

Parnassia trinervis Drude (Parnassiaceae), a New Addition to the Flora of Nepal

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Abstract *Parnassia trinervis* Drude, previously known from E. Tibet, Sichuan, Qinghai and Gansu in China, was discovered in Mustang, C. Nepal for the first time. This species is similar to *P. pusilla*, but differs in having leaves with the base rounded to cuneate.

Key words: Himalaya, Mustang, Nepal, *Parnassia*, Sino-Himalayan region.

In our previous paper on *Parnassia* (Akiyama & Subedi 2006) we reported the occurrence of *P. kumaonica* from Mustang District, C. Nepal. In this paper we report the occurrence of *P. trinervis* Drude, new to Nepal.

Six species of *Parnassia* have been reported in Nepal (Hara 1979) and four of them, *P. chinensis* Franch., *P. kumaonica* Nekr., *P. pusilla* Wall. ex Arn., and *P. tenella* Hook. f. & Thomson, are small plants and similar to each other in having short stems. *Parnassia tenella* is characterized by the dark green petals and undivided staminodes (Grierson 1987). *Parnassia chinensis* and *P. pusilla* are characterized by the shape of the petals with fimbriate or non-fimbriate basal parts (Akiyama & Ohba 2001). *Parnassia kumaonica* is characterized by petals claw-like at the base (Akiyama & Subedi 2006). The other two species, *P. nubicola* Wall. ex Royle and *P. wrightiana* Wall. ex Wight & Arn., are medium-sized plants with larger flowers.

During the survey of the flora of Mustang (Ohba 2000, Iokawa 2001, Noshiro & Amano 2002, Miyamoto & Ikeda 2003, Iokawa & Yonekura 2004), a species of *Parnassia* similar to *P. pusilla* in having short stems and small flowers with non-fimbriate petals, but differing in the base of the leaves rounded to cuneate and the

styles short (ca. 0.5 mm long) was collected. The plants were also similar to *P. nubicola* in having the base of the leaves rounded to cuneate, but differing in the shorter stems and smaller petals not fimbriate on the lower half.

These plants are considered to be identical with *P. trinervis*, which was described from the alpine region of E. Tibet based on the collection of Thomson (Drude 1875). It is known from Sichuan, Qinghai and Gansu in China (Ku 1995, Gu & Hultgård 2001).

Differences among the species known from Nepal are given in the following key.

Key to *Parnassia* in Nepal:

- A. Petals dark green, staminodes undivided
..... *P. tenella*
- A. Petals white, staminodes divided at apex into 3–7 lobes or segments
 - B. Apex of staminodes divided into 5–7 linear segments *P. wrightiana*
 - B. Apex of staminodes divided into 3 lobes
 - C. Stems 15–35 cm tall; petals 12–17 mm long, fimbriate to ciliate in basal part; leaves rounded to cuneate at base
..... *P. nubicola*
 - C. Stems 2–13 (–15) cm tall; petals 5–9 mm long, fimbriate or not basally; leaves dis-

