

The genus *Dinotrema* Foerster, 1863, in the Païolive ecocomplex caves (Southern France) (Hymenoptera, Braconidae, Alysiniinae)

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Abstract. – First record of genus *Dinotrema* Foerster, 1863, from two French caves in the Païolive ecocomplex and first record of *Dinotrema cavernicola* Peris-Felipo, 2014, from France are provided.

Résumé. – Le genre *Dinotrema* Foerster, 1863, dans l’écocomplexe des grottes de Païolive (Hymenoptera, Braconidae, Alysiniinae). Les premières observations dans deux grottes françaises du genre *Dinotrema* Foerster, 1863, et la première citation en France de *Dinotrema cavernicola* Peris-Felipo, 2014, sont rapportées.

Keywords. – Parasitoid wasps, taxonomy, caves, troglophilous species, Païolive, Mediterranean area.

Mediterranean forest landscapes are rich in evergreen species that frequently intersect with areas of brushwood, pasture, farming and ranching. In close proximity to these areas, however, it is often possible to identify zones that have regained their highly diverse natural communities after cessation of human intervention. This favours the proliferation of hotspots in Mediterranean ecosystems (MYERS *et al.*, 2000). Despite the huge resistance posed by Mediterranean biotopes to human pressure, isolation and fragmentation are unavoidable (PUNGETTI, 2003), resulting in the emergence of isolated patches within the landscape.

The Païolive and Gras ecocomplex has an extension of 150 km². It is considered as a biodiversity peak and is defined as the southern part of the karstic Gras plateau (Upper Jurassic and Berriasian limestones) in Ardèche and Gard departments in the northern border of the French Mediterranean area, where lives a population of *Eupotosia mirifica* (Mulsant, 1842) (Coleoptera, Cetoniidae) (ABERLENC, 2016) (fig 1). The climate present on the area is supra-mediterranean.

Several works have been carried out in the Païolive ecocomplex to catalogue the arthropods fauna (ABERLENC & LENTENOIS, 2003; ABERLENC *et al.*, 2003; TASSI *et al.*, 2004; ABERLENC, 2006, 2008). Recently, ABERLENC (2016) recorded a total of 116 subterranean arthropods species belonging to nine classes and 55 families. Moreover, Païolive Association is carrying out a large project to know all the biodiversity in the ecocomplex. Thanks to this study, many species have been sampled, such as alysiine parasitoid wasps (Braconidae) belonging to the genus *Dinotrema* Foerster, 1863.

Dinotrema is one of the largest genera in the tribe Alysini (Alysiniinae) whose species are parasitoids of the larvae of Diptera predominantly belonging to the family Phoridae (ACHTERBERG, 1988). This genus comprises hundreds of species described from all zoogeographical regions (PERIS-FELIPO & BELOKOBYLSKIJ 2016a, b). However, only *Dinotrema cavernicola* Peris-Felipo, 2014, was recorded before from the subterranean systems of the “Sistema de la Murcielaguina” and “Sima de La Colada” (Jaén, Spain) at 35 and 65 m depth, respectively.

To date, four specimens of *Dinotrema* have been collected in the Païolive ecocomplex. One unknown species was sampled from the Baume du Pêcher cave and three specimens were captured from the Baume-Grenas cave. These three specimens belong to *D. cavernicola* (fig. 2), and were collected by aspirator at 50 and 75 m from the entrance of the cave (fig. 1D). This

cave is a subhorizontal and slightly sinuous gallery with approximately 130 m of length. It has a northeastern orientation and several lateral small diverticula. The cave entrance is close to the bottom of thalweg with a dominance of *Quercus pubescens* Mill. and *Buxus sempervirens* L., among others.

