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**THE GENUS *STACTOBIA* MCLACHLAN, 1880
(TRICHOPTERA, HYDROPTILIDAE) IN ITALY**

ABSTRACT - The presence of the genus *Stactobia* McLachlan in Italy has been analyzed through a careful examination of the literature on this subject as well as the large amount of material preserved in the Moretti Collection in Perugia and the Natural Science Museum in Bergamo. Data have revealed the presence in Italy of 9 species of *Stactobia*, one of which, *S. cianficconiae* n. sp., is described here. Drawings are provided showing the female genitals of *S. moselyi* Kimmins, 1949 *S. caspersi* Ulmer, 1950, *S. fuscicornis* (Schneider, 1845), *S. eatoniella* McLachlan, 1880, *S. beatensis* Mosely, 1934 and *S. maculata* Vaillant, 1951 since these are considered valid aids in determining the species.

S. maculata is no longer considered as being synonymous with *S. fuscicornis*. An examination of some specimens found in Tunisia, just a few kilometres from the habitat of *S. maculata*, as well as a comparison with examples of *S. fuscicornis* found in Sicily, have ascertained the valid and concrete existence of the species whose distinctive features are described below.

RIASSUNTO - Il genere *Stactobia* McLachlan, 1880 (*Trichoptera*, *Hydroptilidae*) in Italia.

Viene analizzata la presenza del genere *Stactobia* in Italia sulla base dell'esame della letteratura e di abbondante materiale conservato nelle collezioni Moretti di Perugia e del Museo di Scienze Naturali di Bergamo. Sono riportati dati sulla presenza in Italia di 9 specie del genere *Stactobia* una delle quali *S. cianficconiae* n. sp. viene qui descritta. Vengono proposti i disegni dei genitali femminili di *S. moselyi* Kimmins, 1949, *S. caspersi* Ulmer, 1950, *S. fuscicornis* (Schneider, 1845), *S. eatoniella* McLachlan, 1880, *S. beatensis* Mosely, 1934 e *S. maculata* Vaillant, 1951 in quanto considerati elementi validi per la determinazione.

S. maculata viene rimossa dalla sinonimia con *S. fuscicornis*. L'esame di alcuni esemplari provenienti dalla Tunisia, a pochi chilometri dal locus typicus di *S. maculata*, ed il confronto con gli esemplari di *S. fuscicornis* campionati in Sicilia, ha consentito di accertare l'effettiva validità della specie di cui vengono disegnati i caratteri distintivi.

KEY WORDS: new species, hygropetric habitats, Moretti Collection, *S. cianficconiae* n. sp..

INTRODUCTION

Stactobia McLachlan, 1880 is one of the genera of the family Hydroptilidae, and has the highest numbers of species. There are currently over 140 species in the Palaearctic regions, The Far East, Tropical Africa and Australia (Morse, 2013). This genus presents morphological and ecological features which make collecting specimens particularly difficult, both at the larva stage and in the case of adult species. The larvae, in fact, are very small, only a few millimetres long, and have a silky case open at both ends (Marshall, 1979). They prefer to live in a madicolous habitat, characterized by rocky walls covered thinly by water; the adult species too, while very small, choose the same type of environment or are to be found on dry stony walls nearby. During the hottest part of the day, they make short flights over the substratum, effecting very quick circular movements. For these reasons not many specimens have been gathered of the genus *Stactobia* and therefore this genus is not well represented in collections. Knowledge concerning the distribution of this species is thus often scanty and is characterized by the small number of collection points spread over very large areas.

(Marshall, 1979). Moreover, until the middle of last century any descriptions were extremely vague and based mainly on exterior appearance rather than on the observation of genital structure. This has led to errors in determining and reporting the presence of the various species. The larvae of most species, even up to now, have not been described.

The genus *Stactobia* was established by McLachlan who, in 1880, indicated *S. fuscicornis* (Schneider, 1845) as being a species typical of that genus. This researcher examined the type material from Sicily (Messina) and other material gathered by Eaton in France (Le Lorian – Cantal). The new description of the species was made by studying the French specimens based on the premise: “I cannot satisfactorily separate the type from Messina from the examples from Cantal, but the former are not nearly so deep black as the latter.”. This observation proved to be wrong and led other researchers to carry on mistakenly in the same belief for nearly 70 years! In the same work McLachlan also described *S. eatoniella* based on specimens from France.

In 1884 McLachlan, based on his own observations, reported the presence of *S. fuscicornis* in some parts of Portugal, Italy and Switzerland. Ris (1897) reported sightings of *S. fuscicornis* in Switzerland, providing a very detailed drawing of the specimen, which, however, was clearly of the *S. moselyi* (a species not yet described at that time).

Klapalek (1900, 1901) mentioned *S. eatoniella* for Tarvisio and gave a description of the adult insect, the larva and the case along with relative drawings which were difficult to interpret.

Mosely (1933) summarized all the data known up to that time relating to the genus *Stactobia* in Europe and described *S. furcata*, a new species from Corsica. He did not examine material belonging to the species previously described, but collected specimens from the area in France (Le Lorian) mentioned by McLachlan. He also examined material sent to him by Ulmer from the Thienemann collection, specimens labelled as “*fuscicornis*” from Neckarsteinach (Germany) and confirmed the name of the species. Instead, he looked further at what Ris had determined, appreciating the latter’s drawing but stating that this specimen definitely belonged to the species *S. eatoniella* and not *S. fuscicornis* while at the same time providing new drawings of each of the two species. In his work, for the first time a key point regards recognition of the European species and which pointed to the importance of discerning correctly the black spines, the phallic organ and terminal segments in males. Nevertheless, the author was not completely convinced: “I am not altogether satisfied that the determinations are correct but, with these figures available, it should be possible, in the future, with fresh material from Sicily and the Pyrenees, to clear up the position beyond all reasonable doubt.”. In the following year Mosely (1934) described *S. beatensis* from the French Pyrenees.

In 1938 the McLachlan collection became part of the heritage of the British Museum, which allowed Kimmins (1949) to settle once and for all the taxonomic controversies concerning this genus. After examining the type material which until then had been the only elements actually relating to *S. fuscicornis*, the author gave a new description of the species, providing drawings that even today are the only ones illustrating it. He also described *S. maclachlani* and *S. moselyi*, the latter having been determined previously by Ris (1897) as *S. fuscicornis* and by Mosely (1933) as *S. eatoniella*.

In 1959 Schmid, thanks to more meticulous microscope analyses, published a work concerning the genus *Stactobia* which described 17 new species and provided detailed descriptions and drawings of the taxa which by that time were already known. Data on

the distribution of the various species belonging to the genus *Stactobia* in Italy have been gathered in numerous works allowing the compilation, during different periods, of lists of Italian caddisflies (Moretti & Cianficconi, 1981; Cianficconi & Moretti, 1991; Cianficconi, 2002, 2005). Moreover, Moretti (1983) suggested ways of recognizing the species based on the conformation of the larval cases. Nevertheless, there is no evident feature by which the larvae can be recognized.

MATERIALS AND METHODS

Already emerging from the historic works on the genus *Stactobia* are the evident difficulties involved in observing the main features of the specimens, due to their size and also because of the thick down covering the abdomen. To overcome this problem, which is of prime importance above all in determining the species, all the specimens observed were macerated in a 10% KOH solution at room temperature for 10-20 hours, then they were rinsed in water to prevent the potassium chlorate from altering the material, often in an irrevocable manner. At the end of the procedure, the specimens were preserved in 75% proof alcohol. In some cases, to facilitate observation of the body parts, slides were used to preserve them permanently using Faure's liquid, since this makes it easier to mount and remove the specimen. In the Moretti collection the fixed slides, often containing specimens of several species, are mounted using Canada balsam.

For the purposes of determining the species, only adult specimens were taken into consideration since the larval stages do not permit correct identification. The terminology used to indicate the anatomical parts of the male genitals is that used by Oláh & Johanson (2010) and for female genitals it is the one adopted by Botosaneanu (1992).

A Zeiss SM LUX microscope with a camera lucida was used in creating the illustrations. The photographs were taken with a NIKON COOLPIX 4500 mounted on a LEITZ LABOR LUX 12 microscope and assembled using Combine ZM software.

The list below contains, for each species, the following information:

LOCUS TYPICUS: the place where the specimens which were used to describe the species were collected.

DISTRIBUTION: distribution of the species as based on indications provided by *Fauna Europaea* (Malicky & de Jong, 2012).

MATERIAL EXAMINED: all data relating to the specimens examined, given in this order: region (bold), province (small capitals), municipality, locality and height above sea level, geographical coordinates, the sex and number of specimens (larva stage specimens are included only when associated with adult specimens or mentioned in the bibliography), specimen collection date, legit, bibliographical quotes, any preserved specimens. The material examined is now housed among the collection belonging to the Civic Natural Science Museum in Bergamo, unless explicitly stated by the following acronyms: CMOR (Moretti collection, University of Perugia); CMC (Moretti Calco collection, c/o Civic Natural Science Museum in Bergamo); CMAL (Malicky collection, Lunz am See); COLA (Janos Oláh's private collection, presently under National Protection of the Hungarian Natural History Museum, Budapest); CCAR (Civic Natural History Museum collection, Carmagnola); CCOP (Gennaro Coppa private collection, Villers sur Bar).

OTHER MATERIAL: all data relating to other specimens mentioned in the literature but not examined.

TAXONOMIC PART

Stactobia alpina Bertuetti, Lodovici & Valle, 2004

LOCUS TYPICUS: Italy, Piemonte, Garessio.

DISTRIBUTION: Italy and France.

MATERIAL EXAMINED: **Piemonte:** CUNEO: Briga Alta, rivulet near Viozene m 1250, lat. 44,1443° lon. 7,7751°, 1♂ 29.V.2001, light trap (Bertuetti *et al.*, 2004); Briga Alta, rivulet near Upega m 1200, lat. 44,1410° lon. 7,7835°, 1♂ 18.VII.2001 (Bertuetti *et al.*, 2004); Garessio, affluent Fiume Tanaro c/o Trappa m 650, lat. 44,1875° lon. 7,9885°, 17♂♂ 4♀♀ 29.V.2001 (Bertuetti *et al.*, 2004) (slides 346, 347, 348, 349) (2♂♂ COLA); Macra m 800, 4♂♂ 1♀ 25.V.2001, 1♂ 2.IV.2002 leg. Delmastro G.B. (Bertuetti *et al.*, 2004, Malicky, 2005; Malicky *et al.*, 2007) (CCAR), 1♂ 8.VIII.2002 (CMAL), 5♂♂ 4♀♀ 29-30.VI.2004, leg. Malicky H. (Bertuetti *et al.*, 2004; Malicky, 2005) (CMAL).

Liguria: IMPERIA: Alpi Marittime, Coldinava, St. 66G m 800, 1♂ 20.VI.1965 leg. Viganò (Di Giovanni *et al.*, 2002 sub *Stactobia* sp. n. (?)) (CMOR 03V 29-1037 – only abdomen); stream, Alpi Marittime between Col di Nava and Acquetico m 820, 1♂, 20.VI.1965 leg. Viganò (Di Giovanni *et al.*, 2002 sub *S. moseleyi*) (CMOR 90A 158-1405 – specimen without abdomen).

REMARKS: This is an endemic species known from a few localities in the Western Italian Alps (fig. 3). This species is very similar to the *S. moseleyi*, from which it can easily be distinguished because of the shape of the phallic organ; the bursa copulatrix, instead, is like that of *S. moseleyi*. Consultation of the Moretti collection has permitted the attribution to this species of a specimen found in 1969 in Colle di Nava and classified as “*Stactobia* sp.n. (?)” (Di Giovanni *et al.*, 2002). The prudent attitude adopted by Professor Moretti and the fact that it was the only specimen actually found there, led him to him decide not to describe this taxon.

Stactobia beatensis Mosely, 1934

LOCUS TYPICUS: France, Haut-Garonne, St. B  at.

DISTRIBUTION: France, Spain and Italy.

