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## The Genus *Saussurea* (Asteraceae—Cynareae) in Montana

### Abstract

Previously only a single species of *Saussurea* had been reported from Montana. Recently two additional species were discovered, requiring a reappraisal of the status of the genus in the state. In this report, taxonomic treatment and distribution data for the Montana taxa are presented.

### Introduction

*Saussurea* is a circumpolar genus of more than 100 arctic and alpine species. The center of distribution of the genus is in Eurasia, but approximately five of the species are distributed in North America. Three taxa are distributed in the conterminous United States. While most investigators have listed none for Montana (Rydberg, 1900; Standley, 1921; Booth and Wright, 1959), Hitchcock *et al.* (1969), and Hitchcock and Cronquist (1973) have reported one species, *S. americana* D. C. Eaton, for the state. The junior author, however, has recently discovered two additional species, *S. densa* (Hook.) Rydb. and *S. weberi* Hultén, here. The purpose of this report is to provide an account of the genus as it is now known from Montana.

### Taxonomy and Distribution

*Saussurea* DC.

Perennial herbs with erect stems and watery sap; leaves alternate, cauline, margins entire or dentate to pinnatifid; heads discoid, arranged in dense, corymbose or capitate clusters at the stem apex; flowers perfect, regular, violet-purple, blue, or rarely white; receptacle flat or convex, naked or bristly; phyllaries in 3 or more series, tightly to loosely imbricated; styles with a ring of hairs beneath the stigmatic branches; anthers caudate; achenes somewhat compressed, striate; pappus in two series, the outer of short, barbellate bristles, the inner of longer, plumose bristles, the inner bristles deciduous as a unit.

### Key to the Species

1. Stems 3 to 12 dm long; leaves broad, ovate to cordate, margins sharply and evenly toothed ..... *S. americana*
1. Stems 0.5 to 2 dm long; leaves narrow, elliptic to lanceolate, margins entire or irregularly toothed
  2. Outer phyllaries scarcely imbricated, narrow, lanceolate, with acuminate to attenuate apices ..... *S. densa*
  2. Outer phyllaries well imbricated, broad, ovate, with obtuse apices ..... *S. weberi*

*Saussurea americana* D. C. Eaton, Bot. Gaz. 6:283. 1881.

*Theodorea americana* Kuntze, Rev. Gen. 1:368. 1891.

*S. alpina* var. *cordata* Kurtz., Engl. Bot. Jahrb. 19:354. 1894.

Large perennial herbs with stems 3 to 12 dm long; herbage arachnoid-tomentose becoming glabrate; leaves petiolate to sessile, ovate to cordate, lower leaves 9 to 20 cm long, 4 to 7 cm wide, gradually reduced upwards, margins dentate with well developed, evenly spaced teeth; outer phyllaries broad, ovate, arachnoid-tomentose, apices acute to acuminate; florets purple, rarely white; flowering in August and September.

Distribution: *Saussurea americana* is the most common member of the genus in Montana. The plants are found in the more western mountain ranges of the state (see Fig. 1) at 1600 m to 2400 m elevation. The taxon occurs in moist calcareous or granitic soils in subalpine meadows, on slopes with northern or eastern exposure, and along stream banks. The species grows under full or partial insolation in a diverse flora including (among many others) *Senecio triangularis*, *Delphinium occidentale*, and *Osmorhiza occidentalis*.

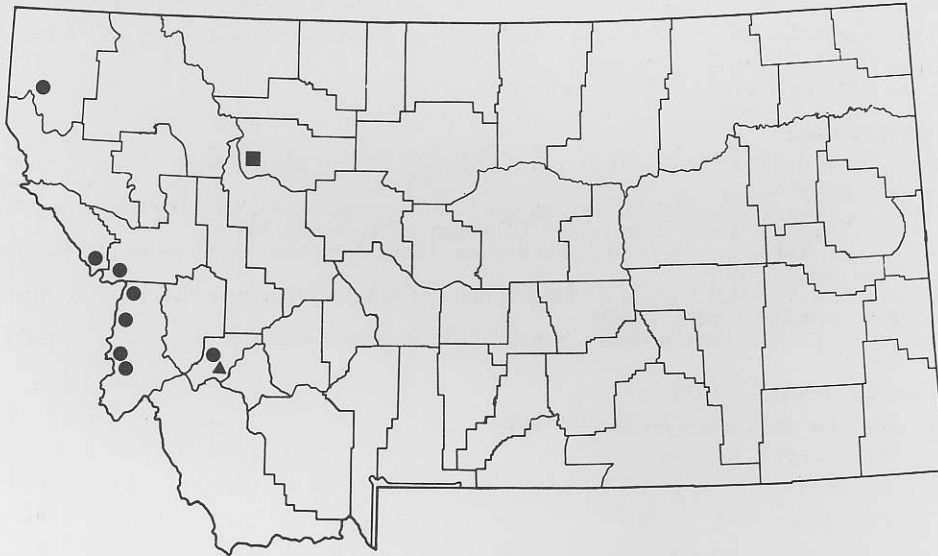


Figure 1. Distribution of *S. americana* (circles), *S. densa* (triangle), and *S. weberi* (square) in Montana.

*Saussurea densa* (Hook.) Rydb., Bull. Torrey Bot. Club 37:541. 1910.

*S. alpina* var. *densa* Hook., Fl. Bor.-Am. 1:303. 1834.

*S. nuda* var. *densa* Hultén, Fl. Alaska and Yukon 10:1627. 1950.

Dwarf perennial herbs with stems 0.5 to 1.5 dm long; herbage glabrate to arachnoid-villose; leaves petiolate to sessile, narrowly elliptic to lanceolate, lower leaves 4 to 12 cm long, 1 to 2 cm wide, gradually reduced upward, margins entire or with irregularly spaced teeth; outer phyllaries narrow, lanceolate, arachnoid-villose, apices attenuate to acuminate; florets purple; flowering in July and August.

Distribution: *Saussurea densa* is known only from one locality in the Lewis and Clark National Forest in Teton County (see Fig. 1). Here the taxon occurs at 2450 m on steep, well drained, northwestern slopes under full insolation. The plants grow scattered in small, calcareous soil pockets in talus rockslides with *Claytonia megarhiza*, *Androsace lehmanniana*, *Saxifraga oppositifolia*, *Stellaria americana*, and *Mertensia viridis*.

*Saussurea weberi* Hultén, Sv. Bot. Tidskr. 53:202. 1959.

Dwarf perennial herbs with stems 0.8 to 2 dm long; herbage arachnoid-floccose; leaves petiolate to sessile, elliptic to lanceolate, lower leaves 3 to 8 cm long, 0.8 to 2 cm wide, gradually reduced upward, margins entire or with a few poorly developed teeth; outer phyllaries broad, ovate, villous, apices obtuse; florets purple; flowering in July and August.

Distribution: *Saussurea weberi* is known in Montana only from Mount Tiny and adjacent Goat Flats of the Anaconda-Pintlar Mountains in Deerlodge County (See Fig. 1). The only other populations of this species are in central Colorado. In Montana, the taxon occurs at 2850 m in moderately dry alpine meadows and adjacent slopes of northwestern exposure. It grows in well developed, calcareous soils derived from the Newland Limestone formation under full insolation. The species is associated with *Poa alpina*, *Carex scirpoidea* var. *pseudoscirpoidea*, *Agropyron caninum* var. *latiglume*, and *Senecio lugens*.

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