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The Palaearctic species resembling *Megaselia pygmaea* (Diptera, Phoridae), including two new species

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Keys to both sexes of the phenetic group of species resembling *Megaselia pygmaea* (Zetterstedt) are provided. *M. angustiata* Schmitz and *M. aspera* Schmitz are synonymised with *M. oxybelorum* Schmitz. *M. parvula* Schmitz is synonymised with *M. brevissima* (Schmitz). *M. pseudobrevior* sp. n. and *M. stenoterga* sp. n., from the Canary Islands, are described.

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The genus ***Megaselia*** Rondani is one of the largest genera known. About 1400 species have been described. Estimates suggest the actual total is likely to lie between 5,000 and 20,000 species (Disney, 1983a). In a recent revision of the British species (Disney, 1988a) an initial total of 191 species was raised to 220 species, after removing 25 by synonymy and revisions of identification; and adding 54 species, including 23 new to science. The Bntish Phorid fauna is the most fully documented in the world.

The Palaearctic fauna is covered by a recent catalogue (Disney, 1988b). Keys to just overhalf the genus are available (Schmitz, 19561958, continued as Schmitz & Beyer, 1965–1974, Schmitz & Delage, 1974–1981). The rest of the genus is only partly covered by the much-dated keys of Lundbeck (1922); npart from the recent key to the males of the British fauna (Disney, 1988a). The rest of the world fauna is covered as follows. The species formerly in *Plastophora* Brues by Colyer & Elberg (1969, see Disney, 1985a, 1986a). The Nearctic fauna is covered by Borgmeier (1964, 1966) supplemented by Robinson (1977, 1978, 1981), Robinson & Wisseman (1983) and Disney (198 Id). The Neotropical fauna is covered by Borgmeier (1962, 1969a–b, 1971) and Disney (1982a). The Afrotropical fauna is covered by Beyer (1965) and Disney (1978, 1980, 1982d). The Oriental and Australasian faunas are covered by Borgmeier (1967a–b) and Disney (1981a–c, 1982b–c, 1986a, 1987a).

The *Megaselia pygmaea* complex

Collections of Phoridae from the Canary Islands madc by Dr. P. Ashmole (Edinburgh University) have produced several species which resemble ***Megaselia pygmaea*** (Zetterstedt). In order to name these it has proved necessary to try to make sense of the often inadequate descriptions of the species omitted from any of the published keys. The confusions are compounded by some species being only known in one sex. It is also apparent that in the Afrotropicai Region there abounds a complex of species closely resembling *M. curtineura* (Brues). Progress with the taxonomy of these will only be made when the known Paiaearctic species can be recognised with confidence.

The phenetic group of species resembling M. ***pygmaea*** can be defined as follows:

blesopleuron bare; scutellum with an anterior pair of short hairs and a posterior pair of bristles; costal index less than 0.4; costal cilia short, mostly less than 0.1 mm, all less than 0. 13mm; knob of haltere yellow.

Lundbeck's key (1922) included two species, conforming to this definition, in his Group VII couplets 8–19. These were ***M. pygmaea***, which he also keyed out separately under the synonym ***M. brachyneura*** (Egger), and ***M. berndseni*** (Schmitz), which he also keyed out under the synonym ***M. pygmaeoides*** (Lundbeck). The widely distributed *M. curtineura* was also known at this time but had not then been recorded from the Palaearctic Region. Its male falls within this group of species, but its female is excluded by having 2 pairs of bnstles on the scutellum. The female is keyed out by Schmitz & Delage (1981). Since Lundbeck's monograph a further 13 species have been descnbed from the Palaearctic Region. Five of these were described from females only and one from the male only. In preparing a key to the males of Bntish ***Megaselia*** (Disney, 1988a) ***M. pygmaeoides*** was synonymised with ***M. berndseni*** (Disney, 1985b) ***and M. brevior*** (Schmitz) added to the Bntish List (Disney, 1987b).

Keys to the Palaearctic species

The following keys deal with the Palacarctic species of thc *Megaselia pygmaea* complex. Notes on someof the species I have examined are given below. Figures of all species examined by myself are provided. unless these have bcen figured in my rrxent key (Disney. 1988a). The other specieshave bcen included on the basis of the published descripuons alone. The latter should be consulted to confirm the identification of specimens.

