

taxa. These taxa have defined distribution patterns and characteristic habitat preferences, which allow them to persist as separate populations in this limited geographic region.

Microseris laciniata (Hook.) Sch. Bip. subsp. **siskiyouensis** K.L. Chambers, subsp. nov. (Figs. 1, 2, 3). TYPE: U.S.A. CALIFORNIA. DEL NORTE CO.: Hwy. 199, 5.0 mi by road up the Smith R. from Patricks Ck. Guard Station, on a rocky diabase knob overlooking the river, in shallow soil covered by mosses, lichens, and *Selaginella* sp., with *Melica harfordii*, *Luina hypoleuca*, *Sedum* sp., 10 Jul 1964, K.L. Chambers 2242 (HOLOTYPE: OSC; ISOTYPES: MO, NY, UC).

Microseride laciniato subsp. *leptosepalo* (Nutt.) K.L. Chambers similis a qua segmentis pappi numero 10-24 varians setis minute barbellatis differt; chromosomatum numerus $2n = 18$.

Perennial herbs with 1-3 fleshy biennial taproots; stems to 65 cm high, well-branched above, except on depauperate plants, leafy, the floral peduncles arising terminally and from leaf axils; leaves linear or narrowly lanceolate, attenuate, sometimes sparsely toothed or pinnatifid with narrow lobes; involucre 10-17 mm high, with a series of lanceolate inner phyllaries and a variable number of shorter outer ones ranging from linear to lanceolate-attenuate or deltoid-attenuate (Fig. 1B shows the narrowest type of outer phyllaries), both outer and inner series usually densely furfuraceous (that is, covered with the minute scaly trichomes that are a generic feature of *Microseris*), inner phyllaries usually lightly black-villous dorsally and minutely white-strigulose ventrally; florets 13-48+ in number, with yellow ligules 15-22 mm long; cypselae pale to dark brown, 3.5-5.5 mm long, 10-ribbed, the ribs usually smooth or lightly scabrous, often lightly hispid near the apex on outer fruits; pappi scales 10-24, 0.5-2.0 mm long, lanceolate to linear-lanceolate, white or brownish, bristles minutely barbellate, white.

In the region under discussion, subsp. *leptosepala* and subsp. *siskiyouensis* are practically indistinguishable in habit. Therefore, Figure 1 can represent either taxon. Cypselae and pappi are illustrated in Figure 2, with enlargements of the pappi to show the bristle differences from the scabrous-awned subsp. *leptosepala*, left, and the plumose-awned species *Microseris nutans* (Hook.) Sch. Bip. on the right. The bristle difference with subsp. *leptosepala* breaks down where the taxa are sympatric in western Curry Co., Oregon and Del Norte Co., California. Here both subspecies have barbellate bristles, and they are distinguished only by pappi number—5-10 per cypselae in subsp. *leptosepala*, 10-24 per cypselae in subsp. *siskiyouensis*.

Distribution.—*Microseris laciniata* subsp. *siskiyouensis* is limited to the Siskiyou Mountains in Del Norte and Siskiyou counties, California and Josephine and Jackson counties, Oregon. The most common habitat is in grassy openings of second growth woodlands, in non-serpentine soil or well-developed forest soil over serpentine bedrock. It also occurs on non-serpentine rock outcrops, as at the type locality. Frequently associated woodland species are *Pseudotsuga*

