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A revision of the genus *Lypoglossa* Fenyes, 1918 (Coleoptera: Staphylinidae: Aleocharinae)

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Abstract

The genus *Lypoglossa* Fenyes, 1918 is revised and redescribed. Descriptions and a key to species are provided. Four valid species are recognized: the Nearctic *Lypoglossa angularis* (Mäklin, 1853), *L. franclemonti* Hoebeke, 1992 and *L. manitobae* Gusarov, **sp. n.** (described from Manitoba), and the Palaearctic *L. lateralis* (Mannerheim, 1830). *Euryusa obtusa* LeConte, 1866 is transferred to *Lypoglossa* and considered a valid subspecies of *L. angularis*. Three subspecies are recognized within *Lypoglossa angularis*: *L. a. angularis* (Mäklin, 1853), distributed in coastal Alaska, British Columbia, and western Washington and Oregon; *L. a. fenyesi* (Bernhauer, 1907), from interior Alaska, Yukon Territory, interior British Columbia, and south through the high mountains of the western United States, to Arizona and New Mexico; and *L. a. obtusa* (LeConte, 1866), known from Quebec, Newfoundland, Maine and New Hampshire.

Key words: Coleoptera, Staphylinidae, Aleocharinae, *Lypoglossa*, Nearctic, Palaearctic, taxonomy, nomenclature, identification key, geographic variability

Introduction

Fenyes (1918) described the genus *Lypoglossa* and included a single species, *L. fenyesi* (Bernhauer, 1907). Since then a few species were added and recently the genus was revised by Hoebeke (1992) who recognized two valid Nearctic species and a single Palaearctic species.

The reason I turned my attention to *Lypoglossa* was my discovery that the holotype of *Euryusa obtusa* LeConte, 1866, belonged in fact to *Lypoglossa* and not *Goniusa* Casey, 1906, contrary to historical treatment. The taxonomic problems concerning *Goniusa* have

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since been resolved (Gusarov 2003a) but the status of *E. obtusa* was not discussed until now. Besides clarifying the status of *E. obtusa*, in this paper I describe an additional new species of *Lypoglossa* and discuss the geographical variability of *L. angularis*. For convenience, I illustrate the diagnostic characters of the genus, and provide a key to species and diagnoses of all species and subspecies of *Lypoglossa*.

I follow the terminology accepted in the taxonomy of Aleocharinae (Sawada 1970, 1972; Newton *et al.* 2000). Additional terms used to refer to some setae and pores of the epipharynx were introduced by Gusarov (2003b). A discussion of the terms applied to the parts of the internal sac of the aedeagus can be found in Gusarov (2002). To avoid confusion on which side of the aedeagus should be called ventral (Gusarov 2002), I refer to the side of aedeagus bearing the basal orifice as parameral. The spermathecal gland is shown on the drawings solely to illustrate the gland position in relation to other parts of spermatheca.

Alexandria Digital Library Gazetteer Server (ADLGS 2004: http://www.alexandria.ucsb.edu/) and The Canadian Geographical Names Database (CGNDB 1997: http://geonames.nrcan.gc.ca/index_e.php) were used to find coordinates for some localities.

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Lypoglossa Fenyes, 1918

(Figs. 1–17, 25–70, 72–78)

Lypoglossa Fenyes, 1918: 23 (type species: *Dasyglossa fenyesi* Bernhauer, 1907, by original designation).

Lypoglossa: Fenyes, 1920: 239 (as valid genus).
Lypoglossa: Bernhauer & Scheerpeltz, 1926: 597 (as valid genus in subtribe Athetina Casey, 1910).
Megacrotona Scheerpeltz, 1968: 159 (unavailable name; as subgenus of *Atheta* Thomson, 1858; type species: *Oxypoda lateralis* Mannerheim, 1830, by original designation).
Megacrotona Benick & Lohse, 1974: 103 (available name; as valid genus in tribe Callicerini Lohse, 1969).
Lypoglossa: Moore & Legner, 1975: 448 (as valid genus).
Lypoglossa: Seevers, 1978: 134 (as valid genus in tribe Athetini).
Lypoglossa: Lohse & Smetana, 1985: 294 (as valid genus).
Megacrotona: Lohse & Smetana, 1985: 294 (as synonym of *Lypoglossa*).
Lypoglossa: Lohse, 1989: 207 (as valid genus in tribe Athetini).
Megacrotona: Lohse, 1989: 207 (as synonym of *Lypoglossa*).
Lypoglossa: Hoebeke, 1992: 382 (as valid genus).
Megacrotona: Hoebeke, 1992: 382 (as synonym of *Lypoglossa*).
Lypoglossa: Ashe *in* Newton, Thayer, Ashe & Chandler, 2000: 371 (as valid genus in tribe Athetini; unassigned to subtribe).

(Other references for Palaearctic *Lypoglossa* are omitted)

Diagnosis. *Lypoglossa* is distinguished from other athetine genera by the combination of the following characters: body parallel-sided; sensilla *a* of epipharynx long (Fig. 2); antennal article 2 as long as article 3 (Figs. 12–13); ligula with broad base, split in two lobes (Fig. 6); labial palpus with setae α, β, γ and δ present (Fig. 6); pronotum transverse, 1.2–1.4 times as wide as long, with microsetae directed anteriorly along midline, and laterally and posteriorly in lateral portions of the disc (Type I, Benick & Lohse 1974) (Fig. 16); pronotal macrosetae short and thin; pronotal hypomera invisible in lateral view; medial macroseta of mesotibia thin, much shorter than tibial width; mesothoracic process narrow (Fig. 17); posterior margin of elytra near posterolateral angle straight or slightly concave; tarsal formula 4-5-5; metatarsal segment 1 much longer than segment 2; single empodial seta shorter than claws (Fig. 15); abdominal terga 3–5 with weak transverse basal impression; medial lamellae of internal sac present (Figs. 49–50); copulatory piece with pointed apex (Fig. 49) and without sclerotized suspensoria; spermatheca S-shaped, with large umbilicus (Figs. 32, 78).

Description. Length 3.2–4.6 mm, pronotal width 0.81–1.09 mm. Body parallel-sided; uniformly brown to dark brown with lighter appendages or with reddish brown pronotum and elytra.

Head transverse; eye length to temple length ratio 0.9–1.5; infraorbital carina complete. Antennal article 2 as long as article 3, article 4 elongate, 5 elongate to subquadrate, 6–10 elongate to transverse, apical article without coeloconic sensilla, as long as articles 9 and 10 combined (Figs. 12–13). Labrum (Fig. 1) transverse, with slightly emarginate anterior margin. Epipharynx (Fig. 2) with long sensilla *a*, with three pairs of small marginal setae, medial field with 29 pores, lateral rows with 3 pores each, anterolateral groups with 4–5 pores each, transverse row with six pores, posterolateral groups with 4–5 pores

each; two medial proximal pores on each side and one lateral proximal pore. Mandibles (Figs. 3–5) broad, right mandible with a blunt medial tooth; velvety patch of dorsal molar area visible at 400X. Maxilla (Figs. 8–11) with galea projecting slightly beyond apex of lacinia; apical lobe of galea covered with numerous fine and short setae; internal margin of galea with long subapical setae (Fig. 9); distal comb of lacinia is divided into a group of 6 closely placed spines and two isolated spines (Figs. 10–11), middle portion produced medially and covered with numerous fine setae (Figs. 10–11), ventral surface of lacinia with a marginal group of 5 strong setae (Fig. 10), dorsal surface of lacinia with numerous weak setae (Fig. 11). Labium as in Figs. 6–7, 14; ligula with broad base, almost entirely split into two slightly divergent lobes (Fig. 6); medial area of prementum with 2 pores and 19 pseudopores, lateral areas each with two asetose pores, single setose pore and 8–11 pseudopores (Fig. 6). Hypopharyngeal lobes as in Fig. 7. Labial palpus with setae α, β, γ and δ present (Fig. 6). Mentum (Fig. 14) with concave anterior margin.

Pronotum (Fig. 16) transverse, 1.2–1.4 times as wide as long, with microsetae directed anteriorly along midline, in lateral portions of the disc microsetae directed laterally and posteriorly (Type I, Benick & Lohse 1974); macrosetae short; hypomera invisible in lateral view. Meso- and metasternum as in Fig. 17, mesosternal process narrow, extending about 2/3 length of mesocoxal cavities, metasternal process short, mesosternum and mesosternal process not carinate medially; relative lengths of mesosternal process: isthmus: metasternal process in ratio of about 9:4:1; mesocoxal cavities margined posteriorly; mesocoxae contiguous. Medial macroseta of mesotibia thin, much shorter than tibial width. Tarsal segmentation 4-5-5, metatarsal segment 1 much longer than segment 2 (Fig. 15). One empodial seta, shorter than claws (Fig. 15). Posterior margin of elytra near posterolateral angle straight or slightly concave. Wings fully developed.

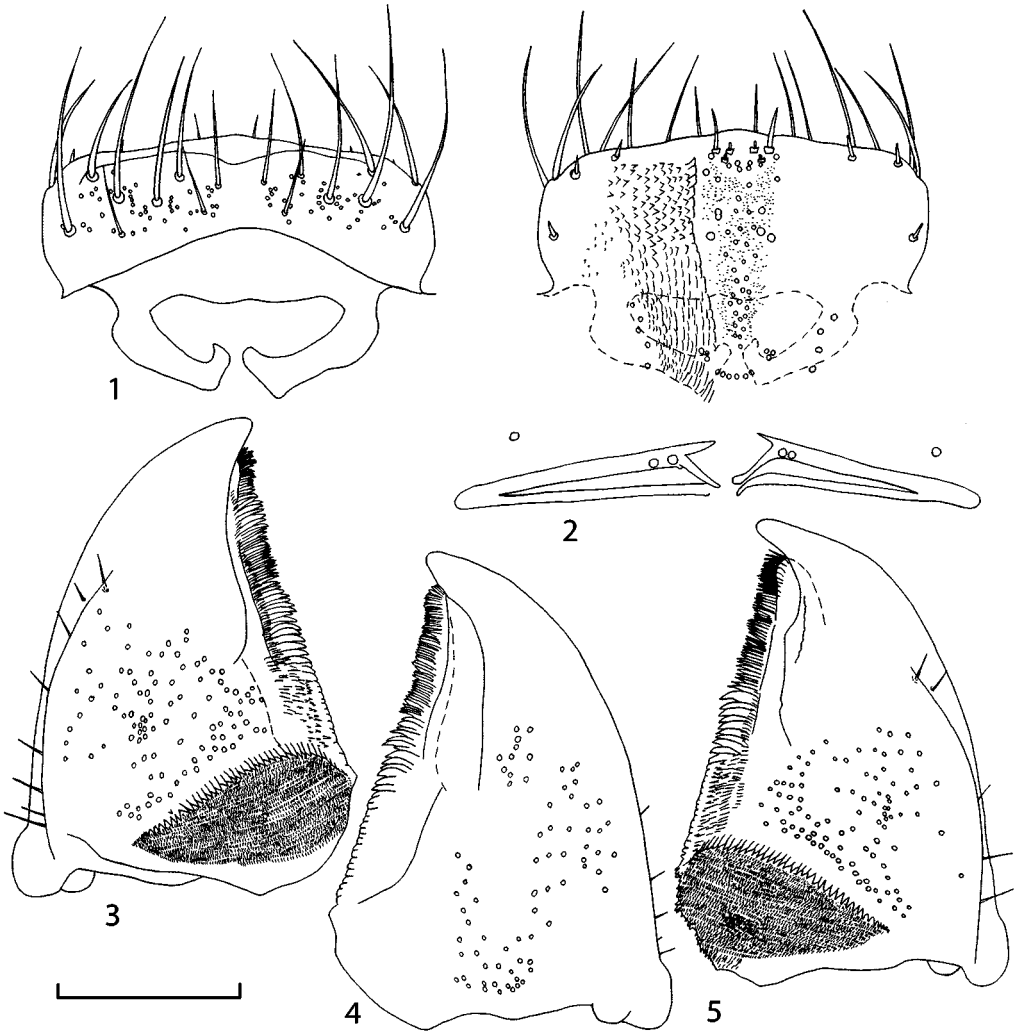
Abdominal terga 3–5 with weak basal impression. Tergum 7 as long as tergum 6. Terga 3–5 matte due to dense punctation, punctation on terga 6–7 sparser. Tergum 7 with wide white palisade fringe. Posterior margin of tergum 8 in both sexes slightly convex, without modifications (Figs. 51, 53). Posterior margin of sternum 8 in both sexes strongly convex (Figs. 52, 54), in male protruding posteriorly beyond the apex of tergum 8 (Figs. 51–52).

Copulatory piece of the aedeagus with pointed apical process (Fig. 49); medial lamellae present (Figs. 49–50). Sclerite of paramere (*Sklerit* of Brundin (1940), *velar sac sclerite* of Seevers (1978)) triangular (Figs. 31, 69). Spermatheca S-shaped, with large umbilicus (Figs. 32, 70, 78).

Type species. *Dasyglossa fenyesi* Bernhauer, 1907, by original designation.

Discussion. When Scheerpeltz (1968) proposed the name *Megacrotona* he fixed the type species of this subgenus (*Oxypoda lateralis* Mannerheim, 1830) but did not mention any character of *Megacrotona*. Therefore, Scheerpeltz did not satisfy the requirements of Article 13.1 of the Code (ICZN 1999) and had not made the name *Megacrotona* available. As far as I know, the earliest work where any characters of *Megacrotona* were mentioned

is the paper by Benick and Lohse (1974). Since Benick and Lohse were the first authors to make the name *Megacrotona* available the name should be attributed to them and not Scheerpeltz.



FIGURES 1–5. Mouthparts of *Lypoglossa angularis fenyesi* (Bernhauer) (male, 7 km NNE McCarthy, Alaska). 1 — labrum; 2 — epipharynx; 3 — left mandible, dorsal view; 4 — left mandible, ventral view; 5 — right mandible, dorsal view. Scale bar 0.1 mm.