Key to males

1. Vein 3 unforked ..... *abludens* Schmitz
— Vein 3 forked 2
2. Hind femur yellow with sharply contrasting dark apex 3
— Hind femur variously darkened, and if basal half is dirty yellow it only gradually darkcns towards apcx 4
3. Labella of proboscis enlarged and with dcnsc fields of numerous short pale spines below. Dorsal face of epandrium about two-thuds length of lowcr margin of left side (Fig. 435 in Disncy, 1988a) ..... .*pygmaea* (Zetterstedt)
— Labella not enlarged and with only a few short pale spines below. Dorsal face of epandrium only about half length of lower margin of left side (Fig. 2A) ..... .*curtineura* (Brucs)

Note: *M. leucozona* and *M. sulfurella* will also key out hcre, but their males have not yet bcen dcscribcd.

4. Second quarter to middle third (Fig. 2B) of veins 4 and 5 subparallel 5
— Veins 4 and 5 divergent throughout (Fig. 439 in Disney, 1988a) 6
5. Middle third of veins 4 and 5 subparallel (Fig. 2B). Only 3 costal cilia on leading edge of costal sections 2 + 3. Hypopygium as Fig. 3C ..... *stenoterga* sp. n.
— Only second quaricr of veins 4 and 5 subparallel. At least 4 costal cilia on lcading edge of costal sections 2 + 3. Hypopygium otherwise ..... *insecia* Schmitz
6. The outermost axillary bristle about same length as costal cilia on leading edge of costal section 3 (Fig. 449 in Disney, 1988a), at most only a little longcr (e 1.3 x) 7
— The outermost axillary bristle clearly longer than costal cilia of section 3 (Fig. 450 in Disney, 1988a) .. 10
7. Notopleuron with only 2 bristles. Costal index < 0.37. Costal cilia on leading edge of costal section 3 short (< 0.08 mm) 8
— Notopleuron with 3 bristles. Costal index > 0.37. Costal cilia longer (> 0.08 mm) ..... *laeviceps* Schmitz
8. Lobc from left side of rear edge oí hypnndrium relatively long and postero-dorsal region of epandrium with some hairs (Fig. 447 in Disney, 1988a) ..... *brevior* (Schmitz)
— Lobe from left side of hypandrium relatively short and postero-dorsal region of hypandrium usually bare (Figs. 1A and 1B) 9
9. Hypopygium as Fig. 1A, in particular with longer lobc from left side of hypandrium which has some brown pigment along outer margin ..... *brevissima* (Schmitz)
— Hypopygium as Fig. 1B, with shorter and unpigmented lobe from left side of hypandrium ..... *pseudobrevior* sp.n.
10. Costal cilia of leading edge of costal section 3 longer (> 0.08 mm, see Fig. 450 in Disney, 1988a). Hypopygium as Fig. 451 in Disncy (1988a). (Lower faces of labella of proboscis with dense fields oí short, pale spines) ..... *berndseni* (Schmitz)
— Costal cilia of section 3 shorter (< 0.08 mm). Hypopygium otherwise 11
11. Hypopygium as Fig. 1C ..... *oxybelorum* Schmitz
— Hypopygium otherwise ..... *exsecta* Schmitz + *intersecta* Schmitz

Note. The male of *M. intersecta* is not known and the description of *M. exsecta*'s male is inadequate.

Key to females

1. Vein 3 unforked ..... *abludens* Schmitz
— Vein 3 forked 2
2. Scutellum with 4 bristles, the anterior pair usually bcing a little less robust than the posterior pair. (Legs largely yellow apart from contrasting dark apex to hind fcmur. Hind margins of abdominal tergites 2–5 yellow.) ..... .*curtineura* (Brucs)
— Scutellum with an antcrior pair of short, finc hairs and a posterior pair of bristles 3
3. Hind fcmur yellow with sharply contrasting dark apcx. (Abdominal tergites as Fig. 3A) ..*pygmaea* (Zetterstedt)
— Hind femur variously darkened, and if basal half is dirty yellowish it only gradually darkens iowards apex. 4
4. Veins 4 and 5 converge and then diverge (Fig. 2C). Tcrgites 3 and 4 of abdomen greatly narrowed (Fig. 3B) ..... .*stenoterga* sp. n.
— Veins 4 and 5 divcrgcnt throughout. If tergites 3 and 4 are narrowed they are still broader than in Fig. 3B 5

