Naturalista sicil., S. IV, XXXIII (3-4), 2009, pp. 295-304

Giuseppe Fabrizio Turrisi

FAUNISTIC REMARKS ON SICILIAN *CLEPTES* LATREILLE, WITH TWO NEW RECORDS (*Hymenoptera Chrysididae Cleptinae*)

SUMMARY

Two species of the genus *Cleptes* Latreille, 1802: *C. nitidulus* (Fabricius, 1793) and *C. pallipes* Lepeletier, 1806 are newly recorded from Sicily on the basis of material collected on high altitudes of Etna Volcano. The data on the presence of the genus *Cleptes* in Sicily are summarized.

RIASSUNTO

Rilievi faunistici sui Cleptes *Latreille siciliani, con due nuove segnalazioni (Hymenoptera Chrysididae: Cleptinae).* Due specie del genere *Cleptes* Latreille, 1802: *C. nitidulus* (Fabricius, 1793) e *C. pallipes* Lepeletier, 1806 vengono segnalate per la prima volta in Sicilia sulla base di materiale raccolto sulle alte quote del Vulcano Etna. Vengono forniti dati riassuntivi sulla presenza del genere *Cleptes* in Sicilia.

Introduction

Chrysididae is a moderately large-sized cosmopolitan group of Hymenoptera Aculeata which includes more than 3000 species comprised within 5 subfamilies and 83 genera (Kimsey & Bohart, 1991; Mingo, 1994). In Italy, 236 species are recorded, including nearly 60 taxa recognized as subspecies (Strumia, 1995, 2001, 2003, 2005; Agnoli & Rosa, 2009). Chrysidids are parasitoids or cleptoparasitoid of other insects. The basal lineage Cleptinae includes parasitoid of Tenthredinoidea; most part of Chrysidinae, the largest subfamily, and Parnopinae, are parasitoid of other Hymenoptera

(mainly Aculeata), although the genus *Praestochrysis* Linsenmaier, 1959 includes parasitoids of Lepidoptera Limacodidae; the remaining subfamilies (not represented in the European fauna), Amiseginae and Loboscelidiinae, are parasitoid oophagous of Phasmatodea (KIMSEY & BOHART, 1991).

The Sicilian chrysidid-fauna has not been object of modern specific and organic investigations. A first tentative for a comprehensive treatment of the Regional chrysidid-fauna was performed by the Sicilian entomologist Teodosio De Stefani-Perez in a series of monographic papers (DE STEFANI-PEREZ, 1888a, 1888b, 1888c). In recent years, data on Sicilian Chrysididae have been summarized in the checklist of Italian species (STRUMIA, 1995) with the subsequent update by STRUMIA (2001) and in a series of papers dealing with a wide context (LINSENMAIER, 1997), an Italian context (STRUMIA, 2003, 2005), ROSA (2003, 2005) or referring specifically to the Sicilian fauna (ARNONE & ROMANO, 1995, 1998). Two good sources of chorological information have been recently provided through digital databases by STRUMIA (2005) and AGNOLI & ROSA (2009), the latter freely available in the web. Taking into account all these data combined, a total of 112 species of Chrysididae are known from Sicily. Indeed, the knowledge of the Sicilian Chrysididae still remains unsatisfactory, and many species are doubtfully recorded for the island, whereas other species are known on the basis of a very few old records, and it must be noticed that several taxa, mainly those regarded as subspecies, require modern taxonomical studies based on the examination of the type material. Moreover, the chorological data, and thus the diffusion of most part of species in the island still remain very poorly investigated. Finally, the chrysidid-fauna of the circumsicilian islands is nearly unknown, with a few exceptions (INVREA, 1957, 1960; ARNONE & ROMANO, 1995).