Key to the species of *Lypoglossa*

1 Punctation of head and pronotum not asperate. Pronotum and elytra usually much lighter than head and abdomen. Apex of median lobe wide, less than 2 times as long as wide (Figs. 25–27, 55–57, 64–65).Nearctic species 2

– Punctation of head and pronotum asperate. Body dark brown, pronotum and elytra almost as dark as head and abdomen. Apex of median lobe long and narrow, 2.5 times as long as wide (Figs. 72–73). Palaearctic species. Body length 3.6–4.0 mm..... ..... 4. *L. lateralis* (Mannerheim)

2. Pronotal width to length ratio 1.2–1.3. Apex of median lobe (in parameral view) broadest at the base, not constricted (Figs. 64–65). No projections at the base of the apex (Figs. 64–67). Spermatheca larger, its proximal loop wider, almost circular (Fig. 70). Body length 3.8–4.6 mm, pronotal length 0.71–0.89 mm, pronotal width 0.90–1.09 mm. Distributed in interior Canada and eastern North America (Fig. 71)..... ..... 3. *L. franclemonti* Hoebeke

– Pronotal width to length ratio 1.3–1.4. Apex of median lobe (in parameral view) constricted basally (Figs. 25–27, 33–35, 55–57), with dentiform projection on each side of the apex base (Figs. 25–29, 55–59). Proximal loop of spermatheca narrower, with parallel sides (Figs. 32, 40, 48) or spermatheca smaller (Figs. 62–63)..... 3

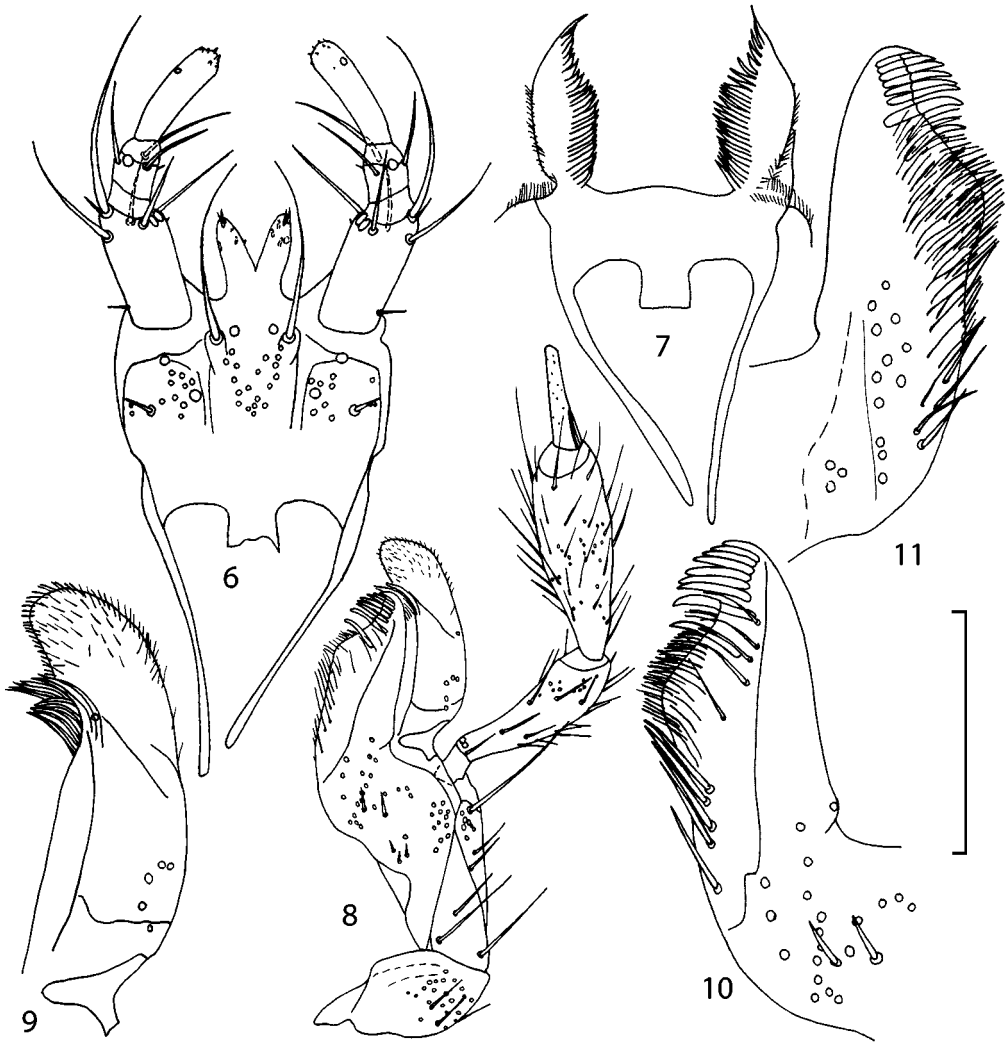
3. Dentiform projections at the base of the apex of median lobe longer and sharper (Figs. 25–29). Body larger (body length 3.9–4.4 mm, pronotal length 0.64–0.74 mm, pronotal width 0.91–1.04 mm). Three subspecies known from Alaska, British Columbia, Yukon Territory, and mountains of the western and north-eastern North America (Fig. 18) ..... 1. *L. angularis* (Mäklin)

– Dentiform projections at the base of the apex of median lobe shorter and blunter (Figs. 55–59). Body smaller (body length 3.2–3.5 mm, pronotal length 0.60–0.66 mm, pronotal width 0.81–0.87 mm). Known only from the Riding Mountains National Park, Manitoba (Fig. 18) .....2. *L. manitobae* Gusarov, **sp. n.**

1. *Lypoglossa angularis* (Mäklin *in* Mannerheim, 1853)

(Figs. 1–12, 15, 17, 25–50)

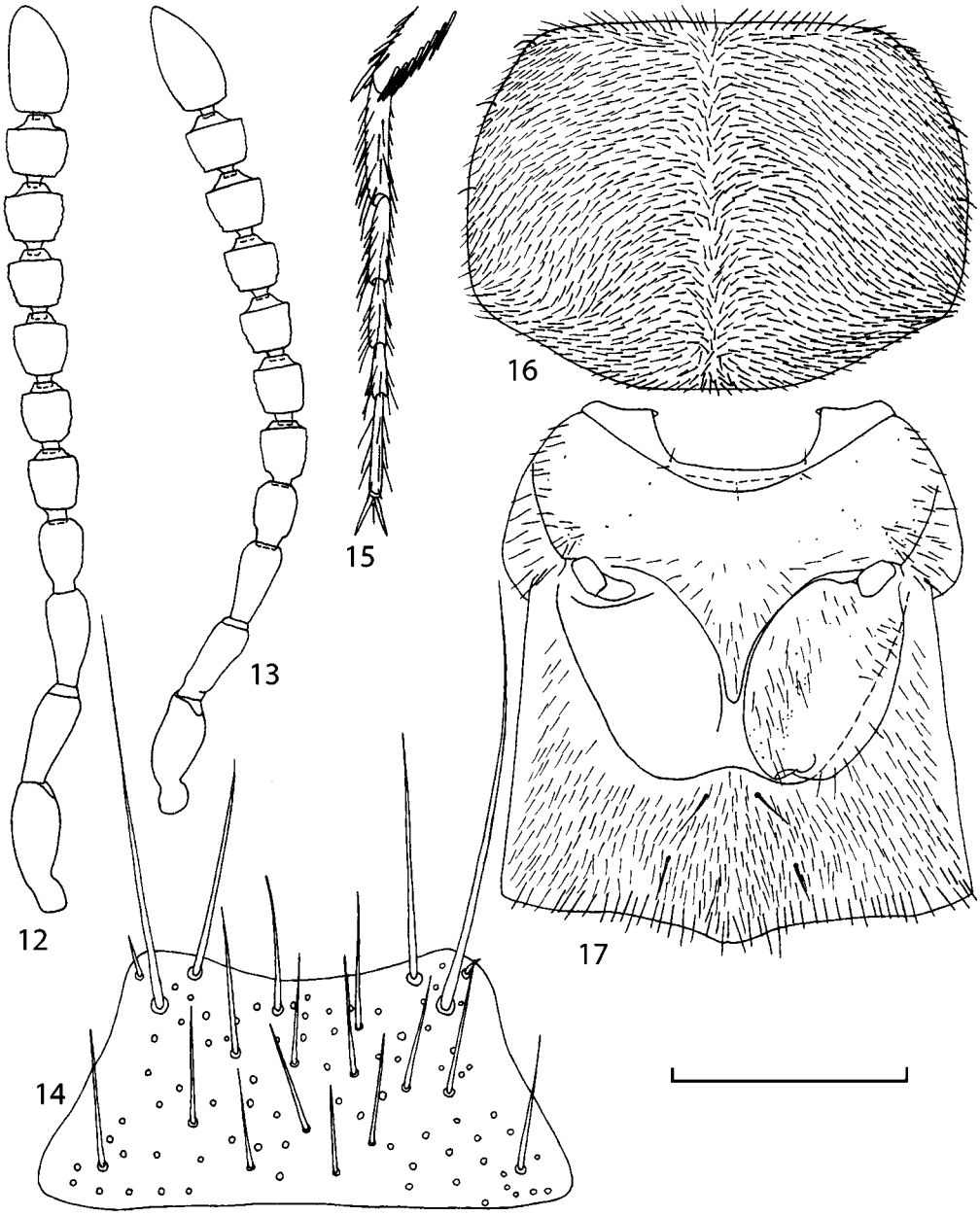
Myrmedonia angularis Mäklin *in* Mannerheim, 1853: 181.
Euryusa obtusa LeConte, 1866: 373, **syn. nov.**
Dasyglossa angularis: Bernhauer, 1906: 348 (as synonym of *Dasyglossa prospera* (Erichson, 1839)).
Dasyglossa fenyesi Bernhauer, 1907: 402.
Lypoglossa fenyesi: Fenyes, 1920: 239 (as valid species).
Dasyglossa angularis: Fenyes, 1920: 359 (as synonym of *Dasyglossa prospera* (Erichson, 1839)).
Lypoglossa fenyesi: Bernhauer & Scheerpeltz, 1926: 597 (as valid species).
Dasyglossa angularis: Bernhauer & Scheerpeltz, 1926: 766 (as synonym of *Dasyglossa prospera* (Erichson, 1839)).
Lypoglossa fenyesi: Moore & Legner, 1975: 448 (as valid species).
Devia angularis: Moore & Legner, 1975: 396 (as synonym of *Devia prospera* (Erichson, 1839)).
Lypoglossa fenyesi: Seevers, 1978: 271 (as valid species).
Lypoglossa angularis: Lohse & Smetana, 1985: 293 (as valid species).
Lypoglossa angularis: Hoebeke,1992: 390, *ex parte* (as valid species).
Lypoglossa fenyesi: Hoebeke, 1992: 391 (as synonym of *L. angularis*)



FIGURES 6–11. Mouthparts of *Lypoglossa angularis fenyesi* (Bernhauer) (male, 7 km NNE McCarthy, Alaska). 6 — prementum; 7 — hypopharynx; 8 — left maxilla, ventral view; 9 — left galea, ventral view; 10 — left lacinia, ventral view; 11 — left lacinia, dorsal view. Scale bar 0.1 mm (6–7, 9–11), 0.2 mm (8).

Examined material. Listed separately for each subspecies except for the following female specimens unassigned to subspecies: **UNITED STATES: Oregon:** Deschutes Co.: ♀, 12 mi. SW Sisters, FSR 1551, 4400', 23.vii.1979 (J.M.Campbell & B.A.Smetana) (CNCI); **California:** El Dorado Co.: ♀, Lake Tahoe, Cascade Lake, 6300', 11.viii.1969 (A.Smetana) (CNCI).

Diagnosis. *Lypoglossa angularis* differs from the Palaearctic *L. lateralis* in the following characters: pronotum and elytra lighter than head and abdomen; punctation of head and pronotum not asperate, and a distinct shape of the aedeagus (Figs. 25–30; 72–77) and spermatheca (Figs. 32; 78).



FIGURES 12–17. Details of *Lypoglossa angularis fenyesi* (Bernhauer) (male, 7 km NNE McCarthy, Alaska (12, 15, 17)) and *L. lateralis* (Mannerheim) (male, 10 km E Amguema, Chukotka Pen., Russia (13–14, 16)). 12–13 — right antenna; 14 — mentum; 15 — right metatarsus, posterior view; 16 — pronotum; 17 — meso- and metathorax. Scale bar 0.1 mm (14), 0.4 mm (12–13, 15–17).

Lypoglossa angularis differs from *L. franclemonti* in having a more transverse pronotum, less elongate antennal articles; the apex of the median lobe (in parameral view) con-

stricted basally (Figs. 25–27, 33–35; 64–65), with a dentiform projection on each side of the apex base (Figs. 25–29; 64–67); the proximal loop of the spermatheca narrower, with parallel sides (Figs. 32, 40; 70).

Lypoglossa angularis can be distinguished from *L. manitobae* in having a larger body size, and longer and sharper dentiform projections at the base of the apex of median lobe (Figs. 25–29; 55–59).

Description. Length 3.9–4.4 mm. Head and abdomen dark brown; pronotum lighter, brownish red to brown with lighter margins; elytra brownish yellow to brown, with darker scutellar area and posterolateral angle; legs, mouthparts and 3 basal antennal articles brownish yellow, antennal articles 4–11 darker, reddish brown.

Head surface glossy, with weak isodiametric microsculpture, with strong punctation, distance between punctures equals 1–2 times their diameter. Eyes 1.1–1.4 times as long as temples. Antennal articles 4–5 elongate, 6 slightly elongate or subquadrate, 7–10 subquadrate or slightly transverse (Fig. 12).

Pronotum transverse, 1.5 times as wide as head, width 0.91–1.04 mm, length 0.64–0.74 mm, width to length ratio 1.4; surface glossy, with weak isodiametric microsculpture; punctation finer than on head, distance between punctures equal to their diameter. Elytra wider (1.00–1.17 mm) and longer (0.71–0.86 mm; measured from humeral angle) than pronotum (elytral length to pronotal length ratio 1.1), 1.3–1.4 times as wide as long, surface glossy, with weak isodiametric microsculpture; punctation slightly asperate and stronger than on pronotum, distance between punctures equals ½–1 times their diameter.

Abdominal terga with very fine (poorly visible at 70x) microsculpture consisting of transverse waves; terga 3–5 matte due to fine and dense punctation, distance between punctures equals 1–2 times their diameter, terga 6–7 glossy, with sparser punctation, distance between punctures equals 2–5 times their diameter.

In males, head with weak medial impression and pronotum with broad impression along midline.

Aedeagus as in Figs. 25–31, 33–39, 41–47.

Spermatheca as in Figs. 32, 40, 48.

Distribution. *Lypoglossa angularis* is widely distributed in the western North America, from Alaska, Yukon Territory and British Columbia in the north to the high mountains of California, Colorado, New Mexico and Arizona in the south. There is an isolated population of this species in the northeastern states and provinces (Newfoundland, Quebec, Maine and New Hampshire) (Fig. 18). In Alaska *L. angularis* is continuously distributed and along the coast occurs at sea level. In interior British Columbia and Alberta and further south *Lypoglossa angularis* is restricted to boreal forests in high mountains and does not occur in valleys. Further south the localities are at higher elevations in the mountains. Despite the fact that in the interior United States the recorded distributions of *L. lateralis* consists of isolated populations, I could find no gaps in any morphological characters between the specimens from different isolates. Apparently the isolation between these

populations is recent and *L. angularis* probably had a continuous distribution in the interior United States during colder and/or wetter periods of the Pleistocene.

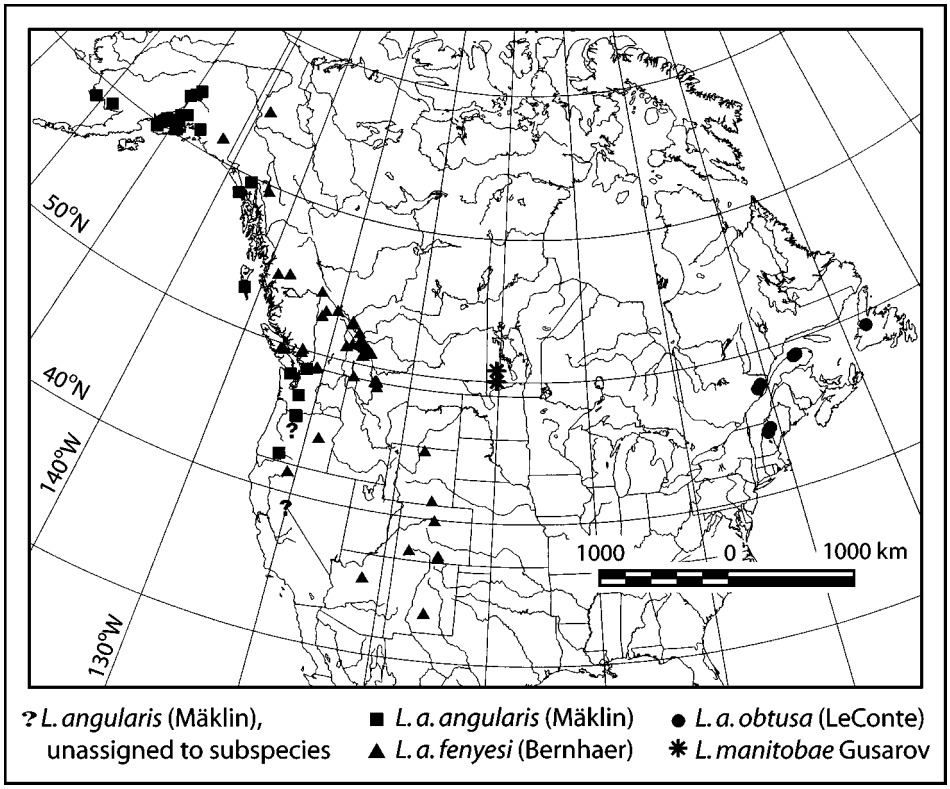


FIGURE 18. Geographical distribution of *Lypoglossa angularis* (Mäklin) (including three subspecies) and *L. manitobae* Gusarov, **sp. n.**

I recognize three valid subspecies within *L. angularis* (Fig. 18). The main reason for interpreting the three geographic varieties as subspecies is that there is no distinct hiatus between them and intermediate forms are occasionally found. The subspecies are para- or allopatric in their distribution. The differences between these subspecies are discussed below.

