

## Some new records and one new species of the genus *Lebertia* Neuman (Acari: Hydrachnidia: Lebertiidae) from Turkey

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Received: 18.08.2014

Accepted/Published Online: 22.12.2014

Printed: 30.09.2015

**Abstract:** In this study, water mites of the genus *Lebertia* Neuman, 1880 (Acari: Hydrachnidia) collected from Antalya, Artvin, Bingöl, Erzurum, Kahramanmaraş, and Siirt provinces of Turkey are presented. In total, 12 species were determined. Of these, *Lebertia* (s. str.) *marasensis* sp. nov. is described as new to science, while *L.* (s. str.) *rufipes* Koenike, 1902; *L.* (*Pilolebertia*) *longiseta* Bader, 1955; *L.* (*Pilolebertia*) *pilosa* Maglio, 1924; *L.* (*Mixolebertia*) *separata* Lundblad, 1930; and *L.* (*Brentalebertia*) *minutipalpis* K. Viets, 1920 are new records for the Turkish fauna.

**Key words:** Water mites, new records, Hydrachnidia, Lebertiidae, *Lebertia*, Turkey

### 1. Introduction

In the most recent checklist of water mites of Turkey, only 6 species of the genus *Lebertia* were included (Erman et al., 2010). During the years since then, investigations on this genus have intensified; to date, 16 species are known for the fauna of Turkey: *L.* (s. str.) *castalia* K. Viets, 1925; *L.* (s. str.) *erzurumensis* Esen & Erman, 2013; *L.* (s. str.) *fimbriata* Thor, 1899; *L.* (s. str.) *glabra* Thor, 1897; *L.* (s. str.) *maculosa* Koenike, 1902; *L.* (s. str.) *maglioi* Thor, 1907; *L.* (s. str.) *martini* Gülle & Boyacı, 2012; *L.* (s. str.) *rivulorum* Viets, 1933; *L.* (s. str.) *schechteli* Thor, 1913; *L.* (s. str.) *subtilis* Koenike, 1902; *L.* (*Pilolebertia*) *insignis* Neuman, 1880; *L.* (*Pilolebertia*) *porosa* Thor, 1900; *L.* (*Mixolebertia*) *sefvei* Walter, 1911; *L.* (*Mixolebertia*) *turcica* Bursalı & Özkan, 2004; *L.* (*Mixolebertia*) *stigmatifera* Thor, 1900; and *L.* (*Brentalebertia*) *anatolica* Esen & Dilkaraoğlu, 2013 (Aşçı et al., 2011; Bursalı et al., 2011; Esen and Erman, 2012; Gülle and Boyacı, 2012; Esen et al., 2013a, 2013b).

In this paper, 12 species of the genus *Lebertia* (Acari: Hydrachnidia, Lebertiidae) are reported from Antalya, Artvin, Bingöl, Erzurum, Kahramanmaraş, and Siirt provinces (Turkey), of which 5 are new records for the Turkish fauna and 1 is new to science. This paper aims to describe this material and contribute to the knowledge of lebertiid water mite distribution in Turkey.

### 2. Materials and methods

During field work, water mites were collected by hand netting, sorted on the spot from the habitat material, conserved in Koenike's fluid (50% glycerin, 20% acetic acid, 30% distilled water), and dissected as described elsewhere (e.g., Gerecke et al., 2007). The examined specimens are deposited in the research collection of the Biology Department, Fırat University, Elazığ, Turkey.

The composition of the material is given as: (males/females). All measurements are given in micrometers. The following abbreviations are used: Ac-1 = first acetabulum, a.s.l. = above sea level, Cx-III = third coxae, dL = dorsal length, H = height, I-L-6 = leg 1, sixth segment (tarsus), mL = medial length, L = length, P-3 = palp segment 3, V-1-V-4 = ventroglándularia 1-4, W = width.

### 3. Results and discussion

**Family:** Lebertiidae Thor, 1900

**Genus:** *Lebertia* Neuman, 1880

**Subgenus:** *Lebertia* s. str. Neuman, 1880

***Lebertia* (s. str.) *maglioi*** Thor, 1907

**Material examined:** Erzurum Province, Tortum, Çıpaç stream, 40°14.10'N, 41°29.57'E, 1950 m a.s.l., 13.09.2006, (2/3); İlica, Toprakkale, 40°11.46'N, 40°56.51'E, 2150 m a.s.l., 14.09.2006, (9/8).

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**Description. Male:** Integument smooth, idiosoma L/W 900/696, Cx-I/II mL 176/158 (ratio 1.1), Cx-II posterior W 31, coxal field L/W 658/607, genital flap L 165, genital field W 150, capitulum vL 217, chelicera L 285, Ac-1-3 L 50-48-33. Palp (Figure 1A) total L 388, P-1 32; P-2 97; P-3 94; P-4 126; P-5 39; P-2 ventral margin slightly concave, P-3 enlarged distally, P-4 with maximum H in basal part, peg-like seta small, ventral setae insertion 1:1:2. IV-L-1 with 1 dorsal seta and 2 dorsodistal setae, IV-L-5 with 2 long swimming setae (Figure 1B), IV-L-6 with 2 ventral setae, IV-L-5 L/H 283/47, ratio 6.0, IV-L-6 L/H 261/50, ratio 5.2.

**Female:** (n = 3) Idiosoma L/W 770-1040/594-776, Cx-I/II mL 158-175/140-165 (ratio 1.0-1.1), Cx-II posterior W 28-40, coxal field L/W 632-700/537-642, genital flap L 176-192, genital field W 144-173, capitulum vL 215, chelicera L 269, Ac-1-3 L (56-60)-(50-55)-(39-41); palp total L 328-374, P-1 26-30; P-2 82-94; P-3 83-97; P-4 106-115; P-5 31-38. IV-L-1 with 1 dorsal seta and 2 dorsodistal setae, IV-L-5 with 2 long swimming setae (Figure 1C), IV-L-6 with 2 ventral setae, IV-L-5 L/H 252-260/47-48, ratio 5.4, IV-L-6 L/H 240-248/49-50, ratio 4.9-5.0.

