with best wishes Peter

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Fungus gnats (Diptera, Sciaroidea: Ditomyiidae, Keroplatidae and Mycetophilidae)

Peter CHANDLER

Abstract

Records of fungus gnats from recent surveys at "Bosco della Fontana", a relict forest of the Po Plain, Italy are presented. Fifty species (comprising 1 species of Ditomyiidae, 11 species of Keroplatidae and 38 species of Mycetophilidae) are recorded of which 12 are new records for the Italian fauna.The additions include three species new to science of which two species of the genus *Leia* are described here as *L. fontana* sp. nov. and *L. padana* sp. nov. and a species of *Docosia*, which requires further study.

Key words: *Italy, Po plain, Ditomyiidae, Keroplatidae, Mycetophilidae*, Leia, Docosia, new species.

Riassunto

Gli Sciaroidei (Diptera, Sciaroidea: Ditomyiidae, Keroplatidae and Mycetophilidae)

Sono riportati dati faunistici su Ditteri Sciaroidei raccolti recentemente a Bosco della Fontana, un lembo relitto di foresta planiziaria della Pianura Padana. Vengono segnalate 50 specie (1 Ditomyiidae, 11 Keroplatidae e 38 Mycetophilidae) di cui 12 risultano nuove per la fauna italiana. La lista include inoltre tre specie nuove per la scienza, due appartenenti al genere Leia *vengono qui descritte come* L. fontana *sp. nov. e* L. padana *sp. nov., mentre* Docosia *sp. necessita di ulteriori studi.*

INTRODUCTION

The fungus gnat families (Bolitophilidae, Diadocidiidae, Ditomyiidae, Keroplatidae and Mycetophilidae) include more than 1200 species in Europe and are mostly found in forest or wooded areas, where they develop in fruiting bodies of the larger fungi or in rotting wood, with a few species developing in bryophytes and bird nests. Many species are quite widely distributed but boreal and montane regions are richest in species. There is also a distinctive Mediterranean fauna, smaller in numbers of species, but several genera and species groups have apparently speciated within the region.

The Italian checklist of Minelli et al. (1995) listed only 145 species belonging to these families while by comparison with other European countries a total Italian fauna exceeding 500 species may be expected. The Italian fauna is poorly known, having not been studied by any specialists in this group and the checklist was a compilation from the literature. Because of this the identification of the species included in that list was uncritical and confirmation of many species is desirable. More collecting throughout Italy was necessary to achieve a good knowledge of the Italian fauna.

A start was made with identification of material from the Northern Apennines providing records of 115 species (10 Keroplatidae, 2 Diadocidiidae, 102 Mycetophilidae and *Heterotricha takkae* Chandler, 2002, of uncertain family position) of which 86 were new to Italy (Chandler 2003). It should be noted that in the latter work the codes indicating distribution outside Italy were added by the editors, based on the Palaearctic Catalogue (only covering literature up to 1982), so do not reflect recent increases in knowledge of the distribution of many species. A few species have been added to the Italian list in other recent papers (Zaitzev 2001; Matile 2002) and many others are to be added elsewhere, based on material in museum collections.

Here the results are presented of examination of collections made from 1998 to 2004 at Bosco della Fontana, a relict forest on the Po plain, situated near the town of Marmirolo in the province of Mantua, Lombardy in northern Italy. The forest habitats are fully described in the account by Mason et al. (2002). The holotypes and most of the paratypes are deposited in Entomological Collection of "Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale" at Verona; other paratypes are deposited in the Author's collection.

MATERIAL AND METHODS

A limited material from Bosco della Fontana, comprising 29 species, was examined from the surveys carried out from 1998 to 2001, details of which were omitted from the previous report on the fauna of the reserve (Mason et al. 2002). These were mainly pinned specimens caught by hand or car netting and a small amount of material from pitfall and Malaise trap samples. In order to augment this, further material collected using Malaise traps in 2003 and 2004 was kindly sorted and forwarded by Alessia Gibertoni (Mantua). This material came predominantly from trapping carried out in 2003 in connection with the degree thesis of Daniel Whitmore (Mantua) (cf. Cerretti et al. 2004) but also included some samples obtained in 2004 by the "CONECOFOR Programme". This more recent material together comprised 37 species, of which 21 were additional, bringing the total number of species recorded from the reserve to 50. Eight named species are newly recorded for Italy. Also new for the fauna are three species new to science and a female of *Allodia* subgenus *Brachycampta* that cannot be determined to species. Fourteen other species were among those added to the Italian list by Chandler (2003).