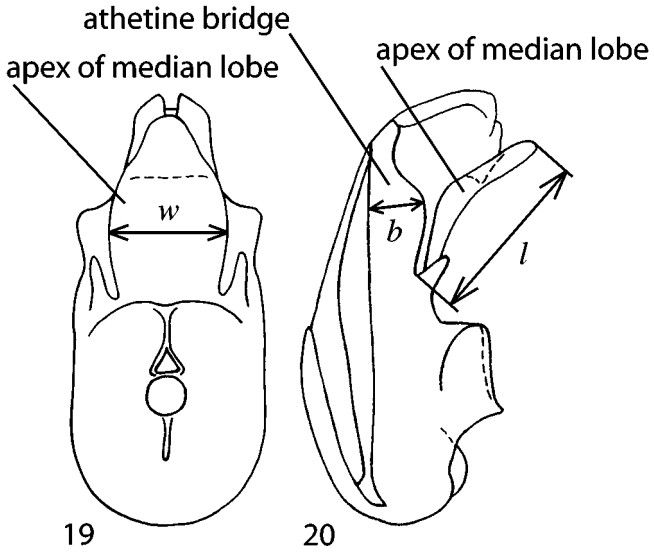
Natural History. *Lypoglossa angularis* is common in forest litter and moss in boreal forests. It was also collected in dung, gopher burrows and by pitfall traps.

Geographic variability of *Lypoglossa angularis*

The geographical distribution of *L. angularis* is shown in Fig. 18. Concentrating on the distribution of the entire species, and for the moment ignoring the subspecies, it is easy to

observe a big gap separating the localities in the Northeast from those in the West. This gap in distribution was reported by Hoebeke (1992) who considered the northeastern specimens to represent relict populations of *L. angularis*. This gap is in fact even wider than reported by Hoebeke (1992: Map 2) because the specimens from the Riding Mountains in Manitoba represent a different species (*L. manitobae* Gusarov, **sp. n.**), misidentified by Hoebeke as *L. angularis*.

While comparing the northeastern specimens of *L. angularis* to specimens from the West, I observed a difference between them in some details of the male genitalia. To study this difference, I measured three characters (Figs. 19–20) in the aedeagus of all available male specimens from the North-East (n=15) and many specimens from different localities in the West (n=121). These characters are the length (*l*) and the width (*w*) of the apex of the median lobe (cf. Figs. 25–27 and Figs. 33–35) and the lateral width of the athetine bridge (*b*) of the median lobe (cf. Figs. 28–29 and Figs. 44–45). Because the apex of the median lobe is slightly bent paramerally, it is difficult to measure the apex length in parameral view. To obtain consistent results, the length of the apex was measured in the lateral view as indicated in Fig. 20. KOH-cleared preparations of the median lobe were secured in glycerin jelly and traced at 100x magnification using a compound microscope. For every specimen measured, two indices, the relative length of the apex ($L=l/w$) and the relative width of the bridge ($B=b/w$) were calculated.



FIGURES 19–20. Measuring scheme of the median lobe of *Lypoglossa angularis* (Mäklin) in parameral (19) and lateral (20) views. *w* - width of the apex; *l* - length of the apex; *b* - width of the athetine bridge.

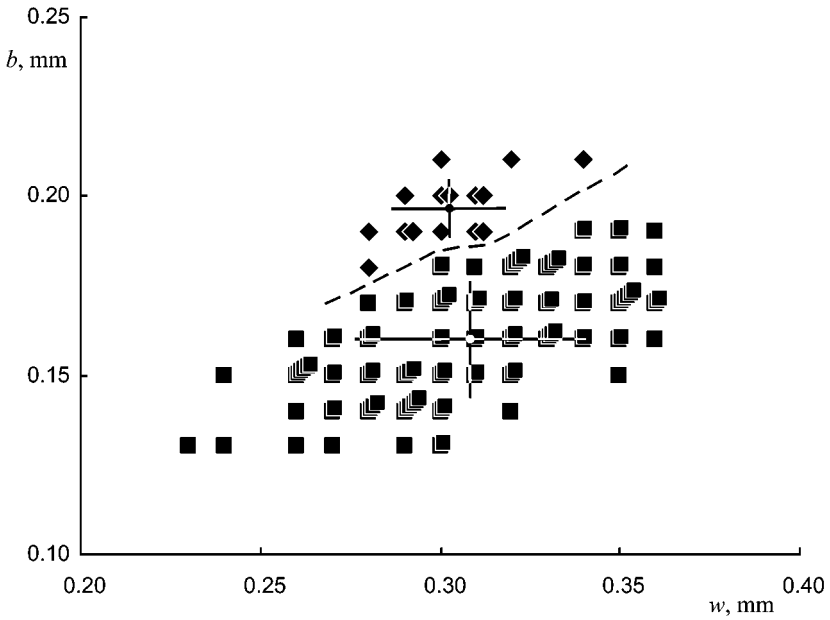


FIGURE 21. Width of the athetine bridge (*b*) and width of the apex of the median lobe (*w*) in *Lypoglossa angularis* (Mäklin). ◆ — specimens from the North-East (*L. a. obtusa* (LeConte)) (n=15); ■ — specimens from the West (*L. a. angularis* (Mäklin) and *L. a. fenyesi* (Bernhauer)) (n=121). The average and standard deviation are indicated for both groups of specimens.

The difference between north-eastern and western specimens is notable in all three measured characters (*l*, *w*, *b*) and both indices (*L*, *B*). The difference between the two groups of specimens in *B* (the relative width of the athetine bridge) is particularly clear, and there is no overlap between the two groups of specimens (Fig. 21) when *b* and *w* are plotted on a scatter diagram for every specimen measured. Taking into account a significant gap in geographical distribution (Fig. 18) and morphological differences between the northeastern populations and the populations in the West (Fig. 21; Figs. 44–45; 28–29, 36–37), I consider the populations from the Northeast as a distinct subspecies. The valid name for this subspecies is *Lypoglossa angularis obtusa* (LeConte, 1860). The present disrupted range of *L. angularis* may be a result of climatic fluctuations during the Pleistocene. It is likely that the originally transcontinental range of the species was split when the climate cooled, and the species survived in refugia on both coasts. The isolation of the eastern population lasted long enough for some morphological differences in the male genitalia to evolve.

Specimens of *L. angularis* from different localities in the western North America display significant variation in the shape of the apex of the median lobe (cf. Figs. 25–27 and Figs. 33–35). The specimens from the type localities of *Myrmedonia angularis* Mäklin (Kenai Peninsula, Alaska) and *Dasyglossa fenyesi* Bernhauer (Emerald Lake, British Columbia) differ in relative length of the apex of the median lobe (*L*). In Fig. 22 the length

(*l*) and the width (*w*) of the apex are plotted for about 20 specimens from both localities. There is a clear gap between the two populations. However, if measurements based on specimens from other localities are added, this gap disappears (Fig. 23). To study a geographic trend of this variation, the ideal would be to obtain representative measurements for all known populations and map the averages for every population. Unfortunately, few available samples include enough male specimens to obtain reliable estimates for every population. Most samples include just a few specimens and some have no males at all. In this situation I measured one or two specimens from small samples and about 20 specimens from three localities represented by particularly large samples.

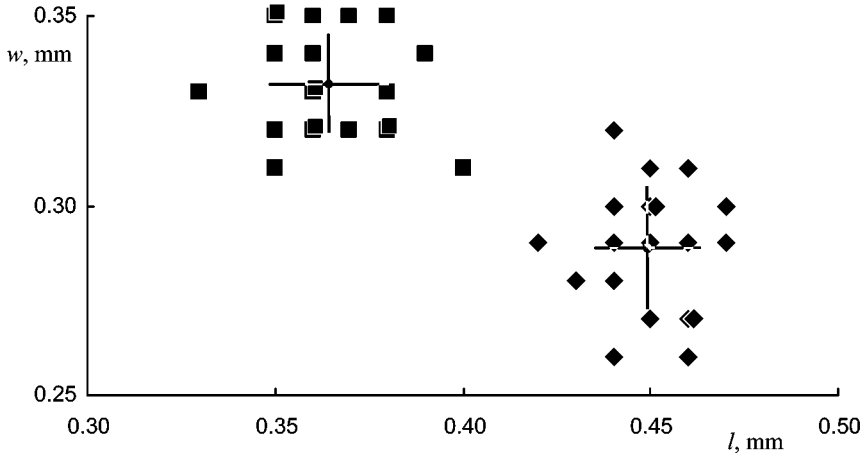


FIGURE 22. Width (*w*) and length (*l*) of the apex of the median lobe in two populations of *Lypoglossa angularis* (Mäklin). ◆ — specimens from Alaska, Kenai Peninsula, 22–23 mi. N Seward (*L. a. angularis* (Mäklin)) (n=19); ■ — specimens from British Columbia, Yoho National Park (*L. a. fenyesi* (Bernhauer)) (n=20). The average and standard deviation are indicated for both samples.

Before the relative length of the apex of the median lobe (*L*) was plotted on a map, it was rescaled for a clearer representation. For every specimen, the rescaled relative length (*L*r) was calculated as follows: *L*r = (*L*-*L*min) / (*L*max-*L*min), where *L* is the relative length for that specimen, *L*min is the minimum relative length among all specimens measured, and *L*max is the maximum relative length among all specimens measured. The minimum value of *L*r is 0 and it corresponds to *L*min. The maximum value of *L*r is 1 and it corresponds to *L*max. All other values of *L*r fall in between 0 and 1. The advantage of this rescaling is that it allows to plot individual measurements as pie diagrams (Fig. 24). The higher the value of *L*r is, the larger is the white portion in a particular pie diagram.

The map in Fig. 24 shows that the western coastal populations of *L. angularis* have a longer apex of the median lobe, in comparison to the interior populations. The morph with

an elongate apex of the median lobe is found in coastal Alaska, Queen Charlotte Island and high mountains of Oregon and Washington. The morph with a short and sometimes almost transverse apex of the median lobe is found in the Rocky Mountains of Alberta, British Columbia and Montana. The extreme variants are connected by intermediates resulting in a cline (Fig. 24).

Considering that the difference in the shape of the apex of the median lobe between the populations from the Kenai Peninsula (the type locality of *Myrmedonia angularis*) and the populations from the Canadian Rocky Mountains (the type locality of *Dasyglossa fenyesi*) is comparable to a difference displayed by distinct species in other genera of Athetini, it is reasonable to regard the two groups of populations as different subspecies of *L. angularis*. The isocline $L_r = 0.56$ is most suitable to separate the two subspecies. If isoclines with smaller values of L_r are chosen (*e. g.*, $L_r = 0.50$ or $L_r = 0.40$) then some interior populations from the Rocky Mountains fall in the same subspecies as the coastal populations despite the fact that these populations are isolated from each other by a desert barrier. With isocline $L_r = 0.56$ ($L = 1.41$) accepted as a boundary between the two subspecies, the populations from the southern Rocky Mountains (Arizona, New Mexico) fall in the same subspecies as the populations from the northern mountains.

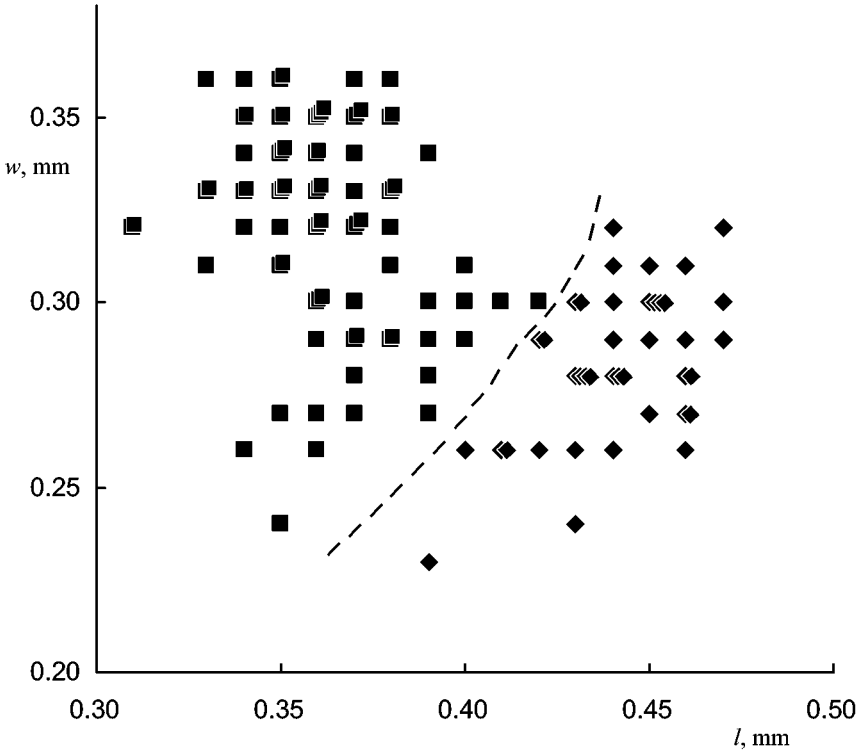


FIGURE 23. Width (*w*) and length (*l*) of the apex of the median lobe in two subspecies of *Lypoglossa angularis* (Mäklin). ◆ — *L. a. angularis* (Mäklin) (n=40); ■ — *L. a. fenyesi* (Bernhauer) (n=81).

