Six New Species of *Draba* (Brassicaceae) from the Himalayas

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**ABSTRACT.** *Draba nylamensis*, *D. kongboiana*, and *D. sunhangiana* from Tibet (Xizang), China, *D. macbeathiana* from Nepal, *D. bagmatiensis* from Nepal and adjacent Sikkim (India), and *D. himachalensis* from India are described, and their distinguishing characters from the nearest relatives are discussed.

**Key words:** Brassicaceae, China (Tibet), *Draba*, India, Nepal.

During recent visits to various herbaria and continuing work on the treatment of Brassicaceae (Cruciferae) for the flora of Nepal, I discovered the following six new species of *Draba*. They are described herein to make their names available for the *Flora of Nepal* and other works in progress. Illustrations of these species and scanning-electron microscopy of the trichomes will be published in a forthcoming revision of *Draba* for the Himalayas and Central Asia.

**Draba nylamensis** Al-Shehbaz, sp. nov. TYPE: China. Xizang (Tibet): Nylam Xian, Nylam, rocky slopes, 3800 m, 23 June 1975, Qinghai-Xizang Team 5820 (holotype, KUN; isotypes, KUN, PE).

Biennial herbs 12–30 cm tall. Stems solitary or rarely few from base, erect, distally densely hispid, pilis simplicibus usque 2 mm longis, Folia basalia rosulata, subsessilia, oblanceolata vel oblongo-oblanceolata, 0.6–3 cm × 2–3 mm, substis pilis stipitato-stellatis praeditis, supra pilis plerisque simplicibus hispidis minoribus stipitato-stellatis praeditis. Folia caulina (8–)10–13, sessilia, nonauriculata, oblonga vel lanceolata. Pedicelli fructiferi 1–2 cm longi, pilis stipitato-stellatis, sparsis. Sepala 2.5–3 mm longa. Petala rava, spathulata, 6–7.5 × 2–2.5 mm, apex obtuse to subemarginate. Median filamenta 3.5–4 mm longa, lateral filamenta 2–3 mm longa; antherae ovatae, ca. 0.5 mm longae. Ovulae 60 to 70 per ovary. Immature fruit linear, 2.5–3 cm × ca. 1 mm, not inflated, latiseptate, not twisted, straight; valves glabrous, with obscure midvein, base and apex subobtuse; style obsolete. Mature seeds not seen. Flowering June.

Rocky slopes, grassy slopes; 3650–3800 m. *Draba nylamensis* is most closely related to *D. stenocarpa* J. D. Hooker & Thomson (Afghanistan, China, India, Kashmir, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan), which it resembles in habit, flower color, and indumentum. However, it is readily distinguished by having (8–)10–13-leaved stems, glabrous fruits, sepalae 2.5–3 mm longa, petals 6–7.5 mm longa, and fruiting pedicels sparsely pubescent with stellate trichomes. By contrast, *D. stenocarpa* has 2–4(–6)-leaved stems, antrorsely puberulent fruits, sepalae 1.5–2 mm longa, petals 3–4 mm longa, and glabrous fruiting pedicels rarely with few scattered simple trichomes. Although only immature fruits of *D. nylamensis* have been examined, they appear to be distinctly longer (2.5–3 cm) and with more ovules per ovary (60 to 70) than those of *D. stenocarpa*. 
which has fruits (0.6–)0.9–(2–2.5) cm long and ovules 32 to 48 per ovary.

Paratypes. CHINA. Xizang: Nylam Xian, Nylam, 3760 m, 13 June 1966, Zhang Yongtian & Long Kiyong 3949 (PE); Kharba, 11 June 1922, E. J. Norton 83 (K).

**Draba maceathiana** Al-Shehbaz, sp. nov. TYPE: Nepal. Thorong La, Marsyandi Valley, stable scree at the top of the pass, 17,300 ft., 25 July 1983, R. J. D. McBeath 1484 (holotype, E).

Herba perennis, ca. 6 cm alta. Caules erecti, tomentosi, pilis furcatis et stellatis praeeditis. Folia basalia roslata, petiolarata, oblanceolata, 5–15 × 2–5 mm, pilosa, pilis stipitato-stellatis, 3- vel 4-radiatis praeditis. Racemi 3–6-flori, ebracteati, laxi. Pedicelli fructiferi 1–2 cm longi, divaricati vel leviter reflexi. Sepala 1.5–2 mm longa. Petala flavae, late obovata, 5–7 × 3–5 mm, apice subemarginata. Ovula 12–14. Fructus oblongi, pubescentes, 8–10 × 3–4 mm, compressi, basi et apice obtusi. Semina oblonga, ca. 1 × 0.5 mm.

