

A New *Agoseris* (Asteraceae) from Idaho and Montana

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ABSTRACT. A new species, *Agoseris lackschewitzii*, is described and illustrated. Morphologically it is similar to both *A. aurantiaca* and *A. glauca* but differs notably from both in having pink flowers. It further differs from *A. aurantiaca* in characters of the fruit and outer phyllaries, and from *A. glauca* in characters of the anthers and outer phyllaries. Additionally, *A. lackschewitzii* is restricted to perennially wet montane meadows of southwestern Montana and adjacent Idaho, habitats where other species of this genus are not encountered within this region.

During fieldwork toward a flora of eastcentral Idaho, the first author encountered an unusual *Agoseris* in the central Lemhi Range of Lemhi County, Idaho. Similar plants had also been collected recently in the mountains of western Montana (Klaus Lackschewitz, pers. comm.). Comparisons with herbarium material and descriptions of other species in this genus (Jones 1954; Hitchcock and Cronquist 1973; Hitchcock et al. 1955) suggest strongly that these plants represent a previously overlooked species.

Agoseris lackschewitzii D. Henderson & R. Moseley, sp. nov. (fig. 1).—TYPE: United States, Idaho, Lemhi Co., wet streamside meadow in upper Mill Creek basin, 200 m below uppermost lake, Lemhi Range, T15N, R24E, S7, ca. 15 mi (25 km) E of Leadore, 9400 ft (2866 m), with *Deschampsia cespitosa*, *Polygonum bistortoides*, *Pedicularis groenlandica*, *Senecio triangularis*, 25 Aug 1984, Moseley 556 (holotype: ID; isotypes: to be distributed).

Differt ab *Agoseris aurantiaca* (Hook.) E. Greene floribus roseis et acheniis gradatim angustatus in rostrum brevius corpore. Differt ab *Agoseris glauca* (Pursh) Raf. var. *dasycephala* (Torrey & A.

Gray) Jepson floribus roseis et antheris tubis 1.2–1.8 mm longis et ligulis 5.0–10.0 mm longis.

Plants perennial herbs with simple or branched caudex and a slender taproot, producing a basal rosette and 1–3 scapes. Leaves thin, oblanceolate, (4)6–20(27) cm long, 0.7–2.2(3.1) cm wide; blade margins entire to rarely distantly toothed, both surfaces glabrous, the apex acute, slightly revolute, with a purple mucro, the base attenuate; petiole broadly to narrowly winged, $\frac{1}{3}$ to $\frac{1}{2}$ the length of the leaf, sheathing at the base, the margins villous with spreading multicellular hairs with clear cross-walls. Scape 6–49 cm high, villous at base, becoming tomentose below the solitary head. Involucre campanulate, remaining so in fruit, 1.1–1.9 cm long in flower, up to 2.5 cm long in fruit; phyllaries mostly imbricate in 3–4 series, light green with a dark purple median stripe and light to heavy purple mottling, the inner lanceolate, acute, with white scarious margins, the outer similar or slightly broader and obtuse, densely villous basally, less so towards apex, the trichomes eglandular, translucent or occasionally with some purple pigment. Receptacle slightly convex, up to 7 mm broad, chaffy, foveolate. Flowers all ligulate, perfect, 50–70 per head, pink at anthesis, drying to deep pink; ligules 5–10 mm long, 1.5 mm wide, 5-toothed,

