NEW TRICHOPTERA SPECIES AND SUBSPECIES FOUND IN ITALY

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SUMMARY

A number of new species and new subspecies – *Rhyacophila foliacea, R. italica, R. italica ilvana, Oxyethira hartigi, O. pirisinui, Hydroptila ruffoi, Wormaldia copiosa botosaneanui, W. mediana nielseni, W. pulla marlieri, W. variegata denisi, Polycentropus malickyi, Tinodes apuanorum, T. bruttius, Halesus radiatus vaillanti, Beraea botosaneanui, B. crichtoni, B. ilvae* – are described and illustrated by a series of drawings. Others – *Drusus aprutiensis, D. camerinus, Mesophylax aspersus sardous, Sericostoma cianficconii, S. italicum* – are further described and the females of these species are reported for the first time. The previously unknown *Halesus nurag* Mal. and *Micropterna wageneri* Mal. females are also described. The *Polycentropus* listed as *Polycentropus* sp. Moretti (1941) in Limnofauna Europaea (1978) is now considered a good species and has been named *P. sardous.*

INTRODUCTION

A revision of my collection, undertaken with the intention of compiling a first list of Italian Trichoptera, made it evident that some of the new species and subspecies, as well as previously unknown ♀♀ required description.

Some of the species belonging to the *Polycentropus, Drusus* and *Sericostoma* genus, already reported (Moretti 1941, Moretti and Cianficconi 1976, 1978) and figured, were awaiting the choice of a specific name and holotype and allotype citation. This information is now presented.

Owing to the fact that the distinguishing characteristics of some species and subspecies are taxonomically more complex they have been described and discussed in greater detail, while others, being more easily distinguishable, are dealt with only briefly.

Seven of the 22 new taxa are from the Italian islands, nine from the Central Italy, three from the Central-Southern and three from Southern Italy. The paratypes are very numerous because my investigation has been carried out for almost 40 years and, in consequence, I have accumulated a great number of specimens from different regions of Italy. The exact locality,

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the date and the name of the collector have been omitted for reasons of space. They will, however, be reported in a future detailed catalogue of Italian Trichoptera.

DESCRIPTION OF NEW SPECIES

Rhyacophila foliacea n. sp. (Fig. 1)

Antennae and legs greyish-brown, anterior wings brownish with small darker markings in two transversal lines and a pale triangular field delimited by a dark line on the middle of the posterior margin. Wing spread: ♂ 24–27 mm, ♀ 25–30 mm.

Clearly differentiated from *R. vulgaris* (B), to which it is related, by the following ♂ genitalia characters: dorsal appendage of aedeagus narrower and more elongated with convex upper margin (a and a′), aedeagus with a ventral, proximal protruding triangle and pointed apex (b and b′), ventral lobe of aedeagus shaped like an oval leaf not like a hockey-stick (c and c′), dorsal apical lobe of 9th segment is not dilated half way along (d and d′), the preanal appendages are regularly curved, not sinuous on the outer margin (e and e′).

R. vulgaris is diffused in the Alps, Prealps and North Apennines, while *R. foliacea* inhabits a well-defined area of the Central Apennines. The related *R. hartigi* is found in Calabria and Sicilia. All these species are reophyls of fast-running streams.

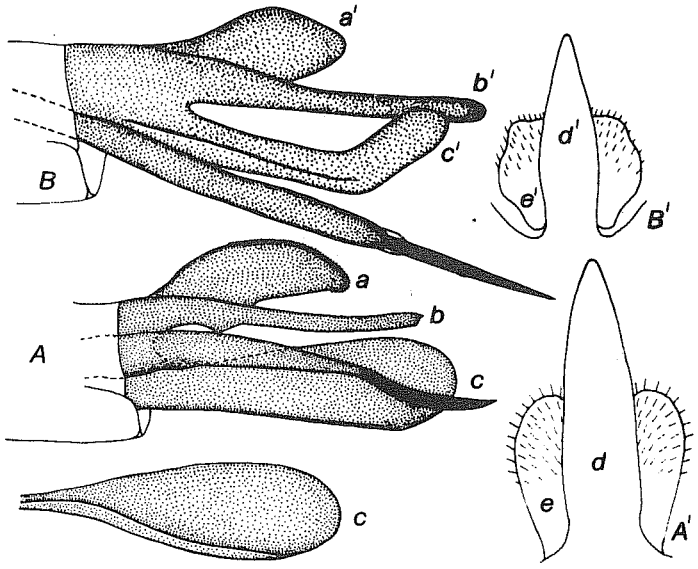

Fig. 1. A and A′ = *Rhyacophila foliacea* n. sp.; B and B′ = *Rhyacophila vulgaris* Pictet, ♂ genitalia: a and a′ = dorsal appendage of aedeagus, b and b′ = aedeagus, c and c′ = ventral lobe of aedeagus, d and d′ = dorsal apical lobe of the 9th segment, e and e′ = preanal appendages.

Holotype ♂ and allotype ♀: Marche, Torrente Scarzito, 600 m, Camerino, Macerata, 22.7.1953, leg. Moretti; paratypes ♂♂ ♀♀ collected between 1953 and 1979: Toscana 1♂ 3♀, Umbria (the Menotre and Sordo rivers) 24♂ 6♀, Marche (the Potenza, Esino and Nera rivers) 46♂ 8♀, Lazio (River Velino) 13♂ 4♀, Abruzzi (River Sangro, several streams) 44♂ 1♀, Molise (River Biferno and tributaries) 45♂ 10♀. In Moretti's collection, Perugia. Marche and Umbria 7♂ 4♀, in Malicky's collection, Lunz am See, Austria.

Derivatio nominis. Named for the characteristics leaf-like ventral aedeagus lobe.

Rhyacophila italica n. sp. (Fig. 2)

Antennae and legs greyish-brown. Anterior wings yellow-brown with clear visible greyish-brown markings, also at the apex, pale triangular area edged by a brown line at posterior margin, pterostigmatic region more visible in ♂ than ♀. Wing spread: ♂ 21–30 mm, ♀ 26–34 mm. Related to *R. rougemonti* McL., *R. pallida* Giudicelli, *R. trifasciata* Mosely, *R. tarda* Giudicelli, but differs from them in its dorsally turned parameres. In *R. rougemonti* and *R. tarda* they have the regular down curve, while in *R. pallida* they swell before the apex and in *R. trifasciata* they form a down-turned right-angled hook. In

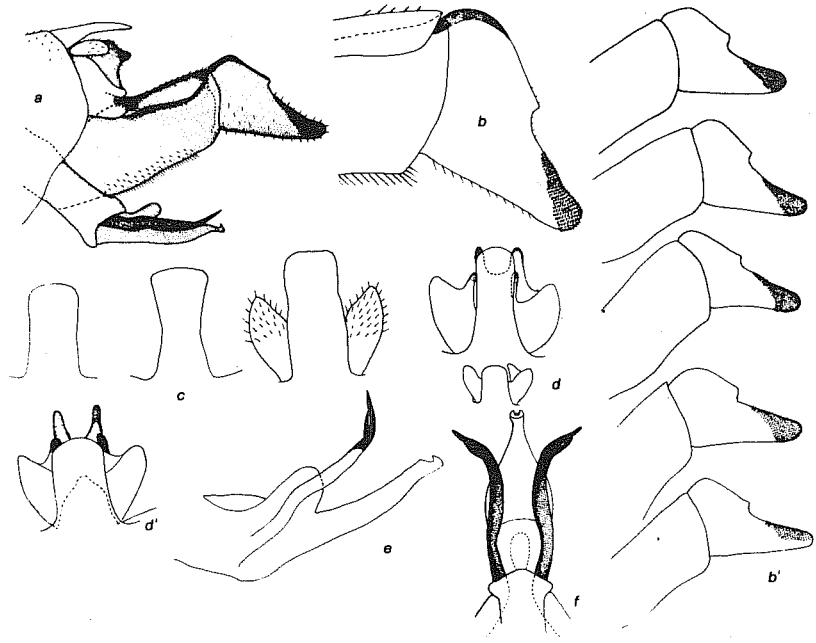

Fig. 2. Rhyacophila italica n. sp. ♂ genitalia: a = side view, b and b' = second joint of the inferior appendages and its variability, c = apical lobe of the 9th segment and its variability, d and d' = idem and preanal appendages, e = aedeagus and parameres side view, f = the same from above.

the Sardinian and Corsican species the dorsal branch of aedeagus is not very pronounced, while in *R. italica* it is markedly lobed as in *R. rougemonti.* The parameres of *R. italica* have a forked apex with branches of unequal length that slightly overlap (e, f). *R. italica* is easily distinguishable from the South Italian and Sicilian *R. rougemonti* as the indentation on the second joint of the inferior appendages is less marked and shows a certain variability (b and b′). The 9th segment dorsal apical lobe is subrectangular with the lateral margins sometimes turned in and a more or less convex anal margin (c). Variability has also been noted in the preanal appendages (d and d′). *R. rougemonti* is a reophyl which prefers clear waters, whereas *R. italica* is also found in sluggish, torbid, stagnant waters. The larvae and eggs of this species have recently been described (Moretti et al. 1978).