The species recorded are listed in alphabetical order of higher taxa, genera and species and the known distribution outside Italy is stated under each species. The number of specimens of each sex examined is stated and their months of occurrence are given in Roman numerals. The precise location was not always indicated for material from the 1998–2001 survey but where known the habitat is indicated, using the codes adopted by Mason et al. (2002) to indicate the predominant habitat in the different stands of the forest area:

Fx = Mesohygrophilous forest with *Fraxinus oxycarpa*
Qc = Mesoxerophilous forest with *Quercus cerris*
Qr = Mesophilous forest with *Quercus robur*

The material collected in 2003 was from two locations, respectively in habitat types Fx and Qc, while the 2004 material was from habitat type Qr. At each of the locations sampled in 2003 both canopy level and ground level traps were employed, with most material from the latter. However, 10 species were recorded from the aerial traps compared to 32 species from the ground level traps.

SPECIES LIST

DITOMYIIDAE

Symmerus annulatus (Meigen, 1830)
A widespread species in Europe.
3 males, 1 female. V–VI. Fx, Qc, Qr.

KEROPLATIDAE

KEROPLATINAE

Cerotelion striatum (Gmelin, 1790)
A widespread species in the Palaearctic.
2 males. V.2000, collected using a car net (autocatcher).

Isoneuromyia pseudochracea (Landrock, 1925)
New record for Italy. A widespread but uncommon species in Europe, with previous records from Belgium, Switzerland, Germany and Hungary.
1 male. VI. Qc.

Neoplatyura modesta (Winnertz, 1863)
New record for Italy. A widespread species in Europe.
86 males, 16 females. VI, VIII–X. Fx, Qc, Qr.

Neoplatyura nigricauda (Strobl, 1893)
A widespread species in Europe and the Near East. Recorded as new to Italy by Chandler (2003).
8 males, 2 females. VI, VIII–IX. Fx, Qc.

Orfelia excelsa Chandler, 1994
Described from Israel and since recorded from Spain. Recorded as new to Italy by Chandler (2003).
9 males, 6 females (probably conspecific). V, VIII–IX. Fx, Qc.

Orfelia nemoralis (Meigen, 1818)
A widespread species in Europe.
1 male, 1 female. IV–V. Qc.

Orfelia persimilis Caspers, 1991
This species was described from Sardinia, so is new to the mainland of Italy and there are records from other parts of southern Europe (Chandler, unpublished data). The records under *O. persimilis* group in Chandler (2003) are now also considered to relate to *O. persimilis*. It is, however, considered likely that *O. falcata* Zaitzev, 1994 described from the Eastern Palaearctic and since recorded from Finland and Karelia is synonymous.
6 males, 3 females. V–VI. Fx, Qc.

Orfelia unicolor (Staeger, 1840)
A widespread species in the Palaearctic.
1 males. V. Qc.

Pyratula perpusilla Edwards, 1913
New record for Italy. A widespread species in Europe, but several closely related species have been found to occur in the Mediterranean Region and in the Alps and Pyrenees, so occurrence of *P. perpusilla* itself in lowland Italy is of interest.
4 males, 3 females. IX. Fx, Qc, Qr.

Urytalpa ochracea (Meigen, 1818)
A widespread species in Europe.
7 males. IV. Fx.

MACROCERINAE
Macrocera phalerata Meigen, 1818
A widespread species in the Palaearctic, including North Africa.
3 males, 1 female. V–VI. Fx, Qc, Qr.

MYCETOPHILIDAE

GNORISTINAE
Apolephthisa subincana (Curtis, 1837)
A widespread species in Europe and the Near East. Recorded as new to Italy by Chandler (2003).
2 males, 1 female. IV, X. Fx, Qc, Qr.

Boletina sciarina Staeger, 1840
A Holarctic species. Some females of the *B. sciarina* group were also recorded but cannot be determined to species.
3 males. V–VI. Fx, Qc, Qr.

Ectrepesthoneura colyeri Chandler, 1980
A widespread species in Europe. Recorded as new to Italy by Chandler (2003).
3 males. V–VI. Fx, Qc, Qr.

Ectrepesthoneura hirta (Winnertz, 1846)
A widespread species in Europe. Recorded as new to Italy by Chandler (2003).
14 males, 7 females. V–VI. Fx, Qc, Qr.

Synapha fasciata Meigen, 1818
A widespread species in Europe.
10 males, 2 females. V. Fx.

Synapha vitripennis (Meigen, 1818)
A widespread species in Europe. Recorded as new to Italy by Chandler (2003).
52 males, 9 females. IV–V. Fx, Qc, Qr.

LEIINAE
Docosia gilvipes (Haliday in Walker, 1856)
A widespread species in the Palaearctic, including the Near East and Atlantic Islands.
1 male. V. Fx.