**Remarks:** Specimens from Turkey are in good agreement with European *Lebertia maglioi* in the combination of a smooth, finely porose integument, the medial sutures of Cx-I/II similar in length, low number of swimming setae, and reduced number of ventral setae on IV-L-6. They differ in the length of the 2 swimming setae of IV-L-5, which is more than half of the next segment (in particular in the juvenile specimens, the 2 swimming setae on IV-L-5 are very long; see Figure 1C), the greater distance of dorso- and mediodistal setae on P-3, and the distally narrower P-4. Turkish specimens here attributed to *L. maglioi* are similar to *L. alia* Semenchenko and Tuzovskij,

2010 (with one swimming seta on IV-L-5 longer than one-half IV-L-6). *L. alia* differs from Turkish specimens in the very slender P-3 with dorso- and mediodistal setae closer to each other (Semenchenko and Tuzovskij, 2010). However, more extensive variability studies could demonstrate the synonymy of *L. alia* with *L. maglioi*.

**Previous record from Turkey:** Niğde Province (Gerecke, 2009).

**Distribution:** West Palearctic (Gerecke, 2009).

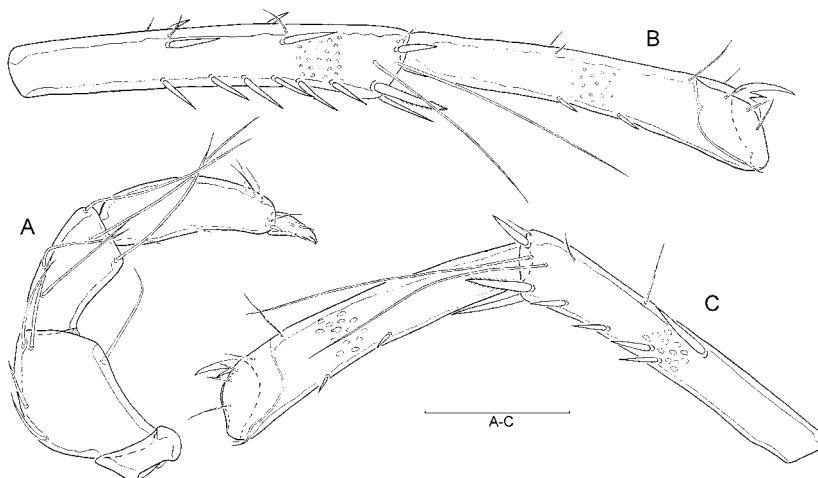
***Lebertia* (s. str.) *marasensis* sp. nov.**

**Type series:** Holotype, male, Kahramanmaraş Province, from a limnocrene spring near Lake Kumaşır, 37°22.22'N, 37°22.58'E, 460 m a.s.l., 12.09.2012. Paratypes: Same locality as holotype (4/7).

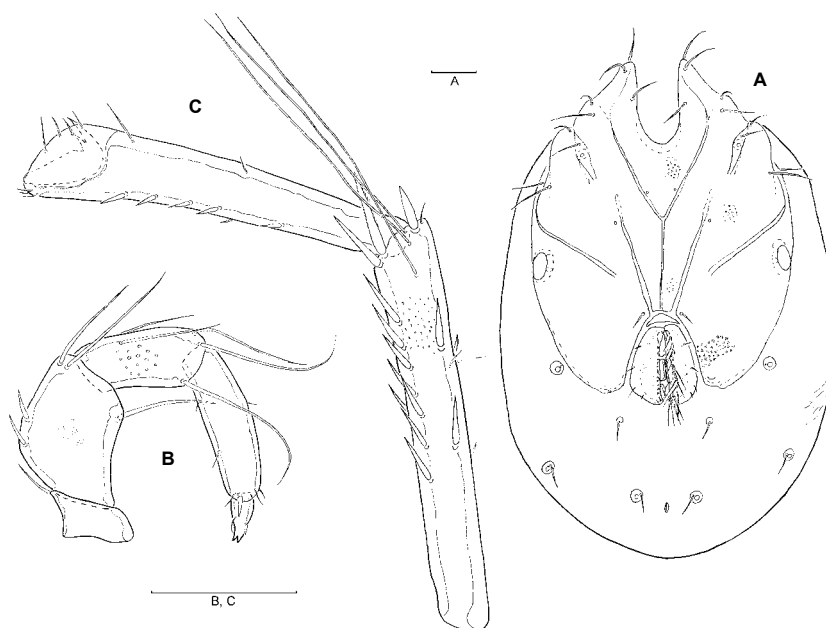
**Further record:** Kahramanmaraş Province, Çağlayancerit, Lake Değirmen, 37°43.18'N, 37°29.10'E, 880 m a.s.l., 11.09.2012 (3/4).

**Diagnosis:** Integument smooth, laterally with fine striation, idiosoma slightly elongated; Cx-I/II mL ratio 0.8-0.9, posterior margin Cx-II wide, medial and lateral margins of Cx-IV forming an acute angle; IV-L-1 with 1 dorsal seta and 2 dorsodistal setae, IV-L-6 with 4-6 ventral setae, number of swimming setae III-L-5, 2; IV-L-5, 3 (one of them very characteristically distanced from distal edge); P-3 equally enlarged from base to distal margin, dorsal setae distanced away from each other, medio- and dorsodistal setae close to each other, ventrodistal setae close to distal margin, P-4 with maximum H in distal part, ventral setae insertions equidistant (1:1:1), peg-like seta slender.

