

# The *Blaps* species of Sweden, with a review of the *B. lethifera* group (Coleoptera, Tenebrionidae)

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Five species of *Blaps* are recorded from Sweden: *B. mortisaga* (Linnaeus), *B. lethifera* Marsham, the probably introduced *B. mucronata* Latreille, *B. sinuatocollis* Solier, and the recently introduced *B. plana* Solier. *B. sinuatocollis* is separated from the other species of the *B. lethifera* group (sensu Picka, 1978), synonyms are listed, and a key is provided for identification of males. *B. sinuatocollis suecica* ssp. n. is described from Sweden. Two syn. n. are proposed: *B. obtusa* Gyllenhal, 1813 = *B. mucronata* Latreille, 1804, and *B. coriacea* Fischer von Waldheim, 1844 = *B. halophila* Fischer von Waldheim, 1844.

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Lundberg (1986:107) listed three species of *Blaps* Fabricius, 1775, as found in Sweden: *B. mortisaga* (Linnaeus), *B. lethifera* Marsham and the introduced *B. mucronata* Latreille. A study of the available material of Swedish *Blaps* has shown that most of the specimens previously identified as *B. lethifera* in fact belong to another species of this difficult group. As the Swedish populations represent a new subspecies, described below, we also present a review of the *B. lethifera* group (sensu Picka 1978). Our study has also documented the occurrence of a fifth, introduced, species of *Blaps* in Sweden.