MATERIAL EXAMINED: **Sicilia:** CATANIA: Randazzo, fiume Alcantara m 770, lat. 37,8839° lon. 14,9419°, 1♂ 2♀♀ 28.XI.1995, leg. Pantini P., Valle M. (Valle, 2001) (slides 206, 382). MESSINA: Santa Lucia del Mela, Val Mela, hygropetric m 250, lat. 38,0997° lon. 15,2793°, 1♂ 16.V.1995, leg. Pantini P., Valle M. (Valle, 2001); Santa Lucia del Mela, spring c/o Fiume Mela m 350, lat. 38,0872° lon. 15,2972°, 2♂♂ 22.VII.1995, leg. Pantini P., Valle M. (Valle, 2001) (slides 238, 239); Mistretta, spring c/o contrada Monaco m 1100, lat. 37,8950° lon. 14,5559°, 10♂♂ 24.VII.1995, leg. Pantini P., Valle M. (Valle, 2001). AGRIGENTO: hygropetric F. Platani 1♂ 15.IX.1978, leg. Pirisinu (Di Giovanni *et al.*, 2002) (CMOR 90V 6-190).

Toscana: MASSA-CARRARA: Casola in Lunigiana, Codiponte, hygropetric m 240, lat. 44,190716° lon. 10,144731°, 2♂♂ 28.VI.2011, leg. Lodovici O., Pantini P., Valle M..

REMARKS: in Italy this species has been found in Sicily and Tuscany (fig. 3). In Sicily the specimens were collected from hygropetric habitats between 250 and 1,100 metres above sea level. Its extremely fragmentary distribution over such a huge area (Spain, France and Italy) is probably due to a lack of knowledge about the life-cycle of this species. An illustration of the bursa copulatrix is provided (fig. 1a).

Stactobia caspersi Ulmer, 1950

LOCUS TYPICUS: Bulgaria, Baia di Varna.

DISTRIBUTION: Eastern Europe: Bulgaria, Greece, Romania, Albania, Lebanon, Israel and Italy.

MATERIAL EXAMINED: **Emilia-Romagna:** PARMA: Tornolo, c/o Case Fazzi m 870, lat. 44,4299° lon. 9,5341°, 2♂♂ 25.V.2010, leg. Lodovici O., Pantini P. (slide 360).

Friuli-Venezia Giulia: PORDENONE: Maniago, hygropetric spring c/o ponte Ravedis m 300, 2♂♂ 21.V.1996, 7♂♂ 2♀♀ 23.VII.1996, leg. Pantini P., Valle M. (Valle, 2001); Montereale Valcellina m 317, 1♂♂ 1♀ 23.VII.1996, leg. Pantini P., Valle M. (slides 256, 257). UDINE: Lusevera, Rio Tapotcasone hygropetric m 430, lat. 46,2905° lon. 13,2700°, 20♂♂ 24.V.1996 (slide 318), 12♂♂ 20.VII.1996, leg. Pantini P., Valle M. (Valle, 2001); Resia, hygropetric m 680, lat. 46,3050° lon. 13,3864°, 1♂ 20.VII.1996, leg. Pantini P., Valle M. (Valle, 2001).

Toscana: FIRENZE: Firenzuola, stream, road Giogo di Scarperia - Rifredo m 715, lat. 44,062926° lon. 11,391727°, 5♂♂ 1♀ 25.V.2011, leg. Lodovici O., Valle M. LUCCA: Vagli Sotto, hygropetric, road SP Roggio Vagli m 590, lat. 44,125543° lon. 10,300229°, 3♂♂ 1♀ 28.VI.2011, leg. Lodovici O., Pantini P., Valle M.; Castelnuovo di Garfagnana, hygropetric, road SP Valdarni m 390, lat. 44,081094° lon. 10,359153°, 28♂♂ 10♀♀ 28.VI.2011, leg. Lodovici O., Pantini P., Valle M.; hygropetric Alpi Apuane m 223, 1♂ 24.IX.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002 sub *S. moseleyi*) (CMOR 90V 6-241); hygropetric Alpi Apuane dyke L. di Vagli F. Ledron, ♂♂ (in the same slide with *S. moseleyi*) 01.VIII.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002 sub *S. moseleyi*) (CMOR 90V 6-228); fiume Ledron Alpi Apuane dyke L. di Vagli m 570, ♂♂ (in the same slide with *S. moseleyi*) 01.VIII.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002 sub *S. moseleyi*) (CMOR 90V 6-242).

Marche: PESARO-URBINO: spring Val Povera, Morro, 10♂♂ 15.VIII.1971, leg. Cianficconi (Di Giovanni *et al.*, 2002) (CMOR 90V 6-203); hygropetric Bocca Trabaria border with Umbria m 1100, 2♂♂ 18.VIII.1976, leg. Pirisinu, Romagnoli (Di Giovanni *et al.*, 2002 sub *S. furcata*) (CMOR 03V 29-1028).

Umbria: PERUGIA: hygropetric M. Subasio Assisi m 700, 3♂♂ 1♀ 23.VI.1990, leg. Chiappafreddo (Di Giovanni *et al.*, 2002) (CMOR 90V 6-199). TERNI: hygropetric, Corbara F. Tevere, 2♂♂ 09.VIII.1968, leg. Valeri (Di Giovanni *et al.*, 2002) (CMOR 90V 6-197).

OTHER MATERIAL: **Marche:** PESARO-URBINO: Piobbico, fosso Lastra m 530, 6 larvae 04.VI.1976, leg. Pacini, 26♂ 14 larvae 04.VII.1976, leg. Pecorari (Di Giovanni *et al.*, 2002); spring, Monte Sant'Antonio, Bocca Trabaria, m 1.010 larvae 1.V-1.VI.1975, 5♂♂ 1♀ 5.VII.1975, 4♂♂ 2♀♀ 8.VIII.1975, larvae XI-XII.1975, leg. Romagnoli (Cianficconi *et al.*, 1994); Rio Puto ponte degli Alberi m 90-100, 2 larvae, 28.VIII.1976, leg. Pacini (Cianficconi *et al.*, 2007).

Toscana: AREZZO: T. Singerna, Montalone, Pieve S. Stefano m 860, larvae 23.II.1986, leg. Baviera (Cianficconi *et al.*, 2004).

Umbria: Bacino del Topino, 85 specimens (Cianficconi *et al.*, 2007). PERUGIA: hygropetric Monte Subasio Assisi m 700, 3 larvae 19.V.1990, leg. Chiappafreddo (Di Giovanni *et al.*, 2002); hygropetric Monte Subasio Assisi affl. Fosso delle Piagge m 600, 6 larvae 08.V.1993, leg. Cardinali (Di Giovanni *et al.*, 2002); fosso Trosceto m 790, larvae 19.V.1990; 5♂♂, 1♀, 75 larvae 13.VI.1990, leg. Chiappafreddo, Cianficconi, Romozzi (Cianficconi *et al.*, 2006); Fosso delle Piagge m 790, pupae, larvae 11.V.1992; 11.IV.1993, leg. Cardinali (Cianficconi *et al.*, 2006); hygropetric Orvieto-Todi F. Tevere, 13♂♂ 30.VIII.1966, leg. Cianficconi, Moretti (Di Giovanni *et al.*, 2002); Fosso della Lastra, Ponte del Fumo, Bocca Serriola, m 530, 1 pupa 20.X.1975, 330 larvae 10.XI.1975, 172 larvae 6.I.1976, 64 larvae 9.II.1976, 2 larvae 4.IV.1976, 221 larvae 16.V.1976, 5 larvae 4.VI.1976 leg. Pacini (Cianficconi *et al.*, 2007), 57♂♂ 4.VII.1976, 120♂♂ 28.VIII.1976, leg. Pecorari (Cianficconi *et al.*, 1994).

REMARKS: in Italy this species is known to live in Friuli, the Apuan Alps and the central Appennines (fig. 3). Among the *Stactobia* species to be found in Italy, it is the only one found in eastern Europe. Moreover, it is the only species whose female genitalia has been illustrated (Kumansky, 1985; Botosaneanu, 1992; Cianficconi & Moretti, 1994). An illustration of the bursa copulatrix is provided (fig. 1d).

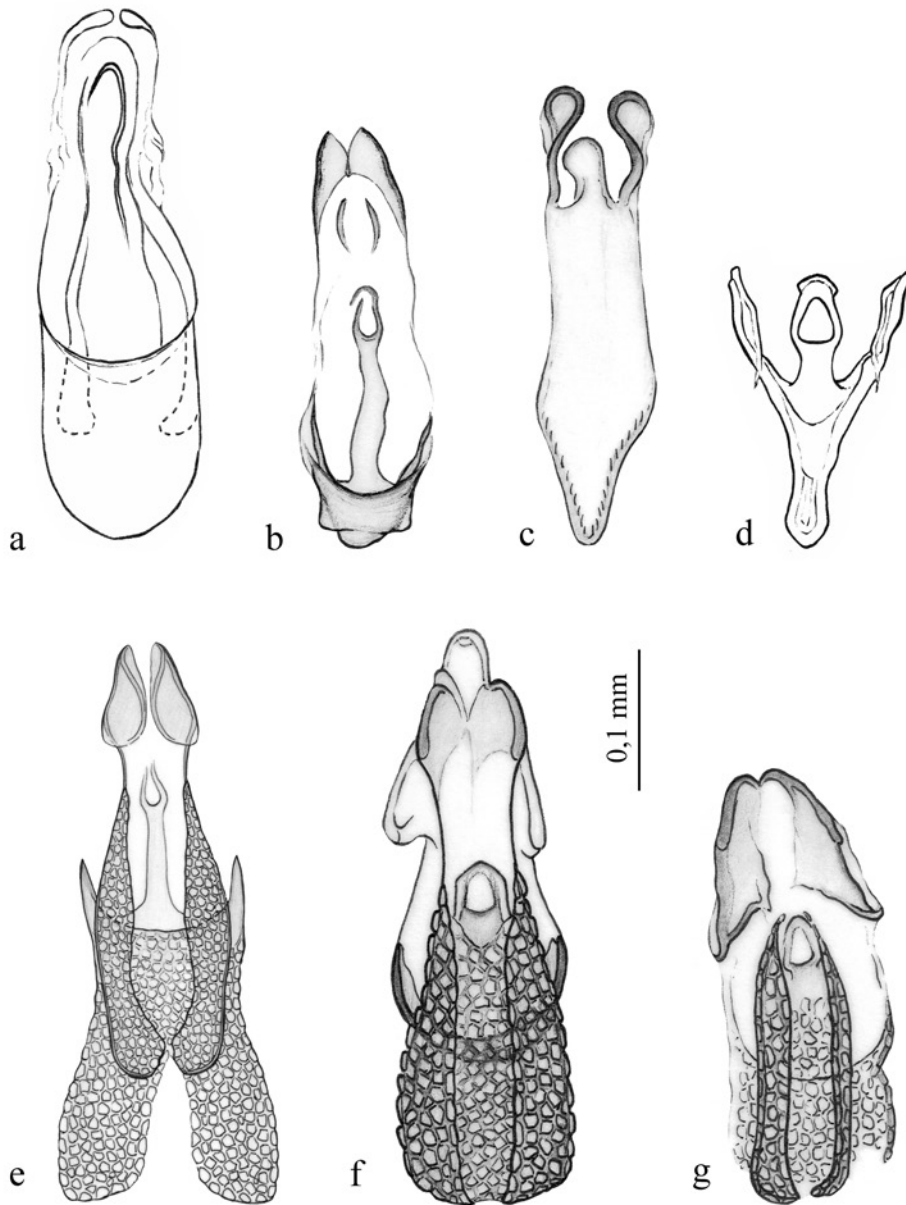


Fig. 1. Bursa copulatrix: a) *Stactobia beatensis* (Randazzo, slide 206); b) *S. eatoniella* (Claut, slide 260); c) *S. moselyi* (Oltre il Colle, slide 380); d) *S. caspersi* (Montereale Valcellina, slide 257); e) *S. furcata* (Cravagliana, slide 378); f) *S. fuscicornis* (Paola, slide 368); g) *S. maculata* (Jendouba, slide 381). Drawings by Elena Pellizoli.

