A catalogue of the fauna in natural and artificial caves of Italy

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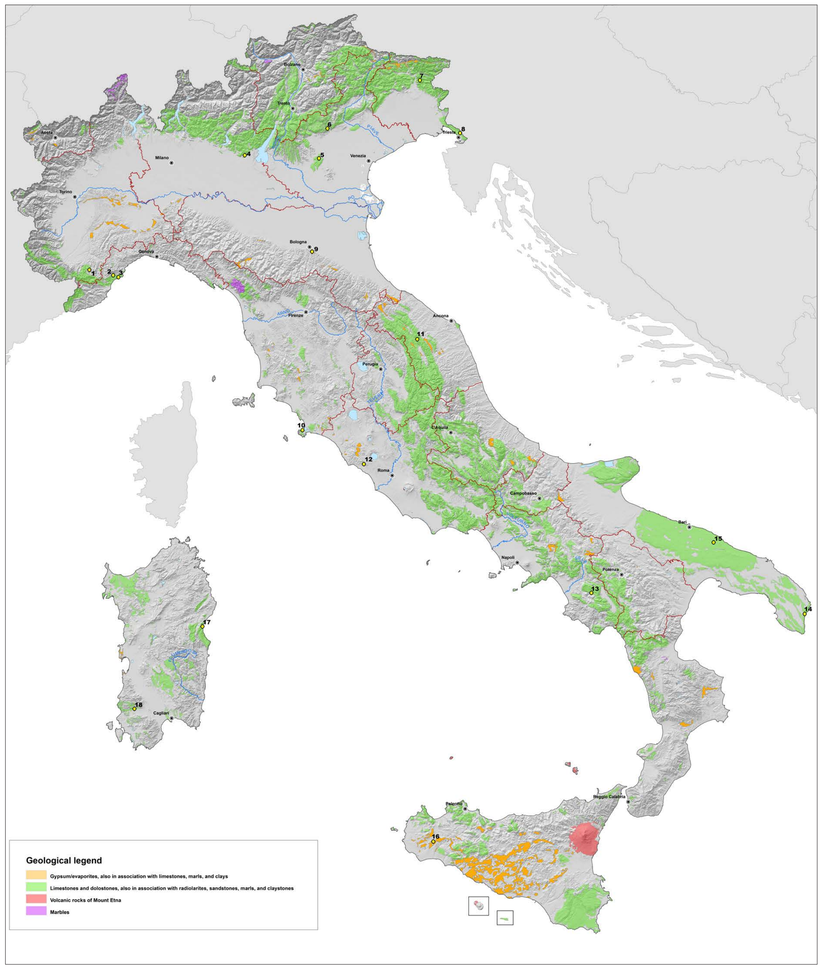

Numerical frequencies of speleofaunistic publications regarding several Italian caves:

1. Caverna di Bossea (108 Pi/CN): [118]; 2. Arma Pollera (24 Li-SV): [125]; 3. Arma de Arene Candide (34 Li-SV): [98]; 4. Büs del Frâ (1 Lo-BS): [139]; 5. Grotta della Guerra (127 V-VI): [190]; 6. Grotta Parolini (600 V-VI): [153]; 7. Grotta Nuova di Villanova (939/323 Fr-UD): [93]; 8. Grotta di Trebiciano (3/17 VG-TS): [81]; 9. Grotta della Spipola (ER BO 005): [69]; 10. Grotta Punta degli Stretti (250 T-GR): [106]; 11. Grotta della Beata Vergine di Frasassi (1 Ma-AN): [56]; 12. Grotta Patrizi (183 La-RM): [56]; 13. Grotta di Castelcivita (2 Cp-SA): [85]; 14. Grotta Zinzulusa (107 Pu-LE): [167]; 15. Grotte di Castellana (8 Pu-BA): [123]; 16. Grotta di Santa Ninfa [Si TP 8000]: [52]; 17. Grotta del Bue Marino (12 Sa-NU): [144]; 18. Grotta di San Giovanni (81 Sa-SU): [81].

Note: in round brackets, numbers and acronyms of the Italian Cave Register. Pi (Piedmont); Li (Liguria); Lo (Lombardy); V (Veneto); Fr (Friuli); VG (Venetia Julia); ER (Emilia-Romagna); T (Tuscany); MA (Marche); La (Latium); Cp (Campania); Pu (Apulia); Si (Sicily); Sa (Sardinia).

KEYWORDS
Italy, cave fauna, eucavernicolous species, bibliography.