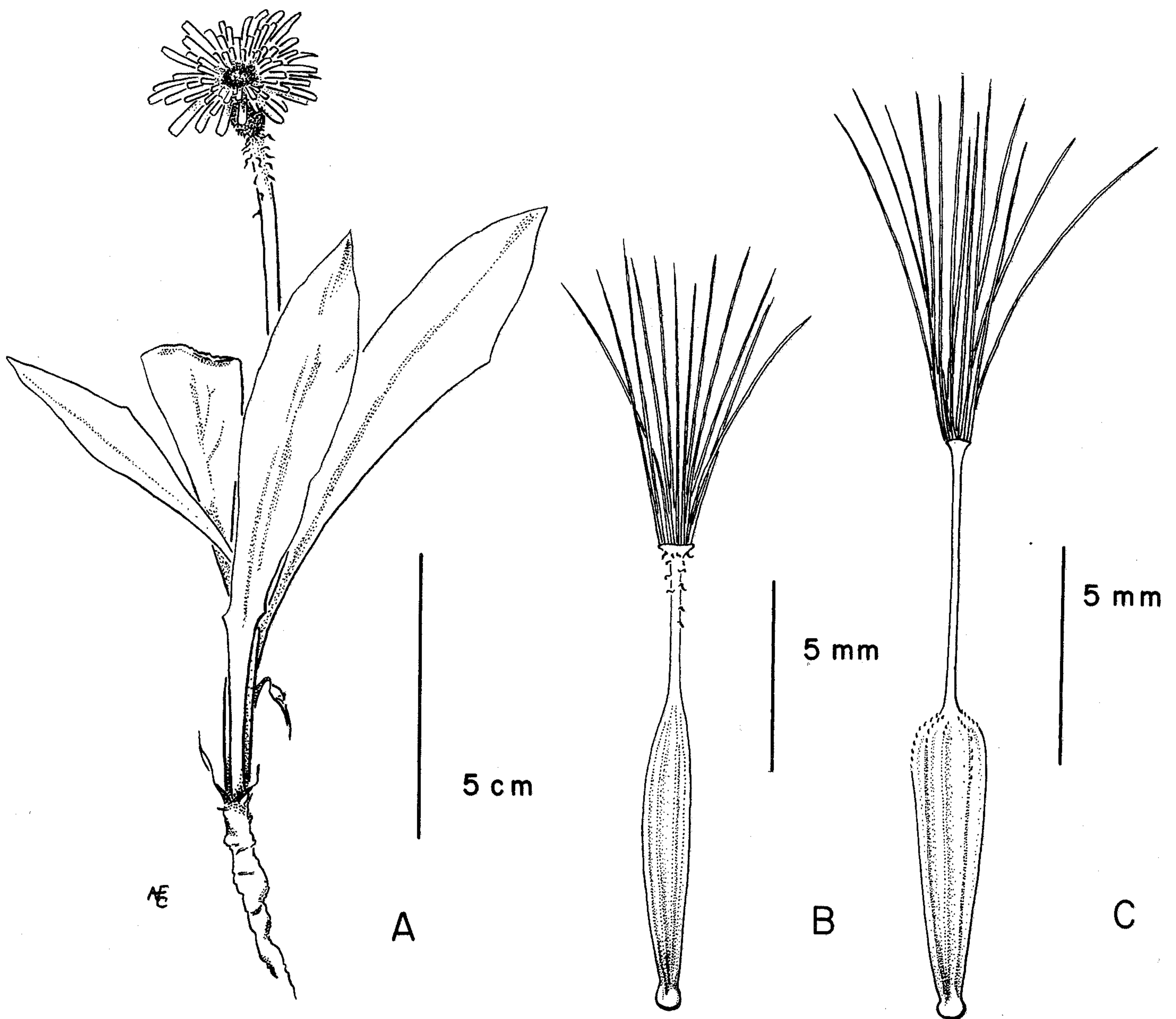


FIG. 1. A, B. *Agoseris lackschewitzii*. A. Habit. B. Achene (from holotype). C. *A. aurantiaca*, achene.

glabrous distally, pubescent proximally with few, multicellular hairs; tube 6.5 mm long; anthers 1.2–1.8 mm long, the apical appendages lanceolate, 0.2–0.3 mm long; style column 8–9 mm long, purple, scabrous; style branches 0.4–0.8 mm long, stigmatic for entire length, the abaxial surface scabrous, the apex rounded. Achenes terete, the body 6–8 mm long, 10-ribbed, minutely scabrous on the ribs, glabrous to sparsely pubescent with short unicellular hairs between the ribs, gradually tapering to a slender, obscurely nerved or nerveless beak shorter than the body, the beak 4.2–6.6 mm long. Pappus double; capillary bristles numerous, white, minutely scabrous, 6–12 mm long.

Additional specimens examined. U.S.A. **Idaho:** Fremont Co., Henry's Lake Mtns., wet meadow, head of Targhee Cr., 21 Jul 1986, *Moseley* 797 (ID); Lemhi Co.,

Lemhi Range, type locality, 30 Jul 1974, *Henderson* 2115 (ID, NY), wet meadow along Mill Cr., 7800', 21 Jul 1984, *Moseley* 409 (ID), 7900', 21 Jul 1984, *Moseley* 403 (ID), 8000', 21 Jul and 25 Aug 1984, *Moseley* 396, 558 (ID), Big Eightmile Cr., moist meadow, 8000', 13 Jul 1976, *Henderson* 3360 (ID), Middle Fk. Little Timber Cr., moist streamside above upper lake, 9300', 14 Jul 1981, *Brunsfeld* 1734 (IDF), moist meadow SW of Basin Lake, 9 Aug 1981, *Brunsfeld* 1801 (IDF), wet meadow, head of S tributary of Trail Cr., 8650', 12 Aug 1986, *Moseley* 973 (ID). **Montana:** Beaverhead Co., wet slope at headwaters of Jerry Cr., ca. 10 mi NNE of Wise River, 11 Jul 1973, *Stickney* 2955 (ID, MONTU); Deerlodge Co., Anaconda Range, moist meadow SW of Storm Lake, 19 Jul 1973, *Lackschewitz* 4547 (ID, MONTU), 29 Aug 1984, *Moseley* 582 (ID); Madison Co., Tobacco Root Mtns., N shore of Lily Lake, 7 Aug 1982, *Lackschewitz* 10191 (MONTU), moist meadow on SW shore of Lily Lake near inlet, 27 Aug 1984, *Moseley* 579 (ID), wet meadow on W shore of Hollowtop Lake, 28 Aug 1984, *Moseley* 581 (ID); Park Co., Crazy Mtns.;

moist meadow below N slope of Sunlight Mt., 31 Jul 1980, *Lackschewitz* 9421 (ID, MONTU).