Docosia moravica Landrock, 1916
A widespread species in the Palaearctic. Recorded as new to Italy by Chandler (2003).
7 males, 1 female. IV–V. Fx, Qc, Qr.

Docosia sciarina (Meigen, 1830)
A widespread species in Europe.
6 males, 7 females. III–V. Fx, Qc, Qr.

Docosia sp.
New genus for Italy. One male of a possibly undescribed species was recorded.
1 male. IV. Qc.

Leia fontana **sp. nov.**
TYPE MATERIAL. Holotype male, ITALY, Mantova, Marmirolo, Riserva Naturale Bosco della Fontana, 17.II.2000, leg. NRBF State Forestry Corps, sweep net. Paratypes: 1 female, same data as holotype; 1 female, same locality, 7–14.X.2003, Malaise trap 1B, leg. P. Cerretti & D. Whitmore; 1 female, same locality, 14–21.X.2003, Malaise trap 2B, leg. P. Cerretti & D. Whitmore.

DIAGNOSIS. A mainly yellow species with conspicuous dark markings on the thorax and abdomen, and the wings with only a broad but ill-defined and faint preapical marking.

DESCRIPTION. Male. Head yellow. Antenna about 3.5 times height of head in length, with median flagellomeres nearly 3 times as long as broad; scape and pedicel yellow; flagellomeres 1–4 yellow ventrally, with a dorsal brown marking broadening progressively until it occupies entire apical margin of flagellomere 4; remaining flagellomeres entirely brown. Palpus yellow, slender, shorter than head height.
Thorax (fig. 1) yellow except for shining black markings as follows: a large lateral spot on each side of mesoscutum above wing base, extending from suture to scutellum, separated by about their width in dorsal view; entire anepisternum, anepimeron and laterotergite; lateral margin of mediotergite. Thoracic bristling yellow, including pair of long prescutellars and two pairs of scutellar setae; laterotergite bearing fine yellow hairs. Legs

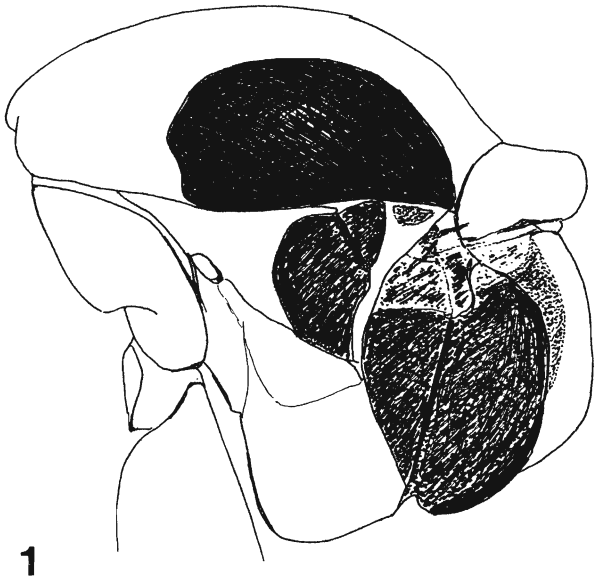


Fig. 1. *Leia fontana* sp. n.: lateral view of thorax to show colour pattern (head to left).

yellow except for brown dorsal shade on basal half of hind femur; tibial setae brown, spurs yellow. Wing (fig. 3) clear yellowish with brown veins; preapical band weak, faintly brownish, extending from costa across vein M_{2}, posterior fork with anterior branch weak and appearing interrupted at base. Haltere yellow.

Abdomen yellow except for brown markings as follows: tergite 1 all brown; tergites 2–5 with broad brown band occupying apical half; tergite 6 and segments 7–8 only narrowly brownish on apical margin. Genitalia (figs 4–7) dark brown, except for yellowish cerci; gonostylus slender, narrowly hooked and pointed apically, with a subapical tooth; aedeagus (fig. 5) strongly sclerotised, with the parameres extended basad as slender processes, together with the slender median apodeme providing a three-pronged appearance.

Female. Similar to male but antenna shorter, only about 2.5 times head height in length and flagellomeres less than twice as long as broad. Coloration similar but tergites 2–4 broadly brown on less than apical half, 5–6 on more than apical half; tergite 7 and ovipositor yellow; sternites 4–8 vaguely brownish. Ovipositor (fig. 8) with cercus slender but short, with apical segment hardly as broad as basal segment.

Wing length of male 3.8 mm (one example), of female 3.7–5.0 mm (three examples).

ETYMOLOGY. This species is named for the type locality and "*fontana*" is a noun in apposition.

ECOLOGY. The precise location for the swept specimens is not known. Those from the Malaise trap samples were respectively from the habitat types Fx (mesohygrophilous forest with *Fraxinus oxycarpa*) and Qc (mesoxerophilous forest with *Quercus cerris*).