**Description. Male:** Idiosoma (Figure 2A) L/W 1025/746, Cx-I/II mL 174/200 (ratio 0.87), Cx-II posterior W 48, coxal field L/W 720/583, genital flap L 184, genital field W 149, capitulum vL 214, chelicera L 308, Ac-1-3 L



**Figure 1.** *Lebertia maglioi* (A-B = male from Toprakkale, C = juvenile female from Çipak stream): A = palp, medial view; B, C = IV-L-5-6. Scale bar = 100  $\mu$ m.



**Figure 2.** *Lebertia* (s. str.) *marasensis* sp. nov. male: A = idiosoma, ventral view; B = palp, medial view; C = IV-L-5-6. Scale bars = 100 µm.

63–52–37. Palp (Figure 2B) total L 376, P-1 39; P-2 100; P-3 93; P-4 112; P-5 32, P-2 ventral margin slightly concave. IV-L-1 with 1 dorsal and 2 dorsodistal setae, IV-L-6 with 4–6 ventral setae (Figure 2C), leg swimming setae: III-L-5, 2; IV-L-5, 3; IV-L-5 L/H 282/42, ratio 6.7, IV-L-6 L/H 256/48, ratio 5.3.

**Female:** Idiosoma L/W 1070/800, Cx-I/II mL 180/197 (ratio 0.9), Cx-II posterior W 44, coxal field L/W 725/590, genital flap L 200, genital field W 154, capitulum vL 244, chelicera L 318, Ac-1–3 L 72–61–40. Palp total L 400, P-1 40; P-2 108; P-3 100; P-4 118; P-5 34. IV-L-5 L/H 298/47, ratio 6.3, IV-L-6 L/H 273/50, ratio 5.5.

**Etymology:** Named after the province of Kahramanmaraş in which the species was found.

**Habitat:** The specimens of *Lebertia* (s. str.) *marasensis* were collected from a limnocrone spring.

**Remarks:** Due to the relatively long mL Cx-II, ventrodiscal setae on P-3 close to distal edge, and 3 long swimming setae on IV-L-5 (one of them characteristically distanced from distal edge), Turkish specimens are different from *L. cognata*. While the position of the ventrodiscal seta on P-3 has been found to be variable in *L. cognata* specimens from Central Europe (Gerecke, 2009), the latter differ also in the higher number of ventral setae on IV-L-6 (about 6–8) and Cx-I longer than Cx-II. Furthermore, the new species is similar to *L. fimbriata* in integument structure, shape, and setal arrangement on the palp, and number of swimming setae on IV-L-5. It differs from the latter in elongated palp segments and a higher number (4–6) of ventral setae on IV-L-6 (in *L. fimbriata* IV-L-6 with 2–3 ventral setae).

**Distribution:** Turkey, only known from type locality.

***Lebertia* (s. str.) *erzurumensis*** Esen & Erman, 2013

**New records:** Siirt Province, Başur stream, 37°57.42'N, 41°47.19'E, 525 m a.s.l., 05.08.2012, (0/1).

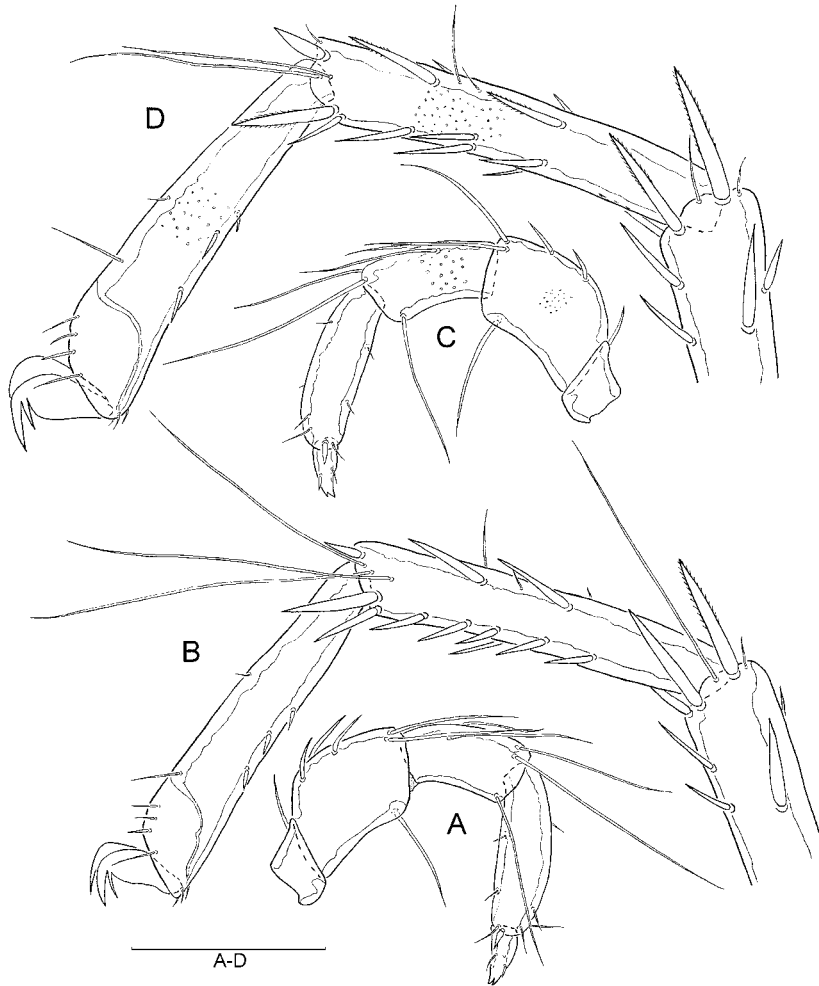
**Previous record from Turkey:** Erzurum Province (Esen et al., 2013b).

