

## Notes on *Parnassia kumaonica* Nehr. (Parnassiaceae) in Nepal

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**Abstract** An additional description of *Parnassia kumaonica* Nehr. is given with sketches. This species is characterized by the petals with abruptly narrowed claw-like base. The key to distinguish from the resembling species in Nepal is also given.

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

The flora and vegetation of Mustang District, Central Nepal are remarkably different from other districts in Nepal (Stainton 1972). Since 2000 research teams have been dispatched to the lower and upper Mustang to study the flora (Iokawa 2001, Noshiro and Amano 2002, Miyamoto and Ikeda 2003). A *Parnassia* was collected during these field researches.

The genus *Parnassia* is diversified in the Sino-Himalayan floristic region. Hara (1979) recognized six species in Nepal. Four of which, *P. chinensis* Franch., *P. kumaonica* Nehr., *P. pusilla* Wall. ex Arn., and *P. tenella* Hook. f. & Thomson, are similar to each other in having short stems. But *P. tenella* is characterized by the dark green petals and undivided staminodes (Grierson 1987). *Parnassia chinensis* and *P. pusilla* are similar in having white petals distinctly larger than the sepals and trilobed staminodes, and studied in detail especially on the variations of the shape and size and the marginal processes of the petals (Akiyama & Ohba 2001).

The *Parnassia* collected in Mustang is similar to *P. pusilla* and *P. chinensis* in having cordate basal leaves, short stems, and small flowers, but differs by the petals which are not distinctly larger than the sepals. Comparing with one of the isosyntype specimens deposited in BM and the original description of *P. kumaonica* this *Parnas-*

*sia* is identified as *P. kumaonica*. In the original description of *P. kumaonica* the size of sepals, petals, stamens, and staminodes is not mentioned, though it has rough sketches of a plant, a sepal, petals, and staminodes without scale (Nekrassova 1927).

*Parnassia kumaonica* is hardly known in Nepal. Hara (1955) mentioned several features including the size of style (as 2 mm long) based on the specimen from Thaple Himal (4600 m), Central Nepal. Hara (1975) also reported this species from Thudam, East Nepal, without note. Polunin and Stainton (1984) and Stainton (1988) did not mention this species. This species is not known from Bhutan (Grierson 1987) and Tibet (Gu & Hultgård 2001).

*Parnassia kumaonica* is distinguished from the resembling species as shown in the following key.

Key to *Parnassia kumaonica* and the resembling species:

- A. Petals dark green, staminodes undivided . . . .  
..... *P. tenella*
- A. Petals white, staminodes trilobed
  - B. Petals not distinctly larger than sepals  
(less than 1.5 times longer); base of petals  
abruptly narrowed, claw-like, lamina ob-  
ovate . . . . . *P. kumaonica*

