

Chang divide, alt. 4240–4545 m, *Forrest 20257* (B, US); Mt. Kenichunpo, north of Sikitung, alt. 4240 m, *Rock 22160* (UC, US).

This species is close to *D. amoena*, but differs in its solitary scapes, the shape of its leaves, and in being glabrous throughout. In all of these respects it is transitional toward *D. tsarongensis*. The three species, *D. tsarongensis*, *D. amoena*, and *D. gombalana*, all found on the same mountain range and all except *D. tsarongensis* known only from this range, form the most striking case of endemism in the whole tribe of Cichorieae in Eastern Asia. They have no close relatives, except for the equally isolated *D. chimiliensis*, which occurs on a neighboring mountain range further south. The origin of these isolated endemics in post-Pleistocene time is difficult to imagine; they represent much more likely the last remnants of a group which was formerly more widespread.

#### SPECIES EXCLUSAE<sup>88</sup>

*Dubyaea cristulata* DC., Prod. 7: 247. = *Sonchus* sp. (?)

*Dubyaea ramosissima* Hance ex Walp., Ann. 2: 1028 = *Ixeris denticulata* (Houtt.) Stebbins subsp. *ramosissima* (Benth.) Stebbins.

*Dubyaea sonchoidea* DC., Prod. 7: 247. = *Taraxacum montanum* DC.

#### IV. THE GENUS SOROSERIS

##### GENERIC DESCRIPTION

*Sorosaris*, gen. nov. (Compositae-Cichorieae)—Herbae perennes pumilae laticiferae; caulis crassus, brevis, saepe cavus, ad basim saepissime cataphyllis ovatis vel lanceolatis vestitus, inflorescentia aggregata glomerata, capitulis numerosis, cymosa vel racemosa; flosculis 4–25 pro involucre; phylla involucri 2–3 seriata, extima 2 vel rarius 3–4, linearia, interiora subaequalia, lanceolata, ovata, vel anguste elliptica, ad basim coalescentia; corollae ligulatae, ligulis luteis vel albidis; antherae breviter caudatae, lutescentia vel nigrovirescentia; rami stigmati nigrescentes vel virescentes, leviter compressi, 1–3.5 mm longi, 0.2–0.35 mm lati; achaenia oblonga ad basim attenuata, ad apicem parce vel abrupte contracta, leviter obcompressa, multistriata; pappus setosus, setis simplicibus, numerosissimis, multiseriatis, crassis, rigidis, maturitate deciduis; receptaculum concavum, nec ciliatum nec paleaceum.

Dwarf alpine perennials with milky juice; stems thick, often hollow, usually short and partly or wholly subterranean: lowermost leaves usually replaced by bladeless petiolar cataphylls; upper leaves various; aggregate inflorescence glomerate, the heads numerous and closely crowded, cymose or somewhat racemose; involucre 4–25-flowered; involucre bracts in 2–3 series, the outermost usually 2, sometimes 3 or 4, narrowly linear, shorter than or exceeding the inner ones; inner bracts subequal, lanceolate, ovate, or narrowly elliptic, somewhat coalescent at the base; flowers perfect, bisexual; corollae ligulate,

yellow or white, often blackish at the base of the ligule; anthers shortly caudate, yellowish, greenish, or blackish; pollen grains subechinolophate or merely echinate, the spines large; stigmatic branches blackish or greenish, somewhat flattened, 1-3.5 mm long, 0.2-0.3 mm broad, the barbs on their outer surface numerous, acute, deltoid in outline, those on the style below the stigma few, not enlarged; achenes oblong, somewhat attenuate at the base and slightly but abruptly contracted at the apex; slightly obcompressed, convex on the outer, angulate on the inner surface, many striate; pappus setose, the setae very numerous, multiseriate, simple, coarse and stiff, deciduous from the mature achene; receptacle concave, slightly pitted, not paleaceous or fibrillate. Type species: *Sorosseris glomerata* (Decne.), = *Prenanthes glomerata* Decne. Basic chromosome number,  $x=8$ . The generic name is compounded from the two Greek words *σῶρος*, a heap, and *σῆψις*, an ancient name for a Cichoriaceous plant. It refers to the unusual habit of these plants.

#### RELATIONSHIPS OF SOROSERIS

In most of its floral characteristics, that is the character of the corollas, style and stigmas, the pappus, and the vascular anatomy of the florets, *Sorosseris* is similar to *Dubyaea*, *Youngia* Sect. *Desiphylum*, and *Prenanthes*, subg. *Nabalus*. The bulk of its species, however, those belonging to the section EUSOROSERIS, are strikingly different from any of these three groups in the following characteristics. Their habit is quite different from that of any of these groups, but is approached by *Dubyaea* Sect. AMOENAE and by *Youngia* Sect. DESIPHYLUM. The sections of *Lactuca* and *Crepis* which approach *Sorosseris* in habit are very different from it in floral characteristics, as will be explained below. The other distinctive characteristics possessed by Sect. EUSOROSERIS are the pair of elongate, linear outer involucre bracts, the predominance, except in *S. glomerata*, of four inner bracts and four florets per involucre (in *Prenanthes*, *Youngia*, and most other Cichoriaceous genera the number of florets, when greatly reduced, is usually 5 rather than 4); the concave receptacle with the involucre bracts more or less coalescent at the base; and the character of the styles and pollen grains. The styles of Sect. EUSOROSERIS are distinctive in having very few barbs below the forking of the stigmatic branches: they lack the "collecting hairs" so characteristic of most genera of the Cichorieae (Figure 7, b-c). The pollen grains of this section differ from those of most genera of the Cichorieae in being merely echinate, without a trace of the ridged or lophate pattern (Figure 7, d-g, compare Wodehouse 1928, 1935). The only species known among the relatives of *Sorosseris* which has these distinctive types of stigma and pollen grain is *Prenanthes subpeltata* Stebbins, an isolated species of Africa, which is very different in habit and in other respects from *Sorosseris* (Stebbins 1937c).