***Lebertia* (s. str.) *fimbriata*** Thor, 1899

**Material examined:** Kahramanmaraş Province, Andırın, Fındıklı stream, 37°35.22'N, 36°21.54'E, 1095 m a.s.l., 27.07.2010, (18/27); Fırnız stream, 37°45.32'N, 36°41.53'E, 655 m a.s.l., 31.05.2010, (1/2); Elbistan, Sevdili stream, 38°15.54'N, 37°33.42'E, 1480 m a.s.l., 29.09.2009, (1/0); *ibid.*, 27.05.2010, (17/4); Söğütlü stream, 38°15.15'N, 37°32.00'E, 1360 m a.s.l., 27.09.2012, (3/1); Göksun, Ardıç stream, 37°32.50'N, 36°26.55'E, 820 m a.s.l., 30.07.2010, (1/0).

**Description. Male:** (n = 5) Idiosoma L/W 770–887/590–755, Cx-I/II mL 140–150/150–171 (ratio 0.9), Cx-II posterior W 37–40, coxal field L/W 565–580/435–486, genital flap L 132–150, genital field W 120–132, capitulum vL 154–172, chelicera L 238–250, Ac-1–3 L (40–49)–(40–47)–(26–34). Palp (Figure 3A) total L 274–316, P-1 30–32; P-2 67–80; P-3 65–71; P-4 85–103; P-5 27–30, P-3 ventrodiscal seta slightly distanced from distal edge; IV-L-1 with 1 dorsal seta and 2 dorsodistal setae, IV-L-6 with 4 stout ventral setae (Figure 3B), swimming setae: III-L-5, 1–2; IV-L-4, 0–1; IV-L-5, 2–3; IV-L-5 L/H 209–218/34–37, ratio 5.9–6.1, IV-L-6 L/H 190–194/38–39, ratio 4.9–5.

**Female:** (n = 3) Idiosoma L/W 968–1165/751–923, Cx-I/II mL 150–171/170–202 (ratio 0.8–0.9), Cx-II



**Figure 3.** *Lebertia fimbriata* (A–B = male from Sevdili stream; C–D = female from Fındıklı stream): A, C = palp, medial view; B, D = IV-L-5-6. Scale bar = 100  $\mu$ m.

posterior W 42–48, coxal field L/W 720/541, genital flap L 160–178, genital field W 142–151, capitulum vL 160–200, chelicera L 222–260, Ac-1–3 L (60–70)–(56–68)–(35–41). Palp (Figure 3C) total L 335–366, P-1 32–34; P-2 89–98; P-3 80–91; P-4 104–110; P-5 30–33. IV-L-1 with 1 dorsal seta and 2 dorsodistal setae, IV-L-6 with 4 stout ventral setae (Figure 3D), swimming setae number same as male, IV-L-5 L/H 253–290/42–46, ratio 6.0–6.3, IV-L-6 L/H 224–267/42–49, ratio 5.3–5.4.

**Remarks:** As compared with the diagnosis established for Central European *L. fimbriata*, specimens from Kahramanmaraş Province differ as follows: specimens from Fındıklı, Fırnız, and Ardiç streams have 2 swimming setae on IV-L-5, a short swimming seta on IV-L-4, and ventral setae insertions on P-4 distanced 1:1:1. Specimens from Sevdili and Söğütlü streams have 3 long swimming setae on IV-L-5, 1 long swimming seta on IV-L-4, and

ventral setae insertions on P-4 distanced 3:3:2. We interpret these differences as examples of geographical variability in *L. fimbriata*.

**Previous record from Turkey:** Kemaliye district (Erzincan Province) (Esen et al., 2013a).

**Distribution:** West Palearctic (Gerecke, 2009).

***Lebertia* (s. str.) *glabra*** Thor, 1897

**New records:** Kahramanmaraş Province, Elbistan, Pınarbaşı spring, 38°11.13'N, 37°12.49'E, 1145 m a.s.l., 28.06.2009, (0/1); ibid. 30.08.2010, (0/1); ibid. 28.10.2009, (1/0); Göksun, Ardiç stream, 37°32.50'N, 36°26.55'E, 820 m a.s.l., 28.10.2009, (1/1); ibid. 31.05.2010, (3/2); 30.07.2010, (4/5); Ekinözü, Nergele stream, 38°00.49'N, 37°13.05'E, 1215 m a.s.l., 29.10.2009, (1/1); ibid. 31.08.2010, (3/4); 30.09.2010, (5/2); 29.10.2010, (7/5). Siirt Province, Başur stream, 37°57.42'N, 41°47.19'E, 525 m a.s.l., 05.08.2012, (3/5).

**Previous records from Turkey:** Niğde Province (Smit, 1995), Kemaliye (Erzincan Province) (Esen et al., 2013a), Bingöl Province (Esen and Erman, 2013).

**Distribution:** West Palearctic (Gerecke, 2009).

***Lebertia* (s. str.) *maculosa*** Koenike, 1902

**New records:** Kahramanmaraş Province, Elbistan, Sevdili stream, 38°15.54'N, 37°33.42'E, 1460 m a.s.l., 27.05.2010, (7/8); Söğütlü stream, 38°15.15'N, 37°32.00'E, 1360 m a.s.l., 27.09.2010, (1/0); Çağlayancerit, Göksu stream, 37°44.26'N, 37°22.21'E, 975 m a.s.l., 26.10.2009, (1/1); ibid. 30.06.2010, (1/2); ibid. 27.09.2010, (2/3); ibid. 29.09.2012, (2/1).

