

## A redescription of *Acruliopsis tumidula* (Mäklin, 1853) comb. n., with new data on *A. ussuriensis* Zerche, 2003 (Coleoptera: Staphylinidae: Omaliinae)

Alexey V. Shavrin

Shavrin A.V. 2013. Redescription of *Acruliopsis tumidula* (Mäklin, 1853) comb. n., with new data on *A. ussuriensis* Zerche, 2003 (Coleoptera: Staphylinidae: Omaliinae). *Baltic J. Coleopterol.*, 13(2): 125 - 130.

*Acruliopsis tumidula* (Mäklin 1853) comb. n. = (*Omaliium tumidulum* Mäklin 1853) is redescribed and illustrated; a lectotype for the species is designated. New distributional data for *A. ussuriensis* Zerche, 2003 are reported; its male abdominal structures as well as female accessory sclerites are visualised for the first time. A modified key for identification of all the known species of the genus is provided.

Key words: Holarctic, Nearctic, Far East, fauna, taxonomy.

*Institute of Systematic Biology, Daugavpils University, Vienibas 13, Daugavpils, LV-5401, Latvia. E-mail: ashavrin@hotmail.com*

### INTRODUCTION

Friedrich Wilhelm Mäklin (1853) described *Omaliium tumidulum* from four specimens collected 'In insulis Sitkha [present-day Baranof Island] et Afognak' (Alaska, USA). Fauvel (1878) redescribed the species and transferred it to the genus *Acrulia* Thomson, 1858, where it was placed in all subsequent catalogues (Bernhauer & Schubert 1910; Herman 2001; etc.).

In July 2012 I had a chance to visit the Finnish Museum of Natural History. When studying Omaliinae of the Mäklin collection, I found a female type specimen of *O. tumidulum* from the Sitka Island. Basing on the type specimen and additional material (see below), I consider this species a member of the genus *Acruliopsis* Zerche, 2003, which has been recently described from the Eastern Palaearctic and contained four species from the Russian Far East (*A. ussuriensis* Zerche, 2003) and Japan (*A. denticollis* (Sharp, 1889), *A. nipponica* (Watanabe, 1980), *A.*

*watanabei* Zerche, 2003) until now. No members of the genus have been known from the Nearctic before, though Zerche (2003) has noted that '*Acrulia*' *tumidula* is similar to the species of *Acruliopsis* by the shape of the pronotum.

Both original description and Fauvel's (1878) redescription are very short and incomplete; therefore I find it to be useful to redescribe the species herein.

New data for *A. ussuriensis* Zerche, 2003 are also provided below, including figures of the male abdominal structures and female accessory sclerites.

### MATERIAL AND METHODS

Morphological studies were carried out using Carl Zeiss SteREO Discovery.V8 and V12 stereomicroscopes. All measurements are given in millimeters and were made using an ocular micrometer.

All the specimens were dissected; the standard methods of preparation were used; tergite and sternite of the posterior abdominal segments were glued on the same plate with the dissected specimen; the male genitalia were mounted in Canada balsam on plastic microslides pinned under the specimens they originated from.

The type labels are cited in inverted commas and separated from each other with commas; different lines of the type and historical labels are separated with '|'. The explanations to the type labels are given in angle brackets; square brackets are used either to complete label data or to provide necessary notes within the labels. Suspected misidentifications not previously demonstrated in the literature are indicated as '?' in angled brackets before the species name.

### Abbreviations

**CS** – private collection of A.V. Shavrin, Daugavpils, Latvia

**CR** – private collection of A.B. Ryvkin, Moscow, Russia

**MZHF** – Finnish Museum of Natural History, Helsinki, Finland (J. Muona, H. Viljanen)

**UAM** – University of Alaska Museum, Fairbanks, USA (D. Sikes)

**ZMM** – Zoological Museum of Moscow University, Moscow, Russia (A.A. Gusakov)

## RESULTS

### *Acruliopsis tumidula* (Mäklin 1853) **comb. n.** (Figs. 1–5)

*Omalium tumidulum* Mäklin, 1853: 199

*Acrulia tumidula*: Fauvel, 1878, Bulletin de la Société Linnéenne de Normandie (3)2: 205

*Acrulia (omalium) [sic!] tumidula*: Hamilton, 1894, Transactions of the American Entomological Society 21: 22

