

FLORA OF NEPAL NOTULAE VI: *SILENE* (CARYOPHYLLACEAE) – SECT. *PHYSOLYCHNIS* PART II, AND MISCELLANEOUS NOTES ON SEVERAL SPECIES

M. Lidén ¹ & B. Oxelman ²

Four new species of *Silene* sect. *Physolychnis* are described: *S. manandharii*, *S. kalinantha*, *S. pollicaris* and *S. deae*. The first two are endemic to Nepal, the other two to Nepal and Tibet. Proper use and synonymy are clarified for *Silene himalayensis* and *S. madens*; both are widespread in the Western Himalayas and on the Tibetan plateau. *Silene puranensis* and *S. caespitella* are recorded as new to Nepal. *Silene holosteifolia*, *S. hideakiohbae* and *S. pseudoindica*, all with their main distribution in Nepal, are reported for the first time from Tibet, Bhutan and/or India. The presence of *Silene noctiflora* in Nepal is unproven. The status of *Silene ischnopetala* is discussed, and its earlier association with the Nepalese endemic *S. indica* is considered a mistake. *Silene stellariifolia* is suggested to be a synonym of *Atocion armeria*. The new combinations *Silene souliei*, *S. qomolangmaensis* and *S. ischnopetala* are made. A few emendations to our previous Notulae in this series are presented.

Keywords. Flora, Himalaya, India, Nepal, *Silene*, taxonomy, Tibet.

Received 6 September 2024 Accepted 19 March 2026 Published 20 October 2026

Introduction

Our revision of Nepalese *Silene* for the *Flora of Nepal* project (volume 2; see *Flora of Nepal*, [continuously updated](#)) has revealed ten undescribed species, seven misapplied or overlooked valid species names, and four Tibetan species new to Nepal. Ten species (including five *species novae*) are dealt with in Lidén & Oxelman (2023). In this second instalment, we treat the two remaining parts of sect. *Physolychnis*: the *Silene himalayensis* and *S. puranensis* groups. After the *Physolychnis* treatment, miscellaneous comments follow on several other species not included in the revisionary parts, and finally a few amendments to Lidén & Oxelman (2023). New national records for Nepal and neighbouring countries are given, as well as an important correction to Lidén (2019b; *Silene ischnopetala*).

The arbitrary species numbering continues from Lidén & Oxelman (2023) and is independent of the sequence in the *Flora of Nepal*.

I. Section *Physolychnis* (continued from Lidén & Oxelman, 2023)

11–16. The *Silene himalayensis* group, as here understood, is an informal association of Himalayan alpine species with very short to fairly short (1–25 cm), simple stems, narrowly

¹ Uppsala University, Evolutionary Biology Centre (EBC), Systematic Biology, Norbyvägen 18D, 75236 Uppsala, Sweden. E-mail: Magnus.Liden@ebc.uu.se.

² Gothenburg Global Biodiversity Centre, Department of Biology and Environmental Sciences, University of Gothenburg, Box 461, 40530 Göteborg, Sweden.

[ob]lanceolate to linear leaves, 1- or sometimes few-flowered inflorescence with nodding flowers, vesicular calyces, small petals, anthers not or very slightly exerted from calyx and corolla, 5 styles and winged seeds. The group is not necessarily a natural entity. Similar species occur in mountain ranges in other parts of the world. In herbaria, the Sino-Himalayan representatives are often filed under *Silene gonosperma* (Rupr.) Bocquet, the type of which is from Kyrgyzstan (west Tianshan).

The first three species (Figure 1) have a short-hairy androgynophore (Figure 2C), an unusual character in Himalayan *Silene* sect. *Physolychnis*, and they are probably closely related. A reasonably complete description is provided for species 11, whereas for 12 and 13 only the differences from 11 are highlighted. Species 14, 15 and 16 are newly described here.

Key to the species of the Silene himalayensis group in Nepal and adjacent areas

- 1a. Calyx without glandular hairs; stems < 5 cm tall _____ 16. *S. pollicaris*
 - 1b. Calyx with glandular hairs; stems longer, at least in fruit _____ 2
 - 2a. Androgynophore with very short hairs _____ 3
 - 2b. Androgynophore densely woolly-hairy, at least on upper part _____ 5
 - 3a. Calyx veins reaching truncate tips of teeth; petals minute, entire
12. *S. qomolangmaensis*
 - 3b. Calyx veins terminating below tips; petals reaching, or exerted from, calyx mouth ____ 4
 - 4a. Calyx veins reticulate; stems ascending from diffusely branched base, not dramatically elongating during anthesis _____ 13. *S. madens*
 - 4b. Calyx veins conspicuously raised, not anastomosing or only apically; stems erect, densely caespitose, dramatically elongating during anthesis _____ 11. *S. himalayensis*
 - 5a. Leaves lanceolate, not or obscurely vaginate; calyx teeth obtusely triangular, not broadly hyaline; commisural veins not bifurcate or bifurcate > 2/3 from base
14. *S. manandhari*
 - 5b. Leaves linear to narrowly oblanceolate, lower ones clearly vaginate; calyx teeth rounded, broadly hyaline; commisural calyx veins bi- or trifurcate 1/2 to 2/3 from base
15. *S. deae*
11. *Silene himalayensis* (Rohrb.) Majumdar, J. Ind. Bot. Soc. 42: 648 (1963) – *Melandrium apetalum* δ *himalayense* Rohrb., Linnaea 36: 220 (1869) – *Lychnis himalayensis* (Rohrb.) Edgew. in Hook.f., Fl. Brit. India: 223 (1875) – *Silene gonosperma* subsp. *himalayensis* (Rohrb.) Bocquet, Candollea 22: 9 (1967). – Type: India, Ladakh, Sassar pass [Saser La], 15–17000 ft [4600–5200 m], 13 viii 1848, T. Thomson s.n. (lectotype G00074037, selected

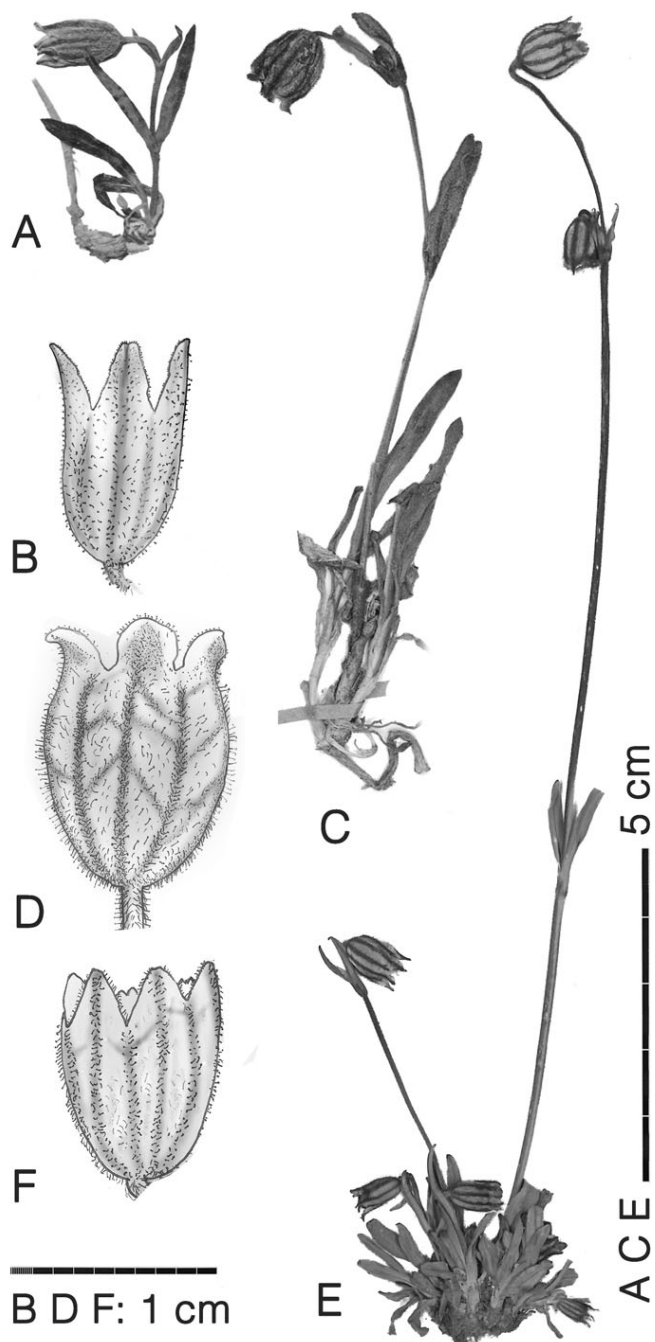


Figure 1. Whole plant and calyx of *Silene qomolongmaensis* (A, B), *S. madens* (C, D) and *S. himalayensis* (E, F). Vouchers: A and B, Xizang exp. 765 ([PE 01040460](#)), holotype; C, Tyson 70 ([E00074274](#)); D, Shrestha 5444 (KATH); E and F, Hao Jia-Chen s.n. (GB). Drawings and photographs: Magnus Lidén.



Figure 2. *Silene himalayensis*. A, Nepal, Humla, Zhang Shu-Ren et al. H0905; B and C, Tibet, Gongbo'gyamda, Hao Jia-Chen s.n. (PE). In A and B, note the very short flowering stems in early anthesis and much longer stems in later anthesis. In C, part of the calyx is removed to show androgynophore with short hairs (also enlarged). Photographs: A, Prabin Bhandari; B and C, Magnus Lidén.

by Bocquet 1967 [see note C]; isotypes C, CAL, [K000728798](#), [P01903023](#), [P01903024](#), [P01903025](#), [S-G-8677](#)).

Densely caespitose perennial. Flowering stems erect, simple; 1–4 cm at early anthesis (see note B below), lengthening to 7–20 cm (Figures 1E, 2A,B), non-glandular pubescent throughout; coarse dark patent glandular hairs confined to the upper half, usually dense and prominent on pedicels and calyx veins. Leaves narrowly oblanceolate, obtuse to subacute, with insignificant vaginæ. Basal leaves with short-ciliate margin; otherwise usually glabrous and frequently rather

glaucous. Upper leaves $\pm$ pubescent. Uppermost pair of leaves distinctly smaller than lower and middle cauline leaves, usually densely pubescent, also with glandular hairs. Inflorescence usually with a single flower, sometimes 2, very rarely 3. Flowers nodding, becoming erect in fruit. Calyx ovate (Figures 1F, 2B,C), more rarely broadly obpyriform (Figure 2A), whitish to pale purplish with prominent, dark purple, raised veins, with few or no anastomoses, densely pubescent with dark, coarse, glandular and eglandular hairs; intercostal areas membranous, transversely corrugated in the fresh state (difficult to see in herbarium specimens). Calyx teeth triangular-ovate with eglandular ciliae. Petal claws included in calyx, usually slightly auriculate apically; petal limbs half included in, or slightly exerted from calyx, small, suberect, $\pm$ bifid; coronal scales small. Stamens included. Styles included or shortly exerted.

Distribution. Widespread in the Tibetan highlands and adjacent Himalaya east to Nyingchi. Apparently absent from East Nepal, but plants very similar to *Silene himalayensis* are known from Sikkim and Bhutan. These East Himalayan finds need more careful study and are not included in the list of specimens below.

Habitat and ecology. Alpine meadows and stable rock slopes, often grazed by yaks, 3800–5800 m. Flowering June to August.

Notes. An important feature, requiring floral dissection to be observed, is the androgynophore, which is pubescent with very short patent hairs (Figure 2C). This character is shared with *Silene madens* Majumdar and *S. qomolongmaensis* (L.H.Zhou) Lidén but is otherwise not found in the Nepalese species of sect. *Physolychnis* (*S. manandharii* Lidén, *S. deae* Lidén and *S. pollicaris* Lidén all have androgynophores with long curly hairs).

Note A (on name confusion). The epithet *himalayensis* has been misapplied, in various combinations, ever since its first use. One of Rohrbach's two original syntypes is from Sikkim (*Hooker s.n.*: C, DD, G, GH, K000728800, P01903026 [lower left], S), and belongs to *Silene nepalensis* Majumdar, but "*himalayensis*" has been commonly used for this species in Nepal (see Lidén & Oxelman, 2023).

