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

Authors: Tae-Kyu Kim, and Kee-Jeong Ahn
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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 comparisión 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; Sharvrin 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.

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


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-
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, narrow apically, apical third constricted, slightly longer than median lobe, four setae present with two at apex (Figs. 21-22).


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

Lesteva distincta Watanabe, 1990

(Figs. 3, 7, 11, 15, 18, 25-26)


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 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).
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-brown 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, Cheongdong-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♀, H20038, CNUIC); Chungnam Prov.: Daejeon-si, Yuseong-gu, Chungnam National University (N36°22'38.7" E127°20'43.5"), 18 IV 2007, HW Kim, ex near pond (7♂4♀, 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); Jeonbuk Prov.: Buyeo-gun, Byeonsan-myeon, Mt. Naebyeonsan, Jikso-fall, 30 V 2001, YB Cho, sifting (1♂2♀, CNUIC); Jinan-gun, Jeongcheon-myeon, Mt. Unjangsan, V 1998, KR You, NJ Lim, HW 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); Jeonnam Prov.: Gurye-gun, Uisin-myeon, Sacheon-ri, Mt. Cheomchilsan (N34°27'53.7" E126°18'42.6" 115m), 23 II 2007.

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

<table>
<thead>
<tr>
<th>Species</th>
<th>Ratio of eye to temple length</th>
<th>Antennomere 4 (length/width ratio)</th>
<th>Antennomere 8 (length/width ratio)</th>
<th>Scutellum</th>
<th>Metaventral process</th>
<th>Long setae of metaventrite</th>
<th>Abdominal microsculpture</th>
<th>Aedeagus of paramere</th>
<th>Apical region of paramere</th>
</tr>
</thead>
<tbody>
<tr>
<td>L. distincta</td>
<td>1.7</td>
<td>2.1</td>
<td>2.6</td>
<td>pentagonal</td>
<td>notcherd (Fig. 19)</td>
<td>present on III and VIII</td>
<td>present</td>
<td>coiling ventrally (Figs. 21-22)</td>
<td></td>
</tr>
<tr>
<td>L. distincta sp. nov.</td>
<td>3.1</td>
<td>2.6</td>
<td>2.4</td>
<td>pentagonal</td>
<td>notcherd (Fig. 18)</td>
<td>present on III and VIII</td>
<td>present</td>
<td>coiling ventrally (Figs. 25-26)</td>
<td></td>
</tr>
<tr>
<td>L. distincta sp. nov.</td>
<td>3.3</td>
<td>2.1</td>
<td>1.8</td>
<td>round</td>
<td>notcherd (Fig. 17)</td>
<td>present on III and VIII</td>
<td>present</td>
<td>straight (Figs. 23-24)</td>
<td></td>
</tr>
<tr>
<td>L. distincta sp. nov.</td>
<td>3.3</td>
<td>2.1</td>
<td>1.8</td>
<td>round</td>
<td>notcherd (Fig. 17)</td>
<td>present on III and VIII</td>
<td>present</td>
<td>straight (Figs. 23-24)</td>
<td></td>
</tr>
<tr>
<td>L. distincta sp. nov.</td>
<td>3.3</td>
<td>2.1</td>
<td>1.8</td>
<td>round</td>
<td>notcherd (Fig. 17)</td>
<td>present on III and VIII</td>
<td>present</td>
<td>straight (Figs. 23-24)</td>
<td></td>
</tr>
</tbody>
</table>
TK Kim, sifting, leaf litter (1♀, CNUIC); Yeongwang-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, Saanggyesa, 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.: Geuje-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)


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, prescutellar 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, Araib-dong, Gwaneumsa, 26 V 2003, SJ Park, ex near stream (10♂♀, CNUIC); Jeju-si, Bonggaa-dong, Muljang-oreum, 23 V 1998, YB Cho (3♂5♀, CNUIC); Jeju-si, Nohyeong-dong, Cheonwangs (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"


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 × 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, Goepyeongi-oreum, 23 V 2006, SJ Park, DH Lee, SI Lee, YH Kim, leaf litter (1♂, CNUIC); Goepyeongi-oreum (N33°25'2.7" E126°38'32.6" 530 m), 8 IX 2006, DH Lee, ex leaf litter (1♂ 5♀, CNUIC); Goepyeongi-oreum (N33°25'1.8" E126°38'32.2" 539 m), 8 IX 2006, TK Kim, ex wet grit near pond (1♂, CNUIC); Nampjeju-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-

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 2.4 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. disticta
   — Pronotum widest at anterior third; elytra unicolor, broad and long (Fig. 4) ..................................... L. miyabi

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