

NEW DATA ON THE DISTRIBUTION AND ECOLOGY OF SOME ITALIAN SPECIES OF *EILEMA* AND REAPPRAISAL OF *EILEMA MARCIDA* NEW RANK (INSECTA, LEPIDOPTERA: ARCTIIDAE)

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ABSTRACT The geographical and ecological distribution of some species of *Eilema* occurring in Italy is revised and updated. *Eilema depressa* and *E. pseudocomplana* were found to be much commoner than literature records were suggesting, the former with several coastal populations discovered along the Tyrrhenian coast and in Sardinia, the latter having been probably overlooked not just because of its well-known superficial similarity with *E. complana* but also with *E. palliatella*. Another taxon, *E. marcida* (Mann, 1859) **new rank**, is reappreciated as a valid species with respect to *E. pygmaeola* (Doubleday, 1847) by virtue of constant differences in the genitalia and the discovery of areas of sympatry between the two species. A record of *E. griseola* for Central Italy further corroborates a quotation of the species from Southern Italy (Calabria, Aspromonte), as it establishes a geographical link with the populations from North Italy.

KEY WORDS Arctiidae, *Eilema*, *Eilema marcida*, distribution, ecology, taxonomy, Italy

INTRODUCTION

Recent field surveys and a re-examination of material from Central and Southern Italy preserved in various collections allowed to better define the geographical and ecological distributions of a number of species of *Eilema* Hübner, [1819] and to revive *E. marcida* (Mann, 1859) from the synonymy of *E. pygmaeola* (Doubleday, 1847), as it will be reported in the following notes.

MATERIALS AND METHODS

The material studied is deposited in the institutions and private collections listed here below.

Genitalia preparations were made under low power of dissecting microscopes, essentially following the methodology summarized in Hardwick (1950). Staining was carried out in mercurochrome solution and permanent slides prepared by mounting the genitalic parts in euparal. Illustrations of adults were taken with a reflex camera, and drawings of the genitalia with the aid of a camera lucida. Construction details of UV-light trap employed in the field surveys are given by Zilli et al. (2001).

Abbreviations for material depositories are as follows:

CG = collection A. Grassi, Rome

CP = collection P. Provera, Rome

HNHM = Hungarian Natural History Museum, Budapest

MZR = Museum of Zoology, Rome

MZUR = Museum of Zoology of the University "La Sapienza", Rome

NHNV = Natural History Museum, Vienna

RESULTS

Eilema depressa (Esper, [1787])

(= *Phalaena deplana* Esper, [1787], nec Linnaeus, 1771)

Distribution

Eurasian, from Western Europe to Japan (Dubatolov et al., 1993).

Distribution in Italy

Continuous from the Alps to the Tusco-Aemilian Apennines, with scattered populations from the Central Apennines southwards: Latium (Tolfa Mts: Canale Monterano; Castelporziano), Abruzzi (Maiella massif: Piano delle Cinquemiglia; Sorgenti del Pescara), Molise (Casa Collemeluccio), Apulia (San Cataldo, Torre Specchia Ruggeri) and Basilicata (Pollino massif; Policoro) (Parenzan, 1977, 1982; Provera, 1992; Bertaccini et al., 1994; Durante et al., 1996; Rotundo et al., 1999; Zilli, 1997; Zilli et al., 2001).

Records

2♂♂ 1♀, Italy, Tuscany, Siena province, surroundings of Tocchi, Poggio Cupolone, 500 m, 20.X.2001, P. Provera leg., CP; 1♀, Grosseto province, Burano, 5 m, 27.VI.2002, F. Nicolai & A. Zilli leg., MZR. 1♂, Latium, Rome province, Macchiagrande di Focene, 5 m, 27.VIII.1986, A. Zilli leg., MZR; 1♂, idem, 5.VII.1995; 1♂, 6.VII.1995; 1♀, 17.VII.1995; 1♀, 16.VIII.1995; 1♂, 31.VIII.1995; 1♂, 1.IX.1995; 1♂, 4.IX.1995; 1♀, 6.IX.1995; 1♂ 1♀, 12.IX.1995; 1♀, 17.IX.1995; 1♂ 1♀, 18.IX.1995; 1♂, 20.IX.1995; 1♂, 11.X.1995; 1♀, 13.X.1995; 1♂, 14.X.1995; 1♂, 15.X.1995; 1♂, 17.X.1995; 2♂♂, 14.VI.1996; all E. Peria & A. Zilli leg., MZR. 1♀, Apulia, Lecce province, Laghi Alimini, Alimini Grande, 5 m, 19.VIII.1988, A. Zilli leg., CG. 2♀♀, Sardinia, Sassari province, Isola di Caprera, 5 m, 13.X.1989, M. Lucarelli leg., MZR.

Remarks

This species, supposed to be very rare in Central Italy so as to be missing in the catalogue by Provera

(1978), seemingly meets its ecological requirements in wet or marsh areas of the Tyrrhenian Coast, where it is locally abundant (e.g. Castelporziano; Macchiagrande di Focene). In contrast, records from inland areas are sparser and mostly based on single individuals. Its tendency to occur in coastal areas is also confirmed by records from the coast of Romagna (Bertaccini et al., 1994), Isola di Caprera and similar habitats in Southern Italy (Parenzan, 1982; Durante et al., 1996).

Eilema griseola (Hübner, [1803])

Distribution

Eurasiatic, from Western Europe to Japan (Dubatolov et al., 1993).

Distribution in Italy

Northern regions and Calabria (Bertaccini et al., 1994). Quotations for Tuscany and Marche by Provera (1992) have not been successively confirmed (Bertaccini et al., 1994).

Records

1 ♀, Italy, Umbria, Terni province, Narni, 26.VIII.1973, C. Prola leg., MZR.

