

A revision of Nearctic species of the genus *Tomoglossa* Kraatz, 1856 (Coleoptera: Staphylinidae: Aleocharinae)

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Abstract

Noverota Casey, 1910, **syn. nov.**, (type species *Noverota ornatella* Casey, 1910) is placed in synonymy with *Tomoglossa* Kraatz, 1856. Redescription and illustrations are provided for distinguishing the genus *Tomoglossa* from other aleocharine genera. Two new species of *Tomoglossa* are described (*T. arizonica* **sp. nov.** from Arizona and *T. floridana* **sp. nov.** from Florida) and three species are redescribed (*T. ornatella* (Casey, 1910) known from New Jersey, *T. improvisa* (Casey, 1910) from Texas and *T. decora* (Casey, 1910) from Vermont, Pennsylvania, Arkansas and Mississippi). Lectotypes are designated for *Noverota ornatella*, *N. decora* and *N. improvisa*. A key for identification of Nearctic species of *Tomoglossa* is provided.

Key words: Coleoptera, Staphylinidae, Aleocharinae, *Tomoglossa*, *Noverota*, taxonomy, new species, synonymy, Nearctic, identification key.

Introduction

The genus *Tomoglossa* Kraatz, 1856, until this contribution was published, included six Palaeartic, seven Oriental and one Nearctic species. Palaeartic species include two widespread Western Palaeartic species, *T. luteicornis* (Erichson, 1837) (the only known Japanese specimen attributed by Bernhauer (1907a) to *T. luteicornis* is a female and may turn out to be a different species (Sawada 1977)), *T. laeta* Eppelsheim, 1884, and four species with more restricted range: *T. aegyptiaca* Scheerpeltz, 1963 from Egypt, *T. brakmani* Scheerpeltz, 1963 from the Netherlands and Germany, *T. heydemanni* Lohse, 1977 from Germany, and *T. breittiana* (Scheerpeltz, 1957) from Greece (transferred to *Tomoglossa* by

Assing (1998)). Lohse (1989) published a key for identification of three Palaearctic species with illustrations of male and female genitalia.

Oriental species include seven species from India, Nepal and China (Hong Kong) described and/or transferred to *Tomoglossa* by Pace (1991, 1999). My examination of the drawings and short descriptions of *T. subcorticalis* (Cameron, 1939), *T. venusta* (Pace, 1984), *T. basicornis* (Pace, 1985), *T. nepalensis* (Pace, 1987), *T. franzi* Pace, 1991, *T. ocularis* Pace, 1991 and *T. fuliginosa* Pace, 1999 suggests that they do not belong to the genus *Tomoglossa*. In comparison to the Palaearctic species of *Tomoglossa*, the seven Oriental species have a different structure of the median lobe of aedeagus in the area around the basal pore. They do not have the characteristic wide umbilicus in the spermatheca and also lack the characteristic erect and long setation on abdominal terga VII and VIII. Additionally, some of these species have a different type of pubescence on the disc of the pronotum.

Bernhauer (1907b) recorded one Palaearctic species, *Tomoglossa luteicornis*, from North America (from Provo, Utah). This record was overlooked by later workers (Bernhauer & Scheerpeltz 1926) and *Tomoglossa* does not appear in the key to Nearctic beetles (Newton *et al.* 2000) or in the paper discussing the aleocharine species common to Nearctic and Palaearctic regions (Muona 1984). The pin with the labels corresponding to the Bernhauer specimen were located in FMNH. Unfortunately, the specimen had been removed from the pin (probably, for a slide preparation) and could not be found (Philip Parrillo, personal communication). At the time when Bernhauer published his work (1907b) it was not a standard to examine the genitalia and Bernhauer certainly did not do that. Because externally many species of *Tomoglossa* are very similar the record of *Tomoglossa luteicornis* from Utah is most likely a misidentification at species level.

Casey (1910) included seven species in the genus *Noverota* and placed the genus next to *Hydrosmecta* Thomson, 1858. He mentioned that in both genera the anterior margin of metasternum does not protrude anteriorly, but noted that in the genus *Noverota* the body is not as slender as in *Hydrosmecta*. Casey did not compare *Noverota* with *Tomoglossa*.

All subsequent authors placed *Noverota* near *Hydrosmecta* either as a separate genus (Seevers 1978; Newton *et al.* 2000) or as a subgenus in *Atheta* Thomson, 1858. Seevers pointed out that the seven species included in *Noverota* by Casey have pubescence on the pronotum of three different types, but nevertheless kept all seven species in *Noverota*.

My examination of the species described by Casey (1910) in the genus *Noverota* reveals that the type species of *Noverota* is close to *T. luteicornis* (Erichson, 1837), the type species of *Tomoglossa*. In this paper *Noverota* is placed in synonymy with *Tomoglossa* and the genus is redescribed. In addition, two new species of *Tomoglossa* are described and three known species are redescribed. A key for identification of Nearctic species of *Tomoglossa* is provided.

The Fourth edition of the International Code of Zoological Nomenclature (ICZN 1999) requires (Article 74.7.3) a lectotype designation to “contain an express statement of

the taxonomic purpose of the designation". The purpose of lectotype designations in this paper is to assure correct and consistent application of the names in the future. There is no reason to repeat this statement for each lectotype designation.

In this paper I follow the terminology accepted in taxonomy of Aleocharinae (Sawada 1970, 1972; Muona 1990; Newton *et al.* 2000). Where appropriate I provide additional references for rarely used terms. The spermathecal gland is shown on the drawings solely to illustrate the gland position in relation to other parts of spermatheca.

Depositories

AMNH – American Museum of Natural History, New York (L.H. Herman)

CAS – California Academy of Sciences, San Francisco (D.H. Kavanaugh)

DESPU – Department of Entomology, St. Petersburg State University, St. Petersburg, Russia (V.I. Gusarov)

FMNH – Field Museum of Natural History, Chicago (A.F. Newton)

NMNH – National Museum of Natural History, Washington, DC (T.L. Erwin)

Tomoglossa Kraatz, 1856 (Figs. 1-46)

Tomoglossa Kraatz, 1856: 342.

Tomoglossa; Bernhauer, 1907b: 401.

Noverota Casey, 1910: 90, **syn. nov.**

Tomoglossa; Fenyés, 1920: 255.

Atheta (*Noverota*); Fenyés, 1920: 199.

Tomoglossa; Bernhauer & Scheerpeltz, 1926: 598.

Atheta (*Noverota*); Bernhauer & Scheerpeltz, 1926: 606.

Tomoglossa; Scheerpeltz, 1963: 123.

Tomoglossa; Benick & Lohse, 1974: 107.

Tomoglossa; Sawada, 1977: 192.

Noverota; Seevers, 1978: 122.

Tomoglossa; Lohse, 1989: 208.

Noverota; Newton, Thayer, Ashe & Chandler, 2000: 369.

