

Franco STRUMIA*

Lectotype designation of
Hedychridium virescens Buysson, 1908,
male description of
Cleptes juengeri Linsenmaier, 1994
and of the female of *C. triestensis* Moczar, 2000
(Hymenoptera, Chrysididae)**

ABSTRACT

The male of *Cleptes juengeri* Linsenmaier, 1994, from Spain, and the female of *Cleptes triestensis* Moczar, 2000, from Italy and Corsica, are described for the first time. Populations of *C. triestensis*, a species previously known through a single individual caught in 1915 near Trieste, were recently found in the "Parco Regionale della Maremma" (Tuscany), in Corsica and Northern Sardinia. The presence of *Cleptes nigrinus* in Italy is confirmed and the presence of *Cleptes putoni* in Central Italy, Sicily, Sardinia and Spain is demonstrated. An interesting chimacra of *C. triestensis* is described.

The two original specimens described as *Hedychridium aheneum* Dahlbom, 1854 var. *virescens* by Buysson in 1908 and now in the Muséum National d'Histoire Naturelle (Paris) collection are studied. One results to be a female individual of the South Palearctic species *H. amatum* Nurse, 1904 (= *H. zimmermanni* Balthasar, 1953), the second, a female, is a self-standing species and is designated as the lectotype of *Hedychridium virescens* Buysson, 1908.

Key words: Hymenoptera Chrysididae, *Cleptes*, *Hedychridium*, zoogeography, Italy, Sicily, Sardinia, Corsica, Spain.

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INTRODUCTION

The Cleptinae, a subfamily of Hymenoptera Chrysididae includes species usually difficult to collect by netting. More *Cleptes* individuals can be caught by using Malaise or Pan traps. By using Malaise a traps new individuals of two poorly known species, *Cleptes triestensis* Moczar, 2000 and *Cleptes juengeri* Linsenmaier, 1994, could recently be collected. The knowledge of their geonemy is improved and the female and the male individuals respectively are described for the first time. In particular populations of *C. triestensis*, previously known by one male individual found in 1915 near Trieste, were found in the "Parco Regionale della Maremma" (Tuscany), in Corsica and in Northern Sardinia.

The *C. triestensis* male body color is mostly metallic blue, quite different from the female (mostly flame red) and the male and female combination is confirmed by the study of an interesting chimera from Corsica (shown in fig. 3)

The following abbreviations are used: F=flagellomere; IOA=interocellar angle between the middle ocellus and the lateral ones; IOD=interocellar distance measured between lateral ocelli; MOD=midocellus diameter; OOD=ocellocular distance measured from lateral ocellus to compound eye; P=pedicel; PD=puncture diameter; PS=punctures separation; S=gastral sternum; T=gastral tergum; Te=tegulae; m=male individual; f=female individual; MSNG= museo di storia naturale, Genova. The tegumental sculpture is taxonomically important in family Chrysididae. Here the following terms are used: the tegumental sculpture is described as "reticulate" when the punctures are touching so that points cannot be round but appear polygonal; "close" is a sculpture with $PS/PD \leq 0.5$ in average; "sparse" when $0.5 < PS/PD \leq 2.0$; "smooth" when $PS/PD > 2.0$. The punctures are "simple" when of about the same size, "double" when there is a clear mixture of two different sizes and the PD of the smaller is less than 1/2 that of larger. The punctures are named "uniform" when they have approximately the same size all over a given anatomical part, on the contrary are "uneven" when the size changes smoothly.

Cleptes juengeri Linsenmaier, 1994: male description

Material studied 4 males and 3 females from Spain:

1. Viana de Cega (Valladolid) (Malaise Trap 41°31'N-4°45'W, 690 m. a.s.l.): 1m 30-IV/26-V-1994;
2. Aldealengua (Salamanca) (Pan Trap 40°58',5N-5°32'W, 780 m. a.s.l.): 1m 19-VI-2001;
3. Ambasaguas, Villarino de los Aires (Salamanca) (Pan Trap, 41°17',5 N-6°28',8W, 350 m. a.s.l.): 1m 11-V-2002, 1m 25-V-2002, 2ff 26-VI-2000, 1f 1-VII-2001.

