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NEW OBSERVATIONS ON THE BEHAVIOUR OF *ITALAPHAENOPS DIMAIOI* GHIDINI, 1964 (COLEOPTERA, CARABIDAE, TRECHINAE)

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The first results of new investigations into *Italaphaenops dimaioi* Ghidini are given. This species, endemic to Monti Lessini near Verona, has been recently collected in new and different caves. Some live specimens of *Italaphaenops dimaioi* from the Abisso del Vajo dei Modi 3650 V/VR have been maintained in the Laboratorio di Biologia Sotterranea di Verona, where the author made observations on its breeding patterns, biological cycle and sexual behaviour.

Key words: Coleoptera, Trechinae, cave, Italy, Monti Lessini

Caoduro, G.: Nova opažanja ponašanja vrste *Italaphaenops dimaioi* Ghidini, 1964 (Coleoptera, Carabidae, Trechinae). Nat. Croat., Vol. 10, No. 3., 243–246, 2001, Zagreb.

U radu se daju prvi rezultati novih istraživanja vrste *Italaphaenops dimaioi* Ghidini. Vrsta je endem područja Monti Lessini blizu Verone, i sakupljena je u različitim novim špiljama. Neki primjerci *Italaphaenops dimaioi* iz Abisso del Vajo dei Modi 3650 V/VR drže se živi u Laboratoriju za podzemnu biologiju u Veroni, gdje je autor vršio opažanja razmnožavanja, spolnog ciklusa i spolnog ponašanja.

Ključne riječi: Coleoptera, Trechinae, špilja, Italy, Monti Lessini

DISTRIBUTION

Italaphaenops dimaioi (GHIDINI, 1964) (Fig. 1) is one of the most interesting cavernicolous insects of the Italian fauna, in particular because it is the largest troglobitic trechine beetle. It is endemic to the caves of Monti Lessini (CAODURO *et al.*, 1994) and was collected the first time by Marziano Di Maio in 1963 in the Spluga della Preta at a depth of 510 m. It is very rare and many insect collectors visit frequently the caves where it is often collected using destructive methods. We know very little about its biology and ethology; therefore the Laboratorio di Biologia Sotterranea di Verona in 1998 planned out the »Progetto *Italaphaenops*«.

After the most recent investigations, the distribution area of *Italaphaenops dimaioi* is seen to be larger and includes the following caves of the Monti Lessini, near Verona: Spluga della Preta 1 V/VR; Spluga Carpene 396 V/VR; Grotta dell'Arena 476 V/VR; Abisso del Vajo dei Modi 3650 V/VR; Grotta del Berclie 3 V/VR (uncertain data); Grotta Regosse 161 V/VR; Grotta Galleria Taioli 1121 V/VR; Speluga di Spinei 374 V/VR; Abisso di Bosco Scortigara 329 V.T.; Cavità artif. Ponte Anguillara (unregistered cave); Cavità artif. Grotta dell'Arena (unregistered cave).

BREEDING

Italaphaenops dimaioi does not breed easily in captivity. It is possible to get good results only with a careful and continuous maintenance of the terrarium. The author found a new system to create two different environments inside the terrarium. The substratum consists of two different materials: one area is covered with gravel (2–3 mm), 5 mm thick, whilst the rest is covered with loose silt deriving from the cave where the animal was collected. The terrarium ($20 \times 12 \times 7$ cm) is positioned with a gentle slope with the gravel on the downward side to facilitate the accumulation of excess of water.

Italaphaenops dimaioi requires frequent contact with water; it needs water to clean its buccal appendixes and legs. The terrarium is covered with transparent material; the necessary ventilation holes (∅ 1 mm) should be more numerous in the upper

Fig. 1. *Italaphaenops dimaioi*. Photo: G. Caoduro.

part. In this way, it is possible to create two micro-environments: relatively moist on the downward side, with gravel and water, and less moist on the upper side, with loose silt. The terrarium must be well-kept and clean; after one day it is necessary to remove the remains of food to avoid fermentation and the development of fungi and bacteria.

BIOLOGICAL CYCLE

So far therehas been no knowledge about the biological cycle of *Italaphanops dimaioi*. By analogy with what has been observed for other cavernicolous Trechinae of the Pyrenees, CASALE & VIGNA TAGLIANTI (1976) supposed that it was a predator with a crypto-metabolic cycle.

During the breeding of three specimens (1 male and 2 females) of *Italaphaenops dimaioi* collected in the Abisso del Vajo dei Modi 3650 V/VR, the author succeeded in observing an ovodeposition. On the 8th of August 1999 a female laid an egg 2.05 mm long on loose silt. This may suggest that *Italaphaenops* does not have a crypto-metabolic cycle. On the basis of the size of the egg, we can suggest the existence of different larval stages during which the larva feeds and grows.

COPULATION

Each specimen is kept in a different terrarium because of the extreme aggressiveness displayed whenever two specimens have been put together in the same terrarium.

Using a special partition film, the author succeeded in keeping a male and a female in the same terrarium and letting them come into contact with each other temporarily. Copulation was observed twice for a duration of 30 and 190 seconds. Before copulation, the female is very aggressive, and the male finds it difficult to mount her without being attacked.

FEEDING

A study on the food sources of *Italaphaenops dimaioi* is very difficult because of the extreme shortage of breeding specimens. In this first part of the investigation, no test about food preferences was included. Necrophagous habits, i. e. the predilection of *Italaphaenops dimaioi* for feeing on dead organisms in captivity (CAODURO, 1995), have been confirmed.

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