

## Description of *Laccobius gloriana* sp.n. from Spain, and notes on *L. ytenensis* SHARP, 1910 and *L. atrocephalus* REITTER, 1872 (Insecta: Coleoptera: Hydrophilidae)

E. Gentili\* & I. Ribera\*\*

### Abstract

*Laccobius (Dimorpholaccobius) gloriana* sp.n. is described from east Spain, and its distinctive characters are discussed. The species is most closely related to *L. neapolitanus* ROTTENBERG, 1874 and *L. obscuratus* ROTTENBERG, 1874. *Laccobius ytenensis* SHARP, 1910, currently considered a subspecies of *L. atrocephalus* REITTER, 1872, is reinstated as a valid species. The distribution of *L. ytenensis* and *L. atrocephalus* in the Iberian Peninsula and North Africa is reviewed.

**Key words:** Coleoptera, Hydrophilidae, *Laccobius*, new species, new records, taxonomy, Spain, Iberian Peninsula, North Africa.

### Zusammenfassung

*Laccobius (Dimorpholaccobius) gloriana* sp.n. aus Ost-Spanien wird beschrieben, und die charakteristischen Merkmale werden diskutiert. Die Art ist nahe verwandt mit *L. neapolitanus* ROTTENBERG, 1874 und *L. obscuratus* ROTTENBERG, 1874. *Laccobius ytenensis* SHARP, 1910, als Unterart von *L. atrocephalus* REITTER, 1872 betrachtet, wird als gültige Art wiedereingeführt. Die Verbreitung von *L. ytenensis* und *L. atrocephalus* auf der Iberischen Halbinsel und in Nordafrika wird besprochen.

### Introduction

Among the material collected in a survey of the macroinvertebrates of sources and springs in the coastal mountain systems of the provinces of Castellón and Valencia (east Spain), some specimens of a *Laccobius (Dimorpholaccobius)* characteristic enough to be considered a new species were detected. This new species is most closely related to *L. neapolitanus* ROTTENBERG, 1874 and *L. obscuratus* ROTTENBERG, 1874, both with a wide distribution in the Western Palaearctic Region (GENTILI & CHIESA 1975).

*Laccobius atrocephalus* REITTER, 1872 has three recognized subspecies: (1) the nominal form, in North Africa, the Middle East, Sicily and SE Spain; (2) *L. atrocephalus ytenensis* SHARP, 1910 in western Europe and North Africa; and (3) *L. atrocephalus canariensis* D'ORCHYMONT, 1940, in the Canary Islands (GENTILI & CHIESA 1975, MILLÁN & al. 1998). The study of additional material of the two first subspecies from Spain and North Africa led to the conclusion that *L. atrocephalus* and *L. ytenensis* must be considered two different species, as was suggested by MILLÁN & al. (1998) based on morphology and distribution. *Laccobius ytenensis* is thus reinstated as a valid species,

\* Elio Gentili, via S. Gottardo 37, 21030 Varese-Rasa, Italy.

\*\* Ignacio Ribera, The Natural History Museum, Cromwell Road, London SW7 5BD, United Kingdom.

the morphological differences with *L. atrocephalus* are discussed, and the distribution of both species in the Iberian Peninsula and North Africa is reviewed. *Laccobius atrocephalus canariensis* is considered to be a valid subspecies, with some distinctive external morphological characters (see GENTILI & CHIESA 1975), but with an aedeagus identical to that of the Moroccan populations.

#### Acknowledgements and Acronyms

The following acronyms for collections, in which the material used for this study is deposited, are used in the text:

CC-MSNM	coll. Chiesa, deposited in the MSNM	MSNV	Museo Civico di Storia Naturale di Verona, Italy
CG-MSNV	coll. Gentili, deposited in the MSNV	NMW	Naturhistorisches Museum Wien, Austria
CMM	coll. Millán, Murcia, Spain	MZB	Museu de Zoologia de Barcelona, Spain
CRB	coll. Ribera, Barcelona, Spain	NHML	Natural History Museum, London, United Kingdom
MSNG	Museo Civico di Storia Naturale di Genova, Italy		
MSNM	Museo Civico di Storia Naturale di Milano, Italy		