(Other references for Palearctic *Tomoglossa* are omitted)

Type Species. *Homalota luteicornis* Erichson, 1837, by monotypy.

Diagnosis. *Tomoglossa* can be distinguished from other athetine genera by the combination of the following characters: parallel-sided body; slender sickle-shaped mandibles (Figs. 1-3); ligula with two completely separate lobes (Fig. 10); mentum fused with submentum (Fig. 12); pronotum with microsetae directed posteriorly throughout the disc (Type VI, Benick and Lohse 1974) (Fig. 13); pronotal macrosetae inconspicuous; pronotal hypomera fully visible in lateral aspect; metasternal process extremely short and wide, vir-

tually non-existent, perhaps better described as convexity of the anterior margin of metasternum (Fig. 15); mesotibia with short median macroseta (shorter than tibial width); metatarsal segment 1 longer than segment 2 (Fig. 14); without empodial setae; with numerous erect macrosetae and long semi-erect microsetae on abdominal terga VII-VIII.

Tomoglossa shares with *Hydrosmecta* Thomson, 1858 slender mandibles, inconspicuous process of the metasternum, and the lack of empodial setae. *Tomoglossa* can be easily distinguished from *Hydrosmecta* by its less slender body, more widely separated lobes of the ligula, less transverse mentum fused with submentum, pubescence directed posteriorly everywhere on the pronotal disc (Type VI), shorter metasternum, and long erect setation of the apical abdominal segments.

Tomoglossa is similar to *Geostiba* Thomson, 1858 in having pronotal pubescence of Type VI; however, *Tomoglossa* differs in having slender mandibles, more widely separated lobes of ligula, less transverse mentum fused with submentum, inconspicuous metasternal process, long and erect setation of the apical abdominal segments and in lacking empodial setae.

Description. Length 1.6-2.1 mm. Head reddish brown to dark brown; pronotum yellow to reddish yellow, lighter than head; elytra from brownish yellow to brown, with yellow apical (1/3 to 1/5) portion; abdominal segments III-V and VII-VIII yellow to reddish yellow; abdominal tergum VI darker, reddish brown to dark brown; antennae uniformly yellow or with darker articles 2-11; maxillar palpi uniformly yellow or with darker article 3; legs yellow to reddish yellow. Body form parallel-sided.

Head transverse, eyes as long as temples (seen from above); infraorbital carina complete. Antennal articles 2 and 3 of equal length, 4-5 subquadrate, 6-10 slightly transverse, apical article as long as 9 and 10 combined, without coeloconic sensilla. Labrum (Fig. 8-9) transverse and narrow, with straight anterior margin. Mandibles (Figs. 1-3) symmetrical, slender, sickle-shaped, with a small medial tooth; ventral molar area without patches of denticles, dorsal molar region without visible "velvety patch" (400x) (Figs. 227.22-231.22 in Newton *et al.* 2000: 309). Maxilla (Figs. 4-7) with galea as long as lacinia, apical lobe of galea covered with numerous fine and short setae; interior margin of galea with row of setae subapically; apical third of lacinia with row of closely spaced spines, middle third produced medially and covered with numerous setae. Labial palpi with three articles; ligula divided into two completely separate lobes; medial pseudopore field of prementum with 4-5 pseudopores (Sawada 1970, 1972), lateral areas with pair of twin pores, single spinose pore and 4-6 irregular pseudopores (Fig. 10). Mentum (Fig. 12) with anterior margin concave, posteriorly fused with submentum.

Pronotum transverse, broadest slightly in front of middle, sides broadly rounded, anterior margin straight, anterior and posterior angles rounded; posterior margin convex; surface covered with short microsetae directed posteriorly in both midline and lateral areas (Type VI, Benick & Lohse 1974); macrosetae very short, limited to one macroseta at each of anterior and posterior angles and one on each lateral margin; hypomera fully visible in

lateral aspect. Posterior margin of elytra straight. Wings present, fully developed. Mesosternal process short and wide, extending 1/4 length of mesocoxal cavities, metasternal process almost non-existent, anterior margin of metasternum only slightly convex medially (Fig. 15); mesosternum and mesosternal process not carinate medially; relative lengths of mesosternal process: isthmus: metasternal process in ratio of about 6:19:1; mesocoxal cavities margined posteriorly; mesocoxae narrowly separated. Mesotibia with very short median macroseta (shorter than tibia width). Tarsal segmentation 4-5-5; metatarsal segment 1 longer than segment 2 (Fig. 14). No empodial setae present.

Abdominal terga III-V with moderate transverse basal impressions. Tergum VII 1.6 times longer than VI. Puncturation of terga III-V equally sparse, puncturation of terga VI-VII sparser. Terga VII-VIII with numerous erect macrosetae and long semi-erect microsetae. Tergum VIII (Figs. 17, 19, 34, 38, 43) in both sexes with basal row of long microsetae. Female sternum VIII (Figs. 16, 18, 35, 44) with row of apical microsetae (as in other *Athetini*).

Median lobe of aedeagus ventrally with very characteristic structure in the area of basal pore (Figs. 21-22, 40-41). Internal sac with a deeply concave sclerite (Figs. 23-24, 42). Copulatory piece (Sawada 1972) without apical process (Figs. 25, 42).

Spermatheca with wide umbilicus (Muona 1990) (Figs. 26, 36, 45).

Discussion. The type species of *Noverota* (*N. ornatella* Casey, 1910, by original designation) and *Tomoglossa* (*T. luteicornis* (Erichson, 1837)) differ only in body coloration (*T. luteicornis* being darker) and in minor details of genitalia (Figs. 21-26 in this paper and Fig. 123 in Lohse 1989). As a result, *Noverota* is placed in synonymy with *Tomoglossa*. Apparently Casey was not familiar with *Tomoglossa* and when describing *Noverota* he compared it only with *Hydrosmecta*. Casey (1910) included seven species in the genus *Noverota*. Three of these species belong to *Tomoglossa*. They are redescribed below. *Noverota clemens* Casey, 1910, *N. finitima* Casey, 1910, and *N. scenica* Casey, 1910 belong to *Philhygra* Mulsant & Rey, 1873 and will be redescribed elsewhere. The taxonomic position of *N. personata* Casey, 1910 is not clear, but it does not belong to *Tomoglossa*. The species is known from a single female type and a detailed study of its mouthparts is not possible. When additional specimens of this species are found the position of the species can be clarified. Two new species of *Tomoglossa* are described below. Thus, five valid Nearctic species of *Tomoglossa* are currently known.

In the key by Ashe (Newton *et al.* 2000) the specimens belonging to *Tomoglossa* run to the second half of the couplet 58. In the key by Benick and Lohse (1974) the same specimens easily reach *Tomoglossa* at couplet 8.