Remarks

The record from Umbria, Central Italy, corroborates Parenzan's (1982) record from Aspromonte, Calabria, Southern Italy, which was based on indirect evidence.

Eilema pseudocomplana (Daniel, 1939) (Figs 1, 4, 7, 10)

Identity

Not in doubt. Nevertheless, the close similarity of *E. pseudocomplana* (Daniel, 1939) with *E. complana* (Linnaeus, 1758) and *E. palliatella* (Scopoli, 1763) has probably led to an underestimation of the actual distribution and abundance of this species. In this respect, it seems evident that the name "pseudocomplana" has been partly misleading, as it suggests that the species is similar to *complana* (Fig. 2). In contrast, our investigations on Italian material of the three taxa has revealed that over half of the examined male specimens of *pseudocomplana* show a yellowish facies (Fig. 1) and are thence more similar to *palliatella* (Fig. 3) (very rarely, also males of *complana* show a yellowish facies) (Fig. 11). It is also worth noticing that males of *pseudocomplana* are easily distinguishable from those of *complana* by the well-known absence of a yellow subcostal androconial streak on the forewing underside (e.g. Daniel, 1939; Mentzer, 1980; Freina & Witt, 1987), while the males of *palliatella* are as devoid of androconia as those of

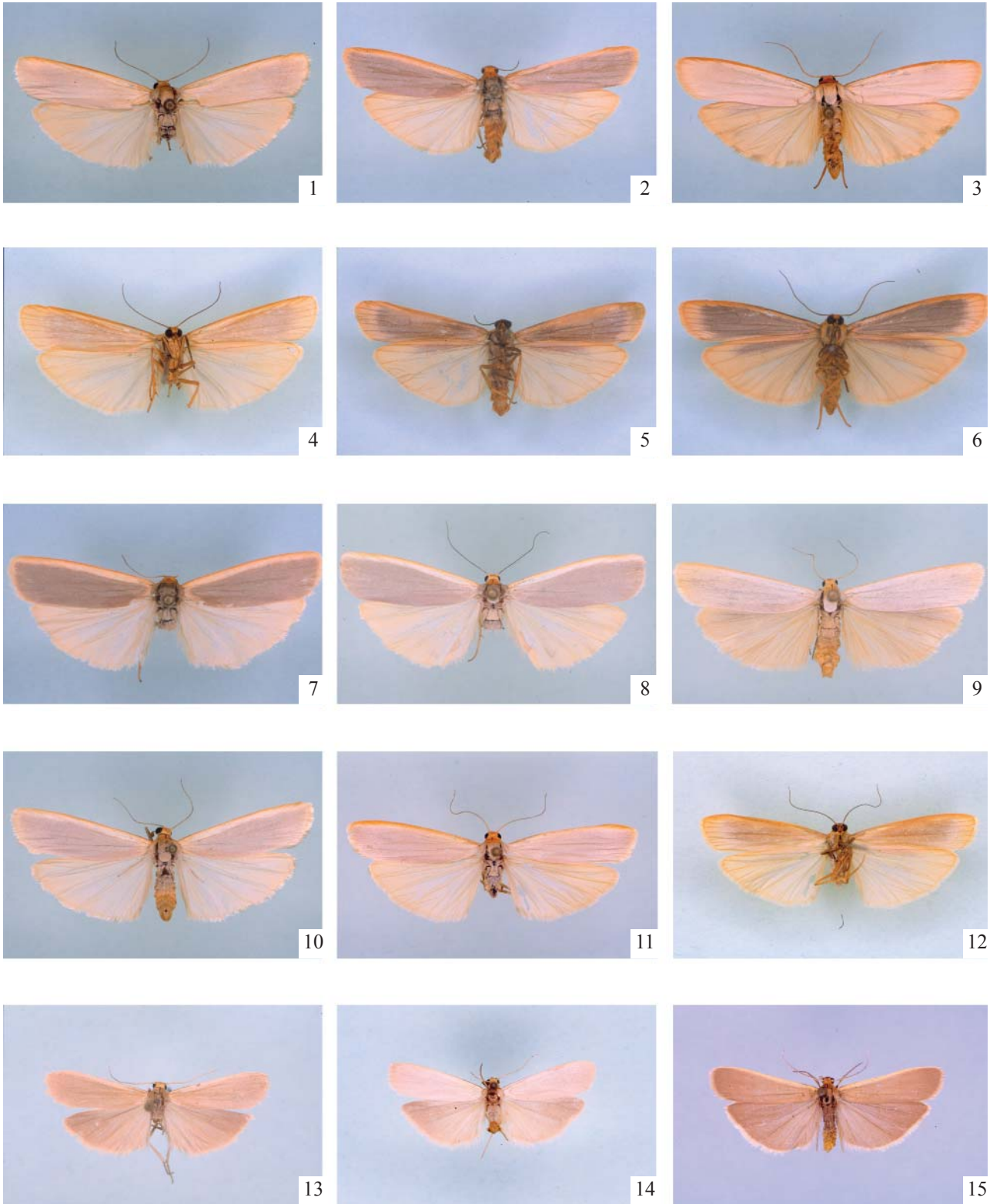
pseudocomplana (Figs 4-6, 12). The females and some of the examined males of *pseudocomplana* are objectively more similar in facies to *complana*, as they show a greyish forewing with an outstanding yellowish costal stripe on the upperside (Figs 7-10).

It can be hereby confirmed that a most valuable character in external facies to separate *pseudocomplana* from *palliatella* is the absence in the former species of a greyish streak below Sc+R1 on the hindwing underside (Rezbanyai, 1981; Freina & Witt, 1987; Rezbanyai-Reser & Hellmann, 1990), which is always present also in the palest specimens of *palliatella* (Fig. 6). Nevertheless, following the discovery by Rezbanyai (1987) of rare specimens of *pseudocomplana* from Switzerland with a faint darkening of this area, also this trait cannot be credited of absolute value. The presence of the streak in *complana* is also unconstant and therefore females of *complana* and *pseudocomplana* remain as the most difficult specimens to be identified.

