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Lygisterus anorachilus Ragusa, 1883
(Coleoptera, Lycidae),
morphological and faunistic remarks

Abstract – The differential characters of the Italian endemism *Lygisterus anorachilus* Ragusa, 1883 and *Lygisterus sanguineus* (Linnaeus, 1758) are revised. New morphological characters concerning head and prothorax and, for the first time, male genitalia are provided. The Italian distribution of *Lygisterus anorachilus* is updated.

Key words: Coleoptera Lycidae, *Lygisterus*, morphology, aedeagus, geonemy.

Riassunto – *Lygisterus anorachilus* Ragusa, 1883 (Coleoptera, Lycidae), osservazioni morfologiche e faunistiche.

I caratteri differenziali dell'endemismo italiano *Lygisterus anorachilus* Ragusa, 1883 e *Lygisterus sanguineus* (Linnaeus, 1758) vengono riesaminati e discussi. Vengono introdotti nuovi caratteri morfologici del capo e del protorace e, per la prima volta, dei genitali maschili. Infine viene aggiornata la distribuzione italiana di *Lygisterus anorachilus*.

Parole chiave: Coleoptera Lycidae, *Lygisterus*, morfologia, edeago, geonemia.

Introduction

In summer 2010 the first author (F. F.) observed a considerable number of net-winged beetles belonging to the genus *Lygisterus* Mulsant, 1838 at Ponticelli (a village near Città della Pieve, Umbria, Italy), in an environment close to the confluence of two streamlets (Torrente Pian di Sette and Torrente Matera). In 2011 he also collected a specimen at Camporsevoli (a close by locality) and sent it to the second author (F. V.), who confirmed its identification as *L. anorachilus*. This species, originally described from Sicily and sporadically recorded from Southern Italy, was still unknown from Tuscany.

The literature shows that little is known about *L. anorachilus*; additionally, the provided characters often led to confusion with the widespread *Lygisterus sanguineus* (Linnaeus, 1758).

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The original description of *L. anorachilus*, Ragusa (1883) pointed out the following differences from *L. sanguineus*: body larger; lighter colour; head shorter and anteriorly bisinuate (rather than straight); median appendix of hypostoma covering labium (uncovered in *L. sanguineus*); pronotum transverse and nearly parallel-sided with narrow red margins; elytra less pubescent; legs thinner and less compressed. Later, PORTA (1929) based his key on other characters: pronotum parallel-sided to the basal angles (convergent in *L. sanguineus*); pronotal black band much wider; male antennae longer, with “medianantennomeres” twice as long as wide (only slightly longer than wide in *L. sanguineus*). Recently, Pardo Alcaide (1961) confirmed the pronotum and legs characters and focused his attention on the head structure, providing two detailed drawings. Nevertheless, the taxonomic value of this species remained doubtful (Bocak, *in litt.*).

In this paper both *Lygistoropterus* species are analysed, defining the peculiar characters that confirm the validity of this Italian endemism. For the first time, comparative drawings of male genitalia, antennae and pronotum are provided in order to facilitate their identification. In addition, the distribution of *L. anorachilus* is updated.

Materials and methods

The following specimens have been examined.

Lygistoropterus anorachilus

ITALY: TOSCANA, Siena, Piazze, Camporsevoli, Fosso Matera, 25.VII.2011, F. Fanti leg., 1 ♂, coll. F. Fanti;

BASILICATA, Potenza, Senise, 300 m, 22.VII.1983, I. Zappi leg., 1 ♂, coll. I. Zappi; Matera, Scanzano Jonico, 24.VI.1982, I. Zappi leg., 1 ♀, coll. I. Zappi;

SICILIA, Messina, Mt. Nebrodi, Caronia, 1000 m, 5.VIII.2012, G. Altadonna leg., 1 ♀, coll. G. Altadonna.

Lygistoropterus sanguineus

FRANCE: ALPES-MARITIMES, St.-Dalmas-Valdebloure, 12.VII.1989, A. & F. Vitali leg., 1 ♂, 1 ♀, coll. F. Vitali;

ALPES DE HAUTE-PROVENCE, Col de Vars, G. de Serenne, 1600 m, 15.VII.2000, A. & F. Vitali leg., 4 ♂♂, 1 ♀, coll. F. Vitali;

CORSICA, Foresta di Aitone, 27.VII.1989, F. Vitali leg., 1 ♀, coll. F. Vitali;

LUXEMBOURG: Käerjeng, Clemency, Jongebesch, 18.VII.2012, F. Vitali leg., 19 ♂♂, 3 ♀♀, coll. F. Vitali;

ITALY: BASILICATA, Potenza, Senise, 300 m, 12.VII.1983, I. Zappi leg., 1 ♀, coll. I. Zappi;

CALABRIA, La Sila, 5.VIII.1949, Busolini-Etonti leg., 2 ♂♂, 1 ♀, coll. G. Liberti.

After rehydration, the only two available males of *L. anorachilus* and 7 males of *L. sanguineus* have been dissected. The aedeagi have been glued on the same specimen label and examined with a stereomicroscope equipped with calibrated lenses. Drawings have been made using a mixed traditional-computer graphic technique.

