

23. apm. *olympica* (*occidentalis-acuminata-modocensis*) (fig. 21p, q).—Stems 1–2.6 dm high; leaves narrowly elliptic, deeply pinnatifid, the lobes rather remote, acute, sharply and irregularly dentate; branches of the inflorescence strongly ascending; involucre 13–17 mm high, inner bracts 7–8, bearing a few glandular trichomes; florets 10–14; outer bracts narrowly deltoid, the longest 4.5–6 mm long, $1/3$ – $2/5$ the length of the inner; achenes 8–9 mm long, very slightly contracted and truncate at the apex; pappus 9–10 mm; ($2n = 55$?) (see p. 44). WASHINGTON: Olympic Mtns., Clallam County, *Elmer 2621* (DS, Minn); Mt. Angeles, Olympic Peninsula, alt. 1670 m, *Jones 3168, 3330* (Wn); Hurricane Ridge, Olympic Peninsula, alt. 1360 m, *Jones 3215* (Wn).

This form, endemic to the Olympic Peninsula, is in habit nearest to apm. *Rydbergii* and its allies, but differs from it in possessing a few glandular trichomes on the involucre, and may be considered transitional to subsp. *typica*, apm. *Nuttallii*, which it also resembles in habit.

12d. *Crepis occidentalis* subsp. *conjuncta* (Jepson) comb. nov. (Fig 22a–e).—Humilis; folia 10–18 cm longa, pinnatifida, segmenta remota, lanceolata, ad apicem adscendentia, acuta vel acuminata, integra vel remote et acute dentata; caules 0.5–1.8 dm alti, ad basim ramosi; rami divergentes; capitula 2–9 pro inflorescentia, saepe longe pedunculata, tomentulosa sed non setosa vel glandulosa, 12–18 mm longa; involucri phylla interiores 8–13, exteriores anguste deltoidea, longiora, (6–)7–9 mm longa; achænia ut in præcedentibus.

Low; stems 0.5–2 dm high; leaves 10–18 cm long, pinnatifid, segments remote, lanceolate, curved upwards toward the apex, acute or acuminate (rarely obtuse), entire or remotely and acutely dentate; stems 0.5–1.8 dm tall, branching from near the base, the branches divergent but erect toward the apex; heads 2–9 in an inflorescence, mostly on long peduncles; involucre tomentulose but not at all glandular or setose; inner bracts 8–12; outer bracts narrowly deltoid (or sometimes elliptic deltoid), the longest 6–9 mm long, $1/2$ – $2/3$ the length of the inner; achenes and pappus as in the preceding subspecies. (*C. occidentalis* var. *conjuncta* Jepson, in herb., *C. occidentalis* var. *nevadensis* Kellogg, Proc. Cal. Acad. Sci. 5:50, 1873 in part (?); Gray, Syn. Fl. 1 (2):432, 1884.

Sierra Nevada, and the mountains of northern California and southwestern Oregon, where it passes into subsp. *pumila*, also the mountains of central and southeastern Washington, and of northwestern Wyoming.

This is a most striking subspecies, combining, as its name implies, the habit and elongate outer involucre bracts of *C. Bakeri* or of *C. modocensis* with a leaf shape most characteristic of *C. modocensis*, but with the pubescence and achene characters just as in *C. occidentalis* subsp. *pumila*. Through apm. *Jepsonii* it passes into the smaller forms of subsp. *pumila*, while through apm. *pluriflora* it passes into *C. modocensis* subsp. *subacaulis*.

This was probably included by Kellogg in his description of *C. occidentalis* var. *nevadensis*, and certainly was considered to be this variety by both Gray and Coville, since a duplicate of it in the U. S. National

Herbarium was so identified by Coville, and another identical collection from the same locality (Bolander and Kellogg in 1872) in the Gray Herbarium was similarly identified by Gray. However, the specimens of both of these collections are just coming into bloom, and no achenes, mature or immature, are available on them. Kellogg's description of the achenes of his var. *nevadensis* must have been based on some specimen now lost, but similar to one collected by him July 10, 1870, on the "Summit of the Sierra Nevada." The latter specimen was considered by Coville to be identical with the type of var. *nevadensis*, although it was not mentioned in Kellogg's description. Its achenes are ribbed or merely striate, and definitely exceed the pappus in length. This is in accordance with Kellogg's description of var. *nevadensis*, but they are not similar to those of subsp. *conjuncta*, which are well shown by Jones' collection from Soda Springs, some plants of which are undoubtedly the same form as those of the Kellogg collection (see fig. 22c). They are reddish brown, strongly ribbed, and definitely shorter than the pappus, i.e., just like those of typical *C. occidentalis*.