The present study represents the start point of some ongoing investigations for a better faunistic knowledge of Sicilian Chrysididae. As first results, herein presented, two interesting and relatively rare species of *Cleptes* Latreille, 1802, a genus including 9 species in Italy (STRUMIA, 1995, 2001, 2005; MÓCZÁR, 1997, 2001; AGNOLI & ROSA, 2009), are newly recorded for Sicily.

MATERIAL AND METHODS

The studied specimens have been collected on Etna Volcano, in their natural habitat, but no information have been obtained on their biology. Specimens were identified on the basis of the revisionary papers by MÓCZÁR (1997, 1998, 2001) and the very useful key provided by MINGO (1994) and are preserved in the Department of Animal Biology, University of Catania (G.F. Turrisi collection). Previous distributional records of the treated species were

taken from the above mentioned papers, while detailed Italian chorological data were taken from STRUMIA (1995, 2001, 2005), ROSA (2005) and AGNOLI & ROSA (2009). Multifocal images were taken using a Nikon Coolpix 4300 digital camera attached to a Wild M5A stereomicroscope and subsequently processed with Combine ZM software (HADLEY, 2008).

RESULTS AND DISCUSSION

Cleptes nitidulus (Fabricius, 1793) (Figs. 1-3)

Ichneumon nitidulus Fabricius, 1793: 184 (Locus typicus: Italy).

Material examined. 1♀, Sicily: Etna Volcano, province of Catania, Ragalna, Monte Vetore, m 1700 a.s.l., 31.VIII.1997 (G.F. Turrisi leg.).

Distribution. Widely distributed throughout Eurasia. Records for Europe: Finland, Sweden, Estonia, Denmark, Luxembourg, Spain, France, Germany, Poland, Austria, Switzerland, Czech Republic, Slovakia, Hungary, Italy, Albania. Asia: Turkey, China north oriental (Manchuria) (BUYSSON, 1891-96; BERLAND & BERNARD, 1938; KIMSEY & BOHART, 1991; SCHNEIDER, 1992; MINGO, 1994; MÓCZÁR, 1997; MANDERY, 2002; SOON, 2004; KOWALCZYK & KURZAC, 2005).

Biology. Poorly known. The imago feeds on flowers of Apiaceae (recorded on *Thapsia villosa* Linnaeus and *Pimpinella saxifraga* Linnaeus) (MINGO, 1994; MÓCZÁR, 1997). Two species of Tenthredinidae are indicated as probable hosts: *Caliroa cerasi* (Linnaeus, 1758) (MORGAN, 1984) and *Nematus* (*Kontuniemiana*) *ribesii* (Scopoli, 1763) (cfr. BERLAND & BERNARD, 1938; MÓCZÁR, 1997). Moreover, LAMPRECHT (1881) indicated *Nematus* (*Pteronidea*) *salicis* (Linnaeus, 1758) and *Nematus* (*Pteronidea*) *nigricornis* Serville, 1823 (sub *Nematus Zetterstedtii*) as hosts of both *C. nitidulus* and *C. semiauratus* (Linnaeus, 1761) (see also discussion in BERLAND & BERNARD, 1938). The phenology of this species extends mainly from June to July, with a few records in August-September (MÓCZÁR, 1997).

Faunistic remarks. First record for Sicily. In Italy this species has previously been recorded for the following continental and peninsular regions: Piedmont, Liguria, Emilia Romagna, Tuscany, Latium, Abruzzo and Calabria (MÓCZÁR, 1997; ROSA, 2005; AGNOLI & ROSA, 2009). The southernmost locality is in Central Calabria, Sila, Camigliatello Silano (Cosenza) (INVREA, 1933; ROSA, 2005; STRUMIA, 2005), thus the record for Sicily significantly shifts to south the known Italian distribution. This species, in Sicily, is probably limited to only high altitudes of mountains. The habitat of finding is a

Fig. 1

Fig. 2

Fig. 3

Figs. 1-3 — Cleptes nitidulus (Fabricius, 1793), Italy, Sicily, Etna Volcano. 1, habitus; 2, mesosoma, dorsal view; 3, metasoma, dorsal view.

mixed wood of *Pinus nigra* J.F. Arnold subsp. *laricio* Maire and *Fagus sylvatica* Linnaeus with glades covered with *Pteridium aquilinum* (Linnaeus) Kuhn.