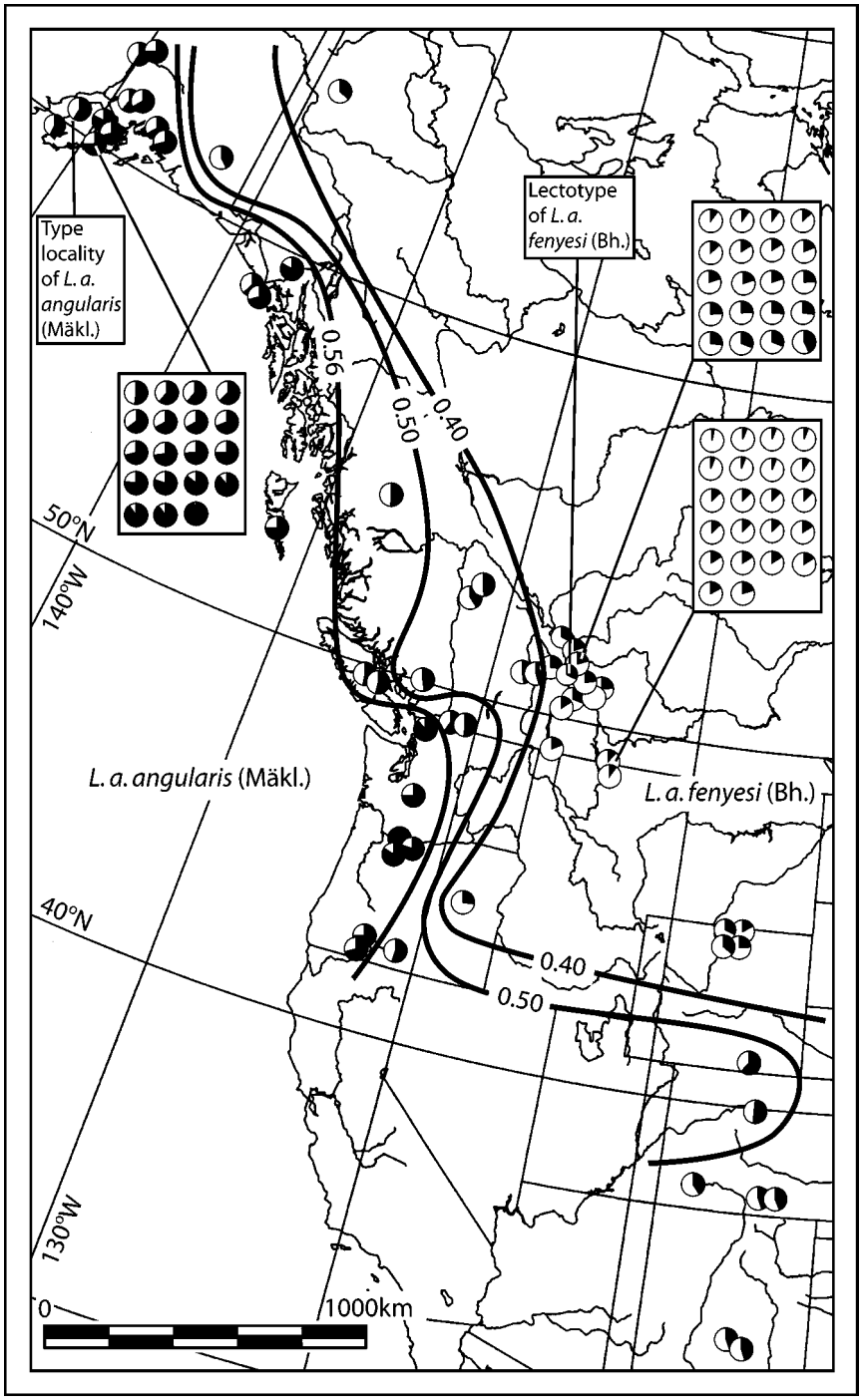


FIGURE 24. Geographic variation in rescaled relative length of the apex of the median lobe (*L*r) in *Lypoglossa angularis* (Mäklin). Each pie diagram represents a specimen, except the three diagrams indicating the average calculated for a sample of 19–22 specimens (individual pie diagrams are shown in inserts). The size of the white portion of a pie is equivalent to the value of *L*r. Solid lines indicate isoclines *L*r = 0.56, *L*r = 0.50 and *L*r = 0.40.

The valid names for the western coastal and interior subspecies are *L. angularis angularis* (Mäklin) and *L. angularis fenyesi* (Bernhauer), accordingly. The distribution of both subspecies is shown in Fig. 18. Samples from one locality in Oregon and another in California are represented by females only and remain unassigned to a subspecies until males are found.

The presence of the clinal geographic variation in *L. a. angularis* and *L. a. fenyesi* may have resulted from a range contraction during a colder period of the Pleistocene and a subsequent range expansion during a warmer period. The advancing ice sheet may have split the continuous range among a coastal refugium (where *L. a. angularis* evolved) and an interior refugium in the Rocky Mountains south of the ice sheet (where *L. a. fenyesi* evolved). Apparently, the populations in different refugia did not diverge far enough and when the contacts between them were reestablished the populations interbred and produced a cline. In some other groups of athetines (*e. g.*, in *Philhygra* Mulsant & Rey, 1873), clusters of closely related species exist in the western North America. An analysis of phylogeny and geographic variation in these groups may help test the scenario proposed here for *Lypoglossa*.

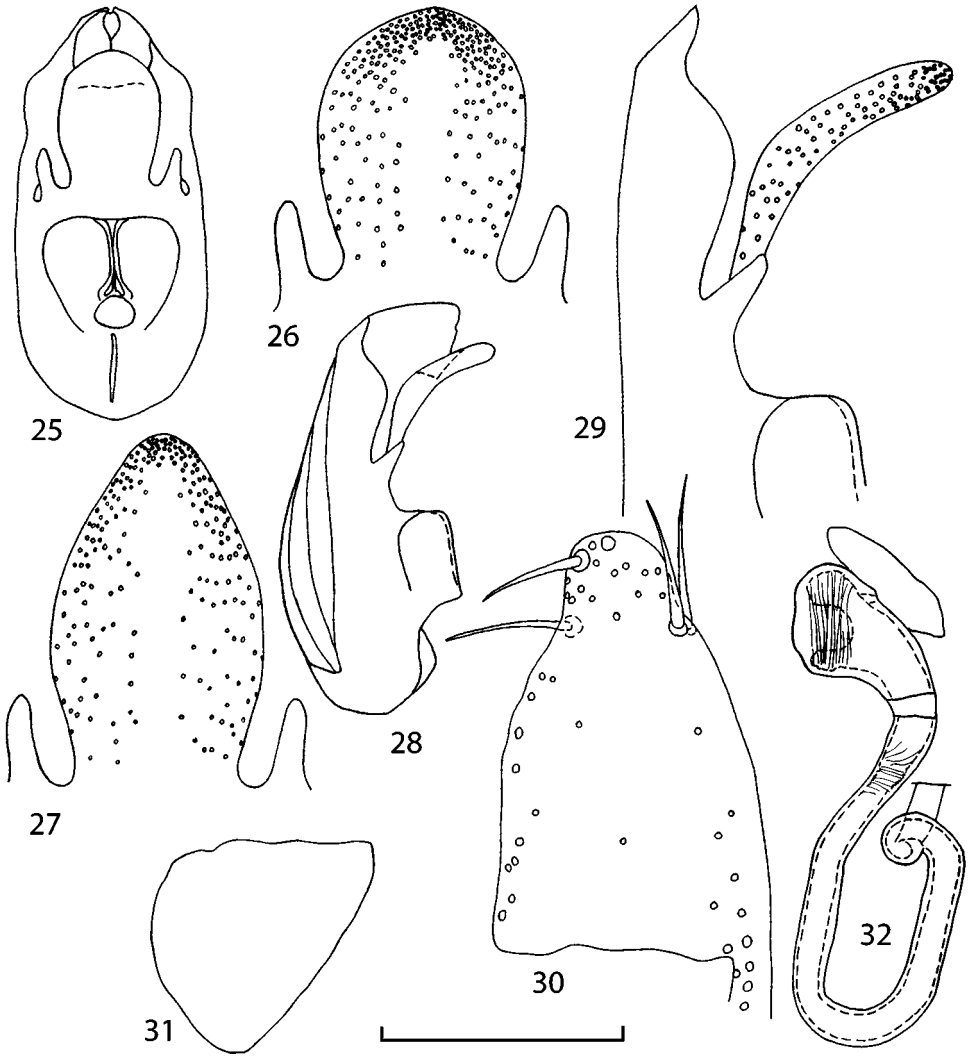
Key to subspecies of *Lypoglossa angularis*

1 Bridge of median lobe in lateral view wider (Figs. 44–45). Isolated populations in the Northeast (Fig. 18) .....1c. *L. angularis obtusa* (LeConte)
– Bridge of median lobe in lateral view narrower (Figs. 28–29, 36–37). Distributed in the western United States and Canada (Fig. 18) 2
2 Apex of median lobe longer and narrower (Figs. 25–29). Apex length to width ratio (*L=l*/*w*; measured as shown in Figs. 19–20) more than 1.41. Distributed in western and coastal Alaska, coastal British Columbia and western Washington and Oregon (Fig. 18)..... 1a. *L. angularis angularis* (Mäklin)
– Apex of median lobe shorter and wider (Figs. 33–37). Apex length to width ratio (*L=l*/*w*; measured as shown in Figs. 19–20) less than 1.41. Distributed in western interior Canada and United States (Fig. 18)..... 1b. *L. angularis fenyesi* (Bernhauer)

1a. *Lypoglossa angularis angularis* (Mäklin *in* Mannerheim, 1853)
(Figs. 25–32)

Myrmedonia angularis Mäklin *in* Mannerheim, 1853: 181.

Type material. Lectotype of *Myrmedonia angularis* (designated by Lohse & Smetana (1985)): **UNITED STATES: Alaska:** Kenai Peninsula, Woskresensk (MZHF).



FIGURES 25–32. Genitalia of *Lypoglossa angularis angularis* (Mäklin) (male, env. of Tern Lake, Alaska (25–31); female, 22 mi. N Seward, Alaska (32)). 25 — median lobe, parameral view; 26 — apex of median lobe, parameral view; 27 — apex of median lobe, oblique parameral and basal view; 28 — median lobe, lateral view; 29 — apex of median lobe, lateral view; 30 — apex of left paramere; 31 — sclerite of left paramere; 32 — spermatheca. Scale bar 0.1 mm (30), 0.2 mm (26–27, 29, 31–32), 0.4 mm (25, 28).

Additional material. CANADA: British Columbia: 26 specimens, Mile 56 of Haines Hwy., 3 Guardsmen Pass, 3200', 4.vii.1968 (Campbell & Smetana) (CNCI); 2♂♂, 2♀♀, Haines Hwy., km 143–144, 2400', gopher burrows, 22.v.1978 (Smetana & Becker) (CNCI); 5 specimens, Queen Charlotte Is., Moresby Is., Mt. Moresby, 2100', sifting moss at edge of forest, 25.vii.1983 (J.M.Campbell) (CNCI); **UNITED STATES: Alaska:** 6 specimens, Kenai Peninsula, Anchor River Campground, 12 mi. N Homer, 450', 5.vi.1978

(Smetana & Becker) (CNCI (5), CUIC (1)); 2 specimens, ditto but 3.vi.1978 (CNCI); 33 specimens, Anchor River at Hwy. 1, 450', 4.vi.1978 (Smetana & Becker) (CNCI); 1 specimen, ditto but 5.vi.1978 (CNCI); 4 specimens, 3 km SE Anchor Point, Sterling Hwy., Anchor River valley slope, 59º45.40'N 151º47.61W, 0 m, forest litter, *Picea*, *Betula*, 22.vii.1998 (V.I.Gusarov) (AMNH (2); ZMUN (2)); 9 specimens, Kalifonsky Beach near Kenai, 8.vi.1978 (Smetana & Becker) (CNCI); ♂, 3 mi. SE Kenai, 7.vi.1978 (Smetana & Becker) (CNCI); 3 specimens, 8 mi. SE Kasilof, 9.vi.1978 (Smetana & Becker); 1♀, Kasilof River at Hwy. 1, 12.vi.1978 (Smetana & Becker) (CNCI); 1♀, Ninilchik, 24.vi.1951 (CNCI); 1♀, Hope, 12.vi.1951 (W.J.Brown) (CNCI); 3 specimens, Clam Gulch, 6.vi.1978 (Smetana & Becker) (CNCI); 44 specimens, Kenai Mts., creek above Tern Lake Campground, 850–900', 13.vi.1978 (Smetana & Becker) (CNCI (41), CUIC (3)); 11 specimens, ditto but 850', 16.vi.1978 (CNCI); 2 specimens, 16 mi. N Seward, 500–600', 26.v.1978 (Smetana & Becker) (CNCI); 12 specimens, 15 mi. N Seward, 400', 29.v.1978 (Smetana & Becker) (CNCI); 30 specimens, 22 mi. N Seward, 600–800', 27.v.1978 (Smetana & Becker) (CNCI); 7 specimens, 23 mi. N Seward, 600–900', 28.v.1978 (Smetana & Becker) (CNCI); 9 specimens, Ptarmigan Creek Campground, 500–600', 26.v.1978 (Smetana & Becker) (CNCI); 4♀♀, 7.5 mi. NNW Dillingham, Wood River, Red Bluff, 59º08'30"N 158º33'W, 18.vi.1980 (L.Herman) (AMNH); 5 specimens, Hagemeister Island, North shore at base of long sand spit, 58º38'N 161º04'30"W, 24.vi.1980 (L.Herman) (AMNH); 2♂♂, Knik River N Anchorage, 21.viii.1958 (Lindroth) (MCZ); 3♀♀, Elmendorf, Anchorage, 8.vii.1958 (Lindroth) (MCZ); 4 specimens, 14 km SSE Palmer, left bank of the Knik River, 61º30.01'.58'N 148º57.86'–59.02'W, 0–500 m, 26–28.vi.1998 (V.I.Gusarov) (AMNH (2), ZMUN (2)); 4 specimens, George Parks Hwy., 48 km SW Cantwell, 63º03.49'N 149º33.15'W, 550 m, 30.vi.1998 (V.I.Gusarov) (AMNH (2), ZMUN (2)); ♀, 12 mi. N mi. 78 Denali Hwy., Windy Creek, 13.vii.1978 (Smetana & Campbell) (CNCI); 36 specimens, Denali State Park, Byers Lake Campground, 23.vi.1978 (Smetana & Becker) (CNCI); 13 specimens, ditto but 25.vi.1978 (CNCI); 3 specimens, Denali State Park at Hwy. 1, 20.vi.1978 (Smetana & Becker) (CNCI); 2 specimens, Valdez, 61º09.05'N 146º21.80'W, 20 m, in forest litter, *Alnus*, *Verathrum*, ferns, 12.vii.1998 (V.I.Gusarov) (ZMUN); 55 specimens, treeline subalpine meadow on Mt. Blunt, 2.5 mi. S Lituya Bay, 2500', pitfall traps, 1.vii.1977 (D.Mann) (AMNH (53), CUIC (2)); 5 specimens, ditto but pitfalls in subalpine meadows, 4.vi.1977 (AMNH); 7 specimens, ditto but 14.vii.1980 (AMNH); 13 specimens, ditto but vi–3.ix.1977 (AMNH (12), CUIC (1)); **Washington:** Clallam Co.: ♀, Olympic Nat. Park, 13 mi. S Port Angeles, 4000', 11.viii.1979 (J.M.Campbell) (CNCI); Pierce Co.: ♂, ♀, Mt. Rainier Nat. Park, N. Puyallup River, 3700', 10.viii.1973 (A. & Z. & D.Smetana) (CNCI (1); CUIC(1)); 2 specimens, Mt. Rainier Nat. Park, Sunbeam Falls, 4000', 17.v.1968 (Campbell & Smetana) (CNCI); Whatcom Co.: ♂, 6♀♀, Mt. Baker, 4 mi. N Silver Fir Camp, 4000', 16.viii.1975 (J.M. & B.A. Campbell) (CNCI); **Oregon:** Hood River Co.: 5 specimens, Mt. Hood, Cloud Cap Rd., Tilly Jane Creek, 4100', 30.vi.1974 (A. & D.Smetana) (CNCI (4); CUIC (1)); Wasco Co.: 2

specimens, 19 mi. WSW of Dufur, Wampus Springs, 4800', 9.vii.1978 (L. & N.Herman) (AMNH, CUIC); Klamath Co.: 3♂♂, Cold Spring Camp, 33 mi. NW Klamath Falls, 5800', 22.vi.1978 (J.Schuh, L. & N.Herman) (AMNH).