*Acrulia tumidula*: Keen, 1895, The Canadian Entomologist 27: 171

*Acrulia tumidula*: Bernhauer & Schubert, 1910: 44

*Acrulia tumidula*: Leng, 1920: 94

*Acrulia tumidula*: Clark, 1949, Proceedings of the Entomological Society of British Columbia 45: 21

*Acrulia tumidula*: Hatch, 1957: 81

*Acrulia tumidula*: Legner & Moore, 1977, The Great Lakes Entomologist 10(4): 175

*Acrulia tumidula*: Deyrup & Gara, 1978, The Pan-Pacific Entomologist 54: 274, 276

*Acrulia tumidula*: Campbell & Davies, 1991: 88

*Acrulia tumidula*: Newton & al., 2000: 336

*Acrulia tumidula*: Herman, 2001: 478

**Type material examined. Lectotype** (designated here), female [the specimen was glued on a small plate sideways; I washed the specimen and reglued it on a new plate; the old plate was pinned under the new]: '*Omalium tumidulum* Mäklin. | Sitka, H[o]l[m]b[er]g.' <handwritten with Indian ink>, 'Mus. Zool. H.fors | Spec. typ. No [printed] 2123 | *tumidulum* Mäkl. [handwritten]' <large white rectangle with black box>, 'Mus. Hels. | N:o [printed] 1775 [handwritten]' <yellow printed label>, 'Mus. Zool. Helsinki | Loan No. | C-90 199' <yellow printed label>, 'C12 6717' <yellow printed label>, 'Lectotype [female symbol] | *Acruliopsis tumidula* (Mäklin, 1853) | Shavrin A. V. des. 2013' <red printed label> (MZHF).

**Additional material. USA:** 1 male: Alaska: Sitka, Indian R. el 24 m, 57.06068N 135.30496W ± 50 m old growth Hemlock, Devil's Club, ferns, sweep. 18 Sep[tember] 2008, D.S. Sikes (UAM).

**Redescription.** Measurements. Maximum head width, including eyes: 0.54–0.60; head length: 0.34–0.36; length of antenna: 0.7; longitudinal length of eye: 0.12; length of temple (from posterior margin of eye to neck constriction): 0.04; pronotum length: 0.44–0.47; maximum pronotum width: 0.72–0.78; sutural length of elytra (length of elytra from apex of scutellum to posterior margin of sutural angle): 0.66–0.72; maximum width of elytra: 0.92–1.06; width of abdominal segment IV: 0.96–1.02; length of hind tarsus: segments I–IV: 0.12, segment V: 0.1; length of aedeagus: 0.56; total length (from the base of labrum to the apex of abdomen): 2.6 (lectotype)–2.8.

Coloration seems to be variable, cannot be described adequately from the unique recently cap-

tured reddish brown specimen being somewhat immature whereas the lectotype has lost the native colour due to keeping for a long time. Head, pronotum and elytra without microsculpture, glossy. Abdomen with evident isodiametric ground sculpture. Pubescence of forebody sparse and short, semicontiguous; abdominal pubescence sparser, contiguous.

Head transverse, weakly widened behind prominent eyes. Temples very short, one-third the longitudinal length of eyes. Clypeus flat, weakly raised posteriorly, vertex slightly convex. Ocelli relatively large, the distance between ocelli a bit larger than the distance between each ocellus and posterior margin of the eye. Puncturation coarse and irregular, denser on vertex, finer and sparser on clypeus. Neck furrow very smooth.

Antennae rather long, reaching basal 1/3 of elytra; measurements of antennomeres: I:  $0.12 \times 0.072$ ; II:  $0.08 \times 0.06$ ; III:  $0.07 \times 0.04$ ; IV:  $0.04 \times 0.04$ ; V:  $0.04 \times 0.044$ ; VI–VII:  $0.05 \times 0.046$ ; VIII–X:  $0.05 \times 0.06$ ; XI:  $0.1 \times 0.064$ .

Pronotum distinctly transverse and convex, 1.6 times as wide as long, widest before the middle, evidently narrowed towards both anterior margin and posterior one, with deep posterolateral impressions, with obtusely-rounded posterior angles; both lateral sides crenulate, with a pair of well-defined obtuse teeth each (see Newton & al. 2000: Fig. 86). Puncturation denser and coarser than that of head, interspaces between punctures on disc about as wide as average diameter of punctures.