Valuable characters for species identification are known in the male genitalia (Daniel, 1939; Weisert, 1979; Mentzer, 1980; Rezbanyai, 1981, 1987; Freina & Witt, 1987; Vojnits et al., 1991; Jakšić & Dimović, 2000). In particular, the two cornuti that occur on the aedeagus vesica are of different size in *complana* and *palliatella* and equal size in *pseudocomplana*. Study of vesical configuration of the three species has further revealed a main difference. In fact the basal diverticulum that in *complana* and *palliatella* bears the larger cornutus is projecting distally with respect to the aedeagus, whereas the homologous diverticulum in *pseudocomplana* is distinctly reclinate backwards (Figs 19-24).

The female genitalia have been rarely tackled with in papers dealing about these species, with the noticeable exception of Mentzer (1980), followed by Rezbanyai (1981, 1987), who stressed the occurrence in *pseudocomplana* of two wart-like ventral excrescences on the "central bursa" (hereafter simply named "left part of bursa") at the base with the ductus with larger and diffuse spining, while *complana* and *palliatella* show only one wart with smaller and more concentrated spining. Nevertheless, as Mentzer (1980) states in his description of *Eilema iberica* Mentzer, 1980, currently considered to represent a subspecies of *pseudocomplana* (cf. Freina & Witt, 1987), that there are no differences in the female genitalia respecting *palliatella* and *complana* and figures a female apparatus with only one wart densely clothed by spines (Mentzer, 1980: 14, fig. 21), it should be concluded that the character is not diagnostic for the western populations of *pseudocomplana*.

During this study, the identity of females of



Figs 1-15 Habitus of *Eilema* spp. (wingspan between parentheses). (1) *E. pseudocomplana*, ♂, Abruzzi, Pescara (33 mm). (2) *E. complana*, ♂, Abruzzi, Pescara (33 mm). (3) *E. palliatella*, ♂, Abruzzi, Aschi Alto (34 mm). (4) Same as fig. 1, ventral view. (5) Same as fig. 2, ventral view. (6) Same as fig. 3, ventral view. (7) *E. pseudocomplana*, ♀, Abruzzi, Pescara (35 mm). (8) *E. complana*, ♀, Latium, Pisoniano (35 mm). (9) *E. palliatella*, ♀, Abruzzi, Carrito (33 mm). (10) *E. pseudocomplana*, ♂, Latium, Posta (33 mm). (11) *E. complana*, ♂, Latium, Posta (32 mm). (12) Same as fig. 11, ventral view. (13) *E. marcida*, ♂, Latium, Focene (24 mm). (14) *E. marcida*, ♂, Spain, Murcia, Alhama de Murcia (25 mm). (15) *E. predotae*, ♂, Spain, Aragon, Albarracin (25 mm).



Figs 16-18 Habitus of *Eilema* spp. (wingspan between parentheses). (16) *E. pygmaeola pygmaeola*, ♂, England, Kent, Deal (27 mm). (17) *E. pygmaeola pallifrons*, ♀, Latium, Fregene (22 mm). (18) *E. pygmaeola pallifrons*, ♂, Abruzzi, Carrito (27 mm).

pseudocomplana has been assessed by comparing the genitalia configuration of specimens from areas where *complana* and *pseudocomplana* co-occur with those from where only *complana* is present. As a result, Mentzer's (1980) indication to separate *pseudocomplana* (s.str.) from *complana* can be fully confirmed. Furthermore, it should be stressed in *pseudocomplana* the presence of an anterior wart lateral to the fundus bursae before the saddle linking the left and right parts of the bursa, the larger left part of corpus bursae, the presence of a posterolateral wart on the right part of the bursa and the absence of complanarity between the two parts of the bursa, as the right one is displaced dorsally (Fig. 25). In contrast, in *complana* the two parts of the bursa lie on a same horizontal plane, there is no anterior wart between them, the left part of bursa is smaller and the right part is devoid of posterolateral wart (Fig. 26). It should be noticed that the degree of complanarity between the two parts of the bursa can only be appreciated before pressing and mounting the genitalia on a slide. In *palliatella* the basic configuration is like in *complana*, the bursa being larger as a whole, and with a markedly swollen and more ventrally positioned appendix bursae (Fig. 27).

The validity of *pseudocomplana* as a species was recently questioned by Pérez De-Gregorio et al. (2001), who delegated it to *complana* as a subspecies because the differences in their genitalia would be small. This opinion cannot be shared on consideration that differences in the genitalia exist and are constant, the presence of androconia in *complana* is evidence for different mate recognition behaviour between the two species, and two subspecies cannot coexist over large part of their relevant ranges like *complana* and *pseudocomplana* do.

Distribution

From Central and Southern Europe to Turkey and Iran (Dubatolov et al., 1993).

