

Key to the Genera of Geniatini (Scarabaeidae: Rutelinae)

By Mary Liz Jameson and Shauna Hawkins 2005

Males: Protarsomeres dorsoventrally flattened, densely setose ventrally (Figs. 30-31, 33-34); terminal sternite with margin emarginated; abdominal sternites in lateral view appearing concave or flat. *Females*: Protarsomeres dorsoventrally flattened or not, with or without dense ventral setae; terminal sternite with margin entire or rounded, not emarginated; abdominal sternites in lateral view appearing convex.

1. Mentum with apicomedial, tooth-like projection (Fig. 16, 41) 3

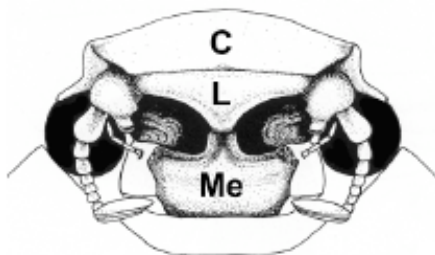


Figure 16



Trizogeniates foveicollis
Figure 41

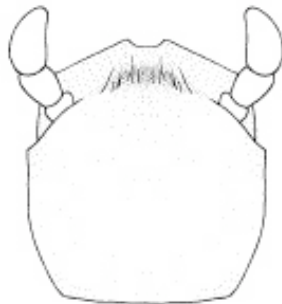
Figure 16. Geniatini and Anoplognathini with labrum and mentum (each) possessing median, apical tooth or projection. **Figure 41.** *Trizogeniates foveicollis* (clypeal apex with apicomedial tooth-like projection).

- 1'. Mentum without apicomedial, tooth-like projection (Figs. 38-40) 2



Mimogeniates margaridae

Figure 38



Rhizogeniates antennatus

Figure 39



Rhizogeniates carbonarius

Figure 40

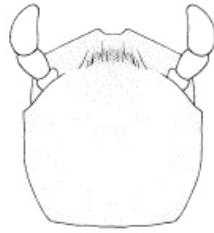
Figures 38-40. Clypeus of: **38)** *Mimogeniates margaridae* (apex quadrate and crenulate, lacking apicomedial tooth), **39)** *Rhizogeniates antennatus* (weakly emarginate apically, lacking apicomedial tooth), **40)** *Rhizogeniates carbonarius* (weakly emarginate apically, lacking apicomedial tooth).

2(1). Apex of mentum with medial notch, not crenulate (Figs. 39-40). All claws simple on all legs ***Rhizogeniates*** Ohaus

2'. Apex of mentum crenulate (Fig. 38). Modified claw moderately split on all legs ***Mimogeniates*** Martínez



Mimogeniates margaridae
Figure 38



Rhizogeniates antennatus
Figure 39

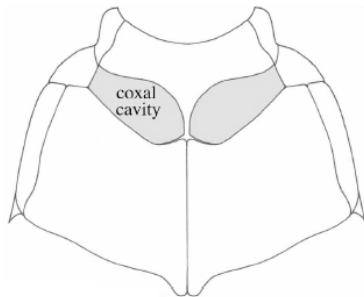


Rhizogeniates carbonarius
Figure 40

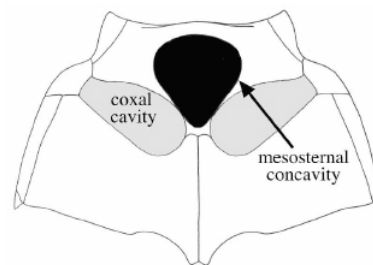
Figures 38-40. Clypeus of: **38)** *Mimogeniates margaridae* (apex quadrate and crenulate, lacking apicomedial tooth), **39)** *Rhizogeniates antennatus* (weakly emarginate apically, lacking apicomedial tooth), **40)** *Rhizogeniates carbonarius* (weakly emarginate apically, lacking apicomedial tooth).