***Stactobia cianficconiae* n. sp.**

DIAGNOSIS: this species is similar to *S. fuscicornis* and *S. maculata*, sharing with the latter the shape of the double-branched gonopods and the phallic organ with its two spines. It may be distinguished from *S. fuscicornis* as the upper branch ends in a point and turns inwards while the upper branch of the *S. maculata* is shorter and thicker and the spines of the phallic organ are stumpy, curved and considerably hardened.

DESCRIPTION: the specimens examined were collected at least 30 years ago and preserved in alcohol and glycerine after undergoing KOH treatment. It is therefore impossible to describe the general appearance of the insect. Antennal flagellum with 18 flagellomeres decreasing in size towards the top. The head has 3 ocelli. The tarsal formula of the male is: 1, 2, 4. The length of the front wings is 1,9-2,1 mm. It has a VII sternite with a long mesial process terminating in a club-like shape if viewed from the side. Two females were examined but due to their bad state of preservation, are not included in the description. Nevertheless, it is possible to see that the vaginal structure is reticular at the base.

Genitalia ♂: the X segment, which is not very chitinous, is formed by narrow elongated plates. The paraprocts terminate ventrally in two extremely chitinous points.

The gonopods, when viewed ventrally, present a strong thorn turning inwards and an upper branch which is concave on the inner side. If viewed sideways, they are seen as being clearly double-branched.

The lower branch is strong and terminates distally in a tooth, from which a raised border starts. The upper branch is short and strong and terminates in a point that turns inwards. The upper border has a lobed appendix curving towards the IX tergite.

The phallic organ has an elongated shape. The widened and membranous distal area has two spines inside, which are very strong, are of different lengths and curve differently (fig. 2 a, d, f, h).

MATERIAL EXAMINED: Holotype: **Sardegna:** NUORO: hygropetric road Gavoi-Ovodda, 1♂ 2.VI.1964, leg. Cianficconi, Viganò, Gianotti (Di Giovanni *et al.*, 2002 sub *S. fuscicornis*) (CMOR 90A 157-1387). Paratypes: same place and date 4♂♂ 1♀ (Di Giovanni *et al.*, 2002 sub *S. fuscicornis*) (CMOR 90A 157-1387) (2♂ Collection Civic Natural Science Museum in Bergamo). CAGLIARI: hygropetric road Santadi-Capoterra, 1♂ 03.VI.1964, leg. Moretti (Di Giovanni *et al.*, 2002 sub *S. fuscicornis*) (CMOR 90V 6-217). NUORO: Lula, hygropetric cant. S. Anna m 420, 9♂♂ 1♀ 19.V.1980, leg. Cianficconi, Moretti, Marinelli (Di Giovanni *et al.*, 2002 sub *S. fuscicornis*) (CMOR 90A 157-1385) (1♂ Collection Civic Natural Science Museum in Bergamo). OLBIA-TEMPIO: hygropetric Badde Suelzu Punta Senalonga m 1000, 2♂♂ 14.IX.1964, leg. Pirisinu (Di Giovanni *et al.*, 2002 sub *S. fuscicornis*) (CMOR 90V 6-224).

DERIVATIO NOMINIS: the species is dedicated to a friend, Professor Fernanda Cianficconi of the University of Perugia, who for over 60 years has been an important reference point as regards the study of the caddisflies in Italy.

DISTRIBUTION: Sardegna (fig. 3).

***Stactobia eatoniella* McLachlan, 1880**

LOCUS TYPICUS: France, Aude, Quillan, Pont de l'Aliès.

DISTRIBUTION: Central-western Europe.

MATERIAL EXAMINED: **Friuli-Venezia Giulia:** PORDENONE: Claut, hygropetric m 500, 28♂♂ 5♀♀ 16.IX.1996 light trap, 26♂♂ 11♀♀ 23.VII.1996 (slides 258, 259, 260), leg. Pantini P., Valle M.; Claut, Cellina stream, malga Casavento m 950, lat. 46,2689° lon. 12,5991°, 2♂♂ 23.VII.1996, 13♂♂ 3♀♀ 16.IX.1996, leg. Pantini P., Valle M.

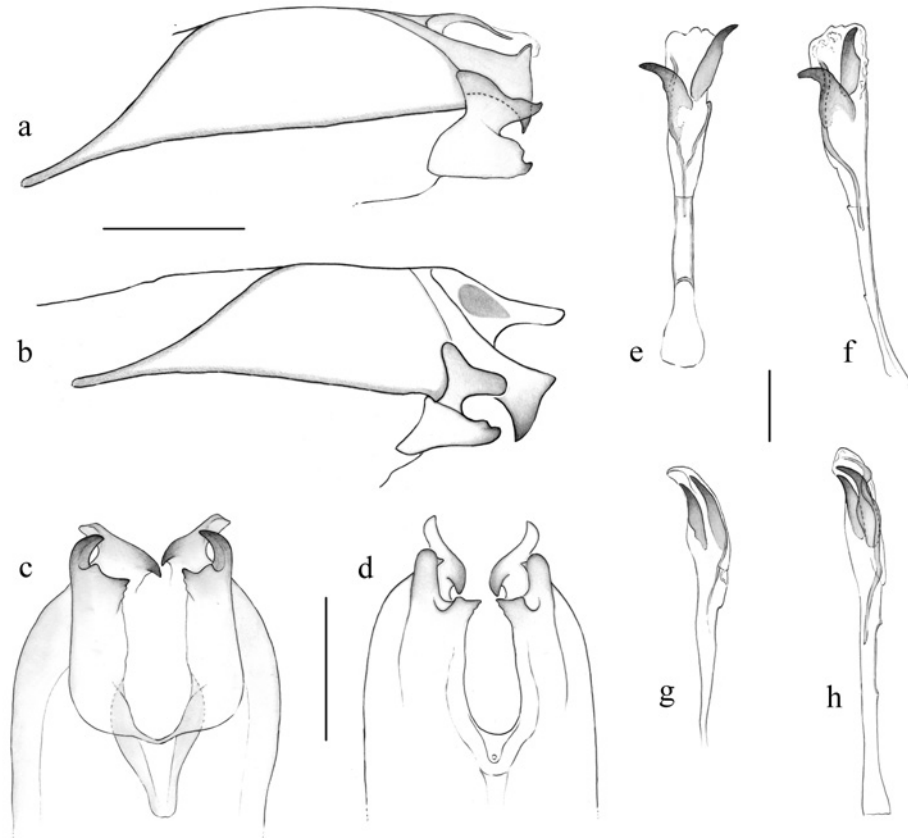


Fig. 2. *Stactobia cianficconiae* n.sp., Lula, m 420, 19.V.1980 (CMOR 90A 157-1385), male: a), d) genitalia lateral and ventral view; f), h) phallic organ ventral and lateral view. *Stactobia fuscicornis*, male: b), c) genitalia lateral and ventral view (S. Lucia del Mela slide 385); e), g) phallic organ ventral and lateral view (Paola, slides 366, 383/C). Drawings by Elena Pellizoli.

Lombardia: BERGAMO: Cassiglio, m 600, lat. 45,9672° lon. 9,6139°, 1♀ 19.VI.1994, leg. Bertuetti E.; Nembro, località Trevasco m 610, lat. 46,766515° lon. 9,745130°, 13♂♂ 2♀♀ 11.V.2011, leg. Massaro M., Valle M. (slide 379); Nembro, Trevasco stream m 550, lat. 45,7651° lon. 9,7456°, 1♀ 2.VII.1995 (slide 174), 3♀♀ 25.VII.1994, leg. Parrella R., light trap; Nembro, Trevasco spring m 550, lat. 45,7651° lon. 9,7456°, 1♂ 7.V.1994, 5♂♂ 1♀ 2.VII.1995, 8♂♂ 8.V.1995, leg. Parrella R.; Oltre il Colle, Valle delle Fontane m 1200, lat. 45,9088° lon. 9,8035°, 1♀ 2.VIII.2011, leg. Valle M. (slide 373); Parre, rivulet near Cima del Fop m 1720, lat. 45,9258° lon. 9,8600°, 31♂♂ 5♀♀ 23.VII.2003 (slides 361, 362, 363); San Giovanni Bianco, Cantalto m 450, lat. 45,8858° lon. 9,6231°, 1♂ 4.V.1994, leg. Bertuetti E., Pantini P., Valle M. (slide 29), 1♂ 22.VII.1995, leg. Bertuetti E., 1♀ 22.VIII. 1995 (slide 169), 2♂♂ 5.VIII.1994, leg. Pantini P., Toscano E., 28♂♂ 9♀♀ 17 larvae 25.V.1991, leg. Valle M. (Cianficconi *et al.*, 1994) (3♂♂ 3♀♀ 3 larvae CMOR), 3♂♂ 3♀♀ 25.V.1991, leg. Valle (Di Giovanni *et al.*, 2002) (CMOR 96 A 153-1372); Taleggio, I Serrati m 500, lat. 45,8858° lon. 9,5989°, 1♀ 5.VIII.1994, leg. Buttarelli G., Pantini P.; Zogno, Orrido di Bracca m 400, lat. 45,8091° lon. 4,6940°, 1♀ 17.VI.1995, leg. Bertuetti E. (slide 32), 1♂

6.VII.1994, leg. Moretti G., Pantini P., Valle M.. BRESCIA: Valvestino, c/o Lago Valvestino m 520, lat. 41,8899° lon. 12,4924°, 1♂ 30.IX.2003, leg. Lodovici O.; Gargnano, river c/o Vincerino bridge m 450, lat. 45,3075° lon 10,6164° 1♂ 1♀ 5.VII.2000, leg. Ferrario E., Gaini M., Pantini P.

OTHER MATERIAL: **Friuli-Venezia Giulia**: UDINE: Resia Valle Resia, Resia stream W of Coritis m 500, 20♂♂ 1♀ 6.VII.2002, leg. Malicky H. (CMAL - personal communication 2002); Tarvisio, ♂♂ ♀♀ larvae 31.VII.-1.VIII.18??, leg. Klapálek F. (Klapálek, 1900; 1901).

Toscana: LUCCA: hygroptetic Alpi Apuane, 27 cases 31.VII.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002) (CMOR 90A 153-1371).

REMARKS: in Italy this species is known in Friuli Venezia Giulia and Lombardy (fig. 3) where it is found in subalpine areas at between 400 metres and 1,720 metres above sea level. Cianficconi (2005) reported a sighting in the area around Lago d'Orta in 1952. In the relative bibliography (Moretti, 1954) there are no data concerning *S. eatoniella*. In the Moretti Collection and in the Moretti Collection of Calco there are no specimens from the Lago d'Orta area that may be ascertained as belonging to this species.

The sighting in the Apuan Alps may be raise some doubt, as it is based solely on the larval stages. Recent collections of specimens carried out by us in the area have not revealed the presence of this species. An illustration of the bursa copulatrix is provided (fig. 1b).

Stactobia ericae Malicky, 1981

LOCUS TYPICUS: Italy, Sardegna, Ogliastra, Gairo.

DISTRIBUTION: Sardegna.

MATERIAL EXAMINED: **Sardegna**: NUORO: Nebenbach von Rio San Girolamo m 725, lat. 39,8333° lon. 9,4000°, 2♂♂ 27.V.1981, leg. Malicky H.. OGLIASTRA: hygroptetic Gairo, 2♂♂ 1 larva 27.V.1981, leg. Malicky H. (Malicky, 1981; Di Giovanni *et al.*, 2002) (CMOR 90A 154-1373).

OTHER MATERIAL: **Sardegna**: OGLIASTRA: bach sudwestlich von Gairo, several males and females 27.5.1981, leg. Malicky H. (Malicky, 1981).

REMARKS: this is an endemic species known from a few Sardinian localities (fig. 3). Unlike other *Stactobia* species, it does not colonize in hygroptetic habitats but near running water where it is possible to observe the larvae in the rocky substratum at a depth of 10-20 cm (Malicky, 1981).

Stactobia furcata Mosely, 1930

LOCUS TYPICUS: France, Corsica, Corte.

DISTRIBUTION: Western Europe.