**Previous records from Turkey:** Rize Province (Pešić et al., 2007), Kemaliye (Erzincan Province) (Esen et al., 2013a), Bingöl Province (Esen and Erman, 2013).

**Distribution:** Central, western, and southeastern Europe (Gerecke, 2009).

***Lebertia* (s. str.) *rufipes*** Koenike, 1902

**Material examined:** Kahramanmaraş Province, Çağlayancerit, Lake Değirmen, 37°43.18'N, 37°29.10'E, 880 m a.s.l., 09.08.2012, (0/1).

**Description. Female:** Idiosoma slightly elongated (Figure 4A), L/W 1134/750, Cx-I/II mL 171/202 (ratio 0.84), Cx-II posterior W 48, coxal field L/W 720/541, genital flap L 207, genital field W 161, capitulum vL 240, chelicera L 318, Ac-1-3 L 70-68-41. Palp (Figure 4B) total L 366, P-1 34; P-2 98; P-3 91; P-4 110; P-5 33. IV-L-1 with

1 dorsal seta and 2 dorsodistal setae, IV-L-6 with 4 stout ventral setae (Figure 4C), swimming setae: III-L-5, 1; IV-L-5, 1; IV-L-5 L/H 290/46, ratio 6.3, IV-L-6 L/H 267/49, ratio 5.4.

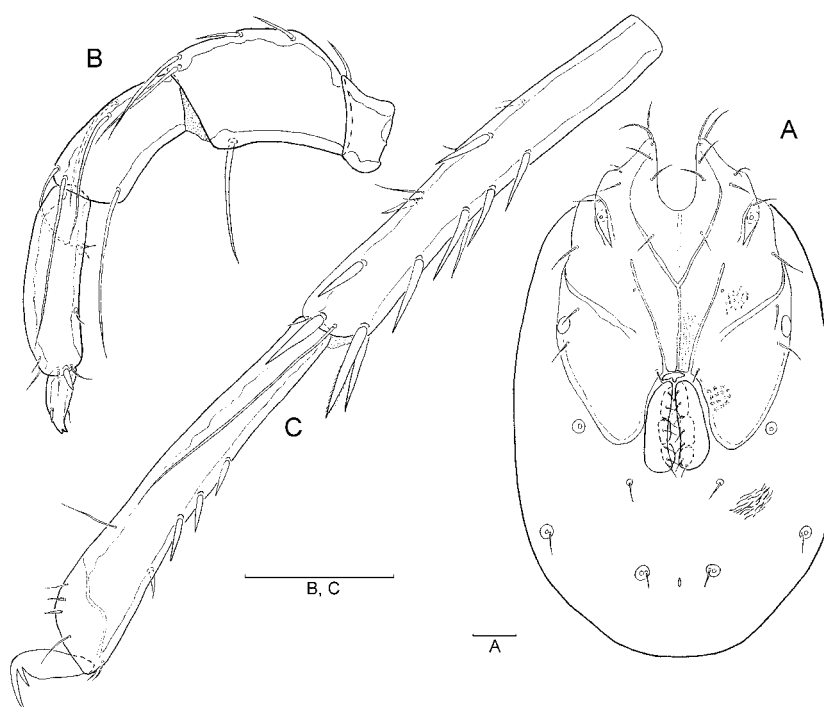
**Remarks:** In the presence of one swimming seta on IV-L-5, the P-3 ventrodiscal seta located away from distal edge, and ventral setae insertion distances 1:1:1, the single female agrees with *L. rufipes*. It differs from the type series in the relatively long Cx-II, the swimming seta on IV-L-5 being longer, and a lower number of ventral setae on IV-L-5-6.

**Distribution:** Central and eastern Europe (Gerecke, 2009). New for Turkey.

**Subgenus: *Pilolebertia*** Thor, 1900

***Lebertia* (*Pilolebertia*) *longiseta*** Bader, 1955

**Material examined:** Kahramanmaraş Province, Andırın, Kesik stream, 37°36.34'N, 36°34.37'E, 545 m a.s.l., 27.08.2009, (0/1); Körsülü stream, 37°38.14'N, 36°37.36'E, 450 m a.s.l., 27.08.2009, (3/5); Fındıklı stream, 37°35.22'N, 36°21.54'E, 1095 m a.s.l., 27.07.2010, (8/13); Çağlayancerit, Göksu stream, 37°44.26'N, 37°22.21'E, 975 m a.s.l., 30.05.2010, (0/1); ibid., 30.06.2010, (1/0); ibid., 28.08.2010, (2/0); ibid., 28.10.2010, (4/11); Lake Değirmen, 37°43.18'N, 37°29.10'E, 880 m a.s.l., 26.04.2010, (1/2); ibid., 29.05.2010, (1/1); ibid., 26.06.2010, (3/2); ibid., 27.07.2010, (2/0); ibid., 11.09.2012, (3/0); Elbistan, Sevdili stream, 38°15.54'N, 37°33.42'E, 1460 m a.s.l., 27.05.2010,

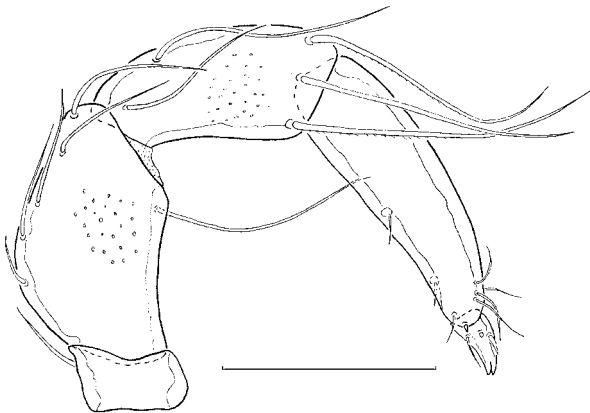


**Figure 4.** *Lebertia rufipes* female: A = idiosoma, ventral view; B = palp, medial view; C = IV-L-5-6. Scale bars = 100  $\mu$ m.

