

ORIGINAL ARTICLE

# Water mites of subgenus *Lebertia* (*Lebertia*) Neuman from China (Hydrachnidia: Lebertiidae)

Jialin Wang, Daochao Jin, Tianci Yi, Jianjun Guo\*

Institute of Entomology, Guizhou University, The Provincial Key Laboratory for Plant Pest Management of Mountainous Region, Guiyang 550025, China

\* Corresponding author, E-mail: agr.jjguo@gzu.edu.cn

**Abstract** This paper deals with four species belonging to the subgenus *Lebertia* (*Lebertia*) Neuman, 1880 from China, including two new species to science, *L. (L.) cylinderia* Wang & Guo, **sp. nov.** and *L. (L.) pseudomaglioi* Wang & Guo, **sp. nov.**, and one new record to China, *L. (L.) fimbriata* Thor, 1899. A key to the subgenus is provided. The specimens examined are deposited in the Institute of Entomology, Guizhou University, P. R. China (GUGC).

**Key words** Acari, new species, new record, key, China.

## 1 Introduction

The genus *Lebertia* was established by Neuman in 1880 for its 5 setae on P-3 and the smooth membranous integument surface (Cook, 1974). In 1897, another subgenus *Pseudolebertia* was established under the genus for its 5 setae on P-3 and the sculptured membranous integument surface (Viets, 1987), by Thor, a famous scholar in Norway. There is only a subtle difference between these 2 subgenera, so that in 2009, Gerecke indicated a new system that the subgenus *Pseudolebertia* should be considered the synonym of the subgenus *Lebertia*. In this paper, the authors agree with the new system proposed in 2009 that the genus *Lebertia* should be divided into 5 subgenus: *Eolebertia*, *Mixolebertia*, *Pilolebertia*, *Brentalebertia* and *Lebertia* (Gerecke, 2009). Up to data, only 1 species was reported from China in the subgenus *Lebertia* (Guo & Xu, 2013), except *L. (Pilolebertia) pectinata* Guo, Jin & Zhang, 2005 and *L. (Pilolebertia) pseudociliata* Guo, Jin & Zhang, 2005, which was improperly put into *L. (Lebertia)* in the checklist of Chinese water mites (Jin *et al.*, 2010).

This work reports 4 species of the subgenus *Lebertia* from China, of which 1 is new record to China and 2 new to science. The specimens were collected from Xinjiang, Hebei, Shanxi, Shannxi and Guizhou Provinces in China. The type specimens are kept in the Institute of Entomology, Guizhou University, Guizhou, P. R. China (GUGC).

## 2 Materials and methods

All specimens were collected by a special net bag, preserved in Koenike fluid, cleaned by Loundblad fluid and mounted by gelatin mounting fluid. The special net bag was made with iron rod and the nylon mesh with 200 $\mu$ m mesh size. The specimens were dissected under the stereoscope, observed and drawn with the microscope (Henderson, 2001). These samples are deposited in Institute of Entomology, Guizhou University, P. R. China (GUGC).

All measurements are given in  $\mu$ m. The abbreviations and terms used in text as following: Cx-I–Cx-IV—coxae I–IV; Ap—anal pore; Gf—entire genital field, width measured by outer margin of both sides; Ib—infracapitulum bay (capitular

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bay); Ib-Ap—distance between posterior limit of Ib and edge of Ap; Ib-Gf—distance from Ib to anterior edge of Gf; I-L-1–6, *etc.*—first leg's segment 1–6, *etc.*; P-1–5—palpal segment 1–5; ML—medial length; L—length; H—height.

### 3 Taxonomy

#### *Lebertia (Lebertia) Neuman, 1880*

*Lebertia* Neuman, 1880. *Svensk. Vetensk. -Akad. Handlingar*, 17(3): 68.

*Pseudolebertia* Thor, 1897. *Arch. Math. Naturvid.*: 21(5): 19; Gerecke, 2009. *Abh Senckenberg Ges Naturforsch*, 566: 26.

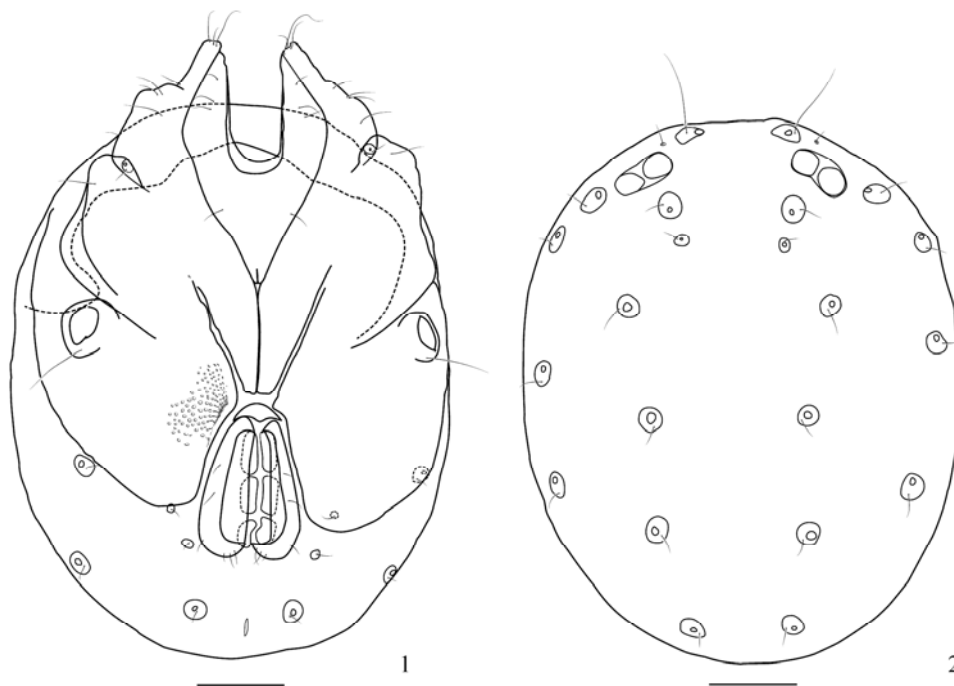
#### Key to the species of subgenus *Lebertia* Neuman, 1880 in China.

