

setæ at the apex; florets 6-8; anther-tube well developed, 5 mm long, bearing pollen; pappus 5 mm long; achenes not seen; ($2n = 33$?). IDAHO: valley of Big Potlach River, Nez Perces County, Sandberg, MacDougal, & Heller 326 (type of *C. seselifolia*, NY).

This form has leaves much like those of *C. exilis*, but its glabrous, few-flowered involucre are typical of *C. acuminata*. The only specimen seen is in very early flowering condition, and hence there is no evidence as to the nature of its achenes; with better material it may be characterized as a distinct subspecies.

15. apm. *viridis* (*acuminata-exilis*).—Stems 6.5-7 dm high; basal leaves green and glabrate, lanceolate in outline, the lobes short, lance-linear, entire; inflorescence more or less dichotomously branched, of 45-50 heads; involucre 13-15 mm high; inner bracts 5-8, glabrous, without setæ at the apex; florets 6-9; anther-tube 7 mm long, bearing pollen; pappus 9 mm long; achenes not seen; ($2n = 44$?). IDAHO: Nez Perces County, Sandberg in 1892 (Minn).

This form also approaches *C. exilis* in its leaves and inflorescence.

16. apm. *exiloides* (*acuminata-exilis*).—Stems 3.5 dm high; basal leaves green and glabrate, elliptic-lanceolate in outline, the lobes linear-lanceolate, attenuate, entire; inflorescence of 20-40 heads on short, erect peduncles; involucre 10-12 mm high; inner bracts 5-6, tomentulose, with rather conspicuous greenish-black setæ at the apex; florets 5-9; anther-tube 4.5 mm long, bearing pollen; achenes 6.5-7 mm long, brown, finely ribbed, slightly contracted at the apex; pappus 5.5-6.5 mm; ($2n = 44$?). WASHINGTON: Clarkston-Pomeroy grade, Garfield County, Pickett 1496 (WSC). OREGON: "Clear Water," Spalding (G).

Related to apm. *exiloides*.—COLORADO: North Park, alt. 2424 m, Baker in 1896 (type collection of *C. angustata*, NY). WYOMING: Bridger's Pass, Rocky Mtns., Engelmann 185f (G).

This form approaches still more closely to *C. exilis*, but its few-flowered heads and brown achenes place it in *C. acuminata*.

17b (17). *Crepis acuminata* subsp. *pluriflora* subsp. nov. (Fig. 32u, v.)—A subsp. *typica* differt capitulis cum 9-12 floribus; phyllis involucri interioribus 8, glabris vel ad basim minute tomentulosis; antheris 3.5-4 mm longis, sterilibus; styli ramis 2.8-3 mm longis; achæniis pallidis vel castaneis, valde costatis.

Differs from a subsp. *typica* in its larger involucre, which have consistently 8 inner bracts and 9-12 florets. The bracts, however, are glabrous or nearly so. The anthers are reduced and without pollen, while the style-branches are longer than those of diploid *C. acuminata*, although these are equaled by some of the polyploid forms of subsp. *typica*. The achenes are rather strongly costate, but not more so than those of some forms of subsp. *typica*.

Western and southwestern Colorado to northern New Mexico, where it is the only form of *C. acuminata* known, west to central Utah.

Although all the specimens of this subspecies seen bear no pollen whatever, and hence are almost wholly or completely apomictic, there is apparently quite a number of different apomicts present. Owing to lack of

sufficient material, these could not be adequately characterized. The chromosome numbers are probably $2n = 33$ and $2n = 44$. The following collections of this subspecies have been examined: COLORADO: Cedar Edge, Delta County, alt. 2120 m, *Baker 243* (type, UC no. 91870, Po, Minn, but some specimens of this collection are *C. intermedia*, see p. 185); Williams Fork, Routt County, *Sturgis* in 1903 (G); above Cimarron, Montrose County, alt. 2575 m, *Baker 386* (UC, DS, Po, RM, Minn); Sulphur Springs, Grand County, *Osterhout 3314* (Minn); Mancos, Montezuma County, *Baker, Earle, & Tracy 66*, part (UC, Clo); entrance to Mesa Verde National Park, 2120 m, *Goodman & Hitchcock 1358* (UC, DS). NEW MEXICO: without locality, *Palmer* in 1869 (US). UTAH: Mt. Nebo, Juab County, *Rydberg & Carlton 7702* (RM).

This subspecies might well be placed in *C. intermedia*, but since its glabrous involucre are so characteristic of *C. acuminata*, it is retained in the latter species.

18. *Crepis intermedia* Gray, Syn. Fl. 1, (2): 432, 1884 (Fig. 34)

Stems 3–7 dm tall (1.5–3 dm in one dwarf form), rather stout, striate, tomentose; basal leaves 1.5–4 dm long, narrowly elliptic in outline, long-petioled, pinnatifid with lanceolate, acute, ascending or reflexed, entire or dentate segments, the tips of the leaves mostly elongate and tapering, sparsely or strongly grayish-tomentose throughout; inflorescence an ample cymose panicle of 10–60 heads; involucre narrowly cylindrical, their bracts grayish-tomentose, less often glabrate or completely glabrous, occasionally glandular-pubescent or with a few black, glandless setæ near the tips of the inner bracts; inner bracts 7–8 (rarely 10–12), lanceolate, obtuse; outer bracts deltoid, the longest $1/5$ – $1/3$ the length of the inner; florets 7–12 (–16) per involucre; corollas 14–30 mm long; anther-tube when well developed 5–6 mm long, or in some forms only 3–4 mm long, and abortive, with no pollen; style-branches 2.5–3.5 mm long; achenes 5.5–9 mm long, buff color or yellowish to brown, weakly to strongly costate, shorter than or exceeding the pappus. (*Hieraciodes intermedium* O. Ktze., Rev. Gen. 345, 1891; *Crepis acuminata* var. *intermedia* Jepson, Man. Fl. Pl. Calif. 1012, 1925.)

