

CAVE PLANTS

Alone in the dark

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Credit: Chris Howes/Wild Places Photography/Alamy Stock Photo

Caves are fascinating and almost completely isolated worlds within a world. The saturated humidity, buffered temperature and of course absolute darkness deep within caves mean that plants cannot grow, but speleologists know that there is often a unique ecosystem that develops in the very limited zone in and around the entrance. Conditions there are peculiar due to the transition between both worlds, particularly in porous limestone regions known as karsts. For example, during a dry Mediterranean summer, it is not unusual to find rather large tropical-looking ferns that enjoy both the humidity and low light. Now, botanists from the Royal Botanic Gardens at Kew and from Guangxi in South China joined forces to survey the flora from cave entrances around karstic regions in South China.

The microclimate is not the only distinguishing characteristic of cave entrance ecosystems. Small population sizes, fragmented geography and human influence through tourism or agriculture all have an impact on the biodiversity of cave plants.

The team spent several years documenting dozens of caves, identifying hundreds of species of vascular plants, mostly angiosperms and some ferns, and classifying them into three growing zones with decreasing light levels: entrance, twilight and dark. Most of the species come from the surrounding karst forest, even when this forest has been eliminated, suggesting a role for caves as microrefuges and passive guardians of ancient forest biodiversity.

The authors conclude that caves must be protected from degradation because of their high value for conservation and restoration purposes in the study region, which has seen massive deforestation during the twentieth century. This work also demonstrates once again the extraordinary adaptability of plants to peculiar and sometimes harsh environments on the planet.

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