3(1). Mesosternum anterior to mesocoxae strongly concave (Fig. 52)
..... ***Xenogeniates*** Villatoro & Jameson

3'. Mesosternum anterior to mesocoxae flat or slightly convex, not strongly concave (Fig. 51) 4



Bolax magna
Figure 51



Xenogeniates martinezi
Figure 52

Figure 51-52. Thorax in ventral view showing: **51)** Mesosternum without invagination (*Bolax magna*) and **52)** Mesosternum with invagination in black (*Xenogeniates martinezi*).

4(3). Stipes of maxilla produced, with well-developed lateral lobe (Fig. 43) or lateral angle (Fig. 42) ***Lobogeniates*** Ohaus

4'. Stipes of maxilla not produced, instead rounded or broadly rounded (Fig. 44) 5

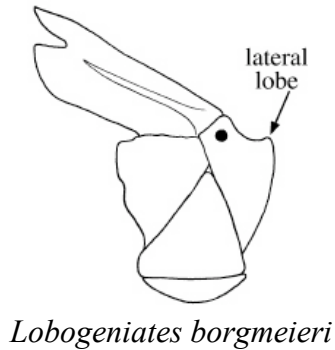


Figure 42

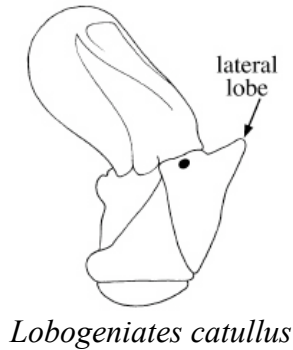


Figure 43

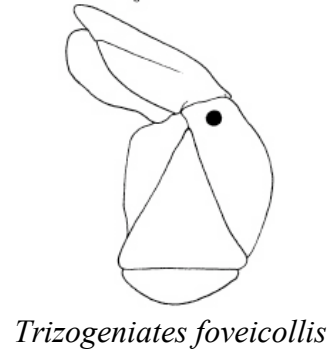


Figure 44

Figure 42-44. Maxilla (ventral view) showing: **42)** *Lobogeniates borgmeieri* (stipes produced, with lateral angle), **43)** *Lobogeniates catullus* (stipes produced, with well-developed lateral lobe), **44)** *Trizogeniates foveicollis* (not produced, instead rounded or broadly rounded).

5(4). Mandible with rounded, recurved, apical lobe (Fig. 20). Dorsal surface with abundant, decumbent, white setae. Antennal club of male twice length of segments 2-7; antennal club of female subequal to segments 2-7 ***Eunanus*** Ohaus

5'. Mandible lacking rounded, recurved, apical tooth; instead simple (e.g., Fig. 19). Dorsal surface with or without sparse setae. Antennal club of male and female subequal to or slightly longer than segments 2-7 6



Figure 19



Figure 20

Figures 19-20. Head in dorsal view showing form of clypeus, mouthparts, and eye size in: **19)** *Bolax rutila*, **20)** *Eunanus murinus*.

6(5). Length of antennal club half or less than half length of first antennal segment (Figs. 5, 23). Clypeal apex (in lateral view) sloped 45° with respect to dorsal plane of clypeus (Figs. 23, 36). Male tarsomeres simple, not flattened and dilated (Fig. 32)

..... *Geniatosoma* Costa Lima

6'. Length of antennal club more than half length of first antennal segment. Clypeal apex (in lateral view) sloped 60-90° with respect to dorsal plane of clypeus (Fig. 37). Male tarsomeres dorsoventrally flattened and dilated (e.g., Fig. 34) 7



