

## Biodiversity conservation initiatives have unfulfilled potential to support the UN Sustainable Development Goals

At the end of September 2018 the United Nations General Assembly reconvened in New York for its 73rd session, bringing together the international community to drive progress towards the 2015 Sustainable Development Goals (SDGs). The SDGs were adopted by the General Assembly in September 2015. The 17 Goals and 169 related targets unite a wide array of social and environmental issues, including education, health and biodiversity, with an aspiration to achieve these globally by 2030. The SDGs encapsulate contemporary social and environmental concerns, and increasingly guide the development policies of Governments and corporations worldwide.

The contributions of natural ecosystems to all the SDGs, and the need for responsible, coherent policy-making mobilized around ecosystem management and the SDGs, are increasingly recognised in high-level discussions, including the Food and Agriculture Organization's latest State of the World's Forests Report. To this end, an interdisciplinary team of researchers associated with the Cambridge Conservation Initiative (CCI) are asking what contributions biodiversity conservation organizations can make to the SDGs. The project, Unusual Suspects, examines the Initiative's experiences of biodiversity conservation to consider where potential to deliver the SDGs might lie, and how this could be facilitated. Drawing on project experience of colleagues in BirdLife International, Fauna & Flora International, the International Institute for Environment and Development and the Royal Society for the Protection of Birds, this project offers CCI unparalleled linkages between practitioner experience and academic research in environment and development.

As part of the Unusual Suspects project the University of Cambridge Conservation Research Institute has launched an online tool that allows conservation professionals to look at how biodiversity projects can contribute to the SDG targets. The SDG Tool (<https://sdgtool.com>) was developed by the Department of Geography and funded by the Cambridge Conservation Initiative Collaborative Fund for Conservation and the Cambridge Economic and Social Research Council Impact Acceleration Account. The tool provides practitioners with a simple interactive interface that helps to navigate the complexity of the SDG targets and their links with project level interventions.

Biodiversity conservation initiatives may be the Unusual Suspects with real potential to positively support the SDGs. Bearing in mind the strong emphasis on the interconnectedness of the SDGs, more needs to be done to encourage conservation practitioners to engage with this global agenda. Biodiversity conservation and human development are two sides of the same coin, both contributing to the same

global development agenda of planetary health and well-being.

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## Conserving *Bupleurum dracaenoides*, the only woody *Bupleurum* species endemic to China

The plant *Bupleurum dracaenoides* Huan C. Wang, Z. R. He & H. Sun, described in 2013, is distinct because of its long woody stem (up to 1.5 m) and clustered leaves. Of > 200 *Bupleurum* species only five have been recorded to have a woody stem with a shrub or sub-shrub habit, and all of these are endemic to the Mediterranean region. *Bupleurum dracaenoides* is the sole woody *Bupleurum* species in Asia. It grows in rocky cliff habitat in the dry, hot valley of Jinsha River, south-west China. Investigations prior to 2013 located only three populations of the species, and subsequent surveys located five more localities in an adjacent area.


In September 2018, sponsored by a grant of the National Key Research and Development Programme of China (2017YF0505200), we surveyed along the Jiansha River, revisiting the range of *B. dracaenoides*. We found a total of 10 populations, two of which were newly recorded. One of these is in Xueshan town, where *B. dracaenoides* had already been recorded, and the second is in Tangdan town, > 20 km from the other known locations of the species. Only seedlings were found in the Tangdan population, and the number of individuals in the 10 known populations is low (< 50 in each). Thus even though we located two previously unknown populations, the total number of known *B. dracaenoides* in the wild may be < 500. The known range of *B. dracaenoides* is < 10-km<sup>2</sup>, over altitudes of 2,300–2,700 m.

Road construction is a potential threat to *B. dracaenoides*. In the Huidong population, which is the only population known on the north bank of Jinsha River, the number of plants has decreased to only five individuals as a result of road building (22 individuals were known in 2015). The mountain cliffs around Xueshan town in Luquan county hold most of the extant *B. dracaenoides* individuals, possibly a result of the foggy, high-cliff habitat, which shelters the plants from human disturbance and is not under threat from road construction.

