

Revision of European species of the genus *Rhabdomastix* (Diptera: Limoniidae). Part 2: Subgenus *Rhabdomastix* s. str.

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Abstract. The second and final part of a revision of the European species of the genus *Rhabdomastix* Skuse, 1890 is presented. The subgenus *Rhabdomastix* s. str. is revised. Seven species are redescrbed, *Rhabdomastix* (*Rhabdomastix*) *japonica* Alexander, 1924, *R. (R.) laeta* (Loew, 1873), *R. (R.) borealis* Alexander, 1924, *R. (R.) edwardsi* Tjeder, 1967, *R. (R.) subparva* Starý, 1971, *R. (R.) hirticornis* (Lackschewitz, 1940) and *R. (R.) beckeri* (Lackschewitz, 1935). Three new synonyms are proposed. Lectotypes of four pertinent nominal species are designated. Descriptions are provided of six species, viz. *R. (R.) laetoidea* sp. n. (Czech Republic, Slovakia, Bulgaria, Ukraine), *R. (R.) crassa* sp. n. (France, Czech Republic, Slovakia), *R. (R.) corax* sp. n. (Bulgaria, Greece), *R. (R.) eugeni* sp. n. (France, Switzerland, Germany, Czech Republic, Slovakia, Italy, Romania, Bulgaria, Greece, Ukraine, Armenia), *R. (R.) filata* sp. n. (Bulgaria, Greece, European Russia, Turkey, Georgia, Armenia) and *R. (R.) georgica* sp. n. (Georgia). Male and female terminalia are illustrated for all the species, and a key to species is appended.

INTRODUCTION

In the first part of this revision published recently (Starý, 2003), the taxonomic history of the genus *Rhabdomastix* Skuse, 1890 was reviewed, its classification outlined and re-assessed, and a new subgenus, *Lurdia* Starý, 2003, was established. Nine European *Lurdia* species were treated, and seven of these were described as new.

The second instalment, now presented, deals with the nominotypical subgenus *Rhabdomastix* s. str., as defined in the first part, i.e. in a broad sense, comprising the majority of species of the former subgenera *Rhabdomastix* s. str., *Palaeogonomyia* Meunier, 1899 and *Sacandaga* Alexander, 1911.

Generally, the same morphological terminology is used as in the first part of this revision (Starý, 2003). The following should be added or repeated:

Acronyms of museums and collections used in the text are as follows: AGB – Collection of A. Godfrey, Barnsley, England, UK; BMNH – The Natural History Museum [formerly British Museum (Natural History)], London, England, UK; ISEZ – Institute of Systematics and Evolution of Animals, Kraków, Poland; JSJ – Collection of J. Salmela, Jyväskylä, Finland; JSO – Collection of J. Starý, Olomouc, Czech Republic; MHNN – Muséum d'histoire naturelle, Neuchâtel, Switzerland; MMBC – Moravské zemské muzeum, Brno, Czech Republic; MZLU – Museum of Zoology, Lund, Sweden; NHBB – Naturhistorisches Museum der Burgergemeinde, Bern, Switzerland; NHMW – Naturhistorisches Museum, Vienna, Austria; SMOG – Slezské zemské muzeum, Opava, Czech Republic; USNM – National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA; ZFMK – Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany; ZMAN – Zoological Museum, Amsterdam, The Netherlands; ZMHB –

Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.

Numbers in brackets following Czech and Slovak localities in the Material examined sections refer to grid references as defined by Zelený (1972).

Colour characters of species are described from dry-mounted specimens. Unless otherwise stated in the sections on Material examined, the material under study is dry-mounted and collected by netting. Some specimens were dried after preservation in ethanol and mounted on points in the course of the study.

SUBGENUS *RHABDOMASTIX* S. STR.

For references, see Starý, 2003: 590–591.

Diagnosis. Small to medium-sized species (cf. Figs 1–4). Head. Antenna 16-segmented, of variable length, from very short (Fig. 7), about twice as long as head, to notably long (Fig. 11), longer than body. Flagellomeres short, oval, decreasing in size, especially in breadth, towards apex of short antenna, or considerably long, cylindrical or spindle-shaped, with terminal flagellomere of long antenna very small. In latter case, antenna considerably shorter in female (Fig. 12). Setae on antenna well differentiated into long stiff verticils and shorter delicate, suberect pubescence (some species, Figs 5, 6, 10), or either pubescence (other species, Figs 7, 9, 12) or verticils (male long antenna, Fig. 11) scarcely apparent. Palpus short, subequal in length to diameter of head, with terminal palpomere only a little longer than penultimate (Fig. 14), or longer, with terminal palpomere twice as long as penultimate one (Fig. 13).

Thorax. Wing venation (cf. Figs 1–4): Sc₁ ending from shortly beyond origin of Rs to about at three quarters of

Rs length (at half of Rs length or beyond it in European species). Sc₂ lacking or faintly apparent at tip of Sc₁ or some distance before it. R₃ very short, from one-fifth to one-eighth of R₄ length, vertical or virtually so, forming a 90° with R₄. Discal cell generally hexagonal, with proximal section of M₃₊₄ (forming lower side of discal cell) distinctly angled near mid-length, at attachment of m-cu. Distal sections of M₁₊₂ and M₃ (beyond discal cell) considerably arched.

Abdomen. Male terminalia (cf. Fig. 17 and other relevant figures): Segment 9 generally parallel-sided, simple, with at most small lobe dorsally at posterior margin on each side of median interruption (except in *beckeri*, Fig. 44). Gonostyli generally shorter than those in *Lurdia*; outer one terminating in curved apical spine, or broadly rounded and without apparent spine; inner one fleshy, generally conical, variously swollen, generally a little shorter than outer gonostylus. Interbase membranous, pale, mostly dilated before apex into variously shaped apical blade, not connected membranously to its counterpart at about one third of its length. Female terminalia (cf. Fig. 19 and other relevant figures) with cercus and hypogynial valve of moderate length, the former at most slightly exceeding length of tergite 10. Spermathecae (Figs 46–56) two or three in number, spherical, oval, or reniform, subequal in size to each other, or, if three, one spermatheca sometimes tending to be smaller than other two.

Discussion. The two subgenera, *Lurdia* and *Rhabdomastix* s. str., were compared in the first part of this revision (Starý, 2003). It should be noted that the venational pattern in *Rhabdomastix* s. str., with its vertical (subvertical) R₃, combined with the hexagonal discal cell and distinctly arched M₁₊₂ and M₃, is quite unique within the Limoniidae. The venation may vary in details even within a species, especially in aspects such as the verticality of R₃ or the length ratio of R₃ to R₄.

Rhabdomastix s. str. species, as those of *Lurdia*, are mainly distinguished by details in the structure of the male and female terminalia, in the latter case predominantly by the number and size of the spermathecae. Other internal structures of the female terminalia, such as the infra-anal (supravaginal) plate, sternum 9 and genital fork (vaginal apodeme) are not sufficiently differentiated, and, of these, only the vaginal apodeme may sometimes provide some species-specific peculiarities (cf. Figs 18, 25, 28). If from the same region, some species may well be separated by the body colouration. However, this only applies to dry-mounted specimens.

Distribution. Worldwide.

REVISION OF EUROPEAN SPECIES OF THE SUBGENUS *RHABDOMASTIX* S. STR.

Compared to the subgenus *Lurdia*, representatives of the European *Rhabdomastix* s. str. species are more diverse structurally, representing several species clusters, or evolutionary trends. However, within a cluster, the taxonomic situation parallels that in *Lurdia*: species may be very similar to each other in both external and genital

characters that, in addition, vary in a certain degree. Moreover, some *Rhabdomastix* s. str. species have, or are presumed to have, wide ranges of distribution, and some show infraspecific variation in body colouration, a trait not observed in *Lurdia*. Consequently, to properly recognising species limits, large series of specimens have been examined from Central Europe where, fortunately, many species occur sympatrically, even syntopically. This was combined with the examination of additional specimens from more remote areas. Without this extensive and geographically diverse material, totalling over 2500 specimens, a re-assessment of the European *Rhabdomastix* s. str. species would not have been possible.

This revision of the European *Rhabdomastix* s. str. has been in progress, with interruptions, for an exceedingly long time. Many specimens from various institutions were examined as early as in the late 1970's. In the course of the study, some species concepts were modified. Therefore, as many as possible, relevant specimens, especially types, were re-examined quite recently (2002–2003).

In all, thirteen *Rhabdomastix* s. str. species are treated here. Seven species are redescribed, viz. *R. (R.) japonica* Alexander, 1924, *R. (R.) laeta* (Loew, 1873), *R. (R.) borealis* Alexander, 1924, *R. (R.) edwardsi* Tjeder, 1967, *R. (R.) subparva* Starý, 1971, *R. (R.) hirticornis* (Lackschewitz, 1940) and *R. (R.) beckeri* (Lackschewitz, 1935). Three new synonyms are proposed: *R. hilaris* Edwards, 1938 and *R. cunctans* Tjeder, 1955 are treated as junior synonyms of *R. (R.) japonica*, and *R. lapponica* Tjeder, 1936 as a junior synonym of *R. (R.) borealis*. The latter synonymy had been tentatively suggested by Savchenko et al. (1992). Lectotypes of *hilaris*, *laeta*, *hirticornis* and *beckeri* are designated. Descriptions are provided for six new species, viz. *R. (R.) laetoidea* sp. n., *R. (R.) crassa* sp. n., *R. (R.) corax* sp. n., *R. (R.) eugeni* sp. n., *R. (R.) filata* sp. n. and *R. (R.) georgica* sp. n., the latter being extra-European.

Some European *Rhabdomastix* s. str. species have often been covered in the literature. The many species records listed below in the references sections under species headings are, however, largely suspect because of subsequently newly described species. Practically all the small, darkly coloured species had been identified as *R. schistacea* (Schummel, 1829), one of the species most commonly treated in the literature, until Tjeder (1967) described *R. edwardsi*. The taxonomic situation in *Rhabdomastix* at that time may best be illustrated by the fact that P. Lackschewitz, a distinguished student of Limoniidae who contributed considerably to a better knowledge of the group in Europe, had identified a series of specimens deposited in NHMW as belonging to *R. schistacea* (cf. Lackschewitz, 1940). Within this series, four species (*edwardsi*, *crassa*, *filata*, *subparva*) have now been differentiated (see respective Material examined sections). Schummel's description of *Limnobia schistacea*, based on a single female from Wrocław (Breslau), Poland, although clearly representing a *Rhabdomastix* s. str. (cf. Schummel, 1829, Tab. 2, Fig. 2), deals with a small species ("2½" = ~ 5.5 mm) having the head and

thorax of slate colour ("schiefergrau"), a yellowish grey abdomen with segments seamed with yellowish, R_3 more than its own length beyond the tip of R_1 , and A_2 long, ending beyond the origin of R_s . This combination of characters is not known within the European *Rhabdomastix* s. str. Therefore, *Limnobia schistacea* is considered a nomen dubium (cf. also Starý & Rozkošný, 1970). Since literature references are as complete as possible for each species treated, the same is provided for *L. schistacea* at the end of this paper.

Considering the material below, collected by me in the Czech Republic and Slovakia, many *Rhabdomastix* s. str. species may seem to be common. The rich material available from these territories, including that of new species (*laetoidea*, *crassa*, *eugeni*) is, however, a result of many years' collecting activity at specific habitats to which these species are strictly confined, namely sandy or gravelly banks of streams. Actually, there is a single common and largely eurytopic species in Central Europe, *R. (R.) subparva*. Other regions may show different relations.

The European *Rhabdomastix* species of the former subgenus *Sacandaga* were subdivided into three species groups by Savchenko (1982), the *lurida*, *laeta* and *edwardsi* groups. As the *lurida* group represents now the subgenus *Lurdia* (cf. Starý, 2003), and species such as *R. hirticornis* (formerly in the subgenus *Palaeogonomyia*) are treated here within *Rhabdomastix* s. str., the above concept had to be modified. Anyway, considering the world fauna, differences between species groups in *Rhabdomastix* s. str. should be considerably greater than are those found between the *laeta* and *edwardsi* groups of Savchenko (1982). Based on various characters, three clusters, or species complexes, may be distinguished preliminarily within the European *Rhabdomastix* s. str., namely those centred around *R. (R.) laeta*, *R. (R.) edwardsi* and *R. (R.) hirticornis*. In addition, *R. (R.) beckeri* is a distinctive species considerably different from all the others, and its affinities remain in question.

***R. (R.) laeta* complex (*japonica*, *laeta*, *laetoidea*, *borealis*)**

Antenna short to moderately long, with pubescence on flagellomeres distinct (Figs 5–6); palpus short; R_3 about its own length beyond tip of R_1 (Figs 1–2); A_2 ending beyond origin of R_s (Figs 1–2); segment 9 of male terminalia broader than long (Figs 17, 20, 22, 24).

***R. (R.) edwardsi* complex (*edwardsi*, *crassa*, *corax*, *eugeni*, *filata*, *subparva*)**

Antenna short, with pubescence on flagellomeres not apparent (Figs 7–9); palpus short (Fig. 14); R_3 more than its own length beyond tip of R_1 (Fig. 4); A_2 ending before origin of R_s (Fig. 4); segment 9 of male terminalia longer than broad (Figs 27, 30, 32–35).

***R. (R.) hirticornis* complex (*hirticornis*, *georgica*)**

Male antenna very long, subequal to body length, with verticils reduced and pubescence greatly developed (Fig. 11); palpus long (Fig. 13); R_3 more than its own length

beyond tip of R_1 ; A_2 ending before origin of R_s ; segment 9 of male terminalia longer than broad (Figs 40–41).

R. (R.) beckeri

Antenna short, with pubescence on flagellomeres distinct (Fig. 10); palpus short; R_3 more than its own length beyond tip of R_1 (Fig. 3); A_2 ending opposite to origin of R_s (Fig. 3); differs considerably from the species above by having milky wings, with narrow darker seams along veins, and many details in structure of male terminalia. It most probably belongs to a different species cluster.

As already noted, the classification above is preliminary, since the characters used have unequal value. The *laeta* and *edwardsi* complexes are well defined, based on several independent features, whereas the so-called *hirticornis* complex, although distinguished at once by the long male antennae, can hardly be assigned the same weight. The conspicuousness of the long antennae is responsible for their being generally overvalued as a taxonomic character. The length of the antennae, however, vary extensively within genera and subgenera of the chioneine Limoniidae, unlike most other characters.

KEY TO EUROPEAN SPECIES OF THE SUBGENUS *RHABDOMASTIX* S. STR.

- 0 R_3 oblique, from one-third to one-fourth length of R_4 ; discal cell generally pentagonal; distal sections of M_{1+2} and M_3 nearly straight (Starý, 2003, Figs 4–5); interbases of male terminalia sclerotised distally, connected to each other through membranous strip (Starý, 2003, e.g. Fig. 7); cercus of female terminalia elongate, about twice length of tergite 10 (Starý, 2003, Fig. 18). subgenus *Lurdia* Starý, 2003
- R_3 subvertical, from one-fifth to one-eighth length of R_4 ; discal cell generally hexagonal; distal sections of M_{1+2} and M_3 considerably arched (Figs 1–4); interbases of male terminalia membranous, not interconnected (e.g. Fig. 17); cercus of female terminalia at most slightly exceeding length of tergite 10 (e.g. Fig. 19); (subgenus *Rhabdomastix* s. str.). 1
- 1 General colouration of pleuron pale yellow to yellowish brown; R_3 about its own length beyond tip of R_1 (Figs 1–2); A_2 ending beyond origin of R_s (Figs 1–2); (*laeta* complex). 2
- General colouration of pleuron from grey of various hues to black; R_3 more than its own length beyond tip of R_1 (Figs 3–4); A_2 ending opposite or before origin of R_s (Figs 3–4). 5
- 2 General colouration of pleuron yellow; femora yellow throughout; apical blade of interbase triangular or quadrangular, without conspicuous tooth (Figs 17, 20, 22); vaginal apodeme narrow to moderately broad (Fig. 18). 3
- General colouration of pleuron yellowish brown; femora considerably darkened distally; apical blade of interbase terminating in large acute tooth at outer margin (Fig. 24); vaginal apodeme very broad distally, transversely oblong or semicircular (Fig. 25). *R. (R.) borealis*
- 3 Antenna short, not reaching base of wing, with very short pubescence, at most subequal to half breadth of their respective flagellomeres (Fig. 5); apical blade of interbase very broad (Fig. 17); spermathecae as in Fig. 46. *R. (R.) japonica*

- Antenna moderate in length, reaching base of wing, with longer pubescence, subequal to breadth of their respective flagellomeres (Fig. 6); apical blade of interbase narrower (Figs 20, 22). 4
- 4 Wing broad, about three times as long as broad (cf. Fig. 1); aedeagus long and slender, nearly twice length of narrow vesica (Fig. 20); spermathecae small (Figs 21, 47). *R. (R.) laeta*
- Wing narrow, about four times as long as broad (Fig. 2); aedeagus short and broad, subequal in length to rather broad vesica (Fig. 22); spermathecae large (Figs 23, 48). *R. (R.) laetoidea* sp. n.
- 5 Male antenna very long, subequal to or longer than entire body (Fig. 11); palpus long (in both sexes), distinctly exceeding diameter of head; terminal palpomere nearly twice as long as penultimate (Fig. 13); (*hirticornis* complex). 6
- Male antenna short, reaching at most base of wing (Figs 7–10); palpus short (in both sexes), subequal to diameter of head; terminal palpomere only slightly longer than penultimate (Fig. 14). 7
- 6 Male antenna subequal in length to body; apical blade of interbase generally spoon-shaped (Fig. 40); spermathecae medium-sized, reniform (Figs 42, 54). *R. (R.) hirticornis*
- Male antenna somewhat longer than body; apical blade of interbase triangular, drawn out into sharp long point at inner margin (Fig. 41); spermathecae larger (Figs 43, 55). *R. (R.) georgica* sp. n.
- 7 Wing somewhat milky, with narrow darker seams along veins; antenna with distinct pubescence (Fig. 10); A_2 ending opposite to origin of R_s (Fig. 3); segment 9 of male terminalia broader than long, with conspicuous triangular lobes dorsally (Fig. 44); inner gonostylus broad, broadly rounded at apex (Fig. 44). *R. (R.) beckeri*
- Wing clear, hyaline or infuscated, without any pattern; antenna with pubescence not apparent (Figs 7–9); A_2 ending before origin of R_s (Fig. 4); segment 9 of male terminalia longer than broad; inner gonostylus tapered distally into obtuse apex (Figs 27, 30, 32–35); (*edwardsi* complex). 8
- 8 Antenna with pedicel large and flagellum very slender, filiform (Fig. 9); body bicoloured, light grey on thorax, pale brown on abdomen; apodeme of vesica large, broadly fan-shaped (Fig. 34); spermathecae two, spherical, with sclerotised parts of ducts about one third of spermathecal diameter (Figs 38, 52). *R. (R.) filata* sp. n.
- Antenna of normal structure (Figs 7–8); body colouration darker, mostly single-coloured; apodeme of vesica narrower (Figs 27, 30, 32–33, 35); spermathecae two or three, with sclerotised parts of ducts shorter (Figs 29, 31, 36–37, 39, 50–51, 53). 9
- 9 R_4 with numerous macrotrichia, about 20, both dorsally and ventrally; outer gonostylus tapered distally (Fig. 35); vesica narrow (Fig. 35); cercus broad, abruptly upturned before apex (Fig. 39); spermathecae two, very large (Figs 39, 53). *R. (R.) subparva*
- R_4 bare or with fewer macrotrichia, mostly dorsally; outer gonostylus more or less parallel-sided; vesica broad, bulbous (Figs 27, 30, 32–33); cercus slender, gently upturned; spermathecae two or three, smaller (Figs 24, 31, 36–37). 10
- 10 Coxae yellow; outer gonostylus rounded at apex, with apical spine barely distinct or lacking (Fig. 33); apodeme of vesica shorter than vesica (Fig. 33); spermathecae two, medium-sized, short-oval to reniform (Figs 37, 54). *R. (R.) eugeni* sp. n.
- Coxae from greyish brown to blackish; outer gonostylus with distinct apical spine (Figs 27, 30, 32); apodeme of vesica subequal in length to vesica (Figs 27, 30, 32); spermathecae three, small, spherical (Figs 24, 31, 36, 50). 11
- 11 R_4 with about 10 macrotrichia; outer gonostylus evenly arched (Fig. 32); inner gonostylus slender (Fig. 32). *R. (R.) corax* sp. n.
- R_4 bare or with only a few macrotrichia; outer gonostylus straight (Figs 27, 30); inner gonostylus broader (Figs 27, 30). 12
- 12 General coloration of pleuron bluish grey; interbase long and slender, with apical blade rather narrow (Fig. 27). *R. (R.) edwardsi*
- General colouration of pleuron black; interbase shorter and broader, with apical blade broader, rounded (Fig. 30). *R. (R.) crassa* sp. n.

***Rhabdomastix (Rhabdomastix) japonica* Alexander, 1924**

(Figs 1, 5, 17–19, 46)

Rhabdomastix (Sacandaga) japonica Alexander, 1924b: 69 (description).

Rhabdomastix (Sacandaga) japonica: Alexander, 1925b: 4 (faun. record); Alexander, 1940: 51 (note); Alexander, 1954: 302 (faun. record), Fig. 45 (wing); Ishida, 1960: 34 (list); Ishida, 1965: 38 (list); Savchenko & Krivolutsкая, 1976: 86 (faun. record, key); Savchenko, 1983: 95, 96 (questioned faun. record, key); Savchenko, 1989: 264 (tentative synonymy with *laeta*, faun. record); Savchenko et al., 1992: 315 (Palearctic catalogue, tentative synonymy with *laeta*); Sidorenko, 2001: 63 (key).

Rhabdomastix hilaris Edwards, 1938: 113, 114 (description, key), Text-figs 21f (male antenna), 22a,b (male terminalia), Pl. 5, Fig. 10 (wing). – **syn. n.**

Rhabdomastix hilaris: Tjeder, 1947: 29 (note); Coe, 1950: 53 (key), Figs 23a–c (male terminalia); Falk, 1991: 139 (faun. record); Rotheray & Robertson, 1993: 4, 17 (faun. record); Howe, 1997: 11 (faun. record).

Rhabdomastix (Sacandaga) hilaris: Savchenko, 1972: 729 (faun. record); Mannheims & Savchenko, 1973: 257, 265 (faun. record); Noll, 1985: 121 (diagnosis, faun. record, note), Map 60 (distribution).

Gonomyia (Rhabdomastix) laeta: Lackschewitz, 1940: 56 (alternatively as *Gonomyia (Sacandaga)*, faun. record), Text-fig. 1 (wing) [partim, see present revision].

Rhabdomastix laeta: Mannheims, 1964: 7 (faun. record); Mannheims, 1967: 473 (faun. record) [both see present revision].

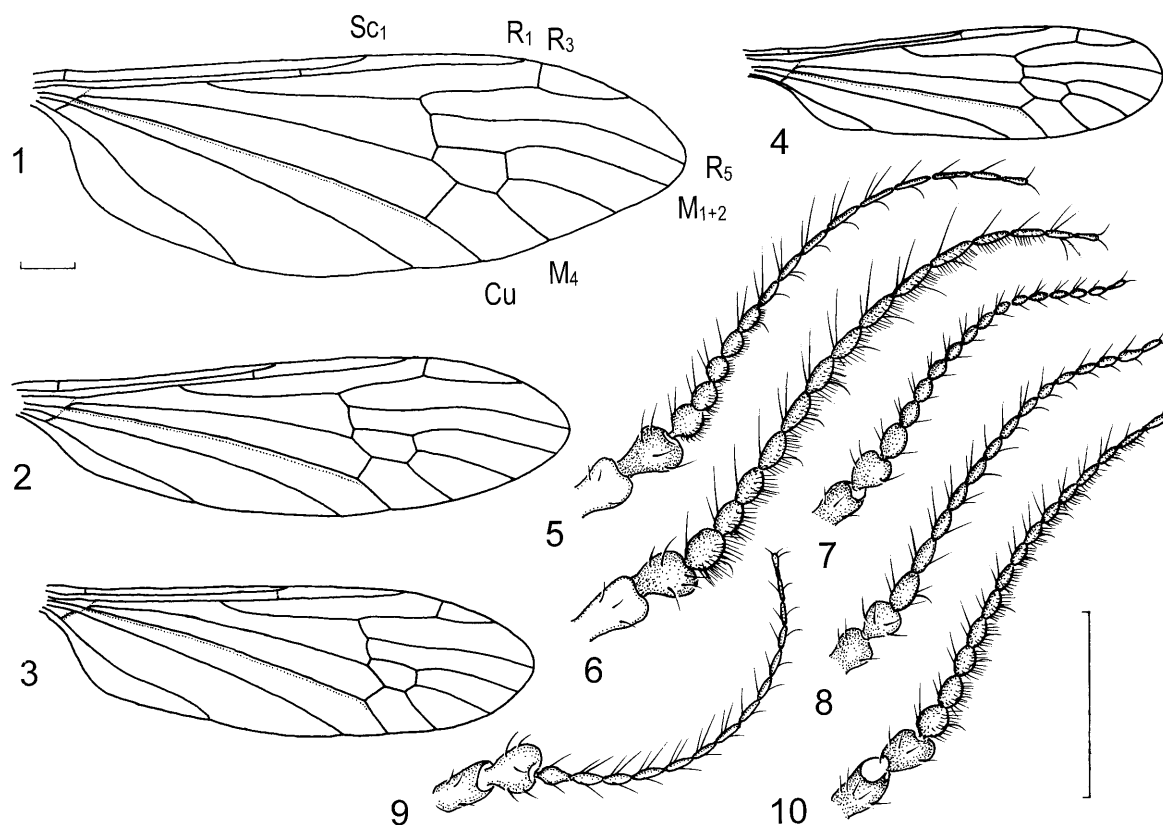
Rhabdomastix (Sacandaga) laeta: Mendl, 1984a: 7 (faun. record); Mendl, 1986: 278 (faun. record) [both see present revision].