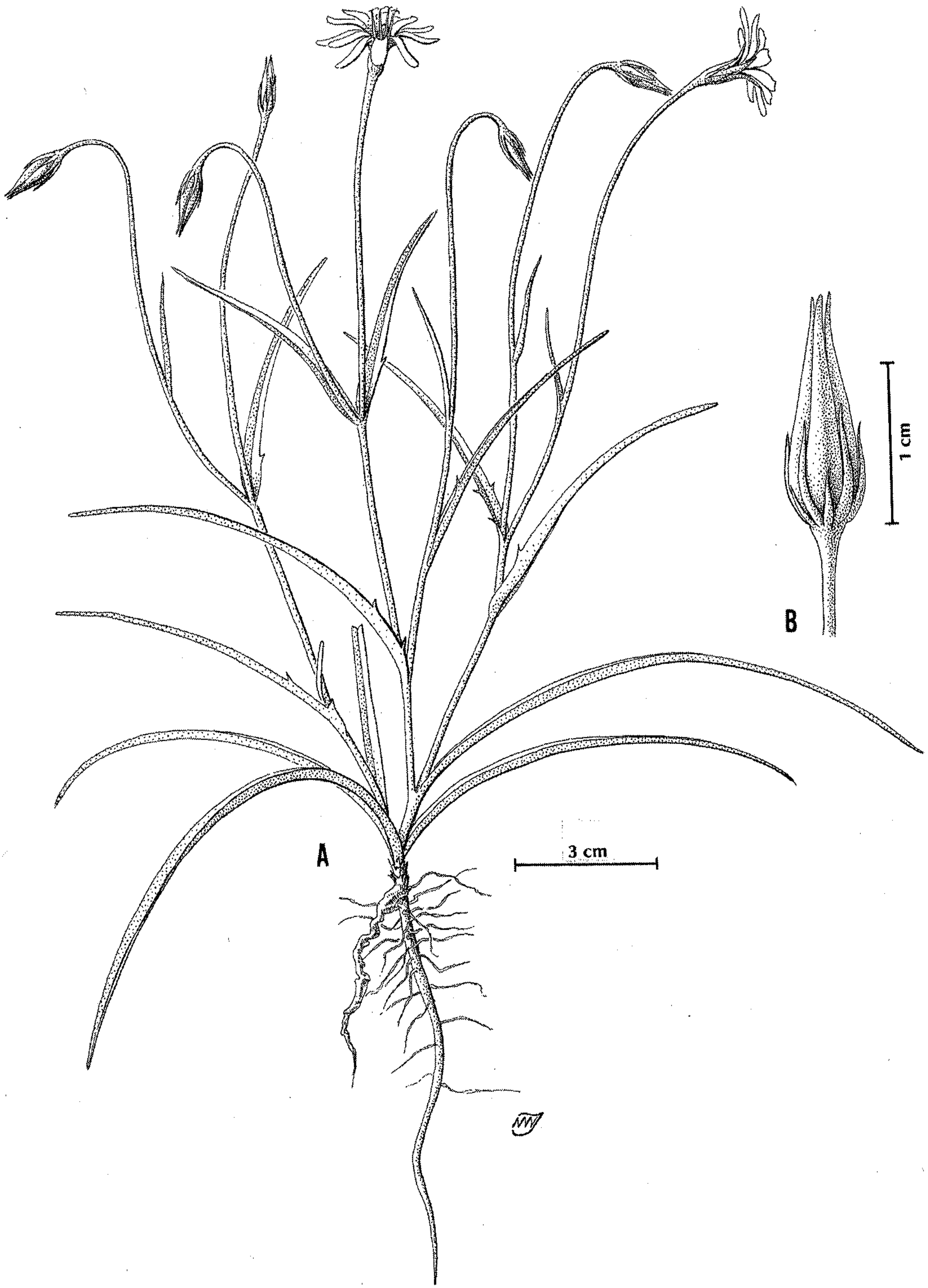


FIG. 1. *Microseris laciniata* subsp. *siskiyouensis*. A. Habit of plant at anthesis. B. Head with developing fruits.