The seeds of *B. dracaenoides* have a high germination rate (L. Kong et al., 2017, *Plant Science Journal*, 3, 421–426), and we therefore believe that lack of germination is not restricting the species' distribution. Kunming Institute of Botany is now carrying out comprehensive phylogeographical and tissue culture studies of *B. dracaenoides* to obtain

genetic and physiological information to aid conservation and to recover the species in the wild.

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## Capacity Building for Conservation 2019

One of the biggest challenges for conservation in the 21st century is establishing and maintaining sufficient capacity to tackle the growing number of environmental pressures around the world. This capacity needs to provide individuals, communities and organizations with the skills, knowledge and information for undertaking the wide range of tasks required for conserving biodiversity. To build this capacity we need to develop, disseminate and evaluate a diversity of relevant and cost-effective methods. This can only be achieved by ensuring we learn from initiatives in different regions and have the opportunities to communicate with others building capacity for conservation. Three regional conferences—in Colombia in 2013, Kenya in 2015 and India in 2017—have facilitated the exchange of ideas on this subject. From these meetings a number of cross-cutting issues emerged: (1) A range of new and regionally relevant capacity building tools is required to scale-up efforts to build capacity for conservation, including the further development of technological solutions such as e-learning and tools that are accessible in a range of languages. (2) Capacity building strategies and initiatives must take into account the often different enabling environments in different regions. (3) There is a need for the development of methods to evaluate capacity building and identify best practice. (4) There is an urgent need for conversations between donors and grantees to gauge expectations and guide the appropriate focus of funding streams. To directly tackle these issues, a global conference will take place at the Zoological Society of London on 30 July–1 August 2019. See <https://conservationcapacity2019.co.uk/> for further information and the preliminary programme. The presentations will be live-streamed and made available on the conference website, and a series of short practical guides providing a comprehensive review of all major capacity building methods and associated research evidence will be published. For further information or to discuss attendance please contact Mark O'Connell ([moconnell@glos.ac.uk](mailto:moconnell@glos.ac.uk)).

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## Discovery of new populations of the Vulnerable plant *Neopicrorhiza scrophulariiflora* in Yunnan, China

*Neopicrorhiza scrophulariiflora* (Pennell) D. Y. Hong, a perennial herb of the monotypic genus *Neopicrorhiza* in the family Scrophulariaceae, occurs in Bhutan, Nepal, north-east India, and south-west China. It was first described as *Picrorhiza scrophulariiflora* by Francis Whittier Pennell in 1943 (*Academy of Natural Sciences of Philadelphia Monographs*, 5, 65). The species was recognized as a class II protected species in the National Key Protected Wild Plants List of China in 1999 and categorized as Vulnerable on the China Species Red List in 2004. In 2010 the species was identified as one of 62 plant species with extremely small populations in Yunnan, China. In 2001, based on the field knowledge of experts, *N. scrophulariiflora* was evaluated to occur in < 5 localities in China, with an estimated population of < 1,000 mature individuals.

To obtain up-to-date information on *N. scrophulariiflora* in China a total of six field surveys were carried out in the south-west during 2016–2018, with the joint support of the National Natural Science Foundation of China (Grant No. 31570212, 31770228), the National Key Programme of the Ministry of Science and Technology (Grant No. 2017FY100100), and the Talent Project of Yunnan (Grant No. 2015HB092). Two flowering populations of *N. scrophulariiflora* were discovered in Hengduan Mountains in western Yunnan, growing on gravelly grassland at an altitude of 4,160 m. One population, in Gongshan County, has 469 individuals and another population, in Deqin County, has 437 individuals. The discovery of these new populations is promising news for the conservation of the species. However, our survey and information obtained from interviews with local people indicated that the main threats to these populations are anthropogenic use (the roots are used in traditional medicine) and road construction, and hence habitat loss. Effective measures are required to protect these new populations.

The Kunming Institute of Botany is now carrying out further studies on the population dynamics and genetic diversity of *N. scrophulariiflora* across the two populations, to improve management and protection of this species in China. In collaboration with staff of nature reserves, we are also planning to collect seeds of *N. scrophulariiflora* for propagation and future restoration of wild populations. Using species distribution models we plan to identify and explore other sites in China where the species could potentially grow.

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