Rhabdomastix cunctans Tjeder, 1955a: 226 (description). – **syn. n.**

Rhabdomastix cunctans: Tjeder, 1955b: 246 (list).

Rhabdomastix (Sacandaga) cunctans: Mendl, 1978: 373 (list); Savchenko et al., 1992: 315 (Palearctic catalogue, tentative synonymy with *laeta*); Reusch & Oosterbroek, 1997: 132 (list).

Diagnosis. General colouration yellow to pale yellow, sometimes conspicuously patterned with deep dark brown on thorax, including three stripes on prescutum. Antenna short, with very short pubescence on flagellomeres. Wing broad. A_2 ending beyond origin of R_s . Legs yellow throughout. Male terminalia with apical blade of interbase



Figs 1–10. Male wing. 1 – *Rhabdomastix (Rhabdomastix) japonica* Alexander, 1924 (Slovakia: Tatranská Kotlina); 2 – *R. (R.) laetoidea* sp. n. (paratype, Czech Republic: Hrubá Voda nr. Olomouc); 3 – *R. (R.) beckeri* (Lackschewitz, 1935) (Slovakia: Malé Trakany); 4 – *R. (R.) crassa* sp. n. (paratype, Czech Republic: Hrubá Voda nr. Olomouc). 5–10. Male antenna. 5 – *R. (R.) japonica* Alexander, 1924 (Slovakia: Tatranská Kotlina); 6 – *R. (R.) laeta* (Loew, 1873) (Czech Republic: Velké Losiny); 7 – *R. (R.) crassa* sp. n. (paratype, Czech Republic: Hrubá Voda nr. Olomouc); 8 – *R. (R.) eugeni* sp. n. (paratype, Slovakia: Snina); 9 – *R. (R.) filata* sp. n. (paratype, Lebanon: Bacharré); 10 – *R. (R.) beckeri* (Lackschewitz, 1935) (Slovakia: Malé Trakany). Scale bars 0.5 mm.

very broad and aedeagus long and slender. Female terminalia with three spherical medium-sized spermathecae.

Redescription. Medium-sized species. Body length 4.5–7.5 mm, wing length 5–9 mm.

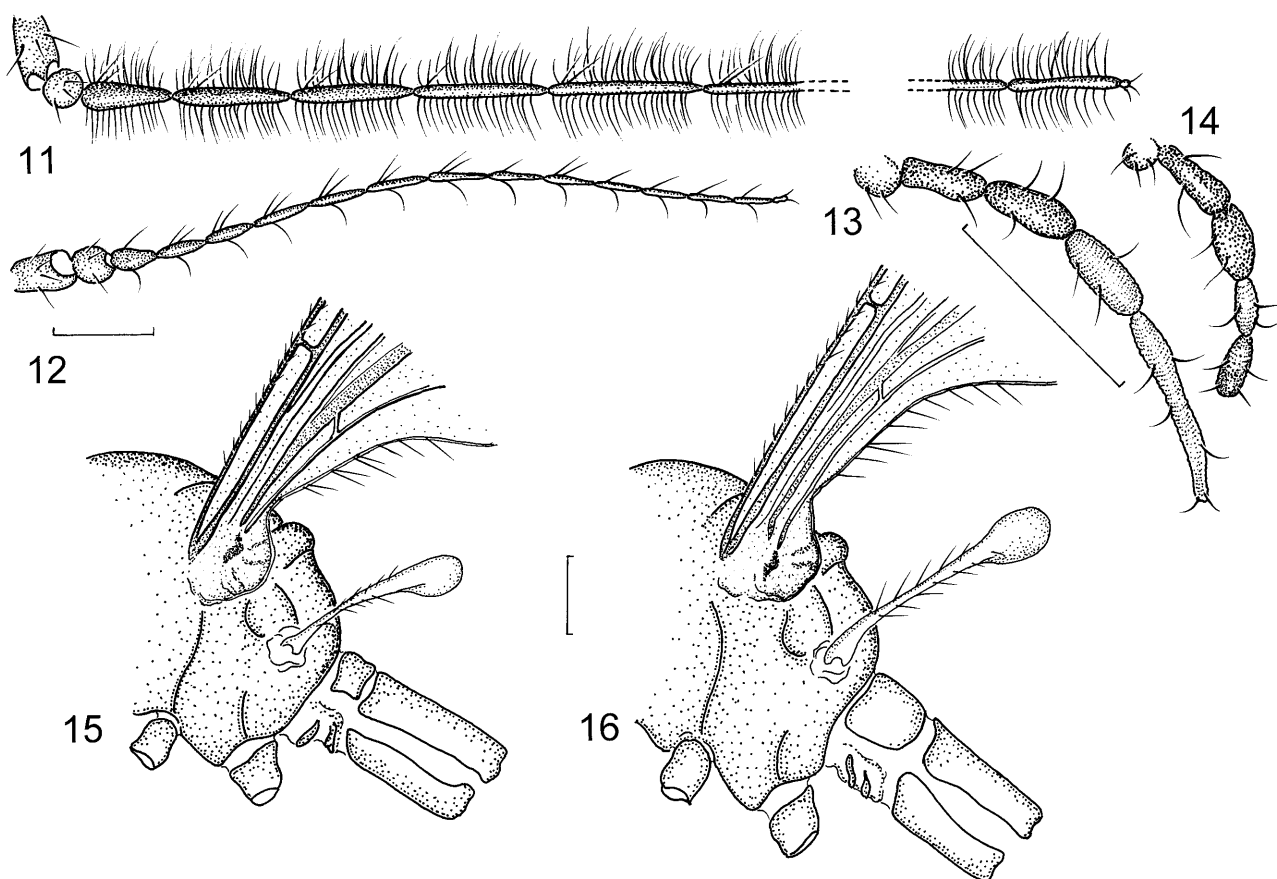
Colour. General colouration yellow to pale yellow, subshiny, with darker markings on thorax. Antenna dark brown, scape mostly yellow. Prescutum pale yellow laterally, with three broad darker stripes. Scutum and mediotergite (postscutellum) similarly darker, restrictedly patterned with yellow. Scutellum pale yellow. Pleuron mostly yellow, patterned with sulphur yellow in upper part, darker below, especially on lower portion of katepisternum and meron. Colouration of thorax practically identical in distribution of darker markings with that of two following species (*laeta*, *laetoidea*); in contrast to these, however, considerably variable in actual hue of pattern, varying from little-distinct, yellowish brown to sharply pronounced, deep dark brown. Wing tinged with yellowish. Halter pale yellow. Legs yellowish brown to yellow throughout, femora not darkened distally. Abdomen yellowish brown to brown.

Head. Antenna (Fig. 5) comparatively short, not reaching to base of wing. Proximal three flagellomeres nearly spherical, following ones gradually narrowed and lengthened towards apex of antenna. Longest verticils on

flagellomeres slightly exceeding length of their respective segments. Pubescence very short, suberect, subequal in length to half breadth of respective segments, or even shorter, distinct only on proximal four or five flagellomeres. Palpus short.

Thorax. Wing (Fig. 1) rather broad, about three times as long as broad, with comparatively short stalk. Sc_1 ending before fork of R_s , at about three quarters of R_s length. Sc_2 not apparent, or slightly so some distance before tip of Sc_1 . R_3 about its own length, or less, beyond tip of R_1 . R_4 varying in number of macrotrichia, but generally with only few. A_2 considerably sinuous, ending distinctly beyond origin of R_s . Halter moderately long, reaching to about posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 17). Segment 9 broader than long. Gonocoxite comparatively long and slender. Outer gonostylus short, less than half length of gonocoxite, gently and evenly arched, somewhat broadened before apex, with small apical spine. Inner gonostylus generally conical. Aedeagal complex as in Fig. 17. Interbase moderate in length, reaching to about half length of gonocoxite, abruptly expanded distally to form broad triangular, sometimes nearly quadrangular apical blade, microscopically serrate at distal margin. Aedeagus very long and slender, nearly twice length of vesica, the



Figs 11–16. 11–12. *Rhabdomastix (Rhabdomastix) hirticornis* (Lackschewitz, 1940) (Slovakia: Zboj), antenna of male (11) and female (12). 13–14. Palpus. 13 – *R. (R.) hirticornis* (Lackschewitz, 1940) (Slovakia: Zboj); 14 – *R. (R.) crassa* sp. n. (paratype, Czech Republic: Hrubá Voda nr. Olomouc). 15–16. Base of wing and halter. 15 – *R. (R.) eugeni* sp. n. (paratype, Slovakia: Snina); 16 – *R. (R.) subparva* Starý, 1971 (Czech Republic: Hrubá Voda nr. Olomouc). Scale bars 0.25 mm.

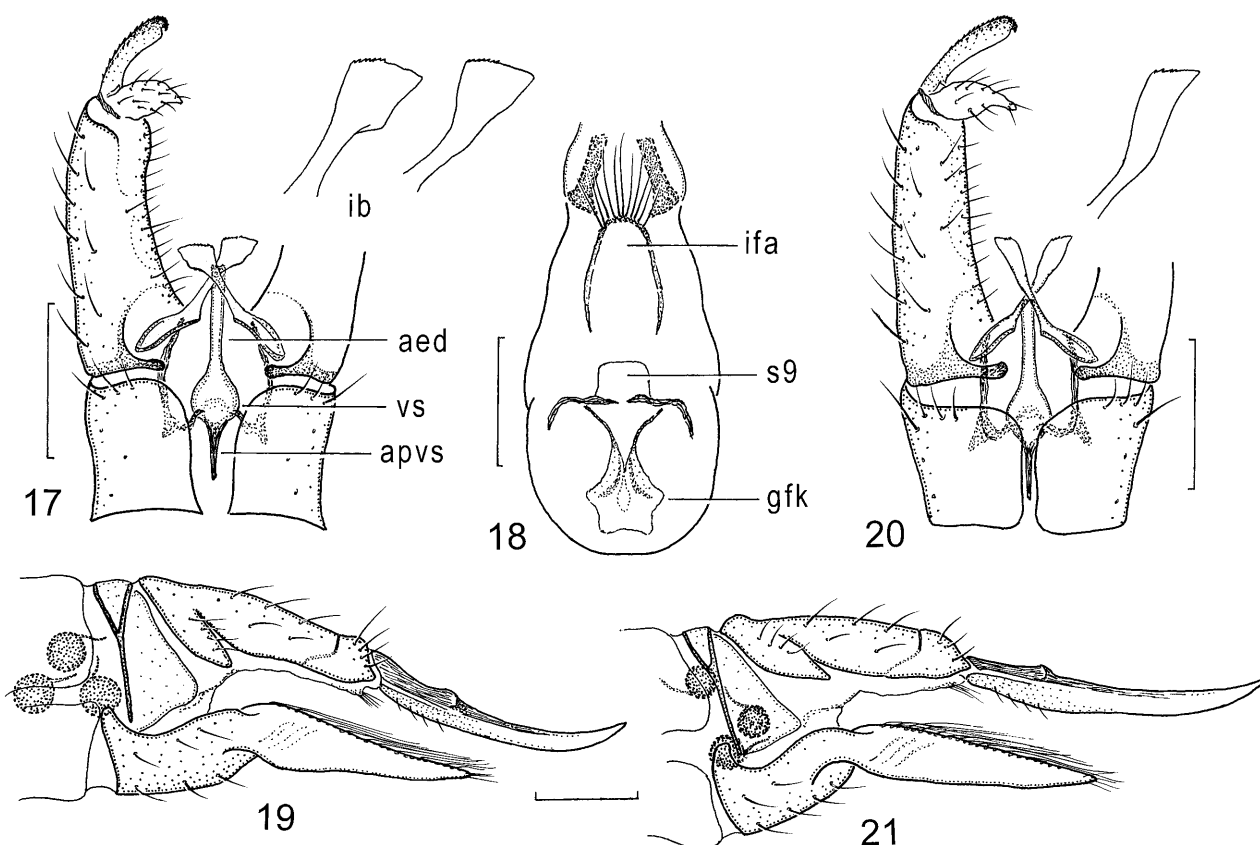
latter comparatively small and narrow. Apodeme of vesica spine-like in dorsal aspect, subequal in length to vesica. Female terminalia (Figs 18–19, 46). Cercus moderately broad, slightly exceeding length of tergite 10, gently upturned. Vaginal apodeme moderately broad. Spermathecae three, spherical, intermediate in size between those of *R. (R.) laeta* and *R. (R.) laetoidea* sp. n., with sclerotised parts of ducts thin, slightly shorter than spermathecal diameter.

Material examined. *Rhabdomastix (Sacandaga) japonica*: **Holotype** ♀ (monotypy): Japan, Honshu, Tokyo, 24.v.1922 (T. Esaki leg.) (USNM), labelled: “Tokyo, Japan May 24, 1922 (Teiso Esaki)” (hand-written), “Holotype *Rhabdomastix japonica* C.P. Alexander” (partly printed, red). The specimen is glued onto a triangular cardboard point, without right wing, fore and hind right legs and apex of abdomen. The wing mounted on a slide, labelled with the same data, with the inscription “Holotype 2509”. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen.

Rhabdomastix hilaris: In the original description, Edwards (1938: 114) did not designate holotype, nor did he specify the number of specimens. According to N. Wyatt (e-mail comm.), four male syntypes are deposited in BMNH. **Lectotype** ♂ (present designation): Great Britain, Scotland, Perth, Rannoch, 14.vii.1917 (J.J.F.X. King leg.) (BMNH), labelled: “Rannoch. 14 Jly–17 J.J.F.–X King” (partly printed), “Ex Coll. J.J.F.X.

King. B.M. 1936–800” (printed), “*Rh. hilaris* Edw” (hand-written), “*Rhabdomastix laeta* (Loew) ♂ Starý det. 1978” (partly printed), “Syntype” (a green-margined circular label, printed), “Syntype *Rhabdomastix hilaris* Edwards det. J.E. Chainey, 1996” (partly printed). Accordingly labelled as lectotype (“Lectotype *Rhabdomastix hilaris* Edwards J. Starý 2003”, printed red label) and identified by me as *R. (R.) japonica*. The specimen is micro-pinned on a celluloid slide, with right fore leg attached, all mid and hind legs glued to the specimen at proper places (?) and left fore leg glued onto the celluloid slide; apex of abdomen cut off. Terminalia dissected and preserved in a drop of Canada balsam on another celluloid slide, pinned with the specimen. Lectotype here designated to stabilise the current concept of the name. **Paralectotypes**: Great Britain, Scotland, Inverness-shire, Aviemore, 27.vi.1903, 1♂, 2.vii.1903, 1♂, Nethy Bridge, 2.vii.1906, 1♂ (all J.J.F.X. King) (BMNH), examined by me in 1970’s, not labelled as paralectotypes.

Rhabdomastix cunctans: **Holotype** ♂ (monotypy): Sweden, Dlr., Mora, Vensnäsudden, 14.viii.1955 (B. Tjeder leg.) (MZLU), labelled: “Dlr. Mora Vensnäsudden 14.VIII.1955 Bo Tjeder” (printed, with hand-written date), “Holotypus *Rhabdomastix cunctans* ♂ Tjeder” (partly printed, red), “*Rhabdomastix laeta* (Loew) ♂ Starý det. 1978” (partly printed); identified by me as *R. (R.) japonica*. The specimen, in nearly perfect condition, is glued onto a triangular cardboard point, with only tarsus of left fore leg and apex of abdomen broken off; right fore leg glued onto the point. Terminalia dissected and placed in a corked glass tube with glycerine on a separate pin labelled



Figs 17–21. 17–19. *Rhabdomastix (Rhabdomastix) japonica* Alexander, 1924 (Slovakia: Tatranská Kotlina). 17 – male terminalia, general view, dorsal (details show variation in shape of apical blade of interbase); 18–19 – female terminalia, internal structures, ventral (18) and general view, lateral (19). 20–21. *R. (R.) laeta* (Loew, 1873) (Czech Republic: Velké Losiny). 20 – male terminalia, general view, dorsal; 21 – female terminalia, general view, lateral. Scale bars 0.25 mm. aed – aedeagus; apvs – apodeme of vesica; gfk – genital fork (vaginal apodeme); ib – interbase; ifa – infra-anal (supravaginal) plate; s9 – sternum 9; vs – vesica.

“*Rhabdomastix cunctans* Tjed. holotype ♂” (in Tjeder’s handwriting).

Other material examined (56♂, 20♀): **Great Britain:** Scotland: Scottish Highlands, Dorbuch Burn, 19.vii.1991, 1♂ (A.E. Stubbs leg.); Perth, R. Tay nr. Caputh, 8.viii.1977, 3♂ (A.M. Hutson leg.) (all JSO). **Switzerland:** Canton Genève: Croix-de-Rozon, 2.–8.vii.1979, 1♀, 9.–15.vii.1979, 1♂ (Ch. Dufour & W. Geiger leg.; Malaise light trap); Sézenove, early viii.1980, 1♀ (L. Rezbanyai leg.) (MHNN; in ethanol). Canton Bern: Lauenen (1300 m), 21.vii.1979, 1♂ (V. Puthz leg.) (ZFMK; in ethanol). Canton Ticino: Gudo Demanio (210 m), middle viii.1981, 1♂ (L. Rezbanyai & G. Sobrio leg.; light trap); Loderio (354 m), 19.v.1980, 1♂ (Ch. Dufour leg.). Canton Valais: Finges, 15.vii.1979, 1♂, 1♀ (Ch. Dufour leg.). Canton Fribourg: Marly, 4.vi.1980, 2♂ (W. Geiger leg.). (All MHNN; in ethanol). Canton Graubünden: Unter-Engadin, San Niclâ (1050 m), 12.vii.1961, 1♂ (L. & F. Keiser leg.) [listed as *laeta* by Mannheims, 1964 and Starý & Oosterbroek, 1996] (ZFMK); Il Fuorn, 7.–11.viii.1980, 2♂; Zizers, 25.v.1980, 1♂ (all W. Geiger leg.) (all MHNN; in ethanol). **Germany:** Bayern: Ochsentobel, Kürnach, 15.vii.1971, 1♀ (H. Mendl leg.); Allgäuer Alpen, Birksau, Ringang im Stillachtal (900 m), 15.–18.viii.1974, 1♂, 30.viii.–5.ix.1974, 1♂, 1♀ (H. Mendl leg.; light trap) (all JSO; in ethanol). **Czech Republic:** Moravia: Vyšní Lhoty [6376], Morávka shores, 26.vii.1999, 1♂, 17.v.2001, 1♂, 27.vi.2001, 1♂ (J. Starý leg.; at light) (JSO). **Slovakia:** Suchá Hora [6684], 11.vi.1977, 1♀ (V. Elsner leg.; at

light); Belianske Tatry Mts, Tatranská Kotlina, Belá valley [6788] (750 m), 22.vi.1975, 1♂, 25.vi.1975, 1♂, 26.vi.1975, 1♂, 14.vii.1975, 1♀, 21.vii.1975, 1♂, 8.ix.1977, 1♂, 3.vii.1978, 1♂, 30.vi.1979, 1♂; Brzotín [7389], Slaná shores, 13.vi.1982, 1♂, 17.vi.1982, 1♂; Gombasek [7488], Slaná shores, 6.vi.1979, 1♂, 1♀; Snina, Cirocha shores [7099], 21.vi.1983, 1♂, 2.vi.1984, 2♂, 5.vi.1984, 2♂, 9.vi.1985, 1♂; Bukovské Hills, Zboj [6900], Zbojský brook, 19.vi.1991, 1♂ (all J. Starý leg.) (all JSO). **Austria:** Tirol: Achenal, 26.vii.1886, 1♂ (J. Mik leg.); Landeck, 1890, 1♀ (F. Brauer leg.) [both listed as *laeta* by Lackschewitz, 1940] (both NHMW). **Italy:** Valle d’Aosta: Entrèves, Mt. de la Saxe (1250–1350 m), 24.vii.1962, 1♂ (exc. Amsterdam) (JSO). **Macedonia:** Gevgelia (350 m), 6.vii.1976, 1♂ (W. Bestler leg.); River Markova nr. Markov-Monastir, 23.viii.1976, 1♀ (M. Siebert leg.) [both listed as *laeta* by Mendl, 1984a] (both ZFMK; in ethanol). **Albania:** Kula Ljums, 7.–14.vi.1918, 2♀ (H. Zerny leg.) [listed as *laeta* by Lackschewitz, 1940 and Mannheims, 1967] (NHMW). **Bulgaria:** Kalofer, 21.vi.1982, 1♂ (W. Krzemiński leg.); Kresna, 1.vi.1976, 1♀ (P. Lauterer leg.; in ethanol); Sandanski, Lebnitsa valley, 10.v.1989, 1♂ (J. Starý leg.) (all JSO); Strandja Mts, Mramor (400 m), 20.vi.1980, 1♀ (H. Malicky leg.) [listed as *laeta* by Mendl, 1986] (ZFMK; in ethanol). **Greece:** Platamon, Prov. Katerini, Castle-Camping, 7.–14.vi.1968, 1♀ (B. Mannheims leg.; at light); Peloponnes, Kalávryta (750 m), 26.v.–16.vi.1959, 1♂, 1♀ (H. Noack leg.) (all ZFMK); Ambelos Is. (39°46’/20°57’) (600 m), 4.vi.1975,

1♂, 1♀ (H. Malicky leg.) (JSO; in ethanol). **Algeria:** 34 km NW Bouïra, Oued Isser (170 m), 19.v.1986, 1♀ (P. Oosterbroek leg.) (ZMAN); Chiffy, "Monkey Valley", 18.iv.1981, 7♂, 19.iv.1981, 3♂ (W. Krzemiński leg.) (JSO). **Azerbaijan:** Diabarskaya [valley], Gasmalyan env., 16.vii.1970, 1♀ (E.N. Savchenko leg.) (JSO). **Russia (Asia):** Kuriles, Shikotan Is., Kurilsk env., 18.viii.1976, 1♂ (V.M. Ermolenko leg.) (JSO). **Japan:** Shikoku, Matsuyama, 2.v.1952, 1♀ (T. Ishihara leg.); Hokkaido, Sapporo, vi.1923, 1♂ (S. Kuwayama leg.) (both USNM). [Both specimens damaged, each with a wing mounted on a slide, added with antenna and hind leg for the specimen from Shikoku; hypopygium of the male missing. Another specimen, a female without head (USNM), with the same data as the above male, could not be identified with certainty.]

Discussion. The crucial point of the species concept of *R. (R.) japonica*, as proposed here, is the synonymy of *japonica* with the European *hilaris* and *cunctans*. This may be demonstrated, above all, by the size of the spermathecae and the structure of the antennae in the female holotype of *R. japonica*, supported by characters in the body colouration.

R. (R.) japonica, *R. (R.) laeta* and *R. (R.) laetoidea* sp. n. represent a group of closely related and exceedingly similar species. They are identical in distribution of darker markings on the thorax. In the female holotype of *R. (R.) japonica* (and two other specimens from Japan, see Material examined), these markings are dark brown, similar to the condition as described for *R. cunctans* from Europe. Such specimens with distinct dull or shiny markings on the thorax are sporadically represented in the material examined, from Sweden (holotype of *cunctans*), Switzerland, Germany, Italy and Algeria, and they show identity in structural characters with other specimens, paler in the pattern and more commonly collected, sometimes even at the same localities. This suggests that the variation is individual, independent of geographical distribution or ecological factors. This variation has not been observed in *R. (R.) laeta* and *R. (R.) laetoidea* sp. n., although this cannot be excluded (see note under *laetoidea*). A certain type of geographical variation may also be involved in *R. (R.) japonica*. British specimens (identified as *hilaris*) usually have a medium-dark pattern, with the markings somewhat diffuse, suffused with grey pruinosity, whereas members of Central European populations are mostly pale, with the pattern only slightly indicated. More material would be necessary from the eastern Palaearctic to decide whether specimens with the distinct pattern on the thorax are more frequent there than they are in Europe. In any case, a male from the Kuriles (see Material examined) has the pattern considerably paler than the Japanese specimens, as much as in Central European material. Wings are described as being broad in *R. (R.) japonica* (as they are in *laeta*); this, however, is also subject to a certain variation. First, females always have somewhat narrower wings than males, and, second, the smaller a specimen is, the narrower wings it has relative to its own wing length.

R. (R.) japonica is on average the largest of the species treated here. In general appearance, if not distinguished by a dark pattern on the thorax, specimens of *R. (R.)*

japonica are exceedingly similar to *R. (R.) laeta* and *R. (R.) laetoidea* sp. n. The latter species is distinctive by a comparatively short aedeagus and broad vesica in males and large spermathecae in females, supported by markedly narrower wings in both sexes. The differences between *R. (R.) japonica* and *R. (R.) laeta* are best noticeable in the structure of the antennae, especially those of males (cf. Figs 5 and 6). In *R. (R.) japonica*, these are distinctly shorter, with the proximal flagellomeres more spherical, and the pubescence very short, subequal in length to at most half the breadth of the respective segments, distinct only on the proximal four or five flagellomeres. In *R. (R.) laeta*, the antennae are longer, with the proximal flagellomeres rather oval, and the pubescence is long, subequal in length to the entire breadth of the respective segments, distinct on almost all flagellomeres. This character, together with a slightly different shape of the interbases, had been indicated by Edwards (1938: 114, Text-figs 22e, f) as distinguishing his *R. hilaris* from *R. laeta*. Females of all the three species (*japonica*, *laeta*, *laetoidea*) differ in the size of the spermathecae (cf. Figs 19, 21, 23, 46–48).

Distribution. The species was reported from Japan (Hokkaido, Honshu, Shikoku, Kyushu), North Korea and the Russian Far East (Savchenko et al., 1992). There are probably no authentic literature records for Kyushu and North Korea. The synonymy with *hilaris* and *cunctans*, proposed here, extends its distribution into Europe (Great Britain, Sweden, cf. Savchenko et al., 1992) where it may also be among some records of *R. (R.) laeta*. Based on the material examined, the species is now recorded from Great Britain, Switzerland, Germany, Czech Republic, Slovakia, Austria, Italy, Macedonia, Albania, Bulgaria, Greece, Algeria, Azerbaijan, Russian Far East and Japan.