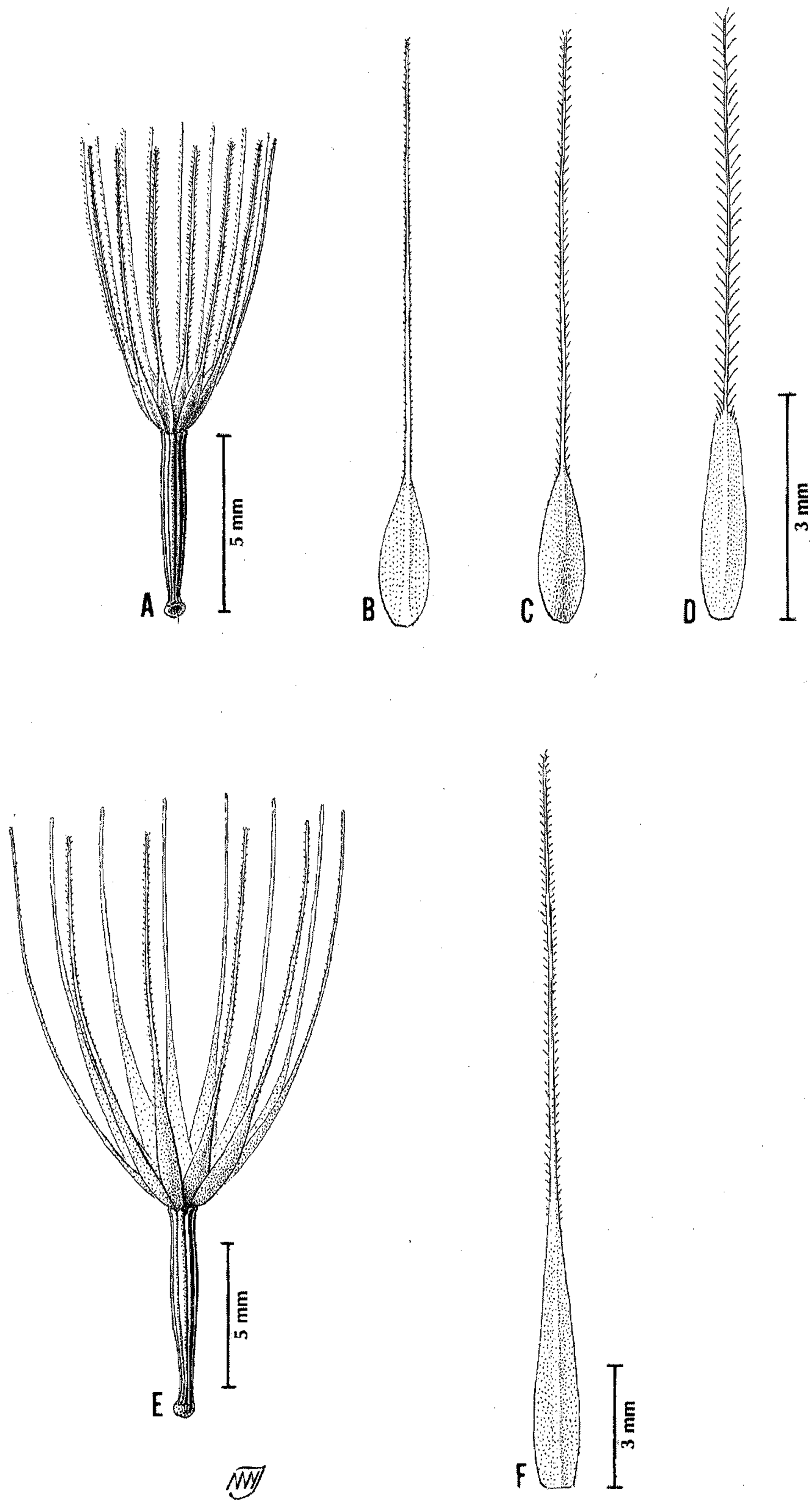


FIG. 2. Cypselae and pappi of various *Microseris* taxa. A. Cypsel of *M. laciniata* subsp. *siskiyouensis* bearing 15 pappus parts. B. Pappus part of *M. laciniata* subsp. *laciniata* or subsp. *leptosepala*, with scabrous bristle. C. Pappus part of *M. laciniata* subsp. *siskiyouensis*, with minutely barbellate bristle. D. Pappus part of *M. nutans*, with plumose bristle. E. Cypsel of *M. laciniata* subsp. *detlingii* bearing 12 pappus parts. F. Pappus part of *M. laciniata* subsp. *detlingii*, with minutely barbellate bristle.