1. Legs with swimming setae, P-4 with maximum height in the centre of the segment ..... *L. fimbriata* Thor, 1899  
 Legs without swimming setae, P-4 with maximum height in the proximal or the distal part of the segment ..... 2
2. Medial suture Cx-I and Cx-II nearly equal in length (Cx-I/II ML ratio 0.8–1.2) ..... 3  
 Medial suture Cx-II longer the Cx-I in length (Cx-I/II ML ratio < 0.8) ..... *L. abseta* Guo, Jin & Asadi, 2006
3. P-2 with 5 or 4 setae on the segment, P-4 cyclindrical in outline ..... *L. cylinderia* Wang & Guo, *sp. nov.*  
 P-2 with more than 6 setae on the segment, P-4 with maximum height in the proximal and distal narrowed .....  
 ..... *L. pseudomaglioi* Wang & Guo, *sp. nov.*

#### 3.1 *Lebertia (Lebertia) fimbriata* Thor, 1899 New record to China (Figs 1–7)

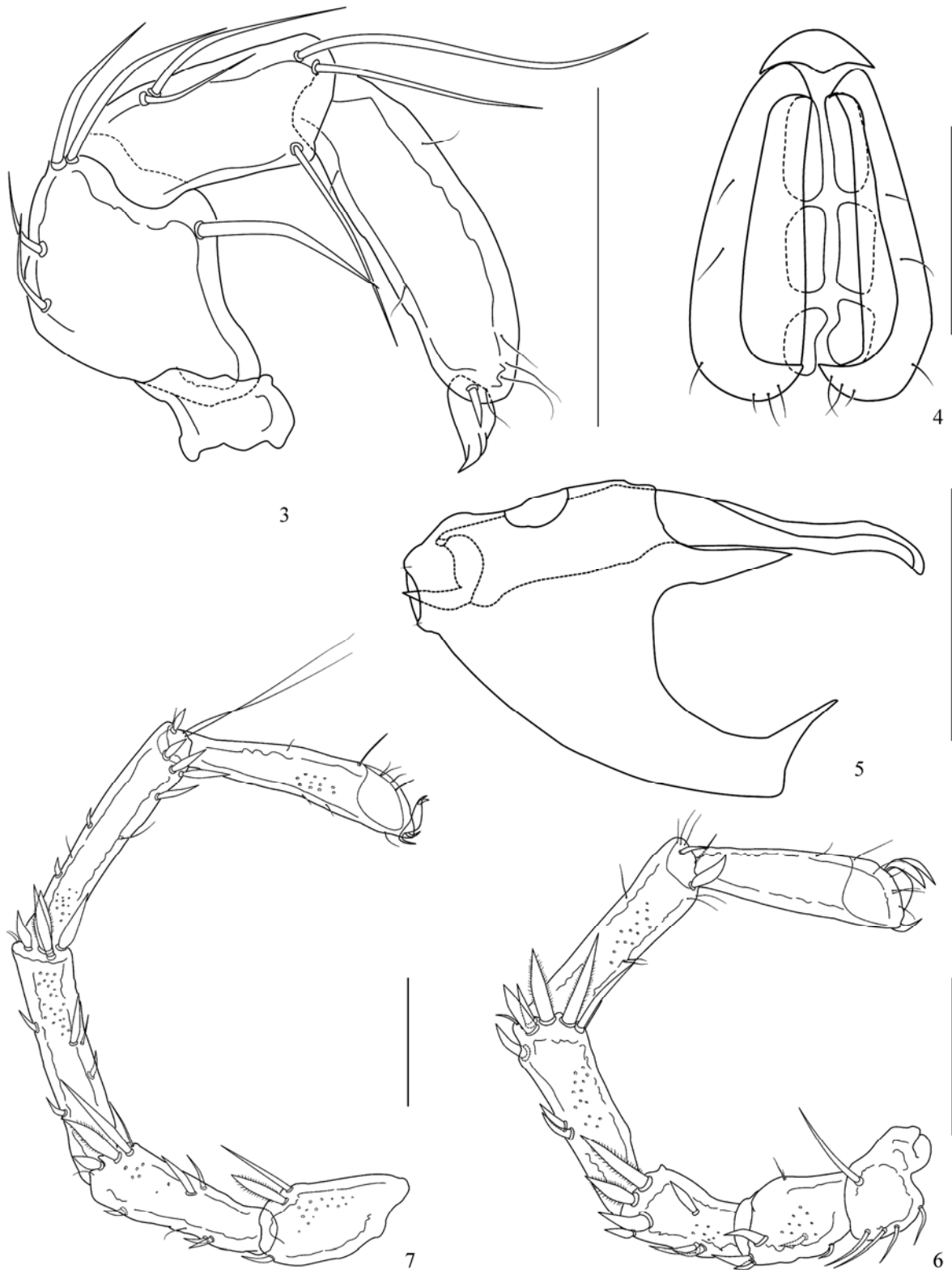
Diagnosis. Integument smooth or finely striated, with fine porosity in underlying strata. III-L-5 and IV-L-4–5 with 1–2 elongated distal setae. IV-L-5 with 4–5 robust ventral setae (Fig. 7). Numbers of swimming setae: III-L-5, 1–2; IV-L-4, 1–2; IV-L-5, 2.