DISCUSSION. This species is distinguished from other known species of *Leia* Meigen, 1818 by the structure of its male genitalia, in particular the three-pronged aedeagal structure not known in other species. The body coloration resembles that of the Holarctic species *L. bilineata* (Winnertz, 1863), especially in the marking of the mesoscutum, both lacking a median stripe but with large lateral postsutural black spots. However, in *L. bilineata* these spots only partly reach the suture, leaving a yellow lateral triangle and they are more narrowly separated, by much less than their width in dorsal view. Also *L. bilineata* has wing markings similar to *L. padana* sp. nov. described below and different genital structure.

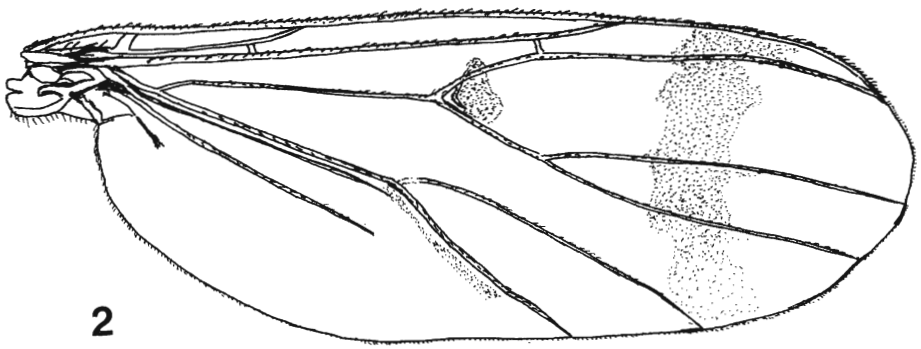
Leia padana **sp. nov.**

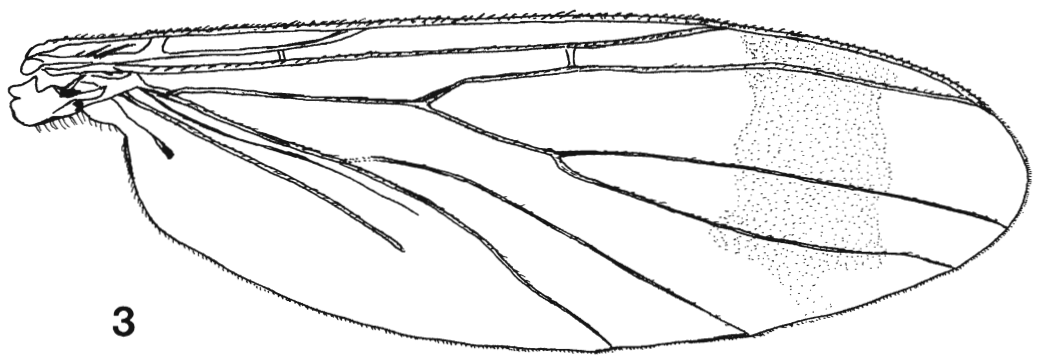
TYPE MATERIAL. Holotype male, ITALY, Mantova, Marmirolo, Riserva Naturale Bosco della Fontana, 23–30.IX.2003, Malaise trap 1B, leg. P. Cerretti & D. Whitmore. Paratypes (all from same locality as holotype, all collected by Malaise traps): 1 male, 3 females, same data as holotype; 1 female, 13–20.V.2003, trap 1B, leg. P. Cerretti & D. Whitmore; 2 males, 1 female, 13–27.V.2003, trap 2B, leg. P. Cerretti & D. Whitmore; 1 female, 10–17.VI.2003, trap 2B, leg. P. Cerretti & D. Whitmore; 1 female, 8–16.VII.2003, trap 2B, leg. P. Cerretti & D. Whitmore; 1 male, 9–16.IX.2003, trap 1A, leg. P. Cerretti & D. Whitmore; 3 females, 16–23.IX.2003, trap 1B, 1 female, 23–30.IX.2003, trap 2B, leg. P. Cerretti & D. Whitmore; 1 female, 30.IX–7.X.2003, trap 1B, leg. P. Cerretti & D. Whitmore, 1 male, 3 females, 7–14.X.2003, trap 1B, leg. P. Cerretti & D. Whitmore; 2 females, 14–21.X.2003, trap 2B, leg. P. Cerretti & D. Whitmore; 1 female, 21–27.X.2003, trap 1B, leg. P. Cerretti & D. Whitmore; 1 male, 1 female, 18.VI–13.VII.2004, leg. E. Minari; 3 males, 1 female, 13–27.VII.2004, leg. E. Minari.

