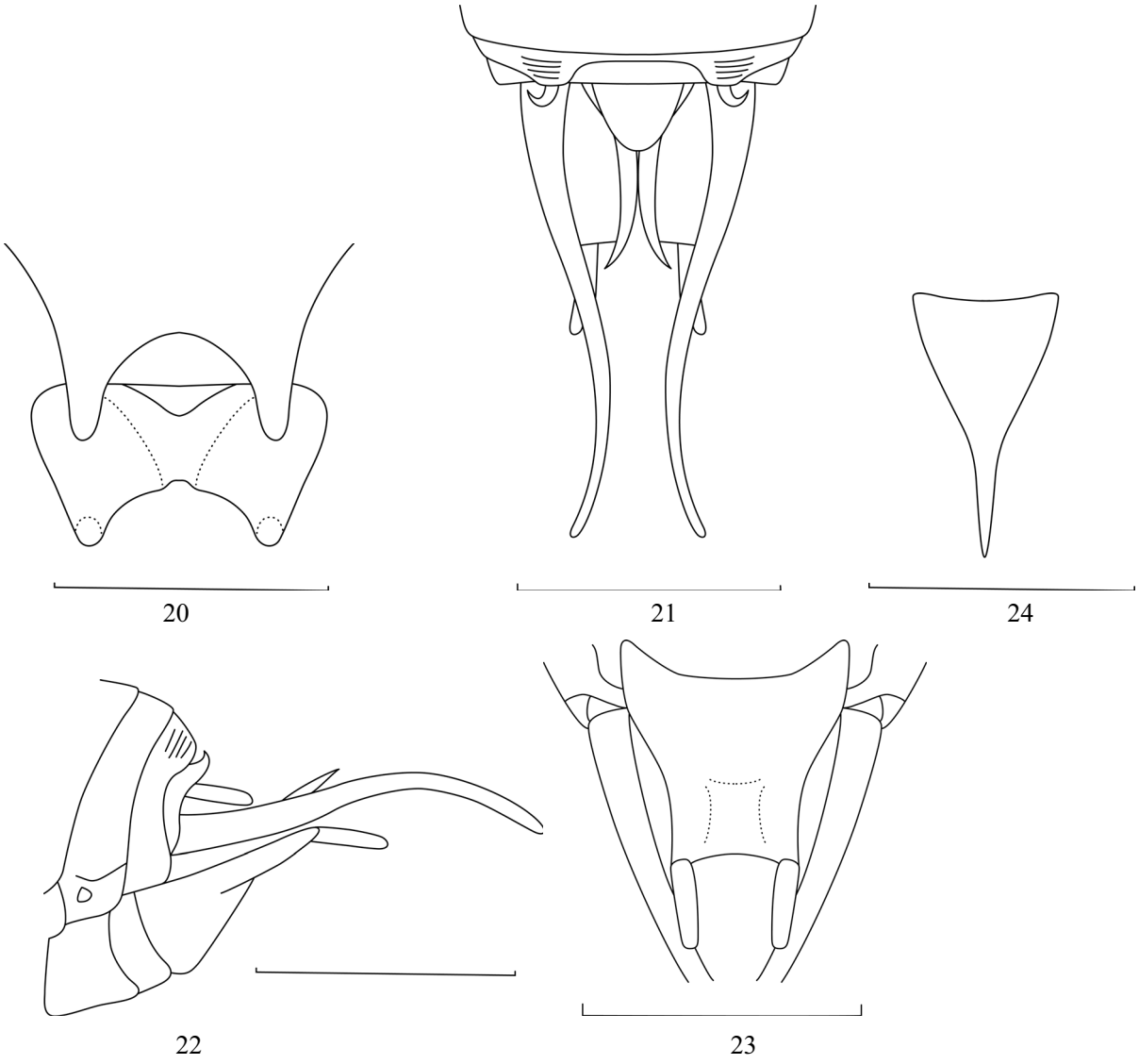
Measurements (length in mm). Body ♂ 23.0–25.0, ♀ 25.0–27.0; pronotum ♂ 5.5–6.0, ♀ 6.0 –6.5; tegmina ♂ 27.0–30.0, ♀ 24.0–26.0; hind femur ♂ 24.0–27.0, ♀ 25.0–26.0; ovipositor ♀ 16.0–18.0.

Material examined. Holotype 1 ♂, Hanmi, Xizang, Alt. 2100m, 2011.VII.23–VIII.7, leg. Bi Wen-Xuan; paratype 2 ♂♂, 10 ♀♀, same data as holotype.

Distribution. China (Xizang).

Etymology. This species named after the location of the type specimen.

Diagnosis. This new species similar to *P. parallelus* **sp. nov.**, but differs from it by the hind margin of male subgenital plate without incision and ovipositor longer.



FIGURES 20–24. *Pteranabropsis tibetensis* **sp. nov.** 20. Meso- and metasternum, ventral view; 21. End abdomen of male, dorsal view; 22. End abdomen of male, lateral view; 23. End abdomen of male, ventral view; 24. Subgenital plate of female, ventral view; scale bars = 5 mm.

FIGURE E. *Pteranabropsis tibetensis* **sp. nov.** Male. Holotype. Hanmi, Xizang. Lateral view.

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