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This interesting species was recently described on female specimens found in June and July 1994 near Soria (Spain) in the Duero valley (Linsenmaier 1994). During the 1993/4 seasons a Malaise trap was operated near Viana de Cega (Valladolid) by S. Gayubo and collaborators, and a single male individual of *C. juengeri* was collected (Gonzalez *et al.* 2003, in press). More recently Gayubo and Strumia found a second male individual in a yellow Pan trap placed on a sandy bank along the Tormes River near Aldealengua (Salamanca) and J. A. Gonzalez found 2 males and 3 females of *C. juengeri* among the Hymenoptera collected by yellow Pan traps located at Ambasaguas in the «Parque Natural de Arribes del Duero». All male individuals are equal in body color (Fig. 1), very close to that of the *juengeri* female, but quite different from that of *Cleptes aerosus* Förster, 1853, the only other known Spanish species close to *juengeri* (Moczar, 1997).

Males of *Cleptes juengeri* have head, scape, thorax, tegulae and the legs external side evenly metallic flame red in color, pedicel, flagellum and abdomen black with some dark green faint shining on abdomen (Fig. 1). The punctuation on T-I, T-II, T-III and T-IV is strong, uniform and close to sparse, and the body length: 6.5, 6.8, 6.6 and 6.5 mm respectively for Aldealengua, Viana and Ambasaguas individuals is nearly equal to that of the Ambasaguas females (6.4, 6.2 and 6.5 mm respectively). The sexual dimorphism is small, the females being similar in color but with the middle and hind coxae and the hind femora black in color.

The male genital capsule is shown in dorsal and ventral view in Fig. 2 and is quite different from that of *Cleptes aerosus* (see figs. 15 and 16 in Moczar, 1951). This result confirms the recent Moczar's proposal (Moczar 1997) to place *juengeri* in a separate species-group. The new findings widen the *juengeri* westward distribution, yet remaining a species endemic of the Spain North-Submeseta.

Cleptes triestensis Moczar, 2000: female description

Material studied 1 male and 9 females from Tuscany, 8 females and 1 chimaera from Corsica, 1 female from Sardinia:

1. Parco Regionale della Maremma (Grosseto), località Paduletto, (Malaise Trap 42°38,44'N-11°04,42'E): 1m 3ff 14/29-V-2002; 3ff 29-V/14-VI-2002; 3ff 14/29-VI-2002;
2. Castirla, near Golo River (Corsica), 320m. a. s. l., (Malaise Trap 42°22,91'N-9.09.08'E): 1f 27-V/11-VI-1999, 1f 11/30-VI-1999, 1f 22-V/9-VI-2000, 1f 27-V/7-VI-2001, 2f 7/17-VI-2001, 1f 3-VI/3-VII/2002, 1 chimera 17-V/5-VI-2002;
3. Cuttoli (Corsica) (Malaise Trap 41°57,84'N-8°50,83'E, 165 m. a.s.l.): 1f 15-VI/1-VII-2001;
4. Luras (SS) Sardinia (Malaise Trap 40°56,84'N-9°09,65'E, 530 m. a.s.l.): 1 f 24-VI/7-VII-2002.

C. triestensis was recently described by Moczar (2000) on a single male individual from Nabresina (Trieste), an old specimen (September 1915) previously assigned to *C. nigrinus* by Mocsary. In fact *triestensis* is a species similar to *nigrinus* but can be distinguished by several characters, the most easy being: propodeal posterior angles rectangular without a small spines pointing outwards, clypeus and metanotum not transverse but as long as large, pits close to hind ocelli as large as ocelli (Fig. 1).

On spring 2002, a Malaise trap set at «Paduleto» in the «Parco Regionale della Maremma» (Tuscany) captured 1 male and 9 females of a *Cleptes* close to *nigrinus*. The trap operated up to October but no additional individuals were caught. Thus the species appears to be active on spring possibly also before June. The presence of a male individual allows to identify the specimens as *triestensis*, while the females proved to be identical to 8 females found among the *Cleptes* individuals captured by two Malaise traps operating in Corsica in 1999 to 2002 years and to 1 female captured also with a Malaise trap operating in 2001 in Sardinia.