This poster reports the results of a bibliographical analysis of more than 3000 articles and 800 monographs dating from 1776 to 2017 which allowed to compile a catalogue, not yet published, of the Italian cave fauna.
The oldest consulted publication was the entomological monograph by Johann Heinrich Sulzer *Abgekürzte Geschichten der Insekten nach Linnéischen System* (1776, H. Steiner, Winterthur) in which the Swiss author describes the Orthopteran *Gryllus palpatus* (nowadays *Dolichopoda palpata*), collected on material found in Sicily at the "Orecchio di Dionisio" in the famous stone quarries of Syracuse.
The catalogue contains more than 5658 cavities (natural and artificial ones); it takes into account 3674 species, 556 subspecies and several other taxa. At least 785 species are regarded as eucavernicolous (i.e. troglobites + eutroglophiles).
The zoological orders with the highest numbers of eucavernicolous species are Coleoptera (382), Pseudoscorpiones (92), Araneae (72), Diplopoda (65), Isopoda (55).
Instead, the higher frequency of endemic species is among Coleoptera (317), Diplopoda (105), Isopoda (104), Pseudoscorpiones (86), Araneae (60).
As the karst phenomenon is widespread in all Italian regions, we would have expected to obtain, using the acquired information, a list of caves with more or less homogeneous faunistic quotations. The encountered heterogeneity in faunistic knowledge is due to the fact that biospeleological research in the single regions started in different moments.
In the second half of the 19th century faunistic research, with relative publications of the results, has started to be carried out in particularly important caves, for quantity and diversity of species, in territories not very far from zoological research centres, such as in Veneto and Liguria.
In the first sixty years of the 20th century many publications dedicated to the speleofauna began to be produced for caves in other Italian regions (in order of importance: Lombardy, Apulia, Venetia Julia, Piedmont, Tuscany and Friuli). However, a real leap of quality occurred since the 70s with the intensification, at national level, of speleological exploration, the discovery of many new caves, and with the description, by the specialists, of many new speleofaunistic entities.
Anyway, the picture presented here is doomed to change as a result of the addition of new caves rich in faunistical findings and the relegation of old caves, for which eventually, in the meantime, no other discoveries will be added.
In this context it is particularly interesting to put in evidence the importance of Sardinia, a region rich in caves where many endemic species are living. Many of these species have significant affinities with other ones living in caves of eastern Spain, the Balearic Islands, the Pyrenees, Catalonia and Provence. This can easily be explained by the geological history of this Island. Sardinia and Corsica, during the Oligocene, shifted from the Provençal area towards Italy up to the actual position in an anticlockwise rototranslation.
In this poster we include images of six eucavernicolous species: three ones (belonging to genera *Leptodirus*, *Sardaphaenops*, *Italaphaenops*) described in a far past; three ones (belonging to *Ibleocixius*, *Dendrocoelum*, *Eukoenenia)* described more recently.

Different moments during the biospeleological activities: collecting samples, pitfall trapping and high magnification photography (Photo F. Grazioli).

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Fig. 1 - *Leptodirus hochenwartii* Schmidt, 1832 (Photo E. Lana). Endemic species. Stations: In few caves near Trieste it is possible to find the subspecies *Leptodirus hochenwartii reticulatus* J. Müller, 1906.

Fig. 2 - *Sardaphaenops supramontanus* Cerruti & Henrot, 1956 (Photo E. Lana). An eyeless, troglobitic and endemic species. Station: Sa Rutt'e s'Edera(588 Sa-NU).

Fig. 3 - *Italaphaenops dimaioi* Ghidini, 1964 (Photo G. Caoduro). An endemic species present in the Veronese territory. Stations: Spluga della Preta (1 V VR) and other natural and artificial caves.

Fig. 4 - *Ibleocixius dunae* D'Urso & Grasso, 2009 (Photo V. D'Urso).The first Italian eucavernicolous Cixiidae; a species with strongly reduced eyes. Station: Di Natale cave (Si SR 7178) (Priolo Gargallo, Contrada Morghella).

Fig. 5 - *Dendrocoelum leporii* Stocchino & Sluys, 2013 (Photo G.A. Stocchino). A stygobiont unpigmented freshwater planarian lacking eyes. Stations: Frasassi cave system in the province of Ancona.

Fig. 6 - *Eukoenenia lanai* Christian, 2014 (Photo E. Lana). The living individuals show an orange reddish body (particularly the opisthosoma). Miniera superiore di Monfieis (Pi-CN) (Demonte).

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