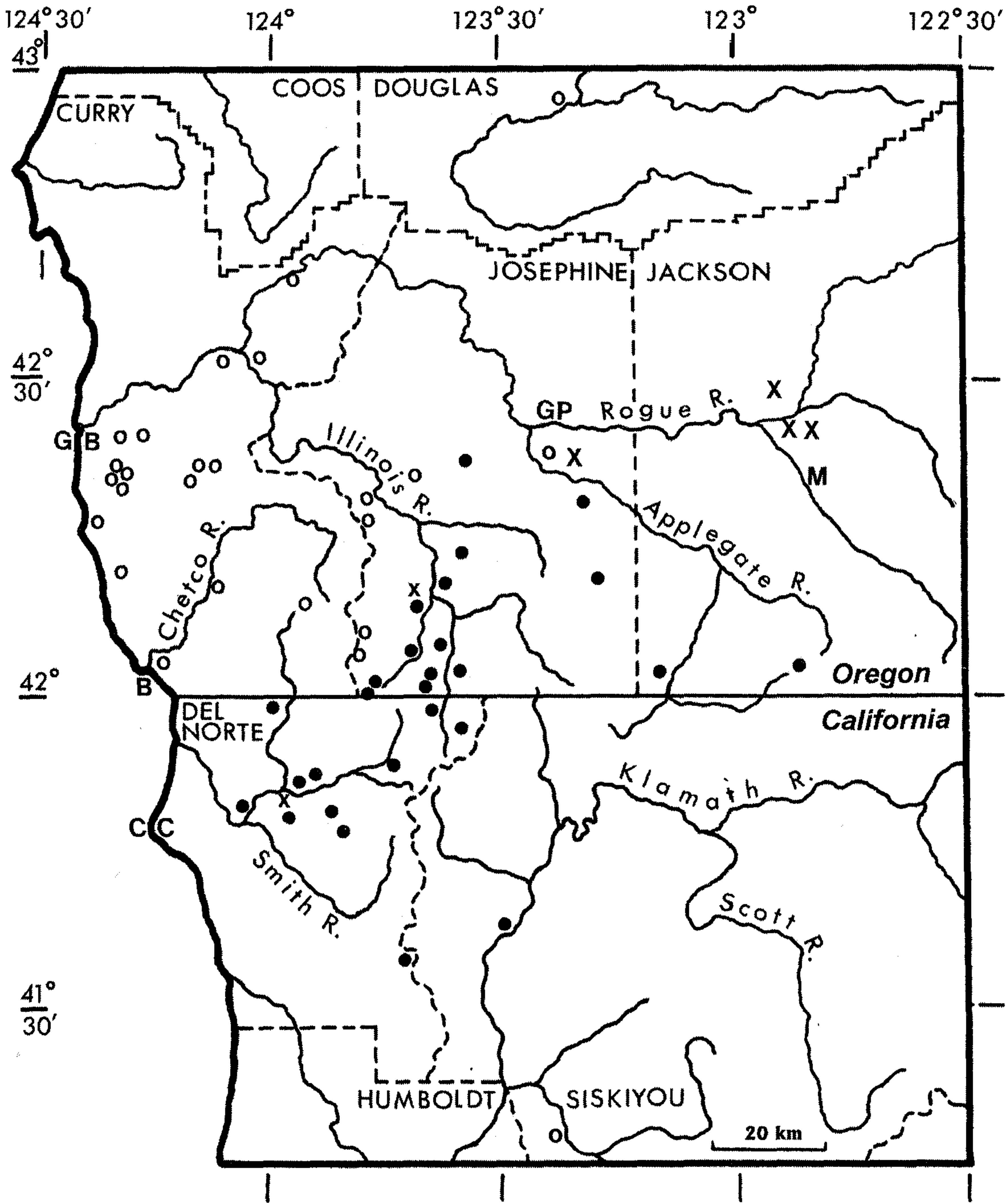


FIG. 3. Distribution of *Microseris* taxa in the western Siskiyou Mountains. Black circles = *M. laciniata* subsp. *siskiyouensis*; open circles = *M. laciniata* subsp. *leptosepala*; small Xs = intergradent populations between these two taxa; large Xs = *M. laciniata* subsp. *laciniata*. Cities: B = Brookings; CC = Crescent City; GB = Gold Beach; GP = Grants Pass; M = Medford. *Microseris howellii* is omitted.

menziesii, *Pinus lambertiana*, *P. jeffreyi*, *Calocedrus decurrens*, *Quercus garryana*, *Q. kelloggii*, *Arbutus menziesii*, *Arctostaphylos canescens*, *Rhododendron macrophyllum*, and *Ceanothus integerrimus*. Elevations are 30–2100 m.

Flowering.—May–Jul, depending on habitat and elevation.

Figure 3 maps the known populations of subsp. *siskiyouensis*, represented by black circles, while the known localities for subsp. *leptosepala* in the Siskiyou are shown as open circles. The pattern of parapatry and the region of contact in western Josephine County are evident. Two sites have been identified, marked by small Xs, where intermediate populations are known, containing many plants with 10 or fewer pappus parts and others with average pappi numbers in the range of subsp. *siskiyouensis*. One such population, at Gasquet Flat, Del Norte County (see *Chambers* 5168, below) was well sampled by Mauthe et al. (1982), who reported the average numbers of pappi in a sample of 149 plants. The frequencies of plant averages, grouped by whole numbers, are as follows: 9–10: 56; 10.1–11: 55; 11.1–12: 15; 12.1–13: 8; 13.1–14: 8; 14.1–15: 6; 15.1–16: 1. Although the genetics of pappi numbers are not known, one can speculate that this is a population of subsp. *leptosepala* showing a history of hybridization with subsp. *siskiyouensis*. The second site with an intermediate population, West Side Road in Josephine County (*Chambers* 5522, below), though not as well sampled, shows a similar range of pappi numbers between the two subspecies. For comparison, select plants in 10 populations of subsp. *siskiyouensis* more remote from subsp. *leptosepala* had the following average pappi numbers: 13.2, 15.0, 15.2, 15.5, 15.6, 16.8, 17.0, 17.3, 17.6, and 20.3. The large Xs in Figure 3 mark populations assignable to subsp. *laciniata*; these are discussed below under subsp. *detlingii*.

