

## **LLOYDIA NANA, A NEW SPECIES OF LILIACEAE FROM CHINA**

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### **Abstract**

*Lloydia nana* R. Li & H. Li, a new species of Liliaceae from eastern Xizang, China, is described and illustrated. Morphologically, it is closely similar to *L. serotina* var. *parva* (C. Marquand & Airy Shaw) H. Hara and *L. yunnanensis* Franchet, but differs from the former by having single basal leaf, taller stigma than anthers; from the latter by having dwarf habit 2.5-4.0 cm tall, indistinctly 3-lobed stigma, and style slightly longer than ovary.

### **Introduction**

The genus *Lloydia* Reichenbach includes 20 species distributed in temperate regions of the North Hemisphere, with one species in western North America and 19 in Eurasia (Wu *et al.*, 2006; Mabberley, 2008). In China, *Lloydia* Reichenbach is represented by eight species, two of which are endemic, namely, *Lloydia oxycarpa* Franchet and *L. ixiolirioides* Baker *ex* Oliver (Chen and Turland, 2000).

In July 2011, during an expedition to the eastern Xizang for the project "Flora of Pan-Himalayas", we collected some interesting specimens belonging to *Lloydia*. Among them, we found one species with morphological features that differed from the other known species in this genus. After a critical morphological study, literature survey (Hara, 1971, 1975; Chen, 1987; Liang, 1994; Noltie, 1994; Li, 1997; Chen and Turland, 2000), and examination of many other specimens in the herbarium of Institute of Botany, Chinese Academy of Sciences (PE) and the herbarium of Kunming Institute of Botany, Chinese Academy of Sciences (KUN), we concluded it representing a new species in the genus *Lloydia*, viz., *Lloydia nana* R. Li & H. Li.

The detailed taxonomic account along with illustration is given below.

***Lloydia nana* R. Li & H. Li, sp. nov.**

**(Fig. 1)**

**Diagnosis:** *Lloydia serotina* var. *parva* (C. Marquand & Airy Shaw) H. Hara *et* *L. yunnanensis* Franchet *affinis*, *sed a priore folio basilio singulo, stigmatate celsus quam H. Hara et antherae differt; ab postea habito nano, 2.5-4.0 cm elato, stigmatate leviter trilobo, stylo leviter longiore quam ovario differt.*

**Type:** China. Xizang Autonomous Region (Tibet): Mangkang County, Quzika township, Hongla Mountains Pass, along the No. 214 national road from Deqing of Yunnan to Mangkang of Tibet, alpine meadow, growing on the slope, 28°22'57.5"N, 98°59'42.1"E, 4225 m, 23 July 2011, *Rong Li 554* (holotype: KUN).

Perennial herb, 2.5-4.0 cm tall, bulbiferous. Bulb ovoid, 2-5 × 1-3 mm, covered with a membranous, translucent tunic; tunic generally with a collar of persistent leaf bases, apex splitting longitudinally. Stem simple, erect. Basal leaf 1, linear, slightly shorter or longer than stem, 25-40

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× 0.5-1.0 mm; cauline leaves 3, narrowly linear, 4-8 × c. 0.5 mm. Inflorescence terminal, 1-flowered. Flowers bisexual. Tepals 6, free, glabrous, white with 3 purple veins, basally mottled with yellow, with 2 inconspicuous, nectariferous grooves near base adaxially; outer tepals oblong, c. 5-6 × 1 mm, apex acute; inner tepals obovate, c. 5-6 × 2 mm, apex acute. Stamens 6, inserted at the base of tepals, shorter than tepals, 3-5 mm long; filaments erect, glabrous, 2.5-4.5 mm long; anthers basifixed, oblong, c. 0.5 mm long. Ovary ovoid to sub-ellipsoid, superior, yellow, 2.0-2.5 × 0.5-1.0 mm, 3-loculed; ovules numerous in each locule; style slender, slightly longer than ovary, 2.5-3.0 mm long; stigma indistinctly 3-lobed, longer than anthers.

