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Spiders in caves: the CAWEB project

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World experts of different disciplines, from molecular biology to macroecology, recognize the value of cave ecosystems as ideal ecological and evolutionary laboratories. Among other subterranean taxa, spiders stand out as intriguing model organisms for their ecological role of top-predators, their unique adaptations to the hypogean medium and their sensitivity to anthropogenic disturbance. Here, we provide a general overview of the spider families recorded in hypogean habitats in Europe – 20 families including nearly 500 species, most of them with restricted distributions. We also review the different adaptations of hypogean spiders to subterranean life and summarize the information gathered so far about their origin, population structure, ecology and conservation status. Taxonomic knowledge on subterranean spiders in

Europe appears to be well, but not exhaustively documented. The origin of the European assemblages is mostly explained by past climate dynamics, although other factors are likely to be involved. Most of the macroecological issues related to spiders in European caves are based on qualitative assessments or have been quantified only at a sub-regional scale. In order to shed light on cave spiders' biogeography and the macroecological patterns driving the diversity of European subterranean spiders we created the CAWEB network, a spontaneous collaboration between subterranean arachnologists from 30 different European countries. We here present the team and provide some preliminary results, which highlight Southern Europe as an important hot-spot for the European subterranean spider diversity.

Keywords: Araneae, biogeography, ecology, model organisms, subterranean taxa.