Elytra moderately convex, short, 1.4 times wider than long, 1.5 times longer than pronotum, gradually widening posteriorly, posterior angles broadly rounded, lateral borders of elytra very small. Puncturation somewhat shallower than that of pronotum, coarser near scutellum; punctures larger, with interspaces equal to twice as wide as average diameter of punctures. Wings reduced.

Abdomen moderately convex, with tergites impunctate; tergite IV with tomentose spots;

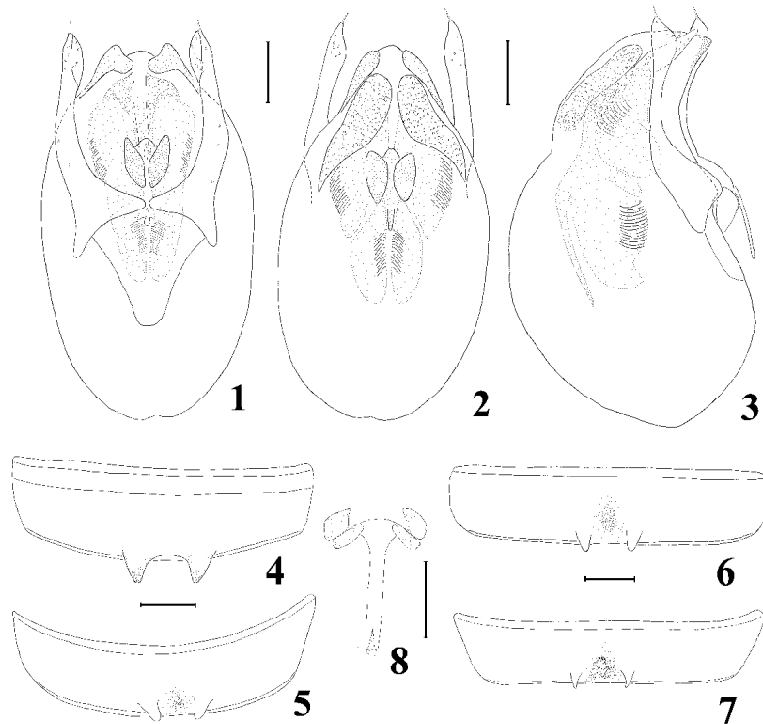
apical margin of tergite VII with very narrow light membranous fringe.

Male. Protarsomeres I–IV weakly dilated. Inner side of mesotibia with 6 spines. Metatibia in apical part weakly expanded. Abdominal tergite VIII with straight posterior margin; fore sternites without peculiar features; posterior margin of sternite VI with two well-developed tooth-like processes and rounded emargination in between (Fig. 4); posterior margin of sternite VII with two smaller teeth and evident impression between those (Fig. 5); posterior margin of sternite VIII with shallow rounded emargination. Aedeagus (Figs. 1–3) short and stout, tapering towards the angularly-rounded apex in distal 1/3; parameres a bit longer than median lobe, their distal widened parts with an apical seta and with one or two preapical setae from inner side each; endophallus complicated, consists of paired expulsion bands, different sacs with rows of long thorns, and small internal sclerites.

Female. Protarsomeres not dilated. Metatibia not widened apically. Sternites VI–VIII without peculiar features.

**Comparative notes.** In the shape of the forebody and the male metatibia without incision in apical part, *A. tumidula* is closely related to *A. ussuriensis* and *A. watanabei*. It can be distinguished from *A. ussuriensis* by the wider elytra and shorter pubescence; from *A. watanabei* by the shorter pronotum with more distinct teeth on its lateral sides. From all the known species of the genus, *A. tumidula* differs by the shape and internal structure of the aedeagus and by the characters of the male abdominal sternites VI–VII. External differences from all the known species of the genus are given in the key below.

**Remarks.** Since the Nearctic fauna seems to contain undescribed species of the genus (see below), I have found it necessary to designate here the only available type specimen of *A. tumidula* as a lectotype to avoid possible confusion in the name usage.



Figs. 1–8: *Acruliopsis tumidula* (aedeagus: 1 – dorsal view, 2 – ventral view, 3 – lateral view; 4 – male sternite VI, 5 – male sternite VII) and *A. ussuriensis* (6 – male sternite VI, 7 – male sternite VII, 8 – female accessory sclerite). Scale bar: 0.1 mm

The species was recorded for British Columbia and Washington State by Hatch (1957) and Legner & Moore (1977), and more specifically from Queen Charlotte Island, British Columbia (Hamilton 1894; Keen 1895) and for Western Washington (Deyrup & Gara 1978). However, the identifications should be verified.