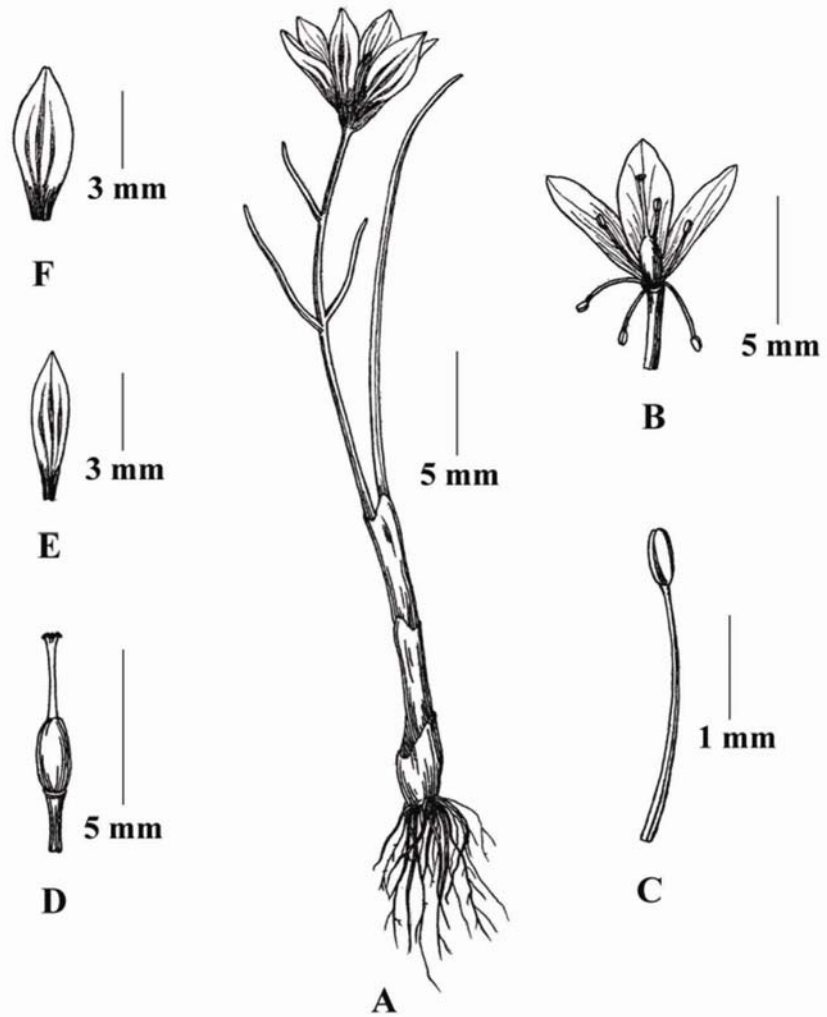


Fig. 1. *Lloydia nana* R. Li & H. Li, **sp. nov.** A) habit, B) flower with part tepals removed, showing stamens and pistil, C) stamen, D) pistil, E) outer tepal (dorsal view), F) inner tepal (dorsal view).

*Phenology*: Flowering in July.

*Etymology*: The specific epithet of the new species refers to its dwarf habit.

*Distribution and ecology:* *Lloydia nana* R. Li & H. Li is currently known only from two sites on Quzika township of Mangkang County and Tiantuo township of Zugong County in Changdu Prefecture, Xizang Autonomous Region, China. It grows in alpine meadows at 4,000-4,225 m and shares its habitat with plants such as *Spenceria ramalana* Trimen, *Sanguisorba filiformis* (J.D Hook) Handel-Mazzetti, *Fragaria* sp., *Adenophora* sp., *Hedysarum* sp., *Pedicularis* spp., and *Potentilla* spp.

*Conservation status:* The species was collected only from two sites and is therefore assumed to be rare. It is considered as 'Endangered' using the criteria set out by IUCN (2001) since its known area of occupancy is less than 500 km<sup>2</sup> (criterion B2) and the total population size is estimated to be smaller than 2,500 mature individuals (criterion C).

The major morphological differences among three taxa of *Lloydia* are outlined in Table 1.

**Table 1. Morphological comparison of *Lloydia nana* sp. nov., *L. serotina* var. *parva* and *L. yunnanensis*.**

Characters	<i>L.nana</i>	<i>L. serotina</i> var. <i>parva</i>	<i>L. yunnanensis</i>
Habit	2.5-4.0 cm tall	3-4 cm tall	8-20 cm tall
Basal leaves	1	2	1 or 2
Tepals	basally mottled with yellow	basally mottled with purple	basally mottled with purple or red
Style	slightly longer than ovary	nearly as long as ovary	2-4 times as long as ovary
Stigma	taller than anthers, indistinctly 3-lobed	shorter than anthers, indistinctly 3-lobed	equal or taller than anthers, shortly 3-lobed

*Additional specimens examined (paratypes):* China. Xizang Autonomous Region (Tibet): Changdu Prefecture, Zugong County, Tiantuo township, Aixi Mountains Pass, along the No. 318 national road from Zugong to Bangda, alpine meadow, growing on the slope, 29°44'39"N, 97°45'20.7"E, 4000 m, 16 July 2009, *Zhiling Dao 4239* (KUN); Changdu Prefecture, Mangkang County, Quzika township, Hongla Mountains Pass, along the No. 214 national road from Deqing of Yunnan to Mangkang of Tibet, alpine meadow, growing on the slope, 28°23'24.1"N, 98°58'4.5"E, 4150 m, 23 July 2011, *Rong Li 569* (KUN).

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