## The genus *Blaps* in Sweden

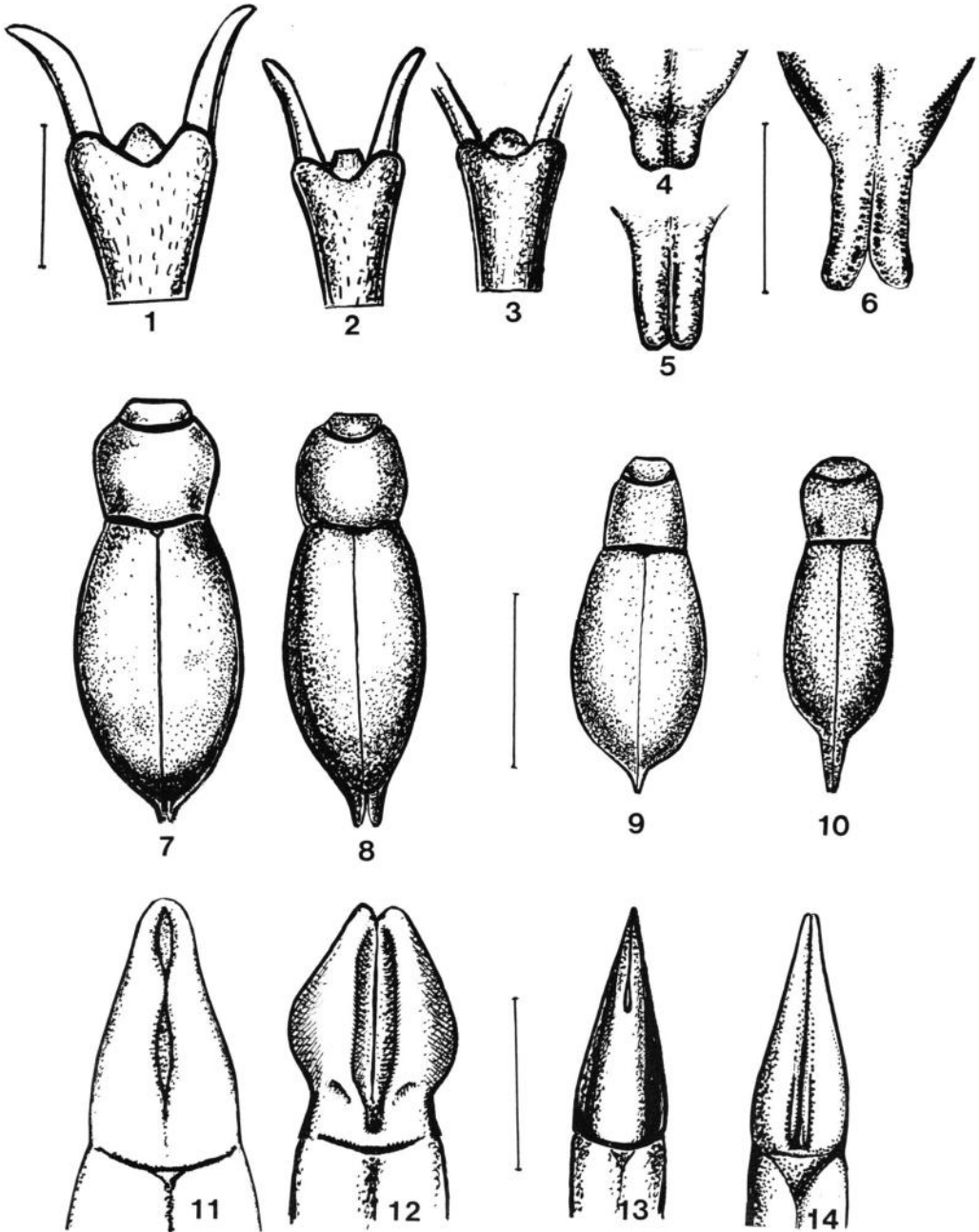
### Key to species

1. Protarsomere 5 with ventroapical projection pointed (Fig. 1) ..... 2
- Protarsomere 5 with ventroapical projection rounded or truncate (Figs 2, 3) ..... 3
2. Elytra flattened; lateral beads visible from above, except apically. Elytral apices together forming a short, subparallel projection (Fig. 4). Body about 1.5 × as long as broad (Fig. 7). Aedeagus simple (Fig. 11) ..... *B. plana* Solier
- Elytra more convex; lateral beads not visible from above. Elytral apices long and diverging (Fig. 6). Body about twice as long as broad (Fig. 8).

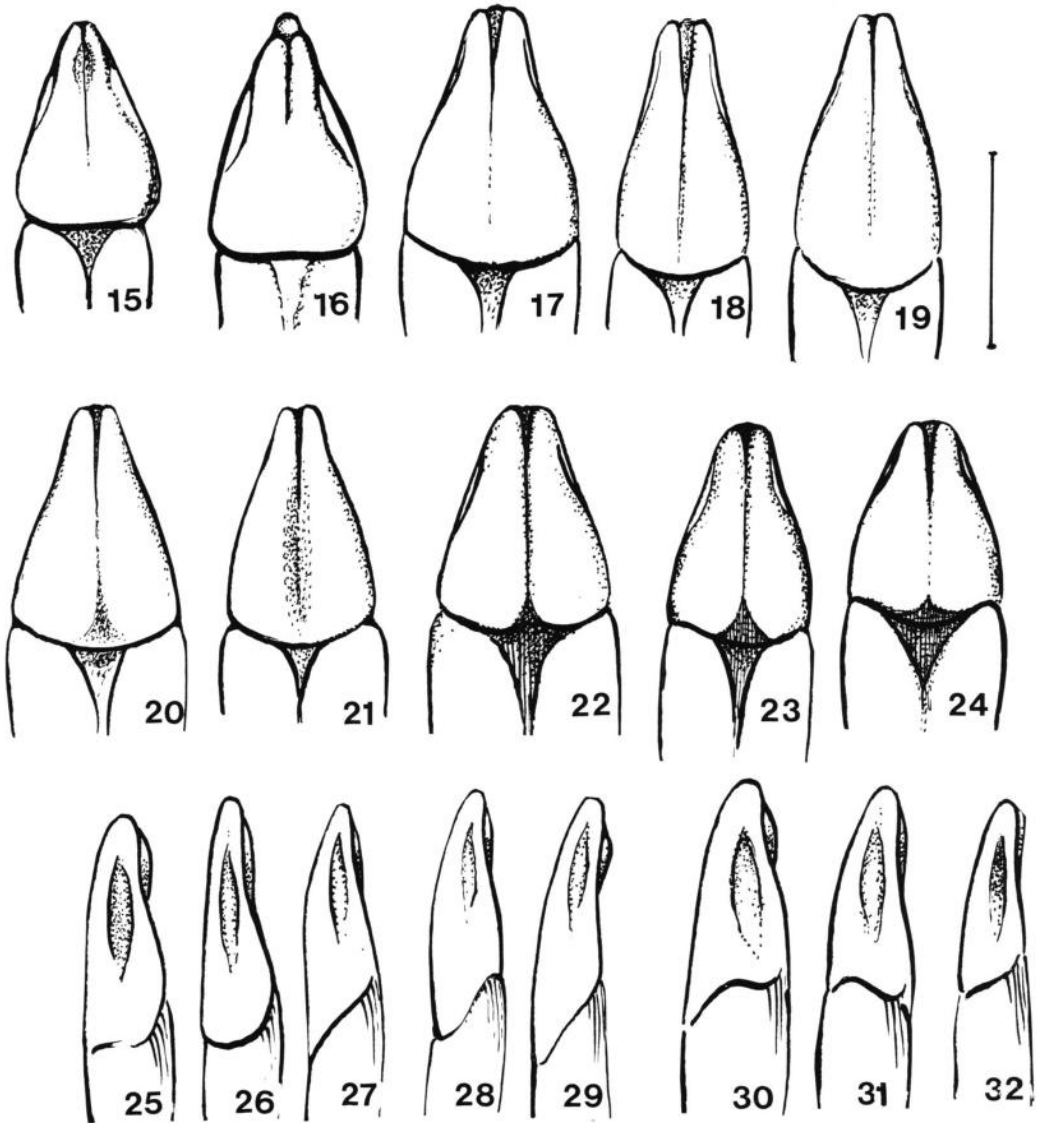
- Aedeagus laterally dilated (Fig. 12) ..... [*B. gigas* (Linnaeus)]
3. Male abdominal sterna 1–2 separated by a setal brush ..... 4
- Abdominal sterna without setal brush in both sexes. Elytra oval with maximum width posterior to middle (Fig. 9). Pronotum small, its length evidently shorter than length of antenna. Legs very long. Aedeagus with apex narrowly pointed (Fig. 13) ..... *B. mucronata* Latreille
4. Body elongate with lateral outline subparallel, and with a marked constriction at level of pronotal base (Fig. 10). Elytral apices together forming a long projection (Fig. 5). Legs long. Aedeagus with apex bluntly pointed (Fig. 14) ... *B. mortisaga* (Linnaeus)
- Elytral apices together forming a projection that is shorter than 0.1 of length of elytra (Fig. 4). Aedeagus with apex rounded (Figs 15–24) ..... 5
5. Elytra in lateral view abruptly narrowed to apex (Fig. 41). Pronotum with lateral margin curved and sinuate near posterior angle (Fig. 35). Aedeagus as in Figs 22–24, 30–32 ..... *B. lethifera* Marsham
- Elytra in lateral view more evenly narrowed to apex (Fig. 42). Pronotum with lateral margin more or less straight (Figs 37, 38). Aedeagus as in Figs 19–21, 27–29 ..... *B. sinuatocollis suecica* ssp. n.