In East Tibet and Southwest China (Bocquet, 1967, 1969; Zhou et al., 2001), the epithet has instead been misapplied to the following species:

***Silene souliei* (F.N.Williams) Lidén, comb. nov.**

Basionym: *Melandrium souliei* F.N.Williams, J. Linn. Soc., Bot. 34: 429 (1899). – Type: China, Sichuan, Kangding [Thibet Oriental. Ta-tsien-lou], 1893, J.-A. Soulie 820 (holotype K, isotype P).

However, neither of these two species is particularly similar to *Silene himalayensis*. *Silene souliei* and *S. nepalensis* both have linear leaves with basal vaginae, but the former differs from the latter in its conspicuously reticulate-veined, vesicular, rounded calyx and more sprawling habit.

Note B (on pollination). The very short flowering stems of *Silene himalayensis* at the beginning of anthesis (Figures 1E, 2A,B) is possibly an adaptation to pollination by bumblebee queens foraging on the ground. This was reported in the same type of environment (high alpine meadows grazed by yaks) for *Pedicularis muscoides* H.L.Li subsp. *himalayca* Yamazaki (Tang et al., 2007).

Note C (on typification). Bocquet (1967) gave the type as “holo. B, détruit”. However, Rohrbach cites no holotype but listed two syntypes in the protologue (see note A and Majumdar, 1973).

Additional specimens examined. PAKISTAN. Hazara: Babusar pass, Aldén 6128 (GB); Gilgit: Karakorum, Kilik valley near Satbuldi village [37°2'N, 74°41'E], 4230 m, 20 vii 2000, Eberhardt 8395 (GOET).

INDIA. Uttarakhand: Kumaon, Byans, Lebung pass, 15000 ft [4500 m], 2 viii 1886, J.R. Reid s.n. (E00074276).

TIBET. Gegyai: Aling Shan, 5300 m, 16 viii 1976, Qing-Zang 76-8658 (HNWP 59617, PE 00559499); Rutog: Shengli Daban, Gozha Co, c.5100 m [“camp 468 ad Lake Lighten”], 24 viii 1932, Ambolt [Hedin exp.] 5974 (S); Zhongba: 5320 m, 4 viii 1975, Qing-Zang exp. 7543 (PE 00047874); Ngamring: Chang La, N side, N of Sangsang (30°9'N, 87°2'E), 5025 m, 4 ix 2003, G. & S. Miehe 03-069-02 (GB-0194502); Nakchu: 5500 m, 25 viii 1976, s.c. 10031 (HNWP 61074, PE 00559501); Gongbo'gyamda: Mi La, 5200 m, 17 vii 2019, Hao Jia-Chen s.n. (GB, PE, Figure 2B,C); Nyingchi: Serkhyem La, 4600 m, 20 vii 2019, Hao Jia-Chen s.n. (GB, PE [this is a more robust form with slightly larger flowers]).

NEPAL. Humla: near Nyalu pass, Limi valley, 4840 m, 17 viii 2019, Zhang Shu-Ren et al. H0905 (KATH, PE); Nara pass, Humla Karnali valley, 4555 m, 9 viii 2019, Zhang Shu-Ren et al. H0416 (KATH, PE); Dolpa: Khung Khola headwaters, 5200 m, 16 viii 1973, Grey-Wilson & Phillips 640 (K, P05019242); NW Kang La (29°19'N, 82°55'E), 5800 m, vi 1999, S. Miehe 99-84-05B (GB [collected with species 16. *Silene pollicaris*]); W of Dadong La (29°34'N, 82°49'E), 4650 m, vi 1999, S. Miehe 99-51-05 (GB); near Chalike Pahar, 14500 ft [4400 m], 6 viii 1954, Stainton et al. 3773 (BM, E00074263, KATH, US); Mustang: Namdo N of Mustang, 17000 ft [5200 m], 8 viii 1954, Stainton et al. 2281 (BM, E00074268).

12. *Silene qomolangmaensis* (L.H.Zhou) Lidén, comb. nov. – *Melandrium qomolangmaense* Y.W.Tsui & P.Ke ex L.H.Zhou, Fl. Xizang. 1: 713 (1983). – Type: Tibet, Dingri, Qomolangma [ཇོ་མོ་གླང་མ; Sagarmāthā; Mount Everest], 5250–5300 m, 6 vii 1959, Xizang exp. 765 (holotype PE 01040460).

Distribution. It is so far known only from the type collection on the Tibetan side of Mount Everest very close to the Nepalese border and is most likely to occur in Nepal.

Notes. *Silene qomolangmaensis* (Figure 1A,B) shares the short-hairy androgynophore with *S. himalayensis* and *S. madens*, and is probably related to these species, but it is a more delicate plant with a more deeply cleft calyx with triangular teeth with midvein reaching the truncate tip, and very small entire petals completely hidden inside the calyx.

13. *Silene madens* Majumdar, J. Ind. Bot. Soc. 42: 648 (1963), *nom. nov.* for *Lychnis macrorhiza* Royle ex Benth. in Royle, Ill. Bot. Him. 1: 80 (1839), non *Silene macrorhiza* Rohrb. (1869). – *Melandrium macrorhizum* (Benth.) Walp., Repert. Bot. Syst. (Walpers) 1: 280 (1842). – Type: India, Kunawar. 1836, Royle 64 (holotype [K000728815](#) [ex herb. Benth.], isotype [K000728816](#) [ex herb. Hook.]).

Melandrium zhongbaense L.H.Zhou, Fl. Xizang. 1: 722 (1983). – Type: Tibet, Zhongba, Gangjiu [Gaqoi; Ganja] La, 5000–5200 m, 3 viii 1975, *Qing-Zang exp.* 6532 (holotype PE, isotype [HNWP 49316](#)).

Silene greywilsonii Rajbh. & Mits.Suzuki, J. Jap. Bot. 82: 278 (2007). – Type: Nepal, Dolpa, Jeng La west of Namdo (both sides), (c.28°12'N, 83°06'E), 5300 m, 25 viii 1973, *Grey-Wilson & Phillips* 705 (holotype [K005076818](#) [mislabelled], isotype K005076187).

Distribution. Northwestern Himalaya from Ladakh to Western Nepal (Dolpa) and in Southwest Tibet east to Saga.

Habitat and ecology. Mobile sandy or gravelly soils or scree slopes, 4000–5300 m. Flowering June to September.

Notes. *Silene madens* ([Figure 1C,D](#)) differs from *S. himalayensis* by having more diffusely branched often subterranean basal stem parts, ascending flowering stems that do not dramatically elongate during anthesis, more flaccid, sub-oblong leaves, broader calyx with less raised main veins with conspicuous, dark-reddish reticulations, and shorter, more rounded calyx teeth ([Figure 1D](#)). The pubescence varies in both species; in *Silene madens* glandular hairs are often more abundant in the vegetative parts compared with *S. himalayensis* (see [Table 1](#) for further comparison).

Table 1. Morphological comparison of *Silene himalayensis* and *S. madens*

Character	<i>S. himalayensis</i>	<i>S. madens</i>
Basal part	Densely caespitose at soil surface	Laxly caespitose with partly subterranean stems
Flowering stems	Erect, 1–4 cm in early anthesis; to 7–20 cm fruit	Ascending, only slightly lengthening during anthesis
Inflorescence	Usually a single flower, rarely 2 or 3	1–3 flowers, rarely up to 5
Calyx	Ovate, rarely broadly obpyriform, divided to c.1/4	Broadly ovate to subspherical, divided to c.1/5
Calyx veins	Markedly raised, with few or no reticulations (sometimes joining apically in the teeth)	Slightly raised, with conspicuous lateral branches and reticulations
Calyx teeth	Triangular to ovate	Rounded-ovate
Habitat	Grass-turf, stony ground	Mostly on sands and screes

The label on the holotype sheet of *Silene greywilsonii* reads “*Aster cf. flaccidus* [...] florets deep blue. Grey-Wilson & Phillips 703”. This misplaced label is (except for the species name) cited in the protologue. This is hereby corrected (ICN §9.2, Turland *et al.*, 2018).

Additional specimens examined (outside of Nepal only a selection). INDIA. **Ladakh**: Tang Lang La, 5000 m, 6 ix 1970, *Battacharyya* 41024 (DD); **Himachal Pradesh**: Lahul, Kenlung, Bara Lacha La, in a glacial stream, 22 vii 1941, *Bor* 16352 (E00074271); Lahul, Serchu, 14000 ft [4300 m], 21 vi 1931, *Koelz* 2092 (S); Lahul, Keylang, 12000 ft [3700 m], vii 1878, *Watt* 3137 (E00074198); Sach Pass, 4535 m, 23 vii 1964, *Nair* 32784 (DD).

TIBET. **Rutog**: Lazhulong, 5300 m, 15 viii 1976, *Qing-Zang exp.* 13171 (PE 00047842, PE 00047869); **Gyirong**: 5000 m, 5 viii 1975, *Qing-Zang exp.* 5772 (PE 00046950); 5200 m, 27 vii 2015, *Wei Lai & Hao Jia-Chen* 15315 (BNU0029750); **Zhongba**: 5150 m, 27 vii 1975, *Qing-Zang exp.* 5580 (PE 00047873); Longge'er Xian, 5200 m, 9 viii 1975, *Qing-Zang exp.* 6582 (HNWP 49403, KUN 0513904, PE 00580538); 6532 (HNWP 49316, KUN 0513882); 4900–5000 m, 2 viii 1975, *Qing-Zang exp.* 7496 (PE 00046952); **Saga**: Daggyai Xian, near Gyangrangla (29°43'N, 85°26'E), 5000 m, 16 viii 1975, *Qing-Zang exp.* 7288 (KUN 0513898, PE 00559834).

NEPAL. **Darchula**: Tinkar Khola, 4900 m, scree, 2 vii 1953, *Tyson* 70 (BM000571155, E00074274); Thadgadi Gad: (29°57'23"N, 80°58'14"E), 4122 m, 15 vii 2012, *Ikeda et al.* 1216099 (TI); **Humla**: Yari pass to Hilsa, Humla Karnali valley, 4366 m, dry slope, Flwrs purplish white, 9 viii 2019, *Zhang Shu-Ren et al.* H0463 (KATH, PE); **Dolpa**: Chharka to Sangda, 16000 ft [4900 m], Black-veined sticky calyx, 22 vii 1966, *Shrestha* 5444 (KATH).

14. *Silene manandharii* Lidén, sp. nov.

This species is similar to *Silene himalayensis*, and like it has flowering stems elongating during anthesis, but it differs in the following: leaves acute with more prominent midvein and more distinct vaginae in basal pairs; calyx teeth with dense [glandular], minute cilia (vs cilia eglandular, tapering); less raised calyx veins with some broad lateral branches or anastomoses (vs with anastomoses absent or restricted to the apex of the calyx); apex of androgynophore together with bases of petals and stamens long-woolly hairy (vs with short scattered hairs throughout the androgynophore); petal claw with conspicuous auricles (vs auricles indistinct or absent); petal limb larger and more spreading (vs small and suberect); coronal scales 0.6–0.7 mm long, linear-oblong (vs 0.1–0.2 m). – Type: Nepal, Manang: Manap E Thorong La near Phedi, 4200 m, 21 viii 1983, *Manandhar* 10149 (holotype KATH). **Figure 3**.

