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A new species of *Tinodes* from Sicily and southern Italy (Trichoptera, Psychomyiidae)

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Abstract. Male and female of *Tinodes marae* sp.n. from Sicily and Calabria (Southern Italy) are described. The new species is closely related to *Tinodes waeneri* L. of which the variability of different European populations was examined.

Key words: Trichoptera, Psychomyiidae, *Tinodes*, Sicily, Southern Italy.

Introduction.

Specimens of *Tinodes* found in Sicily, until now attributed to *Tinodes waeneri* LINNAEUS 1758 (CIANFICCONI et al. 1999), after an accurate examination were found to belong to a new species. This species has also been found in Aspromonte (southern Calabria). The morphological differences between the new species and *T.waeneri* are constant and do not enter in the field of variability of the characters of the latter species. The analysis of this variability was possible thanks to the collaboration of various trichopterologists, who made available specimens of *T.waeneri* coming from different European populations. The terminology follows NIELSEN (1957, 1980) and FISHER (1977).

Material examined

Tinodes marae n.sp.: Italy, Sicily, Iblei Mts., Cava Cinque Porte, Canicattini Bagni, 24.9.1992: 12♂, 7♀; 5.10.1995: 1♀; 2.7.1999: 1♂, 1♀; leg. & coll. De Pietro. Cava Mazzone, Palazzolo Acreide, 5.10.1995: 3♂, 8♀, leg. & coll. De Pietro. Nebrodi Mts., Sorgente del Medico, Maniace, 26.9.1992: 1♂, leg. Giuliano, coll. De Pietro. – Italy, Calabria, Aspromonte Mts., Torrente Santa Caterina, 24.9.1998: 2♀, leg. & coll. De Pietro.

Tinodes waeneri: Norway, Hordaland, Bergen, Fana, Kalandsvann, 20.-30.8.1998: 28♂, 30♀, leg. & coll. Andersen. – Poland, Mikolajki, Sniardwy Lake, 12.7.1958: 6♂, 3♀; Mikolajki, Mazury, 16.8.1958: 6♂, 3♀, leg. Szczepanski, coll. Botosaneanu. – Britain, various localities, 35♂, 17♀, coll. The Natural History Museum, London. – France, Cantal, Ruisseau de l'Arcueil, 12.6.1983: 1♂, 1♀, leg. Thomas, coll. Botosaneanu. – Spain, Porto, Zamora, 20.7.1982: 2♂, 2♀, leg. & coll. González. – Italy, Trentino, Garda Lake, Riva del Garda, 17.6.1999, 10♂, 2♀, leg. De Pietro & La Rocca, coll. De Pietro. – Italy, Lombardia, Piona Lairò Lake, 11.9.1979, 2♂, 1♀, leg. Moretti, Cianficconi, Pirisinu & Tucciarelli, coll. Moretti. – Italy, Umbria, Trasimeno Lake, Isola Maggiore, 9.5.1985: 3♂, 1♀, leg. Chiappafreddo, coll. Moretti. – Italy, Lazio, Bolsena Lake, Capodimonte, 2.5.1968, 2♂, 1♀, leg. Tripanera; 14.5.1969: 3♂, 2♀, leg. Moretti & Cianficconi; coll. Moretti. – Italia, Basilicata, Monticchio Lake, Monticchio, 10.6.1999, 2♂, leg. & coll. De Pietro. – Italy, Sardinia, Rio Lassini, San Nicolò Gerrei, 16.5.1996: 1♂, 2♀, leg. & coll. De Pietro.

***Tinodes marae* sp.n.**

Holotype ♂ and Allotype ♀: Sicily, Iblei Mts., Cava Cinque Porte, 440m, Canicattini Bagni, 24.9.1992; paratypes: 11♂, 6♀: same site and date (leg. & coll. De Pietro).

Colour of the wings and body light brown. Forewing length in the male 8,7 – 13,1 mm (\bar{X} = 10,7 mm), in the female 9,4 – 12,3 mm (\bar{X} = 11,2 mm).

