

Taxonomy of Korean *Lesteva* with a Description of a New Species (Coleoptera: Staphylinidae: Omaliinae)

Authors: Kim, Tae-Kyu, and Ahn, Kee-Jeong

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TAXONOMY OF KOREAN *LESTEVA* WITH A DESCRIPTION OF A NEW SPECIES (COLEOPTERA: STAPHYLINIDAE: OMALIINAE)

TAE-KYU KIM AND KEE-JEONG AHN

Department of Biology, Chungnam National University, Daejeon 305-764, Republic of Korea

ABSTRACT

A taxonomic study of the genus *Lesteva* Latreille in Korea is presented. Four species including a new species, *Lesteva coreana* **sp. nov.**, are recognized. Three species, *L. cordicollis* Motschulsky, *L. distincta* Watanabe and *L. miyabi* Watanabe, are new to the Korean fauna, and *L. plagiata* Sharp previously recorded from Korea is a misidentification of *L. miyabi*. A key and a comparison of morphological features of Korean *Lesteva* species with illustrations of the diagnostic features are provided.

Key Words: Staphylinidae, Omaliinae, *Lesteva*, new species, Korea

RESUMEN

Se presenta un estudio taxonómico del género *Lesteva* Latreille en Corea. Se reconocen cuatro especies incluyendo una nueva especie, *Lesteva coreana* **sp. nov.** Tres especies, *L. cordicollis* Motschulsky, *L. distincta* Watanabe y *L. miyabi* Watanabe son nuevas para la fauna de Corea y se determinó que *L. plagiata* Sharp, anteriormente registrada en Corea, fue basado sobre una identificación equivocada de *L. miyabi*. Se proveen una clave y una comparación de las características morfológicas de las especies de *Lesteva* en Corea con ilustraciones de las características diagnósticas.

The genus *Lesteva* Latreille (tribe Anthophagini Thomson) is composed of 104 species distributed in the Holarctic and Oriental regions (Watanabe 1990, 2004, 2005; Herman 2001; Smetana 2004; Li 2005; Sharvriin et al. 2007). In East Asia, 19 and 15 species of the genus are reported in Japan and in China, respectively (Watanabe 1990, 2004; Smetana 2004; Li 2005). *Lesteva plagiata* Sharp recorded by Cho et al. (2002) in Korea is a misidentification of *L. miyabi* Watanabe.

Members of *Lesteva* occur in montane riparian areas and are often found in moss or wet litter, sometimes in caves. Adults and larvae are predators (Steel 1970; Newton et al. 2001). We have studied 20 specimens of *L. cordicollis* Motschulsky, 28 specimens of *L. coreana* **sp. nov.**, 60 specimens of *L. distincta* Watanabe, and 125 specimens of *L. miyabi*.

In this paper, we report 4 *Lesteva* species (*L. cordicollis*, *L. coreana* **sp. nov.**, *L. distincta*, and *L. miyabi*) from Korea. A key, habitus photographs, and the illustrations of diagnostic features are provided. All specimens are deposited in the Chungnam National University Insect Collection (CNUIC), Daejeon, Korea.

Genus *Lesteva* Latreille, 1797

Lesteva Latreille, 1797: 75.

Tevales Casey, 1894: 398. Synonymized by Steel, 1952: 9.

Diagnosis. Body ovoid and flattened, densely pubescent, covered with punctures. Head sub-

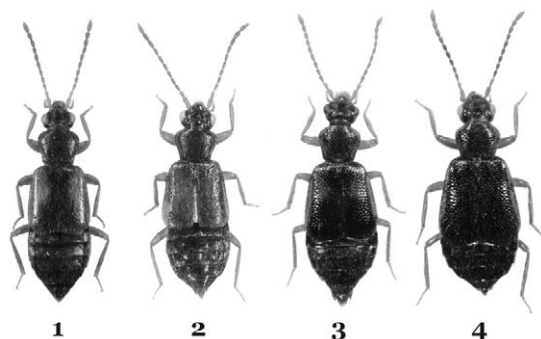
quadrate; eyes convex, large, with pubescence between facets; ocelli distinct; temple round; vertex with 2 longitudinal depressions; gular sutures separated, divergent posteriorly; mandibles subtriangular, curved inwardly with distinct internal teeth, mola distinct; maxillary palpomere 4 as wide and about 4.0 times as long as palpomere 3; antenna extending to near middle of elytra. Pronotum convex, widest at anterior third or fourth, more narrowed posteriorly than anteriorly; mesoventrite with longitudinal carina along midline and several foveae on each side; elytra flat, broader than pronotum, expanded posteriorly; legs long and slender, protarsus thin in both sexes. Abdomen broad, flat and abruptly narrowed posteriorly, tergites IV-V with a pair of wing folding patches.