Taxonomic remarks. This species belongs to the *Cleptes nitidulus*-group, as defined and revised by MÓCZÁR (1997, 1998), including a total of 25 species. This species group is characterized mainly by: 1) pronotum not modifed, without grooves and with posterior margin weakly grooved without row of coarse foveae along transcutal margin; 2) basal segments of metasoma reddish or yellowish and distal ones blackish (see Figs. 1, 3) or metallic. Among the Palaearctic *Cleptes*, this species is easily recognizable for the shape and sculpture of pronotum, as well as for colour pattern of the body (Figs. 1-3) and the shape of genital capsule of the male (see MINGO, 1994 and MÓCZÁR, 1997 for further details).

Cleptes pallipes Lepeletier, 1806 (Figs. 4-8)

Cleptes pallipes Lepeletier, 1806: 119 (Locus typicus: France, environs de Paris).

Material examined. 1♂, Sicily: Etna Volcano, province of Catania, Sant'Alfio, Monti Sartorius, m 1720 a.s.l., 5.VII.2009; 1♂, 7.VII.1995; 1♂, 1♀, 23.VIII.1995; 1♂, 21.VIII.1996 (G.F. Turrisi leg.).

Distribution. The distribution of this species has been better defined by MÓCZÁR (2001) on the basis of very abundant material. It is widespread in the Eurasia, western to Urali mountains. There are also two records for the U.S.A. (Nearctic) and Sumatra (Oriental); it is reasonable to assume that these occurrences derive from anthropogenic introductions. Records for Europe: Sweden, Finland, France, Luxembourg, The Netherland, Germany, Poland, Czech Republic, Slovakia, Hungary, Bulgaria, Rumania, Serbia, Bosnia-Herzegovina, Austria, Switzerland, Spain, Italy, Greece, Asia: Turkey, Armenia, Ukraine (Carpathian region) (BUYSSON, 1891-96; BERLAND & BERNARD, 1938; KIMSEY & BOHART, 1991; MINGO, 1994; MÓCZÁR, 2001; SOON, 2004; KOWALCZYK & KURZAC, 2005; KOWALCZYK & NADOLSKI, 2007).

Biology. Poorly known. Only one probable host is indicated: *Pristiphora* (*Lygaeonematus*) *abietina* (Christ, 1791) (Tenthredinidae) (MÓCZÁR, 2001); BERLAND & BERNARD (1938) indicated two other probable hosts (both Tenthredinidae), but they referred to both *C. semiauratus* and *C. pallipes* mixed up, the latter considered as a variety of the former. Thus, it is not possible to ascertain those tenthredinids as hosts of *C. pallipes*. The phenology of this species extends mainly from June to July, with a few records in May and August-September (MÓCZÁR, 2001; SOON, 2004), and one interesting finding in March (ROSA, 2005).

Faunistic remarks. First record for Sicily. In Italy this species is very rare and has previously been recorded for only a few northern and central regions:

Fig. 4

Fig. 5

Fig. 6

Fig. 8

Fig. 7

Figs. 4-8 — Cleptes pallipes Lepeletier, 1806, Italy, Sicily, Etna Volcano. 4, habitus; 5, head and mesosoma, dorsal view; 6, wings; 7, metasoma, dorsal view; 8, genital capsule of male, dorsal view.

Piedmont, Valle d'Aosta, Lombardy, Trentino Alto-Adige and Abruzzo (MÓCZÁR, 2001; ROSA, 2005; AGNOLI & ROSA, 2009). The southernmost locality is in central Italy, Abruzzo, Cerchio (L'Aquila) (STRUMIA, 2005), thus the record for Sicily significantly shifts to south the known Italian distribution. This species, in Sicily, is probably limited to only high altitude. The habitat of findings is a wood of *Betula aetnensis* Rafinesque with wide glades covered with *Astragalus siculus* Bivona and *Tanacetum siculum* (Gussone) Strobl.