OTHER MATERIAL (same locality as holotype): 1 without abdomen, 15.V.1998, collected by Autocatcher in stand 3, leg. A. Tagliapietra; 1 female, 16.VI.1998, Autocatcher, stand 3, leg. A. Tagliapietra; 1 female, VI.1998, Malaise trap, stand 12, leg. F. Mason & A. Tagliapietra.

DIAGNOSIS. A mainly yellow species with light brown markings on the body and the wing bearing distinct brown markings including a preapical band and a medial spot over crossvein r-m.

DESCRIPTION. Male. Head yellow with a brown





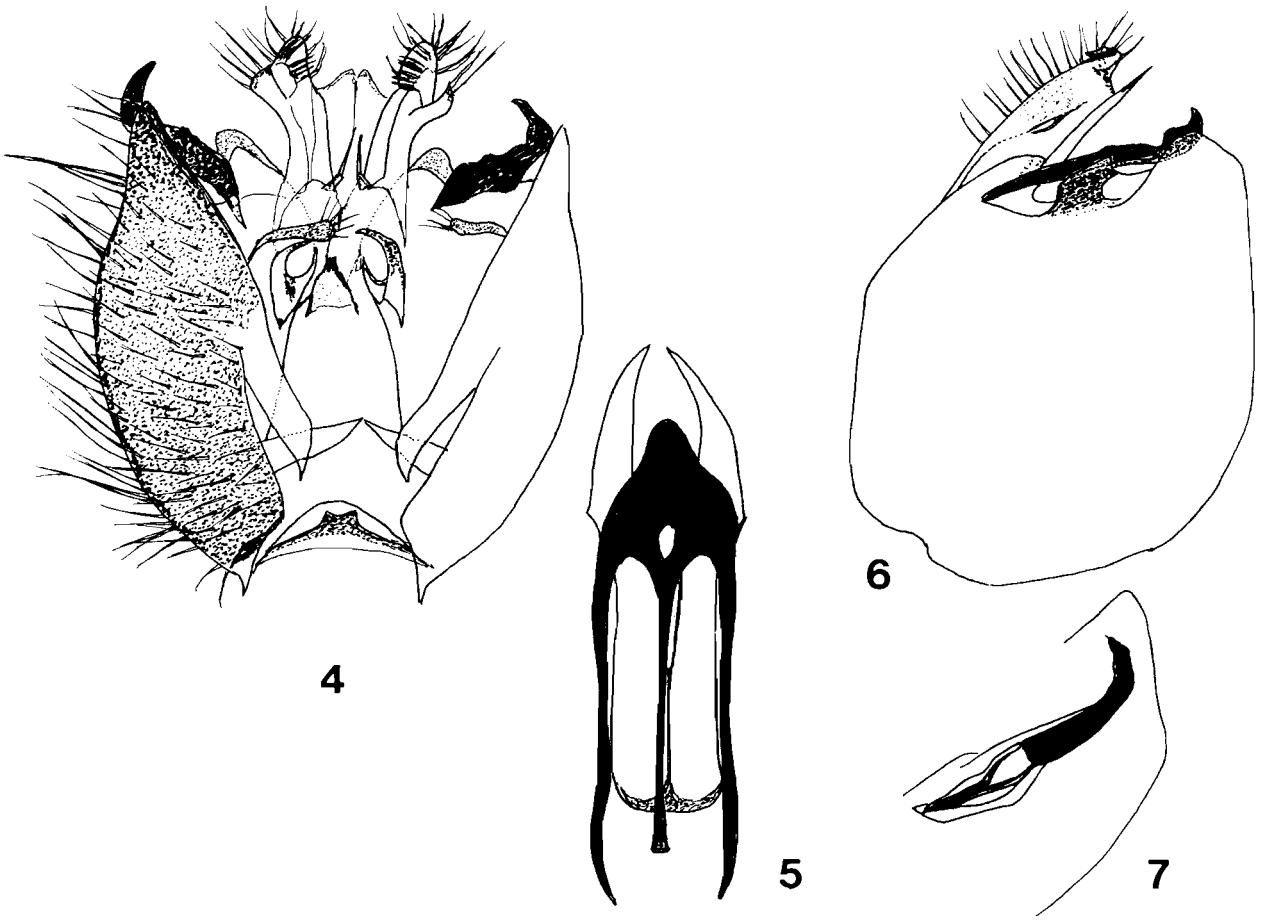
Figs 2–3. *Leia* species, dorsal view of right wings: 2 – *L. padana* **sp. nov.**; 3 – *L. fontana* **sp. nov.**

