

on inner face; achenes pale brown, 7–8.5 mm long, 0.75 mm wide, subterete, fusiform, strongly attenuate upward or definitely beaked, 0.2–0.3 mm wide below the slightly expanded pappus disk, constricted at the narrow calloused hollow base, 10-ribbed, ribs nearly equal, rather narrow, rounded, finely spiculate toward the apex; pappus pale tawny, 5.5–6 mm long, 1–2-seriate, setae nearly equal, rather fine, 25–30 $\mu$  wide at base, persistent but falling away easily. Flowering Jan.–Feb.; flowers yellow.

*Barkhausia tenerrima* Sch. Bip., ex Richard, Fl. Abyss. 1: 464. 1847.

*Brachyderea tenerrima* Sch. Bip., ex Schweinf., Fl. Aethiop. 1: 282. 1867.

Known only from the type locality, which is stated by Richard (*loc. cit.*) to be in Semiène (Simen, Semen) Prov., a mountainous reg. between Amhara and Tigre provinces in N. Abyssinia.

The type is in herb. Cosson (Paris); photograph and fragments in Herb. Univ. Calif.

Monomorphic.

**Abyssinia:** "In humidis ad rupes in montis Silke," Schimper 677 in 1840 (PC type, P, K, B, UWK).

Noteworthy is the unusual variability in length of the ligule teeth in this species. In the same head and even on a single corolla, the teeth may range from 0.25 to 3–5 mm long. Again, on some plants all the corollas have uniformly short teeth. Apparently this variability has a genetic basis, but it may involve only a single pair of genes.

#### *Relationship*

*Crepis tenerrima* is closest to *C. xylorrhiza*, but is very distinct in the narrow caudex bearing few leaves, the strict branches with narrow angles, the pinnatifid later caudical and early cauline leaves, the nearly glabrous corolla tube, the narrower and more definitely beaked achenes, and especially the nearly equal, rather fine pappus setae. Furthermore, the two species flower at widely different seasons. It is less close to *C. carbonaria* and *C. Ellenbeckii*, even though the long black setae on the involucre and the shape of the achenes are reminiscent of sec. 8. The comparatively large lyrate leaves of *C. tenerrima* also make it appear more primitive than *C. xylorrhiza*, although it is actually less primitive in some features of the involucre, florets, achenes, and pappus.

#### 94. *Crepis xylorrhiza* Sch. Bip.

Msept.,<sup>1</sup> with type in herb. Cosson, 6/2, 1854; Schimp. l. it. abyss. sec. V, 1854.

(Pl. 10. Fig. 138.)

Perennial, 0.8–1.4 dm high; root elongated, woody, 0.5–1.5 cm wide, simple or furcate near summit, expanded into a mat-forming caudex 2–7 cm wide, bearing many leaves and several stems; caudical leaves 3–9 cm long, 1–2 cm wide, obovate, obtuse or slightly acute, apiculate, sinuate-denticulate or dentate, strongly attenuate into a narrow winged petiole nearly equal to blade, pubescent on both sides with yellow glandless setiform hairs; cauline leaves lanceolate, acuminate or linear, the lower remotely dentate, teeth mostly narrow, acuminate and sometimes more numerous and crowded at the sessile base, uppermost leaves bractlike but often with one pair of narrow teeth at base; stems erect, slender, glabrescent or sparsely setulose near base, pedunculate or 1–2-furcate and 2–4-headed, the branches spread-

<sup>1</sup>"Ach. 2¼–2¾ lin. longa brunea brevi rostrata in apicem paulo attenuata rostro robusto non distincte ach. bipart. subaeq. pappus 1½ lin. longus sordidus 1 ser. copiosus denticulatus."—C. H. Schultz Bipontinus, notes filed with type.

ing at a wide angle; peduncles 5–12 cm long, sparsely setulose toward head, with short black glandless setules; heads erect, medium, 25–30-flowered; involucre campanulate, 9–10 mm high, 4–6 mm wide at middle, fuscous-tomentose at base, the bracts tomentulose and sparsely setulose with short black glandless setules; outer bracts 10–12, unequal,  $\frac{1}{2}$ – $\frac{2}{3}$  as long as the inner, linear, acute, pale brown, black-tipped; inner bracts 10–12, lance-linear, acute, brownish-green, black-tipped; glabrous on inner face, becoming convex dorsally and indurate but not much thickened in fruit; receptacle fimbriate; corolla 11–13 mm long; ligule 1.5 mm wide;