Rhabdomastix (Rhabdomastix) laeta (Loew, 1873)

(Figs 6, 20–21, 47)

Gonomyia laeta Loew, 1873: 60 (description).

Gonomyia laeta: Osten Sacken, 1888: 201 (faun. record); Strobl, 1901: 187 (faun. record); Strobl, 1910: 277 (faun. record); Kertész, 1903: 300 (Palaearctic catalogue); Kuntze, 1914: 371 (faun. record, key), Fig. 23 (wing); Riedel, 1918: 138 (faun. record); Riedel, 1919: 22 (faun. record); Goetghebuer & Tonnoir, 1920: 143, 144 (faun. record, key); de Meijere, 1920: 84 (diagnosis), Tab. 10, Fig. 85 (male terminalia) [misinterpretation of figure, see *lurida* in Part 1]; Pierre, 1924: 107, 108 (diagnosis, key), Fig. 412 (male terminalia) [misinterpretation of figure, see *lurida* in Part 1]; Lackschewitz, 1927: 8 (list); Simova, 1959: 133 (faun. record).

Rhabdomastix (Sacandaga) laeta: Edwards, 1921: 209 (note); Edwards, 1926: 32 (faun. record); Starý, 1970: 44 (list); Theowald, 1971: 226 (list) [misspelling of subgenus name, see below]; Mendl, 1975: 197 (faun. record); Savchenko, 1976: 564 (faun. record); Mendl, 1977: 116 (faun. record); Mendl, 1978: 373 (list); Mendl, 1979a: 355 (faun. record); Savchenko, 1982: 276, 279 (redescription, synonymy with *hilaris*, faun. record, key), Figs 130/3 (wing), 131/1 (female terminalia), 135/2 (male terminalia) [misspelling of species name, see below]; Savchenko, 1983: 95 (faun. record, key); Krzemiński, 1984b: 462 (diagnosis, faun. record), Figs 53 (wing), 54–55 (male terminalia); Mendl, 1984a: 7 (faun. record) [*japonica*, see present revision]; Starý, 1984: 33 (faun. record); Noll, 1985: 123 (faun. record); Erhan-Dinca & Ceianu, 1986: 89 (faun. record in list); Mendl, 1986: 278

(faun. record) [*japonica*, see present revision]; Wiedeńska, 1986: 104 (faun. record); Dienske, 1987: 37 (figure only), Fig. 134 (wing); Starý, 1987: 20 (list); Reusch, 1988: 187 (faun. record); Franz, 1989: 253 (faun. record); Krzemiński & Starý, 1989: 263 (faun. record); Mendl & Reusch, 1989: 434, 445 (list); Reusch, 1989: 460 (faun. record); Savchenko, 1989: 266 (synonymy with *hilaris*, faun. record), Figs 131/2 (female terminalia), 132/2 (wing), 133/2 (male terminalia); Krzemiński, 1991: 80 (list); Wiedeńska, 1991: 57 (faun. record); Podenas, 1992: 153 (list); Savchenko et al., 1992: 315 (Palearctic catalogue, synonymy with *hilaris*, tentative synonymy with *cunctans* and *japonica*); Starý & Oosterbroek, 1996: 72 (note); Reusch & Oosterbroek, 1997: 132 (list), Figs 97 (male terminalia), 102 (wing); Starý, 1997: 13 (list); Stubbs, 1998: 5 (synonymy with *hilaris*, list); Reusch, 1999: 58 (list); Pakalniškis et al., 2000: 6 (list); Reusch & Oosterbroek, 2000: 160 (list); Podeniene, 2001: 385 (description of larva), Figs 1–4 (larva); Sidorenko, 2001: 63 (synonymy with *hilaris*, key).

Gonomyia (Rhabdomastix) laeta: Nielsen, 1925: 59 (diagnosis, faun. record, key); Lackschewitz, 1940: 56 [alternatively as *Gonomyia (Sacandaga)*, faun. record], Text-fig. 1 (wing) [*japonica*, *laeta*; see present revision]; Stackelberg, 1951: 721 (faun. record).

Rhabdomastix laeta: de Meijere, 1935: 202 (faun. record); Tjeder, 1936: 135 (note); Edwards, 1938: 113, 114 (key, note), Text-figs 22c (male terminalia), 22e (male antenna); Bangerter, 1939: 485 (faun. record); Bangerter, 1946: 192 (faun. record); Tjeder, 1947: 29 (faun. record, note); Tjeder, 1948: 221 (note); Tjeder, 1955a: 227 (note); Tjeder, 1955b: 238 (list); Mannheims, 1964: 7 (faun. record); Mannheims, 1967: 473 (faun. record) [both *japonica*, see present revision]; Starý & Rozkošný, 1970: 115 (faun. record); Hackman, 1980: 20 (list); Starý & Geiger, 1998: 73 (list); Petersen & de Jong, 2001: 151 (list).

Sacandaga laeta: Lackschewitz, 1936: 116 (note), Figs 4d, e (male terminalia).

Rhabdomastix (Sacandaga) laeta: Theowald, 1971: 226 [misspelling of subgenus name, see above].

Rhabdomastix (Sacandaga) laeta: Savchenko, 1982: 279 [misspelling of species name, see above].

Diagnosis. General colouration yellow to pale yellow, with faintly indicated markings on thorax, including three stripes on prescutum. Antenna moderately long, with pubescence on flagellomeres subequal in length to breadth of respective segments. Wing broad. A_2 ending beyond origin of Rs. Legs yellow throughout. Male terminalia with apical blade of interbase rather slender and aedeagus long and slender. Female terminalia with three spherical, small spermathecae.

Redescription. Medium-sized species. Body length 5–6.5 mm, wing length 5.5–7.5 mm.

Colour. General colouration yellow to pale yellow, shiny, with faintly indicated markings on thorax. Antenna dark brown, scape yellow. Prescutum pale yellow laterally, with indications of three broad darker stripes. Scutum and mediotergite (postscutellum) similarly darker, restrictedly patterned with yellow. Scutellum pale yellow. Pleuron mostly yellow, patterned with sulphur yellow in upper part, darker below, especially on lower portion of katepisternum and meron. Pattern on thorax generally pale, little-distinct, not varying to dark condition as in *R. japonica*. Wing tinged with yellowish. Halter

pale yellow. Legs yellow throughout. Abdomen yellow to yellowish brown.

Head. Antenna (Fig. 6) moderately long, reaching to base of wing. Flagellomeres oval proximally, gradually narrowed and lengthened towards apex of antenna. Longest verticils on flagellomeres slightly exceeding length of their respective segments. Pubescence long, suberect, subequal in length to breadth of respective segments, distinct on almost all flagellomeres. Palpus short.

Thorax. Wing rather broad, about three times as long as broad, with comparatively short stalk. Sc_1 ending before fork of Rs, at about three quarters of length of the latter. Sc_2 not apparent or slightly so some distance before tip of Sc_1 . R_3 about its own length or less beyond tip of R_1 . R_4 with variable number of macrotrichia, but mostly with only few. A_2 considerably sinuous, ending distinctly beyond origin of Rs. Halter moderately long, reaching to about posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 20). Segment 9 broader than long. Gonocoxite comparatively long and slender. Outer gonostylus short, less than half length of gonocoxite, gently and evenly arched, somewhat broadened before apex, with small, sometimes barely distinct apical spine. Inner gonostylus generally conical. Aedeagal complex as in Fig. 20. Interbase longer and much more slender than in *R. (R.) japonica*, slightly extending beyond half length of gonocoxite, moderately expanded distally to form roughly triangular apical blade with a few microscopic teeth at distal margin. Aedeagus very long and slender, yet not as long as in *R. (R.) japonica*. Vesica comparatively small and narrow. Apodeme of vesica spine-like in dorsal aspect, subequal in length to vesica. Female terminalia (Figs 21, 47). Cercus moderately broad, slightly exceeding length of tergite 10, gently upturned. Vaginal apodeme moderately broad (much as in *japonica*). Spermathecae three, spherical, small, with sclerotised parts of ducts thin, subequal in length to spermathecal diameter.

Material examined. Although it seems most probable that a single specimen was dealt with in the original description (Loew, 1873: 60–62; cf. the single sex and the single size measurement), there is no statement about the number of specimens there. Hence, the type specimen examined is designated here as the lectotype to maintain the current usage of the name in case that additional specimens may be found to exist (cf. Recommendation 73F of ICZN, 1999). **Lectotype** ♂ (present designation): Germany, Bayern, Bad Reichenhall, viii. (H. Loew leg.) (ZMHB) [“Reichenhall, wo ich sie im August fing.” (Loew, 1873: 61)], labelled: “Reichh.” (hand-written), “Coll. H. Loew” (printed), “8997” (printed), “Typus” (printed, red/orange), “laeta Lw.” (hand-written), “Zool. Mus. Berlin” (printed, yellow). Accordingly labelled as lectotype [“Lectotype *Rhabdomastix* (s. str.) *laeta* (Loew) ♂ J. Starý 2003”; printed red label]. The specimen is pinned, somewhat damaged, with left wing torn and glued to the pin; three legs present, glued; apices of left antenna and abdomen broken off. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen.

Other material examined (114♂, 99♀, 1 specimen): Without data, 1 specimen (♂?) (“coll. Winthem”) (NHMW). **Sweden:** Boh.: Ljung, Anfasteröd, 26.vi.1946, 1♂ (B. Tjeder leg.) (JSO). **Finland:** EP: Kauhajoki, 2.–16.vii.2000, 1♂,

16.–30.vii.2000, 1♂, Kauhajoki, Järvioja, 15.viii.2001, 1♂ (J. Salmela leg.; Malaise trap) (JSJ; slides). **Andorra:** Vella (1000 m), 13.vi.1967, 1♂ (Br. Theowald leg.) (JSO). **Netherlands:** Gelderland: Laag Soeren, 18.–20.vi.1926, 1♂ (J. de Meijere leg.). Limburg: Houthem, 30.vii.1907, 1♂; Gulpen, 28.vii.1907, 1♀; Epen, 9.–10.vi.1904, 1♀ (all J. de Meijere leg.); Vaals, 20.vi.1960, 2♂; Mechelen, 20.vi.1960, 1♂ (all Br. Arnoud leg.). (All ZMAN). **Switzerland:** Canton Genève: Croix-de-Rozon, 9.–15.vii.1979, 1♂, 6.–12.viii.1979, 1♀ (Ch. Dufour & W. Geiger leg.; Malaise light trap). Canton Ticino: Cadenazzo (203 m), 25.vi.–15.vii.1979, 2♂ (Ch. Dufour & W. Geiger leg.; Malaise light trap); Gordevio, early vii.–early viii.1980, 4♀ (L. Rezbanyai leg.; Malaise light trap); Gudo Demanio (210 m), middle viii.1980, 1♀ (L. Rezbanyai & G. Sobrio leg.; light trap). Canton Valais: Dixence, 30.vii.1979, 1♂ (collector unknown; light trap). (All MHNN; in ethanol). **Germany:** Hessen: Breitenbach nr. Schlitz, 17.vi.–29.vii.1970, 2♂, 6♀ (J. Illies leg.); Schlitz, 12.vi.–23.vii.1971, 1♂, 3♀ (V. Puthz leg.); Schlitz, Rohrwiesenbach, 19.vi.1970, 1♂, 19.vi.–8.viii.1970, 5♂, 7♀ (J. Illies leg.), 2.vi.–2.viii.1971, 6♂, 2♀ (Sandrock leg.), 10.vi.–29.vii.1971, 19♂, 15♀ (J. Illies leg.) (all JSO; in ethanol); Sengelbach nr. Schlitz, 25.vi.–17.viii.1973, 3♂, 3♀ (J. Illies leg.) (ZFMK; in ethanol). Bayern: Kreuzthal, Kreuzbach, 30.vi.–18.viii.1971, 6♂, 5♀, 12.vii.–24.viii.1972, 13♀ (light trap), 7.vii.1971, 1♂; Eschachtal (900 m), 23.vii.1971, 1♂; Eis-tobel nr. Ebratshofen, 9.viii.1971, 1♂; Obergünzburg, 29.–31.vii.1974, 1♀ (at light); Kempten (shop window), 13.vii.1971, 1♀; Allgäuer Alpen, Birksau, Ringang im Stille-lachtal (900 m), 6.–9.ix.1973, 1♂ (light trap) (all H. Mendl leg.). (All JSO; in ethanol). **Czech Republic:** Bohemia: Klášterec nr. Vimperk [6948], Arnoštský brook, 6.vii.2003, 2♂, 1♀ (J. Starý leg.) (JSO). Moravia: Velké Losiny [5968], 13.vii.1977, 22♂, 8♀; 25.vii.1978, 2♀; Libavá env., Údolná [6371], Odra valley, 31.vii.1996, 1♀; Hostýnské Hills, “Valaška” [6672] (500–600 m), 23.vii.1992, 1♂, 1♀ (all J. Starý leg.) (all JSO). **Slovakia:** Šaštín [7368] (distr. Senica), 23.vi.1979, 1♂, 1♀; Trstená [6683], “Jelesňa”, 10.vii.1988, 1♂; Beňadovo [6582], Mútňanka shores, 7.vii.1988, 2♂; Chočské Hills, Kvačianska valley [6783], 23.vii.1998, 2♂, 2♀; Západné Tatry Mts, Oravice, Tichá dolina [valley] [6784] (800 m), 17.viii.1999, 1♂; Belianske Tatry Mts, Tatranská Kotlina, Belá valley [6788] (750 m), 5.ix.1977, 1♀; Hranovnica [7087], Hornád shores, 1.vii.1979, 4♂, 1♀; Poľana Mts, Kyslinky [7382], Hučava valley (750 m), 20.vi.2003, 1♂; Poľana Mts, Čierny Potok, [7383] (700 m), 3.vii.2000, 2♂, 2♀, 4.vii.2000, 2♀, 6.vii.2000, 2♂, 7.vii.2000, 1♂, 4♀, 8.vii.2000, 2♀ (all at light); Poľana Mts, “Hronček ponds” [7383] (650 m), 10.vi.1999, 1♂, 6.ix.2001, 1♂; Gombasek [7488], Slaná shores, 5.vi.1979, 1♂, 6.vi.1979, 1♂; Snina, Cirocha shores [7099], 8.vi.1985, 1♀; Stakčín, Chotinka valley [6999], 22.vi.1983, 1♂; Bukovské Hills, Nová Sedlica env. [6901], 9.vii.1993, 1♂ (all J. Starý leg.) (all JSO). **Austria:** Niederösterreich: Wienerwald, 1♂ (J. Bischof leg.). Kärnten: Dobratsch [Döbriach], vii.1874, 1♀ (Bergengstamm leg.). (All NHMW). **Italy:** Piemonte: Carmagnola, Gerbasso, Greto F. Po (232 m), 15.ix.2000, 1♀ (G.B. Delmastro leg.) (JSO; dried from ethanol). **Slovenia:** Kamniska Bistrica (600 m), 30.vi.1968, 1♀ (F. Hartig leg.) (ZFMK). **Bulgaria:** Kalofer, 21.vi.1982, 1♂ (W. Krzemiński leg.); Sandanski, 14.vi.1984, 1♂ (W. Krzemiński leg.); Sandanski, Lebnița valley, 6.v.1989, 1♂, 10.v.1989, 1♀ (J. Starý leg.) (all JSO). **Ukraine:** Zakarpatskaya oblast: Svidovetskiy [mountain ridge], Chernotisskoe [forest area], 1.vii.1975, 1♂, 2♀ (E.N. Savchenko leg.) (JSO).

Discussion. No conspicuous variation was observed in *R. (R.) laeta*, except that the size of specimens varies

extensively, both locally and geographically (specimens from North Europe appear to be generally smaller).

R. (R.) laeta is very similar to pale specimens of *R. (R.) japonica*, differing in the structure of the antennae and the male and female terminalia. For details, see Figs 5–6, 17, 19–21, 46–47 and the discussion of *R. (R.) japonica*.

Distribution. As one of those most commonly treated in the literature, the species was recorded from many European countries, also from West Siberia (Altai) and Mongolia (Savchenko et al., 1992). Although it most probably does occur throughout Europe, the actual records are unreliable because it could have been confused with *R. (R.) japonica* or *R. (R.) laetoidea* sp. n. Based on the material examined, the species is confirmed in Europe for Sweden, Finland, Netherlands, Switzerland, Germany, Czech Republic, Slovakia, Austria, Slovenia, Bulgaria and Ukraine, and newly recorded for Andorra and Italy. [The record from Italy by Mannheims (1964), originally accepted by Savchenko et al. (1992), refers to a Swiss locality (cf. Starý & Oosterbroek, 1996) and represents *japonica* (cf. present revision)]. Not confirmed from Great Britain (see *japonica*), Belgium, France, Denmark, Poland, Lithuania, Latvia, Estonia, Bosnia and Herzegovina, Macedonia, Albania, Romania and European Russia.

Rhabdomastix (Rhabdomastix) laetoidea sp. n.

(Figs 2, 22–23, 48)

Rhabdomastix (Sacandaga) sp. cf. *laeta*: Savchenko, 1982: 276, 280 (diagnosis, tentative synonymy with *japonica*, faun. record, key), Fig. 130/4 (wing); Savchenko, 1989: 266 (tentative synonymy with *japonica*, faun. record, note), Fig. 232/3 (wing).

Diagnosis. General colouration yellow to pale yellow, with faintly indicated markings on thorax, including three stripes on prescutum. Antenna moderately long, with pubescence on flagellomeres subequal in length to breadth of respective segments. Wing narrow. A_2 ending shortly beyond origin of Rs . Legs yellow throughout. Male terminalia with apical blade of interbase lanceolate and aedeagus short and broad. Female terminalia with three spherical, large spermathecae.

Description. Medium-sized to small species. Body length 4–7 mm, wing length 4.5–7.5 mm.

Colour. General colouration yellow to pale yellow, shiny, with less distinct markings on thorax, compared to *R. japonica* and *R. laeta*, however, practically identical to the latter species in distribution of pattern. Antenna dark brown, scape yellow. Wing tinged with yellowish. Halter pale yellow. Legs yellow throughout. Abdomen yellow.

Head. Antenna moderately long, reaching to base of wing. Flagellomeres oval proximally, gradually narrowed and lengthened towards apex of antenna. Longest verticils on flagellomeres slightly exceeding length of their respective segments. Pubescence long, suberect, subequal in length to breadth of respective segments, distinct on almost all flagellomeres. Palpus short.

Thorax. Wing (Fig. 2) narrow, compared to both *R. japonica* and *R. laeta*, about four times as long as broad, with stalk longer than in two latter species. Sc_1 ending just beyond mid-length of Rs . Sc_2 slightly apparent, shortly before tip of Sc_1 . R_3 about its own length beyond tip of R_1 . R_4 with numerous macrotrichia both dorsally

and ventrally. A₂ slightly sinuous, ending shortly beyond origin of Rs. Halter moderately long, reaching to about posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 22). Segment 9 broader than long. Gonocoxite not as long as in *R. (R.) japonica* and *R. (R.) laeta*. Outer gonostylus short, less than half length of gonocoxite, gently and evenly arched, somewhat broadened before apex, with small, sometimes barely distinct apical spine. Inner gonostylus generally conical. Aedeagal complex as in Fig. 22. Interbase subequal to half length of gonocoxite, with apical blade more or less lanceolate, more slender than in *R. (R.) laeta*. Aedeagus comparatively short and broad, subequal in length to vesica, the latter rather broad. Apodeme of vesica spine-like in dorsal aspect, shorter than vesica. Female terminalia (Figs 23, 48). Cercus moderately broad, slightly exceeding length of tergite 10, gently upturned. Vaginal apodeme narrow, compared to *R. (R.) japonica* and *R. (R.) laeta*. Spermathecae three, spherical, larger and paler than those of latter two species, with sclerotised parts of ducts thin, subequal in length to spermathecal diameter.

Material examined. Holotype ♂: Czech Republic, Moravia, Hrubá Voda nr. Olomouc [6370], 14.vi.1977 (J. Starý leg.) (SMOC). The specimen is glued onto a triangular cardboard point, without both hind legs and apex of abdomen. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. **Paratypes** (163♂, 40♀): **Czech Republic:** Bohemia: Malenice [6849] (distr. Strakonice), Volyňka shores, 5.viii.1993, 1♀, 6.viii.1994, 1♂, 20.viii.1996, 2♂, 5.vii.2003, 2♂ (J. Starý leg.) (JSO). Moravia: Jeseníky Mts, Branná [5868] (700 m), 17.vii.1973, 5♂, 1♀ (J. Starý leg.); Bělá – Domašov [5869], Bělá valley, 15.vii.1975, 5♂ (J. Martinovský leg.); Malá Morávka [5969], Moravice shores, 28.viii.1997, 2♂; Velké Losiny [5968], 10.viii.1977, 1♂, 13.vii.1977, 1♀ (all J. Starý leg.); Valšov [6070], Moravice valley, 21.vi.1970, 3♂, 27.vi.1970, 1♂ (J. Martinovský leg.), 7.vii.1982, 6♂, 4.viii.1982, 1♂, 1♀, 1.vi.1983, 1♂, 3.vii.1984, 2♂, 30.vii.1984, 1♂, 4.vii.1985, 3♂, 1♀; Hrubá Voda nr. Olomouc [6370], 27.vi.1970, 10♂, 30.vi.1970, 4♂, 1♀, 8.vi.1971, 1♂, 1♀, 11.vii.1973, 9♂, 3♀, 14.vi.1977, 2♂, 4♀; Bystřice n. O. [6378], Olše shores, 26.vi.1997, 6♂, 11.vi.1998, 2♂; Vyšní Lhoty [6376], Morávka shores, 6.vi.1997, 1♀, 3.vi.1998, 2♂, 10.vi.1998, 1♀ (all J. Starý leg.) (all JSO). **Slovakia:** Beňadovo [6582], Mútňanka shores, 7.vii.1988, 2♂, 1♀; Západné Tatry Mts, Oravice, Tichá dolina [valley] [6784] (800–850 m), 17.viii.1999, 1♂, 15.vi.2000, 3♂ (all J. Starý leg.); Belianske Tatry Mts, Tatranská Kotlina [6788] (750 m), Belá valley, 27.vii.1974, 2♂, 29.vii.1974, 1♂, 30.vii.1974, 1♂, 31.vii.1974, 5♂, 1♀ (J. Starý leg., 1♂ J. Martinovský leg.), 21.vi.1975, 7♂, 22.vi.1975, 1♂ (J. Starý leg.), 23.vi.1975, 2♂ (J. Martinovský leg.), 24.vi.1975, 3♂, 27.vi.1975, 31♂, 4♀, 14.vii.1975, 3♂, 15.vii.1975, 1♀, 22.vii.1975, 1♀, 18.vi.1977, 1♂, 5.viii.1999, 1♂; Hranovnica [7087], Hornád shores, 1.vii.1979, 1♂, 1♀; Očová nr. Zvolen [7381], Hučava valley, 17.vi.2003, 1♂, 2♀; Poľana Mts, Kyslinky [7382], Hučava valley (750 m), 16.vi.2003, 8♂, 20.vi.2003, 2♂, 1♀; Poľana Mts., Čierny Potok [7383] (700 m), 8.vii.2000, 1♂; Poľana Mts, Hronček valley [7383] (700 m), 12.vi.1999, 1♂; Poľana Mts, “Hronček ponds” [7383] (650 m), 10.vi.1999, 1♀, 7.vii.2000, 1♀; Snina, Cirocha shores [7099], 19.vi.1983, 1♀; Stakčín, Chotinka valley [6999], 22.vi.1983, 1♂, 6.vi.1985, 1♂, 1♀; Bukovské Hills, Ruský Potok [6900], 10.vi.1985, 1♀; Bukovské Hills, Krivé [7000],

Zbojský brook, 17.vi.1991, 2♂, 2♀; Bukovské Hills, Ubl’a [7100], Stežná shores, 23.vi.1983, 1♂, Kosmatec, 23.vi.1983, 2♂ (all J. Starý leg.) (all JSO, SMOC). **Bulgaria:** Rodopi Mts, Bachkovo, 20.vi.1982, 1♂ (W. Krzemiński leg.); Yavorov nr. Kresna, 14.vi.1990, 2♀; Sandanski, Lebnița valley, 12.vi.1990, 1♂; Pirin Mts, Lilianovo nr. Sandanski, 15.vi.1990, 1♂, 1♀, 17.vi.1990, 1♀; Pirin Mts, Bansko env., 23.vii.1987, 2♂, 1♀ (all J. Starý leg.) (all JSO). **Ukraine:** Zakarpatskaya oblast: Svidovetskiy [mountain ridge], Chernotisskoe [forest area], 1.vii.1975, 1♂ (E.N. Savchenko leg.) (JSO).

Etymology. The name of the new species, *laetoidea*, indicates its close relationship to *R. (R.) laeta*. An adjective in nominative singular.

Discussion. The new species differs from both *R. (R.) japonica* and *R. (R.) laeta* by its generally smaller size and distinctly narrower wings in both sexes. The latter character is correlated with the venation in that the veins run closer to each other and A₂ is less sinuous, ending only shortly beyond the origin of Rs (Fig. 2). In *R. (R.) laetoidea* sp. n., the male terminalia are especially distinctive by having a comparatively short and broad aedeagus and a broad vesica (Fig. 22) (long and slender in *japonica* and *laeta*, cf. Figs 17, 20). The female terminalia are characterised by large spermathecae (Figs 23, 48) (smaller in *japonica* and *laeta*, cf. Figs 19, 21, 46–47).

Distribution. Czech Republic, Slovakia, Bulgaria, Ukraine.