Holotype ♂ and allotype ♀: Marche, Fonti di Selvazzano, 655 m, Camerino, Macerata, 2.7.1953, leg. Moretti; paratypes ♂♂ ♀♀ collected between 1953 and 1980: Emilia Romagna (River Tiber) 24♂ 5♀, Toscana (River Tiber and tributaries) 13♂ 6♀, Umbria (tributaries of the River Tiber) 78♂ 90♀, Marche (several springs) 13♂ 5♀. In Moretti's collection. Umbria 1♂ 1♀ in Malicky's collection. 1♂ 1♀ was presented to all trichopterologists who attended to the 3rd Symposium on Trichoptera.

The name indicates its Central Italian distribution.

Rhyacophila italica ilvana n. ssp. (Fig. 3)

This *Rhyacophila* qualifies as a subspecies because the dorsal apical lobe of the 9th segment of the ♂ (d) forms a longer narrower cone than it is in *R. italica*

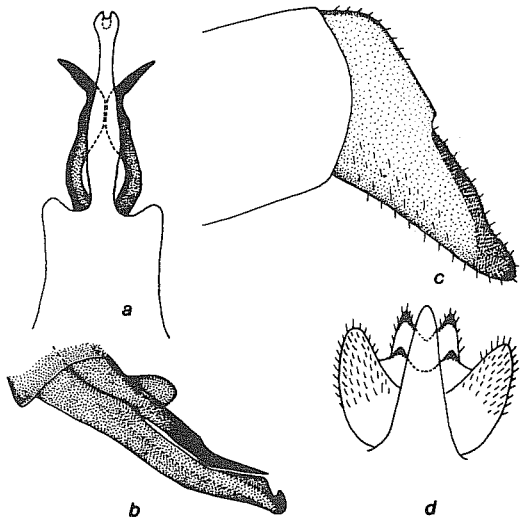

Fig. 3. Rhyacophila italica ilvana n. ssp. ♂ genitalia: a and b = aedeagus and parameres, c = second joint of the inferior appendages, d = dorsal apical lobe of the 9th segment and preanal appendages.

and the aedeagus (a, b) is more slender. The second joint of the inferior appendages (c) and preanal appendages (d) as in *R. italica.*

Holotype ♂: Isola Elba, Fosso Pedalta, 31.8.1957, 3 paratypes ♂, 2-6.10.1958, leg. Viganò, Gianotti, in Moretti's collection; 1♂ in Malicky's collection.

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Oxyethira hartigi n. sp. (Fig. 4)

Is related to *O. fischeri* Higler and *O. falcata* Morton. The 8th segment is larger than the 9th and the tergite is longer than the sternite. Three black spines on each side on the 8th tergite, anal margin flanked by a more slender, shorter dorsally placed black spine (b). There is a large black spine on the allongated lobe on the lateral margin of the 8th segment (a). The subgenital appendages lateral to the aedeagus are very sclerified, notched at the apex with a ventrally directed process with an overhanging strong apical seta (a). The under process has a long strong seta (a). The inferior sclerified appendage turns up like the beak of a bird (a). The aedeagus apex is characterized by a triangular edge, free of teeth (b). There is a spiney longitudinal endophallic process, whereas the pointed titillator is on the upper part of aedeagus.

Holotype ♂ and paratypes 4 pupae ♂: Sardegna, Sorgente Monti, 450 m, Sassari, 27.3.1964, leg. Pirisinu, in Moretti's collection.

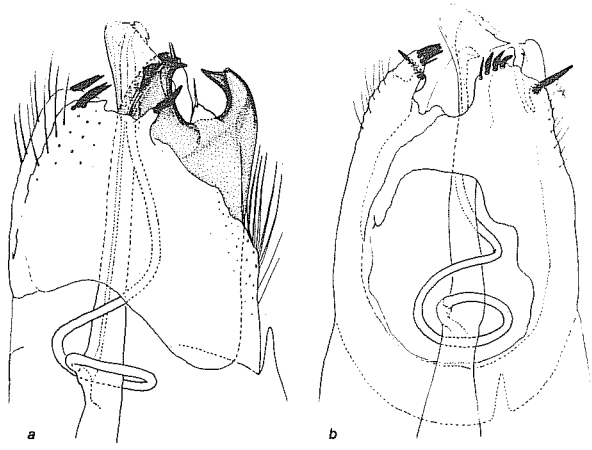

Fig. 4. Oxyethira hartigi n. sp. ♂ genitalia: a = side view, b = dorsal view.

I dedicate this species to the memory of my much missed friend F. Hartig who collected many trichoptera for me in various parts of Italy.

Oxyethira pirisinui n. sp. (Fig. 5)

Related to *O. simplex* Ris. The centre of the apex of 8th sternite seen laterally extends into a conical appendix (b). Dorsally the 9th segment is reduced to a narrow strip. Inferior appendages terminate in a pair of long pigmented claws, which seen ventrally curve outwards; seen laterally they curve downwards (b). The finger-like cylindrical-conical lobes of the 9th segment are equipped with two robust apical setae (a). Wide-based bilobed process with a robust seta on the lateral apical border. Seen laterally the subgenital appendages are spatula-like subtriangular with a ventrally turned vertex (b). Spiney scythe-shaped titillator. Two thorn-like sclerites run the full length of the fleshy apically-dilated aedeagus, which is hooked ventrally.

Holotype ♂, allotype ♀ and paratypes 6♂ 1♀ : Isola Capraia, Vado del Porto, 10 m, 9.6.1972, leg. Pirisinu; 1 paratype ♂: Sardegna, Siniscola, Sorgente S. Giuseppe 50 m, Nuoro, 22.10.1971, leg. Cacchiani, in Moretti's collection.

I dedicate this species to my student Q. Pirisinu who collected it on the edge of a small residual pool in the dry bed of a stream and in hygropetric surroundings on the Isle of Capraia.

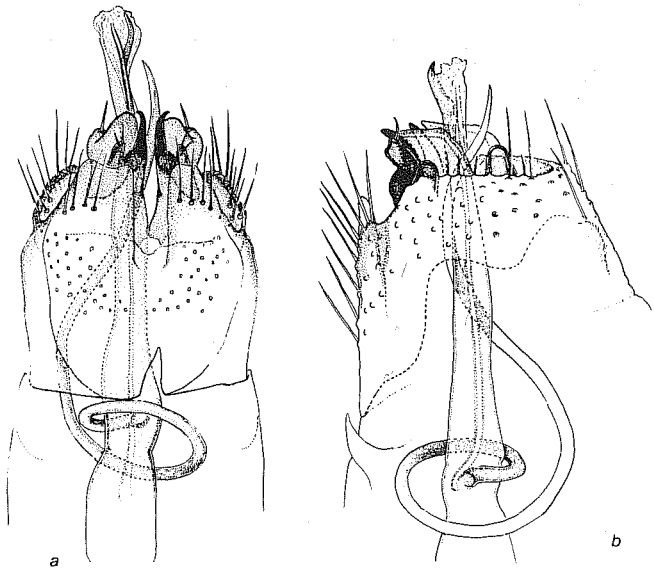

Fig. 5. Oxyethira pirisinui n. sp. ♂ genitalia; a = from below, b = side view.

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Hydroptila ruffoi n. sp. (Fig. 6)

Similar to *H. fuentaldeala* Schmid. Body length: 2 mm (alcohol specimen). Prolongations of the 8th sternite have three robust, short, squamous comb-like spines (a, b). The 9th segment has sinuous posterior and convex anterior borders. The inferior appendages are not fused at the base, but form two long narrow processes, the finger-like outer one is furnished with 2 long setae, one preapical the other apical; the inner one has a cuspidate apex and a preapical seta (a, b, c). Ventral medial plate elongated with conical appendix hooked at apex (b, c). The 10th segment elongates into a dorsal plate which divides into two narrow lobes at the apex (a, b). The aedeagus is long, jointed into two partially interpenetrated terminal segments; the second is shaped like a beak (a, b). The paramere is twisted around the proximal aedeagus (b).

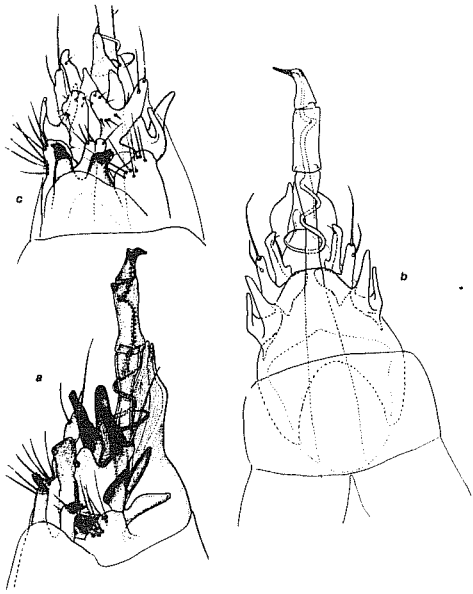

Fig. 6. Hydroptila ruffoi n. sp. ♂ genitalia: a = lateral view turned slightly to the left, b = ventral view, c = dorsal view turned 50° to the left.

