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On the Myrmecophilous Genus *Losiusa* Seevers, 1978 (Coleoptera, Staphylinidae, Aleocharinae)

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Abstract. The myrmecophilous genus *Losiusa* Seevers, 1978 (Oxypodini) is redescribed, and two species are recognized in the genus: *L. angusticollis* Seevers, 1978 and *L. oxypodina* (Sharp, 1888) comb. nov. (transferred from *Thiasophila* Kraatz, 1856). *Losiusa* belongs to the *Homoeusa* Kraatz, 1856 genus complex. Both species are associated with ants of the genus *Lasius* Fabricius, 1804.

Key words: Oxypodini, *Thiasophila*, *Lasius*, new combination, U.S.A., Massachusetts, Japan.

Introduction

Seevers (1978) erected the genus *Losiusa* for a single species, *L. angusticollis*, which was described based on a specimen collected from an ant nest in Massachusetts, USA. Seevers (1978) regarded it as related to the genus *Myrmobiota* Casey, 1893 and placed it in the tribe Oxypodini. Sharp (1888) described *Thiasophila oxypodina* from Japan. Examinations of the type specimens of both species revealed that *T. oxypodina* can be transferred to *Losiusa*. Therefore, two species are recognized in *Losiusa*. Since the original description, which lacks illustrations, no redescription or detailed morphological study has been published. This paper redescribes the genus in detail and discusses its systematic position.

The technical procedures and terminology adopted here are generally as in Maruyama (2006). Measurements are all in millimetres. The following abbreviations are used: *Lasius* (*Lasius*) *japonicus* Santschi, 1941 (LLJ), *L.* (*L.*) *hayashi* Yamauchi et Hayashida, 1970 (LLH), *L.* (*L.*) *sakagamii* Yamauchi et Hayashida, 1970 (LLS).

Losiusa Seevers, 1978

Seevers, 1978: 76 (original description, type species: *L. angusticollis*); Ashe, 2001: 362 (key, short notes).

Diagnosis. This genus is similar in general appearance to the members of *Homoeusa* Kraatz, 1856, *Aspidobactrus* Sharp, 1888 and *Myrmobiota*, but is easily distinguished from them by the narrowed body with the very visible dorsal femora. *Losiusa* is also similar in facies to the members of *Thiasophila* Kraatz, 1856, but is distinguished from them by the absence of a bifid ligula (by unilobed ligula).

Redescription.

Body (Figs. 1-2) small, slender, parallel-sided, reddish brown to light brown. Head semicircular, around occiput broad, moderately convex above; clypeus slightly rounded; surface finely punctured, densely with setae; eyes small, but prominent antero-laterally. Antennae thick, broadened apically; segments II elongate, as long as III; segments V-X wider than long.

Labrum transverse; anterior margin slightly emarginate. Mandible long, gently curved, acutely pointed at apex; right with a small tooth at middle. Maxilla generalized; palpus with segment III (Figs. 3, 9), curved, widened apically. Mentum (Figs. 4, 10) trapezoidal, moderately covered with pores. Labium (Figs. 5, 11) with submentum transverse; palpus short, with segment II shorter than half of I; ligula unilobed.

Pronotal disc (Figs. 1-2) subquadrate, moderately convex; anterior margin rounded; lateral margins parallel-sided; lateral corners more or less angled; posterior margin slightly rounded; surface finely reticulated, densely with setae.