patch dorsally behind ocelli. Antenna about twice as long as head height, with median flagellomeres only slightly longer than wide; scape, pedicel and base of first flagellomere yellow, flagellum otherwise brown. Palpus yellow, slender, as long as head height.
Thorax mainly yellow; mesoscutum broadly yellow laterally with on disc a narrow median brown stripe on its entire length and closely approximated to it on each side a postsutural stripe also extending to the scutellum; scutellum and mediotergite also brown medially, yellow laterally; pleura yellow and laterotergite yellow except for a brown patch on its lower margin. Thoracic bristling brown, including long setae on margin of mesoscutum, pair of strong prescutellars and two pairs of scutellar setae; laterotergite clothed with brown bristly hairs. Legs yellow except for dark apical sixth to hind femur; tibial setae dark, spurs yellow. Wing clear except for brown veins and markings as in fig. 2; posterior fork with anterior branch weak and appearing interrupted at base. Haltere yellow.
Abdomen yellow except for markings on tergites 1–5: a narrow apical band broadened medially and narrowly produced to fore margin; tergite and sternite 6 mainly brown, yellow only on apical margin. Genitalia (figs 10–11) yellow; gonostylus simple, but broadly bowed, broadened subapically and pointed apically; aedeagus sclerotised apically, apodeme weakly sclerotised, deeply bilobed cephalad.
Female. Similar to male, but thoracic markings may be very indistinct; markings on tergites 1–5 a little broader laterally; tergite and sternite 6 entirely dark; segment 7 and ovipositor yellow; ovipositor (fig. 4) with cercus broad basally, its basal segment tapered apically; apical segment small, rounded and inset basally. Antenna shorter than in male, about 1.7 times head height in length, with flagellomeres short as in male.
Wing length of male 3.4–4.1 mm, of female 3.3–4.8 mm.

Etymology. From the Latin "*padanus, a, um*" refers to the region holding the type locality.

Ecology. This species has been collected in the three habitat types Fx (mesohygrophilous forest with *Fraxinus oxycarpa*), Qc (mesoxerophilous forest with *Quercus cerris*) and Qr (mesophilous forest with *Quercus robur*) so is evidently widespread and frequent at "Bosco della Fontana".

Discussion. In wing markings this species resembles the Holarctic *L. bilineata* as well as the



Figs 4–7. *Leia fontana* **sp. nov.**, male genitalia: 4 – dorsal view of gonocoxites after removal of sternite 9 and aedeagus; 5 – aedeagus, dorsal view; 6, lateral view of gonocoxites, gonostylus and cercus; 7 – posterior view of gonostylus.

Mediterranean species *L. beckeri* Landrock (known from Algeria and the Canary Islands; requiring confirmation from mainland Spain), but differs from these species in the structure of the male genitalia. It also differs from *L. bilineata* in the thoracic markings, having three closely approximated stripes on the disc of the mesoscutum and lacking the large lateral spots of *L. bilineata* and *L. fontana* sp. nov. The wing markings may be faint in *L. beckeri*, which has similar body coloration to *L. padana* but the median thoracic stripe stops short of the scutellum and the abdominal bands are not produced forwards medially. The aedeagus is similar in structure in *L. beckeri* with a broad sclerotised apical part but the apodeme is only bilobed at the tip and the form of the gonostylus differs, being broad basally with a slender apical lobe, while in *L. padana* it is sinuous and broadened subapically. The antenna is also relatively longer in both sexes in *L. beckeri*, with median flagellomeres up to 3 times as long as broad in the male but less than twice as long as broad in the female.

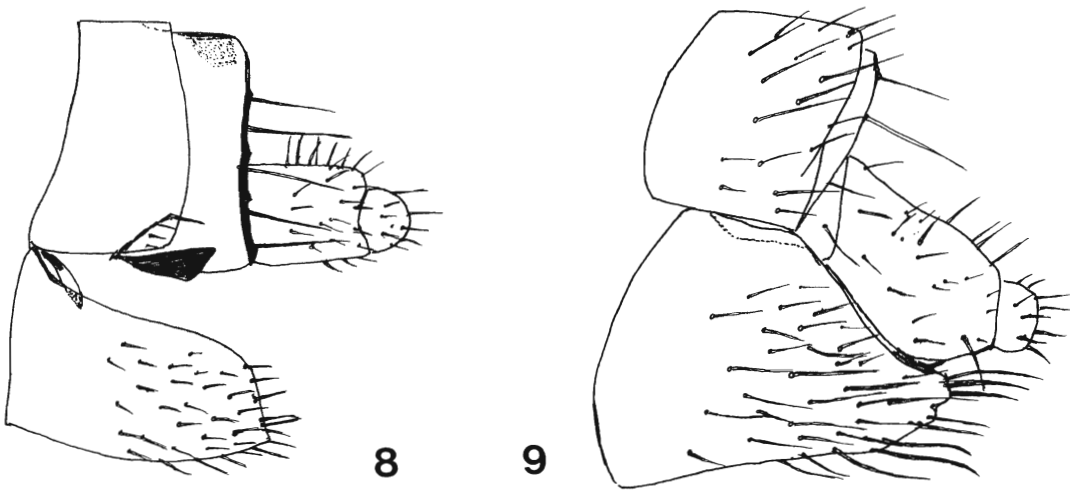
Megophthalmidia crassicornis (Curtis, 1837)
New record for Italy. A widespread species in Europe.
15 males, 22 females. IV–VI. Fx, Qc, Qr.