Holotype ♂: Abruzzi, Monti della Laga, Rio Castellana, 1070 m, Teramo, 25.7.1978, leg. Moretti, in Moretti's collection.

This lovely but complicated species is dedicated to Prof. Sandro Ruffo, Director of the Natural Sciences Museum at Verona, in recognition of the interest he has always shown in my studies on Trichoptera.

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Wormaldia copiosa botosaneanui n. ssp. (Fig. 7)

Size and colouring as for *W. copiosa.* ♂ genitalia: Wide-based superior appendages which taper abruptly after the outer medial angle (A: a). In *W. copiosa copiosa* these appendages are cylindrical-conical and do not form

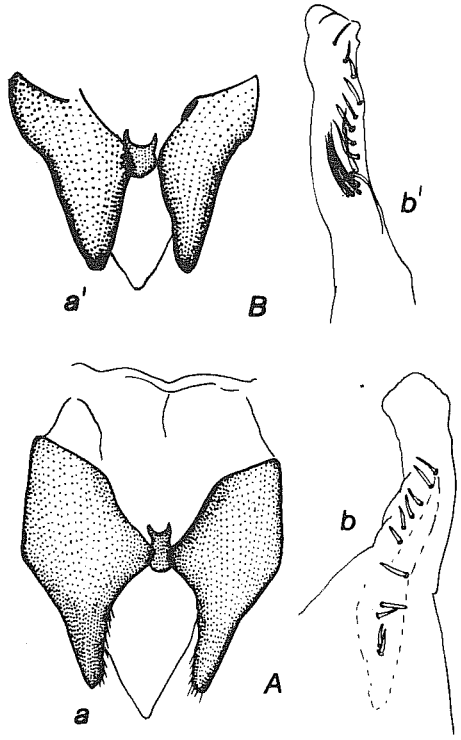

Fig. 7. A = *Wormaldia copiosa botosaneanui* n. ssp.; B = *Wormaldia copiosa*, ♂ genitalia: a and a′ = superior appendages, b and b′ = phallus endotheca.

a medial angle (B: a′). The phallus endotheca has a comb of a dozen short spines (A: b). In *W. copiosa copiosa* the proximal spines are longer, more supple and closer packed than the apical ones. Claspers as in *W. copiosa.*

Holotype ♂: Marche, Monti Sibillini, Sorgente del F. Tenna, 1180 m, Ascoli Piceno, 11.8.1955, leg. Tomasi; paratypes ♂♂ ♀♀ collected between 1955 and 1973: Emilia Romagna (Spring of the River Tiber) 1♂, Toscana (Pistoiese Apennine) 17♂ 9♀, Marche (Avellana spring) 7♂ 3♀, in Moretti's collection. Emilia Romagna 1♂ in Malicky's collection.

This new subspecies is dedicated to my friend and colleague L. Botosaneanu.

Wormaldia mediana nielseni n. ssp. (Fig. 8)

Size and colouring as for *W. mediana.* ♂ genitalia: Differs from *W. mediana* in its longer harpago which is less curved at the lower margin and more densely spiney on the inner apical surface (a). The phallus endotheca has ten apical spines arranged in the form of a hair-pin, the last four being longer and irregularly orientated (b). The other spines and the basal indented sclerites as in *W. mediana mediana* (c).

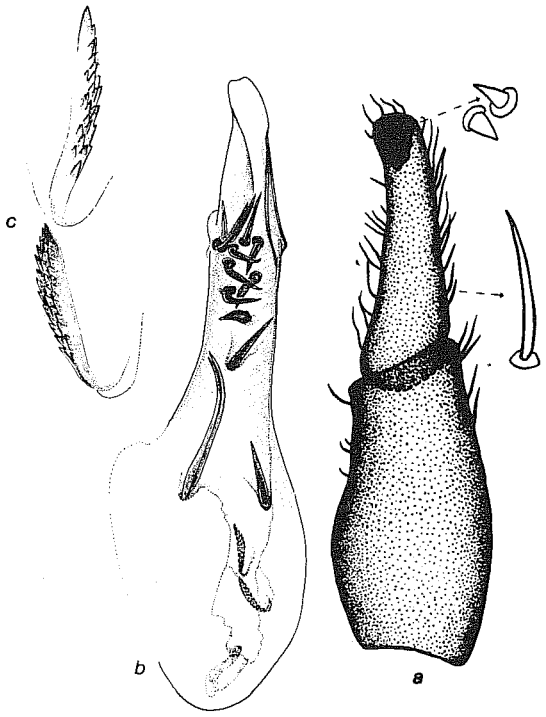

Fig. 8. Wormaldia mediana nielseni n. ssp., ♂ genitalia: a = harpago, b = phallus endotheca, c = basal indented sclerites.

Holotype ♂, allotype ♀, paratypes 24♂ 7♀: Calabria, Sila Grande, Fossiata, 1300 m, Cosenza, 8.8.1970, leg. Rotoloni. Several specimens collected between 1970 and 1976: Calabria (Sila Piccola, Aspromonte) 100♂ 44♀, Basilicata 2♂ 3♀, in Moretti's collection. Specimens collected from 1978 to 1979: Calabria (Sila Grande, Aspromonte) 37♂ 25♀, Sicilia (Peloritani Mounts) 17♂ 3♀, in Malicky's collection.

This subspecies is dedicated to the illustrious trichopterologist Prof. A. Nielsen.

Wormaldia pulla marlieri n. ssp. (Fig. 9)

Colouring and size as in *W. pulla*. Wide-based cerci with squat apical upturned hook, which is absent in *W. pulla pulla* (a). Phallus endotheca terminates in a large curved spine and a fine dorsal sclerite (d, e, f). Claspers have short wide coxopodite and the harpagones are narrowed at the base and rounded at the apex (b, c).

Holotype ♂, allotype ♀, paratypes 7♂: Toscana, Alpi Apuane, 150–800 m, Lucca and Massa, 19.6.1970, leg. Moretti and collaborators. In Moretti's collection.

I dedicate this new subspecies to my very capable colleague G. Marlier.

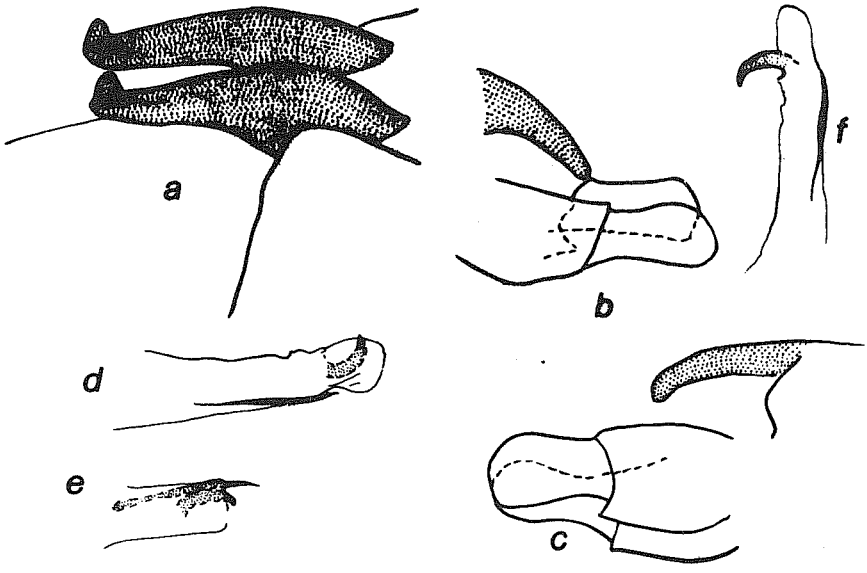

Fig. 9. Wormaldia pulla marlieri n. ssp., ♂ genitalia: a = cerci lateral view, b and c = claspers and cerci lateral view turned slightly to the left; d, e, f = apex of the phallus endotheca.

Wormaldia variegata denisi n. ssp. (Fig. 10)

This subspecies is similar to *W. variegata corsicana* Vaillant. (1974)

♂ genitalia: Eighth tergite with subtriangular notch at centre of anal margin (a). Tenth segment forms a long hook with rounded apex and has a

preapical dorsal spicule which curves upwards and backwards (b). Slightly outcurving cerci with convex inner border (c). Phallus endotheca with 4 large spines (d), the proximal one a very curved grooved hook with double border (b), the 3 apical ones are squat, two are flattened and of different length, one, which flanks the previous 2, has a double border which looks as though it had been made up of two spines placed one upon the other (f). Seen laterally, the clasper coxopodites are almost as long as the harpagones, but when viewed from below they are narrower in the middle than at the apex (g).

Holotype ♂, allotype ♀: Isola Elba, Fosso della Leccia, M. Capanne, 22.8.1957; paratypes ♂♂ ♀♀, 10.1958, leg. Viganò, Gianotti. In Moretti's collection.

I dedicate this new subspecies to my friend C. Denis.

