



## *Selaginella daozenensis* (Selaginellaceae), a new lycophyte from a limestone cave in northern Guizhou, China

QING-WEN SUN<sup>1</sup>, JUN-HUA ZHAO<sup>1</sup> & LI-BING ZHANG<sup>2\*</sup>

<sup>1</sup> Department of Pharmacy, Guiyang College of Traditional Chinese Medicine, Guiyang, Guizhou 5500002, P. R. China

<sup>2</sup> Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A. and Chengdu Institute of Biology, Chinese Academy of Sciences, P.O. Box 416, Chengdu, Sichuan 610041, P. R. China

\*Author for correspondence: Libing.Zhang@mobot.org

### Abstract

*Selaginella daozenensis*, a new species of the lycophyte genus *Selaginella* (Selaginellaceae) from a limestone cave in northern Guizhou, China is described and illustrated. The new species is morphologically most similar to *S. labordei* and *S. sichuanica* but is distinct by its leaves being bluish green when fresh, its median leaves having aristae as long as leaf lamina, and its lateral leaves being larger (3.5–5.0 × 1.7–2.5 mm). *Selaginella daozenensis* is currently known only from a single limestone cave and is considered to be Critically Endangered (CR), based on IUCN Red List criteria. It is also argued that *S. sichuanica*, earlier wrongly synonymized with *S. labordei* in treatments of the genus, should be recognized.

**Key words:** IUCN Red List, *Selaginella labordei*, *S. sichuanica*

### Introduction

The Southwest China province of Guizhou is a remote and mountainous region. This region offers a spectacular variety of karst landscapes, dominated by steep limestone towers or cones. Guizhou is one of the three Chinese provinces featuring extensive karst areas, with about 74% of its land area covered by karst landscapes (Zhang *et al.* 2005) and, thus, it is referred to as the “Karst Province” of China. Some 770 species of lycophytes and ferns have been documented in a recently published *Pteridophyte Flora of Guizhou* encompassing about 68,000 square miles (Wang & Wang 2001). Indeed, in terms of species number per square mile, Guizhou has not only the highest fern diversity of any province in China but is one of the most fern-diverse regions in the world.

In an expedition to document the fern and lycophyte flora of the Dashahe Nature Reserve (29°00'02"–29°13'17" N, 107°21'35"–107°47'37" E), in Daozhen County, northern Guizhou in August 2014, we collected a specimen of *Selaginella* from a limestone cave in this nature reserve and our morphological and molecular study shows that our collection represents a species new to science and is described herein.

### Taxonomy

*Selaginella daozenensis* Li Bing Zhang, Q.W. Sun & Jun H. Zhao, *sp. nov.* (Figs. 1 & 2).

*Selaginella daozenensis* is similar to *S. labordei* Hieronymus ex Christ (1902: 272) and *S. sichuanica* H.S.Kung (1981: 252), but the new species is distinct by its leaves being bluish green when fresh, its median leaves having aristae as long as leaves, and its lateral leaves being larger (3.5–5 × 1.7–2.5 mm).

Type:—CHINA. Guizhou Province: Daozhen County, Dashahe Nature Reserve, 29°07.39'N, 107°35.35'E, 1280 m, inside a limestone cave with north-facing mouth, 16 Aug. 2014, Qing-Wen Sun, Jun-Hua Zhao & Lu-Tai Pan 201435 (holotype GZTM!, isotypes CDBI!, PYU!).