Key for Identification of Nearctic Species of *Tomoglossa*

- 1 Antennal articles 4 and 5 elongate, 1.1-1.3 as long as wide (Figs. 29-30). Length 2.0 mm. Pronotal length 0.34-0.36 mm 2

- Antennal articles 4 and 5 quadrate or transverse (Figs. 31-33). Length 1.6-2.1 mm. Pronotal length 0.27-0.36 mm 3
- 2 Puncturation of forebody deep. Known from New Jersey 2. *T. ornatella* (Casey)
- Puncturation of forebody shallow. Known from Texas 3. *T. improvisa* (Casey)
- 3 Antennal articles 4 and 5 quadrate (Fig. 31). Length 2.0-2.1 mm. Pronotal length 0.31-0.36 mm 1. *T. decora* (Casey)
- Antennal articles 4 and 5 transverse, 1.2-1.4 as wide as long (Figs. 32-33). Length 1.6-1.8 mm. Pronotal length 0.27-0.29 mm 4
- 4 Antennal article 11 as long as articles 9 and 10 combined; article 9 1.2 times as wide as long (Fig. 32). Articles 2-11 reddish brown, darker than article 1. Head, pronotum and elytra with finer and denser puncturation. Length 1.8 mm. Pronotal length 0.29 mm 4. *T. arizonica* **sp. nov.**
- Antennal article 11 shorter than articles 9 and 10 combined; article 9 1.5 times as wide as long (Fig. 33). Antenna uniformly reddish yellow. Head, pronotum and elytra with stronger and sparser puncturation. Length 1.6 mm. Pronotal length 0.27 mm 5. *T. floridana* **sp. nov.**

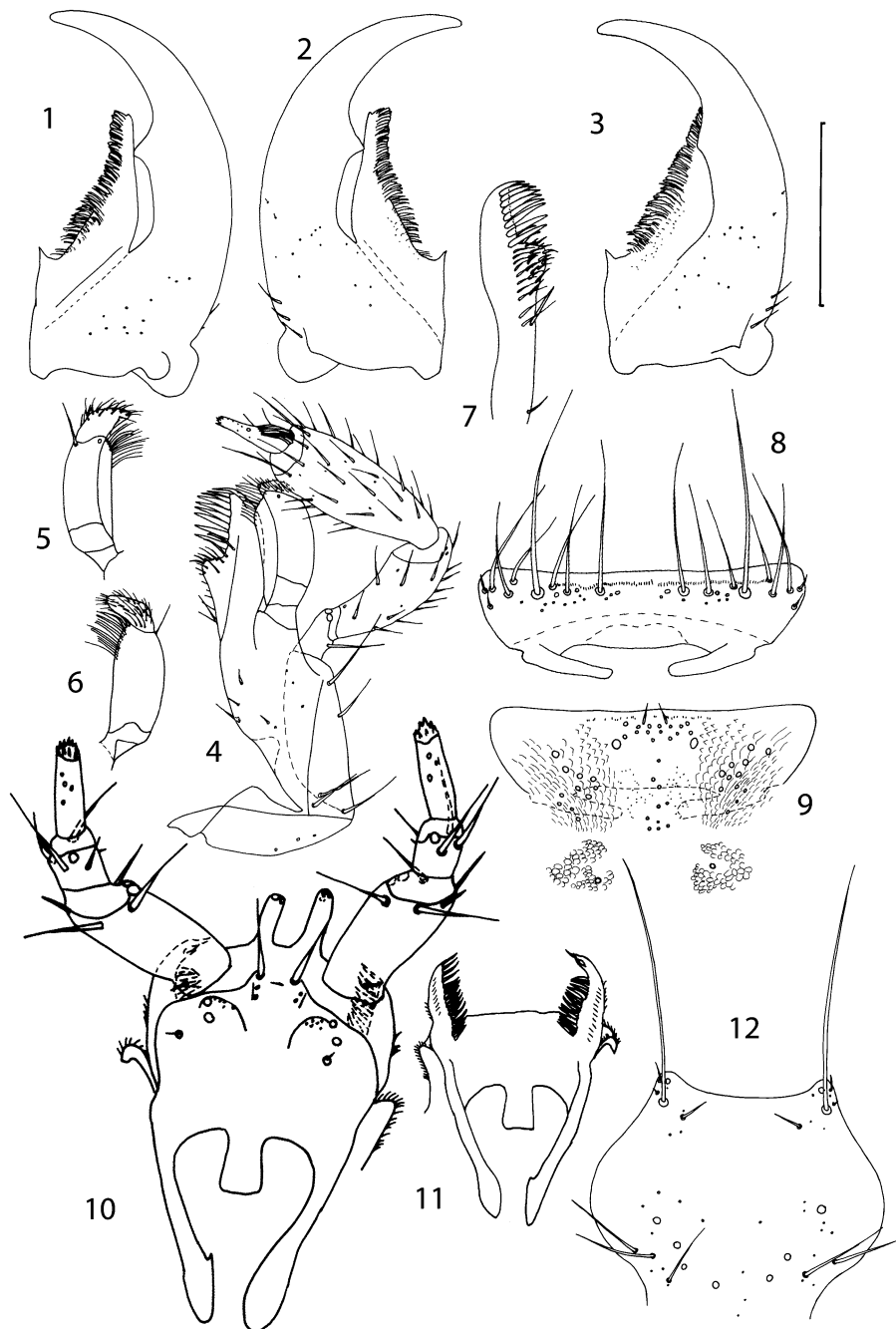
1. *Tomoglossa decora* (Casey, 1910), **comb. nov.** (Figs. 1-28, 31)

Noverota decora Casey, 1910: 91.

