



Taxonomic notes on Chinese *Lilium* L. (Liliaceae) with proposal of three nomenclatural revisions

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Abstract

In this revision, we treat *Lilium wenshanense* L.J. Peng & F.X. Li, *L. jinfushanense* L.J. Peng & B.N. Wang and *L. huidongense* J.M. Xu from China as synonyms of *L. brownii* F.E. Brown ex Mieliez, *L. taliense* Franchet and *L. lijiangense* L.J. Peng, respectively. We justify the synonymy by demonstrating the existence of continuous morphological variation, which we observed in the field and among herbarium specimens.

Key words: Hengduan Mountains, *Lilium*, taxonomic revision, synonym

Introduction

The genus *Lilium* Linnaeus (1753: 302) exhibits great diversity in China, especially in the Hengduan Mountains Region (HDM hereafter) (Haw 1986; Gao *et al.* 2013a). Specifically, ca. 30 species of *Lilium* are distributed in southwestern China, including the HDM, according to the *Flora of China* (Liang and Tamura 2000). Recent research (Gao *et al.* 2012, 2013a, b) shows that *Lilium* also includes ca. 8 species formerly referred to *Nomocharis* Franchet (1889: 113), which is largely endemic to southwestern China, especially the HDM.

Lilium is typical of uncertain taxonomic resolution within HDM genera. On the one hand, two new species of *Lilium* native to the HDM have been published in the past two years (Gao *et al.* 2012, 2013b), and one of the authors of the present study (Gao Y-D) has proposed that many more new *Lilium* taxa may exist within the region. On the other hand, several *Lilium* species that have been accepted by the authoritative *Flora of China* may not merit species rank. In this paper we will provide a revised treatment of HDM *Lilium* based on several lines of evidence.

Materials and methods

Over the last few years, we completed more than ten expeditions in southwestern China to collect *Lilium* and its allied genera with the aim to build a comprehensive molecular phylogeny of this genus. As we made progress on the project, we recognized that some taxonomic questions needed to be clarified. In particular, we noted that several HDM endemic species, which were published in 1980s, were documented only by their types or by a few collections. We realized the importance of reevaluating the taxonomic ranks of species represented by rare collections. Thus, we rigorously examined specimens in China, visited herbaria (CDBI, KUN, PE, and SZ), and used images in the Chinese Virtual Herbarium repository (CVH, <http://www.cvh.org.cn/>). Additionally, we obtained images of specimens of *Lilium* from P, K and E herbaria.

L. taliense – CHINA. **Chongqing**: Nanchuan, 2 Jul 1978, *Geological survey team of plant 697* (CDBI!); *ibidem*, 1 Jul 1978, *Geological survey team of plant 569* (CDBI!); *ibidem*, 2 Jun 1978, *Geological survey team of plant 160* (CDBI!); *ibidem*, 21 Jul 1957, *G.F. Li 63021* (PE!); *ibidem*, 11 Aug 1957, *J.H. Xiong et al. 92596* (PE!); *ibidem*, 3 Jul 1964, *K.J. Guan et al. 1058* (PE!). **Guizhou**: Tongren, 16 Jul 1939, *B.Q. Zhong 886* (PE!). **Sichuan**: Muli, s.d., *T.T. Yu 7366* (KUN!); *ibidem*, 20 Aug 1937, *T.T. Yu 14059* (KUN!); *ibidem*, 1 Aug 1978, *Q.S. Zhao 8543* (CDBI!); *ibidem*, 2 Jul 1978, *Q.S. Zhao et al. 6756* (CDBI!); *ibidem*, 2 Aug 1978, *Q.S. Zhao et al. 7925* (CDBI!); *ibidem*, 20 Aug 1937, *T.T. Yu 14059* (PE!). **Yunnan**: Dali, 27 May 1964, *Li 78* (KUN!); Eryuan, 17 Jul 1940, *R.C. Ching 23272* (KUN!); *ibidem*, 22 Aug 1963, *Yunnan Institute for drug control 63-1883* (KUN!); *ibidem*, 17 Jul 1940, *R.C. Ching 23272* (PE!); Jianchuan, 8 September 1956, *P.Y. Mao 246* (PE!); Jingdong, 1 Aug 1975, *B.Y. Qiu 52903* (PE!); Kunming, s.d., *S.H. Yuan 101118* (KUN!); *ibidem*, 1 Aug 1975, *B.Y. Qiu 59128* (CDBI!); *ibidem*, 26 Oct 1941, *S.E. Liu 19206* (PE!); Langping, 28 Jul 1963, *J.S. Yang 5030* (KUN!); Lijiang, 28 Jul 1959, *Kunming Botanical Garden 22464* (KUN!); *ibidem*, 19 Jul 1962, *A.L. Zhang 100550* (KUN!); *ibidem*, 15 Jul 1939, *Z.G. Zhao 30397* (KUN!); *ibidem*, 29 Jul 1940, *R.C. Ching 30929* (KUN!); *ibidem*, 25 Jul 1939, *Z.G. Zhao 30451* (KUN!); *ibidem*, 24 Aug 1939, *R.C. Ching 21451* (KUN!); *ibidem*, 2 Jul 1939, *C.Y. Zhao 20959* (KUN!); *ibidem*, Aug 1963, *Lijiang Botanical Garden 100550* (KUN!); *ibidem*, 29 Aug 1937, *T.T. Yu 15509* (PE!); *ibidem*, Jul 1922, *J.F. Rock 5171* (PE!); *ibidem*, 15 Jul 1937, *R.C. Ching 30397* (PE!); *ibidem*, s.d., *R.C. Ching 21421* (PE!); *ibidem*, 24 Aug 1939, *Y.Z. Zhao 21451* (PE!); *ibidem*, 18 Jul 1956, *P.Y. Mao 131* (PE!); *ibidem*, 1910, *G. Forrest 6152* (PE!); *ibidem*, Aug 1922, *G. Forrest 23221* (PE!); s.l., s.d., *E.E. Maire 4008* (PE!).

L. lijiangense—CHINA. **Sichuan**: Huidong, 29 Jul 2009, *Y.D. Gao G20090729* (SZ!); *ibidem*, 26 Jun 1956, *S. K. Wu 1568* (SZ!, KUN!); Ningnan, 12 Jul 1978, *Ningnan Exped. 0321* (HSM!). **Yunnan**: Lijiang, Jul 1981, *L.J. Peng 81-26* (KUN!); Kunming, 26 Jul 2008, *Peng Hua et al. 8253* (KUN!).

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