Male genitalia (Figs. 1-5): Median lobe of segment 10 triangular. Superior appendages long, directed posteriorly. Ventral part of IX segment roughly triangular in shape; the anterior margin is deeply excised. The paraproctal processes are long and directed posteriorly. They are formed of three branches: dorsal, intermediate, and ventral. The dorsal and intermediate branches have a short common base. The dorsal branch is the longest, curved downwards, pointed, with a rapidly thinning apex. The intermediate and ventral branches have the same length, are stouter and with the apex always pointed. Their length is less than half the length of the dorsal branches. A basal plate, together with membranous portions, connect the two inferior

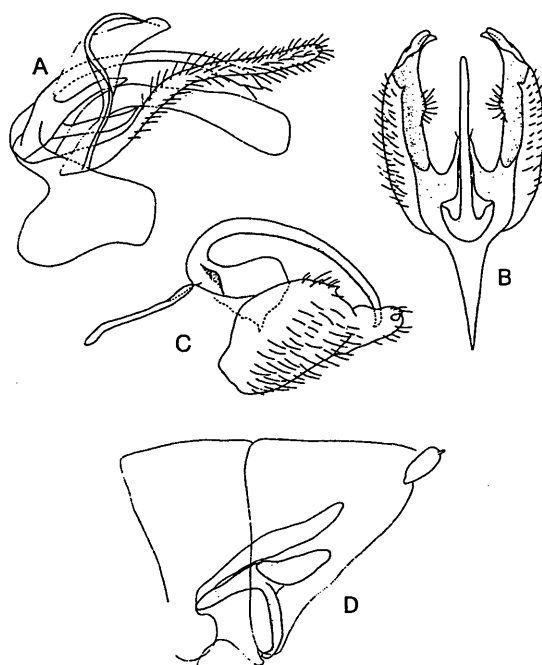


Fig. 1. *Tinodes marae* sp.n. male genitalia, lateral view, without inferior appendages (A), dorsal (B) and lateral (C) views of inferior appendages. Female genitalia, lateral view (D).

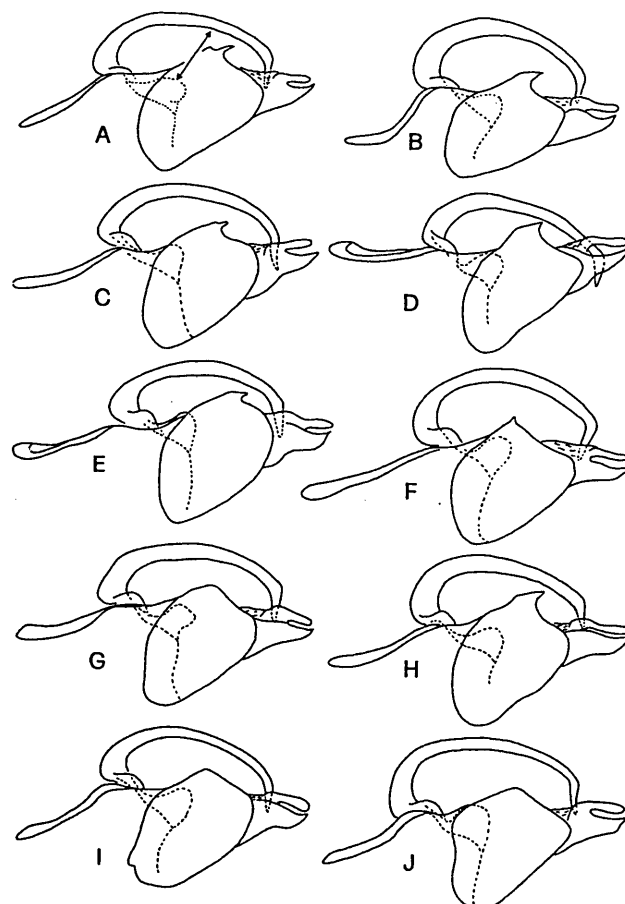


Fig. 2. *Tinodes waeneri* male genitalia. Left inferior appendage, lateral view. (A) Norway; (B) Poland; (C) Britain; (D) France; (E) Spain; (F) Italy, Sardinia, Rio Lassini; (G) Italy, Garda Lake; (H) Italy, Piona Lairò Lake; (I) Italy, Bolsena Lake; (J) Italy, Monticchio Lake.