### Review of species

*Blaps mortisaga* (Linnaeus, 1758:418). Figs 5, 10, 14. This species is recognized on the long slender legs, elongate subparallel body, long apical pro-



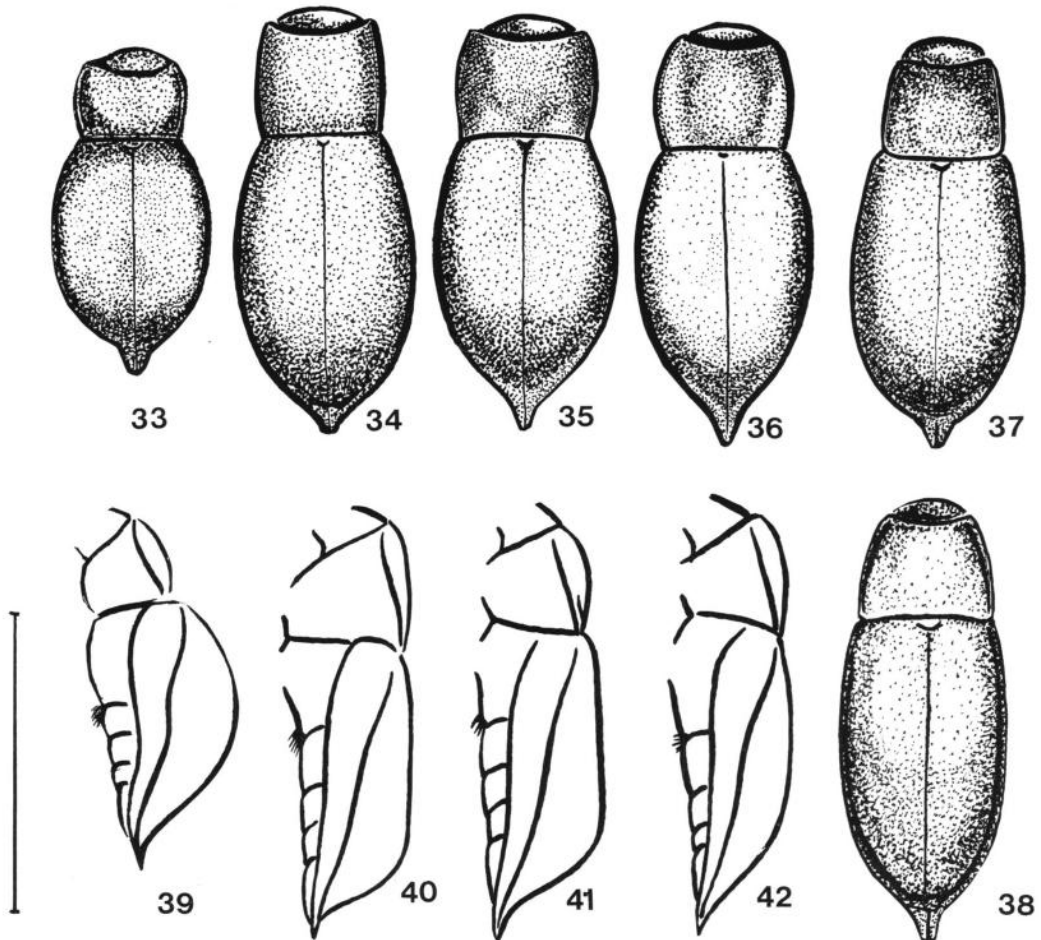
Figs 1-14. *Blaps*, dorsal aspect. - 1-3. Protarsomere 5, apex. - 1. *B. gigas* (Linnaeus). - 2. *B. sinuatocollis* Solier. - 3. *B. lethifera* Marsham. - 4-6. Elytral apices. - 4. *B. lethifera*. - 5. *B. mortisaga* (Linnaeus). - 6. *B. gigas*. - 7-10. Habitus of male. - 7. *B. plana* Solier. - 8. *B. gigas*. - 9. *B. mucronata* Latreille. - 10. *B. mortisaga*. - 11-14. Aedeagus. - 11. *B. plana*. - 12. *B. gigas*. - 13. *B. mucronata*. - 14. *B. mortisaga*. Different scale bars for 1-3 (1.0 mm), 4-6 (3.0 mm), 7-10 (15 mm), and 11-14 (1.8 mm).



Figs 15–32. *Blaps*, aedeagus. – 15–24. Dorsal aspect. – 15. *B. abdita* Picka. – 16. *B. milleri* Seidlitz. – 17–18. *B. s. sinuatocollis* Solier from Moravia. – 19–21. *B. sinuatocollis suecica* ssp. n. – 22–24. *B. lethifera* Marsham. – 22. Balcans. – 23. Austria. – 24. Spain. – 25–32. Lateral aspect. – 25–26. *B. s. sinuatocollis* from Moravia. – 27–29. *B. s. suecica*. – 30–32. *B. lethifera*. 30. Balcans. – 31. Austria. – 32. Spain. Scale bar 1.8 mm.

jections of elytra, and the shape of the aedeagus. It is widely distributed in south and central Sweden north to the Hälsingland province (Lundberg 1986:107). However, most records are old and the species is considered endangered (Andersson et al. 1987:70).

*B. lethifera* Marsham, 1802:479. Figs 22–24, 30–32, 35, 41. This species was in Sweden previously mixed up with *B. sinuatocollis suecica*, from which it is separated on the characters presented in the key. *B. lethifera* is also very difficult to separate from the other species in the same group



Figs 33–42. *Blaps*, habitus of male. – 33–38. Dorsal aspect. – 33. *B. abdita* Pícka. – 34. *B. milleri* Seidlitz. – 35. *B. lethifera* Marsham. – 36. *B. s. sinuatocollis* Solier. – 37–38. *B. sinuatocollis suecica* ssp. n. – 39–42. Lateral aspect. – 39. *B. abdita*. – 40. *B. milleri*. – 41. *B. lethifera*. – 42. *B. sinuatocollis suecica*. Scale bar 15 mm.

(see below). Of the provincial records given by Lundberg (1986:107) we could verify only that from Scania: 1♂ Landskrona 2.xi.1976. leg. P. Johnson, coll. Lundberg. We have also seen a specimen from Denmark, Zealand, leg. Skovgaard in coll. Lundberg. We suggest that all Swedish provincial records except that from Sk should be transferred to *B. sinuatocollis suecica*.