Caespitose perennial. Rootstock short, ± vertical, crowned with petiole remnants, non-flowering rosettes and 2–4 (or more?) flowering stems (plants growing in mobile soils may have basal branches more laxly arranged and partly buried). Stems erect, 6–17 cm (shorter in early anthesis), with (2)3 or 4 pairs of leaves and 1 or 2 nodding flowers, densely pubescent throughout with acute down-curved eglandular hairs 0.2 mm long, above also with patent glandular hairs 0.2 mm. Nodes, bracts and leaf apices often purplish-tinged. Leaves crowded towards the base; basalmost leaves (and leaves of non-flowering rosettes)

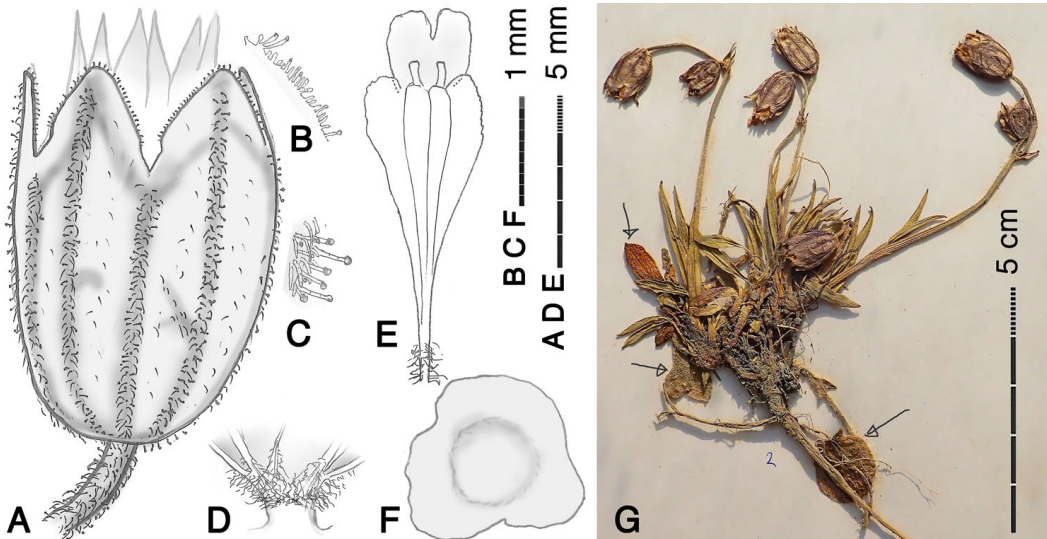


Figure 3. *Silene manandharii* Lidén, sp. nov. A, Calyx; B, calyx tooth margin; C, hairs on calyx veins; D, androgynophore; E, petal, adaxial side; F, seed; G, whole plant (arrows: a stem of *Silene vautierae* visible beneath the specimen). Voucher: *Manandhar* 10149 (KATH), holotype. Photographs: Magnus Lidén.

oblanceolate, narrowed into petiole, 10–20 × 3–4 mm broad, vaginate at base; cauline leaves 20–35 × 2–4 mm, lanceolate, acute, shortly vaginate, pubescent with short acute ± recurved non-glandular hairs, densely hairy along margin and veins. Uppermost leaves and bracts 5–10 mm long, densely (glandular-)ciliate. Pedicel c.10 mm long, much elongating in fruit to 15–40 mm. Calyx 11–12 mm long, broadly ovate, constricted at mouth, pale green or whitish. Calyx veins broad, dark purplish, usually with a few reticulating branches, densely pubescent with down-curved, non-glandular hairs and dark purple, patent, glandular hairs 0.2–0.6 mm long; intercostal areas with short and pale hairs. Calyx divided to 1/5 (to 1/4), teeth triangular to triangular-ovate, subobtuse, very slightly constricted at base, very densely short-glandular-ciliate (hairs 0.1–0.2 mm). Androgynophore 1.5 mm long, apical part together with bases of stamens and petals with a ring of long woolly hairs; basal half glabrous (**Figure 3D**). Stamens included. Petal claw 3–4 mm broad apically, with slightly erose-dentate margin and conspicuous apical auricles. Petal limb pinkish, ± spreading, 3–3.5 × 2–2.5 mm, shortly bifid; lobes sub-entire; coronal scales 0.6–0.7 mm long, linear-oblong. Styles 5. Capsule exserted. Seed light brown, 1.5 mm including broad entire wing.

Distribution. Endemic to Nepal, apparently rare; known from three collections on the northeastern side of Annapurna.

Habitat and ecology. Open grassy and stony wet slopes, 4200–5300 m. Flowering July.

Etymology. Named for Narayan P. Manandhar, one of the most important collectors of Nepalese plants and author of *Plants and People of Nepal* (2002).

Additional specimens examined. NEPAL. **Manang:** Manang: Thorong La [c.28°47'N, 83°57'E], 5220 m, 22 viii 1983, *Manandhar* 10153 ([KATH086564](#) [Figure 3], both mixed with *Silene vautierae*); **Khangsar** (c.28°42'N, 83°54'E), 15500 ft [4700 m], 29 vii 1950, *Lowndes* 1292 (BM000914139 n.v., [E00219803](#)).

15. *Silene deae* Lidén, sp. nov.

Morphologically similar to *Silene himalayensis* but differs in the following: taller stems 10–25 cm (vs very short in early anthesis, lengthening to 7–20 cm in fruit) and longer leaves 2–6 cm, of which the lower pairs are vaginate (vs 1.5–3 cm, not vaginate); broader more obtuse calyx teeth with broad scarious margins (vs triangular with narrow margins); bi(tri)-furcate commissural calyx veins (vs veins simple or bifurcate only distally in the teeth); woolly-hairy androgynophore and broad auriculate petal claws (vs with short scattered hairs and insignificant auricles). – Type: Nepal, Sankhuwasabha, near Merek [Mera] (c.27°47'N, 87°09'E), 4350 m, 21 vii 1988, *Suzuki* et al. 8850591 (holotype [KATH019302](#), isotype [TI 8850591](#)). [Figure 4](#).

Caespitose perennial with residues of old leaves at base; non-flowering leaf-rosettes (usually) present. Flowering stems 10–25 cm, simple, erect, with 3 or 4 widely spaced pairs of leaves, pubescent with thin, recurved, pale, acute, non-glandular hairs throughout, and with coarse, patent, dark, glandular hairs above. Rosette leaves and lowermost cauline leaves linear to narrowly oblanceolate, attenuate into petiole, subobtuse, 20–60 × 2–5 mm, ± vaginate (the length of the vagina can reach 7 mm, presumably when the stem base is covered by silt or gravel), lamina slightly non-glandular pubescent to glabrous, margin with sparse, short, thin, broad-based, marginal cilia, c.0.2 mm ([Figure 4D](#)); upper leaves smaller, lanceolate, sessile, pubescent; uppermost pair to 10 mm, half-clasping, long-ciliate with shorter glandular hairs immixed. Inflorescence with 1 flower, rarely 2 or 3. Pedicel c.1 cm in early anthesis, elongating to 2–5 cm in fruit, densely pubescent with eglandular and glandular hairs. Flowers nodding in early anthesis, later erect. Calyx sub-cylindrical, constricted at mouth, 10–12 mm, pubescent all over, particularly on the veins, with coarse, glandular, dark purplish hairs 0.4–0.7 mm, and shorter, acute, non-glandular, recurved hairs; calyx veins prominent, commissural veins bi-(tri)-furcate 1/2 to 2/3 from base (rarely unbranched), branches joining the midveins in the teeth. Calyx teeth 1/4 to 1/5 of calyx length, slightly constricted at base, rounded, obtuse, margin broadly hyaline, very densely ciliate with 0.2–0.3 mm long, ± glandular hairs, pale or dark reddish on alternate lobes. Androgynophore 1.5 mm, woolly pubescent in upper half. Petal claw 4 mm broad apically, broadly auriculate and ± obtusely dentate, below abruptly narrowed, not exserted; petal limb light pink, c.2 mm long, shallowly bifid; lobes sometimes again shallowly notched; coronal scales 0.5–1 mm. Stamens included; pollen apparently released in bud. Styles 5. Capsule not or very slightly exserted. Seeds

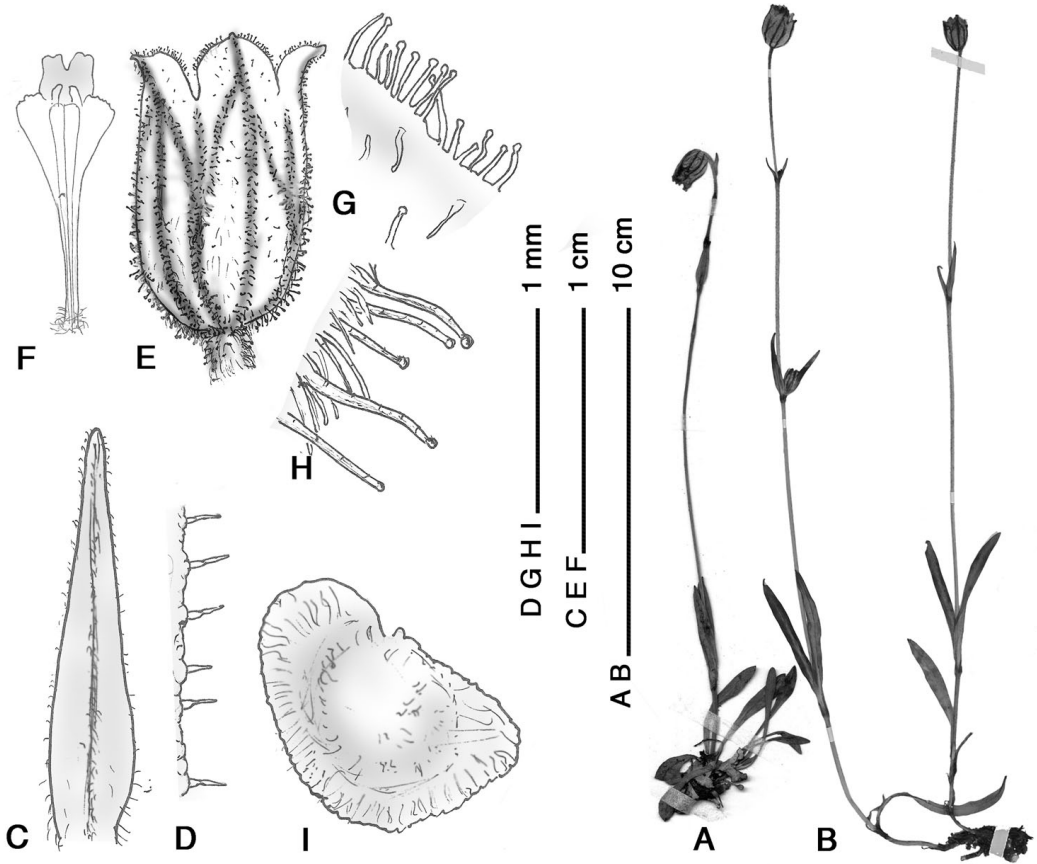


Figure 4. *Silene deae* Lidén, sp. nov. A and B, Whole plants; C, upper leaf; D, leaf margin; E, calyx; F, petal, adaxial side; G, calyx teeth cilia; H, calyx vein pubescence; I, seed. Vouchers: A, Kanai et al. 720627 (TI); B–I, Dickoré 6291 (M). Drawings and photographs: Magnus Lidén.

brown, 1.1–1.3 mm, including entire, radially striate, circumferential wing; body of seed 0.7–0.8 mm.

Distribution. East Nepal and adjacent Tibet (Mount Everest area).

Habitat and ecology. Rocky slopes, screes, 4000–4500 m. Flowering late June to September.

Etymology. ‘Belonging to the goddess’ (Latin, *dea*), referring to the plant in early anthesis, piously bending its head at the feet of the mother goddess (ཇེ་མ་གྲུ་མ་མེད་ཀྱི་ལྷ་མོ་ལྷ་མོ་).

Additional specimens examined. TIBET. Tingri: E Everest, Kama Chu, Kangchung Gl. tongue landslide (Camp Ev5 – 6) (27°59'N, 87°08'E), 4460 m, 12 x 1989, Dickoré 6291 (M [MSB-157747]).

NEPAL. Dolakha: Rolwaling, Thobu, 4500 m, 26 vii 1977, Rajbhandari & Roy 1936 (KATH); Thudam–Lamni Nama (c.27°45'N, 87°33'E), 3400–4200 m, 14 viii 1977, Ohashi et al. 772385 (TI). Taplejung:

Topke Gola to Jalang Cchyongo (c.27°38'N, 87°35'E), 4000 m, 20 vi 1972, *Kanai et al.* 720627 (BM000914132 n.v., [TI](#) [apparently with stem parasite]).

16. *Silene pollicaris* Lidén, sp. nov.

Silene pollicaris differs considerably from all other Sino-Himalayan short-stemmed, narrow-leaved, one-flowered *Silene* species with winged seeds, in its mat-like growth, very short stems overtopped by leaves, lack of glandular hairs, densely pubescent stem with long reflexed appressed hairs, simple calyx veins with stout recurved broad-based hairs, and woolly-hairy androgynophore (the last shared with *S. manandhari* and *S. deae*). –

Type: Nepal, Upper Dolpa, NW of Kang La (29°19'N, 82°55'E), 5800 m, 24 vi 1999, *S. Miehe* 99-84-05 (holotype [GB-0219132](#)). Figures 5, 6.