Distribution. Apparently restricted to mountainous areas of southwestern Montana (Beaverhead, Deerlodge, Madison, and Park cos.) and adjacent Idaho (Fremont and Lemhi cos.).

Agoseris lackschewitzii inhabits mid-montane to subalpine meadows on a variety of substrates. Although soils derived from calcareous rocks abound in the region, and other species of *Agoseris* inhabit them, no collections of *A. lackschewitzii* are known from such substrates. Unlike other species of this genus, which occur on dry to moist but well-drained sites, *A. lackschewitzii* occurs only on perennially wet soils.

Jones (1954), in a discussion of variability within *Agoseris*, indicated that most species of the genus could be distinguished by a combination of morphological and ecological features; the more useful morphological characters tend to be qualitative rather than quantitative. Although this probably holds true throughout most of the range of *Agoseris*, Jones pointed out that these characters became less reliable for populations from southeastern Oregon north and east to eastern British Columbia and western Alberta. Since *A. lackschewitzii* lies within this region of morphological variability, it might be suggested that it is only part of the natural variability of local species, or that it merely represents hybridization between the orange-flowered *A. aurantiaca* and the yellow-flowered *A. glauca*, or between yellow and "pinkish" forms of *A. glauca*.

The flower color of *A. lackschewitzii*, however, is uniform—always pink at anthesis, neither yellow with pinkish tinges, nor burnt-orange. No color intergradations have been found with either *A. aurantiaca* or *A. glauca*, nor have "pinkish" forms of *A. glauca* been found within the region. [*A. glauca* may dry in such a manner that the veins of the corolla (and perhaps adjacent tissue as well) are pinkish, but seldom does the entire corolla dry pinkish.] Other morphological characters (depicted in the key) also help to distinguish this species. The discovery of widely separated populations of *A. lackschewitzii*, lacking the substantial variability present in close relatives in this region, further argues for the recognition of this entity as distinct.

Although the ranges of both *A. aurantiaca* (var. *aurantiaca*) and *A. glauca* (var. *dasycephala*) over-

lap with *A. lackschewitzii*, habitat preferences of the former two apparently exclude them from habitats supporting *A. lackschewitzii*, thus providing a strong degree of ecological isolation.

Even though recognition of *A. lackschewitzii* provides little to clarify the overall taxonomy of *Agoseris* within this region of apparent intergradation, neither does it add "clutter" to the complex. In a region where traditional taxonomic boundaries may be unclear for other species of this genus, *A. lackschewitzii* emerges remarkably distinct morphologically and ecologically.

The following key summarizes the distinctive features of *A. lackschewitzii* and provides comparisons with apparent close relatives. *Agoseris elata* (Nutt.) E. Greene, a species largely of the Sierra Nevada, is also included in the key because a few isolated populations are reported to have pinkish flowers [Jones (1954) described the flower color as "yellow or burnt-orange" but also cited *Sharsmith* 3816, which was said to have rays "coral pink."]

1. Beak of achene longer than the body; trichomes of outer phyllaries glandular; ligules 5–8 mm long, yellow or rarely burnt-orange or pinkish
..... *Agoseris elata*
1. Beak of achene shorter than the body (if longer than trichomes eglandular); trichomes of outer phyllaries glandular to glabrous; ligules 5–19.2 mm long, yellow, pink, or burnt-orange.
 2. Anther tubes 3.5–6.0 mm long; ligules 10.0–19.2 mm long, yellow at anthesis, occasionally drying pinkish or purplish but unevenly so; outer phyllaries generally villous with an abruptly acuminate apex and glandular trichomes; achene body tapering into a beak 1.0–3.0 mm long (occasionally beakless) ... *Agoseris glauca* var. *dasycephala*
 2. Anther tubes \leq 3.0 mm long; ligules 5.0–10.5 mm long, pink or burnt-orange; outer phyllary trichomes eglandular.
 3. Anther tubes 1.2–1.8 mm long; achene body tapering gradually into a beak 4.2–6.6 mm long ($\frac{1}{2}$ to $\frac{2}{3}$ as long as the body); outer phyllaries villous, the apex obtuse; ligules pink at anthesis
..... *Agoseris lackschewitzii*
 3. Anther tubes 1.5–3.0 mm long; achene body abruptly narrowed into a beak 5.2–10.5 mm long ($\frac{3}{4}$ to $1\frac{1}{4}$ as long as the body); outer phyllaries ciliate, the apex acute; ligules burnt-orange at anthesis
..... *Agoseris aurantiaca* var. *aurantiaca*

We are pleased to name this species for Klaus Lackschewitz of Missoula, Montana, who has made outstanding contributions to the knowledge of the montane vascular flora of western Montana.

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LITERATURE CITED

- HITCHCOCK, C. L. and A. CRONQUIST. 1973. *Flora of the Pacific Northwest*. Seattle: Univ. Washington Press.
- , ———, M. OWNBEY, and J. W. THOMPSON. 1955. *Vascular plants of the Pacific Northwest*, vol. V. Univ. Wash. Publ. Biol. vol. 17. Seattle.
- JONES, Q. 1954. Monograph of *Agoseris*, tribe Cichorieae. Ph.D. dissertation, Harvard University, Cambridge.