(4/5); *ibid.*, 30.09.2010, (1/9); Söğütlü stream, 38°15.15'N, 37°32.00'E, 1360 m a.s.l., 27.09.2012, (2/4). Siirt Province, Kezer stream, 37°57.42'N, 41°51.25'E, 545 m a.s.l., 05.08.2012, (1/2); Başur stream, 37°57.42'N, 41°47.19'E, 525 m a.s.l., 18.05.2012, (0/2); Biloris stream, 37°48.36'N, 42°10.33'E, 720 m a.s.l., 01.10.2013, (0/3).

**Description. Male:** Idiosoma L/W 688–1037/509–862, Cx-I/II mL 164–180/126–162 (ratio 1.1–1.3), Cx-II posterior W 30–32, coxal field L/W 622–710/600–645, genital flap L 163–177, genital field W 142–165, capitulum vL 210–232, chelicera L 257–261, Ac-1–3 L (6–62)–(53–60)–(32–34). Palp total L 368–406, P-1 27–30; P-2 99–108; P-3 90–112; P-4 123–126; P-5 29–30. IV-L-1 with 1 dorsal seta and 2 dorsodistal setae, IV-L-6 with 2–3 ventral setae, leg swimming setae: II-L-5, 5; III-L-4, 6; III-L-5, 8; IV-L-4, 6–7; IV-L-5, 9–10; IV-L-5 L/H 255–264/46–53, ratio 5.0–5.5; IV-L-6 L/H 259–267/49–58, ratio 5.4.

**Female:** (n = 5) Idiosoma L/W 790–1200/689–1026, Cx-I/II mL 161–179/142–157 (ratio 1.1), Cx-II posterior W 30–37, coxal field L/W 660–730/588–690, genital flap L 174–190, genital field W 157–161, capitulum vL 202–227, chelicera L 252–264, Ac-1–3 L (60–63)–(53–55)–(39–40); palp (Figure 5) total L 400–445, P-1 33; P-2 103–119; P-3



**Figure 5.** *Lebertia longisetata* female: palp, medial view. Scale bar = 100  $\mu$ m.

107–110; P-4 130–153; P-5 27–30. IV-L-1 with 1 dorsal seta and 2 dorsodistal setae, IV-L-6 with 4 stout ventral setae, leg swimming setae: II-L-5, 5; III-L-4, 5; III-L-5, 6; IV-L-4, 7; IV-L-5, 10–12; IV-L-5 L/H 268–272/52–58, ratio 4.7–5.2; IV-L-6 L/H 252–260/54–57, ratio 4.6–4.7.

**Remarks:** Turkish specimens agree with *L. longisetata* in the long and slender ventral seta on P-2, a relatively long P-3, and the setae insertions dividing P-4 ventral margin 4:2:1. They differ from European specimens in having the P-3 mediiodistal seta located in the middle of the distal edge.

**Distribution:** Central and eastern Europe (Gerecke, 2009). New for Turkey.

***Lebertia (Pilolebertia) pilosa* Maglio, 1924**

**Material examined:** Antalya Province, Kurşunlu stream, 37°00.03'N, 30°49.19'E, 45 m a.s.l., 19.08.2007, (0/4).

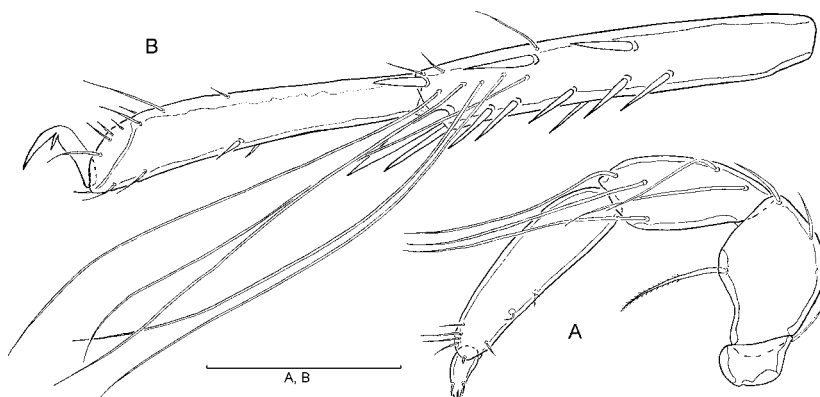
**Description. Female:** Idiosoma L/W 891/672, Cx-I/II mL 158/119 (ratio 1.3), Cx-II posterior W 30, coxal field L/W 632/565, genital flap L 150, genital field W 119, capitulum vL 170, chelicera L 220, Ac-1–3 L 50–41–34. Palp (Figure 6A) total L 325, P-1 22; P-2 76; P-3 88; P-4 110; P-5 29. IV-L-1 with 1 dorsal seta and 2 dorsodistal setae, IV-L-6 with 2 ventral setae, swimming setae (Figure 6B): II-L-5, 3; III-L-4, 2; III-L-5, 7; IV-L-4, 4; IV-L-5, 6, IV-L-5 L/H 203/34, ratio 6.0, IV-L-6 L/H 178/30, ratio 5.9.

**Remarks:** *Lebertia pilosa* differs from all other species of the subgenus in shape and setation of palp, in particular P-3 (drop-shaped, basally narrowed, mediiodistal setae shifted to the medial segment surface) and P-4 (straight and slender, ventral setae close to each other in the distal part) (Gerecke, 2009).