5. Thorax and antennae somewhat yellowish orange..... ..... *ulfurella* Schmitz
— Thorax and antennae brown to dark brown 6
6. Abdominal tergite 6 and rear half of 5 almost devoid of pigment ..... *leucozona* Schmiu
— Abdominal tergites 1–6 dark brown 7
7. Hind margin of abdominal tergite 4 a little to clearly broader than front margin of tergiic 5 (e.g. Figs. 4A. C & D) 8
— Hind margin of tergite 4 narrower than front margin of tergite 5 (e.g. Figs. 3A & D) 12
8. With only 2 bristles on notoplcuron 9
— With 3 bristles on notoplcuron. (Costal index > 0.37) ..... *laeviceps* Schmitz
9. Costal cilia of leading edge of scciion 3 distinctly longer than space enclosed by fork of veins 2 + 3; and axillary bristles relatively long (Fig. 450 in Disney. 1988a) ..... *berndseni* (Schmitz)
— Costal cilia of section 3 at most only as long as fork of veins 2 + 3; and axillary bristles relatively short (Fig. 449 in Disney, 1988a) 10
10. Hind margin of abdominal tergiie 5 with a distinct median emargination (Fig. 4A).... *pseudobrevior* sp. n. .
— Hind margin of tergite 5 almost straight, wiih at most a very slight emargination (Figs. 4C & D).....11
11. Axillary bristles distinctly longer than costal cilia of section 3. Abdominal tergites as Fig. 4D .... *brevissima* (Schmitz)
— Axillary bristles at most subequal to costal cilia of section 3 (Fig. 449 in Disney, 1988a). Abdominal tergites as Fig. 4C ..... *brevior* (Schmitz)
12. Hind margin of abdominal icrgitc 4 more than two thirds width of front margin of tergite 5 (Fig. 3D) .... *oxybelorum* Schmitz
— Hind margin of tergite 4 about half, or less, the width of front margin of tergiic 5 13
13. Length of abdominal tergitc 4 clearly greater than breadth of its front margin. (Costal index c 0.34. Costal section 1 > 2 x sections 2 + 3) .... *exsecta* Schmitz
— Length of tergitc 4 at most as great as breadth of its front margin 14
13. Costal index < 0.34. Costal section 1 > 2 x sections 2 + 3 ..... *intersecta* Schmitz
— Costal index > 0.34. Costal scction 1 < 2 × sections 2 + 3 ..... *insecta* Schmitz

Notes on species

Megaselia brevissima (Schmitz)
(Figs. 1A, 4B, 4D, 5D)

Aphiochaeta brevissima Schmiu, 1924: 85
Megaselia parvula Schmitz, 1930: 69. — **Syn. nov.**

This species was described from a single female from Yugoslavia. Schmitz (1928) provided a photograph of the wing.

A series of specimens from the Canary Islands, of whatis clearly one species, exhibits a range of variation in the wing length and costal index. In males the wing length ranges from 0.8–1.3 mm and in females from 1.0–1.7 mm. The costal index ranges from 0.26–0.34 in males and 0.27–0.35 in females. Specimens with a shorter wing and costal index agree with the description of *M. brevissima*. Those with alongerwing and costal index agree with the descnption of *M. parvula*. Some specimens are intermediate. *M. parvula* was descnbed from a male and female from Daghestan, USSR. I have examined slide-mounted wings of a male and female from the Schmitz collection (these are probably from the holotype and paratype, but the slides lack data labels). The male wing is 1.0 mm long with a costal index of 0.31–0.32. The female wing is 1.2 mm with an index of 0.33.

I can discover no character that will reliably distinguish *M. parvula* from *M.* brevissima. The former must, therefore, be treated as a synonym of the latter.