MYCETOPHILINAE
Allodia (*Allodia*) sp.
One female was recorded. Males are necessary for determination.
1 female. III. Habitat unrecorded.

Allodia (*Brachycampta*) sp.
One female was recorded. This subgenus is new to Italy but males are necessary for determination.
1 female. II. Habitat unrecorded.

Brevicornu griseicolle (Staeger, 1840)
A widespread species in the Palaearctic. Recorded as new to Italy by Chandler (2003).
3 males. IV. Fx, Qc.

Cordyla crassicornis Meigen, 1818
A widespread species in the Palaearctic.
3 males, 1 female. IV. Qc.



Figs 8–9. *Leia* species, left lateral view of ovipositors: 8 – *L. fontana* sp. nov.; 9 – *L. padana* **sp. nov.**

Cordyla murina Winnertz, 1863
A widespread species in the Palaearctic. Recorded as new to Italy by Chandler (2003).
1 male. IV. Qc.

Cordyla pusilla Edwards, 1925
New record for Italy. A widespread species in the Palaearctic.
2 males. IV–V. Fx, Qc.

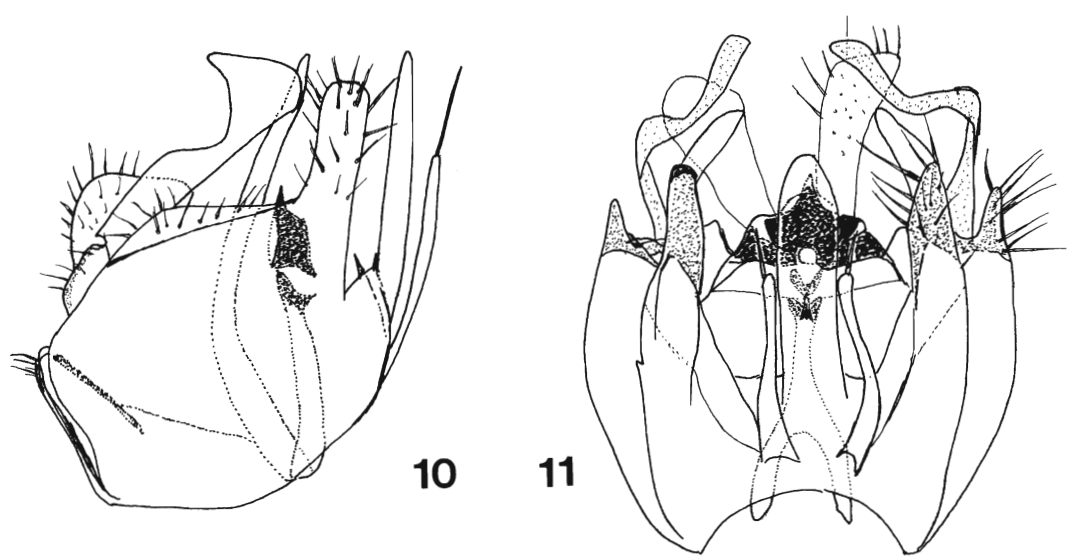
Exechia fusca (Meigen, 1804)
A common Holarctic species.
1 male. II. Habitat unrecorded.

Mycetophila alea Laffoon, 1965
A common Holarctic species.
2 males. V–VI. Habitat unrecorded.

Mycetophila stolida Walker, 1856
A Holarctic species.
4 males. IV–V. Qc.

Mycetophila trinotata Staeger, 1840
A common Holarctic species.
1 female. IV. Fx.

Rymosia spinipes Winnertz, 1863
A widespread species in the Palaearctic.
1 male. II. Habitat unrecorded.



Figs 10–11. *Leia padana* **sp. nov.**, male genitalia: 10, lateral view; 11, dorsal view

Sceptonia flavipuncta Edwards, 1925
A widespread species in Europe. Recorded as new to Italy by Chandler (2003).
1 male. IV. Fx.

Sceptonia humerella Edwards, 1941
New record for Italy. This is an uncommon European species with previous records from Great Britain, Germany and Bulgaria.
2 males. V–VI. Fx.