Identification was carried out using the keys to species of Western Palaeartic *Dinotrema* by PERIS-FELIPO *et al.* (2014a, b). The material examined is deposited in the collection of the Naturhistorisches Museum Basel (NHMB) and in H.-P. Aberlenc's collection (HPAC). Information on the labels is as follows:

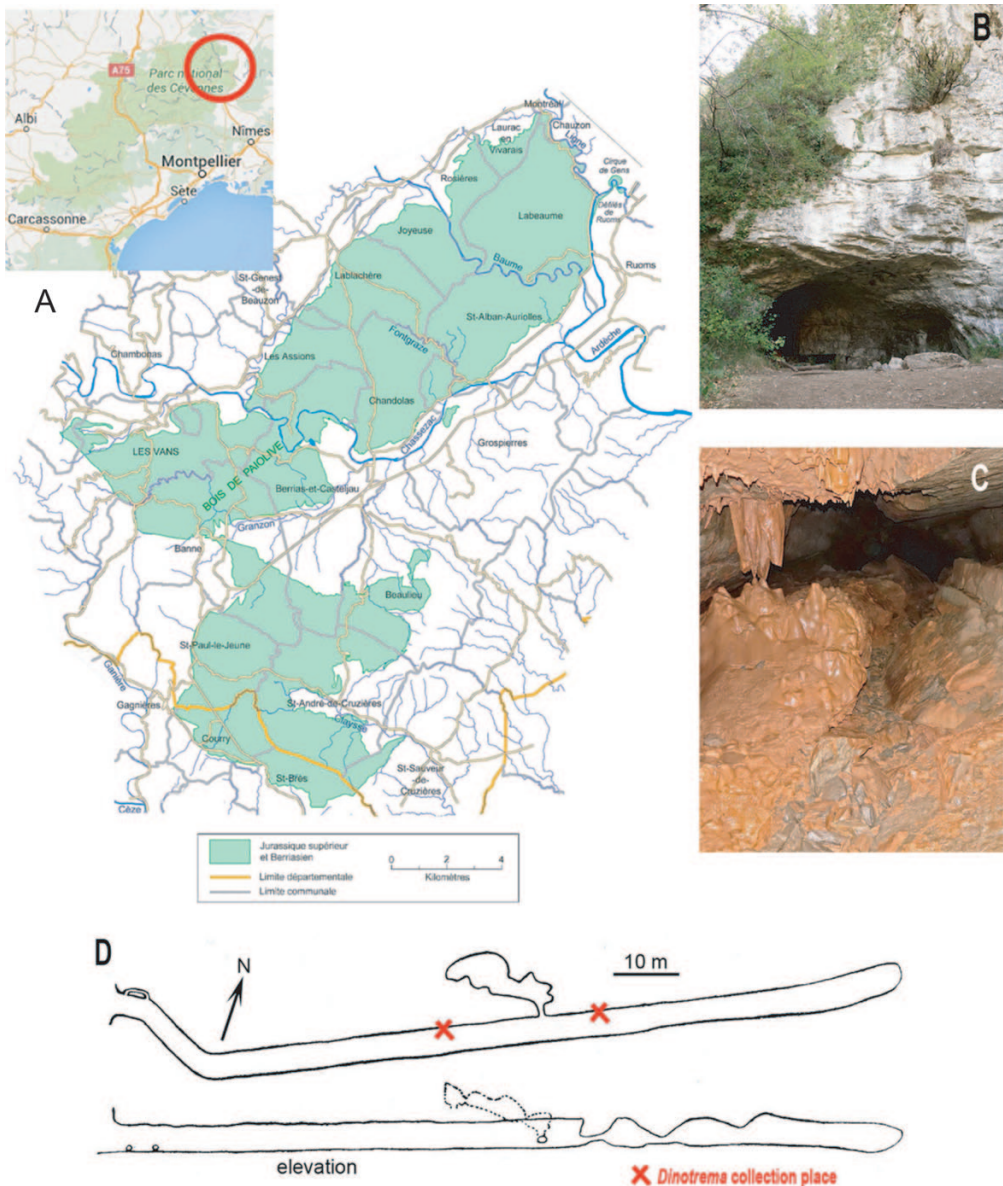


Fig. 1. – Païolive ecocomplex. A, Distribution of studied caves (Maurice Lhomme map); B, Baume-Grenas cave entrance; C, Baume du Pêcher cave; D, Schematic topography of the Baume-Grenas cave (adapted from BALAZUC, 1956) with crosses where *Dinotrema* Foerster were found.