Diagnosis. *Lypoglossa a. angularis* differs from *L. a. fenyesi* in having a longer and narrower apex of the median lobe (Figs. 25–29; 33–37) (*L*>1.41; see also Fig. 23); and from *L. a. obtusa* in having a narrower bridge of the median lobe (in lateral view) (Figs. 28–29; 44–45) (*B*<0.60; see also Fig. 21).

Distribution. *Lypoglossa a. angularis* is known from western and coastal Alaska, coastal British Columbia and western Washington and Oregon (Fig. 18).

1b. *Lypoglossa angularis fenyesi* (Bernhauer, 1907), stat. nov.
(Figs. 33–40)

Dasyglossa fenyesi Bernhauer, 1907: 402.

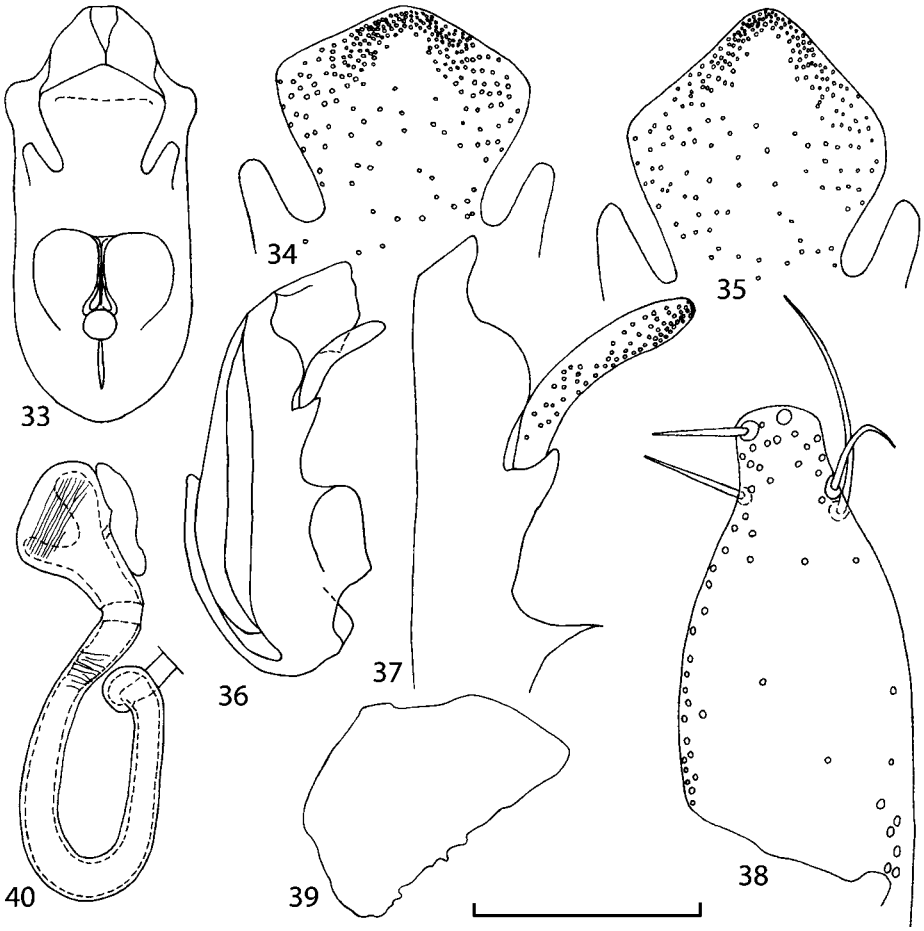
Type material. Lectotype of *D. fenyesi* (designated by Hoebeke (1992)): **CANADA: British Columbia:** ♂, Emerald Lake, 6.vi.1926 (A.Fenyes) (FMNH). Paralectotype: **CANADA: Alberta:** ♂, Banff, 6.vi.1924 (A.Fenyes) (FMNH).

Additional material. CANADA: Yukon Territory: 14 specimens, Dempster Hwy. Mi. 42, N. Klondike River, 3300', 18.vii.1978 (Smetana & Campbell) (CNCI (13), CUIC (1)); 5 specimens, Dempster Hwy. Mi. 45, 3500', 14.vii.1968 (Campbell & Smetana) (CNCI); 2 specimens, ditto but Mi. 29.5, 24.vii.1978 (CNCI); ♂, Dempster Hwy. Mi. 53, North Fork Pass, 4200', 24.vii.1978 (A.Smetana & J.M.Campbell) (CNCI); **British Columbia:** 4 specimen, Courtney, Forbidden Plateau, nr. Courtney lookout, 25.vii.1979 (I.M.Smith) (CNCI (3), CUIC (1)); ♂, Forbidden Plateau, McPhee Lake, 3700', 19.vii.1975 (J.M. & B.A.Campbell) (CNCI); ♀, 6.2 km S Terrace, 7.6 km E Hwy. 25, Copper Mt. Rd., sifting leaf litter under blueberry bushes, 24.viii.1983 (J.M.Campbell) (CNCI); ♀, Atlin, 2200', 23.vi.1955 (H.Huckel) (CNCI); ♂, Summit Lake, Mi. 392 Alaska Hwy., 4200', 23.viii.1959 (R.E.Leech) (CNCI); ♂, ♀, Smithers, Twin Falls, 26.vi.1987 (D.Larson) (CNCI); 3 specimens, 21 mi. W Creston, 9.vi.1968 (Campbell & Smetana) (CNCI); 84 specimens, Glacier (A.Fenyes) (AMNH (4), BMNH (4); CASC (54), FMNH (2); CUIC (16), ZMUN (4)); 17 specimens, 15 mi. E Barkerville, Two Sisters Mt., 4500', 23.vi.1968 (Campbell & Smetana) (CNCI (16), CUIC (1)); 25 specimens, 10 mi. E Barkerville, Slide Mt., 4500', 24.vi.1968 (Campbell & Smetana) (CNCI (24), CUIC (1)); 28 specimens, 5 mi. E Whistler's Mt., 29.v.1968 (Campbell & Smetana) (CNCI); ♀, Garibaldi Prov. Park, Diamond Head Tr., 4000–4500', 26.vii.1973 (A. & Z. & D.Smetana) (CNCI); ♀, Garibaldi Prov. Park, Opal Cone, 5200', 3.viii.1975 (J.M. & B.A.Campbell) (CNCI); 36 specimens, Yoho Nat. Park, Otterhead River, 5500', 4.viii.1971 (J.M. & B.A.Campbell) (CNCI (34), CUIC (2)); 2 specimens, ditto but in human dung, 3–7.viii.1971 (J.M.Campbell) (CNCI); ♂, 3♀♀, Yoho Nat. Park, Lake McArthur, 7000', 28.vii.1971 (J.M. &

B.A.Campbell) (CNCI); 6 specimens, Yoho Nat. Park, Lake O'Hara, 6700', 30.vii.1971 (J.M. & B.A.Campbell) (CNCI); 4 specimens, Yoho Nat. Park, Amiskwi River, 6000', 5.viii.1971 (J.M. & B.A.Campbell) (CNCI); 1 specimen, Yoho Nat. Park, Valley of Hagen Peak, 6.viii.1971 (J.M. & B.A.Campbell) (CNCI); 28 specimens, Manning Prov. Park, Blackwall Pk., 6000–6750', 20.vi.1968 (Campbell & Smetana) (CNCI (25), CUIC (3)); 7 specimens, ditto but 3000', 31.v.1968 (CNCI); 1 specimen, ditto but Mt. Frosty, 6100', 30.vii.1975 (CNCI); 7 specimens, Mt. Revelstoke, 6300', 18.vi.1968 (Campbell & Smetana) (CNCI); 2♀♀, ditto but 6000', 8.vii.1952 (G.P.Holland) (CNCI); 63 specimens, Mt. Revelstoke Nat. Park, Eva Lk., 6500', 25.vii.1971 (J.M. & B.A.Campbell) (CNCI (61), CUIC (2)); 7 specimens, Kootenay Nat. Park, Kimpton Creek, 4000', 21.vii.1971 (J.M. & B.A.Campbell) (CNCI (5), CUIC (2)); 23 specimens, ditto but Sinclair Creek, 12.vi.1968 (Campbell & Smetana) (CNCI (22), CUIC (1)); ♀, 46 km W McBride, 26.viii.1983 (J.M.Campbell) (CNCI); **Alberta:** 2♀♀, Jasper, Whistler Creek, 1928 (Cameron) (BMNH); ♀, Jasper Nat. Park, Mt. Edith Cavell, 6000', 22.viii.1971 (J.M.Campbell) (CNCI); ♂, Lake Louise, 1928 (Cameron) (BMNH); 2 specimens, Banff (A.Fenyes) (CASC (1), CUIC (1)); 29 specimens, Waterton Lks. Nat. Park, Rowe Lks. Tr., 6000', 7.vi.1980 (J.M.Campbell) (CNCI (28), CUIC (1)); 2 specimens, ditto but 6300' (CNCI); 3 specimens, ditto but 6400', 12.vi.1980 (CNCI); ♂, 4♀♀, ditto but 6000' (CNCI); ♂, ♀, ditto but 5600' (CNCI); 1 specimen, ditto but 6400' (CNCI); 1 specimen, Waterton Lks. Nat. Park, Rowe Creek Trail, 5900', 15.vi.1980 (J.M.Campbell) (CNCI); ♀, ditto but 6500' (CNCI); 4 specimens, 6000–6300', dung trap (CNCI); 8 specimens, Waterton Lks. Nat. Park, Rowe Creek, 5500', 21.vi.1980 (J.M.Campbell) (CNCI); 4 specimens, ditto but 4.viii.1976 (CNCI); 2 specimens, ditto but 5400' (CNCI); ♀, ditto but 5.viii.1976 (CNCI); ♀, ditto but 5300', 7.vi.1980 (J.M.Campbell) (CNCI); 4 specimens, Waterton Lks. Nat. Park, Rowe Trail, 6400', 16.vi.1980 (J.M.Campbell) (CNCI); 1 specimen, Waterton Lks. Nat. Park, Crypt Lake Trail, 4900', 23.vi.1980 (J.M.Campbell) (CNCI); ♀, ditto but 6500', 22.vi.1980 (CNCI); 1 specimen, Waterton Lks. Nat. Park, Lower Waterton Lake, 4500', 26.vi.1980 (J.M.Campbell) (CNCI); 11 specimens, Waterton Lks. Nat. Park, Cameron Lake, 5450', 9.vi.1980 (J.M.Campbell) (CNCI); 3 specimens, ditto but 8.vi.1980 (CNCI); 1 specimen, ditto but 5500', 31.vii.1980 (D.E.Bright) (CNCI); 3 specimens, ditto but 12.vi.1973 (J.Redner & C.Starr) (CNCI); 2 specimens, ditto but 7.vi.1980 (I.M.Smith) (CNCI); 1 specimen, ditto but wet meadow pitfall, 8–11.vi.1980 (I.Smith) (CNCI); 1 specimen, ditto but, 5500', dung trap, 17–19.vi.1980 (J.M.Campbell) (CNCI); 1 specimen, ditto but 5450', 9–14.vi.1980 (CNCI); 7 specimens, Waterton Lks. Nat. Park, Cameron Creek, ex squirrel midden, 5200', 24.vi.1980 (J.M.Campbell) (CNCI); 5 specimens, Waterton Lks. Nat. Park, Bertha Creek, 4900–5800', 10.vi.1980 (J.M.Campbell) (CNCI); 3 specimens, Waterton Lks. Nat. Park, Lower Bertha Falls, 4800', 10.vi.1980 (J.M.Campbell) (CNCI); 1 specimen, Waterton Lks. Nat. Park, Lineham Creek Trail, 5900–6500', 3.viii.1976 (J.M.Campbell) (CNCI); 11 specimens, Waterton Lks. Nat. Park, Crandell Lake, 5000', 19.vi.1980 (J.M.Campbell) (CNCI); 3 specimens, Waterton Lks. Nat. Park,

Summit–Carthew Lakes Trail, 7000', 17.vi.1980 (J.M.Campbell) (CNCI); 1 specimen, Waterton Lks. Nat. Park, Cameron Lake, Mother Duck Trail, 5800–6200', 17.vi.1980 (J.M.Campbell) (CNCI); 1 specimen, ditto but 6000', horse dung (CNCI); 21 specimens, Waterton Lks. Nat. Park, Cameron Creek picnic ground, 5350', meadow edge, pitfall, 12–16.vi.1980 (I.M.Smith) (CNCI (19), CUIC (2)); 7 specimens, ditto but 17–28.vi.1980 (CNCI (6), CUIC (1)); 1 specimen, ditto but 7–11.vi.1980 (CNCI); 11 specimens, Waterton Lks. Nat. Park, Crandell Lake Trail, berlese extract of alder litter, 13.vi.1980 (I.M.Smith) (CNCI); 18 specimens, Waterton Lks. Nat. Park, Mother Duck Trail above Cameron Lake, berlese extract of moss, 17.vi.1980 (I.M.Smith) (CNCI); 2 specimens, Waterton Lks. Nat. Park, Little Prairie Picnic Area, pine litter, 23.vi.1980 (I.M.Smith) (CNCI); 1 specimen, Waterton Lks. Nat. Park, Cameron Lake, moss and spruce litter, 23.vi.1980 (I.M.Smith) (CNCI); 26 specimens, Banff Nat. Park, Consolation Lake, 6400–7000', 15.vi.1968 (Campbell & Smetana) (CNCI (24), CUIC (2)); 4 specimens, Banff Nat. Park, Bow Lake, 6500', 16.vi.1968 (Campbell & Smetana) (CNCI); ♂, Banff Nat. Park, Cirrus Mt., 5500', 16.vi.1968 (Campbell & Smetana) (CNCI); 11 specimens, Banff Nat. Park, Boom Lake, 6000', 16.vii.1971 (J.M. & B.A.Campbell) (CNCI); 2 specimens, Banff Nat. Park, Agnes Lake, 7000', 17.vii.1971 (J.M. & B.A.Campbell) (CNCI); 1 specimen, Banff Nat. Park, Smith Lake, 15.vii.1971 (J.M. & B.A.Campbell) (CNCI); 1 specimen, Banff Nat. Park, Mt. Temple Ski Lodge, 6600', 12.vii.1971 (J.M. & B.A.Campbell) (CNCI); 19 specimens, Marmot Creek Basin, 10 mi. SW Kananaskis F.E.S., 6500', 31.vii.1971 (J.M. & B.A. Campbell) (CNCI); 30 specimens, Lusk Creek, Kananaskis F.E.S., 14.vii.1971 (J.M. & B.A. Campbell) (CNCI); 2 specimens, 2.5 mi. SE Kananaskis, 15.viii.1970 (E.E.Lindquist) (CNCI (1), CUIC (1)); 4 specimens, Emerald Lake (Fenyes) (CASC); **UNITED STATES: Alaska:** 6 specimens, 7 km NNE McCarthy, env. of Kennicott, 61º29.21'N 142º52.80'W, 650 m, forest litter, *Alnus*, 14.vii.1998 (V.I.Gusarov) (AMNH (2), ZMUN (4)); ♀, road McCarthy–Kennicott, 61º26.42–.64'N 142º54.22–53.47'W, 500 m, forest litter, *Populus*, *Picea*, *Salix*, 14.vii.1998 (V.I.Gusarov) (ZMUN); **Oregon:** Grant Co.: 4 specimens, Strawberry Range, Strawberry Campground, 1780 m, 1.vi.1989 (A.Smetana) (CNCI); Klamath Co.: ♂, Gearhart Mtn., 6500–7200', 24.vi.1974 (A. & D.Smetana) (CNCI); **Montana:** Glacier Co.: 8 specimens, Logan Pass, Glacier Nat. Park, 6600', 11.vii.1971 (J.M. & B.A.Campbell) (CNCI (7), CUIC (1)); **Wyoming:** Sheridan Co.: 18 specimens, 27 mi. WSW Ranchester, Big Horn Mts. nr. Prune Creek Campground, South Tongue River, 7700', 25–26.viii.1982 (L.Herman) (AMNH (17), CUIC (1)); Albany Co.: ♂, ♀, 4 mi. W Centennial, conifer buttress, 15.viii.1984 (D.Field) (KSEM); **Colorado:** San Juan Co.: 2♂♂, ♀, Coal Bank Pass, 10550', 31.vii.1973 (J.M.Campbell) (CNCI (2), CUIC (1)); Boulder Co. / Grand Co.: ♂, Rollins Pass, 11000', 5.viii.1973 (J.M.Campbell) (CNCI); Las Animas Co.: ♀, 10 km SEE Cuchara, SEE of Cordova Pass, San Isabel Nat. Forest, 37º20.28'N 104º59.66'W, 3150 m, in forest litter, *Picea*, *Pinus*, *Populus*, 3.viii.1999 (V.I.Gusarov) (KSEM); Huerfano Co.: 3 specimens, 15 mi. SSW La Veta, Cucharas Creek, 9400', 16.viii.1982 (L.Herman) (AMNH); **New Mex-**