In its habitat subsp. *conjuncta* differs considerably from the other subspecies of *C. occidentalis*. It prefers forested areas with a relatively high precipitation, and in the Sierra Nevada is locally frequent on the west slope at middle altitudes, where it is often the only form of *Crepis* found, since the other subspecies occur mostly in the open valleys and brush-covered hills on the east side of these mountains.

The name was suggested by Dr. W. L. Jepson, who recognized the distinctness of this form as represented by Chandler's collection from Marble Mountain, although he never described it. The Chandler collection, although it was designated by Jepson as the type of *C. occidentalis* var. *conjuncta*, has not been retained as such by the present authors, because it is not absolutely characteristic of the subspecies as conceived by us, being more or less transitional in its more numerous heads and relatively shorter involucrel bracts to subsp. *pumila*. Of the considerable number of specimens from the Sierra Nevada which we consider to be typical of subsp. *conjuncta*, we have selected that of Kellogg as being the oldest and the best known.

C. occidentalis conjuncta—key to apomictic forms (see p. 69)

- A. Leaves not unusually thick in texture, their lobes mostly acute; involucrel bracts lance-linear, gradually attenuate to the apex, the broadest 2.5-3 mm broad.
- B. Largest heads of the inflorescence with 9-13 inner bracts; flowering stems equaling or barely exceeding the leaves in length..... 24. apm. *pluriflora*
- B. Largest heads of the inflorescence with 8 inner bracts; flowering stems definitely longer than, mostly about 1 1/2 times as long as, the leaves.
- C. Heads on elongate peduncles; involucrel bracts 14-16 mm high; longest outer bracts 1/2-2/3 the length of the inner..... 25. apm. *tenuis*

- C. At least some of the heads' on short, divaricate peduncles; involucre 12-14 mm high; longest outer bracts $2\frac{1}{2}$ - $1\frac{1}{2}$ the length of the inner. 26. apm. *Jepsonii*
- A. Leaves thick in texture, their lobes obtuse; involucre bracts elliptic-lanceolate, sharply contracted to the acute apex, the broadest 3.5-4 mm broad. 27. apm. *crassa*

24. apm. *pluriflora* (*occidentalis-modocensis-Bakeri-pleurocarpa?*) (fig. 22a-c).—Leaves typical of the species; flowering stems 0.8-1.5 dm high, about equaling the leaves in length; heads on peduncles 1-4 cm long; involucre 14-16 mm high; larger heads with 10-13 inner bracts and 20-30 florets; achenes 7-8.5 mm long, definitely contracted at the apex; pappus 9-10 mm; ($2n = 44$?). CALIFORNIA: Camp Yuba, Cisco, Placer County, *Kellogg*, June 18, 1870 (type of subsp. *conjuncta*, UC no. 31318, US, G, DS); Soda Springs, Nevada County, alt. 2120 m, *Jones* in 1881, part (Po); Dardanelles Mtn., Alpine County, alt. 2200 m, *Eggleston 9943* (US); Deer Park, Placer County, *Geis 33* (UC); Tahoe City, Placer County, *Eastwood 460* (Ca, Clo); Truckee, Nevada County, *Sonne* in 1884 (UC); Hobart Mills, Nevada County, *Drew* in 1925 (DS); Gray Eagle resort, Plumas County, *B. 153, 154* (UC). WASHINGTON: Beverly Creek, Kittitas County, *Thompson 6635* (G, Mo).

Related to apm. *pluriflora*.—CALIFORNIA: Black Mtn., south of Milford, Lassen County, alt. 1940 m, *S. & J. 2319* (UC); Mt. Sanhedrin, Mendocino County, *Blankinship* in 1893 ($2n = 44$?) (US).

25. apm. *tenuis* (*occidentalis-Bakeri* or *modocensis-pleurocarpa*).—Leaves about as in the last, but the lobes somewhat broader, and more or less reflexed; flowering stems definitely exceeding the leaves, slender and flexuous; peduncles up to 6 or 7 cm long; involucre 14-16 mm high; inner bracts 7-8 or rarely 9; achenes 8.5-9.5 mm long; pappus 10.5-11.5 mm; ($2n = 44$?). CALIFORNIA: Clark's Fork Ranger Station, Alpine County, alt. 1660 m, *Eggleston 9542* (US); Lake Valley, Eldorado County, *Baker* in 1904 (UC); near Cisco, Placer County, alt. 1880 m, *Hall 8743* (UC); near Butte Creek Meadows, Butte County, *Copeland 1532* (UC).

