

SHOWCAVE: a multidisciplinary research project to quantify and mitigate the environmental impacts in tourist caves

Original

SHOWCAVE: a multidisciplinary research project to quantify and mitigate the environmental impacts in tourist caves / Isaia, Marco; Arca, A.; Balestra, Valentina; Bellopede, Rossana; Biagioli, F.; Cina, Alberto; Cinus, Daniela; Coleine, C.; Cossu, Q. A.; DE REGIBUS, Claudio; del Piano, D.; Duce, P.; Ferrara, R.; Mammola, Stefano; Manzino, Ambrogio; Marini, Paola; Maschio, Paolo Felice; Nanni, Veronica; Nicolosi, Giuseppe; Pavia, Marco; Piano, Elena; Poli, A.; Prigione, V. P.; Selbmann, Laura; Thun Honenstein, Ursula; Turrini, M. C.; Vagnoni, E.; Varese, C.; Ventura, A.; Vigna, Bartolomeo; Zanellati, A.. - (2021). (Intervento presentato al convegno "Ecology for an Ecological Transition" – XXX Congresso della Società Italiana di Ecologia tenutosi a Lecce nel 25-27 ottobre 2021).
This version is available at: [11583/2968193](https://doi.org/10.11583/2968193) since: 2024-06-18 15:21:19Z

Publisher:

Società Italiana di Ecologia

Published

DOI:

Terms of use:

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

(Article begins on next page)

ECOLOGY FOR AN ECOLOGICAL TRANSITION – XXX CONGRESSO DELLA SOCIETÀ ITALIANA DI ECOLOGIA, LECCE 25-27 OTTOBRE 2021

SHOWCAVE: a multidisciplinary research project to quantify and mitigate the environmental impacts in tourist caves

Isaia M.¹, Arca A.², Balestra V.³, Bellopede R.³, Biagioli F.⁴, Cina A.³, Cinus D.², Coleine C.⁴, Cossu Q. A.⁵, de Regibus C.³, del Piano D.⁶, Duce P.², Ferrara R.², Mammola S.^{7,8}, Marini P.³, Maschio P.³, Nanni V.¹, Nicolosi G.¹, Pavia M.⁹, Piano E.¹, Poli A.¹, Prigione V. P.¹, Selbmann L.^{4,10}, Thun Honenstein U.⁶, Turrini M. C.⁶, Vagnoni E.², Varese C.¹, Ventura A.², Vigna B.³, Zanellati A.¹

¹Department of Life Sciences and System Biology, Università di Torino, Via Accademia Albertina, 10123 Torino, Italy

²Institute of Bioeconomy, National Research Council (CNR-IBE), Traversa La Crucca, 3. Localita' Baldinca – Li Punti, 07100 Sassari, Italy

³Department of Environment, Land and Infrastructure Engineering, Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 Torino, Italy

⁴Department of Ecological and Biological Sciences, University of Tuscia, 01100 Viterbo, Italy

⁵Independent Researcher

⁶Humanities Department, Via Paradiso 12, 44121 Ferrara, Italy

⁷Water Research Institute, National Research Council of Italy (CNR-IRSA), Largo Tonolli 50, 28922 Verbania Pallanza, Italy

⁸Laboratory for Integrative Biodiversity Research (LIBRe), Finnish Museum of Natural History (LUOMUS), University of Helsinki, Pohjoinen Rautatiekatu 13, 00100 Helsinki, Finland

⁹Department of Earth Sciences, Via Valperga Caluso 35, 10125 Torino, Italy

¹⁰Italian National Antarctic Museum (MNA), Mycological Section, Genoa, Italy

Over the past decades, interest for the underground karst environments has grown remarkably, not only from the scientific viewpoint, but also from an economic perspective. The so-called “show caves” are caves open to the public for touristic purposes, managed by a governmental or commercial organization. The numbers of visitors (up to 500,000/year/cave) and the profits deriving from such activities have recently gained importance worldwide. The research project of relevant national interest (PRIN 2017) “SHOWCAVE”, aims at providing an in-depth characterization of the environmental impacts related to tourist exploitation in the major Italian show caves. During the first year of the project, 12 Italian show caves were chosen as ideal setting to develop the core of the research program, i.e. the multidisciplinary evaluation of tourism impacts based on a wide set of indicators, encompassing all the abiotic and biotic components. By adopting innovative techniques and original methods, the different research units are currently monitoring: i) physical indicators, namely water and air parameters; ii) geological indicators, such as the alterations of the carbonate rocks; iii) biological indicators, including invertebrates, lampenflora and the microbiota; iv) palaeontological and archaeological indicators. Side researches are being performed on the contamination by lint, the description of the natural heritage of Italian show caves and the human perception of the tourism impacts in

the subterranean environment. The development of the first LCA (Life Cycle Assessment) method to comprehensively evaluate the impacts of the touristic service offered by show caves, together with a review of available literature on show caves, are also being carried out. Preliminary results have already been disseminated in several public engagement and educational activities. At the end, the results obtained by all the research activities will be combined to develop general protection measures and provide specific suggestions for the sustainable use of show caves.