ico: Lincoln Co.: 5 specimens, Sierra Blanca, 11500', 18.vii.1969 (A.Smetana) (CNCI (4), CUIC (1)); 2♀♀, ditto but 10600' (CNCI); **Arizona:** Cococino Co.: 2♀♀, San Francisco Mts. (Mann) (CUIC); ♀, San Francisco Mts., Snow Bowl, 2800 m, 27.vii.1976 (J.M.Campbell) (CNCI); 3♀♀, ditto but Mt. Agassiz, 3200 m, 28.vii.1976 (CNCI).



FIGURES 33–40. Genitalia of *Lypoglossa angularis fenyesi* (Bernhauer) (male (33–39) and female (40), Waterton Lakes Nat. Park, Alberta). 33 — median lobe, parameral view; 34 — apex of median lobe, parameral view; 35 — apex of median lobe, oblique parameral and basal view; 36 — median lobe, lateral view; 37 — apex of median lobe, lateral view; 38 — apex of left paramere; 39 — sclerite of left paramere; 40 — spermatheca. Scale bar 0.1 mm (38), 0.2 mm (34–35, 37, 39–40), 0.4 mm (33, 36).

Diagnosis. *Lypoglossa a. fenyesi* differs from *L. a. angularis* in having a shorter and wider apex of the median lobe (Figs. 33–37; 25–29) (*L*<1.41; see also Fig. 23); and from *L. a. obtusa* in having a narrower bridge of the median lobe (in lateral view) (Figs. 36–37; 44–45) (*B*<0.60; see also Fig. 21).

Distribution. *Lypoglossa a. angularis* is known from interior Alaska, Yukon Territory, interior British Columbia and high mountains of eastern Washington, eastern Oregon, Montana, Wyoming, Colorado, New Mexico and Arizona (Fig. 18).

1c. *Lypoglossa angularis obtusa* (LeConte, 1866), comb. nov.
(Figs. 41–50)

Euryusa obtusa LeConte, 1866: 373 (*nec* Casey, 1906, *nec auct.*).

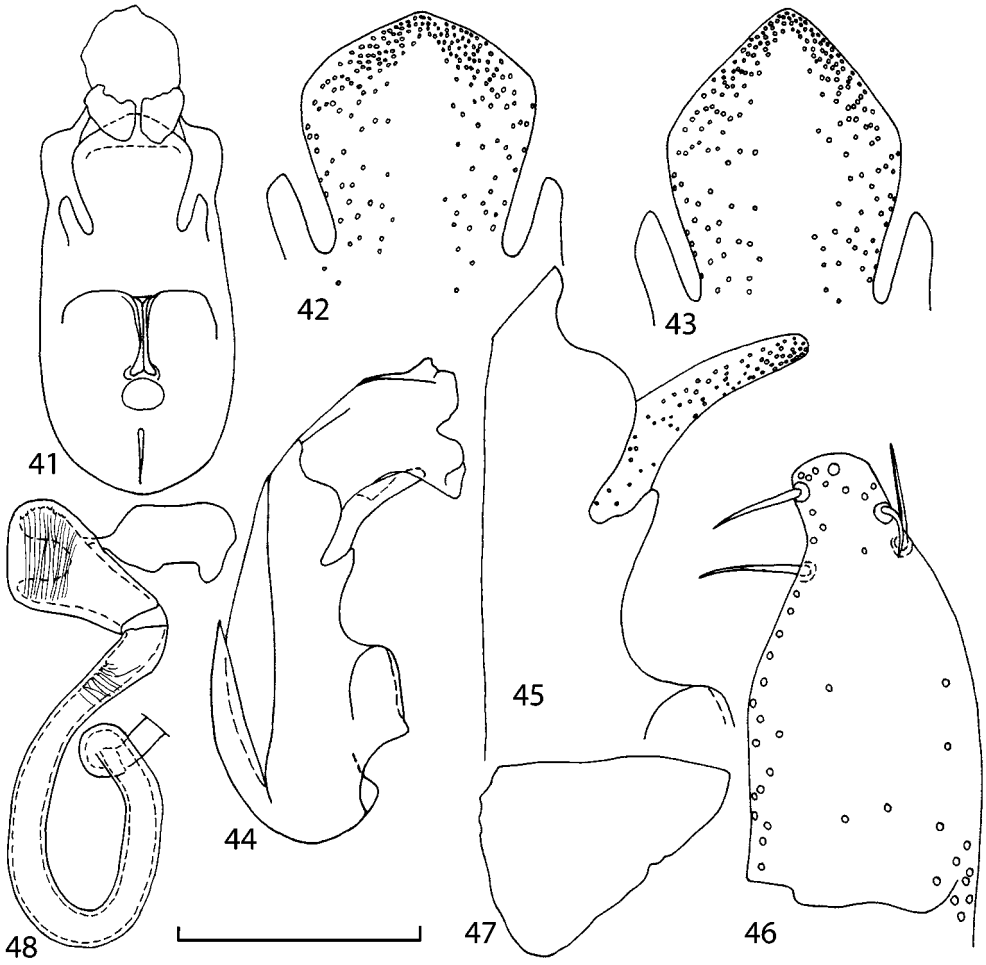
Type material. Holotype of *Euryusa obtusa*: ♀, "*Euryusa obtusa* Lec.", "Type 6254" (red label), "*Euryusa*" (MCZ).

Additional material. CANADA: Quebec: 2♂♂, ♀, Lac Arthabaska, Parc des Laurentides, 2800', 21–22.viii.1970 (J.M. & B.A. Campbell) (CNCI (2), CUIC (1)); ♂, Bois Verts, Parc des Laurentides, 2800', 18.viii.1970 (J.M. & B.A.Campbell) (CNCI); ♂, 2♀♀, Mare-du-Sault, Parc des Laurentides, 2700', 15–17.viii.1970 (J.M. & B.A.Campbell) (CNCI); 2♂♂, 2♀♀, Mont Jacques–Cartier, 4000', 22.vii.1972 (J.M.Campbell) (CNCI); 2♂♂, 2♀♀, Mont Albert, Parc Gaspesie, 1000', 8.vii.1972 (J.M. & B.A. Campbell) (CNCI (3), CUIC (1)); 3♀♀, ditto but 2800', 11.vii.1972 (CNCI); 2♂♂, 3♀♀, ditto but 3700', 10–11.vii.1972 (J.M.Campbell) (CNCI); ♂, 3♀♀, ditto but 3150', in forest, 2.vii.1954 (G.P.Holland) (CNCI (3), CUIC (1)); 5 specimens, ditto but 20.vi.1954 (CNCI); ♂, Lac Cascapedia, 1700', 14.vii.1972 (J.M. & B.A.Campbell) (CNCI); **Newfoundland:** ♀, Glide Lake, 9.vi.1994 (W.Bowers *et al.*) (CNCI); **UNITED STATES: Maine:** Oxford Co.: ♂, N slope of Old Speck Mt., 32 km W Rumford, 44º34.53–.63'N 70º57.47–.61'W, 950–1100 m, forest litter, *Picea*, *Abies*, *Betula*, *Oxalis*, 24.viii.2001 (V.I.Gusarov) (ZMUN); **New Hampshire:** Coos Co.: ♂, 2♀♀, Mt. Washington (KSEM); ♀, ditto but, 3800', 16.viii.1976 (J.M. & B.A. Campbell) (CNCI (2), CUIC (1)); ♂, Randolph, 18.ix.1909 (CNCI).

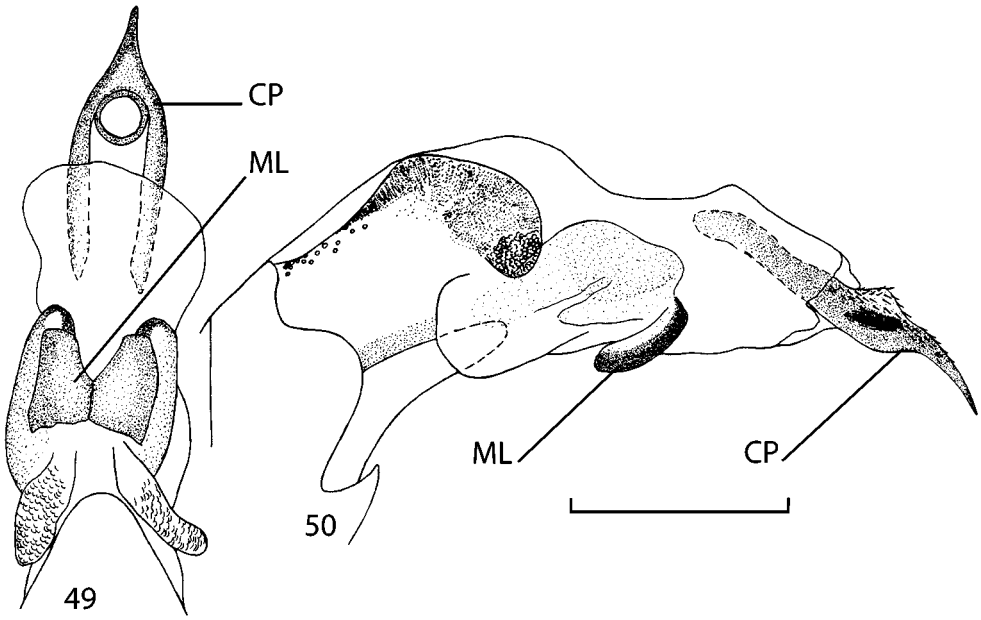
Diagnosis. *Lypoglossa a. obtusa* differs from both *L. a. fenyesi* and *L. a. angularis* in having a broader bridge of the median lobe (in lateral view) (Figs. 44–45; 28–29, 36–37) (*B*>0.60; see also Fig. 21).

Discussion. According to LeConte (1866), the type locality of *E. obtusa* is in Pennsylvania. LeConte (1866: 373) wrote: "Pennsylvania; a specimen found at Columbia was given to me by Professor S. S. Haldeman". Columbia is located southeast of Harrisburg at the Susquehanna River, 100 m above see level. Since *Lypoglossa angularis* is a species restricted to boreal forests which do not occur in Columbia area the type locality must had been indicated by LeConte incorrectly. Even in Maine and New Hampshire this species was recorded at the altitudes of at least 1000 m and only in Quebec some specimens were collected at altitudes as low as 300 m. Although *L. angularis* was never recorded from Pennsylvania there is a chance that it occurs there in the mountains above 700 m. Another possibility is that the specimen was collected in a different state altogether. Considering

localities of other species listed in the same paper (LeConte 1866) and the fact that the paper was published in 1866, it seems more likely that the holotype of *E. obtusa* originates from the Northeast rather than western regions. Females of all three subspecies of *L. angularis* are identical, but *L. angularis obtusa* is the only subspecies known from the East.



FIGURES 41–48. Genitalia of *Lypoglossa angularis obtusa* (LeConte) (male (41–47) and female (48), Mt. Albert, Quebec). 41 — median lobe, parameral view; 42 — apex of median lobe, parameral view; 43 — apex of median lobe, oblique parameral and basal view; 44 — median lobe, lateral view; 45 — apex of median lobe, lateral view; 46 — apex of left paramere; 47 — sclerite of left paramere; 48 — spermatheca. Scale bar 0.1 mm (46), 0.2 mm (42–43, 45, 47–48), 0.4 mm (41, 44).



FIGURES 49–50. Everted internal sac of *Lypoglossa angularis obtusa* (LeConte) (male, Old Speck Mt., Maine). 49 — parameral view; 50 — lateral view. Scale bar 0.2 mm. CP — copulatory piece; ML — medial lamellae.

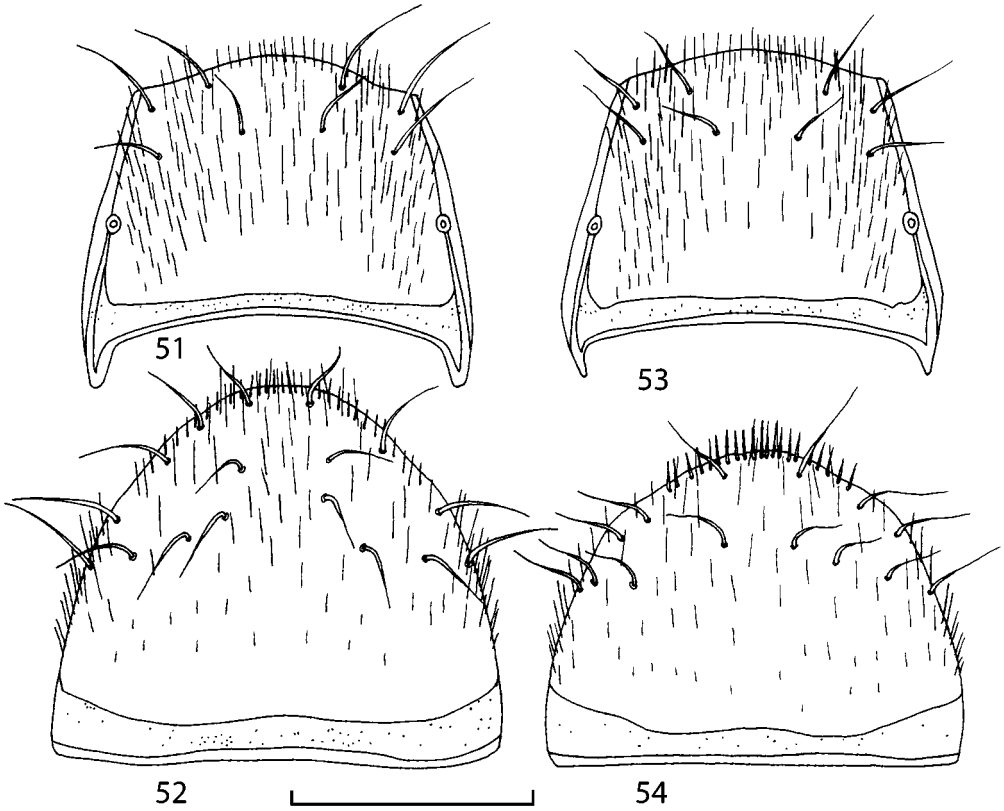
Distribution. *Lypoglossa a. obtusa* is isolated from the populations of *L. angularis* in the western North America and known from Newfoundland, Quebec, Maine and New Hampshire (Fig. 18).