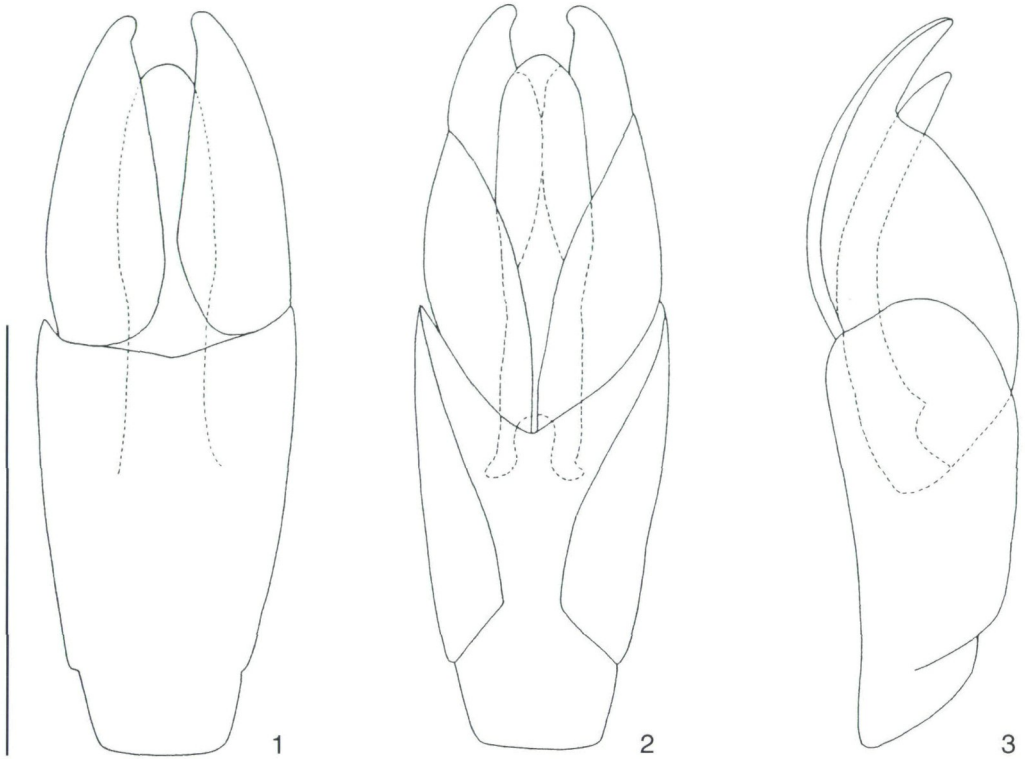
We thank Ana Pujante and Gloria Tapia (Department of Animal Biology, University of Valencia) for allowing us to study their material, and A. Pujante and Susana Pérez for showing the junior author the type localities in September 1997. We also thank Garth Foster for reviewing the manuscript, Manuela Caccia for drawing the figures, and the curators of institutions mentioned in the text for the loan of material for study.

#### *Laccobius (Dimorpholaccobius) gloriana* sp.n.

**Holotype** (♂): "SPAIN Castellón \ Peñalba: Rambla Algimia \ 30.VIII.1994 leg. A.Pujante" and with holotype label. Aedeagus glued in DMHF on a transparent label pinned with the specimen (NMW). **Paratypes**: 2 ♂♂, 1 ♀ labelled as holotype; 1 ♂, 3 ♀♀, "SPAIN Castellón \ Matet: fte. S. Antonio Abad \ 7.VI.1994 leg. G.Tapia", 4 ♂♂, 6 ♀♀, same locality with date 11.IX.1997, leg. Ribera & Millán (NMW, MZB, CG-MSNV, CMM, CRB).

**Type locality**: Small temporary stream (Rambla Algimia) in Peñalba, Serra d'Espada, 380 m a.s.l., province of Castellón, east Spain.