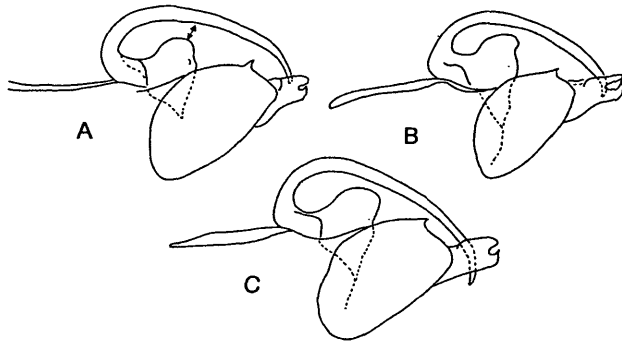


Fig. 3. *Tinodes marae* sp.n. male genitalia. Left inferior appendage, lateral view. (A) Italy, Sicily, Iblei Mts., Cava Cinque Porte; (B) Italy, Sicily, Iblei Mts., Cava Mazzone; (C) Italy, Sicily, Nebrodi Mts., Sorgente del Medico.

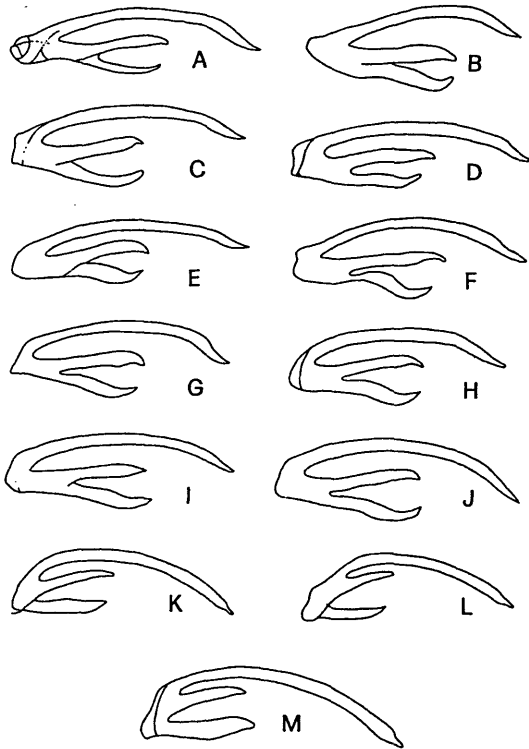


Fig. 4. Male genitalia: Paraproctal process, lateral view. (A-J) *Tinodes waeneri*; (K-M) *Tinodes marae* sp.n. - (A) Norway; (B) Poland; (C) Britain; (D) France; (E) Spain; (F) Italy, Piona Lairò Lake; (G) Italy, Garda Lake; (H) Italy, Bolsena Lake; (I) Italy, Monticchio Lake; (J) Italy, Sardinia, Rio Lassini; (K) Italy, Sicily, Iblei Mts., Cava Cinque Porte; (L) Italy, Sicily, Iblei Mts., Cava Mazzone; (M) Italy, Sicily, Nebrodi Mts., Sorgente del Medico.

appendages. The basal plate has anteriorly a long, thin apodeme, with a small base. Posteriorly, the basal plate has two processes: one dorsal (proximal) and one ventral (distal). The dorsal one has the shape of a large spine similar to one of the two dorsal branches of the paraproctal process; the ventral one, instead, is laminar in shape and medially placed; its dorsal apex is very near the dorsal process (indicated in Fig. 3). Seen laterally, the coxopodite is almost perfectly oval; along the dorsal margin there is a small spine whose apex is directed dorsally and posteriorly. The harpago is composed of a dorsal and ventral branch. The dorsal one is finger-like; while the ventral one is pointed with the apex directed medially. Phallus compressed, elongated, curved downwards; it is almost completely membranous.