Elytra (Figs. 1-2) quadrate, wider than long, slightly convex; surface reticulated, somewhat rugose, densely

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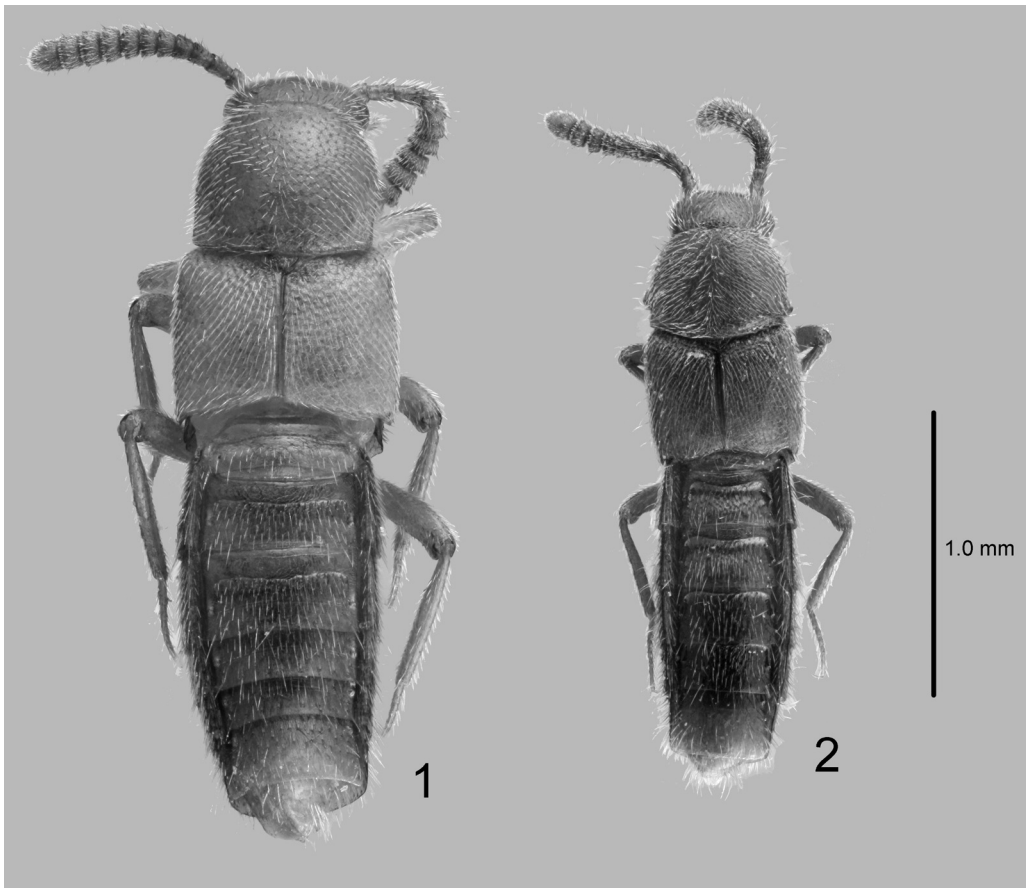


Figs. 1-2. Habitus. 1: *Losiusa angusticollis* (holotype). 2: *L. oxypodina*.

with setae.

Mesoventrite short, transverse, its process between mesocoxae narrow, acutely pointed at apex; metaventrite somewhat long, longer than mesoventrite, its process short. Legs long, densely with long setae; femora thick, flattened subparallel-sided, slightly curved and broadened around apices; tibiae widened apically; tarsi narrowed apically.

Abdomen (Figs. 1-2) elongate, with basal depressions distinct; surface densely with long setae; macrosetae not infuscate, not suberect, poorly differentiated from setae.

Male aedeagus (only *L. oxypodina*, Fig. 14) with apical lobe curved; apical lobe of paramerite (Fig. 15) elongate. Spermatheca (Figs. 8, 16) with long basal part.