*B. sinuatocollis suecica* ssp. n. Figs 19–21, 27–29, 37, 38, 42. Most of the Swedish specimens previously known as *B. lethifera* in fact belong to this new subspecies (described below) of *B. sinuatocollis* Solier. It is characterized by the more or

less straight lateral margins of the pronotum and the more evenly dorsoventrally narrowed posterior part of the elytra. This species is included in the Catalogue (Lundberg 1986:107) as BLA SINU with no. 3669a and recorded from Sk, Ha, Öl, Ög, Vg and Bo.

*B. mucronata* Latreille, 1804:278. [= *Blaps obtusa* Gyllenhal, 1813, **syn. n.**]. Figs 9, 13. This species is similar to *B. mortisaga*, but larger and relatively broader with maximum width of the elytra posterior to middle. The pronotum is very small and the legs are long.

This species was described by Gyllenhal (1813)

as *B. obtusa* from Scania. *B. obtusa* was previously cited as a synonym of *B. lethifera* Marsham (Gebien 1937:863), but our examination of two syntypes, one of each sex (in Zoological Museum, University of Uppsala), has assured us of the synonymy given above. The original description refers to the female, which have made the interpretation of this species difficult.

Besides from Scania, *B. mucronata* is in Sweden known from the province Västergötland (Lundberg 1986:107), and we have seen 2♂1♀ collected by A. I. Nordin (1853–1939) in Göteborg (in the Natural History Museum, Gothenburg). As Gyllenhal's (1813) specimens were found "in Scania suffocatis", i.e. probably under stones or in soil, the species may have been native to Sweden, but later became extinct.

*B. plana* Solier, 1848:338. Figs 7, 11. This species is similar to *B. gigas*, but the elytral apices of both sexes are less projecting, and the body is more depressed and larger. One specimen of each sex were found dead (fumigated) in the Bergianska Botanical Garden in Stockholm on 12 and 16.ix.1975 by Lars Kers and Bengt Ehnström. These specimens were compared with material from Tunisia identified by Prof. F. Espanol at the Zoological Museum of Barcelona.

*B. plana* is uncommon, synantropical and widespread, maybe cosmopolitan. It is known from cellars in France, Spain, Algeria, Egypt, Turkey and Yugoslavia (Allard 1881:170). *B. plana* is included in the Catalogue (Lundberg 1986:107) as BLA PLAN with no. 3669b and an "i" (= introduced) for Up. The two Swedish specimens have been deposited in the Swedish Museum of Natural History, Stockholm.

*B. gigas* (Linnaeus, 1758:676). Figs 6, 8, 12. This common, widespread, species has been included in the key as it can be expected to occur synantropically in Sweden. The main area of distribution includes South Europe and North Africa. It has been found introduced in Denmark: Copenhagen, Nyhavn, leg. Skovgaard, in the Zoological Museum of the University, Copenhagen. The body length is 30–40 mm, the apical elytral projections are diverging and the aedeagus is strongly dilated. The marked constriction of the lateral outline of the body is characteristic.

## The Blaps lethifera group

### Key to males

The species identification within this group is made difficult by the individual variation that results in an overlap between species in most characters. No single character seems to have an absolute value. Consequently, combinations of characters must be studied. Females are deemed impossible to identify with certainty. Most (about 98 %) males can be identified on the combination of the shape of the ventroapical projection of pro-tarsomere 5 and the aedeagus. Specimens are often intermediate with respect to habitus.

1. Pronotum and elytra strongly convex (Figs 33, 39). Body length not exceeding 20 mm. Aedeagus as in Fig. 15 ..... *B. abdita* Picka
- Pronotum and elytra more flattened ..... 2
2. Elytra in lateral view abruptly narrowed to apex (Figs 40, 41) ..... 3
- Elytra in lateral view more evenly narrowed to apex (Fig. 42) (*B. sinuatocollis*) ..... 4
3. Pronotum with lateral margin more or less straight (Fig. 34). Aedeagus as in Fig. 16 .....  
..... *B. milleri* Seidlitz
- Pronotum with lateral margin curved and sinuate near posterior angle (Fig. 35). Aedeagus as in Figs 22–24, 30–32 ..... *B. lethifera* Marsham
4. Pronotum with lateral margin curved (Fig. 36). Aedeagus as in Figs 17, 18, 25, 26 .....  
..... *B. sinuatocollis sinuatocollis* Solier
- Pronotum with lateral margin more or less straight (Figs 37, 38). Aedeagus as in Figs 19–21, 27–29 .....  
..... *B. sinuatocollis suecica* ssp. n.