Female genitalia (Fig. 6): Of the three genital segments, the segment 9 is the most developed. Seen laterally, the dorsal margin is parallel to the axis of the body while the ventral margin is inclined; overall it is conical in shape. The segment 10, as usual for the genus, is small and divided into two valves, each having a short cercus. In the anterior part of segment 8 is a depression. For the specific

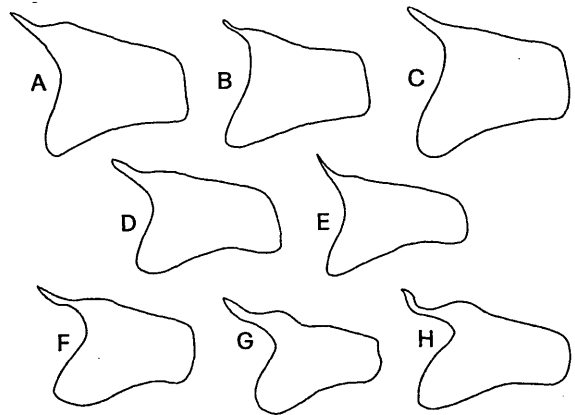


Fig. 5. Male genitalia. Ventral part 9 Segment, lateral view. (A-E) *Tinodes waeneri*; (F-H) *Tinodes marae* sp.n. - (A) Norway; (B) France; (C) Spain; (D) Italy, Piona Lairò Lake; (E) Italy, Sardinia, Rio Lassini; (F) Italy, Sicily, Iblei Mts., Cava Cinque Porte; (G) Italy, Sicily, Iblei Mts., Cava Mazzone; (H) Italy, Sicily, Nebrodi Mts., Sorgente del Medico.

determination the shape of the gonopods is very important; these are visible after the clarification in KOH of the terminal part of the abdomen. Internal and external gonopods 8 form a complex structure that, observed laterally, has a general T shape. The gonopods 9 form a layer that is positioned dorsally to this structure.

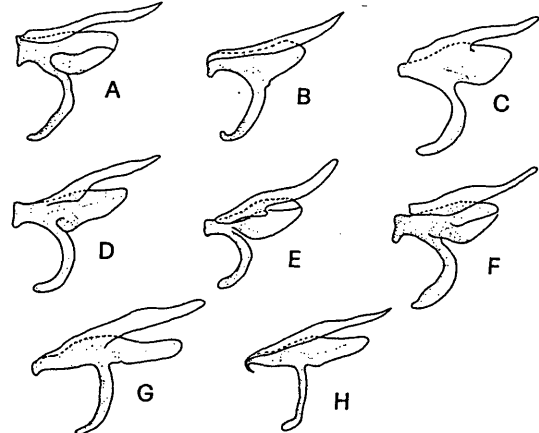


Fig. 6. Male genitalia. Gonopods, lateral view: (A-F) *Tinodes waeneri*; (G-H) *Tinodes marae* sp.n. - (A) Norway; (B) Poland; (C) Britain; (D) Spain; (E) Italy, Garda Lake; (F) Italy, Sardinia, Rio Lassini; (G) Italy, Sicily, Iblei Mts., Cava Mazzone; (H) Italy, Calabria, Aspromonte Mts., Torrente Santa Caterina.

Derivatio nominis. I would like to dedicate this species to my good friend and colleague Dr. Mara La Rocca.

Comments. The affinity of the new species with *T. waeneri* is notable and suggests a clear common origin of the two species. However, a distinction between the two species is always possible, both for males as well as for females. Figures 2 —6 show the variability of some characters of the male and female genitalia of *T. waeneri* compared to those of the new species and Table 1 shows the principle differences between the male and female genitalia of the two species.

The most important character is the ventral process of the basal plate: in *T. marae* sp.n. it is large, flat and very near the dorsal process; while it is small and stout in *T. waeneri*. Also for the characters showing variability the distinction is possible. For example, in *T. waeneri* the spine of the dorsal margin of the coxopodite is very variable (single or bifurcated, more or less developed and medially curved), sometimes there is a difference between the one of the right and left coxopodite; in any case, it never has the shape and orientation of that in *T. marae* sp.n.