Note. This may be *Rhabdomastix (Sacandaga) shardiana* Alexander, 1957 described from a single male from Pakistan (Alexander, 1957: 292) [holotype ♂: North West Frontier Province, Shardi, 1.–10.viii.1953, altitude 6,130 feet, (F. Schmid leg.) (USNM)], a species with a rather distinct pattern on the thorax, generally conforming the condition in the *laeta* complex. Due to distortion of the male terminalia mounted on a slide, absence of the antennae in the holotype, and considering the disjunct occurrences of *R. (R.) laetoidea* sp. n. and *R. shardiana*, a clear decision on the conspecificity of the two forms could not be reached. Therefore, it is preferred to describe here *R. (R.) laetoidea* sp. n., a species fairly common in Central and South Europe, until more material, including females, is available from the area relevant to *R. shardiana*.

Rhabdomastix (Rhabdomastix) borealis Alexander, 1924

(Figs 24–26, 49)

Rhabdomastix (Sacandaga) borealis Alexander, 1924a: 9 (description).

Rhabdomastix (Sacandaga) borealis: Alexander, 1965: 77 (Nearctic catalogue).

Rhabdomastix (Sacandaga) sp. (? *borealis*): Savchenko, 1978a: 66 (faun. record).

Rhabdomastix lapponica Tjeder, 1936: 133 (description), Figs 2 (wing), 3a–e (male terminalia). – **syn. n.**

Rhabdomastix lapponica: Edwards, 1938: 113 (synonymy with *infuscata*, key), Text-fig. 22d (male terminalia); Tjeder, 1955b: 238 (list).

Rhabdomastix (Sacandaga) lapponica: Mendl, 1978: 373 (list); Mendl, 1979b: 23 (faun. record); Savchenko & Parkhomenko, 1980: 104, 106 (tentative synonymy with *borealis*, faun. record); Mendl, 1984b: 14 (faun. record); Lantsov & Chernov, 1987: 33 (faun. record); Savchenko, 1989: 266 (tentative synonymy with *borealis*, faun. record); Savchenko et al., 1992: 315 (Palaeartic catalogue, synonymy with *infuscata*, tentative synonymy with *borealis*); Reusch & Ooster-

broek, 1997: 132 (list), Fig. 96 (male terminalia); Sidorenko, 2001: 63 (note).

Sacandaga infuscata Lackschewitz, 1936: 116 (description), Figs 4a–c (male terminalia).

Diagnosis. General colouration yellowish brown, patterned with dark brown and pale yellow on thorax. Antenna moderately long, with pubescence on flagellomeres very short. Wing moderately broad. A_2 ending beyond origin of Rs. Legs with femora considerably darkened distally. Male terminalia with apical blade of interbase triangular provided with tooth at outer margin, and aedeagus long. Female terminalia with three spherical spermathecae, somewhat smaller than those of *R. (R.) laetoidea* sp. n.

Redescription. Medium-sized species. Body length 4–7.5 mm, wing length 5–8 mm.

Colour. General colouration yellowish brown, with slight greyish pruinosity, patterned with dark brown and pale yellow on thorax. Antenna dark brown, scape yellowish brown. Prescutum dark brown, yellowed laterally. Sometimes two yellow longitudinal lines apparent, demarcating three broad dark brown stripes; yellow patch near posterior margin of prescutum. Scutum dark brown, patterned with yellow medially. Scutellum mostly yellow. Mediotergite (postscutellum) yellow anteriorly, dark brown in posterior half. Pleuron yellowish brown to brown, with slight greyish pruinosity, patterned with pale yellow in upper part, darkened on lower portions of katepisternum and meron. Wing tinged with brownish. Coxae yellowish brown. Trochanters and bases of femora yellow, the latter considerably darkened distally. Rest of legs yellowish brown. Halter pale yellow. Abdomen greyish brown.

Head. Antenna moderate in length, reaching to about base of wing. Proximal three or four flagellomeres short-oval to nearly spherical, following ones gradually narrowed and lengthened towards apex of antenna. Longest verticils on flagellomeres slightly exceeding length of their respective segments. Pubescence very short, suberect, distinct only on proximal four or five flagellomeres (much as in *japonica*). Palpus short.

Thorax. Wing moderately broad, more than three times as long as broad, with stalk comparatively short. Sc_1 ending before fork of Rs, at about three quarters of length of the latter. Sc_2 , if apparent, considerably retracted from tip of Sc_1 , approximately opposite half length of Rs (much as in *japonica*). R_3 less than its own length beyond tip of R_1 . R_4 with a few macrotrichia both dorsally and ventrally. A_2 considerably sinuous, ending distinctly beyond origin of Rs. Halter moderately long, reaching to about posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 24). Segment 9 broader than long. Gonocoxite comparatively long and slender. Outer gonostylus short, less than half length of gonocoxite, gently and evenly arched, parallel-sided, with small apical spine. Inner gonostylus generally conical, slender distally. Aedeagal complex as in Fig. 24. Interbase very long, considerably extending beyond half length of gonocoxite and expanded before apex to form

roughly triangular apical blade terminating in large acute tooth at outer margin (at margin closer to long axis of hypopygium for crossing interbases). Aedeagus long (not as slender as in *japonica* and *laeta*), nearly twice length of vesica or less, the latter comparatively small and narrow. Apodeme of vesica spine-like in dorsal aspect, short, about half length of vesica. Female terminalia (Figs 25–26, 49). Cercus moderately broad, slightly exceeding length of tergite 10, gently upturned. Vaginal apodeme abruptly expanded into very broad, transversally oblong or semicircular distal (caudal) portion. Spermathecae three, spherical, somewhat smaller than those of *R. (R.) laetoidea* sp. n., with sclerotised parts of ducts thin, shorter than spermathecal diameter.

Material examined. *Rhabdomastix (Sacandaga) borealis*: **Holotype** ♂ (monotypy): USA, Alaska, Hurricane, 15.vii.1921 (J.M. Aldrich leg.) (USNM), labelled: “Hurricane Alaska VII-15.21” (partly printed), “JMAldrich coll.” (printed), “Holotype Rhabdomastix borealis C.P. Alexander” (partly printed, red). The specimen is pinned, without left wing, abdomen, fore left and both hind legs. The wing mounted on a slide, labelled with the same data, with the inscription “Holotype 2290”. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen.

Rhabdomastix lapponica: In the original description (Tjeder, 1936: 135), the male holotype and an unspecified number of paratypes are mentioned. At present, 4 paratypes are deposited in MZLU; holotype could not be located (R. Danielsson, e-mail comm.). However, there is no doubt about the conspecificity of the type series, and an examination of a paratype appears sufficient. **Paratype** ♂: Sweden, Lappland, Abisko, 29.vii.1918 (O. Ringdahl leg.) (MZLU), labelled: “Abisko 29.7.–18” (partly printed), “Rhabdomastix lapponica Tjed. Paratypus ♂” (handwritten) and “Paratypus” (printed, red). The specimen, in relatively good condition, is micro-pinned on a celluloid slide, with both fore legs and right hind leg attached, another leg glued onto the celluloid slide; apex of abdomen cut off. Terminalia dissected and placed in a plastic tube with glycerine, pinned with the specimen.

Sacandaga infuscata: **Holotype** ♂ (monotypy): Sweden, Lappmark, Abiskojokk, 26.vii.1926 (O. Ringdahl leg.) (MZLU), labelled: “Abisko. 26.7–26” (partly printed, some hand-written numerals smeared), “*Sac. infuscata* nov. sp. det. Lacksch.” (printed), a small blank red paper square and “Rhabdomastix lapponica Tjed. det. Bo Tjeder (pencil, in Tjeder’s hand). Accordingly labelled as holotype (“Holotype *Sacandaga infuscata* Lackschewitz ♂ J. Starý 2003”, printed, red label). The specimen is pinned, with only femur of right fore leg attached; apices of left wing and abdomen broken off. Terminalia dissected and preserved in Canada balsam between celluloid slides, pinned with the specimen. Interbases are somewhat mis-shapen in this preparation, as shown in the original description (Lackschewitz, 1936, Figs 4a,b,c), they, nevertheless, are exactly as in Fig. 24.

Other material examined (22♂, 7♀): **Norway**: Nordvaranger, Skonsvikelv nr. Berlevåg, 25.vii.1976, 19♂, 5♀ (W. Tobias leg.) (2♂, 1♀ in JSO; rest in ZFMK; all in ethanol). **Sweden**: Torneträsk nr. Abisko, 3.viii.1975, 2♀ (H. Mendl leg.) (JSO, ZFMK; in ethanol). **Russia (Asia)**: Chukotka, Beringovskiy, 25.vii.1978, 2♂ (S.I. Parkhomenko leg.); Kuriles, Paramushir Is., Severo-Kurilsk, 27.viii.1976, 1♂ (V. M. Ermolenko leg.) (all JSO). **Canada**: [a slide, with two wings, identi-

fied by Alexander as *borealis*, labelled "... ♀ Canad. N.W. Ter. / Aklavik / July 20, 1931 / (O. Bryant ...)" (USNM)].

Discussion. The shape of the vaginal apodeme and the size of the spermathecae in the female holotype of *R. borealis*, supported by external characters, prove unambiguously the synonymy of *borealis* and *lapponica*.

Although clearly belonging to the species complex comprising the three species above (*japonica*, *laeta*, *laetoidea*), *R. (R.) borealis* is very distinctive in both general appearance and the structure of the male terminalia. Its general colouration is distinctly darker, yellowish brown, with greyish pruinosity, patterned with dark brown on the thorax, extensively so dorsally. In contrast to the species above, the femora are considerably darkened distally in *R. (R.) borealis* (yellow throughout in *japonica*, *laeta* and *laetoidea*). Within the species treated here, the male terminalia of *R. (R.) borealis* are unique in the shape of the interbases (Fig. 24). The female terminalia are similar to those of the related species, with the spermathecae somewhat smaller than in *R. (R.) laetoidea* sp. n., although they are well characterised by a very broad vaginal apodeme (Fig. 25).

Distribution. In the new concept presented here, the species appears to be Holarctic in distribution, and was recorded from the USA (Alaska) (Alexander, 1965), Norway, Sweden and the Russian Far East (Savchenko et al., 1992). Herewith confirmed for all the countries. Distribution in Canada is practically beyond any doubt, but not proved by the two wings on the slide tentatively listed here. The identification by Alexander, who must have had the rest of the specimen, is reliable insofar as made possible by a comparison of external characters. In any case, an authentic record for Canada is needed. A short diagnosis of *Gonomyia schistacea* from Finland by Lundström (1907: 21), added with a figure of the wing showing R_3 less than its own length beyond the tip of R_1 (cf. Lundström, 1907, Fig. 25), suggests that a species of the *laeta* complex is involved, most probably *R. (R.) borealis*. This, however, should also be confirmed.

***Rhabdomastix (Rhabdomastix) edwardsi* Tjeder, 1967**

(Figs 27–29, 50)

Rhabdomastix parva: Edwards, 1938: 113, 115 (diagnosis, conspecific with *schistacea* sensu Loew, Verral nec Schummel, faun. record, key), Text-figs 21b–d (wing), 22e (male terminalia) [misinterpretation, see Tjeder, 1964: 146, 1967: 225]; Coe 1950: 52 (key), Fig. 23c (male terminalia) [misinterpretation]; Rotheray & Robertson, 1993: 17 (faun. record) [misinterpretation].

Gonomyia (Rhabdomastix) schistacea: Lackschewitz, 1940: 56 [alternatively as *Gonomyia (Sacandaga)*, faun. record] [partim, see present revision].

Rhabdomastix schistacea: Mannheims, 1967: 473 (faun. record) [see present revision].

Rhabdomastix edwardsi Tjeder, 1967: 225 (description, conspecific with *parva* sensu Edwards nec Siebke), Figs 1 (wing), 2–6 (male terminalia), 7–10 (female terminalia).

Rhabdomastix edwardsi: Hutson & Vane-Wright, 1969: 248 (conspecific with *parva* auctt nec Siebke, *schistacea* auctt nec Schummel); Godfrey, 2001: 21, 23 (faun. record).

Rhabdomastix (Sacandaga) edwardsi: Mendl, 1973b: 3 (note); Mendl, 1978: 373 (list); Dienske 1987: 36 (figure only), Fig. 130 (male terminalia); Stary, 1987: 20 (list) [deleted; see Stary, 1993: 123, 1996: 119]; Savchenko et al., 1992: 315

(Palaeartic catalogue); Stubbs, 1998: 5 (conspecific with *parva* sensu British authors nec Siebke, list).

Rhabdomastix (Sacandaga) subparva: Mendl, 1984a: 7 (faun. record) [partim, see present revision].

Diagnosis. General colouration dark greyish brown, with bluish pruinosity on pleuron. Antenna short. Wing narrow, infuscated. A_2 ending before origin of Rs. Legs brown with coxae greyish brown. Male terminalia with outer gonostylus generally straight, with distinct apical spine, and apical blade of interbase spoon-shaped. Female terminalia with three spherical, small spermathecae.

Redescription. Small species. Body length 4–6 mm, wing length 4–6.5 mm.

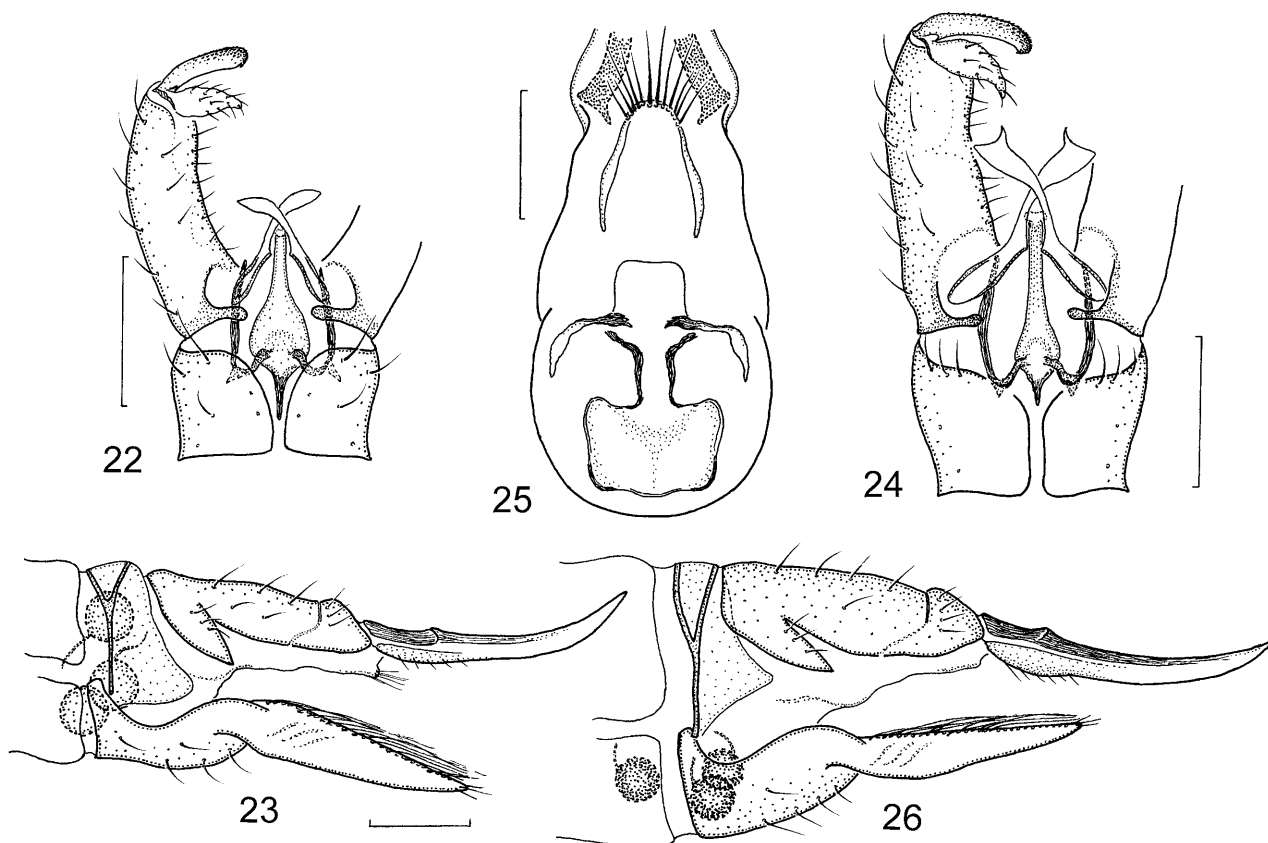
Colour. General colouration dark greyish brown with bluish tinge, dull, without conspicuous markings on thorax, more brownish in middle of prescutum. Antenna dark brown throughout. Pleuron heavily suffused with dark bluish grey pruinosity, somewhat variable in extent and bluish hue. Wing infuscated. Halter whitish. Coxae generally dark, brown to greyish brown. Trochanters and bases of femora yellowish brown, the latter darkened distally. Rest of legs generally brown. Abdomen dark greyish brown.

Head. Antenna short, not reaching to base of wing. Flagellomeres short-oval. Longest verticils on flagellomeres slightly exceeding length of their respective segments. Pubescence indistinct. Palpus short.

Thorax. Wing rather narrow, about four times as long as broad, with stalk comparatively short. Sc_1 ending before half length of Rs. Sc_2 lacking. R_3 more than its own length beyond tip of R_1 . R_4 bare or with at most a few macrotrichia dorsally. A_2 sinuous, ending before origin of Rs. Halter comparatively short, not reaching to posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 27). Segment 9 longer than broad. Gonocoxite sometimes rather stout, broad. Outer gonostylus comparatively short, about half length of gonocoxite, bent only at base, straight distally, generally parallel-sided, with distinct apical spine. Inner gonostylus generally conical. Aedeagal complex as in Fig. 27. Interbase moderate in length, reaching to about half length of gonocoxite, very slender near mid-length, at most very slightly bent distally to form spoon-shaped apical blade, mostly rounded at apex (pointed in some cases, cf. Fig. 27). Aedeagus slender, subequal in length to vesica, the latter broad, bulbous, with long apodeme, narrowly fan-shaped in dorsal aspect, about same length as vesica. Female terminalia (Figs 28–29, 50). Cercus comparatively slender and rather long, longer than tergite 10, gently upturned. Spermathecae three, small, spherical, with sclerotised parts of ducts very short. One spermatheca sometimes smaller than other two.

Material examined. Holotype ♀ (original designation): Great Britain, England, South Devon, Sidmouth, 10.v.1936 (F.W. Edwards leg.) (BMNH), labelled "S. Devon: Sidmouth. 10.V.1936. F.W. Edwards. B.M. 1936-366" (printed), "Holotype" (a red-margined circular label, printed), "Holotypus ♀ *Rhabdomastix edwardsi* Tjed. Bo Tjeder 1966" ("Holotypus" printed, the rest in Tjeder's hand, red label). The specimen is micro-pinned on a celluloid slide, with only left fore and hind



Figs 22–26. 22–23. *Rhabdomastix (Rhabdomastix) laetoidea* sp. n. (♂: holotype; ♀: paratype, Czech Republic: Hrubá Voda nr. Olomouc). 22 – male terminalia, general view, dorsal; 23 – female terminalia, general view, lateral. 24–26. *R. (R.) borealis* Alexander, 1924 (Norway: Nordvaranger). 24 – male terminalia, general view, dorsal; 25–26 – female terminalia, internal structures, ventral (25) and general view, lateral (26). Scale bars 0.25 mm.

legs missing; right wing and apex of abdomen broken off, the former glued onto the celluloid slide. Terminalia dissected and preserved in a hyaline medium between plastic slides, pinned with the specimen. **Paratypes:** Great Britain: Scotland: Perthshire, Killin distr., Ben Chalum (800–2500 ft), 9.–10.vi.1932, 1♂; Perthshire, Glen Lyon, undated, 1♀ (both F.W. Edwards leg.) (both MZLU); Dunbartonshire, Luss, 3.vi.1911, 1♀ (J.J.F.X. King leg.) (BMNH). England: Yorkshire, Coverham, 23.vi.1924, 1♂, 1♀ (F.W. Edwards leg.); Herefordshire, Cusop Dingle, 29.vi.1899, 1♂ (J.H. Wood leg.) (all BMNH). All paratypes examined by me in 1970's.

Other material examined (231♂, 103♀): **Great Britain:** Scotland: Inverness-shire, river through Uruqubart Wood, 14.vii.1991, 1♂ (A.E. Stubbs leg.); Perthshire, Angus, R. Isla, Den of Airlie, 4.vii.1977, 1♂ (A.M. Hutson leg.) (both JSO); Aberdeenshire, Braemar, Mar Lodge Estate, Upper Quoich, 7.vii.2000, 9♂, 5♀ (pitfall & water traps); Braemar, River Dee downstream of White Badge, 28.vi.2000, 5♂ (all A. Godfrey leg.) (1♂, 2♀ dried from ethanol, JSO; rest in ethanol, AGB). Wales: Brecknockshire, Brecon, Cwm Duff, 3.vi.1970, 1♀ (A. E. Stubbs leg.) (JSO). England: Shropshire, Chelcote Coppice, 24.v.2003, 91♂, 27♀ (A. Godfrey leg.) (JSO; in ethanol); Yorkshire, Littlebeck Wood nr. Whitby, 7.vi.2002, 1♂; Grass Woods nr. Grassington, 25.vi.2002, 1♀ (both R. Crossley leg.) (both JSO). **Spain:** Tributary of Rio Ter nr. Mollo, (1000 m, 2°24'/42°21'), 17.v.1975, 1♂ (G. Theischinger leg.); Riera de Cattlas nr. Setcasas, 13.vii.1976, 4♂, 1♀ (W. Tobias leg.) (all JSO; in ethanol); Sierra de Gredos Mts, nr. Parador (1500 m), 27.v.1961, 1♂ (B. Mannheims leg.) (ZFMK). **France:** Dept.

Haute-Garonne: Hospice de France, 25.vi.1950, 1♂ (F. Schmid leg.) (MHNN). Dept. Gard: 1.5 km E Pompignan (Mirabel) (210–240 m), 9.iv.1995, 1♂, 1♀; 1.5 km SW Claret, Lauret, 22.v.1993, 1♂, 1♀ (all J.-P. Haenni leg.) (1 dried ♀ JSO; 2♂, 1♀ MHNN, in ethanol). **Germany:** Bayern: Allgäu, Eschachtal (900 m), 23.vii.1971, 1♂, 1♀ (H. Mendl leg.) (ZFMK; in ethanol); Kemptener Wald, 15.ix.1970, 1♂ (H. Mendl leg.) (JSO; in ethanol); Allgäuer Alpen, Birksau, Ringang im Stillachtal (900 m), 1.vii.1975, 1♂ (J. Starý leg.) (JSO); Allgäuer Alpen, Dietersbachtal nr. Gestruben, 21.vii.1971, 1♂, 31.vii.1971, 3♂, 1♀; Traufbachtal (1200–1300 m), 7.ix.1970, 1♂, 18.viii.1974, 3♂, 6♀ (all H. Mendl leg.) (all JSO; in ethanol); Traufbachtal (1400 m), 5.vii.1983, 6♂, 2♀ (H. Mendl leg.) (ZFMK; in ethanol); Älpele (1500–1600 m), 31.vii.1971, 4♂, 3♀ (H. Mendl leg.) (JSO; in ethanol). **Czech Republic:** Moravia: Vyšní Lhoty [6376], Morávka shores, 8.vi.1995, 3♂, 3♀, 13.vii.1995, 3♂, 17.v.2001, 7♂, 8♀ (J. Starý leg.) (JSO). **Slovakia:** Západné Tatry Mts, Oravice, Tichá dolina [valley] [6784] (800–850 m), 12.vi.2000, 1♂, 1♀, 14.vi.2000, 1♀; Západné Tatry, Roháčska dolina [valley] [6784] (1050 m), Zverovka [chalet] env., 27.vi.1998, 1♂; Belianske Tatry Mts, Tatranská Kotlina, Belá valley [6788] (750 m), 26.vii.1974, 1♂, 27.vii.1974, 1♂, 31.vii.1974, 1♂, 22.vi.1975, 3♂, 1♀ (1♂ J. Martinovský leg.), 25.vi.1975, 3♂, 27.vi.1975, 10♂, 3♀, 16.vii.1975, 1♂, 1♀, 18.vii.1975, 1♂, 1♀, 19.vii.1975, 2♂, 1♀, 22.vii.1975, 1♀, 25.v.1976, 1♂, 29.v.1976, 2♂, 2♀, 30.v.1976, 1♂, 2♀, 18.vi.1977, 2♂, 6♀, 20.vi.1977, 1♂, 23.vi.1977, 1♂, 1.vii.1978, 1♂, 2♀, 3.vii.1978, 1♂, 4.vii.1979, 3♂, 5.vii.1979, 1♂; Lendak [6788], Belá shores, 29.v.1976, 1♀; Hostovice

[6898], Udava shores, 16.vi.1986, 1♀, 19.v.1987, 1♂; Snina, Cirocha shores [7099], 21.vi.1983, 1♀, 22.vi.1983, 1♂, 2.vi.1984, 1♀, 1.vi.1985, 1♂, 8.vi.1985, 1♂; Bukovské Hills, Ruské [6800], Cirocha shores, 3.vi.1985, 3♀ (all J. Starý leg.) (all JSO). **Austria:** Tirol, Obiadis, 7.7.1889, 1♂ (J. Mik leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW); Obertillach, undated, 2♂ (R. Frey leg.) (ZFMK). Oberösterreich: Mitterweissenbach, 10.vii.1977, 2♂, 1♀ (G. Theischinger leg.). Steiermark: Leoben (830 m), 23.vi.1976, 1♂ (R. Wagner leg.). Kärnten: Leobengraben (1200 m), 26.vii.1981, 1♂ (R. Wagner leg.). (All JSO; in ethanol). **Italy:** Liguria: Bromida di Pallave, 14.v.1980, 1♂ (P. Zwick leg.) (JSO; in ethanol). Lombardia: Staffora nr. Molino di Pietro above Varzi, 11.v.1980, 6♂, 1♀ (P. Zwick leg.) (JSO; in ethanol). Trentino-Alto Adige: Val d'Ampola, 3.vi.1971, 10♂, 4♀ (H. Mendl leg.) (JSO; in ethanol). Friuli-Venezia Giulia: Cave del Predil [Raibl], 1889, 1♀ (Mann leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW). Marche: Mti Sibillini, Madonna dell'Ambro, 24.v.1977, 1♀ (P. Zwick leg.) (JSO; in ethanol). Campania: Mti della Laga, Padula, 23.v.1977, 1♂ (H. Mendl leg.) (JSO; in ethanol). **Slovenia:** Podnart nr. Kranj, 7.v.1977, 1♂ (I. Sivec leg.) [listed as *subparva* by Mendl, 1984a] (ZFMK; in ethanol). **Bosnia and Hercegovina:** Sarajevo, 16.vii.1929, 1♂ (H. Zerny leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW). **Albania:** Skutari, 1917, 1♀ (Karny leg.) [listed as *schistacea* by Lackschewitz, 1940 and Mannheims, 1967] (NHMW). **Bulgaria:** Stara Kresna, 8.v.1989, 5♂, 4♀; Melnik, 10.v.1989, 5♂ (all J. Starý leg.) (all JSO).