Fig. 10. Wormaldia variegata denisi n. ssp., ♂ genitalia: a = 8th tergite, b = 10th segment and cerci from above, b' = apex of the 10th segment side view, c = cercus side view, d = phallus endotheca, e and e' = proximal spine, f and f' = distal spines, g = claspers.

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Polycentropus malickyi n. sp. (Fig. 11)

Related to *P. corsicus* Mos. and *P. flavomaculatus* Pictet. Head brown, cylindrical antennae with yellow and brown rings, meso and metanotum tergites dusky towards the wing joint. Brown anterior wings freckled with golden yellow. Posterior wings yellow-ochre. Abdomen brownish dorsally, paler ventrally. Legs testaceous yellow. Length of body: 9 mm, anterior wing length: 8 mm. ♂ genitalia: Middle lobe of 10th segment membranous, laminar seen from above, rectangular with straight border distally (c). Supple 10th segment processes bent like an S, its point is turned outwards (b, c) and it has a number of hairs. The superior appendages consist of one inner and one outer part. Seen from above the outer part is narrow at the base, then it widens and narrows again to form a cone at the apex (c). The inner part is wide and well sclerified from the base, it forms a robust elbow bent hook with the point turned ventrally (d, e). Seen from below the inferior appendages are long and rectangular, finish in a triangular point at the apex and have a proximal cusp (b). From the side there is a regular scope at the dorsal border after the cusp from where it tapers normally (a). The aedeagus is sinuous and equipped with 3 spines, one ventral preapical, two apical (a, b).

Fig. 11. Polycentropus malickyi n. sp., ♂ genitalia: a = side view, b = ventral view, c = dorsal view, d = superior appendage inner view, e = idem from above.

Holotype ♂, paratypes 2♂: Marche, F. Tronto, Ponte d'Arli, Ascoli Piceno, 30.8.1954, leg. Bellini; Toscana (River Tiber) 3♂, Campania pupa ♂. In Moretti's collection. Allotype ♀, paratypes 7♂ 3♀: Marche (River Tronto), Sicilia (Peloritani mounts) in Malicky's collection.

I dedicate this species to my colleague H. Malicky in friendship and in gratitude for his having named a beautiful Italian *Polycentropus* species after me.

Polycentropus sardous n. sp. (Fig. 12).

This species which is listed as *Polycentropus* sp. Moretti (1941) in Limnofauna Europaea (1978), is now redescribed and named *P. sardous* after the island where it is found. Similar to *P. mortoni* Mos. The ♂ mature pupa is completely sclerified and pigmented. The wings are black and scattered with tiny golden markings. Genitalia: Membranous middle lobe of 10th segment is rectangular with a straight distal border. The narrow and long superior appendages have a sinuous dorsal border and a slightly tapered turned-up apex (a). The inner part has a hooked point turned outwards and downwards which is less pointed than that of *P. mortoni* (b). Inferior appendages have a wide deep incision on the dorsal margin, so that they form 2 triangular lobes, the upper has a pointed apex, the lower has a sinuous dorsal margin with a spicule. Seen from the side these appendages have an angular notch which is much deeper than that of *P. mortoni*, seen from above they are lance-like with converging blades (b) and from below they are shaped like a pyramid with a pointed vertex (c).

Holotype pupa ♂: Sardegna, Alto Cedrino, demaniale Orgosolo, Nuoro, 7.1939, leg. Pomini.

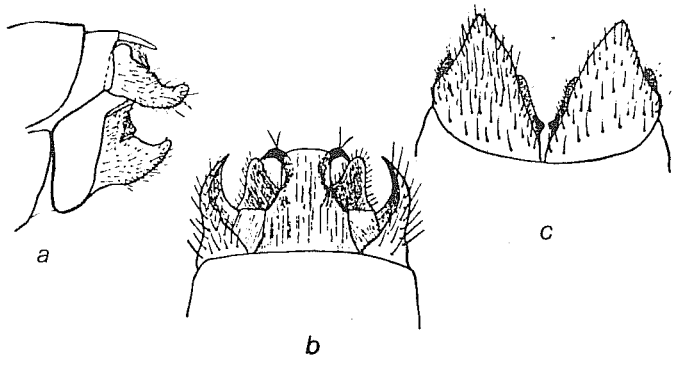

Fig. 12. Polycentropus sardous n. sp., ♂ genitalia: a = side view, b = from above, c = from below (Moretti, 1941).

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Tinodes apuanorum n. sp. (Fig. 13)

Similar to *T. unicolor* Pictet and *T. bruttius* n. sp., although paler and smaller. Head, meso- and metathorax tawny with wide testaceous markings, prothorax pale. Antennae with rarely visible rings. Wings greyish-brown, slightly pubescent with large and evident pterostigma. Abdomen pale cream ventrally, brownish dorsally. Legs light yellow. Anterior wing length: 4 mm. (alcohol specimen). ♂ genitalia: Dorsal plate sclerified with sinuous lateral margin when view from above (a), arched and pointed when seen from the side (b). Fine, long and pubescent superior appendages angled at the base (a). Well developed coxopodite with straight anterior margin when viewed from the side and above (a, b). The harpagones are made up of two branches, one outer dorsal finger-like and scooped like a spoon on the inner surface (a), one ventral short and shaped like a curved thorn with a sinuous outer and convex inner margin (a, c). The basal plate apodeme is elongated into 2 sclerified triangular appendices, the right angle is rounded and points dorsally towards the aedeagus. There are two teeth at the apices and at the same point there are two dorsal setae (c). The aedeagus paraprocts

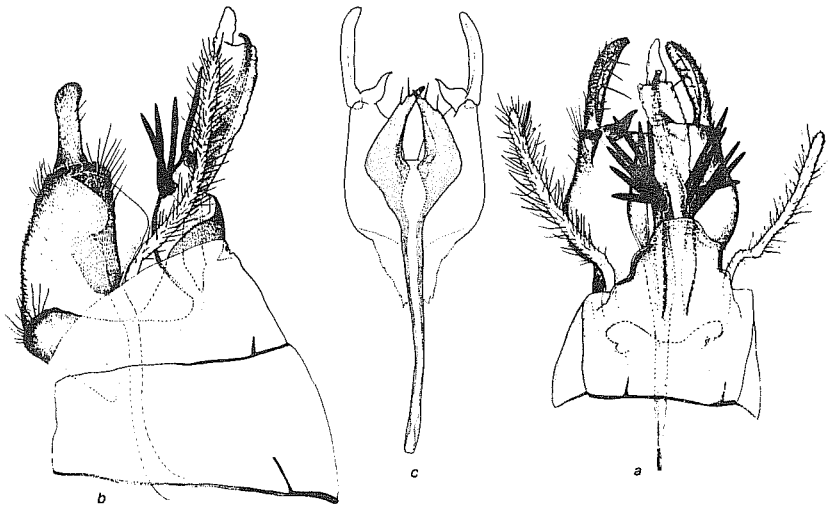

Fig. 13. Tinodes apuanorum n. sp., ♂ genitalia: a = from above, inclined to the front, b = side view, c = inferior appendages inner view.

are sclerified and have 5 strong spines on each side. The fleshy ventral extension at the extremity of the aedeagus. The ejaculatory duct turns down (b).

Holotype ♂, allotype ♀ and paratypes 59 ♂ 20♀: Toscana, Alpi Apuane, igropetrici, Passo del Vestito, 870 m., Massa, 19.6.1970; rhythron, Lucca, 6.8.1970, leg. Moretti and collaborators. In Moretti's collection; 1♂ 1♀ in Malicky's collection.

The name comes from the ancient Apuani people.

Tinodes bruttius n. sp. (Fig. 14)

Similar to *T. unicolor* Pictet and *T. apuanorum* n. sp. Head and thorax with a slightly paler zone. Antennae brown with lighter rings. Wings greyish-brown. Abdomen brownish dorsally, pale yellow ventrally. Legs light yellow. Anterior wing length: 5.5 mm. (alcohol specimen). ♂ genitalia: Chitinous dorsal plate, wide at base with pointed vertex if seen from the side (a). The superior appendages are fine, long pubescent and shaped like a twig (a, c). Well developed trapezoidal coxopodites with bilobed apical border if seen from the side (a). The harpago is short and shaped like a thumb, the apex is rounded when seen from the side (a), sinuous if viewed from above (b). Towards the inner side and at the base of the harpago there is a robust wide-based thorny appendix, pointed at the top and converging inwards (b, c). It is longer and narrower than in *T. apuanorum.* The intermediate appendages grow from behind the coxopodite, they are sickle-shaped, angled downwards, blade-like and terminate in a pointed apex. They have two black, robust preapical setae which point forward (a). The aedeagus is sclerified at the base, membranous

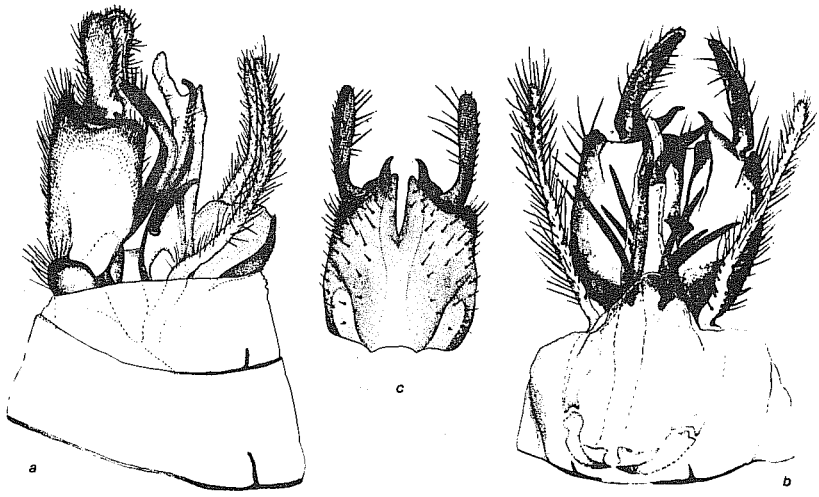

Fig. 14. Tinodes bruttius n. sp., ♂ genitalia a = side view, b = from above, c = inferior appendages from below.

distally, straight dorsally, ventrally concave and has six long, black, robust spines on the sclerified paraproctal appendices. The extremity of the aedeagus lengthens ventrally into a carnous protuberance. The ejaculatory duct curves down at the apex (a).