Taxonomic remarks. This species belongs to the *Cleptes semiauratus*-group, as defined by MÓCZÁR (1998) and revised by MÓCZÁR (2001), including a total of 11 species. This species group is characterized mainly by: 1) pronotum with a transverse groove along anterior margin and a groove along transcutal margin having a row of coarse foveae, but without complete medial longitudinal groove, as present e.g. in *C. aerosus* Förster, 1853; 2) basal segments of metasoma reddish orange and distal ones blackish with a metallic hue (Figs. 4-7). It is most similar to *C. semiauratus* (Linnaeus, 1761) having a nearly all overlapped distribution and not seldom they have been misidentified (e.g., MÓCZÁR, 2001; ROSA, 2005). Solid diagnostic features are the morphology of the genital capsule (Fig. 8), mainly the shape of parameres and the inner tooth - like process. The last visible tergite has a metallic greenish-bluish reflections (Fig. 7) (very weak and mostly absent in *C. semiauratus*). Moreover, the female has the fourth antennomere and the legs yellowish orange or pale yellowish brown. Other characters include the sculpture of mesopleuron having foveae (absent in *C. semiauratus*) and the colour pattern of head and mesosoma (see also BUYSSON, 1891-96; MINGO, 1994; for further details MÓCZÁR, 2001).

CONCLUDING REMARKS

Taking into account the new findings, the genus *Cleptes*, in Sicily, includes now six species. Previous records are referred to the following species (known records in brackets): *C. aerosus* Förster, 1853 (Madonie: province of Palermo, Vallone di Zottafonda, m 1600 a.s.l., 26.VI and 6.VII.1997: ARNONE & ROMANO, 1998); *C. putoni* Buysson, 1886 (= *C. saussurei* Mocsáry, 1889 according to the synonymy established by MÓCZÁR, 1998) (Palermo: Villa Alliata, 3.VI.1967: ARNONE & ROMANO, 1998); *C. semiauratus* (Linnaeus, 1761) (Madonie: province of Palermo, Castelbuono, Liccia, VI.1999: P. Rosa 2009 *in litteris*; this species has been previously reported for Sicily by AGNOLI & ROSA, 2009 without further specifications); *C. splendidus* (Fabricius, 1794) (Iblei: province of Siracusa, Noto, VI.1887: DE STEFANI PEREZ, 1888a; also recorded for Sicily without further indications by DE STEFANI PEREZ, 1888c, 1895; Etna: province of Catania, Nicolosi, loc. Bat-

tiati, 1999, m 1600 a.s.l.: STRUMIA, 2005; also recorded for Sicily by STRUMIA, 1995, 2001).

During the field researches, it has not been possible to obtain data on the biology of the collected species, excluding the features of habitat, nor on possible hosts. As with many other *Cleptes*, the known hosts of the species represented in Sicily, as far as is known, belong to Tenthredinidae and namely to the subfamilies Blennocampinae and Nematinae. These subfamilies are very rich in species in north and central Europe, whereas become scarce and scattered in the Mediterranean basin. Recent investigations on Sicilian "Symphyta" (PESARINI & TURRISI, 2001, 2003; TURRISI, in press) put in evidence that the two above mentioned subfamilies include only 13 species, of which 8 Blennocampinae and 5 Nematinae. The latter subfamily, includes species living mainly in mountains at moderately high to high altitude. It would be interesting to carry out further investigations in the localities of the new findings, placed in the south and north-eastern parts of Etna Volcano, in order to ascertain the possible host-preferences of the two newly recorded *Cleptes*.

Acknowledgements — I am grateful to Paolo Rosa (Bernareggio, Milan) for providing me the data of his personal collection and for the critical revision of the manuscript.