Collections of *Microseris laciniata* subsp. *siskiyouensis* mapped in Figure 3. **U.S.A. CALIFORNIA. Del Norte Co.:** Old Gasquet Toll Road by Middle Fork of Smith R., 1 Jun 1935, *Tracy* 11223 (UC); State Line N of Monumental, 13 Jun 1936, *Tracy* 15220 (UC); French Hill, 2 mi S of Gasquet, 20 Jun 1942, *Tracy* 17191 (UC); intersection of Hayne's Flat Road, Coon Mtn., 27 Jun 1950, *Tracy* 18991 (UC); head of Blue Ck. 1 mi E of Chimney Rock, 19 Jul 1950, *Tracy* 19136 (UC); Smith R. on Hwy. 199, 9.7 mi NE of Hwy. 101, 5 Jul 1961, *Breedlove* 680 (DS); Pine Flat, 26 Jun 1938, *VanDeventer* 237 (JEPS); Old Gasquet Toll Road near Eighteenmile Ck., 26 Jun 1938, *VanDeventer* 167 (JEPS); Gordon Mtn. N of Big Flat, 24 Jun 1952, *Munz* 17729 (NY); Crazy Peak area on Road 49906-053, 1 Jun 1997, *Paetzel & Bell* s.n. (OSC); Rd. 40S03 S of Waldo, Six Rivers Natl. For. 1 mi S of border of Siskiyou Natl. Forest, 30 Jun 1973, *Denton* 2916 (OSC, WTU); Old Gasquet Toll Road 2.7 mi up from Smith R. bridge at Gasquet, 11 Jul 1964, *Chambers* 2246 (OSC); Old Gasquet Toll Road 4.7 mi up from Smith R. bridge at Gasquet, 11 Jul 1964, *Chambers* 2247 (OSC). **Siskiyou Co.:** Klamath R. 2 mi N of Swillup Ck. Ranger Station, 1 Jun 1942, *Stebbins & Beetle* 3273 (UC). **OREGON. Jackson Co.:** Collins Mtn. near Steamboat, 13 Jul 1950, *Whittaker* 184 (WS); summit slopes of Big Red Mtn., 15 Jul 1950, *Whittaker* s.n. (WS). **Josephine Co.:** Old Gasquet-O'Brien Toll Road 10.1 mi NE of Patrick Ck. Road, 8 Jun 1962, *Breedlove* 3193 (DS); northern city limits of Cave Junction, 9 Jun 1962, *Breedlove* 3241 (DS); Waldo Junction, 18 May 1930, *Kildale & Kildale* 9643 (DS); Takilma, 24 Jun 1918, *Peck* 7955 (GH, WILLU); Murphy Ck. near Murphy, 12 Jul 1950, *Whittaker* 155, 159 (WS); Illinois R. Valley SW of Cave Junction, to E of West Side Rd., 11 May 1989, *Brock* 242 (OSC); valley of East Fork of Illinois R. by French Flat, 1 Jun 1988, *Kagan* 6018801 (OSC); Illinois R. Valley, West Side Road S of Cave Junction, 4 Jun 1991, *Chambers* 5609 (OSC); Illinois R. Valley, Rockydale Rd. 2.0 mi N of Waldo Rd. E of O'Brien, 15 Jun 1998, *Chambers* 6113 (OSC); Waldo

Hill Lookout Rd. 1.6 mi S of Waldo, 15 Jun 1998, *Chambers* 6123 (OSC); junction of Waldo Hill spur road with road to Sanger Pk., 3 Jul 1965, *Chambers* 2364 (OSC).

