

populations and their habitats is required. Public education is also necessary, particularly for local residents, to prevent further exploitation of this plant species. To encourage the legal use or commercialization of this beautiful but threatened species, we will be sharing our knowledge and expertise with local farmers and planting enterprises.

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### Conserving *Cypripedium forrestii*, an orchid species endemic to China

The flora of the Hengduan mountains of China includes the lady's slipper orchids, *Cypripedium* spp., many of which are endemic to China. Over-collected by plant enthusiasts, used medically by local people and disturbed by natural disasters, many *Cypripedium* species are threatened. *Cypripedium forrestii* was first collected on Yulong Snow Mountain near Lijiang in north-west Yunnan. This sacred mountain for the Naxi people has long been a famous scenic spot and the only known habitat of *C. forrestii*. Later, another habitat was found in Haba Mountain of Diqing, c. 20 km away. *Cypripedium forrestii* has a narrow distribution and extremely small population, and is categorized as Critically Endangered on the IUCN Red List and on the threatened species list of China's higher plants. The absence of systematic field surveys and the small number of herbarium records of *C. forrestii* have hampered conservation of this species.

In July 2022, as a part of the conservation project Plant Species with Extremely Small Populations supported by Yunnan Forestry and Grassland Bureau (2021SJ14X-09), we surveyed the potential habitat of *C. forrestii* in north-west Yunnan to update knowledge of this threatened species. We found the species in four locations. The population on Yulong Snow Mountain comprises c. 60 individuals and is threatened by potential landslides and tourism. On Haba Snow Mountain of Diqing Tibetan Autonomous Prefecture, we found several populations, with a total of > 1,000 individuals. We also found the species in two locations, with c. 100 individuals in each, near Bitu Lake and beside a country road near Shangri-la city.

Anthropogenic disturbance and habitat degradation are the main threats to *C. forrestii*. Most of the populations on Haba Mountain are large in size, little disturbed, healthy and self-sustainable. These populations will be valuable for artificial propagation and reintroduction projects. Preliminary conservation work for the species, both in situ and ex situ (artificial pollination and tissue culture), is being carried out by Kunming Institute of Botany and Lijiang Alpine Botanic Garden. We plan to carry out further research on *C. forrestii*, especially on population dynamics, genetic structure and pollination ecology, to guide future conservation of the species.

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### Remarkable range expansion of the black woodpecker *Dryocopus martius* in Spain

The black woodpecker *Dryocopus martius* has a large Eurasian range, occurring in temperate and boreal forests, and is categorized as Least Concern on the IUCN Red List. Along the southern fringes of its range, populations tend to be fragmented and rely on remnant mature forest patches, usually in highlands. This was the situation in Spain in the 1980s and 1990s, when the species was only known from two small populations, separated by 150 km: the Pyrenean and the Cantabrian.

But in the 2010s, monitoring revealed an unexpected range expansion. The black woodpecker was recorded breeding far from its former known range, leading to coalescence of the Pyrenean and Cantabrian sub-ranges. Previously considered a typical mountain and remote forest dweller, the species has colonized lowland, secondary forests and commercial plantations, and can even be found at sea level. This expansion is ongoing, with news of the species' establishment in Central-Mediterranean Spain, c. 250 km south of the previously known range. Surveys in February–June of 2021 and 2022 in this area have inventoried occupied territories and breeding cavities.

The biological or demographic causes are unknown, but the species' range expansion was simultaneous with the maturation and encroachment of forests as a result of a reduction