Description. Male. Idiosoma (Figs 1–2). Color yellowish-brown. Idiosoma elliptical in outline. Integument smooth, 632 long and 496 wide. Coxal plates single group, 553 in length and 467 in width, Cx-I ML 146, Cx-II ML 124, Cx-I/Cx-II ML ratio 1.17, posterior margin of Cx-II narrow, posterior width 29. Ib-Gf 276, Ib-Ap 521. Suture lines between Cx-III and Cx-IV not reaching to inner extremity but to 2/3 of plate. Cx-IV widest, with gently rounded sides. Gf length 168, width 126. Acetabula 3 pairs, first pair 50 in length, second 41 in length, third 33 in length (Fig. 4). Ib U-shaped, depth 138, width 62. Excretory pore smooth. Gnathosoma ventral margin with a indentation beneath mouth opening. Gnathosoma L 112, chelicera L 201.



Figures 1–2. *Lebertia (Lebertia) fimbriata*, male. 1. Ventral view. 2. Dorsal view. Scale bars = 100  $\mu$ m.

Palp (Fig. 3). Ventral seta of P-2 inserted terminally and almost as long as ventral length of segment. P-3 dorsal setae close to each other (distance about 3), inserted proximal to centre of segment, distal setae cannot surpass to terminal margin of P-4, medio- and dorsodistal setae close to each other (distance of insertions about 6). P-4 with 5 dorsal setae, 2 ventral setae, 1 peg-like seta stout at terminal, maximum height in centre of segment and ventral margin straight, ventral



Figures 3–7. *Lebertia (Lebertia) fimbriata*, male. 3. Palp. 4. Gnathosoma. 5. Genital field. 6. I-L-1–6. 7. IV-L-2–6. Scale bars = 100  $\mu$ m.

margin of P-4 can be divided into 1:1:1 by ventral seta insertions. L/H of palp segments: P-1, 29/35 (ratio 0.82); P-2, 70/58 (ratio 1.21); P-3, 85/37 (ratio 2.30); P-4, 106/34 (ratio 3.1); P-5, 27/14 (ratio 1.93). Total length of palp, 313.

Legs (Figs 6–7). I-L-1 bearing 4 dorsal and 1 ventrodorsal setae. I-L-2 with 2 ventral setae, 5 dorsal setae. I-L-3 with 4 dorsal setae. I-L-4 with 3 dorsal setae. I-L-5 with 2 ventral setae, 1 dorsal seta. I-L-6 with 7 small setae. IV-L-3 with 11 setae, of which 4 dorsal setae and 2 ventral setae. IV-L-4 with 11 setae, of which 2 short ventral setae, 3 ventral setae. IV-L-5 with 12 setae, of which 2 ventral setae, 3 dorsal setae and 2 swimming setae at distal edge of segment, which long but not reaching to end of IV-L-6. IV-L-6 with 3 ventral setae and 6 dorsal setae. Claws of legs strong. L/H of legs: I-L-1, 72/53 (ratio 1.36); I-L-2, 73/54 (ratio 1.35); I-L-3, 83/49 (ratio 1.69); I-L-4, 141/46 (ratio 3.07); I-L-5, 157/41 (ratio 3.83); I-L-6, 136/41 (ratio 3.32); IV-L-2, 94/62 (ratio 1.52); IV-L-3, 149/53 (ratio 2.81); IV-L-4, 190/45 (ratio 4.22); IV-L-5, 201/43 (ratio 4.67); IV-L-6, 195/42 (ratio 4.64). Numbers of peg-like setae on IV-L-3-6: IV-L-3, 5; IV-L-4, 7; IV-L-5, 6. Numbers of swimming setae: III-L-5, 2; IV-L-5, 2.

Female. Not examined.

Material examined. Male, Maolan National Nature Reserve, Libo County, Guizhou, China (25°82.23'N, 107°37.21'E; elev. 800m), coll. Jianjun Guo, 27 October 1998, slide number GZ-IV-1998102701.

Habitat. Middle- and high-order streams.

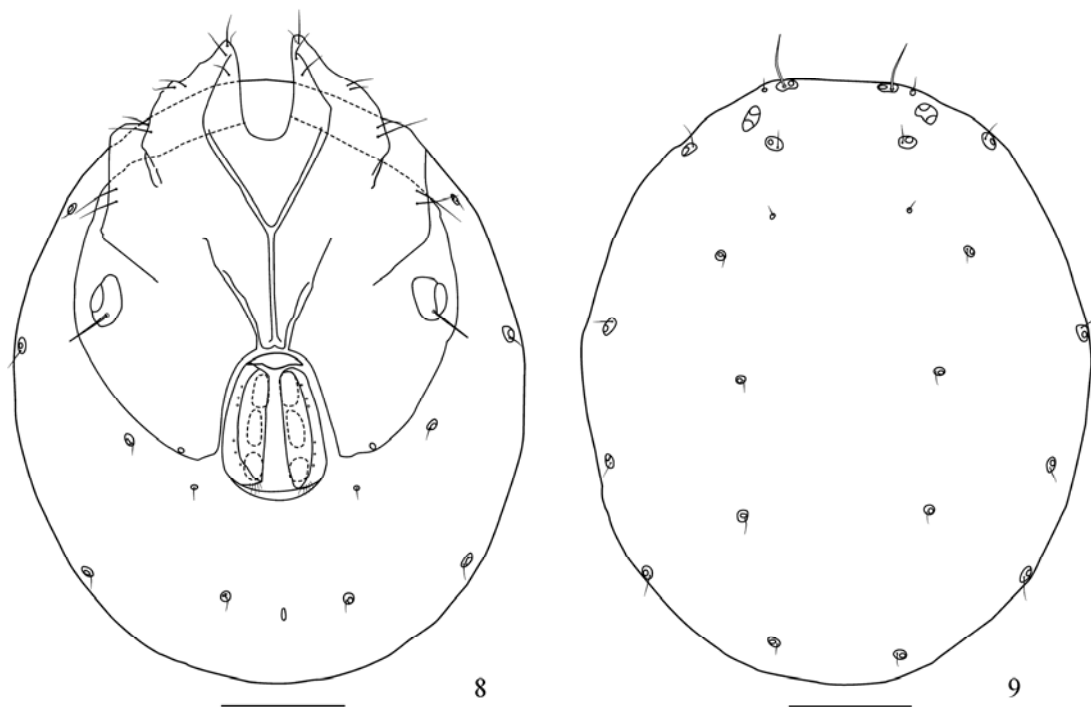
Distribution. West Palaearctic and Oriental Regions (China (Guizhou)).