Perennial herb, apparently forming low cushions or mats from a densely branched rhizome. Flowering stems erect, 1–3 from each rhizome branch tip, 1–3(–5) cm high, overtopped by leaves, surrounded at base by withered petiole bases from previous year; with one or two

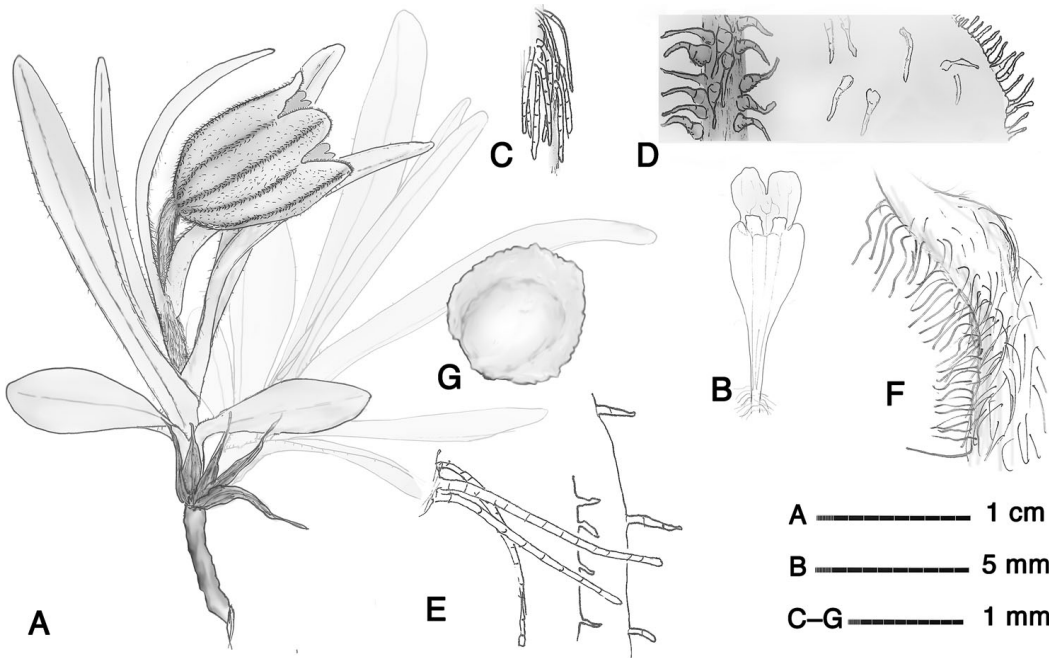


Figure 5. *Silene pollicaris* Lidén, sp. nov., holotype. A, Whole branch (a non-flowering shoot is bedimmed; petals become a little more exerted in later stages); B, petal, adaxial side; C, hairs on pedicel; D, segment of calyx tooth, showing hairs on midvein and marginal cilia; E, hairs on margins (left to right: base of bract, middle leaf, lower leaf); F, part of androgynophore together with base of petal; G, seed. Voucher: *S. Miehe* 99-84-05 ([GB-0219132](#)), holotype. Drawings and photographs: Magnus Lidén.



Figure 6. *Silene pollicaris* Lidén, sp. nov. A, Whole plant. Scale bar: 4 cm. Vouchers: A, S. Miehe 99-84-05 (GB-0219132), holotype; B, Qing-Zang exp. 7577 (PE 00046941).

non-flowering rosettes axillary from the lowermost leaf pair (these will produce next year's flowering shoots); densely hairy with reflexed, sub-appressed, thin, multicellular, eglandular hairs 0.2–0.5 mm long. Non-flowering rosettes with oblanceolate leaves, similar to the middle cauline leaves. Cauline leaves in 3 or 4 densely set pairs, shortly vaginate (vagina of lowermost leaf pair up to 3 mm), 15–35(–50) × 3–5 mm, broadly to narrowly oblanceolate (lowermost leaves comparatively short and broad, middle leaves longest), obtuse, glaucous, glabrous but for sparsely ciliate slightly reflexed margin; cilia 0.1–0.3 mm, longer and denser at leaf base. Uppermost leaf pair 10–20 mm, ± pubescent. Flowers 1 (rarely 2), ± nodding. Calyx campanulate, 14–15 mm long, 9–10 mm broad, divided 1/4 into triangular, obtuse teeth with ciliate margin; cilia thin, 0.15 mm long. Veins simple, green to reddish without anastomoses, densely pubescent with recurved, bulbous-based, acute hairs c.0.2 mm long; sparsely hairy between the veins. Androgynophore 1–1.5 mm, densely woolly-hairy (hairs 0.2–0.3 mm). Petal claw not exerted, 9 mm long, 3 mm broad at apex, auriculate, margin entire; limb 2.5–3 mm long and broad, bifid to 1/2, muddy purplish in the dry state; coronal scales 0.4–0.5 mm long and broad. Stamens included. Capsule slightly exerted. Seeds pale brown, c.2 mm (body c.1 mm, marginal wing c.0.5 mm broad).

Distribution. Known from a very small area on the border of Northwest Nepal and Tibet.

Habitat and ecology. Judging from the vegetative appearance and correlated species, probably growing in fairly stable vegetation, like Kobresia meadows (Qing-Zang exp. 7577; Figure 6B), 5100–5800 m. Flowering June to July.

Etymology. From latin *pollex* ('inch', 'thumb'), alluding to the plant's short stature.

Note. The type collection was mixed with a couple of dwarf stems of *Silene himalayensis* (now separated as *S. Miehe* 99-84-05B). The two species differ in numerous characters.

Additional specimens seen (on the China Virtual Herbarium website [CVH]; close to type locality; not checked for details like pubescence of stem and androgynophore). TIBET. **Zhongba:** near lake Pagela (c.29°40'N, 83°10'E), 5100 m, 4 viii 1975, *Qing-Zang exp.* 7524 (PE 00047875, PE 00046939); id., 5200–5400 m, *Kobresia* veg., 6 viii 1975, *Qing-Zang exp.* 7577 (PE 00046941, Figure 6B).

17–20. The *Silene puranensis* group are characterised by the following: large, broad, inflated calyces; calyx usually with supernumerary veins or basal vein-branches so that the calyx may appear to be 12- to 18-veined rather than 10-veined; androgynophore, together with base of stamens and petal claws, long-woolly hairy. In *Silene setisperma* and *S. puranensis* the ovary is sparsely set with short, thin, multicellular hairs, which is unique in *Silene*. The South Tibetan *Silene Zhoui* C.Y.Wu has glandular-hairy ovary, but glabrous androgynophore, and does not appear to be closely related. Otherwise, we have not observed pubescent ovaries in the section *Physolychnis*.

Three of the four taxa occur in Nepal, two being endemic. As is true also of the *Silene himalayensis* group above, the naturalness of the *S. puranensis* group as here circumscribed has not been established by molecular data.

Amphiploidy is common in *Silene* sect. *Physolychnis* (Petri & Oxelman, 2011). For the Himalayan species, ploidy levels are largely unknown, save for *Silene blepharicalyx* ($2n = 4x$) and *S. caespitella* ($2n = 2x$) (Petri & Oxelman, 2011; Lidén & Oxelman, 2023). It is certainly possible that amphiploidy has contributed to the reticulate variation in the section *Physolychnis* also in the Himalayas – not least in the *Silene puranensis* group, where both papillate and winged seeds are found (see Table 2 for differences).

Key to the species of the *Silene puranensis* group

- 1a. Seed unwinged with long papillae; petal limbs broad, entire – India (Uttarakhand) _____ 20. *S. setisperma*
- 1b. Seed with broad entire circumferential wing; petal limbs broad or narrow, entire or divided – West Nepal, South Tibet (Burang) _____ 2
- 2a. Calyx divided to 1/5, strongly constricted at mouth; petal limb broad, entire _____ 19. *S. vautierae*
- 2b. Calyx divided 1/4 to 1/3; petal limb bifid or more divided, broad or narrow _____ 3
- 3a. Petal limb narrow, with narrow entire lobes; coronal scales oblong; calyx hairs mostly eglandular, tapering to thin apex _____ 18. *S. kalintha*
- 3b. Petal limb broad with incised fleshy lobes; coronal scales short and broad, fleshy, irregularly lobed; calyx hairs mostly glandular _____ 17. *S. puranensis*

Table 2. Morphological comparison of *Silene puranensis*, *S. kalintha* and *S. vauitiae*

Character	<i>S. puranensis</i>	<i>S. kalintha</i>	<i>S. vauitiae</i>
Basal part	Rootstock at surface or slightly below (not known for all records)	Basal part of stems long, subterranean from a $\pm$ deeply buried rootstock	Basal part of stems long, subterranean from a $\pm$ deeply buried rootstock
Flowering stems	Suberect to erect, 12–30 cm	Ascending, 10–20 cm	Ascending to erect, 8–20 cm
Calyx shape	Rounded; slightly constricted at mouth; divided 1/4 (to 1/3)	Rounded; slightly constricted at mouth; divided 1/4 to 1/3	Broadest in apical 1/3; strongly constricted at mouth; divided to 1/5
Calyx hairs	Dense, straight and curved, slightly tapering, mostly glandular, 0.2–0.8 mm	Sparse, curved, tapering to thin apex, mostly eglandular, 0.4–0.7 mm	Dense, straight, slightly tapering, mostly glandular, 0.2–0.6 mm
Corolla claw	5–7 mm broad near apex	3–4 mm broad near apex	5–7 mm broad near apex
Corolla limb	5–8 mm broad, with fleshy incised lobes	2 mm broad, bifid with entire lobes	5–6 mm broad, entire or subentire
Coronal scales	Short, broad, fleshy, deeply crenulate	Long and narrow, entire	Short and broad, entire

17. *Silene puranensis* (L.H.Zhou) C.Y.Wu & H.Chuang, Fl. Reipubl. Popularis Sin. 26: 321 (1996). – *Melandrium puranense* L.H.Zhou, Fl. Xizang. 1: 718 (1983). – Type: Tibet, Burang [Purang], Ramala [Qi Mala Shan at Nepal border] N slope, 5000 m, 19 vii 1976, *Qing-Zang exp.* 76-8241 (holotype [HNWP 58834](#); isotypes [HNWP 58835](#), PE?).

Silene davidlongii Rajbh. & Mits. Suzuki, J. Jap. Bot. 82(5): 276 (2007). – Type: Nepal, Mugu, Khaptang [by Tibet border], Mugu Khola, 15000 ft [4600 m], 21 viii 1952, *Polunin et al.* 5373 (holotype TI; isotypes BM, [E00219948](#), K, US).

Stems simple, ascending to erect from a short, thick rhizome, 12–29 cm, with 3–5 leaf nodes (sometimes one or two additional nodes at ascending base, occasionally also with branches), densely hairy above with long, glandular, patent hairs and short and long eglandular, recurved hairs, less hairy in basal half. Non-flowering rosettes often present. Leaves 30–60 $\times$ 7–17 mm (the uppermost pair [bracts] sometimes much smaller); lamina of lower leaves obovate to oblanceolate, subobtuse to acute, gradually attenuate into slightly vaginate petiole; middle and upper leaves sessile, ovate-lanceolate to oblong, acute, sparsely to densely pubescent with glandular hairs and short, non-glandular hairs, margin very densely glandular-ciliate. Flowers 1–3, nodding. Calyx vesicular, (15)18–20 mm long, (10)13–15 mm broad, whitish with darker veins, $\pm$ constricted at mouth (not obvious in herbarium specimens), divided to 1/4 (to 1/3), pubescent with 0.5–0.8 mm long, patent, dark purple, glandular hairs, mixed with paler, eglandular hairs, 0.2–0.8 mm. Main calyx veins brown to dark purplish; supernumerary veins or basal vein-branches usually present

but less prominent. Calyx teeth triangular; margin densely ciliate with short, glandular hairs. Androgynophore c.1 mm, densely long-woolly hairy. Petal claw 5–7 mm broad at apex, with auriculate folds in transition to limb. Petal limb fleshy, uneven, purple to purplish brown to muddy white, 5–6 mm long, 6–8 mm broad, spreading or slightly reflexed, irregularly lobed; coronal scales white, fleshy, 1–1.5 mm long, very broad, irregularly lobed. Stamens included. Styles 5, included. Ovary with sparse, thin, multicellular hairs (checked only in a couple of specimens). Seeds brown, 1.5 mm, including broad wing. (Figure 7C–F).

Distribution. Northwest Nepal and adjacent Tibet.