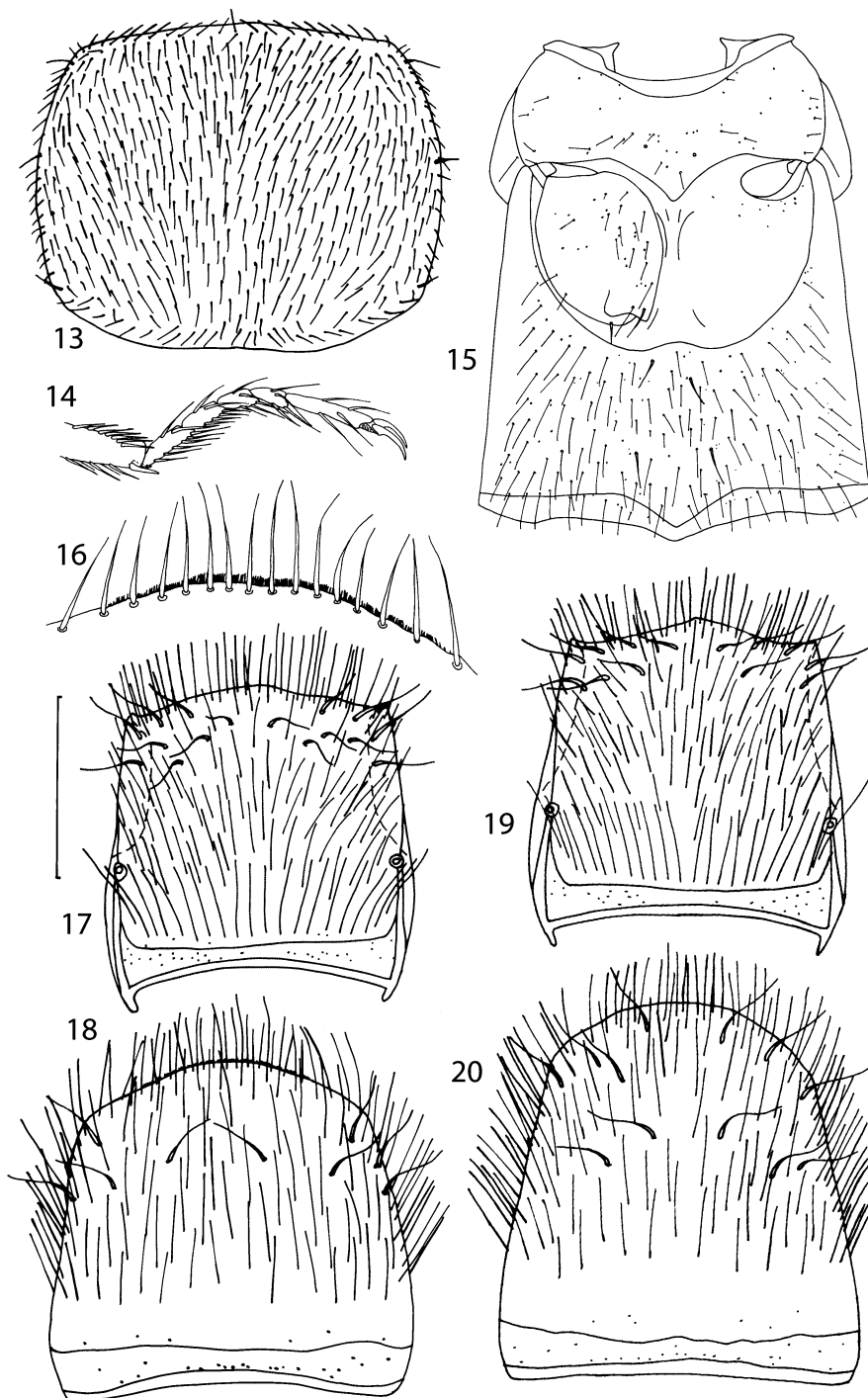
Type material: Lectotype (here designated), ♂, **UNITED STATES:** “Miss[issippi].” [Vicksburg], “*decora* Csy.”, “Casey bequest 1925”, “TYPE USNM 39100” (red label), “Lectotype *Noverota decora* Casey. V.I.Gusarov des. 2002” (red label) (NMNH). While describing *N. decora*, Casey did not specifically state how many specimens were available.

Additional material: **UNITED STATES: Vermont:** ♂, Windsor Co., 8 km SEE Springfield, Hwy. I-91, 43°14.00'N 72°26.81'W, 250m, in forest litter, *Acer, Betula, Tsuga, Quercus*, 21.ix.1998 (V.I.Gusarov) (DESPU); **Pennsylvania:** ♀, Easton, 5.x.1917 (J.W.Green) (CAS); ♀, ditto but 24.viii.1917 (CAS); **Arkansas:** ♂, Garland Co., 28.6 km NWW Hot Springs, Ouachita National Forest, Lake Ouachita, CR127, 34°36.67'N 93°20.75'W, 300m, in forest litter, *Quercus*, 19.iii.2000 (V.I.Gusarov) (DESPU).

Diagnosis. *Tomoglossa decora* is close to the Palaearctic *T. luteicornis* but has lighter coloration and different shape of the aedeagus and spermatheca (Figs. 21-26 in this paper and Lohse 1989: Fig. 123). *Tomoglossa decora* differs from *T. ornatella* and *T. improvisa* in having quadrate antennal articles 4-5 (Figs. 29-31), from *T. arizonica* and *T. floridana* in having quadrate antennal articles 4-5, less transverse articles 6-10 (Figs. 31-33) and longer body. In comparison to *T. floridana* and *T. ornatella*, *T. decora* has thinner spermatheca with different shape of umbiculus (Figs. 26, 36, 45). In *T. decora* the female accessory sclerite is smaller than in *T. ornatella*, but larger than in *T. floridana* (Figs. 28, 37, 46). *Tomoglossa decora* also differs from *T. arizonica* in having longer apex of the median lobe of aedeagus (in lateral view) (Figs. 21, 40).

