

FLORA OF NEPAL NOTULAE II: *PHLOMOIDES LONGIDENTATA* PENDRY, A NEW SPECIES OF LABIATAE FROM NEPAL AND BHUTAN

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The species *Phlomooides longidentata* Pendry is described from Nepal and Bhutan and a key to the species of *Phlomooides* in Nepal is presented.

Keywords. Nepal, new species, *Phlomis*, *Phlomooides*, *Phlomooides longidentata*.

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Introduction

In the *Enumeration of the Flowering Plants of Nepal* (Press in Hara *et al.*, 1982) and the *Annotated Checklist of the Flowering Plants of Nepal* (Press *et al.*, 2000), the Nepalese species of the tribe Phlomoideae Mathiesen are treated as *Phlomis* L. and *Notochaete* Benth. However, following their phylogenetic analysis of the Phlomoideae, Salmaki *et al.* (2012) recognised a greatly reduced circumscription of *Phlomis*, with all the tribe's other species, including all the Himalayan and Chinese taxa, transferred to a much expanded *Phlomooides* Moench.

During the revision of the genus *Phlomooides* for the *Flora of Nepal*, a significant number of specimens were noted that did not correspond well with the *Phlomooides* species previously recorded from Nepal or its surrounding countries. They are recognised here as a new species, which is named as *Phlomooides longidentata* Pendry for its distinctive calyx teeth.

Discussion

During her revision of *Phlomis* (= *Phlomooides*) for the *Flora of Bhutan*, Clement (1999) identified several herbarium specimens as 'aff. *Phlomis tibetica* C.Marquand & Airy Shaw' (= *Phlomooides tibetica* (C.Marquand & Airy Shaw) Kamelin & Makhm.) or 'cf. *Phlomis tibetica*', and noted that they were probably hybrids. However, these specimens, and others from Nepal, are sufficiently different from *Phlomooides tibetica*, and sufficiently widespread and numerous, that they are considered a distinct species, described here as *P. longidentata* on account of the prominent, spine-like calyx teeth (see [Figures 1](#) and [2](#)).

The lower teeth of the calyx of *Phlomooides longidentata* are spreading and 4–6 mm in length, and the upper teeth are erect and 1.5–4 mm long; in pressed material the lower teeth often appear to be sharply reflexed. In *Phlomooides tibetica* the calyx teeth are erect, equal and 1–1.5 mm long. Furthermore, *Phlomooides tibetica* has prominent dark-brown hairs on