Habitat and ecology. Open grassy or rocky slopes, (3000)4300–5000 m. Flowering June to September.

Notes. *Silene puranensis* is similar to *S. setisperma* vegetatively, having a similar calyx and the same peculiar ovary pubescence, but is easily distinguished by the glandular-hairy leaves, uneven and irregularly lobed, fleshy petal limbs (vs entire, rounded), short, broad, fleshy, lobed coronal scales (vs oblong, entire), and winged seeds (vs with long papillae).

The species is variable in plant height, size of leaves, and size and colour of flowers. Three records stand out: *Polunin* et al. 240 (E00219947) is a small plant (Figure 7C,D) with calyx only 15 × 10 mm without distinct accessory veins, *Zhang Shu-Ren* et al. H0568 is a branched, possibly shade-grown plant with oblong leaves (Figure 8B), and *Zhang Shu-Ren* et al. H0274 is a lowland plant with branched stems (Figure 8A).

Additional specimens examined. NEPAL. Humla: around Takche, Limi valley, 4908 m, along rocky slope, 15 viii 2019, *Zhang Shu-Ren* et al. H0761 (KATH, PE; Figure 8C); Kermi to Yalhang, Humla Karmali valley, 2996 m, 16 viii 2019, *Zhang Shu-Ren* et al. H0274 (KATH, PE; Figure 8A); below Tili pass, Limi valley, rock crevices, 4392 m, 12 viii 2019, *Zhang Shu-Ren* et al. H0568 (KATH, PE); near Saliman lake, 18 viii 2019, *Prabin Bhandari* (Figure 8B); Eastern Gyau Khola (c.30°20'N, 81°36'E), 4800–4900 m, (photograph in book: Kusi & Werhan, 2016). Jumla: From Deula Deuli to Hanka (c.29°00'N, 82°10'E), 4100 m, 19 ix 1991, *Minaki* et al. 9105034 (E00202352). Mugu: W of Ya La (29°40'N, 82°42'E), 4300 m, vi 1999, *S. Miede* 99-40-06 (GB). Rukum: Tori Dwari Banyang, 14300 ft [4350 m], steep rock crevices, 4 vii 1966, *Shrestha* 5293 (KATH); Sisne Himal, 15500 feet [4700 m], grassy slopes, 23 vii 1952, *Polunin* et al. 240 (E00219947, Figure 7C,D; BM n.v.).

18. *Silene kaliantha* Lidén, sp. nov.

Similar to *Silene puranensis* and *S. vautierae*, with which it shares the inflated apparently several-veined calyx, but differs from the first in slender, much-branched, underground stems (vs with a short rhizome at ground level), from the second in longer, lanceolate, acute leaves and more open and more deeply lobed calyx (vs calyx abruptly constricted at apex with short teeth), and from both in having sparse calyx pubescence of coarse, long-acuminate, mostly non-glandular hairs, narrow petal claw, two-fid narrow petal limb and long narrow coronal scales (vs calyx with glandular hairs, broad petal claws, broad, entire or irregularly lobed petal limb and short, broad coronal scales). – Type: Nepal,

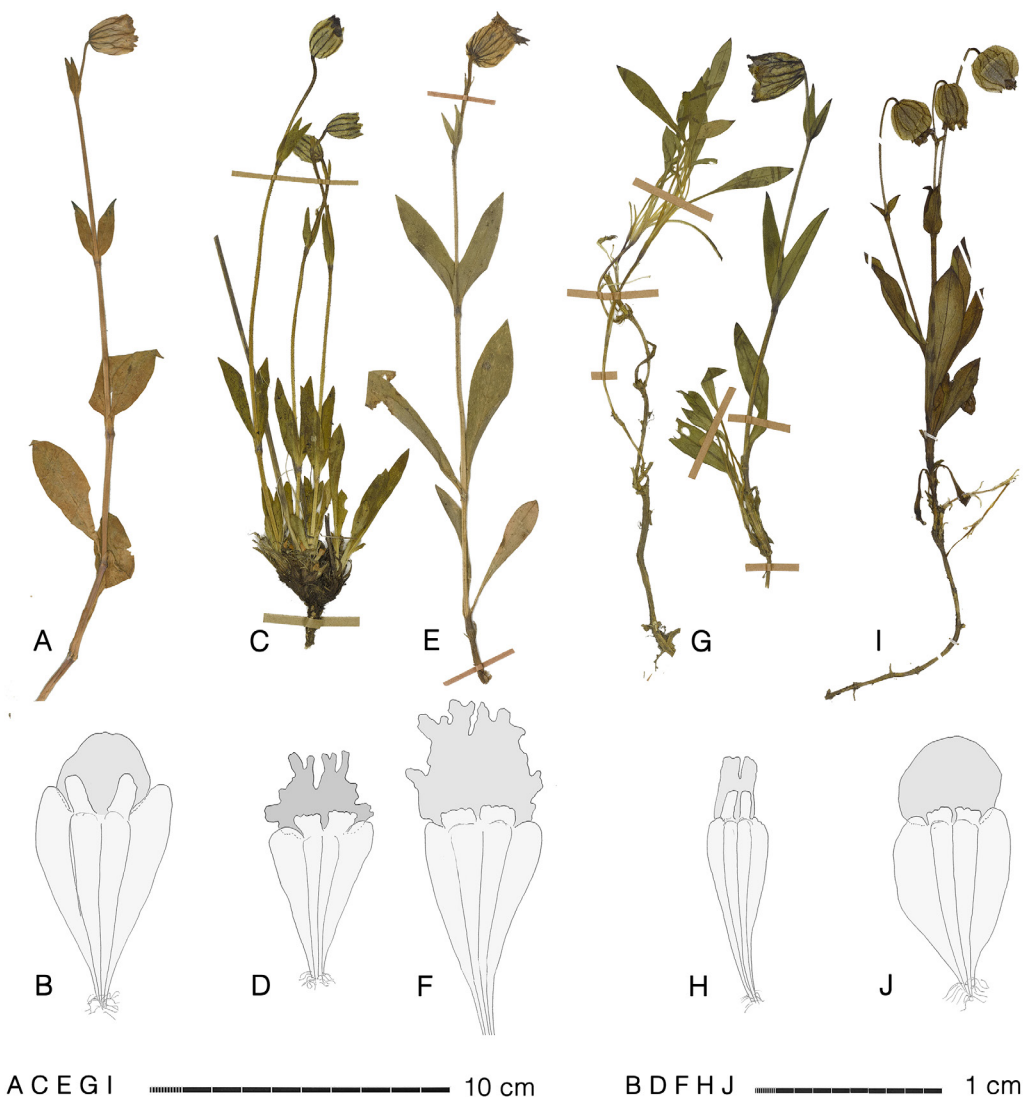


Figure 7. Whole plant and petal of *Silene setisperma* (A, B), *S. puranensis* (C–F), *S. kaliantha* Lidén, sp. nov. (G, H), and *S. vautierae* (I, J). Vouchers: A, *Blinkworth* Wall. Cat. 618 ([K000728829](#)), isotype; B, *Blinkworth* Wall. Cat. 618 (S), isotype; C, D, *Polunin* et al. 240 ([E00219947](#)); E, F: *Polunin* et al. 5373 ([E00219948](#)); G, *Stainton* et al. 7410 ([E00138312](#)), isotype; H, *Stainton* et al. 7410 ([KATH005671](#)), holotype; I, *Ikeda* et al. 20812228 ([E00774779](#)); J, *Ikeda* et al. 20815125 ([E00780304](#)). Drawings and photographs: Magnus Lidén.

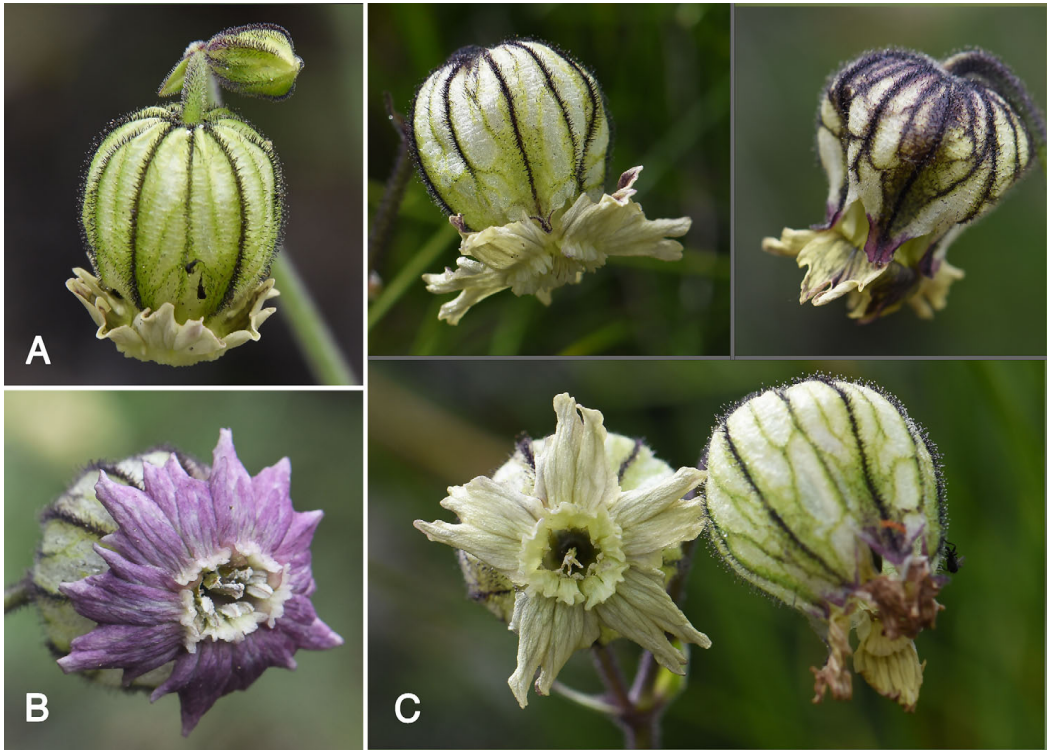


Figure 8. *Silene puranensis*, flowers: A, Zhang Shu-Ren et al. H0274; B, Zhang Shu-Ren et al. H0568, Humla, near Saliman lake, 18 viii 2019; C, Zhang Shu-Ren et al. H0761, three different individuals. Photographs: Prabin Bhandari.

Mustang, Muktinath, 13000 ft (4000 m), open grassy slopes, 28 vii 1954, *Stainton* et al. 7410 (holotype [KATH005671](#); isotypes [BM000914259](#) n.v., [E00138312](#)). [Figure 7G,H](#).

Rootstock elongate, apparently becoming $\pm$ deeply buried, with several stems from the apex. Stems thin; underground part often 10–20 cm, with distant nodes, towards the soil surface with new growth (both flowering stems and non-flowering leaf rosettes). Aerial stems 15–20 cm, simple, with 3 or 4(5) pairs of leaves, pubescent (less so at base) with slightly recurved non-glandular acuminate hairs to 0.5 mm long. Leaves lanceolate, acute, with distinct midvein, sparsely pubescent above, below mainly on the veins, more densely along the margin, with mostly eglandular hairs up to 0.5 mm long. Lowermost cauline leaves and leaves of non-flowering rosettes attenuate into distinct petiole, vaginate at base with up to 4 mm long vagina. Lamina 30–50 $\times$ 5–9 mm, uppermost pair [“bracts”] and terminal leaves of non-flowering rosettes often smaller. Pedicel c.2 cm in anthesis; up to 7 cm in fruit. Flowers nodding, single. Calyx 17–19 $\times$ 14 mm, not or slightly constricted at mouth (this is difficult to judge in herbarium material), with veins branched from the base as well as

above (thus appearing to be more than 10), pubescent with 0.5–0.9 mm long, broad-based, acuminate, mostly eglandular, purplish hairs, but almost glabrous between veins. Calyx divided to 1/3 into triangular, erect, shortly ciliate teeth. Petal claw included, 3.5–4 mm broad at apex, slightly auriculate; limb bifid, rectangular, 3–4 × 2 mm, “mauvis green”; coronal scales narrowly oblong, c.1.5 mm. Androgynophore c.3 mm, densely woolly-hairy. Styles 5. Seeds c.1.5 mm including wing.

Distribution. Endemic to Nepal. Only known from the type collection.

Habitat and ecology. “Open grass slopes”, c.4000 m. Flowering July.