Distribution in Italy

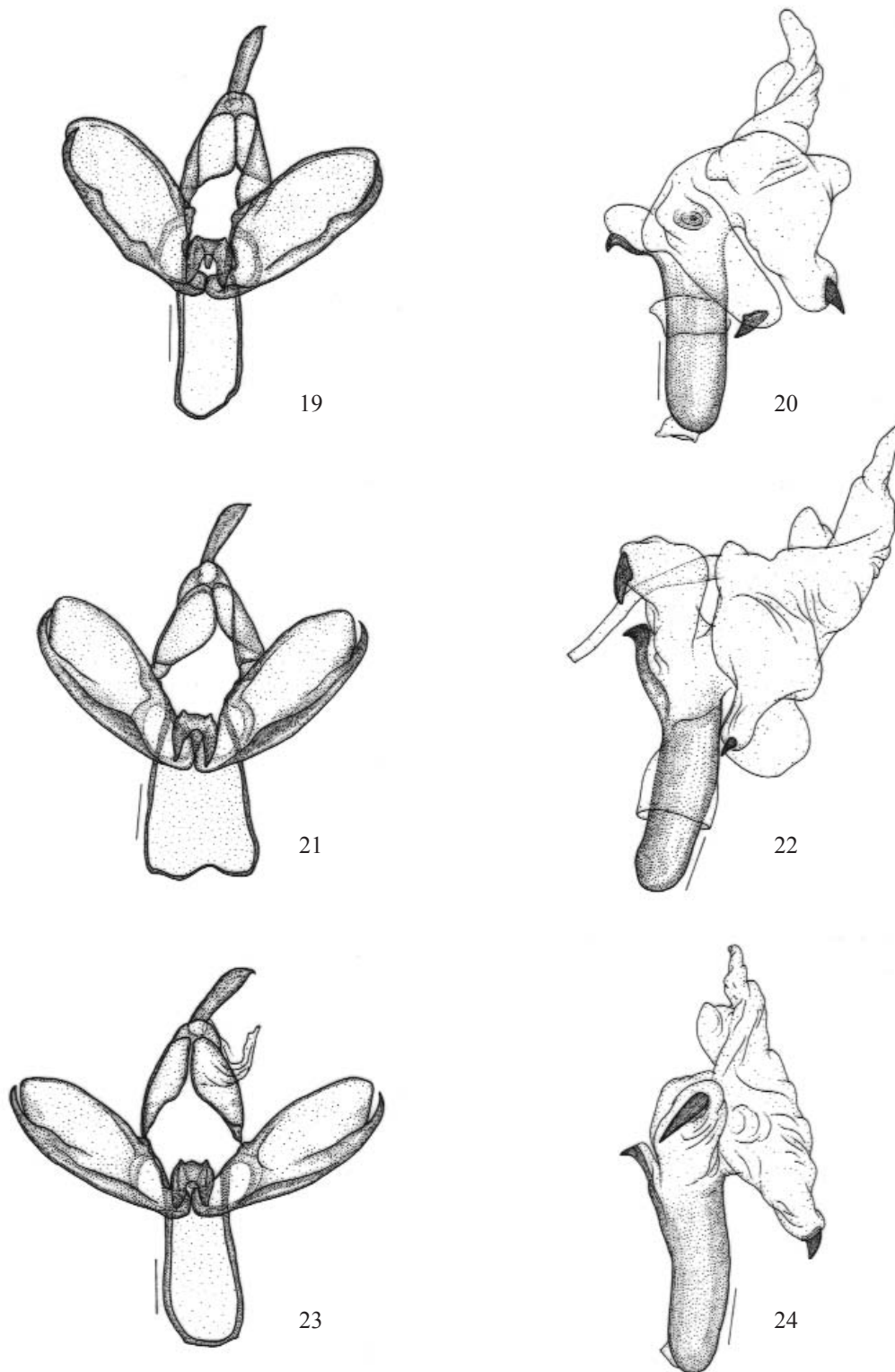
Valle d'Aosta, Piemonte (Valle di Susa), Alto Adige, Abruzzi (Montagna Grande) (Daniel, 1964; Rezbanyai-Reser & Hellmann, 1990; Bertaccini et al., 1994; Huemer, 1996; Hellmann et al., 1999; Bertaccini & Fiumi, 2002).

Records

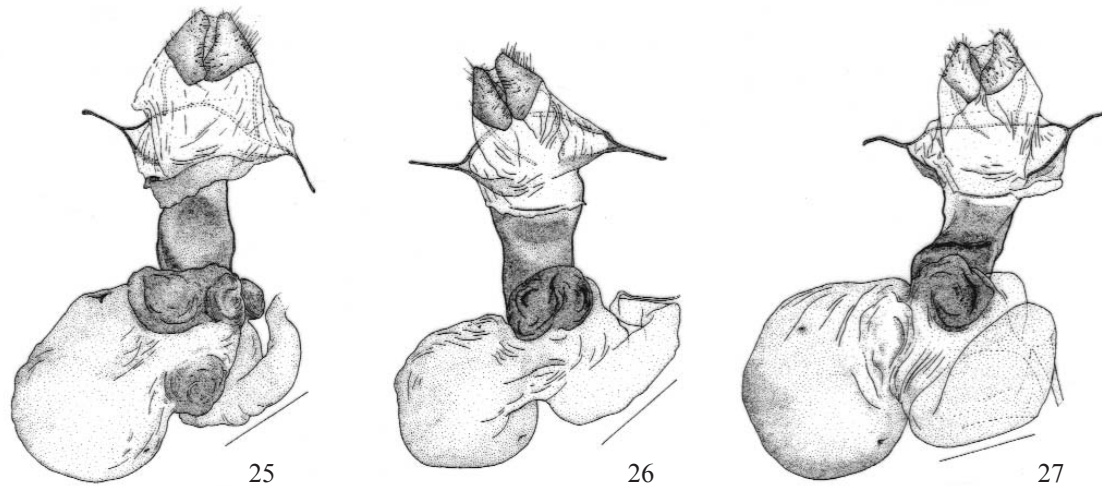
1 ♀, Italy, Latium, Rome province, Pisoniano, 520 m, 2.VIII.2003, A. Grassi leg., CG; 1 ♂, Rieti province, surroundings of Posta, Villa Camponeschi, 1000 m, 9.VIII.1999; 1 ♂ 1 ♀, idem, 3.VIII.2003; all A. Zilli leg., MZR. 1 ♂ 2 ♀ ♀, Abruzzi, L'Aquila province, surroundings of Pescara, Collecchio, 850 m, 26.VII.2001; 5 ♂ ♂ 2 ♀ ♀, 1.VIII.2001; 2 ♂ ♂, 8.VIII.2001; 4 ♂ ♂ 1 ♀, 15.VIII.2001; 1 ♀, 22.VIII.2001; 1 ♀, 4.IX.2001; all A. Grassi & A. Zilli leg., MZR, CG and CP.