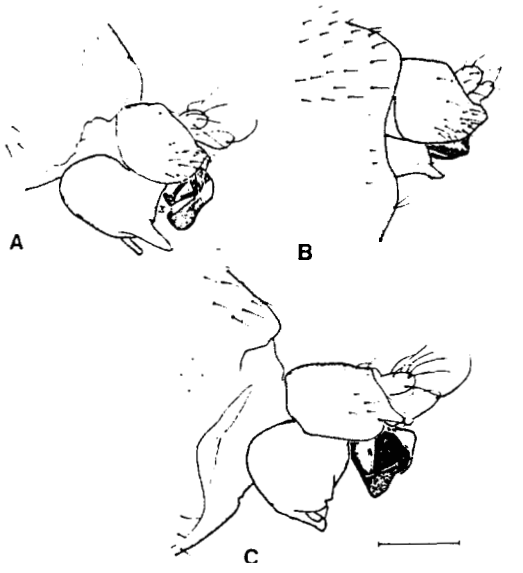

Fig. 1. Malc hypopygia viewed from left side. — A: *Megaselia brevissima;* — *B: M. pseudobrevior;* — C *M. oxybelorum.* — Scale bar = 0.1 mm.

Megaselia oxybelorum Schrnitz
(Figs. 1C, 3D, 5G, 5M)

Megaselia oxybelorum Schmitz, 1928: 131
Megaselia aspera Schmitz, 193068. — **Sgn. nov.**
Megaselia angustiata Schmitz, 1936: 76. — Syn nov.

M. aspera was described fram a male and female, but the descnption of the latter was very brief. The

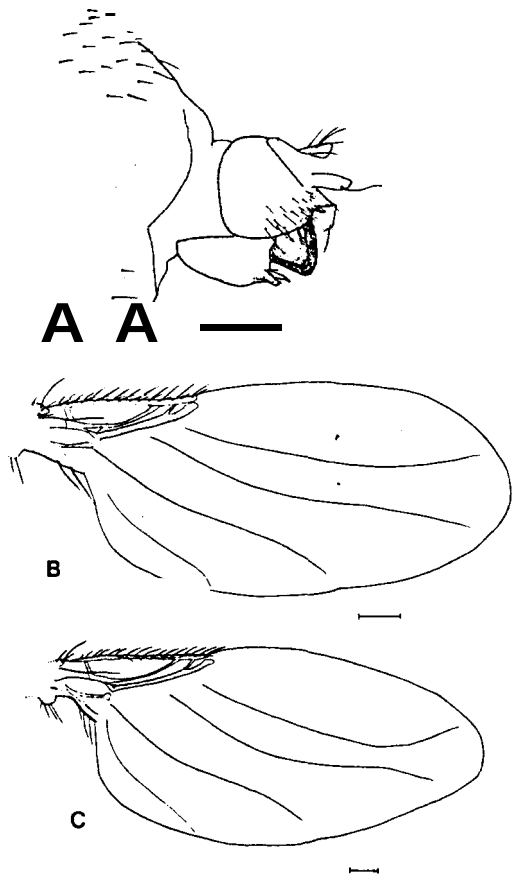

Fig. 2. Me*gaselia* species. — **A:** *M. curtineura* **male** hypopygium **viewed from** lcft sidc; — **B:** *M. sienoierga* **wing** of malc; — **C:** *M. stenoterga* **wing of femaie.** — Scale *bars* = **0.1** *mm.*