Etymology. From the Hindu goddess काली (Kali), who has given her name to part of the Gandaki river, and ἄνθος (flower).

19. *Silene vautierae* Bocquet, Candollea 22: 17. 1967. – Type: Nepal, Mustang, A. Stainton et al. 7760 (holotype [BM000521525](#) n.v.).

Similar to *Silene kalintha* but distinguished by usually shorter (6–17 vs 15–20 cm) and stricter stems, shorter, broader (12–40 × 5–16 mm vs 30–50 × 5–9 mm) and often more obtuse leaves (but acute in the East), glandular-hairy, broadly vesicular calyx much more constricted at mouth, much shorter calyx teeth (1/5 vs 1/3 to 1/4 of calyx), broad petal claw, broad, subentire petal limb and short, broad coronal scales ([Figure 7I,J](#)). Whereas the other species in the *Silene puranensis* group are usually single-flowered, *S. vautierae* may have up to 3 long-stalked flowers per stem ([Figure 7I](#)), or rarely as many as 5 ([Figure 9](#)).

Distribution. Endemic to Nepal.

Habitat and ecology. Rocky slopes, scree slopes and wet sandy soil, 3700–5300 m. Flowering July to November.

Additional specimens examined. NEPAL. **Jumla:** Near Jogini Daha [c.29°06'N, 82°11'E], 13000 ft [4000 m], on open earth beside river, 1 x 1952, *Polunin* et al. 5486 ([E00138315](#)). **Rukum:** E Chalikhhe Pahar, 14000 ft [4300 m], among sands and rocks on river bed, 2 viii 1954, *Stainton* et al. 3717 ([E00138310](#), US 03634547). **Dolpa:** 3 m[iles] N of Shimen, 4300 m, 6 viii 1973, *Grey-Wilson & Phillips* 543 (P); W side of Khung Khola, 5000 m, 18 viii 1973, *Grey-Wilson & Phillips* 666 (P); Balangra pass, 15500 ft [4700 m], moist places in exposed earth, or around small rocks near melted snow, 26 vii 1952, *Polunin* et al. 2586 ([E00138314](#), US 03634548); Lulo Khola. Stony slopes, 15000 ft [4600 m], 19 ix 1951, *Polunin* et al. 3509 ([E00138317](#)). **Mustang:** Kali Gandaki gorge, Taglung (probably E of Taglung, c.28°40'N, 83°42'E), 14500 ft [4400 m], open rocky slopes, 16 vii 1954, *Stainton* et al. 1824 ([E00138316](#), BM); c.28°48'N, 83°52'E, steep sunny slope, 4310 m, 24 ix 1995, *Mikage & Yonekura* 9552466 (E); E Kagbeni (28°52'38.5"N, 83°42'00"E), on scree slopes, 4530 m, 11 viii 2002, *Miyamoto* et al. 20210044 ([KUN1264354](#)); Tukucha. Kali Gandaki, on scree slopes, 14000 ft [4300 m], 12 ix 1954, *Stainton* et al. 7779 ([E00138318](#), BM); Larjung S Tukucha, Kali Gandaki, scree slopes 12000 ft [3700 m], 23 vii 1954, *Stainton* et al. 1941 ([E00138311](#)). **Manang:** Thorong La (c.28°47'N, 83°57'E), 5220 m, herb on open and moist land, 22 viii 1983, *Manandhar* 10153 p.p. ([KATH086564](#), mixed with *S. manandharii*); near Thorung



Figure 9. *Silene vautierae*: Nepal, Manang, Dona Tal (Thulagi Lake). Photograph: Elizabeth Byers.

La, 4600 m, Alpine rocky place, 19 viii 1994, Mikage et al. 9485497 (E00223569); Jargeng Khola, screes 14500 ft [4400 m], Lowndes 1331 (E00138319, KATH); Dona Tal (Thulagi Lake), Byers (iNaturalist photograph (<https://www.inaturalist.org>); Figure 9). Gorkha: Samdo, N of village, Budhi Gandaki river valley near Mhaija Kharka (28°41'42"N, 84°37'36"E), sandy soil areas, 4460 m, 8 viii 2008, Ikeda et al. (Manaslu 2008 expedition) 20812228 (E00774779); around Thangmanang Kharka, 3815 m, open sandy place, 6 viii 1994, Suzuki et al. 9460243 (E00226191); Sama Gaon, N village, near Birendra Kund on way to Manaslu base camp (28°35'54"N, 84°36'47"E), Steep alpine slope with low shrubs [...] in sandy and loose rocky open soil near river, 4260 m, 5 viii 2008, Ikeda et al. (Manaslu 2008 expedition) 20815125 (E00780304). Lamjung: 28.454519°N, 84.264306°E, Basu Dev Neupane (iNaturalist photographs, <https://www.inaturalist.org>).

20. *Silene setisperma* Majumdar [as *setaesperma*], Journ. Ind. Bot. Soc. 42: 649 (1964), *nomen novum* for *Agrostemma inflatum* [as *inflata*] Wall. ex G.Don, Gen. Syst. 1: 417 (1831), non *Silene inflata* Sm. (1800) – *Lychnis inflata* Wall. ex Benth., Ill. Bot. Himal. Mts. [Royle] 1: 80 (1839) – *Melandrium inflatum* (G.Don) Walp., Repert. Bot. Syst. (Walpers) 1: 280 (1842) – Type: India, Uttarakhand, Kumaon. Found on the Himmallah [Himalaya] mountains of Joehar [Johar valley E of Nanda Devi], ix, Blinkworth Wall. Cat. 618 (lectotype K001111420, selected here, second step [§9.10, Turland et al.,

2018]; first-step inadvertent lectotypification [§7.11] by Bocquet 1969 as “holotype K”; isotypes BM? [BM000571156 n.v.; recorded as “isotype”, but with origin “Sikkim”], BR, C, CAL0000005610, E00219853, G, K000728828 [ex Herb. Hook.], K000728829 [ex Herb. Hook.], K000728830 [ex Herb. Benth.], L, OXF, P, PH, S).

Similar to *Silene puranensis* but leaves densely ciliate by short eglandular tapering hairs, petals entire or almost so with oblong coronal scales (Figure 7A,B), and seeds unwinged, long-papillate along the margin.

Distribution. India, Uttarakhand: Kumaon, from Nanda Devi to Panch Chuli. Reports of this species from Nepal (see Efloras.org) refer to *Silene puranensis* and *S. nigrescens* (Edgew.) Majumdar. We therefore include it here, to make the necessary comparisons.

Habitat and ecology. “Grassy place”, 3200–4300 m. Flowering August to November.

Additional specimens examined. INDIA. Uttarakhand: Kumaon, Pilkhunta (SE Nanda Devi) 12000 ft [3700 m], 9 ix 1885, Reid s.n. (E00219849); Tejum Haya, 4300 m, grassy place, 10 viii 1972, Arora BSI 49811 (DD); Gori valley, Laspa (c.30°17'N, 80°13'E), 3200 m, s. col. (DD 72384); Panga Chuli [Panch Chuli], 12–13000 ft [3700–4000 m], 9 xi 1886, Duthie 3855 and 3857 (DD).

II. Miscellaneous notes

21. *Silene holosteifolia* Bocquet & Chater, Enum. Fl. Pl. Nepal 2: 55 (1979).

This very peculiar species, previously known only from Nepal, is here recorded also from Tibet, Sikkim and Bhutan. Its hanging stems, narrowly lanceolate firm leaves, large vesicular calyx, large spreading deeply dissected petals, large corona, three styles, and unique ecology (steep mossy cliffs and tree trunks) make it unmistakable from other species.

New national records. INDIA. Sikkim: 2 km N Lachen, shaded mossy steep cliff, 2800–2900 m, 7 ix 2015, Bengtsson (photographic record: Figure 10).

TIBET. Gyirong: (28°29'N, 85°14'E), 3141 m, 10 xi 2011, Chen You-Sheng et al. 262 (PE 0191621); ibid, 3100–3300 m, 11 xi 1990, Li Bo-Sheng et al. 13675 (PE 02076181, PE 02076182; fragmentary sterile material). Nyalam: (28°1'50"N, 85°59'10"E), 2690 m, roadside limestone hillside, 16 ix 2008, Gao Lian-Ming et al. GLM-081674 (KUN 1273491).

BHUTAN. Thrumshing La (27°24'06"N, 90°59'47"E), 1991, Chambers (E00132110).

Notes. The Thrumshing La (the pass) is at 3780 m; other records of this species are from 2500 to 3500 m.

22. *Silene hideakiohbae* Rajbh. & Mits. Suzuki, J. Jap. Bot. 82(5): 275 (2007).

As this species was previously recorded only from the type locality, we take this opportunity to list all known occurrences. *Silene hideakiohbae* is vegetatively similar to *S. pseudoindica* but distinct in its broader, acuminate leaves, large, deeply incised petal limbs, large, showy coronal scales and three styles (vs five styles) (see Figure 11 for comparison).



Figure 10. *Silene holosteifolia*: India, Sikkim: 2 km north Lachen, shaded steep cliff, 2800–2900 m, 7 ix 2015. Photograph: Jonas Bengtsson.

All records. INDIA. Uttarakhand: Kumaon, Belus Bakrihdgar, 900 m, 7 vii 1972, BSI 49745 (DD); Kumaon, Palang Gadh, Byans, 19 vii 1886, Duthie 5368 (DD).

NEPAL. Kalikot: (c.29°N, 81°39'E), 2400 m, 4 viii 1991, Suzuki et al. 9193120 (E00224934). Manang: Alubari (28.51°N, 84.38°E), 3090 m, 23 vii 2015, Byers 135 (iNaturalist photographs (<https://www.inaturalist.org>); Figure 11); Suggi Khola (c.28°35'N, 84°25'E), 2520 m, open grassland, 12 viii 1994, Suzuki et al. 9485399 (holotype TUS; isotype E00223631; Bimtang to Gho (28°36'N, 84°27'E), 3060 m, secondary mixed forest, sunny open areas, 14 viii 2008, Ikeda et al. (Manaslu 2008 expedition) 20812279 (E00625368). Rasuwa: Yure Kharka to Tinbu Kharka (28°10'N, 85°13'E), 3500 m, on grassland slopes, 26 vii 1994, Miyamoto et al. 9410045 (E00053781). Loco ignoto: s. col. 8955 (KATH [unmounted during visit 2018]).

23. *Silene pseudoindica* Lidén, in Agnihotri & Khuraijam (eds), Angiosperm systematics: recent trends and emerging issues: Felicitation Volume in Honour of Dr. Tariq Husain. p. 91 (2019).

Previously known from Nepal and Sikkim, and here reported as new for Tibet (Figure 11).

New national record. TIBET. Nyalam: 2600–2700 m, 24 viii 1972, Tibet herbal medicine census 1470 (HNWP 80661, PE 00048010).



Figure 11. *Silene hideakiohbae* (A) and *S. pseudoindica* (B). Close-up image of flowers, inflorescence, and a leaf pair from the upper part of a stem. Photographs: Elizabeth Byers (West Virginia), from Lidén (2019a), with kind permission from both the photographer and the editor, Priyanka Agnihotri.

24. *Silene caespitella* F.N.Williams, J. Linn. Soc., Bot. 38: 403 (1909).

Silene caespitella is here recorded from Nepal for the first time. It is a common and widespread species, known from Sikkim, Bhutan, East and South Tibet west at least to Burang, South Qinghai, West Sichuan and Northwest Yunnan. It is recognised by linear leaves, lack of glandular hairs, small, oblong calyx finely pubescent with recurved, acute hairs, short, suberect, shallowly bifid petals and tuberculate seeds. It forms part of a species group including *Silene maheshwari* Majumdar, *Melandrium xainzaense* L.H.Zhou, *S. sveae* Lidén & Oxelman, *S. ischnopetala* (F.N.Williams) Lidén (see next species), and a couple of undescribed species.

Previous reports of *Silene caespitella* in Nepal (Rajbhandari & Suzuki, 2008) all refer to the tetraploid *S. blepharicalyx* Lidén, of which *S. caespitella* (or a closely related lineage) is one of the diploid parents (Petri & Oxelman, 2011; Lidén & Oxelman, 2023).

New national record. NEPAL. Taplejung: Lhonak (27°47'26"N, 88°02'12"E), 4761 m, 20 viii 2010, Dhamala et al. B78 (TCD0018273).

The following two species (25 and 26) concern taxa that have been erroneously associated with the Nepalese endemic *Silene indica* Otth.