Lesteva cordicollis Motschulsky, 1860

(Figs. 1, 5, 9, 13, 17, 19, 21-22)

Lesteva cordicollis Motschulsky, 1860: 549; Sharvriin, 2001: 191.

Description. Body (Fig. 1) length 3.6-4.0 mm (head to abdominal end), covered with fine punctures and pubescence, brown to dark brown and glossy; head and pronotum black, mouthparts, antennae and legs light brown. Head about 1.4 times as wide as long; eye about 3.3 times as long as temple; antennae (Fig. 5) pubescent, reaching middle of elytra, 4th antennomere 2.1 times as long as wide, 8th anten-



Figs. 1-4. Habitus. 1. *Lesteva cordicollis*, length 3.8 mm; 2. *L. coreana* **sp. nov.**, length 3.4 mm; 3. *L. distincta*, length 4.0 mm; 4. *L. miyabi*, length 3.9 mm.

nomere 1.8 times as long as wide. Pronotum slightly convexed with fine punctures, widest near anterior fourth with ambiguous U-depression near middle, 1.3 times as wide as long, about 1.2 times as wide and 1.4 times as long as head; scutellum (Fig. 9) subtriangular, prescutoscutellar suture gently curved, scutellar process broad subtriangular; elytra bicolor, humeral region with large yellow patch and fine punctures, posterior margin truncated, 1.1 times as wide as long, 1.5 times as wide and 1.7 times as long as pronotum (Figs. 1, 13); apex of metaventral process round (Fig. 17); external surface of metatibia with 3-4 long golden setae (Fig. 19). Abdominal segments III-VIII with microsculpture. Median lobe of aedeagus elongate, parallel-sided, apical process triangular, apical middle area elevated, internal sac backbone-shaped; parameres slender, slightly longer than median lobe, four setae present with two at apex (Figs. 21-22).

Materials Examined. **KOREA: Gangwon Prov.:** Chuncheon-si, Nam-myeon, Mt. Bonghwasan (N37°46'1.2" E 127°35'59.0" 186m) 17 IX 2008, TK Kim *ex* under stone near stream (1♂4♀, CNUIC); **Chungnam Prov.:** Daejeon, Yuseong-gu, Sutong-gol, 9 V 1998, KR You, HJ Lim, HJ Kim, *ex* near stream (2♀, CNUIC); **Jeonbuk Prov.:** Muju-gun, Anseong-myeon, Mt. Deokyusan, Chilyeon-fall, 27 V 2005, TK Kim, *ex* under stone near stream (8♂1♀, CNUIC); Jinan-gun, Jeongcheon-myeon, Mt. Unjongsan, V 19 1998, YB Cho (2♀, CNUIC);

Distribution. Korea (South), Russia (East Siberia).

Lesteva coreana Kim and Ahn **sp. nov.**
(Figs. 2, 6, 10, 14, 23-24)

Description. Body (Fig. 2) length 3.1-3.5 mm (head to abdominal end), covered with fine punctures and pubescence, brown to dark brown and glossy; mouthparts, antennae and legs light brown. Head about 1.4 times as wide as long; eye about 3.1 times as long as temple; antennae (Fig. 6) pubescent, reaching middle of elytra, 4th antennomere 2.6 times as long as wide, 8th antennomere 2.4 times as long as wide. Pronotum slightly convexed with fine punctures, widest near anterior fourth with obscure U-depression near middle, 1.3 times as wide as long, about 1.2 times as wide and 1.3 times as long as head; scutellum (Fig. 10) subtriangular, prescutoscutellar suture arcuate, scutellar process narrow triangular; elytra bicolor, humeral region with indistinct yellow patch and fine punctures, posterior margin truncated, 1.1 times as wide as long, 1.4 times as wide and 1.7 times as long as pronotum (Figs. 2 and 14); apex of metaventral process round; external surface of metatibia with 3-4 long golden setae. Abdominal segments III-VIII with microsculpture. Median lobe of aedeagus narrowed apically, lateral margin weakly arcuated; basal region of parameres broad, narrowed apically, apical third constricted, slightly longer than median lobe, four setae present with two at apex (Figs. 23-24).