Perennial herbs ca. 6 cm tall, laxly branched. Caudex covered with leaf remains of previous years, many branched, ultimate branches terminated in few rosettes. Stems erect, simple, tomentose with stalked, forked and stellate trichomes. Basal leaves rosulate, persistent; petiole to 10 mm long, ciliate with simple and stalked forked trichomes; leaf blade oblanceolate, 5–15 × 2–5 mm, pilose with stalked, 3- or 4-rayed stalked trichomes with simple, soft rays, base cuneate to attenuate, margin 1- or 2-toothed on each side, apex acute. Cauline leaves few, similar to basal leaves. Racemes 3–6-flowered, ebracteate, elongated in fruit. Fruiting pedicels 1–2 cm long, horizontal to slightly reflexed, straight, slender, tomentose all around; adaxially with a well-developed axillary gland. Sepals oblong, 1.5–2 × ca. 1 mm, erect, abaxially sparsely pubescent with stalked stellate trichomes, base of lateral pair not saccate, margin not membranous. Petals yellow, spatulate, ca. 3 × 1 mm, apex subemarginate. Filaments 1.5–2 mm long; anthers ovate, ca. 0.4 mm long. Ovules 12 to 14 per ovary. Fruit oblong, 8–10 × 3–4 mm, compressed, latiseptate, twisted; valves pubescent, not veined, base and apex obtuse; style 0.5–0.6 mm long. Seeds brown, oblong, ca. 1 × 0.5 mm.

**Draba kongboiana** Al-Shehbaz, sp. nov. TYPE: Xizang: Kongbo, Nyima La, 14,500 ft., 29°28’N, 94°52’E, 28 June 1947, F. Ludlow, G. Sherriff & H. H. Elliot 15329 (holotype, BM; isotypes, E, TI).

Herba perennis, 3–11 cm alta, caespitosa, scaposa. Caules erecti, dense pubescentes, basi pilis simplicibus et stellatis. Folia basalia roslata, persistentia, spatulata vel oblanceolata, 5–15 × 1.5–4 mm, infeme pilis stellatis, sessilibus vel brevi-stipitatis, 3- vel 4-radiatis, superne pilosi pilis simplicibus; petiolis (5–)10–20 mm longis, ciliatis, suberosis. Folia caulina carentia. Racemi 8–17-flori, ebracteati. Pedicelli fructiferi 7–15 cm longi, pilis stellatis. Sepala 2–3 mm longa. Petala flavae, late obovata, 5–7 × 3–5 mm, apice emarginata. Ovula 12–16. Fructus oblongi vel oblongo-ovati, puberuli, 4–6 × 1.5–2 mm, compressi; stylus 0.4–0.6 mm longus. Semina ovata, ca. 1 × 0.6 mm.

Perennial herbs 3–11 cm tall, densely caespitose, scapose. Caudex covered with petioles of previous years, few branched, ultimate branches terminated in rosettes. Stems erect, simple, densely pubescent throughout with stalked stellate trichomes mixed at least basally with simple ones. Basal leaves rosulate, persistent; petiole (5–)10–20 mm long, persistent, thickened, cory, ciliate with simple trichomes; leaf blade spatulate or oblanceolate, 5–15 × 1.5–4 mm, abaxially densely pubescent with sessile or short-stalked, 3- or 4-rayed stalked trichomes with unbranched rays, adaxially pilose with primarily simple trichomes, margin not ciliate, without setose or subsetose trichomes, base attenuate, margin entire, apex obtuse. Cauline leaves absent. Racemes 8–17-flowered, ebracteate, elongated considerably in fruit. Fruiting pedicels 7–15 mm long, ascending, straight, densely pubescent with stalked trichomes. Sepals oblong-ovate, 2–3 × 1–1.5 mm, erect, abaxially sparsely pubescent with simple and forked trichomes, base of lateral pair not saccate, margin narrowly membranous. Petals deep yellow, broadly obovate, 5–7 × 3–5 mm, apex emarginate; claw 1–2 mm long. Filaments 2–3 mm long; anthers oblong, 0.6–0.8 mm long. Ovules 12 to 16 per ovary. Fruit oblong to oblong-ovate, 4–6 × 1.5–2 mm, not inflated, latiseptate, not twisted; valves puberulent with simple trichomes sometimes mixed with much fewer forked ones, not veined,
Herba perennis, 5–15 cm alta, caespitosa. Caules erecti, ramosi, pilis crisps, simplicibus, furcatis, stellatis, radiis inaequalibus. Folia basalia rosulata, lanceolata, 4–10 × 1–3 mm, inferne pilis stellatis, stipitatis, 3–5-radiatis, crisps, superne pilosi pilis simplicibus, crisps; petiolis 1–4 mm longis, ciliatis. Folia caulina 2–6, ovata vel anguste oblonga, 4–8 × 1.5–4 mm. Racemi 3–25-flori, ebracteati, fructiferi subumbellati. Petalici fructiferi 0.5–1.5(–2.4) mm longi, glabri. Sepala ca. 0.7 × 0.4 mm. Petala alba, oblanceolata, ca. 1.5 mm longa. Ovula 14–20. Fructus ovati vel ovato-lanceolati, puberuli, 2.5–4(–5) × 1.5–2 mm, glabri, basi inflati, obtusa, apice acutis; stylus 0.1–0.3 mm longus. Semina ovata, 0.4–0.5 × 0.2–0.4 mm.