2. *Lypoglossa manitobae* Gusarov, sp. n.
(Figs. 51–63).

Lypoglossa angularis: Hoebeke,1992: 390, *ex parte*.

Type material. Holotype: **CANADA: Manitoba:** ♂, Riding Mtn. Nat. Park, Stathclair Trail, 4.5 km S Kinnis Creek, 12.ix.1979 (A.Smetana) (CNCI). Paratypes: **CANADA: Manitoba:** 2♂♂, 3♀♀, same data as the holotype (CNCI (2), CUIC (1), KSEM (1), ZMUN (1)); ♀, Riding Mtn. Nat. Park, 1 km SE Long Lake, 16.ix.1979 (A.Smetana) (CNCI).

Diagnosis. *Lypoglossa manitobae* differs from *L. angularis* in having a smaller body size, and shorter and blunter dentiform projections at the base of the apex of the median lobe (Figs. 55–59; 25–29).



FIGURES 51–54. Abdominal segment 8 of *Lypoglossa manitobae* Gusarov, **sp. n.** (holotype (51–52) and female paratype (53–54) from Riding Mountains Nat. Park, Manitoba). 51 — male tergum 8; 52 — male sternum 8; 53 — female tergum 8; 54 — female sternum 8. Scale bar 0.4 mm.

Lypoglossa manitobae can be distinguished from the Palaearctic *L. lateralis* by the following characters: pronotum and elytra lighter than head and abdomen; punctation of head and pronotum not asperate; and a distinct shape of the aedeagus and spermatheca (Figs. 55–63; 72–78).

L. manitobae differs from *L. franclemonti* in having a smaller body size; the apex of the median lobe (in parameral view) constricted basally (Figs. 55–57; 64–65); with a dentiform projection on each side of the base of the apex (Figs. 55–59; 64–67); and a smaller spermatheca (Figs. 62–63; 70).

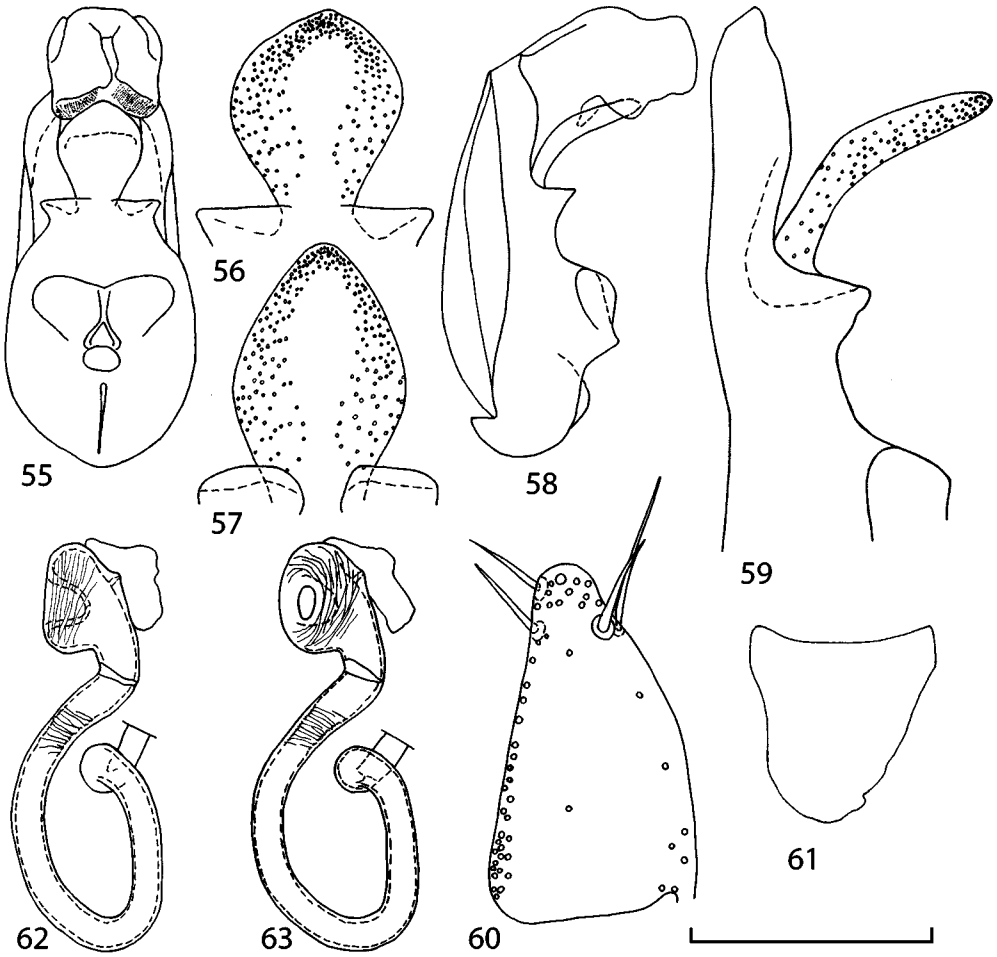
Description. Length 3.2–3.5 mm. Head and abdomen brown; pronotum, elytra, legs, antennae and mouthparts light brown.

Head surface glossy, with weak isodiametric microsculpture, with fine punctation, distance between punctures equals 1–2 times their diameter. Eyes 1.0–1.3 times as long as temples. Antennal articles 4–6 elongate, 7–10 subquadrate.

Pronotum transverse, 1.4 times as wide as head, width 0.81–0.87 mm, length 0.60–0.66 mm, width to length ratio 1.3–1.4; surface glossy, with weak isodiametric micro-

sculpture; punctation finer than on head, distance between punctures equals 2 times their diameter. Elytra wider (0.89–0.91 mm) and longer (0.66–0.74 mm; measured from humeral angle) than pronotum (elytral length to pronotal length ratio 1.1), 1.3 times as wide as long, surface glossy, with poorly visible microsculpture; punctation stronger and denser than on pronotum, distance between punctures equals ½–1 times their diameter.

Abdominal terga with very fine (poorly visible at 70x) microsculpture consisting of transverse waves; terga 3–5 matte due to fine and dense punctation, distance between punctures equals 1–3 times their diameter, terga 6–7 glossy, with sparser punctation, distance between punctures equals 2–6 times their diameter.



FIGURES 55–63. Genitalia of *Lypoglossa manitobae* Gusarov, **sp. n.** (holotype (55–61) and female paratype (62–63) from Riding Mountains Nat. Park, Manitoba). 55 — median lobe, parameral view; 56 — apex of median lobe, parameral view; 57 — apex of median lobe, oblique parameral and basal view; 58 — median lobe, lateral view; 59 — apex of median lobe, lateral view; 60 — apex of left paramere; 61 — sclerite of left paramere; 62–63 — spermatheca. Scale bar 0.1 mm (60), 0.2 mm (56–57, 59, 61–63), 0.4 mm (55, 58).

In males, head with weak medial impression and pronotum with broad impression along midline.

Aedeagus as in Figs. 55–61.

Spermatheca as in Figs. 62–63.

Distribution. *Lypoglossa manitobae* is known only from Riding Mountains National Park in Manitoba (Fig. 18) where it is sympatric with *L. franclemonti*.

Natural History. No information is available.

3. *Lypoglossa franclemonti* Hoebeke, 1992
(Figs. 64–70)

Lypoglossa fenyesi: Lohse & Smetana, 1985: 294 (*nec* Bernhauer, 1907: 402) (Misidentification).
Lypoglossa franclemonti Hoebeke,1992: 386.

Type material. Holotype: **UNITED STATES: New York:** Essex Co.: ♂, Mt. Whiteface, 2000–4000', 22.viii.1916 (CUIC). Paratypes: **UNITED STATES: Maine:** Washington Co.: 7 specimens, Carrying Place Cove, Lubec, 23.vii–24.viii.1989 (H.Fraembs) (CUIC); **New Hampshire:** Coos Co.: ♂, Bretton Woods (A.Fenyes) (CUIC); 1 specimen, White Mts., Glen Ellis Falls, 1900', 15.viii.1976 (J.M. & B.A.Campbell) (CNCI); 1 specimen, White Mts., Glen Boulder Trail, 2500', 17.viii.1976 (J.M. & B.A.Campbell) (CNCI); **New York:** Essex Co.: ♀ (allotype), Artist's Brook, 11.vi.1933 (H.Dietrich) (CUIC); **CANADA: Nova Scotia:** 1 specimen, Cape Breton Hist. Nat. Park, 410 m, Benjies Lake area, PG680786, sifting mosses, 18.ix.1984 (J.M. Campbell & A.Davies) (CNCI); ♂, ditto but 440 m, near Sammys Barren, PG764861, sifting moss and *Alnus* litter, 24.ix.1984 (CNCI); **Quebec:** 1 specimen, Mistassini Post, 13.vi.1956 (J.R.Lonsway) (CNCI); 4 specimens, Parc Gaspesie, Mont Albert, 1000', 9.vii.1972 (J.M. & B.A.Campbell); 2 specimens, Parc Gaspesie, Lac du Diable, 1500', 12.vii.1972 (J.M. & B.A.Campbell) (CNCI); 1 specimen, ditto but Lac St. Anne (CNCI); 1 specimen, Parc Gaspesie, Lac Cascapedia, 1700', 14.vii.1972 (J.M. & B.A.Campbell) (CNCI); 2 specimens, Parc des Laurentides, Mare-du-Sault, 2700', 15–17.viii.1970 (J.M. & B.A.Campbell) (CNCI); **Ontario:** 9 specimens, Superior Prov. Park, Gargantua, 7.vi.1973 (J.M.Campbell & R.Parry) (CNCI); 1 specimen, ditto but 9.vi.1973 (CNCI); 3 specimens, ditto but Frater (CNCI); 1 specimen, ditto but 13.vi.1973 (CNCI); 6 specimens, ditto but Agawa Bay (CNCI); 3 specimens, ditto but Old Woman Bay (CNCI); 1 specimen, ditto but Baldhead Lake, 8.vi.1973 (J.M.Campbell & R.Parry) (CNCI); 5 specimens, 36 mi. S Pickle Lake, 22.vi.1973 (Campbell & Parry) (CNCI); 1 specimen, 21 mi. N Pickle Lake, 19.vi.1973 (Campbell & Parry) (CNCI); 1 specimen, ditto but 41 mi. N Pickle Lake (CNCI); 1 specimen, 49 mi. N Savant Lake, 23.vi.1973 (Campbell & Parry) (CNCI); 2 specimens, 46 mi. N Hurkett, Black Sturgeon Lake, 29.vi.1973 (R.Parry & J.M.Campbell) (CNCI); 5 specimens, Moosonee, 2.vii.1973 (Parry & Campbell) (CNCI); 2 specimens, ditto but 30.vi.1973 (CNCI); **Mani-**

toba: 6 specimens, Riding Mtn. Nat. Park, Moon Lake, 17.ix.1979 (A.Smetana) (CNCI); 4 specimens, ditto but near Deep Lake, 7.ix.1979; 1 specimen, ditto but Whirlpool River at Hwy. 19, 6.ix.1979 (CNCI); **Alberta:** 8 specimens, George Lake, 53º57'N 114º06'W, moss and lichens, on rotten logs from black spruce bog, 1.vi.1980 (J.S.Ashe); 1 specimen, ditto but berlese extract of sifted litter from birch–*Ledum* bog, 12.vi.1980; 2 specimens, ditto but berlese extract of sifted litter from spruce bog, 16.vi.1980; 2 specimens, ditto but 2.viii.1978; 2 specimens, ditto but berlese extract of sifted litter from birch bog, 10.viii.1980; ♂, ditto but pan trap, 5–22.v.1970 (G.Gibson) (all – KSEM); 2 specimens, ditto but 1.x.1966 (R.E.Leech) (CNCI); 2 specimens, ditto but 25.ix.1966 (CNCI); 1 specimen, ditto but 10.ix.1966 (CNCI); 3 specimens, Lusk Creek, Kananaskis F.E.S., 14.vii.1971 (J.M. & B.A.Campbell) (CNCI); **North West Territory:** ♀, 5 mi. SE Fort Simpson, Hwy. 3, 21.vi.1972 (A. Smetana) (CNCI).

Additional material. UNITED STATES: Vermont: Bennington Co.: 2♂♂, 2♀♀, Big Equinox Mtn., 3800', spruce–fir forest, berlese extract of litter, 25.ix.1976 (A.Newton & M.Thayer) (FMNH); Franklin Co.: ♂, E slope of Crocker Mt., 13 km SE Stratton, Appalachian Trail, 45º02.2'N 70º21.9W, 950 m, forest litter, *Picea*, *Abies*, *Betula*, 23.viii.2001 (V.I.Gusarov) (ZMUN); **New York:** Essex Co.: ♂, Mt. Marcy, 1.x (FMNH); Hamilton Co.: ♂, Adirondack Park, 9 km SE Deerland, 2 km E Hwy. 28N & 30, W slope of Blue Mountain, 43º52.19'N 74º24.30W, 1100 m, forest litter, *Abies*, *Betula*, *Sorbus*, *Oxalis*, 27.viii.2001 (V.I.Gusarov) (ZMUN).

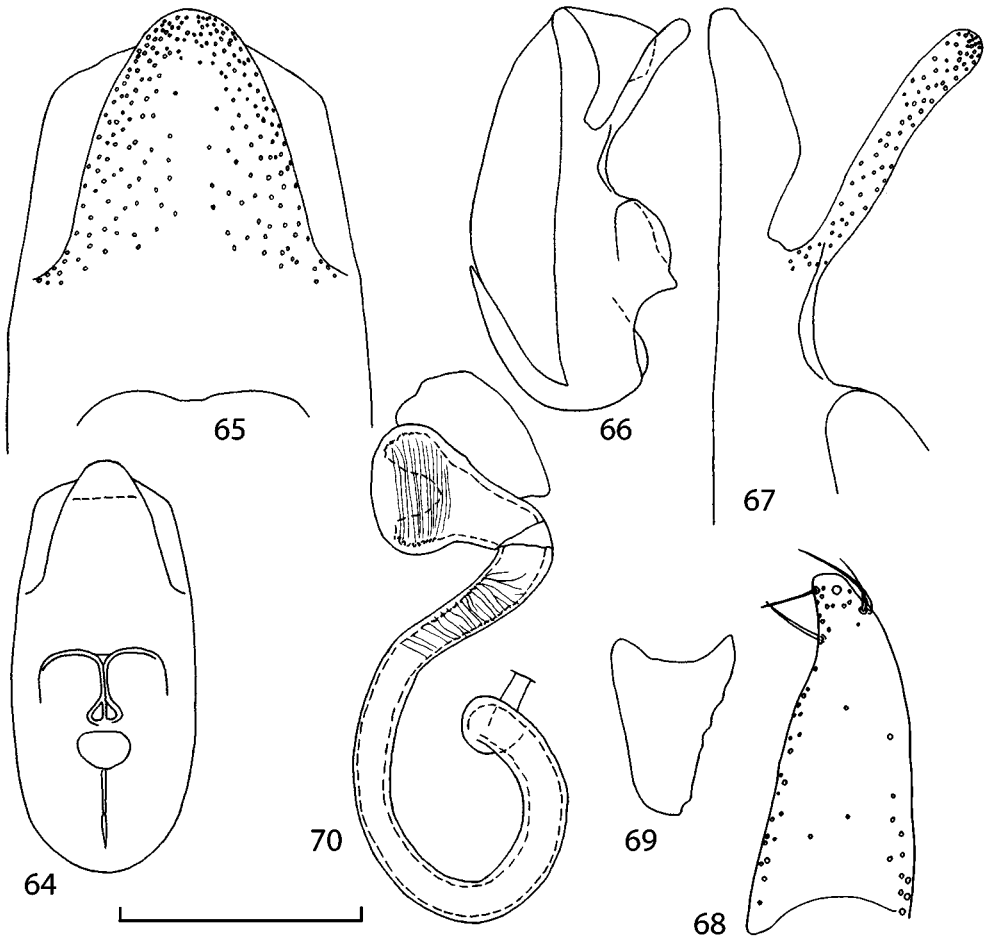
Diagnosis. *Lypoglossa franclemonti* differs from the Palaearctic *L. lateralis* in having pronotum and elytra lighter than head and abdomen; punctation of head and pronotum not asperate; more elongate antennal articles; and in the shape of the aedeagus and spermatheca (Figs. 64–70; 72–78).