Collections of *Microseris laciniata* subsp. *leptosepala* mapped in Figure 3. **U.S.A. CALIFORNIA. Del Norte Co.:** Gasquet Flat, alluvial flat in mixed evergreen woodland by the Smith R., T17N, R2E, S20, 24 Jun 1984, *Chambers* 5168 (OSC). **OREGON. Curry Co.:** 10 mi N of Carpenterville, 7 Jul 1939, *Peck* 20450 (WILLU); Brookings, 11 Jul 1919, *Peck* 8790 (WILLU); Rogue River 5 mi below Mule Ck., 21 Jun 1917, *Peck* 3502 (WILLU); Snow Camp Meadows, 3 Jul 1929, *Leach* 2244 (ORE); Mine Cabin, Collier Trail, 28 Jun 1929, *Leach* 2277 (ORE); near Agness, 25 Jun 1933, *Leach* 4428 (ORE); Waldeens, 29 Jun 1934, *Leach* 4700 (ORE); Pyramid Rock, 30 Jun 1934, *Leach* 4701 (ORE); Vulcan Peak, T39S, R11W, S15, 23 Jun 1980, *Hess* s.n. (OSC); Agness road, 2 mi W of Illinois R. junction with Rogue R., 18 Jun 1984, *Stansell* s.n. (OSC); Signal Buttes E of Gold Beach, 23 Jun 1982, *Stansell* s.n. (OSC); Pine Point Forest Camp, T37S, R13W, S18, 27 Jun 1974, *Hawk* s.n. (OSC); above Wren Cabin, T37S, R14W, S12, 28 Jun 1993, *Rittenhouse* 1480 (OSC); 10 km S of Gold Beach, T37S, R14W, S24, 16 Jun 1980, *Sundberg* 1098 (OSC); Fairview Meadow, T37S, R12W, S18, 11 Jul 1981, *Chambers* 4872 (OSC); Gold Beach to Agness road 1.6 mi W of Illinois R. bridge, 23 Jun 1984, *Chambers* 5162 (OSC). **Josephine Co.:** Eagle Gap, 11 mi W of Selma, 23 Jun 1930, *Leach* 2897 (ORE, WILLU); 7 mi W of O'Brien, T40S, R10W, S26, 14 Jun 1990, *Kagan* s.n. (OSC); Illinois R. road, T37S, R9W, S32, 31 May 1988, *Kagan* 5318801 (OSC); Illinois R. valley W of Selma, T37S, R9W, S23, 19 Jun 1969, *White/Lillico* 266 (OSC); old road to Buckskin Pk., T40S, R10W, S24, 11 Jul 1989, *Rolle* 256 (OSC); Bolt Mtn. 9 mi SW of Grants Pass near Applegate R., 9 Jul 1996, *Mazzu* s.n. (OSC).

***Microseris laciniata* (Hook.) Sch. Bip. subsp. *detlingii* K.L. Chambers, subsp. nov.** (**Figs. 2, 4, 5**). TYPE: U.S.A. OREGON. JACKSON CO.: Siskiyou Pass, S side on the old highway where it joins Hwy. 5, 2.1 mi N of Hilt exit, grassy openings in *Quercus breweri*/*Amelanchier pallida* brushland, in heavy clay soil on slope above road, 22 Jun 1967, K.L. *Chambers* 2868 (HOLOTYPE: OSC; ISOTYPES: BRIT-SMU, CAS, MO, NY, RSA, UC, US, WS, WTU).

Microseride laciniato subsp. *laciniato* similis a qua marginibus foliorum plerumque integris caule non ramoso radice longissimo segmentis pappi numeris 9–19 varians squamis 4–9 mm setis minute barbellatis differt; chromosomatum numerus $2n = 18$.

Perennial herbs with 1–2 much elongated fleshy biennial taproots; *stem* erect, to 55 cm high, usually simple, leafy near the base; *leaves* lanceolate or oblanceolate, acute to attenuate, tapering below to a clasping, winged petiole, glabrous, entire or rarely sparingly dentate or pinnatifid, margins often undulate; *head* single on a terminal, naked or bracteate peduncle, a second peduncle sometimes arising from the axil of a lower leaf; *involucres* 13–25 mm high, the inner series of phyllaries equal, lanceolate, often black-villous dorsally, the outer phyllaries imbricate in several series, broadly lanceolate to elliptic or round, cuspidate to acuminate, glabrous, sometimes purple-spotted, the outermost 3–7 mm wide; *florets* 18–85+, with yellow ligules 18–22 mm long, often purple-striped dorsally; *cypselsae* 5–9 mm long, gray to brown, 10-ribbed, ribs smooth or hispid on outer fruits; *pappi* scales 9–19, 4–9 mm long, lanceolate, silvery (brownish on herbarium specimens), bristles minutely barbellate.

Distribution.—*Microseris laciniata* subsp. *detlingii* is endemic to a limited area east and south of Medford and Ashland, Jackson County, Oregon, extending north to near Butte Falls and south over Siskiyou Pass to the California state