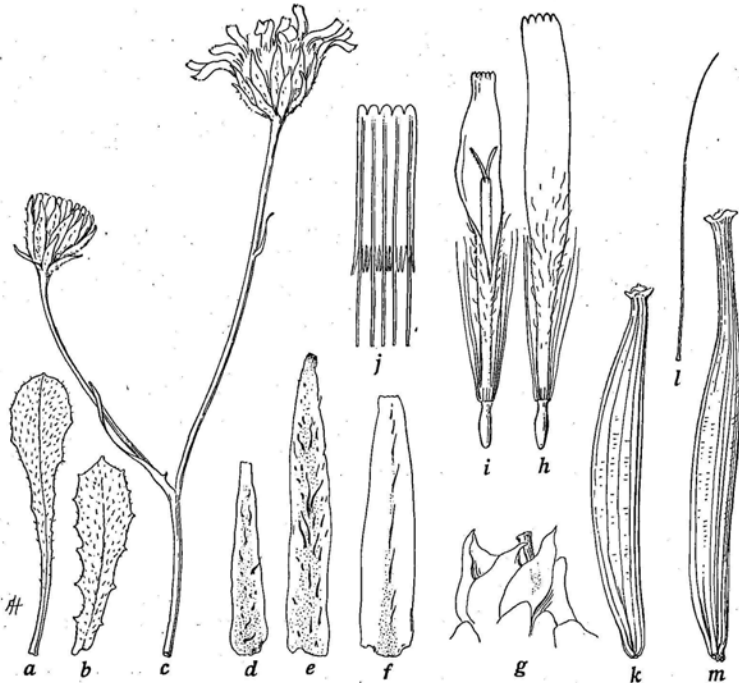


Fig. 138. *Crepis xylorrhiza*, from type (PC), except *b, i-k*, from Schimper 371 (Bo): *a, b*, caudal leaves,  $\times 1$ ; *c*, flower stem,  $\times 1$ ; *d*, outer involucre bract, outer face,  $\times 4$ ; *e, f*, inner involucre bracts, outer face,  $\times 4$ ; *g*, detail of receptacle,  $\times 25$ ; *h, i*, marginal and inner florets,  $\times 4$ ; *j*, anther tube,  $\times 8$ ; *k-m*, marginal and inner achenes and a pappus seta,  $\times 8$ .

teeth 0.2–0.4 or sometimes to 0.8 mm long, white- or black-crested; corolla tube about 4 mm long, densely pubescent with tortuous several-celled hairs up to 1 mm long; anther tube  $2.75 \times 1$  mm dis.; appendages 0.5 mm long, acute; filaments 1.25 mm longer; style branches 0.8–1 mm long, 0.1 mm wide, green; achenes medium brown, 6–7 mm long, 0.8–0.9 mm wide, the marginal curved, the inner straight, all fusiform, equally attenuate to both ends, prolonged toward summit into a very short coarse ribbed beak 0.3–0.4 mm wide, with slightly expanded pappus disk, constricted at the lightly calloused hollow base, 10–12-ribbed, ribs nearly equal, rather strong, rounded, strongly spiculate toward summit; pappus tawny, about 5 mm long, 1–2-seriate, setae unequal in width,  $25\text{--}45\mu$  wide at base, rather stiff and brittle, persistent. Flowering Aug.; flowers yellow.

*Brachyderea xylorrhiza* Sch. Bip., ex Schweinf., Fl. Aethiop. 1: 283. 1867; Oliver, Fl. Trop. Afr. 3: 448. 1877.

The type is in herb. Cosson, Paris; photographs and fragments in Herb. Univ. Calif.