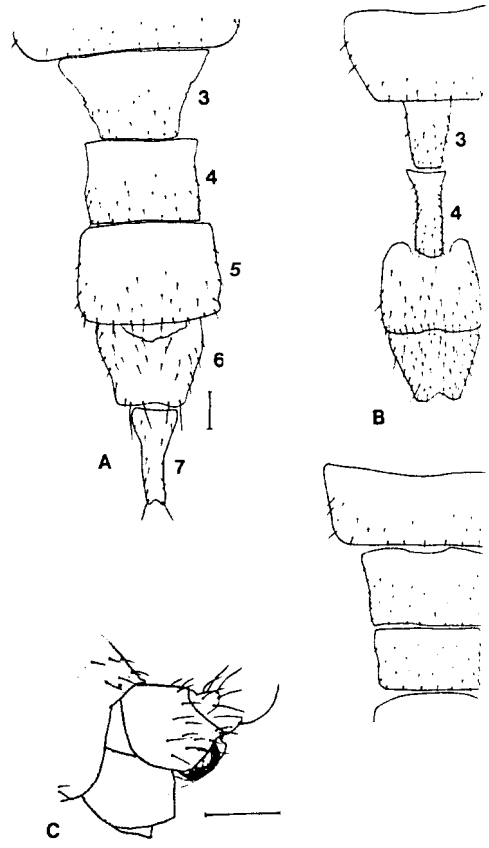

Fig. 3. Megaselia species. — *M. pygmaea* **female** abdc tergites; — B: *M.* **sienoierga femaie abdominal** tergites; *M. stenoterga* **male hypopygium viewed from** lcft sidc; *M. oxybelorum* **fernaie abdominal tergites. (Numbers refer** gite number). — **Scale bars = 0.1 mm.**

single female of *M. angustiata* was more fully described. Apart from somewhat more yellow in the colouring of the legs of the latter the descnptions make it difficult to distinguish the two females. I have examined the slide-mounted wings of Schmitz's specimens of *M. aspera* (which are probably from the holotype and paratype, but the slides lack data labels) and confirm the sexual dimorphism in the costal ratios.

1have a series of males and females from the Canary Islands whose wings agree with those of M. *aspera*. Furthermore the legs of the females tend to have more extensive yellow areas than the males. The males are compatible with the description of the male of *M. aspera* and the females with the detailed descnption of M. *angustiara* (which is only known from a single, pinned type specimen, but the descnption by Schmitz, 1936, includes a photograph of a wing). 1conclude the two 'species' are in fact a single species. Howev females of the Canary Islands series also agree wi description of *M. oxybelorum,* ailowing for omis with respect to characters which permit c comparison withlaterdescribed speciesandin th of the present awareness of the variation in costal and the costal index. Of particular note is the s dimorphism in the degree of robustness of the ar pair of hairs on the scutellum, which are dist stronger on the females from the Canary Islands t the males. Schmitz (1928) particularly noted tha hairs were stronger in *M. oxybelorum* females t related species.

1 have remounted a pair of damaged spec from the Schmitz collection (labelled No. 4 mbuted to *M. oxybelorum* in 1942. These do not to this species, as evidenced by details of th

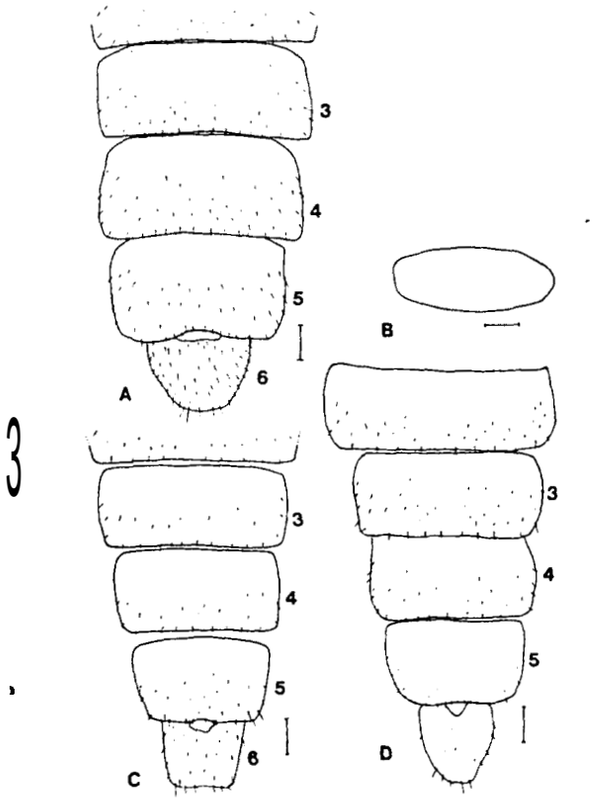

Fig. 4. *Megaselia* females. — A: *M.* pseudobrevior abdominal tergites; — B: *M. brevissima* egg from gravid individual; — C: *M.* brevior abdominal tergites; — D: M. brevissima abdominal tergites. (Numbers refer to tergite number). — Scale bars = 0.1 mm.