### Review of species

*Blaps abdita* Picka, 1978:100. Figs 15, 33, 39. This small, peculiar, species is similar to *B. milleri*, from which it differs also in the curved lateral margin of the pronotum and the stronger elytral convexity. Only a few specimens are known from Hungary and Slovakia and Moravia in Czechoslovakia.

*B. milleri* Seidlitz, 1893:279. Figs 16, 34, 40. [Syn.: *reflexicollis* Miller, 1858, not Fischer von Waldheim, 1844]. This species has often been cited as a synonym or variety of *B. lethifera*. However, the constant difference in the shape of pronotum and elytra indicates that it is a valid species. The aedeagus (Fig. 16) has a prominent, pointed, penis that reaches distad of the parameres. It occurs in SE Europe: Poland, Czechoslovakia, Austria, Hungary and Romania.

*B. lethifera* Marsham, 1802:479. Figs 22–24, 30–32, 35, 41. [Syn.: *mortisaga* (Scopoli, 1763) (not Linnaeus, 1758), *similis* Latreille, 1804, *fatidica* Sturm, 1807, *subquadrata* Brullé, 1832, *plicatocollis* Ménétrés, 1836, *reflexicollis* Dejean, 1837 (nom. nudum), *convexa* Fischer von Waldheim, 1844, *brevis* Fischer von Waldheim, 1844, *dorsata* Fischer von Waldheim, 1844, *damascena* Fischer von Waldheim, 1844, *reflexicollis* Fischer von Waldheim, 1844, *mucronata* Solier, 1848, *proxima* Solier, 1848, *reflexicollis* var. *longicollis* Solier, 1848, *asiatica* Solier, 1848, *rectangularis* Allard, 1882]. Type material of early authors like Scopoli and Sturm must be considered lost. The junior author has studied all available type material of Fischer von Waldheim, Solier and Allard. In other cases the synonyms given by Gebien (1937:863) have been accepted. Note that *B. coriacea* Fischer von Waldheim, 1844, is a junior synonym (**syn. n.**) of *B. halophila* Fischer von Waldheim, 1844.

This species is characterized by the lateral margin of pronotum that is sinuate near the posterior angle. The body size shows a pronounced variation. It occurs synantropically in Europe from the British Isles to Asia Minor, Crimea (USSR) and Madeira.

*B. sinuatocollis* Solier, 1848:314. Figs 17–21, 25–29, 36–38, 42. [Syn.: *reflexicollis* sensu Gebien 1937:864, not Fischer von Waldheim, 1844 (Picka 1979: 99–103)]. This species was described from the Caucasus, and the holotype from coll. Faldermann is now in the French Museum of Natural History, Paris. After examination of the holotype, we consider *B. sinuatocollis* Solier as a valid species. Many old specimens from south Russia are of the same size as the holotype. The distribution is similar to that of *B. lethifera*. *B. sinuatocollis* has not been found in Siberia and the range limits in the Balticum are not clear. The Swedish specimens represent a new subspecies.

### ***Blaps sinuatocollis suecica* ssp. n.**

Figs 19–21, 27–29, 37, 38, 42.

*Type locality.* Scania, Sweden.

*Type material.* Holotype ♂ Tofta, Sk, 16.vi.1977, leg. S. Persson. — Paratypes 20♂ 17♀ with same label as holotype. Holotype and one ♀ paratype in Swedish Museum of Natural History, Stock-

holm. Rest of paratypes in coll. Ferrer (16♂ 13♀) and coll. Picka (4♂ 3♀).

*Diagnosis.* Body depressed; elytra in lateral view relatively evenly narrowed to apex. Pronotum quadriform with lateral margin more or less straight. Protarsomere 5 with ventroapical projection truncate. Aedeagus with apex bluntly pointed; parameres without dorsobasal incision.