Holotype ♂: Calabria, Le Sezze, T. Macchinante, Brognaturo, 850 m, Catanzaro, 20.6.1972, leg. Iozzo; paratypes 12♂, allotype ♀ collected between 1972 and 1979: Calabria (Sila Piccola, Pollino Mount). In Moretti's collection.

Derivatio nominis. From the ancient latin name of the Calabrians people.

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Drusus genus

The *D. aprutiensis* and *D. camerinus* ♂ have already been described, but no species name has yet been given them. I shall now give them a species name and describe the female of each species, as Botosaneanu suggested there might be a difference in the philetic line based on the structure of the ♀ genitalia.

Drusus aprutiensis (= taxon 2, Moretti and Cianficconi, 1974) (Fig. 15)

Wing spread: ♂ 19–21, ♀ 24–25 mm; closed wing: ♂ 10.5–11.5 mm, ♀ 13–14 mm. ♂ genitalia: The 8th tergite has three distinct spiney lobes, the intermediate appendages are black, wide, squat, rounded at the apex and, seen dorsally, spread open (c). The inferior appendages are large, conical and angulate towards the middle of the upper edge (a) ♀ genitalia: The proximal and distal part of the 9th segment are distinct. The distal part and the 10th segment form a short cube-shaped tubular piece with a more or less rounded upper spicule, the lateral lobes of the segment 9 are slender oval (i, l, m). From above the segment 10 has two well-separated lobes (d, e). The central 9th segment lobe is long and arched ventrally like that of *D. monticola* (i, l, m). The lateral lobes of the vulvar squama are large and curve towards the shorter median lobe (f, g, h). *D. aprutiensis* is, therefore, similar to the *D. monticola* ♀ as Botosaneanu rightly supposed.

Holotype ♂, allotype ♀: Abruzzi, P.N.A., Jannanghera, 1200 m, L'Aquila, 25.6.1954, leg. Consiglio. Paratypes ♂♂ ♀♀ collected between 1955 and 1979: Abruzzi (several springs) 364♂ 83♀, Lazio 12♂ 4♀ + 3♂ 3♀ sent to us by Botosaneanu. In Moretti's collection. Abruzzi 1♂ 1♀ in Malicky's collection.

Derivatio nominis. The latin name of the Abruzzi.

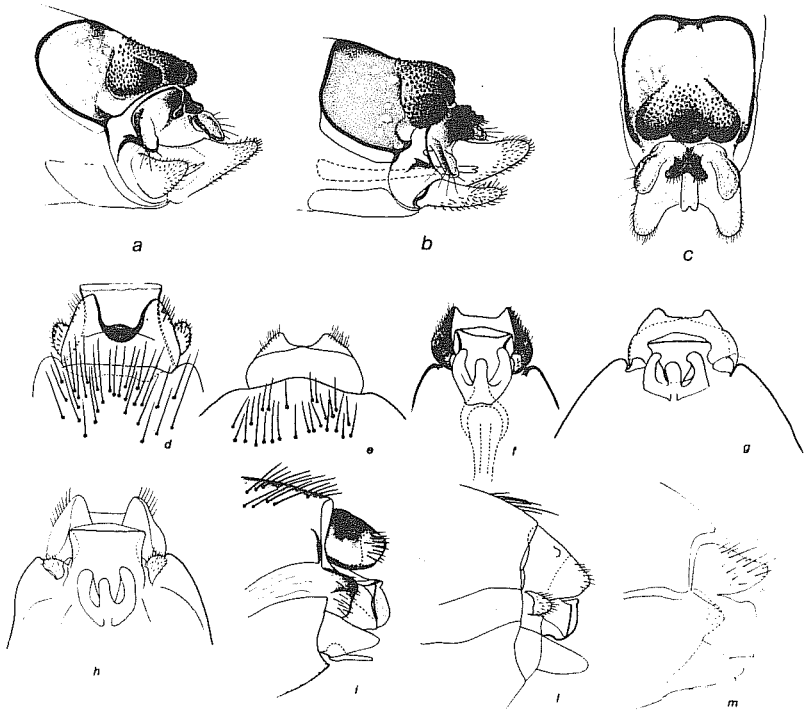

Fig. 15. Drusus aprutiensis n. sp., ♂ genitalia: a = front lateral view, b = lateral view, c = from above; ♀ genitalia: d, e = from above; f, g, h = from below; i, l, m = side view.

Drusus camerinus (= taxon 1, Moretti and Cianficconi, 1974) (Fig. 16)

Wing spread: ♂ 18–19 mm, ♀ 19–21.5 mm. ♂ genitalia: The 8th tergite is trilobed as in *D. aprutiensis*, but the middle lobe is larger than the lateral ones (a, c). The intermediate appendages are short, not hooked at the apex, and blackened at the apex only (b). The superior appendages are large and suboval, from the side they are hatchet-shaped (a). The inferior appendages are large, subcylindrical and rounded at the apex (b, c).

♀ genitalia are similar to those of *D. improvisus*, particularly the central lobe on the ventral area of the 9th segment and the tubular piece, although this is more supple at the anal margin than in the *D. improvisus* (f, g, h). The lateral appendages have a narrow connecting stalk (g). The lateral lobes of the vulvar squama, as well as the medial lobe which is narrow and long, are very similar to those of *D. improvisus*, for this reason *D. camerinus* has been assigned to the *improvisus* groupe.

Holotype ♂, Allotype ♀: Marche, Fonti di Selvazzano, 655 m., Camerino, Macerata, 10.5.1954, leg. Verdarelli; Paratypes ♂♂ ♀♀ collected between 1954 and 1976: Umbria 22♂, Marche (several springs) 361♂ 92♀, In Moretti's collection. Marche 1♂ 1♀ in Malicky's collection.

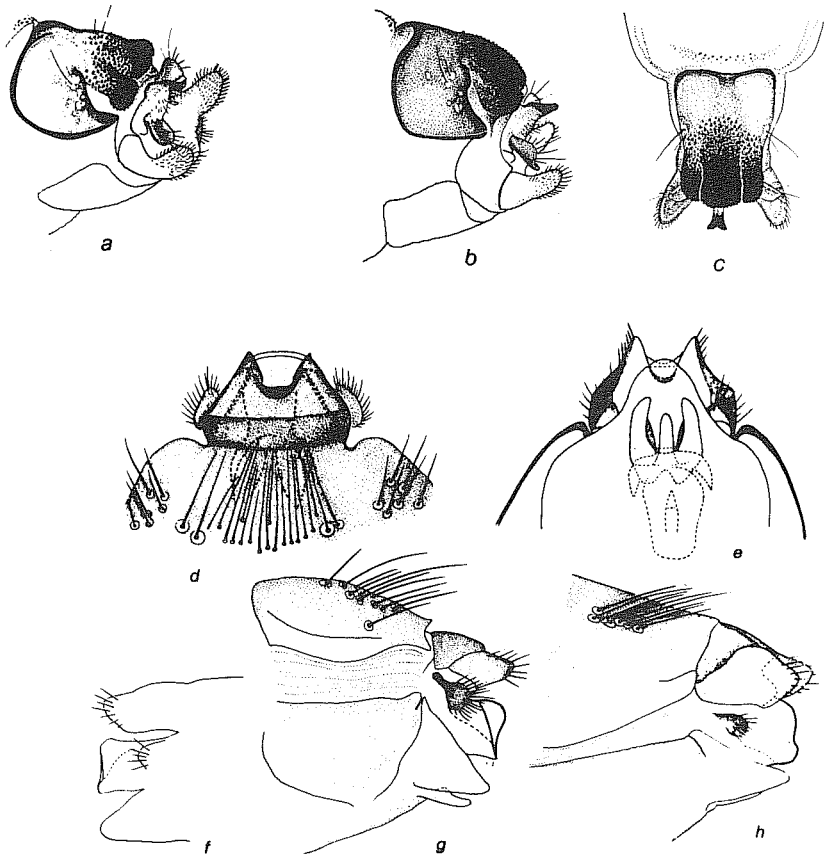

Fig. 16. Drusus camerinus n. sp., ♂ genitalia: a = front lateral view, b = lateral view, c = from above; ♀ genitalia: d = from above; e = from below, f, g, h = side view.