**Distribution:** Europe (Gerecke, 2009). New for Turkey.

***Lebertia* (s. str.) *porosa* Thor, 1900**

**New records:** Kahramanmaraş Province, Çağlayancerit, Göksu stream, 37°44.26'N, 37°22.21'E, 975 m a.s.l., 27.09.2010, (10/7); *ibid.* 26.10.2010, (20/32); 28.10.2010, (23/27); Elbistan, Söğütlü stream, 38°15.15'N,



**Figure 6.** *Lebertia pilosa* female: A = palp, medial view; B = IV-L-5–6. Scale bar = 100  $\mu$ m.

37°32.00'E, 1360 m a.s.l., 27.09.2012, (1/1). Siirt Province, İkizler village, stream, 38°03.53'N, 41°55.32'E, 895 m a.s.l., 15.09.2012, (5/8).

**Previous records from Turkey:** Afyonkarahisar, Bingöl, Elazığ, Erzurum, Konya, and Rize provinces (Erman et al., 2010; Esen and Erman, 2013).

**Distribution:** Holarctic (Gerecke, 2009).

**Subgenus:** *Mixolebertia* Thor, 1906

*Lebertia (Mixolebertia) separata* Lundblad, 1930

**Material Examined:** Artvin Province, Şavşat, Karaköy village, spring, 41°15.15'N, 42°30.13'E, 1625 m a.s.l., 17.10.1992, (1/0).

**Description. Male:** Idiosoma L/W 690/528, Cx-I/II mL 160/128 (ratio 1.3), Cx-II posterior W 38, coxal field L/W 607/515 (Figure 7A), genital flap L 152, genital field W 130, capitulum vL 163, chelicera 180, Ac-1-3 L 45-40-31. Palp (Figure 7B) total L 361, P-1 30; P-2 89; P-3 96; P-4 124; P-5 22. IV-L-1 with 11 setae, IV-L-6 with 5 ventral setae (Figure 7C), IV-L-5 L/H 207/38, ratio 5.4, IV-L-6 L/H 198/35, ratio 5.6.

**Remarks:** *Lebertia stigmatifera* and *L. separata* are very similar. The latter differs in having V-1 not fused to Cx-IV and posterior margin of Cx-IV not extending to the posterior margin of Ac-3. In the single male collected from Artvin Province, Cx-IV extends to the posterior margin of Ac-3 and V-1 lies close to the posteromedial edge of Cx-IV.

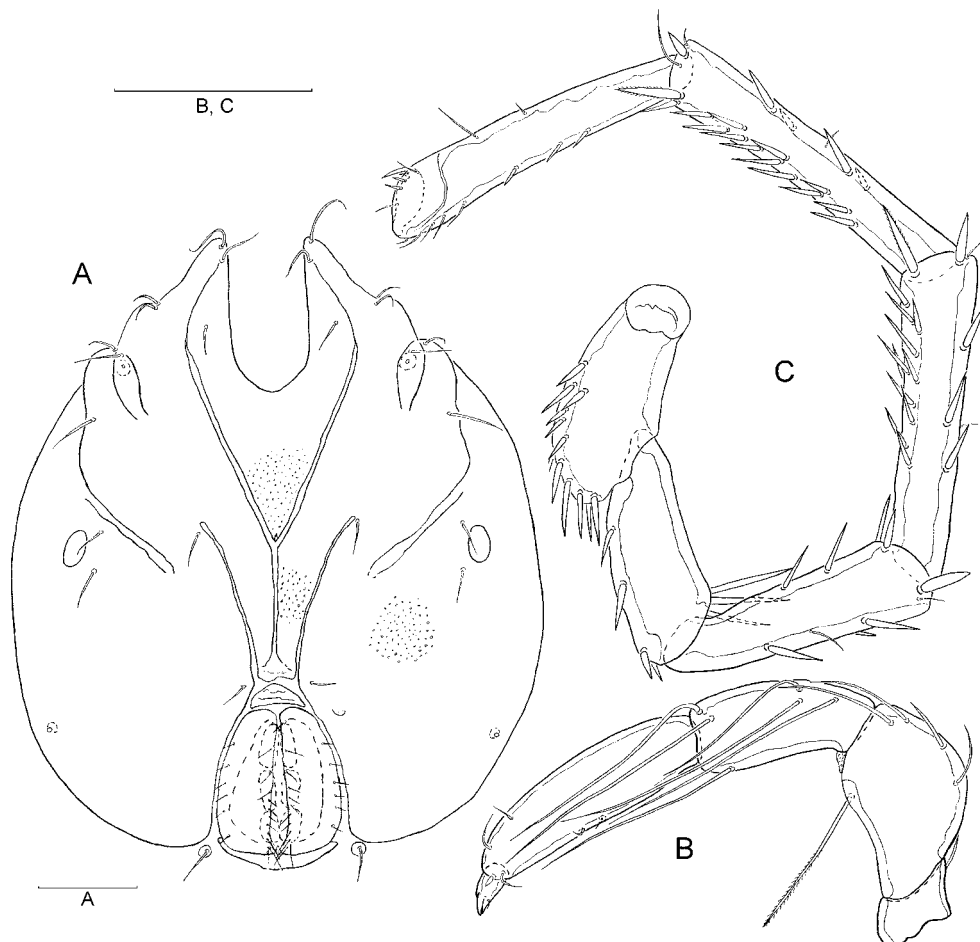
**Distribution:** Central and southeastern Europe (Gerecke, 2009). New for Turkey.

