

Lectotype designation and redescription of *Bathysciola destefanii* (Ragusa, 1881) (Coleoptera, Cholevidae) from Sicily (Italy)

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ABSTRACT

Bathysciola destefanii (Ragusa, 1881) was originally described as *Adelops destefanii* on the basis of four females collected by Enrico Ragusa in Navurra, near Altavilla (Palermo Province). Only a sketch of the habitus and left antenna were reported in the original description; later on R. Jeannel in his "Revision des Bathysciinae" gave a short description of the species and provided the drawing of the internal sac of the aedeagus; in the "Monographie des Bathysciinae", the same Author reported the drawing of the apex of the paramer. In this paper *Bathysciola destefanii* is redescribed based on the four typical specimens and new specimens collected in other localities in Western Sicily. Pictures of the diagnostic features are provided and the lectotype and paralectotypes are designated.

Key words: Taxonomy, Cholevidae, Leptodirinae, *Bathysciola*, lectotype, paralectotypes, Italy, Sicily.

RIASSUNTO

Designazione del lectotipo e ridecrizione di *Bathysciola destefanii* (Ragusa, 1881) (Coleoptera, Cholevidae) della Sicilia (Italia).

Bathysciola destefanii (Ragusa, 1881) è stata descritta, come *Adelops destefanii*, sulla base di quattro esemplari femmine raccolte da Enrico Ragusa alla Navurra, vicino Altavilla (Palermo). Nella descrizione originale vengono riportati solo dei disegni schematici dell'habitus e dell'antenna sinistra. In seguito R. Jeannel, nella sua "Revision des Bathysciinae" riporta una breve descrizione della specie e illustra il sacco interno dell'edeago e, nella "Monographie des Bathysciinae" riporta il disegno dell'apice del paramero. In questo lavoro *Bathysciola destefanii* viene ridecritta sulla base dei quattro esemplari tipici e altri individui raccolti in diverse località della Sicilia occidentale. Sono riportate le foto dei caratteri diagnostici e designati il lectotipo e i paralectotipi.

Key words: Tassonomia, Cholevidae, Leprodrinae, *Bathysciola*, lectotipo, paralectotipi, Italia, Sicilia.

INTRODUCTION

Bathysciola destefanii (Ragusa, 1881) was originally described by Enrico Ragusa as *Adelops destefanii*. This Author described the new species based on four females collected in Palermo Province (Sicily). In the original description only a sketch of the habitus and left antenna were reported but no illustration of the aedeagus or other features were given (Ragusa, 1881).

In 1884, Sylvain Auguste de Marseul ascribed the new species to the genus *Bathyscia* (Schiødte, 1847) (de Marseul, 1884) and Edmund Reitter considered it to be synonym of *Bathyscia muscorum* (Dieck, 1869) (Reitter, 1884). In 1904, Agostino Dodero reinstalled *Bathyscia destefanii* as valid species (Dodero, 1904).

In 1910, René Jeannel definitely included this species in the new genus *Bathysciola* (Jeannel, 1910).

In his "Revision des Bathysciinae" R. Jeannel gave a short description of the species and the drawing of the internal sac of the aedeagus (Jeannel, 1911). In the "Monographie des Bathysciinae" he reported the drawing of the apex of the paramer (Jeannel, 1924).

Aedeagus, spermateca, mestasternal keel and other

important traits of *B. destefanii* have never before been described and illustrated. In this paper this species is redescribed and the pictures of the habitus and diagnostic features are reported for the first time.

In the original description no holotype or paratypes was designated by the author, so in this paper a lectotype and paralectotypes were designated from the four original specimens collected in the typical locality by Ragusa.

Bathysciola (*s. str.*) *destefanii* (Ragusa, 1881)

Adelops Destefanii Ragusa, 1881, Nat. Sicil., 1 (1): 6.
Bathyscia (*Bathyscia*) *muscorum* (Dieck, 1869); Reitter, 1884, Verh. naturforsch. Ver. Brünn, 23: 24.

Bathyscia Destefanii (Ragusa, 1881); Dodero, 1904, Nat. Sicil., 17: 121; Jeannel, 1907, Bull. Soc. entomol. Fr., 12: 64.

Bathysciola Destefanii (Ragusa, 1881); Jeannel, 1910, Arch. Zool. exp. gén., 45 (1): 28; Jeannel, 1911, Arch. Zool. exp. gén., 47 (1): 233.

Bathysciola (*s. str.*) *Destefanii* (Ragusa, 1881); Jean-

nel, 1914, Coleopterum catalogus pars 60: 8 ; Jeannel, 1924, Arch. Zool. exp. gén., 63 (1): 108.