Perennial herbs 5–15 cm tall, caespitose. Caudex slender, covered with leaf remains of previous years, branched, ultimate branches terminated in rosettes. Stems erect, branched above, pubescent with a mixture of crisped, simple, forked, and short-stalked stellate trichomes with unequal rays. Basal leaves rosulate; petiole 1–4 mm long, ciliata; leaf blade lanceolate, 4–10 × 1–3 mm, abaxially pilose with short-stalked, 3–5-rayed stellate trichomes the rays of which are unequal, simple, and crisped, adaxially pilose with simple, crisped trichomes, base attenuate, margin entire, not ciliate, apex subacute. Cauline leaves 2 to 6, sessile; leaf blade ovate to narrowly oblong, 4–8 × 1.5–4 mm, pubescent as basal leaves, base obtuse, margin entire or obscurely denticulate, not ciliate, apex subobtuse. Racemes 3–25-flowered, ebracteate, subumbellate, not elongated in fruit; rachis straight. Fruiting pedicels 0.5–1.5(–2.4) mm long, divaricate, straight, glabrous. Sepals oblong, ca. 0.7 × 0.4 mm, erect, sparsely pilose. Petals white, oblanceolata, ca. 1.5 mm long. Filaments ca. 0.7 mm long; anthers ovate, ca. 0.1 mm long. Ovules 14 to 20 per ovary. Fruit ovate to ovato-lanceolate, 2.5–4(–5) × 1.5–2 mm, basally inflated, latisepalate, not twisted; valves glabrous, not veined, base obtuse, apex acute; style 0.1–0.3 mm long. Seeds brown, ovata, 0.4–0.5 × 0.2–0.4 mm.

Draba kongboiana is mostly closely related to D. olgae Regel & Schmalhausen (China, Kyrgyzstan, Pakistan, Tajikistan) from which it differs by having stems densely pubescent throughout with stellate and fewer simple trichomes, well-developed, persistent petioles (5–)10–20 mm long that become thickened and cory, abaxial leaf surfaces pubescent with 3- or 4-rayed stellate trichomes with unbranched rays, non-ciliate leaf margins, densely pubescent fruiting pedicels, deep yellow petals, and oblong anthers 0.3–0.4 mm long. Draba olgae has stems glabrous throughout or only sparsely pubescent basally, sessile leaves or with petioles to 1 mm long that never become thickened or cory, basal leaves abaxially pubescent with 3–5-rayed stellate trichomes at least one ray of which is branched, leaf margins distinctly ciliate with setose or subsetose simple trichomes, glabrous fruiting pedicels, pale yellow petals soon turning whitish, or subsetose simple trichomes, glabrous fruiting pedicels, pale yellow petals soon turning whitish, and ovate anthers 0.3–0.4 mm long.

Because of similarities in habit (scapose perennials with leafless stems) and flower color and size, it is easy to confuse Draba kongboiana with D. orae Schrenk, a species widely distributed in the Himalayas and western China, west into Central Asia, and north into Russia and Mongolia. However, the new species has abaxial leaf surfaces pubescent with stellate instead of primarily simple trichomes, fruiting pedicels densely pubescent all around instead of glabrous adaxially, oblong instead of ovate anthers, and puberulent instead of glabrous fruits. Draba kongboiana also resembles D. juewana W. W. Smith, a Chinese endemic known only from southeastern Xizang and northwestern Yunnan, in having yellow petals 5–7 mm long and puberulent instead of sessile basal leaves, short (0.4–0.6 mm long) instead of long (1.5–2.5 mm) styles, and fruiting pedicels pubescent all around instead of glabrous adaxially.