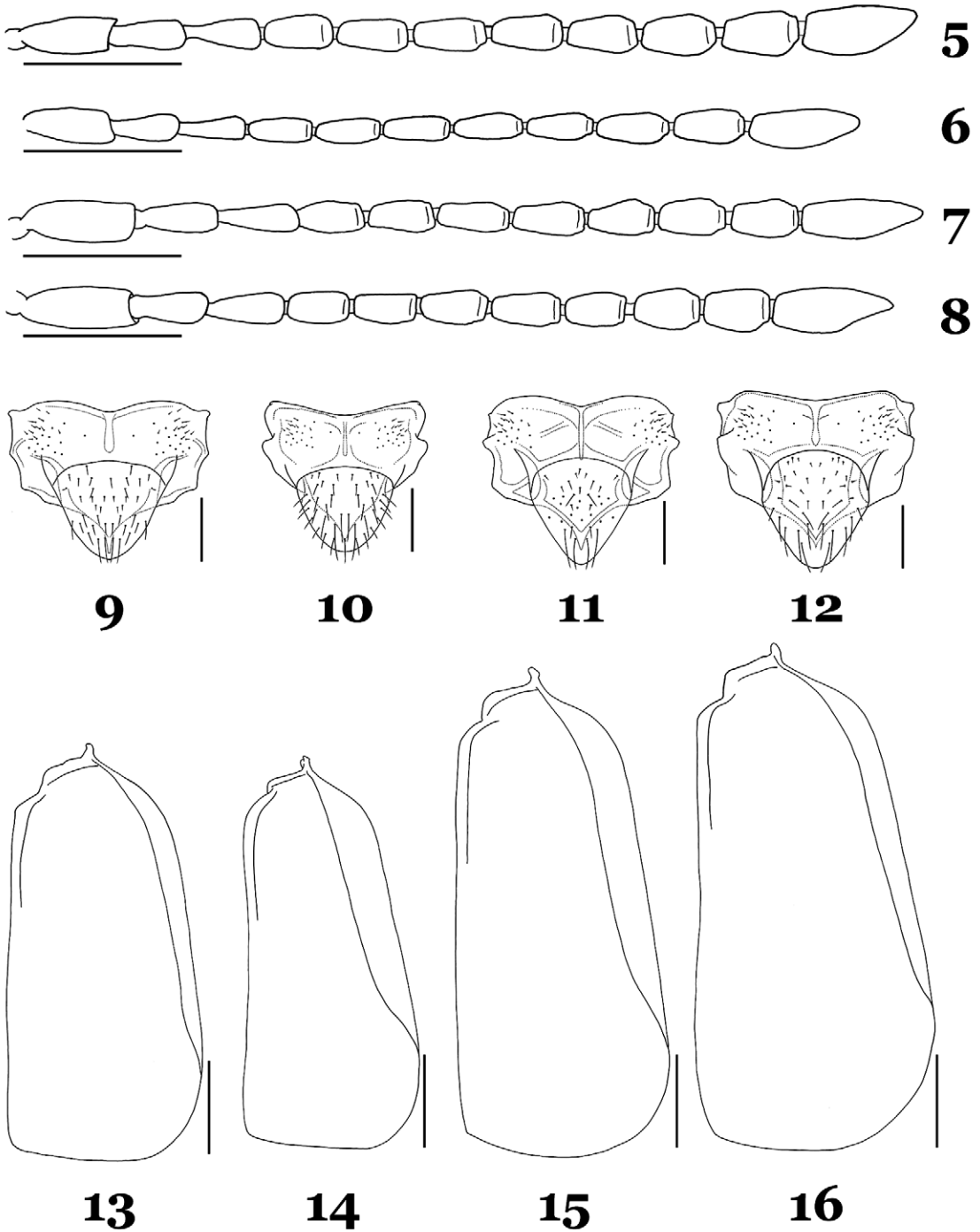
Type Series: Holotype, ♂: 'KOREA: **Jeonbuk Prov.:** Muju-gun, Anseong-myeon, Mt. Deokyusan, Chilyeon-fall, 27 V 2005, TK Kim, *ex* under stone near stream; Holotype, *Lesteva coreana* Kim and Ahn, Desig. T-K. Kim and K.-J. Ahn 2010.' Deposited in CNUIC, Daejeon. Paratypes, same data as holotype (10♂1♀, CNUIC), Paratype, *Lesteva coreana* Kim and Ahn, Desig. T-K. Kim and K.-J. Ahn 2010. Other materials: Mt. Deokyusan, Chilyeon-fall, 22-23 V 1998, HJ Kim, *ex* near stream (1♀, CNUIC); same data as holotype (2♀, CNUIC); **Chungnam Prov.:** Daejeon, Mt. Gyeryongsan, Keumsubong, 21 V 2000, SJ Park, *ex* near stream (5♂5♀, CNUIC); Yuseong-gu, Sutong-gol, 5 IX 1998, SJ Baek (1♂, CNUIC); Sutong-gol, 9 V 1998, KR You, HJ Lim, HJ Kim, *ex* near stream (1♀, CNUIC).