Remarks. *Lebertia fimbriata* was originally reported from Norway (Thor, 1899) and it is the first time recorded in China. It can be distinguished from the others by following: striated or smooth integument; dorsal setae of P-3 close to each other; III-L-5 and IV-L-4/5 with 1-2 elongated distal setae; IV-L-5 with 2 or 3 swimming setae; IV-L-6 without large seta and only 2 fine setae. However, the Chinese specimen has a slight difference between the type specimens (Gerecke, 2009): IV-L-4 of the type series with 1–2 swimming setae but the IV-L-4 of the examined specimens without swimming seta (Fig. 7), but those specimens cannot be regarded as different species.

### 3.2 *Lebertia (Lebertia) cylindria* Wang & Guo, sp. nov. (Figs 8–15)

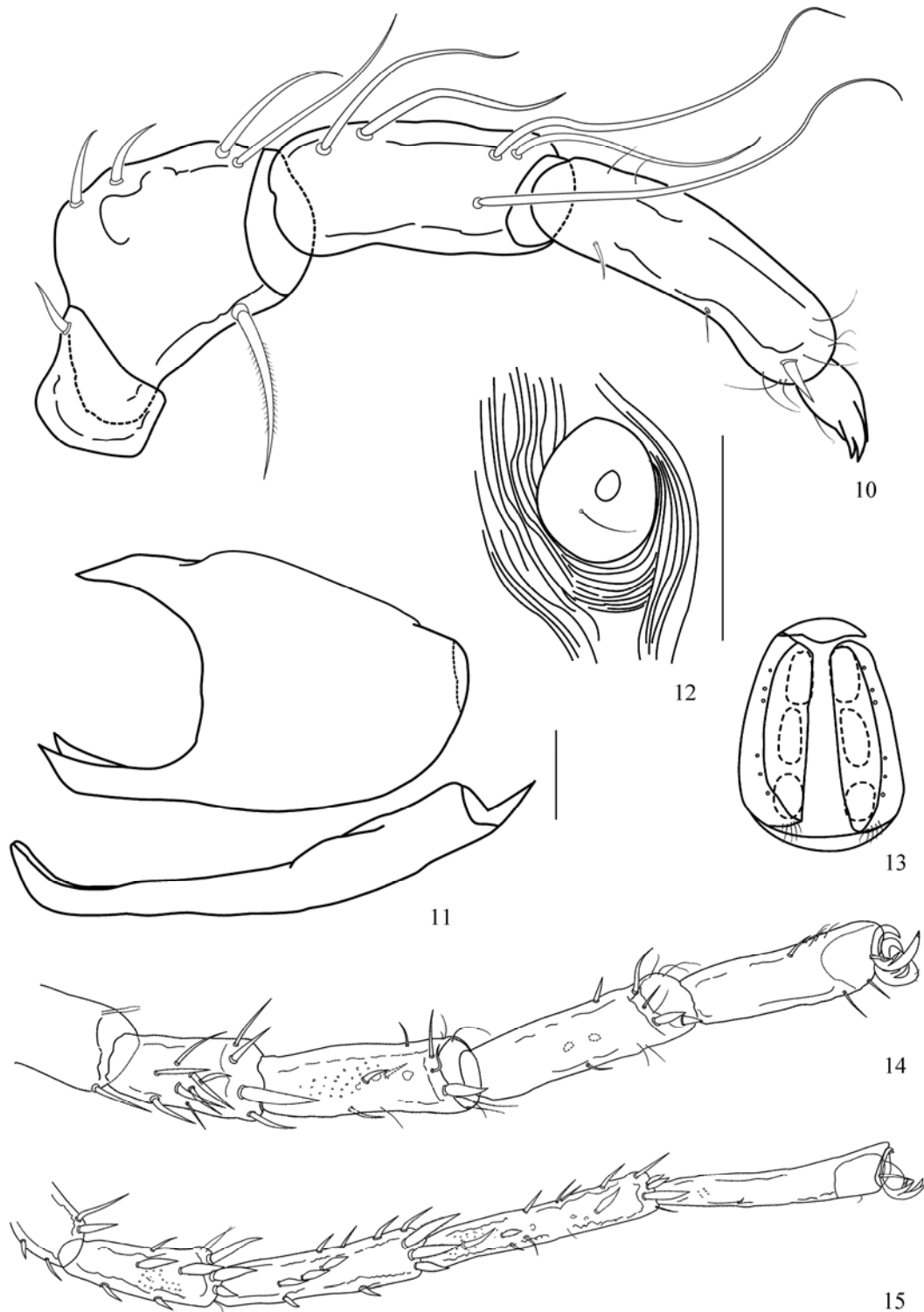
Diagnosis. Idiosoma round in outline, integument with long lines at the dorsal surface (Fig. 12). P-3 with 2 dorsal setae inserted proximally. P-4 cylindrical in outline (Fig. 10). Medial suture Cx-I and Cx-II nearly equal in length, posterior margin of Cx-II 40 in width. IV-L-6 without dorsal seta, low number or no swimming setae on legs (Fig. 15).

