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Four new species of Drusinae from Spain and France

(Insecta, Trichoptera, Limnephilidae)

By Füsün Sipahiler

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Four new species of Drusinae (Insecta, Trichoptera, Limnephilidae) from Spain and France are described: *Metanoea malickyi*, spec. nov., *Drusus berthelemyi*, spec. nov., *Drusus marinettae*, spec. nov. and *Drusus vinconi*, spec. nov.

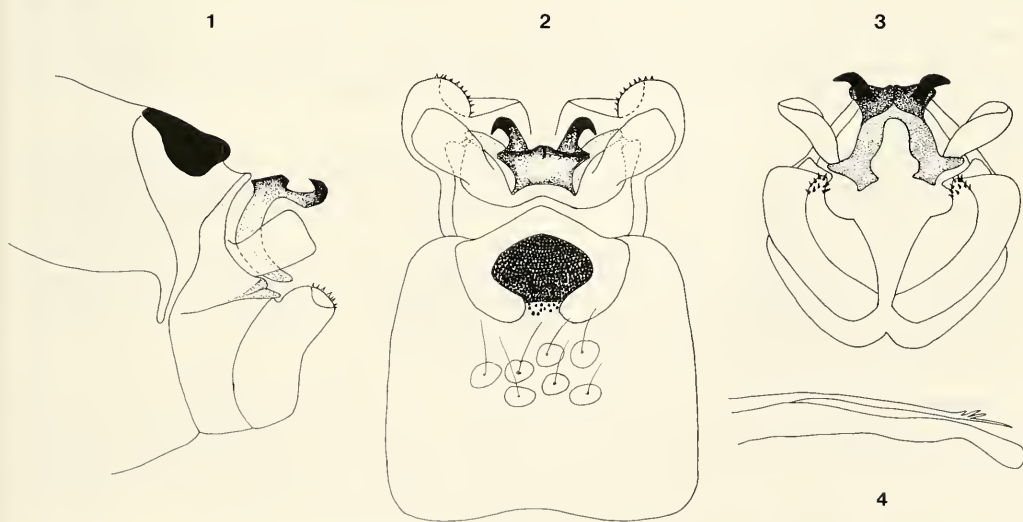
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Location of material

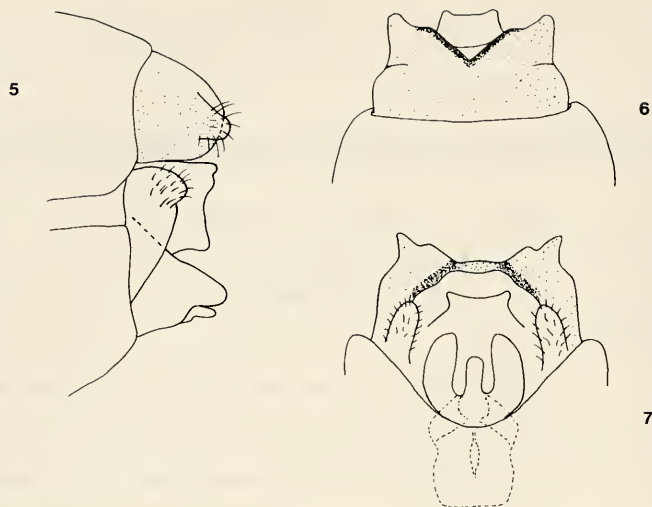
The holotypes of the new species are located in Zoologische Staatssammlung, München, the other material is in coll. Sipahiler.

Metanoea malickyi, spec. nov.

Figs 1–7



Figs 1–4. *Metanoea malickyi*, spec. nov. Male genitalia. 1. Lateral. 2. Dorsal. 3. Caudal. 4. Aedeagus and paramer, lateral.



Figs 5–7. *Metanoea malickyi*, spec. nov. Female genitalia. 5. Lateral. 6. Dorsal. 7. Ventral.

Antennae, wings and legs pale brown; thorax and abdomen reddish-brown; posterior wings of male without androconial pockets. Spurs 1.3.3 in both sexes. Length of the anterior wing of male 9–12 mm, of female 12–12.5 mm.