**Diagnosis**: Length 2.8 - 3.5 mm; width 1.6 - 1.8 mm (holotype 2.8 mm long, 1.6 mm wide). Body form globose-elongate, length / width ratio 1.8 - 1.9. Head dark, without pale preocular spots, strongly punctured and shagreened between the eyes; punctures and shagreening weaker anteriorly. Labrum nearly smooth, regularly curved anteriorly. In dorsal view, interocular distance nearly 3.5 x the diameter of the eye. Central black spot of the pronotum in contact with the anterior margin up to the inner edge of the eye, regularly curved posteriorly, reaching the posterior margin of the pronotum, and with two lateral digitiform expansions. Strongly and densely punctured, punctures similar to those of the interocular space of the head and the elytra; surface between punctures smooth or with a fine sparse shagreenation. Elytra testaceous, with black spots on the elytral disc. Approximately 20 longitudinal rows of punctures, which are alternatively more (primary) and less (secondary rows) regular; the fifth row being however neither straight nor regular.



Figs 1 - 3: Aedeagus of *Laccobius gloriana* sp.n. in (1) ventral, (2) dorsal, and (3) lateral view (scale bar, 0.5 mm).

Ventral side black. Labrum without specula; postlabium trapezoidal in shape, smooth, not rugose, with sparse punctures; gula with short prostrate setae. Prosternum roof-like, with a longitudinal keel; mesosternal keel bearing an anterior tooth and two lateral expansions; metasternum mostly pubescent, with the exception of the glabrous central part. Mesofemora without tufts of hairs, metatibiae curved.

**Sexual dimorphism:** Females slightly larger than males. Black spots on the elytral disc more numerous in males. Aedeagus as in Figures 1 - 3; tegmen longer than the parameres, which are longer than the median lobe. Apical, uncovered part of each paramere flat, slightly curved inwards.

**Distribution:** So far known only from two nearby localities (less than 10 km apart) in Serra d'Espada, province of Castellón, Spain: the type locality and a spring named San Antonio Abad, in Matet, 620 m a.s.l.

**Derivatio nominis:** Named after the first collectors, *Gloria* Tapia and *Ana* Pujante. The specific epithet is used as a noun in apposition.

**Bionomics:** The type locality is a temporary Mediterranean stream ("rambla"), with a substratum of gravel and an intermittent flow during most of the year. There are several

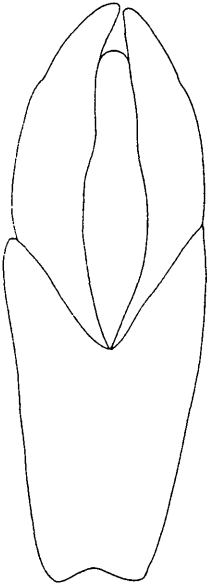


Fig. 4: Aedeagus of *Laccobius obscuratus meridionalis* in ventral view.

small springs in the margins of the main "rambla", and these contribute to the irregularity and intermittence of the flow. In a visit to the area on 11.IX.1997 the type locality was dry, and no specimens were found. A nearby locality in the same rambla did not yield any specimen.

The spring of San Antonio Abad was, when the first specimens were collected on 7.VI.1994, permanent and well preserved, without major alterations. On a visit on 11.IX.1997 it was found to be almost completely destroyed, the source was enclosed in a concrete box, and channelled through a concrete ditch until it reached a larger channel with concrete walls. The surroundings of the spring were converted into a picnic area, paved with concrete. Specimens were found among algae in a shallow lamina of water (less than 1 cm) flowing through the concrete ditch. It is not known whether the population will manage to survive the transformation of the habitat, and in consequence it was decided to designate as type locality the rambla Algimia, which is still well preserved.

Despite the numerous samples taken by G. Tapia and A. Pujante in springs and small streams of the area, no specimens of *L. gloriana* sp.n. were collected other than those referred to in the type material. The species seems thus appear to be locally distributed and rare. This is in contrast with most of the western Palearctic species of the genus, which have more or less wide distributions (GENTILI & CHIESA 1975).