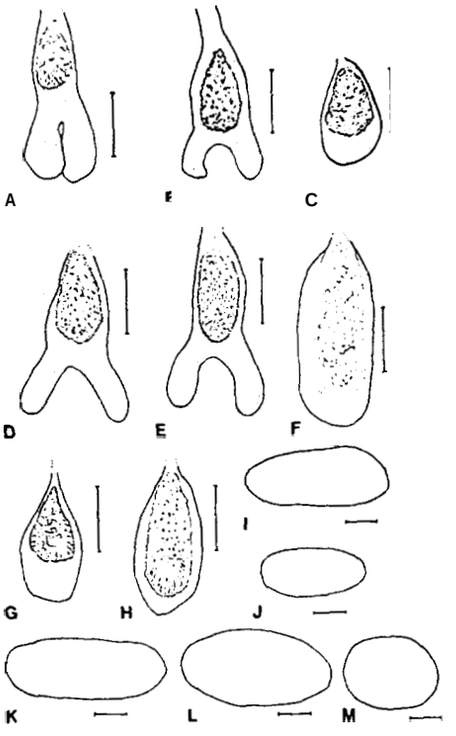

Fig. 5. *Megaselia* females. A–H = Dufour's mechanism in neck of crop. F M = egg from a gravid individual. — A: *M. curtineura*; — B: M pseudobrevior; — C: *M. stenoterga*; — D: *M. brevissima*; — E: M. brevior; — F: *M. pygmaea*; — G: *M. oxybelorum*; — H: M. *berndseni*; — I: *M.* pseudobrevior: — J: M. curtineura; — K: *M.* pygmaea; — L *M.* sienoierga; — M: *M. oxybelorum.* — Scale bars = 0.1 mm.

hypopygium. It seems that Schmitz added specimens of another species to his series of '*M. oxybelorum*' and then entenained a misleading concept of the species.

In conclusion *M. aspera* and *M. angustiata* are both synonyms of M. *oxybelorum*.

Megaseliapseudobrevior sp. n.

(Figs. 1B, 4A, 5B, 51)

As is evident from the keys this species is close to *M. brevior* and *M. brevissima.*

Male: Fronsdark brown and a little wider than high. With 120–140 hairs. Lower supra-antennal bnstles a little shorter and less robust than iipper pair, and situated a little closer together than latter. Upper SA's slightly lower than antialc, which are a little lower on frons than antero-laterals. The three bnstles almost equidistant. Pre-ocellars about as far apart as upper SA's and about same distance from medio-laterals or a little closer to each other than to latter. Antennae brown and subspherical. Palps pale yellow brown with 6 bristles in apical half. External face with an irregular shallow pit. Proboscis with pale brown labrum and simple labella bearing only a few spines below.

Thorax brown with a bare mesopleuron. Notopleuron with only two bristles and no cleft. Scutellum with an anterior pair of minute hairs and a postenor pair of bnstles.

Abdomen with brown tergites and brownish grey venter. Hairs on tergites extremely short and fine, including ut rear of tergite 6. Venter with a few short hairs on segments 4–6, but only at all obvious on 6. Hypopygium as Fig. IB. Brown with brownish anal

tube and pale, shortish lobe from left side of hypandriuni. Internally with 4 rectal papillae.

All legs brownish but front legs and base of hind femur, in particular, somewhat more yellowish. A postero-dorsal hair palisade on segments 1–4 of fore tarsus. Hind femur with 5–7 hairs below basal half which are not long, but are clearly longer than those of antero-ventral row of apical half.

Wings very similar to those of ***M. brevior*** (Fig. 449 in Disney, 1988a). Length 1.2–1.6 mm. Costal index 0.34–0.36. Costal ratios 2.8–3.4 : 0.8–1.1 : 1. Costal cilia 0.05–0.06 mm. Usually with a small hair at base of vein 3, but missing from one wing in one specimen. With **2** bristles on axillary ridge. The outer, longer, one is subequal to costal cilia on leading edge of section 3. Menibrane lightly tinged yellowish grey. Haltere with dark stem and yellow knob.