Discussion. There is a certain variation in the body size and colouration. Specimens from Great Britain and South Europe are, on the average, smaller, somewhat more robust, and darker, rather dark greyish brown, with the wings strongly infuscated and with the bluish pruinosity limited to the pleuron. Members of Central European populations are larger, more slender, generally somewhat paler, with a very distinct bluish suffusion that passes from the pleuron onto the prescutum and other dorsal parts of the thorax.

The species concept of *R. (R.) edwardsi* has been one of the controversies of this revision, since specimens from various regions differ in various aspects (see above). Although the species had been described and illustrated adequately (cf. Tjeder, 1967: 225, Figs 1–10), it does not seem to have been well recognised, and it only was accepted as occurring in Great Britain. It has never been reported outside that country, except for records from the Czech Republic and Slovakia (Starý, 1987), later doubted (see Distribution). From the beginning of my studies on *Rhabdomastix*, the sympatric material of two forms was available to me from the former Czechoslovakia, differing considerably in the body colouration from both *R. (R.) subparva*, the most common regional species, and from each other. The one form was distinctive by a bluish pruinosity on the pleuron (these specimens may occur in various collections labelled by me as “*caesia*”), whereas the other form was entirely black. The sympatric occurrence of these forms supported the view that they represent valid species. The solution reached after a thorough comparison, repeated many times, is now believed to be a correct one: form No. 1 is *R. (R.) edwardsi* and form No. 2 is a new species described below as *R. (R.) crassa* sp. n.

The bluish pruinosity, rather dark and intensive, differentiates *R. (R.) edwardsi* from all species treated here, except perhaps *R. (R.) hirticornis*, which, however, is sufficiently distinctive by its very long male antennae. In the structure of the male terminalia, *R. (R.) edwardsi* appears to be most closely related to *R. (R.) crassa* sp. n. and *R. (R.) corax* sp. n., both entirely black species. *R. (R.) edwardsi* differs from these species in having a generally straight outer gonostylus (gently and evenly arched in *corax*) and rather long, slender interbases (shorter and broader in *crassa*, more rounded at apex). Some other external and male genital features differentiating the three species are specified in the discussions of the two latter. The female terminalia of the three species are very similar to each other, having the spermathecae of approximately the same size. *R. (R.) edwardsi* has the cerci slightly longer and more slender than the other two.

Distribution. So far the species has been known from Great Britain only. Records from the Czech Republic and Slovakia (Starý, 1987), based on unpublished material, were later withdrawn (Starý, 1993, 1996). Records are presented here for Great Britain, Spain, France, Germany, Czech Republic, Slovakia, Austria, Italy, Slovenia, Bosnia and Hercegovina, Albania and Bulgaria.

Rhabdomastix (Rhabdomastix) crassa sp. n.

(Figs 4, 7, 14, 30–31)

Gonomyia (Rhabdomastix) schistacea: Lackschewitz, 1940: 56 (alternatively as *Gonomyia (Sacandaga)*, faun. record) [par-tim, see present revision].

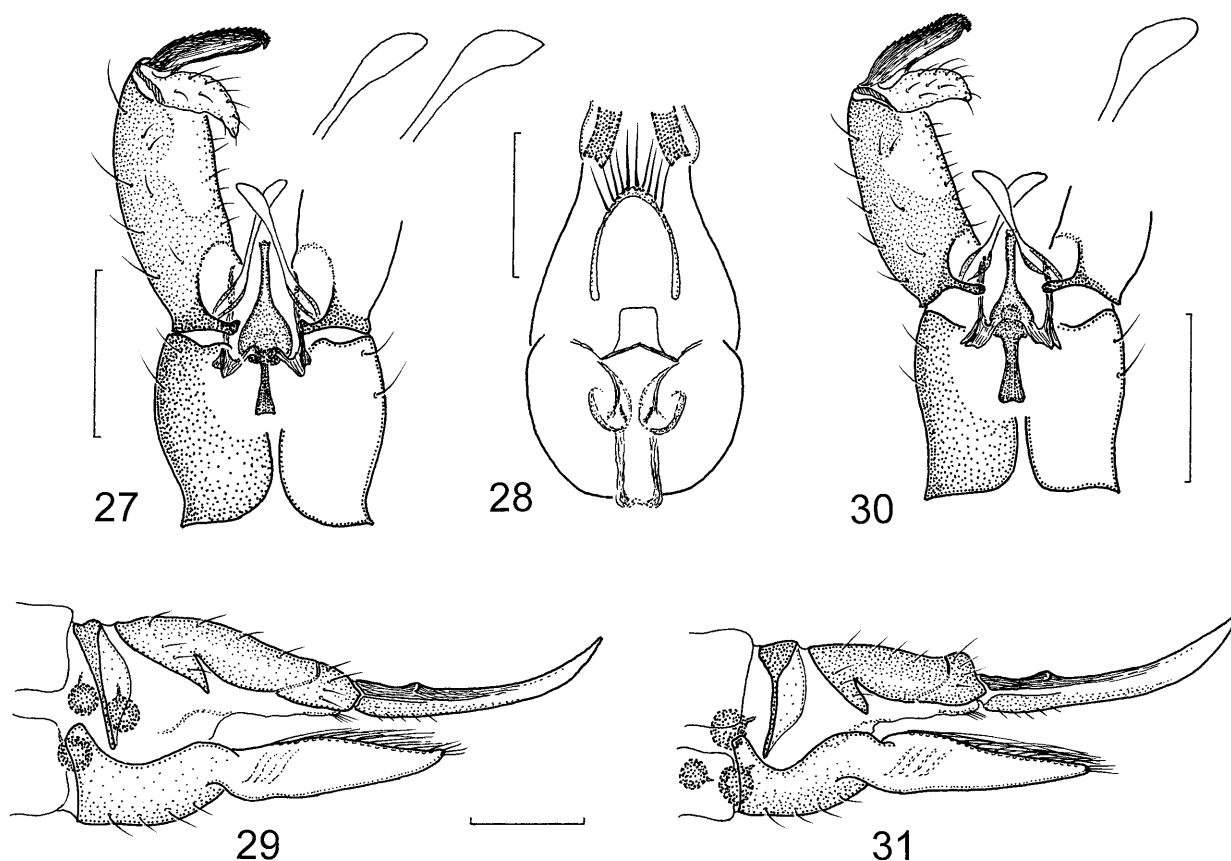
Diagnosis. General colouration black throughout. Antenna short. Wing narrow, strongly infuscated. A_2 ending far before origin of Rs. Legs dark brown, including coxae. Male terminalia with outer gonostylus generally straight, with distinct apical spine, and apical blade of interbase spoon-shaped. Female terminalia with three spherical, small spermathecae.

Description. Very small species, plump in general appearance, with all body appendages (antennae, palpi, wings, legs) slightly shorter, compared to other species. Body length 3–6 mm, wing length 3–5 mm.

Colour. General colouration black, dull (deep dark brown in faded dried specimens), without conspicuous markings on thorax. Antenna almost black throughout. Pleuron heavily suffused with dark greyish black pruinosity. Wing strongly tinged with blackish. Halter infuscated, especially on stem. Coxae deep dark greyish brown. Trochanters and bases of femora brown, the latter darkened distally, deep dark brown. Rest of legs dark brown. Abdomen almost black, somewhat shiny.

Male. Head. Antenna (Fig. 7) comparatively short, not reaching to base of wing. Flagellomeres short-oval. Longest verticils on flagellomeres subequal in length to their respective segments. Pubescence indistinct. Palpus short (Fig. 14).

Thorax. Wing (Fig. 4) rather narrow, about four times as long as broad, with stalk very short. Sc_1 ending at about half length of Rs or slightly before it. Sc_2 little-distinct at tip of Sc_1 . R_3 more than its own length beyond tip of R_1 . R_4 bare or with at most a few macrotrichia dor-



Figs 27–31. 27–29. *Rhabdomastix* (*Rhabdomastix*) *edwardsi* Tjeder, 1967 (Scotland: Braemar). 27 – male terminalia, general view, dorsal (details show variation in shape of apical blade of interbase); 28–29 – female terminalia, internal structures ventral (28) and general view, lateral (29). 30–31. *R. (R.) crassa* sp. n. (paratypes, Czech Republic: Hrubá Voda nr. Olomouc). 30 – male terminalia, general view, dorsal; 31 – female terminalia, general view, lateral. Scale bars 0.25 mm.

sally. A₂ slightly sinuous, ending far before origin of Rs. Halter comparatively short, not reaching to posterior margin of abdominal tergite 2. Legs rather thick and short, compared to other species.

Abdomen. Male terminalia (Fig. 30). Segment 9 longer than broad. Gonocoxite stout, broad. Outer gonostylus comparatively short, about half length of gonocoxite, bent only at base, straight distally, generally parallel-sided, with distinct apical spine. Inner gonostylus generally conical. Aedeagal complex as in Fig. 30. Interbase shorter than in *R. (R.) edwardsi*, reaching to about half length of gonocoxite (this likewise shorter than in *edwardsi*), not as slender as in the latter species, slightly bent distally, with apical blade spoon-shaped, distinctly larger, rounded at apex. Aedeagus slender, subequal in length to vesica, the latter broad, bulbous, with apodeme narrowly fan-shaped in dorsal aspect, about same length as vesica. Female terminalia (Fig. 31). Cercus comparatively slender and long, longer than tergite 10, yet somewhat broader and shorter than that of *R. (R.) edwardsi*, gently upturned. Spermathecae three, small, spherical, subequal in size to *R. (R.) edwardsi*, with sclerotised parts of ducts very short. One spermatheca sometimes smaller than other two.

Material examined. Holotype ♂: Czech Republic, Moravia, Hrubá Voda nr. Olomouc [6370], 16.v.1975 (J. Starý leg.) (SMOC). The specimen is glued onto a triangular cardboard

point, with only left hind leg and apex of abdomen missing. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. **Paratypes** (226♂, 116♀): **France**: Eastern Pyrenées, Vernet-les-Bains, 11.–18.vi.1924, 2♀ (H. Zerny leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW). **Czech Republic**: Bohemia: Malenice [6849] (distr. Strakonice), Volyňka shores, 12.v.2003, 12♂, 2♀ (J. Starý leg.) (JSO). Moravia: Jívová nr. Olomouc [6270], 22.v.1975, 1♂, 28.v.1975, 6♂, 1♀, 19.v.1976, 4♂, 8♀, 20.v.1992, 1♂, 8.v.1999, 4♂, 1♀, 5.v.2000, 1♂; Smilov nr. Olomouc [6370], 18.vi.1972, 1♂, 19.v.1976, 14♂, 8♀, 18.v.1978, 1♂; Hrubá Voda nr. Olomouc [6370], 18.vi.1970, 15♂, 3♀, 19.vi.1970, 12♂, 22.vi.1970, 11♂, 1♀, 23.vi.1970, 2♂, 1♀, 27.v.1971, 12♂, 1♀, 14.v.1975, 6♂, 16.v.1975, 15♂, 4♀, 20.v.1975, 2♂, 5.vi.1975, 2♂, 1♀, 19.v.1976, 3♂, 2♀, 9.vi.1976, 1♀; Horka n. M. [6369], Morava shores, 29.v.1995, 9♂, 6♀, 31.v.1996, 4♂, 4♀, 5.vi.1996, 3♀, 26.v.1997, 3♂, 3♀, 29.v.1998, 1♂, 3♀, 3.v.1999, 1♂, 11.vii.1999, 2♂, 2♀; Nové Oldřůvky [6271], Odra valley, 2.vi.1993, 5♂, 3♀, 22.vi.1993, 1♂, 11.vi.1997, 1♂, 1♀; Suchdol n. O. [6373], Odra shores, 4.vi.1980, 18♂, 23♀ (2♂, 12♀ ZFMK; in ethanol), 12.vi.1980, 1♂, 7.v.1981, 6♂, 4♀, 22.v.1981, 2♂, 2♀, 21.v.1993, 4♂, 2♀, 25.v.2001, 2♂, 1♀; Lazníky nr. Pířerov [6470], 22.v.1979, 2♂, 1♀, 16.v.1985, 1♀, 18.v.1985, 1♀, 7.v.1986, 2♂; Kašava [6772], Dřevnice valley, 14.v.1985, 5♂, 1♀; Vlčovice nr. Kopřivnice [6475], Tichávka shores, 2.v.2002, 1♂, 1♀; Radějov [7170], Radějovka valley, 14.v.1983, 2♂ (all J. Starý leg.) (except as stated all JSO, SMOC). **Slovakia**: Očová nr. Zvolen [7381], Hučava valley, 17.vi.2003, 2♂, 6♀, 19.vi.2003, 1♂, 1♀; Krup-

inská Upland, Litava valley nr. Cerovo [7780], 13.v.1993, 1♂, 1♀, 2.vi.1997, 5♂, 4♀; Hranovnica [7087], Hornád shores, 1.vii.1979, 1♂, 1♀; Slavec [7488], Slaná shores, 20.v.1980, 2♂, 1♀, 23.v.1980, 9♂; Hostovice [6898], Udava shores, 19.v.1987, 1♂; Snina, Cirocha shores [7099], 2.vi.1984, 1♀; Stakčín, Chotinka valley [6999], 3.vi.1984, 2♂, 1♀, 2.vi.1985, 1♀, 6.vi.1985, 1♂; Bukovské Hills, Ruské [6800], Cirocha shores, 7.vi.1985, 1♂, 20.v.1987, 3♂, 1♀ (all J. Starý leg.) (all JSO).

Etymology. The name of the new species, *crassa* (= thick, stout), refers to its somewhat plump general appearance, with all body appendages slightly shorter than in the other species. An adjective in nominative singular.

Discussion. *R. (R.) crassa* sp. n. is, on the average, the smallest of the species treated here, long known from numerous localities in the Czech Republic and Slovakia. It is distinctive by its generally plump appearance, short verticils on antennae and the black body colouration. Within European species, the latter character is only shared by *R. (R.) corax* sp. n., which differs from *R. (R.) crassa* sp. n. in having a light grey pruinosity on the pleuron and more macrotrichia on R_4 . In the structure of the male terminalia, *R. (R.) crassa* sp. n. is very similar to *R. (R.) edwardsi* and *R. (R.) corax* sp. n., differing from either or both in having the outer gonostylus generally straight (gently and evenly arched in *corax*), the inner gonostylus moderately broad (more slender in *corax*), the interbase short and comparatively broad (longer and more slender in both *edwardsi* and *corax*), and the apodeme of the vesica narrowly fan-shaped (more slender in *corax*, rod-like or spine-like). The female terminalia of the three species are not well distinguished having the spermathecae of approximately the same size, but the features listed above clearly validate *R. (R.) crassa* sp. n. as a separate species.

Distribution. France, Czech Republic, Slovakia.

Note. It should be stated that the Japanese *R. atrata* Alexander, 1925, described from Honshu, Japan (Alexander, 1925a: 436) [holotype ♂: Emi-mura, Chiba-Ken, 6.vii.1923 (T. Yokoyama leg.) (USNM)], also entirely black, is specifically distinct from both *R. (R.) crassa* sp. n. and *R. (R.) corax* sp. n., and it is not even conspecific with what was recorded and illustrated as *R. atrata* by Savchenko & Krivolutsкая (1976: 87, Figs 36a,b) from the South Kuriles [Kunashir Is, Tretiakovo env., 6.–7.viii.1971, 1♂, 1♀ (E.N. Savchenko leg.) (JSO)]. Interestingly, the latter two specimens are identical with two males on slides (incl. hypopygia) from Honshu, Japan [Kurokawa, 17.vi.1955 (K. Baba leg.) (USNM)], identified as *R. atrata* by Alexander.

***Rhabdomastix (Rhabdomastix) corax* sp. n.**

(Figs 32, 36)

Diagnosis. General colouration black, with light grey pruinosity on pleuron. Antenna short. Wing narrow, strongly infuscated. A_2 ending before origin of R_s . Legs dark brown, including coxae. Male terminalia with outer gonostylus gently arched, with distinct apical spine, and apical blade of interbase lanceolate. Female terminalia with three spherical, small spermathecae.

Description. Small species. Body length 3–5.5 mm, wing length 3.5–5 mm.

Colour. General colouration black, dull (deep dark brown in faded dried specimens), without conspicuous markings on thorax. Antenna almost black throughout. Pleuron slightly suffused with light grey pruinosity. Wing strongly infuscated, blackish. Halter infuscated throughout. Coxae deep dark greyish brown. Trochanters and bases of femora brown, the latter still darkened distally, deep dark brown. Rest of legs dark brown. Abdomen almost black.

Head. Antenna comparatively short, not reaching to base of wing. Flagellomeres short-oval. Longest verticils on flagellomeres slightly exceeding length of their respective segments. Pubescence indistinct. Palpus short.

Thorax. Wing rather narrow, about four times as long as broad, with stalk comparatively long, longer than that of *R. (R.) crassa* sp. n. Sc_1 ending at about half length of R_s or slightly before it. Sc_2 not apparent. R_3 more than its own length beyond tip of R_1 . R_4 with about 10 macrotrichia, mostly dorsally. A_2 slightly sinuous, ending before origin of R_s . Halter moderate in length, reaching to posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 32). Segment 9 longer than broad. Gonocoxite moderate in length and breadth. Outer gonostylus comparatively short, about half length of gonocoxite, considerably bent at base, otherwise gently and evenly arched, generally parallel-sided, sometimes slightly tapered distally, with barely distinct apical spine. Inner gonostylus generally conical, more slender than in other related species. Aedeagal complex as in Fig. 32. Interbase moderate in length, reaching slightly beyond half length of gonocoxite, slender, bent near two-thirds of its length to form lanceolate apical blade, similar to that of *R. (R.) subparva*. Aedeagus short, subequal in length to vesica, the latter broad, bulbous, with long apodeme, subequal in length to vesica, rod-like or spine-like in dorsal aspect. Female terminalia (Fig. 36). Cercus moderate in length and breadth, subequal in length to tergite 10, gently upturned. Spermathecae three, small, spherical, subequal in size to both *R. (R.) edwardsi* and *R. (R.) crassa* sp. n., with sclerotised parts of ducts practically not apparent. One spermatheca sometimes smaller than other two.

Material examined. Holotype ♂: Bulgaria, Pirin Mts, Bansko env. (1000 m), 20.vii.1987 (J. Starý leg.) (SMOC). The specimen is glued onto a triangular cardboard point, without right fore and hind legs and apex of abdomen. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. **Paratypes** (5♂, 9♀): **Bulgaria:** Pirin Mts, Lilianovo nr. Sandanski, 15.vi.1990, 3♀, 17.vi.1990, 1♂, 3♀; Pirin Mts, Popina laka (1200 m), 19.vi.1990, 2♂; Pirin Mts, Bansko env. (1000 m), 20.vii.1987, 1♂, 3♀ (all J. Starý leg.) (all JSO). **Greece:** Evvoia Is. [Euböa, Euboeia], 1 km NW Dafni (1700 m), 1.v.1975, 1♂ (H. Malicky leg.) (JSO; in ethanol).

Etymology. The new species is named *corax* (= the rook) for its notably black body. A noun in nominative singular standing in apposition to generic name.

Discussion. This new species is distinctive by its black body colouration, being thus similar to *R. (R.) crassa* sp. n., from which it differs by some external and genital

characters, such as the overall slender appearance, the setosity of R_4 , the shape of both gonostyli (the outer gonostylus of *corax* somewhat suggesting that of *subparva*) and the structure of the aedeagal complex. For details, see the discussion of *R. (R.) crassa* sp. n.

Distribution. Bulgaria, Greece.

***Rhabdomastix (Rhabdomastix) eugeni* sp. n.**

(Figs 8, 15, 33, 37, 51)

Diagnosis. General colouration greyish brown on thorax, more brownish on abdomen. Antenna short. Wing narrow, slightly infuscated. A_2 ending before origin of R_s . Legs brown with yellow coxae. Male terminalia with outer gonostylus gently arched, rounded at apex, with apical spine not apparent, and apodeme of vesica short. Female terminalia with two reniform, medium-sized spermathecae.

Description. Small species. Body length 3.5–6.5 mm, wing length 4–5.5 mm.

Colour. General colouration dark greyish brown to light grey, dull, without conspicuous markings on thorax, more brownish in middle of prescutum and sometimes still more so on abdomen. Antenna brown throughout. Pleuron heavily suffused with grey, sometimes greyish brown pruinosity. Wing slightly infuscated. Halter dirty white to pale yellow. Coxae, trochanters and bases of femora mostly yellow to yellowish brown, otherwise legs somewhat darker, brown. Abdomen greyish brown, proximal segments sometimes paler, brown, more conspicuously so ventrally. Sometimes abdomen entirely brown.

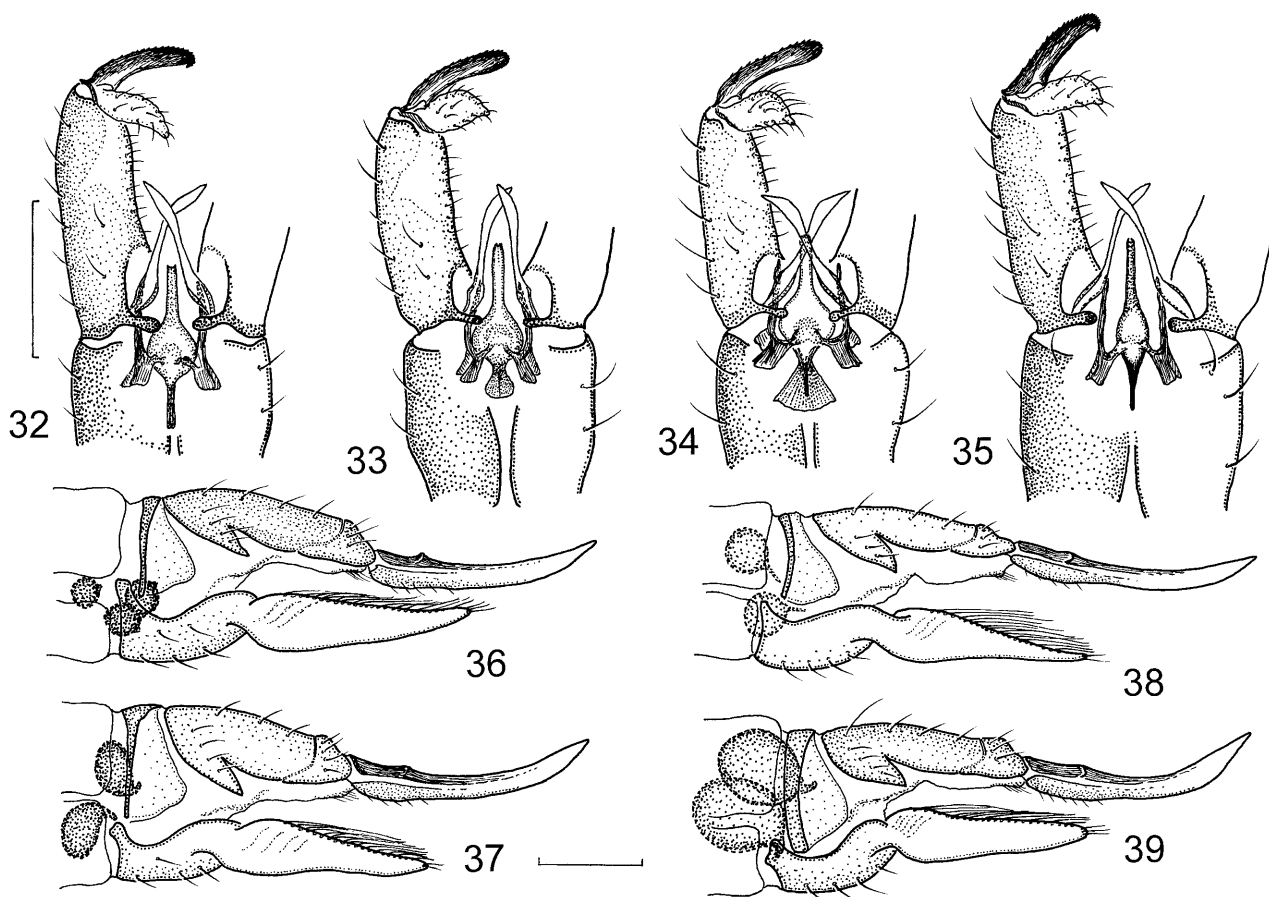
Head. Antenna (Fig. 8) comparatively short, not reaching to base of wing. Flagellomeres short-oval to oval. Longest verticils on flagellomeres slightly exceeding length of their respective segments. Pubescence indistinct. Palpus short.

Thorax. Wing rather narrow, about four to five times as long as broad, with short stalk (Fig. 15). Sc_1 ending at about half length of R_s . Sc_2 not apparent. R_3 more than its own length beyond tip of R_1 . Macrotrichia on R_4 somewhat varying in number, about 10, mostly placed dorsally. A_2 sinuous, ending before origin of R_s . Halter comparatively short, not reaching to posterior margin of abdominal tergite 2 (Fig. 15).