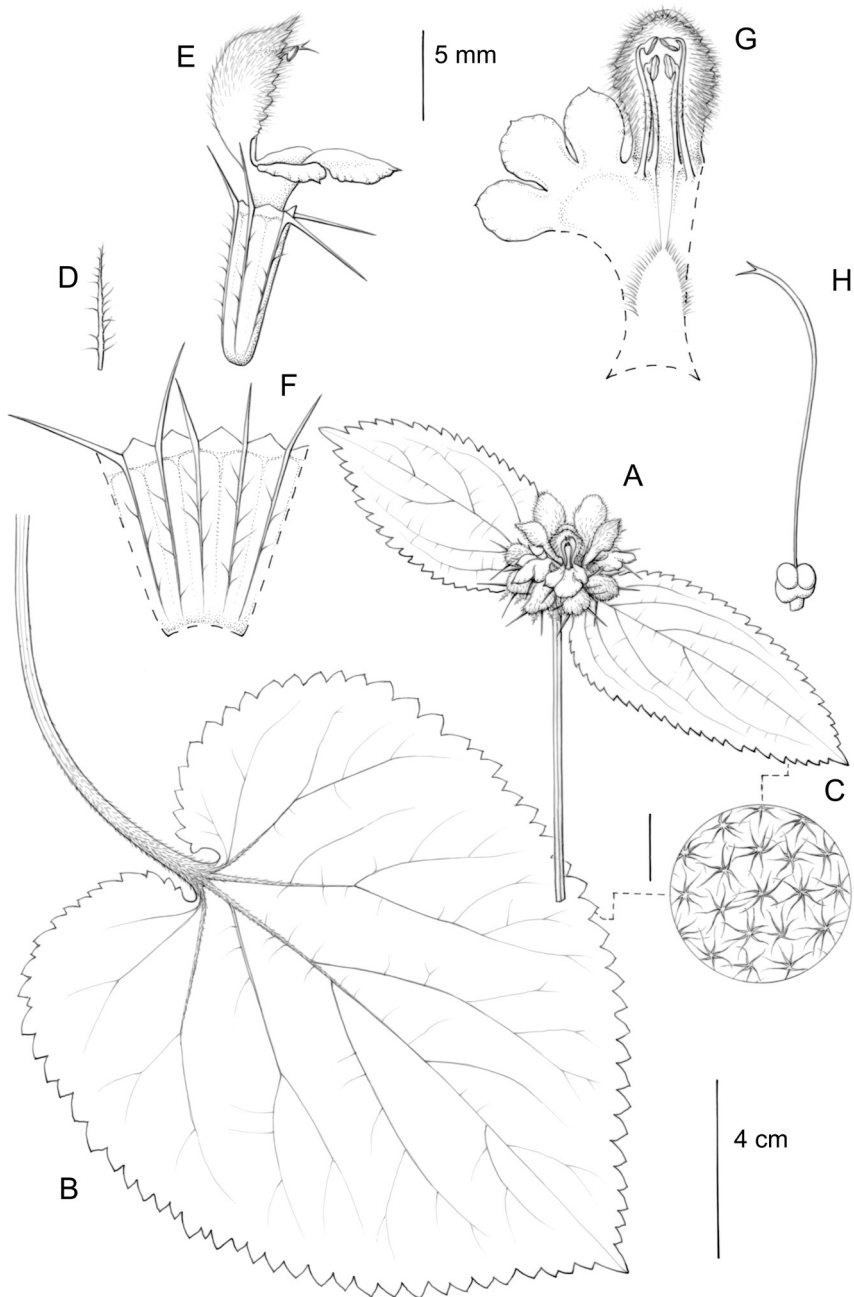


Figure 1. *Phlomoides longidentata* Pendry, sp. nov. A, Inflorescence and bracts; B, basal leaf, upper surface; C, detail of stellate indumentum of lower leaf surface; D, bracteole; E, side view of flower; F, opened calyx, outer view; G, opened corolla; H, ovary and style. Scale bars: A and B, 4 cm; C, 0.05 mm; D–H, 5 mm. Drawn from DNEP3 BX36 by Claire Banks.