Female: Head very similar to male, with slightly smaller antennae. Thorax as male, with slightly stronger anterior pair of hairs on scutellum. Abdomen colounng and venter hairing as in male. Tergites brown and as Fig. 4A. Internally with **4** rectal papillae; and a pale, posteriorly bilobed, Dufour's mechanism in the crop (Fig. 5B). Wing length 1.3–1.6 mm. Costal index 0.34–0.36. Costal ratios 3.1–3.7 : 1.1–1.5 : 1. Costal cilia 0.06–0.07 mm. Otherwise wings and halteres as male.

Typc material

Holotype: O, Canary Islands, Lanzarote, 30.III.–3.IV.1985 (P. Ashmolc) (in Cambndge University Zoology **Museum).** Paratypes: 5♂♂, 5♀♀ same data **as** holotypc except daies are 24.III.–3.IV.1985.

Megaselia stenoterga **sp.** n.
(Figs. **2B,** 2C, 3B, 3C, 5C, 5L)

This is a very distinctive species. In both sexes the wing veins are notable and in the female the abdominal tergites are striking.

Male: Frons dark brown and about as wide as high. With 110–140 hairs. Lower supra-antennal bristles distinctly shorter and less robust than upper pair, and situated a little closer together than latter. The upper SA's a little lower on frons than antials, which are distinctly lower than antero-laterals. Antials clearly closer to upper **SA's** than to antero-laterals. Preocellars about as far apart as upper SA's and a little further from the medio-laterals than they are from each other. Antennae subspherical, brown, and somewhat small (the diameter of segment three being only 0.08 mm or less). Palps brownish yellow with 6 bristles in apical half. External face only slightly pitted. Proboscis with pale brown labrum and simple labella with only a few pale spines at outer, distal niargins.

Thorax brown with bare mesopleuron. Notopleuron with only two bristles and no cleft. Scutellum with an anterior pair of minute hairs andapostenorpair of bristles.

Abdomen with brown tergites and brownish venter. Hairs short and fine, including at rearof tergite 6. Venter with a few short hairs on segments 4–6, but only obvious on 6. Hypopygium with reduced lobes from hind margin of hypandrium (Fig. 3C). Generally brown apart froni paler anal tube and hypandrial lobes. Internally only 2 rectal papillae discemed.

All legs greyish to brownish with paler regions. **A** postero-dorsal hair palisade on segnients 1–3 of fore tarsus. Hind femur with 3–5 hairs below basal half which are clearly longer than those of antero-ventral row of apical half.

Wings (Fig. 2B) with veins **4** and **5** subparallel in middle sections. Length 0.9–1.1 mm. Costal index 0.33–0.35. Costal ratios 3.2–3.3 : 0.7–1.0 : 1. Costal cilia 0.05–0.06 mm. Vein 3 with or without **a** minute hair at base. Membrane lightly tinged greyish. Haltere with dark stem and yellow knob.

Female: Very similar to male. The anterior pair of hairs on scutellum are notably stronger than in male, but are still not bristle-like. Abdomen with tergites 3 and 4 strikingly narrow (Fig. 3B). Internally with **4** rectal papillae and a Dufour's niechanism with a simple rounded posterior end (Fig. 5C).

Wings (Fig. 2C) with stnkingconvergenceofveins 4 and 5 in outerhalf. Length 1.2–1.5 nim. Costal index 0.34–0.37. Costal ratios 3.3–5.0 : 0.7–1.0 : 1. Costal cilia 0.06–0.07 mm.

Type material

Holoiype: ♀, Canary Islands, El Hierro, 1–5.IV.1987 (P. Ashmolc) (In Cambridge University Zoology Museum). Paraiypes: 2♂♂, 1♀ **same data** as holotypcexcepi female is datcd 2–6.IV.1987.

Discussion

Some females of ***M. curtineura*** from Israel (sent by **Y.** Nussbaum) and one paratype femaie of *M. pseudobrevior* are heavily infested with Nematodes in their abdomens. Richardson et al. (1977) hnve described a nematode as a parasite of ***M.*** *halterata* (Wood).

