

involucres sparsely canescent-tomentulose; corolla 10 mm long; anther tube 3.5 mm long; achenes lacking. The pollen is abundant and 3-pored but very irregular with many large grains (range 26–37 $\mu$ ). In the narrow involucre and very narrow, coriaceous leaves this plant simulates *C. rigescens typica*; but the dark green herbage and sparsely tomentulose involucre suggest *C. Bodinieri*. Possibly it is an amphidiploid hybrid between the two species. *Cavalerie 7924* (K), Yunnansen dist., Yunnan.

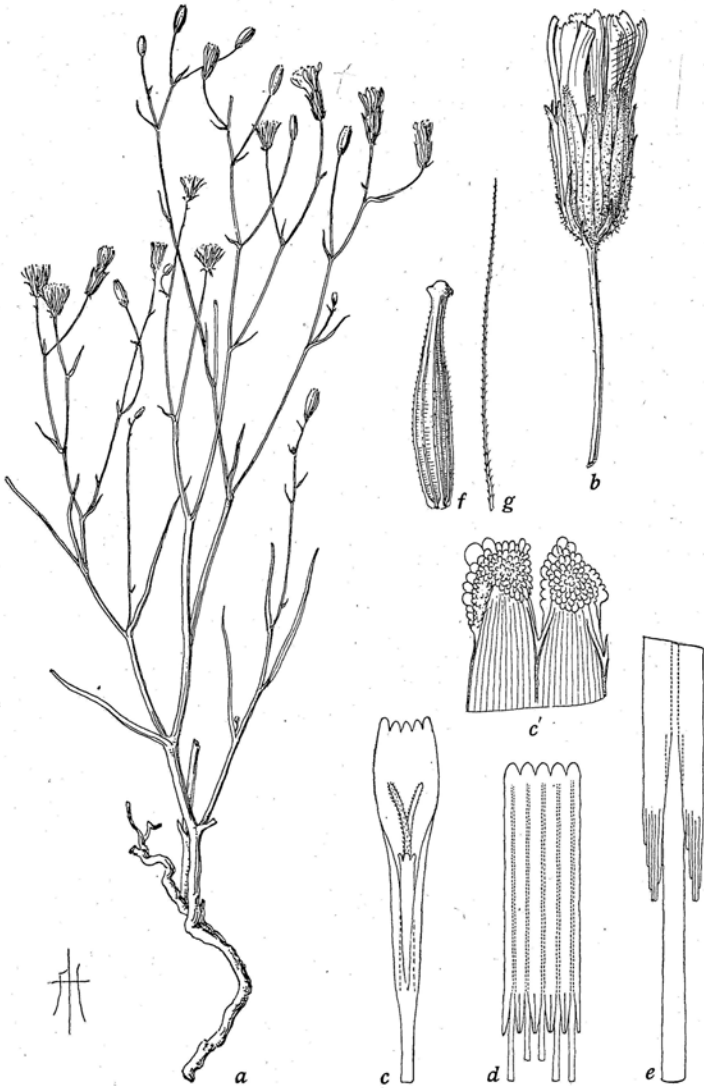


Fig. 195. *Crepis rigescens lignescens*, from type (B): a, plant,  $\times \frac{1}{2}$ ; b, flowering head,  $\times 2$ ; c, floret lacking ovary,  $\times 4$ ; c', detail of ligule teeth,  $\times 50$ ; d, anther tube,  $\times 8$ ; e, detail of appendages,  $\times 32$ ; f, g, achene and pappus seta,  $\times 8$ .

133, b. *Crepis rigescens lignescens* subsp. nov. Planta circa 2 dm alta; rami inferi elongati floriferes; folia caulina parva; involucrem tomentosum glandulosum, squamis exterioribus lanceolatis acutis, interioribus obtusis; corolla et antherae flavae; rami styli virides; achaenia fusca circa 4 mm longa ad apicem attenuata; pappus albus 5 mm longus.