Description. Male. Idiosoma (Figs 8–9). Color yellowish-brown. Idiosoma round in outline, 973–980 long and 824–840 wide. Integument with long lines on dorsal surface. Gf 197–240 in length and 130–167 in width. Acetabula 3



Figures 8–9. *Lebertia (Lebertia) cylindria* Wang & Guo, sp. nov., male. 8. Ventral view. 9. Dorsal view. Scale bars = 200  $\mu$ m.

pairs, first pair 50–55 in length, second 50–58 in length, third 38–45 in length (Fig. 13). Coxal plates single group, 580–677 in length and 550–609 in width; Medial suture Cx-I and Cx-II nearly equal in length, Cx-I ML 138–185, Cx-II ML 125–170, Cx-I/Cx-II ML ratio 1.08–1.10, posterior margin of Cx-II 38–40 in width, suture lines between Cx-III and Cx-IV reaching to inner 1/2 of plate; Cx-IV with obtuse posteromedial angles at both lateral sides behind genital field. Ib-Gf 300–350; Ib-Ap 700–761. Ib U-shaped, depth 150–175, width 80–84. Excretory pore smooth. Ventral margin of gnathosoma smooth, Gnathosoma length 188–225, chelicera length 225–264 (Fig. 11).



Figures 10–15. *Lebertia (Lebertia) cylinderria* Wang & Guo, **sp. nov.**, male. 10. Palp. 11. Gnathosoma. 12. Dorsal integument structure. 13. Genital field. 14. I-L-3-6. 15. IV-L-3-6. Scale bars: 10, 14–15 = 100  $\mu$ m; 11–12 = 50  $\mu$ m; 13 = 200  $\mu$ m.

Palp (Fig. 10). P-2 with 5 setae, of which 2 dorsodistal setae long and thin, 2 dorsal setae much shorter and peg-like, ventral seta as long as ventral length in L, inserted at 4/5 of segment. P-3 with 5 setae, ventrodistal seta slightly away from ventrodistal segment edge (distance about 12.5–14) and elongated (can surpass tip of P-5), mediiodistal seta inserted close to dorsodistal seta (distance of insertions about 6–8); dorsal setae inserted proximally, separated from each other (distance about 16.5–19). P-4 cylindrical in shape with maximum H in proximal and terminal parts, ventral seta insertions divided ventral margin into 2: 3: 3. Dorsal length/height of palp segments: P-1, 38–40/40–43 (ratio 0.93–0.95); P-2, 88–102/55–72 (ratio 1.42–1.6); P-3, 88–105/44–46 (ratio 1.96–2.28); P-4, 100–121/33–34 (ratio 3.03–3.56); P-5, 34–35/18–19 (ratio 1.79–1.94). Total length of palp, 349–397.

Legs (Figs 14–15). I-L-3 with 12 setae. I-L-4 with 2 dorsal setae and 1 ventral seta; I-L-5 with 3 dorsal setae and 1 ventral seta. I-L-6 with 5 ventral setae and 2 dorsal setae. IV-L-3 bearing 2 dorsal setae and 3 dorsal setae on segment. IV-L-4 with 2 dorsal setae and 3 ventral setae. IV-L-5 with 3 dorsal setae and 4 ventral setae. IV-L-6 bearing 3 setae, of which 2 dorsal setae small and short, 1 dorsodistal seta strong and elongated. Length/height of legs: I-L-3, 90–118/48–60 (ratio 1.88–1.97); I-L-4, 130–159/48–55 (ratio 2.70–2.89); I-L-5, 138–173/45–50 (ratio 3.07–3.46); I-L-6, 125–133/38–49 (ratio 2.71–3.29); IV-L-3, 158–183/48–68 (ratio 2.69–3.29); IV-L-4, 205–248/45–59 (ratio 4.10–4.20); IV-L-5, 225–287/45–54 (ratio 5.00–5.31); IV-L-6, 200–266/45–55 (ratio 4.44–4.84). Numbers of peg-like setae on IV-L-3–6: IV-L-3, 6; IV-L-4, 8; IV-L-5, 5. No swimming seta on legs.

Female. Unknown.

Material examined. Holotype, male, Hanasi Lake, Xinjiang, China (47°14.59'N, 87°12.97'E; elev. 1 374 m), coll. Daochao Jin, 13 August 1997, dissected and slide mounted in Koenike fluid, slide number XJ-IV-1997081301. Paratypes: 3 males, slide number XJ-IV-1997081302, XJ-IV-1997081303 and XJ-IV-1997081304, same data as holotype.

Etymology. “*cylinder*” means “tube-shape things”. The new species is named after the cylindrical shape in P-4.

Habitat. River, lake and stream.

Distribution. Palaearctic Region (China (Xinjiang)).

Remarks. This new species is similar to *Lebertia (Lebertia) sparsicapillata* Thor, 1905 from Germany in the following points: 1) the medial sutures of Cx-I/II are similar in length (Cx-I/II ML ratio 0.9–1.3) (Fig. 8); 2) The uniform shape of P-4 and the ventral setae on IV-L-6 (Figs 10, 15). But the new species can be distinguished from the later by the following: 1) III-L-5 with 1–2 and IV-L-5 with 2 swimming setae in *L. sparsicapillata*, while the new species without swimming seta on legs; 2) IV-L-6 of *L. sparsicapillata* with 2–3 dorsal setae while the new species without (Fig. 15); 3) P-2 of *L. sparsicapillata* with 1 smooth ventral seta, but P-2 of *L. cylinderia* with 1 clearly pectinated ventral seta; 4) the genital flap much smaller in *L. sparsicapillata* (Gf: 160–190 in males, 190–210 in females, while in the new species Gf 197–240 in male). The data of *L. sparsicapillata* is from Gerecke (2009).

