

Shayuk Valley, prairie below Sialo, Thomson in 1847 (K, B, UC); damp places, 34° 21' N., 82° 6' E., 4910 m, Deasy 857, 862, 878 (K, UCf) m.v. 1; Himis Shupka, Ladak, Stewart in 1912 (UC). Kumaon: Himalaya Mts., Niti, Edgeworth in 1844 (K), as *Youngia glauca* Edgew.; Kumaon, Milam Glacier, Strachy and Winterbottom in 1840 ? (K). Kashmir: Dras Valley, Duthie 13707 (UWG, UCf, Calcutta); Zoji Pass to Matayan, Stewart 7489 (UC); Ladak, Tsakzhun Tso, in sand, Koels 2408 (US). Punjab: Kangra, Lahul, Bhaga Valley, Ghantal, Chand 122A (US); Kichu, Spiti, Gill 1935 (DD); Baltistan, Thalle La, Stewart 20586 (UC); Satpura Nullah, above Skardu, Stewart 20298 (UC); Shyok Valley, Blaghar to Kuru, Stewart 20848 (UC).

Minor Variants of *C. flexuosa*

1. Low tufted plants; stems short, the heads congested somewhat as in *C. nana*; achenes 4.5 mm long, moderately attenuate, with unusually broad pappus disk. Deasy 857, 862, 878 (K) damp places, 4910 m, 34° 21' N., 82° 6' E.; Thorold 70 (K) wide stony valleys, 5211 m, N.W. Tibet; Ching 310 (US) vicinity of Lichen, 1750–2050 m, Kansu Prov., China. (Fig. 151, *h-m*.)

2. Involucre only 6 mm high and 1 mm wide at base; achenes 4.3 mm long, very slender; pappus 4 mm long. Schrenk (UWK), near Lake Balkash, Songoria, Semipalatinsk, Siberia. (Fig. 151, *n-r*.)

Relationship

Crepis flexuosa has as its nearest relatives 2 closely related groups of species, viz., *C. alata* and *C. corniculata*, on the one hand, and *C. naniforma*, *C. lactea*, *C. nana* and *C. elegans*, on the other hand. Its chromosomes are similar to those of the latter two species, but it differs strikingly from both groups in floral and vegetative characters. Certain specimens of *C. flexuosa* have furnished evidence indicating the primitive relationships of this section. In plants collected in Kashmir at about 2800 m (Stewart 20586), the much-branched caudex was woody and was covered with a grayish-brown cortex bearing the marks of old leaf scars. One of these plants appeared to be at least 7 years old, and it was probably older. Thus, under favorable conditions, this species is a strong, woody-based perennial—a definite mark of primitiveness.

105. *Crepis naniforma* sp. nov.

(Fig. 152.)

Herba perennis 0.8–1 dm alta omnia glabra; folia caulina petiolata spathulata sinuato-denticulata; caulis sinuatus simplex vel furcatus cum 2–8 capitulis; capitula parva 9–13-flora; involucrea cylindrica 10–11.5 mm longa nigro-virida, squamis exterioribus 3–5 brevis linearibus vel ovatis, interioribus 7–8, oblongis in maturitate carinatis et spongioso-incrassatis; receptaculum areolatum glabrum; corolla 11–12 mm longa, tubo 4–5 mm longo glabro; antherae 3.75 mm longae; rami styli 1.25–1.75 mm longi flavi; achenia fusca pallida 5.5–6.5 mm longa 0.5–0.6 mm lata subteretia fusiformia 10-costata; pappus fuscus 6 mm longus 2–4 seriatim persistens.

Perennial, 0.8–1 dm high, entirely glabrous; caudex very slender, elongated, with remnants of old leaves and axillary buds several cm below crown, leafy at crown; cauline leaves all long-petiolate except those at bifurcations of the inflorescence, which are sessile, linear, or bractlike; lower cauline leaves 4–9 cm long, 0.6–1.6 cm wide, spatulate, the blade short, elliptic to ovate or obovate, obtuse, sinuate-denticulate, the small teeth acute, corneous-mucronate, the margin narrowly involute, petiole 2–4 times longer, alate; stem sinuate, simple, 2-headed, or dichotomously 2-branched, the branches elongated, 2–4-headed; peduncles 0.5–3 cm long, slender; heads erect, small, 9–13-flowered; involucre cylindric, 10–11.5 mm long, 2–4 mm wide at middle in fruit, dark green; outer bracts 3–5 with 2 or 3 subtending, linear to ovate, acute, very short or rarely the longest $\frac{1}{4}$ as long as the inner; inner bracts 7–8, oblong, acute or obtuse, glabrous on both sides, dorsally dark green except the broad membranous margin, with a median nerve not notably thickened at the apex, becoming carinate, brownish, and spongy-thickened at base