Lypoglossa franclemonti can be distinguished from *L. angularis* by a less transverse pronotum, more elongate antennal articles; the apex of the median lobe (in parameral view) broadest at the base, not constricted (Figs. 64–65; 25–27); no projections at the base of the apex (Figs. 64–67; 25–29); a smaller sclerite of the parameres (Figs. 69; 31); and the proximal loop of the spermatheca wider, almost circular (Figs. 70; 32).

Lypoglossa franclemonti differs from *L. manitobae* in having a larger body size; apex of the median lobe (in parameral view) broadest at the base, not constricted (Figs. 64–65; 55–57); no projections at the base of the apex (Figs. 64–67; 55–59); a smaller sclerite of parameres (Figs. 69; 61); and a larger spermatheca (Figs. 70; 62–63).

Description. Length 3.8–4.6 mm. Head and abdomen brown, pronotum and elytra, legs, antennae and mouthparts reddish brown to brownish red, in some specimens elytra near scutellum and along suture darker.

Head surface glossy, with weak isodiametric microsculpture, with weak punctation, distance between punctures equal to 1–1.5 times their diameter. Eyes 0.9–1.1 times as long as temples. All antennal articles elongate or articles 9–10 subquadrate.



FIGURES 64–70. Genitalia of *Lypoglossa franclemonti* Hoebeke (male (64–69) and female (70) from George Lake, Alberta). 64 — median lobe, parameral view; 65 — apex of median lobe, parameral view; 66 — median lobe, lateral view; 67 — apex of median lobe, lateral view; 68 — apex of left paramere; 69 — sclerite of left paramere; 70 — spermatheca. Scale bar 0.2 mm (65, 67–70), 0.4 mm (64, 66).

Pronotum transverse, 1.5 times as wide as head, width 0.90–1.09 mm, length 0.71–0.89 mm, width to length ratio 1.2–1.3; surface glossy, with weak isodiametric microsculpture; punctation finer and denser than on head, distance between punctures equals their diameter. Elytra wider (0.96–1.21 mm) than pronotum and as long (0.70–0.87 mm; measured from humeral angle) as pronotum, 1.3 times as wide as long, surface glossy, with poorly visible microsculpture; punctation slightly asperate and denser than on pronotum, distance between punctures equal to ½–1 times their diameter.

Abdominal terga with very fine (poorly visible at 70x) microsculpture consisting of transverse waves; terga 3–5 matte due to fine and dense punctation, distance between

punctures equals 1–2 times their diameter, terga 6–7 glossy, with sparser punctation, distance between punctures equals 2–4 times their diameter.

In males, head with weak medial impression and pronotum with broad impression along midline.

Aedeagus as in Figs. 64–69.

Spermatheca as in Fig. 70.

Distribution. *Lypoglossa franclemonti* is distributed in Canada and in the northeastern United States. It is known from the Northwest Territory, Alberta, Manitoba, Ontario, Quebec, Nova Scotia, New York, Vermont, New Hampshire and Maine (Fig. 71). In different parts of its range *L. franclemonti* is sympatric with *L. manitobae* (in Manitoba), *L. angularis obtusa* (in the North-East) and *L. angularis fenyesi* (in Alberta). Compared to *L. angularis*, *L. franclemonti* tends to be restricted to lower altitudes and more continental conditions.

Natural History. *Lypoglossa franclemonti* is common in forest litter and in moss on forest floor.

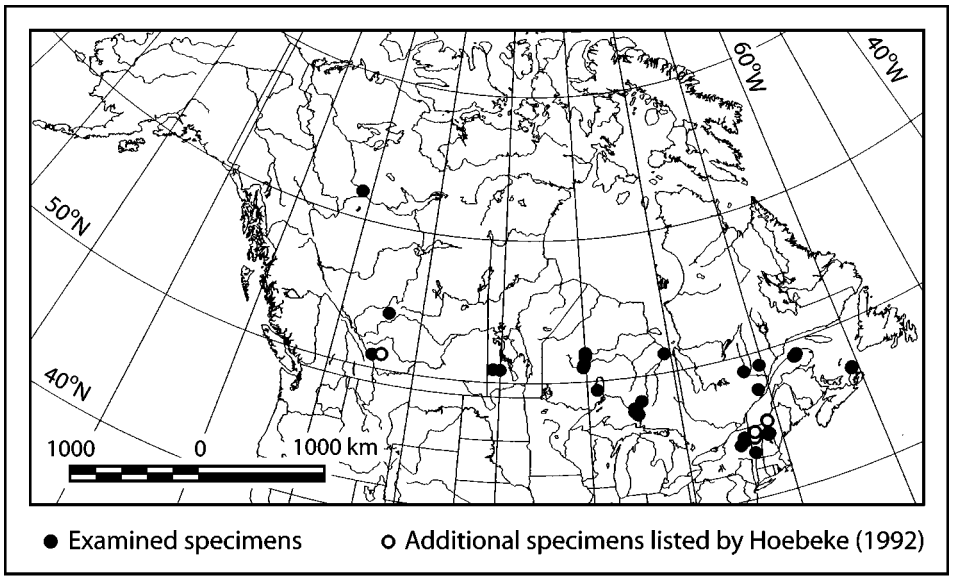


FIGURE 71. Geographical distribution of *Lypoglossa franclemonti* Hoebeke.

4. *Lypoglossa lateralis* (Mannerheim, 1830)

(Figs. 72–78)

Oxypoda lateralis Mannerheim, 1830: 70.
Oxypoda (*s. str.*) *lateralis*: Fenyes, 1920: 366 (as valid species).
Oxypoda (*s. str.*) *lateralis*: Bernhauer & Scheerpeltz, 1926: 748 (as valid species).

Atheta (*Acrotona*) *lateralis*: Brundin, 1952: 101 (as valid species).
Atheta (*Megacrotona*) *lateralis*: Scheerpeltz, 1968: 159 (as valid species).
Megacrotona lateralis: Benick and Lohse, 1974: 103 (as valid species).
Lypoglossa lateralis: Lohse & Smetana, 1985: 294 (as valid species).
Lypoglossa lateralis: Hoebeke,1992: 396 (as valid species).

(Other references for *Lypoglossa lateralis* are omitted)

Type material. Lectotype of *Oxypoda lateralis* (designated by Hoebeke (1992)): **FINLAND:** 30 km NW Turku, Villnas (MZHF).

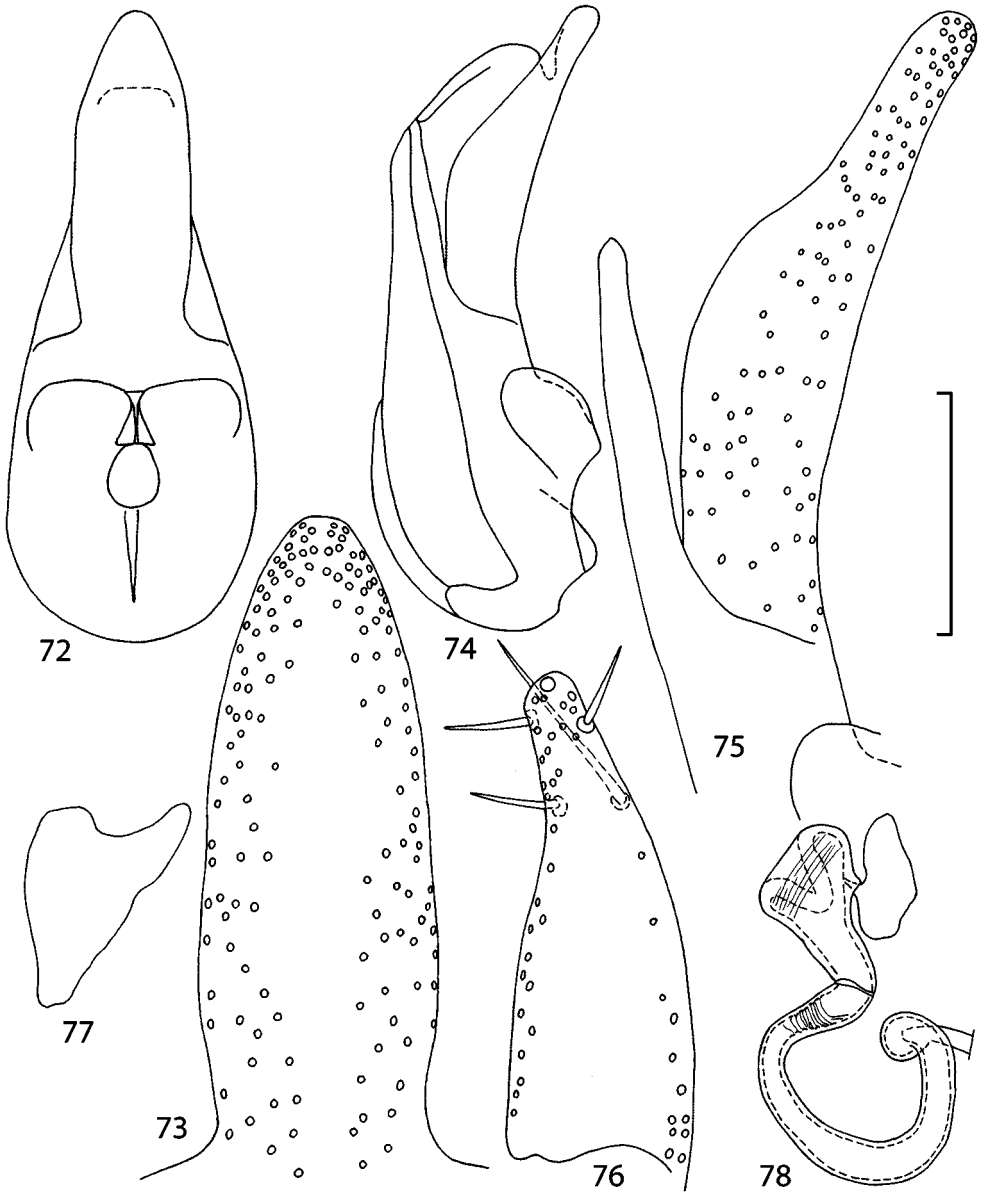
Additional material. RUSSIA: Murmansk Reg.: 5 specimens, 20 km SSE Kirovsk, pifall traps, 15.vi–15.viii.1994 (M.Kozlov) (ZMUN); Tyumen' Reg.: ♀, Agap River, 22.vi.1988 (Ye.Zinov'yev) (ZMUN); Magadan Reg.: ♂, ♀, 25 km N Magadan, in grass, 3.vii.1985 (Yu.M.Marusik); 6 specimens, 30 km N Magadan, Snezhnaya Dolina, viii–ix.1996 (Yu.M.Marusik); 2♂♂, ♀, ditto but 12–14.ix.1996; ♂, upper reaches of the Kolyma River, Jack London Lake, Studyonyy Creek, 13.vii.1986 (Yu.M.Marusik); 3 specimens, upper Kolyma River, Bol'shoy Annachag Mt. Range, env. of Sibit-Tyellakh, Olen' River, 800m, *Alnus*, *Pinus pumila*, in forest litter, 15.vii.1985 (Yu.M.Marusik) (ZMUN); Chukotkskiy Aut. Distr.: 8 specimens, E Chukotka, upper reaches of the Bol'shaya Osinovaya River (a tributary of the Belaya River), *Chosenia*, in forest litter, 13.vii.1989 (Yu.M.Marusik); 11 specimens, 10 km E Amguema, 22.vii.1988 (Yu.M.Marusik) (ZMUN).

Diagnosis. *Lypoglossa lateralis* differs from all Nearctic species of *Lypoglossa* in having more uniform and darker body color; asperate punctation of head and pronotum; slightly transverse antennal segments 6–10; and a different shape of the aedeagus and spermatheca (Figs. 72–78).

Description. Length 3.6–4.0 mm. Head and abdomen dark brown; pronotum dark brown or brown, in most specimens with light margins; elytra dark brown to brown, with lighter oblique area stretching from humeral angle to sutural angle; legs brown, mouthparts and antennae dark brown.

Head surface glossy, with weak isodiametric microsculpture, with strong and asperate punctation, distance between punctures equals 1–1.5 times their diameter. Eyes 1.2–1.5 times as long as temples. Antennal article 4 elongate, 5 subquadrate, 6–10 slightly transverse (Fig. 13).

Pronotum transverse, 1.5 times as wide as head, width 0.81–0.94 mm, length 0.59–0.67 mm, width to length ratio 1.4; surface glossy, with weak isodiametric microsculpture, punctation asperate and denser than on head, distance between punctures equals their diameter. Elytra wider (0.97–1.11 mm) and longer (0.73–0.86 mm; measured from humeral angle) than pronotum (elytral length to pronotal length ratio 1.3), 1.3 times as wide as long, surface glossy, with poorly visible microsculpture; punctation asperate, denser and stronger than on pronotum, distance between punctures equal to ½–1 times their diameter.



FIGURES 72–78. Genitalia of *Lypoglossa lateralis* (Mannerheim) (male, 30 km N Magadan (72–77), and female, 25 km N Magadan (78), Chukotka Peninsula, Russia). 72 — median lobe, parameral view; 73 — apex of median lobe, parameral view; 74 — median lobe, lateral view; 75 — apex of median lobe, lateral view; 76 — apex of left paramere; 77 — sclerite of left paramere; 78 — spermatheca. Scale bar 0.1 mm (73, 75–77), 0.2 mm (72, 74, 78).

Abdominal terga with very fine (poorly visible at 70x) microsculpture consisting of transverse waves; terga 3–5 matte due to fine and dense punctation, distance between

punctures equals 1–3 times their diameter, terga 6–7 glossy, with sparser punctation, distance between punctures equals 2–6 times their diameter.

Aedeagus as in Figs. 72–77.

Spermatheca as in Fig. 78.

Distribution. *Lypoglossa lateralis* is a Palaearctic species restricted to subarctic, northern boreal and alpine forests. Examined specimens from Murmansk and Magadan Regions, and Chukotka Peninsula were identical in all external characters and in the shape of the male and female genitalia.

Natural History. *Lypoglossa lateralis* occurs in forest litter.

Acknowledgements

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