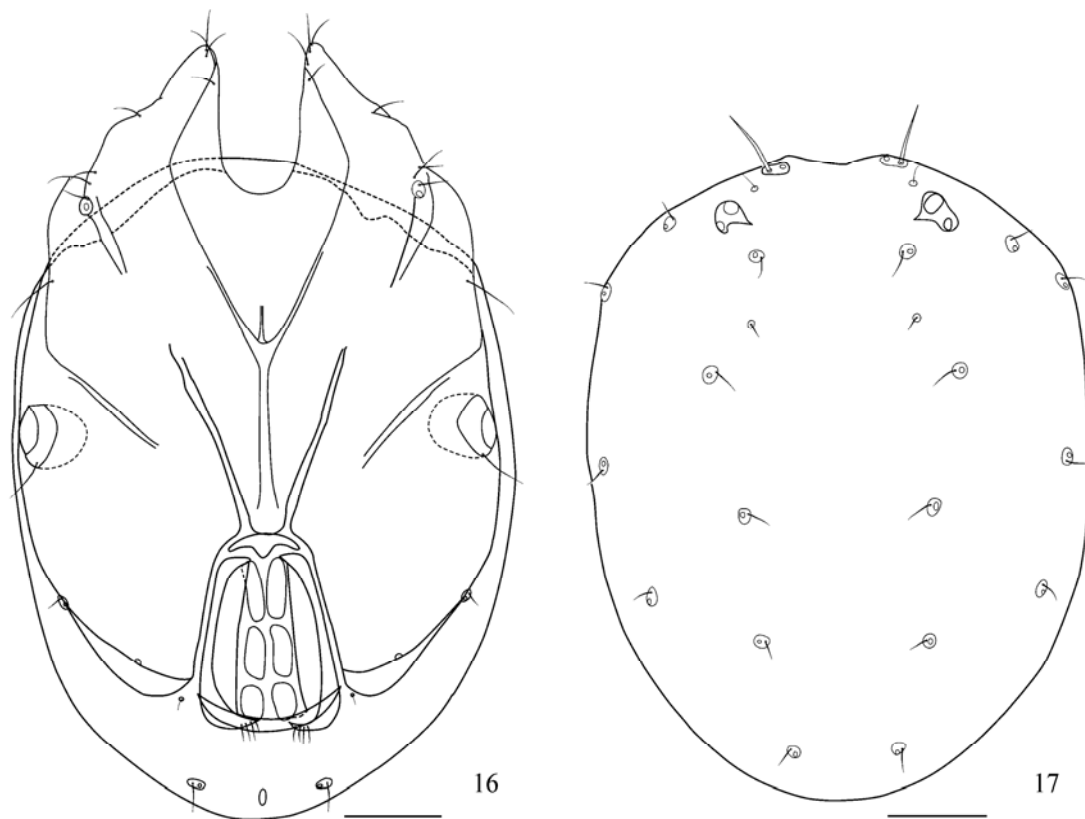
The new species is also compared with *L. (L.) subtilis* Koenike, 1902 from Alps which is similar to the new species by having a low number of ventral setae on IV-L-6 and no swimming seta on legs. There are significant differences between these 2 species: 1) the genital field of *L. subtilis* with high number of medial setae (about 50 on each flap) while the new species with only 6 pairs of setae on the genital flaps (Fig. 13); 2) medial suture Cx-I much longer than Cx-II of *L. subtilis* (Cx-I/II ML ratio 1.54 in *L. subtilis*) while the medial suture of Cx-I and Cx-II are similar in length in the new species (Fig. 8); 3) ventral seta of P-2 of *L. subtilis* inserted at the distal edge, while the ventral seta inserted slightly away from the distal edge, but at 4/5 of the segment in the new species (Fig. 10). The data of *L. subtilis* is from Gerecke (2009).

### 3.3 *Lebertia (Lebertia) pseudomaglioi* Wang & Guo, sp. nov. (Figs 16–23)

Diagnosis. P-4 with maximum height in basal part, distal part narrow. Cx-IV with obtuse angled posteromedial edges, medial suture lines Cx-I and Cx-II nearly equal in length. IV-L-5 with only 2 ventral setae, IV-L-6 without ventral seta, legs without swimming seta.

Description. Male. Idiosoma (Figs 16–17). Color yellow to brown. Idiosoma elliptical in outline, integument with sculptured surface (Fig. 20), 670–870 long, 512–750 wide. Gf 200–202 in length, 129–150 in width. Acetabula 3 pairs, first pair 62–65 in L, second 53–55 and third 39–43. Coxal plates single group, 666–690 in length and 483–550 in width, Medial suture Cx-I and Cx-II nearly equal in length, Cx-I ML 174–180, Cx-II ML 173–179, Cx-I/II ML ratio 1.00–1.01; posterior margin of Cx-II rather broad about 34–35 in width; suture line between Cx-III and Cx-IV not reaching to inner extremity but 2/3 of plate; posterior margins of Cx-IV slightly extended and surround 4/5 of genital field. Ib-Gf 346–360; Ib-Ap 650–680. Ib U-shaped, depth 145–160, width 89–90. Excretory pore smooth. Gnathosoma 194–220 in length. Chelicera 244–250 in length (Fig. 19).