Remarks

The site of Pescara (Collecchio) was surveyed by means of an actinict light trap run one night per every week for one year (May 2001-May 2002) and revealed the presence of *E. pseudocomplana* (19 exx.), *E. complana* (13 exx.) and *E. palliatella* (40 exx.). Another trap was precisely run on the same nights in a nearby site (Aschi Alto, Le Vicenne, 1115 m), but only *complana* (4 exx.) and *palliatella* (58 exx.) were found. As the site of Pescara is more markedly submediterranean, being characterised by a calciphilous garigue dominated by *Phlomis fruticosa* L. (Pirone, 1995; Pirone & Tammaro, 1997; Tammaro, 1998), while the site of Aschi Alto corresponds to a mountain pseudosteppe, this fact suggests that *pseudocomplana* is more thermophilous than the other two congeners. In Pescara the first species on the wing was *complana* (12.VII), which was collected till mid-august (15.VIII); the flight period of *pseudocomplana*, viz. 26.VII-4.IX, was substantially shifted toward the season and largely overimposed with that of *palliatella*, which despite its abundance showed the most contracted flight season (1-29.VIII) (Fig. 28). As the distribution of records of *complana* and *palliatella* in the site of Aschi Alto substantially agrees with that in Pescara, it can be concluded that the phenology of these two species is not modified where



Figs 19-24 Male genitalia of *Eilema* spp. (19) *E. pseudocomplana*, armature, Abruzzi, Pescara (gen. prep. AG63). (20) Idem, aedeagus, Abruzzi, Pescara (gen. prep. AG61). (21) *E. complana*, armature, Abruzzi, Pescara (gen. prep. AG254). (22) Idem, aedeagus, Abruzzi, Aschi Alto (gen. prep. AG69). (23) *E. palliatella*, armature, Abruzzi, Aschi Alto (gen. prep. AG245). (24) Idem, aedeagus, Abruzzi, Pescara (gen. prep. AG68). Scale bars = 0.5 mm.



Figs 25-27 Female genitalia of *Eilema* spp. (25) *E. pseudocomplana*, Abruzzi, Pescara (gen. prep. AG233). (26) *E. complana*, Abruzzi, Pescara (gen. prep. AG235). (27) *E. palliatella*, Abruzzi, Aschi Alto (gen. prep. AG255). Scale bars = 1 mm.

they co-occur with *pseudocomplana*, like in Pescara.

***Eilema marcida* (Mann, 1859) new rank (Figs 13-14)**

Identity

The taxonomic history of *E. marcida* (Mann, 1859) (Figs 13-14) has been remarkably controversial. Described as a new species on the basis of material from Sicily (type-locality: surroundings of Palermo, Palla-gutta valley) (Mann, 1859), it was accepted as a valid species by several authors (e.g. Spuler, 1906; Oberthür, 1922; Rebel & Zerny, 1931; Hartig, 1976), but merely considered as a subspecies or colour form of *E. pygmaeola* (Doubleday, 1847) (Fig. 16) by Seitz (1910), Sterneck (1938), Daniel (1939, 1964), Toulgoët (1954), Chnéour (1955), Rungs (1981), this being generally cited as *pallifrons* (Zeller, 1847) (Figs 17-18), a name now used to relate to the Central and Southern European subspecies of *pygmaeola*. Last but not least, on several occasions *marcida* was associated to *Lithosia sordidula* Rambur, 1858, as a junior synonym, this latter being a nominal taxon of doubtful identity till the clarification by Toulgoët (1954, 1981, 1985) as a synonym of *Lithosia pygmaeola pallifrons* Zeller, 1847.

Sterneck (1938), in particular, considered *marcida* as conspecific with *pygmaeola* by virtue of their close resemblance in the male genitalia. Nevertheless, in order to justify his conclusion Sterneck (1938) solely relied on a single specimen from Dalmatia (Gravosa), which is rather far apart from the type locality of *marcida* and probably outside of the actual range of *marcida*. Daniel (1964) further stated that *marcida* represented nothing but the second generation of *pygmaeola pallifrons*, a surprising opinion given that

Spuler (1906) and Seitz (1910) had already recorded the occurrence of two generations in *marcida* and that the second, characterised by smaller individuals, had to be distinguished, following Ragusa (1889), as f. *naneola*. This misunderstanding was subsequently followed by Provera (1978) and clearly confuted by Parenzan (1982), who demonstrated the occurrence of two generations for both species in Southern Italy. As a matter of fact, in the more southern districts of their distribution both *marcida* and *pygmaeola pallifrons* show two largely overlapping generations in early summer and late summer-early autumn. Parenzan also outlined some diagnostic differences between the two species in the male and female genitalia but was unable to find any areas of sympatry, as the two taxa largely replace each other in Southern Italy, with *pygmaeola pallifrons* linked to mountain areas and *marcida* to lowland areas.