Near apm. *tenuis*.—CALIFORNIA: near Camp Baxter, Tuolumne County, alt. 1670-1730 m, *Stanford 1063* (US); Avery, Calaveras County, alt. 1000 m, *Eggleston 9278* (US); Lassen's Peak, alt. 1820 m, *Jones* in 1897 (Po); Humboldt County, *Rattan* in 1878 (DS). WYOMING: Cement Creek, alt. 2420 m, Teton Forest Reserve, Lincoln County, *Tweedy 602* (NY).

The last-named specimen shows a strikingly close resemblance to those from California. It is the only one of this subspecies seen from the Rocky Mtn. region, so that further records of its occurrence there would be of great interest (see p. 000).

26. apm. *Jepsonii* (*occidentalis-pleurocarpa-Bakeri*).—Similar to apm. *tenuis* except that the peduncles are shorter, involucre are smaller (12-14 mm high), and the longest outer bracts are only $1\frac{1}{3}$ - $2\frac{1}{5}$ the length of the inner; achenes brown, 6-7 mm long; pappus 9 mm long; ($2n = 44$?). CALIFORNIA: Marble Mtn., Siskiyou County, alt. 2500 m, *Chand-*

ler 1644 (DS, US, G, Minn, Mo); Salmon Summit, Siskiyou County, Kildale 5374 (DS). OREGON: Near Siskiyou, Jackson County, Sherwood 602 (Will); west of Waldo, Josephine County, Peck 8267 (Will).

This form is transitional toward subsp. *pumila*, and some of the plants of the Chandler collection approach that subspecies in their relatively tall stems and more numerous heads.

Related to apm. *Jepsonii*.—CALIFORNIA: Dorleska, Trinity County, Hall 8597 ($2n = 77$ or 88 ?), part (DS); near summit of ridge south of Milford, Lassen County, alt. 1700 m, S. & J. 2230 (UC).

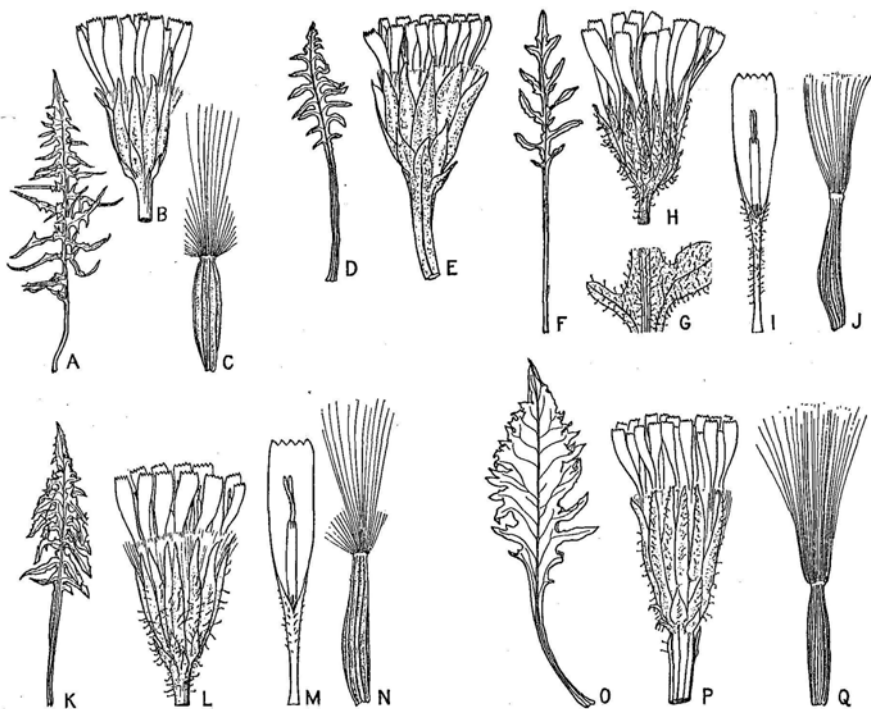


FIG. 22. *a-e*, *Crepis occidentalis* subsp. *conjuncta*. *a-c*, apm. *pluriflora*—*a*, *b*, from B. 154; *c*, from Geis 33: *a*, leaf, $\times \frac{1}{4}$; *b*, involucre, $\times 1$; *c*, achene, $\times 2$. *d*, *e*, apm. *crassa*, from St. John and Smith 8372: *d*, leaf, $\times \frac{1}{4}$; *e*, involucre, $\times 1$.