As regards the female, the internal and external 8 gonopods allow the discrimination between the two species; in particular, in *T. waeneri*, seen laterally, the dorsal part of the complex structure that they form is shorter and more robust and the ventral part is curved and not straight. On the whole this structure in *T. waeneri* assumes, roughly, the shape of the number 5.

Table 1. Comparison of diagnostic characters of *Tinodes marae* sp. n. and *T. waeneri*.

Male genitalia	<i>Tinodes marae</i> sp.n	<i>Tinodes waeneri</i>
Ventral (distal) process of the basal plate of the inferior appendages	Large and flat	Small and stout
Branches of the paraproctal process	Dorsal and intermediate branches have a common base	Intermediate and ventral branches have a common base
Length of the intermediate and ventral branches of the paraproctal process	Shorter than half the dorsal branch	Longer than half the dorsal branch
Dorsal margin of the coxopodite	Regularly convex	Not regularly convex; almost concave in the distal part
Spine of the dorsal margin of the coxopodite	Small, directed dorsally and posteriorly	Large, often bifurcated or also with different forms, medially curved
Inferior branch of the harpago	Medially curved	Not medially curved
Ventral part of the IX segment	Deeply excised	Roundly excised
Apodeme of the basal plate	Thin with a small base	With a wide base
<i>Female genitalia</i>		
Gonopods VIII (lateral view)	Form a structure like the letter T	Form a structure like the number 5

The distribution of the new species appears to be limited to eastern Sicily and to the southern part of the Italian peninsula (Aspromonte). It appears to be absent in western Sicily where, instead, *T.maroccanus* MOSELY 1938 (CIANFICCONI & al 1999; DE PIETRO, unpublished data) has been found. This species adds to the great number of Trichoptera species, 20% of the Sicilian fauna, which have a Sicilian-Appenninic distribution (CIANFICCONI & al. 1999). *T.waeneri*, on the contrary, is a species with a wide distribution (see BOTOSANEANU & MALICKY 1978; MALICKY 1992) and in the Italian peninsula extends to the south up to Basilicata. Furthermore, one of its subspecies, *T.waeneri pollensa* MALICKY 1987 has been described from the island of Mallorca (MALICKY 1987). Figure 7 shows the distribution of *T.marae* sp.n., *T.waeneri pollensa*, *T.waeneri* and, relative to the last species, the localities where specimens were examined for this paper.

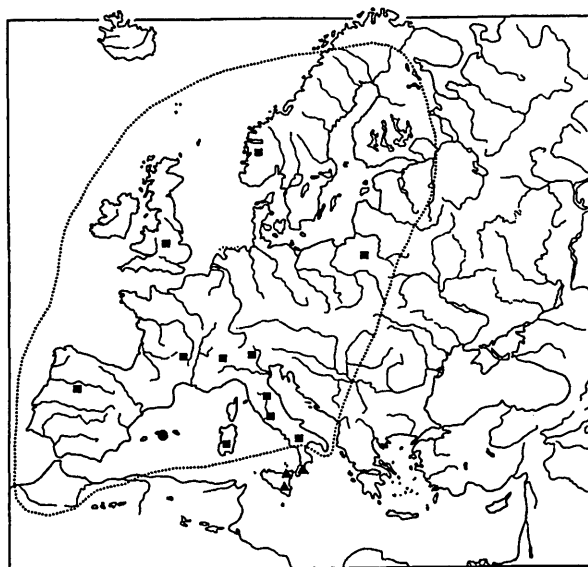


Fig. 7. Distribution of *Tinodes marae* sp.n. (triangles), *T.waeneri* (dotted line, modified from MALICKY 1992) and *T.waeneri pollensa* (circle), and localities from which specimens of *T.waeneri* were examined (squares).

The data on the collection of *T.marae* sp.n. come from the capture of adults using lights and therefore are not very useful for the ecological characterisation of the aquatic stages. However, based on the location where they the adults were found, this species seems to favour slow flowing streams.

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