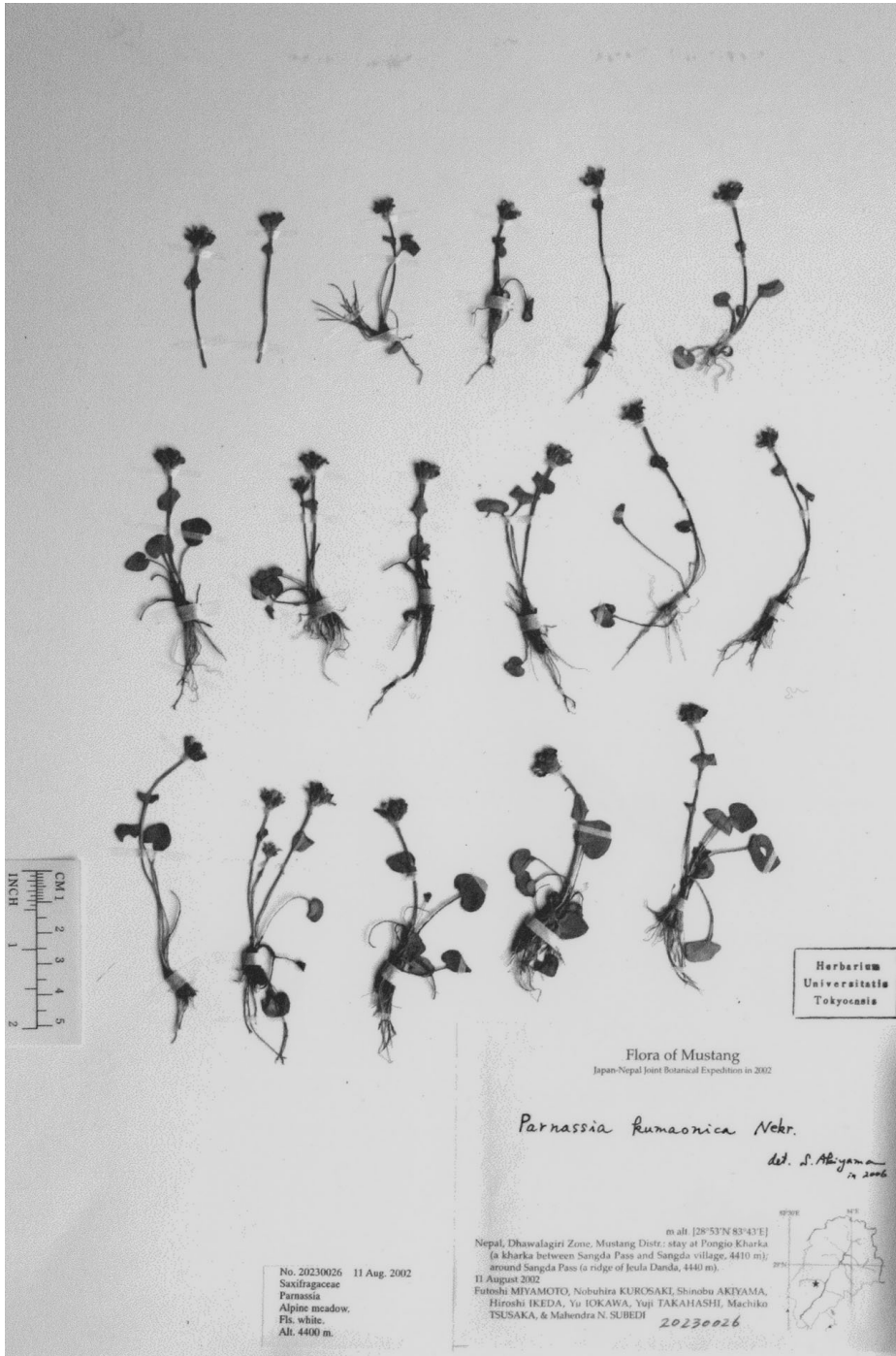


Fig. 1. *Parnassia kumaonica* collected in Mustang (Miyamoto et al. 20230026, TI).