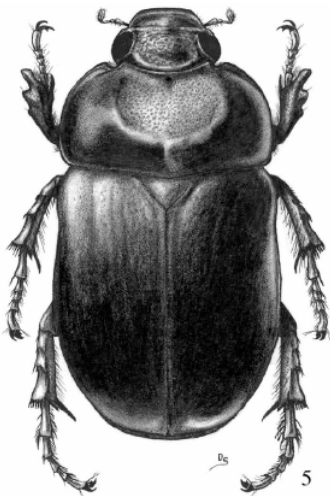
Figure 23



Figure 32



Figure 34



Geniatosoma nigrum

Figure 5

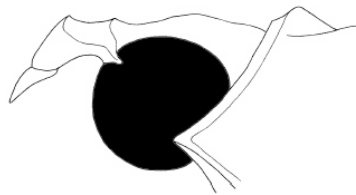


Figure 36

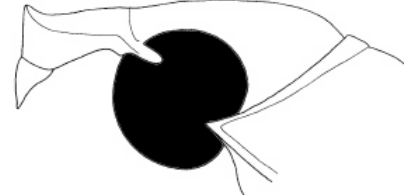


Figure 37

Figure 23. Head in dorsal view showing form of clypeus, mouthparts, and eye size in *Geniatosoma lindemanna*. **Figures 32, 34.** Male forelegs (dorsal view) showing comparison of tibial apex, protarsomeres, and claws of: **32)** *Geniatosoma lindemanna*, **34)** *Trizogeniates temporalis*. **Figure 5.** *Geniatosoma nigrum* (male). **Figures 36-37.** Head and apex of thorax in lateral view showing: **36)** Clypeal apex sloped 45° with respect to dorsal plane of clypeus in *Geniatosoma lindemanna* (male) and **37)** Clypeal apex sloped 60–90° with respect to dorsal plane of clypeus in *Trizogeniates tibialis*.

7(6). Form of clypeus parabolic, apex not reflexed (Fig. 24). Mandible exposed, apex narrowly rounded (Fig. 24). Male with all claws appearing simple on all legs *Heterogeniates* Ohaus

7'. Form of clypeus not parabolic (instead rounded, quadrate), apex reflexed (e.g., Figs. 19-20, 22, 25-26). Mandible exposed or not, apex broadly rounded (e.g., Figs. 19, 23, 25). Male with claws obviously toothed on some or all legs 8



Bolax rutila

Figure 19



Eunanus murinus

Figure 20



Geniates borellii

Figure 22



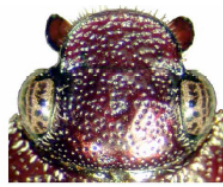
Geniatosoma lindemanna

Figure 23



Heterogeniates bonariensis

Figure 24



Leucothyreus kirbyanus

Figure 25



Trizogeniates tibialis

Figure 26

Figures 19-26. Head in dorsal view showing form of clypeus, mouthparts, and eye size in: **19)** *Bolax rutila*, **20)** *Eunanus murinus*, **22)** *Geniates borellii*, **23)** *Geniatosoma lindemanna*, **24)** *Heterogeniates bonariensis* (male), **25)** *Leucothyreus kirbyanus*, **26)** *Trizogeniates tibialis*.

8(7). Length of protarsomeres 2-4 subequal in length to protarsomere 5 (Fig. 31). Clypeus of male with lateral margins expanded, apex quadrate (Fig. 21); clypeus of female with lateral margins parallel, apex quadrate *Evanos* Ohaus

8'. Length of protarsomeres 2-4 greater than length of protarsomere 5 (Figs. 30, 33-34). Clypeus of male and female with lateral margins constricted, apex rounded or trapezoidal (e.g., Figs. 19, 22, 25-28) 9