MATERIAL EXAMINED: **Abruzzo**: L'AQUILA: L'Aquila, Fontana 99 Cannelle m 630, lat. 42,349607° lon. 13,389606°, 14♂♂ 2♀♀ 20.VII.2004, leg. Pantini P., Magnati F.

Lombardia: BERGAMO: Branzi, hygroptetic m 870, lat. 46,005697° lon. 9,759145°, 3♂♂ 25.IV.2011 (slides 364, 369), 3♂♂ 9.VIII.2011, leg. Pantini P.; Branzi, road SP2 Km 50 m 970, lat. 46,007173° lon. 9,756641°, 13♂♂ 1♀ 10.VII.2011, leg. Pantini P.

Liguria: GENOVA: Genova, Nervi, 7♂♂ 2♀♀ IV-V.1971.

Piemonte: Lago d'Orta, A. hygroptetic, 3♂♂ 1♀ 23.IV.1952, leg. Moretti G.P. (CMC es. n°827); 1♂ 23.IV.1952, leg. Moretti G.P. (CMC es. n°824); 3♂♂ 23.IX.1952, leg. Moretti G.P. (CMC es. n° 825); 3♂♂ 23.IX.1952, leg. Moretti G.P. (CMC es. n° 826); 6♂♂ 23.IX.1952, leg. Moretti G.P. (CMC es. n° 828). **BIELLA**: Rosazza, hygroptetic m 900, lat. 45,6672 lon. 9,9765, 1♂ 8.VIII.2012, leg. Lodovici O., Pantini P., Valle M.. **VERCELLI**: Cravagliana, road SP 9 Valle Mastallone km 14 m 800, lat. 45,8815 lon. 8,1713, 10♂♂ 3♀♀ 9.VIII.2012, leg. Lodovici O., Pantini P., Valle M. (slide 378).

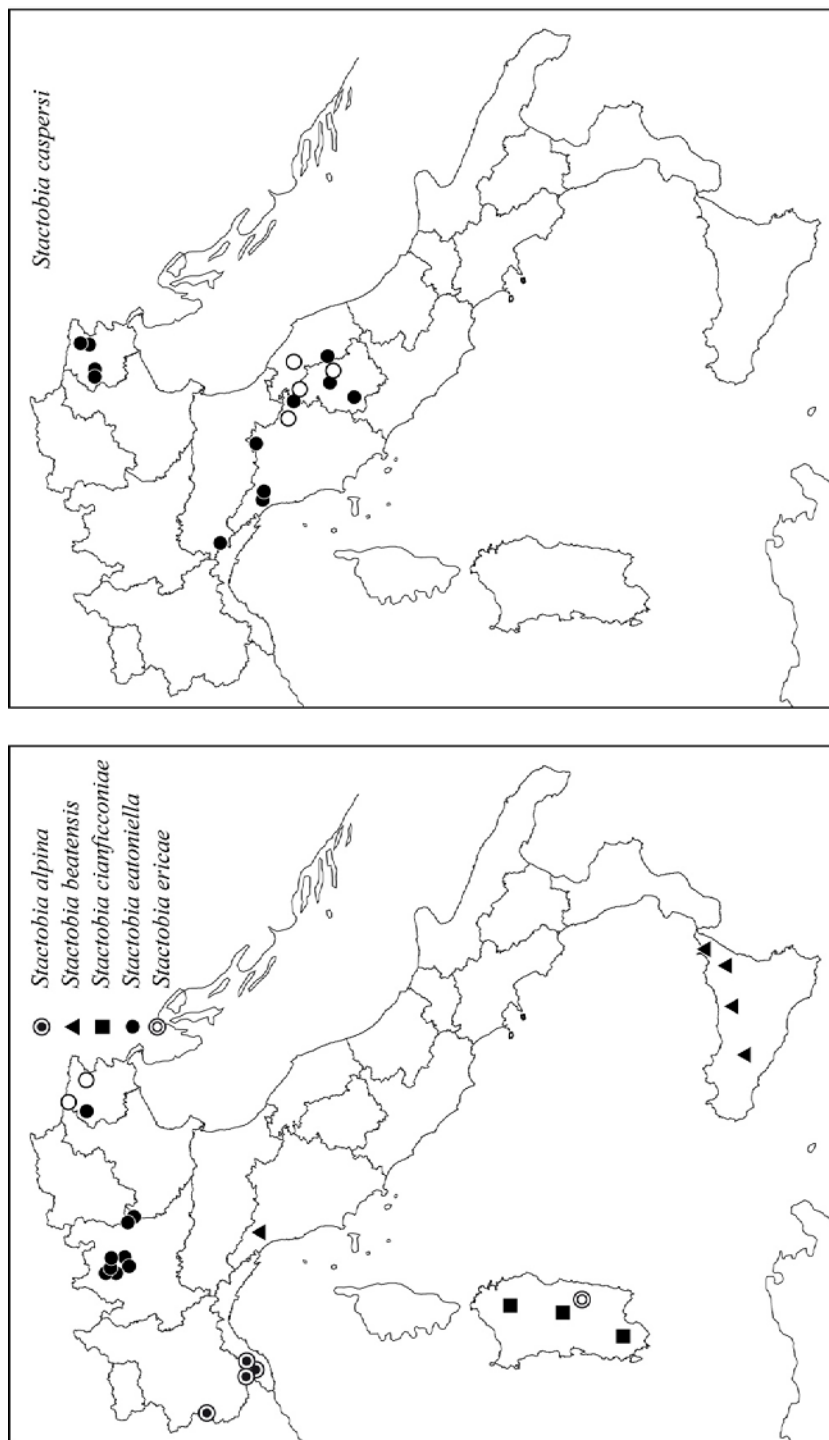


Fig. 3. Distribution of *Stactobia alpina*, *S. beatensis*, *S. cianficconiae*, *S. eatoniella*, *S. ericae* and *S. caspersi*. Black: verified records; white: unverified records.

Toscana: LUCCA: Castelnuovo di Garfagnana, hygropetric, road SP Valdarni m 390, lat. 44,081094° lon. 10,359153°, 1♂ 1♀ 28.VI.2011, leg. Lodovici O., Pantini P., Valle M.; hygropetric Alpi Apuane m 223, 4♂ 24.IX.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002 sub *S. moselyi*) (CMOR 90V 6-241), ♂♂ (in the same slide with *S. moselyi*) 24.IX.1970, leg. Moretti e collab. Moretti (Di Giovanni *et al.*, 2002 sub *S. moselyi*) (CMOR 90V 6-240). MASSA-CARRARA: Massa, Gronda, Hygropetric near Canale Renara m 270, lat. 44,0419° lon. 10,1234°, 1♂ 1♀ 29.VI.2011, leg. Lodovici O., Pantini P., Valle M.; Canale Crocette (delle) Alpi Apuane F. Frigido m 320, 15♂♂ 19.VI.1970, leg. Moretti e collab. (CMOR 90V 6-206). LIVORNO: hygropetric I. Capraia, 4♂♂ 09.VI.1967, leg. Pirisinu, Gammaitoni (Di Giovanni *et al.*, 2002) (CMOR 90V 6-207); fosso Ordicole I. d'Elba, 7♂♂ 4♀♀ 30.VIII.1957, leg. Gianotti, Viganò (Di Giovanni *et al.*, 2002 sub *S. moselyi*) (CMOR 90A 158-1391); fosso Fosco I. d'Elba Salcio e Pantiniento, 4♂♂ 1♀ 01.VI.1957, leg. Moretti, Gianotti (Di Giovanni *et al.*, 2002 sub *S. moselyi*) (CMOR 03A 158-11018). **Marche:** PESARO-URBINO: hygropetric Bocca Trabaria m 1100, 1♂ 05.VII.1975, leg. Pirisinu (Di Giovanni *et al.*, 2002) (CMOR 90S 9-463).

OTHER MATERIAL: **Lombardia:** BERGAMO: Cusio, valle dei Sassi m 1600, lat. 46,0012° lon. 9,6042°, 5 larvae 14 cases 18.VIII.1991, leg. Buttarelli G., Pantini P. (Cianficconi *et al.*, 1993) (3 larvae, 3 cases in CMOR).

Marche: PESARO-URBINO: spring, Monte Sant'Antonio, Bocca Trabaria, m 1.010, 3♂♂ 5 larvae 18.VIII.1976 (Cianficconi *et al.*, 2007), 2♂♂ 5.VII.1975 (Cianficconi *et al.*, 1994) leg. Pirisinu.

Toscana: LIVORNO: hygropetric I. Capraia, 1 larva 09.III.1967, 3♂♂ 6 larvae 09.VI.1967, leg. Pirisinu, Gammaitoni, 4 larvae 4 cases 08.VI.1967, leg. Pirisinu, Gammaitoni, Cencini, 23 larvae 09.VI.1967, leg. Cencini, Pirisinu, 2 pupe 6 larvae 09.VI.1967, 12 larvae 09.VIII.1967, 100 larvae 09.VIII.1969, 164♂♂ 13♀♀ 11 larvae, leg. Pirisinu (Di Giovanni *et al.*, 2002); cave I. Capraia, 9♂♂ 09.VI.1967, 1♂ 09.VIII.1969, leg. Pirisinu (Di Giovanni *et al.*, 2002). LUCCA: hygropetric Alpi Apuane, 52♂♂ 2♀♀ 17.VI.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002). MASSA-CARRARA: canale Crocette (delle) Alpi Apuane M. Antona m 902, 4♂♂ 1♀ 24.IX.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002). PISTOIA: hygropetric Monachino Collina, 1 larva 28.VIII.1971, leg. Carli (Di Giovanni *et al.*, 2002).

Piemonte: ALESSANDRIA: Cartosio, Erro stream m 170, 1994 (Cianficconi, 2005).

REMARKS: in Italy this species is known in central and northern regions and in the Tuscan archipelago (fig. 5). The sighting in Cusio (Lombardy) requires further confirmation as it is based solely on larvae. An illustration of the bursa copulatrix is provided (fig. 1e).

Stactobia fuscicornis (Schneider, 1845)

LOCUS TYPICUS: Italy, Sicilia, Messina.

DISTRIBUTION: Italy.

MATERIAL EXAMINED: **Abruzzo:** L'AQUILA: L'Aquila, hygropetric Rivera, 38♂♂ 16♀♀ 22.IX.1963, leg. Viganò (Di Giovanni *et al.*, 2002).

Calabria: COSENZA: Civita, Fontana Bassa m 450, lat. 39,8294° lon. 16,3152°, 112♂♂ 21♀♀ >100 larvae 4.VI.1991, leg. Buttarelli G., Ghilardi E., Pantini P., Valle M. (Cianficconi *et al.*, 1993) (12♂♂ 5♀♀ alcune larvae in CMOR), 2♂♂ 28.VII.1993, leg. Pantini P., Valle M. (Cianficconi *et al.*, 1993) (slides 193, 194); Civita, Gole del Raganello m 400, lat. 39,8287° lon. 16,3185°, 10♂♂ 4♀♀ 1 larva 29.VII.1993, leg. Pantini P., Valle M. (Cianficconi *et al.*, 1993) (1♂ 1♀ in CMOR); Civita, Raganello m 250, lat. 39,8287° lon. 16,3185°, 3♂♂ 9.VI.1994, leg. Pantini P., Valle M.; Guardia Piemontese, fountain m 490, lat. 39,4664° lon. 15,9987°, 27♂♂ 5♀♀ 21.VIII.2011, leg. Valle M. (10♂♂ 2♀♀ CCOP); Paola, fountain m 85, lat. 39,3605° lon. 16,0416°, 71♂♂ 4♀♀ 29.VI.2006 (slides 244, 245, 366, 367, 368), 7 larvae 19.VIII.1996, leg. Valle M.; Paola, road SS 18 m 20, lat. 39,4009° lon. 16,0153°, 13♂♂ 7♀♀ 31.VIII.2011, leg. Valle M.