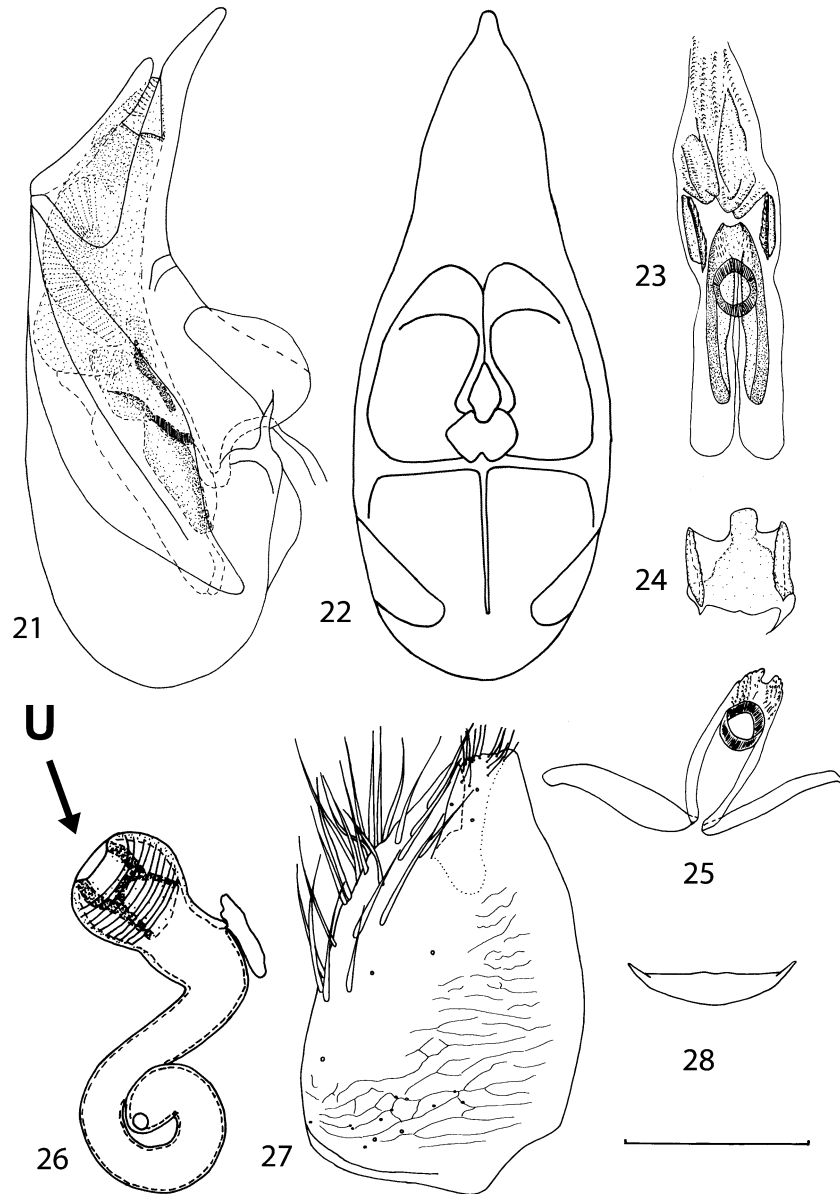


FIGURES 1-12. Mouthparts of *Tomoglossa decora* (Casey) (Vermont). 1, left mandible, ventral view; 2, left mandible, dorsal view; 3, right mandible, dorsal view; 4, left maxilla, ventral view; 5, right galea, ventral view; 6, right galea, dorsal view; 7, left lacinia, dorsal view; 8, labrum; 9, epipharynx; 10, prementum; 11, hypopharynx; 12, mentum. Scale bar 0.1 mm (1-9, 12), 0.07 mm (11), 0.05 mm (10).



FIGURES 13-20. Details of *Tomoglossa decora* (Casey) (Vermont (13-15, 20), Pennsylvania (16-18), lectotype (19)). 13, pronotum; 14, right metatarsus, posterior view; 15, mesometathorax, ventral view; 16, apical margin of female sternum VIII; 17, female tergum VIII; 18, female sternum VIII; 19, male tergum VIII; 20, male sternum VIII. Scale bar 0.2 mm (13-15, 17-20), 0.1 mm (16).

Description. Length 2.0-2.1 mm. Head and elytra dark brown; elytra and antennal articles 2-11 and article 3 of maxillar palpus brown; pronotum reddish brown; abdominal segments III-V and VII-VIII reddish yellow; apical third of elytra, legs, mouthparts and antennal article 1 yellow.



FIGURES 21-28. Genitalia and terminalia of *Tomoglossa decora* (Casey) (Vermont (21-25), Pennsylvania (26-28)). 21, median lobe of aedeagus, lateral view; 22, median lobe of aedeagus, ventral view; 23, internal sac of aedeagus, in packed state; 24, deeply concave sclerite of internal sac; 25, copulatory piece; 26, spermatheca; 27, left portion of female sternum IX; 28, female accessory sclerite. U - umbilicus. Scale bar 0.1 mm.

Head transverse, surface on disk glossy, without visible (at x100) microsculpture, with strong punctures, distance between them equal to their diameter. Antennal article 2 longer than 3, 4-5 quadrate, 5-10 slightly transverse, last article as long as 9 and 10 combined.

Pronotum transverse, width to length ratio 0.41 mm : 0.33 mm (average for 5 specimens), wider than head (pronotum width to head width ratio 0.41 mm : 0.35 mm); surface glossy, without visible microsculpture, with finer puncturation than on head, distance between punctures equals ½-1 their diameter. Elytra measured from humeral angle shorter than wide (0.43 mm : 0.48 mm), glossy, without microsculpture and with puncturation as on pronotum.

Abdominal terga glossy, without microsculpture, and with fine and sparse puncturation, puncturation becoming finer towards abdominal apex, on terga III-V distance between punctures within rows equal to their diameter and between rows 2-3 times their diameter, on tergum VI distance between punctures within rows equal to 1-2 times their diameter and between rows 3-4 times their diameter, on tergum VII distance between punctures equal to 3-5 times their diameter. Tergum VII with white edge.

Median lobe of aedeagus with narrow apex (Fig. 22). Internal sac with a deeply concave sclerite (Figs. 23-24). Copulatory piece without apical process (Figs. 23, 25).

Spermatheca with wide umbilicus (Fig. 26).

Distribution. Known from Eastern United States (Vermont, Pennsylvania, Arkansas, Mississippi) (Fig. 47).

Natural History. Casey (1910) did not provide habitat information. I collected two specimens by sifting forest litter. Interestingly, the Palearctic species of *Tomoglossa* for which ecological information is available inhabit various kinds of wetlands, including salt marshes.

2. *Tomoglossa ornatella* (Casey, 1910), comb. nov. (Figs. 29, 34-37)

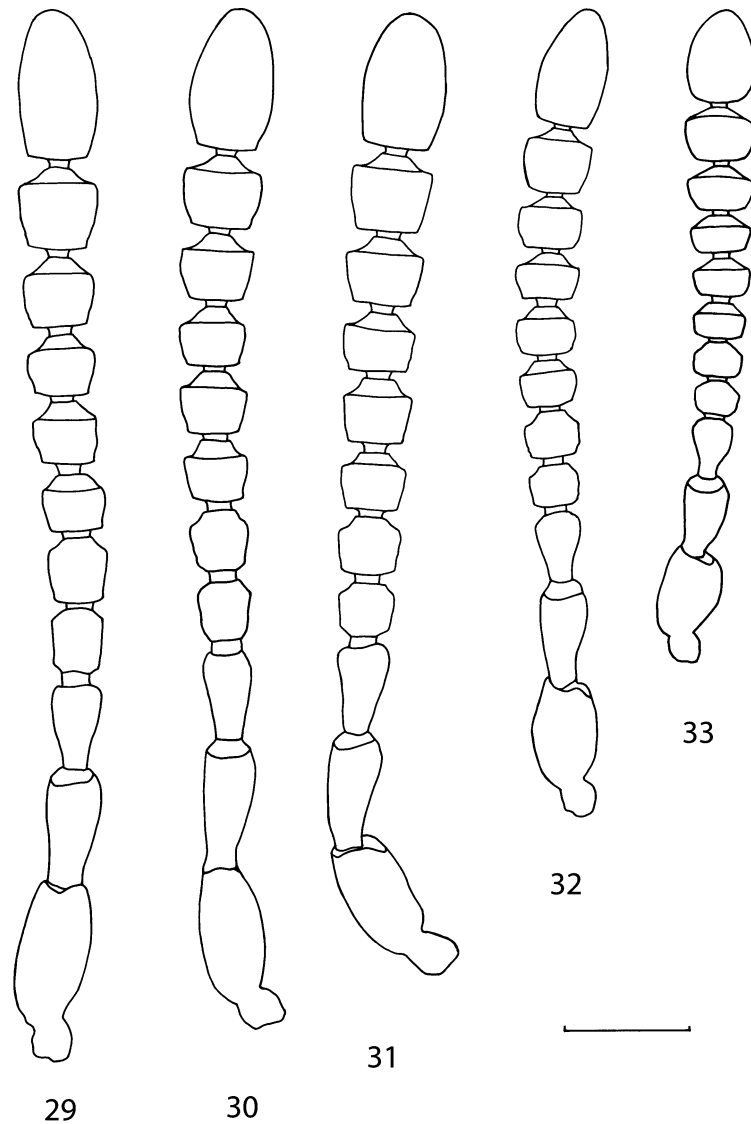
Noverota ornatella Casey, 1910: 90.