According to Keen (1895: 171), *A. tumidula* is 'common throughout year, under bark; occasionally under carrion, in November'. Deyrup & Gara (1978) noted association of '*Acrulia tumidula*' with Scolytidae ('...sometimes in rotten wood or under bark of trees not infested with scolytids'). Newton & al. (2000) noted also that the species inhabits forest litter and moss, occurs under bark of logs or trees.

Newton & al. (2000) mentioned that '*Acrolocha crenulata* Hatch, 1957 appears to be conspecific with this [*A. tumidula*], but there also is an

undescribed species occurring from British Columbia to California'.

#### *Acruliopsis ussuriensis* Zerche, 2003

(Fig. 6–8)

*Acruliopsis ussuriensis* Zerche, 2003: 305

**Material. FE RUSSIA:** 1 female: Amur Area, Zeyskiy Nature Reserve, Tyoplyi Klyuch kordon. 16.06.1978. V.V. Belov (ZMM); 1 female: Amur Area, Selemdzhinskiy District, Selemdzha River basin up-stream of Ekimchan, between Unerikan River and Ekimchan-Kharga road near origin of winter road, 510 m a.s.l., linear depression in forest with *Picea ajanensis*, *Abies nephrolepis*, *Betula platyphylla*, etc.: large bracket fungi on fallen dead trunk of *Populus* sp. 29.08.2006. A.B.Ryvkin (CS); 1 male: Maritime Province, Ussuriyskiy District, environs of Kamenushka. 10.06.1989. S.A. Kurbatov (ZMM); 1 male: Mari-

time Province, Ussuriyskiy District, Kamenushka vill. 22.06.1990. S.A. Kurbatov (CR); 1 male: same locality and collector. 04.08.1990 (ZMM); 1 m#: same locality and collector. 07.08.1990 (CR).

**Remarks.** The species was originally described based only on the male holotype from the Maritime Province (the Russian Far East). It is recorded here for the Amur Area for the first time.

**KEY TO THE SPECIES OF *ACRULIOPSIS*** (after Zerche 2003, with additions)

1 Body slender, elytra slightly expanded posteriorly. Dark-coloured or brown, with darkened middle part of pronotum. .... 2

- Body less slender, elytra distinctly expanded posteriorly. Lighter species, elytra partly and abdomen indistinct darkened, pronotum unicolorous, reddish-brown. .... 4

2 Smaller. Body widest at abdomen. Forebody distinctly bicolored: reddish-brown, with neck, pronotum and large spots in shoulders darkened; with pubescens rather long. Male: metatibia in apical part weakly expanded and curved on inner face; abdominal sternite VI as in Fig. 6; abdominal sternite VII as in Fig. 7; for aedeagus, see Zerche, 2006 (Fig. 5). Female: accessory sclerite as in Fig. 8. Body length: 2.5-2.6 mm. FE Russia ..... *A. ussuriensis* Zerche, 2003

- Larger. Body widest at elytra. Head dark-brown to reddish-brown, pronotum dark-brown with light margins or reddish-brown, apical margins of last abdominal tergites light reddish-brown. Pubescence of forebody short. Male metatibia on inner side of apical part weakly expanded, on outer side weakly convex and curved, or straight ..... 3

3 Pronotum with well-defined lateral teeth. Elytra short, 1.5 times as long as pronotum. Outer side of male metatibia straight. Male abdominal sternites VI–VII with well-defined tooth-like projections (Figs. 4–5). Aedeagus as in Figs. 1–3. Body length: 2.6-2.8 mm. USA: Alaska ..... *A. tumidula* (Mäklin, 1853)

- Pronotum with slightly defined lateral teeth. Elytra longer, 1.8 times as long as pronotum. Outer side of male metatibia curved. Male abdominal sternites VI–VII of with weakly defined small teeth. For aedeagus, see Zerche, 2006 (Figs. 6–7). For female accessory sclerite, see Zerche, l.c. (Fig. 8). Body length: 2.73-2.87 mm. Japan: Honsu ..... *A. watanabei* Zerche, 2003

4 Smaller. Pronotum with slightly defined lateral teeth. Male metatibia slightly excised in apical half of inner side. Male abdominal sternites VI–VII with very feeble denticles medioposteriorly (see Watanabe, 1980: Fig. 7). For aedeagus, see Watanabe, l.c. (Figs. 9–10). Body length: 1.96–2.45 mm. Japan: Honshu ..... *A. nipponica* (Watanabe, 1980)