in fruit; receptacle areolate, glabrous; corolla 11–12 mm long; ligule 2 mm wide; teeth 0.25–0.5 mm long, prominently glandular; corolla tube 4–5 mm long, glabrous; anther tube 3.75 × 1 mm dis.; appendages 0.8 mm long, oblong, acute; filaments only 0.4–0.5 mm longer; style branches 1.25–1.75 mm long, 0.15 mm wide, yellow; achenes (fully mature) light brown, 5.5–6.5 mm long, 0.5–0.6 mm wide, subterete, fusiform, moderately attenuate to the paler oboconical apex and pappus disk,

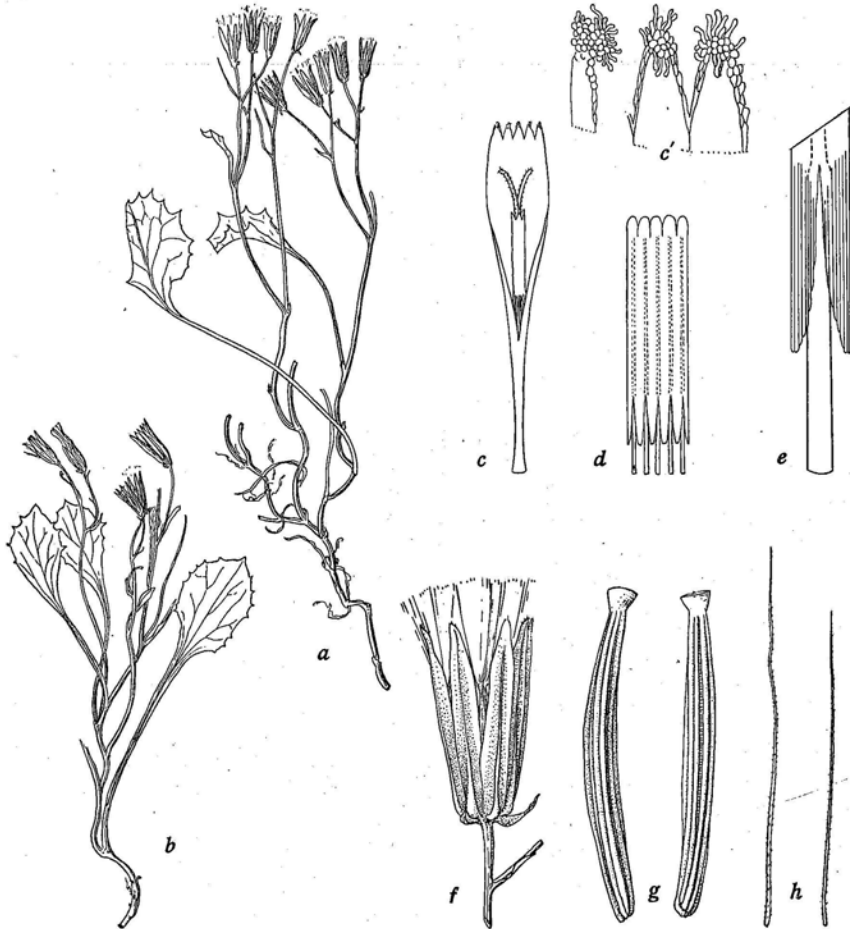


Fig. 152. *Crepis naniforma*, from type collection (B, US): *a*, *b*, parts of a plant, × 1; *c*, floret lacking ovary, × 4; *c'*, detail of ligule teeth, × 25; *d*, anther tube, × 8; *e*, detail of appendages, × 32; *f*, fruiting head, × 2; *g*, *h*, achene, 2 views, and smallest and largest pappus setae, × 8.

slightly constricted at the closed calloused base, 10-ribbed, ribs rather prominent, close, with narrow spaces between, rounded, muriculate; pappus pale tawny, 6 mm long, copious, 2–4-seriate, unequal in length and thickness of the setae, rather stiff but pliable, persistent. Flowering Aug.–Sept.; flowers yellow, with lines of reddish-purple on outer face of ligules.

S. Kashmir and N.E. Punjab, at elevations from 3000 to 5000 m, on shale slopes and river sands. Known to me only from the 3 stations cited below.

Monomorphic.