Derivatio nominis. From the latin name of a Marche's town in the springs of which it was found.

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Halesus nurag Mal. ♀ (Fig. 17)

The female has not previously been described. The colour and markings of the anterior wing are identical to the male, the size is slightly smaller. Wing spread: ♂ 37–40 mm., ♀ 36–39 mm. Genitalia: Tubular piece rather long,

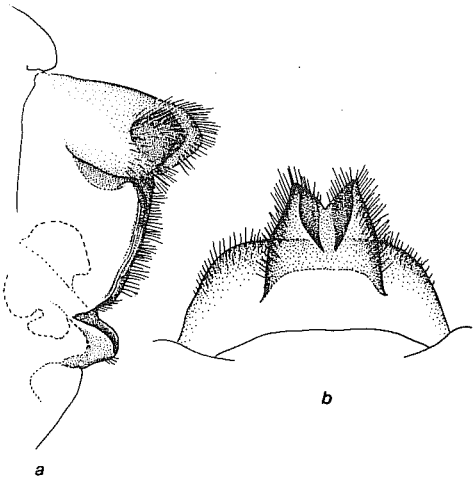

Fig. 17. Halesus nurag Mal., ♀ genitalia: a = side view, b = from above.

wide based and narrow tipped, with long golden hairs; in profile specimens cleared in KOH solution have a slightly bulging apical border (a). Lateral pieces of the 9th segment are large and straight. Seen from above 10th segment has a deep triangular notch in the anal border with long hairs and pigmented internal apical zones (b).

Allotype ♀ and paratypes several ♀: Sardegna, Tempio, 3.11.1964, leg. Prota. In the Moretti's collection and in Istituto di Entomologia, Università, Sassari.

Halesus radiatus vaillanti n. ssp. (Fig. 18)

Closely related to *H. nurag* Mal. and *H. radiatus* Curt. Head testaceous yellow antennae yellowish tawny, thorax brown. The yellowish anterior wings have elongated dusky markings edged with white arranged longitudinally between the nervures which form a distinct marbling between the apical forks. Hyaline yellowish-grey posterior wings. Upper abdomen brown, lighter underneath. Legs straw-yellow. Wing spread: ♂ 44–48 mm., ♀ 44–49 mm. ♂ genitalia: Large superior appendages, concave and bend to form a longitudinal edge on the inside. Intermediate appendages black at the apex, subrectangular or sub-elliptical and sclerified. Inferior appendages well-sclerified and blackened at the apices where they form a wide, flat, external branch, which is separated from a short inner proximal tooth by a pronounced notch. (a, b). Long aedeagus with 4 black teeth arranged like a butterfly's wings at the apex, these are often reduced to 2 (a). Parameres are narrow at the base, wide at the centre and tapered at the apex. There are about 10 black teeth which become progressively longer on the upper margin. The lower margin is markedly convex (d, c).

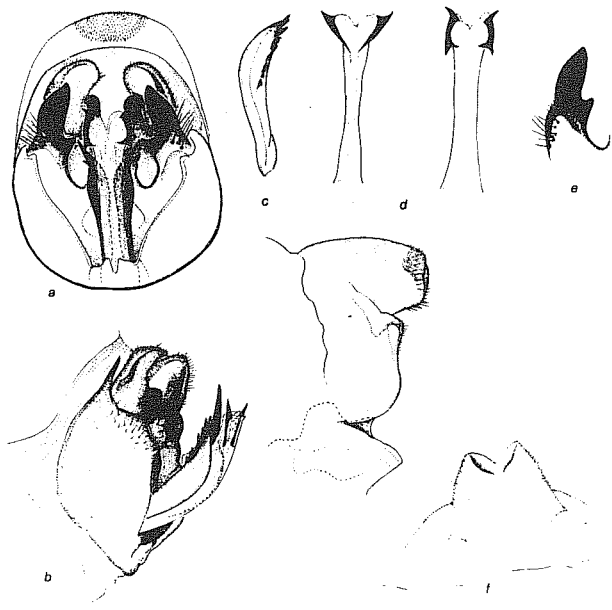

Fig. 18. Halesus radiatus vaillanti n. ssp., ♂ genitalia: a = front, b = side view, c = paramere, d = two types of aedeagus, e = inferior appendage; f = ♀ genitalia side view and from above.

♀ genitalia: Cylindrical-conical tubular piece with short golden hairs and an almost straight apical border when seen from the side (f), divided by a deep triangular incision when seen from above. Lateral pieces of 9th segment large and slightly concave. It inhabits the hill and mountain rhythron and hyporhithron.

Holotype ♂: Umbria, F. Sordo, Norcia, 500 m, 8.11.1967, leg. Venturi; allotype ♀: Campania, F. Lete, Matese, 1000 m, 22.9.1967, leg. Pangia; paratypes ♂♂ ♀♀ collected between 1967 and 1980: Emilia Romagna (River Tiber) 3♂ 4♀, Umbria (Nese stream) 33♂ 25♀, Lazio 1♂, Abruzzi 1♂, Calabria (Sila Piccola) 7♂. In Moretti's collection.

I dedicate this subspecies to my friend F. Vaillant with whom I have exchanged various taxonomic data.

The problem involved in the validity of this subspecies is complex owing to the variable characters of the ♂ genitalia on the superior, intermediate and inferior appendages, as well as of the aedeagus and parameres. In my opinion it could also be considered a subspecies of *H. nurag* which it resembles particularly in the shape of the inferior appendages that are identical to those of the Sardinian species. On the other hand, the inferior appendages differ from those of all other *Halesus* of the *digitatus* group including *H. radiatus*. The variability in the apical aedeagus sclerites reflects one of the main characteristics of *H. radiatus*, as Schmid (1951) demonstrated. However, no variations in the aedeagus apical teeth were seen in about 100 *Halesus nurag* specimens kindly sent for study by Prota; they were always 2 and their shape was always the same. In addition, the *H. radiatus vaillanti* parameres are

convex and swollen as in *H. radiatus* and not like those of *H. nurag*. Furthermore, *H. nurag* is considerably smaller than *H. radiatus vaillanti* and has more distinct wing markings. The ♀♀ resemble the *H. radiatus* rather than the *H. nurag* ♀♀. For these reasons, provisionally, I consider that this is a new Italian peninsula subspecies of *H. radiatus* to which it is closely related, but, at the same time, not excluding that *H. nurag* and *H. radiatus vaillanti* could have a closer relationship and, therefore, a more direct philetic origin.

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Micropterna wageneri Mal ♀ (Figg. 19)

Although Malicky (1971) described the male of this species, this is the first report on the female. The ♀ is much bigger than the male but the same yellow. Antennae and legs clear yellow. The anterior wings are strawy-rust, the posterior wings paler. It is similar to the *M. sequax* ♀ but much smaller. Wing spread: 27–28 mm, body length: 10 mm. Genitalia: The dorsal face of the segment 9 is long, very wide and form convex protruding lateral angles (a). The 10th segment dorsal scale is subtrapezoid and reaches half-way along the internal margin of the lateral lobes which are large-based short-tipped

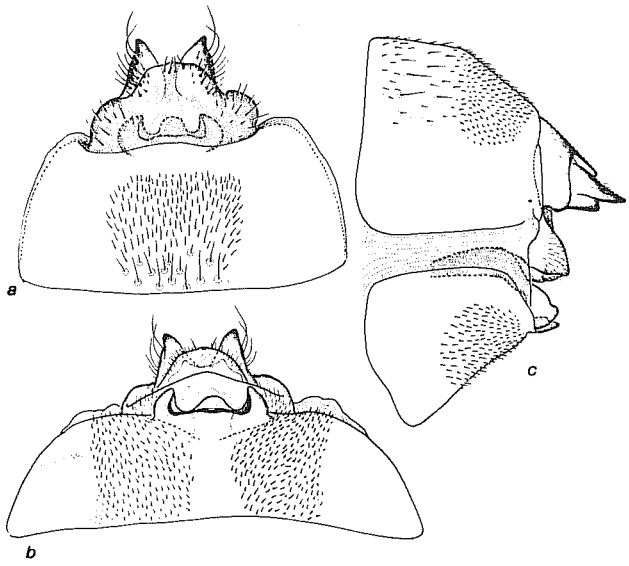

Fig. 19. Micropterna wageneri Mal., ♀ genitalia: a = from above, b = from below, c = side view.

triangle with slightly turned outward apices with inner margin that is more convex than that of *M. sequax.* When the lobes are seen from the side they are narrower, slenderer and less protruding than those of *M. sequax* (c). The ventral 10th segment scale forms a large dome (b). The ventral part of the 9th segment is prominent and convex, when seen from the side, unlike that of *M. sequax* it forms two large, only slightly convex, lobes which do not appear to be separated (b). The vaginal vestibule is elliptical. The wide convergent lateral lobes take up most of the two poles. The distal internal prolongation of the two lateral lobes are widened, rounded and convergent; the central lobe is large and semicircular, almost triangular in dry specimens. Like the male, the ♀ *wageneri* is therefore not unlike *M. sequax,* but is the smaller species of the *Micropterna* genus found in Italy.