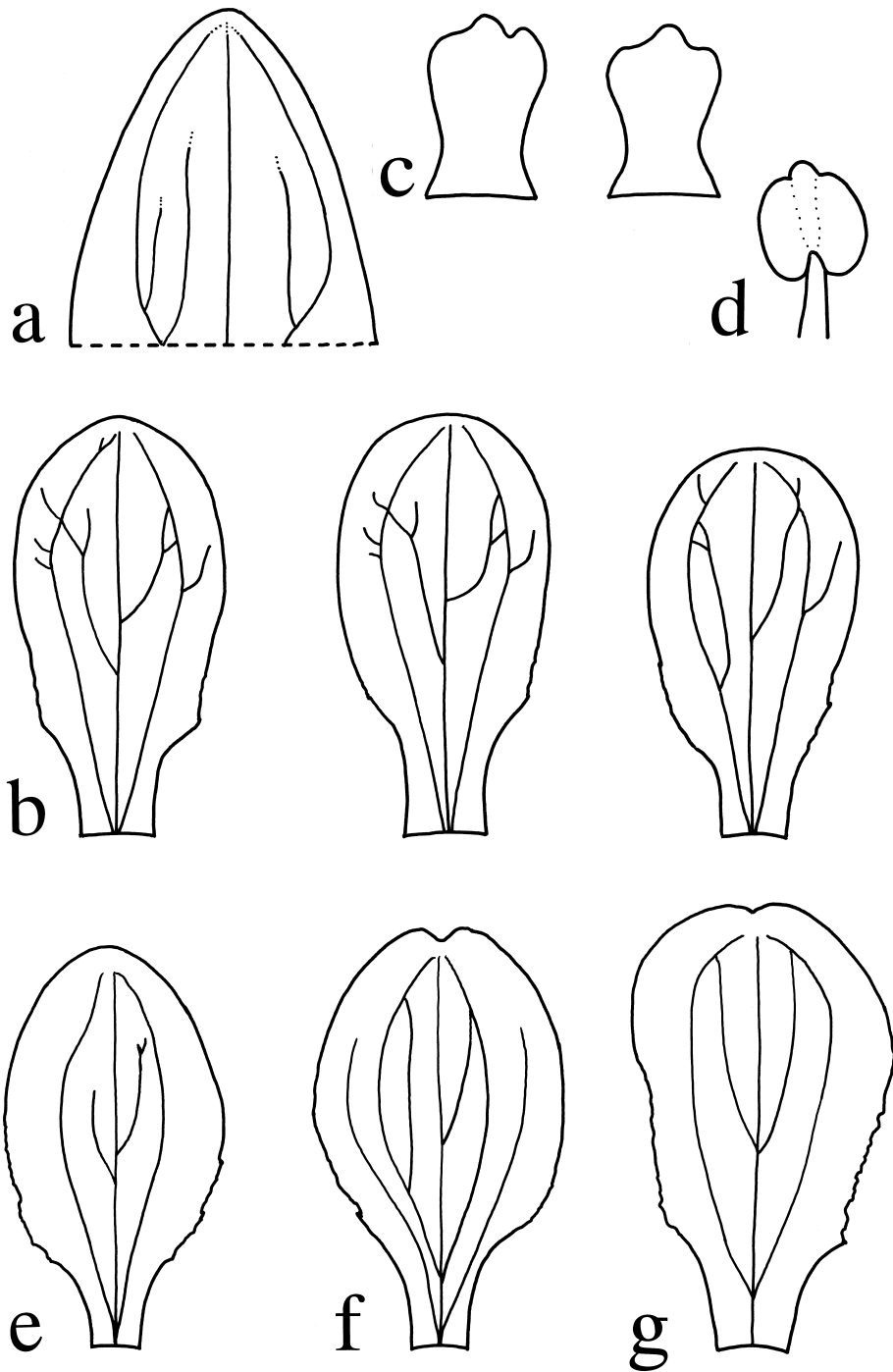


Fig. 2. *Parnassia kumaonica*. a: Sepal. b: Petals. c: Stamines. d: Anther. a–d (F. Miyamoto *et al.* 20230026). e: Petal (H. Kanai *et al.* 720654). f: Petal (H. Kanai *et al.* 720687). g: Petal (H. Kanai *et al.* 723252). All  $\times 10$ .

- B. Petals distinctly larger than sepals (usually more than 2 times longer); base of petals gradually narrowed, not claw-like
- C. Petals narrowly obovate, erose on margins throughout or in part, without hairs at base . . . . . *P. pusilla*
- C. Petals obovate, fimbriate on margins except at apex and base, usually with a few hairs at base (without hairs in var. *ganeshii*) . . . . . *P. chinensis*

We give an additional description of *P. kumaonica* with sketches of some floral organs.

***Parnassia kumaonica*** Nekr. in Bull. Soc. Bot. France, **74** (Ser. 5, 3): 646 (1927) [Syntypes: Duthie 5554 and 2898, LE, non vidi; Duthie 5554, BM-isosyn.]. Hara in Kihara (ed.), Fauna and Flora of Nepal Himalaya: 142 (1955); in Enum. Flow. Pl. Nepal. **2**: 156 (1979).

[Figs. 1 & 2]

Stems usually 1–3, 2–8(–13) cm tall, with 1 leaf apically. Basal leaves 5–15, petiolate; petiole 7–9 cm long; blade ovate-cordate to cordate to subreniform, 4–7 mm long, 3–5 mm wide, apex rounded, base cordate, margin entire. Cauline leaf sessile, semiampexicaul, similar to basal ones but smaller. Flowers 6–8 mm across. Sepals ovate, oblong, or widely obovate, and to widely ovate-triangular after flowering (basal part widening), 3–5 mm long, 2–4 mm wide, apex rounded to obtuse, margin entire, glabrous. Petals white, 5–6 mm long, ca. 3 mm wide, base abruptly narrowed, claw-like (1–1.5 mm long); lamina obovate, apex rounded to retuse, margin entire and slightly erose basally, 3-veined. Anthers oblong, 0.6–1 mm long, connectives slightly projected or not; filaments ca. 3.5 mm long; stamens flat, ca. 2.5 mm long, lamina ca. 1.2 mm long and ca. 1.5 mm wide, trilobed. Ovary half-inferior, ovoid; style 1–2 mm long; stigma trilobed. Capsule unknown.

Specimens examined. C Nepal. Dhawalagiri Zone, Mustang District, Pongio Kharka, around Sangda Pass, 4400 m (F. Miyamoto *et al.* 20230026, 11 Aug. 2002, TI, TNS); Dhem Khar-ka, on the west side slope of Hyujung Khola, ca.

10 km N. of Lo-Manthang, 4380–4600 m (Y. Iokawa *et al.* 20310112, 4 July 2003, TI). E Nepal. Janga La–Thudam, 4100 m (H. Kanai *et al.* 720654, 21 June 1972, TI); Thudam–Lama Chungbu, 3800 m (H. Kanai *et al.* 720687, 23 June 1972, TI); Lama Chungbu–Thudam (H. Kanai *et al.* 723252, 24 June 1972, TI).

In this species the connectives of the anthers have a tendency to slightly projected. In the genus *Parnassia* the shape of the connectives of the anthers is one of the distinguishing characters. *Parnassia delavayi*, *P. brevistyla*, and *P. leptophylla* are characterized by the connectives elongated into a long thick point above anther cells or apically projected into a lanceolate appendage (to 5 mm long) (Grierson 1987, Ku 1995, Gu & Hultgård 2001). But no species is known with slightly projected connectives like *P. kumaonica*.

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