BIBLIOGRAPHY

AGNOLI L. & ROSA P., 2009 — Database dei Chrysididae italiani. — In: Agnoli L. & Rosa P. (eds.), Chrysis.net web site, interim version 09 - Apr - 2009. URL: http://www.chrysis.net/database/db_it.php. [accessed 28 June 2009].

ARNONE M. & ROMANO M., 1995 — Hymenoptera Chrysididae. Pp. 777-783 in: Massa B. (ed.), Arthropoda di Lampedusa, Linosa e Pantelleria (Canale di Sicilia, Mar Mediterraneo). — *Naturalista sicil.*, 19 (suppl.).

ARNONE M. & ROMANO M., 1998 — Nuovi reperti di Chrysididae e Mutillidae in Sicilia e Sardegna. — *Naturalista sicil.*, 22: 19-24.

BERLAND L. & BERNARD F., 1938 — Hyménoptères Vespiformes. III (Cleptidae, Chrysidae, Trigonalidae). — Faune de France, 34. *Paul Lechevalier*, Paris, 146 pp.

BUYSSON (DU) R., 1891-96 — Le Chrysides. In: André E. (ed.), Species des Hyménoptères d'Europe & d'Algerie. 6. — *Gray Boffaut Frères*: 1-758 and 1-22 + 32 tabs.

DE STEFANI PEREZ T., 1888a — Note sulle Crisidi di Sicilia. — *Naturalista sicil.*, 7: 88-95; 114-125.

DE STEFANI PEREZ T., 1888b — Note sulle Crisidi della Sicilia. — *Naturalista sicil.*, 7: 139-144; 156-161; 177-182.

DE STEFANI PEREZ T., 1888c — Note sulle Crisidi della Sicilia. — *Naturalista sicil.*, 7: 215-224; 237-244; 273-291.

DE STEFANI PEREZ T., 1895 — Catalogo degli Imenotteri di Sicilia. — *Naturalista sicil.*, 14: 169-182.

HADLEY A., 2008 — Combine ZM. Http://www.hadleyweb.pwp.blueyonder.co.uk/ [accessed 12 December 2008].

KOWALCZYK K. & KURZAC T., 2005 — Aculeata (Hymenoptera) of the Botanical Garden in Łódź. — *Biuletyn Ogrodow Botanicznych*, 14: 101-113 [in Polish, with English summary].

KOWALCZYK J.K. & NADOLSKI J., 2007 — Aculeata (Hymenoptera) of railway areas in Łódź. — *Wiadow. entomol.*, 26: 279-288 [in Polish, with English summary].

INVREA F., 1933 — Crisidi e Cleptidi della Sila raccolti da A. Dodero. — *Boll. Soc. entomol. ital.*, 65: 197-201.

INVREA F., 1957 — Nota preliminare sui Mutillidi e Crisidi dell'Isola di Lampedusa (Hymenoptera). — *Boll. Soc. entomol. ital.*, 87: 14-17.

INVREA F., 1960 — Chrysididae. In: Zavattari E. (ed.), Biogeografia delle Isole Pelagie. Fauna. — *Rendiconti Accad. nazionale XL*, serie 4, 11: 366.

LAMPRECHT H., 1881 — Die Goldwespen Deutschlands. — *Beitr. Osterprogramm Herzoglichen Francisceums Zerbst*: 27 pp.

LINSENMAIER W., 1997 — Altes und Neues von den Chrysididen (Hymenoptera, Chrysididae). — *Entomofauna*, 18: 245-299.

MANDERY K., 2002 — Faunenliste der Bienen und Wespen Bayerns mit Angaben zur Verbreitung und Bestandssituation (Hymenoptera: Aculeata). — *Beitr. bayerischen Entomofaunistik*, 5: 1-39.