Freina & Witt (1984), probably unaware of Parenzan's (1982) thorough account, considered the Western Mediterranean *marcida*-like populations worth of deserving subspecific status and *Lithosia sordidula* Rambur, 1858 (type-locality: Andalusia) as the valid name for such populations, to which they also delegated *Lithosia predotae* Schawerda, 1927 (type-locality: Albarracin) (Fig. 15). In contrast, Toulgoët (1954, 1981, 1985) examined the lectotype (including the genitalia) of *sordidula* and vigorously stressed its absolute correspondence with *pygmaeola pallifrons*, and the specific validity of *E. predotae* (cf. Toulgoët, 1985), that had been also reaffirmed by Gomez Bustillo & Arroyo Varela (1984). Regarding *marcida*, Toulgoët (1954, 1985) considered it to be a full synonym of *pygmaeola pallifrons*, although in 1985 he recognised a "certain diversification" of the

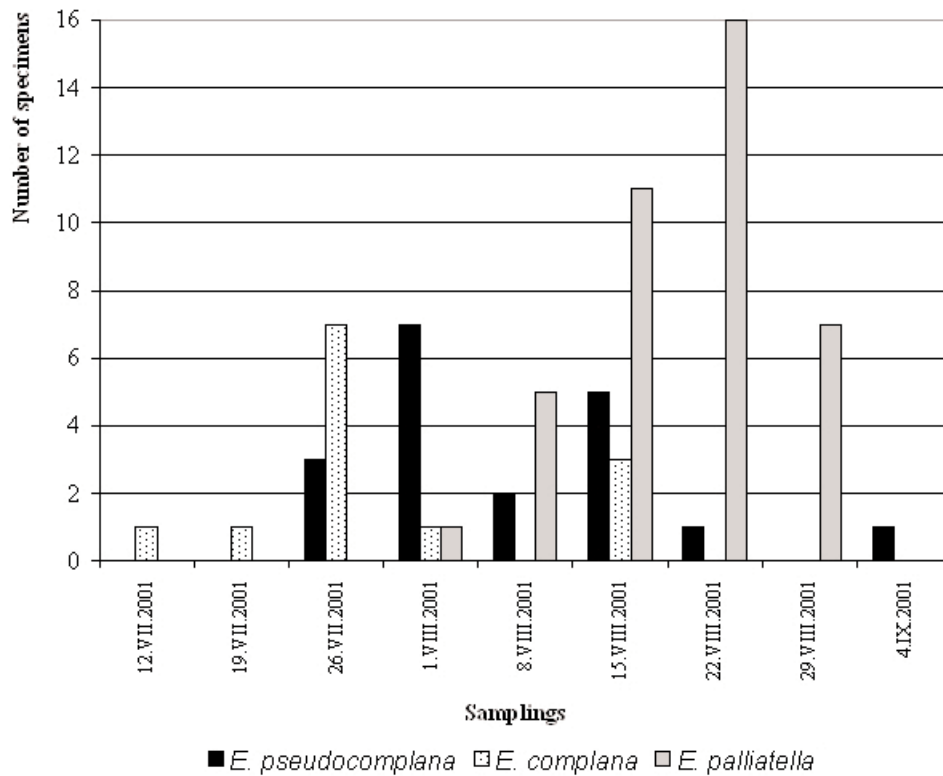


Fig. 28 Phenology and abundance of *Eilema pseudocomplana*, *E. complana* and *E. palliatella* at a sample site in the Abruzzi (Pescina) surveyed weekly by UV-light trap in 2001.

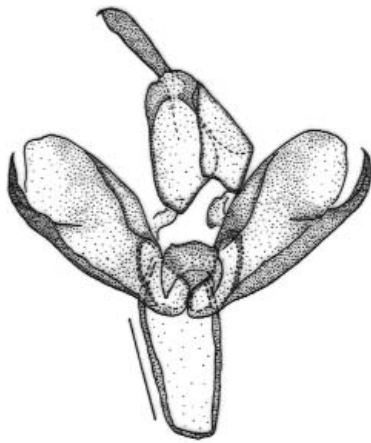
habitus with respect to *pygmaeola pallifrons* and circumscribed the range of this "entity" to North Africa and Sicily, thus implicitly excluding eastern Mediterranean records (e.g. Spuler, 1906; Sterneck, 1938; Daniel, 1964). Freina & Witt (1987) substantially accepted Toulgoët's (1985) criticism, synonymised *sordidula* with *pygmaeola pallifrons*, separated *predotae* as a species standing on its own but also ranked *marcida* as a synonym of *pygmaeola pallifrons*, an arrangement currently standing as valid in nomenclature (Bertaccini et al., 1994; Cerny, 1996; Reinhardt et al., 1999).

During this study, specimens referable to *pygmaeola* (s.str.) (1♂, 1♀), *pygmaeola pallifrons* (15♂♂, 8♀♀) and *marcida* (12♂♂, 5♀♀) coming from areas of allopatry, parapatry and also sympatry were dissected. In all cases the same differences between the two species were found, thus fully confirming Parenzan's (1982) findings and the status of *marcida* as a good species (Figs 33-38), while no reliable difference between the two subspecies of *pygmaeola* could be detected. Also topotypes of *marcida* were included in the analysis. In this respect, it should be noticed that both species occur in Sicily but Mann's (1859) indication about the habitus of *marcida* and a syntype examined in NHMV allow to clearly identify this one as the dull-coloured species and avoid

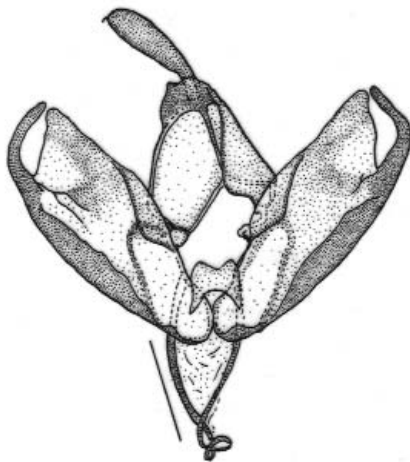
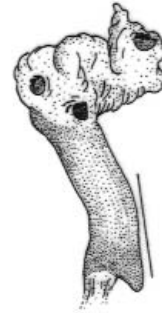
any confusion with *pygmaeola pallifrons* (yellowish) or nominate *pygmaeola* (whitish). The main diagnostic differences in the genitalia between the two species can be summarised as follows (Figs 29-38).