25. *Silene ischnopetala* (F.N.Williams) Lidén, comb. nov. – *Hedona ischnopetala*

F.N.Williams, J. Linn. Soc., Bot. 38: 405 (1909). – *Lychnis ischnopetala* (F.N.Williams) Majumdar, in B.D. Sharma et al., Fl. India 2: 542 (1993). – Type: Tibet, Chumbi [Yadong]: Kim-bu-teen [Kimbuteng], c.27°34'N, 89°00'E, 200 ft above Chumbi [valley], c.3800 m, 18 vii 1878, *Dungboo* 1106 (lectotype CAL0000005708, designated by N.C. Majumdar [1973]; isotypes CAL0000005709, [K000728804](#)).

Silene nepalensis sensu Bocquet (1969) p.p., and Zhou et al. (2001) p.p, non Majumdar.

Silene ischnopetala was treated as a synonym of *S. aprica* Turcz. in *Flora of China* (Zhou et al., 2001). The likeness lies in the dense uniform pubescence of recurved acute non-glandular hairs, oblong calyx and bifid petals. *Silene ischnopetala* differs, however, in perennial (vs annual) habit, acuminate (vs acute) leaves, strict, erect, fruiting branches with long and coarse pedicels (vs suberect, thin, fruiting pedicels), comparatively broader calyces, auriculate petal claws (vs auricles indistinct), 5 (rarely 4) styles (vs 3 styles), and coarser pubescence. It is distributed in Himalaya from Sikkim eastwards at least to 96°. Very similar plants from Northwest Yunnan often have dark purplish petals and may be distinct.

Silene ischnopetala is also similar to *S. blepharicalyx* from West Central Himalaya (Lidén & Oxelman, 2023) but can be distinguished from that species by its stricter and usually taller habit and shorter calyx teeth that are not densely long-ciliate.

The fragmentary fruiting isotype specimen of *Silene ischnopetala* at K was inattentively identified (with a questionmark) by Lidén (2019b) as *S. indica* Otth, based on the photograph on the Kew herbarium website (Figure 12B). The much more complete specimen at CAL (Figure 12A) shows, however, that this identification is wrong – a fact obvious from Williams's protologue. *Silene indica* has very different basal parts (Figure 12L,M), a pubescence of longer patent hairs, long-ciliate, shorter and broader bracts/bracteoles, much larger petals, woolly-hairy androgynophore, 3 styles and different elevation preferences (*S. indica*, 1200–2500 m; *S. ischnopetala*, 2000–3800 m). Some of their floral differences are shown in Figure 13.

Additional specimens examined. INDIA. Sikkim: Lachen, 3000 m, v 1885, *King's coll.* [1211] (CAL0000005710, syntype). Arunachal Pradesh: Upper Dibang, E of Anini, field margin 2300 m, 7 ix 2017 (photograph: Magnus Lidén, Figure 13B).

TIBET. Chumbi (Yadong): 3200 m, clefts in rocks, 5 vi 1945, *Bor & Kirat Ram* 20028 (DD 97949); On sandy hillside, 9 vii 1913, *Cooper* 241 (E00066543). Medog (Motuo, Pemako): Gutang township (Gedangxiang), sandy slopes on the W bank of Jainzhug (Jinzhū) Qu (c.29°27'N, 95°41'E), 2000 m, 12 ix 1982, *Li Bo-Sheng & Cheng Shu-Zhi* 00838 (PE02074603).

BHUTAN. Timphu: Chalmarpé, 2300 m, 10 vii 1914, *Cooper* 3699 (E00066545); Bhutan, Chukha (27.19°N, 89.56°E), c.2200 m, 3 vii 2022 (photograph: Phuentso, Bhutan National Biodiversity Centre, Figure 13A).

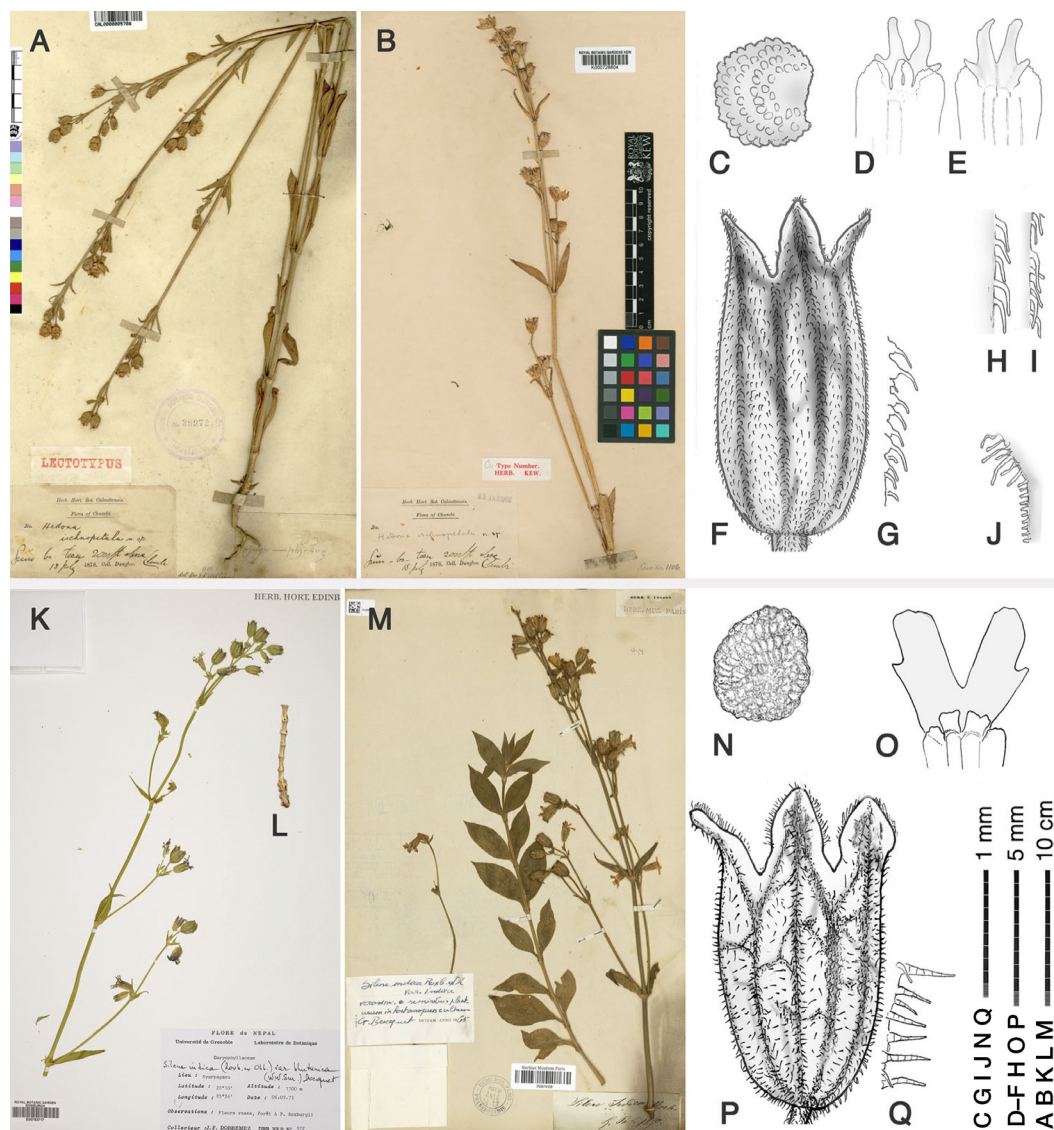


Figure 12. *Silene ischnopetala*: A, lectotype; B, isotype; C, seed; D, petal (adaxial view); E, petal (abaxial view); F, calyx; G, hairs on calyx veins; H, hairs on pedicel; I, hairs on stem; J, hairs on androgynophore and stamen base. *Silene indica*: K, Dobremez 972 (E00783717); L, stem base of *N. Wallich* Wall. Cat. 624 (G00074041); M, cultivated h[ortus] Par[isiensis], 1830, ex herb. Cosson (P05019129); N, seed; O, petal (adaxial view); P, calyx; Q, hairs on calyx veins. Vouchers: A, *Dunghoo* 1106 (CAL0000005708, © The Director, Botanical Survey of India, Kolkata), lectotype; B, *Dunghoo* 1106 (K000728804), isotype; C–J, *Bor & Kirat Ram* 20028 (DD); N–Q, *Wallich* Wall. Cat. 624 (S). Photographs and drawings: Magnus Lidén.

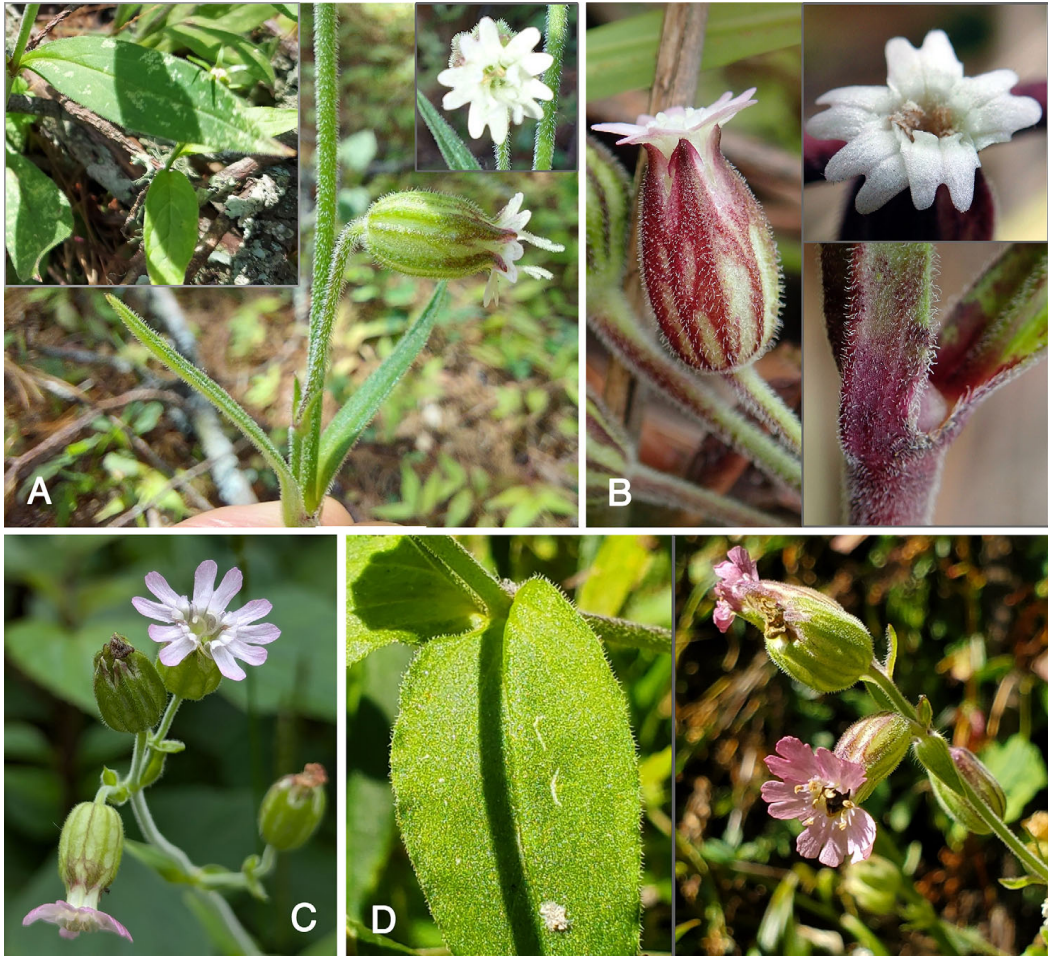


Figure 13. *Silene ischnopetala*: A, lower leaf and flower *en face* inserted (Bhutan, Timphu); B, flowers and upper leaf node (India, Arunachal Pradesh, Anini). *Silene indica*: C, flower (Katmandu, 27.63°N, 85.26°E); D, flower and lower leaf (Rasuwa, Syarpagaon, 28.16566°N, 85.43337°E, 4 ix 2024). Photographs: A, Phuentso (GBIF; licenced under <http://creativecommons.org/licenses/by-nc/4.0/>); B, Magnus Lidén; C, Sagnik Dutta Roy; D, T. Abe Lloyd.