Our male match very well the *triestensis* description as in Moczar 2000 and its assignment is sound. The body length (6,5 mm) is larger than in females.

The sexual dimorphism is striking as in *C. nigrinus* (the male head and thorax are mainly blue-violet in the males and red in females) and also the females found within the malaise trap show the same main color differences (Fig. 1). Nevertheless their identification as the female of *triestensis* is strongly supported by the presence of same body characters

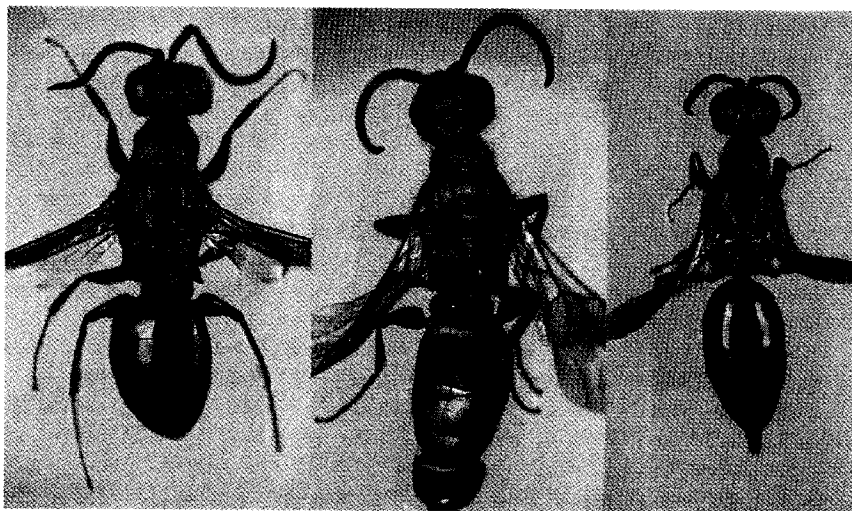


Fig. 1 - From left to right: male of *Cleptes juengeri* (from Aldealengua, Salamanca), male and female of *Cleptes triestensis* (from «Parco Regionale della Maremma.» (Toscana)).

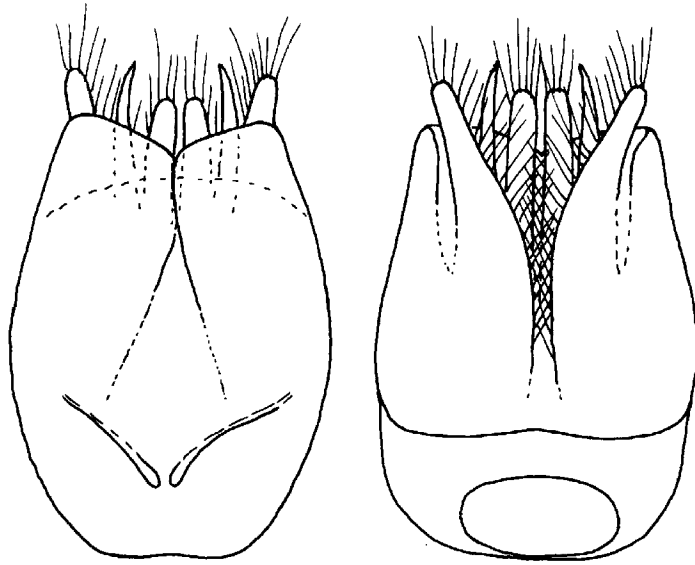


Fig. 2 - Male genital capsule of *Cleptes juengeri* (from Viana, Spain): left dorsal view, right ventral view. Height 1,0 mm.

as in male, namely: propodeal posterior angles rectangular without a small spines pointing outwards, clypeus and metanotum not transverse but as long as large, pits close to hind ocelli as large as ocelli and connected by a groove.