Distribution. Korea (South).
Remarks. The species is similar to *L. cordicollis* but can be distinguished by the shape and structures of antennomeres, scutellum, and median lobe of aedeagus (Table 1).

Lesteva distincta Watanabe, 1990
(Figs. 3, 7, 11, 15, 18, 25-26)

Lesteva distincta Watanabe, 1990: 178; Herman, 2001: 315; Smetana, 2004: 247.

Description. Body (Fig. 3) length 3.5-4.1 mm (head to abdominal end), covered with coarse punctures and pubescence, reddish brown to black and glossy; mouthparts, antennae and legs light brown. Head about 1.2 times as wide as long; eye



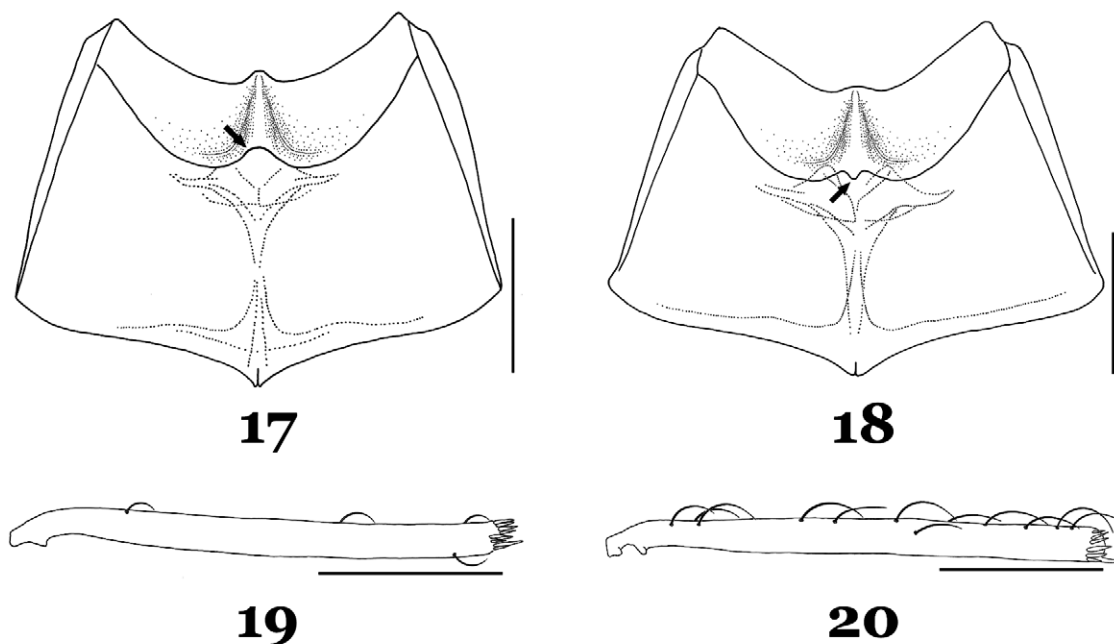
Figs. 5-16. 5-8. Antenna, ventral aspect. 5. *Lesteva cordicollis*; 6. *L. coreana* **sp. nov.**; 7. *L. distincta*; 8. *L. miyabi*. 9-12. Scutellum, dorsal aspect. 9. *L. cordicollis*; 10. *L. coreana* **sp. nov.**; 11. *L. distincta*; 12. *L. miyabi*. 13-16. elytron, ventral aspect. 13. *L. cordicollis*; 14. *L. coreana* **sp. nov.**; 15. *L. distincta*; 16. *L. miyabi*. Scales = 0.1 mm (Figs. 9-12); 0.3 mm (Figs. 5-8, 13-16).