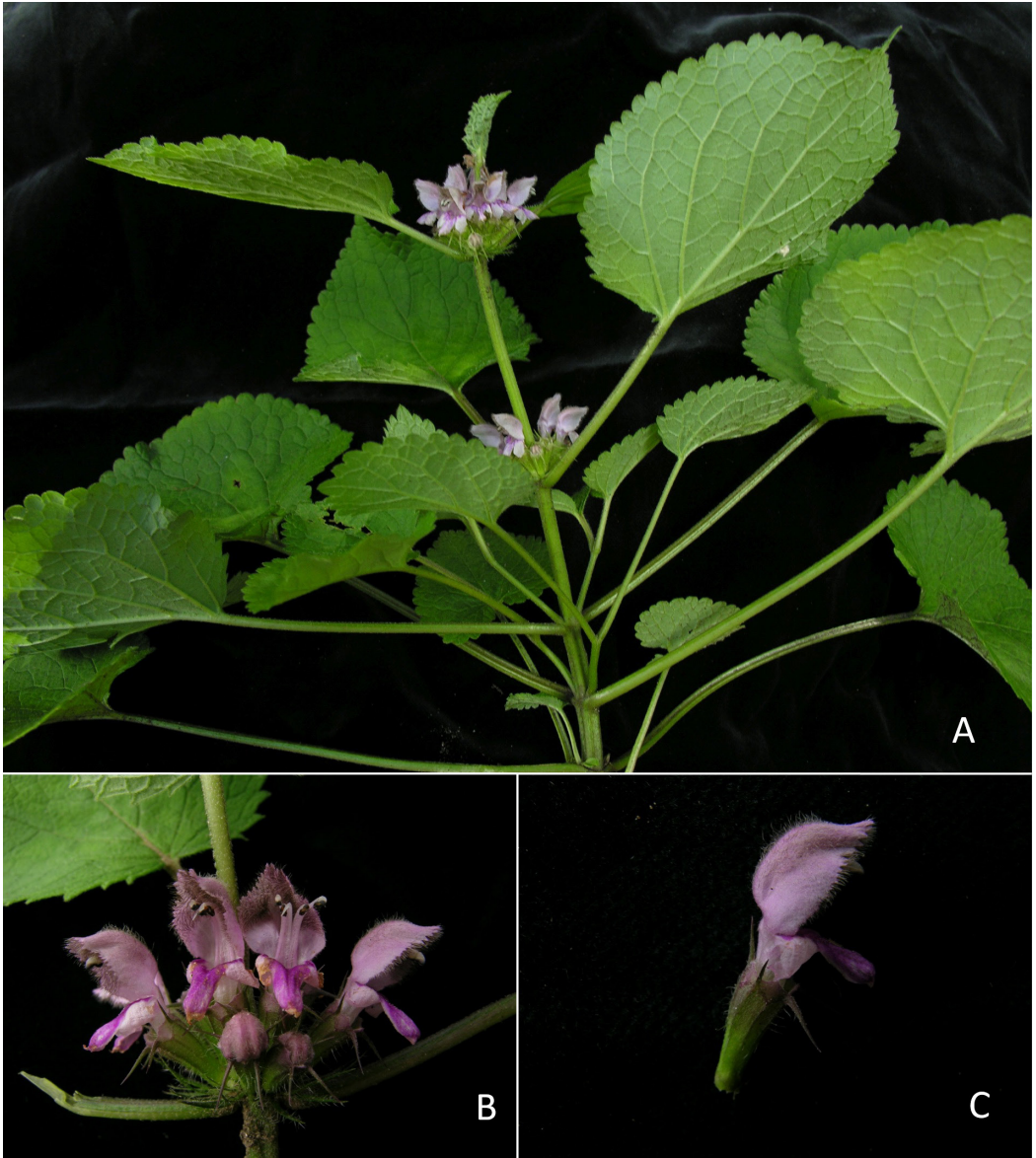


Figure 2. *Phlomooides longidentata* Pendry, sp. nov. (from DNEP3 BY205). A, Upper part of plant (DNEP3 BX36); B, close-up of inflorescence; C, side view of flower. All photographs by C. A. Pendry.

its calyces and bracteoles that are not seen in *P. longidentata*, and it never exceeds 50 cm, whereas *P. longidentata* reaches 1 m in height. In its larger stature *Phlomooides longidentata* resembles *P. macrophylla* (Benth.) Kamelin & Makhm. and *P. breviflora* (Benth.) Kamelin & Makhm., but these species both have shorter, equal or subequal calyx teeth, and the latter

has much shorter corollas (11–14 mm versus 14–20 mm) and 5-veined, not 10-veined, calyces. The undersides of the leaves of both *Phlomooides macrophylla* and *P. breviflora* are sparsely villous or minutely stellate-hairy, rarely glabrous and not evenly stellate-hairy as in *P. longidentata*. *Phlomooides spectabilis* (Falc. ex Benth.) Kamelin & Makhm. also has unequal calyx teeth and is evenly stellate-tomentose on the lower surface of its leaves, but this shorter, perennial species is easily distinguished from *P. longidentata* by the larger leaves and dense indumentum of stellate hairs all over its stems, petioles, bracteoles and calyces, which give it a silvery look throughout. *Phlomooides bracteosa* (Royle ex Benth.) Kamelin & Makhm. sometimes has stellate hairs on the undersides of its leaves, but it is clearly separable from all the other Nepalese species of *Phlomooides* by the conspicuous row of 2 mm-wide bracteoles that surrounds its verticillasters. The differences between these species are summarised in the [Table](#).