Losiusa angusticollis Seevers, 1978

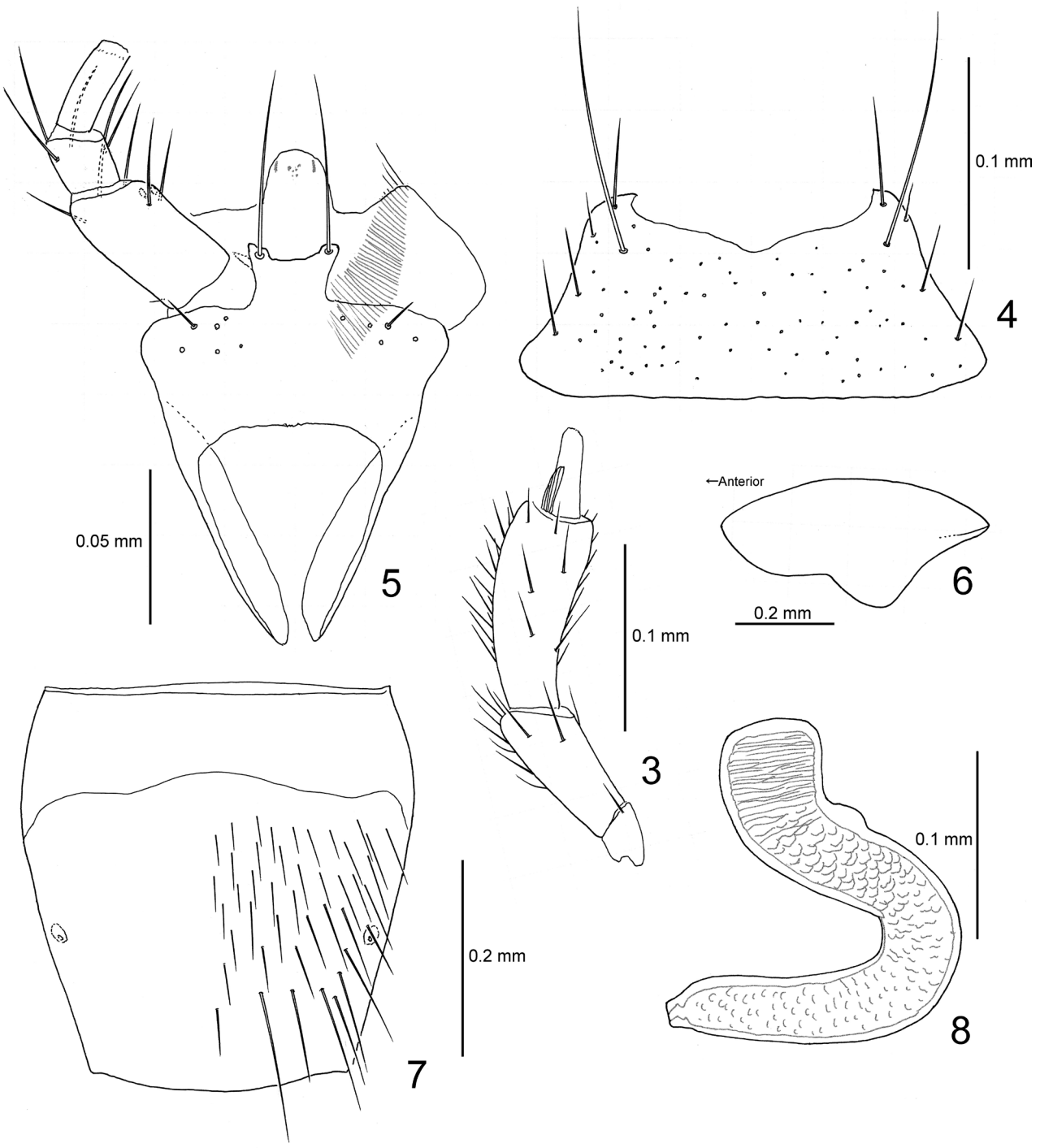
Type material. Holotype (female), **United States of America**, "Forest Hills, Mass. / 191 / F. X. Williams // C. N. H M. / HOLOTYPE / Losiusa / angusticollis / Seevers" (a worker ant of *Lasius* (*Acanthomyops*) sp. is pinned under the specimen; the mouthparts and abdominal terminalia are dissected and mounted in Euparal) (Field Museum of Natural History: FMNH).

Redescription.