Eilema marcida: valva suboval with apex rounded or feebly pronounced; saccular process short, basally triangular in cross-section, evenly curved and apically pointed, not reaching the apex of valva; aedeagus with thin and pointed coecum penis, vesica with 2-4 small weakly sclerotised cornuti (Fig. 29). Lamella postvaginalis thin and weakly sclerotised, ductus bursae membranous and narrow posteriorly, turned so as to leave its anterior sclerotised wall on the right (Fig. 31).

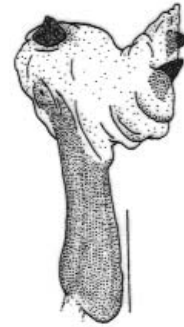
Eilema pygmaeola: valva subrectangular with elongate and sharpened apex; saccular process long, basally round in cross-section, incurved at right angle at the middle and rod-like, viz. of uniform width till the apex, attaining the apex of valva; aedeagus with coecum penis large and rounded, vesica with 2-4 large deeply sclerotised cornuti (Fig. 30). Lamella postvaginalis strongly sclerotised, in shape of broad crescent-shaped plate descending along ductus, ductus bursae large and flat, with anterior sclerotised wall overlying posteriorly the anterior margin of lamella postvaginalis (Fig. 32).



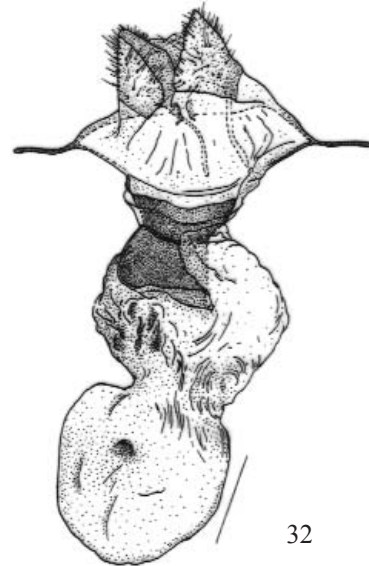
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Figs 29-32 Genitalia of *Eilema* spp. (29) *E. marcida*, ♂, Latium, Focene (gen. prep. AG335). (30) *E. pygmaeola pallifrons*, ♂, Latium, Focene (gen. prep. AG337). (31) *E. marcida*, ♀, Morocco, Tangier (gen. prep. AG330). (32) *E. pygmaeola pallifrons*, ♀, Abruzzi, Forme (gen. prep. AG323). Scale bars = 0.5 mm.

Distribution

Western-Central Mediterranean (Northwest Africa, Spain, Sicily, Sardinia, Corsica, Central and Southern Italy). Old records from Southeastern Europe and the Eastern Mediterranean await confirmation.

Distribution in Italy

Latium, Apulia, Sicily, Sardinia (Parenzan, 1982; Bella et al., 1995).