TABLE 1. A COMPARISON OF MORPHOLOGICAL FEATURES OF KOREAN *LESTEVA* SPECIES.

	<i>L. cordicollis</i>	<i>L. coreana</i> sp. nov.	<i>L. distincta</i>	<i>L. miyabi</i>
Ratio of eye to temple length	3.3	3.1	1.7	1.7
Antennomere 4 (length/width ratio)	2.1	2.6	2.1	1.9
Antennomere 8 (length/width ratio)	1.8	2.4	1.9	1.8
Scutellum	Fig. 9	Fig. 10	Fig. 11	Fig. 12
Scutellar process	broad triangular	narrow triangular	pentagonal	pentagonal
Metaventral process	round (Fig. 17)	round	notched (Fig. 18)	notched
Long setae of metatibia	3-4 golden setae (Fig. 19)	3-4 golden setae	10-14 dark setae	10-14 dark setae (Fig. 20)
Abdominal microsculpture	present on III-VIII	present on III-VIII	present on III and VIII	present on III and VIII
Aedeagus with carina	absent	absent	present	present
Apical region of paramere	straight (Figs. 21-22)	straight (Figs. 23-24)	coiling ventrally (Figs. 25-26)	coiling ventrally (Figs. 27-28)

about 1.7 times as long as temple; antennae (Fig. 7) pubescent, reaching middle of elytra, 4th antennomere 2.1 times as long as wide, 8th antennomere 1.9 times as long as wide. Pronotum much convexed with coarse punctures, about 1.2 times as wide as long, 1.2 times as wide and 1.3 times as wide as head, widest near anterior fourth with distinct U-depression near middle; scutellum (Fig. 11) subtriangular, prescutoscutellar suture arcuate, scutellar process broad pentagonal; elytra bicolor, humeral region with reddish brown patch and somewhat coarse punctures, posterior margin round, 1.1 times as long as wide, about 1.8 times as wide and 1.9 times as long as pronotum (Figs. 3 and 15); apex of metaventral process notched (Fig. 18); external surface of metatibia with 10-14 long dark brownish setae. Abdominal segments III and VIII with microsculpture. Median lobe of aedeagus broad, basal two third parallel-sided, apical third narrowed suddenly, apical process triangular, midline area elevated with longitudinal carina, lateral margin rolled dorsally; parameres robust, symmetrical, as long as median lobe, lateral margin rolled ventrally, apical region coiling ventrally and inwardly, four setae present (Figs. 25 and 26).

Materials Examined. KOREA: Gangwon Prov.: Chuncheon-si, Sabuk-myeon, Jiam-ri, 15 IV 2001, SI Lee (1♂, CNUIC); **Chungbuk Prov.:** Danyang-gun, Danyang-eup, Mt. Sobaeksan, Cheondong-area, 8-9 V 1999, US Hwang, HJ Kim, sifting (2♀, CNUIC); Yeongdong-gun, Sangchon-myeon, Mulhan-ri, Mt. Minjujisan, Mulhan-stream (N36°3'15" E127°52'31"), 16 VI 2006, TK Kim, *ex* under stone near stream (1♂, CNUIC); Mt. Manloi, 30 V 1998, HJ Lim, sifting (1♀, CNUIC); **Chungnam Prov.:** Daejeon-si, Yuseong-gu, Gung-dong, Chungnam National University (N36°22'38.7" E127°20'43.5"), 18 IV 2007, HW Kim, *ex* near pond (3♂2♀, CNUIC); Chungnam National University (N36°22'38.7" E127°20'43.5"), 7 V 2007, YH Kim, *ex* near pond (7♂4♀, CNUIC); Chungnam National University (N36°22'38.7" E127°20'43.5"), 14 V 2007, HW Kim, *ex* near pond (12♂8♀, CNUIC); Yuseong-gu, Deokmyeong-dong, Sutonggol, 9 V 1998, KR You, HJ Lim, HJ Kim, *ex* near stream (1♂, CNUIC); Buyeo-gun, Naesan-myeon, Mt. Wolmyeongsan, Geumgisa, 3 V-1 VI 2000, US Hwang, HJ Kim, FIT (1♀, CNUIC); Geumgisa, 1 VI 2000, US Hwang, HJ Kim, sifting (1♀, CNUIC); **Jeonbuk Prov.:** Buan-gun, Byeonsan-myeon, Mt. Naebyeonsan, Jikso-fall, 30 V 2001, YB Cho, sifting (1♂2♀, CNUIC); Jinan-gun, Jeongcheon-myeon, Mt. Unjangsan, V 19 1998, YB Cho (2♀, CNUIC); **Jeonnam Prov.:** Gurye-gun, Mt. Jirisan, Toji-myeon, Piagol, 24 V 2000, HJ Kim, *ex* near stream (1♂1♀, CNUIC); Piagol, 24-27 V 2000, KJ Ahn, SJ Park, US Hwang, FIT (1♀, CNUIC); Jindogun, Uisin-myeon, Sacheon-ri, Mt. Cheomchilsan (N34°27'53.7" E126°18'42.6" 115m), 23 II 2007