Sicilia: MESSINA: Santa Lucia del Mela, Mela river m 350, lat. 38,0872° lon. 15,2972°, 7♂♂ 2♀♀ 22.VII.1995, leg. Pantini P., Valle M. (slides 242, 243, 244); Santa Lucia del Mela, spring c/o Mela river m 350, lat. 38,0872° lon. 15,2972°, 8♂♂ 22.VII.1995, leg. Pantini P., Valle M. (slides 236, 237); fountain M. Peloritani between Novara and Francavilla m 900, 3♂ 08.X.1967, leg. Cianficconi, Gianotti, Pirisinu (Di Giovanni *et al.*, 2002) (CMOR 90V 6-225); hygropetric Capo d'Orlando - P.te del Giudice - road S. Salvatore di Fitalia, 1♂ 11.IV.1961, leg. Viganò (Di Giovanni *et al.*, 2002).

Valle d'Aosta: AOSTA: hygropetric Valle di Rhemes, 4♂♂ 2♀♀ 18.VII.1969, leg. Ravizza (Di Giovanni *et al.*, 2002) (CMOR 90A 157-1380).

OTHER MATERIAL: **Calabria:** COSENZA: Fontana Bassa Civita m 450, 12♂♂ 5♀♀ 9 larvae, 04.VI.1991, leg. Buttarelli Ghilardi Pantini Valle (Di Giovanni *et al.*, 2002); spring Papisidero m 500, 10♂♂ 1♀ 30.VIII.1981, leg. Tucciarelli (Di Giovanni *et al.*, 2002); hygropetric str. per Rogliano-Saliano 1 exuvia ♂ 1 Pupa ♂ 24.IX.1982, leg. Cianficconi, Tucciarelli, Chiappafreddo (Di Giovanni *et al.*, 2002); hygropetric str. Rogliano-Saliano 2♂♂ 24.X.1982, leg. Cianficconi (Di Giovanni *et al.*, 2002); hygropetric Cetraro m 30, 12♂♂ 10.IV.1987, leg. Tucciarelli (Di Giovanni *et al.*, 2002); Gole del Raganello Civita m 400, 6 larvae 04.VI.1991, leg. Buttarelli, Ghilardi, Pantini, Valle (Di Giovanni *et al.*, 2002). **REGGIO CALABRIA:** hygropetric Aspromonte aff. F.ra Bonamico road to S. Luca m 250, 4♂♂ 12.IX.1983, leg. Tucciarelli, Chiappafreddo (Di Giovanni *et al.*, 2002); hygropetric Aspromonte road to S. Luca m 250, 8♂♂ 1♀ 12.IX.1983, leg. Chiappafreddo, Cianficconi, Tucciarelli (Di Giovanni *et al.*, 2002); hygropetric Ponte Covala Solano Superiore m 400, 4♂♂ 1♀ 12.IX.1983, leg. Tucciarelli, Chiappafreddo; 1♂ 6♀♀ 8 exuviae 7 cases 12.IX.1983, leg. Cianficconi, Tucciarelli, Chiappafreddo (Di Giovanni *et al.*, 2002).

Lombardia: BERGAMO: Vertova, m 500, lat. 45,8179° lon. 9,8039°, 11 larvae 11.VII.1991, leg. Pantini P., Valle M. (Cianficconi *et al.*, 1993).

Marche: ASCOLI PICENO: hygropetric Valle dell'Apo Monti Sibillini, 4♂♂ 07.VII.1955, leg. Moretti (Di Giovanni *et al.*, 2002).

Sicilia: MESSINA: "Messina", leg. Zeller (Schneider, 1845 sub *Hydroptila fuscicornis* nov. spec.; McLachlan, 1874-1880; Kimmins, 1949); fountain M. Peloritani between Novara and Francavilla m 900, 2♂♂ 3♀♀ 1 pupa♀ 08.X.1967, leg. Gianotti, Pirisinu, Cianficconi (Di Giovanni *et al.*, 2002).

Sardegna: NUORO: hygropetric Siniscola Contrada S. Anna m 420, 21♂♂ 29.V.1980, leg. Moretti e collab. (Di Giovanni *et al.*, 2002 sub *S. fuscicornis*) (CMOR 90S 9-465). OLBIA-TEMPIO: Aggius (Costa, 1883). SASSARI: Villanova Monteleone, springs of Temo river, Caitta bridge m 415, 1♂ 31.V.1964, leg. Moretti (Moretti & Cianficconi, 1983).

REMARKS: this species is known only in Italy, where it is found mainly in Sicily and Calabria (fig. 5). As regards the latter region, it is the only species reported but which can be found in large numbers. Outside the regions mentioned above, this species is very rare and is located only in certain small areas. The Aosta Valley is most northerly region where this species can be found. Its presence in Lombardy cannot be considered proven as it is based solely on the stages preceding the formation of the adult insect. The material from Sardinia has not been examined, but may possibly refer to *S. cianficconiae* n. sp.. This species was last illustrated in 1949 by Kimmins, but now new drawings have been made of the male abdomen (fig. 2b,c,e,g) and the bursa copulatrix (fig. 1f). The specimens illustrated are from the province of Messina, as are those described by Schneider in 1845.

Stactobia maculata Vaillant, 1951

LOCUS TYPICUS: Algeria.

DISTRIBUTION: North Africa (Algeria and Tunisia).

MATERIAL EXAMINED: TUNISIA: Jendouba, Krumiria hygropetric m 146, lat. 36,8836° lon. 8,9166°, 9♂♂ 2♀♀ 9 larvae 29.IV.2006, leg. Pantini P. (slides 370, 371, 372, 381, 384).

REMARKS: this species is described as coming from Algeria and resembling *S. fuscicornis* but its validity has been considered doubtful for some length of time.

Schmid (1959) in his revision of the genus *Stactobia*, once again describes *S. maculata*, based on type material sent to him by Vaillant, affirming that the species is very similar to *S. fuscicornis*. However, in the same work he states that he did not have the chance to examine material pertaining to *S. fuscicornis* (of which only four specimens had been found), so he re-proposes Kimmins' drawing (1949) and supplies only bibliographical data. Malicky (2005) states that *S. maculata* has been considered a synonym of *S. fuscicornis* by Botosaneanu & Malicky (1978), but in this work no reference can be found to the synonymy between them. The Atlas of European Trichoptera (Malicky, 1983; 2004) contains drawings meant

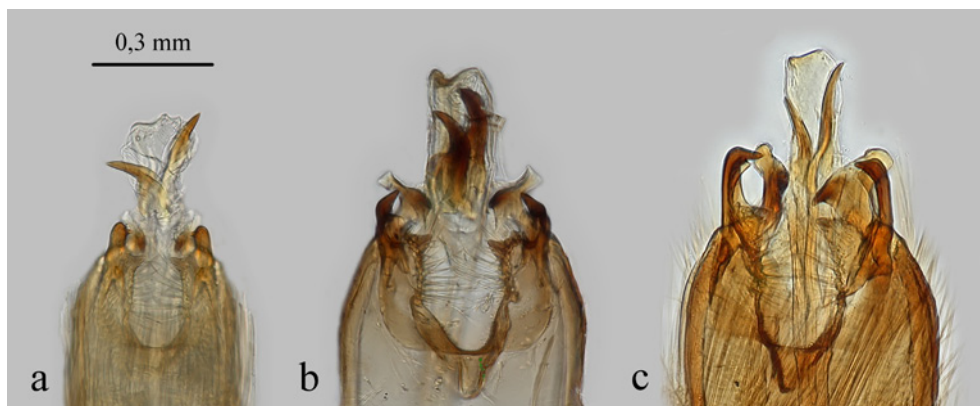


Fig. 4. Male genitalia ventral view: a) *S. fuscicornis* (S. Lucia del Mela, slide 385); b) *S. cianficconiae* n.sp. (igropetrico str. Gavoi-Ovodda CMOR 90A 157-1387); c) *S. maculata* (Jendouba, slide 371).

to represent *S. fuscicornis* but which are actually drawings of *S. maculata* and which were created by Schmid in 1959.

Moretti (1983) and Cianficconi (2005) report sightings of *S. maculata* in Sardinia. An examination of the material from Sardinia carried out by Moretti and of some specimens of *Stactobia* from Tunisia as well as specimens of *S. fuscicornis* from Sicily have led to a clarification of this complex issue. The material from Sardinia is to be attributed to a new species: *S. cianficconiae* n. sp., while the specimens from Tunisia comply totally with the description given by Vaillant in 1951. The differences between the three species concern the phallic organ, paraprocts and gonopods (fig.4 a-c) and are sufficient to justify, in our opinion, the validity of the species known as *S. maculata*. There are also clear differences regarding the bursa copulatrix in the female genitalia (fig. 1g).

Stactobia moselyi Kimmins, 1949

LOCUS TYPICUS: France, Isère, Le Bourg d'Oisans.

DISTRIBUTION: Central Europe.

MATERIAL EXAMINED: **Emilia-Romagna:** PARMA: Tornolo, c/o Case Fazzi m 870, lat. 44,4299° lon. 9,5341°, 5♂♂ 25.V.2010, leg. Lodovici O., Pantini P.

Friuli-Venezia Giulia: PORDENONE: Claut, hygropetric m 500, 1♀ 23.VII.1996, leg. Pantini P., Valle M. (slide 261); Claut, Cellina stream, malga Casavento m 950, lat. 46,2689° lon. 12,5991°, 2♂♂ 1♀ 3.VII.1996, leg. Pantini P., Valle M.; Maniago, hygropetric spring c/o Ravedis bridge m 300, 24♂♂ 6♀♀ 23.VII.1996, 41♂♂ 3♀♀ 21.V.1996, leg. Pantini P., Valle M.. UDINE: Drenchia, Cosizza river c/o Paciuch m 370, lat. 46,1713° lon. 13,6305°, 1♂ 25.V.1996, leg. Pantini P., Valle M.; Lusevera, Rio Tapotcasone hygropetric m 430, lat. 46,2905° lon. 13,2700°, 4♂♂ 24.V.1996, 11♂♂ 1♀ 20.VII.1996, leg. Pantini P., Valle M.; Lusevera, springs near Vedronza stream m 330, lat. 46,2609° lon. 13,2567°, 1♂ 16.VI.1994, 22♂♂ 1♀ 20.VII.1996, leg. Pantini P., Valle M.; Lusevera, Vedronza stream m 330, lat. 46,2609° lon. 13,2567°, 1♂ 24.V.1996, leg. Pantini P., Valle M.; Paularo, hygropetric Stua di Ramaz m 1000, lat. 46,5744° lon. 13,1112°, 35♂♂ 19♀♀ 22.VII.1996, leg. Pantini P., Valle M.; Paularo, rio Mafinfier m 1100, lat. 46,5799° lon. 13,1316°, 55♂♂ 11♀♀ 22.VII.1996, leg. Pantini P., Valle M.; Resia, hygropetric m 680, lat. 46,3050°