### *Description*

Body black, opaque, elongate, subparallel; length 18–25.5 mm, width 8–10.8 mm. Head transverse, about half as wide as pronotum at base. Epistome truncate with very feebly impressed transverse suture forming an obtuse sinuosity in front of preocular portion of genae. Gena above antenna with confluent punctures, each puncture larger than an eye facett, and finer than punctures on disc of head and epistome. Those punctures irregular and double, gradually obsolete on disc in some specimens; dense, very large and confluent in others; distance between 2 larger punctures exceeding 2 × diameter of largest puncture. Eye small, about 1/7 as wide as head dorsally. Labrum feebly bilobed in front, rugose and setose. Antenna about as long as width of pronotum in anterior third; with sparse, short, black, squarrose setae; segment 3 about 3 × as long as segment 1, 4 × as long as segment 2, and as long as segments 4–6 combined; segments 4–5 slightly longer than broad, segment 6 shorter, as long as broad; segments 7–10 transverse, segment 7 broadest, about twice as broad as segment 6; segment 8 strongly transverse and much shorter than segment 7; segments 9–10 of similar shape; segment 11 acuminate, about twice as long as broad.

Pronotum quadrate, widest at base; lateral margin straight with distinct bead; anterior margin subtruncate, anterior angle rounded; posterior margin truncate, posterior angle obtuse. Punctuation like that on head, finer laterally.

Elytra about 1.5 as long as broad, base truncate, slightly broader than base of pronotum, with rectangular slightly prominent humeral angles. Elytron with lateral bead invisible in dorsal view in posterior 2/3. Punctuation fine and dense on disc, gradually rugose and transversally confluent laterally and posteriorly. Apical projection short, about 1/10–1/15 the length of the elytron in male, shorter in female.

Ventral surface finely punctured, rugose, and

strigose near procoxa and propleura. Mentum twice as broad as long, laterally rounded and with rugose punctation; sulcus between submentum and gula distinct.

Male abdominal sterna with dense, fine, rugose punctation; sternum 1 transversely rugose; sternum 2 with large yellowish-red setal brush of 1/3 of width of sternum; sternum 3–4 shorter, sternum 4 with deep transverse impression in posterior half; sternum 5 longer, slightly transverse, with punctation finer and posterior margin beaded. Aedeagus bluntly pointed; length 4 mm. Parameres apically rounded; dorsobasally without incision (Figs 19–21).

*Habitat.* Gregarious, under stones. Probably endangered (Andersson et al. 1987, as *B. lethifera*). Attracted to man-made habitats of old, rural character.

*Additional material:* Sweden: Sk: Rönne Mölla, coll. Johan Wikström (1830–1896) 1♂; Ha: Ringhal 1888, coll. Axel Olsson, 8 ind; Falkenberg, leg. Ringselle 1♂; leg. Sandin 4 ind; Halmstad, leg. S. Hermansson 1♂; Öl: Kastlösa 15.viii.1961 leg. G. Svensson, 3 ind; Ög: Malm-slätt vi.1916 coll. Hedgren 1♂; Vg: Göteborg, leg. Sandin, 29 ind; leg. Nordin 3 ind; Bo: leg. Fähræus 1♂. All specimens from Sk and Ha except Halmstad in Swedish Museum of Natural History, Stockholm; others in Natural History Museum, Gothenburg.

## Discussion

The pronounced intraspecific variation in the genus *Blaps* has resulted in a high number of synonyms. We consider *B. sinuaticollis* as a widely distributed, geographically variable species that is differentiated into a number of subspecies. The Swedish populations studied are treated as a separate subspecies as: (1) intermediate forms that overlap with other continental populations exist; (2) in other tenebrionid genera (e.g. *Anomalipus* Latreille, *Pimelia* Fabricius, *Gonocephalus* Solier) a similar variation in habitus and shape of aedeagus has been documented that is compatible with interbreeding. In the South African *Anomalipus*, morphologically different populations occurred in opposite ends of an area. Both phenotypes showed a decreasing frequency towards the center where they co-occurred. When crossed in

the laboratory, these two forms reproduced the different parental phenotypes (Endrödy Younga 1988). We think this is what the situation is like also in the Palearctic genera mentioned above.

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### Sammanfattning

Fem arter av släktet *Blaps* rapporteras från Sverige. *B. lethifera* Marsham är endast känd från

Sk och har tidigare sammanblandats med den mer vitt spridda *B. sinuatocollis* Solier. Denna art representeras i Sverige av underarten *B. s. suecica*, vilken här nybeskrivs. Resterande tre arter är: *B. mortisaga* (Linnaeus), *B. mucronata* Latreille (förmodligen importerad), och *B. plana* Solier (nyligen importerad). Bestämningstabeller ges för de svenska arterna, samt för *lethifera*-gruppens samtliga arter.