f-g, *Crepis Bakeri*. *f-j*, subsp. *Cusickii*, diploid form, from Smith 699: *f*, leaf, $\times \frac{1}{4}$; *g*, detail of surface, $\times 1$; *h*, involucre, $\times 1$; *i*, corolla, $\times 2$; *j*, achene, $\times 2$. *k-n*, subsp. *typica*, from Kennedy 1634: *k*, leaf, $\times \frac{1}{4}$; *l*, involucre, $\times 1$; *m*, corolla, $\times 2$; *n*, achene, $\times 2$. *o-q*, subsp. *idahoensis*, from type: *o*, leaf, $\times \frac{1}{4}$; *p*, involucre, $\times 1$; *q*, achene, $\times 2$.

27. apm. *crassa* (*occidentalis-Bakeri-pleurocarpa*) (fig. 22*d, e*).—Similar to apm. *multiflora*; stems 0.7–1 dm high; leaves thick, the lobes obtuse; peduncles somewhat swollen at the apex; involucre 14–18 mm high, the bracts dark lead color; outer bracts elliptic, acute, the longest 7–8 mm long; inner bracts 8–10 or 12, elliptic-lanceolate, the broadest 3.5–4 mm broad; florets 12–20 per head; achenes 8–8.5 mm long; pappus 9.5–10 mm; ($2n = 77$ or 88 ?) (see p. 43). WASHINGTON: Stayawhile

Springs, Columbia County, alt. 1670 m, *St. John & Smith 8372* (UC, WSC); Blue Mtns., Asotin County, *Jones 1926* (WSC).

Near apm. *crassa*.—CALIFORNIA: Goose Valley, Shasta County, *Eastwood 769* (CA).

This apomict is near apm. *pluriflora*, but has certain distinctive characteristics. Some, such as the thickness of the leaves and the stoutness of the stems and peduncles, are due to its high polyploid condition, but others, such as the shape of the leaves and involueral bracts, the swollen peduncles, and the apparent presence of reddish pigment, are strongly suggestive of *C. Bakeri*. This fact, along with its close resemblance to California forms of the subspecies, is strong evidence that this outlier of subspecies *conjuncta* is derived from the Klamath region (see p. 000).

13. *Crepis Bakeri* Greene, *Erythea* 3:73, 1895 (Fig. 22f-g)

Plant perennial, 8–30 cm high, with 1–3 stout stems from each caudex, divaricately branching from near the base, glabrate or glandular-hispid; leaves green, sparingly tomentulose, covered with short, glandular trichomes, mostly deeply pinnatifid with obtuse or acute, lanceolate or narrowly elliptic coarsely dentate segments, the midrib conspicuously reddish in living specimens; heads 1–22 in an inflorescence, on stout peduncles which are expanded toward the apex; involucre 11–20 mm high, the bracts numerous, dark green, lightly tomentulose and conspicuously glandular-hispid; outer bracts lanceolate or deltoid, acute or acuminate, the longest generally $1/2$ – $2/3$ the length of the inner; inner bracts 10–14, acuminate or somewhat attenuate at the apex; slightly or not at all thickened at maturity; florets 11–40 or more; corollas, anthers, and style branches as in *C. occidentalis*; achenes chocolate brown or paler, sometimes yellowish, 5–10 mm long, 1.2–1.8 mm thick, the apex more or less contracted or subrostrate, costæ medium or strong; pappus setæ 7.5–13 mm long.

Central Washington and eastern Idaho locally south through central Oregon to northern California (see fig. 23).

This species is, on the basis of its achenes, closest to *C. occidentalis*, but it differs not only in its green, sparingly tomentulose leaves with conspicuous reddish midribs, but also in its fewer-headed inflorescence, broader involucre, and in particular the swollen apices of the peduncles and the lack of thickening of the mature involueral bracts. In leaf shape, the character of its inflorescence, and the shape of its involucre it suggests *C. modocensis*, while in its glandular-hispid indumentum and the swollen apices of its peduncles it approaches *C. monticola*. Its ecological requirements are intermediate between those of *C. monticola* and *C. modocensis*. Like them it is distinctly a montane species, as opposed to *C. occidentalis*, which occurs more often on the lower slopes and valley terraces. It is found in more arid, less heavily wooded areas than is *C. monticola*, but usually not in as exposed situations as *C. modocensis*, although it often grows together with the latter in the region about Sierra Valley and southwest of Honey Lake.