Female description: head, pronotum, mesonotum, scutellum, metanotum, propleuron and mesopleuron flame red, tegulae dark violet to black, Frons from the face upper half to the hind ocelli red-violet with a variable blue shining, clypeus black about as large as long. Malar space $MS=1,9-2,1$ MOD, longer than in *nigritus*. Propodeum mostly green to green-gold with a central black spot close to metanotum and variable in size, fore femora metallic red on the external side, middle and hind femora mostly black with some green shining, fore tibiae pale brown, middle and hind tibiae brown, tarsi pale brown darker distally. Antennae: scape black, P basally black becoming dark brown distally, F-I dark brown, flagellum from F-II on black, P shorter than in *nigritus*, $L/W=1,8$, $F-I\ l/w=2,0$, flagellomeres from F-II on $L/W<1$.

Punctures on pronotum sparse, uniform and strong $PD=0,4-0,5$ MOD, on mesonotum, scutellum and metanotum smooth and smaller $PD=0,2$ MOD. Pronotum bulging and similar in shape to *nigritus*. Pubescence on

dorsal side of head and of thorax dark, on ventral side white. Abdomen: T-I, T-II and T-III pale brown, a black spots laterally and distally on T-III, T-IV black, T-I nearly unpunctuated.

The average body length of females is 5,46 mm (standard deviation 0,26 mm), smaller than that of the male (7,00 mm).

The Moczar 2000 identification key for the *satoi*-group of species is to be completed by introducing the following couplet before the n. 18:

17' – Malar space long (MS=2,0 MOD), clypeus as large as long, T-II evenly pale brown without dark spots	<i>triestensis</i>
– Malar space shorter (MS=1,4 MOD), clypeus larger than long, T-II usually with postero-lateral dark brown spots	18

The presence among the individuals found in Corsica of an extraordinary chimaera (Fig. 3), with a mixture of male and female parts,



Fig. 3 - Chimaera of *Cleptes triestensis* from Castirla (Corsica) in dorsal view.

proves without a doubt the presence of a single species. The chimaera has the head red (female), with a few blue spots on the face (male); pronotum, mesonotum and scutellum mixed red (f) and blue (m): left lateral part of mesonotum with axilla and part of scutellum blue (m); mesonotum central and right lateral part with axilla, largest part of scutellum and metanotum red (f). The tegulae are metallic blue (m); the left mesopleuron is red (f), while the right one is mostly blue (m). The fore femora are metallic red externally (f), the middle non-metallic black (f), while the hind femora are metallic blue externally (m). The abdomen has 4 tergal and 4 sternal segments as in female, followed by a female ovipositor is terminated by an almost completely developed male genital capsule. This capsule is developed enough to be identified as that of *C. triestensis*.

***Cleptes putoni* Buysson, 1886**

(= *saussurei* Mocsary, 1889; = *buyssoni* Semenov, 1892)

Material studied:

1. Marano sul Panaro, Malaise trap, 4 m, 1-15 VI 2001 l. 300 m.a.s.l.; l. Cazzuoli.
2. 1 f Ozein (Aosta). 1350 m.a.s.l, 19 VIII 1999, l. Rosa;
3. 1 m Bagni di Vinadio (CN), 1400 m.a.s.l., 14 VIII 1988.l. Pagliano;
4. 1 m S. Benedetto Belbo (CN) 15/22 VII 1977, l. Pagliano;
5. 1 f Galati Mamertino, «Parco dei Nebrodi (MS, Sicily)», 16/30 VII 2002, Malaise trap 38°01,36'N-14°47,48'E, mt. 956. a.s.l.; l. Strumia
6. 1 m Santa Coloma (Andorra) m.1050 a.s.l., Malaise trap, (Gayubo 2002),VIII 1996, l. Gayubo
7. 1 m Salto de Aldeila (Salamanca), 20 VI 1996, «Arribes del Duero», l. Gayubo
8. Castel di Sangro, 1908, in MSNG: 1 m, VIII 1908. l. D. Paganetti
9. Gubbio:1 f, 2 VII 1891, in MSNG: l, l. P. Bensa.
10. Tenda, in MSNG: 1 f. 20 VIII, l. Dodero
11. Arquata Scrivia, in MSNG: 2 f14 VIII 1921, l. Invrea
12. Trieste, in MSNG: 2 f 9 VII 1896, l. Ducke
13. Susa (TO): 1 m, in MSNG:12 VI 1869
14. Luras (SS) Sardinia (Malaise Trap 40.56,84'N-9.09,65'E, 530 m. a.s.l.); 2 ff 10/24-VI 200, l. Strumia
15. Palermo, Villa Alliata, 1 f, 3 VI 1967 (Museo di Terrasini) M. Arnone, M. Romano, 1998