Type material: lectotype (here designated), ♀, **UNITED STATES:** “N[ew].J[ersey].”, “*Noverota ornatella* Csy.”, “Casey bequest 1925”, “TYPE USNM 39099” (red label), “Lectotype *Noverota ornatella* Casey. V.I.Gusarov des. 2002” (red label) (NMNH). While describing *N. ornatella*, Casey did not specifically state how many specimens were available.

Diagnosis. In comparison to *T. decora*, *T. ornatella* has elongate antennal articles 4-5 (Figs. 29, 31), thicker spermatheca with different shape of umbiculus (Figs. 36, 26) and larger female accessory sclerite (Figs. 37, 28). *Tomoglossa ornatella* is very similar to *T. improvisa* but has deeper puncturation of the forebody. Compared to *T. arizonica* and *T. floridana*, *T. ornatella* has elongate antennal articles 4-5, less transverse articles 6-10 and longer body (Figs. 29, 32-33). *Tomoglossa ornatella* also differs from *T. floridana* in hav-

ing larger spermatheca with different shape of umbiculus (Figs. 36, 45) and larger female accessory sclerite (Figs. 37, 46).

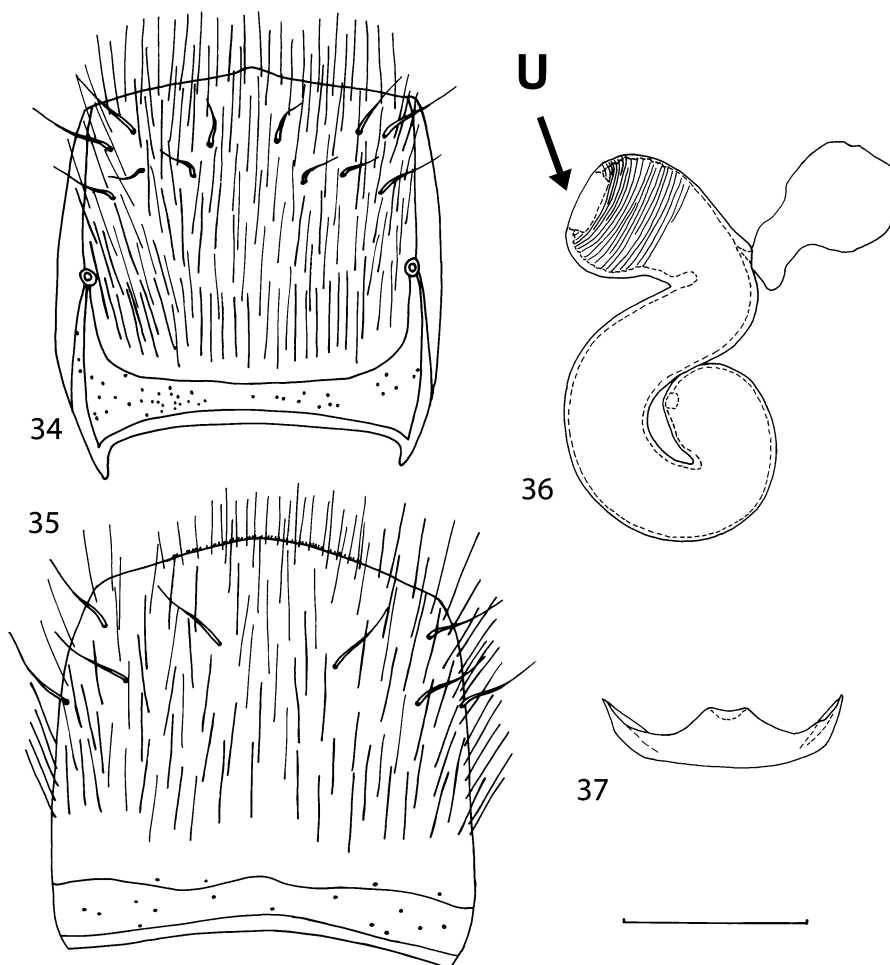
Description. Length 2.0 mm. Head and abdominal tergum VI brown; pronotum, elytra, abdominal segments III-V, VII-VIII and antennal articles 2-11 reddish yellow; apical fifth of elytra, antennal article 1, mouthparts and legs yellow.



FIGURES 29-33. Antennae of Nearctic *Tomoglossa*. 29, *T. ornatella* (Casey) (lectotype); 30, *T. improvisa* (Casey) (lectotype); 31, *T. decora* (Casey) (Pennsylvania); 32, *T. arizonica* Gusarov, **sp. nov.** (holotype); 33, *T. floridana* Gusarov, **sp. nov.** (holotype). Scale bar 0.1 mm.

Head transverse, surface on disk glossy, without visible (at x100) microsculpture, with fine and dense punctures, distance between them equal to $\frac{1}{4}$ - $\frac{1}{2}$ their diameter. Antennal article 2 longer than 3, 4-5 elongate, 6-10 subquadrate, last article as long as 9 and 10 combined (Fig. 29).

Pronotum transverse, width to length ratio 0.46 mm : 0.36 mm, wider than head (pronotum width to head width ratio 0.46 mm : 0.37 mm); surface glossy, without visible microsculpture, puncturation finer than on head, distance between punctures equals $\frac{1}{2}$ their diameter. Elytra measured from humeral angle shorter than wide (0.44 mm : 0.54 mm); surface glossy, without microsculpture and with puncturation as on pronotum.



FIGURES 34-37. Details of *Tomoglossa ornatella* (Casey) (lectotype). 34, female tergum VIII; 35, female sternum VIII; 36, spermatheca; 37, female accessory sclerite. U - umbilicus. Scale bar 0.2 mm (34-35), 0.1 mm (36-37).

Abdominal terga without microsculpture, and with fine and sparse puncturation, puncturation becoming finer towards abdominal apex, on terga III-V distance between punctures within rows equal to their diameter and between rows 2-3 times their diameter, on tergum VI distance between punctures within rows equal to 1-2 times their diameter and between rows 3-4 times their diameter, on tergum VII distance between punctures within rows equal to 2-3 times their diameter and between rows 3-5 times their diameter. Tergum VII with white edge.