Species description

Phlomooides longidentata Pendry, sp. nov.

Phlomooides longidentata differs from *P. bracteosa* (Royle ex Benth.) Kamelin & Makhm., *P. breviflora* (Benth.) Kamelin & Makhm., *P. macrophylla* (Benth.) Kamelin & Makhm. and *P. tibetica* (C. Marquand & Airy Shaw) Kamelin & Makhm. in its longer, unequal calyx teeth, and from *P. spectabilis* (Falc. ex Benth.) Kamelin & Makhm. in its greater stature, its annual growth form, and its villous to sparsely stellate hairy calyx and bracteoles. – Type: Nepal, Solukhumbu District, Namche Bazar, above bridge over Dudh Kosi. 27°47'31"N 86°42'57"E, 3060 m, 12 ix 2006 (fl), DNEP3 BX36 (holotype E; isotypes KATH, TI, TUCH).

Table. Summary of differences between *Phlomooides longidentata* Pendry and similar species of *Phlomooides* in Nepal and Bhutan

Species	Annual or perennial	Maximum height (cm)	Leaf dimensions (cm)	Indumentum on underside of leaves	Corolla length (mm)	Calyx teeth length (mm)
<i>P. longidentata</i>	Annual	100	5–16 × 4–13	Densely evenly stellate hairy	14–20	1.5–4, 4–6
<i>P. bracteosa</i>	Annual	70 (150)	5–18 × 3–13	Villous to sparsely stellate hairy	17–19	1–3
<i>P. breviflora</i>	Perennial	150	12–22 × 8–17	Sparsely stellate or villous pubescent below	11–14	1.5–3
<i>P. macrophylla</i>	Perennial	200	10–18 × 6–12	Sparsely villous or minutely stellate hairy to glabrous, denser on the veins	17–22	1–3
<i>P. spectabilis</i>	Perennial	40	12–20 × 8–13	Densely evenly stellate hairy	18–20	2–3, 4–5
<i>P. tibetica</i>	Annual	50	4–10 × 2.5–8	Villous to stellate hairy	18–20	1–1.5

Annual herb to 1 m. *Indumentum* of simple and stellate hairs. *Stems* more or less densely villous and stellate hairy, glabrescent. *Petioles* 2–20 cm, up to 3 mm thick, with the petioles usually much longer on lower leaves. *Leaves* ovate, 5–16 × 3–13 cm, base cordate to truncate, apex acute, margin serrate, sparsely villous or stellate hairy above, densely evenly stellate hairy below. *Inflorescences* axillary, few- to many-flowered. *Bracts* similar to stem leaves in shape and indumentum but smaller, 1.5–10 × 1–6 cm. *Bracteoles* acicular to narrowly winged, 7–8 mm, ciliate. *Calyx tube* obconical, 10-veined, 9–11 mm, villous or sparsely stellate hairy, teeth spinose, unequal, upper teeth 1.5–4 mm, erect or spreading, lower teeth usually larger, reflexed, 4–6 mm. *Corolla* pale pink to purple, 14–20 mm, tube 8–13 mm with an oblique annulus near the base, upper lip 6–8 mm, hooded, densely brownish villous inside with shorter, sparser, whitish hairs outside, lower lip 6–7 mm, pale villous on lower surface, middle lobe darker than the rest of the corolla, 4–5 mm, obtuse, lateral lobes 2–4 mm, obtuse. *Stamens* unequal, free parts 5–9 mm, glabrous. *Style* more or less curved, 13–20 mm, unequally 2-lobed. *Nutlets*: mature nutlets not seen, immature nutlets blackish brown, oblong, flattened, 3–4 mm, with a small, circular attachment scar at the base.