Moczar (1998) recently reviewed the taxonomic status of *C. putoni*. He found that the Holotypus is probably lost (a male from Sisteron (Basses Alpes France) and designed a Neotypus (a male individual from Gréouls (FRANCE), in Paris Museum) and established the synonymy of *C. putoni* with *C. saussurei* Mocsary 1889, a species from

Southwestern Russia and Western Europe. According to Moczar (1998) the known geonomy of *C. putoni* ranges from Sarepta (Russia) (Mocsary, 1889), Jordan (Zerkatal), to Montenegro (Jugoslavia), Switzerland, Hungary (Budapest), Austria (Hochwald, Neusiedlersee), France (Basses Alpes, Menton, Sisteron), Slovenia (Krapina). *C. putoni* appears as a species restricted to mountainous regions. The new findings confirm its presence in Sicily and extend the geonomy to the mountains of Central Italy, Sardinia, Spain (Pyrenees, Andorra, and Northern Submeseta).

***Hedychridium virescens* Buysson, 1908, lectotype designation**

In 1908 Buysson described *Hedychridium virescens* from Egypt as a color variety of *Hedychridium aheneum* Dahlbom, 1854. The original description is very short and ineffective for a correct taxon identification: «Var. *virescens* Var. Nov. – Semblable au type mais entièrement vert-sombre, parfois avec quelques reflets violets. Mâle et femelle. Long. 4 - 5 mm. Le Caire, El Marg (Ezbet El Nahl) avril, mai (E. Chakour, W. Innes bey)».

Following authors, Trautmann 1927, p. 57 and Balthasar 1953, p. 141, simply reproduced Buysson's description. Linsenmaier (1959) described as *virescens* a different species but in 1968 acknowledged his fault and gave a more detailed description of the supposed true *H. virescens*, he considered as a valid species close to *Hedychridium zimmermanni* Balthasar (1953) and Kimsey and Bohart (1990) were not able to study the original specimens and considered *virescens* as a junior synonym of *H. aheneum*. Strumia (1999) found that *H. zimmermanni* is a junior synonym of *Hedychridium amatum* Nurse, 1904, a South-Palearctic species belonging to the Linsenmaier's *incrassatum* group and distributed over a very large area ranging from Algeria, Mauritania, Egypt, Palestine, Greece up to West-India, Northern Yemen and Oman.

Thanks to cooperation of Dr Villemant of Muséum National d'Histoire Naturelle (Paris), I could study the two original individuals of *virescens* still present in the Buysson's collection in the Paris Museum. They are female individuals labeled respectively: 1- «Museum Paris/ Egypte, Marg / W. Innes 190?»; 2- «Marg / avril»; 3- «20; *H. aheneum* Dahlb. / var. *virescens* Buyss. / R. Du Buysson det. 190?»; and: 1- «Museum Paris / Egypte, Marg / W. Innes 190?»; 2- «Marg / mai»; 3- «56» (the year on all labels is probably 1901 or 1907).

The first individual results to be a valid species and thus is here designated as the lectotype of *H. virescens* Buysson. The specimen is in good condition but lacks of pedicel and flagellum of right antenna.

The second specimens, that lacks of both antennae, is, on the contrary, a female of the previously described *Hedychridium amatum* Nurse, 1904, of which I studied the holotype and established the synonymy with *H. zimmermanni* Balthasar, 1953 (Strumia 1999).

H. virescens is close to *amatum* (a species quite variable in the body color) but can be easily identified by the much longer clypeus and the lateral propodeal angles more blunt, short and not bent to point backward as in *amatum*, as shown in Fig. 4.

H. virescens lectotype is green in color with a pink-red spot on the mesonotum central part, a blue-green pronotum and a pink-red large spot on the anterior central part of T-II; a large metallic green central spot on the non metallic brown S-II, S-III; tegulae faint metallic blue, pedicel non metallic, flagellum brown, body pubescence white, tarsi testaceous, IOA larger than 90° . Wings clear with brown veins; median vein M bent; RS = 0.9 times the stigma length; Cu sclerotized but not tubular; posterior wing with 8 hamuli. Body length 4,9 mm.