Bathysciola (*s. str.*) *destefanii* (Ragusa, 1881); Perreau, 2000, Mem. Soc. ent. France 4: 226; Zoia & Latella, 2006: CD-ROM.; Giachino, Vailati, Baviera, 2011, Biogeographia 30: 483.

DIAGNOSIS

Bathysciola destefanii is similar to the *Bathysciola* of the “*aubei* group” (sensu Peyerimhoff, 1905) for the characteristics of the internal sac of the aedeagus, for the number of setae on the tip of the lateral style of the aedeagus and for the shape of the spermatheca.

Bathysciola destefanii differs from *Bathysciola aubei* (Kiesenwetter, 1850) and from its four subspecies by the different shape of the aedeagus, more narrow in the distal part, by the length and disposition of the setae of the lateral style and by the elytra more acutely attenuated, not truncate at apex.

MATERIAL EXAMINED

Lectotype ♀, by present designation, labelled: “Sicilia/ Navurra/ E. Ragusa, II”, with added red label: “Lectotypus/ *Bathysciola destefanii* (Ragusa, 1881)/ L. Latella des. 2012”; Deposited in Coll. Ragusa, preserved in the Department of Biological, Geological and Environmental Science, Division of Animal Biology “M. La Greca”, University of Catania.

Paralectotypes 3 ♀♀, same label of lectotype, with added red label “Paralectotypus/ *Bathysciola destefanii* (Ragusa, 1881)/ L. Latella des. 2012”; deposited in Coll. Ragusa, preserved in the Department of Biological, Geological and Environmental Science, Division of Animal Biology “M. La Greca”, University of Catania.

1 ♀ (pronotum missing), 1 ? (pronotum and part of the abdomen missing) labelled: “Sicilien/ Ficuzza/ Geo. C. Kr”; deposited in Coll. Ragusa, preserved in the Department of Biological, Geological and environmental Science, Division of Animal Biology “M. La Greca”, University of Catania.

4 ♂♂, 4 ♀♀ labelled: “Sicilia/ Lago di piana degli Albanesi/ 610 m / 21-V- 1996/ (PA)/ Leg. F. Angelini”. Deposited in Museo Civico di Storia Naturale of Verona, Italy.

1 ♀ labelled: “Sicilia/ Ficuzza (PA)/19-II-1994/ leg. Sabella”; Deposited in Museo Civico di Storia Naturale of Verona, Italy.



Fig. 1 – *Bathysciola destefanii*. Male habitus. Scale bar 1 mm

DESCRIPTION

Lectotype: female. Total length, with reclinate head, 1.94 mm. Body convex, ovate, covered with recumbent short and yellow pubescence. Eyes absent. Antennae not exceeding the base of the pronotum, 0.97 times as long as the pronotal length. Segment I as long as the II, III 1.75 times as long as wide, IV 1.5 and V 1.4 times as long as wide, VI 1.2 times as long as wide, VII subconic 13 times as long as wide, VIII slightly transverse 1.2 times as wide as long, IX and X slightly transverse 1.3 times as wide as long, XI 1.2 times as long as wide and 1.9 times as long as the segment X.

Pronotum 1.51 times as wide as long, widest at the basis, regularly curved to the anterior angles and less curved to the hind angle, hind margin weakly bisinuate. Hind angle acute.

Elytra as wide as pronotum, widest at anterior third, 1.24 times as long as wide and 1.89 times as long as pronotum, distally separated. Sutural striae marked, divergent to the third proximal and convergent to the third distal of elytrae.