Plant about 2 dm high; stem branched from near base, lower branches elongated,

strict, floriferous and with occasional sterile leafy branchlets, aggregate inflorescence cymose-corymbiform; cauline leaves inconspicuous, up to 4 or 5 or sometimes 7 cm long, about 2 mm wide; involucre canescent- or fuscous-tomentulose and usually shortly gland-pubescent, especially at base; outer bracts lanceolate, acute; inner bracts 10–12, obtuse or sometimes acute, densely ciliate near apex with finely mottled hairs; corolla 12 mm long; ligule teeth 0.25–0.35 mm long; corolla tube 3 mm long; anther tube  $4.5 \times 1.25$  mm dis.; appendages 0.7 mm long, narrow, acuminate; filaments unequal, 0.4–0.75 mm longer; style branches green. Flowering Apr. See fig. 195.

This subspecies is reminiscent of *Crepis lignea* in size and habit of the plant and its somewhat stouter, much branched stem, with the lower branches elongated, strict and floriferous. The occasional leafy, sterile shoots are not found in *C. lignea*, and the cauline leaves are intermediate between *C. lignea* and *C. rigescens typica*; the short gland hairs on the involucre are like those of *C. lignea*; and the involucre bracts resemble those of *C. lignea*, even to the mottled cilia on the inner bracts. But the flowers and fruits are more like those of *C. rigescens*. This suggests that subsp. *lignescens* is a hybrid derivative from *C. lignea*  $\times$  *C. rigescens*. In the type of subsp. *lignescens*, cited below, the pollen grains range from 28 to  $31\mu$  and average  $30\mu$  in diameter, as compared with 24– $28\mu$ , average about  $26\mu$ , in a specimen of subsp. *typica* (Forrest no. 14146). In the latter the stomata average about  $31\mu$  in length of the guard cells. These stomatal and pollen measures of subsp. *typica* correspond with those of *Crepis Raulini*, *C. oporinoides*, and *C. nicaeënsis*, all of which are known to be diploid species. The equally regular but larger pollen grains of subsp. *lignescens* indicate that it is a tetraploid, and it might well be an amphidiploid produced from the interspecific hybrid above mentioned. This evidence seems sufficient to warrant the recognition of this form as a subspecies.

**Yunnan:** hills around Tengyueh, open stony clayey pasture, 2100 m, *Forrest 26307* (B, UCf) type; *ibid.*, *Forrest 26307a* isotype, *26307b* m.v. 2 (US); *ibid.*, *Forrest 26307* (UC) isotype; "E. Tibet and S.W. China," *Forrest 26307* (NY, compared with isotype in Herb. UC); Ta-li Hsien, 2540 m, *Wang 63506* (G) near m.v. 2. **Burma:** Haka, dry slopes after fires, 1920 m, *Dickson 7432* (G).

#### Minor Variant of *C. rigescens lignescens*

2. Plant about 3 dm high; heads more than 12-flowered; involucre yellowish tomentose at base, not at all glandular; achenes lacking. The larger size of this plant and broader heads with more numerous florets suggest that it is a polyploid form. Its pollen grains are large and very irregular, 28– $37\mu$ , average  $34\mu$ , which indicates that it is a high polyploid and possibly an apomict. *Forrest 26307b* (US), open pasture, 2100 m, hills around Tengyueh, N.W. Yunnan.

#### Relationship

*Crepis rigescens* is closest to *C. Bodinieri*, from which it is clearly distinguished by the pale yellowish-green color of the herbage (except in occasional variants), the sulcate or angular stems and branches, the narrower, coriaceous leaves with broadly revolute margins, and the smaller, fewer-flowered heads with fewer involucre bracts. *C. rigescens* is less close to *C. lignea* and still less close to *C. Phoenix*. But it seems probable that *C. rigescens* may have been one of the parents of *C. chlorocladia*; also that *C. rigescens typica* crossed with *C. lignea* to produce *C. rigescens lignescens*. The distributional area of *C. lignea* includes that of *C. rigescens*.

#### 134. *Crepis lignea* (Vaniot) comb. nov.

(Pl. 14, Fig. 196.)

Perennial, 1.5–4 dm high; caudex woody, 0.5–1.5 cm wide at the divided summit, contracted below into a slender elongated vertical or oblique neck which is enlarged and branched below, probably with deeply penetrating roots; stems stiffly erect,