**Discussion:** Within the subgenus *Dimorpholaccobius* this new species is most closely related to *L. neapolitanus* and *L. obscuratus*, forming a group characterised by a flat, not rugose postlabium; mesofemora without basal tufts of hairs; males without specula; and lack of pale preocular spots. *Laccobius gloriana* differs from *L. neapolitanus* in its flat apices of the parameres, without dorsal longitudinal keels. It differs from *L. obscuratus* (and its subspecies *L. obscuratus meridionalis* GENTILI, 1974) for the lighter colour design of the pronotum, with a reduced median black spot; the punctures of the fifth elytral row, which are irregularly arranged, not in a straight line as in *L. obscuratus*; and the parameres of the aedeagus, which are elongated and curved inwards at the apex (straight and much shorter in *L. obscuratus obscuratus*) and with the inner margins diverging each other at the base in ventral view (converging in *L. obscuratus meridionalis*, Fig. 4).

### *Laccobius (Dimorpholaccobius) ytenensis* SHARP, 1910

*Laccobius ytenensis* SHARP, 1910: 250. - D'ORCHYMONT 1926. - PEYERIMHOFF 1931. - GENTILI & CHIESA 1975. - MILLÁN & al. 1998.

**Type material** (designated in GENTILI & CHIESA 1975): "[♂, ♀, ♂] *Laccobius ytenensis* Types D.S. Brockenhurst Sept. 1910 \ Syntypes \ 1. Lectotypus 2. Allolectotypus 3. Paralectotypus E. Gentili 1973" (NHML).

**Type locality:** New Forest, S England.

**Discussion:** PEYERIMHOFF (1931), based on D'ORCHYMONT'S (1926) opinion, synonymised *L. ytenensis* with *L. atrocephalus*, and in GENTILI & CHIESA (1975) it was considered as a

valid subspecies. After the re-examination of its status, and as suggested by MILLÁN & al. (1998), *Laccobius ytenensis* must be considered as a valid species, for the following reasons: (1) The aedeagus is clearly distinguishable from that of *L. atrocephalus*, in particular because of the shape of the inner margin of the parameres (see fig. 37 in GENTILI & CHIESA 1975), its main characters showing a high degree of constancy. The "intermediate forms" mentioned by GENTILI & CHIESA (1975) are specimens of *L. atrocephalus* with the inner margin of the parameres somewhat less angulate than average, but still clearly distinguishable from those of *L. ytenensis*. (2) The range of both species has a large overlapping area, from the SE of the Iberian Peninsula (in where *L. ytenensis* is the prevailing form) to most of the North African range (Morocco and Tunisia, in where *L. atrocephalus* seems to be the commonest species). The contact zones represent thus a great proportion of their geographical range. (3) In a number of sites in SE Spain and Morocco both species were found to coexist (see below), with no intermediate forms that could be taken as evidence of interbreeding.

### Notes on the distribution of *Laccobius ytenensis* and *Laccobius atrocephalus*

**Distribution of *L. ytenensis*:** Great Britain, France, Germany, Switzerland, northern Italy, Spain, Portugal, Morocco, Tunisia. It was first recorded in North Africa by MILLÁN & al. (1998), from one locality in the Anti Atlas. Additional material has been examined, and the known distribution of the species is extended to most of Morocco and Tunisia.