Spermatheca with wide umbilicus (Fig. 36). Female accessory sclerite large (Fig. 37).

Distribution. Known only from New Jersey (Fig. 47).

Natural History. Casey (1910) did not provide habitat information.

3. *Tomoglossa improvisa* (Casey, 1910), comb. nov. (Fig. 30)

Noverota improvisa Casey, 1910: 91.

Type material: lectotype (here designated), 1 specimen of undetermined sex with the tip of abdomen missing, **UNITED STATES:** “Del Rio, Tex[as]., June 22-27, 955ft.” [Wickham *leg.*], “*improvisa* Csy.”, “Casey bequest 1925”, “TYPE USNM 39101” (red label), “Lectotype *Noverota improvisa* Casey. V.I.Gusarov des. 2001” (red label) (NMNH). While describing *N. improvisa*, Casey did not specifically state how many specimens were available.

Diagnosis. *Tomoglossa improvisa* is very similar to *T. ornatella*, but differs in having more shallow puncturation of the forebody. Because the only known localities of these taxa are very distant (Texas and New Jersey) *T. improvisa* is considered here to represent a distinct species. Additional material from Texas is necessary to examine the characters of genitalia and reconfirm the identity of *T. improvisa*.

Description. Length 2.0 mm (according to Casey (1910)). Head, elytra and antennal articles 2-11 reddish brown; pronotum, abdominal segments III-V, antennal article 1, mouthparts and legs reddish yellow; apical fifth of elytra yellow (The apical half of the abdomen is missing in the lectotype, but, according to Casey (1910), tergum VI was dark).

Externally similar to *T. ornatella* except for more shallow puncturation of the forebody. Pronotum width to length ratio 0.41 mm : 0.34 mm, pronotum width to head width ratio 0.41 mm : 0.34 mm. Elytra length (measured from humeral angle) to width ratio 0.41 mm : 0.51 mm.

Distribution. Known only from Texas (Fig. 47).

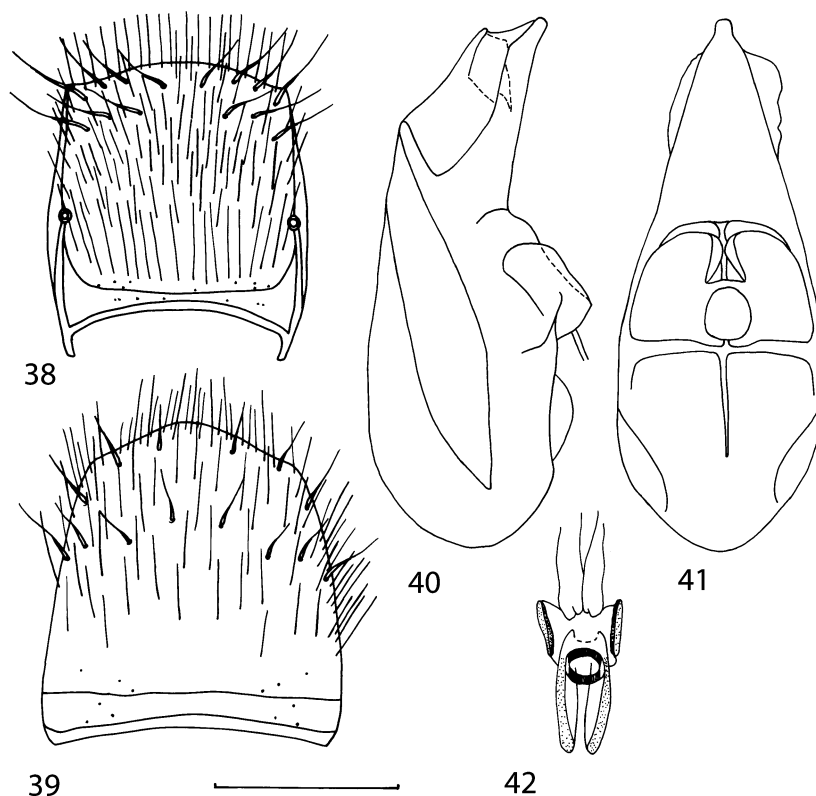
Natural History. Casey (1910) did not provide habitat information.

4. *Tomoglossa arizonica* Gusarov, sp. nov. (Figs. 32, 38-42)

Type material: holotype, ♂, **UNITED STATES: Arizona:** Graham Co., Roper Lake State Park, 5 miles S Safford, [32°45'N 109°42'W], 900m, 12.v.1986 (L.Herman) (AMNH).

Diagnosis. *Tomoglossa arizonica* differs from *T. ornatella*, *T. improvisa* and *T. decora* in having transverse antennal articles 4-5 (Figs. 29-32) and shorter body. Compared to *T. floridana*, in *T. arizonica* antennal articles 4-10 are less transverse, article 11 is as long as 9 and 10 combined (Figs. 32-33) and the body is longer. *Tomoglossa arizonica* also differs from *T. decora* in having shorter apex of median lobe of aedeagus (in lateral view) (Figs. 40, 21).

Description. Length 1.8 mm. Head, elytra, abdominal tergum VI, antennal articles 2-11 and article 3 of maxillar palpus reddish brown; pronotum and abdominal segments III-V and VII-VIII reddish yellow; apical quarter of elytra, legs, mouthparts and antennal article 1 yellow.



FIGURES 38-42. Details of *Tomoglossa arizonica* Gusarov, sp. nov. (holotype). 38, male tergum VIII; 39, male sternum VIII; 40, median lobe of aedeagus, lateral view; 41, median lobe of aedeagus, ventral view; 42, internal sac of aedeagus, in packed state. Scale bar 0.2 mm (38-39), 0.1 mm (40-42).

Head transverse, surface on disk glossy, without visible (at x100) microsculpture, with fine and dense punctures, distance between them equal to $\frac{1}{2}$ their diameter. Antennal article 2 longer than article 3, 4-10 transverse, last article as long as 9 and 10 combined (Fig. 32).

Pronotum transverse, width to length ratio 0.37 mm : 0.29 mm, wider than head (pronotum width to head width ratio 0.37 mm : 0.31 mm); surface glossy, without visible microsculpture, with puncturation as on head. Elytra measured from humeral angle shorter than wide (0.36 mm : 0.43 mm), glossy, without microsculpture, puncturation finer and denser than on pronotum, distance between punctures equal to $\frac{1}{4}$ - $\frac{1}{2}$ their diameter.

Abdominal terga glossy, without microsculpture, with fine and sparse puncturation, puncturation becoming finer towards abdominal apex, on terga III-V distance between punctures within rows equal to their diameter and between rows 2-3 times their diameter, on tergum VI distance between punctures within rows equal to 1-2 times their diameter and between rows 2-4 times their diameter, on tergum VII distance between punctures within rows equal to 2-3 times their diameter and between rows equal to 3-6 times their diameter. Tergum VII with white edge. Median lobe of aedeagus with narrow apex (Figs. 41).