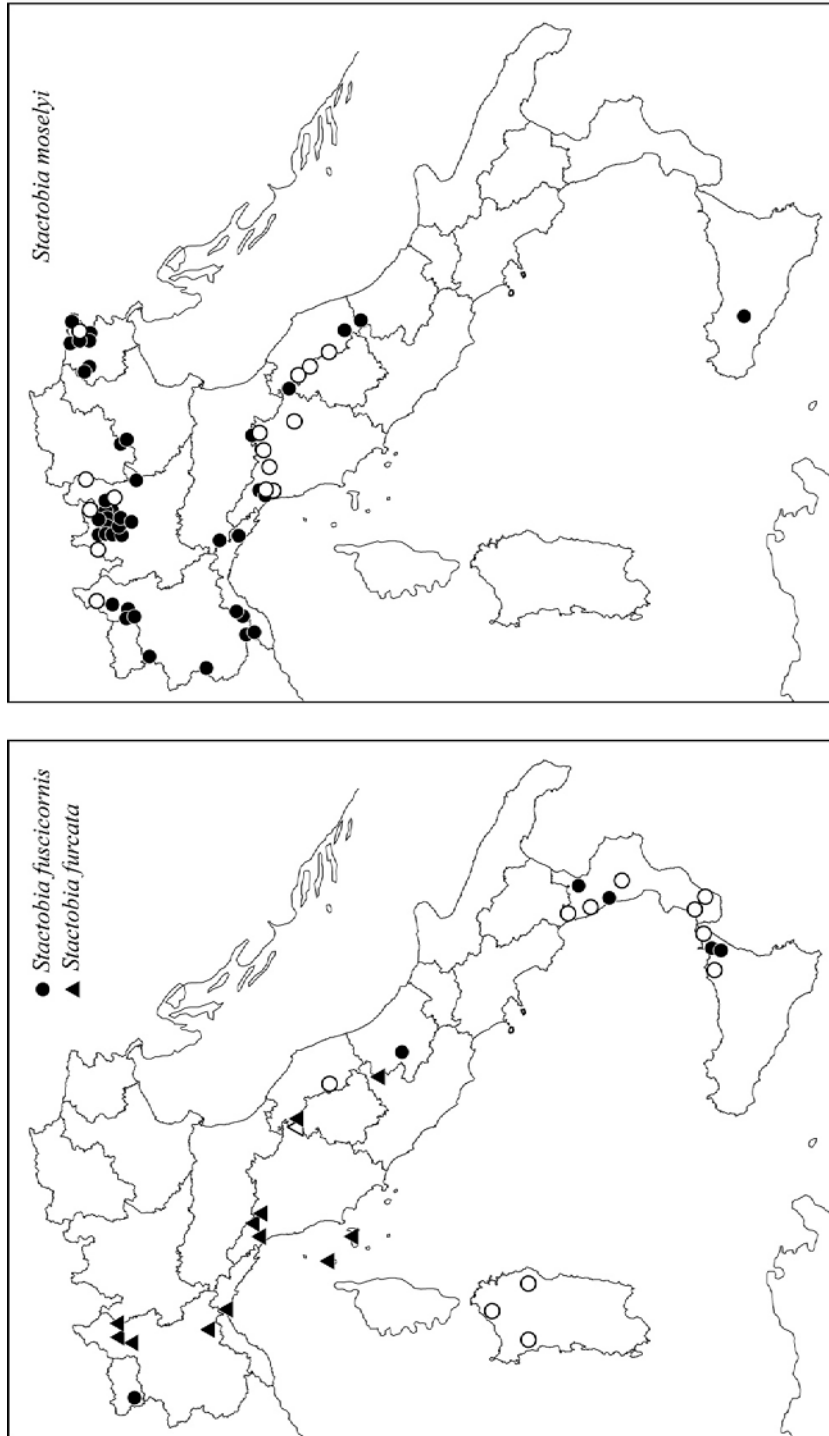


Fig. 5. Distribution of *Stactobia fuscicornis*, *S. furcata* and *S. moseleyi*. Black: verified records; white: unverified records.

lon. 13,3864°, 2♂♂ 20.VII.1996, 36♂♂ 3♀♀ 24.V.1996, leg. Pantini P., Valle M.; Resia, Uceca, hygropetric m 670, lat. 46,3050° lon. 13,3864°, 23♂♂ 1♀ 24.V.1996, 22♂♂ 13♀♀ 20.VII.1996, leg. Pantini P., Valle M.; Tarvisio, hygropetric c/o passo Predil m 970, lat. 46,4256° lon. 13,5697°, 17♂♂ 13♀♀ 21.VII.1996, leg. Pantini P., Valle M.

Liguria: IMPERIA: Triora, hygropetric near Verdeggia stream m 1100, lat. 44,0442° lon. 7,7214°, 1♀ 19.VII.2001. LA SPEZIA: Bonassola, between Framura and Bonassola m 80, lat. 44,1982° lon. 9,5609°, 12♂♂ 9.III.2003, leg. Pantini P. SAVONA: Calizzano, hygropetric road to colle Quazzo m 800, lat. 44,2192° lon. 8,0871°, 22♂♂ 3♀♀ 29.V.2001, 13♂♂ 10♀♀ 18.VII.2001 (slides 351, 354); Calizzano, Frassino stream m 920, lat. 44,2351° lon. 8,1958°, 1♀ 17.VII.2001; Osiglia, hygropetric near Monte Settepani m 750, lat. 44,2703° lon. 8,1887°, 2♀♀ 17.VII.2001.

Lombardia: BERGAMO: Adrara San Martino, Guerna stream m 850, lat. 45,7425° lon. 9,9717°, 1♀ 12.VII.1995, leg. Pantini P., Sottocornola M.; Ardesio, Baite Corte di Mezzo m 1650, 269 larvae 3.IX.1991, leg. Pantini P., Valle M. (Cianficconi *et al.*, 1993) (10 larvae in CMOR); Branzi, road SP 2 Km 50 m 970, lat. 46,007173° lon. 9,756641°, 1♂ 10.VII.2011, leg. Pantini P.; Branzi, road SP 2 Km 51 m 970, lat. 46,009196° lon. 9,753193°, 6♂♂ 10.VII.2011, leg. Pantini P.; Brembilla, m 350, lat. 45,7997° lon. 9,6216°, 2♂♂ 18.VII.1993, leg. Bertuetti E. (Cianficconi *et al.*, 1993); Carona, m 1050, lat. 46,0196° lon. 9,7802°, 1♀ 5.IX.1993, 3♀♀ 26.VI.1994 (slide 34), 6♀♀ 23.VII.1995, 12♂♂ 9♀♀ 13.VII.1993, 13♂♂ 26.VI.1994, 9♂♂ 23.VII.1995, leg. Bertuetti E.; Carona, hygropetric m 1100, lat. 46,0207° lon. 9,7844°, 8♂♂ 2♀♀ 24.VI.2012, leg. Pantini P.; Carona, road to Rifugio Calvi m 1550, lat. 46,0254° lon. 9,8260°, 3♂♂ 1♀ 26.VI.1994, 7♂♂ 1♀ 23.VII.1995, leg. Bertuetti E., 9♂♂ 7♀♀ 13.VII.1993, leg. Bertuetti E., Valle M. (Cianficconi *et al.*, 1993) (6♂♂ 2♀♀ in CMOR); Cassiglio, m 600, lat. 45,9672° lon. 9,6139°, 1♂ 2♀♀ 25.VII.1993 (Cianficconi *et al.*, 1993), 2♂♂ 1♀ 19.IX.1993 (Cianficconi *et al.*, 1993), 8♂♂ 1♀ 19.VI.1994, 15♂♂ 4♀♀ 25.VI.1995, leg. Bertuetti E., 7♂♂ 16.VI.1993, leg. Bertuetti E., Valle M. (Cianficconi *et al.*, 1993); Colere, hygropetric road to Passo Presolana m 940, lat. 45,9495° lon. 10,1002, 3♂♂ 2♀♀ 21.VIII.2012, leg. Lodovici O.; Minutti M.; Endine Gaiano, Lago di Gaiano m 340, lat. 45,7904° lon. 9,9670°, 1♂ 15.VIII.1996, leg. Cornali L., Gozzini A., light trap; Gandellino, m 700, 3♂♂ 11.VII.1991, leg. Pantini P., Valle M. (Cianficconi *et al.*, 1993) (1♂ in CMOR); Gorno, hygropetric c/o Crocefisso m 480, 6♂♂ 19.V.2003, leg. Valle M.; Gorno, springs Parina stream m 1750, 1♂ 19.VI.2003; Gromo, rivulet m 700, 11♂♂ 23.VII.1994, 7♂♂ 2♀♀ 11.VII.1995, leg. Parrella R.; Mezzoldo, Alpe Ancogno m 1800, lat. 46,0381° lon. 9,6359°, 1♂ 11.VI.1996 light trap, 31♂♂ 8♀♀ 4.VII.1996, 27♂♂ 14♀♀ 1.VIII.1996, 5♂♂ 10♀♀ 17.VIII.1996, 1♂ 1♀ 5.IX.1996, 11♂♂ 8♀♀ 21.VI.1997, leg. Albrici F., 4♂♂ 4♀♀ 24.VII.1993 (Cianficconi *et al.*, 1993), 21♂♂ 9♀♀ 9.VII.1994, 112♂♂ 30♀♀ 2.VII.1995 (slides 172, 173), 5♂♂ 11.VIII.1995 light trap, leg. Bertuetti E., 7♂♂ 9♀♀ 16.VI.1993, leg. Bertuetti E., Valle M. (Cianficconi *et al.*, 1993); Mezzoldo, Prà del Muto m 1525, lat. 46,0477° lon. 9,6699°, 2♂♂ 9.VII.2000, leg. Pantini P.; Mezzoldo, Prà del Muto, affluent of Brembo river m 1400, lat. 46,0451° lon. 9,6630°, 1♂ 1.VIII.1996, 1♀ 5.IX.1996, leg. Albrici F.; Mezzoldo, stream, Fraccia m 1500, lat. 46,0435° lon. 9,6491°, 2♂♂ 23.VII.2002, leg. Lodovici O., Pantini P.; Nembro, Trevasco m 610, lat. 46,766515° lon. 9,745130°, 7♂♂ 1♀ 11.V.2011, leg. Massaro M., Valle M.; Nembro, Trevasco rivulet m 550, lat. 45,7651° lon. 9,7456°, 1♀ 26.VI.1994, 11♂♂ 7.V.1994, 6♂♂ 19.VI.1995, 3♂♂ 8.V.1995, 3♂♂ 2.VIII.1996, leg. Parrella R.; Nembro, Trevasco spring m 550, lat. 45,7651° lon. 9,7456°, 5♂♂ 7.V.1994 (COLA), 1♀ 8.V.1995, 11♂♂ 19.VI.1995, 3♂♂ 1♀ 2.VII.1995 (slide 175), 6♂♂ 1♀ 21.V.1996, 16♂♂ 2.VIII.1996, 7♂♂ 2♀♀ 13.IX.1996, leg. Parrella R.; Oltre il Colle, strada per loc. Plassa m 1220, lat. 45,906891° lon. 9,799794°, 12♂♂ 6♀♀ 21.VI.2011, leg. Valle M.; Oltre il Colle, strada per loc. Plassa m 1220, lat. 45,906891° lon. 9,799794°, 12♂♂ 6♀♀ 21.VI.2011, leg. Valle M.; Oltre il Colle, Valle delle Fontane m 1100, lat. 45,90883° lon. 9,803520°, 14♂♂ 6♀♀ 19.VI.2003, light trap; 2♂♂ 21.VI.2011, leg. Valle M., 22♂♂ 8♀♀ 10.VIII.2011, leg. Lodovici O., Valle M.; Oltre il Colle, affluent Valle delle Fontane m 1200, lat. 45,90883° lon. 9,803520°, 7♂♂ 21.VI.2011, leg. Valle M.; Ornica, verso rifugio Benigni m 1800, lat. 46,0180° lon. 9,5711°, 1♂ 4.VII.1991, leg. Pantini P., Valle M.; Parre, rivolo sotto Cima del Fop m 1720, lat. 45,9258° lon. 9,8600°, 19♂♂ 2♀♀ 5.VII.2004, leg. Ferrario E., Lodovici O., Pantini P.; Parzanica, Portirone m 200, lat. 45,7301° lon. 10,0505°, 1♂ 1♀ 27.VI.1995 light trap, 5♂♂ 27.VII.1995 light trap, 6♂♂ 23.VIII.1995 light trap, 2♂♂ 31.V.1996 light trap, 9♂♂ 14.VIII.1996 light trap, leg. Cornali L., Gozzini A.; Riva di Solto, torrente Zu m 200, lat. 45,7607° lon. 10,0367°, 25♂♂ 5♀♀ 27.VII.1995 light trap, leg. Cornali L., Gozzini A., Pantini P., Valle M., 5♂♂ 4.VII.1995 light trap, 1♂ 23.VII.1996 light trap, 4♂♂ 14.VIII.1996 light trap leg. Cornali L., Gozzini A.; San Giovanni Bianco, Cantalto m 450, lat. 45,8858° lon. 9,6231°, 11♂♂ 25.V.1991, leg. Valle M. (Cianficconi *et al.*, 1993 sub *S. eatoniella*), 8♂♂ 4.V.1994, leg. Bertuetti E., Pantini P., Valle M. (slide 30), 9♂♂ 10♀♀ 5.VIII.1994, leg. Pantini P., Toscano E. (1♀ in CMOR), 1♂ 2.VI.1995, 1♂ 8.VII.1995 light trap, 2♀♀ 22.VII.1995, leg. Bertuetti E. (slides 170, 171); San Giovanni Bianco, Roncaglia m 420, lat. 45,8836° lon. 9,6255°, 1♀ 2.VI.1994, 11♂♂ 2♀♀ 18.VI.1995, leg. Bertuetti E.; San Giovanni Bianco, road to Camerata Cornello, 13♂♂ 5♀♀ 23.V.2003, leg. Bertuetti E., Lodovici O., Pantini P.; San Giovanni Bianco, Val Taleggio, road SP25 m 450, lat. 45,8844° lon. 9,6240°, 1♂ 4.V.2012, leg. Lodovici O., Pantini P.; 4♂♂ 1♀ 28.V.2012, leg. Lodovici O., Pantini P.; San Pellegrino Terme,