Palp (Fig. 18). P-2 with 6 setae, of which 3 short dorsal setae, 2 long dorsodistal setae almost reaching to 1/2 of P-3, and ventral seta on 2/3 of P-2 and almost as long as ventral length of P-2. P-3 with 5 setae, dorsal setae inserted close to



Figures 16–17. *Lebertia (Lebertia) pseudomaglioi* Wang & Guo, **sp. nov.**, male. 16. Ventral view. 17. Dorsal view. Scale bars = 100  $\mu$ m.

each other (distance about 6.8–8), mediobasal seta inserted close to dorsobasal seta (distance about 3.42–5), 1 ventrobasal seta inserted away from ventrobasal segment edge. P-4 with 8 setae, of which 1 dorsal seta inserted at centre of segment, 5 dorsobasal setae thin and short, peg-like seta strong reaching to 1/2 of P-5, ventral setae insertions divide ventral margin into 1:1:2. Length/height of palp segments: P-1, 30–37/42–43 (ratio 0.70–0.88); P-2, 91–100/63–66 (ratio 1.38–1.59); P-3, 90–95/45–48 (ratio 1.98–2.00); P-4, 116–125/39–40 (ratio 2.97–3.13); P-5, 33–36/13–14 (ratio 2.54–2.57). Total length of palp, 378–384.

Legs (Figs 22–23). I-L-1 with 3 setae, of which 2 inserted at dorsobasal of segment, third at dorsal part. I-L-2 with 4 dorsal and 1 ventrobasal setae. I-L-3 with 4 dorsal and 2 ventral setae. I-L-4 with 3 dorsal setae. I-L-5 with 2 dorsal setae and 1 ventral seta inserted close to terminal part of segment. I-L-6 with 5 hair-like setae close to distal edge of segment. IV-L-4 with 3 dorsal and 3 ventral setae. IV-L-5 with 2 dorsal and 3 strong ventral setae. IV-L-6 with 4 setae, of which 1 at dorsal centre part of segment, 3 fine dorsal setae at distal edges of segment. Length/height of legs: I-L-1, 63–75/50–60 (ratio 1.25–1.26); I-L-2, 115–122/59–60 (ratio 1.92–2.07); I-L-3, 98–100/49–50 (ratio 1.96–2.04); I-L-4, 145–153/52–53 (ratio 2.79–2.89); I-L-5, 155–161/48–51 (ratio 3.16–3.23); I-L-6, 125–134/43–47 (ratio 2.85–2.90); IV-L-4, 215–242/53–54 (ratio 4.06–4.48); IV-L-5, 255–262/44–48 (ratio 5.46–5.80), IV-L-6, 220–243/50–55 (ratio 4.40–4.42). Numbers of peg-like setae on IV-L-4–6: IV-L-4, 5; IV-L-5, 4. No swimming seta on legs.

Female. Unknown.

Material examined. Holotype, male, Hanasi Lake, Xinjiang, China (47°14.64'N, 87°12.41'E; elev. 1374 m), 14 August 1997, coll. Daochao Jin, slide number XJ-IV-1997081401. Paratypes: 3 males, slide numbers XJ-IV-1997081402, XJ-IV-1997081403 and XJ-IV-1997081404, same data as holotype.

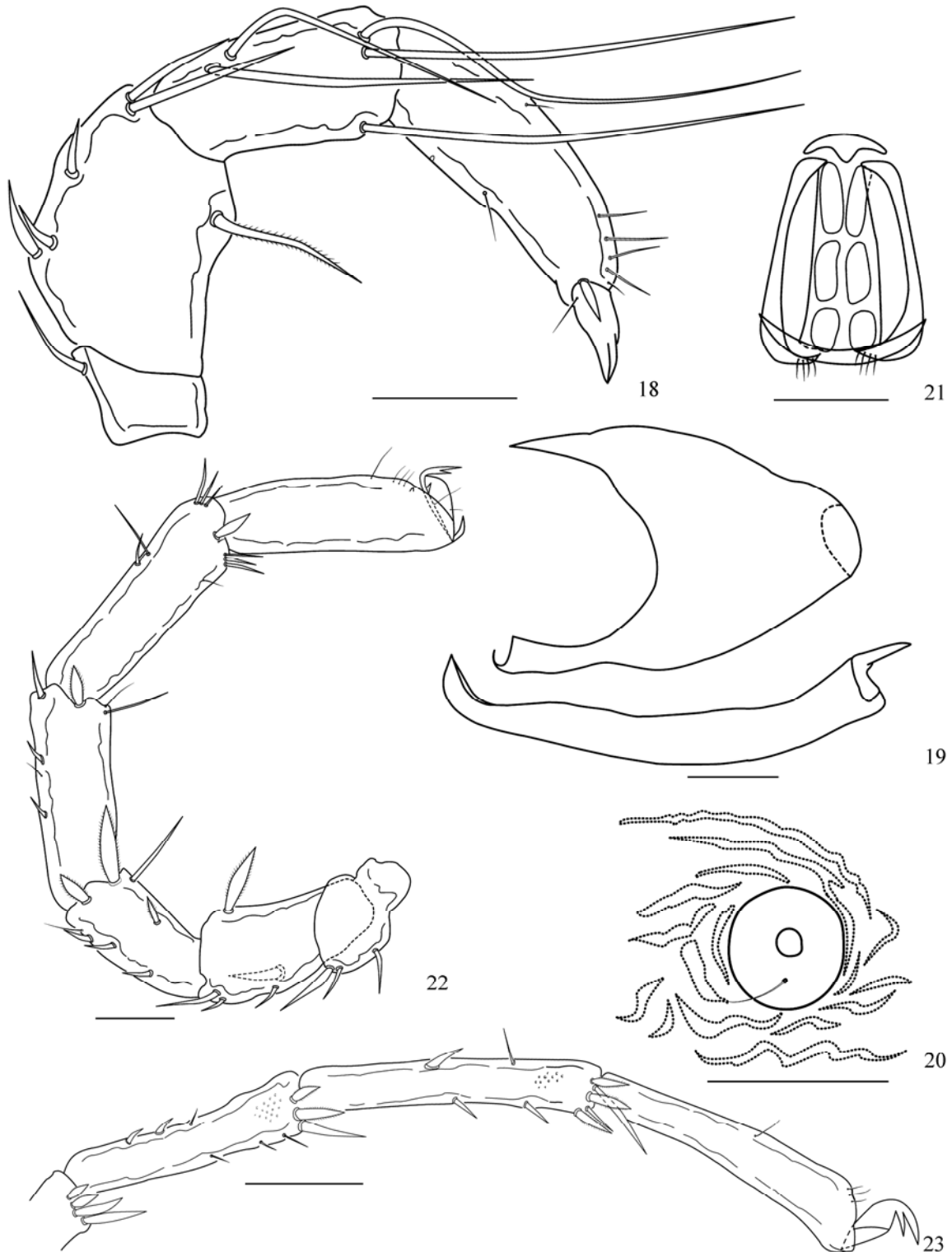
Etymology. “pseudo-” means “not real” or “imitated”. The new species is named after the species *Lebertia (Lebertia) maglioi* Thor, 1907 (Thor, 1907) which is similar to the new species.