Abdomen. Male terminalia (Fig. 33). Segment 9 longer than broad. Gonocoxite moderate in length and breadth. Outer gonostylus, on average, slightly longer than that of related species (except that of *filata*), more than half length of gonocoxite, gently and evenly arched or nearly straight distally, generally parallel-sided, rounded at apex, with apical spine barely distinct or lacking. Inner gonostylus rather broad, generally conical. Aedeagal complex as in Fig. 33. Interbase comparatively short and slender, reaching to about half length of gonocoxite, bent shortly before apex to form short and narrow, roughly lanceolate apical blade. Aedeagus slender, subequal in length to vesica, the latter broad, bulbous, with apodeme comparatively short, fan-shaped or rounded in dorsal aspect, shorter than vesica. Female terminalia (Figs 37, 51).

Cercus slender, rather long, longer than tergite 10, gently upturned. Spermathecae two, medium-sized, short-oval to reniform, with sclerotised parts of ducts short and curved.

Material examined. Holotype ♂: Slovakia, Snina, Cirocha shores [7099], 1.vi.1985 (J. Starý leg.) (SMOC). The specimen is glued onto a triangular cardboard point, with only right mid leg and apex of abdomen missing. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. **Paratypes** (136♂, 104♀): **France:** Dept. Aude: Etang de Gruissan (0 m), 7.–10.vi.1980, 1♀ (W. Schacht leg.). Dept. Basses-Alpes: Montagne de Lure, Cruis (500 m), 29.vi.1978, 1♂; Lauzon nr. Cruis (500 m), 14.vi.1980, 4♀ (all W. Schacht leg.). (All JSO; in ethanol). **Switzerland:** Canton Valais: Vuisse, 3.–29.viii.1980, 2♂ (W. Geiger leg.). Canton Ticino: Gordevio, middle vi.–early ix.1980, 14♀, early vii.1979, 1♀ (L. Rezbanyai leg.; Malaise light trap); Aurigeno (341 m), 7.viii.–28.ix.1980, 1♀ (W. Geiger leg.). (All MHNH; in ethanol). **Germany:** Iller N Fellheim, 1.viii.1985, 5♂; Allgäuer Alpen, Birksau, Ringang im Stillachtal (900 m), 11.–15.viii.1974, 1♀, 18.–22.viii.1974, 4♀ (all H. Mendl leg.; light trap) (all in ethanol, 1♀ dried from ethanol), 1.vii.1995, 3♂, 1♀ (J. Starý leg.) (all JSO). **Czech Republic:** Moravia: Vyšní Lhoty [6376], Morávka shores, 9.v.2000, 4♀ (at light); Lobodice nr. Tovačov [6669], 21.v.1981, 2♂, 1♀, 27.v.1981, 1♂, 30.v.2001, 6♀ (at light), 20.v.2002, 1♀ (at light), 19.vi.2002, 2♀ (at light), 5.vi.2003, 15♀ (12♀ at light), 8.vi.2003, 1♂, 3♀ (all J. Starý leg.) (all JSO). **Slovakia:** Piešťany [Pöstyén] [7472], 1♂ (K. Kertész leg.) (MMBC); Hostovice [6898], Udava shores, 16.vi.1986, 4♂ (1♂ ZFMK; in ethanol), 19.v.1987, 1♀; Snina, Cirocha shores [7099], 19.vi.1983, 1♂, 22.vi.1983, 1♂, 24.vi.1983, 1♂, 2.vi.1984, 2♂, 4.vi.1984, 1♀, 1.vi.1985, 22♂, 6♀, 3.vi.1985, 1♂, 8.vi.1985, 2♂, 3♀ (1♂ ZFMK; in ethanol); Bukovské Hills, Ruské [6800], Cirocha shores, 20.vi.1983, 4♂, 2♀, 3.vi.1985, 3♂, 1♀, 7.vi.1985, 3♂, 1♀, 6.viii.1985, 3♂, 19.vi.1986, 2♂; Bukovské Hills, Ruský Potok [6900], 5.viii.1985, 2♂; Bukovské Hills, Nová Sedlica [6901], Zbojský brook, 8.vi.1988, 3♂, 21.vi.1991, 5♂, 1♀, 7.vii.1993, 8♂, Nová Sedlica env., 13.vi.1991, 1♀; Bukovské Hills, Zboj [6900], Zbojský brook, 19.vi.1991, 4♂, 8.vii.1993, 7♂, 4♀, 15.vi.1996, 3♂, 1♀; Bukovské Hills, Krivé [7000], Zbojský brook, 17.vi.1991, 1♂ (all J. Starý leg.) (except as stated all JSO, SMOC). **Italy:** Piemonte: Roreto Chisone, Villaretto, Torrente Chisone (920 m), 8.ix.2000, 1♂ (G.B. Delmastro leg.) (JSO; dried from ethanol). Emilia-Romagna: 40 km S Bologna, Torre Setta nr. Rioveggio, 22.v.1990, 11♂, 2♀ (H. Mendl leg.) (ZFMK; in ethanol). Campania: Mti del Cilento, Calore nr. Laurino, 4.v.1977, 3♂ (H. Mendl leg.) (JSO; in ethanol). Calabria: Maria del Cedro, Lao valley, 28.v.1996, 2♂, 30.v.1996, 4♂, 1♀, 5.vi.1996, 1♂ (J. Martinovský leg.) (JSO). **Romania:** Orsova, vi., 1♂ (Th. Becker leg.) [paralectotype of *beckeri*; for details, see under *beckeri*] (ZMHB). **Bulgaria:** Rodopi Mts, Bachkovo, 20.vi.1982, 1♀ (W. Krzemiński leg.); Kresna (railway station), 31.v.1976, 1♀ (at light), 1.vi.1976, 3♀ (P. Lauterer leg.; in ethanol); Sandanski, 14.vi.1984, 2♂ (W. Krzemiński leg.), Struma valley, 30.v.1989, 2♂ (J. Starý leg.) (all JSO). **Greece:** Platamon, Prov. Katerini, Castle-Camping, 7.–14.vi.1968, 2♀ (B. Mannheims leg.; at light) (ZFMK); Diakopion, 25 km WNW Amfissa, 13.–14.v.1978, 3♂ (G. Theischinger leg.); Thasos Is., Ipsarion (1000 m), 6.vi.1973, 2♀ (H. & U. Aspöck, H. Rausch & P. Ressler leg.); Evvoia Is. [Euböa, Euboeia], S Prokopion (250 m), 24.v.1974, 3♀ (H. Malicky leg.) (all JSO; in ethanol); Lilaia, 29.vi.1976, 3♀; Peloponnes, W Karterion (730 m), 19.v.1974, 1♂, 3♀ (all H. Malicky leg.) (all ZFMK; in ethanol). **Ukraine:** Zakarpatskaya oblast: Bogdan env., 4.vii.1969, 1♂, 5.vii.1969, 1♂; Svidovetskiy [mountain



Figs 32–39. 32–35. Male terminalia, general view, dorsal. 32 – *Rhabdomastix (Rhabdomastix) corax* sp. n. (holotype); 33 – *R. (R.) eugeni* sp. n. (holotype); 34 – *R. (R.) filata* sp. n. (holotype); 35 – *R. (R.) subparva* Starý, 1971 (Czech Republic: Hrubá Voda nr. Olomouc). 36–39. Female terminalia, general view, lateral. 36 – *R. (R.) corax* sp. n. (paratype, Bulgaria: Bansko); 37 – *R. (R.) eugeni* sp. n. (paratype, Slovakia: Snina); 38 – *R. (R.) filata* sp. n. (paratype, Lebanon: Becharré); 39 – *R. (R.) subparva* Starý, 1971 (Czech Republic: Hrubá Voda nr. Olomouc). Scale bars 0.25 mm.

ridge], Chernotisskoe [forest area], 1.vii.1975, 2♂ (all E. N. Savchenko leg.). Ivano-Frankovskaya oblast: Pasechnoe env., 27.vi.1969, 1♀, 28.vi.1969, 1♂ (E.N. Savchenko leg.). Chernovitskaya oblast: Zhadova Nova env., 4.vi.1974, 2♂ (E.N. Savchenko leg.). (All JSO). **Armenia:** Rayon Azizbekov, Khanderud env., 30.viii.1970, 1♀ (E.N. Savchenko leg.) (JSO).

Etymology. The new species is named in honour of the late Dr. Yevgeniy (= Eugen) Nikolaevich Savchenko (Kiev, Ukraine), a distinguished specialist on the Limoniidae (s. lat.) and Tipulidae, who first collected this species and who was able, under conditions inconceivable to his colleagues from the then so-called free world, to do so much on the crane flies. A noun in genitive singular.

Discussion. Whereas members of Central European populations are dark greyish brown, most resembling *R. (R.) subparva*, the specimens examined from the Balkans are somewhat paler, bicoloured, having a light grey thorax and brown abdomen. Surprisingly, a few specimens examined from Calabria (southern Italy) are rather dark, much as the Central European individuals.

R. (R.) eugeni sp. n., if from Central Europe, most resembles *R. (R.) subparva* by its dark greyish brown body colouration and yellow coxae. It differs from the latter, as do other related species, in that it is not as slender

in general appearance as *R. (R.) subparva*, having the wing stalk and halter shorter (cf. Figs 15 and 16). In *R. (R.) eugeni* sp. n., R_4 bears about 10 macrotrichia (more numerous, about 20, in *subparva*, fewer or none in *edwardsi*, *crassa* and *filata*). Specimens of *R. (R.) eugeni* sp. n. from the Balkans are paler, bicoloured, thus somewhat resembling *R. (R.) filata* sp. n. and the Balkan specimens of *R. (R.) hirticornis*, both quite different in the structure of the antennae. *R. (R.) eugeni* sp. n. is probably most closely related to *R. (R.) filata* sp. n. in having the outer gonostylus rounded at apex, without an apparent apical spine, it differs, however, from the latter by a small apodeme of vesica in males (large, broadly fan-shaped in *filata*) and reniform spermathecae in females (spherical in *filata*).

Distribution. France, Switzerland, Germany, Czech Republic, Slovakia, Italy, Romania, Bulgaria, Greece, Ukraine, Armenia.

Rhabdomastix (Rhabdomastix) filata sp. n.

(Figs 9, 34, 38, 52)

Gonomyia (Rhabdomastix) schistacea: Lackschewitz, 1940: 56 (alternatively as *Gonomyia (Sacandaga)*, faun. record) [partim, see present revision].

Rhabdomastix (Sacandaga) subparva: Mendl: 1986: 278 (faun. record) [see present revision].

Diagnosis. General colouration light grey on thorax, pale brown on abdomen. Antenna short, with pedicel large and flagellum very slender. Wing narrow, nearly hyaline. A_2 ending opposite to origin of R_s or slightly before it. Legs yellowish brown, with yellow coxae. Male terminalia with outer gonostylus straight, rounded at apex, apical spine not apparent; apodeme of vesica large, broadly fan-shaped. Female terminalia with two spherical, medium-sized spermathecae.

Description. Small species. Body length 4–5.5 mm, wing length 4.5–5.5 mm.

Colour. General colouration grey to light grey, dull on thorax, without conspicuous markings. Antenna pale brown to brown throughout. Pleuron variably suffused with whitish grey pruinosity. Wing hyaline or slightly tinged with yellowish. Halter whitish yellow. Coxae, trochanters and bases of femora yellow, rest of legs somewhat darker. Abdomen light brown, subshiny.

Head. Antenna (Fig. 9) short, not reaching to base of wing, with pedicel large, compared to other species, and flagellum very thin, filiform. Flagellomeres mostly elongate-oval, slender, except more rounded first flagellomere. Longest verticils on flagellomeres exceeding length of their respective segments. Pubescence indistinct. Palpus short.

Thorax. Wing rather narrow, about four times as long as broad, with short stalk. Sc_1 ending at about half length of R_s . Sc_2 sometimes slightly apparent at tip of Sc_1 . R_3 more than its own length beyond tip of R_1 . R_4 with at most a few macrotrichia dorsally. A_2 sinuous, ending opposite to origin of R_s or shortly before it. Halter short, not reaching to posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 34). Segment 9 longer than broad. Gonocoxite moderate in length and breadth. Outer gonostylus slightly more than half length of gonocoxite, bent at base, otherwise straight, parallel-sided, rounded at apex, with apical spine sometimes not apparent. Inner gonostylus generally conical, somewhat swollen. Aedeagal complex as in Fig. 34. Interbase reaching beyond half length of gonocoxite, bent shortly before apex to form narrow, roughly lanceolate blade. Aedeagus short, rather broad, subequal in length to vesica; the latter broad, bulbous. Apodeme of vesica large, broadly fan-shaped in dorsal aspect, subequal in length to vesica. Female terminalia (Figs 38, 52). Cercus moderately broad, slightly exceeding length of tergite 10, gently upturned. Spermathecae two, nearly spherical, medium-sized, with sclerotised parts of ducts comparatively thin, extending about one-third of spermathecal diameter.

Material examined. Holotype ♂: Lebanon, Becharré (1400 m), 3.–10.vi.1931 (H. Zerny leg.) (NHMW), labelled: “Nord-Libanon Becharré, 1400 m 3.–10.V.31. Zerny” (printed), “Rhabd. schistacea Schumm. det. Lacksch.” (printed) and accordingly labelled as holotype. The specimen is micro-pinned on a small piece of white matter, without right wing and apex of abdomen and with only right mid leg attached. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. **Paratypes (9♂, 15♀): Bulgaria:** Strandja

Mts, Katundere (200 m), 15.–16.vi.1980, 4♀, below Mramor (700 m), 20.vi.1980, 2♀ (H. Malicky leg.) [listed as *subparva* by Mendl, 1986] (ZFMK; in ethanol). **Greece:** Lésvos Is. [Lesbos], 1 km E Chidira (210 m), 28.v.1975, 1♀; Ródos Is. [Rhodos], Kallithie (110 m), 10.v.1975, 2♀; Ródos Is., 3 km E Archipolis (100 m), 9.v.1975, 1♀ (all H. Malicky leg.) (all JSO; in ethanol). **Russia (Europe):** Krasnodarskiy kray, Lazarevskoe env., 23.v.1963, 1♂, 1♀, 24.v.1963, 1♀ (E.N. Savchenko leg.) (JSO). **Turkey:** Ardesen, 21.v.1970, 2♂ (P. Zwick leg.) (JSO; in ethanol). **Georgia:** Caucasus Mts, Yuzhnaya [South] Osetia, Kvemo-Zakhari env., 16.vii.1973, 1♂ (V.N. Logvinenko leg.); Adjaro-Imeretinskiy khrebet [mountain ridge], N slopes, 25 km from Bakhmaro to Makhardze, 24.viii.1970, 1♂ (S.I. Parkhomenko leg.) (all JSO). **Armenia:** Rayon Azizbekov, Khanderud env., 3.viii.1970, 1♂; Nagorniy Karabakh, Lachino env., 18.vi.1967, 1♀ (both E.N. Savchenko leg.) (both JSO). **Lebanon:** Becharré (1400 m), 8.–10.vi.1931, 3♂, 2♀ (H. Zerny leg.) [listed as *schistacea* by Lackschewitz, 1940] (2♂, 1♀ NHMW; 1♂, 1♀ JSO).

Etymology. The name of the new species, *filata* (= thread-like), refers to its very thin, filiform antennal flagellum. An adjective in nominative singular.

Discussion. *R. (R.) filata* sp. n. is distinctive by the structure of the antennae, having the pedicel large, compared to other species treated here, and the flagellum thin, filiform (Fig. 9). Body colouration is generally pale, bicoloured, with the light grey thorax and pale brown abdomen, similar to populations of *R. (R.) hirticornis* and *R. (R.) eugeni* sp. n. from the Balkans. *R. (R.) filata* sp. n. is close to *R. (R.) eugeni* sp. n., sharing with it the overall shape of the outer gonostylus, with rounded apex, without a distinct apical spine. It differs, however, from the latter by other details in the structure of the male and female terminalia, particularly the large, broadly fan-shaped apodeme of vesica in males and the spherical spermathecae in females.

Distribution. Bulgaria, Greece, Southeast European Russia, Turkey, Georgia, Armenia, Lebanon.

Rhabdomastix (Rhabdomastix) subparva Starý, 1971

(Figs 16, 35, 39, 53; Starý, 2003: 592, Fig. 6)

Gonomyia schistacea: Czižek, 1931: 79, 81 (diagnosis, faun. record, key), Figs 44a (male terminalia), b (wing) [see Starý, 1971: 154].

Rhabdomastix schistacea: Bangerter, 1939: 485 (faun. record); Bangerter, 1946: 192, 194 (faun. record) [both see Mendl, 1979a: 355].

Gonomyia (Rhabdomastix) schistacea: Lackschewitz, 1940: 56 [alternatively as *Gonomyia (Sacandaga)*, faun. record] [partim, see present revision].

Rhabdomastix (Sacandaga) subparva Starý, 1971: 154 (description, conspecific with *schistacea* sensu Czižek nec Schummel), Figs 5–7 (male terminalia), 8–10 (female terminalia), 11 (male antenna), 12 (wing).

Rhabdomastix subparva: Starý & Rozkošný, 1970: 116 (note) [nomen nudum]; Starý & Geiger, 1998: 73 (list).

Rhabdomastix (Sacandaga) subparva: Mendl, 1973a: 257 (faun. record); Mendl, 1973b: 3 (diagnosis, faun. record); Mendl, 1974: 206 (faun. record); Mendl, 1975: 197 (faun. record); Savchenko, 1976: 564 (faun. record); Mendl, 1977: 116 (faun. record); Mendl, 1978: 373 (list); Mendl, 1979a: 355 (faun. record); Caspers, 1980: 57 (faun. record); Starý, 1980: 45 (faun. record); Caspers & Noll, 1981: 207 (faun. record);

Savchenko, 1982: 276, 281 (redescription, conspecific with *schistacea* sensu Czižek nec Schummel, faun. record, key), Figs 130/5 (wing), 131/2 (female terminalia), 135/3a,b (male terminalia); Krzemiński, 1984a: 30 (note); Mendl, 1984a: 7 (faun. record) [*edwardsi*, partim, see present revision]; Starý, 1984: 33 (faun. record); Noll, 1985: 123 (faun. record, note); Erhan-Dinca & Ceianu, 1986: 89 (faun. record in list); Mendl, 1986: 278 (faun. record) [*filata*, see present revision]; Starý, 1987: 20 (list); Franz, 1989: 253 (faun. record); Krzemiński & Starý, 1989: 263 (faun. record); Mendl & Reusch, 1989: 434, 445 (list); Savchenko, 1989: 267 (conspecific with *schistacea* sensu Czižek nec Schummel, faun. record), Figs 132/4 (wing), 133/3 (male terminalia); Blanke & Reusch, 1990: 706 (faun. record); Krzemiński, 1991: 80 (list); Savchenko et al., 1992: 316 (Palearctic catalogue); Oosterbroek & Starý, 1995: 7 (list); Starý, 1995: 30 (faun. record); Starý & Oosterbroek, 1996: 72 (faun. record); Starý, 1997: 13 (list); Reusch, 1999: 58 (list); Reusch & Oosterbroek, 2000: 160 (list); Reusch & Zimmermann, 2000: 45 (faun. record).

Rhabdomastix (Sacandaga) subparva Starý, 1970: 44 (list [nomen nudum]).

Diagnosis. General colouration dark greyish brown. Antenna moderate in length. Wing narrow, slightly infuscated. A₂ ending slightly before origin of Rs. Legs brown with yellow coxae. Male terminalia with outer gonostylus evenly arched, tapered distally, with distinct apical spine; apodeme of vesica long, rod-like. Female terminalia with two short-oval, very large spermathecae.

Redescription. Small species, very slender in general appearance, with all body appendages slightly longer, compared to other species centred around *R. (R.) edwardsi* (cf. Figs 15 and 16). Body length 3.5–6 mm, wing length 4–6.5 mm.

Colour. General colouration dark greyish brown, dull, without conspicuous markings on thorax. Antenna brown throughout. Pleuron heavily suffused with grey pruinosity. Wing slightly infuscated. Halter dirty white to pale yellow. Coxae, trochanters and bases of femora mostly yellow to yellowish brown, otherwise legs somewhat darker, brown. Abdomen greyish brown.

Head. Antenna of moderate length, reaching to base of wing. Flagellomeres oval. Longest verticils on flagellomeres exceeding length of their respective segments. Pubescence indistinct. Palpus short.

Thorax. Wing rather narrow, about four times as long as broad, with comparatively long stalk (Fig. 16). Sc₁ ending at about half length of Rs. Sc₂ slightly apparent at tip of Sc₁. R₃ more than its own length beyond tip of R₁. R₄ with numerous macrotrichia, about 20, both dorsally and ventrally. A₂ sinuous, ending shortly before origin of Rs. Halter comparatively long (compared to other species), reaching to about posterior margin of abdominal tergite 2 (Fig. 16).

Abdomen. Male terminalia (Fig. 35). Segment 9 longer than broad. Gonocoxite moderate in length and breadth. Outer gonostylus comparatively short, about half length of gonocoxite, gently and evenly arched, tapered distally, with distinct apical spine. Inner gonostylus generally conical. Aedeagal complex as in Fig. 35. Interbase moderate in length, reaching to about half length of gonocoxite, generally slender, bent at two-thirds of its length to

form long and slender, lanceolate apical blade. Aedeagus slender, longer than vesica; the latter narrow, with long apodeme, rod-like or spine-like in dorsal aspect, subequal in length to vesica. Female terminalia (Figs 39, 53). Cercus rather broad and short, subequal in length to tergite 10, abruptly tapered and upturned before apex. Spermathecae two, exceedingly large, irregularly short-oval to reniform, with sclerotised parts of ducts short and curved.

Material examined. Holotype ♂ (original designation): Czech Republic, Moravia, Říčka valley nr. Brno [6766], 18.v.1918 (K. Czižek leg.) (MMBC), labelled: “Rzeczka 18. Mai 1918” (hand-written), “schistacea” (hand-written), “Rhabdomastix subparva sp. n. ♂ J. Starý det. 1969” (partly printed), “Holotypus” (printed, red), “Invent. č. 951/Ent. Mor. muzeum Brno” (partly printed). Two first labels in Czižek’s hand. The specimen is micro-pinned on a stage of plant parenchyma; only left fore leg present; abdomen broken off. Terminalia dissected and placed in a corked glass tube with glycerine, pinned with the specimen. **Allotype ♀**: Czech Republic, Moravia, Adamov [Adamstal] [6665–6765], 17.v.1914 (K. Czižek leg.) (MMBC), with corresponding labels as for holotype. **Paratypes**: Czech Republic, Moravia, Říčka valley nr. Brno, 18.v.1918, 1♂, 2♀; Ochoz [Ochos] nr. Brno [6766], 18.v.1918, 1♂; Bílovice nad Svitavou [Bilowitz] [6766], 28.v.1913, 1♂; Adamov, 17.v.1914, 2♀, 2.vi.1914, 3♂ (all K. Czižek leg.) (all MMBC); Hlubočky nr. Olomouc [6370], 17.v.1969, 1♂; Hrubá Voda nr. Olomouc [6370], 21.v.1969, 1♂, 1♀; Jívová nr. Olomouc [6270], 29.v.1969, 1♂, 1♀ (all J. Starý leg.) (all JSO). [In the original description (Starý, 1971: 154–158), further paratypes are listed, deposited in other collections.]