Body (Fig. 1) almost uniformly yellowish brown. Maxillary palpus (Fig. 3) with segment IV about half as long as II. Mentum (Fig. 4) with anterior margin widely emarginate, shallowly notched medially; with 3 lateral setae. Labium (Fig. 5) with apodeme long, broad, without medial projection; prementum with 2 real pores and some pseudopores around lateral area, and medially with a few pseudopores; ligula with a pair of setulae and some campaniform sensilla. Pronotum slightly wider than long (ratio, 1.13); in lateral view (Fig. 6) marginal line of the pronotal hypomeron incomplete, recognized around posterior corner. Elytra convex around suture. Process of mesoventrite carinate. Abdomen with tergite VIII (Fig. 9) slightly rounded apically. Spermatheca (Fig. 8) with inner wall densely reticulated.

Measurements. Body length, ca. 3.0; pronotal length, 0.59; pronotal width 0.67; elytral width, 0.85; hind tibial length, 0.59.

Bionomics. Only a single specimen (the holotype) is



Figs. 3-8. *Losiusa angusticollis* (holotype). 3: maxillary palpus, ventral view. 4: Mentum, ventral view. 5: labium, ventral view. 6: pronotum, lateral view. 7: tergite VIII, female. 8: spermatheca.

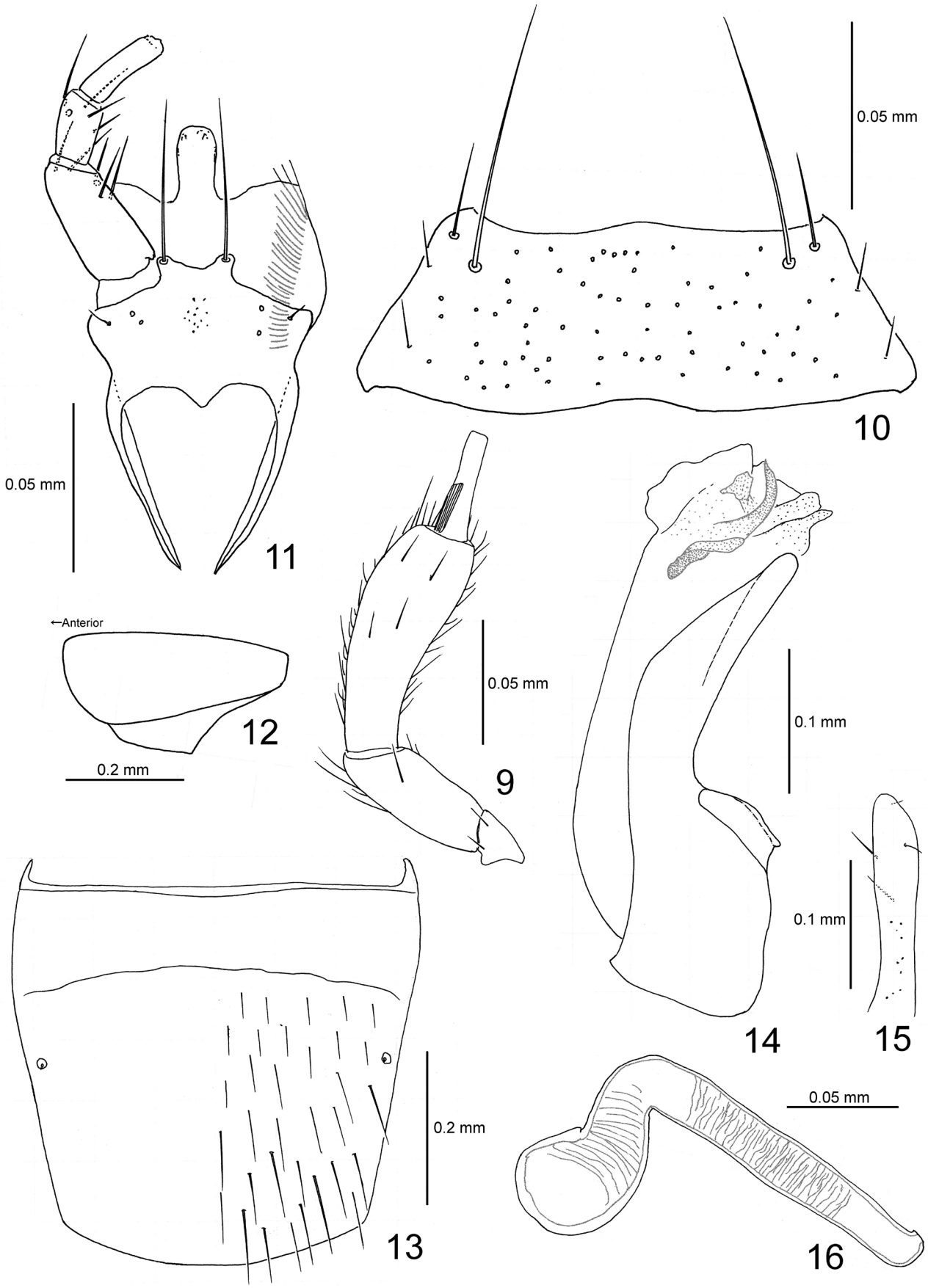
known; it was captured in a nest of *Lasius* (*Acanthomyops*) sp., and no other information is available. The members of *Losiusa* are probably scavengers of ant nests, as are the members of *Homoeusa* and its allies.