MINGO E., 1994 — Hymenoptera Chrysididae. In: Ramos M.A. (eds.), *Fauna Iberica*, vol. 6. — Museo Nacional de Ciencias Naturales. *CSCI*, Madrid, 255 pp.

MÓCZÁR L., 1997 — Revision of the *Cleptes nitidulus* group of the world (Hymenoptera, Chrysididae, Cleptinae). — *Entomofauna*, 18: 25-44.

MÓCZÁR L., 1998 — Revision of the Cleptinae of the World. Genus *Cleptes* subgenera and species group (Hymenoptera, Chrysididae). — *Entomofauna*, 19: 501-516.

MÓCZÁR L., 2001 — World revision of the *Cleptes semiauratus* group (Hymenoptera, Chrysididae, Cleptinae). — *Linzer biol. Beitr.*, 33: 905-931.

MORGAN D., 1984 — Cuckoo-Wasps. (Hymenoptera, Chrysididae). — *Handbooks for the Identification of British Insects*, 6 (5): 1-37.

PESARINI F. & TURRISI G.F., 2001 — Contributo alla conoscenza dei Sinfiti di Sicilia (Hymenoptera Symphyta). — *Mem. Soc. entomol. ital.*, 80: 183-221.

PESARINI F. & TURRISI G.F., 2003 — Studies on *Periclista* Konow, 1886, with description of two new species from Italy (Hymenoptera, Symphyta, Tenthredinidae, Blennocampinae). — *Ann. Mus. civ. Stor. nat. Ferrara*, 5 (2002): 105-117.

ROSA P., 2003 — Nuovi reperti di crisidi per l'Italia, con note tassonomiche (Hymenoptera, Chrysididae). — *Giornale ital. Entomol.*, 51: 301-313.

ROSA P., 2005 — La collezione di Crisidi (Hymenoptera, Chrysididae) del Museo Civico di Storia Naturale di Milano. — *Natura*, 94 (2): 1-128.

SCHNEIDER N., 1992 — Clin d'oeil aux Vespiformes vivant à deux pas de l'échangeur du Val de Hamm (Hymenoptera, Aculeata). — *Bull. Soc. Naturaliste luxembourgeois*, 93: 173-180.

SOON V., 2004 — Eesti kuldherilased (Hymenoptera, Apocrita, Chrysididae) [The gold-wasps (Hymenoptera, Apocrita, Chrysididae) of Estonia]. — Thesis, *University of Tartu*. Available online as pdf file at the web site: http://dspace.utlib.ee/xmlui/: 81 pp. [in Estonian with English summary].

STRUMIA F., 1995 — Hymenoptera Chrysididae. In: Minelli A., Ruffo S. & La Posta S. (eds.), Checklist delle specie della fauna italiana, 99. — *Calderini*, Bologna: 1-10.

STRUMIA F., 2001 — Hymenoptera Chrysididae (pp. 88-92). In: Stoch F. & Zoia S. (eds.), Aggiornamenti alla Checklist delle specie della fauna italiana. IV Contributo. — *Boll. Soc. entomol. ital.*, 133: 85-92.

STRUMIA F., 2003 — New and rare *Hedychridium* species from Italy and Mediterranean islands (Hymenoptera, Chrysididae). — *Italian J. Zool.*, 70: 191-198.

STRUMIA F., 2005 — Hymenoptera Chrysididae. In: Ruffo S., & Stoch F. (eds.), Checklist e distribuzione della fauna italiana. 10.000 specie terrestri e della acque interne. — *Mem. Mus. civ. Stor. nat. Verona*, serie 2, sezione Scienze della Vita, 16: 269-270 + CD-ROM.

TURRISI G.F., in press — Diversity and biogeographical remarks on "Symphyta" of Sicily (Hymenoptera). — *Biogeographia*.

Address of the author — G.F. TURRISI, Università di Catania, Dipartimento di Biologia Animale "Marcello La Greca", via Androne, 81 - 95124 Catania (I); e-mail: turrisifabrizio@yahoo.it