Allotype ♀, paratypes 6♂ 7♀: Toscana, Pratomagno, 1000 m, 19.6.1980 Arezzo, leg. Moretti, in Moretti's collection.

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Mesophylax aspersus sardous Moret. and Gian. (Fig. 20)

The taxonomic characteristics are briefly described and illustrated; a more detailed explanation is at present in press (Moretti and Cianficconi). The lower appendages of the male genitalia differ from those of *M. aspersus* as they have a pronounced notch which terminates in a well-sclerified cusp on the interior of the apex; while on outside there is a poorly sclerified lobe covered with long golden hairs on the outer margin. The black pigmentation of the T 7 anterior wing venation is interrupted by paler areas. The insect is smaller than the apennine form.

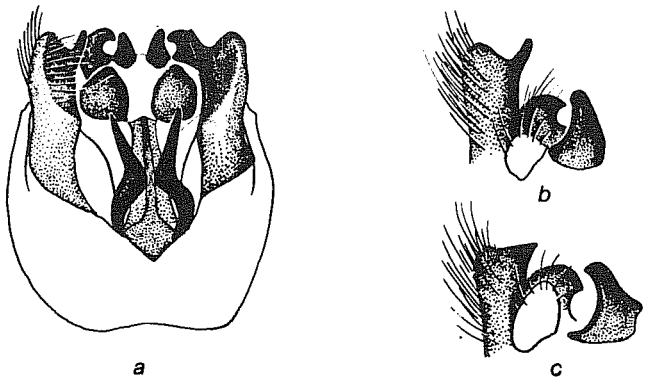

Fig. 20. Mesophylax aspersus sardous Moret. and Gian., ♂ genitalia: a = front, b = details of inferior appendage, c = the same in the Italian peninsula *M. aspersus.*

Holotype ♂: Sardegna, Grotta "Su Coloru", Laerru, Sassari, 11.10.1961, leg. Prota; paratypes 8♂ collected between 1967 and 1976, Sardegna in caves.

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Sericostoma cianficconii Moretti (Fig. 21)

The male genitalia have already been described (Moretti and Cianficconi, 1978). The ♂ mask with conical apex is very prominent, twice the size of the eye (a). Antennae yellowish-brown. Pale legs. Wing spread: ♂ 20–27 mm, ♀ 22–26 mm.

♀ genitalia: The 9th tergite is triangular, convex and sclerified with an apex divided into a pair of small processes. Two oval anterior-dorsal branches and two narrower but longer conical and pubescent postero-ventral branches form laterally at the base of the tergite 9 (b). There is a wide triangular incision bordered by two tiny only slightly protruding teeth on the 10th segment, this gives the anal margin a sinuous, horizontal look when it is viewed either

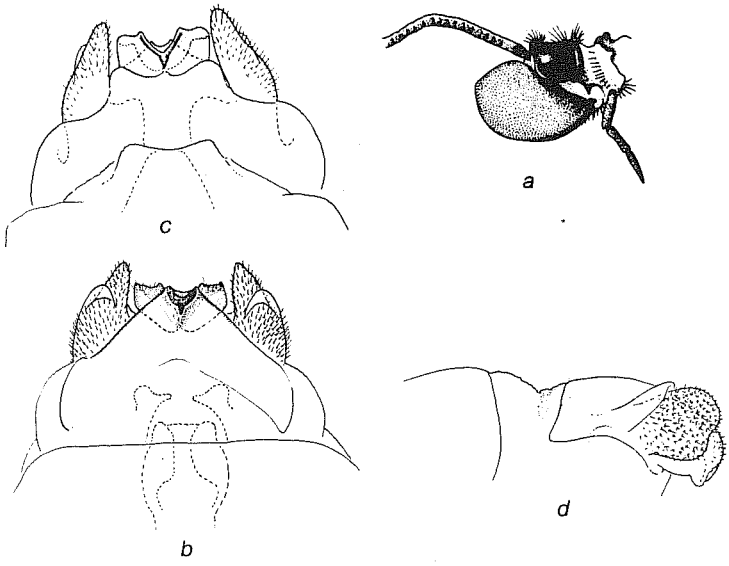

Fig. 21. Sericostoma cianficconii Moretti, a = ♂ maxillary palpus side view, ♀ genitalia: b = from above, c = from below, d = side view.

ventrally or dorsally (b, c). Side view, the 9th segment ventral branch which roofs the dorsal lobe, is sclerified and blade-like. The ventral lobe is very protruding and it forms a bristly protuberance (d). The segment 10 looks like a turned down sclerified eave (d).

Holotype ♂: Marche, Fiume Potenza, Torre del Parco, 330 m, Castelraimondo, Macerata, 1.6.1948, leg. Moretti; allotype ♀: Toscana, Camaldoli, acque sorgive, Arezzo, 26.6.1965, leg. Gianotti; paratypes ♂♂ ♀♀ collected between 1955 and 1970: Emilia Romagna 2♂, Toscana 1♂, Umbria 20♂ 17♀. In Moretti's collection.

I dedicate this to the most expert of my collaborators, F. Cianficconi, who is tenacious in her Trichoptera studies.

Sericostoma italicum Moretti (Fig. 22)

The general aspect of the ♂ and genitalia have already been illustrated (Moretti and Cianficconi, 1978). Here I have limited myself to adding certain valid distinguishing characteristics for better recognition of the species. Wing spread: ♂ 24–29 mm, ♀ 28–29 mm; body length: ♂ 8–15 mm, ♀ 11–16 mm; closed wing: ♂ 14–15 mm, ♀ 13–16 mm. Bronze insect with even dark brown antennae which are large and only slightly tapered at the apex. The protuberances at the point of insertion of the antennae are large and cylindrical. The blackish-brown head is covered with tufts of thick bronze hairs. Small not very prominent mask as wide as the diametre of the eye (a). Brown only slightly pubescent labial palpi (a). The membranous part of the

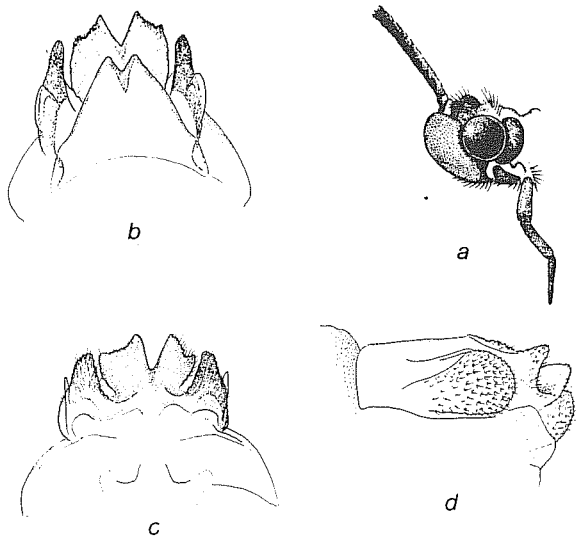

Fig. 22. Sericostoma italicum Moretti, a = side view of the ♂ maxillary palpus; ♀ genitalia: b = from above, c = from below, d = side view.

prothorax is almost white, the black sclerites are covered with tufts of thick hairs. Meso- and metathorax are smooth, shiney dark brown with lighter scutellum. Brown wings densely covered with bronze pubescence from which the venation stand out. Legs with almost black coxa, brown femur, pale tibia and tarsa. Abdominal tergal and sternal sclerites dark brown, lateral line wide and whitish, as is the intersegmental area of the urites. ♀ genitalia: 9th tergite as in *S. cianficconii,* but much more convex, narrower and pigmented (b). Laterally there are two oval lateral-dorsal branches, which are narrower than those of *S. cianficconii* and two narrower, conical pubescent posterior-ventral branches. The 10th tergite extends beyond the posterior-ventral branches into a squarish shape with saw-edged margin where there is a deep medial triangular notch bordered by two spicules (b). The two pubescent lobes of the 9th sternite are also serrated and do not reach the extremity of the 10th sternite, as do the same appendices in *S. cianficconii.* The 10th sternite is bilobed and toothed (d).

Holotype ♂: Lazio, Acilia, Roma, 7.8.1939, leg. Castellani; allotype ♀: Umbria, prati marcitoi, Norcia, 18.6.1976, leg. Moretti; paratypes ♂♂ ♀♀ collected between 1952 and 1979: Toscana 1♂ 1♀, Umbria 37♂ 7♀, Lazio 18♂ 5♀, Abruzzi 121♂ 79♀, Molise 5♂, Campania 1♂. In Moretti's collection.

Derivatio nominis. Named after Italy.

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Nielsen, A., Det. Kong. Dans. Videns. Selsk. Biol. Skz. 23: 115–120, 1980.

Beraea botosaneanui n. sp. (Fig. 23).