Other material examined (641♂, 225♀, 1 specimen): **Switzerland**: Canton Vaud: Chabrey (430 m), 23.v.1981, 1♀ (J.-P. Haenni leg.). Canton Valais: Les Giettes, 19.vi.1979, 4♂, 2♀ (W. Geiger leg.). Canton Schaffhausen: Merishausen, 27.v.1980, 1♀ (W. Geiger leg.). Canton Luzern: Werthenstein, 24.v.1980, 2♂ (W. Geiger leg.). (All MHNN; in ethanol). **Germany**: Rheinland-Pfalz: River Ahr, “Daubians Mühle”, 25.v.1959, 2♂ (B. Mannheims leg.) (ZFMK). Hessen: Vogelsberg, Gilgbach nr. Rebgeshorn, 27.v.1971, 16♂, 5♀ (P. Zwick leg.); Schlitz, Rohrwiesenbach, 14.–31.v.1971, 29♂, 21♀ (Sandrock leg.) (1♂, 1♀ ZFMK; in ethanol), 13.v.–11.vi.1971, 39♂, 48♀ (J. Illies leg.); Fulda, Feldbach, 21.v.1971, 1♂, 2♀, 3.vi.1973, 14♂; Ostrhön, Krumbach, 1.vi.1977, 1♂, 2♀ (all P. Zwick leg.) (except as stated all JSO; in ethanol). Baden-Württemberg: Schwarzwald Mts, nr. Ottenhöfen, 27.vi.1965, 1♀, nr. St. Märgen, 29.v.1965, 3♂ (B. Mannheims leg.) (ZFMK). Bayern: Ochsentobel, Kürnach, 31.v.–15.vii.1971, 8♂, 1♀ (light trap), 6.vi.1976, 14♂, 3♀; Kreuzthal, Kreuzbach, 15.v.–17.vi.1971, 53♂, 10♀ (light trap), 10.vi.1971, 2♂, 1♀; Kemptener Wald, ix.1970, 1♂ (all H. Mendl leg.) (all JSO; in ethanol), viii.1973, 25♂, 6♀ (H. Mendl leg.) (ZFMK; in ethanol); Allgäuer Alpen, Birksau, Ringang im Stillachtal (900 m), 3.vi.1972, 5♂ (1♂ ZFMK; in ethanol), 21.–27.vi.1975, 1♂ (light trap), 23.–30.vi.1974, 1♂, 1♀ (light trap), 9.vii.1974, 1♂; Freiburger Alpe (1250 m), undated, 1♂, 1♀; Lochbachthal, Schwabenalpe (1200 m), 22.vi.1975, 3♂; Traufbachthal (1200–1350 m), 22.vi.1971, 24♂, 7♀ (all H. Mendl leg.) (except as stated all JSO; in ethanol). **Czech Republic**: Bohemia: Malenice [6849] (distr. Strakonice), Volyňka shores, 12.v.2003, 4♂, 2♀ (J. Starý leg.) (JSO). Moravia: Jeseníky Mts, Rejvíz [5769] (700 m), 1.vi.1973, 4♂, 1♀; Jeseníky Mts, Branná [5868] (700 m), 1.vi.1972, 4♂, 1♀, 12.vi.1975, 1♂, 9.vi.1983, 1♂, 1♀, Klepáčský brook, 10.vi.2003, 1♂, 1♀, “Dembauda” (900 m), 22.vii.1972, 1♂, 9.vii.1975, 2♂, 3♀,

21.vii.1999, 1♂; Jeseníky Mts, Malý Kotel [5969], 26.vi.1974, 1♂; Jeseníky Mts, Velký Kotel [5969], 18.vi.1974, 1♂, 25.vi.1974, 2♂; Jeseníky Mts, Kouty n. D. [5868], Divoká Desná valley (600–700 m), 2.vi.2003, 1♂; Moravice nr. Malá Morávka [5969], 21.vi.1973, 1♀; Valšov [6070], Moravice valley, 9.vi.1982, 1♂, 1.vi.1983, 1♂, 1♀; Rešov [6169], Huntava valley, 24.v.1985, 1♂; Dlouhá Loučka [6169], “Valšovský žleb” 12.v.1986, 1♂, 28.v.1987, 1♂, 1♀; Jívová nr. Olomouc [6270], 19.vi.1969, 1♂, 18.v.1972, 1♂, 16.v.1975, 1♂, 1♀, 22.v.1975, 1♂, 7♀; 28.v.1975, 3♂, 2♀, 5.vi.1975, 1♂; 1.vi.1977, 3♂, 7.vi.1977, 2♂, 19.vi.1980, 1♂, 8.v.1999, 1♂; Hrubá Voda nr. Olomouc [6370], 15.v.1968, 7♂, 21.v.1969, 1♂ (ZFMK), 13.v.1970, 1♂, 13.vi.1970, 1♂, 2♀, 18.vi.1970, 3♂, 1♀, 19.vi.1970, 2♂, 22.vi.1970, 1♂, 27.v.1971, 3♂, 1♀ (1♀ ZFMK), 18.vi.1974, 5♂, 16.v.1975, 1♂, 5.vi.1975, 1♀, 25.v.1977, 1♂; Hrubá Voda – Smilov [6370], 7.vi.1972, 2♂; Hlubočky nr. Olomouc [6370], 17.v.1969, 2♂, 17.v.1970, 5♂, 1♀, 19.v.1973, 4♂; Javoříčko [6367], Špranek valley, 4.vi.1987, 1♂; Čechy pod Kosířem [6468], 29.v.1975, 1♂; Nové Oldřůvky [6271], Odra valley, 2.vi.1993, 5♂, 2♀; Libavá env., Vojnovice [6271], 15.vi.1994, 1♂; Kletné nr. Suchdol n. O. [6373], 24.v.1975, 1♂; Staměřice [6470] (distr. Přerov), 9.v.1981, 1♂, 13.v.1981, 1♂; Lazníky nr. Přerov [6470], 22.v.1979, 1♀, 16.v.1985, 1♀, 18.v.1985, 1♂, 8.vi.1991, 1♀, 9.vi.1991, 2♂, 1.vi.1992, 1♀; Nýdek [6378], Hluchová valley, 20.vi.1996, 2♂, 1♀; Vlčovice nr. Kopřivnice [6475], Tichávka shores, 6.vi.2001, 1♂; Vyšní Lhoty [6376], Morávka shores, 8.vi.1995, 1♀, 21.v.1996, 1♂, 30.v.1996, 1♂, 1♀, 19.vi.1996, 1♀, 3.vi.1998, 1♂, 10.vi.1998, 1♂, 24.v.2000, 6♂, 2♀, 17.v.2001, 6♂, 1♀; Trojanovice [6475], Bystrá valley, 15.vi.1989, 1♂, 1♀; Moravskoslezské Beskydy Mts, Mionši brook [6477], 28.v.1985, 1♂; Moravskoslezské Beskydy Mts, Prostř. Bečva, “Malinová” [6575] (700–800 m), 27.vi.1991, 2♀; Hostýnské Hills, “Bernardka” [6672] (500 m), 12.vi.1992, 1♂; Kašava [6772], Dřevnice valley, 14.v.1985, 6♂; Adamov, “Býčí skála” [6666], 26.v.1973, 2♂, 1♀; Brno, “Kočičí žleb” [6764], 21.v.1974, 4♂, 1♀, 9.v.1977, 2♂, 1♀, 22.v.1977, 4♂; Brno-Řečkovice [6765], 9.v.1972, 1♂; Brno, Bobrava valley, 10.v.1968, 3♂, 10.v.1969, 2♂, 9.v.1971, 1♂; Náměšť n. O., Oslava valley [6863], 26.v.1983, 2♂, 1♀; Podhradí n. Dyjí [7159], Dyje valley, 4.vi.1999, 1♂; Hnanice nr. Znojmo [7161], Dyje valley, 30.v.1995, 2♂, 1♀; Znojmo [7161], Dyje valley, 29.v.1977, 2♂; Radějov [7170], Radějovka valley, 30.iv.1983, 1♂, 14.v.1983, 2♂, Lučina, 5.vi.1980, 1♂, Měsíční údolí [valley], 20.v.1981, 1♂ (all J. Starý leg.) (except as stated all JSO).

Slovakia: Súlov, 3.vi.1970, 2♂ (R. Rozkošný leg.); Trstín [7470], “Pustatina”, 4.vi.1974, 3♂, 1♀; Malé Karpaty Mts, Smolenice [7570], “Jahodník”, 2.vi.1974, 5♂, 5.vi.1974, 6♂, 6♀; Turany [6880], peat-bog, 11.vi.1987, 1♂; Stankovany [6880], 26.v.1986, 2♂, 1♀, 12.vi.1987, 2♂; Západné Tatry Mts, Oravice, Tichá dolina [valley] [6784] (800–850 m), 12.vi.2000, 3♂, 14.vi.2000, 2♂, Juráňova dolina [valley], “Tiesňavy” (880 m), 15.vi.2000, 1♂, 1♀; Západné Tatry Mts, Račková dolina [valley] [6884], 16.vii.1967, 1♀ (all J. Starý leg.); Pribylina nr. L. Mikuláš [6884], 9.vi.1970, 1♂ (J. Martinovský leg.); Belianske Tatry Mts, dolina Siedmich prameňov [valley] [6787], 30.vii.1974, 1♂ (J. Starý leg.); Belianske Tatry Mts, Tatranská Kotlina, “Kardolina” [6788] (750 m), 23.v.1975, 1♂ (J. Martinovský leg.), 2♀ (J. Starý leg.); Belianske Tatry Mts, Tatranská Kotlina, Belá valley [6788] (750 m), 22.vi.1975, 1♀, 27.vi.1975, 1♂, 18.vi.1977, 1♂; Lendak [6788], Belá valley, 5.vii.1978, 1♂; Pieniny Mts, Červený Kláštor, Dunajec valley [6588], 30.v.2000, 1♂; Slovenské Rudohorie Mts, Úhorná [7289], 11.vii.1970, 1♀; Muráň env. [7286], 8.vi.1984, 1♂, Hrdzavá dolina [valley], 18.vi.1981, 1♂, 14.vi.1982, 2♂; Krupinská Upland, Litava valley nr. Cerovo [7780], 2.vi.1997, 6♂,

1♀; Poľana Mts, Kyslinky [7382], Hučava valley (750 m) [7382], 20.vi.2003, 1♀; Poľana Mts, “Hronček ponds” [7383] (650 m), 10.vi.1999, 1♂, 2♀; Poľana Mts, “Hrončeký grúň” [7383], 10.vi.1999, 1♂; Poľana Mts, Predná Poľana, Bystré waterfall [7482], 6.vii.2000, 1♀; Blhovce nr. Rim. Sobota [7785], 22.v.1980, 1♂; Hostovice [6898], Udava shores, 16.vi.1986, 1♂, 19.v.1987, 1♂; Stakčín, Chotinka valley [6999], 3.vi.1984, 1♂, 4.vi.1984, 2♂, 2.vi.1985, 1♂; Bukovské Hills, Ruské [6800], Cirocha shores, 3.vi.1985, 4♂, 1♀, 7.vi.1985, 2♂; Bukovské Hills, Nová Sedlica [6901], “Stužica”, 13.vi.1986, 3♂, 1♀, 15.vi.1991, 1♀, 20.vi.1991, 1♂, 1♀, Nová Sedlica env., 6.vi.1984, 1♂, 5.vi.1985, 1♂, 1♀, 6.vi.1988, 1♂, 8.vi.1988, 2♂, 13.vi.1991, 1♂, 1♀, Nová Sedlica, Zbojský brook [6900], 21.vi.1991, 1♂; Vihorlat Mts, Sninský Kameň [7099], 19.v.1987, 1♂ (all J. Starý leg.) (all JSO). **Austria:** “Alte Sammlung”, 1♂ (J.R. Schiner leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW). Tirol: Lechleiten (1500 m), 22.vi.1974, 1♂ (H. Mendl leg.); Axamser Bach, 19.vi.1974, 1♂ (H. Malicky leg.) (all JSO; in ethanol); above Imst, 6.vii.1969, 1♂; Kufstein, 1.vi.1969, 1♂; nr. Jochberg, 1.vi.1969, 2♂ (all B. H. & M.C. Cogan, R.I. & R. Vane-Wright leg.) (all BMNH). Steiermark: Leoben (830 m), 1♂ (R. Wagner leg.) (JSO; in ethanol). Oberösterreich: Grünbach nr. Freistadt, v.1869, 2♂, 1♀; Gallneukirchen, 15.v.1867, 1♂ (all J. Mik leg.); Freistadt, 7.v.1981, 1♂ (A. Handlirsch leg.) [all listed as *schistacea* by Lackschewitz, 1940] (NHMW). Niederösterreich: Pötzleinsdorf, 1♂ (J.R. Schiner leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW). Burgenland: Kaisersteinbruch, 14.v.1924, 3♂ (H. Zerny leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW). Kärnten: Millstätter See (1000 m), Sappl-Bach, 20.vi.1976, 3♂, 1♀; Weissensee (1200 m), 21.vi.1976, 2♂ (all R. Wagner leg.) (all JSO; in ethanol). Niederösterreich: Gutenstein env., 17.v.1994, 1♂ (J. Starý leg.) (JSO). **Italy:** Trentino-Alto Adige: Val d’Ampola, 3.vi.1971, 1♂; Val Pusteria [Pustertal], Terento, 2.–11.vi.1973, 6♂, 4♀, 25.v.1974, 7♂, 1♀, 1.vi.1975, 17♂, 3♀; “Winnebachthal” nr. Terento, 26.v.1974, 4♂ (all H. Mendl leg.) (all JSO; in ethanol), “Fuchstein” (1550 m) nr. Terento, 2.–11.vi.1973, 67♂, 16♀, “Erdpyramiden” nr. Terento, 2.vi.1973, 1♂, 1♀ (H. Mendl leg.) (ZFMK; in ethanol); Val Gardena [Grödnertal], Orisei [St. Ulrich] (1240 m), 12.vi.1973, 14♂, 1♀; Passo di Gardena [Grödnertal Pass] (2600 m), 12.vi.1973, 2♂; Passo Pordoi (~2100 m), 8♂, 3♀ (all H. Mendl leg.) (all JSO; in ethanol). Friuli-Venezia Giulia: Gorizia [Görz], 19.iv.1864, 1♀, 14.v.1865, 1♀, 1 specimen (J. Mik leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW). **Slovenia:** “Tarnovaner Wald”, 25.vi.1864, 1♂ (J. Mik leg.) [listed as *schistacea* by Lackschewitz, 1940] (NHMW). **Romania:** between Bucurest and Brasov, 6.vi.1978, 1♂ (R. Wagner leg.) (JSO; in ethanol). **Bulgaria:** Pirin Mts, Lillianovo nr. Sandanski, 6.v.1989, 3♂, 1♀ (J. Starý leg.) (JSO). **Ukraine:** Zakarpatskaya oblast: Vel. Bereznii env., 25.v.1974, 2♂, 1♀; Osoy env., 7.vi.1969, 1♂, 6.vii.1969, 2♂; Bogdan env., 4.vii.1969, 1♂, 5.vii.1969, 1♀; Kosova Polyana env., 1.vi.1974, 2♂, 1♀ (all E. N. Savchenko leg.). Chernovitskaya oblast: Ruska env., 24.vi.1975, 2♂ (E.N. Savchenko leg.). (All JSO). **Russia (Europe):** Krasnodarskiy kray: Nebuch env., 22.v.1963, 1♀ (E. N. Savchenko leg.) (JSO).

Discussion. This is the commonest and largely eurytopic species in Central Europe, practically invariable in the body colouration and clearly distinct from all the other species treated in a number of both external and genital characters. *R. (R.) subparva* is, on the average, the largest and slightly more slender species in general appearance than any others of the *R. (R.) edwardsi* com-

plex, thus actually representing the opposite of *R. (R.) crassa* sp. n. *R. (R.) subparva* has, e.g., the wing stalk and halter rather long, the latter reaching to about the posterior margin of the abdominal tergite 2 (Fig. 16) (shorter in all related species, cf. Fig. 15). The numerous macrotrichia on R_4 likewise are unique within the complex. The dark greyish brown body colouration combined with yellow coxae is only present in the Central European specimens of *R. (R.) eugeni* sp. n. The male terminalia of *R. (R.) subparva* are characterised by an evenly arched outer gonostylus tapered distally and provided with a distinct apical spine, and by a generally slender aedeagal complex with a narrow vesica and a rod-like apodeme. The female terminalia are distinctive in having rather broad, abruptly upturned cerci and, especially, two short-oval, exceedingly large spermathecae.

Distribution. The species was described comparatively recently, at the time when more attention was paid to small dark *Rhabdomastix* s. str. species, previously lumped under “*schistaceae*”. Therefore, it may be assumed that most of the country records published by Savchenko et al. (1992) are correct. These are as follows: Switzerland, Germany, Poland, Czech Republic, Slovakia, Austria, Ukraine, Italy, the former Yugoslavia (Slovenia, Serbia), Albania (?), Romania and Bulgaria (modified according to the present political boundaries). Based on the material examined, the species is here confirmed for Switzerland, Germany, Czech Republic, Slovakia, Austria, Italy, Slovenia, Romania, Bulgaria and Ukraine, and newly recorded for European Russia (southeast). Not confirmed from Poland, Serbia or Albania.

***Rhabdomastix (Rhabdomastix) hirticornis*
(Lackschewitz, 1940)**

(Figs 11–13, 40, 42, 54)

Gonomyia (Rhabdomastix) hirticornis Lackschewitz, 1940: 55 (description), Tab. 3, Figs 28a–b (male terminalia), c (wing), d (male antenna).

Rhabdomastix hirticornis: Mannheims, 1967: 473 (faun. record); Starý & Geiger, 1998: 73 (synonymy with *signata*, list).

Rhabdomastix (Palaeogonomyia) hirticornis: Savchenko, 1976: 563, 564 (diagnosis, faun. record), Figs 1b (wing), 2b (male terminalia); Mendl, 1979a: 355, 363 (synonymy with *signata*); Savchenko, 1982: 274 (redescription, faun. record), Figs 130/1 (wing), 133/1 (general view), 135/1 (male terminalia); Krzemiński, 1984b: 461 (diagnosis, faun. record), Figs 51 (male antenna), 52 (male terminalia); Erhan-Dinca & Ceianu, 1986: 89 (faun. record in list); Savchenko, 1989: 263 (faun. record), Fig. 133/1 (male terminalia); Savchenko et al., 1992: 314 (Palearctic catalogue, synonymy with *signata*); Oosterbroek & Starý, 1995: 7 (list); Starý & Oosterbroek, 1996: 72 (faun. record); Starý, 1997: 13 (list); Starý, 2001: 186 (faun. record).

Rhabdomastix (Rhabdomastix) hirticornis: Mendl, 1978: 373 (list).

Rhabdomastix (Sacandaga) hirticornis: Starý, 1987: 20 (list) [deleted; see Starý, 1993: 123]; Krzemiński, 1991: 80 (list); Starý, 1995: 30 (faun. record).

Rhabdomastix (Rhabdomastix) signata Bangerter, 1947: 377 (description), Figs 20a (thorax), b (wing), c (male antenna).

Rhabdomastix signata Bangerter, 1943: 20 (faun. record) [nomen nudum]; Bangerter, 1946: 192 (faun. record) [nomen nudum].

Diagnosis. General colouration grey on thorax, more brownish on abdomen. Male antenna very long, subequal to entire body. Wing narrow, slightly infuscated. A_2 ending before origin of Rs. Legs yellowish brown to brown, with yellow coxae. Male terminalia with outer gonostylus gently arched, club-shaped, with apical spine not apparent; apical blade of interbase spoon-shaped. Female terminalia with three reniform, medium-sized spermathecae.

Redescription. Rather small species, yet somewhat larger than many others described here as “small”. Body length 4–6.5 mm, wing length 5–7 mm.

Colour. General colouration grey to light grey, dull, without conspicuous markings on thorax, sometimes more brownish in middle of prescutum and still more so on abdomen. Antenna dark brown throughout. Pleuron heavily suffused with bluish grey pruinosity. Wing slightly infuscated. Halter dirty white to pale yellow, with knob faintly infuscated. Coxae yellow to yellowish brown, fore coxa more greyish. Trochanters and proximal half of femora yellow, the latter darkened distally. Rest of legs yellowish brown. Abdomen greyish brown to pale brown.

Head. Male antenna (Fig. 11) very long, subequal to entire body. Flagellomeres very long, first one rather conical, following ones cylindrical, longest near mid-length of antenna, terminal flagellomere minute. Verticils inconspicuous, about one-fourth to one-fifth length of their respective segments, distinct at base of eight proximal flagellomeres, largely getting lost among greatly developed erect pubescence subequal to one-third length of longest flagellomeres. Female antenna (Fig. 12) considerably shorter than that of male, yet distinctly longer than antenna of any other species treated here (except for male of *georgica*), extending beyond base of wing by about one-fourth of its length. Flagellomeres mostly elongate-oval, progressively narrowed towards apex of antenna. Verticils on flagellomeres slightly shorter than their respective segments. Pubescence indistinct. Palpus long, distinctly exceeding diameter of head; terminal palpomere nearly twice as long as penultimate (Fig. 13).

Thorax. Wing rather long and narrow, about four to five times as long as broad, with comparatively short stalk. Sc_1 ending at about half length of Rs. Sc_2 faintly apparent at tip of Sc_1 . R_3 more than its own length beyond tip of R_1 . R_4 with numerous macrotrichia, about 20, both dorsally and ventrally. A_2 sinuous, ending far before origin of Rs. Halter appearing rather long, but not reaching to posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 40). Segment 9 longer than broad. Gonocoxite moderate in length and breadth. Outer gonostylus more than half length of gonocoxite, generally slender, club-shaped, gently and evenly arched, slightly broadened before apex, with apical spine mostly not apparent, concealed by expanded apical portion of gonostylus. Inner gonostylus somewhat swollen, with short obtuse point. Aedeagal complex as in Fig. 40. Interbase comparatively long, extending beyond half length of gonocoxite, expanded distally to form spoon-like apical

blade, sometimes pointed at apex. Aedeagus slender, longer than comparatively narrow vesica. Apodeme of vesica short, mostly spine-like from dorsal aspect, shorter than vesica. Female terminalia (Figs 42, 54). Cercus slender, rather long, longer than tergite 10, gently upturned. Spermathecae three, medium-sized, short-oval to reniform, with sclerotised parts of ducts short, somewhat curved. One spermatheca sometimes smaller than other two.

Material examined. *Gonomyia (Rhabdomastix) hirticornis*: Lackschewitz (1940) described this species from an unspecified number of males and a single female, all from Albania. At present, 5♂ (from Kula Ljums) and 1♀ (from Bicaj) are deposited in NHMW (R. Contreras-Lichtenberg, e-mail comm.). I examined one male and the female. The males were nominated "Typen!" by Lackschewitz (1940: 56), but the female was not. Hence, the latter is excluded from the type series (cf. ICZN, Article 72.4.6.) and cannot become a paralectotype. **Lectotype** ♂ (present designation): Albania, Kula Ljums, 18.–28.v.1918 (H. Zerny leg.) (NHMW), labelled: "Alban. Exped. Kula Ljums 18–28.V.'18" (printed), "Rhabd. hirticornis nov. sp. det. Lacksch." (printed, orange). Accordingly labelled as lectotype ["Lectotype Rhabdomastix (s. str.) hirticornis (Lacksch.) ♂ J. Starý 2003"; printed red label]. The specimen is pinned, with right mid leg attached, two other legs glued onto a white cardboard point below the specimen; apex of abdomen cut off. Terminalia preserved in Canada balsam between celluloid slides, pinned with the specimen. The specimen is designated here as lectotype to maintain the current usage of the name.

Rhabdomastix (Rhabdomastix) signata: **Holotype** ♂ (original designation), 2.viii.1940, and **allotype** ♀, 15.vi.1943, from Switzerland, Canton Bern, "Obere Sense zwischen Thörishaus und Grasburg, Viadukt" (H. Bangerter leg.; in ethanol) (NHBB). I examined the specimens in 1976 (cf. Mendl, 1979: 363).

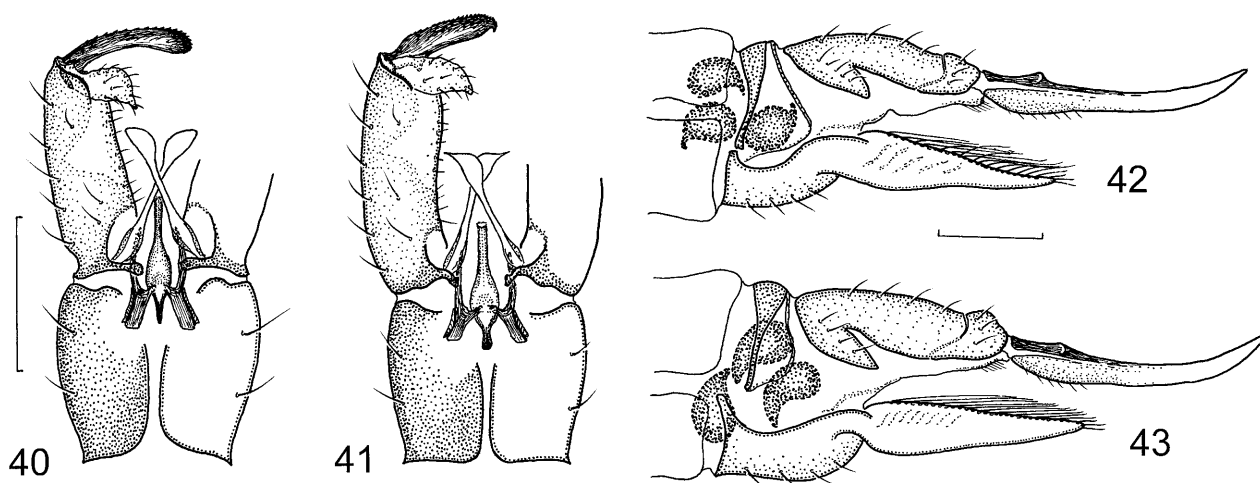
Other material examined (37♂, 66♀): **Switzerland**: Canton Ticino: Gordevio, middle vi.–early ix.1980, 1♀ (L. Rezbanyai leg.; Malaise light trap) (MHNN; in ethanol); Contra nr. Locarno (520 m), 30.vi.1972, 1♀ (P.H. Arnaud, Jr. leg.) (ZMAN). **Germany**: Bayern: Kreuzthal, 22.–27.vii.1972, 2♀ (H. Mendl leg.; light trap) (ZFMK; in ethanol); Kreuzthal, 10.–17.viii.1972, 1♀ (light trap); Kempten (shop window), 12.vii.1971, 1♀ (all H. Mendl leg.) (all JSO; in ethanol). **Poland**: Beskid Wyspowy Mts, Kasinka, Raba valley, 27.vi.1970, 1♂ (A. Kowacki leg.) (ISEZ). **Czech Republic**: Moravia: Vyšní Lhoty [6376], Morávka shores, 17.vi.1999, 1♂, 26.vii.1999, 15♀ (at light), 9.v.2000, 2♀ (at light), 17.v.2001, 7♀ (at light), 4.vi.2002, 1♀ (J. Starý leg.) (JSO). **Slovakia**: Belianske Tatry Mts, Tatranská Kotlina, Belá valley [6788] (750 m), 23.vi.1975, 1♀, 27.vi.1975, 1♀, 18.vii.1975, 1♀ (J. Starý leg.) (JSO); Hostovice, Udava shores, 16.vi.1980, 1♀ (J. Starý leg.) (ZFMK; in ethanol). Snina, Cirocha shores [7099], 19.vi.1983, 5♂, 1♀, 22.vi.1983, 2♂, 2.vi.1984, 1♀, 1.vi.1985, 2♂; Bukovské Hills, Ruské [6800], Cirocha shores, 7.vi.1985, 1♂, 1♀; Bukovské Hills, Nová Sedlica [6901], Zbojský brook, 8.vi.1988, 2♀; Bukovské Hills, Zboj [6900], Zbojský brook, 19.vi.1991, 11♂, 3♀, 8.vii.1993, 6♂, 1♀, 15.vi.1996, 2♂, 5♀; Bukovské Hills, Krivé [7000], Zbojský brook, 17.vi.1991, 1♀ (all J. Starý leg.) (all JSO). **Austria**: Niederösterreich: Grossraming, 21.vii.+4.viii.1983, 1♂, 3♀ (H. Malicky leg.) (ZFMK; in ethanol). **Albania**: Bicaj, 14.–15.vi.1918, 1♀ (H. Zerny leg.) (NHMW) [excluded from the type series, see above]. **Bulgaria**: Sandanski, Lebnitsa valley, 6.v.1989, 1♂, 7.v.1989, 1♂, 12.vi.1990, 1♀; Melnik, 10.v.1989, 1♂ (all J. Starý leg.) (all JSO). **Greece**: Platamon, Prov. Katerini, Castle-Camping,

7.–14.vi.1968, 1♀ (B. Mannheims leg.; at light) (ZFMK); Voutouasi, NE Joannina, 16.v.1978, 1♂ (G. Theischinger leg.); Lilaia, 29.vi.1976, 1♀ (H. Malicky leg.) (both ZFMK; in ethanol); Thasos Is., Ipsarion (1000 m), 6.vi.1973, 3♀ (H. & U. Aspöck, H. Rausch & P. Ressler leg.); Evvoia Is. [Euböa, Euboeia], S Prokopion (250 m), 24.v.1974, 2♀ (H. Malicky leg.); Chios Is., N Kalamoti (250 m), 18.v.1973, 1♀ (collector unknown) (all JSO; in ethanol). **Ukraine**: Chernovitskaya oblast: Zhadova Nova env., Seret valley, 4.vi.1974, 1♀; Komarovka env., Seret valley, 22.vi.1975, 2♀ (all E.N. Savchenko leg.) (all JSO). **Algeria**: Chiffy, "Monkey Valley", 18.iv.1981, 1♂, 19.iv.1981, 2♀ (W. Krzemiński leg.) (JSO).