Male genitalia (Figs 1–4). The spinulose zone of tergite 8 rather small, rounded at the apical edge and somewhat dilated on each side. In lateral view segment 9 narrow and without anterior dilatation. Preanal appendages large, nearly quadrangular if viewed laterally. In dorsal aspect, the basal part of intermediate appendages large and dilated on each side, forming a triangle before the hook-like projections which are long, strongly sclerotized, and curved on each side. In lateral aspect they are curved dorsally. Basal parts of intermediate appendages large, in caudal view with triangular dilatations on each side of their bases. There is no connection between them. Inferior appendages laterally rather smooth at the tips; with a cavity below the apex; caudally inner sides smooth; with short and thickened hairs on the apical edges. Aedeagus slender, in lateral aspect slightly curved downwards before apex. Parameres somewhat shorter than aedeagus and each one possesses three subdistal setae.

Female genitalia (Figs 4–7). Tubular pieces of segment 10 laterally rounded at tips; dorsally with a large V-shaped excision at centre. Lateral pieces of segment 9 long. Lateral pieces of vulvar scales large and apically rounded; median scale shorter than the lateral pieces and also rounded at the tip.

Types. Holotype ♂, allotype ♀ and paratypes (1 ♂, 1 ♀): France, Alpes, Isère, montagne de Jacou, ruisseau affluent de l'Ebron à la station de ski de Lalley-le-Jacou (col de la Croix Haute), 1500 m, 13.6.1988; same place, 29.8.1988, 4 ♂, 2 ♀, Hautes-Alpes, montagne de Ceüse, ruisseau affluent du Buech, au sud de la Roche-des-Arnauds, 1500 m, 19.9.1987, 2 ♂, 6 ♀; Spain, Cordillere, Cantabrique, rivière affluent du rio Omecillo, à Berberana (ouest de Vitoria), 620 m, 30.7.1988, 1 ♂; leg. Vincon.

Metanoea malickyi, spec. nov., is the third species of the genus *Metanoea* from the Alps and is well distinguished from the related species *M. flavipennis* Pictet from the western Alps and *M. rhaetica* Schmid from the eastern Alps (Schmid 1956) by shape of the male genitalia, especially by the shape of spinulose zone, intermediate and inferior appendages. These three species of *Metanoea* have very different genitalia and no close relationship between them is evident.

I am pleased to dedicate this new species to my colleague Doz. Dr. Hans Malicky.

Drusus berthelemyi, spec. nov.

Figs 8–13

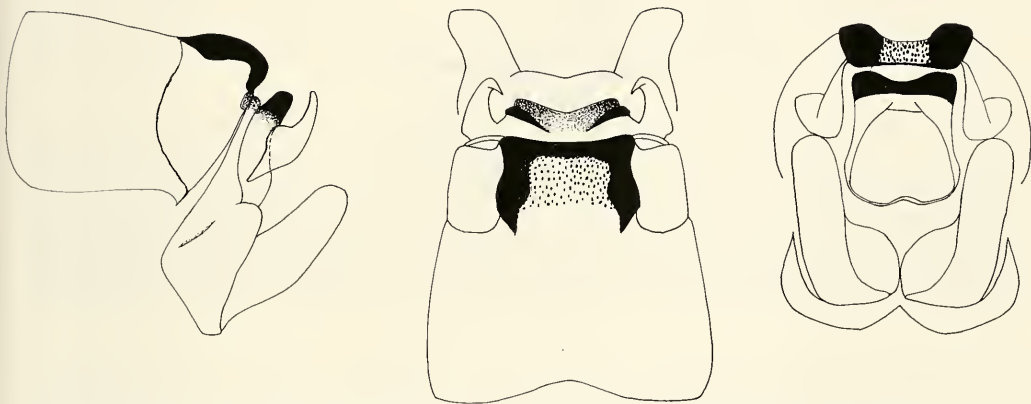
Antennae, legs and thorax brown; wings pale brown; anterior wings of male with an androconial pocket. Spurs of male 0.2.3, of female 1.2.3. Length of the anterior wing of male 7–8 mm, of female 10 mm.

Male genitalia (Figs 8–10). Spinulose zone of tergite 8 large and quadrangular in shape. Segment 9 ventrally narrow; laterally with triangular dilatation on the anterior edge. Preanal appendages long and directed dorsally; in lateral aspect dilated at center forming a large lobe and pointed at apex. Dorsally they are more or less curved up to inner side. Intermediate appendages broad; in dorsal view with thickened, curved sclerite parts, located on each side of the base and not found medially; caudal apical edge somewhat excised in middle. Inferior appendages long and cylindric in shape; in dorsal view they are slightly divergent. Aedeagus and parameres slender as usual for the genus.