### Recension

Lohse, G. A. & Lucht, W. H. (red.). 1989. *Die Käfer Mitteleuropas 12. 1. Supplementband mit Katalogteil*. Goecke & Evers. Krefeld. 346 s. ISBN 3-87263-036-9. Pris 550 SEK.

Utgivningen av det stora bestämningsverket för skalbaggar, *Die Käfer Mitteleuropas*, inleddes 1964 med band 4. Verket omfattar totalt 11 band plus en katalogdel (se ET 109:96). Planerade är även två tilläggsband, två band om ekologi och tre band om larver. Det nu utgivna första tilläggsbandet avser band 1–5, dvs Adepfaga, Myxophaga (dvs endast Microsporidae) och överfamiljerna Hydrophiloidea, Histeroidea och Staphylinoidea inom Polyphaga. Familjeindelningen följer nu Crowsons arbete från 1955, dvs i stort sett den indelning som vår svenska katalog följer. Några ändringar som kommer även hos oss är att Catopidae skall heta Cholevidae och att Silphidae splittras ytterligare så att *Ecanus* och *Agyrtetes* förs till Agyrtidae.

Tilläggsens omfattning varierar från nya fynduppgifter för arter till helt ny klassificering av familjer. Det senare gäller t ex för Histeridae vars indelning nu följer Kryzhanovskijs bearbetning från 1976. Många namnändringar ges, vilket medför att samstämmigheten med den svenska katalogen ökar markant. De arter som tillkommit placeras in i tabellerna, och i några fall ges helt nya tabeller för släkten eller undersläkten. Detta gäller bl a: *Bembidion* (*Ocydromus*), *Gyrinus*, *Laccobius*, *Leiodes*, *Scopaeus* och *Dinarda*. I vissa fall ges även helt nya illustrationer av arternas könsorgan, t ex för *Laccobius* och för *Leiodes* från Daffners revision från 1983.

I många fall rättas gamla fel i tabellerna, vilka tidigare vållat onödiga problem vid bestämningen. Många nya och bättre karaktärer ges också. Helt klart är detta tilläggsband till stor nytta vid artbestämning med hjälp av detta verk. Även för de

familjer som redan behandlats i *Fauna ent. scand.* kan tilläggsbandet vara bra, t ex för fler genitalbilder eller andra karaktärer. För jordlöparna ges nu karaktärer för att skilja *Pterostichus nigrita* och *rhaeticus* åt, vilket saknades i vol. 15 av *Fauna ent. scand.*

Hela 120 sidor ägnas kortvingarna, vilkas ursprungliga behandling i band 4 och 5 upptog ca 550 sidor. Jämförelsen visar bra på tilläggsens omfattning. Mycket har hänt på de 25 år som passerat efter tillkomsten av band 4.

Ett närmare studium av de namnändringar som gjorts inom familjen Dytiscidae visar på en del uppenbara avvikelser från gällande nomenklaturregler. *Hydroporus piceus* och *Oreodytes rivalis* har nu ändrats till *gyllenhali* resp *sanmarki*. Dessa namnbyten är nödvändiga men den korrekta originalstavningen är *gyllenhalii* resp *sanmarkii*. Vid namngivningen utgick man från de aktuella personernas latiniserade namn, vilket ger ii på slutet. Att ändra på detta är felaktigt (jfr artikel 33 i den internationella nomenklaturkoden).

Namnet *Laccophilus variegatus* har man valt att behålla trots att det är en yngre homonym – detta med hänvisning till att *obsoletus* Westhoff, dvs det namn som hos oss ersatt *variegatus* egentligen avser en *Haliphus*. Istället borde man använt ett annat, giltigt, ersättningsnamn – i detta fall *L. ponticus* Sharp, 1882.

Bland *Hydaticus* har man valt att ersätta det upptagna namnet *stagnalis* med *modestus* Sharp. Detta är olyckligt då *modestus* är en synonym till *aruspex* Clark (= *laevipennis* Thoms.). Det rätta vore att ersätta *stagnalis* med *continentalis* Balfour-Browne. Tyvärr skulle listan på fel av denna typ kunna göras längre. Det är bara att hoppas att de övriga familjerna fått en korrektare behandling. Tilläggsbandet avslutas med att alla ändringar presenteras i katalogform.

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