Paphiopedilum gratrixianum blooming in the wild.

P. gratrixianum requires urgent priority conservation. During our surveys we collected some seeds and we are now attempting to cultivate seedlings for ex situ conservation and scientific research, at Kunming Botanical Garden.

An additional, previously known population of *P. gratrixianum* in Xinping County, Yunnan, became extinct in 2019 as a result of overcollection. Priority conservation actions are required to prevent the similar extinction of the three known extant populations, including establishment of in situ conservation sites, increasing publicity and law enforcement efforts, and development of artificial propagation and in vitro preservation technologies. Further surveys are also required in southern Yunnan and adjacent areas, along with research on the genetic diversity, pollination ecology and seed germination of the species.

Lei Cai[1], *Jianzhu Zhang*[2], *Zhiling Dao*[1] and *Weibang Sun*[1] (*wbsun@mail.kib.ac.cn*)
[1]*Yunnan Key Laboratory for Integrative Conservation of Plant Species with Extremely Small Populations, Kunming Institute of Botany, Chinese Academy of Sciences, Yunnan, China.* [2]*Pu'er Science Institute of Forestry and Grassland, Yunnan, China*

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Finding *Pedicularis fastigiata*, a long-lost Critically Endangered plant species of China

Pedicularis fastigiata Franchet, a perennial herb species of the family Orobanchaceae, is endemic to the southern Hengduan Mountains in western Yunnan, south-west China. It was categorized as Critically Endangered on the Red List of China's Higher Plants in 2020. This species had only been collected once, in 1896, by Prince Henri d'Orléans and was described by Adrien René Franchet in 1900. According to the single type collection stored at the herbarium of the Muséum national d'Histoire naturelle, Paris (isotype, barcode 00520823), this species is only known from the Mékong valley, in the southern Hengduan Mountains, an area of c. 400,000 ha in western Yunnan. Surveys (the Qinghai–Tibet Plateau Expedition in 1982 and Biluoxueshan Biodiversity Survey in 2003–2013) close to the type location and adjacent areas were unable to relocate the species.

With the joint support of the Key and Major Programme for Basic Research Project of Yunnan Province (grant no. 202201AS070045, 202101BC070002), the National Key Research and Development Programme of China (grant no. 2022YFF1302401), the Strategic Priority Research Programme of the Chinese Academy of Sciences (grant no. XDA26020203) and the Platform Programme for Basic Research Project of Yunnan Province (grant no. 202205AM070008), we surveyed for *P. fastigiata* in the southern Hengduan Mountain range during May–August 2023. We discovered c. 800 individuals in flower in three areas of coniferous/broad-leaved mixed forests at an altitude of 2,900 m. The total area of occupancy of the species is c. 500 m². This suggests that it should be categorized as Critically Endangered on the IUCN Red List on the basis of criterion B2ab(i,ii,iii,v). Also, because of its restricted distribution, small population size and habitat degradation, it should be included in the list of Plant Species with Extremely Small Populations in China. Our survey and information obtained from interviews with people local to the area indicated that the main threats to this species are its small population size, the high frequency of destruction by people, grazing and habitat loss. Urgent and effective measures need to be taken to protect this species.

The Kunming Institute of Botany is now carrying out studies on the population genetics of *P. fastigiata* and its genetic relationships to other *Pedicularis* species of the southern Hengduan Mountains, to obtain a better understanding of the microevolution of this species. In collaboration with staff of nature reserves, we are also planning to collect seeds of *P. fastigiata* for propagation and future restoration of the species in the wild. Using species distribution models, we plan to identify and explore other sites in China where the species could potentially grow.

Rong Li[1] (*lirong@mail.kib.ac.cn*) and *Wenbin Yu*[2]
[1]*CAS Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, China.* [2]*CAS Center for Integrative Conservation and Yunnan Key Laboratory for the Conservation of Tropical Rainforests and Asian Elephants, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Mengla, China*

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