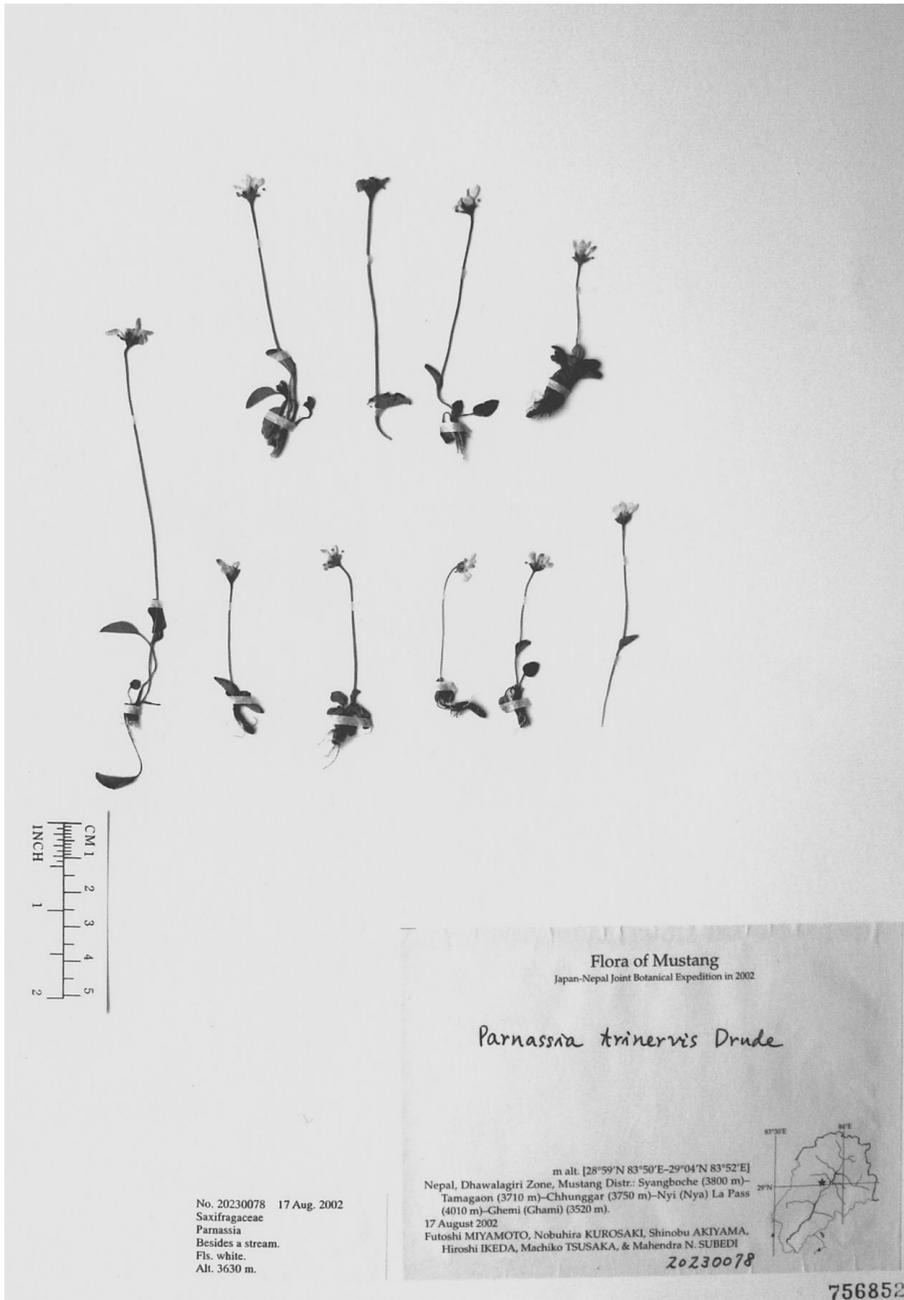


Fig. 1. *Parnassia trinervis* (Miyamoto et al. 20230078, TNS).

- tinctly cordate or rounded to cuneate at base
- D. Leaves rounded to cuneate at base; petals not fimbriate in basal part
 *P. trinervis*
- D. Leaves distinctly cordate at base; petals fimbriate or not fimbriate basally
- E. Petals not distinctly larger than sepals (less than 1.5 times longer); base of petals abruptly narrowed, claw-like, lamina obovate *P. kumaonica*
- E. Petals distinctly larger than sepals (usually more than 2 times longer); base of petals gradually narrowed, not claw-like
- F. Petals narrowly obovate, margins erose throughout or in part, without hairs at base *P. pusilla*
- F. Petals obovate, margins fimbriate except at apex, usually with a few hairs at base (without hairs in var. *ganeshii*) *P. chinensis*

(1931); in *Oestr. Bot. Z.* **90**: 130, 133 (1941). *Iconogr. Cormophyt. Sin.* **2**: 147, fig. 2024 (1972); *Suppl.* **2**: 39 (1983). Ku in *Bull. Bot. Res. North-East. For. Univ.* **7**(1): 42 (1987). Ku in *Fl. Reipubl. Popul. Sin.* **35**(1): 40 (1995). Gu & Hultgård in *Fl. China* **8**: 372 (2001). [Figs. 1 & 2]

[Description based on specimens collected from Nepal]

Stems usually 1–3, or rarely more, 2.5–13 cm tall, with one leaf near base. Basal leaves 3–9 (to many), petiolate; petiole (0.5–) 1–1.5 (–3) cm long; blade ovate to ovate-lanceolate, (0.5–) 0.8–1.5 cm long, (0.3–) 0.5–1 cm wide, base rounded to cuneate, apex acute, margin entire. Cauline leaf one, sessile, similar to basal ones but smaller. Flowers ca. 1 cm across. Calyx lobes lanceolate, 2.5–3.5 mm long, 1.2–1.5 mm wide, apex rounded to obtuse, margin entire, glabrous. Petals white, 6.5–8 mm long, 2–4 mm wide, obovate to oblanceolate, base gradually narrowed, apex rounded, margin very slightly erose, 3-veined. Anthers oblong, ca. 0.5 mm long, connectives not projected; filaments ca. 3 mm long; staminodes flat, ca. 2 mm long, lamina ca. 1 mm long and ca. 1.5 mm wide, trilobed. Ovary half-in-