W. Linsenmaier in his recent (1999) revision of the Chrysididae from North Africa gives a useful identification key for the *Hedychridium* of the *incrassatum* group. It is only worth to note that not all *amatum* males have a metallic spot on S-III and thus the first couplet in the Linsenmaier's key is wrong in such case.

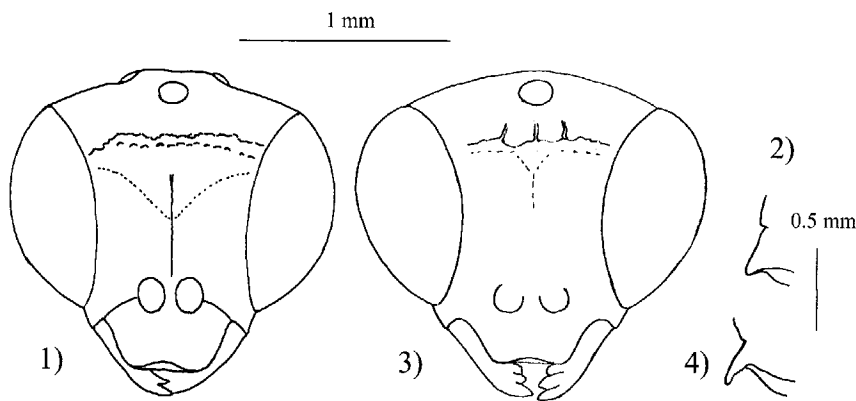


Fig. 4 - *Hedychridium virescens*, lectotype female: 1- head front view; 2- propodeal angle in top view. *Hedychridium amatum*: 3- head front view; 4- propodeal angle in top view.

CONCLUSIONS

The study of the Cleptinae can be improved by the use of traps (Malaise and Pans) particularly efficient in collecting such specimens. The «Parco Regionale della Maremma» appears to hosts the only known population of *C. triestensis*. The supposed old specimen of *Cleptes nigrinus* from Trieste turned out to be the new species (*Cleptes triestensis*, Moczar 2000) and Moczar reported no Italian localities for *C. nigrinus*. However *C. nigrinus* belong to the Italian fauna since I have studied a male individual found in Calabria by G. Pagliano in 1987 (Colle del Dragone, m. 1600, Cosenza) (Strumia, 2002). The presence of *Cleptes triestensis* is confirmed for Tuscany: «Parco Regionale della Maremma» (GR), and for the Corso-Sardinian block (Gallura and Northern Corsica).

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RIASSUNTO

Designazione del Lectotipo di *Hedychridium virescens* Buysson, 1908 e descrizione del maschio di *Cleptes juengeri* Linsenmaier, 1994 e della femmina di *Cleptes triestensis* Moczar, 2000 (Hymenoptera: Chrysididae).

Sono stati studiati gli esemplari utilizzati da Buysson per la descrizione di *Hedychridium aheneum* Dahlbom, 1854 var. *virescens* Buysson, 1908 (Hymenoptera: Chrysididae) ed attualmente conservati nella collezione del Muséum National d'Histoire Naturelle (Paris). Dei due esemplari uno è risultato essere una femmina della specie *H. amatum* Nurse, 1904 (= *H. zimmermanni* Balthasar, 1953), il secondo esemplare, anch'esso femminile, viene designato come lectotipo di *H. virescens* Buysson, che risulta essere una buona specie. Vengono inoltre descritti il maschio di *Cleptes juengeri* Linsenmaier, 1994 e la femmina di *Cleptes triestensis* Moczar, 2000. *C. triestensis* è stata recentemente descritta in base ad un unico esemplare catturato presso Trieste nel 1915 ed i 10 individui raccolti nella primavera del 2002 dimostrano che una buona popolazione di questa rara specie è presente nel «Parco Regionale della Maremma.» (Toscana).

Parole chiave: Hymenoptera Chrysididae, Cleptes, Hedychridium, zoogeografia, Italia, Sicilia, Sardegna, Corsica, Spagna.

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