Sierra Nevada, California, north to Washington, east to Arizona, Utah, New Mexico, Colorado, southwestern Wyoming, and Alberta. Common in the western part of its range, infrequent and local eastward (see fig. 33).

This is an agamospecies, i.e., a group of polyploid apomicts which combine the characters of *C. occidentalis* and of either *C. acuminata* or *C. pleurocarpa*, or of all three of these species, while some of them possess characteristics of *C. modocensis* and *C. exilis*. The closest resemblance in habit is in most cases to *C. acuminata*, and for this reason, as well as the fact that the two species are connected by a continuous series of intergrades, Jepson's reduction of *C. intermedia* to a variety of *C. acuminata* is to some extent justified. Nevertheless, since there is an equally gradual transition from *C. intermedia* to *C. occidentalis* subsp. *pumila*, and so

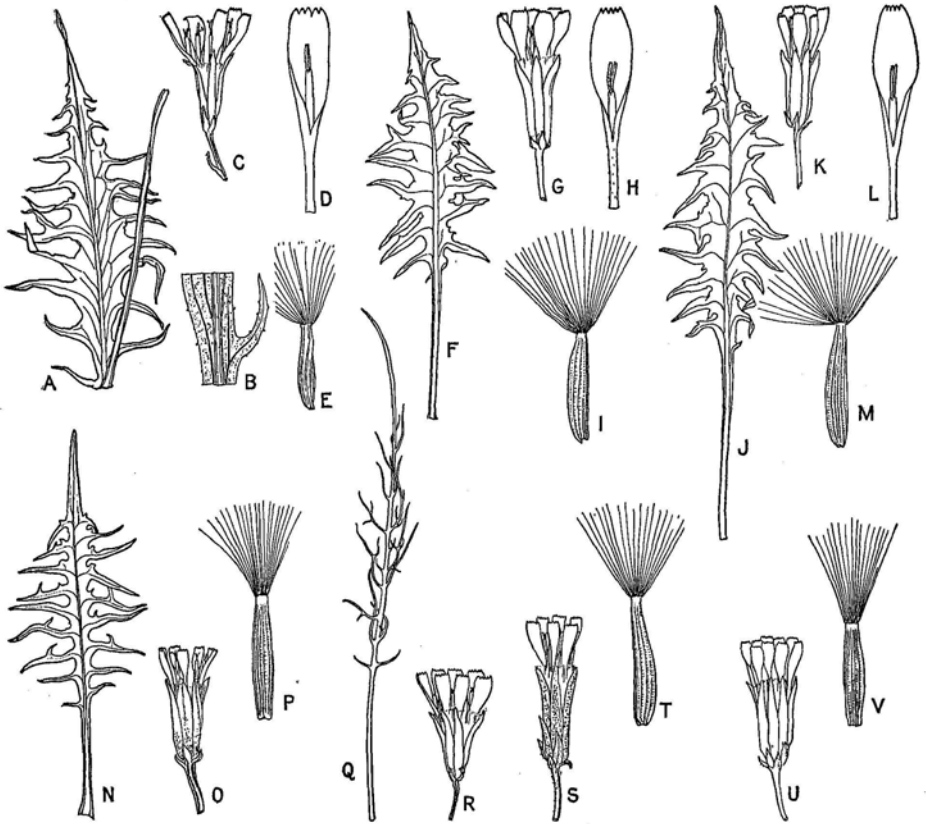


FIG. 32. *Crepis acuminata*. a-t, subsp. *typica*. a-e, diploid form—a-d, from B. & S. 1864; e, from Hall 11439; a, leaf, $\times \frac{1}{4}$; b, detail of surface, $\times 1$; c, involucre, $\times 1$; d, corolla, $\times 2$; e, achene, $\times 2$. f-i, apm. *longiceps*, from S. & J. 2313; f, leaf, $\times \frac{1}{4}$; g, involucre, $\times 1$; h, corolla, $\times 2$; i, achene, $\times 2$. j-m, apm. *sierræ*, from S. & J. 2314; j, leaf, $\times \frac{1}{4}$; k, involucre, $\times 1$; l, corolla, $\times 2$; m, achene, $\times 2$. n-p, apm. *longiloba*—n, p, from Hall 6702; o, from Hall 6384; n, leaf, $\times \frac{1}{4}$; o, involucre, $\times 1$; p, achene, $\times 2$. q, r, apm. *Rydbergii*, from Sandberg, MacDougal, & Heller 326; q, leaf, $\times \frac{1}{4}$; r, involucre, $\times 1$. s, t, apm. *tetonensis*, from Hall 11468; s, involucre, $\times 1$; t, achene, $\times 2$. u, v, subsp. *pluriflora*, from Baker, Earle, and Tracy 66: u, involucre, $\times 1$; v, achene, $\times 2$.

The following is a key to the apomictic forms recognized (see p. 69):

- A. Involucral bracts completely glabrous.
- B. Anthers well developed, 4.5-7 mm long, bearing pollen.
- C. Basal leaves grayish-tomentose.
- D. Lobes of leaves lanceolate or broader; inflorescence bearing 35-200 heads, except in dwarfed specimens.
- E. Pollen regular, the grains all 3-pored; involucre mostly 9-12 mm high..... diploid form
- E. Pollen-grains irregular in size, some of them 4-pored; involucre 12-14 mm high 1. apm. *simulans*