Paratypes. CHINA. Xizang: Lang La, Kymidong Dzong, Lilung, F. Ludlow & G. Sherriff 1842 (BM, E); Lang La, 26°58′N, 93°42′E, F. Ludlow, G. Sherriff & G. Taylor 4284 (BM).

Draba sunhangiana Al-Shehbaz, sp. nov. TYPE: China. SW Tibet [Xizang]: Burang Xian, Kangrinboque Feng, grassland on slope, 4700 m, 25 Aug. 1990, Y. Fei, H. Sun [Sung Hang], D. Z. Li & B. Bai 447 (holotype, KUN; isotype, KUN).
(Afghanistan, China, Kashmir, Pakistan, Tajikistan). From these two species _D. sunhangiana_ is easily distinguished by having stellate trichomes with unequal, unbranched, crisped rays, adaxial leaf surface pilose with crisped simple trichomes, 14–20-ovulate ovaries, and smaller seeds 0.4–0.5 × 0.2–0.4 mm. From _D. glomerata_, _D. sunhangiana_ also differs by having glabrous fruiting pedicels and basally inflated fruits, and from _D. korsinskyi_ it differs by having leafy stems pubescent throughout. In _Draba glomerata_ both leaf surfaces are uniformly tomentose with sessile or subsessile, 4-rayed stellate trichomes the rays of which are straight and with 1 or 2 lateral branches on each side, the fruiting pedicels are tomentose all around with stellate trichomes, the ovaries are (6–)8–12-ovuled, the fruits are not inflated basally, and the seeds are 0.7–1 × 0.5–0.7 mm. In _D. korsinskyi_ the stems are leafless and glabrous throughout or at least along the distal half, the leaves are tomentose with a mixture of simple trichomes and stellate ones with straight, not crisped rays, the ovaries are 8–12-ovuled, and the seeds are 1–1.2 × 0.6–0.7 mm.

**Draba himachalensis** Al-Shehbaz, sp. nov. TYPE: India. Himachal Pradesh: above Chandratal Lake, exposed mt. ridge in scree, 5100 m, 18 Aug. 1988, R. McBeath 2154 (holotype, E).

Herba perennis, 0.5–1 cm alta, pulvinita, scaposa, tomentosa, canescens; pilis stellatis, 4–6-radiatis, radiis tenuibus, ramosis. Folia basalia rosulata, obovata vel spatulata, 2–4 × 1–1.5 mm, tomentosa, integra. Folia caulina carentia. Racemae 2–4 florae, ebracteae, racemi fructiferi folia paulo longiores. Pedicelli fructiferi 1.2–1.5 mm longi, tomentosi vel apice glabri. Semina ovata, 0.5–1 mm. Petala alba, spatulata, 1.2–2 mm. Ovula 10–14. Fructus orbicularis, glabri, 2–3 mm diametro, compressi, basi et apice rotundati; stylus ca. 0.1 mm longus. Semina ovata, 0.5–0.6 × 0.3–0.4 mm.

Perennial herbs 0.5–1 cm tall, pulvinate, scapose, canescent, tomentose throughout with short-stalked, 4–6-rayed stellate trichomes with finely branched rays. Caudex covered with leaves of previous years, many branched, ultimate branches terminated in rosettes. Stems erect, simple, tomentose. Basal leaves rosulate; petiole 2–3 mm long, ciliate with coarse, forked trichomes; leaf blade obovate to spatulate, 2–4 × 1–1.5 mm, uniformly tomentose on both surfaces, base attenuate, margin entire, apex obtuse. Cauline leaves absent. Racemes 2–4-flowered, ebracteate, somewhat elongated, in fruit only slightly taller than rosette. Fruitting pedicels 1–2.5 mm long, divaricate, straight, tomentose all around or glabrescent distally. Sepals oblong, ca. 1.2 × 0.7 mm, erect, abaxially sparsely tomentose, base of lateral pair not saccate, margin narrowly membranous. Petals white, obovate, 1.2–1.5 × ca. 0.9 mm, apex rounded. Filaments 0.7–1 mm long; anthers ovate, ca. 0.4 mm long. Ovules 10 to 14 per ovary. Fruit orbicular, 2–3 mm diam., not inflated, latisepitate, not twisted; valves glabrous, not veined, base and apex rounded; style ca. 0.1 mm long. Seeds brown, ovate, 0.5–0.6 × 0.3–0.4 mm.