Discussion

The old descriptions contain a large number of relative characters, hardly detectable unless both species are available for observation. The width of the pronotal black band has been likely considered as the most practical, and possibly the only, discriminating character. It also was the only detectable one in the drawing provided by Ragusa (1884). Actually, some southern specimens of *L. sanguineus* have a pronotal band nearly identical to that of *L. anorachilus*.

Body colour, pubescence and robustness of body and legs are inconsistent characters, with no meaningful differences between the two species.

As it is not always observable in all segments, the proportion of male “median antennomeres” is an illusory character. Moreover, the nearly triangular shape of these articles makes difficult to evaluate this feeble difference. On the other hand, we observed that the IV antennomere is 1.5 times as long as the III in *L. anorachilus* (Fig. 1a) and sub-equal to the III in *L. sanguineus* (Fig. 1b).

The forehead is really shorter and anteriorly strongly bisinuate, forming a median lobe in *L. anorachilus*, while it is straight in *L. sanguineus*. Nevertheless, in dorsal view the labium is completely visible in both species. In addition, the forehead is dull in *L. anorachilus* and bright in *L. sanguineus*. All these characters have been reported and illustrated by Pardo Alcaide (1961).

The prothorax shows further characters though some old descriptions are misleading since the margins are convergent in both species. The possibility to examine a relatively large number of *sanguineus*-specimens shows the high variability of such a species, which sometimes bears asymmetrical (maybe teratological) characters. The prothorax is as long as wide to strongly transverse; its lateral margins are straight, convex or rarely even concave, forming a basal lobe; the posterior angles are sub-angulate to largely rounded; the basal margin is straight to sinuate; the discal black band is wide or narrow, sometimes posteriorly widened or sandglass-shaped. Nonetheless, all margins are always nearly flat (Fig. 2b), while they are strongly raised and inflated forming distinct borders in *L. anorachilus* (Fig. 2a). In addition, the basal angles of *L. anorachilus* are always protruding as distinct lobes and the black discal band is wide, covering the whole disc.

The parameres of the aedeagus are very distinct: more than three times (3.125) as long as wide and evidently constricted laterally in *L. anorachilus* (Fig. 3a), and only slightly more than twice (2.27) as long as wide and weakly medially widened in *L. sanguineus* (Fig. 3b).

Finally, none of previous authors provided a size range for *L. anorachilus*. The body length of the examined specimens varies between 11 and 13 mm, while *L. sanguineus* is relatively smaller (6-12 mm).

Distribution

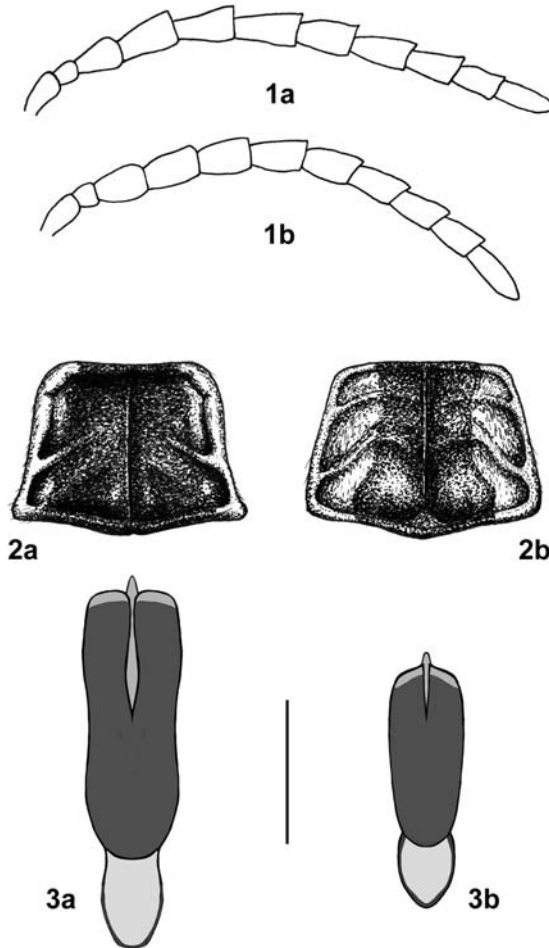
Lygistopterus sanguineus is widespread from Morocco across the whole Europe: from Spain to Russia and the Caucasian Region, reaching the Arabian Peninsula and China; in Italy it occurs in all regions, including Sicily and Sardinia.

Lygistopterus anorachilus is an Italian endemism described from Sicily (Bosco Ficuzza) and reported from some peninsular regions: Calabria, Campania, Lazio, Abruzzo, Umbria (Luigioni, 1929; Porta, 1929), Basilicata (Pardo Alcaide, 1961) and Puglia (Marcuzzi & Turchetto Lafisca, 1977; Angelini, 1987). It co-occurs with *L. sanguineus* at least in Basilicata, near Senise, and

in Calabria at Vallone Gaudolino (Pardo Alcaide, 1961). The southern Tuscany, where we firstly recorded *L. anorachilus*, is the northernmost limit of the currently known distribution of this species.

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Figg. 1-3 - a) *Lygisterus anorachilus* Ragusa, 1883; b) *Lygisterus sanguineus* (Linnaeus, 1758). 1) antenna; 2) pronotum; 3) aedeagus. (Scale 1 mm).

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