Habitat. Stream.

Distribution. Palearctic Region (China (Xinjiang)).

Remarks. This new species is similar to *Lebertia (Lebertia) alia* Semenchenko & Tuzovskij, 2010 from Russia, and *L. (L.) maglioi* Thor, 1907 from Germany, respectively. The new species is similar with *L. alia* by the ventral seta insertions divided the ventral margins of P-4 into 1:1:2 and the similar length of suture lines (Cx-I/II ML ratio 0.96–1.17 in *L. alia*).

But they can be distinguished by the following: 1) Integument of *L. alia* with fine striation and porosity while the new species with sculptured surface; 2) Cx-IV of *L. alia* with nearly right angled posteromedial edges while the new species with obtuse angled posteromedial edges (Fig. 16); 3) Ventrodistal seta longer than ventral margin of P-2 in *L. alia* while the new species not (Fig. 18); 4) III-L-5 and IV-L-5 each with 1 short swimming seta in *L. alia* but the swimming seta of



Figures 18–23. *Lebertia (Lebertia) pseudomaglioi* Wang & Guo, **sp. nov.**, male. 18. Palp. 19. Gnathosoma. 20. Dorsal integument structure. 21. Genital field. 22. I-L-1–6. 23. IV-L-4–6. Scale bars: 18–20, 22=50  $\mu$ m, 21, 23=100  $\mu$ m.



the new species reduced completely (Figs 22–23); 5) Each genital flap in males with 18–24 medial and 6–7 lateral setae in *L. alia* while the new species bearing 4 medial setae and without lateral setae on each genital flap (Fig. 21). The data of *L. alia* from Semenchenko & Tuzovskij (2010).

The new species is also very similar to *L. maglioi* in these points: 1) P-4 with maximum height in basal part, distal part narrow; 2) The suture lines similar in length (Cx-I/II ML ratio 0.9–1.1 in *L. maglioi*); 3) Distance between dorsal setae of P-3 < 20. But they can be distinguished by the following: 1) Integument of *L. maglioi* smooth, while the new species with sculptured surface; 2) Cx-IV of *L. maglioi* with nearly right angled posteromedial edges while the new species with obtuse angled posteromedial edges (Fig. 16); 3) III-L-5 with 1 and IV-L-5 with 2 swimming setae in *L. maglioi* while no swimming seta in the new species (Figs 22–23); 4) IV-L-6 of *L. maglioi* with 2 small ventral setae, but IV-L-6 of the new species without ventral seta (Fig. 23); 5) IV-L-5 of *L. maglioi* with 3–4 ventral setae and 2 ventrodiscal setae, but in *L. pseudomaglioi* with 2 ventral setae and 1 ventrodiscal seta (Fig. 23). The data of *L. maglioi* from Gerecke (2009).

### 3.4 *Lebertia (Lebertia) abseta* Guo, Jin & Asadi, 2006

*Lebertia (Pseudolebertia) abseta* Guo, Jin & Asadi, 2006: 346; Guo & Xu, 2013: 190.

Material examined. 3 females, 1 male, Pangquangou Nature Reserve, Jiaocheng County, Shanxi, China (37°30'N, 111°39'E; elev. 1500 m), 15 August 2002, coll. Jianjun Guo; 6 females, 2 males, Mt. Luya National Nature Reserve, Shanxi, China (37°43'N, 111°51'E; elev. 1350 m), 17 August 2002, coll. Jianjun Guo; 2 females, Mt. Cangyan, Jingxing County, Hebei, China (38°02'N, 114°08'E; elev. 900 m), 19 August 2002, coll. Jianjun Guo; 3 females, 2 males, Taibaishan National Nature Reserve, Taibai County, Shaanxi, China (37°07'N, 107°53'E; elev. 2150 m), 9 July 2009, coll. Chengshuai Xu.

Remarks. The species was erected by Guo, Jin & Asadi (2006) based on specimens from Iran, and redescribed by Guo & Xu (2013) based on specimens from China. In this paper, the authors agree with the system which proposed by Gerecke (2009) that the subgenus *Pseudolebertia* should be considered the synonym of the subgenus *Lebertia*. So that, the species *L. (Pseudolebertia) abseta* should be *L. (Lebertia) abseta*.

Distribution. Palaearctic Region (Iran (Kerman); China (Shanxi, Shannxi, Hebei)).

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