Distribution. Known only from Arizona (Fig. 47).

Natural History. No habitat information is provided on the holotype label.

5. *Tomoglossa floridana* Gusarov, sp. nov. (Figs. 33, 43-46)

Type material: holotype, ♀, **UNITED STATES: Florida:** Highlands Co., W Archbold Biological Station, [27°11'N 81°20'W], "sphagnum ex pond", 21.i.1975 (W. Suter) (FMNH).

Diagnosis. Compared to all other Nearctic species of *Tomoglossa*, *T. floridana* is the smallest and has shorter antennae with more transverse articles 4-10 (Figs. 29-33). *Tomoglossa floridana* also differs from *T. decora* and *T. ornatella* in having different shape of spermatheca (especially the umbiculus) (Figs. 45, 27, 36) and smaller female accessory sclerite (Figs. 46, 28, 37).

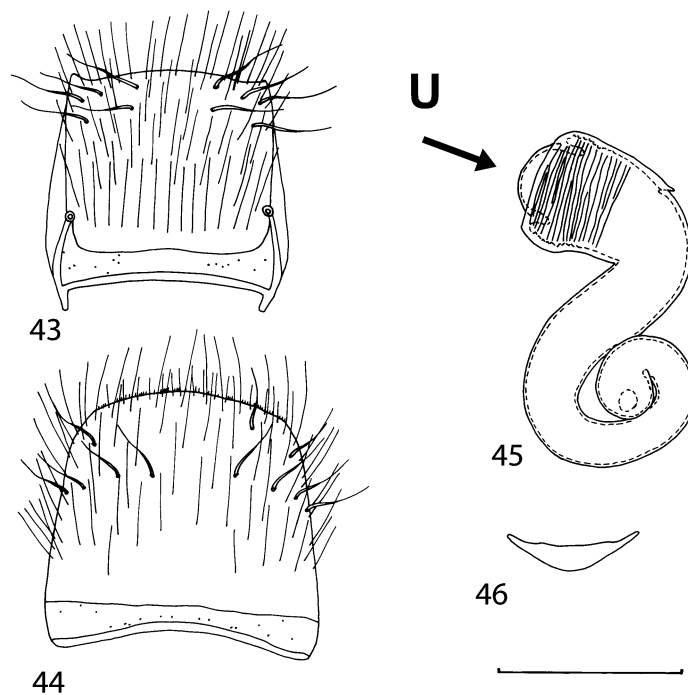
Description. Length 1.6 mm. Body and appendages reddish yellow; head and abdominal tergum VI dark brown; elytra brownish yellow with apical third yellow.

Head transverse, surface on disk glossy, with weak reticulate microsculpture, with strong punctures, distance between them equal to their diameter. Antennal article 2 longer than article 3, 4-10 transverse, last article shorter than 9 and 10 combined (Fig. 33).

Pronotum transverse, width to length ratio 0.37 mm : 0.27 mm, wider than head (pronotum width to head width ratio 0.37 mm : 0.30 mm); surface glossy, with weak reticulate microsculpture, puncturation finer than on head, distance between punctures equals their diameter. Elytra measured from humeral angle shorter than wide (0.33 mm : 0.37

mm), surface glossy, with weak reticulate microsculpture, puncturation finer and denser than on pronotum, distance between punctures equals $\frac{1}{2}$ -1 their diameter.

Abdominal terga glossy, without microsculpture, and with fine and sparse puncturation, puncturation becoming finer towards abdominal apex, on terga III-V distance between punctures within rows equal to their diameter and between rows 2-3 times their diameter, on tergum VI distance between punctures within rows equal to 1-2 times their diameter and between rows 2-4 times their diameter, on tergum VII distance between punctures within rows equal to 2-3 times their diameter and between rows equal to 4-6 times their diameter. Tergum VII with white edge.



FIGURES 43-46. Details of *Tomoglossa floridana* Gusarov, **sp. nov.** (holotype). 43, female tergum VIII; 44, female sternum VIII; 45, spermatheca; 46, female accessory sclerite. U - umbilicus. Scale bar 0.2 mm (43-44), 0.1 mm (45-46).

Spermatheca with wide umbilicus (Fig. 45). Female accessory sclerite small (Fig. 46).

Distribution. Known only from Florida (Fig. 47).

Natural History. According to the label, the holotype specimen was collected in moss (*Sphagnum*) from a pond.

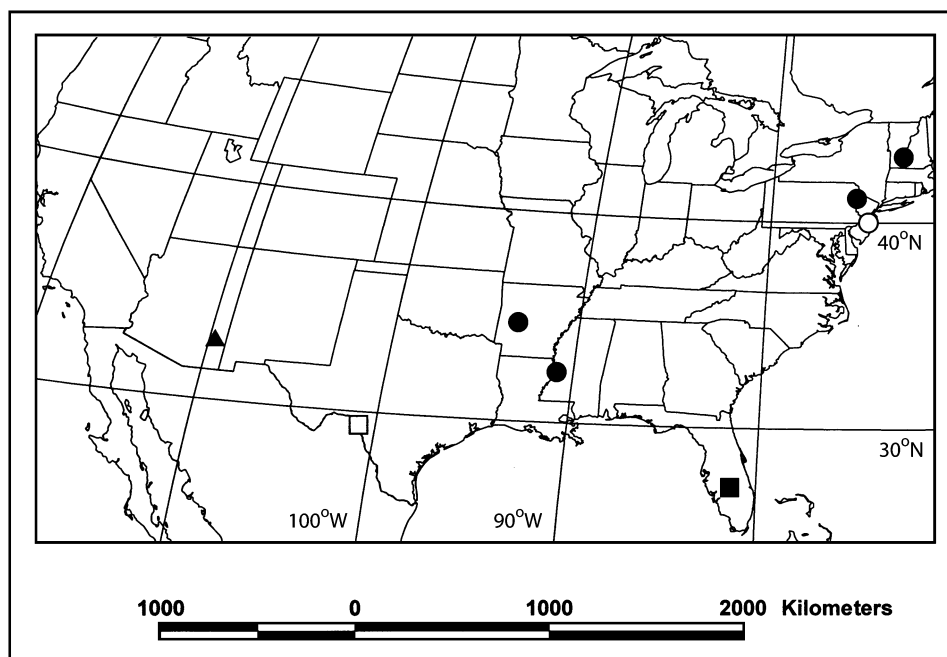


FIGURE 47. Geographical distribution of Nearctic *Tomoglossa*. *T. ornatella* (Casey) (○), *T. improvisa* (Casey) (□), *T. decora* (Casey) (●), *T. arizonica* Gusarov, **sp. nov.** (▲), *T. floridana* Gusarov, **sp. nov.** (■).

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