Valletta S. Antonio m 340, lat. 45,8171° lon. 9,6727°, 2♀♀ 3.VIII.2007, leg. Valle M.; Schilpario, road to Passo Vivione, hygropetric m 1700, lat. 46,0262° lon. 10,2092°, 13♂♂ 10♀♀ 27.VII.2002, leg. Bertuetti E., Lodovici O., Malicky H., Valle M.; Taleggio, Peghera m 750, lat. 45,8744° lon. 9,5611°, 27♂♂ 2♀♀ 18.VII.1993 (Cianficconi *et al.*, 1993) (3♂♂ 1♀ in CMOR), 3♀♀ 19.VI.1994, 7♀♀ 29.VII.1995, 2♂♂ 2♀♀ 27.VII.1994, 20♂♂ 19.VI.1994, leg. Bertuetti E.; Taleggio, affluent of Enna stream m 480, lat. 45,8889° lon. 9,6114°, 1♂ 12.VII.1994, leg. Valle M., light trap; Taleggio, I Serrati m 500, lat. 45,8858° lon. 9,5989°, 1♂ 29.VI.1990 (Cianficconi *et al.*, 1993), 2♂♂ 3♀♀ 12.VII.1994 light trap, leg. Valle M., 10♂ 1♀ 19.V.1993 (Cianficconi *et al.*, 1993), 10♂♂ 3♀♀ 30.V.1993 (Cianficconi *et al.*, 1993) (2♂♂ 1♀ in CMOR), 28♂♂ 13♀♀ 4.VII.1993 (Cianficconi *et al.*, 1993) (1♂ 1♀ in CMOR), 3 larvae 2 cases 4.VII.1993, 1♂ 19.IX.1993 (Cianficconi *et al.*, 1993), 5♂♂ 24.IV.1994, 8♂♂ 2♀♀ 2.VI.1994, 42♂♂ 6♀♀ 18.VI.1995, leg. Bertuetti E., 4♂♂ 20.VI.1991, leg. Bacchetta R. (Cianficconi *et al.*, 1993) (1♂ in CMOR), 7♂♂ 9♀♀ 6.VII.1994, leg. Moretti G., Pantini P., Valle M., 8♂♂ 2♀♀ 5.VIII.1994, leg. Buttarelli G., Pantini P.; Valbondione, near Rifugio Curò m 1050, lat. 46,0491° lon. 10,0346°, 1♂ 21.VII.1995, leg. Parrella R.; Valbondione, Lizzola m 1400, 14♂♂ 13♀♀ 10 larvae 11.VII.1991, leg. Pantini P., Valle M. (Cianficconi *et al.*, 1993) (5♂♂ 2♀♀ 2 larvae in CMOR); Valbondione, near Rifugio Coca m 1600, lat. 10,0537° lon. 10,0119°, 4♂♂ 1♀ 35 larvae 6.IX.1991, leg. Ghilardi E., Pantini P., Valle M. (Cianficconi *et al.*, 1993) (5 larvae in CMOR); Valgoglio, spring in wood m 800, 3♂♂ 2.VI.1994, leg. Parrella R., Valle M.; Valgoglio, Valsanguigno, hygropetric m 1250, lat. 45,9694° lon. 9,8897°, 1♂ 1♀ 30.VI.2009, leg. Cerea S., Lodovici O., Pantini P.; Valtorta, Fornonuovo m 800, lat. 45,9740° lon. 9,5573°, 1♂ 2♀♀ 16.VI.1993 (Cianficconi *et al.*, 1993), 1♂ 25.VII.1993 (Cianficconi *et al.*, 1993), 1♀ 19.VI.1994, leg. Bertuetti E.; Vertova, m 500, lat. 45,8179° lon. 9,8039°, 14♂♂ 3♀♀ 1 larva 5.VI.1993 (Cianficconi *et al.*, 1993), leg. Pisoni R., Valle M., 16♂♂ 4♀♀ 11.VII.1991, leg. Pantini P., Valle M. (Cianficconi *et al.*, 1993) (12♂♂ 1♀♀ in CMOR); Vertova, Val Vertova, spring m 500, lat. 45,8179° lon. 9,8039°, 15♂♂ 1♀ 27.VI.1995, 7♂♂ 3♀♀ 4.VII.1995, 11♂♂ 11.VIII.1995, 2♂♂ 24.V.1994, leg. Parrella R.; Vigolo, Ronchi della Bratta m 800, lat. 45,7384° lon. 10,0006°, 4♂♂ 4♀♀ 8.VIII.1996, leg. Pantini P., 6 larvae 18.VI.1995, leg. Buttarelli G., Pantini P.; Zogno, Orrido di Bracca m 400, lat. 45,8091° lon. 4,6940°, 4♂♂ 1♀ 19.V.1993 (Cianficconi *et al.*, 1993) (2♂♂ 1♀ in CMOR), 9♂♂ 9♀♀ 4.VII.1993 (Cianficconi *et al.*, 1993), 5♂♂ 1♀ 30.V.1993 (Cianficconi *et al.*, 1993) (1♂ in CMOR), 1♂ 25.VII.1994 light trap (slide 28), 17♂♂ 24.IV.1994, 2♂♂ 1♀ 18.VI.1994, 24 larvae 30.X.1994 (3 larvae in CMOR), 3♂♂ 17.VI.1995, leg. Bertuetti E., 1♂ 6.VII.1994, leg. Moretti G., Pantini P., Valle M., 3♂♂ 7.IX.1993, leg. Valle M., 6♂♂ 1♀ 5.VIII.1994, leg. Buttarelli G., Pantini P., 15 larvae 4.VII.1991, leg. Pantini P., Valle M. (3 larvae in CMOR). BRESCIA: Gargnano, river c/o Vincerino bridge m 450, lat. 45,3075° lon. 10,6164°, 2♂♂ 5.VII.2000, leg. Ferrario E., Gaini M., Pantini P. LECCO: Pagnona, spring m 800, lat. 46,06° 9,40° lon., 1♂ 11.VIII.1999, leg. Manara R., Pantini P.; Vendrogno, road to Camaggiore m 1080, lat. 46,0424° lon. 9,3307°, 8♂♂ 5♀♀ 9.VI.1999, leg. Manara R., Pantini P. SONDRIO: Albaredo per San Marco, m 1200, lat. 46,0934° lon. 9,6057°, 1♂ 24.VII.1993, leg. Bertuetti E.

Marche: PESARO-URBINO: hygropetric Bocca Trabaria m 1100, 1♂ 05.VII.1975, leg. Pirisinu (Di Giovanni *et al.*, 2002 sub *S. furcata*) (CMOR 90S 9-463).

Piemonte: BIELLA: Biella, Monte Becco rivulet m 1480, lat. 45,6353 lon. 7,9858, 1♂ 8.VIII.2012, leg. Lodovici O.; Pantini P.; Valle M.; Piedicavallo, hygropetric m 970, lat. 45,6849 lon. 7,9656, 25♂♂ 4♀♀ 28.VI.2012, leg. Lodovici O.; Pantini P.; Valle M.; Pollone, spring m 1160, lat. 45,6023 lon. 9,9776, 1♂ 27.VI.2012, leg. Lodovici O.; Pantini P.; Valle M.; Rosazza, hygropetric m 900, lat. 45,6772 lon. 9,9765, 39♂♂ 17♀♀ 28.VI.2012, 10♂♂ 6♀♀ 8.VIII.2012, leg. Lodovici O.; Pantini P.; Valle M.; Tavigliano, rivolo c/o Cap. Sellaccia m 1350, lat. 45,6576 lon. 8,0519, 1♂ 8.VIII.2012, leg. Lodovici O.; Pantini P.; Valle M. CUNEO: Briga Alta, hygropetric c/o Valcona Secale m 1240, lat. 44,0917° lon. 7,7519°, 1♀ 29.V.2001; Oncino, Viadotto, fiume Po m 900, lat. 44,6860° lon. 7,2073°, 1♂ 28.VII.1997, leg. Carrara F., Lodovici O., light trap (Bertuetti *et al.*, 2001). TORINO: hygropetric Trichera between Viù and Pessinea m 850, 1♂ 05.VIII.1964, leg. Moretti (Di Giovanni *et al.*, 2002) (CMOR 90A 158-1404); spring Trichera, 2♂♂ 04.VIII.1964, leg. Moretti (Di Giovanni *et al.*, 2002) (CMOR 90V 6-238). VERCELLI: Cravagliana, Sp.9 Valle Mastallone km 14 m 800, lat. 45,8815° lon. 8,1713°, 8♂♂ 9♀♀, 9.VIII.2012, leg. Lodovici O.; Pantini P.; Valle M.

Toscana: FIRENZE: Firenzuola, stream, road Giogo di Scarperia - Rifredo m 715, lat. 44,0629° lon. 11,3917°, 9♂♂ 25.V.2011, leg. Lodovici O., Valle M. LUCCA: Vagli Sotto, hygropetric, road SP Roggio Vagli m 590, lat. 44,1255° lon. 10,3002°, 1♂ 28.VI.2011, leg. Lodovici O., Pantini P., Valle M.; hygropetric Alpi Apuane m 223, ♂♂ (in the same slide with *S. moselyi*), leg. Moretti e collab. (Di Giovanni *et al.*, 2002) (CMOR 90V 6-240); hygropetric Alpi Apuane m 223, 4♂♂ 24.IX.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002) (CMOR 90V 6-241); hygropetric Alpi Apuane dyke L. di Vagli F. Ledron, ♂♂ (in the same slide with *S. caspersi*) 01.VIII.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002) (CMOR 90V 6-228); Ledron river Alpi Apuane diga L. di Vagli m 570, ♂♂ (in the

same slide with *S. caspersi* 01.VIII.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002) (CMOR 90V 6-242). MASSA-CARRARA: Massa, Gronda, hygropetric near Canale Renara m 270, lat. 44,0419° lon. 10,1234°, 38♂♂ 1♀ 29.VI.2011, leg. Lodovici O., Pantini P., Valle M.; Massa, Rivolo, affluent Fosso Antona m 320, lat. 44,051042° lon. 10,18329°, 1♂ 29.VI.2011, leg. Lodovici O., Pantini P., Valle M..

Veneto: VICENZA: Schio, affluent of Timonchio river c/o San Rocco m 650, lat. 45,7566° lon. 11,3629°, 2♂♂ 4.VI.2002, light trap, 1♂ 8.X.2002, 91♂♂ 19♀♀ 4.VI.2002, 1♂ 9.VIII.2002, leg. Lodovici O., Pantini P.; Arsiero, hygropetric road to Posina m 450, 1♂ 1♀ 9.VIII.2002, 1♂ 8.X.2002.

Sicilia: AGRIGENTO: Passo del Barbriere, Platani river, 1♂ 18.I.1974 leg. Riggio (Di Giovanni *et al.*, 2002) (CMOR 90A 158-1398).

OTHER MATERIAL: **Abruzzo:** TERAMO: hygropetric affluent of Rio Castellana m 1185, 7♂♂ 3♀♀ 25.VII.1978, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); hygropetric T. Castellana m 1010, 6♂♂ 25.VII.1978, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); hygropetric M. della Laga Casa Castrina m 1360, 84♂♂ 12♀♀ 06.VII.1977, leg. Pirisinu (Di Giovanni *et al.*, 2002).