Symbiotic host. *Lasius* (*Acanthomyops*) sp.

***Losiusa oxypodina* (Sharp, 1888), comb. nov.**

Thiasophila oxypodina Sharp, 1888: 284.

Type material. Syntypes, **JAPAN**, 2 sex?, "Thiasophila



Figs. 9-16. *Losiusa oxypodina*. 9: maxillary palpus, ventral view. 10: Mentum, ventral view. 11: labium, ventral view. 12: pronotum, lateral view. 13: tergite VIII, female. 14: median lobe of aedeagus, lateral view. 15: apical lobe of paramerite. 16: spermatheca.

oxypodina / Type D.S. Japan Lewis (written on board which the specimen glued on) // Type (red round curator label) // Japan. Lewis. // Sharp Coll. 1905-313 // Syn-type (blue round curator label, 2 labels)" (The Natural History Museum, London: NHM); 1 sex?, "Yuyama, 10.V.-14.V.81 // Japan. Lewis. 1910-320 // Thiasophila oxypodina // Syn- / type" (a worker ant of LLS is attached on same board, from which the specimen was probably collected) (NHM); 1 sex?, "Japan. Lewis. // Sharp Coll 1905-313 // Thiasophila oxypodina / Hakone // Hakone 200F (under face) // Syn-type" (a worker ant of LLS was placed near the specimen and labelled "Miyanoshita". Miyanoshita was a small village of Hakone. Probably this specimen was collected from the nest of this ant at Miyanoshita) (NHM). All the specimens were labelled "Syntype / Thiasophila / oxypodina Sharp, 1888 / det. Maruyama 2003."

Other material. **JAPAN**, Honshû: Sakurayama, Onishi-chô, Gumma-ken, 22 V 1999, Arai K. (LLY) (1); Watarase-yûsuichi, Fujioka-chô, Tochigi-ken, 28 IV 2001, Arai K. (LLS) (1); Kawamura-keikoku, Arakawa-mura, 20 V 2001, Arai S. (LLH) (1); Kaminaguri, Nagurimura, Saitama-ken, 23 V 1998, Arai S. (LLJ) (25); Ôhirayama, Ranzan-chô, Saitama-ken, 12 IV 1998, Arai K. (LLJ) (5); Akigase-kôen, Urawa-shi, Saitama-ken, 19 V 2000, Sugaya H. (1); Kawana, Fujisawa-shi, Kanagawa-ken, 7 V 2001, Watanabe T. (LLJ) (2); Kinka-zan, Gifu-shi, Gifu-ken, 25 V 2003, Kinomura K. (1).