_Draba himachalensis_ is most closely related to _D. glomerata_, which it resembles in habit, indumentum, flower color, and fruit size. However, it differs by having leafless scapes, 2–4-flowered racemes, obovate, apically rounded petals 1.2–1.5 mm long, orbicular fruits rounded at apex, and smaller seeds 0.5–0.6 × 0.3–0.4 mm. _Draba glomerata_ has 1–3–(5)-leafed scapes, (3–)5–10-flowered racemes, spatulate, apically submarginate petals (1.8–)2–2.7(–3) mm long, ovate or rarely oblong-ovate fruits acute at apex, and seeds 0.7–1 × 0.5–0.7 mm.

The flowering raceme in _Draba himachalensis_ hardly emerges from the basal rosette, and only when the fruits mature does it become slightly taller than the rosette. By contrast, in _D. glomerata_ the raceme is distinctly taller than the rosette both in flower and fruit.


Herba perennis, 1–6 cm alta, caespitosa; pilis stellatis, 4-radiatis, radiis tenuibus, ramosis. Folia basalia rosulata, oblongo-ellata vel oblonga, 2–10 × 0.5–3 mm, tomentosa, integra vel dentata. Folia caulina 2–5, sessilia, ovata vel oblonga, 2–7 × 1–3 mm. Racemae 5–13-flori, floribus basibus bracteatis. Pedicelli fructiferi 1–5 mm longi, tomentosi, saepe recurvati. Folia caulina 2–5, sessilia, ovata vel oblonga, 2–7 × 1–3 mm. Racemae 5–13-flori, floribus basibus bracteatis. Pedicelli fructiferi 1–5 mm longi, tomentosi, saepe recurvati. Sepala ca. 0.1 mm longi. Semina ovata, 0.5–0.7 × 0.3–0.5 mm.

Perennial herbs 1–6 cm tall, caespitose. Caudex slender, covered with petiolar remains of previous years, few to many branched, ultimate branches terminated in rosettes. Stems several to many, simple, ascending, tomentose with subsessile stellate trichomes. Basal leaves rosulate; petiole to 3 mm long; leaf blade oblongo-ellata to oblonga, 2–10 × 0.5–3 mm, tomentoso with sessile, 4-rayed stellate trichomes the rays of which with 2 lateral branches, base cuneate, margin entire or 1-toothed on each
side, often ciliate at least near base, apex obtuse. Cauline leaves 2 to 5, sessile; leaf blade ovate to oblong, 2–7 × 1–3 mm, pubescent as basal leaves, obtuse, margin entire, not ciliate at base, apex subacute. Racemes 5–13-flowered, lowermost flowers bracteate. Fruiting pedicels 1–5 mm long, horizontal, often recurved, forming a distinct angle with fruit, tomentose all around with subsessile, stellate trichomes. Sepals oblong, 0.8–1 × 0.4–0.5 mm, erect, caducous, abaxially pilose, base of lateral pair not saccate, margin membranous. Petals white, spatulate, 1.2–2 × 0.5–1 mm, caducous, apex subemarginate or rounded; claw absent. Filaments 0.8–1 mm long, caducous; anthers ovate, 0.1–0.2 mm long. Ovules 16 to 20 per ovary. Fruit narrowly elliptic, 3–5 × 1.2–1.7 mm, not appressed to rachis, latiseptate, untwisted; valves puberulent with simple trichomes; style 0.1–0.4 mm long. Seeds ovate, 0.5–0.7 × 0.3–0.5 mm.

**Draba bagmatiensis** is most closely related to *D. lasiophylla* Royle (Bhutan, China, India, Kashmir, Kazakhstan, Kyrgyzstan, Nepal, Tajikistan, Uzbekistan), from which it is easily distinguished by having horizontal, often recurved fruiting pedicels forming a distinct angle with fruit, sepals 0.8–1 mm long, petals 1.2–2 mm long, elliptic, untwisted fruits not appressed to rachis, puberulent fruit valves with simple trichomes, and seeds 0.5–0.7 mm long. By contrast, *D. lasiophylla* has erect to ascending fruiting pedicels often subappressed to rachis and forming a straight line with fruit, sepals 1.2–1.8 mm long, petals 2–3.5 mm long, lanceolate to lanceolate-oblong twisted fruits often subappressed to rachis, tomentose fruit valves with branched trichomes, and larger seeds 0.8–1.1 mm long. The fruits in *D. lasiophylla* are twisted two or three turns and rarely are they twisted one or half a turn. Both *D. lasiophylla* and *D. bagmatiensis* are closely related to *D. oaricarpa* O. E. Schulz (Pakistan, Nepal, Tibet, Sikkim) and differ in having caducous floral parts. The last species is easily distinguished by having persistent sepals, petals, and stamens that often persist well after fruit dehiscence.


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