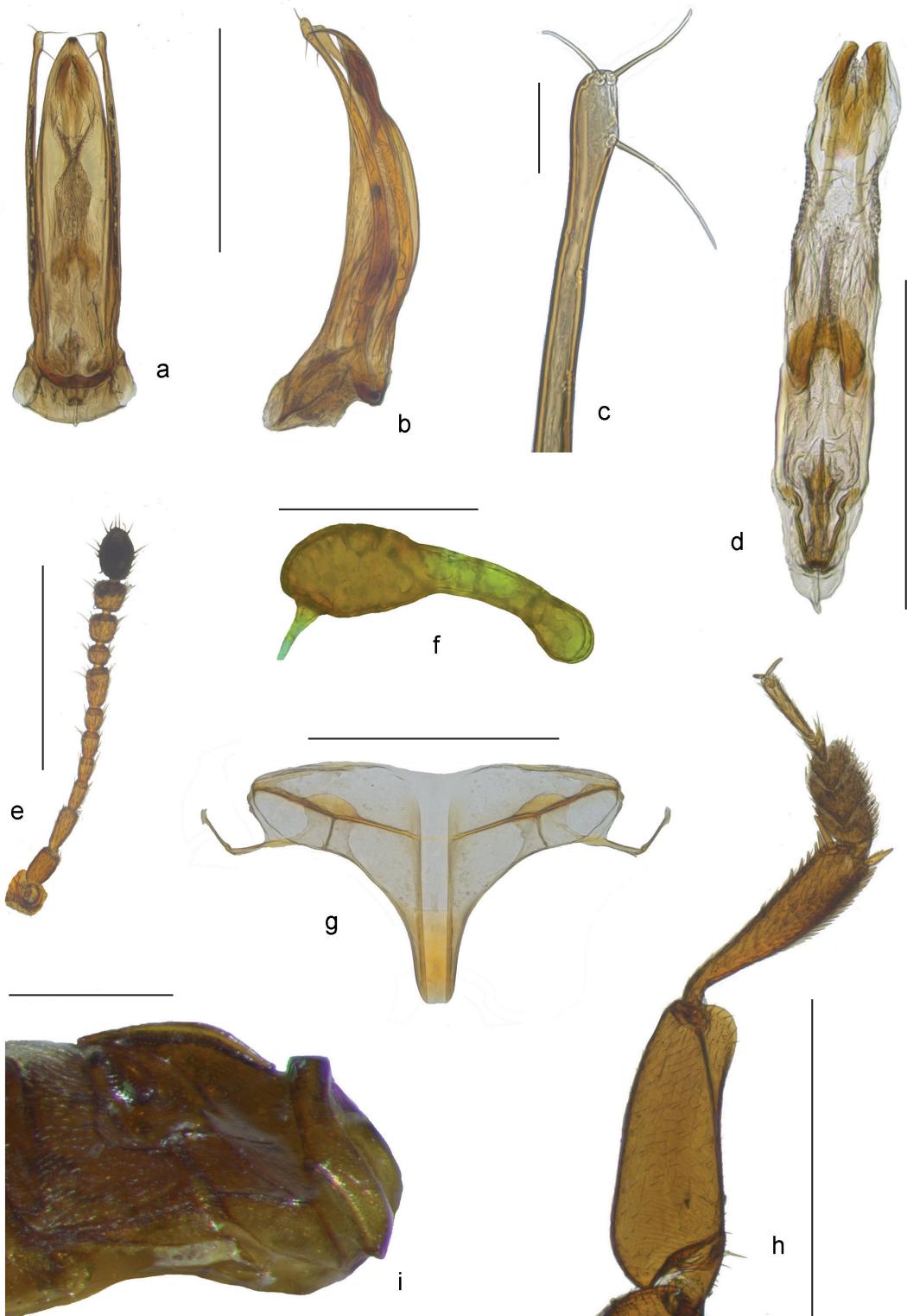


Fig. 2 – *Bathysciola destefanii*. a, male, aedeagus in dorsal view; b, male, aedeagus in lateral view; c, male, apex of left paramere in dorsal view; d, male, internal sac of the aedeagus in dorsal view; e, male, right antenna; f, female, spermatheca; g, male, metatergal apparatus; h, male, left foreleg; i, male, mesosternal keel. Scale bar: a-b-d-e-g-h-i, 0.5 mm; c, 0.05 mm; f, 0.10 mm

Mesosternal keel low, not toothed and not extended over the metaventrite (Fig. 2i).

Legs relatively short and thick, anterior tarsi tetramerous and not dilated.

OTHER SPECIMENS EXAMINED

Males. Body length from 1.90 mm to 2.16 mm, on the average 1.99 mm (Tab. 1). Similar appearance and body ratio to lectotypus (Fig. 1).

Antennae 1.12 times as long as the pronotal length. Segment I shorter and larger than II, III 2.5 times as long as wide, IV 1.6 and V 1.5 times as long as wide, VI 1.2 times as long as wide, VII subconic 1.7 times as long as wide, VIII slightly transverse 1.2 times as wide as long, IX squared 1.01 times as wide as long, X almost rectangular 1.12 times as wide as long, XI 1.4 times as long as wide and 2.0 times as long as the segment X (Fig. 2e).

Measures of the antennal segment in two specimens (length in mm):
male 0.096; 0.104; 0.072; 0.056; 0.056; 0.048; 0.088;

0.040; 0.064; 0.064; 0.120
female 0.096; 0.096; 0.056; 0.048; 0.056; 0.048;
0.072; 0.040; 0.048; 0.056; 0.104

Length/width ratio:
male 1.71; 2.06; 2.25; 1.75; 1.40; 1.20; 1.57; 0.83;
0.98; 0.89; 1.36
female 2.40; 2.40; 1.75; 1.50; 1.40; 1.20; 1.29; 0.83;
0.75; 0.78; 1.18

Forelegs with tarsi pentamerous and dilated, slightly larger than the apex of protibiae (Fig. 2h).