Friuli-Venezia Giulia: UDINE: Resia Valle di Resia NW Uccia m 600, 41♂♂ 5♀♀ 5.VII.2002 leg. Malicky H. (CMAL - personal communication 2002); Resia Valle di Resia, Resia stream W di Coritis m 500, 21♂♂ 2♀♀ 6.VII.2002, leg. Malicky H. (CMAL - personal communication, 2002)

Lombardia: BERGAMO: Ardesio Baite Corte di Mezzo, m 1650, 10 larvae 03.IX.1991, leg. Pantini, Valle (Di Giovanni *et al.*, 2002); springs Carona road to rif. Calvi, 1♂ 1♀ 13.VII.1993, leg. Bertuetti, Valle (Di Giovanni *et al.*, 2002); Gandellino m 700, 1♂ 11.VII.1991, leg. Pantini Valle (Di Giovanni *et al.*, 2002); springs I Serrati Taleggio m 500, 2♂♂ 1♀ 30.V.1993, leg. Bertuetti (Di Giovanni *et al.*, 2002), 3♀♀ 04.VII.1993, leg. Valle (Di Giovanni *et al.*, 2002); springs I Serrati Taleggio m 500, 1♂ 20.VI.1991, leg. Consonni (Di Giovanni *et al.*, 2002); Orrido di Bracca Zogno m 450, 3 larvae 04.VII.1991, leg. Pantini, Valle (Di Giovanni *et al.*, 2002); Lizzola Valbondione m 1400, 2♂♂ 2♀♀ 11.VII.1991, leg. Pantini, Valle (Di Giovanni *et al.*, 2002); Taleggio a valle di Peghera m 750, 3♂♂ 1♀ 18.VII.1993, leg. Bertuetti (Di Giovanni *et al.*, 2002); Valtorta, Fornonuovo m 780, 1♂ 04.VII.1991, leg. Pantini, Valle (Di Giovanni *et al.*, 2002); Vertova m 500, 2♂♂ 1♀ 11.VII.1991, leg. Valle Pantini (Di Giovanni *et al.*, 2002); Schilpario, Passo di Vivione m 1800, 18♂♂ 23♀♀, 27.VII.2002 leg. Malicky H. (CMAL - personal communication, 2002); Vertova Val Vertova m 500-600, 39♂♂ 5♀♀ 29-31.VII.2002 leg. Malicky H. (CMAL - personal communication, 2002); Mezzoldo, Alpe Ancogno m 1850, 4♂♂ 3♀♀ 4.VIII.2010, leg. Lodovici O., Olàh J. (COLA); S. Giovanni Bianco, Roncaglia, m 500 2♂♂ 2♀♀ 4.VIII.2010, leg. Lodovici O., Olàh J. (COLA). BRESCIA: Borno hygropetric m 1200, 9♂♂ 30.VI.1981, leg. Tucciarelli (Di Giovanni *et al.*, 2002).

Marche: ASCOLI PICENO: hygropetric Fosso Rio Castellana, 28♂♂ 3♀♀ 25.VII.1978, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); spring Laghetto di Foce Monti Sibillini, 110♂♂ 10♀♀ 31 larvae 7.VIII.1955, leg. Moretti (Cianficconi *et al.*, 2007). MACERATA: spring Val Povera Morro, 15♂♂ 1♀ 29 larvae 15.VIII.1971, leg. Cianficconi (Cianficconi *et al.*, 2007). PESARO-URBINO: hygropetric Cagli Gola di Burano m 400, 2♂♂ 02.VIII.1975, leg. Vitali (Di Giovanni *et al.*, 2002); Pontericcioli, Burano stream m 400, 2♂♂ 02.VIII.1975, leg. Vitali (Cianficconi *et al.* 1994).

Piemonte: Western Alps hygropetric 1♂ 04.VIII.1964, leg. Moretti (Di Giovanni *et al.*, 2002). TORINO: hygropetric Trichero between Viù and Pessinea m 850, 2♂♂ 6♀♀ 04.VIII.1964, leg. Moretti Viganò (Di Giovanni *et al.*, 2002).

VERBANO-CUSIO-OSSOLA: Val Anzasca, ?.VII.18??, leg. McLachlan, Eaton (McLachlan, 1884 sub *S. fuscicornis*; Kimmins, 1949); Val Cannobbio ?.VII.18??, leg. McLachlan (McLachlan, 1884 sub *S. fuscicornis*; Kimmins, 1949)

Toscana: AREZZO: Pratomagno hygropetric 1♂ 29.VII.1979, leg. Tanganelli (Di Giovanni *et al.*, 2002); Pratomagno hygropetric m 1200, 1♂ 15.VII.1980, leg. Tanganelli (Di Giovanni *et al.*, 2002); fonte Pratomagno m 1260, 4♂♂ 29.VII.1979, leg. Tanganelli (Di Giovanni *et al.*, 2002). FIRENZE: San Lorino Laonda hygropetric, 1♀ 21.VIII.1970, leg. Viganò (Di Giovanni *et al.*, 2002). LIVORNO: hygropetric I. d'Elba affluent of Fosso Ordicole, 15 larvae 20.VIII.1957, leg. Gianotti, Viganò (Di Giovanni *et al.*, 2002); hygropetric I. d'Elba-Punta Calamita affluent of Fiumara d'Isca, 23 larvae 02.VIII.1956, leg. Moretti (Di Giovanni *et al.*, 2002). LUCCA: hygropetric Alpi Apuane, 2♂♂ 1 larva 1 case 31.VII.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); hygropetric Alpi Apuane, 2♂♂ 17.VI.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); hygropetric Alpi Apuane Levigliani m 500, 3♂♂ 21.VI.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); Levigliani, Canale delle Volte Alpi Apuane Volpe m 500, 3♂♂ 21.VI.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); hygropetric Alpi Apuane road Galliciano-Fornovolasco m 240, 5♂♂ 03.VIII.1970, leg. Viganò (Di Giovanni *et al.*, 2002); Vezza river Alpi Apuane a monte di Seravezza m 100, 7♂♂ 21.VI.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002). MASSA CARRARA: hygropetric Alpi Apuane tra Altagnana ed Antona m 310, 1♂ 24.IX.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); hygropetric Alpi Apuane verso la foce del T. Termine m 500, 1♂ 02.VIII.1970, leg. Moretti e collab. (Di Giovanni *et*

al., 2002); Massa, Fosso della Strappola Alpi Apuane m 500, 3♂♂ 19.VI.1970, leg. Moretti e collab. (Di Giovanni *et al.*, 2002); PISTOIA: hygropetric Monachino Acquerino 3♂♂ 21.VIII.1970, leg. Viganò (Di Giovanni *et al.*, 2002); hygropetric Monachino Collina, 1 larva 1 case 28.VIII.1971, leg. Viganò (Di Giovanni *et al.*, 2002); hygropetric Monachino Collina 2♂♂ 26.VIII.1971, leg. Viganò (Di Giovanni *et al.*, 2002); hygropetric Monachino Collina, 1♂ 14.IX.1971, leg. Viganò (Di Giovanni *et al.*, 2002); fosso Noccioli (dei) Acquerino Collina, 2♂♂ 27.VIII.1971, leg. Viganò (Di Giovanni *et al.*, 2002); Fosso Popiglio La Lima, 5♂♂ 3♀♀ 12.VIII.1962, leg. Viganò (Di Giovanni *et al.*, 2002); between Villa Margherita and San Marcello Appennino Pistoiese ft 2510 (m765), 27.VII.18??, leg. Eaton (McLachlan, 1884 sub *S. fuscicornis*; Kimmins, 1949).

Trentino Alto Adige: TRENTO: Vermiglio, Passo del Tonale, rio Negazzeno m 1800, 13 larvae 09.IX.1979, leg. Moretti e collab. (Di Giovanni *et al.*, 2002 sub Rio Nagazzino).

Umbria: PERUGIA: spring Acqua Ghiacciata Monte Cucco m 1376, 2♂♂ 20.VII.2000, leg. Puletti, Salerno, Cianficconi (Di Giovanni *et al.*, 2002).

REMARKS: this species has been sighted in the central and northern regions of Italy, while in the South of Italy it is known because of a single case reported in Sicily (fig. 5). Undoubtedly it is the species that is found at the highest altitudes among all those reported in Italy (in the Alps specimens have been sighted at up to 1,800 metres above sea level). The sighting on Isola d'Elba is not to be considered proven as it is based only on larval stages. All the specimens from Isola d'Elba have been determined as being *S. furcata*. An illustration of the bursa copulatrix is provided (fig. 1c).

CONCLUSIONS

The genus *Stactobia* in Italy is represented by 9 species. *S. ericae* and *S. cianficconiae* n.sp. are known solely in Sardinia, *S. alpina* is endemic to the Ligurian Alps and *S. fuscicornis*, endemic to Italy, is known mainly in southern Italy. *S. beatensis*, *S. eatoniella* and *S. furcata* are found in Western Mediterranean areas, *S. moselyi* in Central Europe, while distribution of *S. caspersi* is the Eastern Mediterranean.

Based on the large amount of material available, it has been possible to trace a generalized map of the areas where these small caddisflies are found. Analyzing the distribution of the various species throughout Italy demonstrates, however, that further investigation is required in order to provide a more extensive overall picture (fig. 6). Several regions, in fact, have no data at all referring to this genus (Campania, Molise, Lazio and Puglia), others have very few data (Valle d'Aosta, Trentino Alto Adige, Veneto and Emilia Romagna). A more thorough knowledge of the life-cycle and choice of habitat of these insects would probably also explain why there are so few reports of *S. beatensis* and *S. moselyi* in the South of Italy and of *S. fuscicornis* in the North of Italy.

The study of the genus *Stactobia* is based solely on recognition of the males, also due to the fact that more often it is male specimens that are collected rather than female ones.

The creation of the drawings relating to the internal structure of the females has allowed new elements to be added to the study of this genus. As regards the vaginal structure of the females, it is possible to distinguish the following types: *S. caspersi* with a structure very like that of the species belonging to the genus *Hydroptila* (gr. *sparsa*); *S. eatoniella* and *S. beatensis* characterized by a sac-like structure at the base; *S. furcata*, *S. fuscicornis*, *S. cianficconiae* sp. n. and *S. maculata* characterized by a finely reticulated structure at the base and a distal part formed by two lobes; while *S. moselyi* and *S. alpina* have a structure with a pair of flattened, round appendices at the top, but do not possess features allowing a

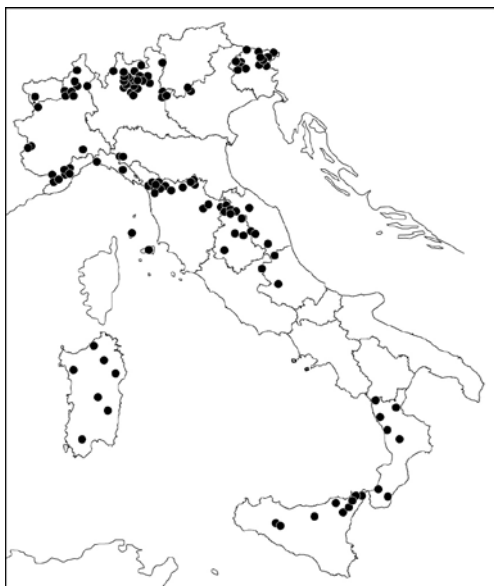


Fig. 6. Sampling location of *Stactobia* in Italy.

distinction between the two species. Knowledge of the larvae is still scanty, and the larval stage has been described for only a few species. Some authors (Klapálek, 1900, 1901; Danecker, 1961; Moretti, 1983; Waringer & Graf, 1997) point out particular features of the case, but it is very difficult to ascertain elements which can prove a distinction between the species from just one particular perspective. This difficulty is further exacerbated by the fact that in many cases, in the same place where the specimens were collected, several species are found, thus making it even harder to distinguish between the different types of larvae and so determine their distinctive features.

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