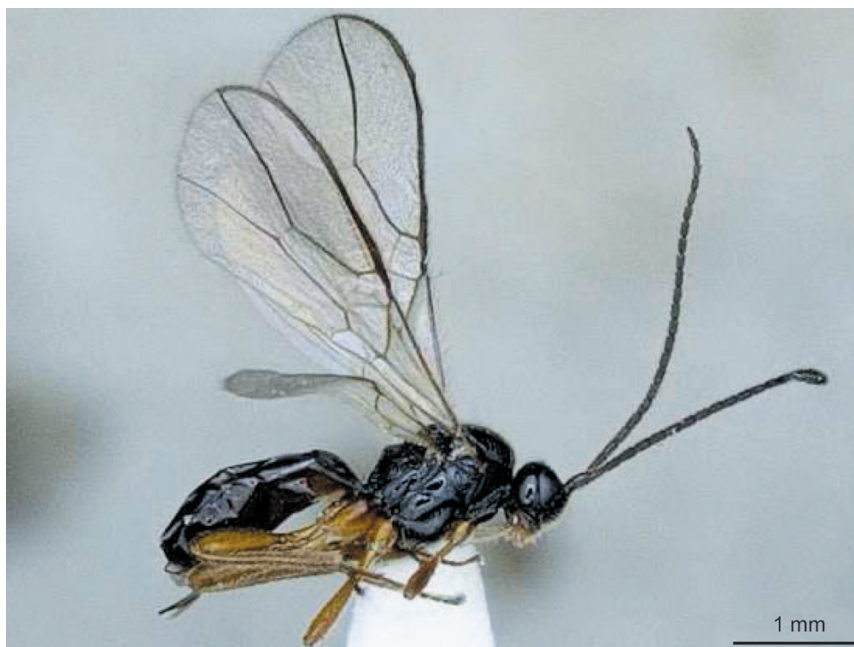


Fig. 2. – *Dinotrema cavernicola* Peris-Felipo, ♀ sampled from Baume-Grenas cave, lateral habitus.

– *Dinotrema cavernicola*: 1 ♀, France, Ardèche, Païolive, Ruoms, Baume-Grenas, UTM WGS 84 606442 E - 4925339N, 18.VIII.2015 (*H.-P. Aberlenc leg.*) (NHMB); 2 ♀, same locality but, 44°28'25.07"N - 4°20'17.40"E, 11.X.2015, one specimen swept on spider net (*H.-P. Aberlenc leg.*) (HPAC).

– *Dinotrema* sp.: 1 ♀, France, Ardèche, Païolive, Labeaume, Baume du Pêcher, UTM WGS 84 605570 E - 4926143 N, 18.VIII.2015 (*H.-P. Aberlenc leg.*) (NHMB).

All *Dinotrema* were sampled in complete darkness together with specimens of *Megaselia rufipes* (Meigen, 1804) and *Triphleba antricola* (Schmitz, 1918) (Diptera, Phoridae) and *Eccoptomera* sp. (Diptera, Heleomyzidae). Phoridae specimens were determined by Henry Disney while Heleomyzidae specimens were determined by Michel Martinez. Similar situation happened in Spain where *Dinotrema cavernicola* was found with specimens of Phoridae such as *Megaselia rufipes* and *M. tenebricola* Schmitz, 1934, and Heleomyzidae such as *Heteromyza atricornis* (Meigen, 1830) (PERIS-FELIPO *et al.*, 2014a).

To conclude, this discovery provides the first record of this genus and species in French caves. Also, new data distribution and hosts of the subterranean wasp species *D. cavernicola* are provided. However, additional taxonomic studies are necessary to increase the knowledge of diversity and applicability of parasitoid wasps on Dipteran control.

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