**Additional material studied:** Only localities in the Iberian Peninsula and North Africa additional to those included in MILLÁN & al. (1998) are given. **Portugal:** 1 ♂, Serra da Sintra, Cabo de Roca, leg. Pederzani 23.VI.1966 (MSNV). **Spain:** 1 ♂, Sierra Nevada, Capileda de Pagueira m 1209, leg. Briganti, Porodi & Zoia 18.X.1977 (MSNG); 1 ♂, Pozuelo, leg. D. Fucude (MSNV); 1 ♂, Estepona, Costa del Sol, leg. Budberg V.1967 (MSNV). **Morocco:** 1 ♂, Riff, Bab Taza 800 m, leg. Binaghi (MSNG); 4 exs, 25 km S Ain-Leuh, Lac Afenourir, leg. Ribera, Aguilera & Hernando 1.IV.1997 (CRB); 1 ex., 5 km ca. Sources Oum-er-Rbia, leg. Ribera, Aguilera & Hernando 2.IV.1997 (CRB); 17 exs, Jebel Toubkal, ca. Asfazimer, leg. Ribera, Aguilera, Hernando & Millán 19.VII.1997 (CRB, MSNV) (in coexistence with *L. atrocephalus*); 1 ex., ca. Tanalt, leg. Ribera, Aguilera, Hernando & Millán 22.VII.1997 (CRB); 23 exs, Oued Âit-Baha, Âit-Baha, leg. Ribera, Aguilera, Hernando & Millán 20.VII.1997 (CRB) (in coexistence with *L. atrocephalus*); 29 exs, Oued Âit-Baha, Âit-Iftene, leg. Ribera, Aguilera, Hernando & Millán 22.VII.1997 (CRB) (in coexistence with *L. atrocephalus*); 18 exs, Oued Âit-Baha, Tioulit, leg. Ribera, Aguilera, Hernando & Millán 21.VII.1997 (CRB) (in coexistence with *L. atrocephalus*); 1 ex., Tazzeka Natural Park, leg. Ribera, Aguilera, Hernando & Millán 15.VII.1997 (CRB) (in coexistence with *L. atrocephalus*); 2 exs, Tazzeka Natural Park, ca. 2 km N Ras-el-Ma, leg. Ribera, Aguilera & Hernando 30.III.1997 (CRB); 3 exs, Tazzeka Natural Park, source Bab-Bou-Idir, leg. Ribera, Aguilera & Hernando 30.III.1997 (CRB); 1 ♂, Tizi-n-Test, Kasba Goundafa 1380 m, leg. A. Ball 26.VI.1934 (MSNV) (in coexistence with *L. atrocephalus*); 1 ♂, Asni 1200-1300 m, leg. A. Ball 27.VI.1934 (MSNV) (in coexistence with *L. atrocephalus*). **Tunisia:** 1 ♂, 1 ♀, Cap Bon, Menzel Bouzella, leg. S. Schödl 4.VIII.1991 (NMW); 1 ♂, 1 ♀, 20 km E Ain Draham, Ain-el-Hamaraya env., leg. S. Becvar 7-8.VI.1994 (NMW).

**Distribution of *L. atrocephalus*:** SE Spain, Sicily, Morocco, Algeria, Tunisia, Libya, Egypt, Sudan, Israel, Syria.

**Additional material studied:** Only localities in the Iberian Peninsula and North Africa additional to those included in MILLÁN & al. (1998) are given. **Spain:** 1 ♂, Córdoba, leg. Molichar (CC-MSNM). **Sicily:** 1 ♂, Palermo, Piana degli Albanesi, leg. S. Rocca VI.1968 (CC-MSNM); 2 ♂♂, 4 ♀♀, Agrigento, leg. G. Leoni VI.1952 (CC-MSNM); 1 ♂, Agrigento, Ravanusa, f. Salso m 200, leg. F. Pederzani 16.VI.1963 (CC-MSNM); 1 ♂, Ragusa, Ispica, Foce della Cava, leg. F. Pederzani 22.VI.1963 (CC-MSNM). **Morocco:** 3 exs, Almis du Guigou, Oued Guigou, source Titt Zill, leg. Ribera, Aguilera & Hernando 31.III.1997 (CRB); 17 exs,