**Subgenus:** *Brentalebertia* Gerecke, 2008

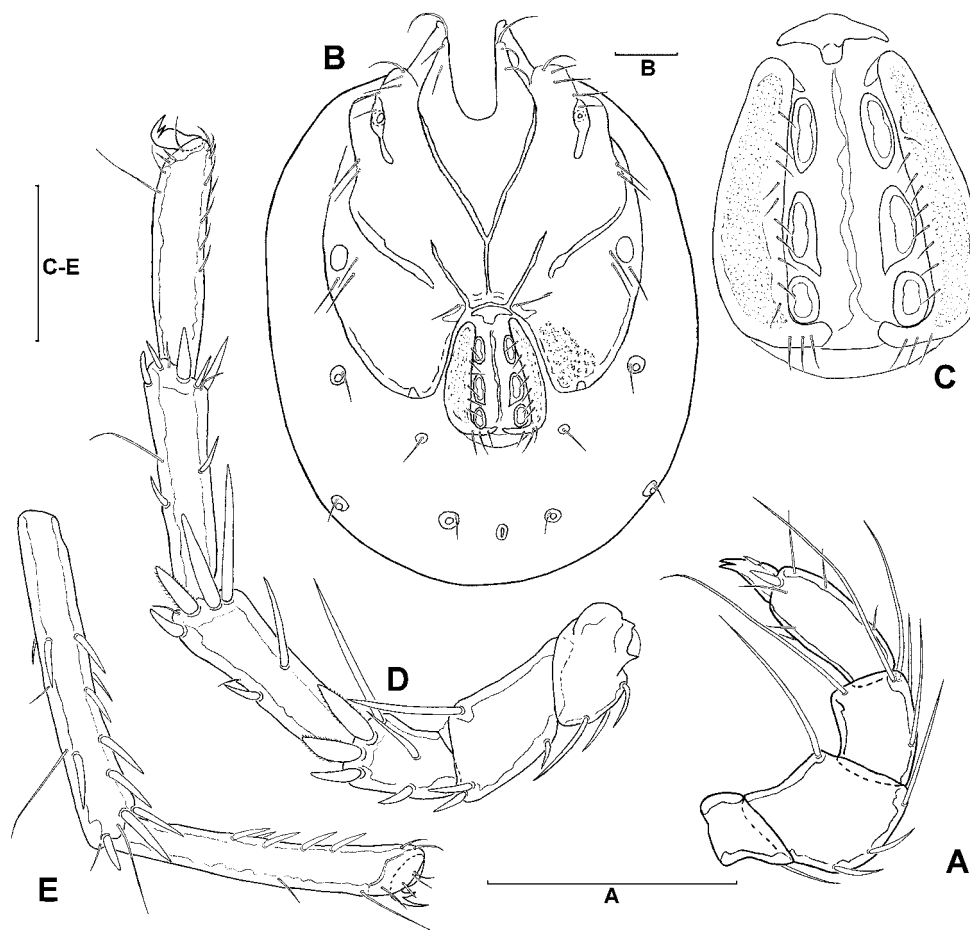
*Lebertia (Brentalebertia) minutipalpis* K. Viets, 1920

**Material Examined:** Bingöl Province, Karlıova, Lake Azizan, 39°06.03'N, 40°50.32'E, 1600 m a.s.l., 26.06.2010, (3/11); ibid. 20.07.2010, (1/1).

**Description. Male:** Idiosoma L/W 620-848/458-656, Cx-I/II mL 184/83 (ratio 2.2), Cx-II posterior W 38, coxal field L/W 578/480, genital flap L 160, genital field W 151, capitulum vL 156, chelicera L 236, Ac-1-3 L 39-37-34. Palp (Figure 8A) total L 220, P-1 30; P-2 55; P-3 49; P-4 62; P-5 24. IV-L-6 with 4-5 ventral setae, IV-L-5 L/H 194/33, ratio 5.9, IV-L-6 L/H 173/30, ratio 5.8.



**Figure 7.** *Lebertia separata* male: A = coxal and genital field; B = palp, medial view; C = IV-L. Scale bars = 100  $\mu$ m.



**Figure 8.** *Lebertia minutipalpis* (A = male, B–E = female): A = palp, medial view; B = idiosoma, ventral view; C = genital field; D = II-L; E = IV-L-5–6. Scale bars = 100 µm.

**Female:** Idiosoma (Figure 8B) L/W 864–960/698–762, Cx-I/II mL 194/98 (ratio 2.0), Cx-II posterior W 50, coxal field L/W 611/523, genital flap L 195, genital field W 183 (Figure 8C), capitulum vL 239, chelicera L 264, Ac-1–3 L 47–46–38. Palp total L 238, P-1 32; P-2 58; P-3 53; P-4 70; P-5 25. II-L-3-4 with stout setae (Figure 8D), IV-L-5 with 5 ventral setae (Figure 8E), IV-L-5 L/H 219/34, ratio 6.4, IV-L-6 L/H 198/30, ratio 6.6.

**Remarks:** *Lebertia* (*Brentalebertia*) *minutipalpis* is characterized by the combination of the following features: Cx-I with distinct downwardly curved tips; Cx-II very short and posteriorly wide; Ac-1–3 rather short and placed on elevated and strongly sclerotized acetabular bases, at least some of them slightly constricted in the center; palp

stout and compact. Specimens from Bingöl Province are in good agreement with the original description.

**Distribution:** Central and western Europe (Gerecke, 2009). New for Turkey.

#### Acknowledgments

This study was supported by FÜBAP-1794 and FF-12-15 projects, Fırat University, Elazığ. We are very thankful to Reinhard Gerecke (Tübingen, Germany) for many valuable suggestions on the species of *Lebertia maglioi* and *L. marasensis*. Petr Tuzovskij (Borok, Russia) helped with important information on the species *L. alia*. We are indebted to 2 anonymous referees for their careful work and valuable suggestions.

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