26. *Silene noctiflora* L., Sp. Pl. 1: 419 (1753).

"*Silene indica*" Roxb., Hort. Beng. 34 (1814), *nomen nudum*, non *S. indica* Otth (1824) nec Roxburgh (1832).

Silene noctiflora is a robust, erect, sticky, annual or biennial field weed with large, lanceolate leaves, a regular, apical dichasium, clavate, long-hairy calyces with long, narrowly acuminate teeth, long exserted petals spreading at nightfall, and three styles. It is a native of temperate

Eurasia, and naturalised in northern North America. It is locally common in Xinjiang and is also known from Japan.

A specimen, allegedly raised from seed obtained in Nepal 1802 by F. Buchanan (later Hamilton), was collected by Roxburgh in the Kolkata Botanic Garden. However, there is no other indication that this species has ever occurred in Nepal. We therefore find it more probable that the plant in the Kolkata garden was an occasional weed, brought in as a contaminant in plant exchange (Lidén, 2019b). No other record of *Silene noctiflora* from India has come to our notice (a misdetermined specimen from Delhi 1960, Arora s.n., IFAN, is *Gypsophila vaccaria* (L.) Sm.). Anand Kumar kindly checked the CAL herbarium and various local floras, and could not find any evidence for the occurrence of *Silene noctiflora* in India, so if it is part of the Indian or Nepalese flora it must be very rare and/or ephemeral.

Specimen examined. INDIA. “*Silene indica* Roxb HBC” [Hortus Botanicus Calcuttensis]. s.d. Roxburgh s.n. (K001111431). The sheet was later associated with Wallich’s 1821 Nepal collection of *Silene indica* Otth (Wall. Cat. 624), and added to *Wallich Catalogue, corrections and additions* (p. 235), as 624C.

27. *Atocion armeria* (L.) Raf., Autik. Bot.: 26 (1840) – *Silene armeria* L., Sp. Pl. 420 (1753). *Silene stellariifolia* Boquet & Chater, Enum. Fl. Pl. Nepal 2: 56 (1979).

This species is a native of South Europe and Anatolia, but it is found on all continents as a garden escape or naturalised by roadsides and in human settlements, and is scattered throughout the Himalayas. It is recognised by the broad sessile glaucous glabrous leaves, narrow calyx, pink spreading petal limbs, linear acute arcuate pink coronal scales, and blue pollen. Together with the likewise introduced *Gypsophila vaccaria* and *Silene conoidea* L., *Atocion armeria* is the only annual species of the subfamily Silenoideae in Nepal.

It appears to have been first recorded in Nepal in 1969 (Flatt 94, BM, not seen). The collection was recognised as a new species, *Silene stellariifolia*, by Boquet & Chater. The protologue of this fits *Atocion armeria*, except for the inflorescence, which is referred to as a raceme. Keshab Rajbhandari (*in litt.*) studied Flatt’s specimen and found it to belong to *Atocion armeria*. There are also two photographic records on the *efloraofindia* website (<https://efloraofindia.com>), including one very close to the *Silene stellariifolia* type locality. Both finds were correctly identified in *efloraofindia*.

Records examined or otherwise noted. NEPAL. **Kaski:** SW of Pokhara, 1000 m, 5 ix 1969, Flatt 94 (BM, fide K. Rajbhandari *in litt.*, not seen; holotype of *Silene stellariifolia*); Pokhara lakeside, 766 m, 8 iv 2017 (*efloraofindia*, photograph: Saroj Kumar Kasaju); **Kathmandu:** Gyaneswor, 4300 ft [1300 m], 20 vii 2013 (*efloraofindia*, photograph: Saroj Kumar Kasaju).

Emendations to *Flora of Nepal* Notulae IV: *Silene* part 1 (Lidén & Oxelman, 2023)

1. *Silene oreoploca* Lidén, Edinburgh J. Bot. 80(367): 3 (2023).

This species is recorded from Humla, filling a gap in its distribution. Its western limit is also slightly expanded (previously Kumaon).

New records. NEPAL. Humla: 2958 m, 7 viii 2019, Zhang Shu-Ren et al. H0295 (KATH, PE); INDIA.

Uttarakhand: Chamoli, Hanuman Chatti area (Chandra & Rawat, 2020, as *Silene incurvifolia* Kar. & Kir.); specimen not seen, but illustration and description agree with *S. oreoploca*.

2. *Silene scoparia* Lidén, Edinburgh J. Bot. 80(367): 6 (2023).

Cvetomir Denchev has kindly informed us that the anther smut on *Silene scoparia* in Lidén & Oxelman (2023), figure 2, almost certainly is *Microbotryum bardanense* Chlebicki & Sukova. Notably, two infected specimens of *Silene scoparia* cited by us (Noshiro et al. 9470526; Mikage et al. 9552385) are cited also in Denchev et al. (2021) as *S. moorcroftiana* with *Microbotryum bardanense*.

3. *Silene moorcroftiana* Wall. ex Benth. in Royle, Ill. Bot. Himal. Mts. 79 (1839).

This widespread species is recorded from Humla, filling a gap in its distribution.

New records. NEPAL. Humla: 4000–4200 m, 11 and 15 viii 2019, Zhang Shu-Ren, Chen You-Sheng, Tirtha Raj Pandey, Ganga Datt Bhatt & Prabin Bhandari H0532, H0836 (KATH, PE).

5. *Silene procera* Lidén, Edinburgh J. Bot. 80(367): 14 (2023); 6. *S. nyalamensis* (L.H.Zhou) Lidén, loc. cit.: 16; 7. *S. blepharicalyx* Lidén, loc. cit.: 18.

Recently, field photographs of all three species of this group (Figure 14) have surfaced, showing their distinction. We also have a new District record for *Silene blepharicalyx*: NEPAL. Humla: 3275–5050 m, 3, 15 and 17 viii 2019, Zhang Shu-Ren et al. H0051, H0745, H0879 (KATH, PE).

8. *Silene vaginans* Lidén, Edinburgh J. Bot. 80(367): 20 (2023).

This species, previously known only from the type specimen (Bajhang–Badjura border), has recently been collected in Jumla at 3872 m. The type specimen label gives a very imprecise elevational range (2190–3350 m). The new find suggests a true elevation in the upper reaches of that range.

New record. NEPAL. Jumla: Patarasi, Khandi (29.3817°N, 82.4915°E), 3872 m, 23 vii 2022, Y.B. Poudel et al. YSS-33 (KATH153546, mixed with *Fritillaria* sp.).

Acknowledgements

Prabin Bandhari most generously shared pictures of herbarium specimens as well as his photographs from the wild from a 2019 expedition to Humla. André Schuiteman is heartily



Figure 14. A, *Silene procera*: Nepal, Gorkha, Lho, Ikeda et al. 20815090 (holotype collection). B, *Silene nyalamensis*: Tibet, Gyirong, Jiulonggou, (28.65°N, 85.28°E), 29 vii 2024. C, *Silene blepharicalyx*: Nepal, Humla, Simikot, 3 viii 2019. Photographs: A, Mark Watson; B, Jiang Guo-Bin; C, Prabin Bhandari.

thanked for checking the seeds of *Silene setisperma*. We thank Hao Jia-Chen for deciphering Chinese place names, and Prashant Pusalkar for solving Blinkworth's *Lychnis inflata* label. We are grateful to Elizabeth Byers, Saroj Kumar Kasaju, Sagnik Dutta Roy, T. Abe Lloyd, Jiang Guo-Bin, Mark Watson and Jonas Bengtsson for sharing of photographic records; to Anand Kumar for checking *Silene noctiflora* in CAL and in Indian literature; to Keshab Rajbhandari for his determinations of BM (British Museum) specimens; and to BSI Kolkata for permission to include their photograph of the lectotype of *Hedona ischnopetala*. Finally, we thank all herbaria cited, and their helpful curators.

ORCID iDs

M. Lidén  <https://orcid.org/0000-0001-6306-9353>

B. Oxelman  <https://orcid.org/0000-0002-6104-4264>

References

- Bocquet G. 1967. Physolychnidium olim Gastrolychnidium nomenclaturae fundamentum includens combinationes taxaue nova nonnulla Silenes generis. *Candollea*. 22(1): 1: 1–38. <https://www.e-periodica.ch/digbib/view?pid=can-002%3A1967%3A22%3A%3A4#14>
- Bocquet G. 1969. Revisio Physolychnidium. Phanerogamarum Monographiae. 1: 1–342.
- Chandra S, Rawat DS. *Silene incurvifolia* Kar. & Kir. (Caryophyllaceae): a new record to the *Flora of India*. National Academy Science Letters. 44: 51–53. <https://doi.org/10.1007/s40009-020-00945-9>
- Denchev TT, Hong SP, Denchev CM. 2021. *Microbotryum bardanense* and *M. polygoni-alati* – new records for Nepal. *Mycotaxon*. 136: 491–496. <https://doi.org/10.5248/136.491>
- Flora of Nepal. Continuously updated. <https://www.floraofnepal.org.np>
- Kusi N, Werhan G. 2016. Humla – journey into the hidden Shangri-La. Kathmandu: Himalayan Map House.
- Lidén M. 2019a. *Silene pseudoindica* (Caryophyllaceae), a new species from Nepal, hitherto confused with *S. indica*. In: Agnihotri P, Khuraijam JS, editors. *Angiosperm Systematics: Recent Trends and Emerging Issues*. Dehradun: Bishen Singh Mahendra Pal Singh. pp. 91–97.
- Lidén M. 2019b. *Silene indica* (Caryophyllaceae) is not an Indian species. In: Agnihotri P, Khuraijam JS, editors. *Angiosperm Systematics: Recent Trends and Emerging Issues*. Dehradun : Bishen Singh Mahendra Pal Singh. pp. 98–106.
- Lidén M, Oxelman B. 2023. Flora of Nepal Notulae IV: new species and resurrected names in *Silene*. *Edinburgh Journal of Botany*. 80, Article 367: 1–28. <https://doi.org/10.24823/ejb.2023.367>
- Majumdar NC. 1973. A catalogue and lectotypification of the type materials of some taxa of the family Caryophyllaceae available at the Calcutta herbarium (cal.). *Nelumbo*. 15(1–2): 39–44. <https://doi.org/10.20324/nelumbo/v15/1973/75090>
- Manandhar NP. 2002. *Plants and People of Nepal*. Portland, Oregon: Timber Press.
- Oth A. 1824. *Silene* L. In: Candolle AP de, editor. *Prodromus systematis naturalis Regni vegetabilis*. Vol. 1. Paris, Strasbourg and London. pp. 367–385. <https://bibdigital.rjb.csic.es/idurl/1/14907>
- Petri A, Oxelman B. 2011. Phylogenetic relationships within *Silene* (Caryophyllaceae) section *Physolychnis*. *Taxon*. 60(4): 953–968. <https://www.jstor.org/stable/41317319>
- Rajbhandari KR, Suzuki M. 2008. Distribution maps of *Silene* (Caryophyllaceae) in Nepal. *Bulletin of the Tohoku University Museum*. 8: 9–28. http://www.museum.tohoku.ac.jp/pdf/press_info/bulletin/No08/bulletin_08_02.pdf
- Roxburgh W. 1832 (posthumous). *Flora Indica*. Vol. 2. Serampore. <https://www.biodiversitylibrary.org/item/10528#page/2/mode/1up>
- Tang Y, Xie JS, Sun H. 2007. Pollination ecology of *Pedicularis muscoides* H.L.Li subsp. *himalayca* Yamazaki from alpine areas of Western Sichuan, China. *Arctic, Antarctic and Alpine Research*. 39(3): 481–487. <http://www.jstor.org/stable/20181720>
- Turland NJ, Wiersema JH, Barrie FR, Greuter W, Hawksworth DL, Herendeen PS, Knapp S, Kusber WH, Li DZ, Marhold K, May TW, McNeill J, Monro AM, Prado J, Price MJ, Smith GF, editors. 2018. *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) Adopted by the*

Nineteenth International Botanical Congress Shenzhen, China, July 2017. *Regnum Vegetabile* 159. Glashütten: Koeltz Botanical Books. <https://doi.org/10.12705/Code.2018>

Zhou Li-Hua, Lidén M, Oxelman B. 2001. *Silene*. In: Wu Zheng-Yih, Raven P, editors. *Flora of China*. Vol. 6. Beijing: Science Press, and St Louis: Missouri Botanical Garden Press. pp. 66–100. http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=130349