Figs. 17-20. 17-18. Metaventrite, ventral aspect. 17. *Lesteva cordicollis*; 18. *L. distincta*. 19-20. Metatibia (pubescence omitted), anterior aspect. 19. *L. cordicollis*; 20. *L. miyabi*. Scales = 0.3 mm.

TK Kim, sifting, leaf litter (1♀, CNUIC); Yeonggwang-gun, Hongnong-eup, Sangha-ri (N35°23'24.9" E126°25'57.9"), 2 V 2007, KJ Ahn, TK Kim, YH Kim, *ex* near stream (2♀, CNUIC); Hadong-gun, Hwagye-myeon, Ssanggyesa, 25 V 2000, HJ Kim, *ex* near stream (1♂, CNUIC); **Gyeongbuk Prov.:** Cheongsong-gun, Budong-myeon, Mt. Juwangsan, 29 VI 1987, YB Cho, *ex* under moss (1♂, CNUIC); **Gyeongnam Prov.:** Geoje-si, Yeoncho-myeon, Mt. Aengsan (N34°56'17.3" E128°36'6.6" 85m), 21 I 2009, DH Lee, JH Song, *ex* under stone near mount stream (2♂1♀, CNUIC).

Distribution. Korea (South), Japan.

Lesteva miyabi Watanabe, 1990
(Figs. 4, 8, 12, 16, 20, 27-28)

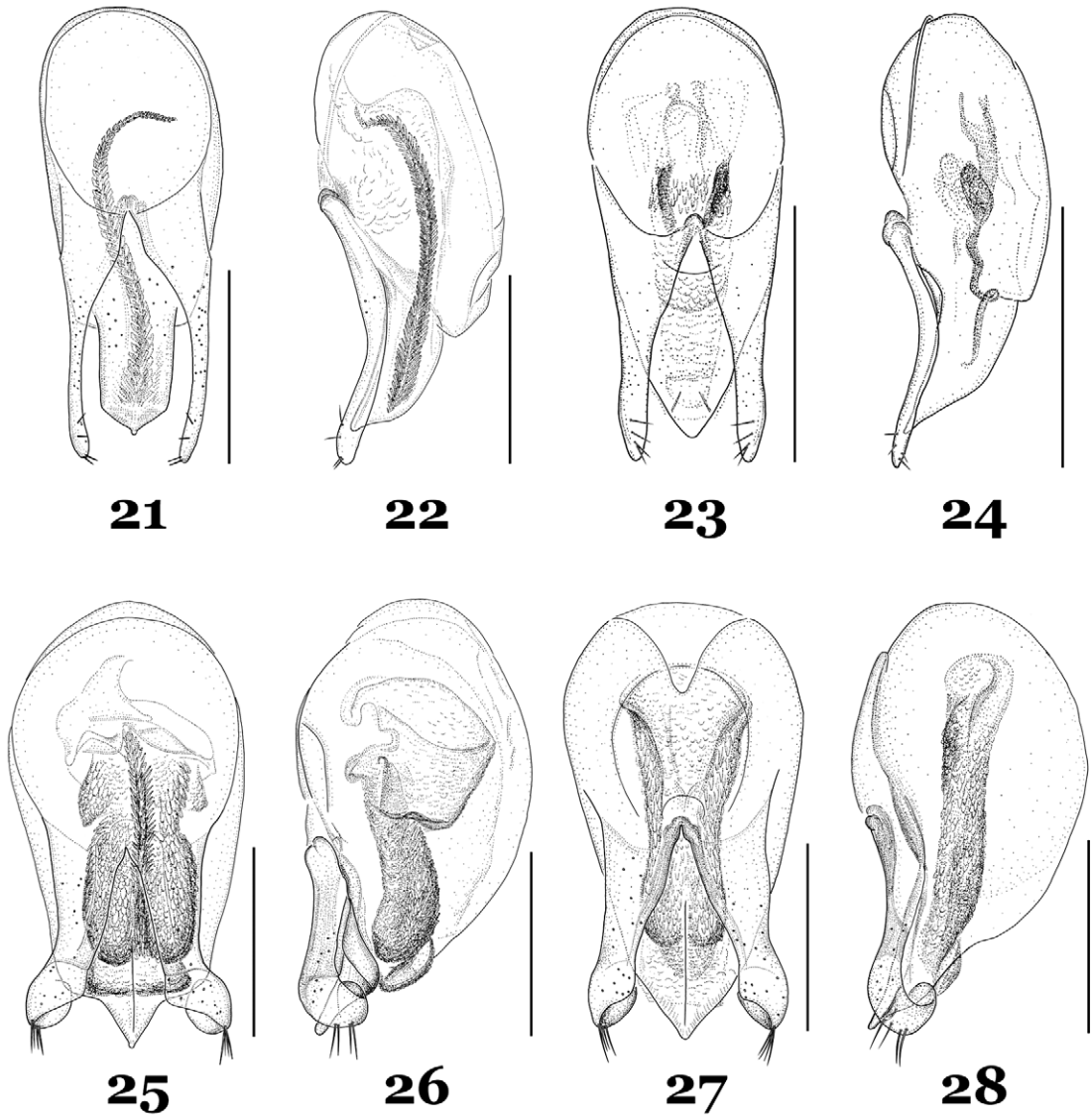
Lesteva miyabi Watanabe, 1990: 175; Herman, 2001: 324; Smetana, 2004: 247.