Redescription.

Body (Fig. 2) reddish brown, but around tergite VI to base of VII blackish brown. Maxillary palpus (Fig. 9) with segment IV long, slightly shorter than II. Mentum (Fig. 10) with anterior margin slightly sinuate, almost truncate; with 2 lateral setae. Labium (Fig. 11) with apodeme long, narrow, with minute medial projection; prementum with 2 real pores and some pseudopores medially; ligula with some campaniform sensilla. Pronotum slightly wider than long (ratio, 1.20-1.26), sparsely with long erect macrosetae laterally; in lateral view (Fig. 6) marginal line of the pronotal hypomeron complete. Elytra flattened above. Process of mesoventrite simple, not carinate. Abdomen with tergite VIII (Fig. 13) slightly rounded apically. Median lobe of aedeagus (Fig. 14) with apical lobe curved, with apex blunt; apical lobe of paramerite (Fig. 15) with 2 long setae and 2 short setae. Spermatheca (Fig. 16) with inner wall densely reticulated.

Measurements. Body length, ca. 1.9-2.2; pronotal length, 0.38-0.43; pronotal width 0.48-0.53; elytral width, 0.53-0.64; hind tibial length, 0.38-0.45.

Bionomics. This species is commonly collected from the nests of *Lasius* (*Lasius*) *japonicus* and *L*. (*L*.) *hayashi*, *L*. (*L*.) *sakagamii* especially those nests under stones or in decayed fallen trees. In Honshu, it is collected from early spring until early summer (mid March to June). No immature stage has been found, and no information on its life history is available.

Symbiotic hosts. *Lasius* (*Lasius*) *japonicus*, *L*. (*L*.) *hayashi*, *L*. (*L*.) *sakagamii*.

Discussion

Losiusa is closely allied to the genera *Homoeusa*, *Aspidobactrus*, and *Myrmobiota* based on the following combination of characters: body well sclerotized, surface often with coarse reticulations, ligula not bifid, antennae thick, segment XI of antennae lacking distinct sensilla, tarsi narrowed apically, and abdomen densely covered with long setae. *Homoeusa*, *Aspidobactrus*, and *Myrmobiota* are very similar to each other and it is difficult to determine whether they are synonymies or separate genera at present. Consequently, they are treated as the *Homoeusa* genus complex here. *Losiusa* is not very different from the *Homoeusa* complex in its mouthpart structures, which are generally most important for defining aleocharine genera. However, the elongate body, *i.e*., narrowed pronotum and abdomen, is not found in the members of the *Homoeusa* complex, and this character state readily distinguishes *Losiusa* from the *Homoeusa* complex. Due to the elongate body, all of the femora are readily visible in *Losiusa*, while only the apices of the mid and hind femora are visible in the *Homoeusa* complex. This character state is also important for diagnosing *Losiusa*.

Losiusa oxypodina has been assigned to *Thiasophila* since its original description, although it is obviously not a member of this genus. Although *Losiusa* and the *Homoeusa* complex are similar to *Thiasophila* in general appearance, they are clearly distinguished from the latter by the bifid ligula. The similarity in their general appearance is probably due to their myrmecophily. Nevertheless, the genus affiliation of *L. oxypodina* is no more than tentative. Based on the close resemblance of the body shape between *L. oxypodina* and *L. angusticollis* (type species), I placed *L. oxypodina* in *Losiusa*. These two species differ in the structure of pronotum. In *L. oxypodina*, the marginal line of the pronotal hypomeron is clearly recognized, while in *L. angusticollis* the marginal line of the pronotal hypomeron incomplete. Convergence is a common phenomenon in myrmecophilous aleocharines. Both of these species are associated with *Lasius* species that nest under stones or in decayed logs. It is possible that the elongate body shape evolved in parallel in both

species, although it is clear that they are closely allied to the *Homoeusa* complex and are not distantly related.

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