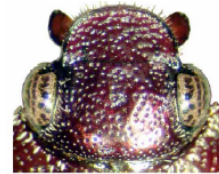
Bolax
Figure 19



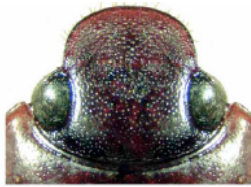
Evanos
Figure 21



Geniates
Figure 22



Leucothyreus
Figure 25



Trizogeniates
Figure 26



Geniates borellii
Figure 27



Geniates cornutus
Figure 28



Bolax
Figure 30



Evanos
Figure 31



Microchilus
Figure 33

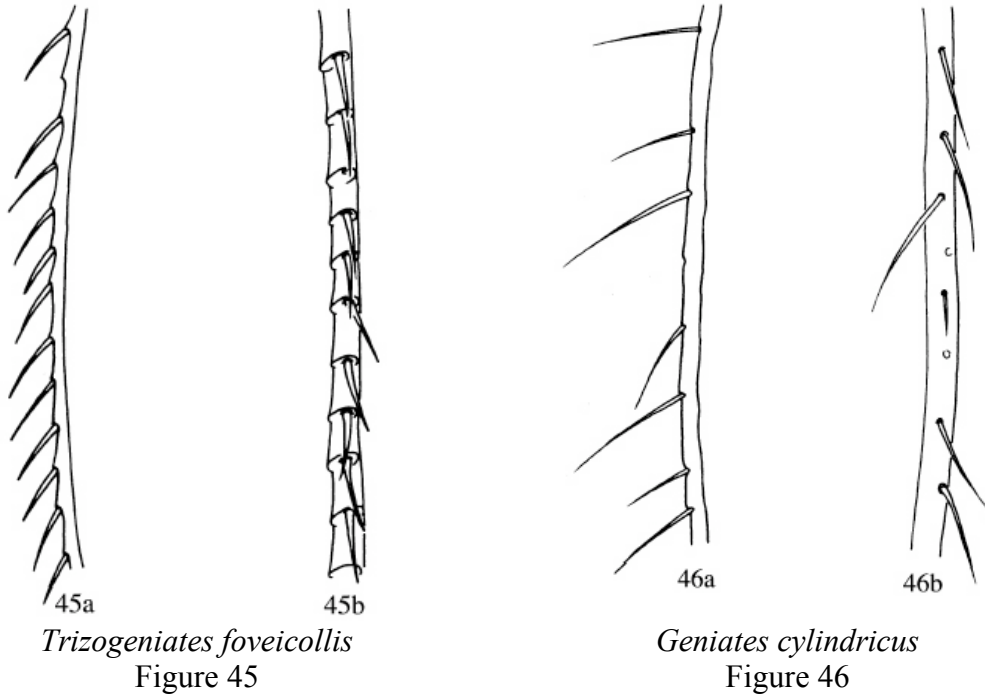


Trizogeniates
Figure 34

Figures 19-26. Head in dorsal view showing form of clypeus, mouthparts, and eye size in: **19)** *Bolax rutila*, **21)** *Evanos villatus* (male), **22)** *Geniates borellii*, **25)** *Leucothyreus kirbyanus*, **26)** *Trizogeniates tibialis*. **Figures 27-28.** Head and pronotum in dorsal view showing form in: **27)** *Geniates borellii*, male (head lacking tubercle, pronotum lacking concavity), **28)** *Geniates cornutus*, male (head with tubercle, pronotum with concavity). **Figures 30-34.** Male forelegs (dorsal view) showing comparison of tibial apex, protarsomeres, and claws of: **30)** *Bolax magna*, **31)** *Evanos villatus*, **33)** *Microchilus lineatus*, and **34)** *Trizogeniates temporalis*.

9(8). Elytral margin with deep, setose punctures on lateral edge from apex of metepisternum to apex of elytra (Figs. 45a-b, 46a-b) 10

9'. Elytral margin without deep, setose punctures on lateral edge from apex of metepisternum to apex of elytra 11



Figures 45-46. Left elytral epipleuron showing: **45)** dorsal view of stridulatory ridge in *T. foveicollis* (**a**) and ventral view of stridulatory ridge in *T. foveicollis* (**b**), **46)** dorsal view of elytral epipleuron without stridulatory ridge in *G. cylindricus* (**a**) and ventral view of elytral epipleuron without stridulatory ridge in *G. cylindricus* (**b**).