Lesteva plagiata: Cho et al., 2002: 36. Misidentification.

Description. Body (Fig. 4) length 3.8-4.5 mm (head to abdominal end), covered with coarse punctures and pubescence, dark brown to black and glossy; mouthparts, antennae and legs brown to reddish brown. Head about 1.3 times as wide as long; eye about 1.7 times as long as temple; antennae (Fig. 8) pubescent, reaching middle of elytra, 4th antennomere 1.9 times as long as wide, 8th antennomere 1.8 times as long as wide. Pronotum

mostly convexed with coarse punctures, widest near anterior third with distinct U-depression near middle, about 1.2 times as wide as long, about 1.1 times as wide and 1.2 times as long as head; scutellum (Fig. 12) subtriangular, prescutoscutellar suture round, scutellar process broad pentagonal; elytra unicolor with coarse punctures, posterior margin round, 1.04 times as long as wide, 1.8 times as wide and 2.0 times as long as pronotum (Figs. 4 and 16); apex of metaventral process notched; external surface of metatibia with 10-14 long dark brownish setae (Fig. 20). Abdominal segments III and VIII with microsculpture. Median lobe of aedeagus broad, narrowed apically with longitudinal carina, lateral margin almost straight; parameres robust, symmetrical, as long as median lobe, lateral margin rolled ventrally, apical region coiling ventrally and inwardly, four setae present (Figs. 27 and 28).

Materials Examined. KOREA: Jeju Prov.: Jeju-si, Arail-dong, Gwaneumsa, 26 V 2003, SJ Park, *ex* near stream (10♂9♀, CNUIC); Jeju-si, Bonggae-dong, Muljang-oreum, 23 V 1998, YB Cho (3♂5♀, CNUIC); Jeju-si, Nohyeong-dong, Cheonwangsa (N33°24'25.4" E126°29'42.7" 395 m), 8 XI 2006, TK Kim, *ex* under stone near stream (1♂, CNUIC); Jeju-si, Orai-dong, Eorimok (N33°23'26.0" E126°29'41.1" 1000 m), 31 V 2007, TK Kim, *ex* under stone near stream (2♀, CNUIC); Seoguipo-si, Hawon-dong, Seoguipo Natural Recreation Forest (N33°18'54.2"



Figs. 21-28. Aedeagus. 21-22. *Lesteva cordicollis*. 21. dorsal aspect; 22. lateral aspect. 23-24. *L. coreana* **sp. nov.** 23. dorsal aspect; 24. lateral aspect. 25-26. *L. distincta*. 25. dorsal aspect; 26. lateral aspect. 27-28. *L. miyabi*. 27. dorsal aspect; 28. lateral aspect. Scales = 0.3 mm.