M. oxybelorum is known to breed iri the paralysec prey (not the larva, as incorrectly translated by

Robinson, 1971) of the solitary wasp *Oxybelus uniglumis* (Linn.) (Schmitz, 1928). It has also been reared from the egg pods of a locust, along with *M. brevissima* (Schmitz, 1930). In a slide-mounted gravid female there are only two mature eggs, which are unusually rounded (Fig. 5M). This contrasts with other species of this complex (Figs. 5I–L). A gravid female of *M. curtineura* was carrying at least 14 relatively small, mature eggs (Fig. 5J). It is a polyphagous snprophage (Robinson, 1971). Reanng records for other species whose eggs are illustrated (Figs. **4B,** 5I–L) need to be treated with caution because of taxonomic confusions. Other maximum egg numbers recorded so far for gravid females are as follows: *M. brevissima* – *20, M. pseudobrevior* – 10, *M. stenoterga* – 2. In the genus *Puliciphora* Dahl and *Diplonevra* Lioy there is evidence that a reduced egg nuniber, as well as somewhat larger than normal eggs, is associated with parasitoid or specialised predator hnbits (Disney, 1986b, 1988c). *M. berndseni* breeds in fungi (e.g. Eisfelder, 1956). *M. pygmaea* would appear to be apolyphagous saprophage (Robinson, 1971), but the diversity of pabular recorded could be a reflection of taxonomic confusions in the past.

The range of variation in the costal ratios in the highly distinctive female *M. stenoterga* highlights the inadvisability of giving toomiich taxonomic weight to such differences. In particular the validity of the distinction between *M. intersecta* and *M. insecta* is called into question, especially as the male of the former is not known. Only fresh, slide-mounted, specimens are likely to resolve this.

The group of species treated above was selected as a phenetic group. The question can be asked as to whether all or part of the group is monophyletic. It is recognised that "the frequency of partial congruence between the results of phenetic analysis and phylogenetic cladistic analysis means the former may be a useful means of performing a preliminary sorting of a complex of similar species. This then needs adjusting by critical phylogenetic cladistic analysis" (Disney, 1983b).

Dufour's mechanism in the crop of females (Disney, 1987c) has been highlighted as a useful taxonomic character. This feature is illustrated for the eight species I have on slides (Fig. **5A–H).** The strikingly long postero-lateral lobes in *M. brevissima, M. brevior, M. curtineura* and *M. pseudobrevior* suggest these four species form part of a single clade. This grouping tends to suggest that the strong anterior scutellars in the female of *M. curtineura* are one end of a series in which the anterior scutellars in the female are stronger than those in the rnale. The character should not be given the taxonomic weight it has received in the past.

The species with narrowed abdominal tergites **3** and **4** in the female (Fig. 3A, B & D), whose Dufour's mechanism is known (Fig. 5C, F and G), have the latter simple, not bilobed. *M. berndseni* also has a simple Dufour's mechanisrn (Fig. 5H) but its abdominal tergites are normal. Its male has spinose labella, as does the male of *M. pygrnaea.* If, therefore, *M. berndseni* is thereby related to *M. pygmaea,* and the ***M. pygmaea*** group *(M. pygmaea, M. srenoferga* and *M. oxybelorum,* along with *M. exsecta, M. intersecta* and *M.* insecta — speculating that these three have a simple Dufour's rnechanisrn) is a monophyletic group, then *M. berndseni* would become the sister taxon to this group. The spinose labella would then have to be treated as plesiomorphic. If this feature is apomorphic then its presence in both *M. berndseni* and *M. pygmaea* would be due to convergence. The functional significance of spinose labella is not known. In Lauxaniidae elaborately spinose labella are associated with fungal grazing (Broadhead, 1984). In *Megaselia* spinose labella are associated with the male sex only, or else the fields of spines are more extensive in the male than in the fernale of the same species.

Until rhe species presently only known as dried, damaged, specimens on pins are available as slide-mounted specirnens further speculation is unwarranted. However it is clear that the Dufour's mechanism of the females and the labella of the males need documenting for these species.

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