Discussion. Members of Central European populations are distinctly darker than specimens from the Balkans (including the type series). The latter are more pronouncedly bicoloured, having a light grey thorax and a pale brown abdomen. This may be the case for other southern regions of Europe, as indicated by several specimens from southern Ukraine and a dry-mounted female from southern Switzerland (Ticino). On the other hand, the examined specimens from Algeria are still darker than those from Central Europe. There is a certain variation in the shape of the outer gonostylus; the apical spine is sometimes well apparent (cf. Lackschewitz, 1940, Tab. 3, Figs 28a, b), which, however, may be an artefact caused by compression of the hypopygium between the celluloid slides.

From all the species treated (except *georgica*), males of *R. (R.) hirticornis* may at once be separated by the long antennae (Fig. 11). The problem of long antennae in *Rhabdomastix* was discussed in some detail in the first part of this revision (Starý, 2003) and it is again mentioned in the discussion of the species complexes above. Due to the bicoloured appearance, females of *R. (R.) hirticornis* from South Europe may be confused with *R. (R.) filata* sp. n. or South European specimens of *R. (R.) eugeni* sp. n. It should, however, be emphasised that females of *R. (R.) hirticornis* are also clearly separable by the structure of the antennae. These are considerably shorter than those of males, yet distinctly longer than the antennae of any other species treated (Fig. 12). The long palpi in both sexes of *R. (R.) hirticornis*, distinctly exceeding the diameter of the head, with the terminal palpomere nearly twice as long as the penultimate, represent another distinguishing character (Fig. 13) (in the other species treated, except *georgica*, the palpi are short, subequal to the diameter of the head, with the terminal palpomere only slightly longer than the penultimate, cf. Fig. 14). The considerable distinctness of the male antennae in *R. (R.) hirticornis* is not reflected in the structure of the male terminalia, which provide no essential differences as compared to the other species, and only differ by details, such as the overall shape of the outer gonostylus and the structure of the aedeagal complex. The female terminalia of *R. (R.) hirticornis* are well characterised by three reniform, medium-sized spermathecae. Differentiating between *R. (R.) hirticornis* and *R. (R.) georgica* sp. n. is covered in the discussion of the latter species.

Distribution. Records of the species are available from Switzerland, Poland, Slovakia, Albania, Romania and Ukraine



Figs 40–43. 40–41. Male terminalia, general view, dorsal. 40 – *Rhabdomastix (Rhabdomastix) hirticornis* (Lackschewitz, 1940) (Slovakia: Zboj); 41 – *R. (R.) georgica* sp. n. (holotype). 42–43. Female terminalia, general view, lateral. 42 – *R. (R.) hirticornis* (Lackschewitz, 1940) (Slovakia: Zboj); 43 – *R. (R.) georgica* sp. n. (paratype, Georgia: Goderzi Pass). Scale bars 0.25 mm.

(Savchenko et al., 1992). Subsequently recorded from Italy (Sicily) (Oosterbroek & Starý, 1995, Starý & Oosterbroek, 1996) and quite recently from the Czech Republic (Starý, 2001). Most of the records are confirmed here, except Italy (Sicily) and Romania. Newly recorded for Germany, Austria, Bulgaria, Greece and Algeria.

***Rhabdomastix (Rhabdomastix) georgica* sp. n.**

(Figs 41, 43, 55)

Diagnosis. General colouration dark greyish brown. Male antenna very long, longer than entire body. Wing narrow, infuscated. A_2 ending before origin of Rs. Legs yellowish brown to brown, with coxae yellowish brown. Male terminalia with outer gonostylus straight, with distinct apical spine, and apical blade of interbase triangular, with sharp point at inner margin. Female terminalia with three reniform, large spermathecae.

Description. Small species, subequal in size to *R. (R.) hirticornis*. Body length 5–6 mm, wing length 4.5–6 mm.

Colour. General colouration dark greyish brown, dull, without conspicuous markings on thorax, more brownish on abdomen. Antenna brown throughout. Pleuron heavily suffused with grey pruinosity. Wing infuscated. Halter infuscated, especially on knob. Coxae yellowish brown, fore coxa more greyish pruinose. Trochanters and femora yellowish brown, the latter darkened distally. Rest of legs yellowish brown to brown.

Head. Male antenna very long, longer than entire body. Flagellomeres very long, first one rather conical, following ones cylindrical, longest near mid-length of antenna, terminal flagellomere minute. Verticils indistinct. Pubescence, long, erect, rather sparse, subequal to one-third length of longest flagellomeres. Female antenna considerably shorter than that of male, not reaching to base of wing. Flagellomeres oval to elongate-oval, rather thin, not noticeably changing in size towards apex of antenna. Verticils on flagellomeres shorter than their respective segments. Pubescence indistinct. Palpus

long, distinctly exceeding diameter of head; terminal palpomere nearly twice as long as penultimate.

Thorax. Wing long and narrow, about five times as long as broad, with long stalk. Sc_1 ending at about half length of Rs. Sc_2 faintly apparent shortly before tip of Sc_1 . R_3 more than its own length beyond tip of R_1 . R_4 with numerous macrotrichia both dorsally and ventrally. A_2 long, sinuous, ending before origin of Rs. Halter comparatively short, not reaching to posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 41). Segment 9 longer than broad. Gonocoxite moderate in length and breadth. Outer gonostylus slightly more than half length of gonocoxite, gently bent at base, otherwise straight, nearly parallel-sided, with apical spine distinct. Inner gonostylus generally conical. Aedeagal complex as in Fig. 41. Interbase comparatively long, extending beyond half length of gonocoxite, with apical blade generally triangular, drawn out into sharp long point at inner distal margin, directed laterally. Aedeagus subequal in length to comparatively narrow vesica. Apodeme of vesica short, spine-like or somewhat bulb-shaped at apex from dorsal aspect, shorter than vesica. Female terminalia (Figs 43, 55). Cercus slender, rather long, longer than tergite 10, gently upturned. Spermathecae three, large, reniform and considerably narrowed in portion closer to duct, practically without sclerotised parts of ducts.

Material examined. **Holotype** ♂: Georgia (Transcaucasia), Arsianskiy khrebet [mountain ridge], E slopes of Goderdzi Pass (1450–1500 m), 28.vi.1978 (E.N. Savchenko leg.) (SMOC). Except for a printed inscription “Transcriptio” the data on the label are hand-written in Russian (in Cyrillic). The specimen (originally papered) is glued onto a triangular cardboard point, in nearly perfect condition, with only wings somewhat crumpled and stuck together and apex of abdomen missing. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. **Paratypes:** 3♂, 1♀, same data as for holotype (JSO).

Etymology. The name of the new species, *georgica*, is derived from the name of the country of its occurrence, Georgia in Transcaucasia. The name is deemed to be and to be treated as a latinised adjective in nominative singular, in accordance with relevant provisions of the Article 11.9 of ICZN (1999).

Discussion. *R. (R.) georgica* sp. n. is described from Georgia in Transcaucasia, hence from outside of Europe, representing thus an extra-limital species in terms of this revision. It was included here because of its affinities to *R. (R.) hirticornis*. Within the Palearctic Region, only three other *Rhabdomastix* species are known to be distinguished by correspondingly long male antennae, viz. *R. (R.) hirticornis*, Lackschewitz, 1940 (Europe), *R. (R.) leucophaea* Savchenko, 1976 (Transcaucasia: Azerbaijan) and *R. (R.) omeina* Alexander, 1932 (China: Sichuan), all formerly classified in the subgenus *Palaeogonomyia* (cf. Savchenko et al., 1992). In the latter two species the antennae are shorter than the body. Five Oriental species with greatly lengthened male antennae (*himalayensis* Alexander, 1960; *manipurensis* Alexander, 1964; *nilgirica* Alexander, 1949; *schmidiana* Alexander, 1958; *trochanterata* Edwards, 1928) all belong to the group centred around *R. illudens* Alexander, 1914, as discussed in the first part of this revision (Stárý, 2003: 590), with the male antennae several times as long as the body.

R. (R.) georgica sp. n. apparently is closely related to *R. (R.) hirticornis*. It differs from Central European specimens of the latter by somewhat darker body colouration as well as having longer male antennae, which, in *R. (R.) georgica* sp. n., exceed the length of the entire body (subequal in length to the body in *hirticornis*). However, the female antennae of *R. (R.) georgica* sp. n. are shorter than those of *R. (R.) hirticornis*, not reaching to the bases of the wings (extending beyond the bases of the wings in *hirticornis*). The male terminalia of *R. (R.) georgica* sp. n. are characterised by a generally straight outer gonostylus, nearly parallel-sided, with the apical spine distinct (evenly arched in *hirticornis*, club-shaped at apex, without a distinct apical spine), and by the interbases with the apical blade triangular, drawn out into a sharp long point at inner margin (apical blade of interbases generally spoon-like in *hirticornis*). The female terminalia are distinctive in having the spermathecae comparatively large, reniform (smaller in *hirticornis*, often short-oval).

Distribution. Transcaucasia: Georgia.

***Rhabdomastix (Rhabdomastix) beckeri* (Lackschewitz, 1935)**

(Figs 3, 10, 44–45, 56)

Sacandaga Beckeri Lackschewitz, 1935: 13 (description), Tab. 2, Figs 6a–b (male terminalia), c (wing).

Rhabdomastix beckeri: Edwards, 1938: 113 (key).

Rhabdomastix (Sacandaga) beckeri: Stárý, 1987: 20 (list [deleted; see Stárý, 1993: 123, 1996: 119]; Savchenko, 1989: 264 (note); Savchenko et al., 1992: 315 (Palearctic catalogue).

Diagnosis. General colouration grey throughout. Antenna short. Wing moderately broad, somewhat milky, with narrow darker seams along veins. A₂ ending opposite to origin of Rs. Legs yellow to yellowish brown,

femora darkened distally. Male terminalia with outer gonostylus unusually short and broad, inner gonostylus swollen, broadly rounded at apex and aedeagal complex generally slender. Female terminalia with three spherical, medium-sized spermathecae.

Redescription. Medium-sized species. Body length 4–7 mm, wing length 4.5–8 mm.

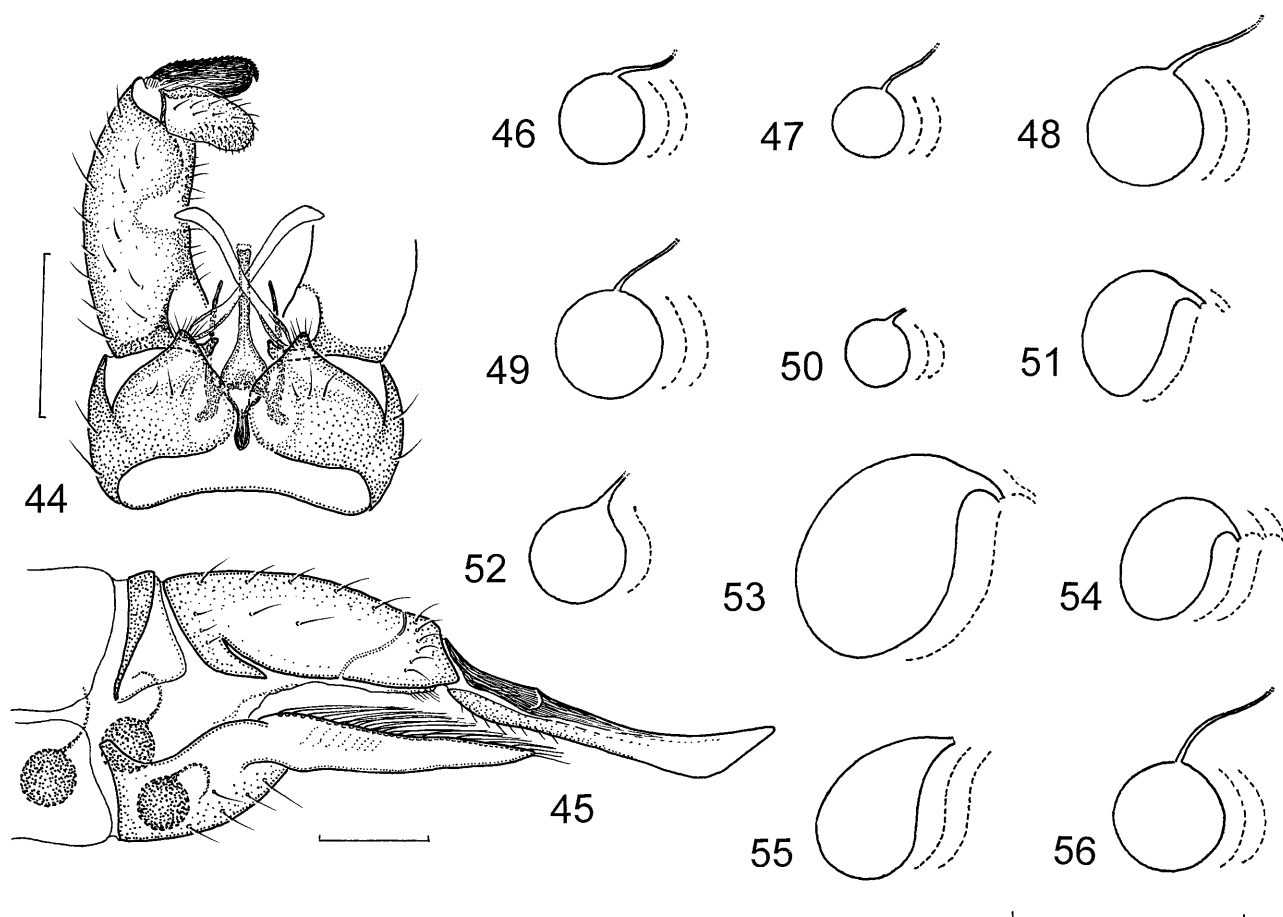
Colour. General colouration grey, dull, restrictedly tinged with brownish, without conspicuous markings on thorax. Antenna deep dark brown to black throughout. Pleuron heavily suffused with grey pruinosity. Wing slightly infuscated, somewhat milky, most veins vaguely and very narrowly seamed with darker. Halter bright pale yellow. Coxae, trochanters and proximal half of femora yellow, the latter darkened distally. Tibiae yellowish brown, tipped with darker. Tarsomere 1 yellowish brown, others darker. Abdomen a little darker than thorax, greyish brown.

Head. Antenna (Fig. 10) comparatively short, not reaching to base of wing. Flagellomeres short-oval. Longest verticils on flagellomeres slightly exceeding length of their respective segments. Pubescence rather long, suberect, subequal in length to breadth of respective segments, or slightly less so, distinct on almost all flagellomeres. Palpus short.

Thorax. Wing (Fig. 3) moderately broad, more than three times as long as broad, with short stalk. Sc₁ ending at about half length of Rs. Sc₂ faintly apparent shortly before tip of Sc₁. R₃ more than its own length beyond tip of R₁. R₄ with a few macrotrichia dorsally. A₂ strongly sinuous, ending opposite to origin of Rs. Halter short, clearly not reaching to posterior margin of abdominal tergite 2.

Abdomen. Male terminalia (Fig. 44). Segment 9 very short, broader than long, with conspicuous, more or less triangular lobe dorsally at posterior margin on each side of median interruption. Gonocoxite stout, short and broad. Outer gonostylus unusually short and broad, somewhat flattened at base, about one-third length of gonocoxite, subequal in length to inner gonostylus, nearly straight and parallel-sided, with distinct apical spine. Inner gonostylus very broad, swollen, broadly rounded at apex. Aedeagal complex as in Fig. 44. Interbase reaching to about half length of gonocoxite, generally slender, sinuous and only faintly dilated distally. Aedeagus very slender and rather long, about 1.5 times as long as moderately broad vesica. Apodeme of vesica rod-like or spine-like in dorsal aspect, about same length as vesica. Female terminalia (Figs 45, 56). Cercus broad, subequal in length to tergite 10, generally straight, expanded and abruptly upturned before apex. Spermathecae three, rather large, spherical, with sclerotised parts of ducts thin and long, exceeding spermathecal diameter.

Material examined. The species was described from an unspecified number of males ["Banat, Orsova. Im Juni, ♂♂, leg Th. Becker no. 61829. (Typ. in der Samml. des Zool. Museums in Berlin.)" (Lackschewitz, 1935: 13)]. I have examined two specimens that may be considered syntypes. **Lectotype** ♂ (present designation): Romania, [Banat], Orsova, vi., (Th. Becker leg.) (ZMHB), labelled: "Orsova 61829. VI." (hand-written),



Figs 44–56. 44–45. *Rhabdomastix (Rhabdomastix) beckeri* (Lackschewitz, 1935) (Slovakia: Malé Trakany). 44 – male terminalia, general view, dorsal; 45 – female terminalia, general view, lateral. 46–56. Spermathecae. 46 – *R. (R.) japonica* Alexander, 1924; 47 – *R. (R.) laeta* (Loew, 1873); 48 – *R. (R.) laetoidea* sp. n.; 49 – *R. (R.) borealis* Alexander, 1924; 50 – *R. (R.) edwardsi* Tjeder, 1967; 51 – *R. (R.) eugeni* sp. n.; 52 – *R. (R.) filata* sp. n.; 53 – *R. (R.) subparva* Starý, 1971; 54 – *R. (R.) hirticornis* (Lackschewitz, 1940); 55 – *R. (R.) georgica* sp. n.; 56 – *R. (R.) beckeri* (Lackschewitz, 1935). Scale bars 0.25 mm.

“Gonomyia schistacea Schumm.” (hand-written in pencil), “*Sac. beckeri* nov. sp. det. Lacksch.” (printed, orange). Accordingly labelled as lectotype (“Lectotype *Rhabdomastix* (s. str.) *beckeri* (Lacksch.) ♂ J. Starý 2003”). The specimen is micro-pinned on a stage of plant parenchyma, with only left hind leg present; left antenna and apex of abdomen broken off. Terminalia dissected and placed in Canada balsam between celluloid slides, pinned with the specimen. **Paralectotype:** 1♂ (ZMHB) with same labels as lectotype (incl. “61829”), except for the label with the *schistacea* identification. Terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. The paralectotype belongs to the species described here as *R. (R.) eugeni* sp. n. and is also listed as paratype under that species. The specimen was examined by me in 1978 (later not traced again in ZMHB), and it was not labelled by me as the paralectotype of *beckeri*, nor the paratype of *eugeni*. Hence, the type series of *R. (R.) beckeri* is a mixed one, and the lectotype is designated here to maintain the current usage of the name for the species with the male terminalia as illustrated by Lackschewitz (1935, Figs 6a,b).

Other material examined (57♂, 20♀): **Slovakia:** Malé Trakany [7698], Tisa shores, 6.vi.1981, 6♂, 5♀, 9.vi.1981, 8♂, 2♀, 10.vi.1981, 1♀, 12.vi.1981, 3♂, 7♀, 25.vi.1983, 4♂, 27.vi.1983, 1♂, 15.v.1987, 1♂, 17.v.1987, 1♂, 2.vi.1988, 7♂, 1♀, 1.vi.2000, 14♂, 30.v.2002, 12♂, 4♀ (J. Starý leg.) (JSO).

Discussion. Some character traits of *R. (R.) beckeri* indicate a more distant relationship to the other species of the European *Rhabdomastix* s. str. In general appearance, *R. (R.) beckeri* is particularly distinctive by its somewhat milky wings with narrow darker seams along most of veins. The isolated position of *R. (R.) beckeri* is also indicated by some features in the structure of the generally rather robust male terminalia. Segment 9 is broad and short, broader than long, with a conspicuous triangular lobe dorsally at the posterior margin on each side of the median interruption (Fig. 44) (broader than long, but without any lobes, in the species centred around *laeta*; longer than broad, with only small lobes in the other species). In contrast to all the species, the outer gonostylus is unusually short and broad, the inner gonostylus conspicuously swollen and broadly rounded at apex and the inter-bases and the aedeagus is very slender. The female terminalia, although less distinctive, are well characterised by the shape of the cerci which generally are straight and broad, expanded and abruptly upturned before the apex.

Distribution. This species has so far been documented only from the type locality (Orsova, Romania) (Lackschewitz, 1935).

It had been recorded from Slovakia by Starý (1987), but later this record was withdrawn (Starý, 1993, 1996). *R. (R.) beckeri* is very distinctive in the structure of the male terminalia, and the above specimens from Malé Trakany, Slovakia, had readily been identified with the figures by Lackschewitz (1935, Figs 6a,b). However, some doubts arose concerning the type [at that time, I had only examined the specimen listed here as paralectotype belonging to *R. (R.) eugeni* sp. n.]. The records from the former Czechoslovakia by Savchenko (1989) and Savchenko et al. (1992) are based on the same unpublished material from Slovakia sent by me to E.N. Savchenko. Here I am publishing the first documented records from Slovakia.

DOUBTFUL SPECIES OF *RHABDOMASTIX* S. STR.

Limnobia schistacea Schummel, 1829

Limnobia schistacea Schummel, 1829: 146 (description), Tab. 2, Fig. 2 (wing).

Gonomyia schistacea: Schiner, 1864: 544 (diagnosis in key, faun. record); Loew, 1873: 61 (note); Westhoff, 1882: 55 (faun. record); Beling, 1886: 195, 205 (description of larva, key) [? *subparva*, see Blanke & Reusch, 1990: 706]; Osten Sacken, 1888: 201 (faun. record); Czwalina, 1893: 8 (faun. record in list); Strobl, 1895: 232 (faun. record); Strobl, 1901: 187 (faun. record); Kertész, 1903: 300 (Palearctic catalogue); Lundström, 1907: 21 (diagnosis, faun. record), Fig. 25 (wing) [a species of *laeta* complex, possibly *borealis*]; Strobl, 1910: 276 (faun. record); Kuntze, 1914: 371 (key), Fig. 24 (wing); Riedel, 1918: 138 (faun. record); Riedel, 1919: 22 (faun. record); Pierre, 1924: 107, 109 (key), Fig. 408 (wing); Czižek, 1931: 79, 81 (diagnosis, faun. record, key), Figs 44a (male terminalia), b (wing) [*subparva*, see Starý, 1971: 154]; Reusch, 1988: 20, 26 (note); Blanke & Reusch, 1990: 706 (note).

Gonomyia schistacea: Verrall, 1894: 76, 140 (faun. record, list) [unjustified emendation of genus name; not *schistacea*, see Edwards, 1938: 116].

Rhabdomastix (Sacandaga) schistacea: Edwards, 1921: 209 (note); Riedel, 1930: 73 (faun. record); Szilády, 1934: 146 (faun. record); Krzemiński, 1984a: 30 (faun. record); Mendl, 1986: 278 (note); Franz, 1989: 253 (faun. record); Savchenko et al., 1992: 316 (Palearctic catalogue, note); Starý & Rozkošný, 1996: 72 (note).

Rhabdomastix schistacea: Lackschewitz, 1929: 208 (list); Edwards, 1938: 113, 115 (synonymy, key); Bangerter, 1939: 485 (faun. record) [*subparva*, see Mendl, 1979a: 355]; Bangerter, 1946: 192, 194 (faun. record) [*subparva*, see Mendl, 1979a: 355]; Tjeder, 1964: 146 (note); Mannheims, 1967: 473 (faun. record) [*edwardsi*, see present revision]; Nielsen, 1967: 323 (questioned name in list); Starý & Rozkošný, 1970: 116 (faun. record, note; see *subparva*); Starý, 1971: 154 (note, see *subparva*); Mendl, 1979a: 355 (note).

Gonomyia (Rhabdomastix) schistacea: Lackschewitz, 1933: 252 (list); Lackschewitz, 1940: 56 (alternatively as *Gonomyia (Sacandaga)*, faun. record) [*edwardsi*, *crassa*, *filata*, *subparva*; see present revision].

Note. A species probably based on an aberrant specimen, possibly discoloured. The name *schistacea* was in common usage for a long time mostly denoting various species of what is here established as the *R. (R.) edwardsi* complex (R_3 more than its own length beyond tip of R_1 , see Schummel, 1829, Tab. 2, Fig. 2). In theory, since the single type specimen is non-existent, a neotype of *schistacea* could be designated, belonging to one of the species described herewith, say *R. (R.) eugeni* sp. n., to retain the

name *schistacea*. However, a qualifying condition is not met requiring that “the neotype is consistent with what is known of the former name-bearing type from the original description ...” (Article 75.3.5. of ICZN, 1999) (see the discussion of *schistacea* above). An unrecognisable species.

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