Parnassia trinervis Drude in *Linnaea* **39**: 322 (1875). *Hand.-Mazz., Symb. Sin.* **7**(2): 432

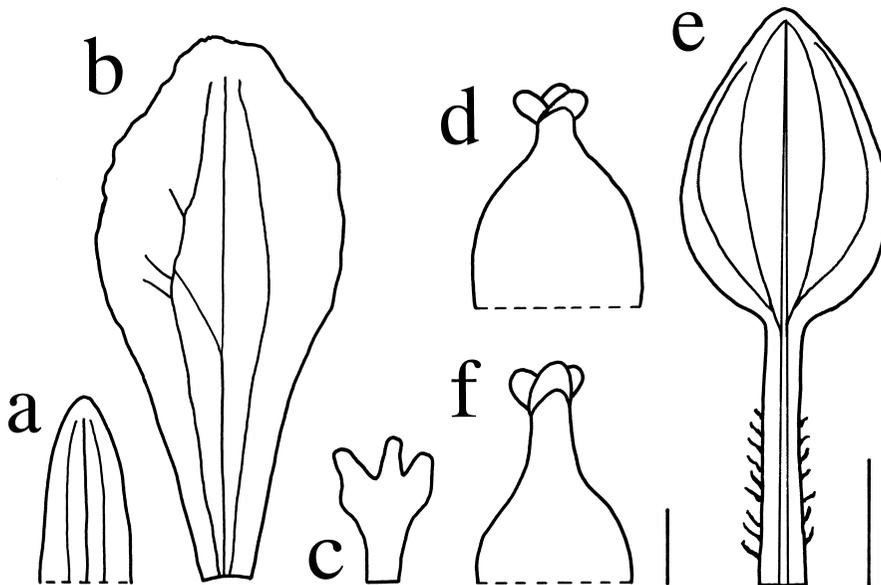


Fig. 2. a–e: *Parnassia trinervis* (a–d: Miyamoto et al. 20230078, TNS). e: Miyamoto et al. 20230012, TI). f: *P. pusilla* (Miyamoto et al. 9420044, TI). a: Calyx lobe. b: Petal. c: Staminode. d and f: Pistil. e: Radical leaf. Bar indicates 1 mm for a–d and f. Bar indicates 5 mm for e.

ferior, ovoid; style ca. 0.5 mm long; stigma trilobed.

Specimens examined. C Nepal. Dhawalagiri Zone, Mustang District, around Sangda Pass, Pongio Kharka, alt. 4410 m (F. Miyamoto et al. 20220047, 20230012, 10 Aug. 2002, TI); alt. 4400–4650 m (F. Miyamoto *et al.* 20220102, 11 Aug. 2002, TI, TNS); alt. 4410 m (F. Miyamoto et al. 20250031, 12 Aug. 2002, TI, TNS); Syangboche–Tamagaon, alt. 3630 m (F. Miyamoto et al. 20230078, 17 Aug. 2002, TI, TNS); Nyi La–Ghami, alt. ca. 3500 m (S. Noshiro et al. 20106095, 5 Aug. 2001, TI, TNS); around Lo-Manthang, alt. 3800 m (F. Miyamoto et al. 20220241, 20230173, 23 Aug. 2002, TI, TNS); Kyungchhama Khola, a valley, ca. 6 km NW. of Lo-Manthang, alt. 4250–4430 m (Y. Iokawa et al. 20315098, 20340036, 2 July 2003, TI, TNS); around Lo-Manthang, alt. 3809 m (R. K. Uprety 20315122, 4 July 2003, TI); Ghumi La–Parsya Khola, alt. ca. 4900 m (S. Noshiro et al. 20106148, 10 Aug. 2001, TI, TNS); Lo Manthang–Chmmithong (Chumithou), alt. 3834–4866 m (T. Watanabe et al. LOM-SP020801 (021), 1 Aug. 2002, TI); Yak Kharka–Alubari–Marpha–Tukuche, 28°43′N83°39′E, 3600 m (M. Suzuki et al. 8881706, 1 Sept. 1988).

Note: According to Drude (1875), *Parnassia trinervis* has leaves with the base subcordate to rounded, but the specimens collected in Mustang region have the base rounded to cuneate. The petals are very slightly erose.

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