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Figs 8–10. *Drusus berthelemyi*, spec. nov. Male genitalia. 8. Lateral. 9. Dorsal. 10. Caudal.

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12

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Figs 11–13. *Drusus berthelemyi*, spec. nov. Female genitalia. 11. Lateral. 12. Dorsal. 13. Caudal.

Female genitalia (Figs 11–13). Tubular pieces of segment 10 dorsally triangular in shape and pointed at tips. Lateral pieces of segment 9 with a large hairy area; median piece of vulvar scale reaches half third the size of lateral scales.

Types. Holotype ♂, allotype ♀ and paratypes (3 ♂): Spain, Sierra de la Demanda (entre Logroño et Burgos), affluent du rio Oja, à la station de ski Valdezcaray, 1800–2000 m, 4.8.1987; same place and date: 1500 m, 2 ♂, 1 ♀; 900–1000 m, 1 ♂, 1 ♀; same place, Trigaza, 1800 m, 3.8.1988, 1 ♂; leg. Vincon.

Drusus berthelemyi, spec. nov., is closely related to *D. rectus rectus* McLachlan (Schmid 1956) and *D. rectus thibaulti* Decamps (Decamps 1972) from the Pyrenées and well distinguished from the related subspecies by the shape of the superior appendages, which are long, thin, and pointed at tips. In *D. rectus rectus* they are short, broad, and rounded at apex. In *D. rectus thibaulti* they are somewhat longer and thinner than in *D. rectus rectus*. The female genitalia of these subspecies are similar and there are no visible differences between them (Decamps 1972). *D. berthelemyi* has remarkable differences in the female genitalia: the tubular pieces are longer and thinner than those of *D. rectus rectus*, the hairy area of the lateral pieces of segment 9 is large, whilst they are thin in *D. rectus rectus*. *D. berthelemyi* has a long median piece of vulvar scales which is only half the size of the lateral scales in *D. rectus rectus*. *D. berthelemyi* is also smaller than the related species.

This new species is named after Professor C. Berthelemy.

Drusus marinettae, spec. nov.

Figs 14–19

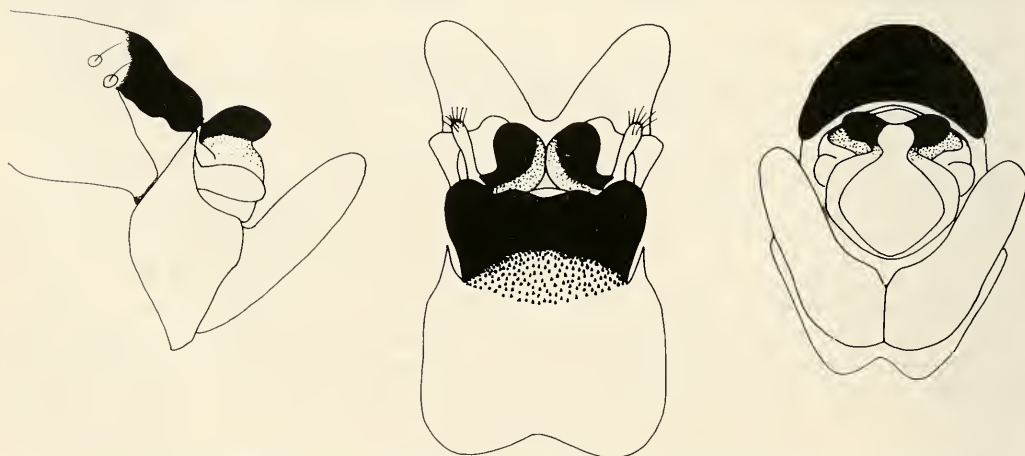
Wings and antennae dark brown, legs brown, posterior wing with an androconial pocket; spurs of male 0.3.3, of female 1.3.3. Length of the anterior wing of male 7–10 mm, of female 8–8.5 mm.