E126°27'56.0" 735 m), 30 V 2007, TK Kim, sifting, flood debris (1♀, CNUIC); Seoguipo Natural Recreation Forest (N33°18'36" E126°28'9.2" 665 m), 31 V 2007, DH Lee, YH Kim, sifting, leaf litter (1♀, CNUIC); Bukjeju-gun, Aewol-eup, 1100-goji, 28 v 2003, CW Shin, *ex* near stream (2♂, CNUIC); 1100-goji (N33°21'40.6" E126°27'44.6" 1097 m), 12 x 2006, TK Kim, sifting, wet leaf litter (1♂2♀, CNUIC); 1100-goji (N33°21'37.5" E126°27'45.8" 1110 m), 31 V 2007, TK Kim, sifting, leaf litter (9♂6♀, CNUIC); Bukjeju-gun, Jocheon-eup,

Goepyeonggi-oreum, 23 V 2006, SJ Park, DH Lee, SI Lee, YH Kim, leaf litter (1♂, CNUIC); Goepyeonggi-oreum (N33°25'2.7" E126°38'32.6" 530 m), 8 IX 2006, DH Lee, *ex* leaf litter (1♂5♀, CNUIC); Goepyeonggi-oreum (N33°25' 1.8" E126°38'32.2" 539 m), 8 IX 2006, TK Kim, *ex* wet grit near pond (1♂, CNUIC); Namjeju-gun, Namwon-eup, Dongsu-bridge (N33°22'8.4" E126°37'30.7" 640 m), 8 XI 2006, TK Kim, *ex* under stone near stream (3♂, CNUIC); Dongsu-bridge, 1 III 2007, TK Kim, *ex* under stone near stream (2♂1♀, CNUIC); Dongsu-

bridge (N33°22'8.5" E126°37'30.5" 635 m), 29 V 2007, TK Kim, *ex* under stone near stream (18♂12♀, CNUIC); Namjeju-gun, Namwon-eup, Goepyeong-oreum, 28 V 2003, SJ Park, CW Shin, MJ Jeon, sifting (16♂11♀, CNUIC); Goepyeong-oreum, 28 V-27 VI 2003, YB Cho, SJ Park, CW Shin, FIT (1♂, CNUIC); Mt. Hallasan, 900 m alt., Jejudo Is., 17 VII 1994, G. Sh. Lafer leg (1♂, CNUIC).

Distribution. Korea (South), Japan.

Remarks. Cho et al. (2002) reported *L. plagiata* in Korea. However, we have determined that this was a misidentification of *L. miyabi*, based on our examination of their voucher specimens (1♂: Mt. Hallasan, 900 m alt., Jejudo Is., 17. VII 1994, G. Sh. Lafer leg). The species was collected only in Jeju-do island.

KEY TO THE KOREAN SPECIES OF THE GENUS *LESTeva* LATREILLE

- 1. Pronotum slightly convexed with fine punctures; prosternal process without carina; posterior margin of elytra truncated with fine punctures; apex of metaventral process round (Fig. 17); metatibia without long dark brownish setae (3-4 long golden setae present) (Fig. 19). 2
- Pronotum distinctly convexed with coarse punctures; prosternal process with short, sinuous longitudinal carina; posterior margin of elytra round with coarse punctures; apex of metaventral process notched (Fig. 18); metatibia with 10-14 long dark brownish setae (Fig. 20) 3
- 2. Fourth antennomere 2.1 times as long as wide, 8th antennomere 1.8 times as long as wide (Fig. 5); scutellar process broad (Fig. 9); median lobe of aedeagus elongate, in basal three fourth parallel-sided, and in apical fourth abruptly narrowed in dorsal view (Figs. 21 and 22). *L. cordicollis*
- Fourth antennomere 2.6 times as long as wide, 8th antennomere 2.4 times as long as wide (Fig. 6); scutellar process narrow (Fig. 10); median lobe of aedeagus narrowed apically, lateral margin weakly arcuated in dorsal view (Figs. 23 and 24) *L. coreana* **sp. nov.**
- 3. Pronotum widest at anterior fourth; elytra bicolor with reddish patch around humeral region, moderately broad and long (Fig. 3) *L. distincta*
- Pronotum widest at anterior third; elytra unicolor, broad and long (Fig. 4). *L. miyabi*

ACKNOWLEDGMENTS

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