Altitudinal range. 2000–3800 m.

Ecology. Grassy slopes and open areas in *Pinus wallichiana*, *Tsuga-Rhododendron* and *Quercus* forest.

Distribution. Nepal, Bhutan.

Additional specimens examined. BHUTAN. **Thimpu:** Dotena, 8000 ft, 16 vii 1914, *Cooper* 1560 (E), 3300 m, 20 viii 1989, *Rose King* 1109 (E); Dochong La, 3080 m, 1 ix 1984, *Sinclair & Long* 4751 (E); Paro, 7 ix 1983, *Sargent* 254 (E).

NEPAL. **Dolakha:** Rolwaling, 12,300 ft, 1 viii 1974, *Sacherer* s.n. (E). **Kalikot:** Panipokhari to Chaukebada, 2020–2440 m, 4 viii 1991, *Suzuki* et al. 9160203 (TI). **Mustang:** Ghasa, 10,000 ft, 4 iv 1954, *Stainton, Sykes & Williams* 1522 (BM, E). **Rukum:** Ghasdung Khola, 10,000 ft, 6 vi 1954, *Stainton, Sykes & Williams* 3396 (BM, E); Ghasdung Khola, 2935 m, 26 viii 2014, *BRD A122* (E, KATH). **Solukhumbu:** Namche Bazar, above bridge over Dudh Kosi, 3060 m, 12 ix 2006, *DNEP3 BX35* (E, KATH, TI, TUCH), *DNEP3 BY205* (E, KATH, TI, TUCH); Pike Khop to Fera, 2435 m, 25 vii 1995, *Miyamoto* et al. 9596140 (E); Sete to Tak Tor, 2550–3400 m, 19 viii 1985, *Ohba* et al. 8580979 (E); Kurki to Khari Khola, 3180 m, 29 viii 1997, *Wakabayashi* et al. 9720324 (TI). **District unknown:** 1930, *Dhwoj* 356 (E).

Key to the species of *Phlomoides* in Nepal

- 1a. Rosette-forming herbs with leaves appressed to the ground. Flowering stems occasionally to 20 cm. Petioles flattened, up to 1.5 cm broad _____ *P. rotata*
- 1b. Erect herbs with evenly spaced leaves. Flowering stems at least 20 cm tall. Petioles terete, up to 0.5 cm thick _____ 2

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- 2a. Calyx teeth strongly hooked apically _____ *P. hamosa*
 2b. Calyx teeth straight, unhooked _____ 3
- 3a. Widest bracteoles c.2 mm wide _____ *P. bracteosa*
 3b. Bracteoles less than 1.5 mm wide _____ 4
- 4a. Calyx teeth unequal, spreading, 2–6 mm, lower teeth longer _____ 5
 4b. Calyx teeth equal to subequal, erect, 1–3 mm _____ 6
- 5a. Perennial herbs to 40 cm, with stout rootstock. Calyx and bracteoles densely stellate hairy _____ *P. spectabilis*
 5b. Annual herbs to 100 cm. Calyx and bracteoles villous, sometimes with sparse stellate hairs _____ *P. longidentata*
- 6a. Annual herb to 50 cm. Calyx and bracteoles villous with brown hairs. Leaves bullate _____ *P. tibetica*
 6b. Perennial herb to 1(–2) m. Calyx and bracteoles with pale hairs. Leaves flat _____ 7
- 7a. Calyx tube 5-veined, 7–8 mm. Corolla 11–14 mm _____ *P. breviflora*
 7b. Calyx tube 10-veined, 10–11 mm. Corolla 17–22 mm _____ *P. macrophylla*

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