Male genitalia (Figs 14–16). Tergite 8 with a very large spinulose zone. In dorsal view the sides of spinulose zone protrude and are rounded at the apical edge. Segment 9 laterally rather broad, ventrally narrow. Preanal appendages long and slender, in lateral aspect somewhat ovoid in shape. Intermediate appendages also broad and robust; in dorsal view, they are close to each other at

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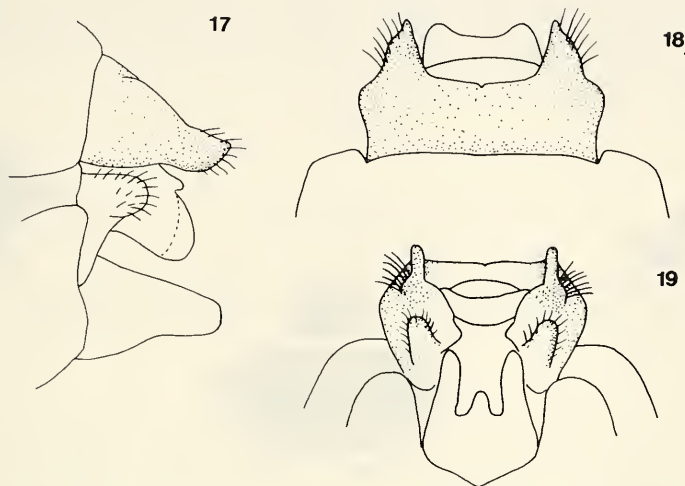
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Figs 14–16. *Drusus marinettae*, spec. nov. Male genitalia. 14. Lateral. 15. Dorsal. 16. Caudal.

center and form two large rounded parts: The basal parts are directed to either side; in lateral view, only the upper parts are strongly sclerotized. Inferior appendages long and cylindric in shape; dorsally and caudally they are directed to either side. Aedeagus and parameres slender as usual for the genus.

Female genitalia (Figs 17–19). Tubular pieces of segment 9 acute at the apex in dorsal aspect; apical margin between tubular pieces rather smooth; the median piece has a dorsal projection which is seen as a small lobe laterally. Lateral pieces of vulvar scale long and obtuse at the tips; median scale short and somewhat triangular.



Figs 17–19. *Drusus marinettae*, spec. nov. Female genitalia. 17: Lateral. 18: Dorsal. 19: Ventral.

Types. Holotype ♂ allotype ♀ and paratype ♂: France, Pyrénées-orientales, ruisseau d'Eyne, affluent de la Tet, 2200 m, 28.7.1987; same place, 2435 m, 1 ♂, 1 ♀; other paratypes: ruisseau du Cady, affluent de la Tet (massif du Canigou) 2200 m, 8.7.1987, 6 ♂; Aude, ruisseau de l'Aiguette, affluent de l'Aude, 2000 m, 10.7.1987, leg. Vincon.

This new species of *Drusus* is well characterised by the shape of the male genitalia. The large quadrangular spinulose zone of tergite 8 and the cylindric inferior appendages somewhat resemble *D. r. rectus* McLachlan (Schmid 1956), but the structure of the intermediate appendages which are curved dorsally in *D. r. rectus* McLachlan and form slender preanal appendages, which have something like a lobe on the dorsal edges in the related species, distinguish both species. The female genitalia of *D. marinettae* resemble *D. discolor* Rambur (Malicky 1983); both species were collected in the same place in the Pyrénées where the paratypes of *D. marinettae* were collected. Although shape of the tubular pieces is clearly similar, those of *D. discolor* Rambur are longer than those of *D. marinettae* and they are close to each other with their inner margins which are U-shaped at center. In *D. marinettae* the apical margin of segment 10 is dorsally rather smooth between the tubular pieces. The median piece of the vulvar scale is as long as the lateral pieces and large in *D. discolor*, but in *D. marinettae* it reaches only half the size of the lateral pieces and is narrow.

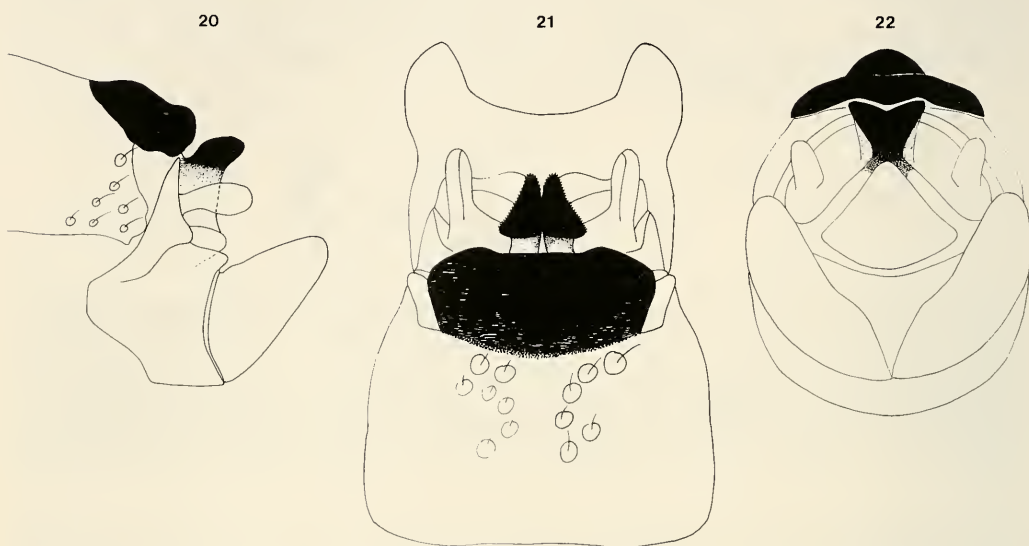
This new species is dedicated to Mrs. Marinette Vincon.