Length with wings closed: 4.5–4.7 mm. Black elliptical androconia surrounded by a pale area. Similar to *B. crichtoni,* from which it differs in the

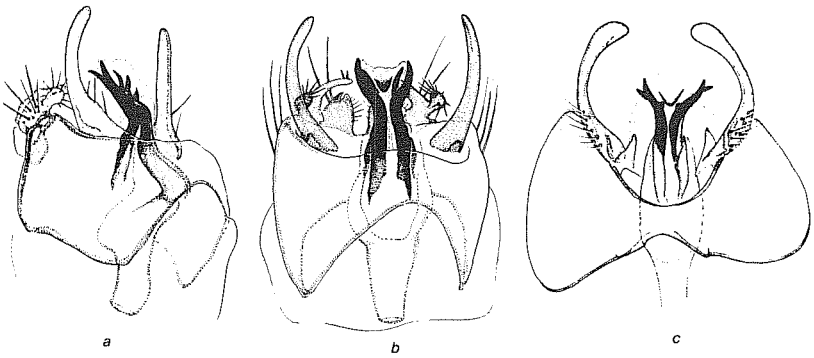

Fig. 23. Beraea botosaneanui n. sp., ♂ genitalia: a = lateral view, turned slightly to the left, b = from above, c = from below, balsam specimen.

pincer-like superior appendages that broaden from the centre to the tip when seen from above (c), but not when seen from below or from the side (a, b). The inferior appendages are bilobed as in *B. crichtoni;* however, the lower lobe is longer and slenderer (b). The ventral coxopodite branches are conical with a narrow notch before the external apical tooth and there are long thorn-like setae on the ventral face (b). The extremity of the aedeagus is bilobed and two large, robust, thorn-like sclerites run the full length, they are black distally, brown proximally and diverge at the apex where they are superimposed by two short black spines (a, b, c). On the inside of these there is a hemispherical sclerified plaque which is also present in *B. crichtoni.*

Holotype ♂ and paratypes 4♂: Sardegna, Guttusu Mannu, Cagliari, 18.4.1972, leg Hartig. In Moretti's collection.

This species is dedicated to the trichopterologist Botosaneanu in recognition of the suggestions he has frequently offered me.

Beraea crichtoni n. sp. (Fig. 24)

Similar to *B. alva* Mal. and to *B. terrai* Mal. Brown unringed antennae. The vertex of the head elongates into a conical very protruding cusp equipped

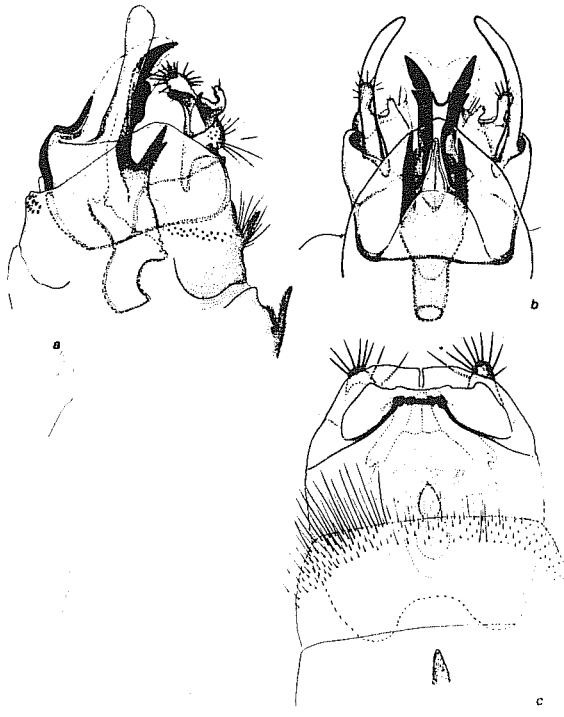

Fig. 24. Beraea crichtoni n. sp., ♂ genitalia: a = lateral view, b = from above; ♀ genitalia: c = from below.

with a tuft of long setae. Maxillary and labial palpi carpeted with thick hairs. Mesothorax of a uniform chestnut-brown with a pale circular wart on the anterior area of each scutum. Legs light brown. Fore wings bronze and pubescent with a long fringe of apical hairs. The elliptical spindle-like androconia at the base of the wing are clearly visible and surrounded by a pale zone. Length wings closed: 5 mm (alcohol specimen). ♂ genitalia: The 9th tergite terminates in a triangular, convex, swollen elongation of the anal margin (a). This lies above the sclerified laminar extension of the 10th segment. In the part where the convex margin of the 9th tergite lies over the 10th segment there is an evident step-like spicule (a). The 10th segment apex is also sharp and triangular. The dark, sclerified scissor-like superior appendages are large and have a lobular apex when viewed from the side (d). The inferior appendages are bilobed, the dorsal lobe being more swollen than in *B. botosaneanui* and bristling with rayed robust setae. The elongated ventral lobe is shorter and narrower and has 2–4 tiny thorn-like setae. The ventral coxopodite branches are oval with spiney setae on the ventral face (a). The apical border is furnished with inwardly turning teeth (a). The fleshy aedeagus is bilobed at the extremity armed with long spiney sclerites; 2 proximal lateral short ones with inner preapical tooth, 2 much longer and stronger on the interior which curve down and have two preapical teeth pointing outwards. A hemispherical, convex at the back, sclerified plaque is situated between the two larger spine as in *B. botosaneanui.*

♀ – There is a conical cusp at the vertex of the head as in the ♂ but it is shorter and squatter. Mesothorax brown with a tiny white spot on the anterior zone of each scutum; in addition there are two larger white oval marks on the anterior part of the scutellum, as in the *B. maura* ♀, that are not present in the male. The venation of the wings of the ♀ differs from that of the ♂, as is in *Beraea* genus. Length as for ♂. ♀ genitalia: The 7th sternite has a strong sagitally compressed black tooth on a pale field (c). The distal half of the 8th sternite is covered with a thick fringe of long golden setae that project well beyond the anal margin. Viewed dorsally the 9th tergite has two dark conical lateral processes joined to the base of the 9–10th segment by a membranous area. The 10th segment terminates in a trapezoidal sclerified protuberance at the anal border.

Holotype ♂: Calabria, La Sila, Camigliatello, 22.6.1960, leg. Ruffo; allotype ♀ and paratype 84♂ 9♀: Basilicata, Sorg. Lago Sirino, Lagonegro, 860 m, Potenza, 24.8.1976, leg. Petroni. In Moretti's collection.

I dedicate this species to my colleague M.I. Crichton in memory of his friendliness at the 2nd Symposium on Trichoptera.

Beraea ilvae n. sp. (Fig. 25)

Closely related to *B. maura* and with similar colouring. Clearly visible androconia at the base of the anterior wing as in *B. crichtoni.* ♂ genitalia: A broad triangular projection starts from the middle of the 9th segment, it projects slightly when viewed from the side. The underlying median part of the 10th segment is wide based and has a pointed apex. Superior appendages

strongly chitinized fuscous curving inward with a pointed apex when viewed from above (b), obliquely rounded if seen from the side (a). The coxopodite dorsal branch is bilobed, the dorsal lobe is rounded at the apex and has erect, rayed setae, the ventral lobe is slender and longer, curved inward and is equipped with three short spiniform setae. Oval ventral coxopodite branch with several spine-like setae on the apical border and a well defined notch on the outer apical margin, the ventral face is equipped with long setae. Fleshy aedeagus armed with a line of 4 pairs of large black spines,three of which point to the sides. The apical pair point towards the estremity.

Holotype ♂, allotype ♀ and paratypes ♂ ♀: Isola Elba, Fonte della Chiava, M. Capanne, 22.8.1957, leg. Viganò, Gianotti. In Moretti's collection.

Derivatio nominis. From the latin name of the Isle of Elba.

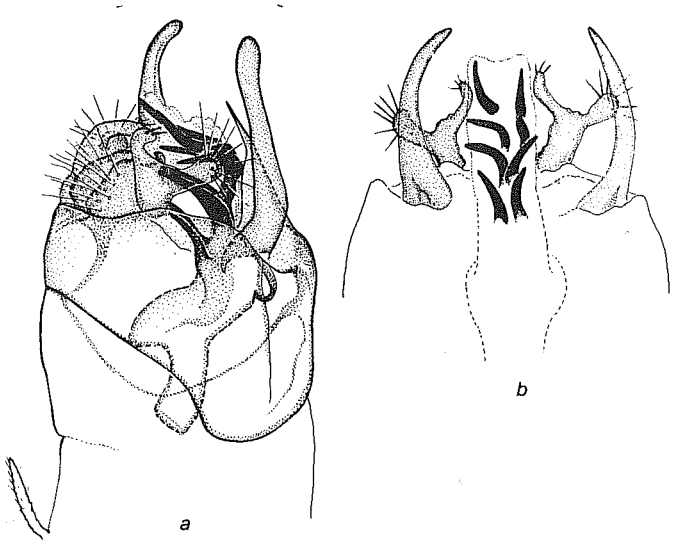

Fig. 25. Beraea ilvae n. sp., ♂ genitalia: a = lateral view turned slightly to the left, b = from above.

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