10(9). Elytral margin with well-developed stridulatory ridge and with rigid stridulatory setae (Fig. 45a-b). Apex of metafemur (dorsal view) with stridulatory patch (Fig. 35)
 *Trizogeniates* Ohaus

10'. Elytral margin lacking stridulatory ridge and without rigid stridulatory setae (Fig. 46a-b). Apex of metafemur (dorsal view) lacking stridulatory patch..... *Geniates* Ohaus

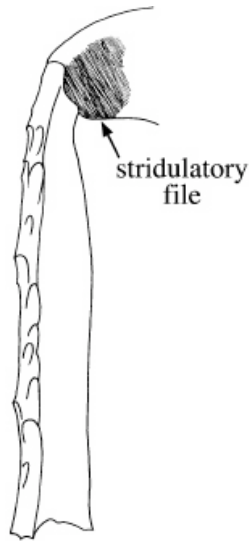


Figure 35

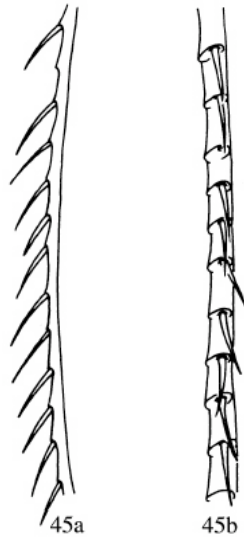


Figure 45



Figure 46

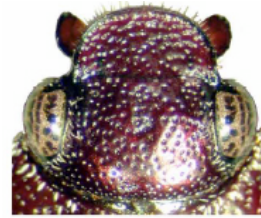
Figure 35. Hind leg (dorsal view) of *Trizogeniates temporalis* showing location of stridulatory file at the apex of the metafemur. **Figures 45-46.** Left elytral epipleuron showing: **45)** dorsal view of stridulatory ridge in *T. foveicollis* (**a**) and ventral view of stridulatory ridge in *T. foveicollis* (**b**), **46)** dorsal view of elytral epipleuron without stridulatory ridge in *G. cylindricus* (**a**) and ventral view of elytral epipleuron without stridulatory ridge in *G. cylindricus* (**b**).

11(9). Eyes small, interocular width greater than 6 transverse eye diameters (e.g., Fig. 19)
 12

11'. Eyes larger, interocular width less than 5 transverse eye diameters (e.g., Fig. 25)
 *Leucothyreus* MacLeay



Bolax
 Figure 19



Leucothyreus
 Figure 25

Figures 19, 25. Head in dorsal view showing form of clypeus, mouthparts, and eye size in: **19)** *Bolax rutila*, **25)** *Leucothyreus kirbyanus*,

12(11). Protarsomere 5 dorsoventrally flattened, width more than half length (Fig. 30).
Length of body from apex of clypeus to apex of elytra more than 9.0 mm
..... ***Bolax*** Fischer von Waldheim



Figure 30. Male foreleg (dorsal view) showing comparison of tibial apex, protarsomeres, and claws of *Bolax magna*.

12'. Protarsomere 5 dorsoventrally flattened or not; if flattened, then width less than half length. Length of body from apex of clypeus to apex of elytra less than 9.0 mm
..... ***Microchilus*** Blanchard

Modified from: Jameson, M. L. and S. J. Hawkins. 2005. Synopsis of the genera of Geniatiini (Coleoptera: Scarabaeidae: Rutelinae) with an annotated catalog of species. Zootaxa 874: 1-76.

URL: <http://www-museum.unl.edu/research/entomology/Guide/Scarabaeoidea/Scarabaeidae/Rutelinae/Rutelinae-Tribes/Geniatiini/Geniatiini-Key/GeniatiiniK.html>