Drusus vinconi, spec. nov.

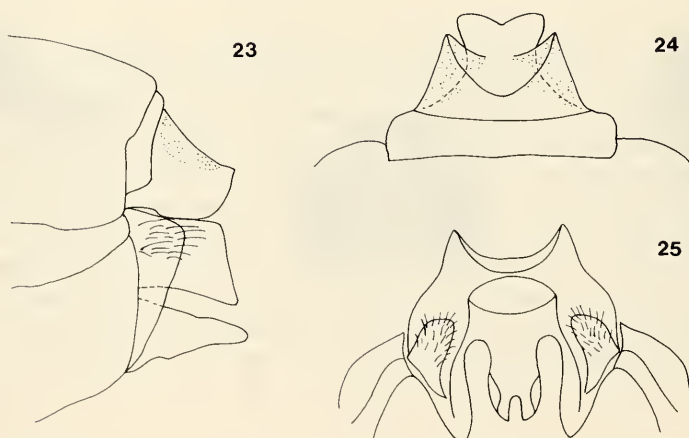
Figs 20–25

Antennae, head dorsally, and legs blackish brown; wings brown; posterior wings with an androconial pocket. Spurs both female and male 1.3.3. Length of the anterior wing of male 13 mm, of female 13–14 mm.

Male genitalia (Figs 7–9). Spinulose zone of tergite 8 quadrangular, dorsal apical edge dilated on each side; segment 9 protruding anteriorly and narrow ventrally. Preanal appendages long, narrow, and rounded at tips. Intermediate appendages triangular in shape if viewed dorsally. Only the upper parts of the intermediate appendages strongly sclerotised; lower parts smooth in lateral aspect. Caudally, the basal part forms a triangle. Inferior appendages broad, apically rounded; in dorsal view lateral margins dilated on each side.



Figs 20–22. *Drusus vinconi*, spec. nov. Male genitalia. 20. Lateral. 21. Dorsal. 22. Caudal.



Figs 23–25. *Drusus vinconi*, spec. nov. Female genitalia. 23. Lateral. 24. Dorsal. 25. Ventral.

Female genitalia (Figs 10–12). Tubular pieces of segment 9 triangular in shape; laterally upper margin rounded; lateral pieces of segment 9 long; lateral scales parallel; median scale very short.

Types. Holotype ♂, allotype ♀, and paratypes (4 ♀): France, Pyrénées-Atlantiques, ruisseau de Chousse, affluent du Vert d'Arette (Vallée du Gave d'Orion), en dessous de Serre de Benou, Pierre St. Martin, 1300 m, 30.6.1987, leg. Vincon.

Drusus vinconi, spec. nov., is closely related to *D. monticola* McLachlan (Schmid 1956) from the southern Alps. The main differences are in the male genitalia, especially in the structure of the intermediate appendages, which are ovoid in *D. monticola*, whilst they are clearly triangular in *D. vinconi*. The preanal appendages of *D. monticola* are small and rounded; in *D. vinconi* they are long and ovoid. Shape of segment 9, which is narrow ventrally and pointed anteriorly in *D. monticola* is also different. The differences in female genitalia are also remarkable, especially shape of tubular pieces, which are short and laterally quadrangular in *D. monticola*, and the median scale which is very short in *D. vinconi*, whilst it reaches half the length of the lateral scales in *D. monticola*.

I am please to dedicate this new spieces to Dr. Gilles Vincon.

Acknowledgements

I would like to thank Dr. Gilles Vincon from Grenoble, who provided me with a lot of valuable material. I wish to express my thanks to the Alexander von Humboldt-Stiftung for supporting this research.

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