Aedeagus long 0.86 mm. Median lobe slender, slightly arcuate in lateral view, up to the tip that is strongly curved in the ventral part (Figs. 2a, 2b). Parameres a little longer than median lobe; three subequal long setae inserted in distal extreme (Fig. 2c). Internal sac of the aedeagus with Y-shaped piece with long arms, median region with long and sclerotized axial piece, apical reinforcement bands short (Fig. 2d).

Metatergal apparatus with developed apophysis (Fig. 2g).

Female. Body length from 1.80 mm to 2.00 mm, on the average 1.93 mm (Tab. 1). Body ratio in conformity with the lectotypus.

| Sex | Total lenght | Lenght Pronotum | Width Pronotum | Lenght Elytra | Width Elytra | Lenght Antennae |
|------|--------------|-----------------|----------------|---------------|--------------|-----------------|
| ♂ | 2.16 | 0.76 | 1.16 | 1.50 | 1.12 | 0.76 |
| ♂ | 2.00 | 0.68 | 1.04 | 1.30 | 1.04 | 0.80 |
| ♂ | 2.00 | 0.70 | 1.08 | 1.32 | 1.04 | 0.80 |
| ♂ | 1.90 | 0.68 | 1.04 | 1.28 | 1.02 | 0.80 |
| ♂ | 1.90 | 0.66 | 1.02 | 1.26 | 0.98 | 0.80 |
| mean | 1.99 | 0.70 | 1.07 | 1.33 | 1.04 | 0.79 |
| sd | 0.11 | 0.04 | 0.06 | 0.10 | 0.05 | 0.02 |
| | | | | | | |
| ♀ | 1.94 | 0.70 | 1.06 | 1.32 | 1.06 | 0.68 |
| ♀ | | | | 1.44 | 1.06 | |
| ♀ | 1.98 | 0.70 | 1.12 | 1.36 | 1.10 | |
| ♀ | 1.98 | 0.70 | 1.06 | 1.40 | 1.04 | 0.80 |
| ♀ | 1.80 | 0.68 | 1.06 | 1.26 | 1.02 | |
| ♀ | 2.00 | 0.70 | 1.08 | 1.34 | 1.12 | 0.80 |
| ♀ | 1.90 | 0.68 | 1.04 | 1.28 | 1.06 | 0.80 |
| ♀ | 1.92 | 0.68 | 1.06 | 1.30 | 1.02 | 0.80 |
| ♀ | 2.00 | 0.66 | 1.00 | 1.30 | 1.04 | 0.72 |
| mean | 1.94 | 0.69 | 1.06 | 1.32 | 1.06 | 0.77 |
| sd | 0.07 | 0.01 | 0.03 | 0.05 | 0.04 | 0.05 |

Tab. 1 - *Bathysciola destefanii*. Biometric data of the examined specimens.

Spermatheca long 0.168 mm, poorly elongate and weakly curved, basal lobe very developed; spermathecal duct not forming nodule at insertion point.

DISTRIBUTION

Bathysciola destefani is the only species belonging to this genus of Leptodirinae known for Sicily. Specimens of this species were collected only in the western areas of the island, in the provinces of Agrigento, Palermo and Trapani (Giachino et al., 2011), research carried out in other areas and mountain ranges have not been successful in collecting more specimens.

Lectotype and paralectotype were collected in a locality called Navurra, near Altavilla Milicia, about 20 km East from Palermo. The remaining specimens so far known were collected in the following localities: in the mountains areas south of Palermo of the Ficuzza woods, characterised by thermophilous evergreen oaks and deciduous oaks (see La Mantia et al., 2010 for the species list) and in the plateau of Piana degli Albanesi, with forest vegetation similar to that of the Ficuzza wood.; in the carbonate massif of the Madonie, characterised by evergreen and deciduous oaks and by *Fagus* wood at the highest altitudes (Raimondo et al., 1992) and in Santa Margherita di Belice: Vallone Zangara.

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to Giorgio Sabella (Catania) for the loan of the typical material, Cosimo Baviera (Messina) and Ignazio Sparacio (Palermo) for the information on the distribution of *B. destefanii*. A special thanks to Roberta Salmaso (Verona) for the assemblage of the pictures and Cristina Bruno (S. Michele all'Adige) for the english revision.

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