- Larger. Pronotum with well-defined lateral teeth. Male metatibia distinctly excised in apical half of inner side. Male abdominal sternites VI–VII with large tooth-like projections medioposteriorly (see Watanabe, 1980: Fig. 2). For aedeagus, see Watanabe, l.c. (Figs. 4–5). Body length: 2.52–2.87 mm. Japan: Kyushu, Shikoku, Honshu, Hokkaido ..... *A. denticollis* (Sharp, 1889)

**ACKNOWLEDGEMENTS**

I wish to thank Jyrki Muona, Heidi Viljanen (Helsinki, Finland), and Derek Sikes (Fairbanks, USA)

for making *Acruliopsis* specimens available for study. I am grateful to my colleague Adam J. Brunke (Copenhagen, Denmark) for correction of English in the manuscript and Margaret Thayer

(Chicago, USA) for providing useful information on the Nearctic Omaliini. Special thanks are extended to Alexandr B. Ryvkin (Moscow, Russia) for material of *A. ussuriensis* and for his assistance and criticism.

## REFERENCES

- Bernhauer M. & K. Schubert K. 1910. Staphylinidae I. In: S. Schenkling, Coleopterorum Catalogus. 5(19): 1–86. Berlin: Junk.
- Campbell J.M & Davies A. 1991. Family Staphylinidae. In: Bousquet Y. (Ed.) Checklist of beetles of Canada and Alaska. Agriculture Canada, Ottawa. 84: 86–129.
- Clark M.E. 1949. An annotated list of the Coleoptera taken at or near Terrace, British Columbia. Part II. Proceedings of the Entomological Society of British Columbia. 45: 21–24.
- Deyrup M.A. & Gara R.I. 1978. Insects associated with Scolytidae (Coleoptera) in western Washington. The Pan-Pacific Entomologist. 54: 270–282.
- Fauvel A. 1878. Les Staphylinides de l'Amérique du nord. Bulletin de la Société Linnéenne de Normandie. (3)2: 167–269.
- Hamilton J. 1894 Catalogue of the Coleoptera of Alaska, with the synonymy and distribution. Transactions of the American Entomological Society. 21: 1–38.
- Hatch M.H. 1957. The beetles of the Pacific Northwest. Part II: Staphyliniformia. ix + 1–384 pp. Seattle: University of Washington Press.
- Herman L.H. 2001. Catalog of the Staphylinidae (Insecta: Coleoptera). 1758 to the end of the second millenium. I. Introduction, history, biogeographical sketches, and Omaliine group. Bulletin of the American Museum of Natural History. N. 265. New York. 650 pp.
- Keen J.H. 1895. List of Coleoptera collected at Massett, Queen Charlotte Islands, B.C. The Canadian Entomologist. 27: 165–172, 217–220.
- Leng Ch. 1920. Catalogue of the Coleoptera of America North of Mexico. Mount Vernon, NY. 470 pp.
- Legner E.F. & Moore I. 1977. Staphylinidae from under bark and at sap of trees, a preliminary survey of species possibly beneficial to forestry (Coleoptera). The Great Lakes Entomologist. 10(4): 173–177.
- Mäklin F.G. 1853. [New species and notes]. In: C. v. Mannerheim, Dritter Nachtrag zur Käfer-Fauna der Nord-Amerikanischen Länder des Russischen Reiches. Bulletin de la Société Impériale des Naturalistes de Moscou. 26(3): 95–273.
- Newton A.F., Thayer M.K., Ashe J.S. & Chandler D.S. 2000. Family 22. Staphylinidae Latreille, 1802, pp. 272–418. In: Arnett R.H., Jr. & Thomas M.C. (Eds.) American Beetles, Volume 1, Archostemata, Myxophaga, Adephaga, Polyphaga: Staphyliniformia. CRC Press, Boca Raton, FL. xv + 443 pp.
- Watanabe Y. 1980. The Japanese species of the genus *Pycnoglypta* Thomson (Coleoptera, Staphylinidae). Kontyû. 48(2): 271–277.
- Zerche L. 2003. *Acruliopsis* gen. n. aus der Ostpaläarktis (Coleoptera, Staphylinidae, Omaliinae, Omaliini). Beiträge zur Entomologie. 53(2): 297–316.

Received: 01.11.2013.

Accepted: 26.11.2013.