Zygomyia valeriae Chandler, 1991
A widespread species in Europe and the Near East. Recorded as new to Italy by Chandler (2003). One male was examined from Bosco della Fontana. A female previously recorded there may be this species or *Z. valida* Winnertz, 1863.
1 male. IV. Qc.

Zygomyia vara (Staeger, 1840)
A Holarctic species. Recorded as new to Italy by Chandler (2003).
1 male. IV. Fx.

Mycomyinae
Mycomya (*Mycomya*) *flavicollis* (Zetterstedt, 1852)
A widespread species in Europe and the Near East.
14 males, 7 females. V–VI. Qc, Qr.

Mycomya (*Mycomyopsis*) *maura* (Walker, 1856)
New record for Italy. A widespread species in Europe.
237 males, 122 females. IV–V. Fx, Qc.

Mycomya (*Mycomyopsis*) *trilineata* (Zetterstedt, 1838)
A widespread species in the Palaearctic.
8 males, 15 females. VI–VII, IX. Qc, Qr.

Neoempheria striata (Meigen, 1818)
A widespread species in the Palaearctic.
1 male. VIII. Fx.

SCIOPHILINAE
Acnemia amoena Winnertz, 1863
A widespread species in the Palaearctic.
1 female. VI–VII. Qr.
Acnemia nitidicollis (Meigen, 1818)
A widespread species in the Palaearctic. Recorded as new to Italy by Chandler (2003).
16 males, 5 females. IV–VII. Fx, Qc, Qr.

Monoclona rufilatera (Walker, 1837)
A Holarctic species. Recorded as new to Italy by Chandler (2003).
7 males. IV–V. Fx, Qc, Qr.

Sciophila interrupta (Winnertz, 1863)
An uncommon European species with records outside Italy from Austria, the Czech Republic, Germany, Great Britain and Russia.
7 males, 1 female. V–VI. Fx, Qc.

Sciophila silvatica Plotnikova, 1962
New record for Italy. This was described from the eastern Palaearctic and in Europe has only been recorded from Switzerland. There are unpublished records from Portugal, where it has also been found in numbers.
77 males, 5 females. IV–V, IX. Fx, Qc.

Sciophila sp.
This is a female of the *lutea* group, of which there are several closely allied species in the Mediterranean Region.
1 female. IX. Qc.

DISCUSSION

The species composition is notable for the absence of Bolitophilidae and the poor representation of the subfamily Mycetophilinae, both groups that mainly develop in the fruiting bodies of the larger fungi. The species developing in terrestrial gill fungi were especially low in numbers of species and individuals, presumably due to dry conditions prevailing during the times of the surveys and Mason et al. (2002) noted the water deficit on the site in July and August. The paucity of autumn samples may also be a factor in the relatively low diversity recorded for the fauna. Indeed only 12 of the 50 species recorded are associated with the larger fungi although several others require dead wood or wood encrusting fungi.
It is apparent from the distribution outside Italy, as stated above for each species, that most of the species are widespread in Europe or more widely in the Palaearctic Region, with seven species having a Holarctic distribution. Two species of *Orfelia* Costa, 1857, *O. excelsa* and *O. persimilis* have an apparently more Mediterranean distribution although it is suggested that *O. persimilis* may be synonymous with the more widely recorded *O. falcata*. *Isoneuromyia pseudochracea* is rarely recorded but proving to be widespread in Europe. *Mycomya maura* is a mainly western European species that is probably under-recorded because it flies early in the year,

from March to May and it was striking that it was by far the commonest species in this material with most specimens being recorded in April.

The large number found of *Sciophila silvatica* is also interesting. This species was described from the eastern Palaearctic and in Europe has only been recorded from Switzerland (Chandler 1998). However, it has also been examined in numbers from Portugal so is apparently a southern species in Europe. The European specimens agree well with the figure of the male genitalia by Zaitzev (1982) except in having a blunter apex to tergite 9 and are assumed to be *S. silvatica* pending examination of material from intervening areas.

In view of the overall findings it is rather surprising that two apparently undescribed species of the genus *Leia* should have been found. The first species, *Leia fontana* sp. nov. is represented by only one male and three females, and is particularly distinctive in its body markings, especially the shining black marking above the wing base. The second species, *L. padana* sp. nov., represented by a larger material of both sexes, is more extensively yellow but with distinctive wing markings. In both cases the genitalia are different in structure from previously known European species.

A male of the genus *Docosia* Winnertz 1863 possibly also represents an undescribed species but related species exist in central Europe, where this genus is under revision by Jan Ševčík (Opava, Czech Republic). Description of this species is deferred pending appearance of his revision.

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