N. Abyssinia, in the Simen Mts., 2800–3600 m alt., in moist places.  
Monomorphic.

**Abyssinia:** Amhara-Tigre Prov., Simen Mts., Mt. Boahit (= Buahit), Acallo Meda, alpine, *Schimper 371*, Aug. 17, 1852 (P), as *B. tenerrima* Sch. Bip.; without definite locality, *Schimper 371*, June 2, 1854 (PC ex herb. Sch. Bip.) type; Simen, "371. collectione ani 1852" (Stockholm); without definite locality, *Schimper 371* (Bo); Mt. Boahit and Debr. Eski, 2817 m, *Schimper 93B* (P).

#### Relationship

Although the label with the type bears Schultz's note, "aff. *C. abyssinica*," yet *C. xylorrhiza* is much closer to *C. tenerrima*. From the latter, however, it is very distinct in the expanded, mat-forming caudex, the broad angles between stem and branches, and the merely denticulate cauline leaves, as well as the densely pubescent corolla tube, the less definitely beaked achenes, and especially in the unequal width of the pappus setae.

#### 95. *Crepis Hookeriana* J. Ball.

Jour. Bot. 11: 371. 1873; Jour. Linn. Soc. 16: 538. 1878; non Clarke, 1876,  
nec Oliv. et Hiern., 1877. (Fig. 139.)

Perennial, 0.5–1.5 dm high; caudex woody, densely covered with brown bases of old leaves, 0.5–2 cm wide, 1–6 cm long, simple or 2–4-divided, attenuate into a long straight woody taproot, leafy at crown; leaves all caudical, 2–9 cm long, 0.5–2 cm wide, oblanceolate, acute or obtuse, deeply pinnatifid to pinnately parted, terminal lobe triangular to elliptic or rotund with truncate base, lateral lobes triangular to lance-linear, acute or acuminate, petiole short or equal to blade, narrowly winged, broader at base, pubescent on both sides with or without glands, or glabrescent with scattered floccules of white tomentum; stems sinuate, scapiform, always 1-headed, with several small linear bracts, slender, white-floccose or glabrescent; heads erect, medium, 30–40-flowered; involucre campanulate, 10–11 mm high, 5–6 mm wide at middle in fruit, dark green, white-floccose,  $\pm$  setose with short or a few longer black setae with or without brown glands; outer bracts 8–12, unequal, longest  $\frac{1}{3}$ – $\frac{1}{2}$  as long as the inner, linear, appressed; inner bracts 13–18, lanceolate, acute, white-ciliate at apex, glabrous on inner face or with a few short white trichomes, slightly carinate but scarcely changed dorsally in fruit; receptacle alveolate, fimbriae very shortly ciliate; corolla about 12 mm long; ligule 1.3 mm wide, sparsely beset on lower  $\frac{2}{3}$  with short white trichomes; teeth 0.5 mm long; corolla tube 4 mm long, shortly pubescent; anther tube about  $5 \times 1$  mm dis.; appendages 0.8 mm long, oblong, sagittate; filaments 0.5 mm longer; style branches 2.25 mm long, slender, yellow; achenes brown, 5.5–6.5 mm long, 0.6–0.7 mm wide, fusiform, equally attenuate to both ends, with slightly expanded pappus disk, thinly calloused at the very small base, 16–18-ribbed, ribs rounded, unequal, with a notable tendency for alternate ribs to be stronger, spiculate toward the apex; pappus white, 5–6 mm long, 2-seriate, setae about equally fine, coarsest 40–50 $\mu$  (5 cells) wide at base, firm but pliable, persistent. Flowering May–July; flowers yellow, outer face of ligules reddish-purple. Chromosomes,  $2n = 8$ .

*Hieracioides Hookerianum* O. Kuntze, 1: 346. 1891.

*Crepis Sibthorpiana* subsp. *Hookeriana* (Ball) Pau et F. Q., in herb. Font Quer, Iter. Marocanum, 1920, n. 480.

Morocco, Great Atlas and rarely in lesser ranges; siliceous and calcareous rocks and deposits, 2300–3500 m alt.

Monomorphic.

**Morocco:** W. part, peak of Djebel Teza, *J. Ball* in 1871 (K, type and isotype, UCf); Great Atlas, Amsmiz Valley, *J. Ball* in 1871 (CP); Great Atlas, *J. Ball* (Fl); Great Atlas, *Hooker* in