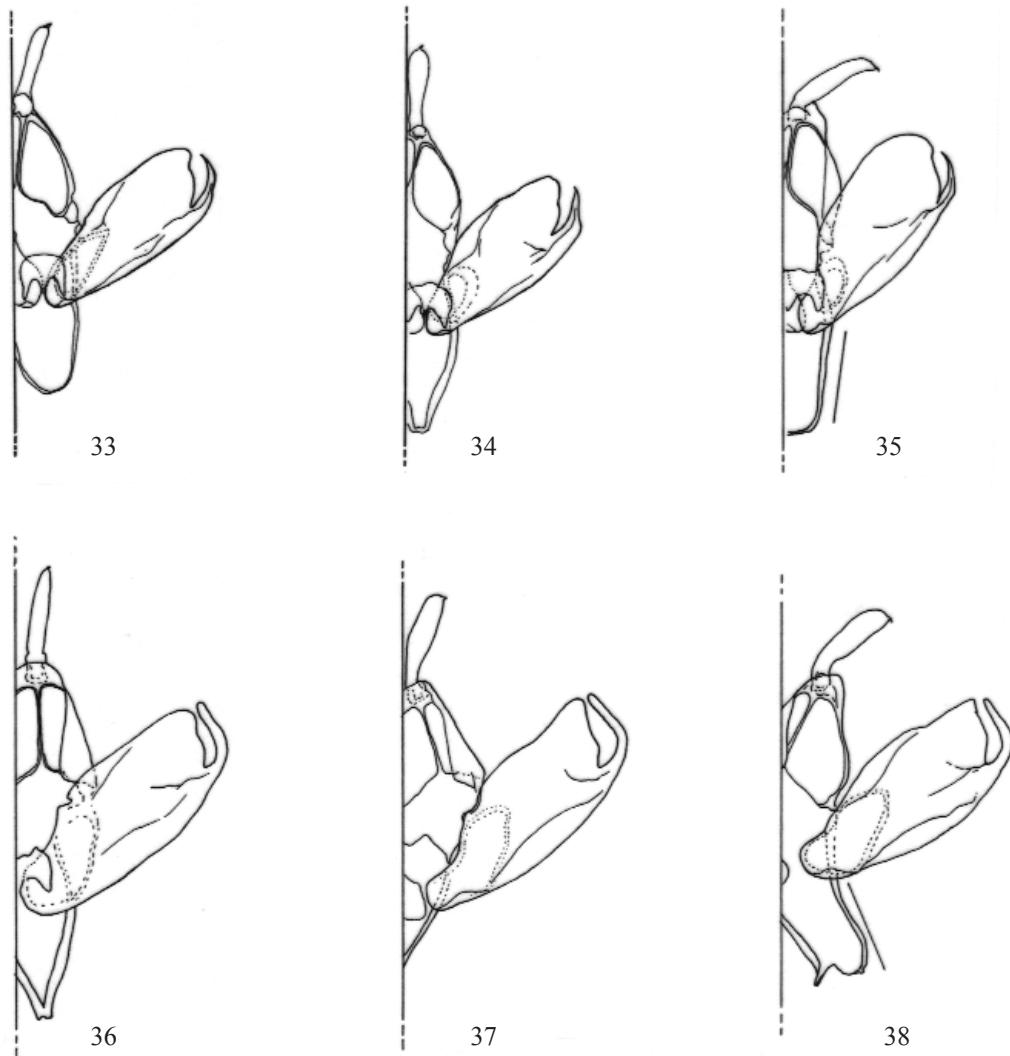
Records

1♂, Morocco, Tangier, 24.VI.1934; 1♀, 10.IX.1934; 2♀♀, 15.IX.1934; 1♀, 16.IX.1934; 3♂♂, 20.IX.1934; 1♀, 27.IX.1934; all O. Querci leg., MZR. 1♂ 1♀, Tunisia, Bir Halima, 20.V.1998, 250 m, P. Provera & A. Zilli leg., CP. 7♂♂ 4♀♀, Spain, Murcia province, Alhama de Murcia, 6.IX.1972, M. & W. Glaser leg., NHMV; 1♂ 5♀♀, Sevilla province, Guadalquivir, 22.IX.1973; 1♀, 4.X.1975; all M. & W. Glaser leg., NHMV. 1♀, Italy, Sardinia, Cagliari province, Musei, 120 m,

19.VIII.1973; 2♀♀, 21.VIII.1973; 1♀, 22.VIII.1973; 1♀, 30.VIII.1973; all F. Hartig leg., HNHM; 1♂, idem, 100 m, 2.VI.1974; 1♂ 1♀, 4.VI.1974; all L. Gozmány leg., HNHM; 1♀, Latium, Rome province, Anguillara, 21.V.1952, F. Hartig leg., MZUR; 1♂, Focene, 5 m, 12.IX.1984, P. Provera leg., CP; 1♂, Macchiagrande di Focene, 5 m, 16.VIII.1995, E. Peria & A. Zilli leg., MZR; 2♂♂, Apulia, Foggia province, Siponto, 5 m, 17.IX.1984; 1♂, 19.IX.1984; all P. Provera leg., CP; 1♂ [syntype], Sicily, 1858; 1♀, 1859; all Mann [leg.], NHMV; 2♂♂, Messina province, Mistretta, 1100 m, 13-27.IX.1938; 2♂♂, 14-27.IX.1938, all R. Lunak leg., NHMV; 1♂, 1♀, Palermo province, Ficuzza, 800 m, IX.1910, NHMV; 1♂, idem, E. Ragusa leg., HNHM; 2♂♂, idem, IX, HNHM; 1♂, idem, Giacalone, 700 m, 25.IX.1979, N. Grillo leg., MZR.

Remarks

In Italy *E. marcida* is mostly linked to coastal marsh areas from the Centre and the South, while in Sicily it also reaches middle elevation (e.g. Nebrodi Mts, Mistretta, 1100 m, NHMV). Interestingly, *E. pygmaeola* is a more mesophilous species that in



Figs 33-38 Sketches of male genital armatures of *Eilema* spp. (33) *E. marcida*, Sicily, Giacalone (gen. prep. AG334). (34) Idem, Apulia, Siponto (gen. prep. AG290). (35) Idem, Morocco, Tangier (gen. prep. AG312). (36) *E. pygmaeola pallifrons*, Sicily, Etna, Pineta [Linguaglossa] (gen. prep. AG321). (37) Idem, Abruzzi, Pescara (gen. prep. AG289). (38) Idem, Veneto, Lago di Garda, San Vigilio (gen. prep. AG359). Scale bars = 0.5 mm.

Southern Italy does not occur below an elevation of 600 m (Parenzan, 1982) and in Sicily is clearly restricted to mountain areas (e.g. Mt. Etna, 800-1900 m, MZR and MZUR). Old records of *marcida* from mountain areas in Sicily such as Madonie (e.g. Minà-Palumbo & Failla-Tedaldi, 1888) could therefore relate to any of the two species. In central Italy *E. pygmaeola pallifrons* can well occur in cool areas at the sea level and thence it is occasionally syntopic with *marcida*, like in the litoral of Rome (Focene). Both species are also present in Northwest Africa, with *marcida* occurring in lowlands and *pygmaeola pallifrons* being restricted to mountain areas, as well explicated by Oberthür (1922). Rather complex is the situation in the Iberian Peninsula, as *pygmaeola pallifrons*, *marcida* and *predotae* were all quoted on several occasions, with all the nomenclatural problems that have been above reported. Nevertheless, a critical appreciation of the published accounts (e.g. Exposito Hermosa, 1977; Gomez Bustillo, 1979) and the material examined allow to confirm that all the three taxa occur in the Iberian Peninsula. Due to correspondence in external facies and shape of valva (cf. Exposito Hermosa, 1977; Gomez Bustillo, 1979; Toulgoët, 1985), *Eilema predotae* seems to be closer to *marcida* than *pygmaeola pallifrons*, and both *marcida* and *predotae* show a closer resemblance in male genitalia configuration to *E. lutarella* (Linnaeus, 1758), which has a stouter saccular process. However, the larger cornuti of *predotae* (i.e. 1-2 out of three) are more similar in size and shape to those of *lutarella* (regularly in number of two) than *marcida* (Exposito Hermosa, 1977; Gomez Bustillo, 1979; Grassi & Zilli, original data).

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