Kashmir: Ladak, Kangi La, on shale slope with no other plants, 4848 m, *Koels 2346* (B, Ucf, US, NY, DD) type and isotypes; Zanskar, Rangdum, in sand on river bottom, 3030 m, *Koels 2879a* (B, NY). **Punjab:** Kangra, Lahul, Serchu, Rachogbar, 3939 m, *Koels 6666* (US, Ucf).

Relationship

Crepis naniforma is intermediate between *C. alaiica* and *C. lactea*. From *C. alaiica* it is sharply distinguished by having all the cauline leaves petiolate except those bractlike ones subtending the peduncles; by the 2-branched, few-headed inflorescence; by the dark green involucre and absence of a tubercle on the inner bracts; by the glabrous corolla tube and differences in the anther tube, the shorter achenes with stronger ribs, and the definitely tawny or pale brownish pappus. From *C. lactea* it is sharply set off by the dentate leaves, the larger involucre, the complete absence of a tubercle near the apex of the inner bracts, the strongly ribbed achenes, and the tawny pappus, as well as the flower color and various floral details. It is even more distinct from *C. corniculata* and *C. flexuosa*, as well as from *C. nana*, which it superficially resembles.

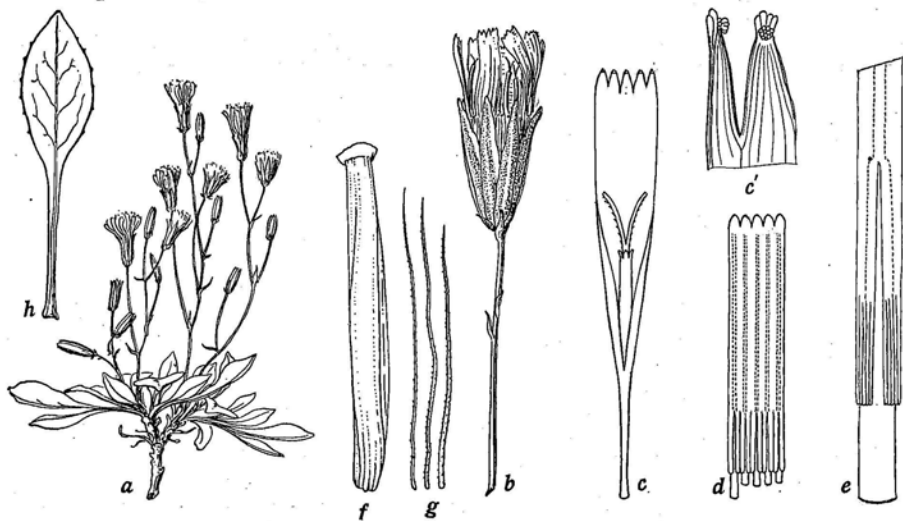


Fig. 153. *Crepis lactea*, a-e, from *Kuschakewicz* in 1878 (K); f-h, from isotype (UC 602799): a, plant, $\times \frac{1}{2}$; b, head and peduncle, $\times 2$; c, floret lacking ovary, $\times 4$; c', detail of ligule teeth, $\times 25$; d, anther tube, $\times 8$; e, detail of appendages, $\times 32$; f, nearly mature achene, $\times 8$; g, pappus setae showing variation in width, $\times 8$; h, caudal leaf, $\times 1$.

106. *Crepis lactea* Lipsch.

In Fedde, Rep. Spec. Nov. Veg. 42: 159. 1937. (Fig. 153.)

Tufted glabrous perennial, 0.5–0.9 dm high, with slender vertical or creeping subterranean stems arising from the thicker deeper root; caudex short, densely leafy, \pm ramose; caudal leaves up to 6 cm long, 1 cm wide, spatulate, the blade elliptical or ovate, acute or obtuse, entire or sinuate-denticulate, abruptly attenuate into a long or short narrow petiole, glaucous; stems several, cymosely branched beginning near base, leafy, the lower leaves like caudal ones, upper leaves reduced, bractlike; branches very slender, mostly pedunculate; peduncles 0.5–3 cm long, filiform; heads on old plants numerous, borne well above the leaves, erect, 10–12-flowered; involucre 9–10 mm high, cylindrical; outer bracts about 5, with 2–4 subtending ones, very short, lanceolate or ovate, acuminate, brown-ciliate at apex; inner bracts 8, lanceolate, acute, white-ciliate at tip, membranous-margined, glabrous within, with a brown median dorsal stripe or nerve, which is elevated or obscurely tubercular toward apex of bract, becoming keeled and spongy-thickened at base in fruiting heads; receptacle areolate, glabrous; corolla 11–14 mm long; ligule 2–2.4 mm