ca. 30 km S Taourirt, Oued Zebra, leg. Ribera, Aguilera & Hernando 29.III.1997 (CRB); 7 exs, Jebel Toubkal, ca. Asfazimer, leg. Ribera, Aguilera, Hernando & Millán 19.VII.1997 (CRB, MSNV) (in coexistence with *L. ytenensis*); 59 exs, ca. Bachkoun, leg. Ribera, Aguilera, Hernando & Millán 18.VII.1997 (CRB); 1 ex., Ifrane, leg. Ribera, Aguilera & Hernando 1.IV.1997 (CRB); 29 exs, Ouarzazate, leg. Ribera, Aguilera, Hernando & Millán 18.VII.1997 (CRB); 10 exs, Oued Âit-Baha, Âit-Baha, leg. Ribera, Aguilera, Hernando & Millán 20.VII.1997 (CRB) (in coexistence with *L. ytenensis*); 1 ex., Oued Âit-Baha, Âit-Iftene, leg. Ribera, Aguilera, Hernando & Millán 22.VII.1997 (CRB) (in coexistence with *L. ytenensis*); 5 exs, Oued Âit-Baha, Tioulit, leg. Ribera, Aguilera, Hernando & Millán 21.VII.1997 (CRB) (in coexistence with *L. ytenensis*); 32 exs, Oued Guir, ca. Toulal, leg. Ribera, Aguilera, Hernando & Millán 16.VII.1997 (CRB); 3 exs, Oued Guir, Tazouarte, leg. Ribera, Aguilera, Hernando & Millán 17.VII.1997 (CRB); 12 exs, Oued Massa, Assif Oumarhouz, leg. Ribera, Aguilera, Hernando & Millán 21.VII.1997 (CRB); 1 ex., Riff, 7 km N Taounate, leg. Ribera, Aguilera, Hernando & Millán 14.VII.1997 (CRB); 7 exs, Sidi-Ibrahim, 77.5 km S Guercif, leg. Ribera, Aguilera, Hernando & Millán 15.VII.1997 (CRB); 1 ex., Tazzeka Natural Park, leg. Ribera, Aguilera, Hernando & Millán 15.VII.1997 (CRB) (in coexistence with *L. ytenensis*); 7 exs, Todra, gorges du Todra, leg. Ribera, Aguilera, Hernando & Millán 17.VII.1997 (CRB); 1 ♂, Tizi-n-Test, Kasba Goundafa 1380 m, leg. A. Ball 26.VI.1934 (MSNV) (in coexistence with *L. ytenensis*); 1 ♂, Asni 1200-1300 m, leg. A. Ball 27.VI.1934 (MSNV) (in coexistence with *L. ytenensis*); 1 ♂, 2 ♀♀, Iknioun Sarro 2000 m, leg. Kocher V.1946 (MSNG); 1 ♂, 2 ♀♀, Moyen Atlas, Oued Zobzit, M. Beskine 1200 m, leg. Kocher V.1952 (MSNG); 1 ♂, S Yahia, Gharb, Merja, leg. G. Binaghi II.1966 (MSNG); 1 ♂, 1 ♀, Ouarzazate, Taliouine 900 m, leg. G. Wewalka 5.IV.1985 (NMW); Algeria: 1 ♂, 2 ♀♀, Saida, Ain Sefra, leg. A. Chobaut 14.V.1923 (CC-MSNM); 1 ♂, Ain Sefra, leg. Hlisnikowsky 1919 (MSNV); 1 ♂, 1 ♀, Constantine, leg. M. Régimbart 1908 (MSNV); 1 ♂, 1 ♀, Teboursouk, leg. M. Régimbart 1908 (MSNV); 1 ♂, Algérie SE, Amguid, leg. Baron von Geyr 13-17.II.1914 (MSNV); 1 ♂, Aurès, Biskra, leg. A. Schatzmayr 25.I.1929 (MSNM); 1 ♂, 1 ♀, Oasis, Tamanrasset, leg. Peyerimhoff III.1922, Mission du Hoggar (CC-MSNM). **Tunisia**: 2 ♂♂, 2 ♀♀, Tamagza Mag., leg. Abdul Kerim 1873 (MSNG); 1 ♂, 1 ♀, W Kairouan, N Jebel Cherichira, 10 km E Haffouz, leg. S. Becvar 9-10.VI.1994 (NMW); 1 ♂, 1 ♀, Tunisia S, Gabes, Exp. Obenberger (MSNV). **Libya**: 1 ♂, Tripolitania, Uadi Bu el-Gherab, leg. G. Fiori (MSNM). **Syria**: 1 ♂, Syria, "*biguttatus*" (MSNV).

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